***REPLACING PAGE ADDENDUM***
***Filing Instructions:***

1. **REMOVE FROM THE SECTION THE PAGES NUMBERED THE SAME AS THOSE ATTACHED TO THIS PINK SHEET.**
2. **INSERT THE ATTACHED PAGES INTO THE SECTION IN THEIR PLACE.**
3. **PLACE THIS PINK SHEET AHEAD OF PAGE 1 OF THE SECTION.**

# 8A1 AND 8B1 DATA SELECTIVE CALLING

# STATION SETS

# TROUBLE SHOOTING

## 1. GENERAL

1.001 This addendum, which supplements Section 581-122-300, Issue 1, is issued to add the information pertaining to the TP308424 circuit card.

1.002 Insert the attached pages in accordance with the filing instructions above. Arrows in the margin indicate changes and additions.

Attached:
Page 15 dated May 1966, reissued
Page 16 dated May 1966, revised
Page 23 dated May 1966, revised
Page 24 dated May 1966, reissued
Page 31 dated May 1966, revised
Page 32 dated May 1966, reissued

Prepared for American Telephone and Telegraph Company
by Teletype Corporation
Printed in U.S.A.

# 8A1 AND 8B1 DATA SELECTIVE CALLING

## STATION SETS

## TROUBLE SHOOTING

CONTENTS PAGE



## 1. GENERAL

1.01 The trouble shooting information presented in this section consists of operational and electrical checks designed to lead maintenance personnel to the functional mechanism or circuit area causing trouble in an 8A1 or 8B1 Teletypewriter Set. The Automatic Send-Receive (ASR) Set, Keyboard Send-Receive (KSR) Set, Receive-Only (RO) Set, and the station controller assembly associated with each teletypwriter set, are included in this section.

1.02 A thorough knowledge of the sequence of operation for each functioning mechanism, is of fundamental importance. Refer to the appropriate sections to clarify the operation and function of all teletypewriter parts.

1.03 Where equipment failures are due to mechanical maladjustments, the technician should refer to the adjustment section for the component in question to determine the correct procedure and adjustment tolerances.

1.04 Lubrication failures will seldom occur when normal periodic maintenance procedures are followed. See the lubrication section of the component to determine maintenance schedules.

## 2. TOOLS AND TEST EQUIPMENT

2.01 Standard set of tools (wire gauges, spring scales, spring hooks, wrenches, etc.) as required for component adjustments.

2.02 A volt-ohm-milliampere meter for checking voltages, current, resistance (continuity), and capacitance.

2.03 An eight-level signal distortion test set, such as a DXD800 (Bell 1B**), to perform signal distortion tests on the signal generator and timing contacts.

## 3. TROUBLE SHOOTING

3.01 Comprehensive electrical analysis of the equipment is not generally required in trouble shooting. Reference to an open condition is to a circuit through which current will not flow, due either to a break, a poor connection, or a poor or dirty contact mechanism. References to a closed condition is to a normally or intermittently closed circuit through which current will flow, either due to a short or to a sticky, dirty or poorly adjusted contact mechanism.

3.02 RUNNING OPEN is a condition created by an open signal circuit, resulting in operation of the printing mechanism. This is the result of the absence of the marking condition necessary to latch the function clutches.

3.03 RUNNING CLOSED is a condition created by a closed signal circuit, resulting in failure of typing and printing mechanisms to respond to a signal, due to the absence of the start and spacing elements in the signal, or to mechanical failure.

Prepared for American Telephone and Telegraph Company by Teletype Corporation

3.04 GARBLING is a condition in which the response of the typing and printing mechanisms does not correspond to the mechanical or signal input.

3.05 BLIND is a condition in which a unit is turned off or otherwise disconnected to assure a no response to various signal inputs.

Note: If trouble shooting checks indicate abnormal electrical conditions, refer to the wiring diagrams in the appropriate section. If the trouble appears to be mechanical, isolate the unit and refer to the appropriate maintenance literature.

PROCEDURE

3.06 The trouble shooting information presented in this section consists of operational and electrical checks designed to lead maintenance personnel to the area that is causing the trouble in the equipment. Because the teletypewriter sets are an assemblage of components, the first step in trouble shooting, if the trouble is not obvious, is to sectionalize the trouble to a particular component, then determine what specific mechanism or electrical part is faulty.

3.07 Make a visual inspection of the equipment to determine if the trouble is caused by improperly seated line or power connections, improperly set switches, erratic motor speed, or improper range finder setting.

3.08 Arrange the equipment to operate on a test circuit and perform the procedures as given in the section entitled, Installation and Checkout, to help isolate the trouble. These procedures are primarily performed after initial installation of new or repaired equipment and may be used to locate troubles when they occur.

3.09 Most electrical troubles are found at the various contacts in the equipment, which include, switch contacts, plug-in connector and pin contacts, wiring field terminals, soldered contacts (including spliced wires), and chassis ground contacts. Electrical circuits in the teletypewriter set have terminal connections at the points where tests must be made. Do not disturb the wiring more than necessary when testing or inspecting. Maintenance personnel must be thoroughly familiar with the schematic and actual wiring diagrams and use them while making point-to-point checks of the circuits.

3.10 To be sure that proper operating conditions exist, check the input power, ac circuits, and dc circuits in turn before making other tests. These checks will, of necessity, include normal operation of the parts in these circuits and the requirements of all adjustments which would affect the indicated trouble as related to the parts. When a check of an adjustment is indicated, care should be exercised not to disturb the adjustment or related adjustments.

A. Continuity, Resistance, and Capacitor Checks

3.11 The continuity check is used to locate suspected open circuits. In making continuity checks, be sure that parallel current paths are disconnected. Make the tests by checking the continuity through the circuit suspected to be faulty. Connect the test leads so that current can flow only through the suspected circuit. If necessary, disconnect certain leads. Check all likely circuits in this manner. If, after checking all possible causes, the fault cannot be located, make a continuity test of the entire circuit. If continuity is indicated, test the other half of the circuit. Continue subdividing the circuit until the open point is definitely located.

