

INTERRUPTERS—KS-15634 AND KS-15757 TYPE REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers the KS-15634 L1 through L6, and L8 and KS-15757 L1 ac motor-driven interrupters used in ringing power plants.

1.02 This section is reissued:

- (a) To change the timing requirements for the KS-15634 L8 interrupter
- (b) To incorporate additional information for cleaning and lubrication
- (c) To delete reference to KS-15634 L7 interrupter which has been replaced by the KS-15634 L8 interrupter.

1.03 The KS-15634 and KS-15757 motor-driven interrupters have a single-phase synchronous capacitor-type 115-volt, 60-Hz, 1800-rpm motor which drives an interrupter camshaft through a gear train enclosed in the gear box. The interrupter shaft of the KS-15634 L1, 2, 4, 5, 6, and 8

interrupters is driven at 10 rpm and provides a 6-second ringing cycle. The shaft of the KS-15634 L3 and KS-15757 L1 is driven at 7.5 rpm and provides an 8-second ringing cycle. Fig. 1 shows the KS-15634 L1 interrupter. Fig. 2 and 3 show the KS-15757 L1 interrupter.

1.04 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

1.05 *Asterisk (*)*: Requirements are marked with an asterisk when to check for them would necessitate the dismantling or dismounting of the apparatus or would affect the adjustment involved or other adjustments. No check need be made for these requirements unless the apparatus is made accessible for other reasons or its performance indicates that such a check is advisable.

1.06 Before starting work on the interrupter, disconnect the power supply in any convenient manner to avoid unexpected starting.

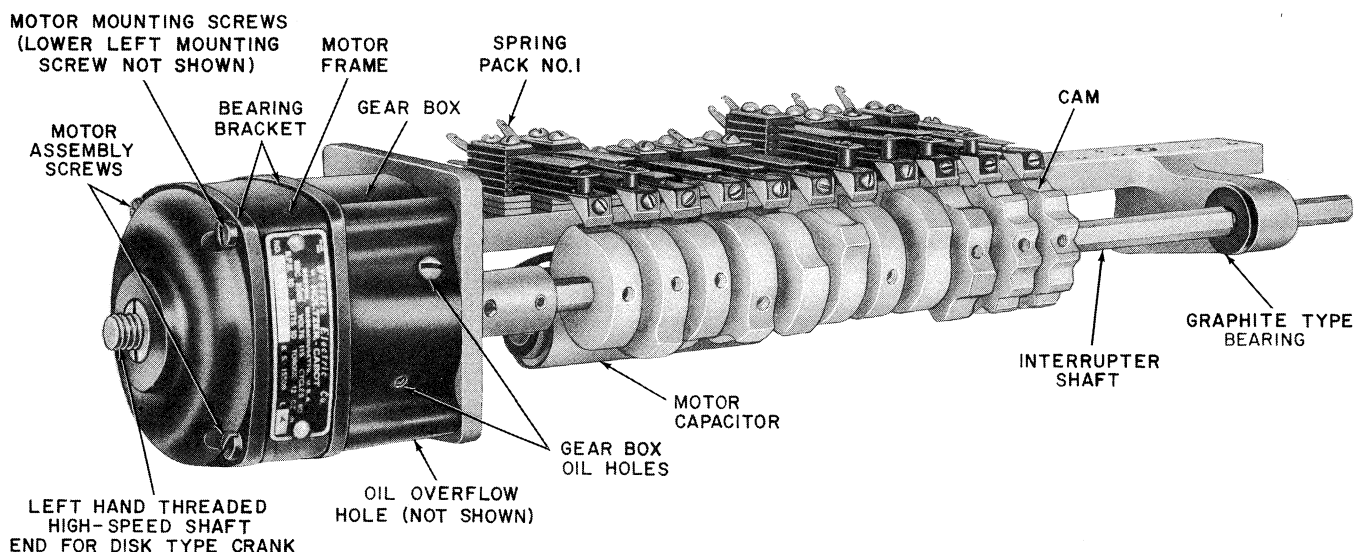


Fig. 1—KS-15634 L1 Interrupter (Holtzer-Cabot Interrupter Shown)

