PARITY FAILURE DETECTOR (SA110)

INSTALLATION

CONTENTS PAGE

1. GENERAL

1.01 This section provides the installation procedure for all versions of the SA110 parity failure detector, including the optional bypass switch and indicator assemblies coded as part of it. It covers installation in both standard speed and high speed equipment.

1.02 The SA110 chassis is a self-contained unit 12 inches long, 2-1/2 inches wide, and 5 inches deep. Since there are no controls or indicators on the chassis it need not be accessible to the operator. Its power cord is 6 feet long and plugs into any grounded 115 volt ±10 percent, 50 or 60 Hz, ac outlet.

1.03 The optional bypass switch and indicator assemblies coded as part of the SA110 are shipped with the mounting hardware necessary to install them. Holes must be drilled to install a bypass switch or indicator assembly on a 35 type set.

1.04 If the SA110 is to be installed in a new set, unpack, assemble, and install the set first, following the instructions furnished with it.

1.05 Before installing the SA110 on any set, old or new, confirm that the set is operating properly. If any errors appear in the output copy or tape, identify their source and correct them.

Note: This step need not be taken if the SA110 is to be used as test equipment for maintenance purposes. In this case the errors observed in the output copy or tape would be compared to the transmission error count on the indicator assembly to determine their source.

Prepared for American Telephone and Telegraph Company by Teletype Corporation

1.06 Tools and materials required for installation are given in Section 570-005-800. In particular, automatic extractor tool TP182697, part of tool kit TP185830, is required for all 33 and some 35 type installations.

1.07 A checkout procedure for the SA110 is given in Section 578-200-300.

2. UNPACKING

2.01 Open SA110 carton very carefully. Remove wiring diagrams and retain. Remove and discard all packing details.

2.02 Carefully lift pallet from carton. Remove small carton from pallet and set aside. Unscrew four screws from bottom of pallet to remove SA110 chassis. Carefully remove packing details from chassis. Do not drop or jar the SA110.

2.03 Open small carton and remove metal bypass switch or indicator assembly (if equipped) and two muslin bags of parts. Discard carton and all remaining packing details.

3. INTERNAL PREPARATION

3.01 The SA110 has wire straps which must be programmed for the type of operation required and terminals which must have cable connections made to them for the proper bypass switch or indicator assembly. Both steps must be taken prior to installation of the bypass switch or indicator assembly, if used.

3.02 Remove the four screws holding the cover of the SA110 to the base and lift off the cover (Figure 1). Remove the eight screws holding the circuit cards and insulators in place and lay the cards back from the base assembly.

3.03 To program the bare wire straps on the circuit cards, clip with wire cutters and spread apart the cut ends of straps which should be out and leave undisturbed

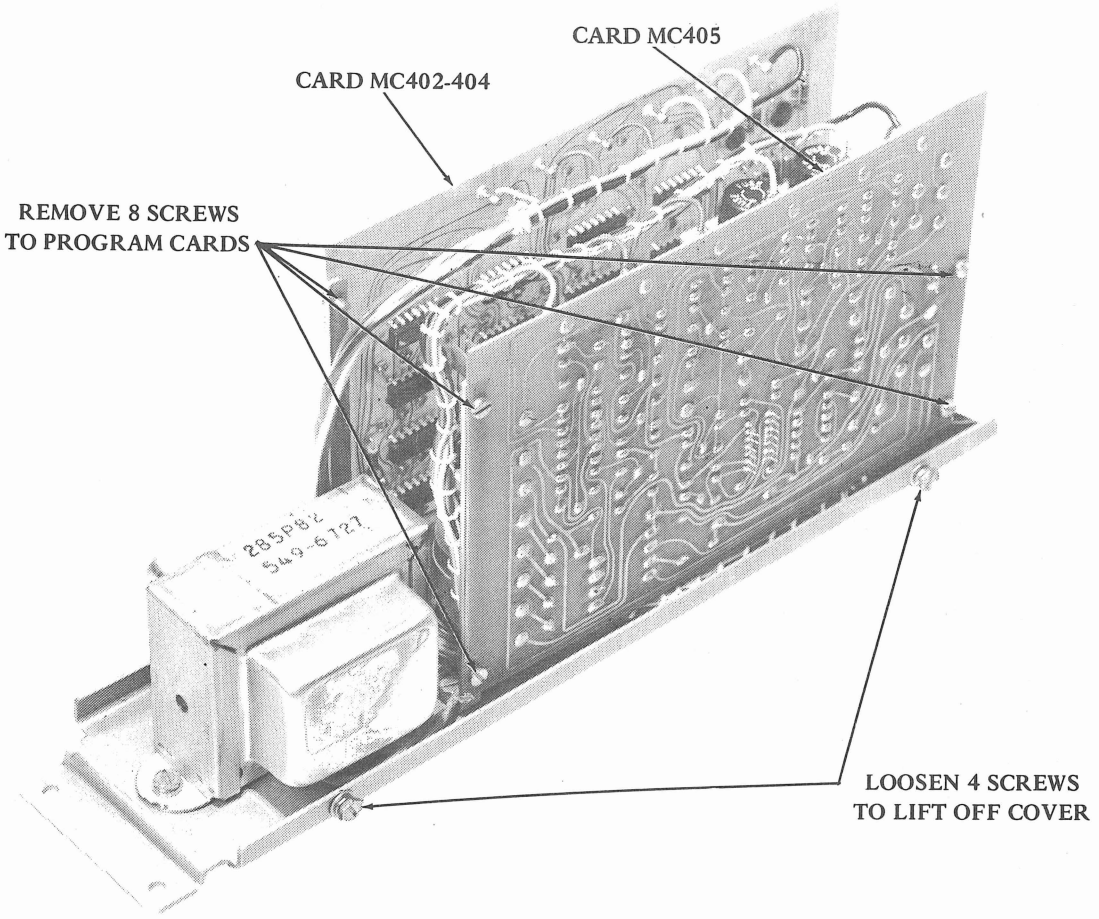


Figure 1 - SA110 Parity Failure Detector with Cover Removed

straps which should be in. (If straps should be in which were previously cut, bend the cut ends together, and solder. Do not leave the soldering iron tip on the wire any longer than necessary to obtain a good joint, or the heat may melt the solder at the ends of the strap.)

