DATA AUXILIARY SET 804A-TYPE

DESCRIPTION AND OPERATION

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1. GENERAL

1.01 This section describes the data auxiliary sets (DAS) 804A1 through 804A8 and covers the operation and option connections for these sets. The DAS 804A-type provides the telephone, line control, and network control signaling functions for certain nonintegrated data sets. The internal line control unit contains the necessary logic for automatic answer, echo suppressor disabling, and compatibility with automatic calling units. The DAS 804A obtains its power from the associated data set. Sets are provided for use on 2-wire only, 4-wire only, and 2- or 4-wire service.

1.02 This section is reissued to include information pertaining to DAS 804A6, series 6 and DAS 804A8, series 6. Due to extensive revision, arrows ordinarily used to denote changes are omitted.

2. DESCRIPTION

2.01 DAS 804A5 and 804A6 replaces DAS 804A1 and 804A2, respectively (Fig. 1). These sets are equipped with a rotary dial, a telephone handset, and six illuminated keys. They are used with certain nonintegrated Dataphone® data sets on the switched network and on various private line networks.

2.02 DAS 804A7 and 804A8 replace DAS 804A3 and 804A4, respectively (Fig. 2). These sets are equipped with a Touch-Tone® dial; otherwise, they are very similar to the sets described in 2.01.

2.03 The following DASs contain a 3A2 data unit (DU) to provide operation with electronic switching systems (ESS) central offices having long trip intervals.

- DAS 804A5
- DAS 804A6 prior to series 6
- DAS 804A7
- DAS 804A8 prior to series 6.

The 3A2 DU also provides greater ring detector sensitivity for operating on long unigauge loops with standard signaling. Ring relay hold (RRH) time is increased 10 times over the 3A1 DU (provided in DAS 804A1, A2, A3, A4) time (from 150 ms to 1500 ms) by the 3A2 DU.

2.04 The following DASs contain a 840340012 (CP2) circuit pack assembly and a 841747176 option terminal board assembly (TB1) which replace the 3A2 DU.

- DAS 804A6 series 6 and higher
- DAS 804A8 series 6 and higher.

Since these current standard DAS units are similar to the DAS units rated MD except as previously noted, only the current standard units will be discussed. The information also applies to the MD units except as noted.

2.05 DAS 804A6 is equipped with a rotary dial (11C apparatus unit), which is designated option ZB. DAS 804A8 is equipped with a Touch-Tone dial (11G apparatus unit), which is designated option ZD. These are factory options and are not interchangeable in the field.

2.06 The DASs are self-contained for 2-wire service. In 4-wire service, external key

Fig. 1—Data Auxiliary Set 804A1, 804A2, 804A5, or 804A6

telephone units (KTUs) under control of keys on the DAS are normally required for data switching (Fig. 3).

2.07 DAS 804A5 and 804A7 are used in 2-wire only or 4-wire only service (no switching). DAS 804A6 and 804A8 provide a 4-wire relay to allow switching the telephone apparatus unit between 2-wire and 4-wire circuits under control of keys in the DAS.

2.08 DAS 804A5 may be converted to DAS 804A6, prior to series 6, by installing circuit pack EY1 (formerly designated A835174), which contains a 4-wire relay, and by completing option U strapping. DAS 804A7 may be converted to DAS 804A8, prior to series 6, in a similar manner. When the DAS is converted, stenciling on the rear of the set must be changed accordingly.

2.09 Features required for normal data switching (TALK, DATA, TEST) are provided by the 840340012 (CP2) circuit pack. Prior to DAS 804A6 and 804A8 series 6, these features were provided by the 3A2 DU.

2.10 Three of the keys on the 6-button key unit provide control functions for TALK, DATA, and TEST. The other keys are provided for special functions as described in Table A. When special functions are not provided, unused keys should be blocked by inserting a P12A858 blocking ring.

