

DATA SET 202A

INSTALLATION & CONNECTIONS

1. GENERAL

1.01 This section covers installation and connection information concerning Data Set (DS) 202A. This section does not include information concerning business machines used with data sets.

1.02 This section is being reissued to:

- Combine the installation information with the connection information formerly in Section 592-013-400, Issue 1
- Add information on data output signal level (option L, M)
- Add information on power level requirements at the serving central office.

Because of extensive revision, change arrows have been omitted.

1.03 The DS 202A should be installed in conformance with existing practices covering installation of station sets. See the section entitled Data Sets, General Installation and Connection Information (590-010-200).

2. INSTALLATION

2.01 The preferred installation locates the data set apart from the business machine equipment on a nearby desk, table stand, or in a Bell System-provided equipment cabinet or rack.

2.02 The DS 202A should be located so that the interface cord supplied by the business machine will not exceed 50 feet in length (to reduce stray capacitance and to conform to EIA standards).

2.03 In order to maintain quality service and to minimize interference from related devices, it is preferable to use data sets on individual lines that do not have extensions.

2.04 The customer must furnish a 3-wire ac outlet to accept a plug with two parallel blades and a U-shaped grounding pin. The outlet must not be under control of a switch.

2.05 To avoid the possibility of data errors due to a potential difference between data set ground and business machine ground, the outlet for the data set power cord should be served from the same ac distribution panel as the business machine. If they are not served from the same panel, a test using the 6A impulse counter should be used to detect the presence of noise potentials. This test procedure is described in Section 592-013-500. If test requirement is not met, data set ground and business machine ground must be bonded together.



The method of providing this bond should be in accordance with local instructions.

2.06 To minimize inductive interference to data signals on the telephone (data) line, the line should not be carried in the same run as cable between data set and customer business machine or lines connected to dc teletypewriter services. If this condition cannot be met, it will be necessary to run telephone (data) line in type SK (shielded) station wire between data set and cable distribution terminal or building entrance. Ground shield at one end only, preferably the distribution terminal end.

2.07 Verify that the loop and overall facilities have been tested and meet transmission requirements as specified:

- Switched Telephone Network (See Section 314-205-501.)
- Private Line Service (See Section 314-410-500.)

2.08 Wiring options and overall transmission requirements should be specified on the service order or circuit layout card.

2.09 For information on installation tests, refer to Section 592-013-500.

2.10 The data set must meet signal-level requirements which allow the data signal level to be no greater than -12 dBm at the serving central office.



*Take proper steps to ensure that the customer is not billed for test calls. Refer to the section entitled **Crediting Charges on Test Calls (010-250-001)**.*

3. CONNECTIONS AND OPTION PROCEDURES



To prevent possible damage to electronic components in the data set, do not make power connection until all other connections have been made.

3.01 Figures 1 and 2 show the location of terminal boards and miscellaneous parts in DS 202A.

3.02 The data set covers should be removed and replaced as follows:

● Removal:

- (a) Loosen, but do not remove, the captive screws located around the base.
- (b) Remove rear cover.
- (c) Remove front cover.

● Replacement:

- (a) Position the front cover on the data set without securing its mounting screws. Align plunger slots and mounting brackets with their mating components.
- (b) Position the rear cover on the data set so that the bottom edges of the front and rear covers are in alignment and seated firmly on the base pan assembly. Tighten the captive screws located on the sides of the data set.
- (c) Tighten the remaining captive screws.