3.04 Strap options which must be programmed for each version of the SA110 are listed on Table A. For most versions of the SA110 strapping is fixed, but for the SA110 BB, SA110 CB, and SA110 EB (bypass switch, indicator lamp, and low speed counter), strapping depends on the type of operation desired. The option to flash the lamp for each error is preferable for terminals which will be operator-attended most of the time, so that the number of flashes can be noted. The option to light the lamp on the first error and blink it off and on for following errors is preferable for unattended terminals, since the lamp remains on after the message is complete to call attention to the error count.

3.05 Strap options that must be programmed for each type of terminal on which the SA110 is installed are listed on Table B. Normally the interface at the SA110 output is identical to that at the input, but it is possible to convert one interface to another with the SA110 if desired. The type of interface used also affects the cable connections.

3.06 The strap option for method of error detection is shown in Table C. The desirability of using the significant distortion check in addition to the parity check is discussed in detail in Section 578-200-100. Briefly, this check increases the error-detection capability of the SA110 but also increases the number of false error indications received. This drawback makes it undesirable in certain applications.

4. INSTALLATION IN 33 TYPE SETS

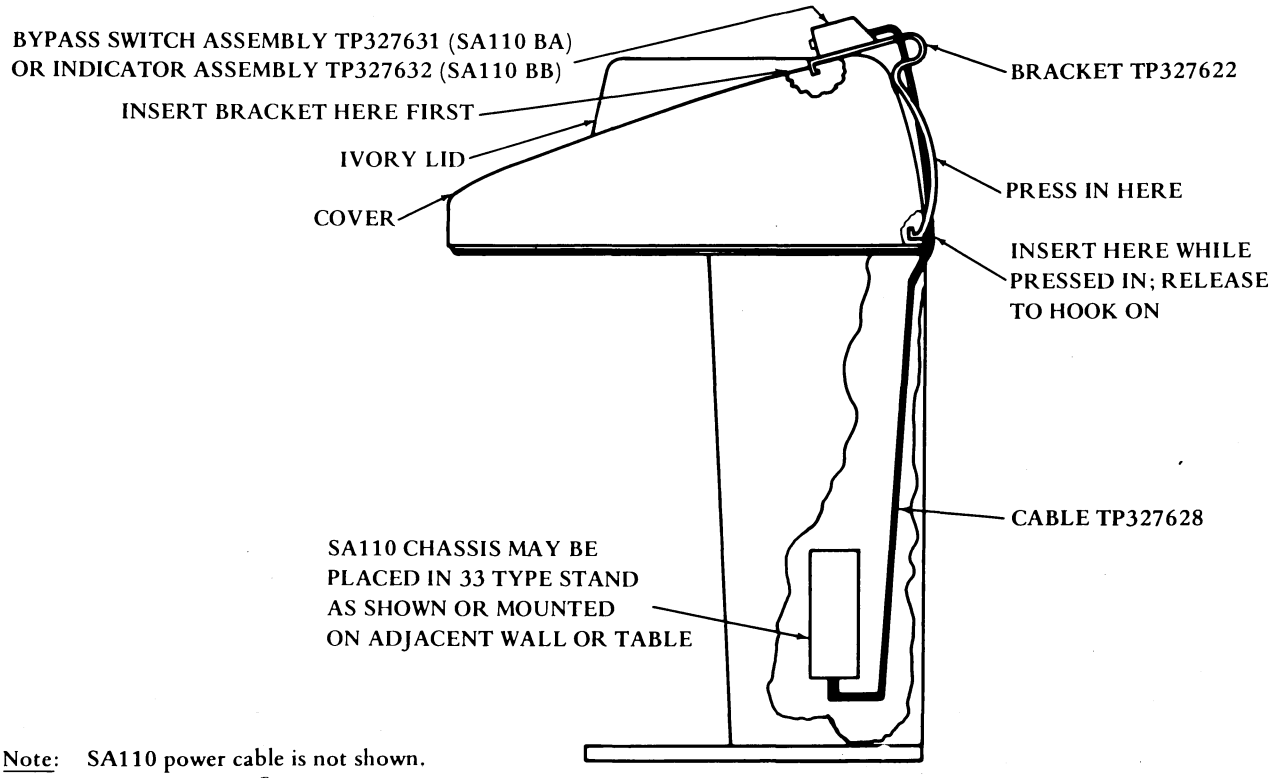
GENERAL

4.01 Connect the cable from the associated bypass switch or indicator assembly (if present) to the slip connection terminals of MC405 as shown on Table D.

4.02 Replace the circuit cards and insulators after making the cable connections. Replace the cover and screw it down.

Note: If the cable is not present, leave the circuit cards out and cover off to enable connection to be made to the set.

Place the SA110 chassis in the stand of the 33 type set if there is room for it; if not, mount it on the wall behind the set or place it on a table adjacent to the set. Refer to Figure 2 for location of units (SA110 chassis rests flat, not on end as shown.)



Note: SA110 power cable is not shown.

Figure 2 - Mounting of Bypass Switch or Indicator Assembly on 33 Type Sets

TABLE A

MC405 CARD STRAP OPTIONS FOR VERSIONS OF SA110 PARITY FAILURE DETECTOR

A. SA110 AB, SA110 AC, SA110 AD, SA110 BA, SA110 CA, AND SA110 EA

OPERATION	STRAP A	B	C	D	E	F	G	ADDED CAPACITOR BETWEEN 29 AND 30	TERMINAL 32 STRAPPED TO
Generates a 250 ms line break (SA110 AB, SA110 AC, SA110 BA, and SA110 CA) or pulse on reverse channel (SA110 AD and SA110 EA) on first error*.	In	In	Out	In	In	Out	Out	None	No Strap

B. SA110 BB, SA110 CB, AND SA110 EB

OPERATION	STRAP A	B	C	D	E	F	G	ADDED CAPACITOR BETWEEN 29 AND 30	TERMINAL 32 STRAPPED TO
Counts consecutive errors at 100 wpm (SA110 BB and SA110 CB) and error bursts at 1050 wpm (SA110 EB); lamp flashes on each error.	Out	Out	Out	In	In	Out	Out	2 mfd (TP320290)	Terminal 33
Counts consecutive errors at 100 wpm (SA110 BB and SA110 CB) and error bursts at 1050 wpm (SA110 EB); lamp lights on first error and blinks off briefly on following errors until reset.	Out	Out	Out	In	Out	In	In	2 mfd (TP320290)	Terminal 33