3.12 The resistance check is used to locate suspected open or shorted coil windings, transformer windings, motor windings, fixed resistors, and inductors. In making resistance checks, follow the same general procedures as those described for continuity checks in 3.11.

3.13 The capacitor check is used to locate shorted or leaking elements. To test, discharge the suspected capacitor with an insulated shorting jumper. Then disconnect one lead and connect the capacitor to an ohmmeter. A good capacitor will be indicated by the ohmmeter pointer first moving up the scale rapidly, then returning more slowly to the infinity mark. A capacitor which is open will give a reading of infinite ohms. A shorted capacitor will give a reading of constant value between zero and infinity depending upon the resistance of the short.

CAUTION: USE HIGHEST READING SCALE.

CAUTION: BE EXTREMELY CAREFUL WHEN HANDLING CHARGED CAPACITORS. A SEVERE ELECTRICAL SHOCK MAY BE RECEIVED FROM THE CAPACITOR OR LEADS CONNECTED TO A POWER SUPPLY IN OPERATION.

B. Electrical Checks

3.14 Check for external interruptions to the 115 v ac power supply by checking the power cord connections on the terminal board located at the right rear of the electrical service unit.

3.15 If the power fuse is open, rotate the associated motor by hand and check for excessive mechanical load before replacing the fuse. If a replaced fuse burns out immediately upon installation, check for shorted wiring in the motor, selector magnets, and copylight transformer. Disconnect the station controller plug and replace the fuse. If the fuse does not burn out with the station controller disconnected, the trouble is in the station controller.

3.16 Check for open fuses located on the basic facilities and selector magnet driver assemblies in the electrical service unit.

TROUBLE SHOOTING CHARTS

3.17 Failures of the equipment can be traced functionally by means of a trouble shooting chart. A step-by-step analysis of the behavior of the equipment in response to the tabulated checks will indicate the area of trouble in which to apply remedial measures outlined above and referenced in the charts. Since, in many cases, each check step is conditioned by the procedure in preceding steps, examine the condition of all controls, and in particular the mode switches, before rechecking or otherwise performing any trouble shooting out of sequence. Actual wiring diagrams (AWDs) and wiring lists (WLs) are referenced in the charts when applicable.

3.18 The trouble shooting charts for the ASR, KSR, and RO Teletypewriter Sets are given in Tables I, II, and III, respectively.

Note: Trouble shooting steps peculiar to half duplex (8A1) or full duplex (8B1) applications are enclosed with heavy lines and specified with either a HALF DUPLEX ONLY or FULL DUPLEX ONLY notation. All other trouble shooting steps are common to both applications.