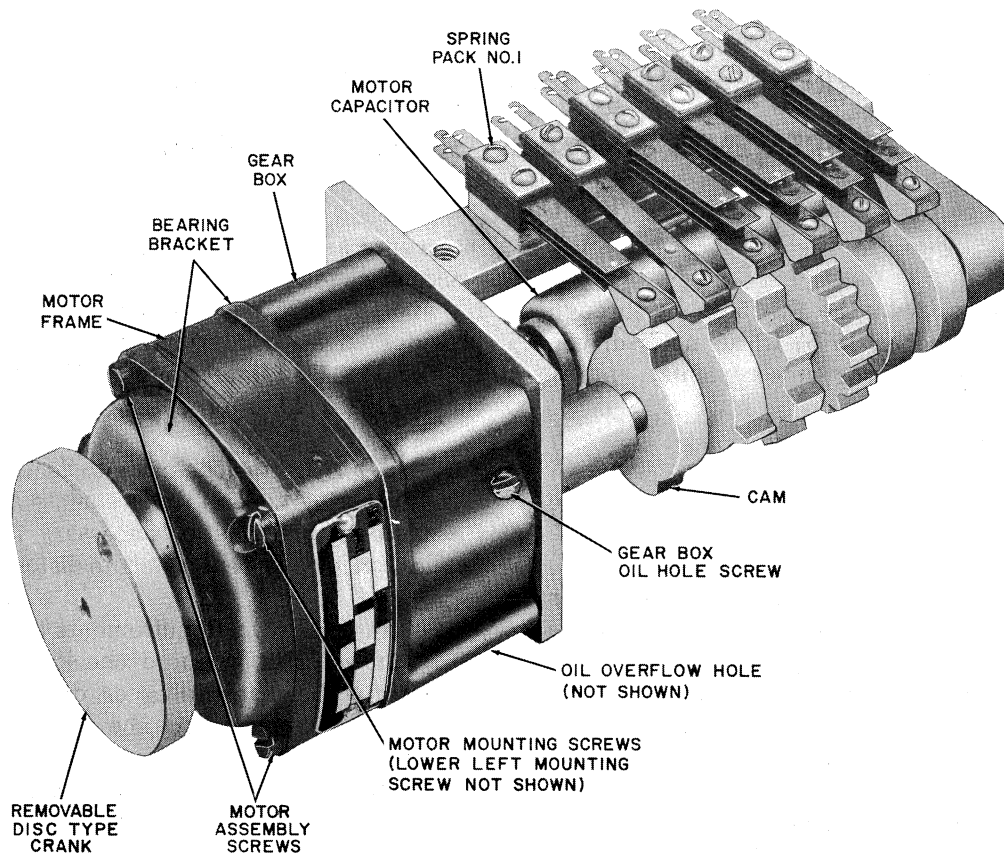


Fig. 2—KS-15757 L1 Interrupter (Holtzer-Cabot Interrupter Shown)

Caution: These interrupters are shipped by the manufacturer with no oil in the gear box. Upon installation make sure that the gear box is lubricated in accordance with requirement 2.02(a).

2. REQUIREMENTS

2.01 Cleaning: Contacts and other parts shall be cleaned when necessary.

Gauge by eye.

2.02 Lubrication:

(a) **Gear Box:** If the interrupter gear box has been in storage or out of service for more than one year, it shall be cleaned with KS-7860 petroleum spirits and lubricated with KS-16326 L1 oil at the time of installation. If the interrupter is new or has been out of service less than one year, it shall be lubricated, without

cleaning, at the time of installation. The interrupter gear box shall be lubricated annually. When lubrication is required, oil shall be added so that it will just flow out of the overflow hole.

(b) **Motor Bearings:** The motor bearings shall not be lubricated.

Note: Noisy or otherwise defective motor bearings shall be replaced as covered in Section 163-220-801.

(c) **Interrupter Shaft Bearing:** Add 2 drops of KS-16326 L1 oil, using the KS-14796 oiler, to the interrupter shaft at the interrupter shaft bearing annually. Wipe off any excess oil thoroughly. This interval may be extended if periodic inspection has indicated that local conditions are such as to ensure that the interrupter will be adequately lubricated during the extended interval.