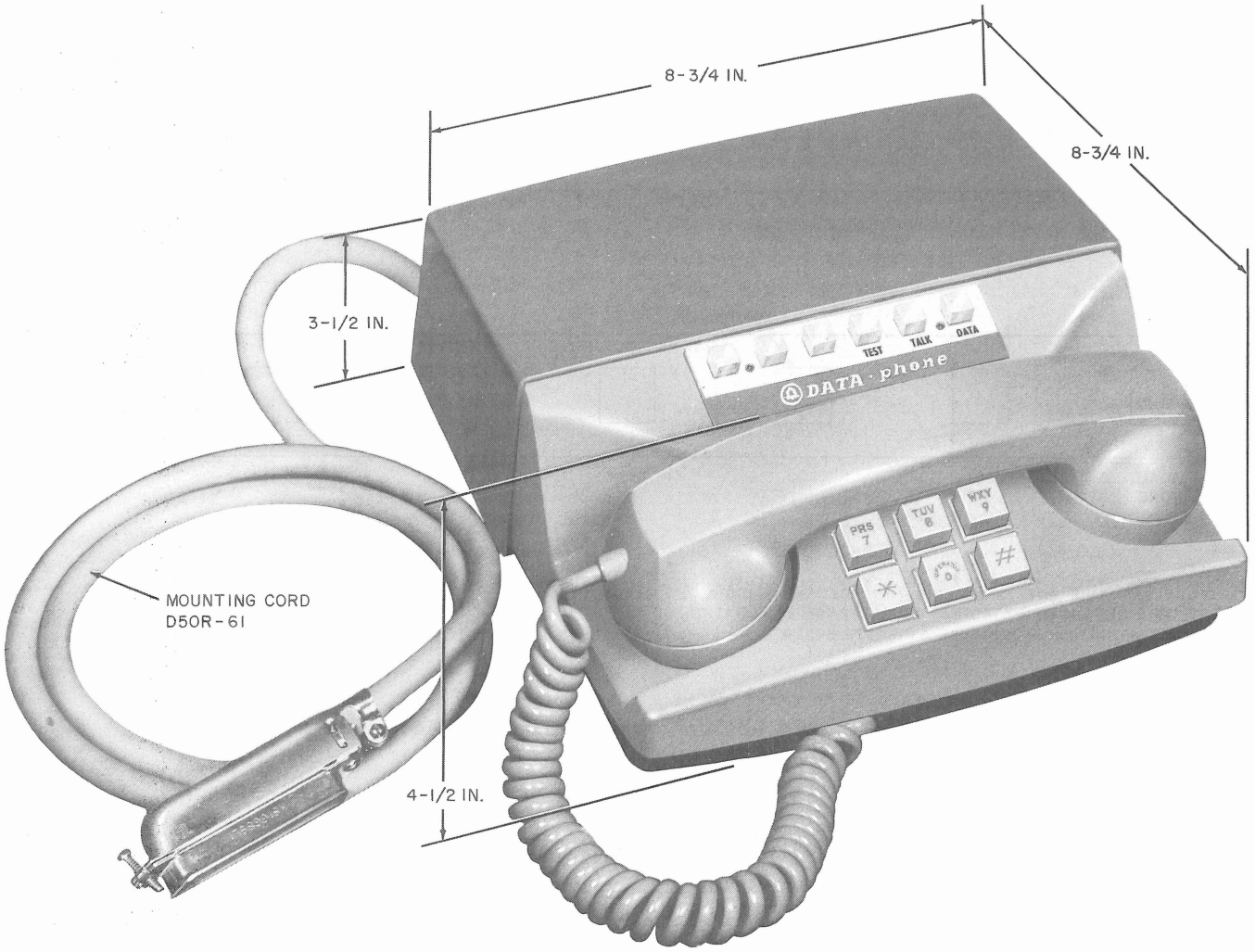


Fig. 2—Data Auxiliary Set 804A3, 804A4, 804A7, or 804A8

2.11 An M50G 5-1/2 foot long mounting cord is supplied with DAS 804A6 and 804A8, series 6 and higher (Fig. 4). It is equipped with a KS-16699-L1 plug on one end which mates with a connector cable, a 66E3 connecting block, or equivalent, and a 50-pin plug on the other end which connects to the DAS interface connector on the rear of the DAS.

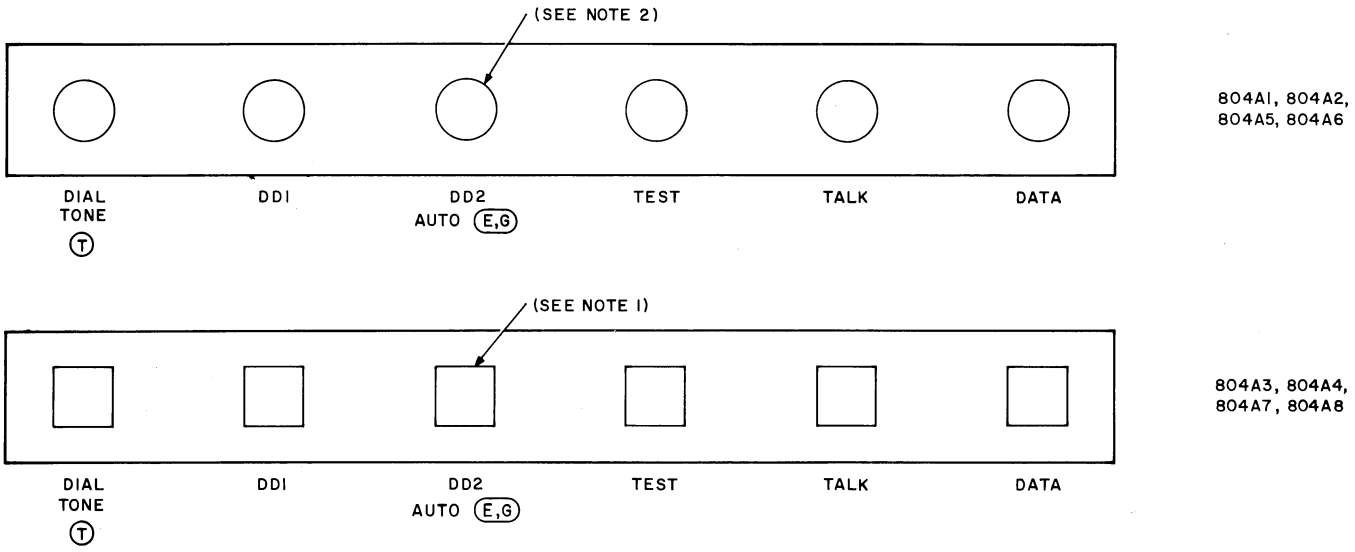
2.12 A D50R-61 5-1/2 foot long mounting cord is supplied with DASs prior to 804A6 and 804A8, series 6. It is equipped with a KS-16699-L1 plug which mates with a connector cable, a 66E3 connecting block, or equivalent, at one end, and prewired at the factory to the DAS at the other end.

2.13 These sets are equipped with an M1A ringer, a 4010-type network, a G3AR-61 handset, and an 8J (rotary) or 35E4A (Touch-Tone) dial. The dial is a part of the apparatus unit.

2.14 All DASs described herein are available in 2-tone gray only.

3. OPERATION

3.01 The keys described in 2.09 and 2.10 are used for operating the DAS in conjunction with the associated data set. Operating procedures for DAS 804A-type vary with the service application.



NOTES:

1. CONVERT THIS KEY TO LOCKING TYPE BY INSTALLING A PIOE837 SCREW WHEN E OR G OPTION IS INSTALLED. ALSO CHANGE DESIGNATION OF KEY TO AUTO.
2. SAME AS NOTE 1 EXCEPT USE A PI2A892 SCREW.

Fig. 3—589AA Key Unit—Designations and Modifications

TABLE A

KEY FUNCTIONS

KEY NUMBER (LEFT TO RIGHT)	KEY DESIGNATION 804A1 804A3 804A5 804A7	KEY DESIGNATION 804A2 804A4 804A6 804A8	FUNCTION
1	Dial Tone	—	Nonlocking key used to manually originate a call on a ground-start line when automatic calling unit requires ground-start operation.
	—	AUX*	Nonlocking key used to operate relays in external equipment when provided.
2	DD1	DD1*	Additional nonlocking keys used to operation relays in external equipment when provided.
	DD2	DD2*	
3	AUTO	AUTO	Locking key used to provide automatic answer of incoming data calls.
4	TEST	TEST	Nonlocking key used to place data set in test mode.
5	TALK	TALK	Locking key used to connect telephone set to data line for talking.
6	DATA	DATA	Nonlocking key used to shift from talk to data mode.