A. Automatic Send-Receive Set

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 1 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 1. | Power - OFF (Power plug in 115 v ac receptacle.) Motors and cabinet lamps are off. Selectors energized. | a. Motors and cabinet lamps are on. | Wiring of rotary power switch. | 6380WD |
| | | b. Motor on (one or both). | Wiring between motor and electrical service unit. | 4348WD<br>6395WD<br>6935WD |
| 2. | Power - LCL<br>Mode - K<br>Motors and cabinet lamps are on. Typing unit and tape punch selectors are energized. | a. Motors and cabinet lamps are off. Selectors de-energized. | Power line connections. | 6935WD |
| | | | Wiring of rotary power switch. | 6380WD |
| | | b. Motors off. | Wiring between motor and electrical service unit. | 4348WD<br>6395WD<br>6935WD |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 2 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 2. | (continued) | | Motor thermal cut off switch (keyboard motor only). | |
| | | c. Motors run at incorrect speed. | Power line frequency (60 cps). | |
| | | d. No cabinet illumination. | Copylight wiring continuity. | |
| | | | Copylight transformer. | 6935WD |
| | | e. Some copylights not illuminated. | Bulb and socket wiring. | |
| | | f. Typing unit selector de-energized. | Signal line continuity. | 5814WD<br>5983WD<br>6395WD<br>6470WD<br>6471WD<br>6935WD |
| | | | Output of local power supply. | 6935WD |
| | | | Output of selector magnet driver (500 milliamperes). | |
| | | | Open between selector coils and selector magnet driver. | 6474WD<br>6935WD |
| | | | Open selector coils (7 ohms resistance per coil). | 6474WD |
| | | | Selector armature spring and selector range finder adjustments. | |
| | | | Station controller signal line continuity through H/L converter plug X, L/H converter plug Y, data set coupler plug W, and answer-back plug AC. Also, answer-back distributor brushes. | 6471WD |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 3 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 2. | (continued) | g. Tape punch selector de-energized. | Signal line continuity. | 5983WD<br>6395WD<br>6470WD<br>6471WD<br>6935WD |
| | | | Output of local power supply. | 6935WD |
| | | | Output of punch-selector magnet driver (500 milliamperes). | |
| | | | Open between selector coils and selector magnet driver. | 6474WD<br>6935WD |
| | | | Open selector coils (7 ohms resistance per coil). | 6474WD |
| | | | Selector armature spring and selector range finder adjustments. | |
| | | | Station controller signal line continuity through H/L converter plug X, L/H converter plug Y, data set coupler plug W, and answer-back plug AC. Also, answer-back distributor brushes. | 6471WD |
| 3. | Power - LCL<br>Mode - K<br>Tape in reader unit. Tape reader bat-handle switch placed in RUN position. Tape reader should not operate. | a. Tape reader operates. | Improper wiring of mode switch. | 6470WD |
| | | | Short across KT1 and T1 mode switch contacts. | 6470WD |
| | | | Wiring of tape reader clutch trip magnet circuit. | 5814WD<br>6471WD<br>6935WD |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 4 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 4. | Power - LCL<br>Mode - K<br>When keyboarding, all printing graphics are transmitted from keyboard to typing unit. Each character should be properly typed. | a. Typing unit runs closed (idle signal line). | Signal line for presence of space-mark pulses. | 6935WD |
| | | | Keyboard signal generator for shorting or mechanical failure. | |
| | | | Wiring of signal generator contacts to electrical service unit. | 6395WD<br>6935WD |
| | | | Typing unit selector magnet driver for blind across input leads. | |
| | | | Short across the KT mode switch contacts. | 6470WD<br>6471WD<br>6935WD |
| | | | Output of selector magnet driver for space-mark transition. | |
| | | | Selector adjustments. | |
| | | | Receive-break contact switch in keyboard. Should not be operated. | |
| | | | TDR relay. Should be de-energized. Otherwise it will blind the keyboard signal generator contacts. | 6471WD |
| | | b. Typing unit selector receiving margin is short. | Output current of selector magnet driver (500 milliamperes). | |
| | | | Selector magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |
| | | | Keyboard signal output for extremely high signal bias or end distortion. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 5 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 4. | (continued) | c. Typing unit making intermittent errors or garbling. | Selector range finder (may be at marginal setting). | |
| | | | Output current of selector magnet driver (500 milliamperes). | |
| | | | Selector magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |
| | | | Loose connection in signal line. | 6471WD |
| 5. | Power - LCL<br>Mode - K<br>When type box carriage advances to about 72nd character, the margin indicator (EOL) lamp should light. | a. Lamp lights but not on 72nd character. | Typing unit margin indicator switch adjustment. | |
| | | b. Lamp does not light. | Bulb and socket. | |
| | | | Switch and lamp wiring. | 6395WD<br>6935WD |
| | | | Open across K7 mode switch contact. | 6470WD |
| | | | Typing unit margin indicator switch adjustment. | |
| | | | Open contacts when switch is operated. | |
| 6. | Power - LCL<br>Mode - K<br>Character counter should not count. | a. Character counter counts. | Circuit wiring for closed condition. | 6395WD<br>6470WD<br>6935WD |
| | | | Solenoid. Should not be operated. | |
| | | | Solenoid mechanism. | |
| | | | Character counter bars to assure suppression. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 6 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 7. | Power - LCL<br>Mode - KT<br>Motor and cabinet lamps are on. Typing unit and tape punch selectors are energized. | a. Typing unit and tape punch selectors de-energized. | Signal line continuity. | 5814WD<br>5983WD<br>6395WD<br>6470WD<br>6935WD |
| | | b. Either typing unit or tape punch selector de-energized. | See Step 2.f. for checking typing unit selector, and Step 2.g. for tape punch selector. (Disregard check of punch local power supply.) | |
| 8. | Power - LCL<br>Mode - KT<br>Tape in reader unit. Tape reader bat-handle switch placed in RUN position. Tape reader should operate. | a. Tape reader does not operate. | Improper wiring of mode switch. | 6470WD |
| | | | Open across KT1 mode switch contact. | 6903WD |
| | | | Circuit continuity of tape reader clutch trip magnet circuit. | 5814WD<br>6935WD |
| 9. | Power - LCL<br>Mode - KT<br>All printing graphics properly typed from tape reader or keyboard transmission. | a. Typing unit runs closed (idle signal line). | See Step 4.a. for checks. | |
| 10. | Power - LCL<br>Mode - KT<br>While transmitting from tape reader, the margin indicator lamp should light when type box carriage advances to about 72nd character. | a. Lamp does not light. | See Step 5.b. for checks. | |
| 11. | Power - LCL<br>Mode - KT<br>Character counter should function when transmitting from the keyboard. | a. Character counter is disabled. | Closed condition across KT9 mode switch contacts. | 6470WD<br>6935WD |
| | | | Solenoid mechanism for proper operation. | |
| | | | Adjustments of character counter mechanism. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 7 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 12. | Power - LCL<br>Mode - KT<br>Transmit BELL code from keyboard by depressing BELL and CTRL keys simultaneously. Bell rings. Typing unit does not print. | a. Bell does not ring. | Typing unit selector for proper code selection. | |
| | | | BELL stunt box contacts for open condition. | |
| | | | Bell circuit continuity. | 6935WD |
| | | | Stunt box function bar operation. | |
| | | | Stunt box function bar coding. | |
| | | b. Typing unit types character. | Adjustments in area of type box clutch. | |
| 13. | Power - LCL<br>Mode - KT<br>LF transmitted from keyboard. Typing unit feeds out paper or forms one or two lines. Typing unit does not print. | a. Paper or forms are not fed out. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar operation. | |
| | | | Stunt box function bar coding. | |
| | | | Typing unit line feed mechanism adjustments. | |
| 14. | Power - LCL<br>Mode - KT<br>CR transmitted from keyboard. Typing unit carriage returns. Typing unit does not print. | a. Carriage does not return. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar operation. | |
| | | | Stunt box function bar coding. | |
| | | | Typing unit carriage return mechanism adjustments. | |
| 15. | Power - LCL<br>Mode - KT<br>LCL LF key operated. Paper or forms feed out. | a. Paper or forms do not feed out. | Keyboard and typing unit local line feed mechanisms for proper adjustments. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 8 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 16. | Power - LCL<br>Mode - KT<br>When LCL CR key is operated, the type box carriage returns to the left side of the typing unit. | a. Carriage does not return. | Keyboard and typing unit local carriage return mechanisms for proper adjustments. | |
