

DATA SET 103H-TYPE INSTALLATION AND CONNECTIONS

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1. GENERAL

1.01 This section describes the procedure to be followed for the installation of Data Set 103H-type (Fig. 1).

1.02 This section is reissued to provide information on Data Set 103H2 which incorporates Data Set 103E6 as the data modem. Information on Data Set 103H1, which uses Data Set 103E5, is retained in this practice to provide coverage for equipment that is still in service. Since this is a general revision and changes have been made throughout the practice, change arrows have been omitted.

1.03 The data set should be installed in accordance with existing practices covering the installation of station sets.

1.04 The data set must be located within range of the customer-provided interface connector

cable. This cable should not exceed 50 feet in length. When the data terminal is a Model 37 teletypewriter (TTY), the data set is mounted on a 98A bracket inside the TTY pedestal.

1.05 The customer must furnish a standard 3-wire grounding-type, 117-volt 60-Hz ac power receptacle capable of accepting a plug with two parallel blades and a round-shaped grounding pin. The receptacle must not be under control of a switch. In the Model 37 Teletypewriter (TTY), the receptacle is provided for the data set on the utility strip of the associated electrical service unit.

1.06 To minimize the possibility of data errors due to potential differences between the data set and data terminal grounds, the data set power receptacle should be served from the same power distribution panel as the receptacle for the data terminal. If this is not possible, a test should be made, using the 6A impulse counter, to determine if excessive noise is present. This test procedure is described in the section entitled Data Set 103H-Type—Test Procedures (591-027-500). If the test requirements are not met, the data set and data terminal grounds must be bonded together in accordance with local regulations.

1.07 When a Data Auxiliary Set (DAS) 801-type automatic calling unit (ACU) is used, a test between the ACU, data set, and data terminal must also be performed.

1.08 It must be verified that the overall transmission facility has been tested and meets transmission requirements specified in the section entitled Data Systems—DATA-PHONE® Service on Direct Distance Dialing Network—Test Requirements for Subscriber, Foreign Exchange, and Remote Exchange Lines (314-205-501).

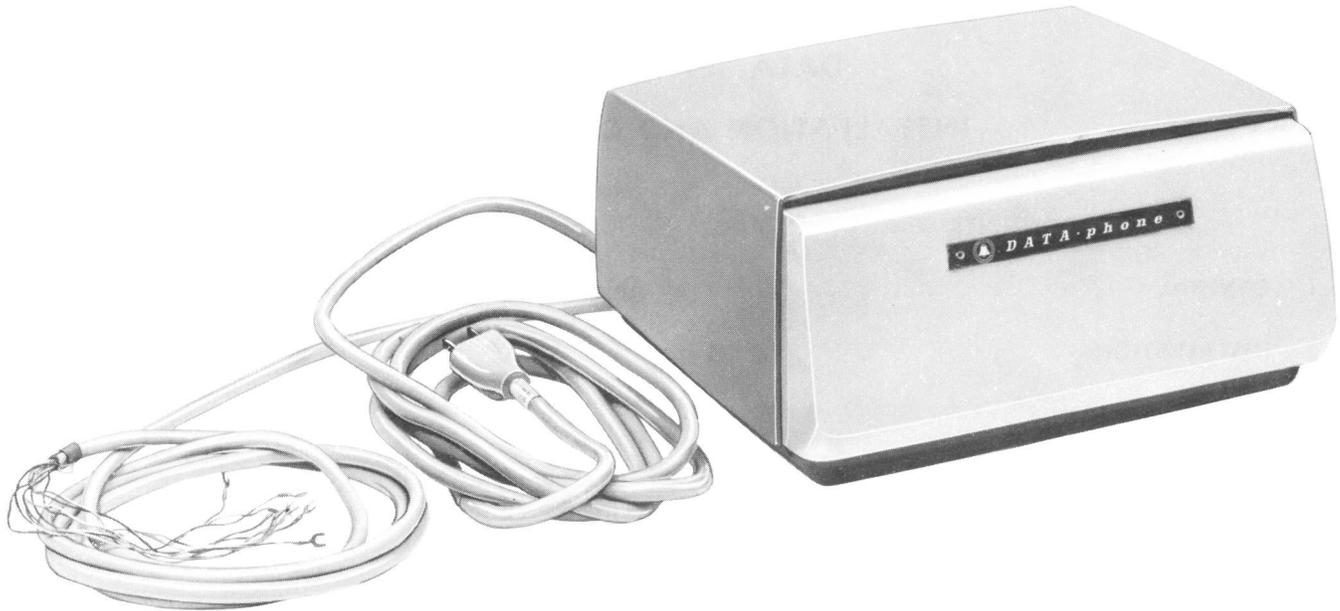


Fig. 1—Data Set 103H-Type

2. INSTALLATION

A. Data Set 103H-Type

2.01 In addition to the standard installation tools and equipment, the following test equipment will be required:

- 1—901B Data Test Set
- 1—TTS-28A Portable Station Test Set (or equivalent). See Section 107-304-100.

