

**EQUIPMENT TEST LIST**  
**INTERRUPTERS**  
**POWER SYSTEMS EQUIPMENT**

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19.12 KS-5068 L1-L3 . . . . .	6	1.01 This section provides an index and information access system to locate the standard tests applicable to equipment listed in the preceding table of contents. Test classification and frequency of periodic routine are also provided.	
19.13 KS-5068 L4,L5 . . . . .	7	1.02 This ETL is issued to incorporate changes which are indicated by an arrow to the left of each line which has been changed.	
19.14 KS-5131 . . . . .	7	1.03 Comments on this section should be made by following the instructions in Bell System Practices (BSP), Section 000-010-015.	
19.15 KS-5132,KS5187,KS-5188 & KS-5313 . . . . .	7	1.04 Routine test information is arranged in the following order from left to right: Section number, issue/addendum, test letter or paragraph	
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**NOTICE**

Not for use or disclosure outside the  
Bell System except under written agreement

number, test title, test class, frequency, and the last space is for a locally assigned job number.

**1.05** Section 010-300-011 provides Equipment Test List instructions.

## 19.0 INTERRUPTERS

## 19.1 INTERRUPTERS; ROTARY MERCURY

## FOR ALL UNITS

163-650-701 (8/0)	2.01	(B&C) CHECK OIL SPEED REDUCTION UNIT LEVEL-GEAR CASE	MW 12M	-----
	2.01	(D) REPLACE GREASE IN GEAR CASE OF SPEED REDUCTION UNIT	MW 24M	-----
	2.01	(E) CLEAN AND REPLACE GREASE ON INTERRUPTER SHAFT OUTBOARD BEARINGS	MW 24M	-----
	2.01	(F) REFILL GREASE CUPS ON INTERRUPTER SHAFT OUTBOARD BEARINGS WITH FRESH GREASE	MW 24M	-----
	2.01	(F) TURN GREASE CUPS ON INTERRUPTER SHAFT OUTBOARD BEARINGS ONE TURN DOWN	MW 12M	-----
	2.02	CHECK FREEDOM OF ROTATING PARTS	MW 12M	-----
	2.03	CHECK ADJMT OF BRUSH HOLDERS	MW 12M	-----
	2.04	CHECK BRUSH LENGTH	MW 12M	-----
	2.05	CHECK BRUSH FIT	MW 12M	-----
	2.06	CHECK BRUSH PRESSURE	MW 12M	-----
	2.07	CHECK BEARINGS FOR EXCESSIVE WEAR	MW 12M	-----
	2.08	CHECK SHAFT ALIGNMENT	MW 12M	-----
	2.09	CHECK GEAR CASE AND OIL GAUGE FOR OIL LEAKS	MW M	-----
	2.10	CLEAN INSULATING WASHERS	MW 12M	-----
	2.11	(2.11-2.12) INSPECT AND CLEAN RING SURFACES	MW M	-----
	2.13	CHECK NOISE AND VIBRATION	MW M	-----
	2.14	CHECK CLEARANCE BETWEEN CURRENT CARRYING PARTS AND GRD METALLIC PARTS	MW 12M	-----

## 19.2 INTERRUPTERS; 149, 152, 160, 161, 164, 166--167 TYPE

## FOR ALL UNITS

163-651-701 (3/1)	2.02	(A) LUBRICATE GEAR TEETH AND CAM BEARING SURFACES	MW 3M	-----
	2.04	CHECK CAM ROLLER MOVEMENT	MW 12M	-----
	2.05	CHECK CAM ROLLER BRACKET POSITION	MW 12M	-----
	2.06	CHECK BACKLASH BETWEEN GEARS	MW 12M	-----
	2.07	CHECK COUNTER-SHAFT AND CAM SHAFT MOVEMENT	MW 12M	-----
	2.08	CHECK SHAFT AND GEAR ALIGNMENT (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
	2.09	CHECK SPRING TANG POSITION	MW 12M	-----
	2.10	CHECK CONTACT ALIGNMENT	MW 12M	-----
	2.11	CHECK TANG PRESSURE	MW 12M	-----
	2.12	CHECK PRESSURE OF OPRG SPRING	MW 12M	-----
	2.13	CHECK CLEARANCE BETWEEN OPRG SPRING AND OPRG BAR	MW 12M	-----
	2.14	CHECK CONTACT SEPARATION	MW 12M	-----
	2.15	CHECK CONTACT FOLLOW	MW 12M	-----
	2.16	CHECK PRESSURE BETWEEN CAM AND CAM ROLLER	MW 12M	-----