| 17. | Power - LCL<br>Mode - KT<br>Sprocket Feed Only<br>Tab code transmitted from keyboard. Typing unit tabs horizontally and does not print. | a. Typing unit does not horizontal tab. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar for proper coding and operation. | |
| | | | Typing unit horizontal tab mechanism for proper adjustment. | |
| 18. | Power - LCL<br>Mode - KT<br>Sprocket Feed Only<br>VT code transmitted from keyboard. Typing unit tabs vertically and does not print. | a. Typing unit does not vertical tab. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar for proper coding and operation. | |
| | | | Typing unit vertical tab mechanism for proper adjustments. | |
| 19. | Power - LCL<br>Mode - KT<br>Sprocket Feed Only<br>FORM code transmitted from keyboard. Forms are fed out of typing unit. | a. Forms are not fed out. | Possibility of paper jam in typing unit. | |
| | | | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar for proper coding and operation. | |
| | | | Typing unit form out mechanism for proper adjustments. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 9 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 20. | Power - LCL<br>Mode - KT<br>Sprocket Feed Only<br>Tabbing or form-out codes transmitted from the tape reader and followed by a fill character will cause the tape reader to stop while the function occurs. | a. Tape reader does not stop transmitting. | Tape reader clutch trip magnet circuit wiring. | 5814WD<br>6471WD<br>6474WD<br>6935WD |
| | | | Appropriate contacts in typing unit for operation and adjustments. | |
| | | b. Tape reader transmits information beyond the DELETE code (fill character) before stopping. | Operation of tabbing form-out presensing contacts in the typing unit stunt box. | |
| | | | Presensing function bar coding. | |
| 21. | Power - LCL<br>Mode - KT<br>LCL BSP key operated on keyboard. Backspace the tape one position for each operation of the key. | a. Tape punch does not backspace the tape. | Open condition in local backspace switch when operated. | |
| | | | Circuit continuity in connecting backspace switch and magnet. | 6395WD<br>6935WD |
| | | | Open condition in backspace magnet coil. | |
| | | | Backspace mechanism adjustments in tape punch. | |
| 22. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>BREAK key operated while station is receiving (half duplex only). Signal line opens, typing unit runs open, and BREAK lamp lights. | a. Signal line is not opened. | Wiring of BREAK key. | 6380WD |
| | | | BREAK key to verify opening of contacts. | |
| | | b. Sending station keyboard signal generator output is not shunted. | Wiring of receive-break switch contacts across signal generator contacts. | 6395WD<br>6935WD |
| | | | Continuity across receive-break contacts. | |
| | | | Receive-break switch in keyboard for operation. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 10 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 22. | (continued) | | Typing unit for mechanical output on single or double BLANK. | |
| | | | Typing unit and keyboard receive-break mechanism for proper adjustments. | |
| | | c. BREAK lamp does not light. | Bulb. | |
| | | | Circuit continuity of lamp and receive-break contacts. | 6380WD<br>6395WD<br>6935WD |
| | | | Operation of pertinent receive-break contacts. | |
| 23. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>BK RLS key on keyboard depressed. Blind removed from keyboard signal generator and BREAK lamp extinguished. | a. Keyboard signal generator shunted and BREAK lamp lit. | Mechanical adjustments between BK RLS key and receive-break switch. | |
| 24. | Power - LCL<br>Mode - T<br>Motors and cabinet lamps on. Typing unit and tape punch selectors energized. | a. Typing unit selector de-energized. | Signal line continuity. | 6395WD<br>6470WD<br>6935WD |
| | | | See Step 2.f. for applicable checks. | |
| | | b. Tape punch selector de-energized. | Signal line continuity. | 6395WD<br>6470WD<br>6935WD |
| | | | See Step 2.g. for applicable checks. | |
| 25. | Power - LCL<br>Mode - T<br>With tape in the tape reader and bat-handle switch placed in the RUN position, the tape reader operates. | a. Tape reader does not operate. | Improper wiring of mode switch. | 6470WD |
| | | | Open across T1 mode switch contacts. | 6470WD |
| | | | Circuit continuity of tape reader clutch trip magnet circuit. | 5814WD<br>6471WD |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 11 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 26. | Power - LCL<br>Mode - T<br>All printing graphics sent from tape reader. | a. Typing unit runs closed. | See Step 4. a. for pertinent checks. | |
| | | | Short across T6 mode switch which blinds the typing unit selector magnet driver. | |
| | | b. Typing unit runs open. | Signal line continuity. | 5814WD<br>6470WD<br>6935WD |
| 27. | Power - LCL<br>Mode - T<br>Sending from tape reader. The type box carriage crosses the platen to about the 72nd character. Margin indicator lamp does not light. | a. Lamp lights. | Wiring of mode switch in area of T7. | 6470WD |
| 28. | Power - LCL<br>Mode - T<br>All printing characters transmitted from the keyboard. Tape punch properly perforates each character. | a. Tape punch runs closed. | Short across selector magnet driver input. | 6470WD<br>6935WD |
| | | | Receive-break contact blinding keyboard output. (The keyboard is not affected by a BREAK when in the T mode.) | 6935WD |
| 29. | Power - LCL<br>Mode - T<br>Transmission from the keyboard causes the character counter to operate. Margin indicator lamp is illuminated at about the 72nd character. | a. Character counter is disabled. | Closed condition across T9 mode switch contact. | 6470WD<br>6935WD |
| | | b. Margin indicator lamp does not light. | Open condition across T7 mode switch contact. | 6470WD |
| 30. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Call Directing Code (CDC) is recognized by ASR. | a. CDC not recognized. | Stunt box CDC contacts. | 6474WD |
| | | | Open wire at PTR or PUN relay. | 6471WD |
| | | | Power switch in correct (LINE) mode. | |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 12 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 30. | (continued) | | Typing unit connector disconnected. | |
| | | | Open wire at PL or RL relay. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| 31. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Typing unit goes to PRINT condition upon receipt of EOA. | a. Typing unit remains in NONPRINT condition. | Solenoid contact does not close. | 6474WD |
| | | | Typing unit print suppression codebar does not move freely. | |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| 32. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Tape punch perforates upon receipt of EOA. | a. Tape punch remains in NONPUNCH condition. | Punch blind contact 6RCR may be closed. | 6471WD |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| 33. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Answer-back response to CDC. | a. No answer-back response. | Open wire in ABP relay circuit. | 6471WD |
| | | | Open in answer-back clutch magnet. | 6471WD |
| | | | Strap omitted between H-K1 and H-K2. | 6471WD |
| | | | Answer-back brushes broken or out of holder. | |
| 34. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>BELL BELL response to a CDC.<br><br>FULL DUPLEX ONLY | a. NO BELL BELL answer-back response from station after CDC is received. | Open wire in ABP relay circuit. | 6471WD |
| | | | Strap omitted between H-K1 and H-K2. | 6471WD |
| | | | Relays PFA or PFB inoperative. | 6471WD |
| | | | Answer-back brushes broken or out of holder. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 13 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 35. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Transmitter Start Code (TSC) is recognized by ASR. | a. TSC not recognized. | Stunt box TSC contact, slot 2 (may not close momentarily). | 6474WD |
| | | | BID switch is not operated. | 6470WD |
| | | | Relay BD does not latch. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| | | | Relay SD inoperative. | 6471WD |
| | | | Relay TSCI de-energized due to EOA-UNIV stunt box contact, slot 34, being latched open. | 6471WD<br>6474WD |
| | | | Wrong coding of stunt box function bar tines in the suppression level. | |
| | | b. Reader fails to start. | Bat-handle switch OFF. | |
| | | | Tape-out pin is up (operated). | |
| | | | Tight tape arm is operated. | |
| | | | Strap omitted between H-L3 and H-L4. | 6471WD |
| | | | NULL stunt box contact, slot 8 (may be latched open). | 6474WD |
| | | | Data set plug W. Clear-to-send strap is open. | 6471WD |
| 36. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Normal, no traffic response to a TSC. | a. No response. | Contact 3BD is faulty. | 6471WD |
| | | | Answer-back clutch magnet is open. | 6471WD |
| | | | Diode CR108 may be open. | |
| | | | Filter network FL103 may be shorted. | |

