Bellcore
Bell Communications Research

BELLCORE PRACTICE
BR 752-101-901
ISSUE 13, NOVEMBER 1998
FOMS/FUSA RELEASE 4.0

FOMS/FUSA Functional Product Specifications

Requirements Specification

To obtain copies of this document, Regional Company/BCC personnel should contact their company's document coordinator; Bellcore personnel should call (732) 699-5802.

.

NOTICE OF DOCUMENTATION UPDATE

Project/Application: FOMS/FUSA
Title: FOMS/FUSA Functional Product Specifications

Reason for Issue/Revision

Update Type: Issue 13 of FOMS/FUSA Functional Product Specifications
MR Numbers: ZD-98177-01

AUTHORIZATION

Supervisor: RDN, November 1998
Originator: HW, November 1998
Project Approval: HRH, November 1998

Marks in Text Indicating Revision

1. The location of new or changed material is marked by a vertical black bar (|) in the outer margin next to the change.
2. When revisions are very minor and in no way affect the content (such as correction in spelling or punctuation), no indication of change is made.
3. Where the caption of a figure, exhibit, or table has been changed, or where information has changed within the body of a figure, exhibit, or table, a single vertical black bar (|) appears in the outer margin adjacent to the caption.

A total of 268 pages exist in this revision as follows:

Title
Copyright Page, ii
Documentation Update, iii
Disclaimer, iv
Table of Contents (v to x)
List of Figures (xi to xii)
List of Tables (xiii to xiv)
1-1 through 1-2
2-1 through 2-4
3-1 through 3-228
4-1 through 4-8
Appendix A A-1 through A-12

SWITCH is a registered trademark of Bellcore.

NOTICE OF DISCLAIMER

This document is issued by Bellcore to inform Bellcore Client Companies (BCCs) of Bellcore's Practice on the SWITCH System and the FOMS/FUSA/PLATFORM systems. Neither this document nor any of its contents should be disclosed to persons other than employees of those companies. To disclose the contents to others may seriously jeopardize Bellcore's ability to perform this type of work for its owners in the future.

The information provided is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations.

While the information contained herein has been prepared from sources deemed to be reliable, Bellcore reserves the right to revise the information without notice, but has no obligation to do so.

Unless the recipient has been expressly granted a license by Bellcore under separate applicable written agreement with Bellcore, no license, expressed or implied, is granted under any patents, copyrights, or other intellectual property rights. Use of the information is at the recipient's discretion and shall not be deemed an inducement by Bellcore to infringe any existing or later-issued patent, copyrights or other intellectual property right.

BELLCORE MAKES NO REPRESENTATION OR WARRANTY THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND MAKES NO REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. BELLCORE SHALL NOT BE LIABLE BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY BELLCORE FOR THE INFORMATION WITH RESPECT TO ANY CLAIM AND IN NO EVENT SHALL BELLCORE BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ANY AND ALL USE OF OR RELIANCE UPON SUCH INFORMATION, INCLUDING ANY SELECTION OF PRODUCTS OR VENDORS, IS SOLELY YOUR RESPONSIBILTY AND YOU ASSUME ALL RISKS, LIABILITIES, IF ANY, WITH RESPECT THERETO.

This document does not represent any commitment by Bellcore or by any BCC to purchase any product described herein.

Each BCC may have requirements or specifications different from those described herein.

Bellcore does not recommend products and nothing contained herein is intended as a recommendation of any product to anyone.

If further information regarding technical content is required please contact:

TIRKS/SWITCH System Customer Service Center
Bellcore
PYA 1P-214
6 Corporate Place
Piscataway, NJ 08854-4157
1-800-332-7060

For information regarding distribution of this document please contact your regional documentation coordinator.

FOMS/FUSA Functional Product Specifications

Contents

List of Figures

List of Tables

1. Introduction

1.1 Purpose and Scope

This document discusses the current functionality of the Bellcore Frame Operations Management System (FOMS) and Frame User assignment System Access (FUSA) systems for Release 3.5. FOMS and FUSA will work in conjunction with the Bellcore SWITCH“ System Release 3.5. Issue 12 of this document contains the modifications that resulted from testing and cut-live of FOMS/FUSA Release 3.0 in the regions. This issue also provides new material on 3.5 features.

Earlier versions of the document (Issues 1 and 2) were published as a Bellcore Technical Memorandum, FOMS/FUSA Requirements, (TM-STS-013868 and TM-STS-015897, respectively), and Issues 3-11 were published as BR 752-101-901.

1.2 Target Audience

The intended audience for this document is Bellcore and Bellcore Client Company (BCC) personnel who desire a detailed knowledge of the FOMS/FUSA functionality. The two primary audience segments are:

1. FOMS/FUSA design, development, and test personnel
2. Regional FRAME Subject Matter Experts.

Additional intended audiences may include personnel of the SWITCH System, SWITCH System Regional Product Managers, and individuals with responsibilities in other areas of FOMS/FUSA implementation (i.e., training, documentation, conversion, integration test, and others).

1.3 Related Documents

The following documents may be consulted for additional information on topics discussed in this document.

FOMS High Level Design (BD-FOMS-DES1.9-2)	TM-25003
FUSA Design - Issue VI (BD-FOMS-DES1.8-9)	TM-24783
SWITCH System DLBB Functional Product Specifications	BR 752-101-001
SWITCH System ULBB Functional Product Specifications	BR 752-101-002

. SWITCH is a registered trademark of Bellcore.

SWITCH System Contracts Directory	BR 752-106-040
FOMS/FUSA Application Administration	BR 752-106-920
FOMS/FUSA Line User Transactions	BR 752-108-930
FOMS/FUSA Cable Throw Processing	BR 752-108-940
FOMS/FUSA DIP and Assembly	BR 752-108-941
FOMS/FUSA Frame Work Management	BR 752-108-943
FOMS/FUSA Frame Administration	BR 752-108-944
FOMS/FUSA Frame Output Inquiries and Reports	BR 752-108-945
FOMS/FUSA Switch Port Equipment	BR 752-108-942

A complete list of all documentation available for the SWITCH System and FOMS/FUSA/ PLATFORM Systems is provided in *SWITCH System, FOMS/FUSA, and PLATFORM Systems Index*, BR 752-104-001.

1.4 Organization and Content

This document has been structured according to the Software Development and Services Committee (SD&SC) guidelines for Bellcore Software Technology and Systems (ST&S) software systems. It contains the following sections:

Section 1	Introduction	Defines the scope and audience for this document
Section 2	General Information	Provides an overview of the features and operating environment for the FOMS and FUSA systems. It also discusses the relationship between the SWITCH System and the FOMS/FUSA system.
Section 3	Detailed Requirements	Covers the algorithms and programs that support the features/functions of the FOMS/FUSA systems. This includes processing and printing frame orders, managing various status indicators and completions, packaging work for the frame technicians, and managing the frame operation.
Section 4	External Interfaces	Discusses preconversion and conversion requirements, measuring system performance, security procedures, and some environmental constraints.
Appendix A	List of Acronyms	Contains a listing of acronyms used throughout this document.

. R. H. Hartmann, *Product Requirements Template*, October 31, 1988.

2. General Information

2.1 Problem/Opportunity

FOMS supports frame operations and some RCMAC operations in the user community currently using COmputer System for Mainframe OperationS (COSMOS). When the SWITCH System replaces COSMOS in a wirecenter, provisioning functions previously performed in COSMOS will be supported in the SWITCH System. The frame functions provided in COSMOS will be supported in FOMS. This achieves the strategic separation between provisioning and operations, and allows FOMS to provide operations support in advance of a full Operations (OPS) solution. FOMS will work in conjunction with the FUSA system, which provides asynchronous terminal access to the SWITCH System for frame users.

2.2 General Description

The FOMS database consists of pending order information. It also contains reference data needed to support work packaging and other functions. It does not contain a facility inventory, or any facility-related information other than that related to pending orders; that information is kept in the SWITCH System.

The splitting of existing COSMOS data between the SWITCH System and FOMS makes it necessary for frame users to access the frame functionality in FOMS, as well as data in the SWITCH System. The latter provides for facility-based inquiries and other activities requiring a provisioning database. FOMS can print frame orders, manage various status indicators and completions, package work for the frame technicians, and generally, manage the frame operation.

FOMS and the SWITCH System exchange contracts in a language called Flexible Computer Interface Format (FCIF), an application-to-application interface. Contracts are used to establish and to modify service orders and work orders, and for completions, cancellations, and jeopardy information. All FCIF contract messages sent between the SWITCH System and FOMS on multipass orders are assigned sequence numbers to ensure that messages between the two systems are worked in the correct sequence. FOMS will detect lost messages and the user can make requests from the SWITCH System for resends.

FOMS has a "COSMOS-like" user interface to minimize the impact on frame personnel. The processing environment of FOMS is similar to COSMOS. FOMS operates in a UNIX® environment, which is a file-servicing system. The current implementation of that environment is the Amdahl® UTS® operating system. FOMS/FUSA 3.0 will run under the UTS

. L. E. Heindel, E. L. Pinnes, and D. R. Wilson, *Plan for Frame Operations Management System (FOMS) and User Layer Building Block (ULBB),* Issue 1, August 12, 1988.

2.1.5 version. FOMS uses the Telco Application Database System (TADS), formerly the Custom Storage Access Manager (CSAM), database manager, which is also used as the platform for COSMOS 17.2.

. UNIX is a registered trademark of Novell Inc.
Amdahl and UTS are registered trademarks of the Amdahl Corporation.

The following diagram illustrates the architecture of FOMS/FUSA in relation to the SWITCH System.

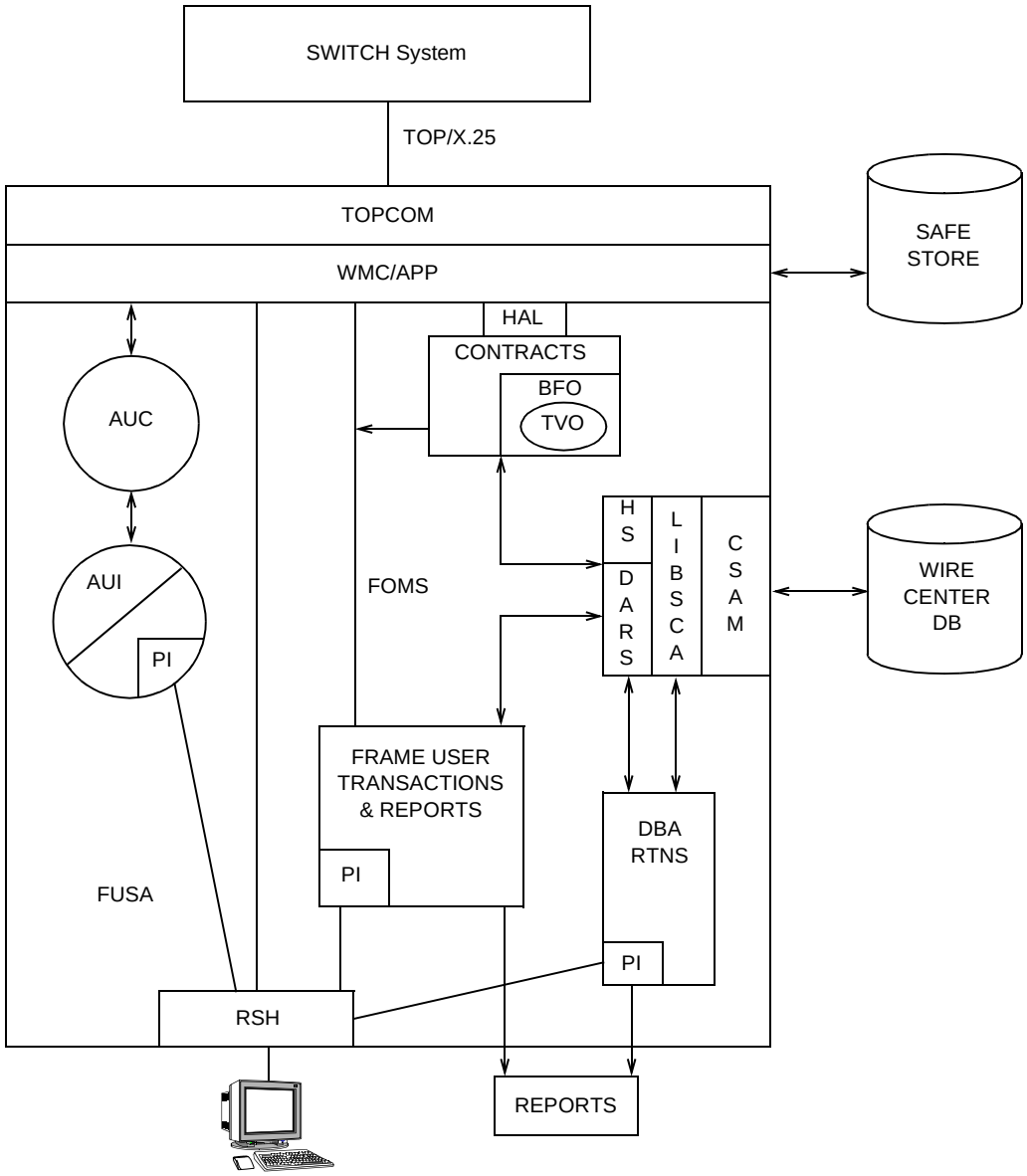

Figure 2-1. FOMS/FUSA Architecture

2.3 Assumptions and Dependencies

The requirements in this document are governed by some fundamental understandings about the division of responsibilities between the SWITCH System and FOMS:

- The SWITCH System does not need to differentiate between successive order passes, nor filter for the presence of frame involvement. Differencing and determination of frame work is a FOMS function.
- The SWITCH System does not know the frame completion status of orders it has sent to FOMS. If an inward order is dependent on frame completion of a previous order, FOMS will make the association and advise the frame personnel.
- The SWITCH System does not expect a response to FOMS messages. FOMS does not send application-level acknowledgment or response.

FOMS will be deployed only in conjunction with the SWITCH System.

3. Detailed Requirements

The basic requirement for FOMS/FUSA is to support line-side frame operations, with at least parity to existing COSMOS capabilities, and to introduce improvements where possible. The splitting of existing COSMOS data between the SWITCH System and FOMS makes it necessary for frame users to access the frame functionality in FOMS, as well as the data in the SWITCH System. The latter provides for facility-based inquiries and other activities requiring a provisioning database. FOMS can print frame orders, manage statuses and completions, package work for the frame technicians, and generally manage the frame operation.

FOMS and the SWITCH System have an application-to-application interface, by which service order, work order, completion, and jeopardy information are passed. FUSA and the SWITCH System have an interface by which user contracts are sent from FUSA to the SWITCH System, and responses are returned.

FOMS has a "COSMOS-like" user interface to minimize the impact on frame personnel. There is also a consistent "COSMOS-like" interface for user transactions entered into FUSA. This format also meets the industry interface for the update of customer-originated Centrex changes, as published in the *Bellcore Technical Reference*, TR-TSY-000362.

The FOMS database consists of pending order information. It also contains reference data needed to support work packaging and other functions. It does not contain a facility inventory, or contain any facility-related information other than what is necessary to perform the frame work for pending orders.

3.1 FOMS Processing of Orders from the SWITCH System

This section describes how FOMS processes the orders that it receives from the SWITCH System. FOMS processes two types of orders:

- **Demand Order** — order whose contract is sent from the SWITCH System to FOMS immediately after it is assigned in the SWITCH System, such as a service order or a Maintenance Change Ticket (MCT).
- **Programmable Order** — order whose contract is sent from the SWITCH System to FOMS upon request. The types of programmable orders are Cable Pair Transfers (CPTs), Switch Port Equipment Transfers (SETs), Non-Service Order Line and Station Transfers (Non-Service Order LSTs), Dial Transfers (DTRs), Area Transfers (ATRs), Frame Transfers (FTRs), Channel Transfers (CTRs), Jumper Activity Management Orders (JAMs) and Wire Assembly Orders (WAOs). At times, however, it may be desirable to treat these orders as demand orders to save the operational steps associated with requesting and waiting for frame output. The SWITCH System has this capability.

The SWITCH System and the FOMS system communicate using a message format known as FCIF. The following contracts are used for order processing and flow from the SWITCH System to FOMS:

- *PREFO* is used to establish a demand order.
- *CANFO* is used to cancel a demand order.
- *CANFOL* is used to cancel an associated LST on a demand order.
- *PCNFO* is used to complete a demand order.
- *PCNFOL* is used to complete an associated LST on a demand order.
- *PREPWO* is used to establish the planning message for a programmable order.
- *PREWO* is used to establish a programmable order.
- *CANWO* is used to cancel a programmable order.
- *PCNWO* is used to complete a programmable order.
- *UPDASM* is used to report on the success of the UPDASM contract to the SWITCH System database.

The following contracts are used in order processing and flow from FOMS to the SWITCH System:

- *PREJEO* is used to send a jeopardy notice on a service order.
- *CANJEO* is used to cancel a jeopardy notice on a service order.
- *PREJWO* is used to send a jeopardy notice on a work order.
- *CANJWO* is used to cancel a jeopardy notice on a work order.
- *PREFWI* is used to inform the SWITCH System of frame completion on a DTR or an ATR.
- *PCNSET* is used to notify the SWITCH System of frame completion on an SET.
- *PCNWAO* is used to notify the SWITCH System of frame completion on a WAO.
- *PCNJAM* is used to notify the SWITCH System of frame completion on a JAM.
- *PCNSO* is used to notify the SWITCH System of frame completion on a CIO.
- *PCNFTR* is used to notify the SWITCH System of frame completion on an FTR.
- *UPDASM* is used during order establishment, modification, and cancellation or printing to update the SWITCH System database.
- *CANWAO* is used during order establishment to cancel a pending WAO in the SWITCH System database.

The following contracts flow from the SWITCH System to FOMS, but are not part of the order processing flow.

- *PREDAT* is used to send report data to FOMS.
- *PREREF* is used to send reference data to FOMS.
- *EXTPDG* is used to send pending order data to FOMS for verification purposes.

The following contract flows from WFA/DI to FOMS.

- *FOMSRR* is used to request that FOMS run a transaction and return the output.

The following contracts flow from FOMS to WFA/DI.

- *FOMSDI* is used to send frame output data to WFA/DI.
- *FOMSRR* is used to send transaction output data to WFA/DI.

3.2 Demand Orders

When the SWITCH System receives a demand order from the Service Order Analysis and Control system (SOAC) or directly from a terminal, it completes the necessary assignments and automatically sends a contract to FOMS, provided the particular wire center has a FOMS system. The presence of a FOMS system is indicated by a user-definable parameter in the SWITCH System.

If the wire center has a FOMS system, the SWITCH System sends a contract to FOMS for every demand order it processes. Frame personnel, however, are not interested in all demand orders. For example, a soft change order (which has no work instructions for frame personnel) does not require that frame output be generated. Therefore, FOMS must determine which demand orders are of interest to frame personnel. (See Section 3.2.7.)

When FOMS receives a demand order it extracts and stores order information from the contract. FOMS also determines frame instructions for the order and stores them.

3.2.1 Service Orders

Service orders are service requests that are initiated either by a customer or by the BCC. The requester may specify a new service, order the complete disconnect of an existing service, or modify an existing service. These services require both "Installation Completion" and "Frame Completion". The SWITCH System sends a service order to FOMS using a PREFO contract. A service order is identified by an "so" in the "oclass" field of the *fo section of the PREFO contract. The following is a list of the types of service orders supported by FOMS:

- **N order** establishes a new service for a new account and location.

- **C order** changes the service for an existing account.
- **D order** disconnects an existing account.
- **T order** establishes a new address for an existing account.
- **F order** removes a service from an existing address for an existing account.
- **R order** establishes a service to process some soft changes.

Suspend and restore orders and sublets are processed as change orders in the SWITCH System and FOMS/FUSA.

The following sections describe the process for handling service orders. It includes sequence numbers, the types of passes for service orders sent from the SWITCH System to FOMS (i.e., establishment, cancellation, and completion), determining frame output involvement, and processing associated Line and Station Transfers (LSTs) and Single Pass Demand Orders.

3.2.2 Sequence Numbers

FOMS must be able to detect if a contract has been lost (i.e., if a contract for the order has been sent by the SWITCH System but not received by FOMS). Sequence numbers are used to track contracts sent from the SWITCH System to FOMS for service orders. These sequence numbers are incremented once for every contract for the order sent by the SWITCH System to FOMS. FOMS blocks the completion of an order when a sequence number is missing. If an error situation is detected, FOMS stores an error message in the application log file.

Table 3-1 summarizes the FOMS sequence-number processing for demand orders.

Table 3-1. FOMS Sequence-Number Processing for Demand Orders

Contract	Sequence Number	FOMS Action
PRE	< database	ignore[3]
	= database	ignore[3]
	> database	process
PCN	< database	error[1]
	= database	ignore[3]
	> database +1	error[2]
	= database +1	process
CAN	< database	ignore[3]
	= database	ignore[3]
	> database	process

NOTES:

1. An error indicates that a later contract was received by FOMS. FOMS cannot process the current contract (PCNFO), because it is the completion for a contract that has been updated by a subsequent contract.
2. An error indicates that a contract is missing. FOMS cannot process the current contract (PCNFO), because FOMS has not received the latest version of the order. The user may request a resend of a particular contract via the FUSA transaction **rsf**.
3. A subsequent contract reestablished the order.

3.2.3 Establishment Passes

FOMS may receive several passes to establish the same service order. The initial pass is the first time the SWITCH System sends a contract to FOMS for a given service order request. A subsequent pass is any other pass for which the SWITCH System sends a contract to FOMS before completing the service order request. It occurs if a customer modifies the order or changes the due date, if an "in" facility is identified as unusable (in which case the company will issue an Assignment Change Ticket (ACT)), or if the SWITCH System identifies a need to perform rework activity.

The same contract (PREFO) is used for both the initial pass and any subsequent pass of a demand order. The only way FOMS realizes that a particular pass is a subsequent pass (rather than the initial pass) is by checking if the initial pass has already been established in its database.

3.2.3.1 Initial Pass

When the SWITCH System sends FOMS a contract during an initial pass, FOMS first checks the header of the contract for syntax errors. It then keys off the order number, saving the order information in the Order file (OR). The order status in the Service Order (SO) file is set to pending. FOMS also keys off the in/out facility type and ID, and saves the facility type, facility ID, in/out facility information, and a reference to the service order number in the Pending Equipment (PE) file to enable detection of related pending orders when FOMS prints frame output reports. FOMS also computes the frame due date (See Section 3.2.6.) It determines which service orders require that a frame output report be generated (See Section 3.2.7.) and whether any DIPs need to be broken (See Section 3.5.), and saves the appropriate frame instructions in the Frame Output (SF) and Frame Output Data (FZ) files. Information in the FZ record is stored in a unique connectivity sequence. The algorithm for producing this connectivity from the PREFO contract has been documented.* In a frame

* Wamp, M. A. *FOMS Requirements for Connectivity*, Issue 1, June 20, 1989.

work management environment, FOMS assigns an assembly code based on the order type, related pending orders, intelligent controller (i.e., the switching machine type and ID) type, and frame location (i.e., location where the work is to be performed). The user identifies a frame work management environment via the FOMS transaction **gminit**.

If there is an LST section in the contract, it is processed as above for a service order, with one exception. The SO record that FOMS creates has an order type "lst" (see Section 3.2.8, Associated LST Processing).

3.2.3.2 Subsequent Pass

When the SWITCH System sends FOMS a contract during a subsequent pass of a demand order, it sends complete information regarding all circuits associated with the service order, not just information for those circuits that have changed. FOMS, however, is only interested in those circuits that have been added, modified, or removed. In addition, FOMS is only interested in the latest version of the contract for a particular order, and checks that the contract it has received is indeed the latest version. This is done by checking that the sequence number of the contract is greater than the sequence number of the service order. If it is not, FOMS ignores the contract.

After verifying that the new contract is the latest version, FOMS compares the circuits in this new contract with those in the previous contract. If a circuit in the current contract is absent in the previous contract, then that circuit will be added. If the same circuit appears in both the previous and current contracts, and the circuit has been modified, then the circuit will be modified to match the circuit in the current contract. If a circuit is absent in the current contract but appears in the previous contract, then that circuit will be cancelled.

Circuit modifications are a result of rework (where the SWITCH System identifies the need to perform rework activity) or a customer request to modify a service order. There are two cases that FOMS handles. If the frame output for the previous circuit has not been printed, FOMS marks the previous frame output withdrawn and creates new frame output for the modified circuit. On the other hand, if the frame output for the previous circuit has been printed, the previous frame output will be marked cancelled (See Section 3.2.4.) FOMS applies differencing logic and if frame-affecting differences exist, it establishes a new frame output for the new circuit.

If there is an LST section in the contract, it is processed as above for a service order, with one exception. The SO record that FOMS creates has an order type "lst" (See Section 3.2.8.)

3.2.3.3 Assignment Change Tickets

An ACT order is identified by checking if the ACE tag is set in a circuit aggregate in the *fo section of the PREFO contract. FOMS applies special "differencing" logic to an ACE pass. The new frame output is "differenced" with the previous frame output. The facilities

that appeared on the last printed frame output, but do not appear in the new version, are indicated as "out". The facilities that appear in the new version, but did not appear on the last printed frame output, are indicated as "in". The facilities that will remain unchanged in the new version and in the last printed frame output are indicated as "reu". FOMS prints the new order with a message that indicates it is an ACE.

3.2.3.4 Region-Specific Feature: ACE-like Frame Output

A region-specific feature known as "ACE-like Frame Output for All Modifications" is available only to funding customers. Without this feature turned on, a modification to a service order (subsequent pass PREFO) that changes a facility will produce different frame output from an ACE pass that is functionally equivalent.

In wire centers that have this feature turned on, FOMS produces frame output similar to that for assignment change tickets that modify service orders. Instead of an old and a new copy of the order, one piece of paper provides what needs to be done at that point. Thus, if the old order had been printed (or frame completed), facilities that were "in" would now be shown as "reu" on the new order, and only those facilities to be modified would be shown as "in" or "out" on the new order. When printing the frame output for a modification, **for/fwm** will indicate "mod" where they currently indicate "act" for a facility changed by an assignment change ticket.

Although the frame output for a modified order will resemble that for an ACT, modification passes will not be counted as Assignment Change Tickets for the **fos** reports.

3.2.4 Cancellation Pass

The SWITCH System sends a cancellation order containing the order number to FOMS using a CANFO contract.

FOMS traces and cancels all circuits associated with that order. If the frame output report has not been printed, FOMS marks the frame output in the database as "withdrawn". If the frame output report has been printed, FOMS marks the frame output in the data base as cancelled. To do this, FOMS takes the following steps:

1. Marks the circuit as cancelled.
2. Sets the frame due date for removing the circuit to the current day.
3. Sets the print tag of the cancellation contract to "nonprinted" and the order revision tag to "cancelled".

An associated LST order can be cancelled together with the service order. However, it could also be cancelled afterwards if the CANFO has a LST aggregate, indicating that the

mentioned LST circuits will remain pending. These, then, could be cancelled by receiving a CANFOL contract.

3.2.5 Completion Pass

When the SWITCH System receives a completion notice from SOAC, it sends a completion order, with the order number, to FOMS using a PCNFO contract.

FOMS traces and completes all circuits associated with that order. If the PCNFO contract is received before frame completion, FOMS changes the order status to "Installation Complete". If the PCNFO contract is received after frame completion, FOMS changes the order status of the service order to "Final Complete".

If there is an LST work order associated with the service order, then the LST work order could be completed at the same time as the service order. If the LST has more than one item, FOMS will complete all the items. However, it is also possible to complete the LST before the service order has been completed (i.e., the PCNFO has an LST aggregate, indicating which LST circuits will remain pending), or you could complete it after the service order has been cancelled by receiving a PCNFOL contract.

3.2.6 Frame Due Date Processing

If no frame due date is supplied with the PREFO contract, or the frame due date that is supplied is later than the order due date, then FOMS sets the frame due date to the order due date unless the order due date is in the past. If the frame due date is in the past, or there is no frame due date and the order due date is in the past, FOMS sets the frame due date to the current date. Otherwise, FOMS uses the frame due date supplied by the SWITCH System.

3.2.7 Frame Output Involvement

Most service orders require physical work at the frame. There are instances, however, when physical work is not required. The following cases illustrate when physical work is not required on a frame and, therefore, do not require a frame output report:

1. Soft change orders or record orders, which change the features, hunt sequence, or TN for an electronic switching machine.
2. A BCC wishes to suppress frame output when DIPs are being created or reused.
3. Deny, suspend, restore, or referral orders for an electronic switching machine do not require any physical work.

On the other hand, some orders may not seem to require physical work at the frame, when in fact they do. For example, an order that changes a Plain Old Telephone Service (POTS) circuit to a Circuit Provisioning Center (CPC) circuit looks like a soft change order, but it may actually require special handling by frame personnel. The following situations illustrate when physical work *would be required* at the frame and, therefore, would require frame output:

1. A BCC wants to generate frame output for a service order that requests the addition of "adsr y" to a POTS circuit, particularly if frame personnel must add or remove extra equipment such as a Metallic Terminal Mounting (MTM) or a Remote Test Access Placer (RTAP).
2. There are several instances in which a service order that changes a party service line requires that frame output be generated.
    a. If *pty* is present in the old aggregate of a circuit aggregate but is not present in the new aggregate, then frame output must be generated. This is referred to as an "upgrade" to the party service line.
    b. If *pty* is present in the new aggregate but is not in the old aggregate, then frame output must be generated. This is referred to as a "downgrade" to the party service line.
    c. If *pty* is present in both the old and new aggregates, and the specified service has been changed, then frame output must also be generated. This is referred to as a "reassociation" of the party service line.
3. If the *switch_setting* variable in a packet switch is changed, frame output must be generated. (This variable controls the transmission speed of each cable pair.)

FOMS has a user-definable table (i.e., FX) with a record for each entity. There is a parameter in each of these records that is used to determine whether frame output will be generated for printing or marked as suppressed. The parameter can have the following values:

- 0 = always generate frame output for printing
- 1 = consult the table; default to "suppress" frame output
- 2 = consult the table; default to "generate" frame output
- 3 = never generate frame output

The FX table has parameters that are used on a *circuit level* and an *equipment level* to determine if frame output is needed. On a circuit level, the list of parameters are tags for Facility IDs (FIDs) associated with a circuit, which indicate if frame output is needed ("y" or "n"). On an equipment level, the list of parameters are categorized by in, out, or reused equipment. For each category, the list of parameters are tags for FIDs that indicate "y" or "n," depending on whether frame output is needed. An "in" or an "out" equipment with a frame location will always generate frame output. A "reused" equipment with a frame

location that is changing will always generate frame output. An exception would be whenever the equipment is involved in a DIP and the *dip* FID is found in the equipment-level parameters for suppressing frame output. In this case, frame output would be marked as suppressed.

The algorithm (search) for determining frame involvement starts at the circuit level. If the first FID on the circuit is found in the circuit-level parameters used to print frame output, the search continues on the circuit level. If the next FID is found in the circuit-level parameters used to generate frame output, the circuit-level search goes on. If, after all the FIDs on the circuit have been checked, none were listed as suppress frame output, frame output will be generated. If, however, the search finds a FID on the circuit that is listed in the circuit-level parameters as "suppress" frame output (e.g., *adsr*), frame output will be marked as suppressed and the search will be stopped.

When frame output is not suppressed on the circuit level (i.e., all the FIDs have been examined and are not found as either "suppress" or "generate" frame output), an equipment-level search takes place. An example of an equipment-level FID for determining frame involvement is CLS. If an equipment-level FID is listed in the parameters as generate frame output, the algorithm stops and frame output will be generated. If an equipment-level FID is listed in the parameters as do not generate frame output, the search will continue. If a FID for this equipment or the next equipment is found in the equipment-level parameters to generate frame output, the search stops and frame output will be generated. All other conditions will lead to frame output being generated and marked suppressed (i.e., if a FID for the current equipment or a subsequent equipment is found in the equipment-level parameters as do not generate frame output, or if none of the FIDs associated with the current equipment or subsequent equipment are found in the equipment-level parameters as either generate or do not generate frame output). An exception to this is when an "in" or "out" equipment has a frame location, or if a "reused" equipment has a frame location that is changing. In these cases, FOMS will override the frame output from being marked as suppressed. These conditions will *always* generate frame output, except whenever an equipment is involved in a DIP and the *dip* FID is found in the equipment-level parameters as "suppress" frame output.

Table 3-2 summarizes this procedure.

Table 3-2. Frame Involvement

Level	FIDs	Frame Output	Action
Circuit	N	N	Stop
Circuit	Y	Y	Continue*
Equipment	Y	Y	Stop
Equipment	N	N	Continue

* NOTE: The search will continue on the circuit level only.

3.2.8 Associated LST Processing

An associated LST work order is used to transfer a working loop to a spare cable pair, thus freeing the original cable pair for use by a service order. (For another type of LST, which does not accompany a service order, refer to Section 3.3.) An LST may also specify a cascade of circuit transfers in which a circuit is transferred to a spare cable pair freeing a cable pair. This enables the freed cable pair to receive circuits transferred from another cable pair, and so on, up to the last freed cable pair, which is used to complete the service order.

An LST work order is passed from SOAC to the SWITCH System which then makes the necessary assignments and passes the LST with its associated service order to FOMS. The LST information is stored in the LST section of a contract. FOMS processes the LST work order the same as a service order, with one exception. The SO record that FOMS creates has an order type "lst". FOMS completes this work order at the same time as its associated service order. If an LST has more than one item, FOMS completes all of them.

As the SWITCH System sends contracts to FOMS regarding a service order, FOMS keeps track of whether a contract contained an LST section. There are several possible situations FOMS will handle:

1. If the current contract does not have an LST section and the previous contract did, then FOMS does one of the following:
   a. If the LST work order has not been printed, FOMS marks the frame output in the database as "withdrawn".
   b. If the LST work order has been printed, FOMS cancels it (See Section 3.2.4.)
2. If the current contract has an LST section and the previous contract did not, then FOMS establishes the LST work order as described above.
3. If the current and previous contracts do not have LST sections, then FOMS does nothing.
4. If the current and previous contracts both have LST sections, then the two LST sections are compared. FOMS does one of the following:
   a. If they are the same, no action is taken.
   b. If the previous contract has circuits in its LST section that are not found in the LST section of the current contract, then those circuits are cancelled or withdrawn.
   c. If the current contract has circuits in its LST section that are not found in the LST section of the previous contract, then those circuits are added.
   d. If circuits appear in the LST sections of both contracts, then those circuits are modified. These circuits can be added, modified, and removed the same as the circuits processed during the subsequent pass of a service order.

3.2.9 Single-Pass Demand Orders

Single-pass orders are so named because they make a single pass through the SWITCH System; they are established and completed in the same pass. They do not require installation completion in the SWITCH System or FOMS, and may or may not require frame completion in FOMS. They never pend in the SWITCH System database and therefore cannot be modified or cancelled. After the SWITCH System completes the necessary assignments for these orders, it automatically sends a contract to FOMS. FOMS establishes these orders with an order status of "Installation Complete" or "Complete".

There are two types of single-pass demand orders: MCTs and Record Orders.

3.2.9.1 Maintenance Change Tickets

An MCT is used to correct a working circuit with a defective facility. For cable pairs, the work order is passed from Loop Facility Assignment and Control System (LFACS) to the SWITCH System. For other facilities, the work order is manually entered into the SWITCH System.

The SWITCH System sends an MCT order to FOMS using a PREFO contract. This order type is identified by an "mct" in the oclass field in the *fo section of the PREFO contract. FOMS processes this work order the same as a service order, with one exception. The SO record that FOMS creates has an order type "mct" and its order category is "hot".

3.2.9.2 Record Orders

A **record order** is a type of service order used in some companies to process some "soft changes"; that is, orders which require no physical work at the frame. In most companies these are processed as change orders. The soft changes processed as record orders include adding, deleting, or changing translation data (CCI, PIC, etc.), but do not include change of telephone numbers or CKIDs. The order number of a record order begins with the letter "r". In the FOMS to SWITCH System interface the combination of "r" as the first character of the order number, and OCLASS=SO will cause the order to be stored as a record order (CK record, circuit type field = "r ").

Record orders are processed as single pass demand orders in the SWITCH System and frame output is automatically sent to FOMS.

Record orders will usually be established as complete ("c") in FOMS since there will be no PCN from the SWITCH System, and they will generally have their frame output suppressed (print tag = "5"), because they contain no pending in or out frame facilities. In the case where the FX table is set to "always produce frame output" for a given entity, record orders will be established as "A", LAC complete, with a print tag of "1", unprinted. Users will be required to print these orders and then complete them with **scm**.

The following areas are impacted by record order processing:

a. Transactions **fol**, **wsl**, **ufo**, **fxinit**, and **for** allow a data value of "r" for the fid order type (OT).

b. **fol** recognizes an input filter of OT R.

c. **wsl** recognizes an input filter of OT R.

d. **ufo** recognizes an input filter of OT R.

e. **for** recognizes an input filter of OT R.

f. **fxinit** allows frame output to be suppressed for OT R.

g. **fpdcvt** does not change the primary status or the print tags on R orders in FOMS. They are left as they were from conversion.

There will be no impact on the Frame Work Management transactions.

3.2.10 Company Initiated Orders

A company initiated order (or CIO) is a type of demand order used to process work which is company initiated, but does not fall into any of the work order types currently supported by the SWITCH System and FOMS/FUSA. This includes such activities as reassociation of party circuits, and connecting or disconnecting test lines.

The SWITCH System supports CIOs using service order software. Thus, they are sent to FOMS via a PREFO. CIOs connect, disconnect, or change circuits, but F and T type orders are not allowed. Since CIOs do not flow from SOAC, the SWITCH System will await a completion notice from FOMS, or from the ULBB. When it receives a PCNSO contract from FOMS or the ULBB, it will generate a PCNFO contract back to FOMS and FOMS will give the order installation or final completion.

3.2.10.1 FOMS Impacts

In FOMS company initiated orders will be stored with service orders, due to the way they come from the SWITCH System. They will be marked as CIOs while still retaining their order type of NC, CD, or CH. They may be marked as suppressed if they match the standard requirements for a suppressed order.

FOMS should recognize CIO as a distinct order type, but not in combination with any other order type so as to prevent orders from being listed or counted twice. CIOs will be counted as work orders for the **fos** reports.

CIOs may be packaged if desired; they will package according to their order (really circuit) type of NC, CD, or CH. They may be printed with **for** or **fwm**, and there is no explicit

indication on the frame output that the order is a CIO. However, there should be an indication on the **foi** output.

They may be put in jeopardy and taken out of jeopardy, and the service order jeopardy contracts will be used to notify the SWITCH System.

The PREFO contract for a company initiated order should be no different than for a service order except that OCLASS=CIO. PREFO must recognize and accept an OCLASS of CIO, and store this somewhere in the FOMS database, while still maintaining the circuit type of NC, CD, or CH.

Process Input must allow a data value of 'CIO' for the fid order type (OT) for transactions **fol**, **wsl**, **ufo**, **for**, and **fts**. It must also allow a data value of 'CIO' for the option fid (OP) for transaction **opn**.

The following FOMS transactions are impacted by this feature:

a. **fol** must recognize an input filter of OT CIO and list all CIOs, as well as listing them as new connects, disconnects, and change orders.

b. **wsl** must recognize an input filter of OT CIO.

c. **ufo** must recognize an input filter of OT CIO.

d. **for** must recognize an input filter of OT CIO.

e. **fts** must recognize an input filter of OT CIO.

f. **foi** must print 'company initiated' on a line by itself after the header info but before the facility info.

g. **ijr** must allow a CIO to be put in jeopardy and send a PREJEO contract to the SWITCH System if the JR table so indicates.

h. **rjr** must allow a CIO to be removed from jeopardy and send a CANJEO contract to the SWITCH System if the JR table so indicates.

i. **opn** must allow an input of OP CIO and print summary data for CIOs for OP CIO, OP WO, and OP ALL.

j. **fxinit** must accept CIO as an order type to be suppressed.

k. **fos** must

   - exclude CIO as a service order type
   - include CIO as a separate work order type in OP FAR (Frame Activity Report)
   - include CIO as a separate work order type in OP WO (Work Order Report)
   - include CIO as a separate work order type in OP SWOS (Service and Work Order Summary).

l. **scm** must send a PCNSO contract to the SWITCH System when the last circuit in a CIO is given frame completion. PCNSO is the contract currently used to send service order completions from SOAC to the SWITCH System, and thus is a header only contract. The order number including the correction suffix, if applicable, is sent in the *C1 header.

CIOs will not come to FOMS on conversion; the users will be requested to either complete or cancel any pending CIOs at conversion time.

CIOs will come over in the EXTPDG contract when it is invoked for service orders, all orders, or just company initiated orders. If a CIO comes in to FOMS, and it is "frame suppressed," PREFO should mark it "FC", but not send a PCNSO contract to the SWITCH System. A daemon process, **foms_dmn** searches through the FOMS database for CIO orders which are due today (or overdue) and sends a PCNSO to the SWITCH System for those orders. The daemon may be initiated via the **foms_cron** shell.

3.2.10.2 FUSA Impacts

- **fce** must be tested for the ability to change an assigned facility on a company initiated order.
- **rsf** must be able to resend the PREFO for a CIO.
- **soi**/**sod** must allow an inquiry on a CIO.
- **sol** must allow an order type of CIO.

There will be no impact on the work order transactions in FUSA: **woi**, **wod**, and **wol**, since CIOs are treated like service orders in the SWITCH System.

3.2.11 Summary

Table 3-3 gives a summary of demand-order processing; namely, the action taken upon receipt of a contract from the SWITCH System based on the current status of the order in the FOMS database.

Table 3-3. Demand-Order Processing in FOMS

Status of circuit in the database		PRE	CAN	PCN	FOR/FWM	SCM
Not established		Establish	Error	Error	Error	Error
AC	Printed[1]	Cancel, Reestablish	Cancel	IC	Ignore/ Reprint[3]	Frame Completion
	Unprinted	Withdraw, Reestablish	Withdraw	IC	Set print tag	Error

Table 3-3. Demand-Order Processing in FOMS

Status of circuit in the database		PRE	CAN	PCN	FOR/FWM	SCM
IC	Printed	Error[2]/ Ignore	Error[2]	Ignore	Ignore/ Reprint[3]	Final Completion
	Unprinted	Error[2]/ Ignore	Error[2]	Ignore	Set print tag	Error
Frame Completion		Cancel, Reestablish	Cancel	Final Completion	Ignore/ Reprint[3]	Ignore
Final Completion		Ignore			Ignore/ Reprint[3]	Ignore
Cancel	Printed[1]	Ignore	Ignore	Error[2]	Ignore/ Reprint[3]	Frame Completion
	Unprinted	Ignore	Ignore	Error[2]	Set print tag	Error

NOTES:

1. Includes the package state of the frame work management.
2. Occurs if contracts are received by FOMS out of sequence.
3. Ignored if run by due date, reprinted if run by order ID.

3.3 Programmable Orders

Programmable orders are usually initiated by the BCC. They either originate in LFACS and are sent through SOAC to the SWITCH System (in the case of Cable Transfers and LSTs), or they are entered directly into the SWITCH System (for all other programmable orders). All programmable orders require both "Installation Completion" and "Frame Completion". They use planning messages to help estimate the workload involved in processing the order.

Programmable orders have five characteristics:

1. Their contracts are generally sent from the SWITCH System to FOMS upon request.
2. They often take a long time to complete.
3. They usually involve bulk quantities.
4. They generate planning messages.
5. They do not interfere with the processing of demand orders.

The last characteristic is of importance in the SWITCH System assignment process. If there is a conflict in equipment assignments, programmable orders have the lowest priority. This

means that even though a programmable order has made an equipment assignment, that equipment can be taken away in the SWITCH System by a demand order.

If such a conflict between a demand order and a programmable order occurs, the SWITCH System resolves the conflict. If a contract for the original equipment has already been sent to FOMS, an updated contract for the newly-assigned equipment must be prepared and sent to FOMS immediately.

The following sections provide a more detailed description of programmable order processing, and apply whether the frame output is sent automatically or upon request.

3.3.1 Sequence Numbers

Sequence numbers are used to track contracts sent from the SWITCH System to FOMS for programmable orders. They are stored at the circuit level as well as the order level. They are used by FOMS to determine if a contract has been received out of sequence, or if one is missing. If an error situation is detected, FOMS stores an error message in the application log file.

Table 3-4 summarizes the FOMS sequence-number processing for programmable orders by order level.

Table 3-4. FOMS Sequence-Number Processing of Programmable Orders by Order Level

Contract	Sequence Number	FOMS Action
PRE	< database	process
	= database	ignore[2]
	> database	process
PCN	< database	process
	= database	ignore[2]
	= database +1	process
	> database +1	error[1]
CAN	< database	process
	= database	ignore[2]
	= database +1	process
	> database +1	process

NOTES:

1. An error indicates a contract is missing. FOMS cannot process the current contract (PCNFO), because FOMS has not received the latest version of the order.
2. FOMS has already processed the contract.

Table 3-5 summarizes the FOMS sequence-number processing for programmable orders by circuit level.

Table 3-5. FOMS Sequence-Number Processing of Programmable Orders by Circuit Level

Contract	Sequence Number	FOMS Action
PRE	< database number	ignore[2]
	= database number	ignore[2]
	> database number	process
PCN	< database number	error[1]
	= database number	ignore[2]
	> database number	process
CAN	< database number	ignore[2]
	= database number	ignore[2]
	> database number	process

NOTES:

1. An error indicates a later contract was received containing the circuit by FOMS. FOMS cannot process the current contract (PCNFO) for the circuit, because it is the completion for a circuit that was updated by a subsequent contract.
2. FOMS has already processed the contract.

3.3.2 Planning Messages

When the SWITCH System establishes or assigns a programmable order, it generates a PREPWO contract (planning message) and sends it to FOMS. The purpose of the Planning Message is to estimate the total work involved in the programmable order. The PREPWO contract includes the following items:

- Order number
- Due date
- Frame due date (optional)
- Cable number and pair or switch port (low and high)
- Working line count
- Working line count of "adsr=y" circuits
- The settings of Start Assignment Logic (SAL) and Send Frame Output (SFO) parameters

- Order status ("e" for establishment pass or "a" for assignment pass)
- Availability date override (assignment PMs only)

FOMS stores this information in the Planning Message (MS) file. Two types of planning messages are stored: "a" and "e". The *ostat* tag in the *pl section of the contract is used to indicate the type. An e-type planning message indicates the order has been established in the SWITCH System. An a-type planning message indicates the order has been assigned in the SWITCH System. Only one e-type planning message will be stored; all a-type planning messages will be stored.

Table 3-6 shows a BCC-tunable table for printing the planning message using **for/fwm**.

Table 3-6. Planning Message Routing Table

PREPWO Type	Parameter	FOMS Notifier
a	SAL=Y	Y/N
a	SAL=N	Y/N
e	SFO=Y	Y/N
e	SFO=N	Y/N

The SWITCH System initiates a planning message; FOMS stores the planning message and prints it using the **opn** and/or **for** or **fwm** transactions.

3.3.3 Establishment Passes

The SWITCH System sends a programmable order to FOMS using a PREWO contract. FOMS may receive multiple passes for the same programmable order. The initial pass is the first time the SWITCH System sends a PREWO contract to FOMS for a given programmable order. A subsequent pass is any pass in which the SWITCH System sends a frame contract to FOMS before completing the programmable order. The following are cases when a subsequent pass is made:

- A BCC wishes to modify the programmable order or change the due date.
- A demand order requests equipment originally intended for the programmable order. (Demand orders have a higher priority than programmable orders.)
- The SWITCH System identifies a need to perform rework activity.

There is a difference, however, between demand orders and programmable orders. This is primarily due to the large volume of circuits that need to be processed for a programmable order. The SWITCH System only sends information to FOMS for those circuits that are new or have changed. This is in contrast to how the SWITCH System handles demand orders, for which complete information regarding all circuits for a demand order are sent to FOMS on each PRE pass of the order.

3.3.3.1 Initial Pass

When FOMS receives a programmable contract during the initial pass, it processes the information the same as the initial pass for a service order, with one exception. The order status in the appropriate file (BO, CT, DT, or WO) is set to pending.

3.3.3.2 Subsequent Pass

When the SWITCH System sends FOMS a PREWO contract as a subsequent pass, it only sends information for those circuits that are new or have been modified. Possible sources are LFACS, manual input into the SWITCH System, rework as determined by the SWITCH System, or a demand order whose processing may cause a conflict in equipment assignment with the programmable order.

The SWITCH System sends a PREWO contract for circuit additions. FOMS compares the PREWO contract with the previous version and determines the new circuits. Circuit additions are processed the same as for an *Initial Pass*.

The SWITCH System also sends a PREWO contract to handle circuit modifications. If the frame output has not been printed, FOMS marks the frame output in the database as "withdrawn" and generates new frame output. If the frame output has been printed, differencing is performed. If there is no difference between the previous and subsequent pass, the frame output is left basically as it was. If there is a difference, the previous frame output is marked as modified, and new frame output is created.

3.3.4 Cancellation Pass

To cancel a programmable order before the due date, a BCC issues a cancellation order. The SWITCH System sends the cancellation order, containing the order number, to FOMS using a CANWO contract.

If the entire programmable order will be cancelled, the SWITCH System sends a CANWO contract to FOMS with header information only. FOMS traces and cancels all circuits associated with the programmable order on a circuit-by-circuit basis. If the frame output has not been printed, FOMS marks the frame output in the database as "withdrawn". If the frame output has been printed, FOMS generates a new version of the frame output to reflect that the circuit will be cancelled. To do this, FOMS performs the following steps for each circuit:

1. Marks the circuit as cancelled.
2. Generates a message for cancellation and appends it to the FZ file.
3. Sets the frame due date to the current day.

4. Sets the print tag of the cancellation message to "nonprinted".

If the cancellation order is only a partial cancellation of the programmable order, the SWITCH System must check if a PREWO contract has been sent for the affected circuits. If it has, then the SWITCH System includes circuit cancellation information in the outeqp aggregate in the *canwo section of the CANWO contract that it sends to FOMS. The SWITCH System will also adjust the range for the planning message and send a new establishment-type PREPWO contract to FOMS. FOMS replaces the old planning message with the new one.

FOMS traces and cancels the circuits specified in the outeqp aggregate in the *canwo section of the CANWO contract. If the frame output has not been printed, FOMS marks the frame output in the database as "withdrawn". If the frame output has been printed, FOMS must generate a new version of the frame output to reflect that the circuit will be cancelled by following steps 1 through 4, as shown above.

A DISCARD=Y tag will be included in the CANWO contract whenever a work order of any type is being cancelled and removed from the SWITCH System database. This will cause byte 79 of the OR record to be set to "C" if the all circuits are frame complete, or "P" if they are not. The "P" status indicates that the order may be purged when all circuits become frame complete.

3.3.5 Completion Pass

When the SWITCH System receives a completion notice from SOAC, or manually from a user, it sends a PCNWO contract to FOMS. The PCNWO contract indicates either the programmable order has been completed or has only been partially completed.

If the entire programmable order has been completed, the SWITCH System must check if contracts for all circuits have been sent to FOMS. If all contracts have been sent, the SWITCH System sends a PCNWO contract to FOMS with header information only to indicate that the order has been completed. FOMS traces and completes all circuits associated with that order. If frame completion has already been entered before the PCNWO has been received, FOMS changes the order status of the circuit to "Final Completion". If the PCNWO contract is received before frame completion has been entered, FOMS changes the order status of the circuit to "Installation Completion". After frame completion, FOMS changes the order status to "Final Completion".