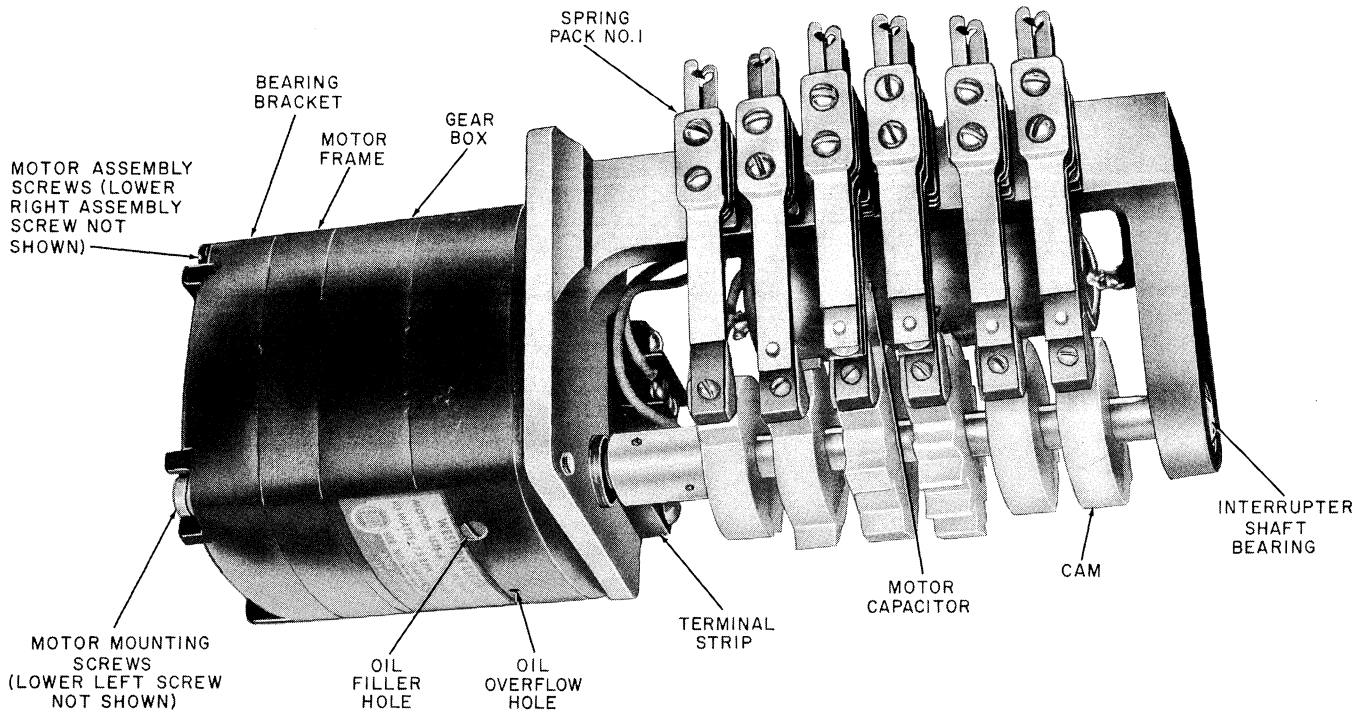


Fig. 3—KS-15757 L1 Interrupter (Borg Interrupter Shown)

2.03 Operating Noise and Vibration: The noise and vibration of the interrupter while operating under normal conditions shall not be excessive.

Gauge by sound and feel.

2.04 Motor Frame Temperature: The temperature of the motor frame shall not exceed 95°C (203°F).

Use R-1032 thermometer.

To check this requirement, hold the bulb of the thermometer against the motor frame. Cover the portion of the bulb not in contact with the motor frame with the asbestos pad. Observe the maximum temperature reading.

***2.05 Interrupter and Spring Pack Mounting:**

- (a) The interrupter shall be securely fastened to its mounting.
- (b) The spring packs shall be securely mounted.

Gauge by feel.

***2.06 Contact Follow:** There shall be visible follow of all contact springs after closure of the contacts.

Gauge by eye.

***2.07 Timing Requirements:**

- (a) **KS-15634 L1 through L6, and L8 Interrupters:** The timing of the normally open and normally closed contacts adjacent to the cam shall be in accordance with the applicable chart in Fig. 4, 5, 6 and the tolerances covered in (c) unless otherwise specified on the circuit drawing.

