

J87395A INTERRUPTER
30-, 60-, AND 120-IPM
OPERATING METHODS

1. GENERAL

1.01 The J87395A interrupter operates from a -48 volt dc supply to provide 30-, 60-, and 120-ipm interrupted ground or loop pulses. The J87395A solid state interrupter is designed primarily as a direct replacement for the J86212J, L2 and J86212S, L6 interrupter supplies used in manual and toll tandem offices. The J86212J, L2 and J86212S, L6 interrupter supplies utilize KS-5545 L1 and KS-5448 L5 motor driven interrupters, respectively.

1.02 This issue does affect the Equipment Test List.

1.03 The J87395A interrupter utilizes solid state timing circuits which drive relays to provide the interruptions. The basic J87395A interrupter is equipped as X option to provide outputs of 120- and 60-ipm. The 30-ipm output is provided as T option when required. Additional circuit options provide start-stop operation (Y option) and manual transfer of the interrupter output (Z option).

1.04 The J87395A interrupter provides the following outputs:

(1) Interrupted ground pulses—S option:

120 IPM, BR1

120 IPM, BR3

60 IPM, BR1

60 IPM, BR3

30 IPM, BR1 (T option)

30 IPM, BR3 (T option)

(2) Loop pulses—R option:

120A and 120B

120A and 120B

60A and 60B

60A and 60B

30A and 30B (T option)

1.05 The input supply is protected through a 48-volt, 3-ampere dc input fuse. The interrupter circuit packs are protected by A0 and A1 alarm type fuses. When the A0 or A1 fuse blows, the FA relay operates to light the red FA alarm lamp and provide contact closures for remote visual and audible alarms.

1.06 This section is based on drawing SD-82122-01, Issue 2. If this section is to be used with equipment or apparatus that is associated with a later issue of the drawing, reference should be made to the SDs and CDs to determine the extent of the changes and the manner in which the section may be affected.

2. LIST OF TOOLS AND TEST APPARATUS

CODE OR SPEC. NO.	DESCRIPTION
TOOLS	
—	6 inch C Screwdriver
TEST APPARATUS	
KS-3008	Stopwatch
KS-14510	Volt-Ohm-Milliammeter
—	Testing cord—WIAY Cord, 8 feet 6 inches long, equipped with a KS-6278 connecting clip and a 411C tool.

3. OPERATION

3.01 Description of Operation: For operational reliability, the interrupter output can be switched to equalize usage of a duplicate interrupter, or to operate as a reserve unit for a single ringing machine.

(a) Duplicate Interrupter Operation: When the interrupter is connected to operate with a duplicate interrupter, the interrupter output is switched by the TRNS transfer switch located on one of the interrupter panels. When the TRNS transfer switch is in the NORM position, the interrupter equipped with the TRNS transfer switch provides the circuit interruptions. When the TRNS transfer switch is operated to the TRNS position, the circuit interruptions are provided by the duplicate interrupter.

(b) Reserve Operation: When the interrupter is connected to operate as a reserve for a single ringing machine, the TRNS transfer switch located on the interrupter panel, is used to switch the interrupter in the circuit. When the TRNS transfer switch is in the NORM position, the circuit interruptions are provided by the ringing machine. When the TRNS transfer switch is operated to the TRNS position, the interrupter provides the circuit interruptions.

(c) Start-Stop Operation: Start-stop operation is provided as Y option. The make contacts of the MS relay disconnect battery from the interrupter when the MS relay releases. The MS relay releases when ground is removed from the relay at an external location.

3.02 Preparing to Start Initially: Before starting the interrupter, check the following.

- (1) All external connections are made in accordance with the SD drawing covering the associated circuits.
- (2) The A0 and A1 alarm fuses are removed from the fuse blocks. If a duplicate interrupter is provided, the A0 and A1 fuses are removed from the duplicate interrupter.
- (3) The -48 volt dc input fuse for each interrupter is installed at the power distribution fuse panel.

- (4) The TRNS transfer switch, if provided, is in the NORM position.
- (5) Verify that ground is connected to the MS relay, if provided (Y option).

3.03 Starting: To start the interrupter, install the A0 and A1 fuses in the fuse blocks for each interrupter.

Requirement: The FA relay is released, the MS relay, if provided, is operated, and the interrupter relays start operating.

3.04 Stepping: To stop the interrupter, proceed as follows.

- (1) Operate the TRNS transfer switch in accordance with 3.01 (a) or (b) to remove the load from the interrupter being stopped.
- (2) Remove the A0 and A1 alarm fuses from the fuse blocks of the interrupter being stopped.
- (3) Remove the -48 volt dc input fuse located at the power distribution fuse panel.