2.02 Data Set 103H-type requires connection to a DAS 804P5, 6, 7, or 8 which in turn requires connection to a 223C-52 hand telephone set.

2.03 Options for the Data Set 103H-type are provided by the Data Set 103E5 or 103E6 data modem. These options are installed by tightening or loosening screw switches on the circuit pack terminal blocks located on the rear of the Data Sets 103E5 and 103E6.

2.04 Install the options specified on the service order or work sheet as shown in Fig. 2 and Table A.

Caution: Exercise care when tightening option screw switches to prevent stripping the terminal blocks. When screws are to be loosened, loosen screw less than two complete turns but more than one complete turn. Three or more turns will cause the screws to bind on the data set cover.

2.05 When the data terminal is customer provided, the data set is to be installed in accordance with local engineering practices.

2.06 When the data terminal is a 37 TTY, the data set is to be installed inside the TTY pedestal on a 98A bracket as follows:

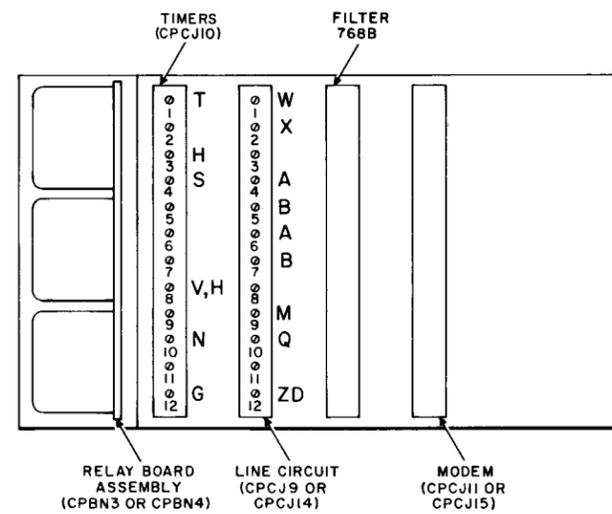
- (a) If 98A bracket mounting hole is not furnished, locate and drill one 7/16-inch hole in bottom of TTY pedestal as shown in Fig. 3.
- (b) Using MOLLY[®] jacknut installer tool No. 1956 or MOLLY jacknut friction wrench and a screwdriver, install one jacknut type 8-S JN 1/4-20 (supplied with 98A bracket).

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- (c) Using four P-181454 (.164-32 x 1/2 inch) binding head machine screws (furnished with

TABLE A
FEATURES OR OPTIONS

FEATURE OR OPTION	DESIG	CP NO.	SCREW SETTING		
			LOOSEN	TIGHTEN	
Answer Mode Indicator	CE on	X*	CJ9 or CJ14	1	2
	CE off	W		2	1
Space Disconnect	Long	V*	CJ10	3	8
	Short	H			3 and 8
	None	w/o V or H		3 and 8	
Send Disconnect	Yes	T*	CJ10		1
	No	w/o T		1	
Loss of Carrier Disconnect	Yes	S*	CJ10		4
	No	w/o S		4	
Common Grounds	Yes	Q*	CJ9 or CJ14		10
	No	w/o Q		10	
Originate Only Test	Yes	G	CJ10		12
	No	w/o G*		12	
Ans/Org Transfer	Without	N*	CJ10		10
	With	w/o N		10	
Answer Control	Combined	M	CJ9		9
	Separate	w/o M*		9	
CB and CF Indicators	Common	A	CJ9 or CJ14	5 and 7	4 and 6
	Separate	B*		4 and 6	5 and 7
CC Indication Early	Yes	ZD*	CJ14		12
	No	w/o ZD*		12	



Note: Options marked thus (*) are factory-furnished options.