Gauge by eye.

Check as covered in (g).

- (b) **KS-15757 L1 Interrupter:** The timing of the normally open and normally closed contacts adjacent to the cam shall be in accordance with the applicable chart in Fig. 7 and the tolerances covered in (c) unless otherwise specified on the circuit drawing.

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INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	F	39-42									
2	I	F	39-42									
3	I	A	39-42 12-15									
4	I	A	39-42 12-15									
5	I	A	39-42 12-15 39-42									
6	I	A	12-15									
7	I	H	6-9									
8	I	G	39-42									
9	I	H	13 1/2 - 16 1/2									
10	I	F	7 1/2 - 9									
11	I	C	7 1/2 - 9									

LIST 1

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	F	39-42									
2	I	G	39-42									
3	I	F	25 1/2 - 28 1/2									
4	I	A	12-15									
5	I	H	6-9									
6	I	C	88 1/2 - 91 1/2									
7	I	A	39-42									
8	I	A	25 1/2 - 28 1/2 39-42									
9	I	A	25 1/2 - 28 1/2									
10	I	H	13 1/2 - 16 1/2									
11	I	F	7 1/2 - 9									
12	I	C	7 1/2 - 9									

LIST 2

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT									
				0	30	60	90	120	150	180	210	240	
1	I	A	39-42										
2	I	A	12-15										
3	I	A	12-15										
4	I	A	39-42										
5	I	A	39-42 12-15										
6	I	A	12-15 39-42										
7	I	A	12-15 39-42 12-15										
8	I	A	39-42 12-15										
9	I	A	39-42 12-15										
10	I	A	39-42 12-15										
11	I	A	12-15										
12	I	A	12-15										
13	I	H	6-9										
14	2	B	39-42										
15	I	C	7 1/2 - 9										

LIST 3

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	F	39-42									
2	I	G	39-42									
3	I	F	39-42									
4	I	A	12-15									
5	I	H	6-9									
6	I	C	88 1/2 - 91 1/2									
7	I	A	39-42									
8	I	A	25 1/2 - 28 1/2 39-42									
9	I	A	25 1/2 - 28 1/2									
10	I	H	13 1/2 - 16 1/2									
11	I	F	7 1/2 - 9									
12	I	C	7 1/2 - 9									
13	I	F	39-42 12-15									
14	I	F	39-42 12-15									
15	I	F	39-42 12-15 39-42									

LIST 4

NOTES:

1. THE TIMING INTERVAL SHOWN IS THE PERIOD DURING WHICH THE NORMALLY OPEN CONTACTS ADJACENT TO THE CAM ARE CLOSED.
2. THE TIMING INTERVAL SHOWN IS THE PERIOD DURING WHICH THE NORMALLY CLOSED CONTACTS ADJACENT TO THE CAM ARE OPEN.
3. SPRING PACK TYPES:

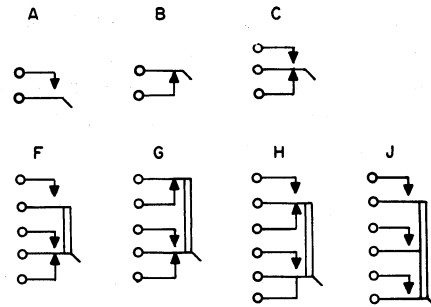


Fig. 4—KS-15634 L1 Through L4 Interrupter Timing

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	F	53-56	█	█	█						
2	I	C	53-56				█	█	█			
3	I	G	53-56							█	█	█
4	I	H	25 1/2 - 28 1/2	█	█	█						
5	I	A	25 1/2 - 28 1/2	█	█	█					168	█
6	I	F	6-9				82 7/8	█	█	█		
7	I	A	89-92									
8	I	A	53-56				█	█	█			
9	I	A	25 1/2 - 28 1/2				█	█	█			
10	I	J	13 1/2 - 16 1/2	█	█	█	█	█	█	█	█	█
11	I	J	7 1/2 - 9	█	█	█	█	█	█	█	█	█
12	I	C	7 1/2 - 9	█	█	█	█	█	█	█	█	█
13	2	B	7 1/2 - 9	█	█	█	█	█	█	█	█	█
14	I	A	12-15				43 1/2	█	█	█		133 1/2