163-651-701 (3/1)	2.17	CHECK CONTACT SEQUENCE (165 TYPE INTERRUPTER)	MW 12M	-----
OPTIONAL FEATURES, SELECT NO MORE THAN ONE CATEGORY				
FLANGED ROLLERS				
163-651-701 (3/1)	2.02	(B) LUBRICATE CAM ROLLER BEARINGS WITH FLANGED ROLLERS	MW 3M	-----
W/O FLANGED ROLLERS				
163-651-701 (3/1)	2.02	(B) LUBRICATE CAM ROLLER BEARINGS WITHOUT FLANGED ROLLERS	MW 3M	-----
OPTIONAL FEATURES				
BREAK & TRANSFER SPRINGS				
163-651-701 (3/1)	2.12	SPRING PRESSURE	MW 12M	-----
	2.13	SPRING CLEARANCE	MW 12M	-----
19.3 INTERRUPTERS; 157 TYPE				
FOR ALL UNITS				
163-605-701 (2/0)	2.01	CLEAN INTERRUPTER	MW 12M	-----
	2.02	(A) CHECK OPERATION OF "A" CAM ROLLER	MW 12M	-----
	2.03	(A) LUBE "A" CAM ROLLER BEARING	MW 6M	-----
	2.03	(B) LUBE CAM SHAFT BEARING ON INDEX WHEEL END	MW 12M	-----
	2.03	(C) LUBE CAM SHAFT BEARING ON CLUTCH END	MW 24M	-----
	2.03	(D) LUBE DRIVEN GEAR SHAFT BEARING	MW M	-----
	2.03	(E) LUBE DRIVING AND DRIVEN GEAR TEETH	MW M	-----
	2.05	(2.05-2.06) CHECK OPERATION OF GEARS AND GEAR SHAFT	MW 12M	-----
	2.07	(2.07-2.11) CHECK ARMATURE AIR GAP ALIGNMENT AND SPRING TENSION	MW 12M	-----
	2.12	CHECK OPERATE CURRENT FOR CLUTCH MAGNET	MW 18M	-----
	2.13	CHECK "A" CAM ROLLER PRESSURE	MW 12M	-----
	2.14	(2.14-2.20) CHECK CONTACT SPRING REQUIREMENTS	MW 18M	-----
	2.21	CHECK "A" CAM SPRING CLEARANCE	MW 18M	-----
	2.22	(2.22-2.23) CHECK PULSING CONTACT SPRING PRESSURE AND SEPARATION	MW 18M	-----
19.4 INTERRUPTERS; 163A, 163B, D81208 AND D86444				
FOR ALL UNITS				
163-606-701 (3/0)	2.01	CLEAN MOTOR AND INTERRUPTER EXTERIOR SURFACE	MW M	-----
	2.03	CHECK INTERRUPTER SPEED	MW 12M	-----
	2.04	CHECK FREEDOM OF ROTATING PARTS	MW 12M	-----
	2.05	CHECK GEAR MESH	MW 18M	-----
	2.06	CHECK PINION ENGAGEMENT	MW 18M	-----
	2.07	CHECK RADIAL PLAY IN BEARINGS	MW 18M	-----
	2.09	CLEAN AND OVERHAUL MOTOR	MW 18M	-----
	2.10	CHECK BRUSHES ON MOTOR COMMUTATOR AND SPEED REGULATOR	MW 18M	-----
	2.11	CHECK REGULATOR CONTACT POINT THICKNESS	MW 18M	-----
	2.12	CHECK REGULATOR CONTACT RING THICKNESS	MW 18M	-----

163-606-701 (3/0)	2.13	LUBRICATE MOTOR	MW 6M	-----
	2.15	(2.15-2.21) CHECK INTERRUPTER CONTACT REQUIREMENTS	MW 18M	-----

## 19.5 INTERRUPTERS; 163C, 163D, D87731

## FOR ALL UNITS

163-606-701 (3/0)	2.01	CLEAN MOTOR AND INTERRUPTER EXTERIOR SURFACE	MW M	-----
	2.03	CHECK INTERRUPTER SPEED	MW 12M	-----
	2.04	CHECK FREEDOM OF ROTATING PARTS	MW 12M	-----
	2.05	CHECK GEAR MESH	MW 18M	-----
	2.06	CHECK PINION ENGAGEMENT	MW 18M	-----
	2.07	CHECK RADIAL PLAY IN BEARINGS	MW 18M	-----
	2.08	LUBRICATE CAM SHAFT BEARINGS	MW M	-----
	2.09	CLEAN AND OVERHAUL MOTOR	MW 18M	-----
	2.10	CHECK BRUSHES ON MOTOR COMMUTATOR AND SPEED REGULATOR	MW 18M	-----
	2.11	CHECK REGULATOR CONTACT POINT THICKNESS	MW 18M	-----
	2.12	CHECK REGULATOR CONTACT RING THICKNESS	MW 18M	-----
	2.13	LUBRICATE MOTOR	MW 6M	-----
	2.15	(2.15-2.21) CHECK INTERRUPTER CONTACT REQUIREMENTS	MW 18M	-----