*When both DD1 and DD2 keys are used to transfer from 2- or 4-wire private lines to 2-wire Direct Distance Dialing (DDD) backup lines, the AUX key is used to hold the first DDD line until the second line is picked up.

4. COVER REMOVAL AND REPLACEMENT

4.01 Gain access to the interior of the DAS (Fig. 4, 5, or 6) as follows.

(a) Loosen, but do not remove the six captive cover retaining screws located in the base of the data auxiliary set.

(b) Lift off the covers, removing the rear cover first.

4.02 To replace the covers, perform the following operations:

(a) Position retaining wedges so they will receive the cover lugs.

(b) Lower the front cover over the dial, or Touch-Tone unit, and the keys. Tilt cover forward as it is lowered.

(c) Lower the rear cover straight down and correctly position it to rest on the base of the set.

(d) Tighten the six captive cover-retaining screws.

5. OPTION CONNECTIONS

Caution: Remove power from associated data set before changing options in DAS 804A-type.

5.01 Options for DAS 804A6, A8, series 6 and higher are installed by strapping all the appropriate terminals on the option terminal board as shown in Fig. 7 and Table B. For a description of the options, see Table C. Option terminal board location is shown in Fig. 4.

5.02 Options for DASs prior to DAS 804A6, A8, series 6 are installed by making the necessary connections listed in Table C. Terminal block locations are shown in Fig. 5 and 6.

5.03 Options required for a specific installation should be specified on the service order or circuit record layout card. Additionally, refer to the station covering the associated data set for the 804A options required for each application. If the DAS has previously been equipped with an option that is incompatible with a presently required option, the previously installed option must be removed before the new option can be installed. Refer to schematic of the DAS (Fig. 8 or 9) for additional information on the removal and installation of an option.

5.04 To obtain −12 dBm at the serving central office in compliance with new level objectives, apparatus option ZF has been incorporated in DAS 804A5, 804A6, 804A7, and 804A8. In addition, some of the DAS 804A1, 804A2, 804A3, and 804A4 have been modified to incorporate apparatus option ZF. This modification reduces the answer tone output level from −6 to −7 dBm for service option Y and reduces the output level from −9 to −12 dBm for service option X. DAS 804A1 and 804A2 which have apparatus option ZF applied will be identified on the nameplate as series 3 or higher. DAS 804A3 and 804A4 which have apparatus option ZF applied will be identified on the nameplate as series 2 or higher.

5.05 DAS 804A1 through 804A4 which have not had apparatus option ZF incorporated may require an external pad on the line side of the associated data set. In this manner, the pad required for the data set will also serve for the DAS. Information on constructing, ordering, and installing external pads is given in the installation practices covering data sets used with DAS 804A-type.

5.06 When DAS 804A-type is to be used on loops where an external pad is provided to reduce the data set transmit level, any DAS 804A-type may be used. When no external pad is required, a DAS equipped with option ZF must be used.

5.07 When DAS 804A-type is to be used in conjunction with data set 203-type, options ZL and ZA must both be installed.

5.08 ***For connecting DAS 804A-type to its associated data set, refer to the sections covering the data set.***

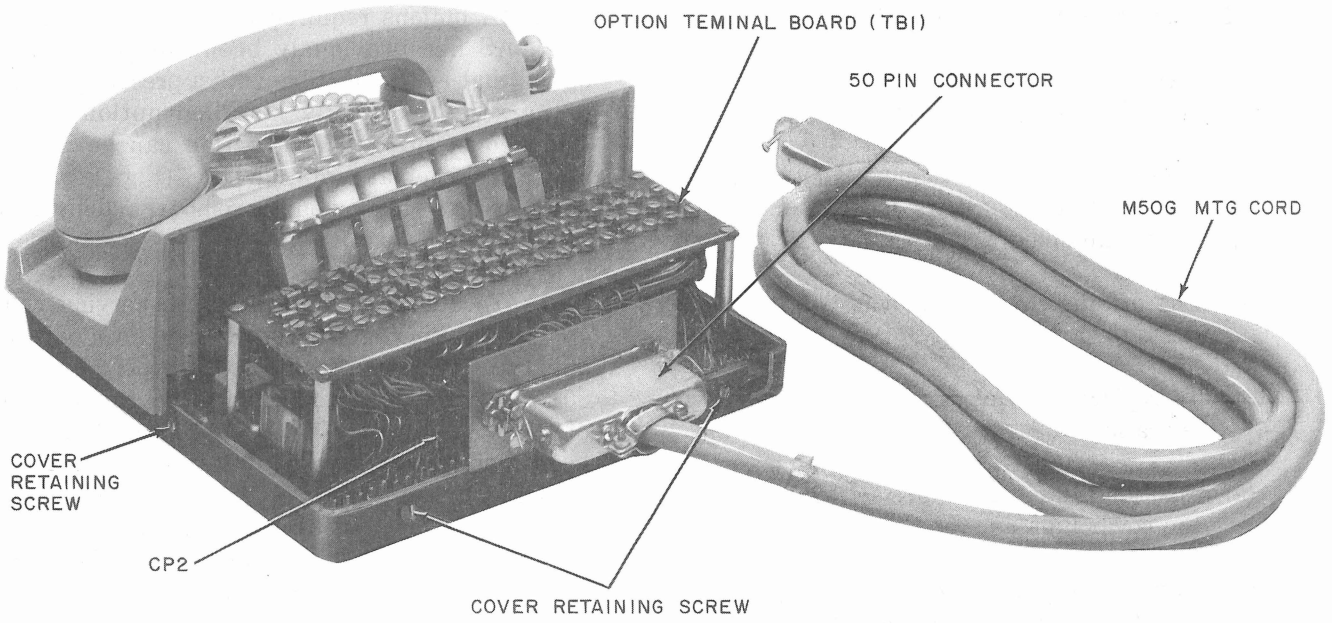


Fig. 4—Data Auxiliary Set 804A6, Series 6 and Higher—Rear View With Cover Removed