LIST 5

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	F	53-56	█	█	█						
2	I	C	53-56				█	█	█			
3	I	G	53-56							█	█	█
4	I	C	25 1/2 - 28 1/2	█	█	█						
5	I	A	25 1/2 - 28 1/2	█	█	█					168	█
6	I	F	6-9									
7	I	C	39-42 12-15	█	█	█						
8	I	C	39-42 12-15	█	█	█						
9	I	C	39-42 12-15 39-42	█	█	█						
10	I	J	13 1/2 - 16 1/2	█	█	█	█	█	█	█	█	█
11	I	J	7 1/2 - 9	█	█	█	█	█	█	█	█	█
12	I	C	7 1/2 - 9	█	█	█	█	█	█	█	█	█
13	2	B	7 1/2 - 9	█	█	█	█	█	█	█	█	█
14	I	A	12-15				43 1/2	█	█	█		133 1/2

LIST 6

Fig. 5—KS-15634 L5, L6 Interrupter Timing

INT. SPRING PK NUMBER	SEE NOTE	SPRING PK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180		
1	I	H	53-56	█	█	█						
2	I	H	53-56				█	█	█			
3	I	H	53-56							█	█	█
4	I	H	53-56	█	█	█						
5	I	H	53-56	█	█	█						
6	I	H	53-56	█	█	█						
7	I	H	7-1/2-9	█	█	█	█	█	█	█	█	█
8	I	H	13-1/2-16-1/2	█	█	█	█	█	█	█	█	█
9	I	H	13-1/2-16-1/2	█	█	█	█	█	█	█	█	█
10	2	H	7-1/2-9	█	█	█	█	█	█	█	█	█
11	I	H	7-1/2-9	█	█	█	█	█	█	█	█	█

Fig. 6—KS-15634 L8 Interrupter Timing

INT. SPRING PACK NUMBER	SEE NOTE	SPRING PACK TYPE	ADJUSTMENT LIMITS IN REVOLUTIONS OF HIGH SPEED SHAFT	REVOLUTIONS OF HIGH SPEED SHAFT								
				0	30	60	90	120	150	180	210	240
1	I	C	28-31	█	█	█						
2	2	E	7 1/2 - 9				█	█	█			
3	I	J	13 1/2 - 16 1/2	█	█	█	█	█	█	█	█	█
4	I	J	7 1/2 - 9	█	█	█	█	█	█	█	█	█
5	I	D	7 1/2 - 9	█	█	█	█	█	█	█	█	█
6	I	D	7 1/2 - 9	█	█	█	█	█	█	█	█	█

NOTES:

1. THE TIMING INTERVAL SHOWN IS THE PERIOD DURING WHICH THE NORMALLY OPEN CONTACTS ADJACENT TO THE CAM ARE CLOSED.
2. THE TIMING INTERVAL SHOWN IS THE PERIOD DURING WHICH THE NORMALLY CLOSED CONTACTS ADJACENT TO THE CAM ARE OPEN.
3. SPRING PACK TYPES:

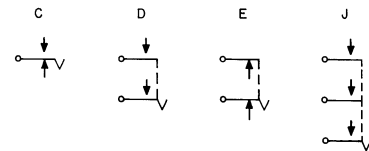


Fig. 7—KS-15757 L1 Interrupter Timing

Gauge by eye.

Check as covered in (g).

(c) **Tolerances for Requirements (a) and (b):**

- (1) Taking the closure of the normally open contacts in No. 1 spring pack as occurring at 0 revolutions, the closure or opening of the contacts adjacent to the cam in other spring packs shall occur within $\pm 1/2$ revolutions from their point of closure or opening as shown in the applicable chart in Fig. 4, 5, 6, or 7.
- (2) Contacts shall remain closed or open for not less than the smaller or more than the greater number of revolutions shown in the adjustment limit column of the applicable chart in Fig. 4, 5, 6, or 7.

(d) **Transfer Period KS-15634 L1 through L6:**

The interval between the opening of one pair of contacts and the closure of the associated pair of contacts in each transfer spring combination shall be:

Min—1 revolution of the high-speed shaft

Max—2-1/4 revolutions of the high-speed shaft.