## 19.6 INTERRUPTERS; 165 TYPE

## FOR ALL UNITS

163-651-701 (3/1)	2.02	(A) LUBRICATE GEAR TEETH AND CAM BEARING SURFACES	MW 3M	-----
	2.04	CHECK CAM ROLLER MOVEMENT	MW 12M	-----
	2.05	CHECK CAM ROLLER BRACKET POSITION	MW 12M	-----
	2.06	CHECK BACKLASH BETWEEN GEARS	MW 12M	-----
	2.07	CHECK COUNTER-SHAFT AND CAM SHAFT MOVEMENT	MW 12M	-----
	2.09	CHECK SPRING TANG POSITION	MW 12M	-----
	2.10	CHECK CONTACT ALIGNMENT	MW 12M	-----
	2.11	CHECK TANG PRESSURE	MW 12M	-----
	2.12	CHECK PRESSURE OF OPRG SPRING	MW 12M	-----
	2.13	CHECK CLEARANCE BETWEEN OPRG SPRING AND OPRG BAR	MW 12M	-----
	2.14	CHECK CONTACT SEPARATION	MW 12M	-----
	2.15	CHECK CONTACT FOLLOW	MW 12M	-----
	2.16	CHECK PRESSURE BETWEEN CAM AND CAM ROLLER	MW 12M	-----
	2.17	CHECK CONTACT SEQUENCE (165-TYPE INTERRUPTERS)	MW 12M	-----

## OPTIONAL FEATURES, SELECT NO MORE THAN ONE CATEGORY

## FLANGED ROLLERS

163-651-701 (3/1)	2.02	(B) LUBRICATE CAM ROLLER BEARINGS WITH FLANGED ROLLERS	MW 3M	-----
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## W/O FLANGED ROLLERS

163-651-701 (3/1)	2.02 (B) LUBRICATE CAM ROLLER BEARINGS WITHOUT FLANGED ROLLERS	MW 3M	-----
19.7 INTERRUPTERS; 168B, 170, 171, D85620 - D85622			
FOR ALL UNITS			
163-607-701 (3/0)	2.01 CLEAN MOTOR AND INTERRUPTER EXTERIOR SURFACE	MW 3M	-----
	2.02 (A) LUBRICATE BALL BEARINGS	MW 6M	-----
	2.02 (B) LUBRICATE CAMS AND GEAR TEETH	MW 6M	-----
	2.06 CHECK COVER POSITION	MW 12M	-----
	2.09 CHECK GEAR ALIGNMENT	MW 12M	-----
	2.10 CHECK GEAR LASH	MW 12M	-----
	2.11 CHECK CLEARANCE BETWEEN GEARS AND GEAR GUARDS	MW 12M	-----
	2.14 CHECK POSITION OF SHOE ON CAM	MW 12M	-----
	2.15 CHECK MAIN SPRING TENSION	MW 12M	-----
	2.16 CHECK FEATHER SPRING TENSION	MW 12M	-----
	2.17 CHECK FEATURE SPRING ALIGNMENT	MW 12M	-----
	2.18 CHECK CONTACT ALIGNMENT	MW 12M	-----
	2.19 CHECK MAKE AND BREAK OF PULSE CONTACTS	MW 12M	-----

## OPTIONAL FEATURES, SELECT NO MORE THAN ONE CATEGORY

## 168B INTERRUPTERS

163-607-701 (3/0)	2.20 CHECK DISK POSITION	MW 12M	-----
	2.21 CHECK STUD ALIGNMENT	MW 12M	-----
	2.22 CHECK CONTACT ALIGNMENT	MW 12M	-----
	2.23 CHECK TENSION OF OPERATING SPRING	MW 12M	-----
	2.24 CHECK CLEARANCE BETWEEN CROSS HEAD AND STUD OF OPERATING SPRING	MW 12M	-----
	2.25 CHECK SEPARATION BETWEEN OPERATING SPRING AND STATIONARY SPRING	MW 12M	-----
	2.26 CHECK FEATHER SPRING TENSION	MW 12M	-----
	2.27 CHECK FEATHER SPRING POSITION	MW 12M	-----
	2.28 CHECK CONTACT SEPARATION BETWEEN OPERATING SPRING AND FEATHER SPRING	MW 12M	-----
	2.29 CHECK RETRACTILE SPRING TENSION	MW 12M	-----
	2.30 CHECK RETRACTILE SPRING BRACKETS	MW 12M	-----
163-670-701 (3/0)	2.05 (B) CHECK MOTOR SPEED	MW 6M	-----
	2.08 CHECK CLEARANCE BETWEEN COUPLING HEAD AND LEATHER DISK	MW 12M	-----

## 170A AND D85621-D85622 INTERRUPTERS

163-670-701 (3/0)	2.05 (A) CHECK MOTOR SPEED	MW 6M	-----
	2.07 CHECK FLYWHEEL POSITION	MW 12M	-----
	2.12 CHECK CLEARANCE BETWEEN FLYWHEEL AND FLYWHEEL GUARD	MW 12M	-----
	2.13 CHECK RELATION BETWEEN HIGH AND LOW SPEED CAM SHAFTS	MW 12M	-----