6. REFERENCES

6.01 The following references provide additional information on DAS 804A-type and associated equipment:

(a) PELs 7287, 7288, and 7512

(b) Section 590-008-102—Data Auxiliary Set 804A-Type Reference Guide

(c) CD & SD 1D041-01—DAS 804A-Type

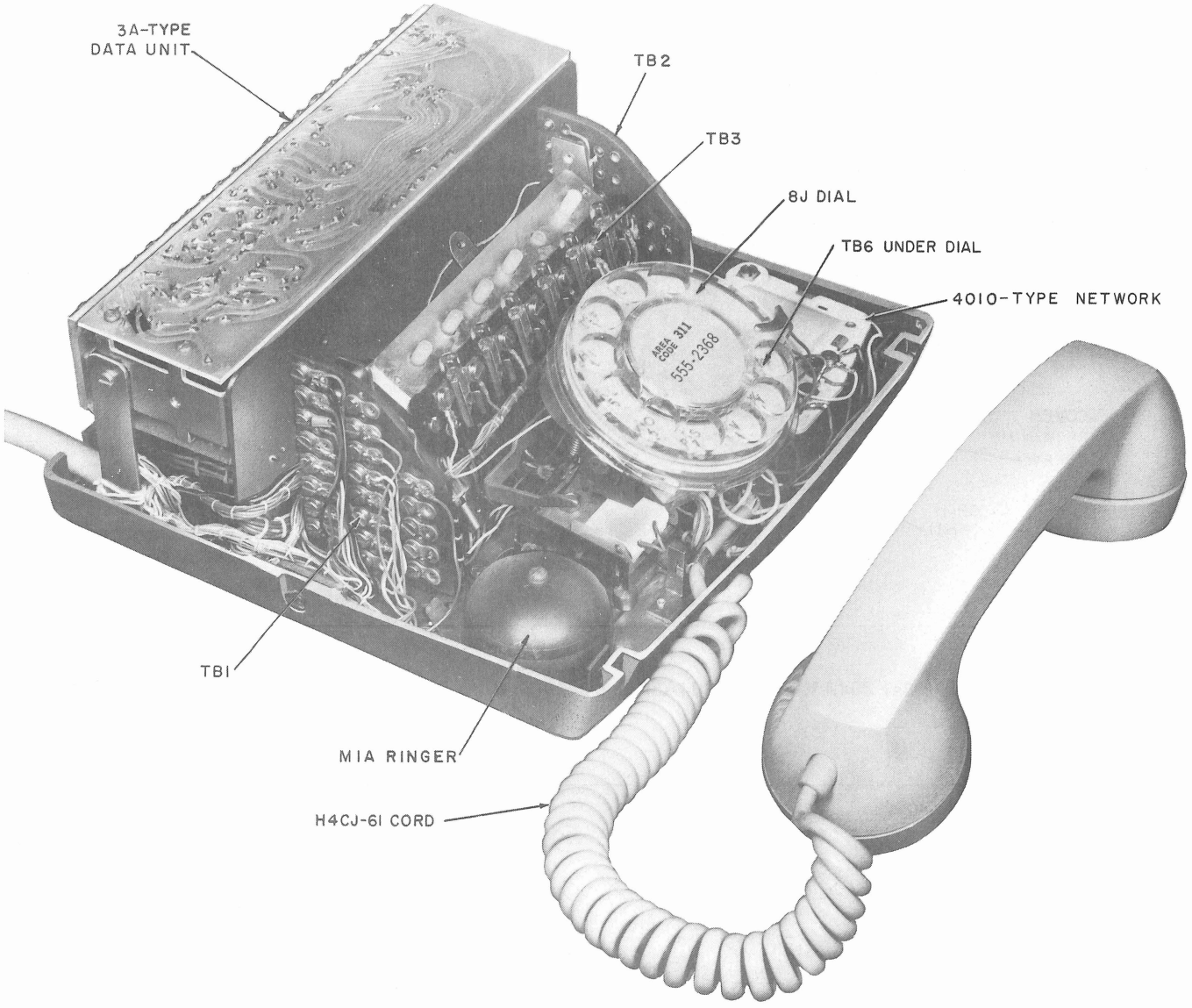


Fig. 5—Data Auxiliary Set 804A1, 804A2, 804A5, or 804A6 Prior to Series 6—Front View With Cover Removed