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Gauge by eye.

Check as covered in (g).

(e) **Transfer Period KS-15634 L8:** The contacts of the wiper spring for cams 1, 2, and 3 shall not make with the upper nor the lower spring contacts for at least 1-1/4 revolutions of the high speed shaft, but one contact shall close within 2-1/4 revolutions after the opening of the others.

Gauge by eye.

Check as covered in (g).

(f) **Sequence of Closure of Make Contacts (spring packs having two or more make combinations):**

(1) The make contacts adjacent to the cam shall close first.

(2) The make contacts adjacent to those covered in (1) shall close within 1/2 revolution of the high-speed shaft after closure of the contacts covered in (1).

(3) The make contacts adjacent to those covered in (2) shall close within 1 revolution of the high-speed shaft after closure of the contacts covered in (1).

Gauge by eye.

Check as covered in (g).

(g) To check the timing, proceed as follows.

(1) Make sure the power is disconnected from the interrupter before turning the shaft with the crank or wrench as covered in (2).

(2) Initially, these interrupters were provided with a crank consisting of a disc having a threaded hub and a finger insertion hole for turning the disc. On these interrupters, the end of the motor shaft may have either a left- or right-hand thread for mounting the crank. The end of the shaft on later interrupters has a hexagonal hole into which is inserted a proper size Allen wrench to serve as a crank.

(3) Check the timing by using the 81A test set or an indicating lamp connected across the contacts to indicate opening or closure of contacts. Check the intervals by counting the number of revolutions of the high-speed shaft while turning it by hand with the crank or Allen wrench. The timing of each spring pack should be checked for a complete revolution of the associated cam.

Note: The timing of the spring contacts is expressed on the chart in revolutions of the high-speed shaft. It is convenient to use this shaft since it gives a close adjustment due to the gear reduction to the interrupter camshaft.

3. ADJUSTMENT PROCEDURES

3.001 List of Tools, Gauges, Materials, and Test Apparatus:

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
373D	Contact Burnisher Holder
R-1442	Brush
374A	Burnisher
374B	Burnisher
534B	Spring Adjuster
R-1005	Jewelers Screwdriver
R-1619	2-Inch "C" Clamp
R-2958	5/64-Inch Allen Wrench
R-2959	1/16-Inch Allen Wrench
—	P Long-Nose Pliers
—	3-Inch C Screwdriver
KS-14796	Oiler
—	4-Inch E Screwdriver
—	1/16-Inch Drive-Pin Punch, L.S. Starrett Co. No. 565 (or equivalent)
—	4-Ounce Riveting Hammer

CODE OR SPEC NO.	DESCRIPTION
—	Paper, Analytical Filter, Lint Free, No. 576 Carl Schlecher and Schuell Co. (or equivalent)
—	No. 4 Parker-Kalon, Type C, Self-Tapping Screw (on Borg Interrupter) or equivalent
—	No. 6 Parker-Kalon, Type C, Self-Tapping Screw (on Holtzer-Cabot Interrupter) or equivalent
GAUGES	
R-1032, Detail 1	Thermometer (—5° to 150° C)
MATERIALS	
KS-6824	Sealing Compound
KS-6232	Light Mineral Oil
KS-16326 L1	Oil
KS-19578 L1	Trichloroethane
KS-7860	Petroleum Spirits
KS-14666	Cleaning Cloth
—	Asbestos Pad
—	Cellophane Tape
TEST APPARATUS	
81A	Test Set

3.002 Care should be exercised when using petroleum spirits in power rooms where there are dc machines, since commutation may be adversely affected by softening of commutator film by the fumes. To avoid the need for burnishing the commutators of dc machines, after doing any cleaning called for in this section, provide adequate ventilation, use the absolute minimum amount of petroleum spirits required for the cleaning operation, and keep the container closed when not in use.

3.01 Cleaning (Reqt 2.01):

(a) KS-15634 L8:

- (1) Manually remove the power from the side of the plant associated with the interrupter

to be cleaned. If interrupter is not removed from the frame, take the necessary precautions to protect the equipment mounted below the interrupter. Rotate the high-speed shaft with the crank or proper size Allen wrench until the contacts to be cleaned are open. Clean the contacts using only lint-free paper moistened with KS-19578 L1 trichloroethane. Visually inspect the contacts for foreign particles before restoring power.