If the programmable order has only been partially completed, the SWITCH System checks whether contracts for the completed circuits have been sent to FOMS. If they have been sent, the SWITCH System sends a PCNWO contract to FOMS containing a *pcnwo section. The outeqp aggregate of the *pcnwo section (in the PCNWO contract) provides a line-by-line description of the circuits that have been completed. FOMS traces and completes all those circuits. If frame completion has already been entered before the PCNWO is received, FOMS changes the order status of the circuit to "Final Completion".

If the PCNWO contract is received before frame completion has been entered, FOMS changes the order status of the circuit to "Installation Completion". After frame completion, FOMS changes the order status to "Final Completion".

If a PREPWO contract has been received for an order but no PREWOs have been received, and then a header-only PCNWO comes in, FOMS will mark the order as 'complete' so that the planning messages will be removed with a subsequent run of **rfo**. This will take care of situations such as an overlay dial transfer, in which the SWITCH System may send planning messages, but not frame output to FOMS.

A DISCARD=Y tag will be included in the PCNWO contract whenever a work order of any type is being completed and removed from the SWITCH System database. This will cause byte 79 of the OR record to be set to "C" if the all circuits are frame complete, or "P" if they are not. The "P" status indicates that the order may be purged when all circuits become frame complete.

Table 3-7 gives a summary of programmable-order processing.

Table 3-7. Programmable-Order Processing

Status of circuit in the database		PRE	CAN	PCN
Not established		Establish	Error	Error**
AC	Printed	Cancel Reestablish	Cancel	Installation
	Unprinted	Withdraw, Reestablish	Withdraw	Installation Completion
IC	Printed	Error*/ Ignore	Error*	Ignore
	Unprinted	Error*/	Error*	Ignore
Frame Completion		Cancel, Reestablish	Cancel	Final Completion
Final Completion		Ignore		
Cancel	Printed	Ignore	Ignore	Error*
	Unprinted	Ignore	Ignore	Error*

* NOTE: An error occurs if contracts are received by FOMS out of sequence.

** NOTE: See previous section for exception

3.3.6 Cable Pair Transfers

A CPT is used to reorganize the outside plant to maximize efficient use of cable pairs. It originates in LFACS and is sent through SOAC to the SWITCH System. A CPT order specifies ranges of cable pairs involved in the transfer. When the SWITCH System receives a CPT order, it generates a PREPWO contract and sends it to FOMS. It may then make assignments and generate a PREWO contract to be sent to FOMS.

There are three ways to initiate the sending of cable pair transfer work from the SWITCH System to FOMS:

1. The SWITCH System has two user-definable parameters that can be set. The first is the SAL (set assignment logic) parameter. If it is set to "yes", the transfer will be automatically assigned after establishment, and an assignment PREPWO will be sent to FOMS. The second parameter is the SFO (send frame output). If it is set to "yes", the SWITCH System will send frame output (a PREWO contract) to FOMS automatically.
2. If the SAL parameter is set to "yes" but the SFO parameter is set to "no", frame personnel may request frame output from SWITCH by using the FUSA transaction **rqf**.
3. If both the SAL and SFO parameters are set to "no", frame personnel may request assignment of the transfer by using the FUSA transaction **asc**. **asc** may also be used to request frame output by specifying "sfo y". If frame output is not requested, the frame user will then use FUSA transaction **rqf**.

Circuit additions and removals for a CPT order are processed as described above for all programmable orders. Circuit modifications, however, are handled differently. When a circuit in a CPT will be modified, LFACS sends the SWITCH System both a CANWO contract (to cancel the original circuit assignment) and a PREWO contract (to establish the new circuit assignment). If a PREWO contract has been sent to FOMS with the original circuit data, the SWITCH System will send both contracts to FOMS.

There are two cases that FOMS must handle when processing a circuit modification.

1. FOMS receives the CANWO contract before it receives the PREWO contract. The CANWO contract cancels the circuit (See Section 3.3.4.), and the PREWO contract reestablishes it (See Section 3.3.3.).
2. FOMS receives a PREWO contract before the CANWO contract. In this case, the PREWO contract both cancels and reestablishes the circuit. If FOMS should then receive the CANWO contract that was intended to remove the old circuit, it would ignore it after verifying that the sequence number of the CANWO contract is lower than the sequence number of the PREWO, indicating that the CANWO contract preceded the PREWO contract.

The disadvantage of using both CANWO and PREWO contracts for circuit modifications is the overhead costs incurred from disconnecting and then reestablishing a circuit. For circuit modifications originating in the SWITCH System ULBB a CORCPT contract is sent to the SWITCH System Data Layer Building Block (DLBB). The SWITCH System sends a PREWO contract to FOMS; it does not send a CANWO contract to FOMS.

As LAC personnel complete parts of the cable transfer, SOAC sends partial-completion notices to the SWITCH System, which, in turn, sends PCNWO contracts to FOMS. The PCNWO contracts indicate which range of cable pairs were recently transferred. When the SWITCH System receives notice from SOAC that the last set of cable pairs have been transferred, it sends a final PCNWO contract to FOMS.

3.3.7 Non-Service Order Line and Station Transfers

A Non-Service Order LST is used to transfer a working loop to a spare cable pair, thus freeing the original cable pair. A line and station transfer originates in LFACS, and is sent to the SWITCH System via SOAC. When it is established, the SWITCH System creates an establishment planning message and sends it to FOMS via a PREPWO contract. It may then make assignments and generate a PREWO contract to be sent to FOMS, or that may be done at a later time.

There are two ways to request frame output for a non-service order line and station transfer from the SWITCH System:

1. The SWITCH System has two user-definable parameters that can be set. The first is the SAL (set assignment logic) parameter. If it is set to "yes", the transfer will be automatically assigned after establishment, and an assignment PREPWO will be sent to FOMS. The second parameter is the SFO (send frame output). If it is set to "yes", the SWITCH System will send frame output to FOMS automatically.
2. If the SAL parameter is set to "yes" but the SFO parameter is set to "no", frame personnel may request frame output from SWITCH by using the FUSA transaction **rqf**.

Circuit additions and deletions for an LST are processed as described previously for cable transfers.

Non-service order LSTs will establish in FOMS as "Assignment Complete," requiring both a Frame Completion (via **scm**) and an Installation Completion via a PCNWO contract.

LSTs can be summarized and packaged with transaction **pak** and printed with either transaction **for** or **fwm**.

3.3.8 Switch Port Equipment Transfers

A Switch Port Equipment Transfer (SET) is used to rearrange switch port assignments. This is desirable for clearing blocks of switch ports in anticipation of a large order or simply for balancing the switch load. The Network Administration Center (NAC) establishes SETs in the SWITCH System.

When an SET is established, the SWITCH System creates a PREPWO contract with the establishment planning message data and sends it to FOMS. It then makes assignments and generates a PREWO contract to be sent to FOMS, or that could be done at a later time.

There are three ways to initiate the sending of switch port equipment transfer work from the SWITCH System to FOMS:

1. The SWITCH System has two user-definable parameters that can be set. The first is the SAL (set assignment logic) parameter. If it is set to "yes", the transfer will be automatically assigned after establishment, and an assignment PREPWO will be sent to FOMS. The second parameter is the SFO (send frame output). If it is set to "yes", the SWITCH System will send frame output to FOMS automatically.
2. If the SAL parameter is set to "yes" but the SFO parameter is set to "no", frame personnel may request frame output from SWITCH by using the FUSA transaction **rqf**.
3. If both the SAL and SFO parameters are set to "no", frame personnel may request assignment of the transfer by using the FUSA transaction **ast**. **ast** may also be used to request frame output by specifying "sfo y". If frame output is not requested, the frame user will then use **rqf**.

Circuit additions and removals for an SET are processed the same as cable transfers.

SETs will have a pending status in the SWITCH System, waiting for a completion notice (PCNSET) from FOMS, and can be cancelled up to that point. SETs are established in FOMS as pending. The frame completion (via **scm**) triggers a PCNSET contract back to the SWITCH System to indicate that frame completion has taken place. The SWITCH System marks the SET as complete and returns a PCNWO contract to FOMS. When FOMS receives the PCNWO contract, it gives the SET (or lines of an SET) a status of Final Completion.

SETs are summarized and packaged with transaction **pak** and printed with transaction **for** or **fwm**.

3.3.9 Dial Transfers

3.3.9.1 High Level View

A dial transfer is one of several types of dial projects. It is the replacement of one switch or part of a switch by a new switch. Another way to look at it is the transference of one or more NXXs, or perhaps large CENTREX groups from one entity to another. Again, the old switch (entity, intelligent controller) may be totally replaced by the new one, or it may continue to function with fewer customers.

There is a type of dial transfer known as a y-splice (or overlay) transfer, which means that the old and new OEs are spliced outside of the frame and there is no actual frame work to be done, just translation work in the involved switches. Y-splice transfers will be supported in the SWITCH System, and therefore in FOMS also.

Dial transfer orders may be established in the SWITCH System by the NAC, a System Administrator, or a special group convened for the purpose of administering the dial transfer. A dial transfer is established as a programmable order. An establishment planning message is sent to FOMS at that time, and a new one is sent anytime lines are added to the transfer or cancelled from the transfer.

As with all programmable orders, the establishment phase is followed by an assignment phase. It is thought that assignment of a dial transfer will be done in steps, rather than assigning the entire transfer at once. Each time assignment is performed for part of the transfer, the SWITCH System will send an assignment planning message to FOMS. If the SFO tag is set to yes, the SWITCH System will automatically send assignment data to FOMS. If it is set to no, the data will only come upon request via the **rqf** (or in some cases **rqt**) transaction in FUSA. The SWITCH System will not decide if there is frame work to be done; it will always send output to FOMS, and FOMS will store the data and mark it either 'to be printed' or 'suppressed'. Each line of the order will be given an identification number, known as an item number, when assignment is performed on that line. This item number will remain with the circuit for the duration of the order. The SWITCH System will pass the item number to FOMS along with the other data for a circuit in a dial transfer.

There will be several types of reports available in the SWITCH System to obtain information on the progress of the dial transfer. Some of these reports will be accessible by the FRAME or RCMAC via FUSA transactions.

When the frame output has been printed and worked for a line in transfer, the frame attendant enters frame completion into FOMS. This will trigger a contract to be sent to the SWITCH System informing it of the frame completion. The SWITCH System will store the Frame Work Indicator against the circuit for informational purposes only.

Dial transfers may be modified in the SWITCH System while they are in the assigned state; that is, lines may be added, deleted or changed. If data had already been sent to FOMS for

the affected line(s), an update will be sent. Individual lines in the transfer may be cancelled, and, if necessary, the entire transfer may be cancelled. (This is assumed to be a rare event).

Completion of the transfer is entered into the SWITCH System by the same person or group that did the establishment. The SWITCH System will then notify FOMS of the completion, and the FOMS database will be updated accordingly.

Within FOMS there will also be the capability of inquiring on a line in dial transfer, and obtaining a status report and counts pertaining to the transfer.

3.3.9.2 The SWITCH System/FOMS Interface

The contracts used in processing dial transfers are:

Contract	Description	Direction
PREPWO	Planning Message	SW->FOMS
PREWO	Order Data	SW->FOMS
CANWO	Cancellation Data	SW->FOMS
PCNWO	Completion Notice from SWITCH	SW->FOMS
PREFWI	Notification of Frame Completion	FOMS->SW

- PREPWO

  The planning message contract will need to include more data to describe the dial transfer. A new aggregate 'WOPT' will be sent describing the ranges of the network unit in the dial transfer. Since many ranges of different network units may be used there may be multiple REC aggregates.

  The following is an example of the proposed WOPT aggregate.

```
*WOPT{
        CTL{
                FROMIC{
                        EXNM
                        EXID
                }
                TOIC{
                        EXNM
                        EXID
                }
                LC
        }
        REF{
                SFO
                STD
        }
        REC{
                EX{
```

```
                        EXNM
                        EXID
                        EXHI
                }
                CKTFILT{
                        INCL{
                                CLS
                                SIG
                        }
                        EXCL{
                                ADSR
                                SFG
                        }
                }
        }
        REC{
        }
}
```

- PREWO

  On a PREWO for a dial transfer the FEQ information will be as follows:

```
FEQ{
        type=item;
        id='item number assigned for this circuit';
   }
TRAN{
        item='item number assigned for this circuit';
    }
```

  The SWITCH System may send an OVERLAY fid in the switch port EQP OLD/NEW aggregate. The presence of this tag indicates this is a switch port overlay and no additional frame work should be required. However, since additional network units may have been added or deleted from the circuit (other than the switch port) extra processing is done in FOMS to determine that all network units on this overlay are reused. If all are reused, the FX table is checked to see if frame output should be suppressed. Otherwise, frame work is not marked as suppressed.

- CANWO/PCNWO

  As in PREPWO and PREWO contracts the item number will now appear in the OUTEQP aggregate, both as the FEQ and as the item number.

- PREFWI

  For informational purposes the SWITCH System maintains the frame completion status of each circuit in the Dial Transfer. A new contract PREFWI will be used by the FOMS **scm** transaction to send this data to the SWITCH System. It will contain an FWD tag to indicate that the circuit is frame complete. Here is the format:

```
*FWI{
        REC{
```

```
            ITEMNUM
            FWD
        }
}
```

3.3.9.3 FOMS Impact - Printing

The transaction to print frame output for a dial transfer in FOMS (as in COSMOS) is **tof** (Transfer Order Frame output). Output will be in a running list format; that is, one or more lines of output per circuit immediately following and on the same page as the previous circuit.

The **tof** transaction requires h-line input of an order number (ORD) and at least one of the following:

— a line count (LC)

— a single OE, CP, or TN or a range of OEs, CPs, or TNs

— an item number (ITEM) or a range of item numbers

— a frame (FR) and a mod (MOD) or zone (ZN) or a range of mods or zones

Optional inputs are SG, PTY, NXX, ADSR, FAC, PASM, MASM, or TASM. **tof** should have the ability to include or exclude these filters, via i-lines (include) or o-lines (exclude). An input of SG X means include or exclude circuits belonging to segment group X. An input of PTY Y means include or exclude party circuits. An input of ADSR Y means include or exclude designed circuits. An input of FAC XX means include or exclude circuits containing a facility of type XX. An input of PASM Y, or MASM Y or TASM Y means include or exclude circuits with permanent assemblies, modifiable assemblies, or temporary assemblies.

Two types of "lists" are produced by **tof**. One is called the "jumper running list" or "frame running list", and contains all the "in" or "reused" facilities. This list must always be printed, unless frame output for that circuit is suppressed. The other is the "dead jumper list" and contains all the out or reused facilities. It is not printed, if the frame containing the out facilities is being retired. An input of MF DJ (message format: dead jumper) is necessary to print the dead jumper list; otherwise **tof** will default to MF RL, which prints the jumper running list.

tof should also allow input of the following printing options:

NEW	Print ckts in transfer and not already printed
COPY	Reprint the last OP NEW run
REP	Reprint all printed ckts that match filters
ALL	Print all ckts in transfer
FWN	Print unprinted ckts and give frame completion
SCM	Print latest version of pending circuits

If no OP is input, **tof** should default to OP NEW, which means "print all circuits in the transfer which have not been previously printed, and then set the appropriate print tag". OP COPY means "print all circuits which were printed in the last OP NEW run". OP REP means "print all previously printed circuits". OP ALL means "print all circuits whether they were previously printed or not". OP FWN will print circuits which would ordinarily be suppressed (i.e. frame work "no" circuits). OP NEW is the only option which resets a print tag.

In COSMOS the TOF print tag in the OE record acts as a frame completion indicator. In FOMS the appropriate print tag(s) in the circuit record is updated when **tof** is run, but it is separate from the frame completion status, which will be updated by **scm**.

The normal procedure is to run **tof**, do the wiring and then run **scm**, but **tof** also includes an "OP SCM" to invoke **scm** to give frame completion to those circuits which it has just printed.

tof output for the jumper running list consists of all in or reused facilities, frame locations, party position for TNs, special status and protector frame for CPs, and class of service and features for OEs. The same items should be printed for out or reused facilities on the dead jumper list.

Modification and cancellation notices involving circuits which were previously printed must be printed with an input of order number and "TFC Y". They will not be included in the "OP NEW" output otherwise. "TFC Y" may be combined with OP COPY, REP or ALL to obtain additional printings if necessary; OP NEW will be the default if no OP is specified. OP FWN does not apply to modification/cancellation notices. A facility or range of facilities or an item or range of item numbers may be input with "TFC Y" to limit the amount of output. An input of "FF Y" may be combined with "TFC Y" (or it may be defaulted to via the tunability table) and it will cause **tof** to form feed between circuits.

If a facility or range of facilities is specified via a circuit id or item number, and "OP REP" or "OP ALL" is entered, all requested circuits will be included in the output even if they have been modified or cancelled.

If a facility ID is input, **tof** will output the current version of any circuit currently containing that facility; that is, it will not search previous passes.

"OP VER," which may not be combined with any other option, prints or reprints the current version of any circuit in the range except for cancelled or suppressed circuits. No print tags are updated. "FF Y" may be used with "OP VER". The output of "OP VER" can be used for verification purposes.

3.3.9.4 FOMS Impact - Frame Completion

In FOMS **scm** is used to give frame completion to a line in dial transfer. Input to **scm** for completing lines of a dial transfer consists of the order number (ORD), and a facility or range of facilities (TN, OE, or CP), or an item number or range of item numbers to identify the circuits to be completed.

When **scm** sets the status to frame complete, it normally triggers a PREFWI contract to the SWITCH System to notify it that the frame work has been done for this circuit. For a "frame output suppressed" circuit the PREFWI is sent at establishment time after the print tag is set to "5" and the primary status set to "N". If, however, the circuit in question is already "LAC complete", no PREFWI should be sent. Another situation in which a PREFWI should not be sent is if there is an *fwi_ordid* parameter set to “y”, where *ordid* is the order number of the dial transfer being processed.

FOMS will require two frame completions when a dead jumper list must be printed. Furthermore, the second frame completion will most likely be done after the transfer is complete in the SWITCH System, and thus no PREFWI should be sent for the second completion.

For a given DTR there exists a parameter called DJ_ORDID that specifies whether or not a dead jumper list must be printed for the specified order.

A. DJ_ORDID=N

If DJ_ORDID is set to "NO", transaction **scm** and the PCNWO module will change an "AC" status to "FC" or "IC" respectively. If the **scm** comes first, it will send a PREFWI contract to the SWITCH System; if the PCNWO comes first, it will not. Tables 1A and 1B illustrate this.

TABLE 1A

action	circuit status	prefwi
establish order	p	
tof - jrl		
scm	m	yes
cmp dtr(pcnwo)	c	

TABLE 1B		
action	**circuit status**	**prefwi**
establish order	p	
cmp dtr(pcnwo)	a	
tof - jrl		
scm	c	no

The case of an overlay or y-splice dial transfer is another example of a DJ_ORDID=N situation. Table 1C shows the flow in that case.

TABLE 1C		
action	**circuit status**	**prefwi**
establish order	n	yes
cmp dtr(pcnwo)	c	

B. DJ_ORDID=Y

For the situation in which DJ_ORDID=Y, in addition to the two printings currently required, two frame completions will be required. To handle all the possible variations of the order in which the two frame completions and the PCNWO can occur two new statuses are necessary: a TC (temporary completion) status to indicate that the PCNWO has arrived before the first frame completion, and an RC (running list completion) status to indicate that the first frame completion has been done. The following tables give the circuit status for each step of the three possible orderings of the PCNWO and the two frame completions.

TABLE 2A		
action	**circuit status**	**prefwi**
1. establish order	p	
2. tof - jrl		
3. scm	r	yes
4. tof - djl		
5. cmp dtr(pcnwo)	a	
6. scm	c	no

Note: 1,2,3,4,5,6 is the expected order of occurrence, but other legitimate sequences are 1,2,3,5,4,6 and 1,2,4,3,5,6; statuses would be updated in the same way for these sequences, since the relative ordering of the PCNWO and the two **scm**s remains the same.

TABLE 2B

action	circuit status	prefwi
establish order	p	
tof - jrl		
scm	r	yes
tof - djl		
scm	m	no
cmp dtr(pcnwo)	c	

TABLE 2C

action	circuit status	prefwi
establish order	p	
cmp dtr(pcnwo)	t	
tof - jrl		
scm	a	no
tof - djl		
scm	c	no

Some additional rules to be observed in dealing with dial transfers:

1. The jumper running list must be printed before the first **scm** which is assumed to be completing the jumper running list frame work.
2. The jumper running list must be printed before the dead jumper list may be printed.
3. The dead jumper list must be printed before the second **scm** which is assumed to be completing the dead jumper list frame work.
4. **scm** should be blocked when the circuit status is "c" or "m". That will block a second **scm** when DJ_ORDID=N or a third **scm** when DJ_ORDID=Y.
5. When processing a modification or cancellation, the PREWO and CANWO modules should treat an "r" status like an "m".
6. The external representations of "t" and "r" are "TC" and "RC" respectively.

3.3.9.5 FOMS Impact - Inquiries/Reports

- FOI

  The FOMS Order Inquiry transaction (**foi**) must be enhanced to report on a circuit in a dial transfer. Input must be the dial transfer order number and a facility or a range of facilities (TN, OE, or CP) or an item number or a range of item numbers to identify the circuit(s). **foi** will accept up to 5 individual facilities, ranges of facilities, individual item numbers, or ranges of item numbers, and any combination of these inputs. Input of only a dial transfer order number is invalid.

  Output of **foi** for a circuit in dial transfer must include the two print tags.

- FOS

  The Frame Operations Summary (**fos**) transaction must include a new option, which will be invoked as OP DTR. It will print counts of circuits in various stages of transfer, namely:

  - Total number of circuits in this transfer in the SWITCH System
  - Total number of circuits in this transfer in FOMS
  - Total number of circuits in this transfer which have been suppressed
  - Total number of circuits in this transfer which have been printed
  - Total number of circuits in this transfer which have been frame completed
  - Percent of circuits which have been frame completed (total frame completed/ total number in the transfer in the SWITCH System)
  - Number of circuits in this transfer which have been modified
  - Percent of circuits which have been modified (total number modified/total number in the transfer in the SWITCH System)
  - Total number of circuits in this transfer which have been cancelled
  - Percent of circuits which have been cancelled (total number cancelled/total number in the transfer in the SWITCH System)
  - Total number of circuits in this transfer pending in FOMS, but not printed
  - Percent of circuits in this transfer which are pending in FOMS, but not printed (total pending but not printed/total number in this transfer in the SWITCH System)

  This report must be available by individual date or range of dates within the current month, individual month or range of months within the past year, and on a cumulative basis. With no date input, the report should default to a cumulative report, i.e. the sum of all previous monthly totals plus the totals for the current month. Cumulative counts

will be decremented to reflect modifications and cancellations, but daily and monthly counts will not.

fos "OP WO" will also include dial transfers as a work order type.

- OPN

  The Open of Day Report (**opn**) must be enhanced to include an "OP DTR" that will print planning messages for dial transfers.

- FTS

  The FOMS Transfer Summary (**fts**) will report on a dial transfer with both the OP ALL and the ORD option, and should include DTR as a valid order type.

3.3.9.6 FOMS Impact - Database

FOMS must have the following:

- The ability to suppress frame output for circuits in a y-splice dial transfer, and this must be user tunable
- A parameter which a system administrator must set to indicate if a dead jumper list is required for a particular dial transfer
- A parameter which can be set to turn off the sending of PREFWI contracts to the SWITCH System for a given dial transfer
- Two print tags (or a multi-value tag) in a circuit header record for a line in dial transfer to keep track of both the printing of the jumper running list and the dead jumper list
- A table containing parsing rules for OEs in the entities supported in the SWITCH System for this wire center
- Additional records in the FP file for storing the 'OP DTR' counts for **fos**
- Transactions to initialize any new database files required for dial transfer processing

The following FOMS database administration transactions need to be updated:

- **mtinit** must ask about frame output for dial transfer planning messages
- **fxinit** must be able to delete all data for a particular entity after a dial transfer is completed and the entity no longer exists in the wire center
- **rord** must be able to remove a dial transfer order, but because of the size of dial transfers, it should warn the user and provide the opportunity to terminate the transaction at that point

3.3.9.7 FOMS Impact - Miscellaneous Impacts

There will be no jeopardy processing or related order processing for dial transfers except that **foi** of a circuit in a dial transfer will reference any related orders. A circuit in a dial transfer may not be put in jeopardy, and orders related to dial transfers will not be referenced on **tof** output, nor will dial transfers be referenced on the frame output of any other type of order.

3.3.9.8 FUSA Impact - New Transaction

- Transfer Order Inquiry (**toi**) will provide the ability to inquire on a circuit in dial transfer in the SWITCH System.
- Transfer Order Listing (**tol**) will provide the ability to obtain a list of circuits in a dial transfer in the SWITCH System which reflects both the old and new configurations.
- Transfer Obstacles and Omissions (**too**) will provide the ability to obtain a list of circuits in the SWITCH System which have "no frame output sent" or are "MAS-involved and no data sent to MAS".
- Transfer Order Summary (**tos**) will provide the ability to obtain a summary (i.e. counts of circuits in various stages) of a dial transfer in the SWITCH System.
- Dial Transfer Mapping (**dtm**) will provide mapping information for one or more OEs in an overlay dial transfer.

3.3.10 Wire Assembly Orders

WAOs are orders that create or purge DIPs or other types of assemblies in bulk, and provide frame output, if desired. Information is sent to FOMS via a PREWO contract for one circuit at a time. However, all circuits that are part of the same wire assembly order have the same order number. The PREWO contract contains information on the individual components of the assembly in the ASM aggregate. The circuit ID is either the cable pair or switch port ID. Planning message contracts will be sent as they are for all work orders. These orders will be established as pending in FOMS. Wire assembly orders may be canceled using a CANWO contract. In addition when a wire assembly order is frame completed in FOMS a PCNWAO contract is sent to the SWITCH System. This will in turn cause the SWITCH System to respond with a PCNWO contract to bring about final completion of the order. A WAO to modify DIPs may be done only in conjunction with a dial transfer.

3.3.10.1 Printing of WAOs

Frame output for wire assembly orders is printed with transaction **dof** (DIP Order Frame Output). It has a running-list format. Required input to **dof** is an h-line with an order number (ORD). Optional input includes:

1. A facility ID to request output for just the line containing that facility
2. A line count (LC) to print just the specified number of DIPs
3. A printing option (OP NEW or OP REP) to request either all of the lines of the order that have not been printed, or all of the lines that have been printed.
4. A frame completion option (OP SCM) to print and frame complete.
5. Sorting is done for each order by frame and zone. Optionally, a frame and zone may be input to limit the part of the order that is printed.

If the "OP" prefix is not specified, **dof** defaults to OP NEW.

3.3.10.2 Interaction of Service/Work Orders and Wire Assembly Orders

Wire assembly orders to purge DIPs are done to augment the pool of spare OEs for assignment on service orders or other work orders. Therefore, it is possible that a WAO pending in FOMS may be followed by a service or work order using that OE. If a WAO is pending in FOMS, and a service order or work order comes in which uses the OE from the WAO, the following rules will apply:

1. Each order, when printed, will reference the other.
2. If the WAO has not been printed and the service/work order is about to be printed, transactions **for/fwm/ctp** will execute **dof** automatically to print the WAO along with the service/work order.
3. If the WAO has not been frame completed and **scm** is being run on the service/work order, it will automatically complete the WAO.

Wire assembly orders to create DIPs are done to maximize efficiency and minimize time and effort working service (and work) orders at the frame. It is possible that a pending DIP (per a WAO) may be used in a subsequent service or work order. In that case the above three rules for interaction of Break DIP WAOs and service/work orders apply, and there is one additional rule for Create DIP WAOs.

1. If there is a WAO to create a DIP and a service or work order reusing that DIP and the frame output for the SO/WO is suppressed, both outputs must be printed at the time the SO/WO would have been printed, had it not been suppressed. See Section 3.6 for further details.

A region-specific feature known as "Enhanced Interaction of Service Orders and WAOs" (or the CANWAO feature), is available only to funding customers, and works in the following manner. Currently if a break DIP WAO is pending in the SWITCH System and a service order due after the WAO comes in and uses the CP, it will assign a new OE to the order. Frame work consists of breaking the DIP and then wiring up the CP to a new OE for the service order. This is unnecessary work if the original OE would have been acceptable for the service order. The enhancement is to have FOMS recognize this situation and if the frame output for the WAO is not printed (or printed but not frame complete, depending upon a parameter), FOMS will send a CANWAO to the SWITCH System to cancel that DIP from the WAO. The SWITCH System will then rework the service order and reuse the existing DIP. FOMS will get a notice canceling the DIP from the WAO, and a COR pass on the service order showing an RDP.

3.3.11 Jumper Activity Management Orders

3.3.11.1 High Level View

A Jumper Activity Management or JAM order is established for the purpose of eliminating either long jumpers or tie pairs (TPs) on the frame. JAMs use existing Switch Port Equipment Transfer (SET) functionality in the SWITCH System. Thus, the COSMOS TPM option to remove TPs without assigning new OEs will not be supported. Options TPL (assigning new OEs to remove TPs), and JTL (assigning new OEs to relieve jumper trough congestion) will be supported.

JAM orders will ordinarily be established in the SWITCH System by frame personnel via FUSA, although they may be established directly via the SWITCH System User Layer Building Block (ULBB). A JAM order is established as a programmable order. An establishment planning message is sent to FOMS at establishment time, and a new one is sent any time lines are added to the order or cancelled from the order.

As with all programmable orders, the establishment phase is followed either immediately or at a later date by an assignment phase. Assignment of a JAM order may be done via FUSA, or the ULBB and it may be done in steps, rather than all at once. Each time assignment is performed for all or any part of the order, the SWITCH System will send an assignment planning message (PREPWO contract) to FOMS. If the SFO tag is set to yes, the SWITCH System will automatically send assignment data (PREWO contract) to FOMS. If it is set to no, the data will only come upon request via the **rqf** (or in some cases **rqt**) transaction in FUSA. The SWITCH System will not decide if there is frame work to be done; it will always send output to FOMS, and FOMS will store the data and mark it either "to be printed" or "suppressed".

There will be several types of reports available in the SWITCH System to obtain information on the progress of a JAM order. Some of these reports will be accessible by the FRAME or RCMAC via FUSA transactions.

When the frame output has been printed and worked for a line in a JAM order, the frame attendant enters frame completion into FOMS with transaction **scm**. This will trigger a PCNJAM contract to be sent to the SWITCH System informing it of the frame completion. The SWITCH System will then send a PCNWO contract back to FOMS which will initiate final completion in FOMS.

JAM orders may be modified in the SWITCH System while they are in the assigned state; that is, lines may be added, deleted or changed. If data had already been sent to FOMS for the affected line(s), an update (PREWO contract) will be sent. Individual lines of the order may be cancelled, and, if necessary, the entire order may be cancelled. Cancellation will also generate output to FOMS; another establishment PREPWO and a CANWO if FOMS had already received output on the cancelled line(s).

Within FOMS there will also be the capability of inquiring on a line of a JAM order, and obtaining a report on the order.

The SWITCH System/FOMS Interface

The contracts used in processing JAM orders are:

Contract	Description	Direction
PREPWO	Planning Message	SW->FOMS
PREWO	Order Data	SW->FOMS
CANWO	Cancellation Data	SW->FOMS
PCNWO	Completion Notice from the SWITCH System	SW->FOMS
PCNJAM	Notification of Frame Completion	FOMS->SW

The PCNJAM contract is the only new contract. It will be structured like the PCNSET contract except that it will have a *JAM section instead of a *SET section.

3.3.11.2 FOMS Impact

The transaction to print frame output for a JAM order in FOMS is **tof** (Transfer Order Frame output). Output will be in a running list format; that is, one or more lines of output per circuit immediately following and on the same page as the previous circuit.

The **tof** transaction requires h-line input of an order number (ORD) and at least one of the following:

— a line count (LC)

— a single OE, CP, or TN or a range of OEs, CPs, or TNs

— an item number (ITEM) or a range of item numbers

— a frame (FR) and a mod (MOD) or zone (ZN) or a range of mods or zones

Optional inputs are SG, PTY, NXX, ADSR, FAC, PASM, MASM, or TASM. **tof** should have the ability to include or exclude these filters, via i-lines (include) or o-lines (exclude). An input of SG X means include or exclude circuits belonging to segment group X. An input of PTY Y means include or exclude party circuits. An input of ADSR Y means include or exclude designed circuits. An input of FAC XX means include or exclude circuits containing a facility of type XX. An input of PASM Y, or MASM Y or TASM Y means include or exclude circuits with permanent assemblies, modifiable assemblies, or temporary assemblies.

tof should also allow input of the following printing options:

NEW	Print ckts in transfer and not already printed
COPY	Reprint the last OP NEW run
REP	Reprint all printed ckts that match filters
ALL	Print all ckts in transfer
SCM	Print unprinted ckts and give frame completion

If no OP is input, **tof** should default to OP NEW, which means "print all circuits in the order which have not been previously printed, and then set the appropriate print tag". OP COPY means "print all circuits that were printed in the last OP NEW run". OP REP means "print all previously printed circuits". OP ALL means "print all circuits whether they were previously OP NEW is the only option which resets a print tag."

The normal procedure will be to run **tof**, do the wiring and then run **scm**, but **tof** should also include an "OP SCM" to invoke **scm** to give frame completion to those circuits which it has just printed.

tof output consists of all facilities, frame locations, party position for TNs, special status and protector frame for CPs, and class of service and features for OEs. The printing order is out facilities, in facilities, and reused facilities.

Modification and cancellation notices involving circuits which were previously printed may be printed with an input of order number and "TFC Y". They will not be included in the "OP NEW" output otherwise. "TFC Y" may be combined with OP COPY, REP or ALL to obtain additional printings if necessary; OP NEW will be the default if no OP is specified. An input of "FF Y" may be combined with "TFC Y" (or it may be defaulted to via the tunability table) and it will cause **tof** to form feed between circuits.

If a facility or range of facilities is specified via a circuit id or item number, and “OP REP” or "OP ALL" is entered, all requested circuits will be included in the output even if they have been modified or cancelled.

"OP VER", which may not be combined with any other option, prints or reprints the current version of any circuit in the range except for cancelled or suppressed circuits. No print tags are updated. "FF Y”" may be used with "OP VER". The output of "OP VER" can be used for verification purposes.

Transactions **for** and **fwm** must print planning messages for JAMs if the MT table so indicates.

The BCCs do not require the ability to put JAM orders in jeopardy.

In FOMS **scm** will be used to give frame completion to a line in a JAM order. Input to **scm** for completing lines of a JAM order consists of the order number (ORD), and a facility (CKID, TN, OE, or CP) or range of facilities (TN, OE, or CP), or an item number (ITEM) or range of item numbers to identify the circuits to be completed.

When **scm** sets the status to frame complete, it must trigger a PCNJAM contract to the SWITCH System to notify it that the frame work has been done for this circuit.

3.3.11.3 Related Orders

- Referencing: Transactions **tof** and **foi** must reference related orders when a JAM order is being printed, or inquired upon. For details on referencing related orders, see "Requirements for Related Order Processing in FOMS/FUSA - Issue 3", August 31, 1992, by the author.
- Automatic Printing: Due to the amount of work required for **tof** to automatically print related orders, JAM orders or orders which JAM orders depend on will not be automatically printed.
- Automatic Completion: If **scm** is run on either a JAM with a related order, or another order which is related to a JAM and the related order is due on the same day or before the requested order, and have both been printed, the first order will be automatically completed along with the second.

3.3.11.4 Inquiries/Reports

- FOI: The FOMS Order Inquiry transaction (**foi**) must be enhanced to report on a circuit in a JAM order. Input must be the JAM order number and a facility (CKID, TN, OE, or CP) or a range of facilities (TN, OE, or CP), or an item number (ITEM) or a range of item numbers to identify the circuit(s). **foi** will accept up to 5 individual facilities, ranges of facilities, individual item numbers, or ranges of item numbers, and any combination of these inputs. Input of only a JAM order number is invalid.
- FOS: The Frame Operations Summary (**fos**) transaction 'OP FAR', 'OP WO', and 'OP SWOS' will also include JAMs in their output.
- OPN: The Open of Day Report (**opn**) must be enhanced to include an 'OP JAM' which will report on JAM orders and their planning messages. 'OP WO' should also include JAMs, and 'OP PWN' should include planning messages for JAMs.
- FTS: The FOMS Transfer Summary (**fts**) will report on a JAM order with both the OP ALL and the ORD option.
- FOL/WSL: The FOMS Order List (**fol**) and Work Status List (**wsl**) transactions include the ability to inquire on JAM orders.

3.3.11.5 Database

The following FOMS database administration transactions have been updated for JAMs:

- **mtinit** will ask about frame output for JAM order planning messages
- **rord** and **rfo** will be able to remove JAM orders.

3.3.11.6 FUSA Impact

The following transactions are provided in support of JAM orders.

- Transaction **jam** (JAM Order Establishment) is provided to establish a JAM order. It invokes the PREJAM contract in the SWITCH System.
- Transaction **asj** (Assign a JAM Order) is provided to assign a JAM order. It invokes the ASGJAM contract in the SWITCH System.
- Transaction **jaw** (JAM Order Withdrawal) is provided to cancel a JAM order or lines of a JAM order. It invokes the CANJAM contract in the SWITCH System.
- Transactions **rqf, rqt, rsw, wod, woi and wol** also process JAM orders.

3.3.12 Area Transfers

An area transfer(ATR) is one of several types of dial projects. It is the movement of a group of customers (defined as a range of cable pairs) from one wire center to another. Thus, by definition it involves two wire centers; hereafter referred to as the "from" wire center and the "to" wire center. An ATR is usually performed because a certain wire center grew more rapidly than predicted. Typical size of an area transfer is 2000-10,000 lines. Because circuits are moving to another wire center, new switch ports must be assigned in the "to" wire center and TNs usually change also. The scope of an ATR is a range of CPs; usually the cable number changes, but the pair numbers do not.

An area transfer order will be established and assigned in the SWITCH System in the "from" wire center. The contract processor in the "from" wire center will automatically generate the contracts to establish and assign the ATR in the "to" wire center. Planning messages and frame output are sent to the corresponding FOMS wire center from both of the SWITCH System wire centers.

An area transfer is a programmable order. An establishment planning message is sent to FOMS at the time the order is initially established, and a new one is sent any time lines are added to or cancelled from the transfer. As with all programmable orders, the establishment phase is followed by an assignment phase. It is expected that assignment of an area transfer will be done in steps, rather than assigning the entire transfer at once. Each time assignment is performed for part of the transfer, the SWITCH System will send an assignment planning message to FOMS. If the SFO tag is set to yes, the SWITCH System will automatically send assignment data to FOMS. If it is set to no, the data will only come upon request via the **rqf** transaction in FUSA. The SWITCH System will not decide if there is frame work

to be done; it will always send output to FOMS, and FOMS will store the data and decide whether it is "to be printed" or "suppressed". (Normally in an ATR all circuits require frame work in both wire centers).

The unique thing about ATRs in FOMS is the fact that two wire centers are involved. When an inquiry is made in either wire center on a circuit in an ATR, data from both wire centers must be provided. This will be possible without the use of a mapping table because the item number of a given circuit will be the same in both wire centers.

There will be several types of reports available in the SWITCH System to obtain information on the progress of the area transfer. Some of these reports will be accessible by the FRAME or RCMAC via FUSA transactions.

When the frame output has been printed and worked for a line in transfer, the frame attendant enters frame completion into FOMS. This will trigger a contract to be sent to the SWITCH System informing it of the frame completion. The SWITCH System will store the Frame Work Indicator against the circuit for informational purposes only.

Area transfers may be modified in the SWITCH System while they are in the assigned state; that is, lines may be added, deleted or changed. If data had already been sent to FOMS for the affected line(s), an update will be sent. Individual lines in the transfer may be cancelled, and, if necessary, the entire transfer may be cancelled. (This is assumed to be a rare event).

Completion of the transfer is entered into the SWITCH System by the same person or group that did the establishment. The SWITCH System will then notify FOMS of the completion, and the FOMS database will be updated accordingly.

Within FOMS there will also be the capability of inquiring on a line in an area transfer, and obtaining a status report and counts pertaining to the transfer.

3.3.12.1 The SWITCH System/FOMS Interface

The contracts used in processing area transfers are:

Contract	Description	Direction
PREPWO	Planning Message	SW->FOMS
PREWO	Order Data	SW->FOMS
CANWO	Cancellation Data	SW->FOMS
PCNWO	Completion Notice from the SWITCH System	SW->FOMS
PREFWI	Notification of Frame Completion	FOMS->SW

In the PREWO contract circuit action (TRAN.TRANACT) will always be "REMOVE" in the "from" wire center, and "BUILD" in the "to" wire center, and the facility action (EQP.ACT) will be "OUT" in the "from" wire center and "IN" in the "to" wire center.

3.3.12.2 FOMS Impact Printing

The transaction to print frame output for an area transfer in FOMS (as in COSMOS) is **tof** (Transfer Order Frame output). Output will be in a running list format; that is, one or more lines of output per circuit immediately following and on the same page as the previous circuit.

The **tof** transaction requires h-line input of an order number (ORD) and at least one of the following:

— a line count (LC)

— a single OE, CP, or TN or a range of OEs, CPs, or TNs

— an item number (ITEM) or a range of item numbers

— a frame (FR) and a mod (MOD) or zone (ZN) or a range of mods or zones

Optional inputs are SG, PTY, NXX, ADSR, FAC, PASM, MASM, or TASM. **tof** should have the ability to include or exclude these filters, via i-lines (include) or o-lines (exclude). An input of SG X means include or exclude circuits belonging to segment group X. An input of PTY Y means include or exclude party circuits. An input of ADSR Y means include or exclude designed circuits. An input of FAC XX means include or exclude circuits containing a facility of type XX. An input of PASM Y, or MASM Y or TASM Y means include or exclude circuits with permanent assemblies, modifiable assemblies, or temporary assemblies.

The "MF" fid used by **tof** for dial transfers is not meaningful for an ATR and should be ignored if input. This is due to the fact that in a given wire center facilities are either all "in" or all "out".

tof should also allow input of the following printing options:

NEW	Print ckts in transfer and not already printed
COPY	Reprint the last OP NEW run
REP	Reprint all printed ckts that match filters
ALL	Print all ckts in transfer
FWN	Print only circuits with no frame work

If no OP is input, **tof** should default to OP NEW, which means "print all circuits in the transfer which have not been previously printed, and then set the appropriate print tag". OP COPY means "print all circuits which were printed in the last OP NEW run". OP REP means "print all previously printed circuits". OP ALL means "print all circuits whether they were previously printed or not". OP FWN will print circuits that would ordinarily be suppressed (i.e. frame work "no" circuits). OP NEW is the only option that resets a print tag.

In COSMOS the "TOF print tag" in the OE record acts as a frame completion indicator. In FOMS the print tag(s) in the circuit record will be updated when **tof** is run, but it is separate from the frame completion status, which will be updated by **scm**.

The normal procedure will be to run **tof**, do the wiring and then run **scm**, but "OP SCM" may be used to give frame completion to those circuits which it has just printed.

tof output consists of all facilities, frame locations, party position for TNs, special status and protector frame for CPs, and class of service and features for OEs.

Modification and cancellation notices involving circuits which were previously printed may be printed with an input of order number and "TFC Y". They will not be included in the "OP NEW" output otherwise. "TFC Y" may be combined with OP COPY, REP or ALL to obtain additional printings if necessary; OP NEW will be the default if no OP is specified. OP FWN does not apply to modification/cancellation notices. An input of "FF Y" may be combined with "TFC Y" (or it may be defaulted to via the tunability table) and it will cause **tof** to form feed between circuits.

If a facility or range of facilities is specified via a circuit id or item number, and “OP REP” or "OP ALL" is entered, all requested circuits will be included in the output even if they have been modified or cancelled.

"OP VER", which may not be combined with any other option, prints or reprints the current version of any circuit in the range except for cancelled or suppressed circuits. No print tags are updated. “FF Y” may be used with "OP VER". The output of “"OP VER" can be used for verification purposes.

3.3.12.3 FOMS Impact -Frame Completion

scm will be used to give frame completion to a line in an area transfer. Input to **scm** for completing lines of an area transfer consists of the order number (ORD), and a facility or range of facilities (TN, OE, NP, or CP), or an item number or range of item numbers to identify the circuits to be completed. When **scm** sets the status to frame complete, it normally triggers a PREFWI contract to the SWITCH System to notify it that the frame work has been done for this circuit. For a "frame output suppressed" circuit the PREFWI is sent at the time that the print tag is set to "suppressed" and the primary status set to "N".

There are two situations in which **scm** is being executed on a circuit in an area transfer and a PREFWI contract should not be sent:

a. the circuit has LAC completion

b. there is a CHP parameter, *fwi_ordid*, set to "y" where *ordid* is the order number of the area transfer.

3.3.12.4 FOMS Impact - Inquiries/Reports

- FOI

  The FOMS Order Inquiry transaction (**foi**) must be enhanced to report on a circuit in an area transfer. Input must be the area transfer order number and a facility or a range of facilities (TN, OE, or CP) or an item number or a range of item numbers to identify the circuit(s). **foi** will accept up to 5 individual facilities, ranges of facilities, individual item numbers, or ranges of item numbers, and any combination of these inputs. Input of only an area transfer order number is invalid.

  Output of **foi** for a circuit in area transfer must include the circuit in both the "from" and "to" wire centers.

- FOS

  The Frame Operations Summary (**fos**) transaction must include a new report, which will be invoked as OP ATR. It will print counts of circuits in various stages of an area transfer, namely:

  - Total number of circuits in this transfer in the SWITCH System
  - Total number of circuits in this transfer in FOMS
  - Total number of circuits in this transfer which have been suppressed
  - Total number of circuits in this transfer which have been printed
  - Total number of circuits in this transfer which have been frame completed
  - Percent of circuits which have been frame completed (total frame completed/ total number in the transfer in the SWITCH System)
  - Number of circuits in this transfer which have been modified
  - Percent of circuits which have been modified (total number modified/total number in the transfer in the SWITCH System)
  - Total number of circuits in this transfer which have been cancelled
  - Percent of circuits which have been cancelled (total number cancelled/total number in the transfer in the SWITCH System)
  - Total number of circuits in this transfer pending in FOMS, but not printed
  - Percent of circuits in this transfer which are pending in FOMS, but not printed (total pending but not printed/total number in this transfer in the SWITCH System)

  This report must be available by individual date or range of dates within the current month, individual month or range of months within the past year, and on a cumulative basis. With no date input, the report should default to a cumulative report, i.e. the sum of all previous monthly totals plus the totals for the current month. Cumulative counts

will be decremented to reflect modifications and cancellations, but daily and monthly counts will not.

fos "OP WO" will also include area transfers as a work order type.

- OPN

  The Open of Day Report (**opn**) must be enhanced to include an "OP ATR" which will print planning messages for area transfers. OP WO and OP ALL will also output area transfer planning messages.

- FTS

  The FOMS Transfer Summary (**fts**) will report on an area transfer with both the OP ALL and the ORD option.

3.3.12.5 FOMS Impact - Database

To support area transfers FOMS must have in its database:

- The name of the other wire center involved in the transfer
- An indicator of whether a wire center is the "from" or the "to" wire center in the transfer (parameter name must include the ATR order number)
- Additional records in the FP file for storing the "OP ATR" counts for **fos**
- Transactions to initialize and remove any new database files required for area transfer processing

The following FOMS database administration transactions need to be updated:

- **mtinit** must initialize the MT file for area transfer planning messages
- **rord** must be able to remove an area transfer order, but because of the size of area transfers, it should warn the user and provide the opportunity to terminate the transaction at that point.

3.3.12.6 FOMS Impact - Miscellaneous

- Lines in area transfers may not be put in jeopardy
- There will be no related order processing (no referencing or automatic printing or automatic completion) for area transfers

3.3.12.7 FUSA Impact

The following transactions support area transfers.

- Area Transfer Listing (**atl**) provides the capability for obtaining a list of circuits in an area transfer in the SWITCH System that reflects both the old and new configurations.
- Area Transfer Obstacles (**ato**) provides the capability for obtaining a list of circuits in the SWITCH System that have "no frame output sent", or are "MAS-involved and no data sent to MAS", or are at RMA.
- The following transactions should process for area transfers as they do for other types of programmable orders: **toi, tos, woi, wol, rqf, rqt, rsw**.

3.3.13 Frame Transfers

3.3.13.1 Background

A frame transfer is the movement of working circuits from one main distributing frame to another. It is usually done because a new frame has been added to the office, or because an old frame is being retired. The SWITCH System supports frame transfers, thus they are also supported in FOMS/FUSA.

3.3.13.2 SWITCH System Processing

A frame transfer is a programmable order. It can be established, assigned, or cancelled through FUSA or the ULBB. Planning messages will be sent automatically upon establishment or assignment. Assignment can be invoked automatically after establishment, or at a later time and can be done for the entire order or for some specified range of circuits. Frame output can be sent automatically upon assignment, or requested at later time for all assigned circuits, or for some specified range. It can be completed through FOMS or the ULBB. Assignment of a frame transfer can be directed to always reuse the existing switch port on the new frame, or to always assign a new switch port to obtain a shorter jumper. Another option is to allow the SWITCH System to determine whether to reuse or reassign based on the jumper length between the OE and the CP on the new frame.

3.3.13.3 The SWITCH System to FOMS Interface

The SWITCH System will send data for frame transfers to FOMS via PREPWO, PREWO, CANWO, and PCNWO contracts. OCLASS will be FTR. FOMS will send a PCNFTR contract to the SWITCH System at frame completion time.

Contract	Description	Direction
PREPWO	Planning Message	SW->FOMS
PREWO	Order Data	SW->FOMS
CANWO	Cancellation Data	SW->FOMS
PCNFTR	FRAME Completion Notice	FOMS->SW
PCNWO	Completion Notice from the SWITCH System	SW->FOMS

PREPWO, PREWO, CANWO, and PCNWO are existing contracts.

3.3.13.4 PREWO

For the case in which the same switch port is reused on the new frame, the PREWO FCIF will look like the following:

```
EQP{
    ...
    ID
    ACT=R
    OLD{
        ...
        CONNECT{
            ...
            FRTERM (old termination)
            FRZONE
           }
      }
    NEW{
        ...
        CONNECT{
            ...
            FRTERM (new termination)
            FRZONE
           }
      }
```

For the case in which a new switch port is assigned on the new frame, the FCIF will contain

an EQP section for the "out" switch port and another for the "in" switch port (as in the case of a JAM, SET, or DTR).

3.3.13.5 PCNFTR

The PCNFTR contract contains a *C1 header and a *WOPT section. The *WOPT section sent to the SWITCH System when a line in a frame transfer is **scm'd** looks like:

```
*WOPT{REC{EX{EXNM=XXX;
        EXID=XXX}}}%
```

3.3.13.6 FOMS Impact - Software

Frame transfers are basically handled like any other programmable order with the following points to be noted:

- Transaction **tof** will be used to print the frame output and it must print an old and new frame location and LOIS for a facility. All other **tof** functionality applies to frame transfers except "MF DJ". See the section on dial transfers for a detailed description of **tof**.
- There will be no jeopardy processing or related order processing for frame transfers (similar to dial and area transfers).
- **fos** has an OP FTR that will print counts for frame transfers similar to the OP DTR option for dial transfers. Frame transfers also should be included in OP WO and OP SWOS output.
- **scm** sends a PCNFTR contract to the SWITCH System upon completion of a circuit in a frame transfer.
- **fts** and **foi** process a frame transfer order or a circuit in a frame transfer order.

3.3.13.7 FOMS Impact - Database

There may be new files for storing frame transfer order data and frame output data.

3.3.13.8 FUSA Impact

The following transactions support frame transfers.

- **fta** - Frame Transfer Analysis Report invokes the SWITCH System contract RPTFTA.