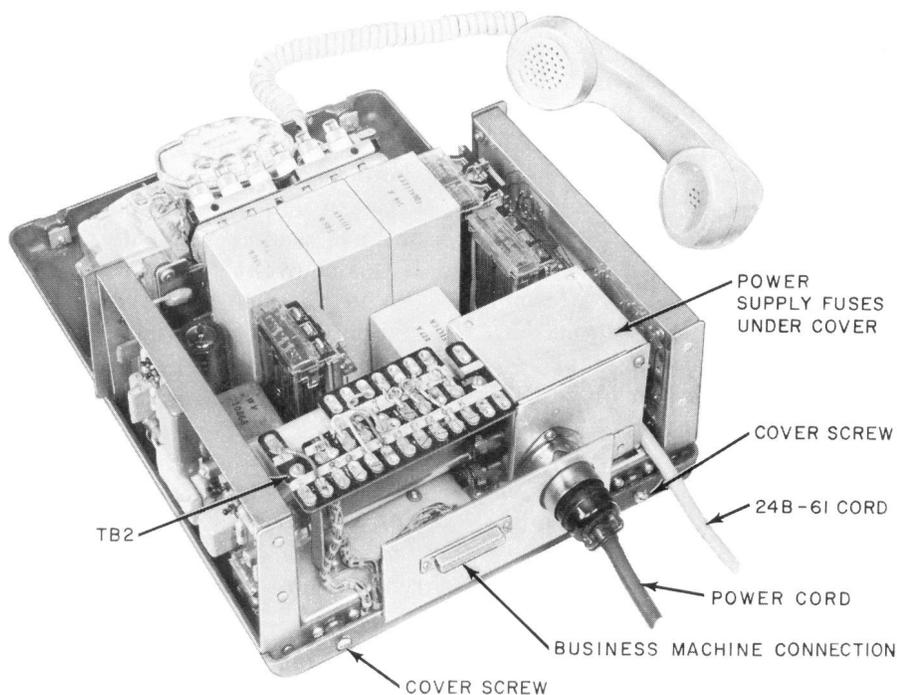


Fig. 1—Data Set 202A, Rear View

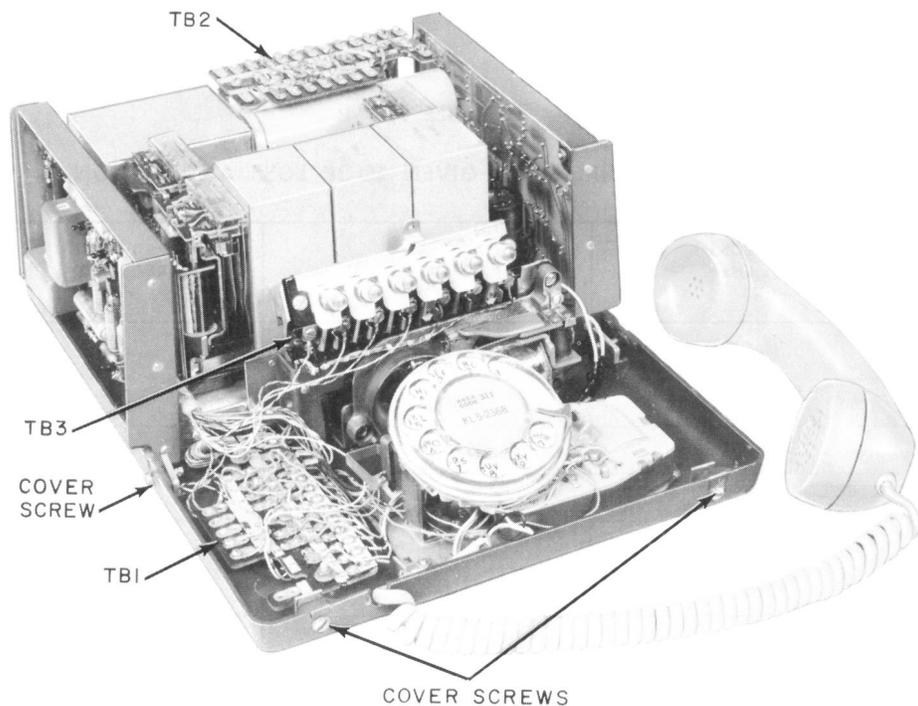


Fig. 2—Data Set 202A, Front View

3.03 Table A shows the padding required to ensure that DS 202A conforms to the output power level requirement for different values of local loop loss.