- (2) Check requirements 2.06 and 2.07 after cleaning the contacts.
- (3) Clean other parts of the interrupter using a dry KS-14666 cloth.

(b) All interrupters except KS-15634 L8:

- (1) Clean the contacts (without gold overlay) as follows. Manually remove the power from the side of the plant associated with the interrupter to be cleaned. If the interrupter is not removed from the frame, take the necessary precautions to protect the equipment mounted below the interrupter. Burnish the contacts using the 373D contact burnisher holder with the 374A or 374B contact burnisher blade, depending on which can be conveniently inserted between the contacts. Using the crank or the proper size Allen wrench, rotate the high-speed shaft until the contacts to be cleaned are closed. Insert the burnisher blade between the contacts and move it back and forth three or four times.

- (2) Check requirements 2.06 and 2.07 after burnishing the contacts.

- (3) Clean other parts of the interrupter using a dry KS-14666 cloth.

3.02 Lubrication (Reqt 2.02):

(a) **Lubrication of Gear Box Without Cleaning:**

If cleaning of the gear box is not required, lubricate the gear box as follows. Remove the screws, as provided, from the oil filler (upper) hole and from the oil overflow hole at or near the bottom of the gear box, using the 3-inch C screwdriver. If the overflow hole is not threaded, cut a thread with the specified self-tapping screw (see 3.001) and then remove

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the screw. Add KS-16326 L1 oil, using the KS-14796 oiler, in the filler hole until oil flows from the overflow hole. If the filler hole is not accessible, fill the overflow hole with the oil. Wait one minute after filling, tighten the screw in the overflow hole, and wipe off any oil from the gear box. Do not insert a screw in the filler hole.

(b) *Lubrication of Gear Box With Cleaning:*

(1) If cleaning of the gear box is required, remove the motor and gear box from the interrupter as covered in (2) and (3); drain the oil from the gear box as covered in (4), then remove the gear box from the motor, open the gear box, clean, and lubricate the gear train as covered in (5) through (9) for the Borg Interrupter or (10) through (14) for the Holtzer-Cabot Interrupter.

(2) Clamp the interrupter shaft as follows in order to hold the shaft in position when the motor is removed. Loosen the setscrew of the cam nearest the interrupter shaft bearing, using the R-1005 jewelers screwdriver or the proper size Allen wrench as required. Slide this cam against the bearing and securely tighten the cam setscrew. Clamp the cam to the bearing bracket, using the R-1619 "C" clamp. Insert a thin piece of wood between the outer end of the bearing and the clamp to obtain a better clamping surface and to prevent damage to the bearing.

(3) Remove the motor as follows. Tag and remove the motor and capacitor leads from the terminal strip, using the 3-inch C screwdriver. Remove the capacitor mounting screw from the interrupter frame, using the 4-inch E screwdriver and support the capacitor by its leads. If the motor coupling is provided with setscrews, loosen the two setscrews holding the coupling to the motor shaft using the proper size Allen wrench. If the coupling is secured to the motor shaft with a rollpin, remove the pin as follows. Place the 1/16-inch drive-pin punch on the pin and gently tap the punch with the 4-ounce riveting hammer until the pin extends approximately 3/8-inch beyond the coupling. Remove the pin using the P long-nose pliers. Remove the upper right and lower left motor mounting screws

(as viewed from the motor end of the interrupter), using the 4-inch E screwdriver and remove the motor and capacitor.

(4) Drain the oil from the gear box as follows.

Remove the oil hole screw, using the 3-inch C screwdriver, and drain the oil into a receptacle by tilting the motor and gear box. Replace the oil hole screw.

(5) Remove the motor assembly screws, using the 4-inch E screwdriver. Place the motor and gear box on a bench or table with the motor end down. Remove the gear box end plate, taking care not to lose the gasket. Remove the gear train assembly mounting screws, using the 3-inch C screwdriver, and remove the assembly.

(6) Clean the gears by rotating the shaft with the gear train assembly immersed in KS-7860 petroleum spirits in a suitable receptacle. Remove the assembly from the petroleum spirits. Examine the gear train and repeat the cleaning operation if necessary. When the gears are clean, wipe the assembly with a clean KS-14666 cloth.