- **fte** - Frame Transfer Establishment invokes the SWITCH System contract PREFTR.
- **asf** - Assign a Frame Transfer invokes the SWITCH System contract ASGFTR.
- **ftw** - Cancel a Frame Transfer invokes the SWITCH System contract CANFTR.
- Transactions **rqf, rqt, rsw, woi and wol** process a frame transfer order as they do other programmable orders.

3.3.14 Channel Transfers

3.3.14.1 Background

Part of the SWITCH System DLE feature is a new type of programmable order: the Channel Transfer (CTR). A CTR is similar to a Switch Port Equipment Transfer (SET) in that it is done for the purpose of moving circuits from a heavily loaded switch equipment group to a lightly loaded one. The difference is that in a digital environment the circuits may be identified by channels or CRVs instead of switch ports. In addition to supporting the transfer of circuits between digital switch port equipment groups, CTR processing will also support the transfer of circuits from analog switch equipment groups to digital switch equipment groups; thus, the functionality supports equipment upgrades. Channel transfers can be established, assigned, modified, cancelled and completed in the SWITCH System via the User Layer Building Block (ULBB). Frame planning messages and frame output data will be sent to FOMS via PREPWO, PREWO, CANWO, and PCNWO contracts in the standard manner. FOMS will not send any notification of frame completion to the SWITCH System. Inquiry and report capabilities will be available in the SWITCH System and FOMS/FUSA.

3.3.14.2 FOMS Impact

FOMS will process the following contracts for a work order type of CTR:

— PREPWO contract

— PREWO contract

— CANWO contract

— PCNWO contract

The following transactions which take an input of order type (OT) must accept order type of CTR for channel transfers:

— **for**

— **wpt**

— **fol**

— **fts**

— **ufo**

Other transactions which are impacted by CTR processing:

— **pak** must package CTRs

— **for** and **fwm** must print frame output for CTRs.

— **fos** should include CTRs with other work orders in the WO, SWOS and JAR reports.

— **opn** must accept OP CTR and report on channel transfers.

3.3.14.3 FUSA Impact

The following transactions must work for CTRs as they do for all other programmable orders:

— **rqf**

— **rqt**

— **woi**

— **wol**

3.3.14.4 System Administration Impact

The following system administration transactions accept OT CTR:

— **mtinit**

— **fxinit**

3.4 Jeopardy Processing

The following requirements for jeopardy processing in FOMS are based on the requirements issued by the Frame Focus Group's Ad Hoc Committee on Jeopardy Processing and subsequent discussions with the Frame Representatives at the Work Center Operations Focus Group Meetings.*

* Frame Focus Group Ad Hoc Committee on Jeopardy Processing, *BCC Requirements Definition - FOMS/SWITCH Jeopardy Processing*, October 14, 1988.

3.4.1 Service Order Jeopardy Processing in FOMS

Jeopardy processing in FOMS works much like jeopardy processing in COSMOS. All jeopardy reason codes currently in use have been retained, and one new one (i.e., N for NAC-related jeopardies) has been added. The jeopardy code field has been expanded to three characters to allow for additional codes of any type. However, due to the interactions with the SWITCH System, the internal processing of jeopardies will differ from COSMOS.

FOMS transactions **ijr**, **rjr**, **scm**, and **jrinit** will keep most of their current COSMOS functionality for jeopardies. The following functionalities have been retained:

- **ijr** will be used to put an order or a line of an order in jeopardy and to assign a jeopardy reason. If the circuit is already in jeopardy, the new jeopardy reason will overwrite the old one. The new jeopardy remark will be stored in addition to any previous ones.
- **rjr** will be used to remove an order or a line of an order from jeopardy.
- **scm** will, optionally, be used to remove the jeopardy status and jeopardy reason from an order or a line of an order and to give it frame completion.
- **jrinit** will be used to allow the administrative-level user to input those jeopardy reasons that will generate a notice to the SWITCH System.

Work groups other than the frame must be able to access FOMS to run some of the jeopardy-processing transactions (e.g., **oij** in most companies, and **ijr** in some companies). The administrative-level user must be able to control which transactions can be run by which work groups.

3.4.1.1 The FOMS to SWITCH System Interface

The logic which FOMS has in regard to jeopardies involves passing jeopardy information back to the SWITCH System, but this procedure is not unlike the COSMOS/SOAC interface. There is a user-definable, entity-level table that contains the jeopardy reasons (JRs) that require the SWITCH System notification. In general, when one of those JRs is assigned, FOMS sends a PREJEO contract to the SWITCH System; and when one of those JRs is cleared, FOMS sends a CANJEO contract to the SWITCH System. The data sent to the SWITCH System includes the wire center name (NPA/NXX), order number, circuit ID, jeopardy reason, date and time, and remarks intelligent controller and intelligent controller id.

If an order has a status of "IC" (Installation Complete) in FOMS when it is put in jeopardy, it is already complete in the SWITCH System. However, the PREJEO will be sent. Before completing, **ijr** prints the following message: "Order complete in the SWITCH System - jeopardy notice sent".

If a PCN pass arrives from the SWITCH System while an order is in jeopardy, FOMS gives the order a status of "IC-J" (Installation Complete-Jeopardy) and generates an

administrative notice to the frame that this situation has occurred. Table 3-8 summarizes what will be done regarding notifying the SWITCH System in the various cases.

Table 3-8. Service-Order Jeopardy Processing in FOMS

Action	Status	Result
Issue jeopardy	ac->ac-j	PREJEO
	fc->ac-j	PREJEO
	ic->ic-j	PREJEO
Clear jeopardy	ac-j->ac	CANJEO
	ic-j->ic	CANJEO

If a circuit that was already in jeopardy is getting a new jeopardy code, only the new jeopardy remark should be sent in the PREJEO contract.

3.4.1.2 Manual Clearance of Jeopardies

When a jeopardy is cleared via transaction **rjr** or **scm** and its jeopardy reason is found in the JR table, FOMS must send a CANJEO contract to the SWITCH System. If the order has an "IC" status in FOMS, the CANJEO will be sent to the SWITCH System, and **rjr** or **scm** will print the message "Order complete in the SWITCH System - jeopardy removal notice sent" before completing.

3.4.1.3 Automatic Clearance of A-Type Jeopardies

Whenever a new PREFO contract (e.g., assignment change ticket, correction pass, or change of due date) comes from the SWITCH System on an order in jeopardy, FOMS reviews the new and previous versions of the circuit, and checks the JR table and the JEO tag in the PREFO contract. (the SWITCH System includes a JEO=Y tag for any circuit that remains in jeopardy in its database.) Table 3-9 shows the FOMS rules for clearing/retaining a jeopardy reason.

Table 3-9. FOMS Rules for Clearing/Retaining a Jeopardy Reason

Jeopardy Reason	Action
Not A-Type	Retain Jeopardy
A-Type and PREFO=CDD or RECAP	Retain Jeopardy
A-Type and PREFO=soft change COR pass	Retain Jeopardy
A-Type and PREFO=ACT or COR pass not covered above	Clear Jeopardy

NOTE — In line 3 above the original pass must have produced frame output.

After making the decision to retain or clear the jeopardy, FOMS performs that function, and then checks the JR table to see if the SWITCH System received notification of this particular jeopardy reason, and if it did, then checks the current jeopardy status in the SWITCH System (i.e., if the JEO=Y tag was sent in the PREFO for the circuit in question). If the status in the SWITCH System and the status in FOMS are the same, no further action is required. If they are different, then the SWITCH System must be updated via a PREJEO or a CANJEO contract to keep the two systems consistent.

Jeopardy Clearance Remark on Frame Output

As in COSMOS, a jeopardy-clearance remark will appear somewhere in the frame output after automatic clearance has been done. If new frame output is created, the remark will be appended to it. If no new frame output was created, but there was previously printed frame output, the jeopardy-clearance remark will be appended to it along with the cancellation message.

3.4.2 Work Order Jeopardy Processing in FOMS

In addition to service orders, other types of orders may be put in jeopardy:

- Nonservice order line and station transfers
- Switch port equipment transfers
- Maintenance change tickets
- Cable transfers
- Wire assembly orders

Issuing and clearing jeopardies function the same in work orders as for service orders, except that the contracts are PREJWO and CANJWO. Jeopardy notices for Maintenance Change Tickets should be sent to the SWITCH System, even though MCTs do not pend there. Automatic clearance of jeopardy is performed as follows: if a line of a work order is in jeopardy and a subsequent pass comes through for the line, FOMS clears the jeopardy and sends a CANJWO contract to the SWITCH System.

3.4.2.1 Transactions IJR and RJR

The functions of **ijr** and **rjr** are as follows:

- To put an entire order, or one or more lines of an order in jeopardy in FOMS, or to take them out of jeopardy.

- To optionally send a jeopardy establishment or cancellation contract to the SWITCH System.
- To work on all types of orders except dial, area, and frame transfers and JAMs.
- Using the "op all" feature, you can bypass lines that have no frame work without putting them in jeopardy. (You can still put them in jeopardy on an individual basis.)
- Also using the "op all" feature, you can enter the circuit ID of the first line of the order that has frame output, rather than the first line of the order.
- If there is unprinted frame output for the order in question, **ijr** prints a message to that effect and blocks jeopardy establishment if the JR code was type A; however, if the JR code was not type A, **ijr** will output the message as a warning but not block jeopardy establishment.
- **rjr** will delete the remark(s) associated with a jeopardy when it removes the jeopardy status and reason from the order or line of an order.

Transaction **scm** has the following functionality in regard to circuits in jeopardy:

- **scm** will only remove a jeopardy when OP RJR has been entered, whether it is dealing with a single-line order, a multiline order, or a work package.

3.4.2.2 Jeopardies on Multiple Lines of an Order

When a jeopardy is being issued on multiple lines of a demand order, FOMS must send one PREJEO for the order. The PREJEO contract will have a CKT aggregate for each line of the order being put into jeopardy. When a jeopardy is being removed from multiple lines of a demand order, FOMS must send one CANJEO for the order. The CANJEO contract will have a CKT aggregate for each line of the order being removed from jeopardy. This applies whether the circuits are being removed from jeopardy via transaction **rjr**, or via automatic clearance when processing a new PREFO from the SWITCH System.

When a jeopardy is being issued on multiple lines of a programmable order, FOMS must send one PREJWO for the order. The PREJWO contract will have a TRAN aggregate for each line of order being put into jeopardy. When a jeopardy is being removed from multiple lines of an order, FOMS must send one CANJWO for the order. The CANJWO contract will have a TRAN aggregate for each line of the order being removed from jeopardy. This applies whether the circuits are being removed from jeopardy via transaction **rjr**, or via automatic clearance when processing a new PREWO from the SWITCH System.

3.4.2.3 Jeopardy Reports

Transactions **oij** and **opn** will have the same basic functionality for orders in jeopardy as they currently have in COSMOS with the following exceptions:

- Transaction **oij** will sort orders by frame due date (FDD) or due date (DD), order type (OT), and circuit ID (CKT ID).
- **oij** will allow, but not require "JR" as input; if it is not specified, **oij** will default to printing all jeopardy reasons (i.e., JR *).

FOMS transactions **foi** (FOMS Order Inquiry) and **fol** (FOMS Order Listing) will also include jeopardy reasons when reporting on orders in jeopardy.

3.5 DIP Processing

The following requirements for DIP processing in FOMS/FUSA are based on current COSMOS functionality, the BCC requirements template *for DIP processing in the SWITCH System and FOMS, and discussions with BCC subject matter experts at two DIP Review sessions. Sections 3.5.1 through 3.5.5 describe service orders and work orders other than wire assembly orders.

3.5.1 The FOMS to SWITCH System Interface

The SWITCH System provides FOMS with the information that a DIP is being created, reused, or broken on a service order or work order other than a wire assembly order. The DIP information comes in an ASM aggregate in either a PREFO (for service orders) or a PREWO (for work orders) contract. The ASM aggregate lists each facility in the DIP along with an assembly category indicator.

3.5.2 Flagging DIPs

At order-establishment time (PREFO or PREWO), a flag is set in the FOMS database if a DIP is being created, reused, broken, or stolen, or if an IDLC is being "created" or "reused". A stolen DIP is a DIP that is broken to "steal" or reuse the OE, rather than the CP. The flag indicates if it is a CT-DIP, CF-DIP, or a non-CT/CF-DIP. An IDLC is flagged as "created" if it is "out" on a given order; and it is "reused" if it is "in" on a given order.

Whenever a subsequent PREFO or PREWO contract is processed for a circuit, the flags are reset according to the current situation.

* N. R. Haynes, *SWITCH/FOMS 1.5: Basic/Enhanced DIP Processing*, January 7, 1992.

3.5.3 Frame Output

FZ records are always created for circuits with no physical facilities other than DIPs, but automatic printing of the frame output may be suppressed for creation and reuse if the DIP=IDP and/or DIP=RDP tags appear in the FX table for that entity.

For a DIP being created, the DIP tag in the FCIF is converted to DIP=IDP and is stored in the FZ record for that circuit. Frame output for the circuit, if not suppressed, will list the DIPed facilities as "REU" with an "IDP" indicator at the end of the line.

For a DIP being reused, the DIP tag in the FCIF is converted to DIP=RDP and is stored in the FZ record for that circuit. Frame output for the circuit, if not suppressed, will list the DIPed facilities as "REU" with an "RDP" indicator at the end of the line.

When the SWITCH System breaks a DIP due to an associated service order, it sets the frame due date in a different manner than COSMOS currently does. COSMOS assigns the current day as the due date for breaking a DIP. The SWITCH System, on the other hand, assigns the due date of the associated service order as the due date for breaking a DIP. This opens the possibility that a break-DIP request will be cancelled after its frame work has been completed. In this situation, FOMS will attempt to save work for the frame forces by automatically updating the SWITCH System database. If this is not successful, the frame output for the cancellation will contain a remark stating "DIP must be reconstructed". This is to assure that the frame reflects what is in the SWITCH System database.

When a DIP must be broken to work an order, the DIP tag, DIP=ODP, is stored in the FZ record for the circuit. Frame output for the circuit will list the DIPed facilities as "OUT" with an "ODP" indicator at the end of the line.

3.5.4 Automatic Creation/Breaking of DIPs in the SWITCH System

Template #16 "Basic/Enhanced DIP Processing" requests an tunable capability that a DIP be automatically created/broken in the SWITCH System database when an order gets modified or cancelled, and the frame staff would otherwise have to "undo" some work they have already done. FOMS processing will key off of a user-tunable parameter to determine what criteria to use when UPDASM is turned on. The default will be the frame completion status of the circuit. However, users may reset the default to the print tag status, and have UPDASMs sent after the circuit has been printed but not necessarily frame completed.

The term "tunable capability" in the above requirement means that the basic feature must be controllable by a database parameter. If the feature is turned on, it may be set to create only OE-CP DIPs or to allow the creation of DIPs with tie pairs (TPs). A second parameter may be set to invoke the UPDASM contract after the service order has been printed rather than after it has been frame completed. These parameters are stored in GM record 1 and are set with **gminit**.

3.5.4.1 Definition of Terms

In this memo the term "inward" order means any service or work order with inward action in which at least the CP and OE are "going in", so that the cancellation or modification of that order causes them to be "going out". The term cancellation means a true cancellation. If a PREFO which is cancelling a circuit or a CANFO contains the REINPUT=Y tag, this logic should not be invoked. This is because the SWITCH System is already making an attempt to reuse the facilities it previously assigned, and FOMS is including a remark on the cancellation notice to alert the frame personnel to wait for the next version.

3.5.4.2 When to Send an UPDASM Contract

There are three basic situations in which FOMS will send an UPDASM contract to the SWITCH System:

1. An inward order that assigned a non-DIP'd CP and OE is cancelled, and the order/circuit has been printed/frame completed, depending on a tunable database parameter. In this case the purpose of the UPDASM contract is to create a DIP of the CP and OE (or CP, TP(s), and OE) in the SWITCH System database. There may be no facilities other than TPs between the CP and OE, and the CP and OE may not be part of a permanent or modifiable assembly. FOMS will not take any other factors, such as jumper length, into consideration.

2. The same rules apply if an inward order that assigned a non-DIP'd CP and OE is modified and the original CP and OE are going out, and the previous frame work is printed/frame complete.

   The cancellation or modification notice should be created and stored and a remark should be appended to the effect "Leave new DIP on frame; SWITCH System database will be updated".

3. An inward order/circuit that breaks a DIP is being printed or frame completed. Depending on the value of the UPDASM parameter, an UPDASM contract will be sent to the SWITCH System to break the DIP, either at print (**for/fwm**) time or frame completion (**scm**) time.

   Whenever an UPDASM contract is sent to break a DIP, the remark "DIP must be reconstructed", which is currently attached to the new frame output, must be eliminated, and a new remark "Do not reconstruct the broken DIP; the SWITCH System database will be updated", must be appended.

3.5.4.3 When Not to Send an UPDASM Contract

The following rules apply to Create DIP UPDASM contracts only.

1. If the CANFO or PREFO contains REINPUT=Y (for the reason stated above).
2. If PREFO contains the ACE=Y tag and the potential DIP consists of the facilities going out on the ACT (The reasoning here is that an ACT is often done to replace a defective facility, and a DIP should not be created with a defective facility).
3. If the order/circuit is in jeopardy in FOMS and the jeopardy code is of the form "Ax" or "Ix". (If an order/circuit has an "A" or "I" jeopardy, it probably has not been wired, and if it has, one of the facilities may be defective; therefore, it is not appropriate to tell the SWITCH System to create a DIP).
4. If any of the facilities in the DIP are involved in another order.

In those cases where a UPDASM contract is not being sent to the SWITCH System because the parameter is not set, or there are other facilities between the OE and the CP, standard processing rules apply.

3.5.4.4 Rules for Creating an UPDASM Contract

The UPDASM contract requires a *C1 header, a *PLHDR section, and a *ASMB section. The contract can be used to create or to break a DIP.

A. To create a DIP between CP 1-1 and OE 1 for example, the *ASMB section consists of:
REC.CTL.NTU.EX.EXNM=CP
REC.CTL.NTU.EX.EXID=1-1
REC.CTL.NTU.EX.EXTYPE=DIP
REC.CTL.FCN=ADD
REC.CTL.ACL=IN
REC.ACL.GRPATTR.ASMCAT=TASM
REC.ACL.GRPATTR.CRTDT=YYYYMMDD
REC.ACL.GRPATTR.RET=1
REC.ACL.GRPATTR.SPFCN=DIP
REC.ACL.GRPATTR.USERNM=DIP
REC.ACL.COMP.EX.EXNM=CP
REC.ACL.COMP.EX.EXID=1-1
REC.ACL.COMP.CONNTO.TYPE=OE
REC.ACL.COMP.CONNTO.ID=1
REC.ACL.COMP.EX.EXNM=OE
REC.ACL.COMP.EX.EXID=1

B. To break a DIP consisting of CP 1-1 and anything else the *ASMB must contain:
REC.CTL.NTU.EX.EXNM=CP
REC.CTL.NTU.EX.EXID=1-1

REC.CTL.NTU.EX.EXTYPE=DIP
REC.CTL.FCN=DLT

C. To create a DIP consisting of CP 1-1, TP 2-2, and OE 1 for example, the *ASMB section consists of:
REC.CTL.NTU.EX.EXNM=CP
REC.CTL.NTU.EX.EXID=1-1
REC.CTL.NTU.EX.EXTYPE=DIP
REC.CTL.FCN=ADD
REC.CTL.ACL=IN
REC.ACL.GRPATTR.ASMCAT=TASM
REC.ACL.GRPATTR.CRTDT=YYYYMMDD
REC.ACL.GRPATTR.RET=1
REC.ACL.GRPATTR.SPFCN=DIP
REC.ACL.GRPATTR.USERNM=DIP
REC.ACL.COMP.EX.EXNM=CP
REC.ACL.COMP.EX.EXID=1-1
REC.ACL.COMP.CONNTO.TYPE=TP
REC.ACL.COMP.CONNTO.ID=2-2
REC.ACL.COMP.EX.EXNM=TP
REC.ACL.COMP.EX.EXID=2-2
REC.ACL.COMP.CONNTO.TYPE=OE
REC.ACL.COMP.CONNTO.ID=1
REC.ACL.COMP.EX.EXNM=OE
REC.ACL.COMP.EX.EXID=1

3.5.4.5 Response from the SWITCH System

After receiving and processing the UPDASM contract from FOMS, the SWITCH System will return a UPDASM contract with a *C1 header, a *PLHDR section, and optionally a *UMSG section. The *UMSG section is structured thus:

```
*UMSG{
        REC{
                MSGNUM
                MSGTYPE
                MSGTEXT
                EXNM
                EXID
        }
}%
```

The first three tags are always there; the EXNM and EXID which contain the external name and id of the data item in question, are optional. If STATUS=0 in the *PLHDR section, and

there is no *UMSG section, the contract processed successfully in the SWITCH System, and FOMS need not do anything further.

If there is a *UMSG section in the UPDASM contract on return from the SWITCH System, FOMS should create a record in the RD file containing the info from the *UMSG section in tag/value format. It should be given the order number from the *C1 header, an FDD of today, and a print tag of 1; then it will be printed by **fwm, oc adm** and by **for** with today's FDD.

Internally these notices will be handled similar to threshold notifiers. The MSGNUM, MSGTYPE and MSGTEXT tags and values (and EXNM and EXID if they exist) should be printed, one per line with an identifying header line, so that the actual frame output looks something like this:

```
UPDASM Contract Response from the SWITCH System

MSGNUM = NNN

MSGTYPE = X

MSGTEXT = AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

EXNM = XX

EXID =  NNNNN
```

3.5.4.6 Database Considerations

- There must be a byte in the GM record that controls whether or not the simple DIP is put into effect. If the byte is not set, this feature will not be activated; default processing will apply.
- There must also be a byte in the GM record that controls whether TPs may be DIP'd. If the byte is not set, DIPs with TPs will not be created.
- Additional records will be needed in the GM file to hold the new remarks.
- Byte 11 in the RD file records will have a new value of 'u' to indicate the record contains UPDASM error data.

3.5.5 Wire Assembly Orders

Wire assembly orders (WAOs) are orders that create or purge DIPs (and other types of assemblies) in bulk. They pend in the SWITCH System awaiting a completion from FOMS. See Section 3.3.10 for detailed information on WAOs.

3.5.6 SWITCH System DIP Reports

There are three SWITCH System reports available to frame users (via FUSA) as part of the DIP administrative process.

- Transaction **dpr** lists (but doesn't break) DIPs in the SWITCH System database.
- Transaction **fdr** prints the DIP counts.
- Transaction **dir** prints the DIP parameters and some IC parameters from the SWITCH System database.

See Section 3.10 for further details on these transactions.

3.6 Related Order Processing

3.6.1 Identifying Related Orders

Except for associated F and T orders, related orders are orders for which the work for one must be done in order to do the work for the other or, in other words, one depends on the other. Associated F and T orders do not strictly fit this definition but are related, because they often involve overlapping service and need close coordination. Moreover, they are related via their order numbers: the same number with either an F or a T preceding it.

More specifically, related orders are defined as either associated F and T orders, or orders that have the following characteristics:

- Both pending in FOMS
- There is at least one facility which is common to both orders but not reused in both orders.

Here is a list of some common cases in which orders are related:

- An "out" service order followed by an "in" service order, reusing a facility from the "out" order [NOTE: An "out" service order may be a CD (complete disconnect), CH (change), or F (from) order. An "in" service order may be an NC (new connect), CH (change), or T (to) order.]
- Associated F and T orders
- An LST (line and station transfer) followed by an "in" order or another LST or a CT, reusing the CP from the LST.
- A CT (cable transfer) followed by an "in" order or an LST or another CT, reusing a CP from the transfer.
- An NC order followed by a CD order on the same circuit (exhibition hall service).

- An SET (switch port equipment transfer, formerly line equipment transfer) followed by an "in" order to reuse the OE.
- A WAO (wire assembly order) to create a DIP or an assembly followed by a service or work order reusing the DIP or assembly
- A WAO to break or modify a DIP or assembly followed by a service or work order which reuses a facility from the DIP or assembly

The previous set of examples cover the most common cases of related orders. However, there are other situations in which two orders are related which occur less frequently.

Whenever the term "related" order is used it may refer to a single line order, or to a line of a multiline order. For referencing purposes the order number and the circuit ID should be printed. For automatic printing or completion, only the related line of a multiline order should be printed or completed.

Sometimes with a multiline order one line of the order is related to another line of the same order. (The most common case of this is with a service order related LST). In all such cases the rules for referencing, printing and completing related orders should be followed just as if two different orders were involved.

3.6.2 Referencing Related Orders

for, **fwm** and **foi** reference related orders/circuits. A related circuit may turn out to be another circuit in the same order. Per a user-tunable **chp** parameter, related order processing may be bypassed for nonframe facilities (TN, DTN, CKID and SCID) in **for** and **fwm**.

The frame output for each related order/circuit will reference the other order/circuit until it becomes frame complete, or gets final completion in the case of a frame work suppressed related order. This applies even if the first order/circuit has been cancelled. It is possible for more than two orders to be related: e.g., a NC order using a CP and OE which are pending disconnect via two different orders. In this case the NC should reference both of the other orders, and each of the others should reference the NC.

It is also possible to have a chain of related orders. These are sometimes referred to as cascading orders. In this case the "previous" and the "next" order in the chain are referenced when inquiring on or printing one particular order.

An **foi** of an order will reference a related order/circuit until it has received final completion. **foi** will not reference area, dial or frame transfers, but will reference other related orders when one is inquiring on a line in an area, dial or frame transfer.

3.6.3 Automatic Printing of Related Orders

Frame output for a related order should sometimes be automatically printed by **for**/**fwm**/**ctp**/**dof** along with the frame output for the requested order. This should occur when the order about to be printed depends upon the related order being done and the related order is past due and has not been printed. Here are the rules for determining when a related order should be automatically printed:

- The two orders are not associated F and T orders.
- The related order is due prior to or on the same date as the requested order.
- The frame output for the related order is not suppressed.
- The frame output for the related order has not been printed.
- The related order is past due (i.e. FDD is prior to the current date).

An exception to the above rules is the case of NC and CD orders on the same circuit, due the same day; since the correct order of working them cannot be determined.

Except for the exclusion of related F and T orders and NC and CD orders on the same circuit due the same day, it doesn't matter what types of orders are involved, so the work order/service order case is included, as well as the service order/service order case and all other variations.

When printing an order which is in a chain of related orders printing should begin with the requested order, continue with the previous order, and conclude with the first order in the chain.

3.6.4 Automatic Completion of Related Orders

There are several situations in which frame completion of one order should also frame-complete the related order. They involve either an "out" type of service order, or a cable throw or LST that spares up a facility for a service order, a WAO that creates a DIP or assembly which is being used in a subsequent service order or work order, two consecutive MCTs or an MCT on top of a LAC-complete service order involving the same facility. The situation which would not invoke automatic completion is when the first order is a true change order (both "in" and "out" action). We cannot assume that all of the work was done for the change type order.

The rules which govern automatic completion of related orders are as follows:

- The related order is due prior to or on the same day as the requested order
- The related order has been printed, but does not have frame completion
- The order types of the requested order and the related order are:

— "In" or "change" type of service order and line and station transfer

— "In" or "change" type of service order and cable transfer

— "In" or "change" type of service order and a "complete disconnect" service order sparing a facility to be used on the service order

— "In" or "change" type of service order and a nonassociated "from" service order sparing a facility to be used on the service order

— "In" or "change" type of service order and a type-1 (equivalent to a complete disconnect) change order sparing a facility to be used on the service order

— "In" or "change" type of service order and WAO creating a DIP or assembly which is reused in the service order

— "In" or "change" type of service order and WAO breaking or modifying a DIP or assembly which frees up a facility which is used in the service order

— MCT which is "fixing" a LAC-complete type-2 (equivalent to a new connect) service order or another MCT; this implies that the related SO is both LAC-complete and in jeopardy, or the related MCT is in jeopardy.

Automatic completion of related orders will be done in FOMS when frame completion has been performed, rather than at the time of final completion. Although this is different from the COSMOS procedure, a survey of the frame user community indicated that this is the desired approach in FOMS. Thus, whenever an order with a related order of one of the types mentioned above is given frame completion, the dependent related order will also be given frame completion.

If an order which is a candidate for frame completion has a related dependent order which has not been printed, **scm** should block completion of the original order and print a message about the other order.

3.6.5 Suppressed Orders with Related Orders

If the frame output for a service or work order is marked as suppressed, but there exists a dependent related order which is not suppressed and has not been printed; **for**, **fwm** and **ctp** should ignore the frame output suppression tag and print both orders. This means that **for** and **ctp** cannot automatically bypass orders with status "n". They must check to see if the status "n" order has a related order which is

— due prior to or on the same date as the status "n" order

— not suppressed

— not already printed

— not an associated F or T order

If a related order which fits these conditions is found, both it and the suppressed order should be printed. The print tag for the related order is updated, but neither the print tag nor the order status for the suppressed order is changed.

In **fwm** this capability should be included in OC ADM (and by default in OC NPK). OC ADM will now have to read the frame output files as well as the administrative files to pick up these suppressed orders with related orders that need to be printed.

3.7 Threshold Reporting

3.7.1 Threshold Reporting in the SWITCH System

Per the request of the Work Center Operations Focus Group and requirements in several templates, the SWITCH System provides a RPT THR work session. This will allow a report to be run at that time or at a specified time or interval to check on the availability of various network unit types. The time or interval can be specified while running RPT THR via the SCHED process. (This is similar to the UNIX **cron** function). Threshold levels can be set as a number or a percentage. When the report is run, if the number of available units of an NTU goes below that threshold, output is created and sent to the sites specified when the RPT THR session was executed. These sites may be DCOR, a printer, or FOMS.

FOMS can be the recipient of the output (the actual report) for any of the network unit types, and indeed, may very well be the primary destination for all but the switch port report. RPT THR accepts the following network unit types: switch ports, tie pairs, bridge lifters, mini-bridge lifters, and transmission equipment.

3.7.2 FOMS Involvement

If FOMS is a destination for the threshold report for some network unit type, and that NTU type has gone below its threshold, the SWITCH System will send an unsolicited PREDAT contract to FOMS. The message will be formatted and sent as "LINE=" data similar to the output of SWITCH System reports going to FUSA. The "LINE=" data will be in a TEXT subaggregate within a REC aggregate within a *PRT section of the PREDAT contract. Also in the REC aggregate is the fid NUML which specifies the number of lines that are contained in the TEXT subaggregate. If FOMS is being notified about more than one NTU type, there will be only one PREDAT contract, and one REC aggregate. There will just be additional "LINE=" fids and data for the additional messages.

Although the contract represents a report or more aptly, a notifier, it should get processed with the priority of a service order, since the frame users need to get the information as soon as possible. FOMS must extract the "LINE=" data and store it with the current date as due

date and with a print tag of "1" in an administrative message file. This will cause it to print on the next run of **for** for the current date, or the next run of **fwm** to print admin messages.

FOMS will not send any response back to the SWITCH System upon receiving a threshold notifier. It should, however, provide for the removal of these notices at some time after they have been printed.

3.8 LAC-FX Order Processing

3.8.1 Background

LAC-FX (Loop Assignment Center - Foreign Exchange) is the SWITCH System implementation of the 16.0 COSMOS Chicago Loop feature. It involves the inventory and assignment of interoffice tie pairs, which provide foreign exchange service, but are administered by the LAC. Illinois Bell is the primary user of this feature because they provide foreign exchange service to customers in the Chicago loop wire centers at no cost to them, and conceivably even without their knowledge.

In COSMOS these interoffice tie pairs are stored in the IF file with a fid of "FF". Each FF has a PFD (Pseudo-Foreign Destination) fid which specifies the other end of the FF; i.e. the other WC involved. LAC-FX is a flow-through feature. SOAC sends an assignment request (AR) to the local serving office (LSO) and COSMOS assigns an FF, which is included in the response back to SOAC. Then SOAC sends an AR to the foreign serving office or FSO with that FF included. Normally two wire centers are involved, but occasionally one or more intermediate wire centers are needed to get from the LSO to the FSO, which is also known as the PFS (Pseudo-Foreign Serving Office).

3.8.2 SWITCH System Implementation

These interoffice tie pairs or COSMOS FFs will be represented in the SWITCH System by a new network unit type, TKP (Trunk Pair). The ID will resemble a CP or TP, having two parts separated by a dash. The first part will be known as trunk cable number or TKCA internally in the SWITCH System.

SOAC will continue to process in the same way, sending the SWITCH System an order in one or more additional wire centers when a TKP is assigned or disconnected in one wire center. The SWITCH System will automatically assign TKPs based on the PFS sent from SOAC, or input from the ULBB.

TKPs may be in assemblies, and thus may be involved in Wire Assembly Orders. There is no provision for performing transfers on trunk pairs themselves, but they may be part of a circuit which is involved in one of the standard work orders.

3.8.3 FOMS Impacts

3.8.3.1 Application Programs

FOMS accepts a network unit type of TKP. This, and not FF, is the facility name in FOMS. Connectivity data is sent with TKPs, as with any other physical facility. Data stored in the SWITCH System database which is unique to TKPs such as "end location" and "controlling end" is not sent to FOMS. Data which is commonly sent with other facilities, such as equipment remark, is also sent for TKPs.

Frame output and any FOMS transaction which displays network units displays TKPs and their frame locations. FOMS transactions which accept a tie pair (TP) to identify a circuit also accept TKP. The format for a TKP is 1-10 alphanumerics for the cable number and 1-4 numerics for the pair number.

3.8.3.2 Conversion

COSMOS FFs will be converted to SWITCH System TKPs and may appear as such in the CONSO contract.

3.8.4 FUSA Impacts

3.8.4.1 New Transaction

The FUSA transaction, **tku** (Trunk Pair Usage), will invoke the SWITCH System contract RPTTKP and produce three reports on trunk pairs.

3.8.4.2 Existing Transactions

The following existing FUSA transactions will need some modification or retesting for the LAC-FX feature.

- **cda** must be updated to allow changing the status of a TKP or adding or deleting a remark on a TKP. The UPDCLK contract will be used for TKPs as well as for TPs.
- **dds** must allow input of 'TKP ?' with or without an input of trunk cable number (CA), and output the valid range of TKPs.
- **fce** must allow changing a TKP assigned in a service order. The usual requirement of an out status (STAT) and the ability to request automatic assignment apply to TKPs also.

- **fmc** must provide the ability to change a TKP in a working circuit via a Maintenance Change Ticket with the same rules and capabilities as for TPs.
- **gfr** must allow input of a range of TKPs and the RPTCKT contract must provide the appropriate output.
- **inq** must allow input of a TKP or a range of TKPs.
- **isf** must allow input of a TKP or a range of TKPs.
- **ish** must allow input of a TKP or a range of TKPs.
- **isr** must allow input of a TKP or a range of TKPs.
- **mmc** must allow adding, deleting or changing a TKP in a working circuit, applying the usual rules about status and automatic assignment.
- **sir** must allow input of a TKP or a range of TKPs and the RPTCKT contract must provide the appropriate output.

3.9 The FOMS to SWITCH System Interface Error Handling

3.9.1 Error Types

The FOMS application reports both *fatal* and *nonfatal* errors. A *nonfatal* error generates a warning message and allows processing to continue. A *fatal* error causes the following actions to occur:

- Prints an appropriate error message
- Aborts the transaction
- Backs out of database writes since the last commit

These error types apply to both local-to-FOMS and flow-through (FOMS to SWITCH System interface) processing. However, the method for handling errors relating to flow-through processing must differ from the way errors are handled local-to-FOMS.

3.9.2 Reasons for Terminating the FOMS to SWITCH System Interface

There are two reasons for automatically terminating the FOMS to SWITCH System interface:

1. It is terminated when the Request for Error Resolution (RER) counter exceeds its threshold for a given wire center. The FOMS PM file has an RER counter, stored as the *rer_counter* parameter. The RER threshold (also in the PM file) is stored as the *rer_threshold* parameter. In this case, only an individual wire center is brought down.

NOTE — The PM file is a TADS file used to store database parameters. These parameters are accessed and set with the FOMS **chp** transaction.

2. Or, the interface could be terminated when transaction processing incurs a TADS error. When this happens, the entire SWITCH System to FOMS link is brought down.

3.9.3 Error Handling

A *nonfatal* flow-through error is any condition that would cause an error/warning message to be generated; however, the FCIF message is still processed. A *fatal* flow-through error also generates an error message but in this scenario processing is aborted. The following describes how *nonfatal* and *fatal* errors are handled with respect to flow-through processing.

3.9.3.1 Nonfatal Error Handling

If a *nonfatal* error occurs while processing a flow-through transaction, FOMS generates and sends an error message to the Message Distributor (MD), which then logs the message to a daily log file. The daily log file name is created with a three-character month followed by a two-character day. The log files are stored in *$LOCAL_DIR/applogs*. The error message contains an appropriate warning, accompanied by a sequence number that is used to identify a file under *$LOCAL_DIR/applogs*, which contains the FCIF of the message. The transaction then resumes processing.

3.9.3.2 Fatal Error Handling

When FOMS encounters a *fatal* error while processing an FCIF message, the following occurs:

- An appropriate error message is generated and handled the same as a *nonfatal* error message.
- The transaction is aborted; therefore, all database updates performed by the transaction are *backed out*. This is performed by the Database Integrity (DBI) software, not the FOMS application.
- If the RER threshold has been exceeded, the wire center is then deactivated from flow-through processing. All subsequent messages for the wire center are stored by the Work Manager Consolidation/Application-to-Application (WMC/APP) interface.
- The problem must either be resolved or worked around manually. The TADS database and WMC/APP communications tools are used for problem resolution. For example,

the administrative-level user uses the same database commands that are used in COSMOS to either expand or purge records in the OR file. Assuming that the FCIF message needs to be reviewed, the administrative-level user can use the sequence number provided in the error message found in the daily log file to review the *sequence number* file under *$LOCAL_DIR/applogs*.

- Once the problem has been resolved, the wire center must be manually reactivated using the WMC/APP **qls** command. All messages for the reactivated wire center are then sent from WMC/APP. Again, this assumes that the RER threshold has been reached.
- The FCIF message that aborted can be processed by directing the contents of the *$LOCAL_DIR/applogs/sequence number* file as input to **hal**.

3.9.3.3 Invalid FCIF Notifier

Another Region-specific feature controlled by the parameter, rsf_not, will provide a notifier to the frame whenever a contract is received from the SWITCH System and cannot be processed by FOMS. This is in addition to storing the FCIF in the $APP_LOG directory as described above.

3.9.3.4 Administrative Tools

A terminal (tty device) can be used to report when a new error message has been logged to the daily log file. This is accomplished by executing the **cfte** command at a terminal. **cfte** checks the daily log file every five seconds to determine if a new message has arrived. If a new message has been logged since the last execution of **cfte**, it will then print a message at the terminal alerting the application administrator. Two additional commands, **pfte** and **rfte**, also assist in administering the daily log file. The transaction **pfte** reports on the most recent errors that were logged since the last execution of **pfte**; transaction **rfte** removes error messages that have been previously read by **pfte**.

3.10 The FOMS to WFA/DI Interface

The FOMS to WFA/DI (Work Force Administration/Dispatch In) Interface is a region-specific feature of FOMS/FUSA. If the tunability table entry for this feature is set, FOMS will send a FOMSDI contract to WFA/DI via WMC/APP whenever it receives data from the SWITCH System for an order that requires frame work.

FOMS will also process requests for a limited number of transactions (e.g., **irj**, **rjr**, **tof**, and **scm**) to be run and the output to be sent to WFA/DI via a FOMSRR contract.

For details on this interface, see *FOMS Requirements for FOMS/WFA/DI Interface*, BD-FOMS-REQ2.0-1, Issue 5, December 1, 1997.

3.11 Other Region Specific Features

3.11.1 Local Number Portability

3.11.1.1 Overview

If this feature is enabled, FOMS accepts and stores six additional *fids* (INVU, RTN, RTNN, POUT, OLDP, NEWP) from the SWITCH System, and includes "LNP Y" on the frame output. **foi** output displays the individual tags and values.

Transactions **fol** and **wsl** will allow filtering of LNP-involved circuits. FOMS also enables the user to specify a remark to be printed on the frame output for each valid combination of LNP tags and values.

3.11.1.2 Requirements

1. PREFO must accept the following new tags in the CKT aggregate in the *FO section.

TAG	Description	Format
INVU	Ported-in TN inventory update indicator	1-2a/n
RTNN	Ported TN returning to other than orig. switch indicator	1-2a/n
RTN	Ported TN returning to orig. switch indicator	1-2a/n
POUT	Ported-out TN indicator	1-2a/n
OLDP	Old service provider identifier	3-4a/n
NEWP	New service provider identifier	3-4a/n

NOTES:

— All tags are optional.

— Only one of the following will be present for a circuit: INVU, RTNN, RTN.

— Any tags that exist for a circuit must be stored in the FO record for that circuit.

— The data values for INVU, RTNN, RTN and POUT will be either DP for "Different Provider" or SP for "Same Provider", or ‘"Y".

2. When creating the FZ record for an LNP circuit, PREFO must check the table described in requirement number 11 and append the appropriate remark number to the FZ record for that circuit.

3. If no entry in the table matches the combination of LNP tags and values for a given circuit, or if no remark has been input for that combination, PREFO should not error, but continue without adding a remark to the FZ record.

4. If any of the LNP tags exist for a given circuit, than **for/fwm** should include "LNP Y" on the frame output. It should appear at the beginning of the second line (related order line) of the frame output for a circuit. A sample follows.

0 r 10-28-97 f fsimply0101 482-0532 10-28-97

-

2 lnp y 10-29-97 t tsimply0101 201-482-0532

8 cable pr out 8-0449 f 25-04-03u10-2-24 001-5-49

f

s line eqp reu 5001-100-001

i

m line eqp 1fr r tnnl f25-05-01u01-1-01

p

l tel/ckt reu 482-0532

y

remarks This order has an associated order

remarks Frame: Work after 5 p.m.

5. The frame output for a circuit with LNP Y should also display the remark indicated in the new table described in Section 5.2 for the combination of LNP tags present for that circuit.

6. Any of the LNP tags that exist for a given circuit should be included in the **foi** output for that circuit in the following format.

Tue Jan 07, 1997 05:21:11 PM

FOMS Order Inquiry

ord csccf005 ot(ch) st(fn)

dd(02-03-97) fdd(02-03-97) est(01-31:14)

mdf work req(n) printed(s) mdf compl(y)

inst compl(n)

facs(y)

invu(xx) rtnn(xx) rtn(xx) pout(xx) oldp(xxxx) newp(xxxx)

7. The new remark included on the frame output should not be printed by **foi**.
8. Transaction **tat** (Test Alignment of Terminal) must be updated to reflect the added field on the frame output.
9. Seven new filters will be accepted by transaction **fol** (FOMS Order List.)

TAG	Description	Format
INVU	Ported-in TN inventory update indicator	1-2a/n
RTNN	Ported TN returning to other than orig. switch indicator	1-2a/n
RTN	Ported TN returning to orig. switch indicator	1-2a/n
POUT	Ported-out TN indicator	1-2a/n
OLDP	Old service provider identifier	3-4a/n
NEWP	New service provider identifier	3-4a/n
LNP	Local Number Portability	Y

If ‘‘LNP Y’’ is input, a circuit must have at least one of the six specific LNP tags to be included in the output. If ‘‘LNP Y’’ is input, none of the other six tags should be input. The other tags may be input in any combination up to a maximum of five of a given tag. For

multiple values of one tag, a circuit must match one of the values to qualify. For multiple tags a circuit must match one instance of each of the tags to qualify.

10. Seven new filters will be accepted by transaction **wsl (**Work Status List**)**.

TAG	Description	Format
INVU	Ported-in TN inventory update indicator	1-2a/n
RTNN	Ported TN returning to other than orig. switch indicator	1-2a/n
RTN	Ported TN returning to orig. switch indicator	1-2a/n
POUT	Ported-out TN indicator	1-2a/n
OLDP	Old service provider identifier	3-4a/n
NEWP	New service provider identifier	3-4a/n
LNP	Local Number Portability	Y

If "LNP Y" is input, a circuit must have at least one of the six specific LNP tags to be included in the output. If "LNP Y" is input, none of the other six tags should be input. The other tags may be input in any combination up to a maximum of five of a given tag. For multiple values of one tag, a circuit must match one of the values to qualify. For multiple tags a circuit must match one instance of each of the tags to qualify.

11. There will be a new table which can be tuned by the users and which will assign a specific remark to be printed for every valid combination of the LNP tags and values.

A sample of what a portion of the table might look like follows.

OLDP	NEWP	INVU	RTN	RTNN	POUT	Remark
	288	DP				Frame: Call LSPSC
	288	DP			DP	Frame: Work after 5 p.m.
455	288			Y		Frame: Hold for a call

The remark must be no longer than 60 characters in length so it will fit on one ‘‘remarks’’ line of the frame output.

12. There must be a new transaction which will allow the user to input a remark to be printed on the frame output for any valid combination of the six new interface tags,

and their possible values, and will provide the necessary maintenance functions for the table or tables involved.

13. Transaction **wpt (**Work Package Table) must allow LNP as a packageable or nonpackageable priority code.

14. PREFO/PREWO must store LNP as the Order Category (OC) for any circuit containing at least one of the six LNP tags: NEWP, OLDP, RTN, RTNN, INVU, and POUT.

If an order/circuit has both an LNP tag and another order category, LNP should take priority and be stored in the OC field.

15. In a FWM wire center with LNP in the Work Package Table as a packageable priority code, PREFO/PREWO must store LNP as the Work Package Type for orders/circuits with any of the six LNP tags which have been assigned an assembly code.

16. Transaction **for** (Frame Output Report) must allow an input of 'OC LNP' (Order Category: Local Number Portability), 'OC LNP!' and 'LNP Y'. If 'OC LNP' is input, **for** must output only those orders/circuits which have an order category of LNP. If 'OC LNP!' is input, **for** must output only those orders/circuits which do not have an order category of LNP. If 'LNP Y' is input, **for** must output only those orders/circuits which have at least one of the six LNP tags.

17. Transaction **fwm** must accept 'WPT LNP' as a valid input.

18. Transaction **fol** must accept an input of 'OC LNP' or 'OC LNP!' and output only those orders/circuits which have or do not have an order category of LNP.

fol should continue to accept an input of 'LNP Y' and process as it does now.

19. Transaction **wsl** must accept an input of 'OC LNP' or 'OC LNP!' and output only those orders/circuits with or without an order category of LNP.

wsl should continue to accept an input of 'LNP Y' and process as it does now.

3.11.2 Support for Local Loop Not Furnished (LLNF) and Competitive Local Exchange Carrier (CLEC) Tags

3.11.2.1 Overview

The SWITCH System may send two new tags to FOMS in the PREFO contract: LLNF and CLEC. The CLEC tag may also appear in a PREWO contract. FOMS stores both tags in the database and includes CLEC on the frame output and both tags on **foi** output. A user-tunable remark may be stored and it will be included on the frame output if LLNF is present for the circuit. Orders with the LLNF tag may be packaged and printed together. Both *fids* are sent to WFA/DI if that interface is enabled.

3.11.2.2 Requirements

1. PREFO must accept and store a new optional tag and value of LLNF=Y which will appear in the *FO.CKT.OLD aggregate. It should also set OC=LLNF for the circuit in all cases except if OC=LNP. If the wire center is a FWM wire center, and LLNF is in the work package table as a packageable priority code, and LLNF=Y is on the circuit, PREFO must store LLNF as the work package type. If LLNF is in the work package table as a nonpackageable priority code, PREFO must recognize it and treat it like any other NPC.
2. PREFO must accept and store a new optional tag and value of CLEC=Y which will appear in the *FO.CKT.OLD and *FO.CKT.NEW aggregates.
3. PREWO must accept and store a new optional tag and value of CLEC=Y which will appear in the *WO.TRAN.OLD and *WO.TRAN.NEW aggregates.
4. The system administrator must have the ability to specify a remark to be printed on the frame output whenever the LLNF=Y fid appears in the PREFO.
5. When the CLEC=Y fid is present in the database for a given circuit, it should appear on the frame output for that circuit. This applies to **for**, **fwm** and **ctp**. Since the order category can now be 4 bytes long, that field must be increased by 1 byte. See #3 and #9C in the new frame output layout that follows. Fields #7 (order number) and #12 (related order number) have been decreased from 21 to 20 bytes which is the maximum size of an order number.

```
123456789012345678901234567890123456789012345678901234567890123456789012 x
x 12 x3xxx4xxx x5xxxxxx x6x x7xxxxxxxxxxxxxxxxx x8xxxxxx x9xxxxxx x9Axx
x x9Bxx x9Cxxx x10xxxxx x11 x12xxxxxxxxxxxxxxxx x13xxxxxxxxxxxxx x14xx
x
x tel/ckt  x21     x22xxxxx x23 ssvx24                  ptyx25x xay26
x
x remarks  xxx27xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x

123456789012345678901234567890123456789012345678901234567890123456789012
    1. act tag                      2. segment code
    3. order category               4. due time
    5. frame due date               6. order type
    7. order id                     8. tn circuit id
    9. due date                    9A. item number
   9B. lnp circuit indicator       9C. clec indicator
   10. rel ord frame due date      11. related order type
   12. related order id            13. rel ord ckt id
   14. rel ord item number
```

Note that items 4-7 on line 1 and items 10-12 on line 2 are shifted 1 byte to the right of their previous positions.

6. When the LLNF=Y fid is present in the database for a given circuit, FOMS should check for the presence of the user-tunable remark, and if one is found, it should appear on the frame output for the circuit. This applies to **for** and **fwm**.
7. **foi** should also display the LLNF and CLEC tags and the LLNF remark as follows:

```
Tue Jun 02, 1998  05:21:11 PM

                FOMS Order Inquiry

ord csccf005     ot(ch)          st(fn)
        dd(06-03-98) fdd(06-03-98)  est(05-31:14)
        mdf work req(n)  printed(s) mdf compl(y)
        inst compl(n)
        facs(y)
        invu(xx) rtnn(xx) rtn(xx) pout(xx) oldp(xxxx) newp(xxxx)
        llnf(y) clec(y)

        rmk this_is_an_example_of_an_LLNF_remark
```

8. **tat** must be updated to reflect the modifications to frame output.
9. **for** should allow a new order category (OC) of LLNF; valid inputs are ‘OC LLNF’ or ‘OC LLNF!’.
10. **fol** and **wsl** should allow new values of LLNF and LLNF! for the order category filter, OC.
11. **wpt** should recognize LLNF as a packageable or nonpackageable priority code.
12. LLNF=Y and/or CLEC=Y must be sent to WFA/DI in the *FOMSDI.PREDI.CKT aggregate of the FOMSDI contract if they are on the circuit in FOMS, and the interface to WFA/DI is enabled.

3.12 The SWITCH System to FUSA Interface

3.12.1 Mapping of FUSA Transactions to SWITCH System Contracts

The next table identifies transactions that are executed by a Frame or RCMAC user, or FOMS/FUSA administrative-level user, or a Centrex Customer Support System (CCSS) system logged into FUSA, and the corresponding contract names used to transmit data to the SWITCH System. All information in this section on SWITCH System contracts was obtained from the following Bellcore SWITCH System sources:

- *SWITCH System Functional Product Specification*, BR 752-101-001
- *SWITCH System Design*, TM-STS-010808
- *SWITCH System Functional Product Design*, SR-TAP-000806
- *SWITCH System Contracts Directory*, BR 752-106-040
- Phone conversations and meetings with the SWITCH System personnel.