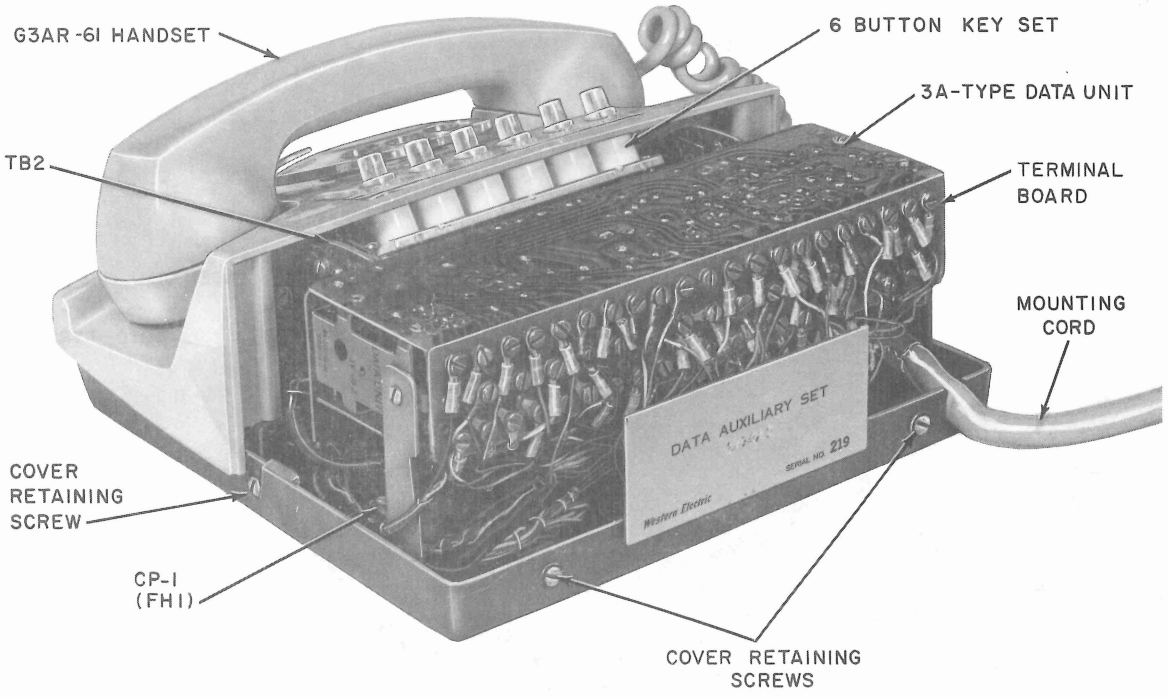
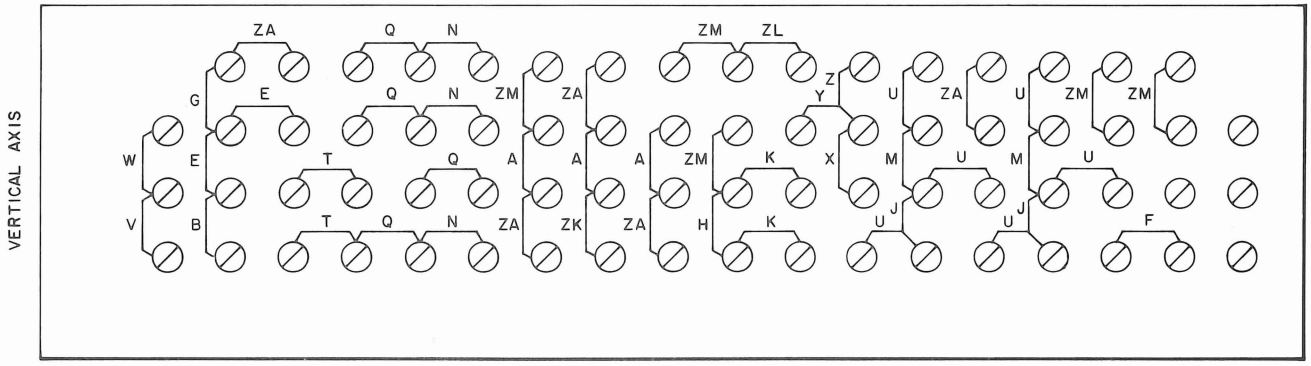


Fig. 6—Data Auxiliary Set 804A1, 804A2, 804A5, or 804A6 Prior to Series 6—Rear View With Cover Removed



EXAMPLES:
1. TO INSTALL OPTION W, PLACE ONE OPTION STRAP PARALLEL TO THE VERTICAL AXIS BETWEEN THE TWO SCREW TERMINALS SHOWN. AS SHOWN IN TABLE B, ALL STRAPS FOR OPTION V MUST BE REMOVED WHEN OPTION W IS INSTALLED.
2. TO INSTALL OPTION ZL, PLACE ONE OPTION STRAP PARALLEL TO THE HORIZONTAL AXIS BETWEEN THE TWO SCREW TERMINALS SHOWN. AS SHOWN IN TABLE B, ALL STRAPS FOR OPTION ZM MUST BE REMOVED WHEN OPTION ZL IS INSTALLED.

Fig. 7—Option Terminal Board as Seen From Rear of Data Auxiliary Set 804A6, 804A8, Series 6 and Higher

TABLE B

DAS 804A6, A8, SERIES 6 SERVICE OPTION CONNECTIONS

OPTION CODE	NUMBER OF STRAPS ON OPTION BOARD		PROVIDE	OPTION CODE	NUMBER OF STRAPS ON OPTION BOARD		PROVIDE
	HORIZONTAL	VERTICAL			HORIZONTAL	VERTICAL	
J		2	One	G		1	As Required
M		2	Per				
U	4	2	Station	K	2		One Per
				H		1	Station
Q	4		One Per				
N	3		Station	ZA	1	4	One Per
				A		3	Station
W		1	One Per				
V		1	Station	ZL	1		One Per
				ZM	1	4	Station
X		1	One				
Y	1		Per	F	1		As Required
Z		1	Station				
				T	2		As Required
B		1	One Per				
E	1	1	Station	ZK		1	As Required

TABLE C

DASs PRIOR TO 804A6, A8 SERIES 6 SERVICE OPTION CONNECTIONS

OPTION CODE AND DESCRIPTION	AVAILABLE IN 804A				CONNECTIONS §	PROVIDE
	1 5	2 6	3 7	4 8		
J Fixed 2-Wire	*	†	*	†	Connect one W receiver wire to R of network (all sets). Connect other W receiver wire on GN of network (rotary dial). Connect other W receiver wire to G of network (Touch-Tone dial).	One per station
M § § Fixed 4-Wire					Connect one W receiver wire to TB6, 1. Connect other W receiver wire to TB6, 3.	
U 4-Wire Relay (Switched 4-Wire) (2- or 4-Wire Option)	†	*	†	*	Connect one W receiver wire to TB6, 2. Connect other W receiver wire to TB6, 4. Connect G relay wire to TB6, 1. Connect S relay wire to TB6, 2. Connect O relay wire to TB6, 3. Connect W relay wire to TB6, 4. Connect BR relay wire to TB1, 11. Connect BK relay wire to TB1, 17. Connect BL relay wire to R of network (all sets.) Connect R relay wire to GN of network (rotary dial). Connect R relay wire to G of network (Touch-Tone dial).	
Q Ringing Transmit Pair	*	*	*	*	Move G lead from A of network to TB2, 19. Move W lead from TB1, 8 to A of network. Move W lead from TB2, 8 to TB2, 3. Move BL lead from TB2, 12 to TB2, 2†† Move BL lead from TB2, 2 to TB2, 12‡‡ Move O lead from TB2, 15 to TB2, 14†† Move O lead from TB2, 14 to TB2, 15‡‡ Disconnect O-W mounting cord lead from TB1, 6. Tape and store. Disconnect BL-BK mounting cord lead from TB2, 19. Tape and store. Disconnect BK-BL mounting cord lead from TB2, 3. Tape and store.	One per station
N Ringing Receive Pair	†	†	†	†	Move W lead from A of network to TB1, 8. Move G lead from TB2, 19 to A of network. Move W lead from TB2, 3 to TB2, 8. Move BL lead from TB2, 12 to TB2, 2†† Move BL lead from TB2, 2 to TB2, 12‡‡ Move O lead from TB2, 15 to TB2, 14†† Move O lead from TB2, 14 to TB2, 15‡‡ Untape stored O-W mounting cord lead and connect to TB1, 6. Untape stored BL-BK mounting cord lead and connect to TB2, 19. Untape stored BK-BL mounting cord lead and connect to TB2, 3.	