Fig. 2—Data Set 103E5 or 103E6—Option Screw Switches

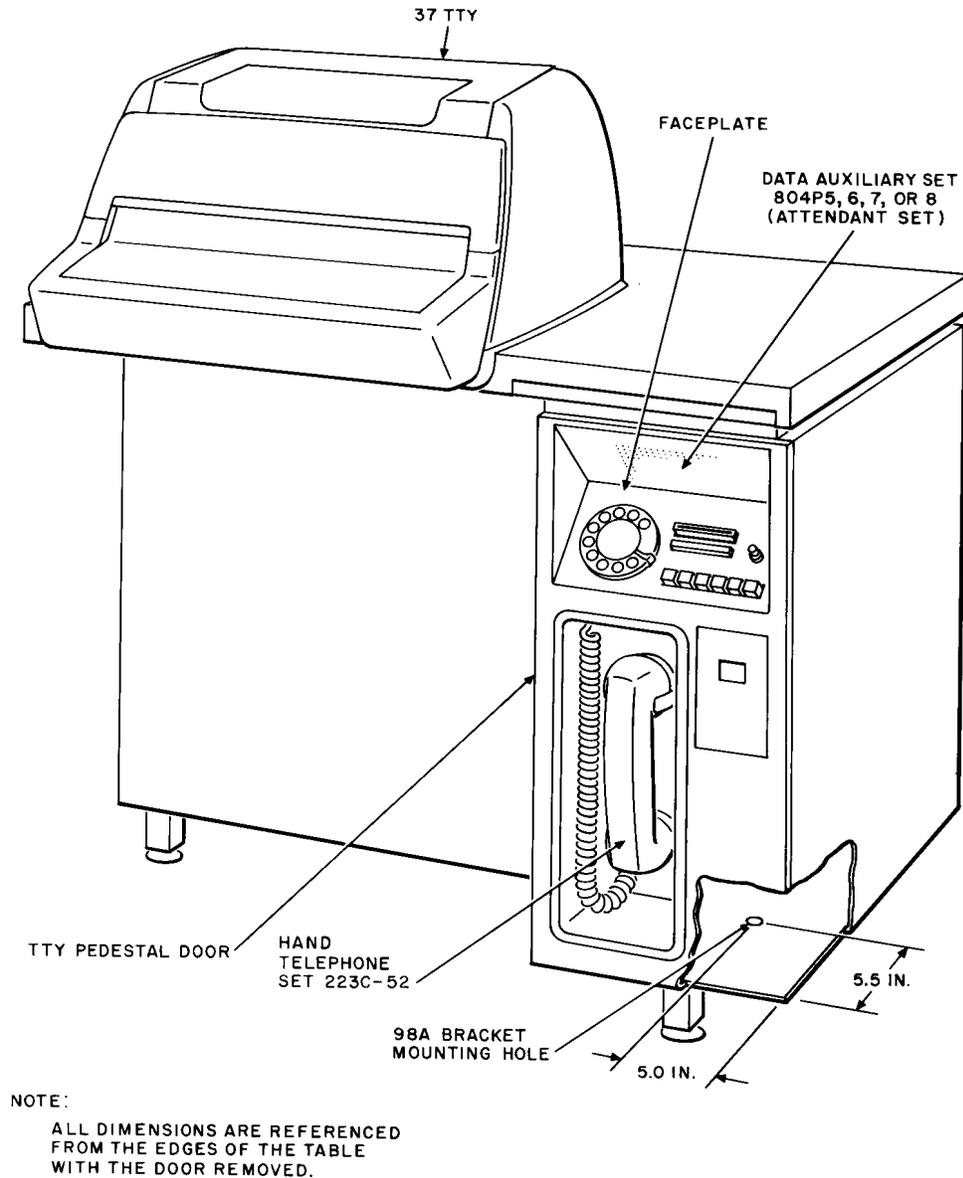


Fig. 3—98A Bracket Mounting Hole Location

98A bracket), mount Data Set 103H-type on the 98A bracket.

(d) Install 98A bracket in TTY pedestal and fasten spring-ejected panel fastener No. 53-11-410-24.

B. Data Auxiliary Set 804P5, 6, 7, or 8 (Attendant Set)

2.07 When the data terminal is customer provided, the attendant set is to be installed in accordance with local engineering practices.

2.08 When the data terminal is a 37 TTY, the attendant set is to be installed in the TTY pedestal door TP-324050 (see Fig. 3) as follows.

(a) If Data Auxiliary Set 804P7 or 804P8 is to be used, verify that the TTY pedestal door is equipped with card container kit TP-326942 and, if not, install the card container kit.