Table 3-10. Mapping FUSA Transactions to SWITCH System Contracts

TRANSACTION	DESCRIPTION	CONTRACT
1. **asc**	Assign Cable Transfer	ASGCPT
2. **asf**	Assign Frame Transfer	ASGFTR
3. **asj**	Assign a JAM Order	ASGJAM
4. **ast**	Assign Switch Port Equipment Transfer	ASGSET
5. **asw**	Assign a WAO	ASGWAO
6. **atl**	Area Transfer List	RPTATR
7. **ato**	Area Transfer Obstacles and Omissions	RPTATR
8. **bai**	BL Assignment Inquiry	WSIASG
9. **cca***	Change Customer Attributes	UPDCKT
10. **ccr**	Carrier Controller Report	RPTCC
11. **cda**	Change Distribution Attributes	UPDCLK/UPDCND/UPDSPT
12. **ctm**	Cable Transfer Modification	CORCPT
13. **cts**	Cable Throw Summary	RPTWO
14. **dae**	DIP and Assembly Order Est.	PREWAO
15. **daw**	DIP and Assembly Order With.	CANWAO
16. **dds**	Display Data Summary	RPTRNG
17. **dir**	DIP Parameter Report	RPTIC

Table 3-10. Mapping FUSA Transactions to SWITCH System Contracts (Continued)

TRANSACTION	DESCRIPTION	CONTRACT
18. **dpr**	DIP Report and Removal	RPTDIP
19. **dtm****	Dial Transfer Mapping	RPTMAP
20. **fce**	Frame Change Ticket Establishment	ACESO
21. **fdr**	Frame DIP Report	RPTHST
22. **flr**	Frame Layout Report	RPTFLC
23. **fmc**	Frame Maintenance Change	PREMCT
24. **fta**	Frame Transfer Analysis	RPTFTA
25. **fte**	Frame Transfer Establishment	PREFTR
26. **ftw**	Frame Transfer Withdrawal	CANFTR
27. **gfr**	Generalized Facility Report	RPTCKT
28. **gid**	Group Inquiry Deferred (RCMAC)	INQGRP
29. **giq**	Group Inquiry Immediate (FRAME)	INQGRP
30. **hid**	Hunting Inquiry Deferred (FRAME)	INQGRP
31. **his**	Hunting Inquiry Immediate (FRAME)	INQGRP
32. **inq**	Inquiry on a Circuit (FRAME)	INQCKT
33. **isf**	Inquiry on a Single Facility (FRAME)	INQNTU
34. **ish**	Inquiry Short Form (RCMAC)	INQCKT
35. **isr**	Inquiry by RCMAC (Long Form)	INQCKT
36. **jam**	Establish a JAM Order	PREJAM
37. **jaw**	JAM Order Withdrawal	CANJAM
38. **loe**	List Originating Equipment	RPTSPT
39. **mch***	Manually Change Hunt	UPDSCH
40. **mmc**	Manually Modify a Circuit	UPDCKT
41. **rqf**	Request Frame Output	REQWO
42. **rqt**	Request Translation Data	REQTRM
43. **rsf**	Resend Frame Output (Demand Orders)	RSDFO
44. **rsw**	Resend Frame Output (Prog. Orders)	RSDWO
45. **runexp**	Run Extract Pending	EXTPDG
46. **sir**	Sorting Inquiry by Range	RPTCKT
47. **sod**	Service Order Inquiry (DEFERRED)	RPTORD
48. **soi**	Service Order Inquiry (IMMEDIATE)	RPTORD
49. **sol**	Service Order List	RPTORD
50. **srd**	Send Reference Data	PRTREF/PRTINP

Table 3-10. Mapping FUSA Transactions to SWITCH System Contracts (Continued)

TRANSACTION	DESCRIPTION	CONTRACT
51. **ssh**	SWITCH System Help	PRTREF
52. **tai**	Tie Pair Assignment Inquiry	WSIASG
53. **tku**	Trunk Pair Usage	RPTTKP
54. **tns***	Telephone Number Swap	PRESWP
55. **toi**	Transfer Order Inquiry	INQWO
56. **tol**	Transfer Order List	RPTDTR
57. **too**	Transfer Obstacles and Omissions	RPTDTR
58. **tos**	Transfer Order Summary	INQWO
59. **tpu**	Tie Pair Usage	RPTTPA
60. **ver**	Verify SWITCH System Database	RPTSAM
61. **wod**	Work Order Inquiry (DEFERRED)	RPTWO
62. **woi**	Work Order Inquiry (IMMEDIATE)	RPTWO
63. **wol**	Work Order List	RPTWO

*NOTE: This is a CCSS transaction.

**NOTE: This is a Region-specific transaction

In general there is no one-to-one mapping between the SWITCH System contracts and the current COSMOS transactions. There are many differences in scope, allowable options, and output format, as well as functionality. Thus, the mappings must be worked out for each case, striking a reasonable balance between the needs of the frame users and those of the SWITCH System.

3.12.2 Creating/Interpreting the SWITCH System Contracts

Each SWITCH System contract requires a *C1 header, a *PLHDR (Platform Header), and one or more additional sections. The *C1 header is a 58-byte fixed-field data string; not all of the fields apply to FUSA-to-SWITCH System contracts. Fields that do not apply to a particular contract are padded with blanks. Table 3-11 shows the applicable *C1 fields in FUSA-to-SWITCH System contracts.

Table 3-11. Applicable *C1 Fields in FUSA to SWITCH System Contracts

Field	Bytes	Format
Contract Name	1-6	Alphabetic
Order Number	7-18†	Alphanumeric

Table 3-11. Applicable *C1 Fields in FUSA to SWITCH System Contracts

Field	Bytes	Format
Order Correction Suffix	19	Alphanumeric
SWITCH Wire Center	23-28	Numeric
Source	29-36	FUSA
Destination	37-44	SWITCH
Order Due Date	47-52	YYMMDD
Message Format	57	0

† NOTE: This includes a one-character order type that precedes the order number on service orders. For work orders, the order number begins in byte 8.

FUSA needs a table to map the two-character wire center name that the user supplies in the login procedure to a six-character NPANXX for inclusion in the *C1 header.

The *PLHDR section is a tag-value header intended to supplement the *C1 header. Table 3-12 shows the applicable *PLHDR fields in FUSA/SWITCH System contracts.

Table 3-12. Applicable *PLHDR Fields in FUSA/SWITCH System Contracts

Tag	Definition	Size	Remarks
ECD	Estimated Completion Date	6	Optional input to the SWITCH System
CMPL	Completion date and time	16	Returned by the SWITCH System
DEBUG	Debug	250	Optional input to the SWITCH System
DEFID	Deferred message ID	24	Required input to the SWITCH System for deferred contracts.
DEST	Destination of Output	7	Optional input to the SWITCH System
LCLDBG	Local Debug	80	Optional input to the SWITCH System
LCLID	Local ID	8	Required input to the SWITCH System
LCLTRAN	Local Transaction Name	8	Optional input to the SWITCH System
LCLTRM	Local Terminal No.	8	Optional input to the SWITCH System
STATUS	Completion Status	1	Returned by the SWITCH System
USERID	Login	8	Required input to the SWITCH System
USERGRP	User group	8	Required input to the SWITCH System
USERMOD	Execution Mode (I or D)	1	Optional input to the SWITCH System
USERWC	User Wire Center	11	Optional input to the SWITCH System

The tag ECD must be converted from the input format of mm-dd-yy to YYMMDD before it is sent to the *PLHDR section.

Any tags that are filled in by FUSA and sent to the SWITCH System are echoed back untouched by the SWITCH System. The local terminal number (LCLTRM) is optional, but is sent to the SWITCH System by FUSA, so that the output for an immediate transaction gets back to the correct terminal. The deferred ID (DEFID) is a unique ID generated by FUSA for deferred contracts. It is used by the SWITCH System, but sent back unchanged. Completion status (i.e., STATUS=0) indicates success, while STATUS 0 indicates the presence of an advisory or error message in a *UMSG section. The DEST tag is not required, but should be sent from FUSA to the SWITCH System, especially for deferred contracts which are reports, to avoid having inappropriate default values used to limit the output sent back to FUSA. The name sent as the value of the DEST tag must be the same as found in a SWITCH System table entry which contains the appropriate values for defining the output sent to FUSA.

The *PRT section is one that is found in many FUSA to SWITCH System contracts, especially inquiries and reports. It contains a REC aggregate and a TEXT subaggregate with the following relevant fields.

Tag	Definition
NUML	Number of Lines
LINE	Text

The section that is returned from the SWITCH System if there is an error is a *UMSG section. This section contains one REC aggregate for each error that has occurred, and each REC aggregate contains the following fields:

Tag	Definition	Note
MSGNUM	Message Number	required
MSGTYPE	Message Type	required
MSGTEXT	Message Text	required
EXNM	External Name of data item in error	optional
EXID	Value of data item in error	conditional

The MSGTEXT field may appear more than once in a *UMSG section.

Any time that FUSA needs to pass a TN to the SWITCH System and the NPA was not input, FUSA must default to a user-definable NPA stored in a file to which FUSA has access.

3.12.3 Converting Statuses

Several FUSA transactions require or allow a status to be input for an outgoing facility. Tables 3-13 through 3-16 show which input values are allowed and what FCIF tags the input values are converted to for the various facility types.

Table 3-13. Status Table for TN and DTN

STT	LIMTYP	LIMVAL	INTC	SELSTAT	PEND
sf	-	-		TRSP	
rs	TMP	TRS			
def	DEF	DEF			
uk	WTH	UNK			
unq	WTH	UNQ			
ex	WTH	EX			
dnt			DNT		
dtc			DTC		
cnt			CNT		
ctc			CTC		
aw				ALWK	
as				ALSP	
pi					PI
po					PO
pk					PK

Table 3-14. Status Table for OE and POE

STO	LIMTYP	LIMVAL	SELSTAT	PEND
sf		\0		
rs	TMP	TRS		
def	DEF	DEF		
uk	WTH	UNK		
unq	WTH	UNQ		
ex	WTH	EX		
aw			ALWK	
as			ALSP	
pi				PI
po				PO
pk				PK

Table 3-15. Status Table for BL, ME, TKP, TP, and TRE

STAT	LIMTYP	LIMVAL	SELSTAT	PEND
sf			TRSP	
rs	TMP	TRS		
def	DEF	DEF		
uk	WTH	UNK		
unq	WTH	UNQ		
ex	WTH	EX		
aw			ALWK	
as			ALSP	
pi				PI
po				PO
pk				PK

Table 3-16. Status Table ror CP

STP	LIMTYP	LIMVAL	CKT.USE	SELSTAT	PEND
sf				TRSP	
ssm			ssm		
ssp			ssp		
dsm			dsm		
dsp			dsp		
dc			dc		
aw				ALWK	
as				ALSP	
pi					PI
po					PO
pk					PK

3.12.4 Immediate Contracts

Immediate contracts are those that do not require multiple database writes in the SWITCH System and for which it is reasonable for the frame user to wait online for output. For immediate contracts, the USERMOD tag in the *PLHDR section is set to I, and the DEFID tag is not created and sent to the SWITCH System. When the contract is returned from the SWITCH System, the STATUS tag in the *PLHDR section indicates if the processing was successful. If STATUS=0 and the contract contains a *PRT section, FUSA must output to

the user's terminal whatever is contained in the TEXT subaggregate, after stripping the "LINE=" from each line.

If STATUS0, there may be a *PRT section, the text of which should be output; but there should be a *UMSG section, and the tags and values therein must be output to the user's terminal.

In either case, FUSA will conclude its output with the following message:

** xxx completed *DATE AND TIME*

In the line above, xxx is the transaction name.

3.12.5 Deferred Contracts

Deferred contracts are those that require multiple database writes in the SWITCH System, or for which it is not reasonable for the frame user to wait online for the output. For deferred contracts, the USERMOD tag in the *PLHDR section is set to D, the DEST tag is sent, and the DEFID tag is created and sent to the SWITCH System. As soon as FUSA gets an acknowledgment from the communications module that it has received the deferred contract, FUSA will output the following message to the user's terminal:

** xxx queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

When the response contract is returned from the SWITCH System, FUSA checks the value of the STATUS tag in the *PLHDR section, and makes an entry in the deferred output file to indicate that the transaction had a successful or unsuccessful completion. If the completion was successful and the FCIF contains a *PRT section, that must be included in the deferred output file. If the completion was unsuccessful, all the tags and values in the *UMSG section are stored in the deferred output file. In either case, FUSA appends the following message to the deferred output:

** xxx completed *DATE AND TIME*

3.12.6 CCSS Interface Support

FOMS/FUSA also enables a Centrex Customer Support System (CCSS) to login and create a command file via **ted**, for possibly a different user to review the command file, and then for a administrative-level user to execute it via **qcx**, a modified version of **que**. This command file could contain any combination of the transactions **cca**, **mch**, and **tns**, all of which would pass through FUSA and execute in the SWITCH System.

3.12.7 FUSA Transactions

Whenever possible, all COSMOS capabilities normally used by FRAME or RCMAC personnel will be available in a FOMS/FUSA and SWITCH System environment. The transactions may be executed in the SWITCH System or in FOMS. Some of those executed in FOMS may involve a request for the SWITCH System to transfer data to FOMS first. Other transactions executed in FOMS will send a response to the SWITCH System, and vice versa.

Users with asynchronous terminals will log into the UTS operating system on a single box that runs both FOMS and FUSA. At login, the system will verify the login, password, and wire center. When a transaction is invoked, a permission matrix is checked to see if that user (i.e., login) has permission to execute that transaction, whether it is a FOMS or a FUSA transaction.

The transaction names and input, if not identical, will be as close to COSMOS transactions as possible. The goal is to minimize change, since changes to transactions names, input, or output require retraining of BCC personnel.

Transactions that require multiple database writes in the SWITCH System and those that are long-running will be run in a deferred mode. This means that the user will receive only the message "**transaction queued on the SWITCH System's IMS queue", followed by the transaction completed message and the system prompt. The output of the transaction is sent later. The user has the option to determine when the output will be available and to request a printout. FOMS/FUSA also allows you to specify the waiting time before the transaction goes into the deferred mode. For additional information on this subject, refer to the Technical Memorandum, TM-STS-014241, FUSA Design.

In Section 3.12.7.1 below and following sections are detailed descriptions of an immediate transaction (**inq**) and a deferred transaction (**fce**). The rest of the FUSA transactions follow in alphabetical order.

3.12.7.1 INQ — INQCKT Mapping

Transaction **inq** is used by frame personnel to inquire on a facility or a range of facilities, and to obtain circuit information [including frame LOIS (Location-Oriented Identification System)]. Required input to **inq** consists of an h-line with a facility ID or a range of facilities, up to a suggested maximum of ten. A range consisting of more than 10 facilities will not be rejected by FUSA, but the output from the SWITCH System will terminate when the time limit for an immediate transaction is reached. Output consists of a printout of the facility and any facilities it is DIPed or assembled to (if it is nonworking), or the entire circuit (if the facility is part of a working or pending circuit). An optional input of "fv (future view) mm-dd-yy" on the h-line will yield a representation of the facility or circuit as of the date specified; "fv fut" will give the final view of the circuit.

Rules for Preparing the INQCKT Contract:

a. INQCKT is an immediate contract.

b. To create the FCIF for the INQCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. Within the *INQ section an EX aggregate must be created. The EX aggregate contains the facility name (EXNM) and ID (EXID) and if a range was input, the high ID (EXHI) in tag-value format. FUSA must insert the facility prefix after "EXNM=" in the EX aggregate of the *INQ section, insert the facility ID or the low facility ID of the range after the "EXID=", and the high facility ID of the range after the "EXHI=". Valid facility prefixes for the h-line of the **inq** transaction follow:

BL	Bridge Lifter
CKID	Circuit ID
CP	Cable Pair
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet Handler OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

d. An INQOPT aggregate must also be created. The INQOPT aggregate contains the tags VIEW and FORMOPT. FUSA must set FORMOPT to "F" in the INQOPT aggregate. This will yield output in the format requested by the FRAME SMEs. If the prefix "fv" was included on the h-line, the data that follows it must be in the format mm-dd-yy (m=month, d=day, y=year). FUSA will convert the data to the format "YYYYMMDD," and append it to "VIEW=" in the INQOPT aggregate. If "fv fut" was input, the INQOPT aggregate must contain "LASTVW=Y".

e. On return from the SWITCH System, the INQCKT contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in the "LINE=..." format. FUSA will print all the lines of text in the *PRT section; that is, all data between "LINE=" and ";". Before returning the system prompt sign to the user, FUSA will print
** inq completed *DATE AND TIME*

f. If the INQCKT contract was unable to process successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, MSGTEXT, and EXNM and EXID, if they are present.

Example:

To inquire on cable pair 9-123, in wire center 201829(wc:ta), and to obtain its frame location, a user sitting at an asynchronous terminal logged into FOMS/FUSA as "fr22" would type the following lines:

inq
h cp 9-123
.

FUSA translates this into the SWITCH System contract INQCKT, which will look like this as it goes from FUSA to the SWITCH System :
**C1=INQCKT.....201481FUSA SWITCH.....0;%*

*PLHDR{LCLID=000001FA;USERID=BARB;USERGRP=OTHER;USERMODE=I;
USERWC=F6;LCLTRM=TTYP018;LCLTRAN=INQ;}%

*INQ{INQOPT{FORMOPT=F;}EX{EXNM=CP;EXID=9-0123;}}%
When this contract has been sent to the SWITCH System, the user will see the following message:

**inq queued on the SWITCH System's IMS Queue on *DATE AND TIME*

After it returns from the SWITCH System, the INQCKT contract will contain a *PRT section as follows:

**PRT{REC{*
*TEXT{LINE=********** CP: 9-123**********;*
LINE=CKID: 201-321-0067 CHGD: 04-01-90 ;
LINE= ASM: CKT EMP: +CNV ;
LINE= CATG: V ;
LINE= SIG: L PUL: J ;
LINE= ASG USOC: 1FR;
LINE=TN: 201-321-0067 CHGD: 01-04-95 ;
LINE= ASM: CKT EMP: +ULBB ;
LINE=OE:100-000-001 CHGD: 01-30-89 ;
LINE= ASM: CKT EMP: +CNV ;
LINE= ADMFUNC: 1R SIG: L ;

LINE= W FR: F25 ZN: 001 FRT: 01-03U01-1-02 ;
LINE= FR: F01 ZN: 001;
LINE= (CONN TO) CP: 9-123 ;
LINE= (FROM) FR: F25 ZN: 001 (TO) FR: F25 ZN: 001 ;
LINE=CP: 9-123CHGD: 01-30-89 ;
LINE= ASM: CKT EMP: +CNV ;
LINE= RZ: 13 ;
LINE= W FR: F25 ZN: 001 FRT: 00-03L08-1-23 PF: 006-4-23 ;
LINE= FR: F01 ZN: 003;
LINE= }NUML=19 ;}}%

For the input shown above and the INQCKT contract generated from it, the frame user will see the following output:

```
**********  CP: 9-123**********************
CKID: 201-321-0067                          CHGD: 04-01-90
       ASM: CKT                  EMP: +CNV
                  CATG: V
     SIG: L     PUL: J
  ASG USOC: 1FR
TN: 201-321-0067                            CHGD: 01-04-95
       ASM: CKT                  EMP: +ULBB
OE: 100-000-001                             CHGD: 01-30-89
       ASM: CKT                  EMP: +CNV
  ADMFUNC: 1R          SIG: L
    W FR: F25  ZN: 001   FRT: 01-03U01-1-02
     FR: F01  ZN: 001
  (CONN TO) CP  : 9-123
       (FROM) FR: F25   ZN: 001   (TO) FR: F25   ZN: 001
CP: 9-123                                   CHGD: 01-30-89
       ASM: CKT                  EMP: +CNV
      RZ: 13
     W FR: F25  ZN: 001   FRT: 00-03L08-1-23        PF: 006-4-22
      FR: F01  ZN: 003
```

** inq completed Fri Jun 2 17:21:56 1995

Other sample **inq** input follows:

```
inq
h cp 9-123/fv 9-15-95
.
```

In the above example, the INQCKT contract generated will have a *INQ section as follows:

**INQ{EX{EXNM=CP;EXID=9-0123;}INQOPT{FORMOPT=F;VIEW=19950915;}}%*

3.12.7.2 FCE — ACESO Mapping

Transaction **fce**, the frame's version of an **ace** (Assignment Change Ticket Establishment), allows the frame personnel to change a facility that is pending connect via a service order. The facilities that may be changed are controlled on a wire-center basis by a user-definable table. The total set of facilities that may be changed is TKP, TP, OE, POE, BL, TRE, and ME. For each of these facility types, the table indicates which facilities may not be changed by which families. Although it may be implemented differently, the table will contain the functionality of the following model.

Facility Type	Family Name	Permission to Change
BL	FR	Y
ME	FR	Y
OE	FR	N
POE	FR	N
TKP	FR	Y
TP	FR	Y
TRE	FR	Y

In the absence of a table entry for the facility type and family name, **fce** will allow a user to change that facility.

Input to **fce** consists of an h-line with an ORD, and a circuit ID (TN or CKID), an o-line with the "out" facility and status (STO, STAT) and an i-line with the "in" facility or a request for automatic assignment. If any of the required input is omitted, or if a facility prefix other than those allowed in the table is input, **fce** will print an error message. Automatic assignment may be requested for any allowable facility, except for ME. Automatic assignment must be requested for OEs and POEs. Optional input is an r-line with a remark (RMK) of up to 60 characters in length.

Rules for Preparing the ACESO Contract:

a. ACESO is a deferred contract.

b. To create FCIF for an ACESO contract, FUSA must create a *C1 header, a *PLHDR section, and a *MASG section.

c. FUSA must create an OLD and NEW subaggregate in the EX subaggregate of the SVC subaggregate of the CKT aggregate in the *MASG section. Each of these must contain the circuit ID in the following format:

OLD{EXNM=CKID;EXID=yy;}
NEW{EXNM=CKID;EXID=yy;}

d. FUSA must create an EQP subaggregate with a TYPE tag, indicating the type of facility being changed, and an OLD and NEW subaggregate with the ID of the "out" and "in" facilities (or a "?" for automatic assignment of the "in" facility).

   In addition, the OLD subaggregate for the "out" facility must contain a UATTR subaggregate with an ASGLIM subaggregate with the tags LIMTYP and LIMVAL. Refer to Section 3.12.2 for details.

e. If a remark was input, FUSA must set ACERMK=the RMK that was input in *MASG.CKT.CKTATTR.NEW.

f. As soon as FUSA gets an acknowledgment from the communications module that it has received the ACESO contract, FUSA will output the following message to the user's terminal:

   ** fce queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file(xxxxxxxxxxx) *DATE AND TIME*

   After printing the message, FUSA returns the system prompt to the user.

g. When the ACESO contract is returned from SWITCH, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

h. If the ACESO contract did not process successfully in SWITCH, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

Example:

A user logs into a wire center 201829(wc:ta) as fr22 and enters the following input to **fce**:

h ord n1234/tn 482-3762
o tp 1-503/stat def
i tp 1-510
r rmk tp 1-503 ng
.

Assuming that the NPA for NXX 482 was 201, the ACESO contract that FUSA sends to the SWITCH System would look like this:

**C1=ACESO N1234 ....201829FUSA SWITCH.....0;%*

```
*PLHDR{LCLID=XXXXXXXX;USERID=FR22;USERGRP=FRAME;USERMODE=
D;DEST=FUSARPT;
USERWC=TA;LCLTRM=TTYXXXX;LCLTRAN=FCE;DEFID=XXXXXXXXXXXXX
XXXXXXXXXXXX;}%


*MASG{CKT{SVC{EX{OLD{EXNM=CKID;EXID=201-482-3762;}
                 NEW{EXNM=CKID;EXID=201-482-3762;}}}
      EQP{TYPE=TP;
        OLD{ID=1-0503;UATTR{ASGLIM{LIMTYP=DEF;LIMVAL=DEF;}}}
        NEW{ID=1-0510;}}
      CKTATTR{NEW{ACERMK=TP 1-503 NG}}}}%
```

If the user entered the line "i tp ?", the NEW subaggregate would contain "ID=?".

The SWITCH System accepts this contract, processes the change in its database (including assigning a new TP if needed), and sends a PREFO contract to FOMS with the new frame output resulting from the **fce**.

The frame user who entered the **fce** transaction at a terminal is given some output at the terminal to indicate whether the transaction has processed successfully. Thus, the SWITCH System returns the ACESO contract with the STATUS tag in the *PLHDR indicating a successful or unsuccessful completion. If the ACESO contract did not complete successfully in the SWITCH System, it will contain a *UMSG section upon return to FUSA. However, due to multiple commits, ACESO is a deferred transaction in the SWITCH System, and the ACESO contract may not be returned immediately. FUSA does not keep the user waiting at the terminal for the ACESO response, but returns control as soon as acknowledgment is received from the communications module.

In response to the input at the terminal, the user will receive the following message:

** fce queued on the SWITCH System’s IMS queue on Fri Jun 10 09:43:37 1994

** fr 22’s deferred output will be in file(061509433912) Fri Jun 10 09:43:37 1994

When the ACESO contract is returned from the SWITCH System to FUSA, an entry is made in the deferred output file, indicating successful or unsuccessful processing of the ACESO contract in the SWITCH System. The user can check for the presence of the output file using transaction **ddo** (Display Deferred Output), or wait for notification via the **ufo** or **pak** transactions.

3.12.7.3 ASC — ASGCPT Mapping

Frame personnel use transaction **asc** to invoke assignment and make cable transfers pending in the SWITCH System. Input to **asc** consists of an h-line with an order number

(ORD), and optionally, a cable pair or a range of cable pairs to specify which circuits in the transfer are to be assigned. Absence of a cable pair or range of cable pairs signifies that all remaining unassigned circuits in the transfer are to be assigned. The cable transfer order number is input as "ORD X:Y," where X represents the engineering work order number (EWO), and Y represents the transfer number. Table 3-17 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to restrict circuits selected for assignment, or to restrict the selection of new network units. These are input on i-lines or o-lines. Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

OP WIN (Work Items Now) is a simplified way of setting FDD to the current date and setting SFO and STD to YES.

Table 3-17. Allowable Input for Transaction ASC

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CIA	Candidate for Intra-nodal Fac. Allowance	y or n	h	4
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CSR	Candidate for Switch Port Reuse	y, n, c, or r	h	4
CTG	Category	v,n,d,m,i,w,p,r,t,e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
CTXIC	Centrex IC Type and Entity	1 to 4 AN + "." + 1 A/N	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Expected Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator	y or n	i or o	1
EXID	External ID (IC Type and Entity)	1 to 4 AN + "." + 1 A/N	h	4
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	3
FDD	Frame Due Date	mm-dd-yy	h	1
FDT	Frame Due Time	1 to 4 numerics + (a or p)	h	1
FR	Frame for Out CPs	"f"+ 2 numerics	i or o	1
FRK	Frame Remark	1 to 60 alphanumerics	h	1
FZI	Frame Time Zone	3 alphanumerics	h	1
GRD	Grade of Service	1,2,4, or 8	i or o	2
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
HMLIC	MLHG IC Type and Entity	1 to 4 AN + "." + 1 A/N	i or o	1
LC	Line Count	1 to 5 numerics	h	1

Table 3-17. Allowable Input for Transaction ASC (Continued)

Tag	Description	Input Format	Line Type	Max. No.
OP	Option	WIN (Work Items Now)	h	1
SCH	Series Completion Hunt flag	y	i or o	1
SFG	Simulated Facility Group Number	1 to 6 AN or "*"	i or o	1
SFGIC	SFG IC Type and Entity	1 to 4 AN + "." + 1 A/N	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling	l,g,b,r,p,q,o	i or o	4
STD	Send Translation Data	y or n	h	1
TS	Type of Service	f, m, w, or o	i or o	2
TSPC	TSP Circuit	y	i or o	1
ZN	Zone for Out CPs	1 to 3 numerics	i or o	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i- or o-line, but not both.

c. If CSR or CIA appears (and they may appear together), they must be followed by EXID, and this applies each time they appear.

d. If ZN is input, it must be preceded by FR.

e. If a particular CTX is input, it must be followed by CTXIC.

f. If a particular HML is input, it must be followed by HMLIC.

g. If a particular SFG is input, it must be followed by SFGIC.

h. FUSA must convert FAC to EXNM before inserting it in the FCIF.

Rules for Preparing the ASGCPT Contract:

a. ASGCPT is a deferred contract.

b. To create FCIF for the ASGCPT contract, FUSA must create a *C1 header, a *PLHDR section, and a *PKT section. An *FPA section and a *WOPT section are optional.

c. If ECD is input, it goes in the *PLHDR section as VCECD=YYMMDD.

d. The transfer number [i.e., the part of the ORD ID that was input after the colon (:)] goes in the Order Number field in the *C1 header.

e. The *PKT section contains the optional tag FDD, and a REC aggregate with the EWO, and an optional ACL subaggregate containing FRK, FDT, and FZI, if they were input.

If FDD was input, it must be changed from the format "mm-dd-yy" to yymmdd before FUSA passes it to the SWITCH System via the FCIF.

f. The *WOPT section may contain a REF aggregate with the tags SFO and STD, and one or more IC subaggregates with EXNM=IC and EXID, and CSR and CIA. The *WOPT section may also contain a REC aggregate with a CKTFILT subaggregate with an INCL and/or an EXCL subaggregate. The INCL subaggregate may contain the tags GRD, TS, CLS, CTX, CTXIC, HML, HMLIC, SFG, SFGIC, DIR, SCH, ADSR, CTG, CATY, SIG, ESL, CMPLX, TSPC, FR, ZN, and ASMIND. The EXCL subaggregate may contain the tags GRD, TS, CLS, CTX, CTXIC, HML, HMLIC, SFG, SFGIC, DIR, SCH, ADSR, CTG, CATY, SIG, ESL, CMPLX, TSPC, FR, ZN, and ASMIND. An INCL or EXCL aggregate may contain up to three EX subaggregates with EXNM (FAC). The *WOPT section may also contain a CTL aggregate with the tag LC.

g. The *FPA section contains one or more REC aggregates with an F1 subaggregate containing the "from" cable number (CA), low pair number (PR), and high pair number (PRHI) for a range of pairs to be assigned. The cable pair or cable pair range from the h-line must be converted to the CA, PR, and PRHI tags for the SWITCH System.

h. If "OP WIN" was input, FUSA must set VCECD=the current date in the *PLHDR section, and set SFO=Y and STD=Y in *WOPT.REF. The tag WIN=Y must also be passed to the SWITCH System in *WOPT.REF.

i. As soon as FUSA gets an acknowledgment from the communications module that it has received the ASGCPT contract, FUSA will output the following message to the user's terminal:

** asc queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

FUSA then returns the system prompt to the user.

j. When the ASGCPT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully, and FUSA must indicate this in the deferred output file.

k. If the ASGCPT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

l. The EWO number will be in a *PRT section of the ASGCPT contract in REC.EWO upon return from the SWITCH System.

3.12.7.4 ASF — ASGFTR Mapping

Transaction **asf** is used by the frame personnel to assign all or part of a Frame Transfer (FTR) in the SWITCH System. The purpose of a FTR is to move working circuits from one frame to another.

Required input to assign all lines of a FTR order, or all remaining unassigned lines of a FTR order, is an h-line with an order number (ORD). An assignment option (OP) of RSP (Reuse Switch Port), ASP (Assign New Switch Port), or SDA (SWITCH System Determines Assignment Type) may be input on the h-line. If OP is not input, FUSA will default to RSP. If OP=ASP or SDA, jumper length (JL) is required on the h-line. To assign some lines of a FTR order up to 5 individual NTUs (CP, OE, or TKP) or ranges of NTUs may be input on the h-line along with ORD. A "*" or a masked ID may be entered for any NTU type. An r-line with a remark (RMK) of up to 60 characters is optional.

Table 3-18 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to specify or restrict circuits selected for assignment. These are input on i-lines or o-lines. Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

Table 3-18. Allowable Input for Transaction ASF

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
AUSE	Assigned Use	1 numeric (1-8)	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CTG	Category	v,n,d,m,i,w,p,r,t, or e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Estimated Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator (Customer)	y or n	i or o	1
ESLEQP	Essential Indicator (Equipment)	y	i or o	1
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	2
FDD	Frame Due Date	mm-dd-yy	h	1
GRD	Grade of Service	1, 2, 4, or 8	i or o	2

Table 3-18. Allowable Input for Transaction ASF

Tag	Description	Input Format	Line Type	Max. No.
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
JL	Jumper Length	1-2 numerics	h	1
LC	Line Count	1 to 5 numerics	h	1
PUL	Pulsing (Customer)	d or j	i or o	1
PULEQP	Pulsing (Equipment)	d or j	i or o	1
SCH	Series Completion Hunt flag	y	i or o	1
SFG	Simulated Facility Group No.	1 to 6 AN or "*"	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling (Customer)	l,g,b,r,p,q, or o	i or o	4
SIGEQP	Signaling (Equipment)	l,g,b,r,p,q, or o	i or o	1
STD	Send Translation Data	y or n	h	1
TS	Type of Service	f, m, o, or w	i or o	2
TSPC	TSP Circuit	y	i or o	1
ZN	Zone	1 to 3 numerics	i or o	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i-line or an o-line, but not both.

c. If AUSE is input, GRD must also be input on a line of the same type (i or o).

d. If SIGEQP, PULEQP, or ESLEQP were input, they must be converted to ESIG, EPUL, or EESL.

Rules for Preparing the ASGFTR Contract:

a. ASGFTR is a deferred contract.

b. To create FCIF for the ASGFTR contract, FUSA must create a *C1 header, a *PLHDR section, and may contain a *WOPT section.

c. If ECD is input, it goes in the *PLHDR section in the format YYMMDD.

d. If FDD and/or RMK were input, they go in a *PKT section. RMK must be changed to FRK and it goes in a REC aggregate and an ACL subaggregate. If FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before passing it to the SWITCH System via the FCIF.

e. The *WOPT section must contain a CTL aggregate with ASGOPT=the OP that was input (or RSP, if none was input), and JL, if that was input.

f. If LC was input, it goes in a CTL aggregate in the *WOPT section.

   The *WOPT section may contain a REF aggregate with PURG=Y, and the tags SFO, STD, if any or all of these were input.

   The *WOPT section may also contain a REC aggregate with a CKTFILT subaggregate with an INCL and/or an EXCL subaggregate. The INCL/EXCL subaggregate may contain the tags GRD, TS, CLS, DIR, CTX, HML, SFG, SCH, ADSR, CTG, CATY, SIG, ESL, PUL, CMPLX, TSPC, ESIG(SIGEQP), EESL(ESLEQP), EPUL(PULEQP), ASMIND, AUSE, and ZN. An INCL or EXCL aggregate may contain up to two EX subaggregates with EXNM=the FAC that was input.

g. If one or more NTUs or ranges of NTUs were input, the *WOPT section must contain a REC aggregate with an EX subaggregate with EXNM=the NTU type, EXID=the id or low id of the range, and EXHI=the high id of the range. There may be additional EX subaggregates as needed.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the ASGFTR contract, FUSA will output the following message to the user's terminal:

   ** asf queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

i. When the ASGFTR contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

j. If the ASGFTR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.5 ASJ — ASGJAM Mapping

Transaction **asj** is used by the frame personnel to assign all or part of a Jumper Activity Management or JAM Order in the SWITCH System. The purpose of a JAM order is to relieve congestion on the main distributing frame (MDF) by reassigning OEs to eliminate long jumpers or tie pairs.

Required input to assign all lines of a JAM order, or all remaining unassigned lines of a JAM order, is an h-line with an order number (ORD). To assign some lines of a JAM order a zone (ZN) or range of zones, or up to 5 individual NTUs (CP, OE, or TP) or a range of NTUs may be input on the h-line along with ORD. An r-line with a remark (RMK) of up to 60 characters is optional.

Table 3-19 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to specify or restrict circuits selected for assignment. These are input on i-lines or o-lines. Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

Table 3-19. Allowable Input for Transaction ASJ

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
AUSE	Assigned Use	1 numeric (1-8)	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CTG	Category	v,n,d,m,i,w,p,r,t, or e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Estimated Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator (Customer)	y or n	i or o	1
ESLEQP	Essential Indicator (Equipment)	y	i or o	1
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	10
FDD	Frame Due Date	mm-dd-yy	h	1
GRD	Grade of Service	1, 2, 4, or 8	i or o	3
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
JL	Minimum Jumper Length	1 to 2 numerics	h	1
LC	Line Count	1 to 5 numerics	h	1
LF	Load Factor	1 to 2 numerics	i or o	1
MAXCCS	Maximum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
MINCCS	Minimum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
PUL	Pulsing (Customer)	d or j	i or o	1
PULEQP	Pulsing (Equipment)	d or j	i or o	1
SCH	Series Completion Hunt flag	y	i or o	1

Table 3-19. Allowable Input for Transaction ASJ

Tag	Description	Input Format	Line Type	Max. No.
SFG	Simulated Facility Group No.	1 to 6 AN or "*"	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling (Customer)	l,g,b,r,p,q, or o	i or o	4
SIGEQP	Signaling (Equipment)	l,g,b,r,p,q, or o	i or o	1
STD	Send Translation Data	y or n	h	1
TS	Type of Service	f, m, o, or w	i or o	2
TSPC	TSP Circuit	y	i or o	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i-line or an o-line, but not both.

c. If AUSE is input, GRD must also be input on a line of the same type (i or o).

d. If SIGEQP, PULEQP, or ESLEQP were input, they must be converted to ESIG, EPUL, or EESL.

e. JL is an optional h-line input for **asj**. If present, it will be used for the current assignments only.

Rules for Preparing the ASGJAM Contract:

a. ASGJAM is a deferred contract.

b. To create FCIF for the ASGJAM contract, FUSA must create a *C1 header, a *PLHDR section, and a *WOPT section.

c. If ECD is input, it goes in the *PLHDR section in the format YYMMDD.

d. If FDD and/or RMK were input, they go in a *PKT section. RMK must be changed to FRK and it goes in a REC aggregate and an ACL subaggregate. If FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before passing it to the SWITCH System via the FCIF.

e. If LC was input, it goes in a CTL aggregate in the *WOPT section.

   The *WOPT section must contain a REF aggregate with PURG=Y, and the tags SFO, STD if either of these were input.

   The *WOPT section may also contain a REC aggregate with a CKTFILT subaggregate with an INCL and/or an EXCL subaggregate. The INCL/EXCL subaggregate may contain the tags GRD, TS, CLS, DIR, CTX, HML, SFG, SCH,

ADSR, CTG, CATY, SIG, ESL, PUL, MINCCS, MAXCCS, LF, CMPLX, TSPC, ESIG(SIGEQP), EESL(ESLEQP), EPUL(PULEQP), ASMIND, and AUSE. An INCL or EXCL aggregate may contain up to ten EX subaggregates with EXNM=the FAC that was input.

The following defaults must be set by FUSA and included in the FCIF to the SWITCH System, unless overridden by user input. *WOPT.REC.CKTFILT.INCL.CTG=V
*WOPT.REC.CKTFILT.EXCL.GRD=2
*WOPT.REC.CKTFILT.EXCL.GRD=4
*WOPT.REC.CKTFILT.EXCL.GRD=8
WOPT.REC.CKTFILT.EXCL.CTX=
WOPT.REC.CKTFILT.EXCL.HML=
WOPT.REC.CKTFILT.EXCL.SFG=
*WOPT.REC.CKTFILT.EXCL.SCH=Y
*WOPT.REC.CKTFILT.EXCL.TSPC=Y
*WOPT.REC.CKTFILT.EXCL.ADSR=Y
*WOPT.REC.CKTFILT.EXCL.CMPLX=Y
*WOPT.REC.CKTFILT.EXCL.EX.EXNM=ME
*WOPT.REC.CKTFILT.EXCL.EX.EXNM=BL
*WOPT.REC.CKTFILT.EXCL.EX.EXNM=TRE
*WOPT.REC.CKTFILT.EXCL.EX.EXNM=ICE
*WOPT.REC.CKTFILT.EXCL.EX.EXNM=TKP

If JL was input, it goes in *WOPT.REC.CKTFILT.INCL.

f. If an individual NTU or a range of NTUs was input, there is a *JAM section with a REC aggregate with an EX subaggregate with EXNM=the NTU type, EXID=the id or low id of the range, and EXHI=the high id of the range. If a zone (ZN) was input, EXNM=ZONE and EXID=the zone number that was input. If a range of zones was input, EXNM=ZONE, EXID=the low zone of the range, and EXHI=the high zone of the range. There may be additional REC aggregates as needed.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the ASGJAM contract, FUSA will output the following message to the user's terminal:

** asj queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

h. When the ASGJAM contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

i. If the ASGJAM contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.6 AST — ASGSET Mapping

Transaction **ast** is used by the frame personnel to invoke assignment and make switch port equipment transfer pending in the SWITCH System. Required input is an h-line with an order number (ORD) and optionally, up to a total of five switch port IDs (either OEs or POEs) or ranges of switch port IDs to specify which circuits are to be assigned. Absence of a switch port ID or a range of switch port IDs signifies that all remaining unassigned circuits in the transfer are to be assigned. Table 3-20 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to restrict circuits selected for assignment, or to restrict the selection of new network units. These are input on i-lines or o-lines. Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

Table 3-20. Allowable Input for Transaction AST

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CTG	Category	v,n,d,m,i,w,p,r,t, or e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
CTXIC	Centrex IC Type and Entity	1 to 4 AN + "." + 1 A/N	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Expected Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator (Customer)	y or n	i or o	1
ESLEQP	Essential Indicator (Equipment)	y	i or o	1
ESLSEL	Essential Indicator (Selection)	y or n	h	1
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	3
FDD	Frame Due Date	mm-dd-yy	h	1
FR	Frame for Out Switch Ports	"f"+ 2 numerics	i or o	1
FRSEL	Frame for New Switch Ports	"f"+ 2 numerics	h	1
FRK	Frame Remark	1 to 60 alphanumerics	h	1
GRD	Grade of Service	1, 2, 4, or 8	i or o	2

Table 3-20. Allowable Input for Transaction AST (Continued)

Tag	Description	Input Format	Line Type	Max. No.
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
HMLIC	MLHG IC Type and Entity	1 to 4 AN + "." + 1 AN	i or o	1
LC	Line Count	1 to 5 numerics	h	1
LF	Load Factor	1 to 2 numerics	h	1
LG	Load Group	1 to 20 alphanumerics	h	1
LGDIR	Load Group Direction	i or e	h	1
LGIC	Load Group IC	1 to 4 AN + "." + 1 A/N	h	1
MAXCCS	Maximum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
MINCCS	Minimum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
PUL	Pulsing (Customer)	d or j	i or o	1
PULEQP	Pulsing (Equipment)	d or j	i or o	1
SCH	Series Completion Hunt flag	y	i or o	1
SFG	Simulated Facility Group No.	1 to 6 AN or "*"	i or o	1
SFGIC	Simulated Facility Group IC	1 to 4 AN + "." + 1 A/N	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling (Customer)	l,g,b,r,p,q, or o	i or o	4
SIGEQP	Signaling (Equipment)	l,g,b,r,p,q, or o	i or o	1
SIGSEL	Signaling (Selection)	l,g,b,r,p,q, or o	h	1
STAT	Status for Out Switch Port	sf,rs,def,uk,ex	h	1
STD	Send Translation Data	y or n	h	1
TS	Type of Service	f, m, w, or o	i or o	2
TSPC	TSP Circuit	y	i or o	1
ZN	Zone for Out Switch Ports	1 to 3 numerics	i or o	1
ZNSEL	Zone for New Switch Ports	1 to 3 numerics	h	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i-line or an o-line, but not both.

c. If ZN is input, it must be preceded by FR.

d. If ZNSEL is input, it must be preceded by FRSEL.

e. If a particular CTX is input, it must be followed by CTXIC.

f. If a particular HML is input, it must be followed by HMLIC.

g. If a particular SFG is input, it must be followed by SFGIC.

h. If any of the parameters LG, LGIC, and LGDIR is present, the others must also be present.

i. FUSA must change FAC to EXNM before inserting it in the FCIF.

j. If SIGSEL, ESLSEL, FRSEL, or ZNSEL were input, the last three characters are dropped before inserting them into the proper place in the FCIF. If SIGEQP, PULEQP, or ESLEQP were input, they must be converted to ESIG, EPUL, or EESL.

k. Refer to Section 3.12.2 for details on converting STAT to LIMTYP and LIMVAL.

Rules for Preparing the ASGSET Contract:

a. ASGSET is a deferred contract.

b. To create FCIF for the ASGSET contract, FUSA must create a *C1 header and a *PLHDR section and a *WOPT section. A *SET section and a *PKT section are optional.

c. If ECD is input, it goes in the *PLHDR section as VCECD=YYMMDD.

d. The *PKT section contains the optional tag FDD, and a REC aggregate with an optional ACL subaggregate containing a FRK, if input. If FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before passing it to the SWITCH System via the FCIF.

e. The *WOPT section must contain a REF aggregate with PURG=Y; it may also contain the tags SFO and STD if they were input. The *WOPT section may also contain a REC aggregate with a CKTFILT subaggregate with an INCL and/or an EXCL subaggregate. The INCL subaggregate may contain the tags GRD, TS, CLS, CTX, CTXIC, HML, HMLIC, SFG, SFGIC, DIR, SCH, ADSR, CTG, CATY, SIG, ESL, CMPLX, TSPC, ESIG(SIGEQP), EESL(ESLEQP), EPUL(PULEQP), FR, ZN, and ASMIND. The EXCL subaggregate may contain the tags GRD, TS, CLS, CTX, CTXIC, HML, HMLIC, SFG, SFGIC, DIR, SCH, ADSR, CTG, CATY, SIG, ESL, CMPLX, TSPC, FR, ZN, and ASMIND. An INCL or EXCL aggregate may contain up to three EX subaggregates with EXNM (FAC). The REC aggregate may also contain an SEL subaggregate with SIG(SIGSEL), ESL(ESLSEL), FR(FRSEL), ZN(ZNSEL), MINLF (LF or low LF of the range), and MAXLF (high LF of the range). The *WOPT section may also contain a CTL aggregate with the tag LC.

f. The *SET section contains a REC aggregate with an ACL subaggregate, an EX subaggregate containing the external facility name (EXNM=OE or POE), the external ID (EXID), and external high ID (EXHI) for a switch port or a range of switch ports to be assigned. These values are obtained from the h-line input. The *SET section may contain multiple REC aggregates if needed.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the ASGSET contract, FUSA will output the following message to the user's terminal:

   ** ast queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

h. When the ASGSET contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

i. If the ASGSET contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.7 ASW — ASGWAO Mapping

Transaction **asw** is used by the frame personnel to assign a Wire Assembly Order (WAO) in the SWITCH System. Wire assembly orders may be established to either break or create DIPs or permanent assemblies.

Required input to **asw** is an h-line with an order number (ORD). Optional inputs are 1-5 CPs or OEs or a range of CPs or OEs, line count (LC), estimated completion date (ECD), and frame due date (FDD). An r-line with a remark (RMK) of up to 60 characters is optional. Absence of a CP or OE, or range of CPs or OEs signifies that all unassigned circuits in the order are to be assigned. SFO will be set to YES automatically, so that frame output will be sent to FOMS after assignment. SFO=N may be input on the h-line to override the default setting.

Rules for Preparing the ASGWAO Contract:

a. ASGWAO is a deferred contract.

b. To create FCIF for the ASGWAO contract, FUSA must create a *C1 header, a *PLHDR section, and a *WOPT section. A *WAO section, a *PKT section, and a *KEYNTU section are optional.

c. If ECD is input, it goes in the *PLHDR section as VCECD in the format YYMMDD.

d. If FDD or RMK was input, the *PKT section contains the tag FDD, and a REC aggregate with an ACL subaggregate containing the remark behind the fid FRK. If

FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before passing it to the SWITCH System via the FCIF.

e. If a CP or OE, or range of CPs or OEs was input, the *KEYNTU section contains a KEY aggregate with an EX subaggregate containing the external facility name (EXNM=CP or OE), the external ID (EXID), and external high ID (EXHI) for the CP or OE, or range of CPs or OEs to be assigned.

f. FUSA must create a *WOPT section with a REF aggregate with PURG=Y, SFO=Y (or SFO=N if that was input), and a CTL aggregate with LC, if a line count was input.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the ASGWAO contract, FUSA will output the following message to the user's terminal:

   ** asw queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

h. When the ASGWAO contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

i. If the ASGWAO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.8 ATL — RPTATR Mapping

Transaction **atl** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of circuits in an area transfer in the SWITCH System. Output will include circuit data from both the "from" and the "to" wire centers. Required input to **atl** consists of an order number (ORD) and one of the following: an item number (ITEM), or range of item numbers, a facility (TN, OE, or CP) or range of facilities, an NPANXX, a series completion hunt group TN (HTN), or a group number (HML, SFG, or CTX). If a group number is input, an IC and ICID must also be input. NPANXX may be 3 or 6 characters. If 3 characters are input for NPANXX, FUSA will assume they are the NXX and set the NPA to the default NPA for the NXX or the wire center. Given an NPANXX, FUSA will assume a facility type of TN. That may be overridden with a manual input of "FAC DTN".

Optional inputs are a due date (DD) or range of due dates, line count (LC), print option (OP), designed circuits filter (ADSR Y), message format (MF), and facility type (the aforementioned "FAC DTN"). Valid inputs for MF are LIST (provides a 2-line output with old and new facilities), and ATTR (provides a detailed output of the circuit); LIST is the default. Valid inputs for OP are EST (only circuits which have been established, but not yet assigned), and ASG (only circuits which have already been assigned). The due date or range of due dates does not refer to the due date of the area transfer, but to the date (or range of dates) that the circuits were established or assigned in the SWITCH System. This input, therefore, is allowed only when "OP ASG" or "OP EST" is also input.

Rules for Preparing the RPTATR Contract:

a. RPTATR is a deferred contract.

b. To create the FCIF for the RPTATR contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTATR section.

c. FUSA must create an INPOPT aggregate within the *RPTATR section and within the INPOPT aggregate must set ORD=the order number which was input.

d. If a facility was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=the facility type and EXID=the facility ID. If a facility range was input, EXID=the low ID and EXHI=the high ID.

e. If an item number was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=ITEM and EXID=the item number. If a range of item numbers was input, EXID=the low item number and EXHI=the high item number.

f. If a group number was input, FUSA must create a GRP subaggregate within the INPOPT aggregate and set EXNM=HML or SFG or CTX, and EXID=IC.ICID.GPID. FUSA must also create an IC subaggregate and set EXNM="IC" and set EXID=IC.ICID.

g. If HTN was input, FUSA must create an EX subaggregate within the INPOPT aggregate, and set EXNM=TN and EXID=the HTN data value. FUSA must also create a GRP aggregate within the *RPTATR section, and set EXNM=SCH (do not set EXID in this case).

h. If an NPANXX was input, or an NXX was input and the NPA is assumed, FUSA must create an EX subaggregate within the INPOPT aggregate and set NPANXX=NPANXX. It must also set EXNM=TN, unless "FAC DTN" was input; in that case EXNM=DTN.

i. If "MF ATTR" was input, FUSA must set FORMOPT=3 (ATTRIBUTE output format) in the *RPTATR section; otherwise set FORMOPT=1 (LIST output format).

j. If "OP EST" or "OP ASG" was input, FUSA must set STATUS=EST or ASG in the *RPTATR section; otherwise omit STATUS as a tag in the INPOPT aggregate.

k. If LC was input, FUSA must create a FILT aggregate in the *RPTATR section and set LNCNT=LC.

l. If a DD or a range of DDs was input, FUSA must create a REQDTE subaggregate within the FILT aggregate and set DTEFR=DD or DTEFR=the first date and DTETO=the second date in the format YYYYMMDD.

m. If "ADSR Y" was input, FUSA must set ADSR=Y in the CKT aggregate in the *RPTATR section.

n. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTATR contract, it will output the following messages to the user's terminal:

   ** atl queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

o. When the RPTATR contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

p. If the RPTATR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.9 ATO — RPTATR Mapping

Transaction **ato** (Transfer Obstacles and Omissions) is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of circuits in an area transfer which have not had output sent to FOMS or MAS or are otherwise in error. Required input to **ato** consists of an order number (ORD) and one of the following: an item number (ITEM), or range of item numbers, a facility (TN, OE, or CP) or range of facilities, an NPANXX, a series completion hunt group TN (HTN), or a group number (HML, SFG, or CTX) and an intelligent controller type (IC) and intelligent controller ID (ICID). Input of HML, SFG, or CTX requires input of IC and ICID. NPANXX may be 3 or 6 characters. If 3 characters are input, FUSA will assume they are the NXX, and set the NPA to the default NPA for the NXX or the wire center. Given an NPANXX, FUSA will assume a facility type of TN. That may be overridden with a manual input of "FAC DTN".