TABLE I
ASR TROUBLE SHOOTING CHART (SHEET 14 OF 14)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 37. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>Request for poll feature.<br><br>HALF DUPLEX ONLY | a. Request for poll inoperative. | Relay PP fails to energize on idle line of approximately one minute (or 8 seconds - option). | |
| | | | Transistor Q101 is open. | |
| | | | Transistor Q102 is inoperative. | |
| | | | Minus 48 volts absent from card terminal B30 when line is idle. | |
| | | | Typing unit selector contact not open when line is idle. | 6474WD |
| 38. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>BELL BELL response to a TSC.<br><br>HALF DUPLEX ONLY | a. No BELL BELL answer-back. | Relay PFA or PFB inoperative. | |
| | | | Answer-back brushes. | |
| | | | Diode CR108. | |
| | | | Filter network FL103. | |
| | | | Relay TSCI de-energized. | |
| | | | TSC stunt box contact, slot 2. | 6474WD |
| 39. | Power - LINE<br>Mode - KT<br>Twist Key - NORM<br>SOM SOM response to a TSC.<br><br>HALF DUPLEX ONLY | a. No SOM SOM response to TSC. | TSC stunt box contact, slot 2. | 6474WD |
| | | | TSCI relay de-energized. | 6471WD |
| | | | Contact 3BD. | 6471WD |
| | | | Diode CR108. | |
| | | | Filter network FL103. | |
| | | | Answer-back brushes. | |
| | | b. BELL BELL response instead of SOM SOM. | Relay MM inoperative. | 6471WD |
| | | | Contact 8BD. | 6471WD |
| | | | Contact 2BHS. | 6471WD |
| | | | Strap omitted between H-L2 and H-L1. | 6471WD |

