

INTERCONNECTING DEVICES

COMMON EQUIPMENT

142A TEST SET

1. GENERAL

1.01 This section provides identification, operation, and maintenance information for the 142A test set.

1.02 This section is reissued to:

- Change title to delete reference to 242A adapter
- Remove Fig. 2 (242A adapter)
- Change Fig. 3 (142A Test Set, Connections) to Fig. 2 and revise wiring for CS-CG resistance switch
- Revise Fig. 1 to show new slide switch for CS-CG resistance switch
- Add Tables A and B
- Add new lead assemblies.

1.03 This issue of the section is based on the following drawing:

SD-1E258-01, Issue 1—142A Test Set

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawing, reference should be made to the SDs to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

PURPOSE

2.01 The 142A test set (Fig. 1) is designed to permit field testing of various multilead interconnecting units (IUs) by simulating the inputs

from the customer-provided equipment (CPE). The test set can be used for installation and maintenance tests of the 101-, 102-, 108-, and J53050J-type IUs.

ORDERING GUIDE

(a) *Basic Unit*

- Set, Test, 142A

(b) *Replaceable Components*

- 841122322 Lead Assembly—two conductor, for supplying power to test set
- 841224330 Lead Assembly—ten conductor, for access to IU. Furnished with alligator clips for connection to all 66-type blocks.
- Fuse, 70H (3/4 ampere)
- Lamp, A3—replacement for PWR, CS, CBS-, C-, CRV- lamps

(c) *Optional Components*

- 841720527 Lead Assembly—ten conductor, with 961A connector (200 mil spacing) for connection to 66M1-50 connecting block
- 841720535 Lead Assembly—ten conductor, with 961B or RS-16349 connector (250 mil spacing) for connection to 66-type connecting block (see Table A).

(d) *Associated Apparatus*

- Set, Test Hand, 1013A, or equivalent.

NOTICE

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

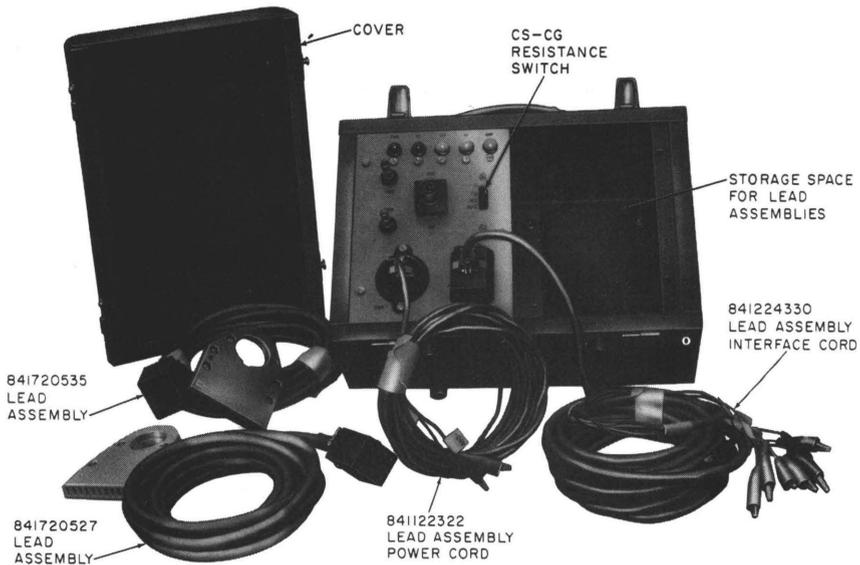


Fig. 1—142A Test Set Shown With Optional Lead Assemblies

DESIGN FEATURES

2.02 Features of the 142A test set:

- Self-contained in portable metal case 10 inches wide, 6 inches high, and 7 inches deep, including lead assembly storage space. The cover is removable.
- Powered from same 24-volt power source as IU under test.
- Permits complete installation and maintenance testing on the customer's premises for the following IUs:

IU TYPE	USOC CODE
101	CDH, CED
102	CD7, CD8, CD9, C2ACP, C2AKS, CET
108	CD6, CDA
J53050J	TAS

- Visual indications of the status of the IU output leads.
- Terminals for 1013A hand test set, or equivalent, to permit monitoring or voice communication.
- Provision for varying resistance in CS-CG loop.

Note: This is a slide switch on current production; earlier models used a rotary switch.

- Self-indicating fuse in power supply lead and visual indication (PWR lamp) when power is applied to test set.
- Requires typically 200 mA (300 mA maximum) of testing current at 24 volts dc during testing.