3.04 If a pad is required, it can be constructed locally and installed (see Fig. 3), or it can be ordered from Western Electric Company by specifying the F-type and pad loss required.

3.05 See Tables B and C for wiring options and connections.

3.06 The spare keys are wired for 1A key telephone system operation without a hold feature. To convert spare keys for 1A1 operation without a hold feature:

- (a) Move S-Y switchhook lead from 1 to 1B on terminal strip TB1.
- (b) Move S-BR switchhook lead from 2 to M on terminal strip TB1.
- (c) Strap terminals 1 and 2 on terminal strip TB1.

3.07 To convert spare pickup keys to nonlocking signal keys, remove screw P-12A892 and store. Make the following connection changes:

- (a) For spare key one, move W-BR lead from M to SG on TB1.
- (b) For spare key two, move BK-BR lead from M to SG on TB1.
- (c) Spare key three is convertible only if the automatic answer circuit is not controlled by this key. Move Y option strap (connected to terminal 7) from M to SG on TB1.

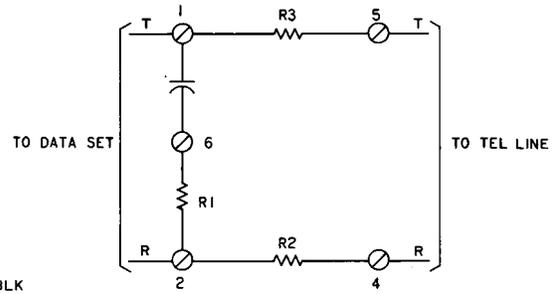
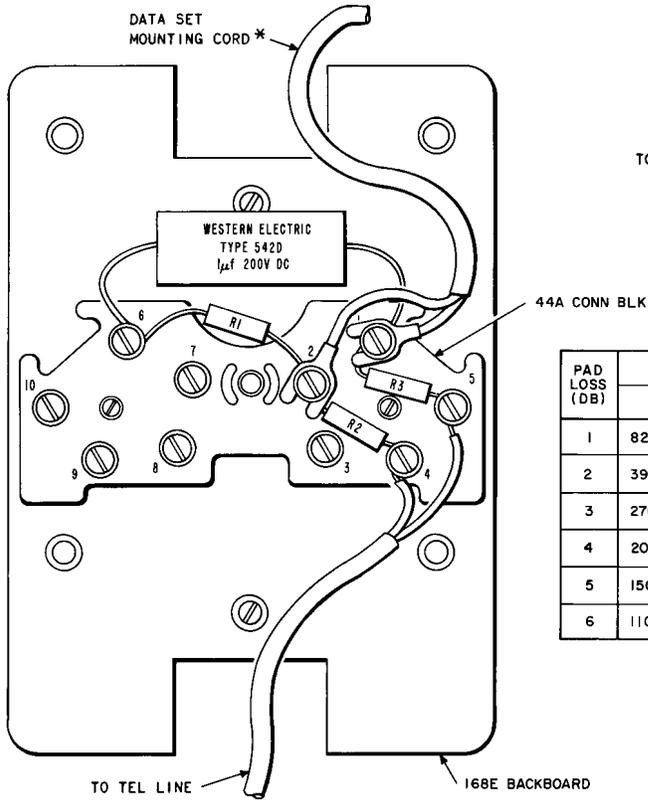
3.08 Figure 4 shows line connections for the data set and associated telephone circuit.

3.09 Where possible, unused conductors should be secured to spare terminals. Tape and store unused cord or cable connectors when spare terminals are not available.

TABLE A
PAD LOSS REQUIRED FOR GIVEN LOOP LOSS AND OPTION

LOOP LOSS @ 1 kHz (dB)	DATA SET OPTION (dB)	PAD LOSS REQUIRED (dB)
0-1	-12*	—
1-2	-6	5
2-3	-6	4
3-4	-6	3
4-5	-6	2
5-6	-6	1
6-7	-6	—
7-8	0	5
8-9	0	4
9-10	0	3
10-11	0	2
11-12	0	1

* If the -12 dB option is not available, use the -6 dB option with a 6-dB pad loss.