B. Keyboard Send-Receive Set

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 1 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 1. | Power - OFF<br>Motors and cabinet lamps are off. Typing unit selector energized. | a. Motors and cabinet lamps are on. | Wiring of rotary power switch. | 6380WD |
| | | b. Motor on (one or both). | Wiring between motor and electrical service unit. | 6362WD<br>6936WD |
| 2. | Power - LCL<br>Motors and cabinet lamps are on. Typing unit selector energized. | a. Motors and cabinet lamps are off. Typing unit selector de-energized. | Power line connections. | 6936WD |
| | | | Wiring of rotary power switch. | 6380WD |
| | | b. Motor off. | Wiring between motor and electrical service unit. | 6362WD<br>6936WD |
| | | | Motor thermal cutoff switch. | |
| | | c. Motor runs at incorrect speed. | Power line frequency (60 cps). | |
| | | d. No cabinet illumination. | Copylight receptacle and lamp wiring continuity. | |
| | | | Copylight transformer. | 6936WD |
| | | e. Some copylights not illuminated. | Bulb and socket wiring. | |
| | | f. Typing unit selector de-energized. | Line-Local relay should be energized and contacts operated. | |
| | | | Signal line continuity. | |
| | | | Output of selector magnet driver card. | |
| | | | Open between selector coils and selector magnet driver. | 6936WD |
| | | | Open selector coils (7 ohms resistance per coil). | |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 2 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 2. | (continued) | | Selector armature spring adjustment. | |
| | | | Selector range finder adjustments. | |
| | | | Station controller signal line continuity through H/L converter plug X, L/H converter plug Y, data set coupler plug W, and answer-back plug AC. Also, answer-back distributor brushes. | 6471WD |
| 3. | Power - LCL<br>All printing characters are transmitted to line. Each character properly typed. | a. Typing unit runs closed. | Signal line for presence of space-mark pulses. | 6936WD |
| | | | Keyboard signal generator for shorting or mechanical failure. | |
| | | | Wiring of signal-generator contacts to electrical service unit. | 6362WD<br>6936WD |
| | | | Selector-magnet driver wiring for blind across input leads. | |
| | | | Output of selector-magnet driver. | |
| | | | Selector armature spring adjustment. | |
| | | b. Typing unit selector receiving margin is short. | Output current of selector-magnet driver (500 milliamperes). | |
| | | | Selector-magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 3 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 3. | (continued) | | Keyboard output for extremely high signal bias or end distortion. | |
| | | c. Typing unit makes intermittent errors or garbles. | Selector range finder (may be at marginal setting). | |
| | | | Output current of selector-magnet driver (500 milliamperes). | |
| | | | Selector-magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |
| 4. | Power - LCL<br>Type box carriage advanced across platen to about 72nd character. Margin indicator lamp lights. | a. Lamp lights but not on 72nd character. | Typing unit margin indicator switch adjustment. | |
| | | b. Lamp does not light. | Bult and socket. | |
| | | | Switch and lamp wiring. | |
| | | | Operation of switch. | |
| | | | Typing unit margin indicator switch adjustment. | |
| 5. | Power - LCL<br>Transmit BELL code from keyboard by depressing BELL and CTRL keys simultaneously. Bell rings. Typing unit does not print. | a. Bell does not ring. | Typing unit selector for proper code selection. | |
| | | | Bell stunt box contacts for open condition. | |
| | | | Bell circuit continuity. | 6936WD |
| | | | Stunt box function bar coding and operation. | |
| | | b. Typing unit types character. | Adjustments in area of type box clutch. | |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 4 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 6. | Power - LCL<br>LF code transmitted from keyboard. Typing unit feeds out paper or forms one or two lines. Typing unit does not print. | a. Paper or forms are not fed out. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit line feed mechanism adjustments. | |
| 7. | Power - LCL<br>CR code transmitted from keyboard. Typing unit carriage returns. Typing unit does not print. | a. Carriage does not return. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Adjustments of typing unit carriage return mechanism. | |
| 8 | Power - LCL<br>LOC LF key operated. Paper or forms feed out of the typing unit. | a. Paper or forms do not feed out. | Keyboard and typing unit local line feed mechanism for proper adjustments. | |
| 9 | Power - LCL<br>LOC CR key operated. Type box carriage returns to left margin of typing unit. | a. Carriage does not return. | Keyboard and typing unit local carriage return mechanism for proper adjustments. | |
| 10. | Power - LINE<br>Twist Key - NORM<br>BREAK key operated while station is receiving (half duplex only). Signal line opens, typing unit runs open, keyboard signal generator output is shunted, and BREAK lamp lights.<br><br>HALF DUPLEX ONLY | a. Signal line is not opened. | Wiring of BREAK key. | 6380WD |
| | | b. Keyboard signal generator output is not shunted. | Wiring of receive-break switch contacts across signal generator contacts. | |
| | | | Continuity across receive-break contacts. | |
| | | | Receive-break switch in keyboard for operation. | |
| | | | Typing unit for output on single or double BLANK. | |
| | | | Keyboard and typing unit receive-break contacts. | 6362WD<br>6936WD |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 5 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 10. | (continued) | c. Break lamp does not light. | Bulb. | |
| | | | Circuit continuity of lamp and receive-break contacts. | 6362WD 6936WD |
| 11. | Power - LINE Twist Key - NORM BRK RLS key on keyboard depressed. Shunt removed from keyboard signal generator output and BREAK lamp extinguished. | a. Keyboard signal generator remains shunted and lamp stays lit. | Adjustments between BRK RLS key and receive-break switch. | |
| 12. | Power - LCL Sprocket Feed Only Tab code transmitted from keyboard. Typing unit tabs horizontally and does not print. | a. Typing unit does not horizontally tab. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit horizontal tab mechanism for proper adjustment. | |
| 13. | Power - LCL Sprocket Feed Only VT code transmitted from keyboard. Typing unit tabs vertically and does not print. | a. Typing unit does not vertical tab. | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit vertical tab mechanism for proper adjustment. | |
| 14. | Power - LCL Sprocket Feed Only FORM code transmitted from keyboard. Forms are fed out of typing unit. | a. Forms are not fed out. | Possibility of paper jam in typing unit. | |
| | | | Typing unit selector for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit form-out mechanism for proper adjustment. | |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 6 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 15. | Power - LINE<br>Twist Key - NORM<br>Call Directing Code (CDC) is recognized by KSR. | a. CDC not recognized. | Stunt box CDC contacts. | 6474WD |
| | | | Open wire at PTR or PUN relay. | 6471WD |
| | | | Power switch in correct (LINE) mode. | |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| | | | Typing unit connector disconnected. | |
| | | | Open wire at PL or RL relay. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| 16 | Power - LINE<br>Twist Key - NORM<br>Typing unit goes to PRINT condition upon receipt of EOA. | a. Typing unit remains in NONPRINT condition. | Solenoid contact does not close. | 6474WD |
| | | | Typing unit print suppression codebar does not move freely. | |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| 17. | Power - LINE<br>Twist Key - NORM<br>Answer-back response to CDC. | a. No answer-back response. | Open wire in ABP relay circuit. | 6471WD |
| | | | Open in answer-back clutch magnet. | 6471WD |
| | | | Strap omitted between H-K1 and H-K2. | 6471WD |
| | | | Answer-back brushes broken or out of holder. | |
| 18. | Power - LINE<br>Twist Key - NORM<br>Transmitter Start Code (TSC) is recognized by KSR. | a. TSC not recognized. | Stunt box TSC contact, slot 2 (may not close momentarily). | 6474WD |
| | | | BID switch not operated. | 6470WD |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 7 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 18. | (continued) | | Relay BD does not latch. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| | | | Relay SD inoperative. | 6471WD |
| | | | Relay TSCI de-energized due to EOA-UNIV stunt box contact, slot 34, being latched open. | 6471WD 6474WD |
| | | | Wrong coding of stunt box function bar tines in the suppression level. | |
| 19. | Power - LINE Twist Key - NORM Normal, no traffic response to a TSC. | a. No response. | Contact 3BD is faulty. | 6471WD |
| | | | Answer-back clutch magnet coil is open. | 6471WD |
| | | | Diode CR108 may be open. | |
| | | | Filter network FL103 may be shorted. | |
| 20. | Power - LINE Twist Key - NORM Request for poll feature. HALF DUPLEX ONLY | a. Request for poll inoperative. | Power switch in LCL. | |
| | | | Relay PP fails to energize on idle line of approximately one minute (or 8 seconds - option). | |
| | | | Transistor Q101 is open. | |
| | | | Transistor Q102 is inoperative. | |
| | | | Minus 48 volts absent from card terminal B30 when line is idle. | |
| | | | Typing unit selector contact not open when line is idle. | 6474WD |