Optional inputs are line count (LC) and facility type (the aforementioned "FAC DTN").

Rules for Preparing the RPTATR Contract:

a. RPTATR is a deferred contract.

b. To create the FCIF for the RPTATR contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTATR section.

c. Within the *RPTATR section FUSA must set FORMOPT=2, which corresponds to the line option of RPTATR.

d. Also within the *RPTATR section FUSA must set STATUS=ERR and ERRTYP=*.

e. FUSA must create an INPOPT aggregate within the *RPTATR section and within the INPOPT aggregate must set ORD=the order number which was input.

f. If a facility was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=the facility type and EXID=the facility ID. If a facility range was input, EXID=the low ID and EXHI=the high ID.

g. If an item number was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=ITEM and EXID=the item number. If a range of item numbers was input, EXID=the low item number and EXHI=the high item number.

h. If a group number was input, FUSA must create a GRP subaggregate within the INPOPT aggregate, and set EXNM=HML or SFG or CTX, and EXID=IC.ICID.GPID. An IC subaggregate must also be created with EXNM="IC" and EXID=IC.ICID.

i. If HTN was input, FUSA must create an EX subaggregate within the INPOPT aggregate, and set EXNM=TN and EXID=the HTN data value. FUSA must also create a GRP aggregate within the *RPTATR section, and set EXNM=SCH (do not set EXID in this case).

j. If an NPANXX was input, or an NXX was input and the NPA is assumed, FUSA must create an EX subaggregate within the INPOPT aggregate and set NPANXX=NPANXX. It must also set EXNM=TN, unless "FAC DTN" was input; in that case EXNM=DTN.

k. If LC was input, FUSA must create a FILT aggregate with LNCNT=LC.

l. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTATR contract, it will output the following messages to the user's terminal:

   ** ato queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

m. When the RPTATR contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file in addition to storing the output contained in the *PRT section.

n. If the RPTATR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.10 BAI — WSIASG Mapping

The transaction used by frame personnel to obtain a spare bridge lifter is Bridge Lifter Assignment Inquiry (**bai**). Required input to **bai** is a "dot" (.) line. Optional input is a line count (LC) to obtain more than one bridge lifter, a frame location (LOC), and "OP PRD" to obtain paired BLs, or "OP FPT" to obtain four-party BLs. LC must be in the range 1-10.

Output consists of the BL ID and its frame location for each BL returned in the contract, one BL to a line, as follows:

bl xxxxxxx fxxxxx
bl xxxxxxx fxxxxx

Rules for Preparing the WSIASG Contract

1. WSIASG is an immediate contract.
2. To create the FCIF for the WSIASG contract FUSA must create a *C1 header, a *PLHDR section, and a *WSIASG section.
3. The *WSIASG section must contain an EX aggregate with EXNM=BL, and a FILT aggregate with LNCNT=LC, if one was input.
4. If a LOC was input, the FILT aggregate must also contain a PHYSAPR subaggregate with FR=frame and ZN=zone specifying the LOC that was input.
5. If "OP PRD" or "OP FPT" was input, the *WSIASG section must contain a BL aggregate with ASMSPF=PRD or FPT, whichever was input.
6. If the WSIASG contract was processed successfully in SWITCH, upon return the contract will contain a *INQASG section with an NTU aggregate for each BL returned. From the NTU aggregate FUSA must extract EX.EXID which is the ID of the BL, PHYSAPR.FR (its frame) and PHYSAPR.ZN (its zone), and output them to the user's terminal.
7. Before returning the system prompt sign to the user, FUSA should print:
   ** bai completed mm-dd-yy hh:mm

8. If the WSIASG contract was unable to be processed successfully in the SWITCH System, upon return the FCIF will contain a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.11 CCA — UPDCKT Mapping

Transaction **cca** is invoked by a CCSS system to add, delete, or change customer attributes. Input to **cca** is an h-line with a TN, and one or more i-lines or o-lines with one or more custom calling features (CCF), a Centrex Access Treatment (CAT) code, a Primary Inter-LATA Carrier Code (PIC), or a line class code (LCC). Input specifications for these FIDs (Facility IDs) are shown in Table 3-21.

Table 3-21. Input Specifications for FIDs

FID	Input Format
CAT	1 to 3 numerics
CCF	1 to 8 alphanumerics
LCC	3 to 8 alphanumerics
PIC	3 to 5 alphanumerics

Output from **cca** to the terminal is the transaction queued message, followed by the deferred output file message. Next, FUSA makes an entry in the deferred output file, indicating a successful or unsuccessful completion in the SWITCH System.

Rules for Preparing the UPDCKT Contract:

a. UPDCKT is a deferred contract.

b. To create the FCIF for the UPDCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *MASG section.

c. The *MASG section needs a CKT aggregate with the following items:

   - A CTL subaggregate with FCN=CHG
   - An SVC subaggregate with a CTL subaggregate with FCN=CHG, and an EX subaggregate with an OLD subaggregate with EXNM=CKID and EXID=NPA-NXX-NNNN, a NEW subaggregate with EXNM=CKID and EXID=NPA-NXX-NNNN, and a TRANS subaggregate. The TRANS subaggregate must always contain an OLD and a NEW subaggregate.

   If an attribute is being added and nothing is being deleted, the TRANS subaggregate looks like the following:

   TRANS{OLD{}NEW{TRDATA{TRTAG=XXX;TRVAL=YYY;}}}

where XXX=CCF,CAT,PIC, or LCC, and YYY=the data value that was input.

If an attribute is being deleted and nothing is being added, the TRANS subaggregate has the following appearance:

TRANS{OLD{TRDATA{TRTAG=XXX;TRVAL=YYY;}}NEW{}}

where XXX=CCF,CAT,PIC, or LCC, and YYY=the data value that was input.

If an attribute is being deleted, and another is being added, the TRANS subaggregate looks like this:

TRANS{OLD{TRDATA{TRTAG=XXX;TRVAL=YYY;}}NEW{TRDATA{TRTAG=XXX;TRVAL=ZZZ;}}}

where XXX=CCF,CAT,PIC, or LCC, and YYY=the data value that was input on the o-line and ZZZ=the data value that was input on the i-line. If multiple CCFs were input, or if more than 1 of the 4 valid FIDS (CAT, CCF, LCC, PIC) was input, multiple TRDATA subaggregates must be created within the appropriate OLD or NEW subaggregate.

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the UPDCKT contract, FUSA will output the following message to the user's terminal:

** cca queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

e. When the UPDCKT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully, and FUSA indicates this in the deferred output file.

f. If the UPDCKT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.12 CCR — RPTCC Mapping

Transaction **ccr** is used by frame personnel to obtain a report of all available data for a CC (Carrier Controller). Input to **ccr** is an h-line with a CCID (1-55 alphanumerics). Optional input is OP SLOT or OP LIST. OP LIST is the default.

Output from **ccr** consists of either a carrier controller list summary (OP LIST or no OP), or a report on all data related to the slots in a CC (OP SLOT).

Rules for Preparing the RPTCC Contract:

a. RPTCC is an immediate contract if OP LIST is input. It is a deferred contract if OP SLOT is input.

b. To create the FCIF for the RPTCC contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTCC section.

c. The *RPTCC section must contain

   - An EX aggregate with CCID=the CCID that was input.
   - A RPTOPT aggregate with FORMOPT=2 if that was input, otherwise FORMOPT=1.

d. If OP SLOT was input, and RPTCC is sent as a deferred contract:

   - As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTCC contract, FUSA will output the following message to the user's terminal:

     ** ccr queued on the SWITCH System's IMS queue on *DATE AND TIME*

     ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

     After printing the messages, FUSA returns the system prompt to the user.

   - When the RPTCC contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully, and FUSA indicates this in the deferred output file.
   - If the RPTCC contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

e. If OP LIST was input, and RPTCC is being run as an immediate contract:

   - When the RPTCC contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the REC aggregate in the *PRT section. The REC aggregate consists of a NUML fid containing the number of lines of text, and

a TEXT subaggregate with each line of data following the prefix LINE=. Before returning the system prompt sign to the user, FUSA will print the following message:

** ccr completed mm-dd-yy hh:mm

- If the RPTCC contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

3.12.7.13 CDA — UPDCLK/UPDCND/UPDSPT Mapping

The transaction used by frame personnel to change the status of a facility, or to add or delete a remark on a facility in the SWITCH System is **cda** (Change Distribution Attributes). Input to **cda** is an h-line with a facility or a range of facilities and an "i" line specifying a status (STAT) or "ADSR Y" (for BLs and TPs only) and/or remark (RMK). To delete a remark from a facility the user must input RMK ! on an "i" line. **cda** normally runs in the immediate mode, however, it may be run in the deferred mode by inputting "mode d" on the h-line.

Valid facilities and the appropriate contracts are as follows:

Facility	Contract
TKP	UPDCLK
TP	UPDCLK
BL	UPDCND
OE	UPDSPT

Rules for Preparing the UPDCLK Contract:

a. UPDCLK is by default an immediate contract; if "mode d" was input, FUSA should set USERMODE=D in the *PLHDR and process the contract like any other deferred contract.

b. To create FCIF for an UPDCLK contract FUSA must create a *C1 header, a *PLHDR section and a *UNIT section.

c. FUSA must create a *UNIT section with a REC aggregate and a CTL subaggregate with FCN=CHG, and an EX subaggregate with EXNM=TKP/TP and EXID=the id of the TKP/TP or the id of the low TKP/TP if a range was input, and EXHI=the id of the high TKP/TP if a range was input. The CTL subaggregate must also have a UPDOPT subaggregate with a UATTR subaggregate. FUSA must set AVLCAP=Y in the UATTR subaggregate.

d. FUSA must also create an ACL subaggregate within the REC aggregate with an NTU subaggregate and an ACT tag. If "STAT SF" was input, ACT=MOD; otherwise ACT=IN.

e. If a status (STAT) was input, the NTU subaggregate must contain a UATTR subaggregate with an ASGLIM subaggregate with LIMTYP and LIMVAL. See Section 3.12.2 for how to convert STAT (other than STAT SF) to LIMTYP and LIMVAL. If "STAT SF" was input, LIMVAL=@ and LIMTYP=@.

   If "ADSR Y" was input with a TP, LIMTYP=RST and LIMVAL=TKS.

   If a remark (RMK) was input, the UATTR subaggregate must contain the tag RMK=the remark that was input or RMK=@ if RMK ! was input.

f. When the UPDCLK contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the REC aggregate in the *PRT section. The REC aggregate consists of a NUML fid containing the number of lines of text, and a TEXT subaggregate with each line of data following the prefix LINE=. Before returning the system prompt sign to the user, FUSA will print the following message:

   **cda completed mm-dd-yy hh:mm

g. If the UPDCLK contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

Rules for Preparing the UPDCND Contract:

a. UPDCND is by default an immediate contract; if "mode d" was input, FUSA should set USERMODE=D in the *PLHDR and process the contract as it would any other deferred contract.

b. To create FCIF for an UPDCND contract FUSA must create a *C1 header, a *PLHDR section and a *UNIT section.

c. FUSA must create a *UNIT section with a REC aggregate and a CTL subaggregate with FCN=CHG, and an EX subaggregate with EXNM=BL and EXID=the id of the BL or the id of the low BL if a range was input, and EXHI=the id of the high BL if a range was input. The CTL subaggregate must also have a UPDOPT subaggregate with a UATTR subaggregate. FUSA must set AVLCAP=Y in the UATTR subaggregate.

d. FUSA must also create an ACL subaggregate within the REC aggregate with an NTU subaggregate and an ACT tag. If "STAT SF" was input, ACT=MOD; otherwise ACT=IN.

e. If a status (STAT) was input, the NTU subaggregate must contain a UATTR subaggregate must contain an ASGLIM subaggregate with LIMTYP and LIMVAL. See Section 3.12.2 for how to convert STAT (except STAT SF) to LIMTYP and LIMVAL. If "STAT SF" was input, LIMTYP=@ and LIMVAL=@.

If "ADSR Y" was input, LIMTYP=RST and LIMVAL=TKS.

If a remark (RMK) was input, the UATTR subaggregate must contain the tag RMK=the remark that was input, or RMK=@ if RMK ! was input.

f. When the UPDCND contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the REC aggregate in the *PRT section. The REC aggregate consists of a NUML fid containing the number of lines of text, and a TEXT subaggregate with each line of data following the prefix LINE=. Before returning the system prompt sign to the user, FUSA will print the following message:

**cda completed mm-dd-yy hh:mm

g. If the UPDCND contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

Rules for Preparing the UPDSPT Contract:

a. UPDSPT is by default an immediate contract; if "mode d" was input, then FUSA should set USERMODE=D in the *PLHDR and process the contract as any other deferred contract.

b. To create FCIF for an UPDSPT contract, FUSA must create a *C1 header, a *PLHDR section, and a *UNIT section.

c. FUSA must create a *UNIT section with a REC aggregate and a CTL subaggregate with FCN=CHG, and an EX subaggregate with EXNM=OE and EXID=the id of the OE or the id of the low OE if a range was input, and EXHI=the id of the high OE if a range was input. The CTL subaggregate must also have a UPDOPT subaggregate with a UATTR subaggregate. FUSA must set AVLCAP=Y in the UATTR subaggregate.

d. FUSA must also create an ACL subaggregate within the REC aggregate with an NTU subaggregate and an ACT tag. If "STAT SF" was input, ACT=MOD; otherwise ACT=IN.

e. If a status (STAT) was input, the NTU subaggregate must contain a UATTR subaggregate must contain an ASGLIM subaggregate with LIMTYP and LIMVAL. See Section 3.12.2 for how to convert STAT (except STAT SF) to LIMTYP and LIMVAL. If "STAT SF" was input, LIMTYP=@ and LIMVAL=@.

If "ADSR Y" was input, LIMTYP=RST and LIMVAL=TKS.

If a remark (RMK) was input, the UATTR subaggregate must contain the tag RMK=the remark that was input, or RMK=@ if RMK ! was input.

f. When the UPDSPT contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the REC aggregate in the *PRT section. The REC aggregate consists of a NUML fid containing the number of lines of text, and a

TEXT subaggregate with each line of data following the prefix LINE=. Before returning the system prompt sign to the user, FUSA will print the following message:

**cda completed mm-dd-yy hh:mm

g. If the UPDSPT contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

3.12.7.14 CTM — CORCPT Mapping

Transaction **ctm** is used by frame personnel to modify a cable transfer. Valid facilities for **ctm** are BL, ME, OE, POE, TKP, TP, and TRE. Except for TPs, facilities can be added, deleted, or changed. To be deleted from a transfer, the facility must be in the "pending in" state. Automatic assignment may be requested (e.g. TP?) for any facility except ME.

TPs (Tie Pairs) can be changed or deleted, but not added. There should be no need to add a TP, because if the SWITCH System cannot assign a TP in a cable transfer, it will RMA and the circuit will not get to FOMS until the RMA has been corrected.

Required input to **ctm** is an h-line with the cable transfer order number (ORD), the circuit id, and the "from" cable pair (CP) to identify the individual transfer, and one i- and/or o-lines. If a facility is being deleted or changed, a status (STAT, STO) is required on the o-line following the facility ID. An r-line with a remark (RMK) of up to 60 characters is optional.

The cable transfer order number (ORD) is input as ORD X:Y, where X represents the Engineering Work Order (EWO), and Y represents the transfer number.

Rules for Preparing the CORCPT Contract:

a. CORCPT is a deferred contract.

b. To create FCIF for the CORCPT contract, FUSA must create a *C1 header, a *PLHDR section, a *PKT section, a *MASG section, and a *FPA section.

c. The transfer number [the part of the ORD following the colon (:)] goes in the order number field in the *C1 header.

d. The EWO [the part of the ORD preceding the colon (:)] goes in a REC aggregate in the *PKT section.

e. The *FPA section contains a REC aggregate with a RMK tag and value (if RMK was input) and an F1 subaggregate with the "from" cable pair in the CA and PR fields.

f. The *MASG section contains a CKT aggregate with a CTL subaggregate with FCN=CHG, CORFL=CORRECT, and REASSOC=N. It also contains an EQP aggregate for each facility being added or deleted. The EQP aggregate contains a

TYPE tag (set to the type of facility involved), and an OLD or NEW subaggregate with the ID of the facility being added or deleted.

g. If there is a facility leaving the circuit, STAT must be converted to LIMTYP and LIMVAL (see **fce**). These tags must appear in the subaggregates ASGLIM, UATTR, and OLD under the EQP aggregate.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the CORCPT contract, FUSA will output the following messages to the user's terminal:

   ** ctm queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing these messages, FUSA returns the system prompt to the user.

i. When the CORCPT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA indicates this in the deferred output file.

j. If the CORCPT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

k. The EWO number will be in a *PRT section of the CORCPT contract in REC.EWO upon return from the SWITCH System.

3.12.7.15 CTS — RPTWO Mapping

Transaction **cts** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of cable throws established in the SWITCH System or to obtain information on one specific throw. Required input to **cts** consists of a either "OP ALL" to get a list of all throws, or an order number (ORD) to get information on one throw. When requesting data for one cable throw, optional inputs are a "from" cable pair (CP) or a range of "from" cable pairs, or an item number (ITEM) or a range of item numbers. All inputs are on h-lines.

Output for an individual cable throw consists of two lines per circuit with the CKID, ITEM #, the SIG, ADSR, GRDSV, TYPSV, CLSV, and PTY values, and the "from" and "to" TNs, SWPTs (OEs), and CPs.

Output for "OP ALL" consists of a list of orders by type with order number, due date, frame due date, and number of lines in the order.

Rules for Preparing the RPTWO Contract:

1. If an order number was input:
   a. RPTWO should be invoked as a deferred contract.
   b. To create the FCIF for the RPTWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTWO section.
   c. FUSA must set ORD=the order number input and set FORMOPT=1 (for the LIST option) in the *RPTWO section.
   d. If a "from" cable pair or a range of "from" cable pairs was input, FUSA must create an EX aggregate in the *RPTWO section and set EXNM=CP and EXID=the CP id or the low id of the range, and EXHI=the high id of the range.
   e. If an item number was input, FUSA must create an EX aggregate in the *RPTWO section and set EXNM=ITEM, and EXID=the item number. If a range of item numbers was input, EXNM=ITEM, EXID=the low item number, and EXHI=the high item number.
   f. If neither a CP or a range of CPs, nor an item number or a range of item numbers was input, FUSA must create an EX aggregate in the *RPTWO section, and set EXNM=ITEM and EXID=*.
   g. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTWO contract, it will output the following messages to the user's terminal:

      ** cts queued on the SWITCH System's IMS queue on *DATE AND TIME*

      ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

      After printing the messages, FUSA returns the system prompt to the user.
   h. When the RPTWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.
   i. If the RPTWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.
2. If "OP ALL" was input:
   a. RPTWO should be invoked as a deferred contract.
   b. To create the FCIF for the RPTWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTWO section.

c. FUSA must set FORMOPT=4 (for the SUM option) in the *RPTWO section.

d. FUSA must also create an FILT aggregate and set TYPE=CPT.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTWO contract, it will output the following messages to the user's terminal:

   ** cts queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

f. When the RPTWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

g. If the RPTWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.16 DAE — PREWAO Mapping

The transaction used by frame personnel to establish a Wire Assembly Order (WAO) or to add lines to an established Wire Assembly Order in the SWITCH System is **dae** (DIP or Assembly order Establishment). Wire assembly orders may be established to either break or create DIPs or assemblies, but each order only performs one action: either break or create. The type of action is indicated by the line type, i.e. i = create, o = break. There is a limit of nine total facilities, and not more than five of one type, when creating a DIP or assembly.

The **dae** transaction defaults to sending SAL=Y and SFO=Y to the SWITCH System, but these may be overridden by inputting SAL=N and/or SFO=N on the h-line.

Simple DIPs are assumed to consist of CP and OE; extended DIPs to have CP and OE and at least one other facility. Assemblies are assumed to consist of a CP and any combination of MEs, TKPs, TPs, TREs, and OEs.

DIPs can be broken individually by specifying an OE or CP, or in bulk by inputting a masked OE ID, or a range of OEs or CPs, and a line count. DIPs may be created individually by specifying CP, ME, TKP, TP, TRE, and OE or OE ?, but not both ways within the same order. When creating DIPs with TPs, facilities must be input in connectivity order on the i-line. DIPs may be created in bulk by specifying a CP range and OE ? and a line count. Only one CP range may be input per order, and it may only be used

in conjunction with OE ?. Extended DIPS (more than just CP-OE) may only be created one per transaction. However, once an order is established, **dae** can be run again with the same order number to add another line to the order.

Permanent assemblies can be created or broken only on an individual basis. They may be created by specifying a CP and any combination of MEs, TKPs, TPs, TREs, and OEs on the i-line, but again if the assembly consists of more than CP and OE, only one is permitted per **dae** run. If the assembly includes TPs, facilities must be input in connectivity order. To break a permanent assembly, one facility from the assembly must be input on the o-line.

Required input to **dae** for breaking a DIP or assembly is an h-line with an order number (ORD), a due date (DD), and an indicator if the order is to break an assembly (OP AY for permanent assemblies, OP MAY for modifiable assemblies, OP PAY for PSSV assemblies). Optional h-line inputs are frame due date (FDD), line count (LC), frame (FR), zone (ZN) or range of zones, minimum age in months (AGE), a load factor (LF) or a range of load factors, an equipment class of service (ECS) which translates to administrative constraint in the SWITCH System, and outside plant disconnect status (OSPDISC). An o-line with either a masked OE ID, or a CP or OE ID, or a range of CPs or OEs, is also required. The optional h-line inputs apply when a masked OE ID or an OE or CP range is input on the o-line. If a masked OE ID or a range of CPs or OEs is input, a line count must have been input on the h-line. If OP AY, MAY, or PAY is input, a specific CP or OE must be input on the o-line. If multiple specific DIPs or assemblies are to be broken, each one must be input on a separate o-line. One r-line with a remark (RMK) of up to 60 characters may be entered following the h-line.

Required input to **dae** for creating a DIP or assembly is an h-line with an order number (ORD), a due date (DD), and an indicator if the order is to create an assembly (OP AY, MAY, or PAY). Other h-line inputs are frame due date (FDD), class of service (CLS), essential (ESL), and signaling (SIG), which are optional; line count (LC), which is required if a CP range is input; and intelligent controller (IC) and intelligent controller ID (ICID), which are required if OE ? is input. An i-line may have a cable pair (CP) and either a specific OE or OE ?, or a CP range and OE ? to create simple DIPs. It may have any combination of CP, ME, TKP, TP, TRE, and OE to create an extended DIP or assembly. OE ? is not allowed if assemblies are being created (OP AY, MAY, or PAY). If a CP range is input, the following prefixes may be input on the i-line: frame (FR), zone (ZN) or range of zones, outside plant disconnect status (OSPDISC), and disconnect date (DISCDATE). If multiple simple DIPs (CP-OE) or permanent assemblies (only one of any facility type, no TPs) are to be created, each one must be input on a separate i-line. Multiple extended DIPs or assemblies are not allowed. One r-line with a remark (RMK) of up to 60 characters may be entered following the h-line.

Here are the rules for input of the prefixes which are new to this transaction or have new defaults:

Prefix	Format	Max. Number	Remark
AGE	1-2 numerics (1-12)	1	Age in months

CLS	r, b, or c	1	Default to r
DISCDATE	mm-dd-yy	1	
ECS	1-4 alphanumerics	1	Change to ADMCONST
ESL	y or n	1	Default to n
OSPDISC	ct,cf,!ct,!cf	2	1-2 pos. or 1-2 neg. only
SIG	l,g,b,r,p,q, or o	1	Default to l

Rules for Preparing the PREWAO Contract:

a. PREWAO is a deferred contract.

b. To create FCIF for an PREWAO contract FUSA must create a *C1 header, a *PLHDR section a *WOPT section, a *WAO section, a *KEYNTU section, and, optionally, a *PKT section.

c. The order number (ORD) and the due date (DD) go in the *C1 header. PURG=Y goes in *WOPT.REF.

d. If **dae** is being run to break a DIP or an assembly, and all optional inputs are present, the FCIF will look like this:

```
*PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXX;}}}%       /* FRK=the RMK input
*/

*WOPT{REF{SFO=Y;SAL=Y;PURG=Y;}   /* SAL=N and/or SFO=N if input */
  CTL{ESTLC=XX;LC=XX;}   /* Not needed when breaking a specific DIP */
    REC{CKTFILT{INCL{AGE=XX;}}}  /* Ditto */
      {NTUFILT{INCL{FR=FXX;ZN=XXX;ZNHI=XXX;   /* Ditto */
                MINLF=X;MAXLF=X;ADMCONST=XXXX;
                OSPDISC=XX:}}}}%    /* if OSPDISC=XX   */

     /*  or        EXCL{OSPDISC=XX;}}}}%   if OSPDISC=!XX  */


*WAO{CTL{ASMOP=BRK;}
   ASMATTR{OLD{ASMCAT=TASM,PASM,MASM, or PSSV;   /* Set according to
OP */
                USERNM=DIP;}}       /* Omit USERNM if OP AY,MAY, or PAY */
   }%

*KEYNTU{
     KEY{EX{EXNM=CP or OE;EXID=CP or OE ID or OE mask;
          EXHI=high CP or OE ID if a range was input:}}
     }%
```

If multiple DIPs or assemblies are being broken on an individual basis, the KEY aggregate in the *KEYNTU section is repeated for each DIP or assembly.

e. If **dae** is being run to manually create a DIP without TPs, the FCIF will look like this:
**PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK input */

**WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}}%* /* SAL=N and/or SFO=N if input */

```
*WAO{CTL{ASMOP=CRE;}
   ASMATTR{NEW{ASMCAT=TASM;
               USERNM=DIP;}}
   AUX{EX{EXNM=OE;EXID=XXX-XXX-XXX;}}
   AUX{EX{EXNM=ME;EXID=XXXX;}}      /* 1 or more AUX agg. as needed */
   AUX{EX{EXNM=TRE;EXID=XXXX;}}     /* Each EXNM must be unique     */
   ASM{CTL{INPUT=CONN;}
     }}%

*KEYNTU{
     KEY{EX{EXNM=CP;EXID=XX-XX;}}
    }%
```

The SWITCH System will assign TPs as needed.

If multiple simple DIPs are being created on an individual basis, the KEY aggregate is repeated for each DIP. There is only one AUX aggregate per auxiliary facility type, and the EX subaggregate is repeated for each individual facility. For example,
AUX{EX{EXNM=OE;EXID=XXX-XXX-XXX;}EX{EXNM=OE;EXID=XXX-XXX-XXX;}}

```
*KEYNTU{
     KEY{EX{EXNM=CP;EXID=XX-XX;}}

     KEY{EX{EXNM=CP;EXID=XX-XX;}}

     }%
```

f. If **dae** is being run to manually create an assembly without TPs (e.g. CP-ME-CP), the FCIF will look like this:
**PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK

input */

**WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}}%* /* SAL=N and/or SFO=N if input */

```
*WAO{CTL{ASMOP=CRE;}
   ASMATTR{NEW{ASMCAT=PASM,MASM or PSSV;     /* Depends on OP */
     USERNM=PASM,MASM or PSSV;}}          /* Depends on OP */
   ASM{CTL{INPUT=TC;}              /* TC=Totally Constrained */
      EQP{TYPE=CP;NEW{ID=XX-XX;CONNTO{TYPE=ME;ID=XXXX;}}}
      EQP{TYPE=ME;NEW{ID=XXXX;CONNTO{TYPE=CP;ID=XX-XX;}}}
      EQP{TYPE=CP;NEW{ID=XX-XX;}}}%
*KEYNTU{KEY{EX{EXNM=CP;EXID=XX-XX;}}}%
```

g. If **dae** is being run to manually create a DIP or an assembly with TPs (e.g. CP-TP-TP-OE), the FCIF will look like this:

**PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK input */

**WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}}%* /* SAL=N and/or SFO=N if input */

```
*WAO{CTL{ASMOP=CRE;}
   ASMATTR{NEW{ASMCAT=TASM,PASM,MASM or PSSV;      /*  Depends on OP
*/
                  USERNM=DIP,PASM,MASM or PSSV;}}       /* Depends on OP */
   ASM{CTL{INPUT=TC;}                /* TC = Totally Constrained */
      EQP{TYPE=CP;
          NEW{ID=X-X;
             CONNTO{TYPE=TP;ID=X-X;}}}
        EQP{TYPE=TP;
          NEW{ID=X-X;
             CONNTO{TYPE=TP;ID=Y-Y;}}}
        EQP{TYPE=TP;
          NEW{ID=Y-Y;
             CONNTO{TYPE=OE;ID=XXXX;}}}
        EQP{TYPE=OE;
          NEW{ID=XXXX;}}}%

*KEYNTU{
     KEY{EX{EXNM=CP;EXID=XX-XX;}}
     }}%
```

The SWITCH System will only allow one totally constrained DIP or assembly per contract.

h. If **dae** is being run to automatically assign an OE to create a simple DIP (CP-OE?), the FCIF will look like this:
**PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK input */

**WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}* /* SAL=N and/or SFO=N if input */

```
*WAO{CTL{ASMOP=CRE;}
   ASMATTR{NEW{ASMCAT=TASM;
               USERNM=DIP;}}
   ASM{CTL{IC{EXNM=IC;EXID=XXX.X;}}
      DSGN{NEW{COND=2;COTE=S;CTG=V;GRD=1;CLS=X;}}
      EQP{TYPE=OE;NEW{ID=?;ESL=X;SIG=X;}}}
      }%

*KEYNTU{
     KEY{EX{EXNM=CP;EXID=XX-XX;}}
     }%
```

If automatic assignment is being invoked for multiple CPs, the FCIF looks like the following: **PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK input */

```
*WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}/fR   /* SAL=N and/or SFO=N if
input */
*WAO{CTL{ASMOP=CRE;}
   ASMATTR{NEW{ASMCAT=TASM;
               USERNM=DIP;}}
   ASM{CTL{IC{EXNM=IC;EXID=XXX.X;}}
      DSGN{NEW{COND=2;COTE=S;CTG=V;GRD=1;CLS=X;}}
      EQP{TYPE=OE;NEW{ID=?;ESL=X;SIG=X;}}}
      }%

*KEYNTU{
     KEY{EX{EXNM=CP;EXID=XX-XX;}}
     KEY{EX{EXNM=CP;EXID=XX-XX;}}
     }%
```

i. If **dae** is being run over a range of CPs with OE ?, the FCIF will look like this:

**PKT{FDD=YYMMDD;REC{ACL{FRK=XXXXXX;}}}%* /* FRK=the RMK input */

**WOPT{REF{SFO=Y;SAL=Y;PURG=Y;ATP=Y;}* /* SAL=N and/or SFO=N if input */
CTL{ESTLC=XX;LC=XX;}
REC{NTUFILT{INCL{FR=FXX;ZN=XXX;ZNHI=XXX;OSPDISC=XX; /* if OSPDISC=XX */
DISCDATE=YYYYMMDD;EXNM=CP;}}}}%

/* OR */

INCL{FR=FXX;ZN=XXX;ZNHI=XXX;
DISCDATE=YYYYMMDD;EXNM=CP;}
EXCL{OSPDISC=XX;}}}}% /* if OSPDISC=!XX */

**WAO{CTL{ASMOP=CRE;}*
ASMATTR{NEW{ASMCAT=TASM;
USERNM=DIP;}}
ASM{CTL{IC{EXNM=IC;EXID=XXX.X;}}
DSGN{NEW{COND=2;COTE=S;CTG=V;GRD=1;CLS=X;}}
EQP{TYPE=CP;}
EQP{TYPE=OE;NEW{ID=?;ESL=X;SIG=X;}}}
}%

**KEYNTU{*
KEY{EX{EXNM=CP;EXID=XX-XX; EXHI=XX-XX;}}
}%

j. As soon as FUSA gets an acknowledgment from the communications module that it has received the PREWAO contract, FUSA should output to the user's terminal:

** dae queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file(xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

k. When the PREWAO contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must so indicate in the deferred output file.

l. If the PREWAO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.17 DAW — CANWAO Mapping

The transaction used by frame personnel to cancel an entire Wire Assembly Order or one or more lines of a Wire Assembly Order in the SWITCH System is **daw** (DIP or Assembly order Withdrawal).

Required input to **daw** for cancelling an entire WAO is an h-line with the order number (ORD). For cancelling individual lines of a WAO required h-line input is ORD and up to 5 CPs or a range of CPs, or up to 5 item numbers (ITEM) or a range of item numbers to identify the DIPs/assemblies to be cancelled.

Rules for Preparing the CANWAO Contract

a. CANWAO is a deferred contract.

b. To create FCIF for an CANWAO contract FUSA must create a *C1 header, a *PLHDR section, and a *KEYNTU section if specific lines are to be cancelled.

c. The order number (ORD) goes in the *C1 header.

d. If **daw** is being run to cancel specific lines of a WAO, the FCIF will contain a *KEYNTU section which looks like this if a CP or a range of CPs was input:

```
*KEYNTU{KEY{EX{EXNM=CP;EXID=XX-XX;
        EXHI=XX-XX;          /* only if a range of CPs was input */
    }}}%
```

or this if an item number or a range of item numbers was input:

```
*KEYNTU{KEY{EX{EXNM=ITEM;EXID=XX;
        EXHI=XX;             /* only for a range of item numbers */
    }}}%
```

If multiple individual lines of the order are being cancelled, the KEY aggregate is repeated for each line.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the CANWAO contract, FUSA should output to the user's terminal:

** daw queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file(xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

f. When the CANWAO contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must so indicate in the deferred output file.

g. If the CANWAO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.18 DDS — RPTRNG Mapping

Transaction **dds** is used by frame personnel to inquire on the valid range of IDs for all facilities in a wire center or for some subset of the wire center. Required input to **dds** is an h-line with "op all" or "fac ?", where fac is one of the following facility names:

BL	Bridge Lifter
CP	Cable Pair
DTN	Data Telephone Number
HML	Multiline Hunt Group
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet Handler OE
SFG	Simulated Facility Group
TN	Telephone Number
TKP	Trunk Pair
TP	Tie Pair
TRE	Transmission Equipment

Optional inputs are NPANXX, CA, IC, ICID, and RUID, which may follow some of the facility types as shown in the following table.

Prefix	Format	Follows	Maximum Number
CA	1 to 4 alphanumerics	CP, TP, or TKP	5
IC	3 to 5 alphanumerics	OE or POE	1
ICID	1 alphanumeric	IC	1

Prefix	Format	Follows	Maximum Number
RUID	1 to 2 alphanumerics	ICID	1
NPANXX	3 or 6 numerics	TN or DTN	5

Rules for Preparing the RPTRNG Contract:

a. RPTRNG is an immediate contract.

b. To create the FCIF for the RPTRNG contract, FUSA must create a *C1 header, a *PLHDR section, and a *RNG section.

c. If "op all" was input, the *RNG section will contain the tag RNGNM=*. If "fac ?" was input, then RNGNM=fac.

d. If the optional filter CA was input, FUSA must convert it as follows depending on that facility type it was input with:

Facility Type	Filter	EXNM
CP	CA	CA
TKP	CA	TKCA
TP	CA	TIE

FUSA must then insert the correct EXNM data value in an EX aggregate in the *RNG section, and the data value that was input with CA must be inserted as the EXID value. For example, "h cp ?/ca 10" becomes *RNG{RNGNM=CP; EX{EXNM=CA;EXID=10;}}%.

e. If the optional filter NPANXX was input, FUSA must insert NXX as the EXNM data value in an EX aggregate in the *RNG section, and its data value must be inserted as the EXID value. For example, "h tn ?/npanxx 201829" becomes *RNG{RNGNM=TN;EX{EXNM=NXX;EXID=201829;}}%. If only three numerics were input as NPANXX, they will be the true NXX and the default NPA must be prepended when creating the FCIF to be sent to the SWITCH System.

f. If the filters IC and ICID were input, EXNM must be set equal to "IC" and EXID must be set equal to the IC data value concatenated with a "dot" (.) and the ICID data value. For example, "h oe ?/ic 1es/icid 0" becomes *RNG{RNGNM=OE;EX{EXNM=IC;EXID=1ES.0;}}%.

g. If the filters IC, ICID, and RUID were input, EXNM must be set equal to "RU" and EXID must be set equal to the IC data value concatenated with a "dot" (.) concatenated with the ICID data value concatenated with a "dot" (.) concatenated with the RUID data value. For example, "h oe ?/ic 1es/icid 0/ruid 1" becomes *RNG{RNGNM=OE;EX{EXNM=RU;EXID=1ES.0.1;}}%.

h. If NPANXX or CA were input more than once, multiple EX aggregates are created within the *RNG section.

i. When the RPTRNG contract is returned and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the *PRT section, (i.e., all data between "LINE=" and ";").

j. If the RPTRNG contract could not be processed successfully in the SWITCH System (STATUS0), upon return the FCIF may not contain a *PRT section, but will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

k. Before terminating, FUSA will print the following message:

   ** dds completed *DATE AND TIME*

3.12.7.19 DIR — RPTIC Mapping

Transaction **dir** is used by FRAME personnel to obtain a report on the SWITCH DIP parameters and some related IC-based data. Required input to **dir** consists of an h-line with intelligent controller type (IC) and intelligent controller ID (ICID). Optional data on the h-line is report option (OP). Data values for OP are:

OP	Description	FORMOPT
ICP	IC Profile Summary	1
DPS	DIP Parameter Summary	2
MPS	Miscellaneous Parameter Summary	3
AFR	Abbreviated Fill Report	4
SUM or no OP	All Summary Data	6

If no OP is input, FUSA should default to "OP SUM".

Output for the IC Profile Summary consists of information on remote units belonging to the host IC. The DIP Parameter Summary contains the DIP parameter settings for each frame, the upper and lower bound load factors for creating and reusing DIPs, the switch port reuse preference settings and the parameters pertaining to administrative functionality and enhanced DIP creation. the Miscellaneous Parameter Summary includes the FTO option (Dual F&T Reuse). The Abbreviated Fill Report contains the number of equipped, working, and pending circuits.

Rules for Preparing the RPTIC Contract:

a. RPTIC should be invoked as a deferred contract.

b. To create the FCIF for the RPTIC contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. Within the *INQ section FUSA must create an EX aggregate and set EXNM=IC and EXID=the IC that was input concatenated with a ".' concatenated with the ICID that was input.

d. Also in the *INQ section FUSA must create an RPTOPT subaggregate and set FORMOPT as shown in the table above.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTIC contract, FUSA should output to the user's terminal:

   ** dir queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   before returning a system prompt to the user.

f. When the RPTIC contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

g. If the RPTIC contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.20 DPR — RPTDIP Mapping

Transaction **dpr** is used by frame personnel to list Dedicated Inside Plant jumpers (DIPS) having specific characteristics. Required input to **dpr** is an h-line with a masked OE or a range of OEs. Optional inputs to filter the output are line count (LC), most recent creation date (DD), equipment class of service (ECS), equipment features (PUL, ESL, SIG), frame (FR), frame location (LOC) or a range of LOCs, and load factor (LF) or a range of LFs.

Table 3-22 shows the allowable data values for the optional input prefixes.

Table 3-22. Allowable Data Values for Optional Input Prefixes

Optional Prefix	Format
ECS XXXXXX	XXXXXX=1-6 ALPHANUM
DD MM-DD-YY	011<=MMM<=12; 011<=DDD<=31; 000<=YYY<=99
ESL Y	Y=Y
FR FXX	XX=ANY ALPHANUM
LC XX	011<=XXX<=99

Table 3-22. Allowable Data Values for Optional Input Prefixes

Optional Prefix	Format
LF X	11<=XX<=10
LF X;Y	11<=XX<=10; 11<=YY<=10
LOC FXXYYY	XX=ANY ALPHANUM; 0000<=YYYY<=999
LOC FXXYYY;FXXYYY	XX=ANY ALPHANUM; 0000<=YYYY<=999;
	0000<=ZZZZ<=999
PUL X	X= J or D
SIG X	X= L, G, B, R, P, Q, O

Rules for Preparing the RPTDIP Contract

a. RPTDIP should be invoked as a deferred contract.

b. For the RPTDIP contract FUSA must create a *C1 header, a *PLHDR section, and a *RPTDIP section.

c. In the *RPTDIP section FUSA must set FORMOPT=2 for the connectivity output option, and create an INPOPT aggregate with an EX subaggregate with EXNM=OE, and EXID=the low id of the range, and EXHI=the high id of the range, or MASK=the masked OE id that was input.

d. In the *RPTDIP section FUSA must also create an NTU aggregate with NTUTYP=OE.

e. Optionally, FUSA must create a FILT aggregate with

   1. LC if a line count was input,

   2. LF and LFHI if a load factor or range of load factors was input,

   3. a CRDTE subaggregate with DTETO=DD if a most recent creation date (DD) was input.

f. If an FR or LOC or range of LOCs was input, FUSA must create an FR subaggregate in the NTU aggregate with EXNM=FR, EXID=the frame number and if necessary, ZN=the zone or low zone of the range, and ZNHI=the high zone of the range.

g. If ECS, PUL, SIG, or ESL were input, they go in the NTU aggregate, but ECS goes in as ADMCONST.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTDIP contract, FUSA should output to the user's terminal:

   ** dpr queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

i. When the RPTDIP contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

j. If the RPTDIP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.21 DTM — RPTMAP Mapping

Transaction **dtm** (Dial Transfer Mapping) is used by FRAME personnel or Recent Change Memory Administration Center (RCMAC) to obtain a mapping of OEs in a dial transfer, or to generate a file in the SWITCH System database containing all such mappings. This file must exist in the database in order to obtain mapping information.

Transaction **dtm** is a region-specific enhancement controlled by a feature-specific tunability table entry. If the parameter is not set, the transaction will terminate with an appropriate error message**.** Required input to generate the SWITCH System database file needed to obtain mapping information is an order number (ORD), the "from" IC (FROMIC) and ICID (FROMICID), and the "to" IC (TOIC) and ICID (TOICID). When run with this input, **dtm** runs in the deferred mode.

Required input to **dtm** to obtain a mapping of OEs is an h-line with an order number (ORD). and optionally from 1 to 5 OEs. If one or more individual OEs are input, **dtm** will run in immediate mode. The OEs may all belong to the "from" IC, or the "to" IC, but they may not be mixed in one run of the **dtm** transaction. If the OE or OEs belong to the "to" IC, "TOOE=Y" must be included on the h-line. Without an input of "TOOE=Y", it will be assumed that they belong to the "from" IC.

If no individual OEs are input, the report will be generated in deferred mode for the entire transfer. Output may be limited via a line count (LC) input. The output will be sorted by "from" OEs; to have it sorted by "to" OEs, input SORT=T on the h-line.

Rules for Preparing the RPTMAP Contract:

a. RPTMAP will be invoked as immediate or deferred depending upon the input.

b. To create the FCIF for the RPTMAP contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTMAP section.

c. The order number (ORD) goes in the *C1 header, and in the INPOPT aggregate of the *RPTMAP section.

d. If the input includes FROMIC, FROMICID, TOIC, and TOICID:
   1. RPTMAP should be invoked as a deferred contract

   2. *RPTMAP.INPOPT.FROMIC.EXNM=IC (literally)
      *RPTMAP.INPOPT.FROMIC.EXID=fromic.fromicid
      *RPTMAP.INPOPT.TOIC.EXNM=IC (literally)
      *RPTMAP.INPOPT.TOIC.EXID=toic.toicid

e. If the input includes one or more OEs:
   1. RPTMAP should be invoked as an immediate contract

   2. *RPTMAP.FILT.FROEID=the OE id (repeat as necessary)

      or

      *RPTMAP.FILT.TOOEID=the OE id (if TOOE=Y; repeat as necessary)

f. If the input does not include any OEs:
   1. RPTMAP must be invoked as a deferred contract
   2. If SORT=T was input, set FILT.SORT=T; otherwise set FILT.SORT=F
   3. If LC was input, set FILT.LNCNT=the value that was input

g. If RPTMAP was run as an immediate contract:

   — On return from the SWITCH System, the RPTMAP contract will contain the *C1 and *PLHDR sections with a *PRT section containing a REC aggregate with the number of lines (NUML) and a TEXT subaggregate with the output following the LINE= tag. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message: "** dtm completed *DATE AND TIME*".

   — If the RPTMAP contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

h. If RPTMAP was run as a deferred contract:

   — As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTMAP contract, FUSA should output to the user's terminal:

** dtm queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

— When the RPTMAP contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

— If the RPTMAP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.22 FDR — RPTHST Mapping

Transaction **fdr** is used by BCC personnel to obtain information from the SWITCH System on Dedicated Inside Plant (DIP) utilization. Four reports are available (Created, Reused, Broken and Stolen, and Effectiveness Percentage) on a daily, monthly, or yearly basis for the past 366 days.

Required input is an h-line with the following:

— an intelligent controller type (IC) and an intelligent controller ID (ICID) **or** a wire center summary flag (WC Y) which will provide the report(s) at the wire center level, **and**

— a date (DD) or range of dates **or** a year option (POP YR) which will produce a yearly summary.

If a single DD is input, the output will be a daily summary for that date (which must be within the past 366 days but not the current date). If a range of dates is input, "SUMTYP D" or "SUMTYP M" may be input to indicate if a daily or monthly sum is desired. "SUMTYP D" is also the default for a range of dates. If "SUMTYP M" was input, an optional input is "CALC S" to get a monthly summary on a service month (calendar month is the default).

Another optional input is a report option (OP). If OP is not input, all reports will be produced. Legal values for OP are:

OP	Report	FORMOPT
ALL	All	1

C	Created	2
R	Reused	3
BS	Broken and Stolen	4
E	Effectiveness Percentage	5

Rules for Preparing the RPTHST Contract:

a. RPTHST is a deferred contract.

b. To create the FCIF for the RPTHST contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTHST section.

c. If IC and ICID were input, the *RPTHST section must contain an IC aggregate with EXNM=the IC that was input, and EXID=the ICID that was input.

d. If "WC Y" was input, the *RPTHST section must contain an HIST aggregate with WCSUM=Y.

e. If "POP YR" was input, the HIST aggregate must contain YRSUM=S.

f. If a date or a range of dates was input, the HIST aggregate must contain an HISTDTE subaggregate with DTEFR=the date or the first date of the range, and DTETO=the date or the second date of the range. Date fields may be passed as MM-DD-YY, MM-DD-YYYY, MM/DD/YY, or MM/DD/YYYY. The HIST aggregate must also contain the tag SUMTYP. If SUMTYP was input, the tag should be set to the input value of "D" or "M". If SUMTYP was not input, and a single date was input, SUMTYP=D. If SUMTYP was not input, and "POP YR" was input, SUMTYP=Y. If SUMTYP=M, the tag CALC must be included. CALC=C unless "CALC S" was input, in which case CALC=S must be sent.

g. The *RPTHST section should also contain the tag FORMOPT set to the appropriate value from the OP table above. If OP was not input, FUSA should set FORMOPT=1.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTHST contract, FUSA will output the following messages to the user's terminal:

   ** fdr queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

i. When the RPTHST contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

j. If the RPTHST contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.23 FLR — RPTFLC Mapping

Transaction **flr** (Frame Layout Report) is used by FRAME personnel to obtain a report on each frame in a wire center and its parameters, and additional data relating to facilities and their physical arrangement on COSMIC frames. Required input to **flr** consists of an h-line with report option (OP). Data values for OP are:

OP	Description	FORMOPT
CONFIG	Configuration Report	1
LOIS	LOIS Report	2
FAC	NTU Report	3
ZONE	ZONE Report	4

If "OP FAC" is input, a facility range or "*" must also be input on the h-line. Valid facility types are OE, POE, CP, TP, ME, ICE, BL and TRE. If "OP LOIS" is input, the user must input a frame ID (FR) or "FR *" to get the report for all frames in the wire center. The user may optionally input a mod (MOD) or a range of mods. If "OP ZONE" is input, the user must also input a frame (FR) and a zone (ZN) or "ZN *".

Rules for Preparing the RPTFLC Contract:

a. RPTFLC should be invoked as a deferred contract.

b. To create the FCIF for the RPTFLC contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. Within the *INQ section FUSA must create an RPTOPT aggregate and set FORMOPT=the value corresponding to the input option as shown in the table above.

d. If "OP FAC" was input, FUSA must create an EX aggregate and set EXNM=the facility type that was input, and EXID=the low ID of the range or "*" and EXHI=the high ID of the range.

e. If "OP LOIS" was input, FUSA must create an FR aggregate within the *INQ section. Within the FR aggregate FUSA must create an EX subaggregate with EXID=the frame ID or "*". If a mod or a range of mods was input, FUSA must set MODID=the mod or the low mod, and MODHI=the high mod in the FR aggregate.

f. If "OP ZONE" was input, FUSA must create an FR aggregate within the *INQ section and an EX subaggregate with EXID=the frame name. FUSA must also set ZN=the zone that was input or "*" in the FR aggregate.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTFLC contract, FUSA should output to the user's terminal:

   ** flr queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   before returning a system prompt to the user.

h. When the RPTFLC contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

i. If the RPTFLC contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.24 FMC — PREMCT Mapping

The transaction used by frame personnel to establish a maintenance change ticket in the SWITCH System is **fmc** (Frame Maintenance Change). Required input to **fmc** is an h-line with an order number (ORD) and a facility to identify the circuit (TN or CKID), and an "o" and "i" line specifying the out and in facilities. Facilities which may be changed are BL, CP, ME, OE, POE, TKP, TP, and TRE. A user-tunable table will stipulate which facilities may not be changed by a given family of users. (See transaction **fce**). A status for the outgoing facility (STO, STP, STAT) must be specified on the o-line. A remark for the outgoing facility (RMK) may be specified on the o-line. An order level remark (RMK) of up to 28 characters may be specified on an r-line. Automatic assignment (e.g., OE ?) may be requested for any "in" facility except CP and ME.

Rules for Preparing the PREMCT Contract

a. PREMCT is a deferred contract.

b. To create FCIF for an PREMCT contract FUSA must create a *C1 header, a *PLHDR section and a *MASG section and, optionally, a *PKT section.

c. FUSA has to fill in the CTID in 2 places in the *MASG section.

d. FUSA must create an OLD and NEW subaggregate in the EX subaggregate of the SVC subaggregate of the CKT aggregate of the *MASG section. Each of these must contain the circuit ID in the format: OLD{EXNM=xx;EXID=yy;} NEW{EXNM=xx;EXID=yy;}

e. FUSA must also create an EQP subaggregate with a TYPE tag indicating the type of facility being changed, and an OLD and NEW subaggregate with the ID of the out and in facilities (or a ? for automatic assignment of the in facility).

   In addition the OLD subaggregate for the out facility must contain a UATTR subaggregate with an ASGLIM subaggregate with the tags LIMTYP and LIMVAL. See Section 3.12.2 for details on converting STAT to LIMTYP and LIMVAL.