TABLE C (Cont)

OPTION CODE AND DESCRIPTION	AVAILABLE IN 804A				CONNECTIONS §	PROVIDE
	1 5	2 6	3 7	4 8		
W 900-Ohm Line Impedance	*	*	*	*	Move R-BL mounting cord lead from DU, 35 to DU, 16.	One per station
V 600-Ohm Line Impedance	†	†	†	†	Move R-BL mounting cord lead from DU, 16 to DU, 35.	
X —12 dBm Answertone	*	*	*	*	Move [BR] BL lead from either TB2, 9 or 10 to TB2, 11.**	One per station
Y —7 dBm Answertone	†	†	†	†	Move [BR] BL lead from either TB2, 9 or 11 to TB2, 10.**	
Z —3 dBm Answertone	†	†	†	†	Move [BR] BL lead from either TB2, 10 or 11 to TB2, 9.**	
B¶ Contact Interface	*	*	*	*	Move [R] G-W lead from TB1, 9 to TB1, 3.** Disconnect BL-Y mounting cord lead from TB1, 9.Tape and store. Remove locking screw from AUTO key.	One per station
E¶ Auto Answer Key	†	†	†	†	Move [R] G-W lead from TB1, 3 to TB1, 9.** Untape stored BL-Y mounting cord lead and connect to TB1, 9. Insert locking screw in AUTO key.	
G¶ Auto Answer Key	†	†	†	†	Move BL lead from TB1, 15 to TB1, 9. Insert locking screw in AUTO key. To remove: Move BL lead from TB1, 9 to TB1, 15. Remove locking screw from AUTO key.	As required
K Unbalanced Pair	*	*	*	*	Move [O] S lead from TB2, 18 to TB2, 17.** Move BK lead from TB2, 1 to TB2, 18.	One per station
H Balanced Pair	†	†	†	†	Move [O] S lead from TB2, 17 to TB2, 18.** Move BK lead from TB2, 18 to TB2, 1.	
ZA ±18 Volt Data Set Power	*	*	*	*	Move G lead from DU, 45 to DU, 3. Move BK-S mounting cord lead from DU, 11 to DU, 41. (Tape and store when used with ZL option.) Disconnect R-S mounting cord lead from DU, 36. Tape and store. Untape stored BL lead and connect to DU, 5. Untape stored BL lead and connect to DU, 53. Untape stored BK lead and connect to DU, 36.	ZA or A— One per station

TABLE C (Cont)

OPTION CODE AND DESCRIPTION	AVAILABLE IN 804A				CONNECTIONS §	PROVIDE
	1 5	2 6	3 7	4 8		
A ±12 Volt Data Set Power (Data Sets 201-type)	†	†	†	†	Disconnect BK lead from DU, 36. Tape and store. Disconnect BL lead from DU 53. Tape and store. Disconnect BL lead from DU, 5. Tape and store. Untape stored R-S mounting cord lead and connect to DU, 36. Move BK-S mounting cord lead from DU, 41 to DU, 11. Move G lead from DU, 3 to DU, 45.	ZA or A— One per station
F 402D Talk Light Option	†	†	†	†	Move G lead from TB1, 18 to TB1, 10. To remove: Move G lead from TB1, 10 to TB1, 18.	As required
T Automatic Calling Unit	†	†	†	†	Move G lead from TB1, 12 to TB1, 8†† Move G lead from TB1, 8 to TB1, 12‡‡ Untape stored [G] W and connect to DU, 42. To remove: Move G lead from TB1, 8 to TB1, 12†† Move G lead from TB1, 12 to TB1, 8.‡‡ Remove, tape and store [G] W lead from DU, 42.**	As required
ZK‡ Switchhook Contact	†	†	†	†	Untape stored R-S mounting cord lead and connect to TB2, 6. Untape stored O SH lead and connect to TB2, 6. Untape stored BL SH lead and connect to TB2, 1. To remove: Remove, tape, and store these 3 leads.	As required
ZL 203 Compatibility IN (Must use ZA option in conjunction)	†	†	†	†	Move BL-R mounting cord lead from DU, 55 to DU, 54. Tape and store the following: [O] BL-W from DU, 34.** R-BL mounting cord lead from DU, 16 or 35 Y-S mounting cord lead from DU, 18 BK-S mounting cord lead from DU, 41 G-Y mounting cord lead from DU, 27 V-S mounting cord lead from DU, 45	ZL or ZM— One per station

TABLE C (Cont)

OPTION CODE AND DESCRIPTION	AVAILABLE IN 804A				CONNECTIONS §	PROVIDE
	1 5	2 6	3 7	4 8		
ZM 203 Compatibility OUT	*	*	*	*	Move BL-R mounting cord lead from DU, 54 to DU, 55. Untape and connect the following: [O] BL-W to DU, 34.** R-BL mounting cord lead to DU, 16 or 35 Y-S mounting cord lead to DU, 18 BK-S mounting cord lead to DU, 41 (Connect to DU, 11 when used with option A) G-Y mounting cord lead to DU, 27 V-S mounting cord lead to DU, 45	ZL or ZM— One per station

* Factory-supplied option.

† Option installed as indicated in table. Refer to Fig. 6 of Section 598-030-100 for additional information.

‡ Option ZK must not be used with option A. This option is provided when 4-wire private line stations are equipped with alternate switched network lines. It is required to provide correct operation when transferring from data to talk mode over switched network lines.

§ DU is used in this column to denote either 3A1 or 3A2 data unit.