(b) If DAS 804P8 is to be used, a 2012B (or equivalent) transformer must be used. Refer to the section entitled Station Transformer—Identification (501-136-100). The output of the

SECTION 591-027-200

transformer is connected to Data Set 103H-type via the BL-W and W-BL leads of the D10R-61 cord.

(c) Insert tab on faceplate (furnished with attendant set, see Fig. 3) into slot on right-hand side of attendant set opening in the TTY pedestal door. Secure the faceplate to the door by installing latch spring P-47M177 (furnished with attendant set) to grasp faceplate notch.

(d) Install attendant set by inserting it into the two protruding tabs on the rear of the TTY pedestal door. Secure the set to two weld nuts by using two nuts and two washers (furnished with TTY door).

C. Hand Telephone Set 223C-52

2.09 Install 223C-52 hand telephone set into opening in TTY pedestal door (see Fig. 3) and secure with push on nuts C-13235-020-1 (furnished with hand telephone set).

D. Data Auxiliary Set 801-Type (ACU)

2.10 Three types of ACUs are recommended for use with Data Set 103H-type. They are DASs 801A5 (dial pulse), 801C3 (TOUCH-TONE®), and 801C4 (TOUCH-TONE).

Caution: *Specific options which must be installed in the ACU are shown in Table B. Options which must not be installed in the ACU are shown in Table C. Refer to the appropriate section covering the ACU to be used for option connections.*

2.11 When the ACU installed is a DAS 801A5 or 801C3, verify that the transmission facility is arranged for ground-start operation. The ACU DAS 801C4 may be option-strapped for either loop-start or ground-start operation.

2.12 If the ACU installed is a DAS 801C-type, verify that the transmission facility is arranged for TOUCH-TONE service.

2.13 If the ACU is equipped with an M14C-61 mounting cord (N option), this cord must be replaced with a D10P-61 cord, and in all cases the slate wire on terminal SH1 must be moved to terminal 3.

3. CONNECTIONS

3.01 Connect Data Set 103H-type as shown in Fig. 4 when it is used without a DAS 801-type (ACU).

3.02 Connect Data Set 103H-type as shown in Fig. 5 when a DAS 801-type (ACU) is used.

3.03 Connect free arm of DAS 804P5, 6, 7, or 8 cord to terminal board on rear of 223C-52 hand telephone set as shown in Fig. 6.

Note: A transmission measuring set TTS-28 (or equivalent) is needed to perform the following adjustment.

**TABLE B
ACU OPTIONS TO BE USED WITH DATA SET 103H-TYPE**

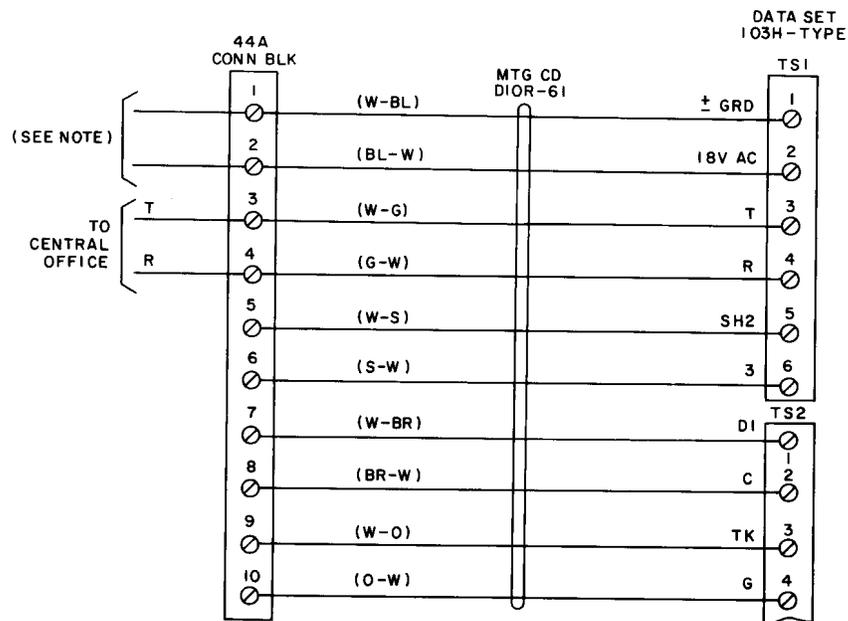
FEATURE OR OPTION	OPTION DESIG
Data set to data mode by grounded contact	ZG
Grounded TK and CL Contacts	ZB
Data set answer detection without end of number	E
2-Wire	ZH*
DLO lead controlled by ACU	ZM*