C. SA110 ED

OPERATION	STRAP A	B	C	D	E	F	G	ADDED CAPACITOR BETWEEN 29 AND 30	TERMINAL 32 STRAPPED TO
Counts consecutive errors at 1050 wpm; lamp lights on first error and stays on until reset.	Out	Out	Out	In	Out	In	In	None	Terminal 31

D. SA110 EC

OPERATION	STRAP A	B	C	D	E	F	G	ADDED CAPACITOR BETWEEN 29 AND 30	TERMINAL 32 STRAPPED TO
Lamp lights on first error and stays on until reset.	In	In	Out	In	Out	Out	In	None	Terminal 33

* "Error" as used here refers to parity and significant distortion errors (if so strapped – Table C) detected by the SA110 parity failure detector. Other errors cannot be detected. Refer to Section 578-200-100 for a discussion of the error-detecting ability and limitations of the SA110.

Note: Programming for other straps on card MC405 (TP322405) is shown on Table B.

TABLE B

STRAP OPTIONS FOR TERMINAL VARIATIONS

A. 33 AND 35 TYPE TERMINALS

	CARD MC405				CARD MC402			
	STRAP				STRAP		TERMINAL 11	TERMINAL 8
INTERFACE INPUT TO SA110	H	J	K	L	A	B	STRAPPED TO	STRAPPED TO
60 ma dc	–	–	In	In	Out	In	Terminal 12	Terminal 9
20 ma dc	–	–	Out	In	Out	In	Terminal 12	Terminal 9
Output of 101C or 105A data set	–	–	Out	In	Out	In	Terminal 12	Terminal 9
Output of EIA data set	–	–	X	Out	Out	In	Terminal 12	Terminal 9
SA110 OUTPUT TO TERMINAL								
60 ma dc	In	Out	–	–	Out	In	Terminal 12	Terminal 9
20 ma dc	In	Out	–	–	Out	In	Terminal 12	Terminal 9
Simulated 101C or 105A data set output	Out	In	–	–	Out	In	Terminal 12	Terminal 9
EIA output	Out	In	–	–	Out	In	Terminal 12	Terminal 9

B. "DATASPEED" TYPE 2 RECEIVERS

	CARD MC405				CARD MC402			
	STRAP				STRAP		TERMINAL 11	TERMINAL 8
TAPES USED	H	J	K	L	A	B	STRAPPED TO	STRAPPED TO
Even parity	Out	In	In	Out	In	Out	Terminal 10	Terminal 9
Odd parity	Out	In	In	Out	In	Out	Terminal 10	Terminal 7

– = Not affected by these conditions.

X = Strap may be either in or out.

Note 1: Keep either strap H or strap J cut at all times.

Note 2: Current must be limited externally for 60 ma or 20 ma output.

TABLE C

STRAP OPTION FOR METHOD OF ERROR DETECTION

METHOD	CARD MC402 STRAP C
Incorrect parity check only	Out
Incorrect parity and significant distortion checks	In

TABLE D

SA110 CABLE CONNECTIONS

SA110 CODE	WIRE COLOR	TERMINAL NUMBER ON CARD MC405	FUNCTION
SA110 BA, SA110 BB, SA110 CA, and SA110 CB	R	1 (Note 1)	SA110 Input
	BK	2 (Note 2)	Common
	BK	4 (Note 2)	Common
	BL	5	Relay Make Contact
	P	6	Relay Break Contact
	G	7	Lamp Test
	S	8	Relay Common
	BR	9	Relay Latch Reset
	W	12 (Note 1)	SA110 Output
SA110 EA, SA110 EB, SA110 EC, and SA110 ED	BK-S (2)	2	Common (Both Wires)
	R	3	SA110 Input (EIA)
	BK	4	Common
	BL	5	Relay Make Contact
	P	6	Relay Break Contact
	G	7	Lamp Test
	S	8	Relay Common
	BR	9	Relay Latch Reset
	W	10	SA110 Output (EIA)
	W-BL	11	Error Out

Note 1: Terminals 1 and 12 are for a current/no current interface (60 ma dc, 20 ma dc, or operation with 101C or 105A data sets). The EIA interface input terminal is 3 and output terminal is 10.

Note 2: The black wires are both circuit ground; reversing the connections will have no adverse effects.

SPECIFIC SETS

A. TWX Sets Wired in Accordance With 7881WD and 7889WD or 7882WD and 7888WD

4.03 Remove cover from 33 type set. Remove TP182630 SMD circuit card and the large sheet of fishpaper insulation behind it. Disconnect the square white plastic connector (CW – not labeled) immediately behind the SMD card.

4.04 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the connections described for the SA110 BA (4.05 through 4.09).

4.05 For the SA110 BA and SA110 BB, remove the black-green wire from position 7 of the CW connector. Connect this wire to the orange wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available.

4.06 Insert the yellow wire of the TP327628 cable in position 7 of the CW connector. Reconnect CW and replace the SMD circuit card.

4.07 Remove the red-slate wire from position 12 of white plastic plug 8 (PC – not labeled) at the rear of the call control unit. Connect this wire to the single black wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available.

4.08 Insert the terminal having two black wires from the TP327628 cable into position 12 of plug 8 (PC).

4.09 For the SA110 BA, remove the white-black wire from position 1 of white plastic plug 8 (PC). Connect this wire to the white-slate wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available. Insert the white-purple wire of the TP327628 cable in position 1 of plug 8 (PC).

4.10 For the SA110 BB, disregard 4.09. Instead, tape back individually the white-slate and white-purple wires of the TP327628 cable.

4.11 Replace the cover, feeding the cable and bypass switch or indicator assembly (if used) through the cutout at the rear. Install the bypass switch or indicator assembly as shown in Figure 2 and plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

B. Private Line Sets Wired in Accordance With 6353WD and 6354WD

4.12 Remove cover from 33 set. Remove TP181821 or TP182630 SMD card and large sheet of fishpaper insulation behind it. Disconnect square white plastic connector (M – not labeled) immediately behind SMD card.