PAD LOSS (DB)	RESISTOR VALUE (OHMS)				ORDERING INFORMATION
	R1		R2 AND R3		
1	8200	GRAY RED RED	47	YELLOW VIOLET BLACK	F-58101
2	3900	ORANGE WHITE RED	110	BROWN BROWN BROWN	F-58102
3	2700	RED VIOLET RED	160	BROWN BLUE BROWN	F-58103
4	2000	RED BLACK RED	220	RED RED BROWN	F-58104
5	1500	BROWN GREEN RED	240	RED YELLOW BROWN	F-58105
6	1100	BROWN BROWN RED	270	RED VIOLET BROWN	F-58106

- NOTES:
1. RESISTORS ARE ALLEN BRADLEY, 1 WATT, 5% TOLERANCE (KS-19151 L1). CAPACITOR IS WESTERN ELECTRIC CO. 542D TYPE, 1µF, 200VDC.
 2. A 101C TYPE COVER SHOULD BE USED TO PROTECT THE PAD.
 3. THE PAD VALUE SHOULD BE STENCILED ON COVER FOR FUTURE REFERENCE.

* STORE UNUSED CONDUCTORS ON VACANT TERMINALS

Fig. 3—Insertion Loss Pad Connections and Construction

TABLE B

FEATURE		OPTION	PROVIDE STRAPS (SEE NOTE)		QUANTITY
			FROM	TO	
Automatic Answering	With Pushbutton	Z	DR, TB1 7, TB1	3H, TB1 6, TB1	1 Per Circuit
	Without Pushbutton	Y	DR, TB1 7, TB1	6, TB1 M, TB1	
Output of -12 dBm is required for short subscriber loop operation.		L*, M	K, TB2 15, TB2	5, TB2 M, TB2	1 Per Circuit
Output of -6 dBm is required for normal subscriber loop operation.		M	15, TB2	M, TB2	
Output of 0 dBm is required for long subscriber loop operation.		K	15, TB2	K, TB2	
Equalizer is required for switched network application.		J	H ₁ , TB2 H ₂ , TB2 4, TB2	J ₁ , TB2 J ₂ , TB2 J ₃ , TB2	1 Per Circuit
Equalizer is not required on private lines already equalized.		H	HH ₁ , TB2 H ₂ , TB2 4, TB2	H ₂ , TB2 H ₁ , TB2 H ₃ , TB2	
Clamp on demodulator output when noise protection is required.		G	9, TB2	G, TB2	1 Per Circuit
Clamp removed on demodulator output. Noise protection is not required.		F	9, TB2	F, TB2	
900 or less bits/sec operation		E	8, TB2 10, TB2	E ₁ , TB2 E ₂ , TB2	1 Per Circuit
1200 bits/sec operation		D	8, TB2 10, TB2	D ₁ , TB2 D ₂ , TB2	
900Ω Termination		Q	1, TB2	3, TB2	1 Per Circuit
600Ω Termination		N	1, TB2	2, TB2	

Note: In early model sets, leads listed in the FROM column were permanently connected. Later model set straps have spade tips on both ends.

* The L option is available only when the set is stamped with the code J1D202A or 202A1 with series D or 2, respectively.

TABLE C

FEATURE	ON INTERFACE TO CUSTOMER
No remote release (Customer holds permanent short circuit from 19 to 20 on interface lead.)	Contact closure from 20 to 21 provides ready. Contact open will not allow automatic answer.
Ready and remote release combined (Customer holds permanent short circuit from 20 to 21 on interface lead.)	Contact closure from 19 to 20 provides ready. Contact open will not allow automatic answer. Contact open during or after data transmission provides remote release.
Ready and remote release independent.	Contact closure from 20 to 21 provides ready. Contact open will not allow automatic answer. Contact open from 19 to 20 gives remote release. Contact 19 to 20 normally closed during data transmission.