3. OPERATION

3.01 The 142A test set is designed to permit a quick field test of the J53053J IU and the 101-, 102-, and 108-type IUs, using visual signals as indications of operations. It may not detect

marginal operation, for instance, that caused by excessive loops effecting transmission or dial pulsing. No positive test set indication is provided regarding transmission. Results may be relative with variations due to minor differences in the 1013A hand test set and the user's judgment.

3.02 Where marginal operation is suspected, more precise testing gear may be required.

3.03 The test set should be connected to the IU on the telephone company side of the interface block, permitting testing of the unit, mounting arrangement, and all wiring up to the point of demarcation from customer responsibility. ***The CPE must be disconnected before the test set is attached.***

3.04 For the specific method of connecting lead assemblies involved, refer to the section covering the connecting arrangement involved.

3.05 The IU to be tested and the 142A test set should be set up as follows:

- (1) Disconnect the CPE by removing the B bridging clips or wire straps at the interface block.
- (2) Select the proper lead assembly (from the three available 10-conductor lead assemblies in Table A) and connect it to the telephone company side of the interface connecting block.

Note: Lead assemblies with 961-type connectors have the tip at the end of the connector opposite the cord entrance.

(3) Connect the leads from the 2-conductor power cord to -24 volts and ground. This voltage should be obtained from the same source used to power the IU under test. The PWR lamp should light at this time.

(4) Connect a 1013A hand test set to the HNDR and HNDT terminals of the test set with the MON-TALK switch in the MON position.

(5) Set the CS-CG slide switch in the 18-ohm position for a 101A or 102A, and in the 100-ohm position when testing the 101B, 101C, 102B, 108A, or J53053J IU.

3.06 The test sequence following is general and may vary slightly, depending on the IU and connecting arrangement involved. For instance, the CBS1 and CBS2 leads are only used with the 101-type IUs (ground start trunks). The specific sequence will be covered in the section covering the arrangement involved.

3.07 After circuit preparation, proceed as follows:

- (1) Operate switch on 1013A hand test set to the TALK position. The S relay in the 142A test set will operate, lighting the CS lamp and providing ground on the CS lead through the

◆ TABLE A ◆

SELECTION OF LEAD ASSEMBLIES

CONNECTING BLOCK	841720527 LEAD ASSEMBLY (WITH 961A CONNECTOR)	841720535 LEAD ASSEMBLY (WITH 961B CONNECTOR)*	841224330 LEAD ASSEMBLY (WITH CLIPS)
66M1-50	•		•
66A Type		•	•
66B Type		•	•
66C Type		•	•
66D Type		•	•
66E Type		•	•

* Some units may be equipped with RS-16349 connectors.

selected resistance on the CS-CG switch. Ground on the CS lead causes the IU to seize the CO trunk as indicated by the CBS- lamp becoming lit (101-type IU only) and dial tone being heard in the hand test set. If the IU is a 101B used on a ground start trunk, a ground hum may be heard in the hand test set during trunk seizure. ***This is a normal condition caused by the ground start placed on the ring passing through the coupling transfer and will not be heard through the CPE.***

Note: If the IU fails to seize the CO trunk, move the CS-CG switch to a lower value. If the IU now operates properly, it should be considered marginal. ♦Circuits which operate only in the 0 position should be replaced.♦

- (2) Dial the local test desk using the 1013A hand test set. The S relay and the CS lamp should follow the dial pulses. Request the test desk to call back on the trunk under test.
- (3) Operate the hand test set to the MON position. The CS lamp should be extinguished indicating the S relay in the 142A test set has released, removing the ground from the CS lead. The CBS- lamp should also be extinguished in approximately 1/2 second indicating the IU has released the CO trunk and the CO has disconnected.
- (4) When the trunk is seized on the return call from the test desk, the CBS- lamp lights. When ringing is applied to the trunk, the C- lamp lights, following the ringing cycle.
- (5) Reoperate the hand test set switch to TALK. The C- lamp should extinguish and the CS lamp lights indicating ringing has been tripped and the call answered. The trunk should now be cut through the IU and transmission quality judged using the hand test set.
- (6) Instruct the test desk to reverse line polarity. The CRV- lamp should light and remain lit for the duration of the reversal.
- (7) Have the test desk release the trunk and return hand test set switch to MON. The CBS- and CS lamps should be extinguished and the IU should be in the idle condition.

3.08 When all testing is complete, remove power and interface cords. Connect CPE by restoring B bridging clips or wire straps at interface connecting block.

4. CONNECTIONS

4.01 Figure 2 provides a schematic of the 142A test set and the setup required to test a typical IU. For a complete schematic of the IU and testing procedures, refer to the section for the specific connecting arrangement.