4.13 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the connections described for the SA110 BA (4.14 through 4.18).

4.14 For the SA110 BA and SA110 BB, remove the purple wire from position 9 of the M connector. Connect this wire to the orange wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available.

4.15 Insert the yellow wire of the TP327628 cable in position 9 of the M cable in about two feet past the breakouts.

4.16 Remove the yellow wire from position 11 of white plastic plug 7 (B – not labeled) at the rear of the call control unit (ASR and KSR sets only). Connect this wire to the single black wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available.

4.17 Insert the terminal having two black wires from the TP327628 cable into position 11 of plug 7 (B).

4.18 For the SA110 BA, remove the white wire from position 10 of white plastic plug 8 (C – not labeled) at the rear of the call control unit. Connect this wire to the white-slate wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available. Insert the white-purple wire of the TP327628 cable in position 10 of plug 8 (C).

4.19 For the SA110 BB, disregard 4.18. Instead, tape back individually the white-slate and white-purple wires of the TP327628 cable.

4.20 Replace the cover, feeding the cable and bypass switch or indicator assembly (if used) through the cutout at the rear. Install the bypass switch or indicator assembly as shown in Figure 2 and plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

C. All Other Sets Capable of Accepting the SA110

4.21 Do not attempt to follow the directions given in A. and B. explicitly. Instead, look at the schematic and actual wiring diagrams furnished with the set and determine the location of the following signals:

(a) The receive data output of the data set or the positive signal line input, which is connected to the positive input of the SMD;

(b) The positive output of the distributor, which is connected to the send data input of the data set or the positive signal line output;

(c) Terminal common or the negative SMD input.

Signal (b) is not required to install an SA110 BB.

4.22 Remove cover from 33 set. Remove SMD circuit card and large sheet of fishpaper insulation behind it. Disconnect the square white plastic connector immediately behind the SMD card (if present).

4.23 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the locations mentioned for the SA110 BA.

4.24 For the SA110 BA and SA110 BB, remove the wire from the plastic connector behind the SMD card corresponding to 4.21 (a) and connect it to the orange wire of the TP327628 cable. Wrap the connection with electrical tape or cover it with vinyl tubing, if available. Insert the yellow wire of the TP327628 cable in the plastic connector in the same position as the wire which was removed from this connector. Reconnect the plastic connector and replace the SMD circuit card.

Note: The orange wire has a male terminal at the end and the yellow wire a female terminal. If the wire corresponding to 4.21 (a) has a male terminal instead of a female terminal as assumed above, the terminals must be cut off the orange and yellow wires, the wire corresponding to 4.21 (a) cut, the yellow wire spliced to the SMD side of this wire, and the orange wire spliced to the other side if another location for making this connection cannot be found. This location is the easiest for connecting the orange and yellow wires and should be possible for most 33 type sets. If any other connection is made, be sure that signal (a) of 4.21 makes a closed circuit through the orange and yellow wires, with the yellow wire connected to the positive input of the SMD.

4.25 Remove a wire from one of the white plastic plugs at the rear of the call control unit corresponding to 4.21 (c). Connect this wire to the single black wire of the TP327628 cable, if it has a male terminal, or to the double black wire of this cable, if it has a female terminal. Wrap the connection with electrical tape or cover it with vinyl tubing, if available. Insert the other black wire of the TP327628 cable, double or single, in the plastic plug in the same position as the wire which was removed from this plug.

4.26 For the SA110 BA, remove a wire from one of the white plastic plugs at the rear of the call control unit corresponding to 4.21 (b). Connect this wire to the white-slate wire of the TP327628 cable, if it has a male terminal, or to the white-purple wire of this cable, if it has a female terminal. Wrap the connection with electrical tape or cover it with vinyl tubing, if available. Insert the remaining wire of the TP327628 cable, white-purple or white-slate, in the plastic plug in the same position as the wire which was removed from this plug.

4.27 For the SA110 BB, disregard 4.26. Instead, tape back individually the white-slate and white-purple wires of the TP327628 cable.

4.28 Replace the cover, feeding the cable and bypass switch or indicator assembly (if used) through the cutout at the rear. Install the bypass switch or indicator assembly as shown in Figure 2 and plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

5. INSTALLATION IN 35 TYPE SETS

GENERAL

5.01 Place the SA110 chassis in the pedestal of the 35 set if there is room for it; if not, mount it on the wall behind the set or place it on a table adjacent to the set. Refer to Figure 3 for location of units (SA110 chassis rests flat, not on end as shown).

5.02 If the SA110 chassis is mounted inside the pedestal and a bypass switch or indicator assembly is present, place the assembly in back of the cabinet and thread its cable (TP327629) into the pedestal from the rear. Pull the cable in about two feet past the breakouts.

5.03 Connect one breakout of the cable to the slip connector terminals of MC405 as shown on Table D. Replace the circuit cards and insulators after making the cable connections. Replace the cover and screw it down.

Note: If the cable is not present, leave the circuit cards out and cover off to enable connection to be made to the set.

