L MULTIPLEX TERMINALS
LMX-1
CARRIER AND PILOT SUPPLY
TRANSFER AND CONTROL CIRCUIT
TESTS

This section provides procedures to test the automatic and manual operation of the transfer switch and control circuits.

The transfer and control circuit (Fig. 1) provides a transfer switch to connect either a regular or an emergency generator to a distributing circuit. It is used in both the carrier-frequency and pilot-frequency circuits. A control system is included to operate the transfer switch and to control the operation of the alarms. Either generator may be manually selected and locked in service as the working generator while maintenance is performed on the idle generator. A block diagram of the transfer and control circuit is shown in Fig. 2.

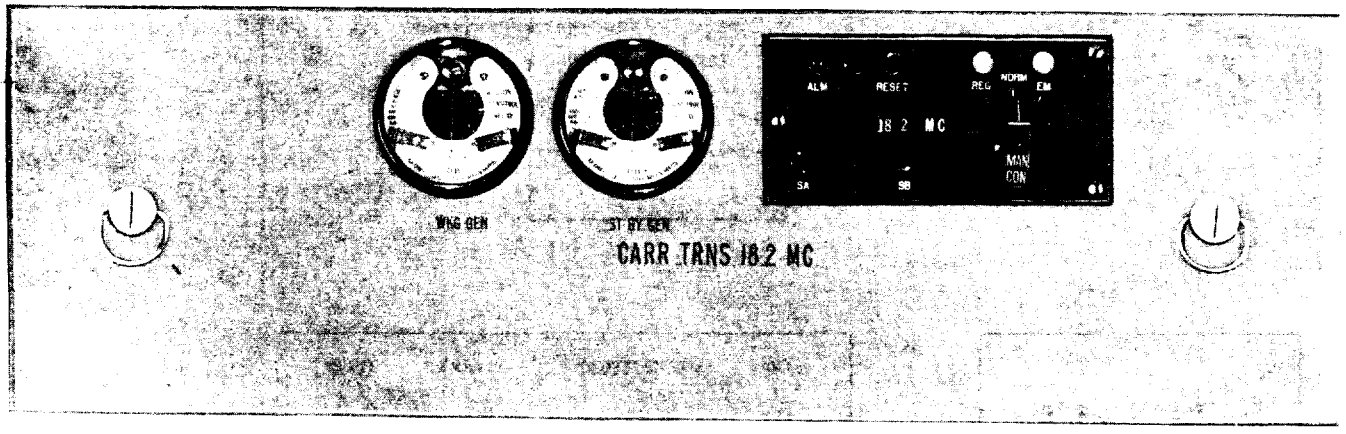

Fig. 1—Typical Carrier or Pilot Transfer and Control Unit

This section is reissued to add a procedure to simulate a total supply failure and to modify the existing test procedure. Arrows are used to indicate significant changes. ***Equipment Test Lists are not affected.***

Caution: Automatic or manual transfers between pilot or carrier generators may cause hits on services associated with this equipment. Transfers should be kept to a minimum.