4. ROUTINE CHECKS

4.01 Perform the following routine checks in accordance with the Equipment Test List, or after the interrupter has been out of service for an extended period of time and is to be returned to service.

4.02 Input Voltage Checks: Check that the dc input voltage is within the required limits with the interrupter in normal operation.

- (1) Connect the dc voltmeter leads between the battery (B) terminal on the back of the A0 alarm fuse block and ground.

Requirement: The test meter indicates -42.75 to -52.5 volts dc.

- (2) Disconnect the test meter from the fuse and ground.

4.03 Interrupter Frequency Adjustment: Check the frequency of operation of the interrupter

output relays with the interrupter in normal operation. Refer to Table A for contact closure timing.

TABLE A

DESIGNATION AND USE	SEE NOTE	LIMITS IN MSEC	SEC							
			0	1	2	3	4	5	6	
30 IPM	1	1750	—	—	—	—	—	—	—	—
60 IPM	1	500	—	—	—	—	—	—	—	—
120 IPM	1	250	—	—	—	—	—	—	—	—
NOTES: 1. THIS INTERVAL SHOWN DENOTES THE CLOSURE OF THE FOLLOWER RELAY MAKE CONTACTS.										

Note: If the 30-ipm relay is *not* provided, proceed to (2).

- (1) Count the number of times that the 30-ipm relay operates in 2 minutes. Use the KS-3008 stopwatch.

Requirement: The 30-ipm relay operates 60 times.

Note: If the requirement is met, no frequency adjustment is necessary. If the requirement is not met, proceed to (3).

- (2) Count the number of times that the 60-ipm relay operates in 2 minutes. Use the KS-3008 stopwatch.

Requirement: The 60-ipm relay operates 120 times.

Note: If the requirement is met, no frequency adjustment is necessary. If the requirement is not met, continue with (3).

- (3) Adjust the FREQ ADJ (R3) potentiometer 1/8 turn cw to increase the relay frequency of operation or 1/8 turn ccw to decrease the relay frequency of operation. Repeat (1) or (2) to check the number of times that the relay operates. Readjust as necessary.

4.04 Fuse Failure Alarm: Check the operation of the FA relay with the interrupter in normal operation.

- (1) Connect the clip of the alarm test cord to the battery (B) terminal on the back of the A0 fuse block or the distribution bus, if provided.
- (2) Insert the tip of the 411C tool (attached to the test cord) into the aperture of the A0 fuse block cap, adjacent to the colored bead of the fuse, to a point where contact is made with the alarm surface of the fuse cap.

Requirement: The FA relay operates. Make contacts of the FA relay provide closures for remote audible and visual alarms. The red FA lamp lights.

- (3) Remove the 411C tool from the fuse cap.

Requirement: The FA relay releases. The remote audible and visual alarms deactivate and the red FA lamp extinguishes.

- (4) Repeat (2) and (3) for the A1 alarm fuse.
- (5) Disconnect the test cord clip from battery.

5. TROUBLES

5.01 When a trouble condition exists in the J87395A interrupter circuit, transfer to an alternate interrupter, if provided, and remove the A0 and A1 alarm fuses. Check the possible causes for the trouble as given in the trouble chart. If the trouble is not found, look for loose or faulty circuit pack connectors.

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5.02 If a circuit pack is indicated defective, replace the circuit pack with a factory adjusted spare. Relays located on circuit packs are not adjustable.

TROUBLE	POSSIBLE CAUSE
Interrupter relays do not operate	<ol style="list-style-type: none"> 1. No dc input voltage. 2. Faulty 120-ipm circuit pack-CP1. 3. Blown A0 or A1 fuse. 4. MS relay released, if provided.

TROUBLE	POSSIBLE CAUSE
60-ipm and 30-ipm relays do not operate, 120-ipm relay operates properly	<ol style="list-style-type: none"> 1. Faulty 60-ipm circuit pack-CP2.
30-ipm relay does not operate, 120-ipm and 60-ipm relays operate properly	<ol style="list-style-type: none"> 1. Faulty 30-ipm relay. 2. Faulty 30-ipm circuit pack-CP3.
Interrupter relays operate erratically	<ol style="list-style-type: none"> 1. Loose circuit pack connector.
Incorrect Frequency	<ol style="list-style-type: none"> 1. FREQ ADJ (R3) potentiometer out of adjustment (see 4.04).