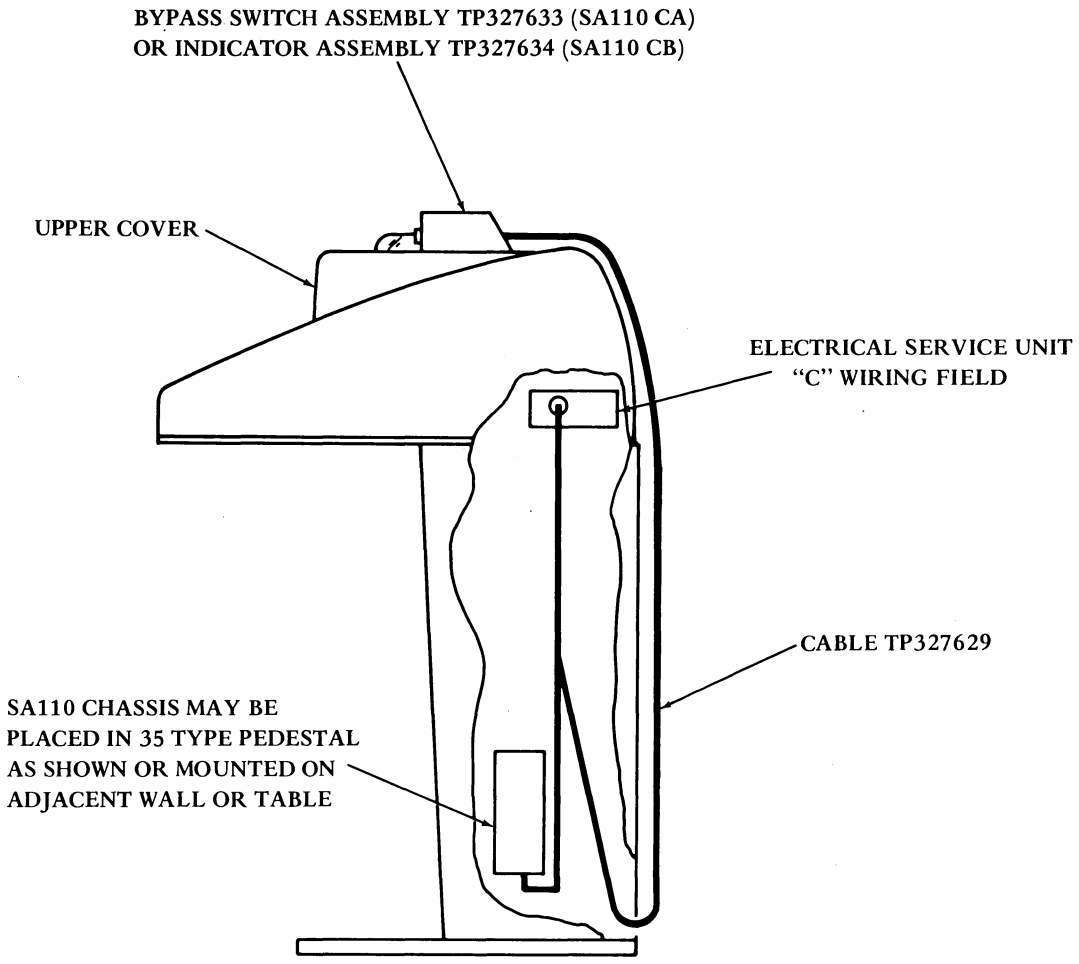
5.04 Raise the cover of the 35 set and thread the other breakout of the cable up the back of the pedestal and into the top near the electrical service unit.

SPECIFIC SETS

A. ASR Sets for TWX Wired in Accordance With 6000WD, 5822WD, and 7130WD; 6000WD and 5822WD; or 8226WD and 8142WD

5.05 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the connections described for the SA110 CA (5.06 through 5.12).

5.06 For the SA110 CA and SA110 CB, remove the white-black wire from terminal R4 of the C wiring field of the electrical service unit and place it on terminal J1.



Note: SA110 power cable is not shown.

Figure 3 - Mounting of Bypass Switch or Indicator Assembly on 35 Type Sets

5.07 Connect the yellow wire of the TP327629 cable to terminal R4 of the C wiring field.

5.08 Connect the orange wire of the TP327629 cable to terminal J1 of the C wiring field.

5.09 Connect the black wire of the TP327629 cable to terminal L7 of the C wiring field.

5.10 For the SA110 CA, remove the white-purple wire from terminal E3 of the C wiring field and place it on terminal G1.

5.11 Connect the white-slate wire of the TP327629 cable to terminal E3 of the C wiring field.

5.12 Connect the white-purple wire of the TP327629 cable to terminal G1 of the C wiring field.

5.13 For the SA110 CB, disregard 5.10 through 5.12. Instead, tape back individually the white-slate and white-purple wires of the TP327629 cable.

5.14 Close the cover and drill two holes for mounting the bypass switch or indicator assembly as shown in Figure 4 (if used). Mount the bypass switch or indicator assembly to the upper cover with the hardware indicated. Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

B. KSR Sets for TWX Without Auxiliary Reperforator (ROTR) Wired in Accordance With 6020WD and 5821WD

5.15 For the SA110 AB, no cable is furnished. Splice the SA110 into the set wiring near the connections described for the SA110 CA (5.16 through 5.20).