(7) Wipe the inside of the gear box with a KS-14666 cloth moistened with KS-7860 petroleum spirits, then wipe again with a clean, dry cloth. Any time the seal is broken between the bearing bracket and the gear box or motor frame, clean and free the rim surfaces of any old sealing compound and oil before applying the new seal. Stir the KS-6824 sealing compound with a flat piece of hard smooth wood just before using. Apply a liberal coat of KS-6824 sealing compound, using a R-1442 brush, to both surfaces of the rims of the bearing brackets and the gear box or motor frame. Assemble the seal immediately and remove surplus sealing compound from the outside surfaces.

(8) Remount the gear train in the gear box, mount the gear box on the motor, and remount the motor on the interrupter in reverse order of removal.

(9) Lubricate the gear box as covered in (a).

(10) Mark the position of the gear box and the adjacent bearing bracket with respect to the motor frame to ensure proper alignment when remounting the parts. Remove the motor assembly screws, using the 4-inch E screwdriver, and carefully pry the bearing bracket and gear box from the motor frame using the blade of the screwdriver.

(11) Carefully pry the bearing bracket from the gear box, using the blade of the screwdriver. Place the gear box on a block of wood, with the shaft overhanging the edge of the block. Remove the gear train cover plate mounting screws in the gear box, using the 3-inch C screwdriver, and carefully remove the plate. Examine the felt pad on the inner surface of the cover plate for one or two spacing collars which may have remained in the pad during removal of the plate. These collars should be placed on the two bearing shafts which extend approximately 1/4-inch above their gears.

(12) Clean the gears as follows. Remount the bearing bracket on the gear box without the gear train cover plate. Cover the overflow hole and the oil hole with a piece of cellophane tape. Fill the gear box with KS-7860 petroleum spirits through the opening in the bearing housing. Hold the gear box over a suitable receptacle and clean the gears by rotating the shaft. Turn the gear box over and drain the petroleum spirits into the receptacle. Remove the bearing bracket from the gear box and examine the gears. Repeat the cleaning operation if necessary. When the gears are clean, remove the tape from the gear box holes and wipe the gears and the gear box with a clean, dry KS-14666 cloth.

(13) Remount the gear train cover plate, making sure that the two collars are in place on the shafts of their associated gears. ♦Anytime the seal is broken between the bearing bracket and the gear box or motor frame, clean and free the rim surface of any old sealing compound and oil before applying the new seal. Stir the KS-6824 sealing compound with a flat piece of hard smooth wood just before using. Apply a liberal coat of KS-6824 sealing compound, using a R-1442

brush, to both surfaces of the rims of the bearing brackets and the gear box or motor frame. Assemble the seal immediately and remove surplus sealing compound from the outside surfaces.♦ Mount the bearing bracket and gear box on the motor frame and then mount the motor on the interrupter in reverse order of removal.

(14) Lubricate the gear box as covered in (a).

3.03 *Operating Noise and Vibration* (Reqt 2.03):

If the requirement is not met, check for tightness of all screws and bolts and tighten them if necessary. If this does not correct the trouble, refer the matter to the supervisor as the motor or the interrupter may have to be replaced.

3.04 *Motor Frame Temperature* (Reqt 2.04):

If the temperature is above the specified limits and the nameplate voltage is not exceeded, refer the matter to the supervisor as the motor may have to be replaced.

3.05 *Interrupter and Spring Pack Mounting* (Reqt 2.05):

(1) If requirement (a) is not met, securely tighten the interrupter mounting screws using the 4-inch E screwdriver.

(2) If requirement (b) is not met, securely tighten the spring pack mounting screws using the 3-inch C screwdriver. Check requirements 2.06 and 2.07 after tightening the screws.

3.06 *Contact Follow* (Reqt 2.06)

3.07 *Timing Requirements* (Reqt 2.07):

(1) If these requirements are not met, adjust the contact springs using the 534B spring adjuster as covered in (2).

(2) Place the slotted portion of the spring adjuster at an angle against the edge of the spring. Roll the adjuster over the spring so that the spring engages the bottom of the slot. Then slide the adjuster to the base of the spring. Bend the spring as required, taking care not to disturb adjacent springs.