   If a remark for the out facility was input, it goes behind the fid RMK in the UATTR subaggregate.

f. If an order level remark was input, FUSA must create a *PKT section with a REC aggregate and an ACL subaggregate with FRK= the remark that was input. Thus, the *PKT section should look like:

   *PKT{REC{ACL{FRK=A REMARK UP TO 28 CHARACTERS;}}}

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the PREMCT contract, FUSA should output to the user's terminal:

   ** fmc queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file(xxxxxxxxxxx) *DATE AND TIME*

   before returning a system prompt to the user.

h. When the PREMCT contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must so indicate in the deferred output file.

i. If the PREMCT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.25 FTA — RPTFTA Mapping

Transaction **fta** is used by central office personnel to obtain an estimate of the work required to perform a frame transfer. Required input to **fta** consists of a "from" frame (FFR), a "to" frame (TFR), and a maximum jumper length for reusing the switch port (JL). Optional input is up to a total of 3 individual CPs or OEs (including a masked ID), or ranges of CPs or OEs, "WKG Y" to request a count of circuits working on the "to" frame, and OP CKT, NTU, or ALL. OP CKT is the default and fives a report of circuits on both frames. OP NTU gives a report of facilities not on the "to" frame, and OP ALL produces both reports.

Output consists of the number of dialtone circuits working on the "from" frame, the number of non-dialtone circuits working on the "from" frame, the number of dialtone circuits with short jumpers, the number of dialtone circuits whose OE-CP jumper is less than or equal to the specified jumper length (JL), and the number greater than JL.

Rules for Preparing the RPTFTA Contract:

a. RPTFTA should be invoked as a deferred contract.

b. To create the FCIF for the RPTFTA contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTFTA section.

c. The *RPTFTA section should look like this:
*RPTFTA.INPOPT.NTU.EXNM=CP or OE
*RPTFTA.INPOPT.NTU.EXID=low CP or OE id of range
*RPTFTA.INPOPT.NTU.EXHI=high CP or OE id of range
*RPTFTA.INPOPT.NTU.MASK=masked ID if one was input
*RPTFTA.INPOPT.FR=FR
*RPTFTA.INPOPT.TFR=TFR
*RPTFTA.INPOPT.JL=JL
*RPTFTA.FORMOPT=1, unless "OP NTU" (FORMOPT=2),
or "OP ALL" (FORMOPT=3) was entered.
*RPTFTA.INPOPT.WKG=N (default)
or
*RPTFTA.INPOPT.WKG=Y if "WKG Y" was input

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTFTA contract, it will output the following messages to the user's terminal:

** fta queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

e. When the RPTFTA contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully and FUSA must include the "LINE=' output from the *PRT section in the deferred output file.

f. If the RPTFTA contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.26 FTE — PREFTR Mapping

Transaction **fte** is used by the frame personnel to establish a frame transfer (FTR) in the SWITCH System, to add circuits to an existing FTR, or to change the due date (DD) of an existing FTR. An FTR is established to move working circuits from one frame to another.

Required input to establish a FTR is an h-line with an order number (ORD), a due date (DD), a from frame (FFR), and one or more to frames (TFR), up to a maximum of 10. Either "ETRFR Y" (Establish Entire Frame) or NTU data must be also be input on the h-line when establishing an FTR for the first time. Valid NTU types are CP, OE, and TKP, up to a total of 5 individual NTUs, or ranges. A "*" or a masked ID may be entered to indicate all NTUs of that type. An assignment option (OP) of RSP (Reuse Switch Port), ASP (Assign New Switch Port), or SDA (SWITCH System Determines Assignment type) must be input on the h-line if SAL=Y. If an OP of ASP or SDA is entered, then a jumper length (JL) must also be entered. An r-line with a remark (RMK) of up to 60 characters is also optional.

To add to an FTR, the order number (ORD) and either "ETRFR Y" or NTU data is required.

To change the due date of a FTR order, required input is ORD and DD on an h-line.

Table 3-23 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to specify or restrict circuits selected for assignment. These are input on i-lines or o-lines. Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

Table 3-23. Allowable Input for Transaction FTE

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
AUSE	Assigned Use	1 numeric (1-8)	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CTG	Category	v,n,d,m,i,w,p,r,t, or e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Estimated Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator (Customer)	y or n	i or o	1
ESLEQP	Essential Indicator (Equipment)	y	i or o	1
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	2
FDD	Frame Due Date	mm-dd-yy	h	1
GRD	Grade of Service	1, 2, 4, or 8	i or o	2

Table 3-23. Allowable Input for Transaction FTE (Continued)

Tag	Description	Input Format	Line Type	Max. No.
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
JL	Jumper Length	1-2 numerics	h	1
LC	Line Count	1 to 3 numerics; max:500	h	1
PUL	Pulsing (Customer)	d or j	i or o	1
PULEQP	Pulsing (Equipment)	d or j	i or o	1
SAL	Start Assignment Logic	y or n	h	1
SCH	Series Completion Hunt flag	y	i or o	1
SFG	Simulated Facility Group No.	1 to 6 AN or "*"	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling (Customer)	l,g,b,r,p,q, or o	i or o	4
SIGEQP	Signaling (Equipment)	l,g,b,r,p,q, or o	i or o	1
STD	Send Translation Data	y or n	h	1
TS	Type of Service	f, m, o, or w	i or o	2
TSPC	TSP Circuit	y	i or o	1
ZN	Working Zone of NTU	1-3 numerics	i or o	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i-line or an o-line, but not both.

c. If AUSE is input, GRD must also be input on a line of the same type (i or o).

d. If SIGEQP, PULEQP, or ESLEQP were input, they must be converted to ESIG, EPUL, or EESL.

Rules for Preparing the PREFTR Contract

a. PREFTR is a deferred contract.

b. To create FCIF for the PREFTR contract, FUSA must create a *C1 header, a *PLHDR section, and a *WOPT section. A *PKT section is required if an FDD or RMK is input.

c. The order number (ORD) and due date (DD) go in the *C1 header.

d. If ECD is input, it goes in the *PLHDR section in the format YYMMDD.

e. If FDD and/or RMK were input, they go in a *PKT section. RMK must be changed to FRK and it goes in a REC aggregate and an ACL subaggregate. If FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before inserting it in the *PKT section.

f. The *WOPT section must contain a CTL aggregate with FR and TFR set to the input values of FFR and TFR. If LC, ETRFR, JL, and/or OP were input, they also go in the CTL aggregate. OP must be changed to ASGOPT.

   The *WOPT section may contain a REF aggregate with PURG=Y, and the tags SAL, SFO, STD, if any or all of these were input.

   The *WOPT section must also contain a REC aggregate with a CKTFILT subaggregate with an INCL subaggregate. The INCL (or EXCL) subaggregate may also contain the tags GRD, TS, CLS, DIR, CTX, HML, SFG, SCH, ADSR, CTG, CATY, SIG, ESL, PUL, CMPLX, TSPC, ESIG(SIGEQP), EESL(ESLEQP), EPUL(PULEQP), ZN, ASMIND, and AUSE. An INCL or EXCL aggregate may contain up to two EX subaggregates with EXNM=the FAC that was input.

g. The *WOPT section may contain a REC aggregate with an EX subaggregate. If a range of NTUs was input, EXNM=the NTU type, EXID=the low id of the range, and EXHI=the high id of the range. There may be multiple EX subaggregates as needed. If the FTE was only to change DD, the *WOPT section is not required.

h. The *WOPT section must contain a REC aggregate with PROCFLAG=Y if there is an EX aggregate, but no ETRFR tag.

i. As soon as FUSA gets an acknowledgment from the communications module that it has received the PREFTR contract, FUSA will output the following message to the user's terminal:

   ** fte queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

j. When the PREFTR contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

k. If the PREFTR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.27 FTW — CANFTR Mapping

Transaction **ftw** is used by the frame personnel to cancel all or part of a Frame Transfer in the SWITCH System.

Required input to cancel all or part of a frame transfer is an h-line with an order number (ORD) and up to 5 individual NTUs (CP, OE, or TKP) or a range of NTUs, or up to 5 item numbers (ITEM) or a range of item numbers, to identify the lines to be cancelled.

Rules for Preparing the CANFTR Contract:

a. CANFTR is a deferred contract.

b. To create FCIF for the CANFTR contract, FUSA must create a *C1 header, a *PLHDR section, and optionally, a *WOPT section.

c. If an NTU or range of NTUs was input, there must be a *WOPT section with a REC aggregate with an EX subaggregate. EXNM=the NTU type, EXID=the id or low id of the range, and EXHI=the high id of the range. There may be additional REC aggregates (up to 5) as needed.

d. If an item number or a range of item numbers was input, there must be a *WOPT section with a REC aggregate with an EX subaggregate. EXNM=ITEM, EXID=the item number or low item number of the range, and EXHI=the high item number of the range. There may be additional REC aggregates (up to 5) as needed.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the CANFTR contract, FUSA will output the following message to the user's terminal:

   ** ftw queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

f. When the CANFTR contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

g. If the CANFTR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.28 GFR — RPTCKT Mapping

Transaction **gfr** is used by the frame personnel to obtain a basic circuit report on a range of facilities. Required input to **gfr** is an h-line with a facility or a range of facilities. A masked OE may be used instead of a range. Valid facility prefixes for the h-line of **gfr** follow:

CKID	Circuit ID
CP	Cable Pair
BL	Bridge Lifter
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

A “*” is allowed as a wild card with CKID and SVCID.

Optional inputs are:

ADSR (ADSR Y)
Cable (CA)
Facility type (FAC XX, XX=BL, CP, ICE, ME, OE, POE, TKP, TP or TRE)
Frame Location (LOC)
Line Count (LC)
Mini-bridge lifter (MBL Y)
NPANXX
Party (PTY N, n=1,2,4, or 8)
Simulated Facility Group (SFG, requires IC and ICID)
Status (STAT, STP, STO, STT)
Sublet (SUBL Y)
TOM (two or more) XX where XX=CP,TN or OE
USOC(US)

A print option (OP) may be input on the h-line to specify the type of output desired. "OP LIST", which is the default, will produce a compact report including all facilities in the circuit and some basic information on them. "OP INQ" (which also may be input as "OP CONN") will produce INQ-like output including connectivity information. "OP ALL" (or

"OP DATA") will include both connectivity and translation data in the output. "OP TOT" may be input if only a count is wanted.

gfr output is sent in the deferred mode, so there is no limit on the range of facilities or the line count.

Rules for Preparing the RPTCKT Contract:

a. For the **gfr** transaction the RPTCKT contract should be invoked in the deferred mode.

b. For the RPTCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTCKT section.

c. In the *RPTCKT section:

   1. FUSA must create an INPOPT aggregate with EXNM=the facility type, EXID= the facility id or the low id of the range, and EXHI=the high id of the range, and MASK=the masked OE id if one was input.

   2. If SFG/IC/ICID was input, FUSA must create an INPOPT aggregate with GRP.EXNM=SFG and GRP.EXID=YYY.Z.XXX where YYY= the IC type, Z= the ICID and XXX= the SFG number.

   3. If NPANXX was input, FUSA must create an INPOPT aggregate with EX.NPANXX= the NPANXX that was input, and EX.EXNM=TN.

   4. If a cable (CA) was input, FUSA must create an INPOPT aggregate with CA.EXNM=CA and CA.EXID=the cable number that was input.

   5. FUSA must set FORMOPT in the *RPTCKT section as follows:

OP	FORMOPT
none or LIST	1
INQ or CONN	2
TOT	3
ALL or DATA	5

   6. FUSA must set NTUTYP= the facility type that was input, and it goes in the NTU aggregate in the *RPTCKT section.

   7. If a line count was input, FUSA must create a FILT aggregate with LNCNT=the line count that was entered.

   8. If "MBL Y" was input, FUSA must create a FILT aggregate containing MBL=Y.

   9. If "TOM XX" (XX=CP,TN or OE) was input, FUSA must create a FILT aggregate with NTUFILT=XX and NTUNUM=>1.

   10. If “FAC XX” was input, FUSA must create a FILT aggregate with NTUFILT= the facility type and NTUNUM=>0.

11. If LOC was input, FUSA must create an NTU aggregate with FR.EXNM=FR, FR.EXID=FXX, FR.ZN=the zone or the low zone, and FR.ZNHI= the high zone if applicable.

12. If ADSR, US, PTY, or SUBL was input, it goes in a CKT aggregate with US being converted to LUSOC.

13. If a status was input, FUSA must use the following table to convert it to LIMTYP and LIMVAL which go in an ASGLIM subaggregate in an NTU aggregate, or to set SELSTAT in a FILT aggregate in the *RPTCKT section, or ASM or PEND which also go in the FILT aggregate, or to set CKT.USE in the *RPTCKT section.

STAT,etc.	LIMTYP	LIMVAL	SELSTAT	ASM	CKT.USE	PND
sf	@	@	TRSP			
rs	TMP	TRS				
def	DEF	DEF				
unq	WTH	UNQ				
uk	WTH	UNK				
ex	WTH	EX				
aw			ALWK			
as			ALSP			
wk				CKT		
li				DIP		
ssm					SSM	
ssp					SSP	
dsm					DSM	
dsp					DSP	
dc					DC	
pi						PI
po						PO
pk						PK

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTCKT contract, FUSA will output the following messages to the user's terminal:

** gfr queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

e. When the RPTCKT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

f. If the RPTCKT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.29 GIQ/GID — INQGRP Mapping

The transaction used by RCMAC personnel to inquire on each circuit in a hunt group is **giq/gid**. Input to **giq/gid** is an h-line with at least one of the following: TN, DTN, CKID, OE, POE, a multiline hunt group number (HML), a simulated facility group number (SFG), a Centrex group number (CTX), an intelligent controller type (IC), an intelligent controller ID (ICID), or option type (OP).

A future view (FV) may be included with any of the other inputs.

The following table give valid formats and rules for the various prefixes.

FID	FORMAT	RULE
HML	1-4 numerics	Requires IC and ICID
SFG	1-6 alphanumerics	Requires IC and ICID
CTX	1-18 alphanumerics	Requires IC and ICID
IC	3-5 alphanumerics	
ICID	1-3 alphanumerics	
OP	HML	Requires TN/DTN/CKID
	SCH	Requires TN/DTN
	MADN	Requires TN
	SFG	Requires TN/DTN/OE/POE/CKID

If a TN or DTN is input, and OP is not entered, OP SCH will be assumed.

If an OE or POE is input, and OP is not entered, OP SFG will be assumed.

giq runs in immediate mode, and thus is limited to ten circuits on output; **gid** runs in deferred mode, so may be used for groups with more than ten lines.

Output of **giq/gid** should be **inq** type output for each circuit in the hunt group.

Rules for Preparing the INQGRP Contract

a. If **his** was input, INQGRP is invoked as an immediate contract. If **hid** was input, INQGRP is invoked as a deferred contract.

b. To create the FCIF for the INQGRP contract FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. The *INQ section must have an EX aggregate populated as follows:

   — If an HML was input, FUSA must set EXTYP=HML and EXNM=HML and set EXID= the concatenation of the IC and ICID and HML group number.

   — If an SFG was input, FUSA must set EXTYP=SFG and EXNM=SFG and set EXID= the concatenation of the IC and ICID and SFG number.

   — If a CTX was input, FUSA must set EXTYP=CTX and EXNM=CTX and set EXID=the concatenation of the IC and ICID and CTX group number.

   — If "OP HML" was input, FUSA must set EXTYP=HML, EXNM=TN/DTN/CKID, and EXID=the ID of the facility that was input.

   — If "OP SCH" was input, or if a TN or DTN is input without an OP, FUSA must set EXTYP=SCH, EXNM=TN/DTN, and EXID=the ID of the facility that was input.

   — If "OP MADN" was input, FUSA must set EXTYP=MADN, EXNM=TN, and EXID=the TN ID that was input.

   — If "OP SFG" was input, or if an OE or POE is input without an OP, FUSA must set EXTYP=SFG, EXNM=TN/DTN/OE/POE/CKID, and EXID=the ID that was input.

d. If the prefix "FV" was included on the h-line, the data following must be in the format "mm-dd-yy" (m=month, d=day, y=year). FUSA must convert the data to the format "YYYYMMDD", and append it to "VIEW=" in an *INQOPT aggregate in the *INQ section. If "FV" was not input, the *INQOPT aggregate is not present.

e. FUSA must also set FORMOPT=G if CTX was input, and FORMOPT=A for all other inputs, in the *INQOPT aggregate.

f. If INQGRP was invoked as an immediate contract:

   — When the INQGRP contract is returned and STATUS=0 (successful return) in the *PLHDR section, FUSA must print all the lines of text in the *PRT section; that is, all data between "LINE=" and ";".

   — If the INQGRP contract was unable to be processed successfully in the SWITCH System (STATUS not equal to 0), upon return the FCIF may not contain a *PRT section, but will have a *UMSG section, and FUSA must then output the MSGNUM, MSGTYPE, MSGTEXT, EXNM and EXID tags and values.

   — Before terminating FUSA must output:

** his completed mm-dd-yy hh:mm

g. If INQGRP was invoked as a deferred contract:

— As soon as FUSA gets an acknowledgment from the communications module that it has received the INQGRP contract, FUSA should output to the user's terminal:
** hid queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

— When the INQGRP contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the output from the *PRT section in the deferred output file.

— If the INQGRP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.30 HIS/HID — INQGRP Mapping

The transaction used by the frame personnel to inquire on each circuit in a hunt group is **his/hid**. Input to **his/hid** is an h-line with at least one of the following: TN, DTN, CKID, OE, POE, a multiline hunt group number (HML), a simulated facility group number (SFG), a Centrex group number (CTX), an intelligent controller type (IC), an intelligent controller ID (ICID), or option type (OP).

A future view (FV) may be included with any of the other inputs.

The following table give valid formats and rules for the various prefixes.

FID	FORMAT	RULE
HML	1-4 numerics	Requires IC and ICID
SFG	1-6 alphanumerics	Requires IC and ICID
CTX	1-18 alphanumerics	Requires IC and ICID
IC	3-5 alphanumerics	
ICID	1-3 alphanumerics	
OP	HML	Requires TN/DTN/CKID
	SCH	Requires TN/DTN
	MADN	Requires TN
	SFG	Requires TN/DTN/OE/POE/CKID

If a TN or DTN is input, and OP is not entered, OP SCH will be assumed.

If an OE or POE is input, and OP is not entered, OP SFG will be assumed.

his runs in immediate mode, and thus is limited to ten circuits on output; **hid** runs in deferred mode, so may be used for groups with more than ten lines.

Output of **his/hid** should be **inq** type output for each circuit in the hunt group.

Rules for Preparing the INQGRP Contract:

a. If **his** was input, INQGRP is invoked as an immediate contract. If **hid** was input, INQGRP is invoked as a deferred contract.

b. To create the FCIF for the INQGRP contract FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. The *INQ section must have an EX aggregate populated as follows:

   — If an HML was input, FUSA must set EXTYP=HML and EXNM=HML and set EXID= the concatenation of the IC and ICID and HML group number.

   — If an SFG was input, FUSA must set EXTYP=SFG and EXNM=SFG and set EXID= the concatenation of the IC and ICID and SFG number.

   — If a CTX was input, FUSA must set EXTYP=CTX and EXNM=CTX and set EXID=the concatenation of the IC and ICID and CTX group number.

   — If "OP HML" was input, FUSA must set EXTYP=HML, EXNM=TN/DTN/CKID, and EXID=the ID of the facility that was input.

   — If "OP SCH" was input, or if a TN or DTN is input without an OP, FUSA must set EXTYP=SCH, EXNM=TN/DTN, and EXID=the ID of the facility that was input.

— If "OP MADN" was input, FUSA must set EXTYP=MADN, EXNM=TN, and EXID=the TN ID that was input.

— If "OP SFG" was input, or if OE or POE is input without an OP, FUSA must set EXTYP=SFG, EXNM=TN/DTN/OE/POE/CKID, and EXID=the ID that was input.

d. If the prefix "FV" was included on the h-line, the data following must be in the format "mm-dd-yy" (m=month, d=day, y=year). FUSA must convert the data to the format "YYYYMMDD", and append it to "VIEW=" in an *INQOPT aggregate in the *INQ section. If "FV" was not input, the *INQOPT aggregate is not present.

e. FUSA must also set FORMOPT=G if CTX was input, and FORMOPT=D for all other inputs, in the *INQOPT aggregate.

f. If INQGRP was invoked as an immediate contract:

— When the INQGRP contract is returned and STATUS=0 (successful return) in the *PLHDR section, FUSA must print all the lines of text in the *PRT section; that is, all data between "LINE=" and ";".

— If the INQGRP contract was unable to be processed successfully in the SWITCH System (STATUS not equal to 0), upon return the FCIF may not contain a *PRT section, but will have a *UMSG section, and FUSA must then output the MSGNUM, MSGTYPE, MSGTEXT, EXNM and EXID tags and values.

— Before terminating FUSA must output:

** his completed mm-dd-yy hh:mm

g. If INQGRP was invoked as a deferred contract:

— As soon as FUSA gets an acknowledgment from the communications module that it has received the INQGRP contract, FUSA should output to the user's terminal:
** hid queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

— When the INQGRP contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the output from the *PRT section in the deferred output file.

— If the INQGRP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and

include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.31 ISF — INQNTU Mapping

Transaction **isf** is used by the frame personnel to inquire on a single facility (working or spare), or a range of facilities and obtain facility information (including frame LOIS). Input to **isf** is an h-line with a facility prefix and ID, or a range of facilities, up to a suggested maximum of ten. A range of more than 10 facilities will not be rejected by FUSA, but the output from the SWITCH System will terminate when the time limit for an immediate transaction is reached. Optionally, you can also specify a view date, and/or "OP CKT" to get the entire circuit when the facility is working.

Output of **isf** is all known data about the input facility. If the facility is part of a working or pending circuit, the rest of the circuit is not included in the output, unless "OP CKT" was input.

Rules for Preparing the INQNTU Contract:

a. INQNTU is an immediate contract.

b. To create the FCIF for the INQNTU contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. For a given facility ID input to **isf**, an EX aggregate and an INQOPT aggregate are created. The EX aggregate contains the facility name (EXNM) and ID (EXID) and, optionally, the high ID (EXHI) in tag-value format. The INQOPT aggregate contains FORMOPT, and optionally, VIEW and CKTOPT. FUSA must insert the facility prefix after "EXNM=" in the EX aggregate of the *INQ section and insert the facility ID after the "EXID=". Valid facility prefixes for the h-line of the **isf** transaction follow:

BL	Bridge Lifter
CKID	Circuit ID
CP	Cable Pair
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet Handler OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

d. FUSA must set FORMOPT to "D" in the INQOPT aggregate.

e. If the prefix "fv" was included on the h-line, the data following it must be in the format mm-dd-yy (m=month, d=day, y=year). FUSA converts the data to the format "YYYYMMDD", and appends it to "VIEW=" in the *INQOPT aggregate. If "fv" was not input, "VIEW=" will be omitted.

f. If "OP CKT" was input, FUSA must include CKTOPT=Y in the *INQOPT aggregate.

g. When the INQNTU contract is returned and STATUS=0 in the *PLHDR section, FUSA prints all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";").

h. If the INQNTU contract was not processed successfully in the SWITCH System (STATUS0), upon return the FCIF may not contain a *PRT section, but will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

i. Before terminating, FUSA will print the following message:

** isf completed *DATE AND TIME*

j. If a range of facilities is input, EXID represents the starting facility, and EXHI represents the ending facility in the range.

3.12.7.32 ISH — INQCKT Mapping

Transaction **ish** is used by Recent Change Memory Administration Center (RCMAC) personnel to inquire on a facility or a range of facilities and obtain partial circuit information, including translation data. Required input to **ish** consists of an h-line with a facility ID or a range of facilities, up to a suggested maximum of ten. A range consisting of more than ten facilities will not be rejected by FUSA, but the output from the SWITCH System will terminate when the time limit for an immediate transaction is reached. Output consists of TNs, CKIDs, and OEs, including translation data, for the circuit or assembly that the input facility is part of, if a working facility was input; or data about the facility if a nonworking facility was input. Data about outside plant facilities will not be included in **ish** output. An optional input of "fv (future view) mm-dd-yy" on the h-line will yield a representation of the circuit, assembly, or facility as of the date specified.

Rules for Preparing the INQCKT Contract:

a. INQCKT is an immediate contract.

b. To create the FCIF for the INQCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. Within the *INQ section an EX aggregate must be created. The EX aggregate contains the facility name (EXNM) and ID (EXID) and, if a range was input, the high ID (EXHI) in tag-value format. FUSA must insert the facility prefix after "EXNM=" in the EX aggregate of the *INQ section, insert the facility ID or the low facility ID of the range after the "EXID=", and the high facility ID of the range after the "EXHI=". Valid facility prefixes for the h-line of the **ish** transaction follow:

BL	Bridge Lifter
CKID	Circuit ID
CP	Cable Pair
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet Handler OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

d. An INQOPT aggregate must also be created. The INQOPT aggregate contains the tags VIEW and FORMOPT. FUSA must also set FORMOPT to "T" in the INQOPT subaggregate. If the prefix "fv" was included on the h-line, the data following it must be in the format mm-dd-yy (m=month, d=day, y=year). FUSA converts the data to the format "YYYYMMDD", and appends it to "VIEW=" in the *INQOPT subaggregate. If "fv" was not input, "VIEW=" will be omitted.

e. On return from the SWITCH System, the INQCKT contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in "LINE=..." format. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message:
** ish completed *DATE AND TIME*

f. If the INQCKT contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.33 ISR — INQCKT Mapping

Transaction **isr** is used by Recent Change Memory Administration Center (RCMAC) personnel to inquire on a facility or a range of facilities and obtain full circuit information, including translation data. Required input to **isr** consists of an h-line with a facility ID or a range of facilities, up to a suggested maximum of ten. A range consisting of more than ten facilities will not be rejected by FUSA, but the output from the SWITCH System will terminate when the time limit for an immediate transaction is reached. Output consists of a printout of the facility and any facilities it is DIPed or assembled to (if it is nonworking) or the entire circuit including translation data, (if the facility is part of a working or pending circuit). An optional input of "fv (future view) mm-dd-yy" on the h-line will yield a representation of the facility or circuit as of the date specified.

Rules for Preparing the INQCKT Contract

a. INQCKT is an immediate contract.

b. To create the FCIF for the INQCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. Within the *INQ section an EX aggregate must be created. The EX aggregate contains the facility name (EXNM) and ID (EXID) and, if a range was input, the high ID (EXHI) in tag-value format. FUSA must insert the facility prefix after "EXNM=" in the EX aggregate of the *INQ section, insert the facility ID or the low facility ID of the range after the "EXID=", and the high facility ID of the range after the "EXHI=". Valid facility prefixes for the h-line of the **isr** transaction follow:

BL	Bridge Lifter
CKID	Circuit ID
CP	Cable Pair
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet Handler OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

d. An INQOPT aggregate must also be created. The INQOPT aggregate contains the tags VIEW and FORMOPT. FUSA must set FORMOPT=D in the INQOPT aggregate

which will produce the facility attribute output format. If the prefix "fv" was included on the h-line, the data following it must be in the format mm-dd-yy (m=month, d=day, y=year). FUSA converts the data to the format "YYYYMMDD", and appends it to "VIEW=" in the *INQOPT subaggregate. If "fv" was not input, "VIEW=" will be omitted.

e. On return from the SWITCH System, the INQCKT contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in "LINE=..." format. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message:
** isr completed *DATE AND TIME*

f. If the INQCKT contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.34 JAM — PREJAM Mapping

Transaction **jam** is used by the frame personnel to establish a Jumper Activity Management or JAM Order in the SWITCH System, to add circuits to an existing JAM order, or to change the due date (DD) of an existing JAM order. A JAM order is established to relieve congestion on the main distributing frame (MDF) by reassigning OEs to eliminate long jumpers or tie pairs.

Required input to establish a JAM order is an h-line with an order number (ORD), a due date (DD), a frame (FR), AND either A) a zone (ZN) or a range of zones, or B) up to 5 individual NTUs or a range of NTUs, AND either A)OP TPR for tie pair reclamation or B)OP JTR for jumper trough relief. If OP JTR is input, a minimum jumper length (JL) is required. If OP TPR is input, JL is invalid. Valid NTU types are CP, OE, and TP. An r-line with a remark (RMK) of up to 60 characters is optional.

To add to a JAM order established with OP TPR only the order number (ORD) and either a zone (ZN) or a range of zones, or up to 5 individual NTUs or a range of NTUs is required. If the order was established with OP JTR, JL must be input again.

To change the due date of a JAM order, required input is ORD and DD on an h-line.

Table 3-24 lists additional parameters that are optional. Some merely set flags or supply data for processing in the SWITCH System; these are input on an h-line. Others are to specify or restrict circuits selected for assignment. These are input on i-lines or o-lines.

Enter an i-line to *include* circuits that match the condition, or an o-line to *exclude* circuits that match the condition.

Table 3-24. Allowable Input for Transaction JAM

Tag	Description	Input Format	Line Type	Max. No.
ADSR	Designed Service	y	i or o	1
ASMIND	Assembly Indicator	y	i or o	1
AUSE	Assigned Use	1 numeric (1-8)	i or o	1
CATY	Central Office Administrative Type	1 to 5 alphanumerics	i or o	1
CLS	Class of Service	r, b, or c	i or o	2
CMPLX	Complex Circuit Indicator	y	i or o	1
CTG	Category	v,n,d,m,i,w,p,r,t, or e	i or o	4
CTX	Centrex Group Number	1 to 18 AN or "*"	i or o	1
DIR	Directionality	i, o, or b	i or o	1
ECD	Estimated Completion Date	mm-dd-yy	h	1
ESL	Essential Indicator (Customer)	y or n	i or o	1
ESLEQP	Essential Indicator (Equipment)	y	i or o	1
FAC	NTU Required in Circuit	2 to 5 alphanumerics	i or o	10
FDD	Frame Due Date	mm-dd-yy	h	1
GRD	Grade of Service	1, 2, 4, or 8	i or o	3
HML	Multiline Hunt Group Number	1 to 4 numerics or "*"	i or o	1
LC	Line Count	1 to 5 numerics	h	1
LF	Load Factor	1 to 2 numerics	i or o	1
MAXCCS	Maximum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
MINCCS	Minimum CCS	0 to 2 numerics + "." + 1 numeric	i or o	1
PUL	Pulsing (Customer)	d or j	i or o	1
PULEQP	Pulsing (Equipment)	d or j	i or o	1
SAL	Start Assignment Logic	y or n	h	1
SCH	Series Completion Hunt flag	y	i or o	1
SFG	Simulated Facility Group No.	1 to 6 AN or "*"	i or o	1
SFO	Send Frame Output (automatically)	y or n	h	1
SIG	Signaling (Customer)	l,g,b,r,p,q, or o	i or o	4
SIGEQP	Signaling (Equipment)	l,g,b,r,p,q, or o	i or o	1
STD	Send Translation Data	y or n	h	1

Table 3-24. Allowable Input for Transaction JAM (Continued)

Tag	Description	Input Format	Line Type	Max. No.
TS	Type of Service	f, m, o, or w	i or o	2
TSPC	TSP Circuit	y	i or o	1

NOTES:

a. The abbreviation "AN" represents alphanumeric; A/N represents alphabetic or numeric.

b. Except for the h-line parameters, each parameter may appear on an i-line or an o-line, but not both.

c. If AUSE is input, GRD must also be input on a line of the same type (i or o).

d. If SIGEQP, PULEQP, or ESLEQP were input, they must be converted to ESIG, EPUL, or EESL.

Rules for Preparing the PREJAM Contract

a. PREJAM is a deferred contract.

b. To create FCIF for the PREJAM contract, FUSA must create a *C1 header, a *PLHDR section, and a *WOPT section. A *JAM section is also required in all cases except change of due date. A *PKT section is required if an FDD or RMK is input.

c. If ECD is input, it goes in the *PLHDR section in the format YYMMDD.

d. If FDD and/or RMK were input, they go in a *PKT section. RMK must be changed to FRK and it goes in a REC aggregate and an ACL subaggregate. If FDD was input, FUSA must change it from the format mm-dd-yy to yymmdd before passing it to the SWITCH System via the FCIF.

e. The *WOPT section must contain a CTL aggregate with FR and JAMTYPE (OP) set to the input values of FR and OP. If LC was input, it also goes in the CTL aggregate.

   The *WOPT section must contain a REF aggregate with PURG=Y and may contain the tags SAL, SFO, and STD, if any or all of these were input.

   The *WOPT section may also contain a REC aggregate with a CKTFILT subaggregate with an INCL and/or an EXCL subaggregate. The INCL/EXCL subaggregate may contain the tags GRD, TS, CLS, DIR, CTX, HML, SFG, SCH, ADSR, CTG, CATY, SIG, ESL, PUL, MINCCS, MAXCCS, LF, CMPLX, TSPC, ESIG(SIGEQP), EESL(ESLEQP), EPUL(PULEQP), ASMIND, and AUSE. An INCL or EXCL aggregate may contain up to ten EX subaggregates with EXNM=the FAC that was input.

   If OP JTR and JL were input on the h-line, JL goes in *WOPT.REC.CKTFILT.INCL.

f. The *JAM section contains a REC aggregate with an EX subaggregate. If an individual NTU or a range of NTUs was input, EXNM=the NTU type, EXID=the id or low id of the range, and EXHI=the high id of the range. If a zone (ZN) was input, EXNM=ZONE and EXID=the zone number that was input. If a range of zones was input, EXNM=ZONE, EXID=the low zone of the range, and EXHI=the high zone of the range. There may be additional REC aggregates as needed. If the JAM was only to change DD, the *JAM section is not required.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the PREJAM contract, FUSA will output the following message to the user's terminal:

   ** jam queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

h. When the PREJAM contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

i. If the PREJAM contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.35 JAW — CANJAM Mapping

Transaction **jaw** is used by the frame personnel to cancel all or part of a Jumper Activity Management or JAM Order in the SWITCH System.

Required input to cancel all of a JAM order is an h-line with an order number (ORD). For cancelling part of a JAM order, required input is ORD and up to 5 individual NTUs (CP, OE, or TP) or a range of NTUs, or up to 5 item numbers (ITEM) or a range of item numbers, to identify the lines to be cancelled.

Rules for Preparing the CANJAM Contract:

a. CANJAM is a deferred contract.

b. To create FCIF for the CANJAM contract, FUSA must create a *C1 header, a *PLHDR section, and optionally, a *JAM section.

c. If an NTU or range of NTUs was input, there must be a *JAM section with a REC aggregate with an EX subaggregate. EXNM=the NTU type, EXID=the id or low id of

the range, and EXHI=the high id of the range. There may be additional REC aggregates (up to 5) as needed.

d. If an item number or a range of item numbers was input, there must be a *JAM section with a REC aggregate with an EX subaggregate. EXNM=ITEM, EXID=the item number or low item number of the range, and EXHI=the high item number of the range. There may be additional REC aggregates (up to 5) as needed.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the CANJAM contract, FUSA will output the following message to the user's terminal:

   ** jaw queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

f. When the CANJAM contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA must indicate this in the deferred output file.

g. If the CANJAM contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.36 LOE — RPTSPT Mapping

Transaction **loe** may be used by FRAME personnel to obtain a report of OEs with various attributes from the SWITCH System. Required input to **loe** consists of one and only one of the following:

— masked OE

— OE or OE range

— IC and ICID and optionally RUID

and at least one of the following optional filters:

Prefix	Description	Format	Max. No.
AY	Assembly	p, t, or r	3
CTX	Centrex Group No.	1-18AN	1
LF or LF;LF	Load Factor	1-2N	1
LC	Line Count	1-3N	1
LOC or LOC;LOC	Frame Location	XXXYYY	1
		XXX=AN	
		YYY=000-999	
CLS	Class of Service	r, b, or c	2
ECS	Equipment Class of Svc.	1-5AN	5
STO/STAT	Status of OE	wk, sf, rs, def, uk, unq,	1
		ex, aw, as, pi, po, pk	
US	Line USOC (LUSOC)	1-5AN	5
PUL	Pulsing (Cust. Feat.)	d or j	1
SIG	Signaling (Cust. Feat.)	l,g,b,r,p,q,o	5
ESL	Essential (Cust. Feat.)	y or n	1
PULEQP	Pulsing (Eq. Feat.)	d or j	1
SIGEQP	Signaling (Eq. Feat.)	l,g,b,r,p,q,o	5
ESLEQP	Essential (Eq. Feat.)	y or n	1

An additional (optional) h-line filter is HEAD (1-60AN) which must be on a line by itself and does not count as a required filter.

Rules for Preparing the RPTSPT Contract

a. RPTSPT is a deferred contract.

b. To create the FCIF for the RPTSPT contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTSPT section.

c. FUSA must create an INPOPT aggregate within the *RPTSPT section.

d. If an OE (including a masked OE) was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=OE and EXID=the OE ID. If an OE range was input, EXID=the low OE ID and EXHI=the high OE ID.

e. If an IC/ICID was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=IC and EXID=ICTYPE.ICID#. If an IC/ICID/RUID was input, EXNM=RU and EXID=ICTYPE.ICID#.RUID#.

f. If a CTX group number was input, FUSA must create a GRP subaggregate within the INPOPT aggregate and set EXNM=CTX, and EXID=the group number.

g. If LOC or a range of LOCs was input, FUSA must set FILT.FR.EXNM=FR and FILT.FR.EXID=the frame name, FILT.FR.ZN=the zone or low zone, and FILT.FR.ZNHI=the high zone if applicable.

h. If ECS was input, FUSA must set NTU.ADMCONST=the value input.

i. FUSA must set FORMOPT=1 (LIST output format) in the *RPTSPT section.

j. If "AY X" was input, FUSA must set FILT.ASM=PASM/TASM/RSV corresponding to X=P,T,R, respectively.

k. If LC was input, FUSA must set FILT.LNCNT=the value input.

l. If a LF or a range of LFs was input, FUSA must set FILT.LF=the value input or the low value and FILT.LFHI=the high value if applicable.

m. If STO or STAT is input, FUSA must map it to NTU.ASLIM.LIMTYP, NTU.ASMLIM.LIMVAL, SELST, PEND or ASM according to the standard mappings.

n. If CLS, US, PUL, SIG or ESL was input, FUSA must set CKT.CLS/LUSOC/PUL/SIG/ESL as appropriate.

o. If PULEQP, SIGEQP or ESLEQP was input, FUSA must set NTU.PUL/SIG/ESL as appropriate.

p. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTSPT contract, it will output the following messages to the user's terminal:

   ** loe queued on the SWITCH System's IMS queue on DATE AND TIME

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) DATE AND TIME

   After printing the messages, FUSA returns the system prompt to the user.

q. When the RPTSPT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

r. If the RPTSPT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA

creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.37 MCH — UPDSCH Mapping

Transaction **mch** is used by a CCSS system to change a series-completion "hunt-to" TN. Input to **mch** is an h-line with a TN, and an o- and/or an i-line with the "hunt-to" TN (HT). To delete a hunt-to TN, you can specify "HT *" on the o-line instead of the specific telephone number.

Rules for Preparing the UPDSCH Contract:

a. UPDSCH is a deferred contract.

b. To create the FCIF for the UPDSCH contract, FUSA must create a *C1 header, a *PLHDR section, and a *SCHSEQ section.

c. The *SCHSEQ section contains a REC aggregate with a CTL subaggregate with the tags CTC=C (for change) and TN=the telephone number input on the h-line. The REC aggregate also contains an ACL subaggregate with the tag ACT=O (out) or ACT=I (in) and HTN=the hunt-to TN or "*". The ACL subaggregate may appear twice within a REC aggregate, with ACT=O and with ACT=I.

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the UPDSCH contract, FUSA will output the following message to the user's terminal:

   ** mch queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After FUSA prints the messages, it returns the system prompt to the user.

e. When the UPDSCH contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA indicates this in the deferred output file.

f. If the UPDSCH contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.38 MMC — UPDCKT Mapping

Transaction **mmc** is used by frame personnel to add, delete, or change a facility in a working circuit, or to constrain or unconstrain a circuit in the SWITCH System database. Input to **mmc** is an h-line with a TN, DTN, or CKID to identify the circuit, and either an i-line to add a facility, or an o-line to delete a facility, or both. If a physical facility is being deleted from the circuit, an out status (STO, STP, STAT) must be specified for that facility immediately following the facility ID on the o-line. Status (STT) is optional for a TN or a DTN; status is invalid for a CKID. See Tables 3-13 through 3-16 for allowable status values.

The following facilities are valid for input into **mmc**: BL, CKID, CP, DTN, FR, ME, OE, POE, TN, TKP, TP and TRE. A user-tunable table specifies which facilities a given user may not change. (See transaction **fce**).

Two TPs may be added, deleted, or changed at one time. A status (STAT) must be specified for each out TP immediately following the TP. To replace TP1 and TP2 with TP3 and TP4 the required input format is:

```
wc% mmc
_h tn xxx-xxxx
_o tp 1/stat xxx/tp 2/stat xxx
_i tp 3/tp 4
_.
```

To add a TP the end facilities must precede and follow the TP (note that one end facility may be a target frame) as shown:

```
wc% mmc
_h tn xxx-xxxx
_i cp 1/tp 1/fr f01
_.
```

To add indirect TPs, the i-line looks like:

```
_i cp 1/tp 1/tp 2/oe 1
```

To mark a circuit as constrained in the SWITCH System database, input "TC Y" on an i-line; to unconstrain a circuit, input "TC Y" on an o-line.

BLs may not be added or deleted. Unmated BLs may be swapped individually. Mated BLs may be swapped in pairs of 2 or 4.

A remark of up to 60 characters may be added to the circuit via the RMK prefix on an r-line. A remark may be deleted by inputting "rmk !" on an r-line.

Rules for Preparing the UPDCKT Contract:

a. UPDCKT is a deferred contract.

b. To create FCIF for the UPDCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *MASG section.

c. The following rules define the *MASG section.

1. In all cases, the *MASG section must include the following items:

   - A CKT aggregate with the tag FCN=CHG
   - An SVC subaggregate with a CTL subaggregate with FCN=CHG, and an EX subaggregate with OLD and NEW subaggregates that contain EXNM=CKID and ID=the TN, DTN, or CKID that was input on the h-line. If the circuit ID is not changing, the OLD and NEW subaggregates contain the same ID; if the circuit ID is changing, then the OLD subaggregate contains the old circuit ID and the NEW subaggregate contains the new ID.

2. When adding, deleting, or changing a TN in a working circuit, FUSA also creates an SEQP subaggregate within the SVC subaggregate with TYPE=TN and an OLD or NEW subaggregate (or both) with ID=the ID of the TN. If an STT was input, it gets converted to INTC or ASGLIM.LIMTYP and ASGLIM.LIMVAL and placed in a UATTR subaggregate in the OLD subaggregate.

3. When adding a facility other than a TP, TN or CKID to a working circuit, FUSA also creates an EQP subaggregate within the CKT aggregate that contains the tag TYPE=BL, CP, ME, OE, POE, TP, or TRE, and a NEW subaggregate that contains ID=ID of the facility to be added to the circuit.

4. When adding a TP, the CKT aggregate must contain a CKTATTR subaggregate with a NEW subaggregate with MANIND=TC. The EQP subaggregate must have 2 CONNTO subaggregates with TYPE and ID of the end facilities. Adding 2 TPs requires 2 EQP subaggregates each with 2 CONNTO subaggregates.

5. When deleting a facility other than a TN or CKID from a working circuit, FUSA also creates an EQP subaggregate within the CKT aggregate that contains the tag TYPE=BL,CP,ME,OE,POE,TP, or TRE, and an OLD subaggregate that contains the tag ID=ID of the facility to be deleted from the circuit, and a UATTR subaggregate with an ASGLIM subaggregate with the tags LIMTYP and LIMVAL.

6. Changing a facility in a working circuit requires one EQP subaggregate with both an OLD and a NEW subaggregate that specify the "out" and the "in" facilities, which are of the same type.

7. Changing 2 TPs in a working circuit requires 2 EQP subaggregates, each with an OLD and a NEW subaggregate.

8. If the **mmc** is only to constrain or unconstrain a circuit, the FCIF must contain

```
CKT.CKTATTR.OLD.MANIND=TC to unconstrain, or
CKT.CKTATTR.NEW.MANIND=TC to constrain.
```

9. If a new remark (RMK) was input, it goes in CKT.CKTATTR.NEW.RMK.
10. If "RMK !" was input, CKT.CKTATTR.NEW.RMK=@.

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the UPDCKT contract, it will output the following messages to the user's terminal:

   ** mmc queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

e. When the UPDCKT contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

f. If the UPDCKT contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.39 RQF — REQWO Mapping

Transaction **rqf** is used by frame personnel to request the SWITCH System to send frame-related data to FOMS for a programmable work order. Required input is an h-line with an order number (ORD), and a facility or a range of facilities, an item number (ITEM) or a range of item numbers, or a line count(LC). Optionally, the user may input a request to send translation output simultaneously (SOS Y). Valid facility types are TN, CP, and OE. If the request is for a dial transfer and an OE or a range of OEs is input, they must be from the out IC.

Rules for Preparing the REQWO Contract:

a. REQWO is a deferred contract.

b. To create FCIF for the REQWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *REQ section.

c. If the order number (ORD) that was input does not contain a colon, it goes directly in the *C1 header. If it is of the form EWO:TR where EWO represents the engineering work order number and is 1-8 characters, and TR represents the transfer number and is from 1-11 characters, then EWO:TR represents a cable throw order number and the TR part goes in the *C1 header.

d. If a cable throw order number was input (i.e. ORD is in the format EWO:TR), the *REQ section must contain the EWO after the tag EWO=. If the user input a facility or a range of facilities, the *REQ section must contain an EX aggregate with EXNM=the facility type, EXID=the facility ID or the low facility ID, and EXHI=the high facility ID if a range was input. If the user input an item number or a range of item numbers, the *REQ section must contain an EX aggregate with EXNM=ITEM, EXID=the item number or the low item number of the range, and EXHI=the high item number of the range, if a range was input.

e. If a line count was input, it appears after LC= in the *REQ section.

f. If "SOS Y" was input, SOS=Y appears in the *REQ section.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the REQWO contract, FUSA will output the following messages to the user's terminal:

   ** rqf queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After FUSA prints the messages, it returns the system prompt to the user.

h. When the REQWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

i. If the REQWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

j. If the REQWO was for a CPT, the EWO number will be in a *PRT section of the REQWO contract in REC.EWO upon return from the SWITCH System.

3.12.7.40 RQT — REQTRM Mapping

Transaction **rqt** is used by RCMAC or frame personnel to request the SWITCH System to send translation data to MAS for a programmable work order. Required input is an h-line with an order number (ORD), and a facility or a range of facilities, or an item number or a range of item numbers, or a line count (LC). Optional inputs are NPANXX, HML and HMLIC, CTX and CTXIC, or HTN, or a request to send frame output simultaneously (SOS Y). Input of HTN followed by a telephone number will send translation data for the series completion hunt group of which the TN is a member, provided that it is a member of only one SCH group.

Valid facility types are CKID, CP, OE, POE, and TN. A range may be input for any facility type except CKID. If the request is for a dial transfer, and an OE or a range of OEs is input, they must be from the out IC.

Rules for Preparing the REQTRM Contract:

a. REQTRM is a deferred contract.

b. To create the FCIF for the REQTRM contract, FUSA must create a *C1 header, a *PLHDR section, and a *REQ section.

c. If the order number (ORD) that was input does not contain a colon, it goes directly in the *C1 header. If it is of the form EWO:TR where EWO represents the engineering work order number and is 1-8 characters, and TR represents the transfer number and is from 1-11 characters, then EWO:TR represents a cable throw order number and the TR part goes in the *C1 header.

d. If a cable throw order number was input (i.e. ORD is in the format EWO:TR), the *REQ section must contain the EWO after the tag EWO=.

e. If one of the optional inputs was used, the *REQ section must contain an EX aggregate as follows.

   - If the user input a facility or a range of facilities, EXNM=the facility type, EXID=the facility ID or the low facility ID, and EXHI=the high facility ID if a range was input.
   - If the user input an item number or a range of item numbers, EXNM=ITEM, EXID=the item number or the low item number of the range, and EXHI=the high item number of the range, if a range was input.
   - If the user input NPANXX, EXNM=NXX and EXID=the six characters they input, or the three that they input padded with the default NPA.
   - If the user input HML, EXNM=HML, and EXID=the group number that was input, and HML and HMLIC must also be sent in an INCL subaggregate in a CKTFILT aggregate in the *REQ section.
   - If the user input CTX, EXNM=CTX, and EXID=the group number that was input, and CTX and CTXIC must also be sent in an INCL subaggregate in a CKTFILT aggregate in the *REQ section.
   - If the user input HTN, EXNM=SCH and EXID= the TN ID that was input following the HTN prefix.

f. If LC was input, the data value must appear after LC= in the *REQ section.

g. If "SOS Y" was input, SOS=Y must appear in the *REQ section.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the REQTRM contract, FUSA will output the following messages to the user's terminal:

   ** rqt queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

i. When the REQTRM contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

j. If the REQTRM contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

k. If the REQTRM was for a CPT, the EWO number will be in a *PRT section of the REQTRM contract in REC.EWO upon return from the SWITCH System.

3.12.7.41 RSF — RSDFO Mapping

Transaction **rsf** is used by a FOMS/FUSA administrative-level user to request the SWITCH System to resend frame-related data to FOMS for a demand order. Required input to **rsf** is an order number (ORD).

Rules for Preparing the RSDFO Contract:

a. RSDFO is a deferred contract.

b. To create FCIF for the RSDFO contract, FUSA must create a *C1 header and a *PLHDR section. The order number (ORD) is passed to the SWITCH System in the *C1 header.

c. As soon as FUSA gets an acknowledgment from the communications module that it has received the RSDFO contract, FUSA will output the following messages to the user's terminal:

   ** rsf queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

d. When the RSDFO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully, and FUSA indicates this in the deferred output file.

e. If the RSDFO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.42 RSW — REQWO Mapping

Transaction **rsw** is used by a FOMS/FUSA administrative-level user to request the SWITCH System to resend frame-related data to FOMS for a programmable order. Required input to **rsw** is an order number (ORD) and a sequence number (SEQ), an item number (ITEM) or a range of item numbers.

Rules for Preparing the REQWO Contract

a. REQWO is a deferred contract.

b. To create FCIF for the REQWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *REQ section.

c. If the order number (ORD) that was input does not contain a colon, it goes directly in the *C1 header. If it is of the form EWO:TR where EWO represents the engineering work order number and is 1-8 characters, and TR represents the transfer number and is from 1-11 characters, then EWO:TR represents a cable throw order number and the TR part goes in the *C1 header.

d. If a cable throw order number was input (i.e. ORD is in the format EWO:TR), the *REQ section must contain the EWO after the tag EWO=. If the user input a sequence number, it goes after the tag SEQ= in the *REQ section. If the user input an item number, the *REQ section must contain an EX aggregate with EXNM=ITEM, EXID=the item number. If a range of item numbers was input, the *REQ section must contain an EX aggregate with EXNM=ITEM, EXID=the low item number of the range, and EXHI=the high item number of the range. There must also be a RSD=Y tag and value in the *REQ section.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the REQWO contract, FUSA will output the following messages to the user's terminal:

   ** rsw queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

f. When the REQWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

g. If the REQWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.43 RUNEXP — EXTPDG Mapping

The transaction used by a FOMS/FUSA system administrator to request that the EXTPDG process be run in the SWITCH System is **runexp**. Required input is a "dot" (.) line. Optional input is an h-line with "OP XXX", where XXX=ALL, SO, CIO, CPT, CTR, DTR, JAM, LST, SET, WAO or WO and an item number (ITEM) or range of item numbers, if “OP DTR” was input. Default output (dot line only) is the same as for "OP ALL". Output for the other options is as follows:

OP	Output
ALL	SOs, CIOs, CPTs, JAMs, LSTs, SETs, WAOs
SO	All SOs, including CIOs
CIO	All CIOs
CPT	CPTs
CTR	CTRs
DTR	DTRs
JAM	JAMs
LST	LSTs
SET	SETs
WAO	WAOs
WO	CPTs, JAMs, LSTs, SETs, and WAOs

If option SO, CIO, CPT, CTR, DTR, JAM, LST, SET, or WAO was input, an order number(ORD) may also be input on the h-line.