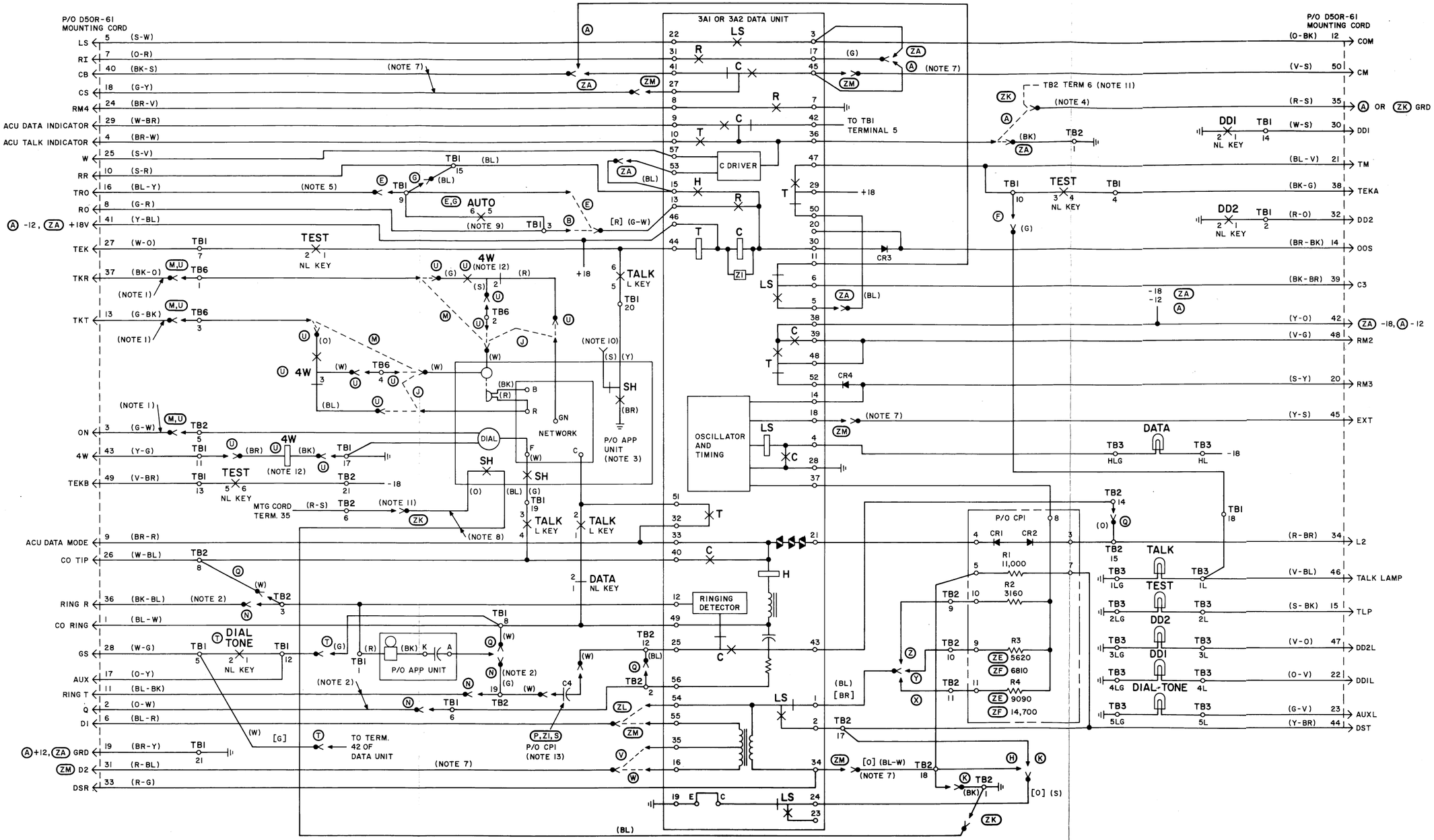
¶ Options B, E, and G are used, either singly or in combination, to provide the automatic answer feature. Refer to the BSP covering the associated data set for determination of which option(s) to use.

** Wiring color codes in brackets [ ] are MD for series 5 or higher of DAS 804A5 through 804A8.

†† Applicable to series 5 or higher of DAS 804A5, A7 and applicable to series 5 only of DAS 804A6, A8.

‡‡ Applicable to all DASs except series 5 or higher of DAS 804A5 through 804A8.

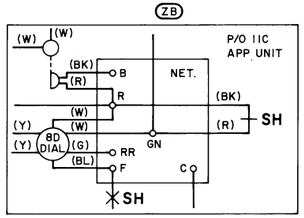
§§ Available in DAS 804A5, 6, 7, 8 only.



NOTES:

1. TAPE AND STORE WHEN (J) OPTION IS PROVIDED.
2. TAPE AND STORE WHEN (Q) OPTION IS PROVIDED.
3. DIFFERENCES IN THE APP UNITS ARE AS SHOWN BY INSERTS BELOW.
4. TAPE AND STORE WHEN (A) OR (ZK) OPTION IS NOT PROVIDED.
5. TAPE AND STORE WHEN (E) OPTION IS NOT PROVIDED.
6. SPADE TIP SHOWN THUS: ——<
7. TAPE AND STORE WHEN (ZL) OPTION IS PROVIDED.
8. TAPE AND STORE WHEN (ZK) OPTION IS NOT PROVIDED.
9. AUTO KEY IS NON-LOCKING WITH OPTION (B); LOCKING WITH OPTIONS (E) AND (G).
10. NOT USED; TAPE AND STORE.
11. OPTION (ZK) MUST NOT BE USED WITH OPTION (A).
12. FOUR-WIRE RELAY SUPPLIED IN DAS 804A6 AND 804A8 TO ALLOW SWITCHING BETWEEN 2-WIRE AND 4-WIRE CIRCUITS. EARLY MODEL CIRCUIT PACKS CONTAINING 4-WIRE RELAY WERE IDENTIFIED AS FACTORY OPTION (ZJ), CODED A-835174. LATER MODELS ARE IDENTIFIED AS (ZH), CODED EYI. RELAYS ARE MAI AND MAIA, RESPECTIVELY. CIRCUIT PACKS MAY BE USED INTERCHANGEABLY.
13. EARLY MODEL CPI CIRCUIT PACKS ARE CODED A-835205, FACTORY OPTION (P); LATER MODEL CPI CIRCUIT PACKS ARE CODED FHI, FACTORY OPTION (ZI). CIRCUIT PACKS MAY BE USED INTERCHANGEABLY. (S) C4 PROVIDED EXTERNALLY TO CPI ON SOME EARLY MODELS OF 804AI AND 804A2.
14. WIRING COLOR CODES IN ( ) ARE STANDARD FOR SERIES 5 OR LATER OF 804A5 THROUGH 804A8. WIRING COLOR CODES IN [ ] ARE M.D.