## 171A AND D85620 INTERRUPTERS

## SECTION 163-001-011

163-670-701 (3/0)	2.05	(A) CHECK MOTOR SPEED	MW 6M	-----
	2.07	CHECK FLYWHEEL POSITION	MW 12M	-----
	2.12	CHECK CLEARANCE BETWEEN FLYWHEEL AND FLYWHEEL GUARD	MW 12M	-----

## 19.8 INTERRUPTERS; 173 TYPE

## FOR ALL UNITS

163-609-701 (2/0)	2.01	CLEAN INTERRUPTER CONTACTS, GEARS, AND CAMS	MW 12M	-----
	2.02	LUBRICATE GEAR TEETH, OILITE BUSHING, AND PULSE CAM SURFACE	MW 12M	-----
	2.07	(2.07-2.12) CHECK MICRO SWITCH AND RELAY REQUIREMENTS	MW 12M	-----
	2.13	(2.13-2.17) CHECK PULSE SPRING ASSEMBLY REQUIREMENTS	MW 12M	-----

## 19.9 INTERRUPTERS; D-80264

## FOR ALL UNITS

163-606-701 (3/0)	2.01	CLEAN MOTOR AND INTERRUPTER EXTERIOR SURFACE	MW M	-----
	2.03	CHECK INTERRUPTER SPEED	MW 18M	-----
	2.04	CHECK FREEDOM OF ROTATING PARTS	MW 18M	-----
	2.05	CHECK GEAR MESH	MW 18M	-----
	2.06	CHECK PINION ENGAGEMENT	MW 18M	-----
	2.07	CHECK RADIAL PLAY IN BEARINGS	MW 18M	-----
	2.09	CLEAN AND OVERHAUL MOTOR	MW 18M	-----
	2.10	CHECK BRUSHES ON MOTOR COMMUTATOR AND SPEED REGULATOR	MW 18M	-----
	2.11	CHECK REGULATOR CONTACT POINT THICKNESS	MW 18M	-----
	2.12	CHECK REGULATOR CONTACT RING THICKNESS	MW 18M	-----
	2.13	LUBRICATE MOTOR	MW 6M	-----
	2.15	(2.15-2.20) CHECK INTERRUPTER CONTACT REQUIREMENTS	MW 18M	-----

## OPTIONAL FEATURES

## WITH SCALE &amp; POINTER

163-606-701 (3/0)	2.21	OPEN INTERVAL MEASUREMENTS WHEN EQUIPPED WITH SCALE & POINTER	MW 18M	-----
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## 19.10 INTERRUPTERS; J86839B

## FOR ALL UNITS

163-680-301 (2/0)	5.00	ROUTINE CHECKS	MW 12M	-----
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## 19.11 INTERRUPTERS; J87395A

## FOR ALL UNITS

163-676-301 (1/0)	4.02	CHECK INPUT VOLTAGE	MW 6M	-----
	4.03	CHECK INTERRUPTER OUTPUT FREQUENCY ADJMT	MW 6M	-----
	4.04	CHECK FUSE FAILURE ALARM	MW 6M	-----

## TROUBLE TESTS

163-676-301 (1/0)	5.01	(5.01-5.02) TROUBLE CONDITIONS	TT	-----
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## 19.12 INTERRUPTERS; KS-5068 L1-L3

## FOR ALL UNITS

163-781-701	(3/0)	2.01	(A) CLEAN AND REPACK (FRESH GREASE) POLE CHANGER AND MOTOR BEARINGS	MW 24M	-----
		2.01	(B) GREASE MOTOR BEARING CHAMBER	MW 12M	-----
		2.04	CLEAN AND INSPECT MOTOR COMMUTATOR AND POLE CHANGER DRUM SURFACES	MW 12M	-----
		2.06	CHECK BRUSH LENGTH	MW 12M	-----
		2.07	CHECK BRUSH FIT	MW 12M	-----
		2.08	CHECK MOTOR SPEED	MW 12M	-----
		2.09	CHECK TEMPERATURE	MW 12M	-----
		2.10	CHECK FOR EXCESSIVE NOISE AND VIBRATION	MW 12M	-----

## TROUBLE TESTS

163-781-701	(3/0)	2.02	(A) CONDITION OF MOTOR BEARINGS	TT	-----
		2.02	(B) CONDITION OF POLE CHANGE BEARINGS	TT	-----
		2.03	ALIGNMENT OF POLE CHANGER DRUMS	TT	-----
		2.05	BRUSH HOLDER ALIGNMENT	TT	-----

## 19.13 INTERRUPTERS; KS-5068 L4,L5

## FOR ALL UNITS

163-780-701	(3/0)	2.01	LUBRICATION	MW 36M	-----
		2.06	CHECK BRUSH LENGTH	MW 12M	-----
		2.08	CHECK TEMPERATURE	MW 12M	-----
		2.09	CHECK FOR NOISE AND VIBRATION	MW 12M	-----