Rules for Preparing the EXTPDG Contract:

a. EXTPDG is a deferred contract.

b. To create FCIF for an EXTPDG contract FUSA must create a *C1 header, a *PLHDR section, and a *EXTPDG section.

c. If only a dot line was entered, FUSA must set OPT=1 in the *EXTPDG section.

d. If an OP was entered, FUSA must set OPT in the *EXTPDG section according to the following table.

OP	OPT
ALL	1
SO	2
CIO	3
WO	4
CPT	5
CTR	6
JAM	7
LST	8
SET	9
WAO	10
DTR	11

e. If an ORD was entered, FUSA must set ORD=the input value in the *EXTPDG section.

f. If an item number or range of item numbers was input, FUSA must store the item number or low item number of the range in *EXTPDG.ITEMLO and the high item number of the range (if there was one) in *EXTPDG.ITEMHI.

g. As soon as FUSA gets an acknowledgment from the communications module that it has received the EXTPDG contract, FUSA should output to the user's terminal:

** runexp queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file(xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

h. When the EXTPDG contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must so indicate in the deferred output file.

i. If the EXTPDG contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section.

FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.44 SIR — RPTCKT Mapping

Transaction **sir** is used by the frame personnel to obtain a basic circuit report on a range of facilities. Required input to **sir** is an h-line with a facility or a range of facilities, up to a maximum of ten. A masked OE may be used instead of a range. Valid facility prefixes for the h-line of **sir** follow:

CP	Cable Pair
BL	Bridge Lifter
CKID	Circuit ID
DTN	Data Telephone Number
ICE	Intelligent Controller Equipment
ME	Miscellaneous Equipment
OE	Line Equipment
POE	Packet OE
SVCID	Secondary Service ID
TKP	Trunk Pair
TN	Telephone Number
TP	Tie Pair
TRE	Transmission Equipment

A “*” is allowed as a wild card with CKID and SVCID.

Optional inputs are:

ADSR (ADSR Y)
Cable (CA)
Facility type (FAC XX, XX=BL, CP, ICE, ME, OE, POE, TKP, TP, or TRE)
Frame Location (LOC)
Line Count (LC)
Mini-bridge lifter (MBL Y)
NPANXX
Party (PTY N, n=1,2,4, or 8)
Status (STAT, STP, STO, STT)
Sublet (SUBL Y)
TOM (two or more) XX where XX=CP,TN or OE
USOC(US)

The value for LC must be less than or equal to ten.

A print option (OP) may be input on the h-line to specify the type of output desired. "OP LIST", which is the default, will produce a compact report including all facilities in the circuit and some basic information on them. "OP INQ" (which also may be input as "OP CONN") will produce INQ-like output including connectivity information. "OP ALL" (or "OP DATA") will include both connectivity and translation data in the output. "OP TOT" may be input if only a count is wanted.

Rules for Preparing the RPTCKT Contract:

a. For the **sir** transaction RPTCKT should be invoked in the immediate mode.

b. For the RPTCKT contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTCKT section.

c. In the *RPTCKT section:

   1. FUSA must create an INPOPT aggregate with EXNM=the facility type, EXID= the facility id or the low id of the range, and EXHI=the high id of the range, and MASK=the masked OE id if one was input.

   2. If SFG/IC/ICID was input, FUSA must create an INPOPT aggregate with GRP.EXNM=SFG and GRP.EXID=YYY.Z.XXX where YYY= the IC type, Z= the ICID and XXX= the SFG number.

   3. If NPANXX was input, FUSA must create an INPOPT aggregate with EX.NPANXX= the NPANXX that was input, and EX.EXNM=TN.

   4. If a cable (CA) was input, FUSA must create an INPOPT aggregate with CA.EXNM=CA and CA.EXID=the cable number that was input.

   5. FUSA must set FORMOPT in the *RPTCKT section as follows:

OP	FORMOPT
none or LIST	1
INQ or CONN	2
TOT	3
ALL or DATA	5

   6. FUSA must set NTYTYP=the facility type that was input, and it goes in the NTU aggregate in the *RPTCKT section.

   7. If a line count was input, FUSA must create a FILT aggregate with LNCNT=the line count that was entered.

   8. If "MBL Y" was input, FUSA must create a FILT aggregate with MBL=Y.

9. If "TOM XX" (XX=CP,TN or OE) was input, FUSA must create a FILT aggregate with NTUFILT=XX and NTUNUM=>1.
10. If “FAC XX” was input, FUSA must create a FILT aggregate with NTUFILT= the facility type and NTUNUM=>0.
11. If LOC was input, FUSA must create an NTU aggregate with FR.EXNM=FR, FR.EXID=FXX, FR.ZN=the zone or the low zone, and FR.ZNHI= the high zone if applicable.
12. If ADSR, US, PTY, or SUBL was input, it goes in a CKT aggregate with US being converted to LUSOC.
13. If a status was input, FUSA must use the following table to convert it to LIMTYP and LIMVAL which go in an ASGLIM subaggregate in an NTU aggregate, or to set SELSTAT or ASM or PEND in the FILT aggregate in the *RPTCKT section, or to set CKT.USE in the *RPTCKT section.

STAT,etc.	LIMTYP	LIMVAL	SELSTAT	ASM	CKT.USE	PEND
sf	@	@	TRSP			
rs	TMP	TRS				
def	DEF	DEF				
unq	WTH	UNQ				
uk	WTH	UNK				
ex	WTH	EX				
aw			ALWK			
as			ALSP			
wk				CKT		
li				DIP		
ssm					SSM	
ssp					SSP	
dsm					DSM	
dsp					DSP	
dc					DC	
pi						PI
po						PO
pk						PK

d. When the RPTCKT contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the *PRT section. Before returning the system prompt sign to the user, FUSA will print the following message:

** sir completed mm-dd-yy hh:mm

e. If the RPTCKT contract was not processed successfully in the SWITCH System, upon return the FCIF may not contain a *PRT section, but will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

3.12.7.45 SOI/SOD — INQORD Mapping

Transaction **soi/sod** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to inquire on a service order. Required input to **soi/sod** consists of an h-line with an order number (ORD). Output consists of order data and circuit data including translation data, plus a list of old and new facilities. If a "frame" oriented output is desired, "OP FR" may be input on the h-line. This output will include frame termination data, but not translation data.

soi runs by default in immediate mode and is to be used to inquire on a single line order, a 2-line order, or any one line of a multiline order. It may be invoked in a deferred mode by inputting "MODE D" on the h-line. **sod** runs in deferred mode, and is to be used to inquire on a multiline order.

The output of **soi/sod** can be limited to one circuit of a multicircuit order by inputting a circuit identifier (TN or CKID).

Rules for Preparing the INQORD Contract:

a. If **soi** was the transaction name and "MODE D" was not input, INQORD should be invoked as an immediate contract. If **sod** was the transaction name, or if **soi** was invoked with "MODE D", INQORD should be invoked as deferred.

b. To create the FCIF for the INQORD contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. The order number (ORD) goes in the *C1 header.

d. FUSA must set FORMOPT to "D" (for the DATA option) in the *INQOPT aggregate in the *INQ section, unless "OP FR" was input. In that case FORMOPT=F for the FRAME option.

e. If TN or CKID was input on the h-line, the contract must include an EX aggregate in the *INQ section with EXNM=CKID and EXID=the TN or CKID that was input. There must also be an ORDOPT aggregate in the *INQ section with the tags GETORD=Y, GETCKT=1, GETGRP=N, and GETLST=N.

f. If INQORD is being run in immediate mode, and only ORD was input, the ORDOPT aggregate must be present with the tags set thus: GETORD=Y, GETCKT=2O, (Number 2 and letter O), GETLST=2O and GETGRP=2O.

g. If INQORD is being run in deferred mode, and only ORD was input, the ORDOPT aggregate must be present with the tags set thus: GETORD=Y, GETCKT=Y, GETLST=Y and GETGRP=Y.

h. If INQORD was run as an immediate contract:

— On return from the SWITCH System, the INQORD contract will contain the *C1 and *PLHDR sections with a *PRT section containing a REC aggregate with the number of lines (NUML) and a TEXT subaggregate with the output following the LINE= tag. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message: "** soi completed *DATE AND TIME*".

— If the INQORD contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

i. If INQORD was run as a deferred contract:

— As soon as FUSA gets an acknowledgment from the communications module that it has received the INQORD contract, FUSA should output to the user's terminal:

** sod queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

before returning a system prompt to the user.

— When the INQORD contract is returned from the SWITCH System, FUSA must check the STATUS tag in the *PLHDR section. If it is equal to zero, it processed successfully, and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

— If the INQORD contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA should create a notice to this effect in the deferred output file, and include the MSGNUM, MSGTYP, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.46 SOL — RPTORD Mapping

Transaction **sol** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of service orders pending in the SWITCH System. Required input to **sol** consists of a "dot" (.) line. Optional input includes order type (OT), due date (DD) or range of due dates (DD;DD), order status (STAT), an output format option

(OP), and "MAS Y" or "MAS N" to obtain only those orders that are MAS-involved or not MAS-involved.

Up to two statuses may be input, and valid statuses are:

Value	Description
AC	Assignment Complete
MA	Requires Manual Assistance
NP	Not Processed

Up to four order types may be input, and valid order types are:

Value	Description
CD	Complete Disconnect
CH	Change
F	From
NC	New Connect
T	To
*	All types

No more than one output format option may be input, and valid output format options are:

Value	Description
LIST	one line of output per order
ALL	detailed output for each line of order
CKID	four lines per circuit including CKID

In the absence of any input, **sol** should default to the CKID output format for all due dates, all order types, and all order statuses, and include both MAS Y and MAS N orders.

Rules for Preparing the RPTORD Contract:

a. RPTORD should be invoked as a deferred contract.

b. To create the FCIF for the RPTORD contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTORD section.

c. FUSA must set FORMOPT in the *RPTORD section as follows:

OP	FORMOPT
none input	C
CKID	C
LIST	L
ALL	A

d. The *RPTORD section must also contain a FILT aggregate with TYPE=the OT that was input except for "OT *". If no OT was input, or if "OT *" was input, *RPTORD must contain ORD=*.

e. If a single due date was input, the FILT aggregate must contain a DD subaggregate with both FROMDT and TODT = the DD that was input. If a DD range was input, FROMDT=the first value, and TODT=the second value.

f. If an order status (STAT) was input, the FILT aggregate must contain the tag ORDST set according to the following table.

STAT	ORDST
AC	A
MA	M
NP	NP

g. If "MAS Y" or "MAS N" was input, the FILT aggregate must contain the tag MAS=Y or MAS=N as appropriate.

h. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTORD contract, it will output the following messages to the user's terminal:

** sol queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

i. When the RPTORD contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

j. If the RPTORD contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.47 SRD — PRTREF Mapping

Transaction **srd** (Send Reference Data) is used by the FOMS/FUSA system administrator to request that reference data be sent to FOMS from the SWITCH System. Required input to **srd** is an h-line with either OP NPA to request the NPA Split table, OP WCR to request

the Wire Center Rename table, OP NXX to request the NPANXX data, or OP PD to request parsing data.

Rules for Preparing the PRTREF Contract:

a. PRTREF is an immediate contract.

b. For the PRTREF contract, FUSA must create a *C1 header, a *PLHDR section, and a *PREF section.

c. A new tag must be included in the *PLHDR: RPTFCIF=Y.

d. FUSA must create a *PREF section with a TBL aggregate with TBLNAME and INSTKEY, and a RPTOUT aggregate with DEST set per the following table.

OP	TBLNAME	INSTKEY	DEST
NPA	RENAME	NPASPLIT	FOMS1
WCR	RENAME	WCRENAME	FOMS1
NXX	IC NXX		FOMS1

e. When the PRTREF contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print the following message:

** srd completed mm-dd-yy hh:mm

f. If the PRTREF contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the tags and values in the *UMSG section.

3.12.7.48 SSH — PRTREF Mapping

Transaction **ssh** (SWITCH System Help) is used by the frame personnel to obtain additional information about an error message that has been received from the SWITCH System. Required input to **ssh** is an h-line with an error message number (MSG). Format for MSG is 'WNNN-NNN' where 'W' is literal and 'N' represents a numeric character.

Rules for Preparing the PRTREF Contract:

a. PRTREF is an immediate contract.

b. For the PRTREF contract, FUSA must create a *C1 header, a *GETHLP section, and a *PREF section.

c. FUSA must create a *GETHLP section with a MSGJ=the MSG that was input.

d. When the PRTREF contract is returned, and STATUS=0 in the *PLHDR section, FUSA will print all the lines of text in the REC aggregate. The REC aggregate is in

the same format as a *PRT section; that is, NUML= the number of lines of text and a TEXT subaggregate with each line of data following the prefix LINE=. Before returning the system prompt sign to the user, FUSA will print the following message:

** ssh completed mm-dd-yy hh:mm

e. If the PRTREF contract was not processed successfully in the SWITCH System, upon return the FCIF will have a *UMSG section. FUSA must then output the *PRT text, if present, and the tags and values in the *UMSG section.

3.12.7.49 TAI — WSIASG Mapping

The transaction used by frame personnel to obtain a spare tie pair or tie pairs between two frame locations is Tie Pair Assignment Inquiry (**tai**). Required input to **tai** is two frame locations (LOC FXXXXX/LOC FXXXXX) on an h-line. Optional input is a line count (LC) to obtain more than one TP or pairs of TPs. LC may not be greater than 10.

Output consists of the TP ID and the two frame locations for each TP returned in the contract, one TP to a line, as follows:

tp xxxx-xxxx fxxxxx fxxxxx
tp xxxx-xxxx fxxxxx fxxxxx

Rules for Preparing the WSIASG Contract:

1. WSIASG is an immediate contract.
2. To create the FCIF for the WSIASG contract FUSA must create a *C1 header, a *PLHDR section, and a *WSIASG section.
3. The *WSIASG section must contain an EX aggregate with EXNM=TP, and a FILT aggregate with two PHYSAPR subaggregates with FR=frame and ZN=zone specifying the two LOCs that were input. If a line count was input, it also goes in the FILT aggregate as LNCNT=LC.
4. If the WSIASG contract was processed successfully in SWITCH, upon return the contract will contain a *INQASG section with up to 10 TP aggregates each containing up to 5 REC subaggregates. >From each of the REC subaggregates FUSA must extract EX.EXID (the TP ID), PHYSAPR.FR (its frame) and PHYSAPR.ZN (its zone), and output them to the user's terminal.
5. Before returning the system prompt sign to the user, FUSA should print:
   ** tai completed mm-dd-yy hh:mm

6. If the WSIASG contract was unable to be processed successfully in the SWITCH System, upon return the FCIF will contain a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.50 TKU — RPTTKP Mapping

Transaction **tku** is used by FRAME personnel to obtain information necessary for administering trunk pairs (TKPs). Three reports may be obtained via **tku**: a trunk pair route summary report, a trunk pair fill report, and a trunk pair range and attribute report. Required input to **tku** consists of a "dot" (.) line. This will default to the trunk pair route summary report. Optional input includes "OP SUM" to specifically request the trunk pair route summary, "OP FILL" to request the trunk pair fill report, and "OP RANGE" to request the trunk pair range report.

If "OP FILL" or "OP RANGE" is input, up to five trunk cables (CA) may be input to restrict the output.

Rules for Preparing the RPTTKP Contract:

a. RPTTKP should be invoked as a deferred contract.

b. To create the FCIF for the RPTTKP contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTTKP section.

c. FUSA must set FORMOPT in the *RPTTKP section as follows:

OP	FORMOPT
none	1
SUM	1
FILL	2
RANGE	3

d. If specific trunk cables were input, FUSA must create a REC aggregate with one or more EX subaggregates with EXNM=TKCA and EXID= the trunk cable number(s) that was input.

e. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTTKP contract, it will output the following messages to the user's terminal:

** tku queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

f. When the RPTTKP contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully and FUSA must include the "LINE=’output from the *PRT section in the deferred output file.

g. If the RPTTKP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.51 TNS — PRESWP Mapping

Transaction **tns** is used by a CCSS system to swap Centrex TNs and TN-related information between working circuits. Input to **tns** is one or more h-lines with from 2 to 11 TNs. No TN may appear more than once in a given string of TNs. The order of the input is the swapping order, so it must be preserved in the PRESWP contract.

Output from **tns** to the terminal is the transaction queued message, followed by the deferred output file message. There will subsequently be an entry in the deferred output file indicating whether completion was successful or unsuccessful in the SWITCH System.

Rules for Preparing the PRESWP Contract:

a. PRESWP is a deferred contract.

b. To create FCIF for the PRESWP contract, FUSA must create a *C1 header, a *PLHDR section, and a *SWP section.

c. The *SWP section contains from 2 to 11 EX aggregates containing EXNM=TN and EXID=NPA-NXX-XXXX or EXID=NXX-XXXX. When creating the EX aggregates, the order in which the TNs were input must be preserved.

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the PRESWP contract, FUSA will output the following messages to the user’s terminal:

** tns queued on the SWITCH System’s IMS queue on *DATE AND TIME*

** user xxx’s deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

e. When the PRESWP contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully. FUSA indicates this in the deferred output file.

f. If the PRESWP contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.52 TOI — INQWO Mapping

Transaction **toi** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to inquire on up to ten lines of an order in a dial transfer or area transfer. Input to **toi** consists of an h-line with an order number (ORD), and a facility or a range of facilities, or an item number (ITEM) or a range of item numbers to identify the circuit(s) to be output. Valid facility types are CKID, TN, DTN, OE, POE, and CP. Output consists of order data including transfer tags, and circuit data including translation data.

Rules for Preparing the INQWO Contract:

a. INQWO is an immediate contract.

b. To create the FCIF for the INQWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. FUSA must set ORD equal to the order number (ORD) that was input in the INQWOOPT aggregate in the *INQ section.

d. FUSA must also set FORMOPT to "2" in the INQOPT aggregate in the *INQ section. This corresponds to the "VIEW" option of the INQWO contract.

e. If a facility ID was input, FUSA must create an EX aggregate in the *INQ section and set EXNM=the facility type and EXID=the facility ID. If a range of facilities was input, EXNM=the facility type, EXID=the low facility ID, and EXHI=the high facility ID.

f. If an item number was input, FUSA must create an EX aggregate in the *INQ section and set EXNM=ITEM, and EXID=the item number. If a range of item numbers was input, EXNM=ITEM, EXID=the low item number, and EXHI=the high item number.

g. On return from the SWITCH System, the INQWO contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in "LINE=..." format. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message:

   ** toi completed *DATE AND TIME*

h. If the INQWO contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.53 TOL — RPTDTR Mapping

Transaction **tol** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of circuits in a dial transfer in the SWITCH System. Required input to **tol** consists of an order number (ORD) and one of the following: an item number (ITEM), or range of item numbers, a facility (TN, OE, or CP) or range of facilities, an NPANXX, a series completion hunt group TN (HTN), or a group number (HML, SFG, or CTX). If a group number is input, an IC and ICID must also be input. NPANXX may be 3 or 6 characters. If 3 characters are input for NPANXX, FUSA will assume they are the NXX and set the NPA to the default NPA for the NXX or the wire center. Given an NPANXX, FUSA will assume a facility type of TN. That may be overridden with a manual input of "FAC DTN".

Optional inputs are a due date (DD) or range of due dates, line count (LC), print option (OP), designed circuits filter (ADSR Y), message format (MF), and facility type (the aforementioned "FAC DTN"). Valid inputs for MF are LIST (provides a 2-line output with old and new facilities), and ATTR (provides a detailed output of the circuit); LIST is the default. Valid inputs for OP are EST (only circuits established, but not yet assigned), and ASG (only circuits which have already been assigned). The due date or range of due dates does not refer to the due date of the dial transfer, but to the date (or range of dates) that the circuits were established or assigned in the SWITCH System. This input, therefore, is allowed only when "OP ASG" or "OP EST" is also input.

Rules for Preparing the RPTDTR Contract

a. RPTDTR is a deferred contract.

b. To create the FCIF for the RPTDTR contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTDTR section.

c. FUSA must create an INPOPT aggregate within the *RPTDTR section and within the INPOPT aggregate must set ORD=the order number which was input.

d. If a facility was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=the facility type and EXID=the facility ID. If a facility range was input, EXID=the low ID and EXHI=the high ID.

e. If an item number was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=ITEM and EXID=the item number. If a range of item numbers was input, EXID=the low item number and EXHI=the high item number.

f. If a group number was input, FUSA must create a GRP subaggregate within the INPOPT aggregate and set EXNM=HML or SFG or CTX, and EXID=IC.ICID.GPID. FUSA must also create an IC subaggregate and set EXNM="IC", and set EXID=IC.ICID.

g. If HTN was input, FUSA must create an EX subaggregate within the INPOPT aggregate, and set EXNM=TN and EXID=the HTN data value. FUSA must also create a GRP aggregate within the *RPTDTR section, and set EXNM=SCH (do not set EXID in this case).

h. If an NPANXX was input, or an NXX was input and the NPA is assumed, FUSA must create an EX subaggregate within the INPOPT aggregate and set NPANXX=NPANXX. It must also set EXNM=TN, unless "FAC DTN" was input; in that case EXNM=DTN.

i. If "MF ATTR" was input, FUSA must set FORMOPT=3 (ATTRIBUTE output format) in the *RPTDTR section; otherwise set FORMOPT=0 (LIST output format).

j. If "OP EST" or "OP ASG" was input, FUSA must set STATUS=EST or ASG in the *RPTDTR section; otherwise omit STATUS as a tag in the INPOPT aggregate.

k. If LC was input, FUSA must create a FILT aggregate in the *RPTDTR section and set LNCNT=LC.

l. If a DD or a range of DDs was input, FUSA must change all dashes to slashes (e.g. mm-dd-yy becomes mm/dd/yy) and then create a REQDTE subaggregate within the FILT aggregate and set DTEFR=DD or DTEFR=the first date and DTETO=the second date.

m. If "ADSR Y" was input, FUSA must set ADSR=Y in the CKT aggregate in the *RPTDTR section.

n. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTDTR contract, it will output the following messages to the user's terminal:

   ** tol queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

o. When the RPTDTR contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file.

p. If the RPTDTR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.54 TOO — RPTDTR Mapping

Transaction **too** (Transfer Obstacles and Omission) is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of circuits in a dial transfer which have not had output sent to FOMS or MAS or are otherwise in error. Required input to **too** consists of an order number (ORD) and one of the following: an item number (ITEM), or range of item numbers, a facility (TN, OE, or CP) or range of facilities, an NPANXX, a series completion hunt group TN (HTN), or a group number (HML, SFG, or CTX) and an intelligent controller type (IC) and intelligent controller ID (ICID). Input of HML, SFG, or CTX requires input of IC and ICID. NPANXX may be 3 or 6 characters. If 3 characters are input, FUSA will assume they are the NXX, and set the NPA to the default NPA for the NXX or the wire center. Given an NPANXX, FUSA will assume a facility type of TN. That may be overridden with a manual input of "FAC DTN".

Optional inputs are line count (LC) and facility type (the aforementioned "FAC DTN").

Rules for Preparing the RPTDTR Contract:

a. RPTDTR is a deferred contract.

b. To create the FCIF for the RPTDTR contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTDTR section.

c. Within the *RPTDTR section FUSA must set FORMOPT=2, which corresponds to the line option of RPTDTR.

d. Also within the *RPTDTR section FUSA must set STATUS=ERR and ERRTYP=*.

e. FUSA must create an INPOPT aggregate within the *RPTDTR section and within the INPOPT aggregate must set ORD=the order number which was input.

f. If a facility was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=the facility type and EXID=the facility ID. If a facility range was input, EXID=the low ID and EXHI=the high ID.

g. If an item number was input, FUSA must create an EX subaggregate within the INPOPT aggregate and set EXNM=ITEM and EXID=the item number. If a range of item numbers was input, EXID=the low item number and EXHI=the high item number.

h. If a group number was input, FUSA must create a GRP subaggregate within the INPOPT aggregate, and set EXNM=HML or SFG or CTX, and EXID=IC.ICID.GPID. An IC subaggregate must also be created with EXNM="IC", and EXID=IC.ICID.

i. If HTN was input, FUSA must create an EX subaggregate within the INPOPT aggregate, and set EXNM=TN and EXID=the HTN data value. FUSA must also create a GRP aggregate within the *RPTDTR section, and set EXNM=SCH (do not set EXID in this case).

j. If an NPANXX was input, or an NXX was input and the NPA is assumed, FUSA must create an EX subaggregate within the INPOPT aggregate and set NPANXX=NPANXX. It must also set EXNM=TN, unless "FAC DTN" was input; in that case EXNM=DTN.

k. If LC was input, FUSA must create a FILT aggregate with LNCNT=LC.

l. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTDTR contract, it will output the following messages to the user's terminal:

   ** too queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

m. When the RPTDTR contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully. FUSA indicates this in the deferred output file in addition to storing the output contained in the *PRT section.

n. If the RPTDTR contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.55 TOS — INQWO Mapping

Transaction **tos** (Transfer Order Summary) is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain counts of circuits in various stages of a dial transfer in the SWITCH System. Required input to **tos** consists of an order number (ORD). There are no optional inputs. Output consists of totals and percentages of circuits which have been assigned, are in error, are special, have been completed, have had bulk output sent to MAS, have had individual output sent to MAS, have not had individual output sent to MAS, have had MAS output changed, have had output sent to FOMS, have not had output sent to FOMS, are frame work complete, have been cancelled, and are part of digital overlay. Totals but not percentages are provided for circuits removed from the scope of the transfer, and those whose cancellation messages have not been sent to MAS.

Rules for Preparing the INQWO Contract:

a. INQWO should be invoked as an immediate contract.

b. To create the FCIF for the INQWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *INQ section.

c. FUSA must set ORD equal to the order number (ORD) that was input in the INQWOOPT aggregate in the *INQ section.

d. FUSA must also set FORMOPT to "4" in the INQOPT aggregate in the *INQ section. This corresponds to the "SUM" option of the INQWO contract.

e. On return from the SWITCH System, the INQWO contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in "LINE=..." format. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message:

   ** tos completed *DATE AND TIME*

f. If the INQWO contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.56 TPU — RPTTPA Mapping

Transaction **tpu** is used by FRAME personnel to obtain a network summary of all direct and indirect tie pair routes or a status report of working and spare tie pairs for a particular route. Required input to **tpu** consists of a "dot" (.) line. This will default to the network summary report. Optional input includes "OP NET" to request the network summary, two frame names (FR FXX or ALL/FR FXX or ALL) to specify frames of interest, a zone (ZN) or range of zones for one or both frames, "OP TOT" to get frame totals only, and "OP ALL" to get all 3 types of report.

If "OP TOT" or "OP ALL" is input, 2 frame names must also be input. The first is the "FROM" frame, and the second is the "TO" frame. Both frame names may be ALL, or the "FROM" frame may be a specific frame name and the "TO" frame name may be ALL, but the "FROM" frame may not be ALL, if the "TO" frame is a specific frame. If a zone or a range of zones is input, it must be preceded by a frame (FR).

Rules for Preparing the RPTTPA Contract

a. RPTTPA should be invoked as a deferred contract.

b. To create the FCIF for the RPTTPA contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTTPA section.

c. FUSA must set FORMOPT in the *RPTTPA section as follows:

OP	FORMOPT
none (no FR)	1
NET	1
TOT	2
none (FR input)	3
ALL	4

d. If frames were not specified, the *RPTTPA section must contain a REC aggregate with EXNM=FR and EXID=*.

e. If specific "FROM" and "TO" frames were input, FUSA must create a FROMFR and a TOFR subaggregate within a REC aggregate and set EXNM=FR, EXID=the frame name, and if a zone or a range of zones was input, ZN=the zone or the low zone of the range, and ZNHI=the high zone of the range. If FR ALL was input for the "TO" frame, FUSA must set EXID=* in the TOFR subaggregate. If FR ALL was input for both the "FROM" and "TO" frames, FUSA must set EXID=* in both the FROMFR and TOFR subaggregates within the REC aggregate.

f. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTTPA contract, it will output the following messages to the user's terminal:

** tpu queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

g. When the RPTTPA contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully and FUSA must include the "LINE=' output from the *PRT section in the deferred output file.

h. If the RPTTPA contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.57 VER — RPTSAM Mapping

Transaction **ver** is used by the frame personnel to obtain a random sample of circuits from the SWITCH System database. Required input to **ver** is a "dot" (.) line. This will default to a sampling of 50 OEs, 50 CPs and 50 TNs. An optional input on an h-line is "FAC TP" to get 50 TPs selected.

Rules for Preparing the RPTSAM Contract:

a. The RPTSAM contract should be invoked in the deferred mode.

b. For the RPTSAM contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTSAM section.

c. In the *RPTSAM section:

   1. FUSA must create an INQOPT aggregate with FORMOPT=1 (for the CONN option) and OPT=N (sample all NTUs).

   2. FUSA must also create three NTU aggregates with SIZE=50 and an EX subaggregate in each with EXNM=OE, CP, and TN respectively.

   3. If 'FAC TP' was input, FUSA must create an additional NTU aggregate with SIZE=50 and with an EX subaggregate with EXNM=TP.

d. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTSAM contract, FUSA will output the following messages to the user's terminal:

   ** ver queued on the SWITCH System's IMS queue on *DATE AND TIME*

   ** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

   After printing the messages, FUSA returns the system prompt to the user.

e. When the RPTSAM contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, it has processed successfully and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

f. If the RPTSAM contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.58 WOI/WOD — RPTWO Mapping

Transaction **woi/wod** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to inquire on a work order. **woi** is used to inquire on a one line order, or one line of a multiline order. **wod** is used to inquire on an entire work order (CPT, SET, LST, WAO, CTR, ATR, or FTR), or more than one line of a work order. **woi** runs in the immediate mode; **wod** is deferred.

Required input to **woi** consists of an order number (ORD) and a facility (TN, OE, or CP) or an item number (ITEM). Required input to **wod** consists of an order number (ORD) and a facility (TN, OE, or CP) or a range of facilities, or an item number (ITEM) or a range of item numbers. All inputs are on h-lines.

An optional input of "op line" will cause **woi/wod** to produce a **too**-like output for any type of work order other than a DTR.

Output consists of order data plus "from" and "to" facility data, including frame locations and translation data. If **woi** was invoked, the output will include the entire order, if it was a one line order, or the requested line, if it was a multiline order. If **wod** was invoked, all requested lines of the order will be included in the output.

Rules for Preparing the RPTWO Contract:

1. If **woi** was the transaction name, RPTWO should be invoked as an immediate contract. If **wod** was the transaction name, RPTWO should be invoked as a deferred contract.
2. To create the FCIF for the RPTWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTWO section.
3. FUSA must set ORD=the order number input and set FORMOPT=3 (for the ATTR option) in the *RPTWO section.
4. If "op line" was input, FUSA must set FOMROPT=2 (for the LINE option) in the *RPTWO section.
5. If a facility or a range of facilities was input, FUSA must create an EX aggregate in the *RPTWO section and set EXNM=the facility type and EXID=the facility id or the low id of the range, and EXHI=the high id of the range.
6. If an item number was input, FUSA must create an EX aggregate in the *RPTWO section and set EXNM=ITEM, and EXID=the item number. If a range of item numbers was input, EXNM=ITEM, EXID=the low item number, and EXHI=the high item number.
7. If RPTWO was invoked as a deferred contract:

   — As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTWO contract, it will output the following messages to the user's terminal:

** wod queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

— When the RPTWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

— If the RPTWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

8. If RPTWO was invoked as an immediate contract:

— On return from the SWITCH System, the RPTWO contract will contain the *C1 and *PLHDR sections with a *PRT section containing the response in "LINE=..." format. FUSA will print all the lines of text in the *PRT section (i.e., all data between "LINE=" and ";"). Before returning the system prompt sign to the user, FUSA will print the following message:

** woi completed *DATE AND TIME*

— If the RPTWO contract was not processed successfully in the SWITCH System, upon return the FCIF will not contain a *PRT section, but instead will have a *UMSG section. FUSA must then output the MSGNUM, MSGTYPE, and MSGTEXT, and EXNM and EXID, if they are present.

3.12.7.59 WOL — RPTWO Mapping

Transaction **wol** is used by Recent Change Memory Administration Center (RCMAC) or FRAME personnel to obtain a list of work orders established in the SWITCH System. Required input to **wol** consists of a "dot" (.) line. Optional input is an order type (OT), due date (DD) or range of due dates, frame due date (FDD) or range of frame due dates, or line count (LC) or range of line counts. Input of a line count will restrict the output to orders that have at least that many lines. Input of a range of line counts will restrict the output to orders whose line count is within that range. All input is on an h-line.

Valid order types are:

ATR
CPT
CTR
DTR
FTR
JAM
LST
SET
WAO
*

Output for each order consists of a list of orders by type with order number, due date, frame due date, and number of lines in the order.

Rules for Preparing the RPTWO Contract

1. RPTWO should be invoked as a deferred contract.
2. To create the FCIF for the RPTWO contract, FUSA must create a *C1 header, a *PLHDR section, and a *RPTWO section.
3. FUSA must set FORMOPT=4 (for the SUM option) in the *RPTWO section.
4. FUSA must also create a FILT aggregate within the *RPTWO section and set TYPE=the OT that was input, or to "*" if none was input.
5. If a DD or a range of DDs was input, FUSA must create a DD subaggregate within the FILT aggregate, and set FROMDT=the DD or the low DD of the range, and set TODT=the high DD of the range, or set both FROMDT and TODT=DD if only one was input.
6. Similarly, if an FDD or a range of FDDs was input, FUSA must create an FDD subaggregate within the FILT aggregate, and set FROMDT=the FDD or the low FDD of the range, and set TODT=the high FDD of the range, or set both FROMDT and TODT=DD if only one was input.
7. If an LC or a range of LCs was input, FUSA must set LINESGT=the LC or low LC of the range, and set LINESLT=the high LC of the range within the FILT aggregate.
8. As soon as FUSA gets an acknowledgment from the communications module that it has received the RPTWO contract, it will output the following messages to the user's terminal:

   ** wol queued on the SWITCH System's IMS queue on *DATE AND TIME*

** user xxx's deferred output will be in file (xxxxxxxxxxx) *DATE AND TIME*

After printing the messages, FUSA returns the system prompt to the user.

9. When the RPTWO contract is returned from the SWITCH System, FUSA checks the STATUS tag in the *PLHDR section. If it is equal to zero, the contract has processed successfully and FUSA must include the "LINE=" output from the *PRT section in the deferred output file.

10. If the RPTWO contract did not process successfully in the SWITCH System, the status tag will not equal zero, and the contract returned will contain a *UMSG section. FUSA creates a notice to this effect in the deferred output file, and includes the MSGNUM, MSGTYPE, MSGTEXT, EXNM, and EXID tags and values.

3.12.7.60 DDO — No Contract Mapping

Transaction **ddo** is a FUSA transaction that does not create a contract to go to the SWITCH System. Its purpose is to inform the frame user of the availability of output from deferred transactions, and to print and/or delete that output. It is a FUSA transaction, because it accesses files that FUSA creates.

Transaction **ddo** is used by frame personnel to list, print, and/or delete deferred output. There is no required input other than a period. Optional h-line input and default values follow:

Tag	Value	Default
file	11 numerics or * (* = all files)	*
login	First three characters of a login or * for all logins	current login
op	l (list), p (print), or d (delete)	l
wc	any valid wire center (wc) or * for all wire centers	current wc

If you specify "OP L," **ddo** will list all deferred output files that *can* be printed by wire center, login, and transaction name. "OP P" will print the output for a particular deferred transaction, or for all available transactions. After printing the output for a particular deferred transaction, **ddo** will ask if you wish to delete the file containing the output. You can use "OP D" to delete the output for a particular transaction, or for all transactions run under that login. In other words, you can list or print files that belong to anyone, but you can only delete files that belong to your login name.

Before terminating, **ddo** will output the following message:

** ddo completed mm-dd-yy hh:mm

Depending on a user tunable parameter **ddo** may be run automatically whenever transaction **ufo** or **pak, op s** is run.

3.12.8 General Guidelines for FOMS and FUSA Transactions

The following general guidelines apply to FOMS transactions:

1. All transactions should require at least a period (.) as input before processing will begin.
2. All transactions should allow a "q" at the beginning of a line to terminate the transaction while in the input mode.
3. All transactions should allow a ";" at the beginning of a line to begin processing and then loop back to receive another set of input.
4. All input to reports should be on h-lines unless "i" and "o" lines are needed to distinguish included or excluded filters.
5. The "op" prefix should be used when specifying an option (e.g., "h op all" instead of "h all").
6. Service orders that have been modified will be printed with the order number and the suffix, separated by a dash.
7. Cable transfer order numbers should be input and output as ORD X:Y, where X represents the engineering work order number (EWO), and Y represents the transfer number. (The transfer number sent by the SWITCH System is in the *C1 header.)
8. For output purposes, a cable number has a maximum of 10 bytes; a pair number has a maximum of 4 bytes. Leading zeros should not be stripped from cable numbers on cable pairs.
9. Because FOMS is a frame operations system, wherever the frame location is printed by a FOMS transaction, LOIS should also be printed if available.
10. The FID known as DT (Due Time) in COSMOS is called FDT (Frame Due Time) in FOMS on both input and output.
11. There are no held reasons in FOMS, so any transactions that accepted "hr" as input or printed held reasons as output in COSMOS, no longer have that capability in FOMS.
12. Line Equipment Transfers (LETs) are now known as Switch Port Equipment Transfers.
13. Transactions should use the prefix NXX or NPANXX, not NNX or NPANNX.
14. Transactions should use the prefixes IC and ICID, not TYP and EN.

15. If they have processed successfully, FOMS transactions will end with the following message:

    ** xxx completed mm-dd-yy hh:mm

    If they have not processed successfully, FOMS transactions will end with the following message:

    ** xxx terminated mm-dd-yy hh:mm

16. All dates should be stored with a four digit year. Dates input with a two digit year should be preceded by "20" if the year is less than or equal to 70, and "19" if the year is greater than 70.

3.12.9 FOMS Transactions

3.12.9.1 Transactions Similar to COSMOS

The following transactions execute in FOMS. Their input and output are similar to their counterparts of the same name in the COSMOS environment. However, due to the differences in structure between the COSMOS and FOMS databases, their internal processing differs.

- **dte** — Date
- **mtd** — Print Message of the Day
- **que** — Queue a **ted** File
- **tat** — Test Alignment of Frame Terminal
- **ted** — Text Editor
- **wcc** — Wire Center Change

3.12.9.2 Transactions Modified from COSMOS

The following transactions execute in FOMS, and differ significantly from their COSMOS counterparts.

1. Transaction **ctp** has the following changes:

   a. It no longer creates frame output from facility records, but prints the frame output that has already been stored in the frame output files.

b. It filters on PWC (Print Work Code), and sets work codes, but does not set the work code to COM. **scm** is used for that.

c. It defaults to printing only transfers that have not already been printed (current OP NEW), instead of defaulting to OP ALL.

d. It provides a positive acknowledgment of work done (e.g., 2 transfers printed, 2 work codes changed).

e. The CP or CP range must be input on the h-line; you can specify either "in" or "out" pairs.

f. It accepts an input of OP REP and prints only those lines which have already been printed.

g. If frame output for a transfer is a reprint, it is so stated.

h. **ctp** has an option for a running-list (**fts**-like) format.

i. Two user-definable frame stamps (up to 70 characters each) are printed at the bottom of each page of standard **ctp** output.

j. At the bottom of the frame output **ctp** prints two dates in the following order: date and time the transfer was available to be printed in FOMS, and date and time of printing.

2. **for** experiences some internal changes, due to changes to the format of the frame output files; but its functionality remains basically the same as in COSMOS. In particular, the order in which facilities are printed (i.e., out, reused, in) has been retained, as well as the current ordering of individual facilities within one of those categories. Two differences in FOMS are that **for** (and **fwm**) determines related-order information at printing time and include it in the frame output. They also print planning messages for programmable orders if the planning message table so indicates.

3. **fos** is substantially different in FOMS. Many of the changes are because some of the data that had to be collected in the predivestiture environment is no longer needed, or could now be tallied in a more meaningful way.

   a. **General Requirements**:

      - The user may run all, one, or some of the selected options.
      - The user may run any option for a single day, a date range (within the past 30 days), a month, or range of months, or a year.
      - If no options are specified, **fos** defaults to "op far," "op jar," and "op swos" for the current month.
      - All options, except "op far" count at the circuit level. "op far" counts at the order level. It is also the only option that counts at final completion time.

- Four options have been deleted: CR, FCR, GOR, and GOC; SOS has been renamed SWOS; and options FAR, JAR, and DT are new.

b. **New Requirements by Option**:

1. OP CR (Cost Results Plan Summary) is no longer needed.
2. OP DCI (Discrepancy Correction Interval for A-Type Jeopardy Reason Codes in Hours) measures the difference in hours between the jeopardy time and the Assignment Change Ticket establishment time. The counts are stroked at establishment time of the ACT. It retains existing functionality, plus includes correction passes that remove A-type jeopardies with the ACT counts.
3. OP DDP (Due Date Performance at the Frame in Days) measures frame completion time versus the due date of the order. The counts are stroked at frame completion time. The only change is that it does not count orders that have been given automatic frame completion at establishment time (i.e., "fw n" orders).
4. OP FAR (Frame Activity Report) is a new report. Counts are done at final completion time. Requirements for this option follow:
    a. It counts service and work orders according to order type and entity.
    b. Order types are NC, CD, CH, F, T, LST, MCT, SET, CPT, CIO, WAO, and JAM.
    c. Entities and entity types (analog or digital) valid for that wire center must be entered in the EI file via **fxinit**.
    d. The output is in a matrix format and provides totals for all order types and entities.
    e. A service order with a related LST is counted twice, as a service order and as an LST.
    f. If a multiline order involves more than one entity, the order is counted against the entity to which the greatest number of circuits belong.
    g. If the OE in a circuit is changing from one entity to another, the circuit is counted as belonging to the old entity.
5. OP FCA (Frame Completion Response to ACTs in Hours) measures frame completion versus ACE time. These counts are done at frame-completion time. It retains existing functionality, plus the following new features:
    a. All ACTs are included in the counts (not just those that clear jeopardies as in COSMOS).
    b. It includes a separate tally for Maintenance Change Tickets (MCTs). This measure is frame completion time minus MCT establishment time.

c. The time intervals have been changed to 0 to 1/2 hr.; 1/2 to 1 hr.; 1 to 2 hr.; 2 to 4 hr.; and greater than 4 hr.

6. OP FCR (Frame Completion Response in Days) does not exist in FOMS.

7. OP GOC (Go-ahead Order Completion Response Performance in Days) does not exist in FOMS.

8. OP GOR (Go-ahead Order Registration in Days) does not exist in FOMS.

9. OP JR (Jeopardy Reason Summary) counts the orders that were placed in jeopardy by reason code and special or non-special circuit types. Counts are incremented at **ijr** time and decremented at **rjr** time. This feature retains existing functionality, plus the following new features:

   a. It allows for new JR codes N1 to N9.

   b. It decrements counters only for A-type jeopardies removed by **rjr**.

10. OP OI (Order Interval Report) reports on establishment date versus due date; the counts are done at establishment time. This option retains its existing functionality, and it includes modifications to orders (i.e., it keeps track of and outputs the order interval for modification to printed orders) since they represent new work for the frame. The counts for modification orders are broken down into specials and non-specials.

11. OP SWOS (Service/Work Order Summary) replaces OP SOS (Service Order Summary). It counts service and work orders by action type (IN, OUT, CHG) as well as modifications to orders. Counts are done at establishment time; however, if the original order was not printed, the modification is not counted.

    OP SWOS retains existing COSMOS OP SOS functionality, plus the following:

    a. Service order types are IN, OUT, and CHG.

    b. Modification types are ACT, CDD, MOD, and CAN.

    c. Work order types are CPT, SET, LST, WAO, CTR, CIO, and JAM.

    d. Circuits established as "frame complete" are not counted.

    e. Totals are kept on a daily, as well as a monthly and yearly basis.

    f. The percent of change rate is calculated and printed. It is defined as (number of modifications + number of cancellations) divided by the total number of circuits.

12. OP WLS (Work Location Price Summary for FWM Offices) is a summary of the number of minutes of work completed at each work location. Counts are stroked when a work package is completed. This feature retains existing functionality; no changes are required.

13. OP WO (Work Order Performance Report) measures frame completion time versus the due date of the order for work orders. These counts are done at frame completion time. OP WO retains existing functionality, plus the following:

    a. MCTs are not be included, as they now appear in OP FCA.

    b. All other work order types are included.

14. OP DTR (Dial Transfer) prints counts of circuits in various stages of a dial transfer. For further details see the section on Dial Transfers.

15. OP ATR (Area Transfer) prints counts of circuits in various stages of an area transfer. For further details see the section on Area Transfers.

16. OP FTR (Frame Transfer) prints counts of circuits in various stages of a frame transfer. For further details see the section on Frame Transfers.

17. OP JAR (Jumper Activity Report) tallies the number of jumpers associated with each order type and action type, and tallies the total number of inward, outward, and cancelled jumpers. Jumpers will be counted at frame completion or **scm** time. If an order is modified after frame completion, counts will be done again. If an order is cancelled after frame completion, another set of counts will be tallied for the completion activity. Thus, the Jumper Activity Report will provide a measure of the amount of work actually done by the frame personnel, rather than just the number of orders they worked on.

    A. New PREFO/PREWO/CANFO/CANWO/SCM/FPU Processing

    At PREFO/PREWO time the number of jumpers to be wired or removed must be determined, and at frame completion or **scm** time those numbers must be stored for later printing by transaction **fos**. A "jumper" is counted for each two adjacent frame facilities, excluding BLs, DIPs, and assemblies. Connections between bridge lifters are not counted, because most bridge lifters are "mated," which means they are permanently wired together.

    At CANFO/CANWO or "PREFO with a missing circuit" time, the number of jumpers to be wired or removed will be determined, and when the cancellation pass is **scm**'d, the counts will be stored.

    Counts must be kept by order/action type, and be broken down into inward, outward and cancelled jumpers. Order/action types are: NC, T-I, CH-I, CD, F-O, CH-O, CH-C, T, F, MCT, CPT, SET, LST, WAO-I, WAO-O, DTR, JAM, ATR, FTR, and CTR. A given order may have both inward and outward wiring associated with it.

    A DIP broken by an order with inward action should be counted in the OUT column for that order/action type, even if the order type is NC.

The LST counts should be incremented for both service order related and nonservice order related LSTs.

An order which is marked frame suppressed at PREFO/PREWO time should generate zero counts.

Cancelled jumpers are those that are actually pulled out or put back due to a cancellation. When an order is cancelled, the cancelled jumper count is the only one incremented and it may be incremented by one, two or more, or not at all. If an UPDASM contract is sent to the SWITCH System to make or break a DIP after cancellation or modification of an order, that connection should not be counted as part of the cancellation or modification jumper counts.

B. Examples

Assuming the OE and CP are not DIP'd, a new connect of a POTS circuit consisting of TN-OE-CP counts as one jumper wired (between the OE and the CP). The same circuit counts as one outward jumper when disconnected and not going to DIP. Some additional examples of jumper counts follow.

- A circuit like this:

```
TN - OE - TP1 - TP2 - CP
```

  with TPDF tie pairs counts as three jumpers wired (OE to TP1, TP1 to TP2, and TP2 to CP) for both new connect and disconnect orders. The same circuit with a direct TP between the OE and CP would count as two jumpers wired.

- A typical party circuit like this:

```
TN1 - TN2 - OE - BL1 - CP1
                  |
                    BL2 - CP2
```

  counts as 3 jumpers in or out.

- If a change order caused a facility to be reused, but wired on a different frame, both an inward and an outward jumper are involved.

```
TN1 - OE1(F01) - CP1(F01)
```

  changes to

```
TN1 - OE1(F02) - CP2(F02)
```

  the counts for both inward and outward jumpers are incremented by one.

