

## ORDER TURRETS NO. 2 AND 2A

### IDENTIFICATION, INSTALLATION, AND CONNECTIONS

#### 1.00 GENERAL

**1.01** The No. 2 and 2A order turrets are manual common battery operated, designed for four attendants to answer, originate, and hold calls on up to 40 trunk lines.

**1.02** Turret trunk circuits are ringdown incoming and automatic outgoing. They may be connected to any lines that meet these requirements, such as:

- Manual or dial central office lines
- PBX station lines
- Private lines
- Tie lines
- Multiple with lines that also appear as trunks on a local PBX

**1.03** The No. 2 order turret is Manufacture Discontinued. The No. 2A order turret differs from the No. 2 in that the No. 2A may be equipped with idle trunk indicating lamps. These lamps assist in selecting trunks for outgoing calls.

#### 2.00 IDENTIFICATION

**2.01** Each turret is a self-contained unit, housed in a wooden cabinet 4 feet long, 1 foot 3 inches high, and 1 foot 1 inch wide. The complete unit is mounted on a table or desk. (See Fig. 1.)

**2.02** Each turret has four operating positions, two on each side (see Fig. 3). Line lamps are located below the trunk jacks. Lamp sockets above the jacks may be used either for busy lamps or idle trunk indicating lamps. The center panel on one side is mounted permanently; the other panel is hinged to provide access to the center compartment. Answering cords hang through holes in the base of the turret immediately below the keys.

**2.03** A single turret houses relays and other apparatus required for four telephone circuits and ten trunks. Common equipment for more than ten trunks must be located in associated turrets. Removable panels on both sides and top are provided for easy access to end compartments.

**2.04** Each attendant position is equipped with two cord circuits with their associated keys. The keys, which are 3-position, establish connections for holding (normal), talking (upward), and picking up a call circuit (downward); refer to 3.02. The holding position and the second cord circuit are provided so that an attendant may hold a call on one trunk while originating a call over a call circuit or another trunk.

#### 3.00 OPTIONAL OPERATING FEATURES

**3.01** The following features are optional and shall be furnished only when specified.

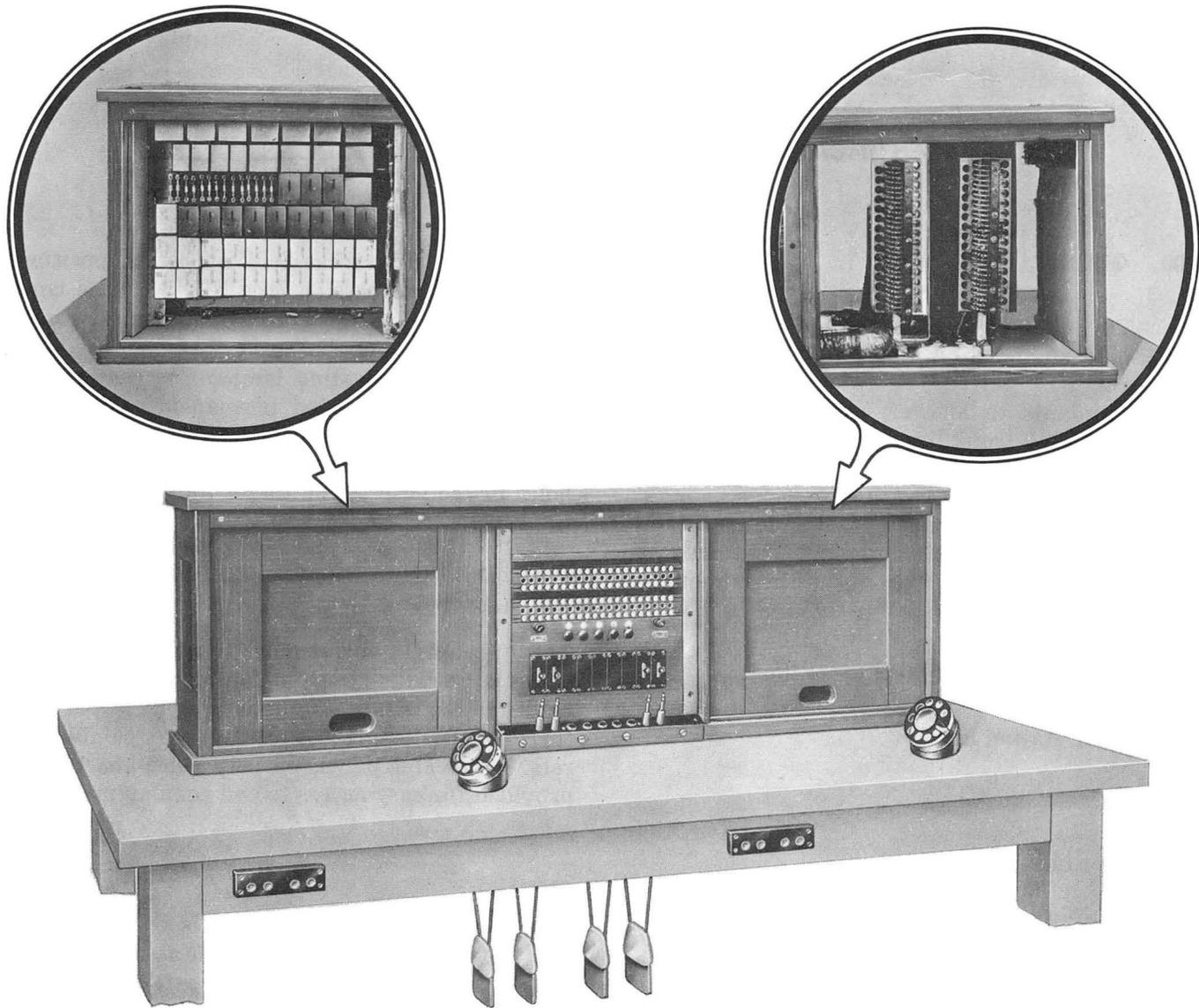


Fig. 1 — 2A Order Turret

**3.02** *Call circuits* are furnished to provide one-way outgoing service from the turret to a PBX. This enables turret attendant to secure additional information from PBX attendant or PBX station while holding a call on a trunk. Connection is made through the downward position of the cord circuit key. Each turret is equipped with eight call circuit keys. The number of call circuits to be provided will depend on the amount of call circuit traffic. More than one call circuit key may be connected to the same circuit.