* DAS 801C-type only

TABLE C
ACU OPTIONS NOT USED WITH DATA SET 103H-TYPE

FEATURE OR OPTION	OPTION DESIG
Data set to data mode by contact to D1	Q
Data set to data mode by isolated contact	F
ACU answer detection or end of number	B
Isolated TK contact	ZA
Isolated CL contact	ZC
Ground Start (4-wire)	ZK*
4-wire	ZJ*
Terminate call via data set after DSS lead (line transfer) in test mode	G
Terminate call via call CRQ lead after DSS lead goes on line (line transfer)	Z
DLO lead controlled by ACU and data set	ZL*

* DAS 801C-type only



NOTE:
CONNECT TO 2012B OR EQUIVALENT TRANSFORMER WHEN
ATTENDANT UNIT USED IS DAS 804P8.

Fig. 4—Data Set 103H-Type—Connections Without Data Auxiliary Set 801-Type (Automatic Calling Unit)

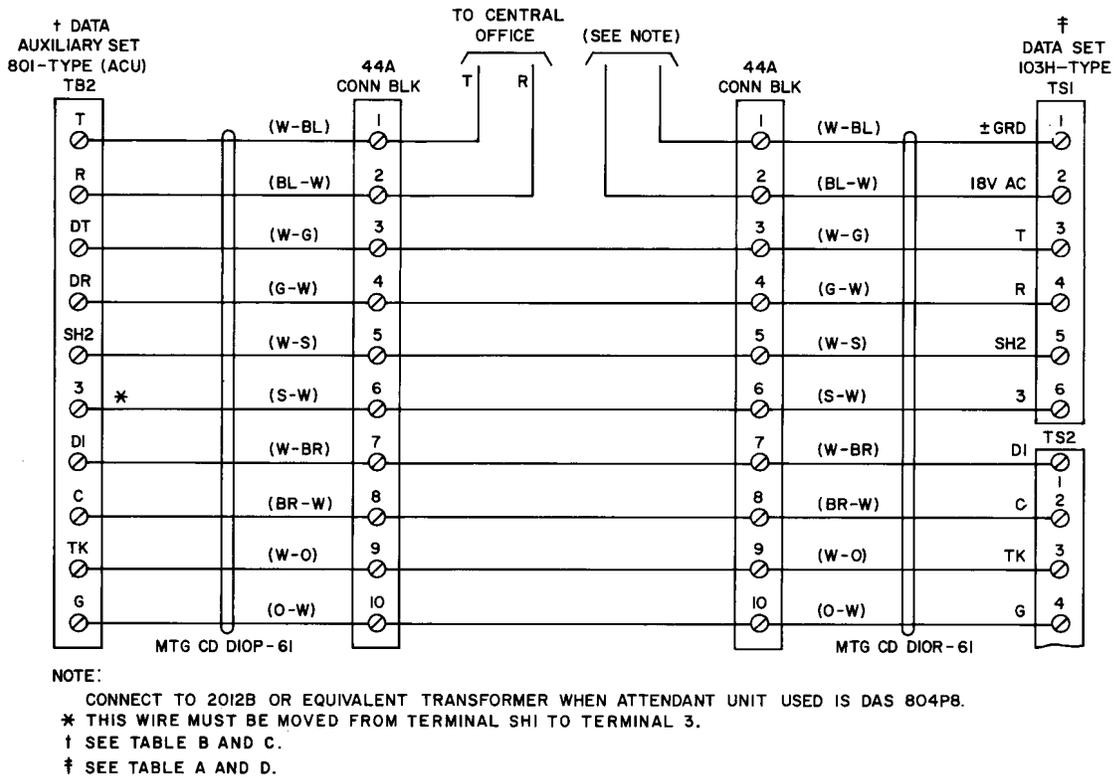


Fig. 5—Data Set 103H-Type—Connections With Data Auxiliary Set 801-Type (Automatic Calling Unit)

3.04 If the service order does not specify the transmitted power level to be used, adjust the level as follows:

- (a) Place a call to the 1000-Hz, 1-mW terminal in the serving central office.
- (b) Using the transmission measuring set, measure and record the level of the received tone (measured loss).