C. OUTPUT

The output should be in matrix format with row and column totals provided, as follows:

OT/Action	Inward	Outward	Cancelled
NC	xx	xx	xx
T-I	xx	xx	xx
CH-I	xx	xx	xx
CD	xx	xx	xx
F-O	xx	xx	xx
CH-O	xx	xx	xx
CH-C	xx	xx	xx
T	xx	xx	xx
F	xx	xx	xx
MCT	xx	xx	xx
CIO	xx	xx	xx
CPT	xx	xx	xx
SET	xx	xx	xx
LST	xx	xx	xx
WAO-I	xx	xx	xx
WAO-O	xx	xx	xx
DTR	xx	xx	xx
JAM	xx	xx	xx
ATR	xx	xx	xx
FTR	xx	xx	xx
CTR	xx	xx	xx
TOTALS	xxx	xxx	xxx

The Jumper Activity Report should be part of the default output of **fos** along with the Frame Activity Report and the Service and Work Order Summary.

c. **fwm** (Frame Work Management), like **for**, changes due to internal file design, but retains its current functionality, except for the following items:

   a. There is a new order category of PWN (Programmable Work Notifier), which prints out planning messages when the notifier option has been set in the planning message table. Programmable Work Notifiers are considered nonpackageable work.

b. It also recognizes a new packageable or nonpackageable priority code of LNP (Local Number Portability).

c. The user may input a combination of work location and order category.

d. **ijr** (Initiate Jeopardy Report) has some internal changes and one involving output to the user. See Section 3.4 for details.

e. **mpk** (Modify a Work Package) keeps its COSMOS functionality and incorporates the following changes:

   a. The ability to unpackage by work location

   b. The ability to summarize items categorized as administrative messages.

f. **oij** (Orders in Jeopardy) has some changes. See Section 3.4 for details.

g. **opn** (Open of Day Report) has the following modifications:

   a. It prints planning messages for all types of programmable orders.

   b. It has a new option, PWN, to print only planning messages and OP PWN will print PMs whether or not they have been printed before.

   c. In all other cases (the "P" options) a **opn** checks the print tag set by **for/fwm** and does not print a planning message that has already been printed. It does not, however, set any print tags.

   d. OP WO includes all types of programmable orders. There is a separate section for each type of programmable order.

   e. There are options for printing individual types of programmable orders or their planning messages.

   f. The COM column has been deleted.

   g. A JEO column has been added; it shows the number of transfers in jeopardy.

   h. The ST column has been replaced with four columns: AC, IC, FC, and CC, showing totals for each status.

   i. Available options are SO, WO, CPT, SET, LST, PWN, DTR, WAO, JAM, CIO, ATR, FTR, CTR, PWAO, PDTR, PCPT, PLST, PFTR, PJAM, PSET, PCTR, PATR, and ALL.

   j. Which option the transaction defaults to is user tunable.

h. **pak** retains the functionality of the corresponding COSMOS transaction, and incorporates the following enhancements:

   a. When run in the summary mode, it optionally executes the FUSA transaction **ddo** to list deferred output files that are currently available for all logins and the current wire center before terminating.

b. More than one (or all) package types are allowed as input when assembling a work package; each individual order is priced according to its assembly code.

c. There is no limit on the number or combination of inputs.

d. MCTs or ACTs that reuse DIPs are not packaged as RDIPs, but remain as their order category: unprinted MCTs or ACTs.

e. Multiline orders that consist of both DIPed and non-DIPed circuits, some of which would fall into an IDIP/RDIP package type and some of which would fall into IN/OUT package types, are packaged in the appropriate IN/OUT package.

f. The price (time) for the IN/OUT package is the sum of the individual circuits' prices, each one priced according to its assembly code.

g. The BCCs may uniquely package and summarize multiline orders that contain multiple assembly codes (other than DIPs). They may define a unique work package type to represent these "mixed-mode" orders. This eliminates the current COSMOS deficiency of having a multiline change order with some lines "in" and some lines "out" packaged in an "out" package and possibly missing the due date for the "in" lines.

h. When rework occurs in the SWITCH System affecting previously packaged, but not printed circuits, FOMS considers the new assignment and updates the previously established package when applicable.

i. When rework occurs in the SWITCH System affecting nonpackaged, nonprinted circuits, FOMS considers the new assignment and assigns the correct assembly code.

j. When rework occurs in the SWITCH System affecting packaged and printed circuits, FOMS considers the new assignment and provides an administrative message, as required.

i. **rjr** (Remove Jeopardy Report) has undergone some changes. See Section 3.4 for details.

j. **scf** (Simple Completion by MDF)

a. **scf** accepts only FDD and ORD on the h-line.

b. **scf** accepts only SO or CPT for order type (OT).

c. **scf** defaults to “OT SO” and FDD = the current date.

d. **scf** lists all orders that are candidates for completion and allows the user to indicate which ones should be excluded.

k. **scm** (Service Order Completion by the MDF) differs from its COSMOS counterpart in the following ways:

a. It does not remove pending statuses when performing a final completion. It simply updates the circuit-level header record to show final completion of the order. If the order does not have installation completion, then **scm** gives frame completion to the order (or line of an order).

b. It now gives frame completion to cable transfers, wire assembly orders, dial transfers, area transfers, and JAMs, as well as service orders, MCTs, SETs, LSTs, and CIOs.

c. The rules for automatic completion of a related order have changed in FOMS. See Section 3.6 for details.

d. When completing an SET (LET), **scm** sends a PCNSET so that the SWITCH System knows to mark the order complete in its database.

e. When completing a WAO **scm** sends a PCNWAO so that the SWITCH System knows to mark the order complete in its database.

f. When completing a dial transfer or area transfer, **scm** sends a PREFWI so that the SWITCH System can store an indication that frame work has been completed for that circuit.

g. When completing a JAM, **scm** sends a PCNJAM so that the SWITCH System knows to mark the order complete in its database.

h. When completing a CIO, **scm** sends a PCNSO so that the SWITCH System knows to mark the order complete in its database.

i. In most cases when completing a DTR, **scm** sends a PREFWI to the SWITCH System. (See Section 3.3.9.)

j. When completing an ATR, **scm** sends a PREFWI to the SWITCH System

k. When completing an FTR, **scm** sends a PCNFTR to the SWITCH System so that it knows to mark the order complete in its database.

l. **tof** (Transfer Order Frame Listing) no longer needs to create jumper-running lists and dead jumper lists from facility records, since there are no facility files in FOMS. Instead, it prints the frame output from information stored in FOMS frame output files. See Section 3.3.9 for more information on **tof**.

m. **ufo** (Unprinted Frame Output) optionally executes the FUSA transaction **ddo** to list deferred output files that are currently available for all logins and the current wire center before terminating.

n. **wpt** (Work Package Table) has the following modifications:

a. The new BDP (Break DIP) order type is recognized.

b. Up to five packageable and five nonpackageable priority codes are allowed.

c. A new priority code of LNP is allowed.

d. A maximum of 16 work locations are allowed.

e. The Work Package Type has been expanded to a four-character field.

o. **wsl** (Work Status List) keeps its COSMOS functionality except for the following:

- Output is sorted by due date (DD) and order type (OT).
- It will accept the following input related to the Local Number Portability feature: "OC LNP", "LNP Y", and "OC LNP!". These filters cause only those circuits with or without an order category of LNP to be output.
- Optionally the default output may include lines that are in jeopardy.
- Optionally (per a Region-specific parameter) it will indicate lines which have not been printed.

3.12.9.3 New Transactions in FOMS

The following FOMS transactions did not exist in standard COSMOS software.

1. **dof** (DIP Order Frame Output) prints frame output for wire assembly orders from the SWITCH System. **dof** is similar to the transaction of the same name in COSMOS, which is part of a Region-Specific Extended DIP Package. One difference is that the FOMS **dof** transaction includes OP SCM to give automatic frame completion to the line(s) it has printed.

   Required input is an h-line with an order number (ORD). Optional inputs are

   - Facility ID (OE, CP, TP, BL, POE, TKP, or TRE) or Item Number
   - Frame (FR) and Zone (ZN) or Mod (MOD) or range of zones or mods
   - Frame Location (LOC) or range of LOCs
   - Line Count (LC)
   - Printing Option (OP REP/NEW/CAN/SCM)

   Output consists of item number, frame due date, facilities and frame location for each item in the order. Output is sorted by frame and zone; circuits with missing frame locations will appear first.

2. **foi** (FOMS Order Inquiry) is the FOMS equivalent of the SWITCH System transaction **soi**, the SWITCH System Order Inquiry, which is comparable to the COSMOS transactions, **soi**, and **woi**. It retains **soi/woi**-like input and output format.

   Input to **foi** is an h-line with a service or work order number and, optionally, a circuit ID or item number. If a circuit is cancelled, the item number may be input in its original form (e.g. ITEM 1) or the current form (e.g. ITEM 90000001). Output for the basic input follows current **soi/woi** format:

a. A header line with the date and time

b. A header "FOMS Order Inquiry"

c. An order data section with the following items, if applicable

- CLEC indicator
- order number
- order type
- order status (including jeopardy indicator)
- due date
- frame due date
- order establishment time (time FOMS received the order, in MM-DD:HH format)
- jeopardy reason (up to three characters in FOMS)
- jeopardy establishment time (in a MM-DD:HH format)
- LLNF Indicator
- LNP tags
- mdf work required indicator
- mdf completion indicator
- installation completion indicator
- remarks

d. A pseudo "inq" of the circuit, including status for each facility, frame locations and LOIS for frame facilities, USOC, and features for OEs. Related orders will be referenced but the facility statuses will not reflect the related order activity. If there are any related orders, a remark will be appended to the **foi** output to indicate that the statuses apply only to the original order.

3. **fol** (FOMS Order List) will be the FOMS equivalent of the current COSMOS transactions **sol** and **wol**. Input to **fol** is either no h-line (a dot only) or one or more h-lines with one or more of the following parameters:

- Frame Due Time (FDT)
- Due Date (DD)
- Frame Due Date (FDD)
- A Range of Due Dates or Frame Due Dates
- Order Category (OC)

- Order Type (OT)
- Service Segment Group (SG)
- Jeopardy Reason Code (JR)
- Order Status (STAT)

Optional input includes "OP SUM" to obtain counts only, and special characters (e.g., !, *, and ?) to further delimit the data values. The exclamation mark is used after a data value (e.g., STAT IC!) to exclude that particular value; the asterisk is used to indicate any value for the prefix (e.g., JR *); and the "?" is used to indicate any character in that position is valid (e.g., JR A?).

It will accept the following input related to the Local Number Portability feature: "OC LNP", "LNP Y", and "OC LNP!". These filters cause only those circuits with or without an order category of LNP to be output.

Output of **fol** is a list of all service/work orders with their order number, segment group, order type, due date or frame due date, circuit ID, cable pair, order status, order category, and jeopardy reason, plus a count of such orders by order type and order status. If "OP SUM" is input, only the summary will be output.

If a due date (DD) or a range of due dates is input, then the orders are selected and sorted by due date, and that is the heading used in the output. If a frame due date (FDD) or range of frame due dates is input, then orders are selected and sorted by frame due date, and the heading in the output is FDD. Regardless of what parameters are input, the output is sorted and printed by DD or FDD, and then OT.

Orders with status "FN" (frame work no) are included in the list, and in the summary, unless specifically excluded.

4. **fts** (FOMS Transfer Summary) is the FOMS equivalent of the COSMOS transaction **cts** (Cable Transfer Summary). **fts** retains **cts**-like input and output formats, but reports on all types of work orders, instead of just cable throws.

   fts differs from COSMOS **cts** in the following ways:

   a. It includes a column indicating whether or not an individual transfer has been printed.
   b. It includes LOIS information.
   c. It indicates if an assembly has/has not been transferred.
   d. It includes all facilities: out, in, and reused.
   e. The facilities are listed in connectivity order.
   f. It includes the ADSR value.
   g. It accepts an input of "h op all", not "h all".

h. It does not include the COSMOS **cts** options ZZZ (STATUS), CMP, MTB, DEF, PTY, and NIT.

i. It reports on all types of work orders, including dial transfers, and thus the output includes order type.

j. It accepts an input of order type (OT) and restricts the output to that OT.

5. Transaction **fwt** (FOMS What) allows a frame user to determine what release of FOMS is running.

6. Transaction **ths** (Transaction Help Screen) is conversational, and provides the user with information on required and optional transaction input and valid formats in FOMS/FUSA.

7. Transaction **hlp** allows a user to obtain an explanation of FOMS/FUSA error messages including site-specific information if desired.

3.12.10 Application Administration Transactions

The following list contains the current FOMS/FUSA application administration transactions.

1. **aiinit** — initialize the AI file
2. **arinit** — initialize the AR file
3. **atinit** — initialize the Area Transfer files
4. **atrmv** — remove the Area Transfer files
5. **bdt** — batch DT
6. **calchash** — calculate size of hashing table
7. **cfsend** — terminate TADS
8. **cfsps** — print info on state of TADS and transaction
9. **cfsstart** — start TADS
10. **cfsterm** — terminate TADS or terminate a single daemon
11. **cfte** — current flow-through error messages
12. **chkcfs** — check status of TADS
13. **chkord** — check order files
14. **chkwc** — check wire center
15. **chkwcnames** — check free WC names
16. **ckcsam** — check the status of a running TADS
17. **ckcsconf** — check the TADS configuration files
18. **ckmdlog** — continuously check MD logs for messages
19. **chp** — change parameters
20. **cllf** — create linked-list files
21. **cmprs** — compress a disk file
22. **createrr** — create the error file
23. **csmount** — TADS database mount
24. **csunmount** — TADS database unmount
25. **ctfcvt** — COSMOS to FOMS conversion
26. **cuf** — clean up files

27. **cvtwc** — convert wire center
28. **dbaid/rdbaid** — database screen editor
29. **dbd** — database editor
30. **dbmg** — FOMS database management
31. **dlist** — disk list
32. **dt** — disk-to-tape copy
33. **dtinit** — Dial Transfer initialization
34. **dtrmv** — Dial Transfer data removal
35. **dtx** — **dt** disk-to-tape extract
36. **edf** — expand database file
37. **entlist** — SWITCH System entity listing
38. **escvt** — ES data conversion
39. **extprt** — print discrepancy report from the EXTPDG tape
40. **fai** — FUSA Administrative Interface
41. **fctlist** — current VTOC file list
42. **fdcnv** — flexible data converter
43. **filgen** — database file system generation
44. **fomsext** — extract FOMS initialization information from a COSMOS WC
45. **fomsksh** — FOMS Korn shell
46. **foms_cron** — FOMS Cron
47. **foms_dmn** — FOMS Daemon
48. **foms_start** — FOMS start
49. **foms_stop** — FOMS stop
50. **fpdcvt** — FOMS pending data conversion
51. **fpinit** — Initialize the Frame Performance File
52. **fsdump** — FOMS file system information list
53. **fsfdkdump** — print the free lists of all online wire centers
54. **fsfldump** — list the files
55. **fslogdump** — display the current status of the transaction logging subsystem

56. **ftinit** — Frame Transfer initialization
57. **ftrmv** — Frame Transfer data removal
58. **fwhat** — What FOMS generic is online
59. **fxinit** — initialize the FX table
60. **gminit** — initialize the GM file
61. **grn** — give record number
62. **hal** — FOMS contract processor
63. **hshfix** — fix the hashing tables
64. **idle** — delay program execution
65. **jaminit** — initialize the JAM files
66. **jrinit** — initialize the JR table
67. **lgtpu** — logtape analysis for UNIX systems
68. **llfix** — clean up linked-list file data
69. **lndb** — link databases to disk slices
70. **lndb_tprs** — link databases within a TPR
71. **lnkchk** — check linked-list files
72. **lnkfix** — fix linked-list files
73. **locklvl** — check current lock level
74. **logint** — initiate database logging
75. **lparchive** — log partition archive
76. **lpinfo** — log partition information
77. **lpnullout** — log partition nullout
78. **md_start** — start message distributor
79. **md_stop** — stop message distributor
80. **movrec** — move records
81. **mtinit** — initialize planning message table
82. **pdinit** — initialize parsing data table
83. **pfte** — print flow-through error message
84. **picrt** — process input create

85. **pidst** — process input destroy
86. **plgu** — print log file
87. **pmed** — permit matrix editor
88. **recovery** — database recovery
89. **rescue** — update or remove disk assignment
90. **rfo** — remove frame output
91. **rfte** — remove flow-through error message
92. **rmwc** — remove wire center
93. **rord** — remove service or work order
94. **runexp** — run extract pending
95. **settpr** — set the TPR environment
96. **signup** — sign into or out of a TPR
97. **slf** — space remaining in linked-list files
98. **start** — start a TPR
99. **start_tprs** — start all TPRs
100. **stat** — status a file
101. **statipc** — show all IPC resources used by FOMS/FUSA in a TPR
102. **stop** — stop a TPR
103. **stop_tprs** — stop TPRs
104. **tapman** — tape management
105. **termlog** — terminate logging of TADS database transactions
106. **udcrt** — update shared memory from the $CONFIG_DIR/user.def file
107. **udinit** — update the $CONFIG_DIR/user.def file via conversational interface
108. **udupdt** — update the $CONFIG_DIR/user.def file via process input
109. **UTSInstall** — install FPATH into the UTS kernel
110. **UTSuninstall** — de-install FPATH from UTS kernel
111. **vted** — vtoc editor
112. **wcf** — create FOMS wire center files
113. **wcinit** — wire center initialization

114. **wcinpt** — input WC initialization information
115. **wclist** — wire center list
116. **wcsadm** — wire center security administration
117. **wcscrt** — wire center security create
118. **where** — where
119. **wiinit** — initialize the WI file
120. **wpfix** — fix the WP file
121. **xaction** — enable or disable transaction activity
122. **xald** — allocate a disk file
123. **xblank** — blank a disk file
124. **xlist** — list the vtoc
125. **xscr** — scratch a disk file

3.12.10.1 Transactions Significantly Different from COSMOS

1. **chp** will work like the COSMOS **chp** transaction, but will also create, delete, or print parameters in the FOMS database. Input will change from the current conversational format to an h-line with an OP X, where X=A for add, D for delete, C for change, or P for print. A NAME value is required for all OPs, and a DATA value for OP A or OP C.
2. **grn** (Give Record Number) in FOMS will differ from the COSMOS **grn** transaction in the following ways:
   a. For an input of "ord XXX" with no qualifications, it will start at the OR record for that order and output all records connected with that order.
   b. For an input of "ord XXX/fac id", **grn** will output only the records associated with that line of the order.
   c. For an input of "ord XXX/fo" or "ord XXX/fac id/fo", **grn** will output only the frame output records associated with that order or line of the order.
   d. For an input of "ord XXX/hdr" or "ord XXX/fac id/hdr", **grn** will output only the OR and circuit-level records associated with that order or that line of the order.
   e. For an input of "rec xxx" or "rec xxx/hdr", **grn** will output all connected records starting with the record number input, or only that record if HDR is input.
   f. For an input of "fac id", **grn** will output the PE record for that facility.

g. For an input of "fac id/ro xx", where xx = so, ct, dt, or all. **grn** will output the PE record for that facility, plus the OR and circuit records for related orders of the type(s) requested.

3. **gminit** (Initialize the GM Table) will allow the user to set the frame work management indicator, the UPDASM feature parameters, the frame activity tracking stamps, and the CANWAO key indicator. It will also print the GM table, and initialize the frame output messages from the GM message file.

4. **hshfix** (Fix the Hashing Tables) has a new input format and a larger number of files to rehash. Input is no longer conversational; the file or files to be rehashed will be specified on an h-line with the FILE prefix. You can specify one or more files, or have all files rehashed by specifying "FILE ALL". The files that are hashed in FOMS and their corresponding hashing tables are as follows:

File	Hashing Table	Secondary Hashing table
AT	AH	AS
CT	CH	CS
DT	DH	DS
OR	OH	
PE	PH	
SO	SH	
WO	WH	WS
JT	JH	JS
BO	BH	BS
FT	FH	FS

5. **rfo** (Remove Frame Output) in FOMS will combine the functionality of the COSMOS transactions **rfo** and **cco**. Input to **rfo** is one of the following:

   a. A period to remove all completed orders more than two days old

   b. A due date to remove all orders completed on that day or earlier.

   Removing an order consists of deleting all records associated with that order. For the present, it is assumed that no records for a multiline order will be deleted until all lines of the order have been completed. Complete means that each line of the order has an internal status of "w" (withdrawn), "c" (complete), or "b" (cancelled complete).

3.12.10.2 New Transactions

1. **calchash** is a utility program that is conversational. It asks for the size of the file to be hashed and returns the recommended size for its corresponding hash table.

2. **cfte** - See section on error handling for details.

3. **chkord** combines the functionality of the COSMOS transactions **chkcir** and **chkswo**. It will check the relationship between the order, circuit, frame header and frame data files including the OR, MS, CK (SO, CT, WO, BO, DT, JT, AT, FT), FO (SF, CF, WF, BF, DF, JF, AF, FF), CC, PE, AD (SA, CA, WA, BA, DA, JA, AA, FA), TD, TJ, TA, TF, and FZ records. It will identify the problem order and/or circuit records before continuing to the next circuit or order sequence. It will report on the number of orders/ circuits processed and the number identified as having an error. It will check for blank and orphaned records in the order and circuit files. It will perform the integrity check over all order level files (SO, CT, etc.) and also check for blank and orphaned records with an input of "OP ALL". With an input of "OP XX" (XX = SO, CT, etc.) it will do the integrity check for that order type but will not check for blank or orphaned records. With an input of "OP ORPH" it will do blank and orphaned record checking over all files, but no integrity checking.

4. **createrr** initializes the error message file.

5. **dbaid** is a screen-based database editor used for viewing and editing FOMS database records. It provides some of the functionality that is currently found in the COSMOS **dbd** command. Updates to database records are done based on what is currently displayed on the screen. The **dbaid** command has an alias called **rdbaid** (it may also be invoked via "dbaid -r"), which permits only database reads.

   Since **dbaid** uses the UNIX *curses* library to supply screen handling, it is important to use the correct *terminfo* terminal description in order for the program to work properly. The current **dbaid** has been tested on Hewlett-Packard *hp700* and *hp2392* terminals, and an AT&T 630 terminal.

6. **entlist** will cross reference a SWITCH System entity to a list of FOMS wire center names and to a list of FOMS database numbers.

7. **fai** will be used by the application administrator to set up FUSA tables and parameters.

8. **fdcnv** is the FOMS database conversion tool used to convert NPANXX data or external wire center name data based on a table of old and new data mappings and a set of rules.

9. **foms_cron** is a shell script that is invoked by the UNIX cron to establish the correct environment for the FOMS daemon process.

10. **foms_dmn** is the FOMS daemon that is executed by **foms_cron** or run independently to give final completion to CIOs.

11. **fxinit** will be used to populate the FX table that is used for frame-involvement determination. It will allow creation of default analog, digital, and nonswitched entity tables, and allow DBA modification to the defaults. For each entity, the DBA must specify the default action regarding the creation of frame output as:

- always create it.
- use the table; if inconclusive, default to no.
- use the table; if inconclusive, default to yes.
- never create it.

Default FIDs are supplied for the following categories:

- FIDs that will cause frame output to be generated.
- FIDs that in reused equipment will cause frame output to be generated.
- FIDs that will suppress frame output.
- Nonframe facilities that will cause frame output to be generated.

The DBA may then add or delete FIDs in these categories.

12. **pfte** - See Section 3.9.3 for details.
13. **picrt** and **pidst** store process input in shared memory and delete it from shared memory. They are run by the **start** and **stop** transactions.
14. **rfte** - See Section 3.9.3 for details.
15. **rord** can be used to remove all traces of a service order or work order from the FOMS database. It does not check order status, so it must be used with care. It is intended for use in a testing mode, or for cleaning up garbage in the database.
16. **udinit/udupdt** and **udcrt** are used to enable region specific features and set other tunable data.
17. **wcsadm** and **wcscrt** are used to administer wire center security.
18. **wiinit** initializes the WI file.
19. **wpfix** will identify and/or purge problems in the Frame Work Management related files, including the WI, WP, PC, and FO (SF, WF) records.
20. **xaction** enables or disables transaction activity

More information on these transactions can be found in *FOMS/FUSA Application Administration and Transactions*, BR 752-106-920.

3.12.10.3 Application Administration Transactions that Run in the SWITCH System

There may be some transactions of an administrative nature that must be run in the SWITCH System under the control of the FOMS/FUSA administrator. The administrator

will have direct (i.e., synchronous) access into the SWITCH System to perform this function.

3.12.10.4 User Programming Environment

FOMS provides a user-programming environment that allows the FOMS application administrator to meet specific needs that are not addressed by the FOMS application.* In this programming environment, a number of operations/primitives are provided. The two most important operations are read/write access to the FOMS database. This functionality is provided by **fomsksh**, which is a modified version of the Korn shell (ksh) with FOMS database routines built into it. The purpose of **fomsksh** is to provide a FOMS user-programming environment for the application administrators. A C library package is also available on request, which also provides a FOMS user-programming environment with the C programming language.

* E. L. Miller, *User Guide for Dbksh*, May 1, 1989.

4. External Interfaces

4.1 Product or Building Block Interfaces

FOMS has an FCIF interface to the SWITCH System. The complete specification for the interface has been published separately.*

4.2 Conversion Interfaces

This section describes the strategy for converting a COSMOS system to FOMS. However, before a COSMOS database is converted to FOMS, the FOMS database must be initialized. Initialization data will be provided via the execution of the shell programs **fomsext** and **wcinit**. The initialization process is described in Section 4.2.2. Once the database has been initialized, the database conversion process can begin, as detailed in Section 4.3.

The primary operation in converting a COSMOS database to FOMS is the conversion of pending orders in COSMOS to FOMS. The FOMS database stores pending order data in a group of related database files. For each pending order in the FOMS database, the following data will be stored:

- Service/Work order header information
- Related circuit information
- Frame output
- Associated facilities in each circuit.

To successfully convert a COSMOS system, FOMS must be populated with the pending orders that exist in the COSMOS database at the time of conversion. This section describes the conversion process that will be used to convert a COSMOS system to FOMS.

4.2.1 Overall Flow

The conversion process can be divided into two parts. First, the database must be initialized. This assumes that the FOMS/FUSA application has already been installed, and TADS databases and log partitions have been configured. The second part involves the database conversion steps that will populate the FOMS database with the pending orders currently in COSMOS.

* Deborah L. McBurnett, *SWITCH System/FOMS Application-to-Application Interface Specification Issue 10*, May 1997.

4.2.2 Pre-Conversion Overview

Information needed to allocate and initialize the FOMS database from COSMOS will be extracted via the shell program **fomsext**. This shell is delivered on the FOMS release tape and must be uploaded to the COSMOS system by the user. **fomsext** will extract the following information and write it to UNIX files under the *$COS_DIR/so/foms/wc* directories which the user must then download to FOMS:

- file sizing information from the COSMOS SO and CT files
- frame output determination and IC information
- NXX summary information
- General Maintenance (GM) information
- Parameter Manager (PM) information

Once the information is extracted from COSMOS the shell program **wcinit** must be run to allocate and initialize the FOMS database.

4.3 Database Conversion Overview

At the time of conversion, all service orders/work orders that are pending in COSMOS must be loaded as pending into FOMS. This is accomplished by having the SWITCH System send a PREFO/PREWO contract to FOMS as each pending order is successfully processed by the SWITCH System. In addition, the SWITCH System conversion software sends to FOMS selected fields and wire center files from the COSMOS database. This data is termed "non-SWITCH-affecting data," (NSAD) because it is not stored or processed by the SWITCH System. It will be transported to FOMS prior to sending any PREFO/PREWO contracts.

The SWITCH System conversion software will output the NSAD in two parts

1. frame-associated files, and
2. frame statuses on pending orders [referred to as FOMS pending data (FPD)].

The frame-associated files are COSMOS database files that are sent to FOMS in their entirety, and are immediately converted and loaded into the FOMS database. The FPD is sent to FOMS separate from the frame-associated files. It is read from tape, stored in a UNIX file, and is not processed until all PREFO/PREWO contracts have been processed by FOMS.

4.3.1 Frame-Associated Files

For each wire center that is being converted, the SWITCH System conversion software will send to FOMS the following information:

1. FO - frame output file
2. WT - work package table
3. GM - general maintenance file
4. frame renumbering information
5. parsing data for switch port equipment

The frame-associated file extract is read from tape using the UNIX command **dd** and is then piped to the transaction **ctfcvt**. Each COSMOS database file is converted and then loaded into the FOMS database by **ctfcvt**.

4.3.2 FOMS Pending Data

Once all PREFO/PREWO contracts have been processed by FOMS, a conversion program, **fpdcvt**, is executed to update the print tag and frame completion status of the pending orders and to place any orders that were in jeopardy in COSMOS, in jeopardy in FOMS. Jeopardies are initially established in FOMS and, based on the contents of the JR file, a determination is made as to whether a PREJEO/PREJWO contract should be sent to the SWITCH System.

The FPD extract is on tape and read using the UNIX **dd** command (like the frame-associated file extract, **dd** will also convert the data from EBCDIC to ASCII) and then piped to the transaction **fpdcvt**.

4.4 NPA Split/WC Rename Processing

When the supply of spare telephone numbers (TNs) in a given geographical area nears exhaustion, a Bellcore Client Company (BCC) must split off some of the NXXs and assign them to a new area code or NPA. This procedure is known as an NPA Split. All databases containing NPANXX data must be converted at the time of the official cutover.

Traditionally, each Operations System (OS) supplies its own conversion program; there is no flow-through of data for an NPA split. Therefore the SWITCH System and FOMS include a database conversion program for use at the time of an NPA split.

The basic premise of an NPA Split is that within an NPA (representing a geographical area) some NXXs are changing to a new NPA. That allows for continued growth in the old NPA as well as the new one. An NPA Split conversion program must have available a list of the

old and new NPANXX combinations and go through the database changing all legitimate occurrences of the old NPANXX to the new one.

4.4.1 FOMS Requirements

4.4.1.1 Conversion Table

There needs to be a table in the FOMS database which lists the 6 digit NPANXX combinations, old and new, which the NPA Split program will access. The BCCs have requested, but not required, that this table be established in the SWITCH System database, and transferred automatically to the FOMS database. This data will be sent to FOMS via the PREREF contract. Optionally, it may be entered directly into FOMS.

The table in the SWITCH System contains old/new NPANXX mappings as shown in the following example:

Old NPANXX	New NPANXX
201699	908699
201580	908580
201779	908779

In addition to the pattern shown here for each NPANXX combination, there are two variations which can be found in the database: 'NPA-NXX' and 'NPA.NXX'. These must also be changed.

There are two tables (fdc.rules and fdc.data) that are populated by the PREREF contract and stored under the */region/etc* directory. The fdc.rules file contains the rules used by the fdcnv transaction to convert the database. The fdc.data file contains the old NPANXX followed by the new NPANXX mappings. The transaction fdcnv will read both tables and convert the FOMS wire centers.

If the primary NPANXX for a wire center is changing its NPA, there are several additional steps that the system administrator must perform after the NPA Split software is run. These steps are documented in *FOMS/FUSA Application Administration and Transactions*, BR 752-106-920.

4.4.1.2 Conversion Program

The conversion program **fdcnv** will read the fdc.data and fdc.rules files and convert FOMS wire centers.

Options:

fdcnv has the following:

— a read-only mode in which no writes to the database are made, and

— a print mode in which each string which is being changed is printed, (old and new versions), along with the filename and record number.

Error Processing:

Errors encountered during processing are reported whether the print option is invoked or not.

Output:

In addition to reporting on errors, fdcnv states how many records were processed (i.e., read), how many records were candidates for changing, and how many records were changed (i.e. written) before terminating.

fdcnv will output a message as each wire center file is being processed to indicate that it is processing normally and not looping.

4.4.2 WC Rename Processing

At times it may be necessary to rename a wirecenter, and this action must also be performed in both the SWITCH System and FOMS. The procedure in FOMS will be exactly like the NPA Split procedures, using transaction **fdcnv** for the actual conversion. The "from and to" data table may be sent from the SWITCH System to FOMS, and a default "where to search" table will be provided.

4.4.3 Sending NPA Split and WC Rename Reference Data to FOMS

Transaction **srd** (Send Reference Data) is a FOMS/FUSA system administration transaction to request that reference data be sent to FOMS from the SWITCH System. Detailed requirements for **srd** are contained elsewhere in this document. Reference data is sent from the SWITCH System to FOMS in the PREREF contract. For details on the process, consult the May 4, 1994 technical memorandum on the subject. **

** P. G. LaMonica, *Sending Reports and Reference Data in the SWITCH System/FOMS Interface, Feature 7.3.5.8*, May 4, 1994.

4.5 Availability/Reliability

The availability/reliability of the FOMS system will be comparable to what is experienced in a UTS-based COSMOS environment today.

4.6 Performance

FOMS capacity is determined by the processing requirements of transactions needed to perform its functions, including the processing requirements for messages sent from the SWITCH System. The capacity estimates in this section are presented as a function of COSMOS processing as it exists today.

4.6.1 Capacity Requirements

A FOMS/FUSA CPU Sizing model is provided on a disk in Microsoft EXCEL,*** format along with the document *SWITCH System and FOMS Sizing Tools*, SP-STS-000078. This disk enables BCCs to make predictions of their FOMS/FUSA computer hardware requirements.

4.6.2 Terminal Requirements

One issue in the area of terminal requirements is the memory required to support the anticipated number of asynchronous terminals. These terminals must support frame, CCSS, and miscellaneous users allowed on the system. Allocate 20K bytes of memory for each terminal.

4.7 Security

The FOMS application administrator will have access to standard UNIX tools to assist in implementing security procedures. It is assumed that the administrator is educated in the area of UNIX system administration. If not, he or she should attend classes on the subject.

The application administrator should review existing documentation on UNIX security. One source is a memorandum written by B. L. Cruse and E. L. Pinnes, *COSMOS Security Recommendations*, October 13, 1988. Another source would be Kochan and Wood, *UNIX System Security*, 1985, Hayden Books. Also, the administrator should read *FOMS/FUSA Security Administration*, BR 752-106-910, for application-related security issues, as well as UNIX security.

*** Excel is a registered trademark of Microsoft Inc.

For computer security to be successful, both the administrator and the end user must be educated on its importance.

4.7.1 UNIX Security

All FOMS/FUSA users entering the system are required to enter a valid login name and password. In addition, individual logins and passwords should be used, and passwords should be changed once every 30 days. All restricted FOMS/FUSA users will operate under the UNIX system's restricted shell (*/bin/rsh*).

> **NOTE —** */bin/rsh* is a UNIX shell that restricts users from using pathnames on the command line; redirecting output on the command line; setting the PATH variable; and using the **cd** (change directory) command.

4.7.2 FOMS/FUSA Security

4.7.2.1 Permission Matrix

In addition to the UNIX security procedures that administrators can implement, FOMS also provides a permission matrix, where users are restricted by family/group names. The permission matrix restricts users by performing the following:

- Establishing a home directory for each family, where the logins within that family can only access transactions in their PATH. Usually the family's PATH is set equal to the family's executable directory.
- Linking only FOMS user or FUSA contract preparation transactions to a family's executable directory.
- Linking only those transactions selected by the application administrator to a family's executable directory.

4.7.2.2 Wire Center Security

The wire center security feature allows an administrator to restrict a user or group of users from accessing wire centers in the FOMS database. There are two components of wire center security: **wcsadm** and **wcscrt**.

The **wcsadm** program is responsible for administering the wire center security database. The database exists as UNIX files under the $CONFIG_DIR directory. The **wcscrt** program loads the data from the wire center security database into shared memory. All

FOMS/FUSA transactions check the wire-center-security shared-memory segment to verify if the user has permission to access the wire center before allowing processing to continue.

4.7.2.3 Region Specific Feature Security

FOMS/FUSA contains some region-specific features. The use of these features is controlled by database parameters. The names of the parameters and descriptions of the features will be documented and made available to all regions. The values of the parameters which enable the features will only be released to funding regions.

The parameters which enable the region specific features are entries in the tunability table (UD file). They may be set via transaction **udinit/udupdt** and stored in shared memory via transaction **udcrt**.

4.8 Environmental Constraints

The FOMS/FUSA hardware environment is the Amdahl mainframe 370 Architecture running the UTS operating system in native mode. There are no current plans to support FOMS/FUSA on any other type of hardware.

FOMS communication needs consist of an *application-to-application* link to the SWITCH System and *user-to-application* support for asynchronous terminals. The application-to-application communication service consists of TOP/X.25 protocol service and message safestore/queuing/recovery services. For these purposes FOMS uses Work Manager Consolidation Application-to-Application (WMC/APP), which resides on the mainframe and provides the safestore functionality of the original Work Manager (WM).

The user-to-application communications consists of asynchronous line-by-line terminal access to the FOMS system and database and FUSA access to the SWITCH System database for inquiries or assignments. FUSA accesses the SWITCH System through a TOP/X.25 communications link reserved for FUSA-to-SWITCH System communications.

4.9 Customer or Site-Specific Requirements

There are several FOMS/FUSA features that are region specific and they have been designated as such wherever they appear in this document.

Appendix A: List of Acronyms

ace	Assignment Change Ticket Establishment
ACT	Assignment Change Ticket
aiinit	Initialize the AI File (Application Administration transaction)
arinit	Initialize the AR file (Application Administration transaction)
asc	Assign Cable Transfers (FUSA transaction)
asf	Assign a Frame Transfer (FUSA Transaction)
asj	Assign a JAM order (FUSA transaction)
ast	Assign Switch Port Transfers (FUSA transaction)
asw	Assign a WAO (FUSA transaction)
atinit	Initialize the Area Transfer Files (Application Administration transaction)
atl	Area Transfer Listing (FUSA transaction)
ato	Area Transfer Obstacles and Omissions (FUSA transaction)
ATR	Area Transfer
atrmv	Remove the Area Transfer Files (Application Administration transaction)
bai	Bridge Lifter Assignment Inquiry (FUSA transaction)
BCC	Bellcore Client Company
BL	Bridge Lifter (facility type)
bdt	Batch DT (Application Administration transaction)
calchash	Calculate a Hashing Table Size (Application Administration transaction)
CAT	Centrex Access Treatment code
cca	Change Customer Attributes (FUSA transaction)
CCAR	Co-Carrier
CCF	Custom Calling Feature
ccr	Carrier Controller Report (FUSA Transaction)
CCSS	Centrex Customer Support System
cfs	Custom File System
cfsend	Terminate CSAM (Application Administration transaction)
cfsps	Print Info on State of CSAM (Application Administration transaction)
cfsstart	Start CSAM (Application Administration transaction)
cfte	Current Flow-Through Error messages (Application Administration transaction)
chkcfs	Check the Status of CFS (Application Administration transaction)

chkord	Check Order Files (Application Administration transaction)
chkwc	Check Wire Center (Application Administration transaction)
chkwcnames	Check Free WC Names (Application Administration transaction)
chp	Change the Parameter Table (Application Administration transaction)
ckcsam	Check the status of a running CSAM (Application Administration transaction)
ckcsconf	Check CSAM configuration files (Application Administration transaction)
CKID	Circuit Identification (facility type)
ckmdlog	Continuously scan MD Log files for messages (Application Administration transaction)
CLEC	Competitive Local Exchange Carrier
cllf	Create a Linked-List File (Application Administration transaction)
cmprs	Compress a FOMS Disk File (Application Administration transaction)
CP	Cable Pair (facility type)
COSMOS	COmputer System for Mainframe OperationS
CPC	Circuit-Provisioning Center
CPT	Cable Pair Transfer
createrr	Create the Error File (Application Administration transaction)
csmount	Mount a FOMS Database File System (Application Administration transaction)
csunmount	Unmount a FOMS Database File System (Application Administration transaction)
CSAM	Custom Storage Access Manager
CT	Cable Transfer (order or FOMS database file name)
ctfcvt	Convert Wire Center (Application Administration transaction)
ctm	Cable Transfer Modification (FUSA transaction)
ctp	Print Cable Transfer Frame Work (FOMS transaction)
CTR	Channel Transfer
cuf	Clean Up Files (Application Administration transaction)
cvtwc	Convert a Wire Center (Application Administration transaction)
dae	DIP or Assembly order Establishment (FUSA transaction)
daw	DIP or Assembly order Withdrawal (FUSA transaction)
dbaid	FOMS Database Aid (Application Administration transaction)
dbd	Database Editor (Application Administration transaction)
DBI	Database Integrity
dbmg	FOMS Database Management (Application Administration transaction)

DD	Due Date
ddo	Display Deferred Output (FUSA transaction)
dds	Display Data Summary (FUSA transaction)
DEFID	Deferred ID
DIP	Dedicated Inside Plant
dir	DIP Parameter Report (FUSA transaction)
DLBB	Data Layer Building Block
dlist	Disk List (Application Administration transaction
dof	DIP Order Frame Output (FOMS transaction)
dpr	DIP Report (FUSA transaction)
dt	Disk-to-Tape Copy (Application Administration transaction)
dte	Print the Current Date (FOMS transaction)
dtinit	Dial Transfer Initialization (Application Administration transaction)
dtm	Dial Transfer Mapping (FUSA Transaction)
dtrmv	Dial Transfer Data Removal (Application Administration transaction)
DTN	Data Telephone Number (facility type)
dtx	Disk-to-Tape Extract (Application Administration transaction)
ECD	Estimated Completion Date
edf	Expand Database File
entlist	SWITCH System entity listing (Application Administration transaction)
escvt	ES Data Conversion (Application Administration transaction)
extprt	Print Discrepancy Report from EXTPDG Tape (Application Administration transaction)
FACS	Facility Assignment and Control System
fai	FUSA Administrative Interface (Application Administration transaction)
FC	Frame Completion
fce	Frame assignment Change ticket Establishment (FUSA transaction)
FCIF	Flexible Computer Interface Format
fctlist	Current VTOC File List (Application Administration transaction)

fdcnx	Flexible data converter (Application Administration transaction)
FDD	Frame Due Date
fdfldump	List the Files (Application Administration transaction)
fdr	Frame DIP Report (FUSA transaction)
FID	Facility ID
filgen	FOMS Database File System Generation (Application Administration transaction)
flr (FUSA transaction)	Frame Layout Report (FUSA transaction)
FO	Frame Output
foi	FOMS Order Inquiry (FOMS transaction)
fol	FOMS Order Listing (FOMS transaction)
FOMS	Frame Operations Management System
fomsksh	FOMS Database Korn Shell (Application Administration transaction)
foms_cron	FOMS Cron (Application Administration transaction)
foms_dmn	FOMS Daemon (Application Administration transaction)
foms_start	FOMS Start (Application Administration transaction)
foms_stop	FOMS Stop (Application Administration transaction)
for	Frame Order Report (FOMS transaction)
fos	Frame Operations Summary (FOMS transaction)
FP	Frame Performance file (FOMS database file name)
fpdcvt	FOMS Pending Data Conversion (Application Administration transaction)
fpinit	Initialize the Frame Performance file (Application Administration transaction)
fsdump	FOMS File System Information List (Application Administration transaction)
fsfdkdump	Print Free Lists of All Online WCs (Application Administration transaction)
fslogdump	Display the Current Status of the Transaction Logging Subsystem (Application Administration transaction)
fta	Frame Transfer Analysis (FUSA transaction)
fte	Frame Transfer Establishment (FUSA transaction)
ftinit	Initialize the Frame Transfer Files (Application Administration transaction)

ftrmv	Remove the Frame Transfer Files (Application Administration transaction)
fts	FOMS Transfer Summary (FOMS transaction)
ftw	Frame Transfer Withdrawal (FUSA transaction)
FUSA	Frame User assignment System Access
fwhat	What FOMS/FUSA Generic is Online (Application Administration transaction)
fwm	Frame Work Management (FOMS transaction)
FX	Frame Output Determination table (FOMS database file name)
fxinit	FX table Initialization (Application Administration transaction)
FZ	Frame Output Data file (FOMS database file name)
gfr	General Facility Report (FUSA transaction)
gid	Group Inquiry Deferred (RCMAC) (FUSA transaction)
giq	Group Inquiry Immediate (RCMAC) (FUSA transaction)
GM	General Maintenance table (FOMS database file name)
gminit	GM table Initialization (Application Administration transaction)
grn	Get Record Number and Data (Application Administration transaction)
hal	FOMS Contract Processor (Application Administration transaction)
hid	Hunting Inquiry Deferred (FRAME) (FUSA Transaction)
his	Hunting Inquiry Immediate (FRAME) (FUSA Transaction)
hshfix	Fix the Hashing Tables (Application Administration transaction)
IC	Installation Complete (FOMS/FUSA order status)
IC	Intelligent Controller Type (the SWITCH system)
ICID	Intelligent Controller ID (the SWITCH system)
ICE	Intelligent Controller Equipment (facility type)
IC-J	Installation Complete-Jeopardy (FOMS/FUSA order status)
idle	Delay Program Execution (Application Administration transaction)
IDLC	Integrated Digital Loop Carrier
ijr	Input a Jeopardy Reason (FOMS transaction)

ILEC	Incumbent Local Exchange Carrier
inq	Inquiry on a Circuit by Frame personnel (FUSA transaction)
isf	Inquiry on a Single Facility by Frame personnel (FUSA transaction)
ish	Inquiry on a Circuit by RCMAC personnel (FUSA transaction)
isr	Inquiry by RCMAC (Long) (FUSA transaction)
jam	Jumper Activity Management (FUSA transaction)
jaminit	Initialize the JAM files (Application Administration transaction)
jaw	JAM Order Withdrawal (FUSA transaction)
JR	Jeopardy Reason (FOMS database file name)
jrinit	JR table Initialization (Application Administration transaction)
LAC	Loop Assignment Center
LC	Line Count
LCLID	Local Identification
LCLTRM	Local Terminal Number
LFACS	Loop Facility Assignment and Control System
lgtpu	Logtape Analysis for UNIX systems (Application Administration transaction)
llfix	Clean Up Linked-List File Data (Application Administration transaction)
LLNF	Local Loop Not Furnished
lndb	Link Databases to Disk Slices (Application Administration transaction)
lndb_tprs	Link Databases Within a TPR (Application Administration transaction)
lnkchk	Linked-List File Check (Application Administration transaction)
lnkfix	Linked-List File Fixes (Application Administration transaction)
LNP	Local Number Portability
locklvl	Check Current Lock Level (Application Administration transaction)
loe	List Originating Equipment (FUSA transaction)

logint	Change Logging Parameters, Switch Log Partitions, or Terminate Logging (Application Administration transaction)
LOIS	Location-Oriented Identification System
lparchive	Log Partition Archive (Application Administration transaction)
lpinfo	Log Partition Information (Application Administration transaction)
lpnullout	Log Partition Nullout (Application Administration transaction)
LST	Line and Station Transfer
MCT	Maintenance Change Ticket
mch	Manually Change Hunt (FUSA transaction)
MD	Message Distributor
md_start	Start Message Distributor (Application Administration transaction)
md_stop	Stop Message Distributor (Application Administration transaction)
ME	Miscellaneous Equipment (facility type)
mmc	Manually Modify a Circuit (FUSA transaction)
movrec	Move Database Records (Application Administration transaction)
mpk	Modify a Work Package (FOMS transaction)
MS	Planning Messages file (FOMS database file name)
mtd	Print the Message of the Day (FOMS transaction)
mtinit	Initialize Planning Message Table (Application Administration transaction)
MTM	Metallic Terminal Mounting
NAC	Network Administration Center
NFVT	Netted Field Verification Testing
Non-Service Order LST	Non-Service Order Line and Station Transfer
NPA	Numbering Plan Area (Area Code)
NXX	Network Number Exchange code
OE	Office Equipment (facility type)
oij	Orders In Jeopardy (FOMS transaction)
opn	Open-of-Day Report (FOMS transaction)

OPS	Operations
OR	Order file (FOMS database file name)
ORD	Order number
OT	Order Type
pak	Package and Summarize Frame Output (FOMS transaction)
pdinit	Initialize Parsing Data table (Application Administration transaction)
PE	Pending Equipment file (FOMS database file name)
pfte	Print Flow-Through Error messages (Application Administration transaction)
PIC	Primary InterLATA Carrier code
plgu	Process a Log Tape (Application Administration transaction)
PM	Parameter Manager (FOMS database file name)
pmed	Permission Matrix Editor (Application Administration transaction)
POE	Packet Office Equipment (facility type)
POTS	Plain Old Telephone Service
POUT	Ported Out
POVT	Provisioning On-site Verification Testing
que	Queue the File (FOMS transaction)
RCMAC	Recent Change Memory Administration Center
RER	Request for Error Resolution
recovery	Database Recovery (Application Administration transaction)
rescue	Update or Remove Disk Assignments (Application Administration transaction)
rfo	Remove Frame Output (Application Administration transaction)
rfte	Remove Flow-Through Error messages (Application Administration transaction)
rjr	Remove Jeopardy Reason codes (FOMS transaction)
rmwc	Remove a Wire Center (Application Administration transaction)
rord	Remove Service and Work Orders (Application Administration transaction)

rqf	Request Frame Output (FUSA transaction)
rqt	Request Translation Data (FUSA transaction)
rsf	Resend Frame Output for Demand Orders (FUSA transaction)
RSID	Reseller Identification
rsw	Resend Frame Output for Programmable Orders (FUSA transaction)
RTAP	Remote Test Access Placer
runexp	Run Extract Pending (FUSA transaction)
SAL	Start Assignment Logic (a SWITCH system database parameter)
scf	Simple Completion by the MDF (FOMS transaction)
scm	Standard Completion by the MDF (FOMS transaction)
SD&SC	Software Development and Services Committee
SDR	Non-Service Deny/Restore Order
SET	Switch Port Equipment Transfer
settpr	Set the TPR environment (Application Administration transaction)
SFO	Send Frame Output (a SWITCH system database parameter)
signup	Sign into or out of a TPR (Application Administration transaction)
sir	Sorting Inquiry by Range (FUSA transaction)
slf	Space Remaining in Linked-List Files (Application Administration transaction)
SO	Service Order file (FOMS database file name)
SOAC	Service Order Analysis and Control (a component of FACS)
sod	Service Order Inquiry (Deferred) (FUSA transaction)
soi	Service Order Inquiry (Immediate) (FUSA transaction)
sol	Service Order List (FUSA transaction)
sos	Send Output Simultaneously (SWITCH system database parameter)
srd	Send Reference Data (FUSA transaction)
ssh	SWITCH System Help (FUSA transaction)
start	Start a TPR (Application Administration transaction)
start_tprs	Start TPRs (Application Administration transaction)
stat	Obtain the Status of a FOMS File (Application Administration transaction)

statipc	Show all IPC resources used by FOMS/FUSA in a TPR (Application Administrative transaction)
stop	Stop a TPR (Application Administration transaction)
stop_tprs	Stop TPRs (Application Administration transaction)
ST&S	Software Technology and Systems
SVCID	Secondary Service ID (facility type)
tai	Tie Pair Assignment Inquiry (FUSA transaction)
tapman	Tape Management (Application Administration transaction)
tat	Test Alignment of Frame Terminal (FOMS transaction)
ted	Text Editor (FOMS transaction)
termlog	Terminate Logging of CSAM Transactions (Application Administration transaction)
ths	Transaction Help Screen (FOMS transaction)
tku	Trunk Pair Usage (FUSA transaction)
TN	Telephone Number (facility type)
tns	Telephone Number Swap (FOMS transaction)
tof	Transfer Order Frame Listing (FOMS transaction)
toi	Transfer Order Inquiry (FUSA transaction)
tol	Transfer Order List (FUSA transaction)
too	Transfer Obstacles and Omissions (FUSA transaction)
tos	Transfer Order Summary (FUSA transaction)
TP	Tie Pair (facility type)
tpu	Tie Pair Usage (FUSA transaction)
TRE	Transmission Equipment (facility type)
udcrt	Copy the $CONFIG_DIR/user.def file to shared memory (Application Administration transaction)
ufo	Unprinted Frame Orders (FOMS transaction)
ULBB	User Layer Building Block
USOC	Universal Service Order Code
UTSInstall	Install FPATH into the UTS Kernel (Application Administration transaction)
UTSuninstall	De-install FPATH from UTS Kernel (Application Administration transaction)

ver	Verify Database (FUSA transaction)
vted	VTOC Editor (Application Administration transaction)
WAO	Wire Assembly Order
wc	Wire Center
wcc	Wire Center Change (FOMS transaction)
wcf	Create FOMS Wire Center Files (Application Administration transaction)
wcinit	Wire Center Initialization (Application Administration transaction)
wcinpt	Input WC Initialization Information (Application Administration transaction)
wclist	Wire Center List (Application Administration transaction)
wcsadm	Wire Center Security Administration (Application Administration transaction)
wcscrt	Wire Center Security Create (Application Administration transaction)
where	Where is the Computer Located (Application Administration transaction)
wiinit	Initialize the WI file (Application Administration transaction)
WMC/APP	Work Manager Consolidation/Application-to-Application
WO	Work Order
wpt	Work Package Table (FOMS transaction)
wpfix	Fix the WP File (Application Administration transaction)
wsl	Work Status List (FOMS transaction)
xaction	Enable or disable transaction activity (Application Administration transaction)
xald	Allocate a Disk Pack (Application Administration transaction)
xblank	Blank Out Records in a File (Application Administration transaction)
xlist	List VTOC Entries (Application Administration transaction)
xscr	Database File Scratch Program (Application Administration transaction)

Bellcore
Bell Communications Research

Document Feedback

We at Bellcore are constantly striving to meet your need for information. Once you've had a chance to use this document that we've written for you, please let us know if it met your needs. Please complete this form and either FAX it to us at (732) 336-2215 or return it to us at the address below.

Document No.	Issue No.	Publication Date	Revision No.	Supplement No.
BR 752-101-901	Issue 13	November 1998		

1. In each of the following areas, how well did this document meet your need for information?

	Missed	Nearly Met	Met	Exceeded	Not Applicable
a. Relevance of the information to your work	☐	☐	☐	☐	○
b. Ease of finding the information that you need	☐	☐	☐	☐	○
c. Clarity of the information	☐	☐	☐	☐	○
d. Accuracy of the information	☐	☐	☐	☐	○
e. Usefulness of the information	☐	☐	☐	☐	○
f. Thoroughness of the information	☐	☐	☐	☐	○
g. Level of detail of the information	☐	☐	☐	☐	○
h. Availability of this document when you needed it	☐	☐	☐	☐	○
i. Overall quality of this document	☐	☐	☐	☐	○

2. Please comment on any of the areas where this document *did not* meet or exceed your need for information.

_____

_____

3. Are there features of this document that you found particularly useful or informative? Please explain.

_____

_____

4. Are there other ways that we can improve this document? Please feel free to comment on any aspect of it.

_____

_____

5. For what purpose did you use this document?

☐ As a technical reference ☐ To use a system ☐ To learn methods/procedures

☐ As an administrative reference ☐ To install/administer a system ☐ To be better informed

☐ Other (please specify) _____

6. Please tell us something about yourself.

Your company/employer _____ Your title _____

Your job responsibilities _____

If you would like us to let you know what we're doing in response to your feedback, please write your name and address (or telephone number) below.

Name _____ Telephone Number _____

Address _____

Thank you for your time and cooperation!

To return this form, please FAX it to (732) 336-2215, or mail it to Bellcore Learning Support, 6 Corporate Place, Room PYA1N187, Piscataway, NJ 08854.