4.02 ♦Table B shows the three positions of the CS-CG resistance slide switch, the resistance at each position, and the switch contact through which each position connects.♦

5. MAINTENANCE

5.01 Maintenance of the 142A test set is limited to replacement of the components listed in the ORDERING GUIDE.

5.02 To replace the A3 lamps, remove the 2-type lamp caps using a 319B tool and the lamp using a 553A tool. When installing new lamp, ensure lamp contact surfaces mate with those in the socket.

5.03 Removing the cap of the fuse block will provide access to the 70H fuse if replacement is required.

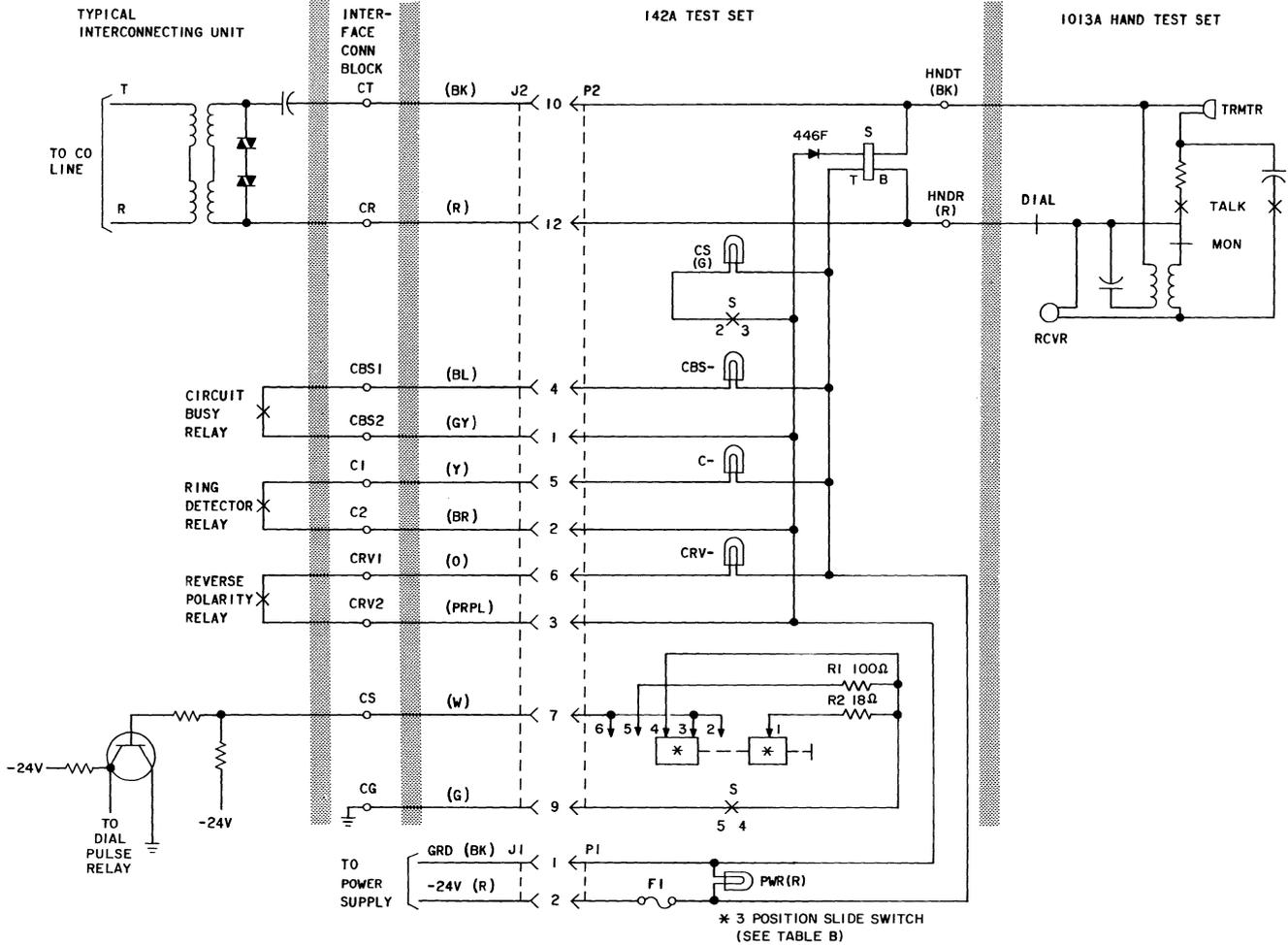


Fig. 2—142A Test Set, Connections

◆ TABLE B ◆

CS-CG SWITCH POSITIONS

SWITCH POSITION	RESISTANCE IN OHMS	CIRCUIT PATH THROUGH SWITCH CONTACTS	INTERCONNECTING UNITS
1	0	3-4	To verify if marginal
2	18	1-2; 4-5	101A, 102A
3	100	2-3; 5-6	J53053J, 101B, 101C, 102B, 108A