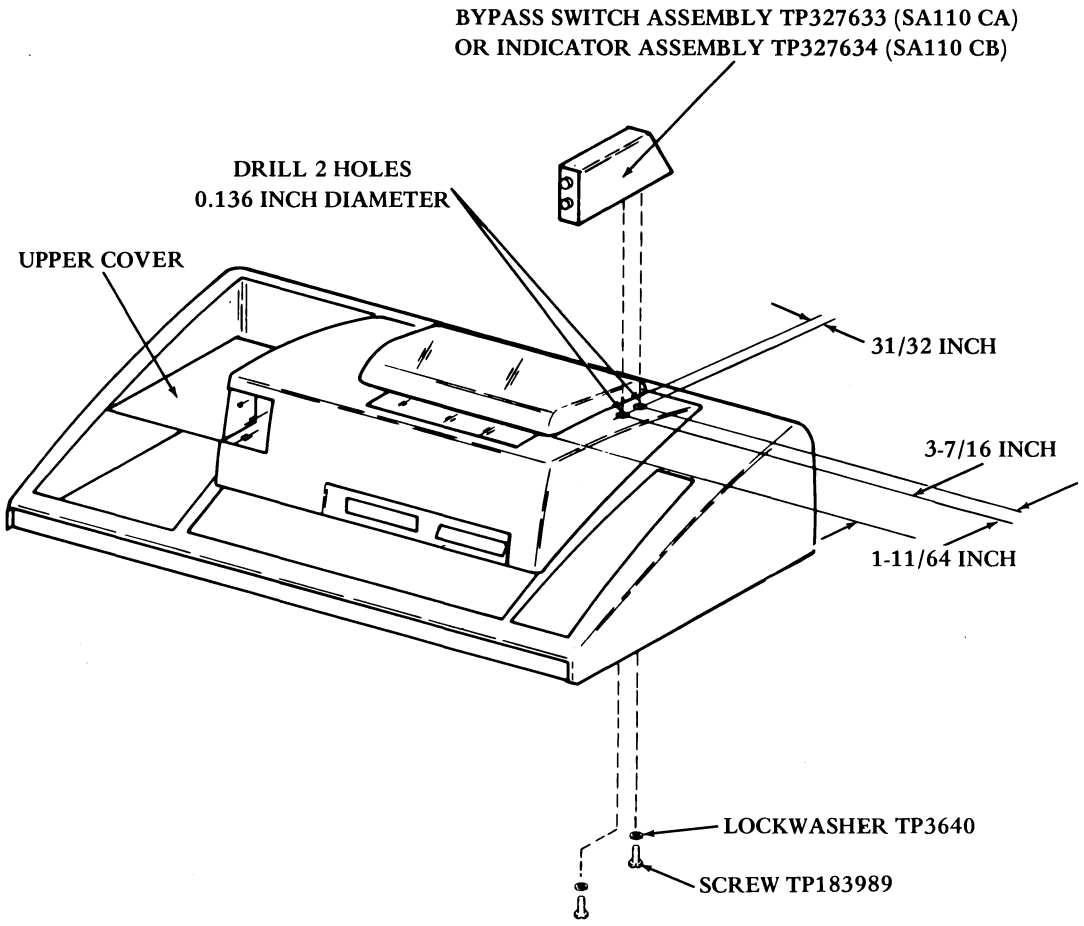


Figure 4 - Mounting of Bypass Switch or Indicator Assembly on 35 Type Sets

5.16 For the SA110 CA and SA110 CB, remove either end of the black wire which straps pins 9 and 15 at the back of plug 2 (D – not labeled) at the rear of the call control unit. The parts bag shipped with the SA110 contains two short orange wire straps (TP323530), each of which has a terminal on one end identical to that just removed from the plug and a male NEMA blade terminal on the other end. Take one of these wires and insert the plug-type terminal into the plug in place of the terminal on the black wire just removed. Remove the other end of the black wire and insert the plug-type terminal on the other wire into the plug in place of the terminal just removed. Discard the black wire.

5.17 Connect the yellow wire of the TP327629 cable to the male NEMA blade terminal just installed in position 9 of plug 2.

5.18 Connect the orange wire of the TP327629 cable to the male NEMA blade terminal just installed in position 15 of plug 2.

5.19 Individually wrap both connections with electrical tape.

5.20 Connect the black wire of the TP327629 cable to terminal G2 of the C wiring field.

5.21 For the SA110 CA, remove either one of the brown-yellow wires from terminal D9 of the C wiring field of the electrical service unit and place it on terminal C9.

5.22 Connect the white-slate wire of the TP327629 cable to terminal D9 of the C wiring field.

5.23 Connect the white-purple wire of the TP327629 cable to terminal C9 of the C wiring field.

5.24 For the SA110 CB, disregard 5.21 through 5.23. Instead, tape back individually the white-slate and white-purple wires of the TP327629 cable.

5.25 Close the cover and drill two holes for mounting the bypass switch or indicator assembly as shown in Figure 4 (if used). Mount the bypass switch or indicator assembly to the upper cover with the hardware indicated. Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

C. Private Line ASR Sets Wired in Accordance With 6384WD and 6394WD; 6471WD and 6935WD; or 7994WD and 7995WD

5.26 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the connections described for the SA110 CA (5.27 through 5.35).

5.27 For the SA110 CA and SA110 CB, remove the white-orange wire from terminal F6 of the C wiring field of the electrical service unit and place it on the nearest terminal which is completely unused.

5.28 Connect the yellow wire of the TP327629 cable to terminal F6 of the C wiring field.

5.29 Connect the orange wire of the TP327629 cable to the unused terminal selected in 5.27.

5.30 Remove the orange-brown wire from terminal A4 of the C wiring field (sets wired in accordance with 6384WD and 6394WD and sets wired in accordance with 6471WD and 6935WD only) or terminal J5 of the C wiring field (sets wired in accordance with 7994WD and 7995WD) and place it on the nearest terminal which is completely unused.

Note: If the orange-brown wire does not reach the nearest unused terminal, any of the other three wires on the same terminal with it may be moved to the unused terminal instead.

5.31 Connect a jumper between the unused terminal selected in 5.30 and terminal A4 or J5, whichever had the orange-brown or other color wire on it.

5.32 Connect the black wire of the TP327629 cable to the unused terminal selected in 5.30.

5.33 For the SA110 CA, remove a wire from terminal G1 of the C wiring field and place it on the nearest terminal which is completely unused (only one such terminal may be left).

5.34 Connect the white-slate wire of the TP327629 cable to terminal G1 of the C wiring field.

5.35 Connect the white-purple wire of the TP327629 cable to the unused terminal selected in 5.33.

5.36 For the SA110 CB, disregard 5.33 through 5.35. Instead, tape back individually the white-slate and white-purple wires of the TP327629 cable.

5.37 Close the cover and drill two holes for mounting the bypass switch or indicator assembly as shown in Figure 4 (if used). Mount the bypass switch or indicator assembly to the upper cover with the hardware indicated. Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

D. Private Line KSR Sets Wired in Accordance With 7876WD and 7877WD or 6041WD and 6046WD

5.38 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the connections shown for the SA110 CA (5.39 through 5.45).

5.39 For the SA110 CA and SA110 CB, remove the white-orange wire from terminal B2 of the C wiring field of the electrical service unit. The parts bag shipped with the SA110 contains two orange wire straps (TP323531) with a male NEMA blade on each end. Take one of these straps and insert it into the terminal on the white-orange wire just removed.

5.40 Connect the yellow wire of the TP327629 cable to terminal B2 of the C wiring field.

5.41 Connect the orange wire of the TP327629 cable to the remaining male NEMA blade on the orange wire strap inserted on the end of the white-orange wire in 5.39. Wrap the connection with electrical tape.

5.42 Connect the black wire of the TP327629 cable to terminal B1 of the C wiring field.

5.43 For the SA110 CA, remove the red-orange wire from terminal B3 of the C wiring field. Take the other orange wire strap with a male NEMA blade on each end from the parts bag and insert it into the terminal on the red-orange wire.

5.44 Connect the white-slate wire of the TP327629 cable to terminal B3 of the C wiring field.

5.45 Connect the white-purple wire of the TP327629 cable to the remaining male NEMA blade on the orange wire strap inserted on the end of the red-orange wire in 5.43. Wrap the connection with electrical tape.