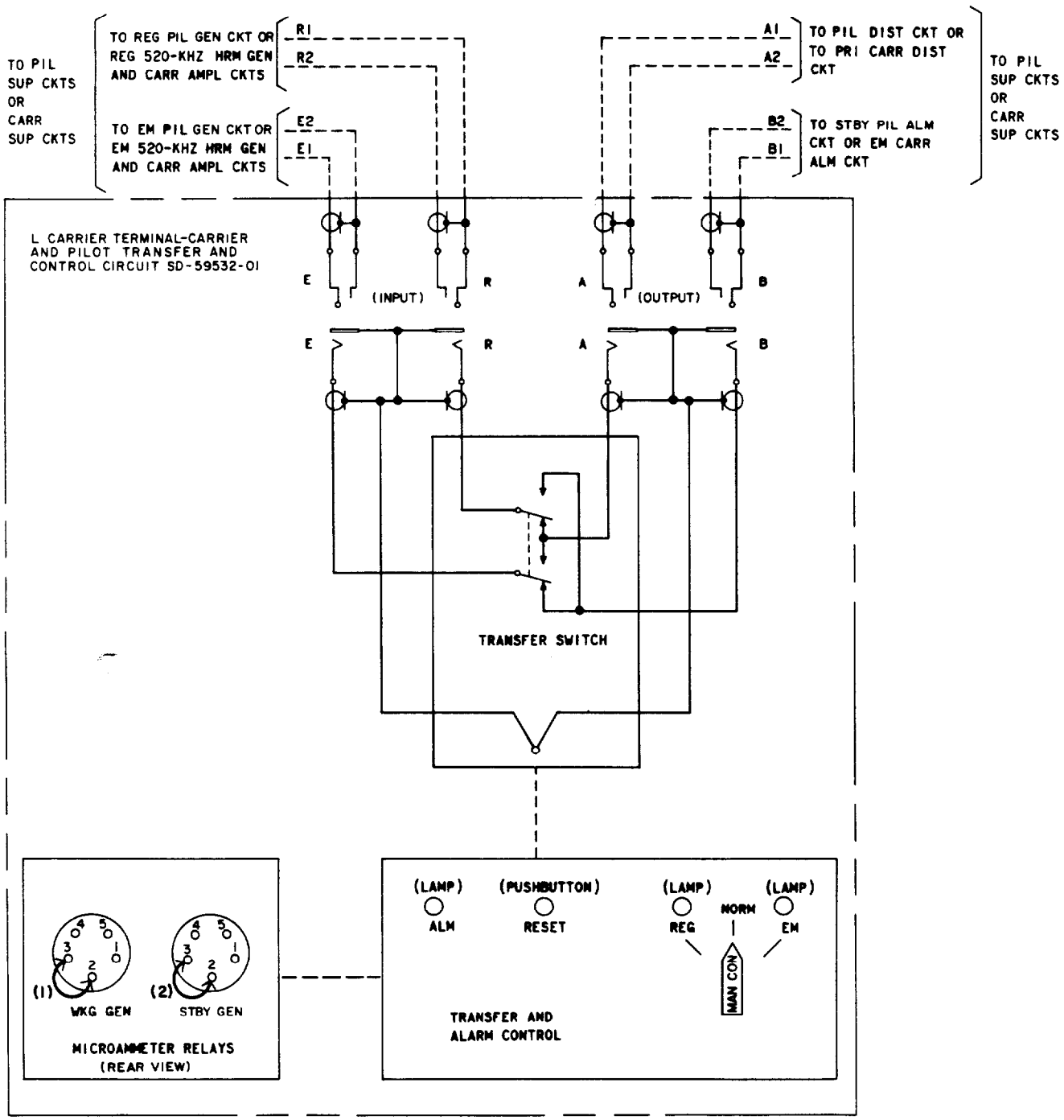

Fig. 2—Carrier or Pilot Transfer and Control Circuit—Block Diagram

Note 1: These tests are to be made after the regular and emergency generators for any one frequency are in working order and all interconnecting circuits have been checked and adjusted.

Note 2: If incorrect operation of a Sensitrol® relay is indicated, make the tests described in Section 356-072-501 (to be reissued as 356-171-501).

CHART **PAGE**

APPARATUS

W1AP Cord (Section 032-311-131)

CHART 1

REGULAR GENERATOR FAILURE AND TOTAL GENERATOR FAILURE

STEP	PROCEDURE
1	At the carrier and pilot supply bay, verify that the transfer and control circuit to be tested is in the normal condition. (See Table A, Line 1.) ***Caution: ▶During the following tests, avoid contact with the ceramic resistor terminal adjacent to terminal 3 of the WKG GEN Sensitrol.***
2	Remove the equipment cover, disengage the screws holding the Sensitrol mounting panel, and swing it outward to gain access to the Sensitrol terminals.
3	Momentarily connect the test cord between terminals 2 and 3 of the WKG GEN Sensitrol [patch (1), Fig. 2]. ***Requirement:*** Automatic transfer to the emergency generator is indicated by the following: (a) Major alarm sounds briefly. (b) ALM lamp lights briefly (less than one-half seccond). (c) EM lamp lights. (d) WKG GEN Sensitrol is automatically reset (now indicates output of emergency generator). (e) Minor alarm sounds and the appropriate aisle pilot lamp is lighted.

CHART 1 (Cont)

STEP	PROCEDURE
	(f) STBY GEN Sensitrol contacts are latched.
4	Momentarily connect the test cord between terminals 2 and 3 of the WKG GEN Sensitrol until the Sensitrol contacts latch [patch (1), Fig. 2]. ***Requirement:*** Simulated total generator failure is indicated by the following: (a) ALM lamp lighted (b) WKG GEN Sensitrol contacts latched (c) STBY GEN Sensitrol contacts latched (d) Major alarm sounds and the appropriate aisle pilot lamp lights.
5	At the front of the transfer and control panel, turn the MAN CON switch (Fig. 2) to the EM position. ***Note:*** The transfer switch is now locked in position with the emergency generator providing service to the distributing circuit through output jack A (Fig. 2). If the emergency generator fails at this time, loss of supply to the distributing circuit will occur.
6	Depress and release the RESET key to reset the Sensitrol relay. ***Requirement:*** The WKG GEN and STBY GEN Sensitrol pointers return to center and all audible and visual alarms are extinguished.
7	Turn the MAN CON switch to the NORM position. ***Requirement 1:*** The EM lamp is extinguished. ***Requirement 2:*** The transfer switch is operated with the regular generator providing service.
8	Close and secure the Sensitrol mounting and replace the equipment cover. ***Note:*** Performance of Steps 1 through 8 will have caused an automatic transfer to the emergency generator, a ***simulated*** failure of both generators, and manual restoral to the regular generator. The equipment should now be in the normal operating condition. (See Table A, Line 1).