## 19.14 INTERRUPTERS; KS-5131

## FOR ALL UNITS

163-675-701	(8/0)	2.01	(A) LUBRICATE MOTOR SHAFT BEARINGS	MW 48M	-----
		2.01	(E) LUBRICATE WORM AND WORM GEAR	MW 3M	-----
		2.01	(F) LUBRICATE LOW SPEED SHAFT BEARINGS	MW 3M	-----
		2.02	CHECK FOR NOISE AND VIBRATION	MW 3M	-----
		2.05	INSPECT COMMUTATOR AND INTERRUPTER DRUM SURFACES	MW 3M	-----
		2.06	CHECK COMMUTATION	MW M	-----
		2.07	CHECK MOTOR-BRUSH-HOLDER YOKE ADJMT	MW 12M	-----
		2.09	(2.09-2.10) CHECK BRUSH CONDITION AND LENGTH	MW 12M	-----
		2.11	CHECK BRUSH PRESSURE	MW 12M	-----
		2.12	CHECK LOW SPEED INTERRUPTER CONTACT SPRINGS	MW 12M	-----
		2.13	(A) CHECK TIMING	MW M	-----

## TROUBLE TESTS

163-675-701	(8/0)	2.04	(A) MOTOR SPEED	TT	-----
		2.08	BRUSH HLDR CLRNC	TT	-----
		2.15	BEARINGS & MOTOR FRAME TEMPERATURE	TT	-----

## 19.15 INTERRUPTERS; KS-5132,KS5187,KS-5188 &amp; KS-5313

## FOR ALL UNITS

SECTION 163-001-011

▶	163-675-701 (8/0)	2.01 (A) LUBRICATE MOTOR SHAFT BEARINGS	MW 48M	-----
		2.01 (E) LUBRICATE WORM AND WORM GEAR	MW 3M	-----
		2.02 CHECK FOR NOISE AND VIBRATION	MW 3M	-----
		2.05 INSPECT COMMUTATOR AND INTERRUPTER DRUM SURFACES	MW 3M	-----
		2.06 CHECK COMMUTATION	MW M	-----
▶		2.07 CHECK MOTOR-BRUSH-HOLDER YOKE ADJMT	MW 12M	-----
		2.09 (2.09-2.10) CHECK BRUSH CONDITION AND LENGTH	MW 12M	-----
		2.11 CHECK BRUSH PRESSURE	MW 12M	-----
		2.12 CHECK LOW SPEED INTERRUPTER CONTACT SPRINGS	MW 12M	-----
		2.13 (A) CHECK TIMING	MW M	-----

▶ TROUBLE TESTS

▶	163-675-701 (8/0)	2.04 (A) MOTOR SPEED	TT	-----
▶		2.08 BRUSH HLDR CLRNC	TT	-----
▶		2.15 BEARINGS & MOTOR FRAME TEMPERATURE	TT	-----

19.16 INTERRUPTERS; KS-5458

FOR ALL UNITS

	163-675-701 (8/0)	2.01 (E) LUBRICATE WORM AND WORM GEAR	MW 3M	-----
		2.01 (F) LUBRICATE LOW SPEED SHAFT BEARINGS	MW M	-----
		2.01 (G) LUBRICATE CAM SHAFT SLEEVE BEARINGS	MW 3M	-----
		2.02 CHECK FOR NOISE AND VIBRATION	MW 3M	-----
		2.05 INSPECT COMMUTATOR AND INTERRUPTER DRUM SURFACES	MW 3M	-----
		2.06 CHECK COMMUTATION	MW M	-----
▶		2.07 CHECK MOTOR-BRUSH-HOLDER YOKE ADJMT	MW 12M	-----
		2.09 (2.09-2.10) CHECK BRUSH CONDITION AND LENGTH	MW 12M	-----
		2.11 CHECK BRUSH PRESSURE	MW 12M	-----
		2.12 CHECK LOW SPEED INTERRUPTER CONTACT SPRINGS	MW 12M	-----
		2.13 (A & B) CHECK TIMING	MW M	-----

OPTIONAL FEATURES, SELECT NO MORE THAN ONE CATEGORY

MOTOR AD-20

▶	163-675-701 (8/0)	2.01 (B1) LUBRICATE MOTOR SHAFT BEARINGS	MW 48M	-----
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MOTOR CWD-2215

▶	163-675-701 (8/0)	2.01 (B2) LUBRICATE MOTOR SHAFT BEARINGS	MW 6M	-----
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MOTOR CBD-2215

▶	163-675-701 (8/0)	2.01 (B3) REPLACE MOTOR SHAFT BEARINGS	MW 60M	-----
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▶ TROUBLE TESTS

▶	163-675-701 (8/0)	2.04 (B) MOTOR SPEED	TT	-----
▶		2.08 BRUSH HLDR CLRNC	TT	-----
▶		2.15 BEARINGS & MOTOR FRAME TEMPERATURE	TT	-----