5.46 For the SA110 CB, disregard 5.43 through 5.45. Instead, tape back individually the white-slate and white-purple wires of the TP327629 cable.

5.47 Close the cover and drill two holes for mounting the bypass switch or indicator assembly as shown in Figure 4 (if used). Mount the bypass switch or indicator

assembly to the upper cover with the hardware indicated. Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

E. All other Sets Capable of Accepting the SA110

5.48 Do not attempt to follow the directions given in A. through D. explicitly. Instead, look at the schematic and actual wiring diagrams furnished with the set and determine the location of the following signals:

(a) The receive data output of the data set or the positive signal line input, which is connected to the positive input of the SMD;

(b) The line side of the signal line contacts, which is connected to the send data input of the data set or the positive signal line output (BREAK key);

(c) Terminal common or the negative SMD input.

Signal (b) is not required to install an SA110 CB.

5.49 For the SA110 AB, no cable is furnished. Splice the SA110 into the terminal wiring near the locations determined for the SA110 CA (5.50 through 5.51).

5.50 For the SA110 CA and SA110 CB, all connections can probably be made on the C wiring field of the electrical service unit or a plug on the rear of the call control unit. The procedure is as follows:

(1) Locate the terminal on the C wiring field which has a direct connection to the positive input of the SMD. Remove the other wire on this terminal and place it on the nearest terminal which is completely unused. If no spare terminals are available, use one of the two orange wire straps with a male NEMA blade on each end supplied in the parts bag instead.

(2) Connect the yellow wire of the TP327629 cable to the same terminal on the C wiring field that the wire was removed from in (1).

(3) Connect the orange wire of the TP327629 cable to the unused terminal selected in (1) or the other end of the orange wire strap used in (1). If the orange wire strap is used, wrap the connections with electrical tape.

(4) Connect the black wire of the TP327629 cable to the terminal on the C wiring field which is connected to terminal common or the negative SMD input.

The signal described in 5.48 (a) is not brought out on some KSR and RO sets. If an auxiliary ROTR is not present, it may be possible to locate this signal at a wire strap on a plug at the rear of the call control unit. Two short wire straps (TP323530), each of which has a plug-type terminal on one end and a male NEMA blade terminal on the other end, are included in the parts bag. If the wire strap is removed from the plug at the rear of the call control unit, these two wires may be inserted in the plug in its place. The yellow wire should be connected to the SMD side of the signal of 5.48 (a) and the orange wire to the data input side. Wrap both connections with electrical tape.

5.51 For the SA110 CA, two further connections are necessary which can probably be made on the C wiring field also. The procedure is as follows:

(1) Locate a terminal on the C wiring field corresponding to the signal of 5.48 (b). Either side of the BREAK contact may be used, if both are available. Remove a wire from this terminal and place it on the nearest terminal which is completely unused. If no spare terminals are available, use one of the two orange wire straps with a male NEMA blade on each end supplied in the parts bag instead.

(2) Connect the white-slate wire of the TP327629 cable to the same terminal on the C wiring field from which the wire was removed in (1).

(3) Connect the white-purple wire of the TP327629 cable to the unused terminal selected in (1) or the other end of the orange wire strap. If the orange wire strap is used, wrap the connections with electrical tape.

5.52 For the SA110 CB, the connections described in 5.51 are not required. Instead, tape back individually the white-slate and white-purple wires of the TP327629 cable.

5.53 Close the cover and drill two holes for mounting the bypass switch or indicator assembly as shown in Figure 4 (if used). Mount the bypass switch or indicator assembly to the upper cover with the hardware indicated. Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

6. INSTALLATION IN "DATASPEED" TYPE 2 RECEIVERS

GENERAL

6.01 Connect the TP327648 cable (if present) to the slip connection terminals of MC405 as shown on Table D.

6.02 Replace the circuit cards and insulators after making the cable connections. Replace the cover and screw it down.

Note: If the two cables are not present, leave the circuit cards out and cover off to enable connection to be made to the set.

Open the front door and place the SA110 chassis on an empty shelf inside the type 2 receiver cabinet or place it on the bottom of the cabinet from the rear. Refer to Figure 5 for location of units.

6.03 Place the bypass switch or indicator assembly on top of the receiver cabinet so that it is retained by the two magnets located on its underside.

6.04 Route the TP327647 cable from the bypass switch or indicator assembly down the back of the cabinet and insert the 15-pin connector at the end into the cabinet through the small hole near the bottom.

6.05 Connect the 15-pin connector on the TP327647 cable to the 15-pin connector on the TP327648 cable.

6.06 Plug the single white-black wire of the TP327648 cable into position C7 of connector P902 from the rear. (This connector plugs into the rear of the multivoltage rectifier in the receiver cabinet.)

SPECIFIC STATIONS

A. Receive-Only Stations (Data Set in Receiver)

6.07 Remove plug P701 or plug DS (from TP199550 protected unattended transmitter, if present) from the rear of the data set.