CHART 2

EMERGENCY GENERATOR FAILURE

STEP	PROCEDURE
1	At the carrier and pilot supply bay, verify that the transfer and control circuit to be tested is in the normal condition. (See Table A, Line 1.)
2	Remove the equipment cover to gain access to the E jack.
3	Remove the plug from the E jack (Fig. 2) of the transfer and control circuit being tested. ***Requirement 1:*** The REG lamp lights (indicates that the emergency generator has failed and the regular generator is continuing to provide service). ***Requirement 2:*** The STBY GEN Sensitrol contacts latch. ***Requirement 3:*** The minor alarm sounds and the appropriate aisle pilot lamp lights.
4	Replace the plug in the E jack.
5	At the front of the transfer and control panel, turn the MAN CON switch to the REG position. ***Requirement:*** The minor alarm is silenced and the appropriate aisle pilot lamp is extinguished. ***Note:*** The transfer switch is now locked in position with the regular generator providing service to the distributing circuit through jack A. If the regular generator fails at this time, loss of supply to the distributing circuit will occur.
6	Depress and release the RESET key. ***Requirement:*** The STBY GEN Sensitrol pointer returns to center.
7	Turn the MAN CON switch to the NORM position. ***Requirement:*** The REG lamp is extinguished.
8	Replace the equipment cover. ***Note:*** Performance of Steps 1 through 6 will have resulted in a failure of the emergency generator with manual control of the regular generator as there is no automatic transfer to the regular generator. The equipment should now be in the normal operating condition. (See Table A, Line 1.)

TABLE A

SUMMARY OF EXTERNAL FEATURES OF CONTROL CIRCUIT OPERATION

	GENERATOR TROUBLE CONDITION*	OFFICE ALARMS		SENSITROL CONTACTS*		LAMPS			WORKING GENERATOR†	REMARKS
		MINOR	MAJOR	WKG GEN	STBY GEN	REG	EM	ALM		
I. MAN CON Switch in (NORM) Position										
1	None	No	No	Open	Open	Off	Off	Off	REG	
2	REG FAILS	Yes	No	Open	Closed	Off	On	Off	EM	
3	EM FAILS	Yes	No	Open	Closed	On	Off	Off	REG	
4	1. REG FAILS 2. EM FAILS	Yes	Yes	Closed	Closed	Off	On	On	EM	
5	1. EM FAILS 2. REG FAILS	Yes	Yes	Closed	Closed	On	Off	On	REG	
II. MAN CON Switch Turned to REG After Trouble Occurs										
6	None	No	No	Open	Open	On	Off	Off	REG	
7	REG FAILS	*Yes*	*Yes*	Closed	Closed	*On*	*Off*	*On*	*REG*	*MAN CON should have been turned to EM. See III (12).*
8	EM FAILS	No	No	Open	Closed	On	Off	Off	REG	
9	1. REG FAILS 2. EM FAILS	*Yes*	Yes	Closed	Closed	*On*	*Off*	On	*REG*	*MAN CON should have been turned to EM. See III (14).*
10	1. EM FAILS 2. REG FAILS	No	Yes	Closed	Closed	On	Off	On	REG	
III. MAN CON Switch Turned to EM After Trouble Occurs										
11	None	No	No	Open	Open	Off	On	Off	EM	
12	REG FAILS	No	No	Open	Closed	Off	On	Off	EM	
13	EM FAILS	*Yes*	*Yes*	*Closed*	Closed	*Off*	*On*	*On*	*EM*	*MAN CON should have been turned to REG. See II (8).*
14	1. REG FAILS 2. EM FAILS	No	Yes	Closed	Closed	Off	On	On	EM	
15	1. EM FAILS 2. REG FAILS	*Yes*	Yes	Closed	Closed	*Off*	*On*	*On*	*EM*	*MAN CON should have been turned to REG. See II (10).*

*Sensitrol contacts will close for either too high or too low a power level. The terms "REG FAILS" and "EM FAILS" refer to any generator output level not within the range of the Sensitrol.

†The working generator is the one (REG or EM) connected to the distributing circuit even though its output level may not be within the prescribed limits.