(ZB)



(ZD)

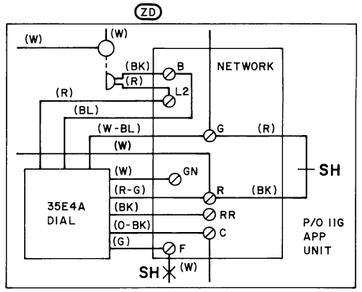
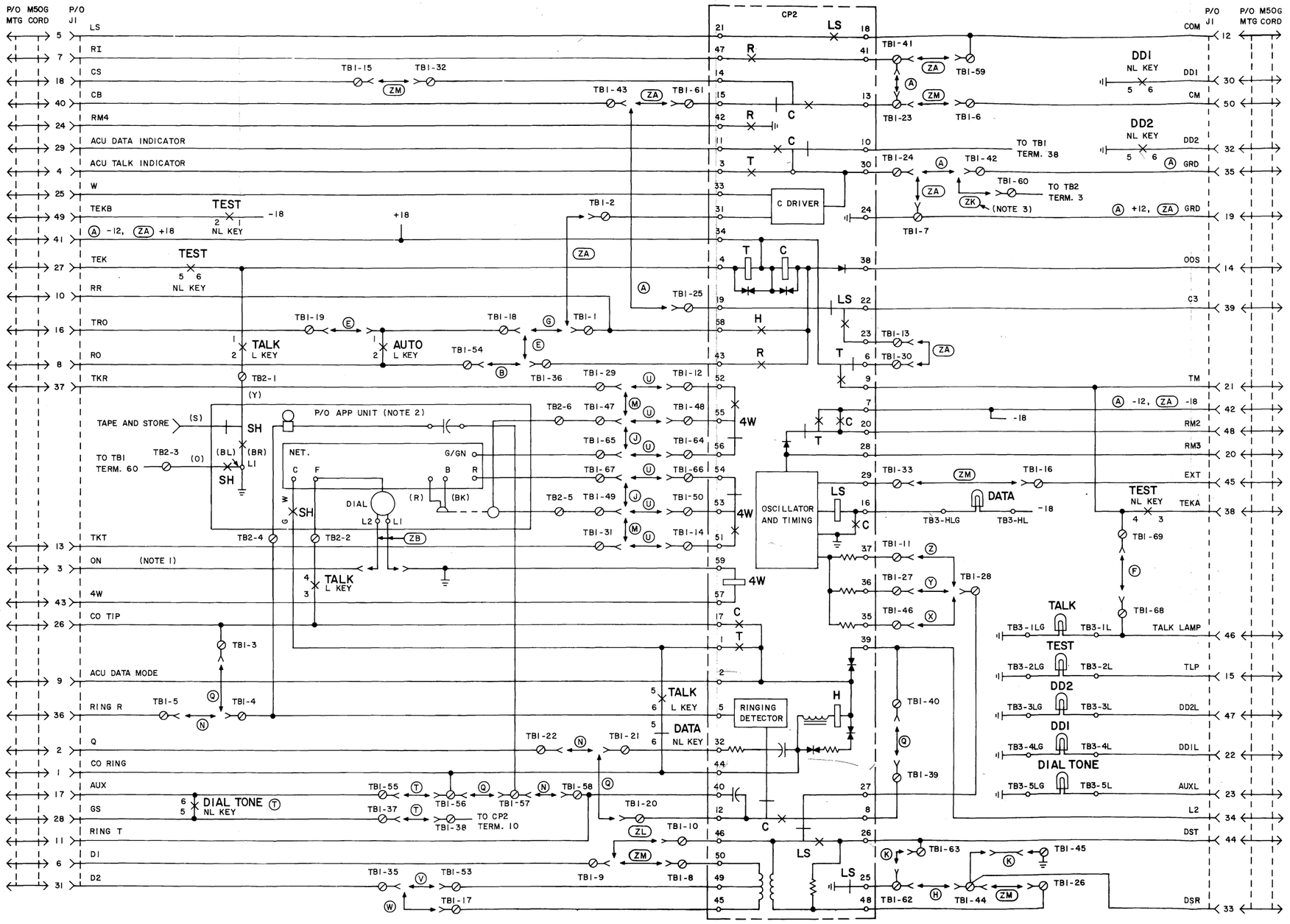


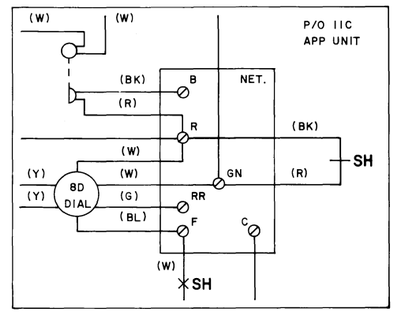
Fig. 8—Data Auxilary Set 804A-Type Except 804A6, A8, Series 6 and Higher—Schematic Diagram



NOTES:

1. TAPE AND STORE WHEN ZD OPTION (APPARATUS UNIT 11G) IS INSTALLED.
2. DIFFERENCES IN THE APP UNITS ARE AS SHOWN BY INSERTS BELOW.
3. OPTION ZK MUST NOT BE USED WITH OPTION A.

ZB



ZD

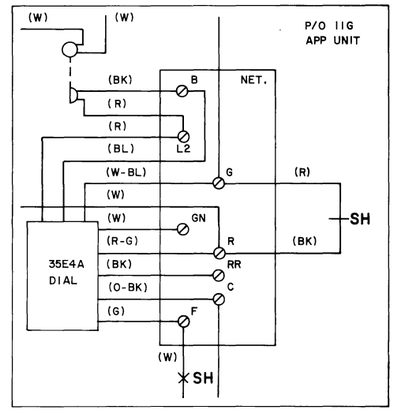


Fig. 9—Data Auxiliary Set 804A6, A8, Series 6 and Higher—Schematic Diagram