6.08 Connect plug P701 or DS to the mating 25-pin connector of the TP327648 cable.

6.09 Connect the other 25-pin connector of the TP327648 cable to the data set connector.

6.10 Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

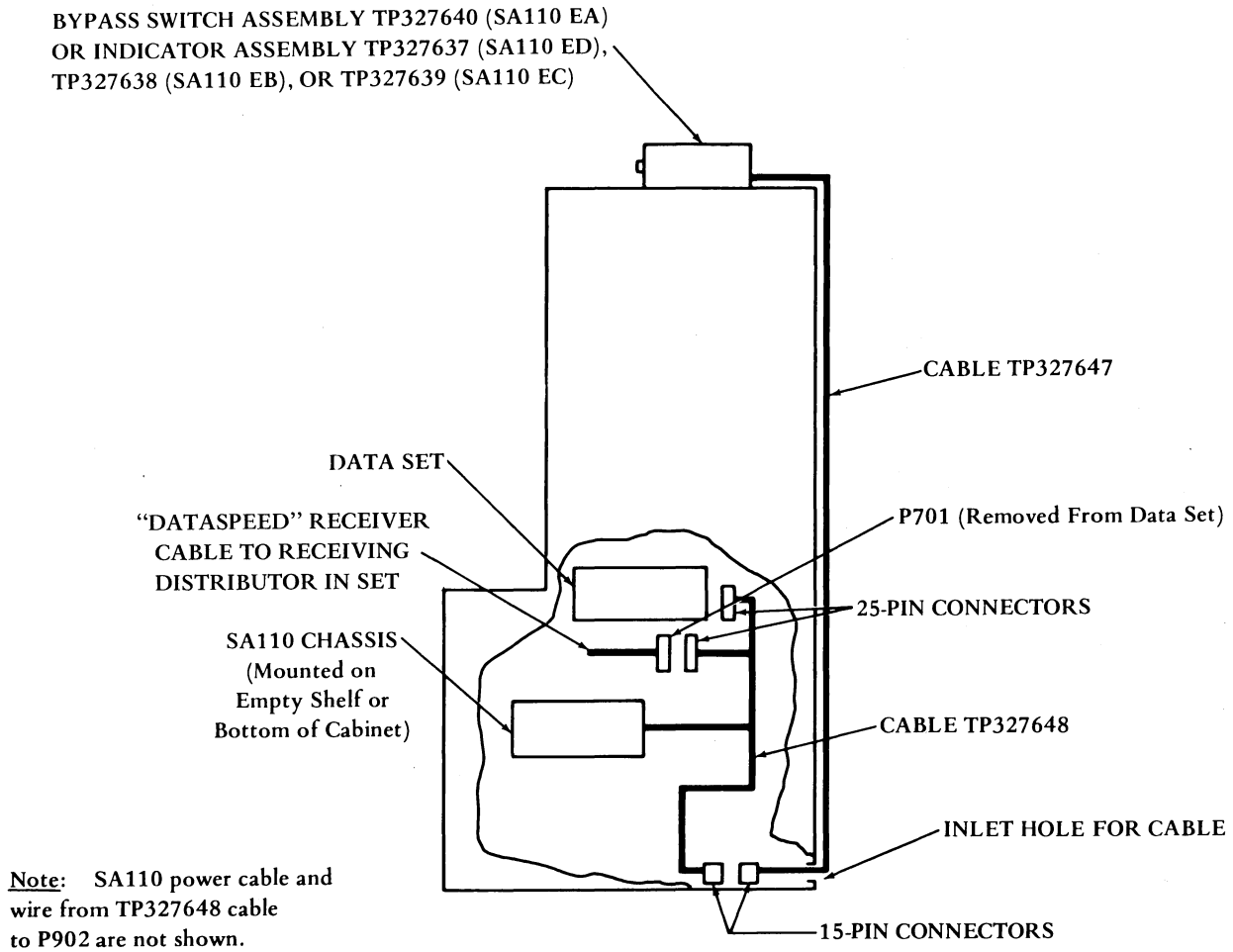


Figure 5 - Mounting of Bypass Switch or Indicator Assembly on DATASPEED Type 2 Receivers With Own Data Set

B. Send-Receive Stations (Data Set in Sender)

6.11 Remove plug P701 or plug DS (from TP199550 protected unattended transmitter, if present) from plug RT of TP199620 Y cable.

6.12 Connect plug P701 or DS to the mating 25-pin connector of the TP327648 cable.

6.13 Connect the other 25-pin connector of the TP327648 cable to plug RT.

6.14 Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

7. INSTALLATION IN OTHER EQUIPMENT

7.01 Versions of the SA110 may be installed in other equipment with proper field engineering. It may be possible to use the cables supplied with the SA110, if any, but if not the SA110 can be spliced into the terminal wiring at any convenient place. Two double male NEMA blade straps and two short wires with plug-type terminals on one end and male NEMA blades on the other are included in the parts bag for terminal adaption purposes.

7.02 Refer to the schematic and actual wiring diagrams furnished with the set on which the SA110 is to be installed and determine the location of the following signals:

(a) The receive data output of the data set or the positive signal line input, which is connected to the positive input of the SMD or the receive data input of the receiving distributor;

(b) The positive output of the set distributor or the line side of the signal line contacts, which is connected to the send data input of the data set or the positive signal line output (BREAK key);

(c) Terminal common, signal ground, or the negative SMD input.

Signal (b) is not required to install an SA110 BB, SA110 CB, SA110 EB, SA110 EC, or SA110 ED.

7.03 Refer to 8538WD and 8539WD (SA110 AB, SA110 AC, and SA110 AD), 8716WD and 8566WD (SA110 BA, SA110 BB, SA110 CA, and SA110 CB), or 8717WD and 8567WD (SA110 EA, SA110 EB, SA110 EC, and SA110 ED), furnished with the SA110, and determine the location of the following inputs and outputs:

(1) The SA110 data input;

(2) The SA110 data output;

(3) The break (normally-closed) contact of the SA110 relay (two sides) – not required for the SA110 BB, SA110 CB, SA110 EB, SA110 EC, or SA110 ED;

(4) SA110 common.

For the SA110 AB, SA110 AC, and SA110 AD, these inputs and outputs are found on slip connection terminals on card MC405, depending on the interface connections required. For the SA110 BA and SA110 BB, these inputs and outputs are found on plug-type terminals at the end of cable TP327628. For the SA110 CA and SA110 CB, these inputs and outputs are found on female NEMA blade terminals at the end of cable TP327629. For the SA110 EA, SA110 EB, SA110 EC, and SA110 ED, these inputs and outputs are found on a 25-pin connector on cable TP327648. (A voltage is also brought in through a white-black wire at the end of cable TP327648.)

7.04 Connect the SA110 data input (7.03 (1)) to the receive data output of the data set or the positive signal line input (7.02 (a)).

7.05 Connect the SA110 data output (7.03 (2)) to the positive input of the SMD or the receive data input of the receiving distributor (7.02) (a)).

7.06 Connect the break contact of the SA110 relay (7.03 (3)) in series with the BREAK key (if present) or the send data input of the data set or positive signal line output (7.02 (b)), where required.

7.07 Connect SA110 common (7.03 (4)) to terminal common, signal ground, or the negative SMD input (7.02 (c)).

7.08 Mount the bypass switch or indicator assembly on the set, if possible, where it will be easily visible to the operator.

7.09 Plug the line cord of the SA110 chassis into a grounded 115 v ac receptacle.

CAUTION: BE SURE STRAPPING IS CORRECT FOR THE APPLICATION BEFORE APPLYING POWER.