19.17 INTERRUPTERS; KS-5545

FOR ALL UNITS

163-675-701	(8/0)	2.01	(C) LUBRICATE MOTOR SHAFT BEARINGS AND GEAR CASE	MW	12M	-----
		2.01	(E) LUBRICATE WORM AND WORM GEAR	MW	3M	-----
		2.02	CHECK FOR NOISE AND VIBRATION	MW	3M	-----
		2.05	INSPECT COMMUTATOR AND INTERRUPTER DRUM SURFACES	MW	3M	-----
		2.06	CHECK COMMUTATION	MW	M	-----
		2.07	CHECK MOTOR-BRUSH-HOLDER YOKE ADJMT	MW	12M	-----
		2.09	(2.09-2.10) CHECK BRUSH CONDITION AND LENGTH	MW	12M	-----
		2.11	CHECK BRUSH PRESSURE	MW	12M	-----
		2.12	CHECK LOW SPEED INTERRUPTER CONTACT SPRINGS	MW	12M	-----
		2.13	(C-F) CHECK TIMING	MW	M	-----
TROUBLE TESTS						
163-675-701	(8/0)	2.04	(C) MOTOR SPEED	TT		-----
		2.08	BRUSH HLDR CLRNC	TT		-----
		2.15	BEARINGS & MOTOR FRAME TEMPERATURE	TT		-----
19.18 INTERRUPTERS; KS-5746						
FOR ALL UNITS						
163-630-701	(2/0)	2.01	CHECK GRAPHITE OILLESS BEARINGS (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW	*	-----
		2.02	CHECK END PLAY (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW	*	-----
		2.03	CHECK FREEDOM OF ROTATING PARTS	MW	12M	-----
		2.04	CHECK FOR NOISE AND VIBRATION	MW	12M	-----
		2.05	CHECK INTERRUPTER SPRINGS AND CONTACTS	MW	12M	-----
		2.06	CHECK TIMING AND TOLERANCES	MW	12M	-----
19.19 INTERRUPTERS; KS-15509						
FOR ALL UNITS						
163-631-701	(1/0)	2.01	LUBRICATE GEAR TRAIN	MW	12M	-----
		2.03	CHECK FREEDOM OF ROTATING PARTS (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW	*	-----
		2.04	CHECK FOR NOISE AND VIBRATION (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW	*	-----
		2.05	CHECK INTERRUPTER SPRING CONTACTS	MW	12M	-----
		2.06	CHECK INTERRUPTER TIMING	MW	12M	-----
19.20 INTERRUPTERS; KS-15547						
FOR ALL UNITS						
163-675-701	(8/0)	2.01	(D) REPLACE MOTOR SHAFT BEARINGS	MW	60M	-----
		2.01	(E) LUBRICATE WORM AND WORM GEAR	MW	3M	-----
		2.02	CHECK FOR NOISE AND VIBRATION	MW	3M	-----
		2.05	INSPECT COMMUTATOR AND INTERRUPTER DRUM SURFACES	MW	3M	-----
		2.06	CHECK COMMUTATION	MW	12M	-----
		2.07	CHECK MOTOR-BRUSH-HOLDER YOKE ADJMT	MW	12M	-----

## SECTION 163-001-011

163-675-701 (8/0)	2.09 (2.09-2.10)	CHECK BRUSH CONDITION AND LENGTH	MW 12M	-----
	2.11	CHECK BRUSH PRESSURE	MW 12M	-----
	2.12	CHECK LOW SPEED INTERRUPTER CONTACT SPRINGS	MW 12M	-----
	2.14	CHECK OPERATION OF CENTRIFUGAL STARTING SWITCH	MW 12M	-----
◆ TROUBLE TESTS				
163-675-701 (8/0)	2.04 (D)	MOTOR SPEED	TT	-----
	2.08	BRUSH HLDR CLRNC	TT	-----
	2.15	BEARINGS & MOTOR FRAME TEMPERATURE	TT	-----
19.21 INTERRUPTERS; KS-15634				
FOR ALL UNITS				
163-220-701 (7/1)	2.03	CHECK FOR NOISE AND VIBRATION	MW 12M	-----
	2.04	CHECK TEMPERATURE	MW 12M	-----
	2.06	CHECK CONTACT FOLLOW	MW 12M	-----
	2.07	CHECK TIMING REQUIREMENTS	MW 12M	-----
OPTIONAL FEATURES				
HOLTZER-CABOT/INDIANA GENERAL LUBE GEAR BOX MFG PRIOR TO 1-1-72				
163-220-701 (7/1)	2.02 (A)	LUBRICATE INTERRUPTER GEAR BOX (HOLTZER-CABOT AND INDIANA GENERAL, INC.) NOTE: HOLTZER-CABOT MFRD AFTER 1-1-72 IS LIFE-LUBRICATED	MW 12M	-----
19.22 INTERRUPTERS; KS-15757				
FOR ALL UNITS				
163-220-701 (7/1)	2.02 (C)	LUBRICATE INTERRUPTER SHAFT BEARING OF KS-15757 L1 (HOLTZER-CABOT AND INDIANA GENERAL, INC)	MW 12M	-----
	2.03	CHECK FOR NOISE AND VIBRATION	MW 12M	-----
	2.04	CHECK TEMPERATURE	MW 12M	-----
	2.06	CHECK CONTACT FOLLOW	MW 12M	-----
	2.07	CHECK TIMING REQUIREMENTS	MW 12M	-----
OPTIONAL FEATURES				
HOLTZER-CABOT/INDIANA GENERAL LUBE GEAR BOX MFG PRIOR TO 1-1-72				
163-220-701 (7/1)	2.02 (A)	LUBRICATE INTERRUPTER GEAR BOX (HOLTZER-CABOT AND INDIANA GENERAL, INC.) NOTE: HOLTZER-CABOT MFRD AFTER 1-1-72 IS LIFE-LUBRICATED	MW 12M	-----
19.23 INTERRUPTERS; 169A, 169B, AND 26B CONN BLK				
FOR ALL UNITS				
163-608-701 (2/0)	2.01	CLEAN RELAY CONTACTS AND PARTS	MW W	-----
	2.02	CHECK TIGHTNESS OF ASSY OF 26B CONN BLK	MW 6M	-----
	2.03	CHECK SPRING POSITION FOR 26B CONN BLK E/W TWO SPRING ASSY (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
	2.04	CHECK SPRING POSITION FOR 26B CONN BLK E/W FOUR SPRING ASSY (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----