For this measurement, the telephone line shall be terminated with 900 ohms and the receive signal filtered to provide at least 25 dB attenuation at 60 Hz. The TTS-28 test set provides the termination and filtering required when the FUNCTION switch is set to the DBM 900Ω TERM position. The data Set 103H-type should not be connected to the telephone line during this measurement.

- (c) Disconnect the transmission measuring set.

- (d) Using the 901B Data Test Set cover, connect test adapter connector cord (W25A) to Data Set 103H-type. Open captive shorting clips 9 and 20 on the interface test adapter. Connect spade-tipped flexible strap between the EQ terminals of 9 and 20.

Note: This provides a voltage of between +5 and +25 volts dc to the CD lead of Data Set 103H which is required during level adjustment of the transmitter.

- (e) Connect the T and R (See Fig. 4 or 5) to the TTS-28 test set and set the function switch to the DBM 900Ω TERM position. If a Data Auxiliary Set 801-type is used remove ac power from the DAS 801-type before making this adjustment.
- (f) Release AUTO key.
- (g) Operate DATA key and hold operated until DATA lamp lights.

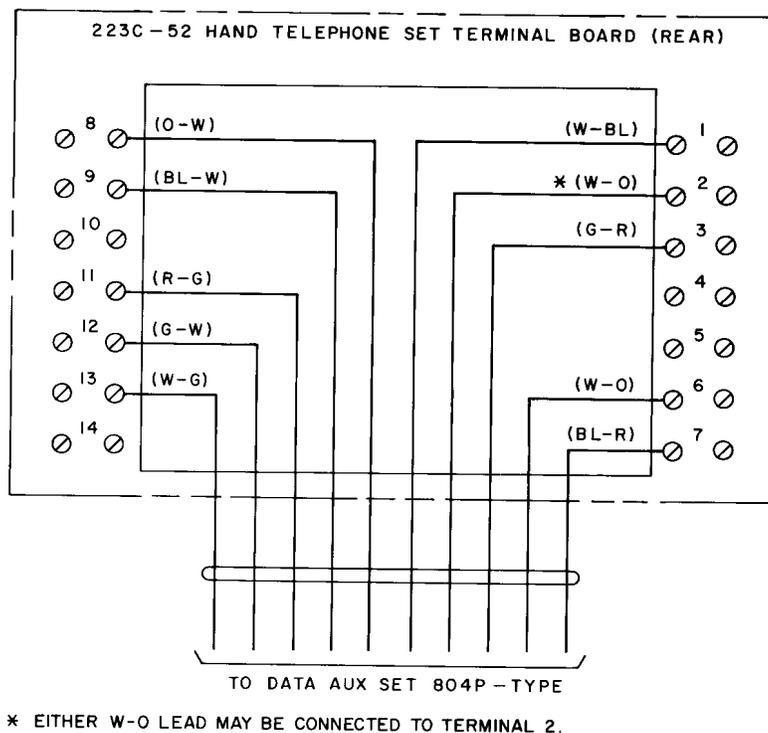


Fig. 6—223C-52 Hand Telephone Set—Connection of Data Auxiliary Set 804P-Type

- (h) Simultaneously operate DATA and TEST keys, then release.
- (i) Using Table D, locate under the 1000-Hz MEASURED LOSS column the measured loss value recorded in (b) and adjust potentiometer R34 on CP CJ11 or CP CJ15 until the TTS-28 indicates the corresponding dBm reading listed in the F₂ OUTPUT LEVEL DBM column.
- (j) Disconnect the TTS-28 and the 901B Data Test Set cover.
- 3.05** If the transmitted power level to be used is specified on the service order, adjust the level as outlined above in 3.04 (d) through (j) ignoring the measured loss column in Table D.

4. INSTALLATION TESTS

4.01 Upon completing the installation, connection, and adjustment of Data Set 103H-type, refer to the section entitled Data Set 103H-Type—Test

Procedures (591-027-500) for test procedures and requirements.

TABLE D
F₂ TRANSMIT LEVEL

1000-Hz MEASURED LOSS	F ₂ OUTPUT LEVEL dBm
Above 12 dB	0
10 to 12 dB	-2
8 to 10 dB	-4
6 to 8 dB	-6
4 to 6 dB	-8
2 to 4 dB	-10
0 to 2 dB	-12

4.02 Test procedures and requirements for the Data Auxiliary Set 801-type (ACU) will be found in the appropriate sections entitled Data Auxiliary Set 801A-Type—Test Procedures (598-010-501) and Data Auxiliary Set 801C-Type—Test Procedures (598-012-501).