TABLE II
KSR TROUBLE SHOOTING CHART (SHEET 8 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 21. | Power - LINE<br>Twist Key - NORM<br>BELL BELL response to a TSC.<br><br>HALF DUPLEX ONLY | a. No BELL BELL answer-back. | Relay PFA or PFB inoperative. | |
| | | | Answer-back brushes. | |
| | | | Diode CR108. | |
| | | | Filter network FL103. | |
| | | | Relay TSCI de-energized. | |
| | | | TSC stunt box contact, slot 2. | |
| 22. | Power - LINE<br>Twist Key - NORM<br>SOM SOM response to a TSC.<br><br>HALF DUPLEX ONLY | a. No SOM SOM response to TSC. | TSC stunt box contact, slot 2. | |
| | | | TSCI relay de-energized. | |
| | | | Contact 3BD. | |
| | | | Diode CR108. | |
| | | | Filter network FL103. | |
| | | | Answer-back brushes. | |
| | | b. BELL BELL response instead of SOM SOM. | Relay MM inoperative. | |
| | | | Contact 8BD. | |
| | | | Contact 2BHS. | |
| | | | Strap omitted between H-L2 and H-L1. | |

C. Receive-Only Set

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 1 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 1. | Power - OFF<br>Motors and cabinet lamps off. Typing unit selector energized. | a. Motors and cabinet lamps on. | Wiring of rotary power switch. | 6380WD |
| | | b. Motor on (one or both. | Wiring between motor and electrical service unit. | 5857WD<br>6936WD |
| 2. | Power - LCL<br>Motors and cabinet lamps on. Typing unit selector energized. | a. Motors and cabinet lamps off. Typing unit selector de-energized. | Power line connections. | 6936WD |
| | | | Wiring of rotary power switch. | 6380WD |
| | | b. Motor off. | Wiring between motor and electrical service unit. | 5857WD<br>6936WD |
| | | | Motor thermal cut-off switch. | |
| | | c. Motor runs at incorrect speed. | Power line frequency (60 cps). | |
| | | d. No cabinet illumination. | Copylight receptacle and lamp wiring continuity. | |
| | | | Copylight transformer. | 6936WD |
| | | e. Some copylights not illuminated. | Bulb and socket wiring. | |
| | | f. Typing unit selector de-energized. | Line-Local relay should be energized and contacts operated. | |
| | | | Signal line continuity. | |
| | | | Output of selector magnet driver card. | 6936WD |
| | | | Open between selector coils and selector magnet driver. | 6936WD |
| | | | Open selector coils (7 ohms resistance per coil). | |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 2 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 2. | (continued) | | Selector armature spring adjustment. | |
| | | | Selector range finder adjustments. | |
| | | | Station controller signal line continuity through H/L converter plug X, L/H converter plug Y, data set coupler plug W, and answer-back plug AC. Also, answer-back distributor brushes. | 6471WD |
| 3. | Power - LINE<br>Twist Key - COPY ALL<br>Printing characters transmitted from auxiliary or remote sending equipment. Typing unit properly prints each character. | a. Typing unit does not receive information (runs closed). | Signal line for presence of space-mark pulses. | 6936WD |
| | | | Output of selector magnet driver. | |
| | | | Selector magnet driver wiring for possible blind across input leads. | |
| | | | Selector armature spring adjustment. | |
| | | b. Typing unit selector receiving margin is short. | Output current from selector magnet driver (500 milliamperes). | |
| | | | Selector magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |
| | | c. Typing unit makes intermittent errors or garbles. | Selector range finder (may be at marginal setting). | |
| | | | Output current from selector magnet driver (500 milliamperes). | |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 3 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 3. | (continued) | | Selector magnet assembly for dirt or oil between magnets and armature. | |
| | | | Selector adjustments. | |
| | | | Motor speed. | |
| 4. | Power - LINE<br>Twist Key - COPY ALL<br>Connected to sending equipment. BELL code transmitted to RO. Bell rings and typing unit does not print. | a. Bell does not ring. | Selector mechanism for proper code selection. | |
| | | | Bell stunt box contacts for open condition. | |
| | | | Bell circuit continuity. | 6936WD |
| | | | Stunt box function bar coding and operation. | |
| | | b. Typing unit prints character. | Adjustments in area of type box clutch. | |
| 5. | Power - LINE<br>Twist Key - COPY ALL<br>Connected to sending equipment. LF code transmitted to RO. Typing unit feeds out paper or forms one or two lines, and typing unit does not print. | a. Paper of forms are not fed out. | Selector mechanism for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit line feed mechanism adjustments. | |
| 6. | Power - LINE<br>Twist Key - COPY ALL<br>Connected to sending equipment. CR code transmitted to RO. Typing unit carriage returns. Typing unit does not print. | a. Carriage does not return. | Selector mechanism for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Adjustments of typing unit carriage return mechanism. | |
| 7. | Power - LINE<br>Twist Key - COPY ALL<br>LOC LF key operated. Paper or forms feed out of typing unit. | a. Paper or forms do not feed out. | Adjustments of typing unit local line feed mechanism. | |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 4 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 8. | Power - LINE<br>Twist Key - COPY ALL<br>LOC CR key operated.<br>Type box carriage returns to left margin of typing unit. | a. Carriage does not return. | Typing unit local carriage return for proper adjustment. | |
| 9. | Power - LINE<br>Twist Key - NORM<br>BREAK key operated.<br>Signal line opens and typing unit runs open. | a. Signal line is not opened. | Wiring of BREAK key. | 6380WD |
| | | | BREAK key to verify contact opening. | |