163-608-701	(2/0)	2.05	CHECK INTERRUPTER TERMINALS	MW 12M	-----
		2.06	CHECK SPONGE RUBBER PADS (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
		2.07	CHECK CONTACT ALNMT	MW 12M	-----
		2.08	CHECK CORE AIR-GAPS	MW 12M	-----
		2.09	CHECK BACK STOP GAP	MW 12M	-----
		2.10	CHECK REED AND SPRING CONTACT SEPARATION (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
		2.11	CHECK TIGHTNESS OF CLAMPING SCREWS AND BOLTS (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
		2.12	CHECK ELECTRICAL REQ	MW 12M	-----
19.24 INTERRUPTERS; 84A, 84C -- 84H, 84J TYPE					
FOR ALL UNITS					
163-600-701	(2/0)	2.01	CHECK STARTING AND OPERATING BATTERY VOLTAGE	MW 12M	-----
		2.02	(A) CHECK RINGING VOLTAGES	MW 12M	-----
		2.02	(B) CHECK OUTPUT FREQUENCY	MW 6M	-----
TROUBLE TESTS					
163-600-701	(2/0)	2.02	(C-N) APPARATUS REQUIREMENTS FAILURE	TT	-----
19.25 INTERRUPTERS; 100B -- 100-D, D-77176					
FOR ALL UNITS					
163-601-701	(1/0)	2.02	CHECK CONTACT ALIGNMENT	MW 12M	-----
		2.04	CHECK CONTACT SPRING LOCATION	MW 12M	-----
		2.06	CHECK TIGHTNESS OF CLAMPING SCREWS AND LOCK NUTS (UPON REPAIR OF EQPT OR PRFRMC INDICATES CHECK ADVISABLE)	MW *	-----
		2.07	CLEAN AND INSPECT CONTACTS	MW 12M	-----
OPTIONAL FEATURES, SELECT NO MORE THAN ONE CATEGORY					
100-B INTERRUPTER ONLY					
163-601-701	(1/0)	2.01	(A) CHECK MAGNET CORE AND REED AIR GAP	MW 12M	-----
		2.03	CHECK CONTACT SPRING TENSION	MW 12M	-----
		2.05	(A) CHECK ELECTRICAL REQ	MW 12M	-----
100-C AND D-77176 INTERRUPTER ONLY					
163-601-701	(1/0)	2.01	(B) CHECK MAGNET CORE AND REED AIR GAP	MW 12M	-----
		2.03	CHECK CONTACT SPRING TENSION	MW 12M	-----
		2.05	(B) CHECK ELECTRICAL REQ	MW 12M	-----
100-D INTERRUPTER ONLY					
163-601-701	(1/0)	2.01	(B) CHECK MAGNET CORE AND REED AIR GAP	MW 12M	-----
		2.05	(B) CHECK ELECTRICAL REQ	MW 12M	-----
19.26 INTERRUPTERS; 153 TYPE					
FOR ALL UNITS					
163-602-701	(2/0)	2.01	CLEAN MOTOR HOUSING, BASE, GEAR CASING AND INTERRUPTER ROLLS	MW M	-----
		2.02	(A) LUBRICATE GEAR TEETH	MW M	-----