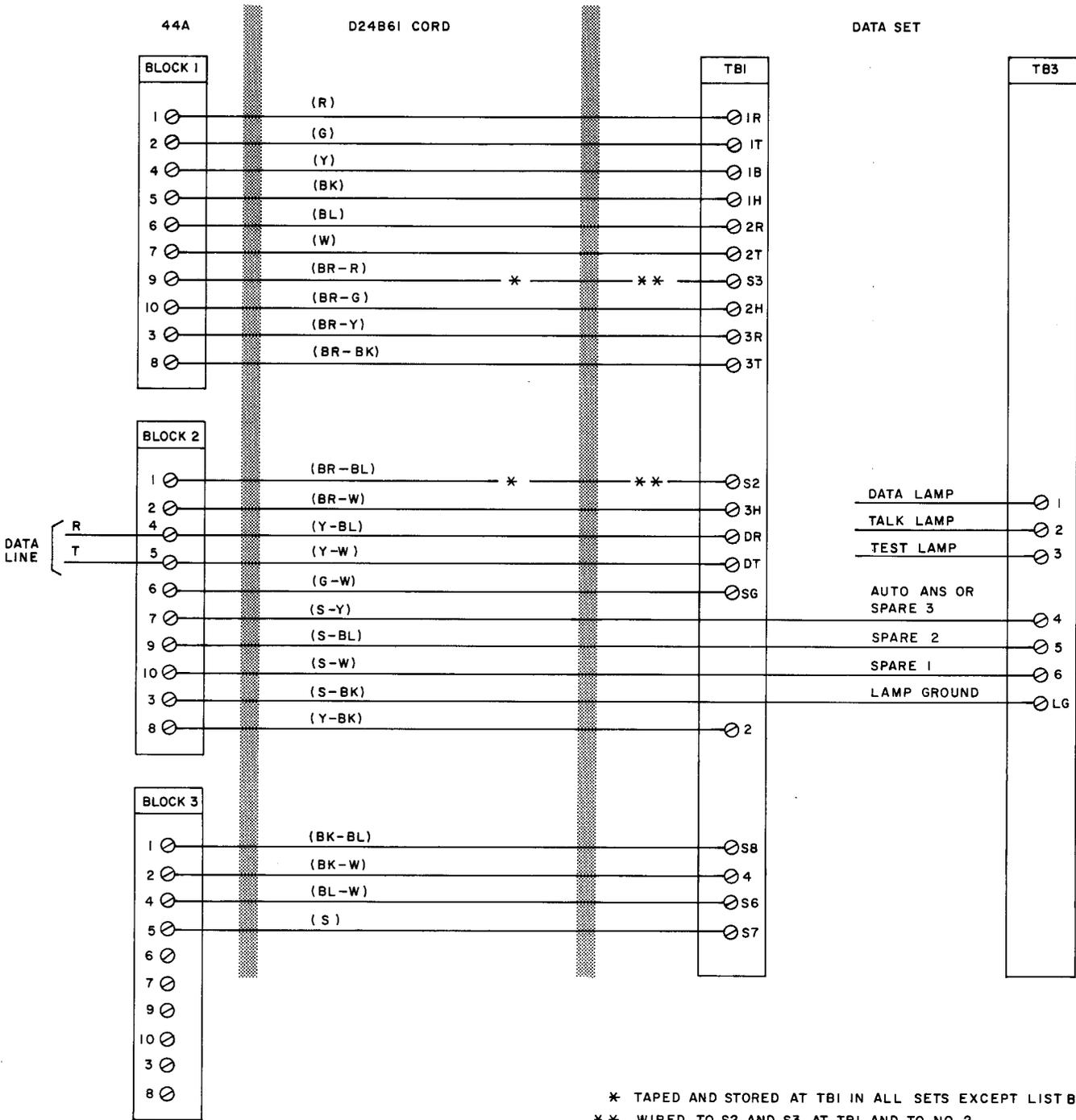


Fig. 4—Data Set 202A, Connections