| 10. | Power - LINE<br>Twist Key - COPY ALL<br>Sprocket Feed Only<br>Connected to sending equipment. TAB code transmitted to RO.<br>Typing unit tabs horizontally and does not print. | a. Typing unit does not horizontal tab. | Selector mechanism for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit horizontal tab mechanism for proper adjustment. | |
| 11. | Power - LINE<br>Twist Key - COPY ALL<br>Sprocket Feed Only<br>Connected to sending equipment. VT code transmitted to RO.<br>Typing unit tabs vertically and does not print. | a. Typing unit does not vertical tab. | Selector mechanism for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Typing unit vertical-tab mechanism for proper adjustment. | |
| 12. | Power - LINE<br>Twist Key - COPY ALL<br>Sprocket Feed Only<br>Connected to sending equipment. FORM code transmitted to RO.<br>Forms are fed out of typing unit. | a. Forms are not fed out. | Possibility of paper jam in typing unit. | |
| | | | Selector mechanism for proper code selection. | |
| | | | Stunt box function bar coding and operation. | |
| | | | Proper adjustment of typing unit form-out mechanism. | |
| 13. | Power - LINE<br>Twist Key - NORM<br>Call Directing Code (CDC) transmitted to RO. | a. CDC not recognized. | Stunt box CDC contacts. | 6474WD |
| | | | Open wire at PUN or PTR relay. | 6471WD |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 5 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 13. | (continued) | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| | | | Typing unit connector disconnected. | |
| | | | Open wire PL or RL relay. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| 14. | Power - LINE<br>Twist Key - NORM<br>Typing unit goes to PRINT condition upon receipt of an EOA. | a. Typing unit remains in NONPRINT condition. | Solenoid contact does not close. | 6474WD |
| | | | Typing unit print suppression code bar does not move freely. | |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| 15. | Power - LINE<br>Twist Key - NORM<br>Auxiliary tape punch begins perforating upon receipt of an EOA. | a. Tape punch remains in NONPUNCH condition. | Punch blind contact 6RCR may be closed. | 6471WD |
| | | | EOA-UNIV stunt box contact, slot 34 (may be latched open). | 6474WD |
| 16. | Power - LINE<br>Twist Key - NORM<br>Answer-back response to CDC. | a. No answer-back response. | Open wire in ABP relay circuit. | 6471WD |
| | | | Open in answer-back clutch magnet. | 6471WD |
| | | | Strap omitted between H-K1 and H-K2. | 6471WD |
| | | | Answer-back brushes broken or out of holder. | |
| 17. | Power - LINE<br>Twist Key - NORM<br>BELL BELL response to a CDC.<br><br>FULL DUPLEX ONLY | a. No BELL BELL answer-back response from station after CDC is received. | Open wire in ABP relay circuit. | 6471WD |
| | | | Strap omitted between H-K1 and H-K2. | 6471WD |
| | | | Relays PFA or PFB inoperative. | 6471WD |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 6 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 17. | (continued) | | Answer-back brushes broken or out of holder. | |
| 18. | Power - LINE<br>Twist Key - NORM<br>Transmitter Start Code (TSC) is recognized by RO for starting an auxiliary tape reader. | a. TSC not recognized. | Stunt box TSC contact, slot 4 (may not close momentarily. | 6474WD |
| | | | BID switch not operated. | 6470WD |
| | | | Relay BD does not latch. | 6471WD |
| | | | EOT stunt box contact, slot 31 (may be open). | 6474WD |
| | | | Relay SD inoperative. | 6471WD |
| | | | Relay TSCI de-energized due to EOA-UNIV stunt box contact, slot 34, being latched open. | 6471WD<br>6474WD |
| | | | Wrong coding of stunt box function bar tines in the suppression level. | |
| | | b. Auxiliary tape reader fails to start. | Bat-handle switch is OFF. | |
| | | | Tape-out pin is up (operated). | |
| | | | Tight-tape arm is operated. | |
| | | | Strap omitted between H-L3 and H-L4. | 6471WD |
| | | | NULL stunt box contact, slot 32, (may be latched open). | 6474WD |
| | | | Data set plug W. Clear-to-send strap is open. | 6471WD |
| 19. | Power - LINE<br>Twist Key - NORM<br>Normal, no traffic response to a TSC. | a. No response. | Contact 3BD is faulty. | 6471WD |
| | | | Answer-back clutch magnet coil is open. | 6471WD |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 7 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 19. | (continued) | | Diode CR108 may be open. | |
| | | | Filter network FL103 may be shorted. | |
| 20. | Power - LINE<br>Twist Key - NORM<br>Request for poll feature.<br><br>HALF DUPLEX ONLY | a. Request for poll inoperative. | Power switch in LCL. | |
| | | | Relay PP fails to energize on idle line of approximately one minute (or 8 seconds - option). | |
| | | | Transistor Q101 is open. | |
| | | | Transistor Q102 is inoperative. | |
| | | | Minus 48 volts is absent from terminal B30 when line is idle. | |
| | | | Typing unit selector contact not open when signal line is idle. | 6474WD |
| 21. | Power - LINE<br>Twist Key - NORM<br>BELL BELL response to a TSC.<br><br>HALF DUPLEX ONLY | a. No BELL BELL answer-back response. | PFA or PFB relay inoperative. | |
| | | | Answer-back brushes. | |
| | | | Diode CR108. | |
| | | | Filter network FL103. | |
| | | | Relay TSCI de-energized. | |
| | | | TSC stunt box contact, slot 2. | 6474WD |
| 22. | Power - LINE<br>Twist Key - NORM<br>SOM SOM response to TSC.<br><br>HALF DUPLEX ONLY | a. No SOM SOM response to TSC. | TSC stunt box contact, slot 2. | 6474WD |
| | | | TSCI relay de-energized. | 6471WD |
| | | | Contact 3BD. | 6471WD |
| | | | Diode CR108. | |

TABLE III
RO TROUBLE SHOOTING CHART (SHEET 8 OF 8)

| Step | Procedure and Normal Indication | Trouble | Check | Wiring Diagram Reference |
|---|---|---|---|---|
| 22. | (continued) | | Filter network FL103. | |
| | | | Answer-back brushes. | |
| | HALF DUPLEX ONLY | b. BELL BELL reponse instead of SOM SOM. | Relay MM inoperative. | 6471WD |
| | | | Contact 8BD. | 6471WD |
| | | | Contact 2BHS. | 6471WD |
| | | | Strap omitted between H-L2 and H-L1. | 6471WD |