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163-602-701 (2/0)	2.02 (B) LUBRICATE BALL BEARINGS AT GEAR CASE END	MW M	-----
	2.02 (C) LUBRICATE BALL BEARINGS AT END OPPOSITE GEAR CASE	MW 12M	-----
	2.06 CHECK DEAD INTERMEDIATE SEGMENTS	MW M	-----
	2.07 (A) CHECK OIL LEVEL IN BOTTOM GEAR CASE	MW W	-----
	2.07 (B) DRAIN BOTTOM GEAR CASE OIL (KS-2245 OIL - 24M, KS-16326 OIL - 60M)	MW *	-----
	2.08 CHECK LEAKAGE AT SEALED JOINTS	MW D	-----
	2.09 CHECK LEAKAGE AT OIL CLOSURES	MW D	-----
	2.10 CHECK BRUSH FIT	MW 12M	-----
	2.11 REPLACE BRUSHES (PRIOR TO BRUSH FINGERS REACHING STOPS)	MW *	-----
	2.12 CHECK INSULATION IN TRANSVERSE AND PERIPHERAL SLOTS	MW 12M	-----
	2.13 CHECK ALARM CONTACT CONDITION AND PRESSURE	MW 12M	-----
	2.14 CHECK DRUM SURFACE	MW 12M	-----
	2.15 CHECK DRUM SHAFT END PLAY	MW 12M	-----
	2.16 CHECK BRUSH CENTERING	MW 12M	-----
	2.17 CHECK BRUSH FINGER PRESSURE	MW 12M	-----

## 19.27 INTERRUPTERS; 155A

## FOR ALL UNITS

163-603-701 (2/0)	2.1 CLEAN SURFACES	MW 12M	-----
	2.10 CHECK MOTOR BRUSH LENGTH	MW 12M	-----
	2.13 LUBRICATE MOTOR BEARINGS	MW 6M	-----
	2.16 INSPECT AND LUBRICATE CAM SHAFT AND "A" CAM ROLLER BEARINGS	MW 12M	-----
	2.19 CHECK ARMATURE - POLE PIECE AIR GAP	MW 12M	-----
	2.20 CHECK ARMATURE - DRIVING DISK ALIGNMENT	MW 12M	-----
	2.21 CHECK ARMATURE SPRING TENSION	MW 12M	-----
	2.22 CHECK CLUTCH MAGNET OPERATING CURRENT	MW 12M	-----
	2.23 CHECK "A" CAM ROLLER PRESSURE	MW 12M	-----
	2.24 CHECK INTERRUPTER CONTACT SPRING PRESSURE	MW 12M	-----
	2.25 (2.25-2.30) CHECK CLEARANCE AND POSITION OF CONTACT SPRINGS	MW 12M	-----
	2.3 CHECK INTERRUPTER SPEED	MW 12M	-----
	2.31 CHECK POSITION OF "A" CAM CONTACT SPRING	MW 12M	-----
	2.32 (2.32-2.33) CHECK PULSING SPRING CONTACT PRESSURE AND GAP	MW 12M	-----
	2.34 CHECK POINTER ADJMT	MW 12M	-----
	2.35 CLEAN INTERRUPTER DRUM	MW 12M	-----
	2.36 REPLACE INTERRUPTER BRUSHES (PRIOR TO BRUSH FINGERS REACHING STOPS)	MW *	-----
	2.37 CHECK BRUSH FIT	MW 12M	-----
	2.38 CHECK ECCENTRICITY OF INTERRUPTER DRUM	MW 12M	-----
	2.39 CHECK BRUSH FINGER PRESSURE	MW 12M	-----

163-603-701 (2/0)	2.4	CHECK OIL LEVEL IN GEAR CASE	MW W	-----
	2.5	DRAIN GEAR CASE OIL	MW 6M	-----
	2.7	CHECK LEAKAGE AT SEALED JOINTS	MW D	-----
	2.8	CHECK LEAKAGE AT OIL CLOSURES	MW D	-----
	2.9	CLEAN MOTOR HOUSING AND REGULATOR PARTS	MW 6M	-----
19.28 INTERRUPTERS; 156B AND J68602AF				
FOR ALL UNITS				
163-604-701 (4/0)	2.01	CLEAN RELAY CONTACTS	MW 12M	-----
	2.02	CHECK VIBRATOR REED-MAGNET CORE AIR GAP	MW 12M	-----
	2.03	CHECK VIBRATOR CONTACT ALNMT	MW 12M	-----
	2.04	CHECK VIBRATOR CONTACT SPRING TENSION	MW 12M	-----
	2.05	CHECK VIBRATOR CONTACT SPRING LOCATION	MW 12M	-----
	2.06	CHECK INTERRUPTER OUTPUT CURRENT FREQUENCY	MW 12M	-----
	2.07	CHECK VIBRATOR CONTACT ADJMT	MW 12M	-----
	2.08	CHECK MINIMUM VOLTAGE START	MW 12M	-----
	2.09	CHECK TIGHTNESS OF VIBRATOR CLAMPING SCREWS AND LOCK NUTS	MW 12M	-----