**3.03** *Station Line Equipment:* Cord-ended station line equipment for from one to five stations per turret may be located in the turret and connected to one attendant position. Cords and keys for these station lines are located on the fixed center panel between the regular cords and keys of the odd numbered positions. Combination line and supervisory lamps are provided immediately above the keys. Relays and other apparatus for the stations are housed in the turret. These stations are usually provided when there is no associated PBX.

**3.04 Buzzer Equipment:** One auxiliary signal circuit per turret line-up may be provided for use in connection with an ac or dc buzzer which will sound when a trunk line lamp or station line lamp is lighted. The associated buzzer key and relay are generally located in the first turret of the line-up.

**3.05 Conference Equipment:** Conference connection arrangements which will permit connecting a calling party with the turret attendant and a PBX attendant or station over a call circuit are available. The necessary capacitors (493C) and resistors (18U) for this conference connection shall be located outside of the turret under the table on which the turret is mounted.

**3.06 Cutoff Signal Circuit:** A special operating feature is sometimes desired to facilitate the reconnection of a customer and the attendant, should a cutoff occur during a conversation. This feature is furnished by utilizing a spare trunk circuit and its associated jacks, preferably the upper right-hand jack in both sides of each turret, and equipping the associated busy lamps with a distinctive lamp cap. Any attendant having a cutoff will insert a plug into the cutoff circuit jack and this will light the associated lamps at all other appearances. Any other attendant answering a customer who has been cut off will insert a plug into the cutoff circuit jack and inform the attendant who is waiting on this circuit as to which trunk the customer is calling on.

**3.07 Monitor Taps:** Terminals for terminating observing circuits to a special supervisory or monitoring turret or similar PBX are provided in each turret and associated with each attendant telephone circuit.

**3.08 Busy Signal Arrangements:** When the turret is connected directly to central office trunks in multiple with a multiple-type PBX or nonmultiple 552-type PBX, the line lamps and busy visuals already in the PBX are used for multiplying the turret trunks at the PBX. When a

multiple of the turret trunks at a nonmultiple 550- or 551-type PBX is required, the regular line lamp and a busy test instead of the busy signal are provided at the PBX.

**3.09 Idle Trunk Indicating Lamps:** Idle trunk indicating lamps are available on the No. 2A order turret only. A chain circuit provides a means whereby a signal lamp will be associated with the first idle trunk in a given group. When that trunk becomes busy, the chain circuit transfers to the next idle trunk lamp. Idle trunk indicating lamps are preferred over busy lamps for large trunk groups in order to reduce current drain. Where idle trunk lamps are used, the wiring is so arranged that five or a multiple of five trunks may be included in a group. Usually ten trunks are included in one group.

#### 4.00 BATTERY AND RINGING SUPPLY

**4.01** In many cases the order turret will receive its battery supply from the power plant of the local PBX with which the turret is associated. The turret circuits are so designed that by supplying the proper relays, lamps, and resistors the turret may receive its power source from any one of a number of PBXs. See Table A for turret listings for various battery voltages.

**4.02** Where there is no associated PBX, a separate power plant may be furnished; preferably, a 15- to 20-volt power plant. Battery power may also be supplied from a common building power plant, if available, or by direct battery feeders from the central office.

**4.03** To prevent trunk line lamps from being lighted steadily during unattended periods, provide one battery cutoff key (498U) per installation in the first turret on systems using busy lamps. No. 2A turret installations using idle trunk indicating lamps require an externally mounted battery cutoff switch (Bryant No. 3911 or equivalent).

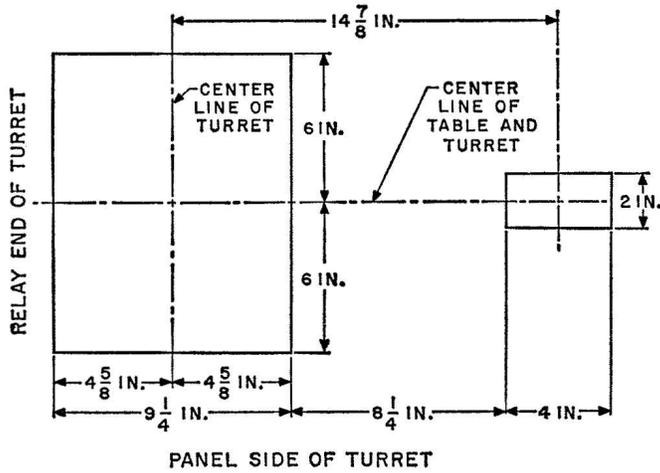


Fig. 2 - Table Layout

4.04 Ringing supply may be furnished over a cable pair from the central office, PBX, or a local power plant.

5.00 INSTALLATION

5.01 A suitable table with two cutouts of the dimensions shown in Fig. 2 should be provided by the customer for supporting the turret.

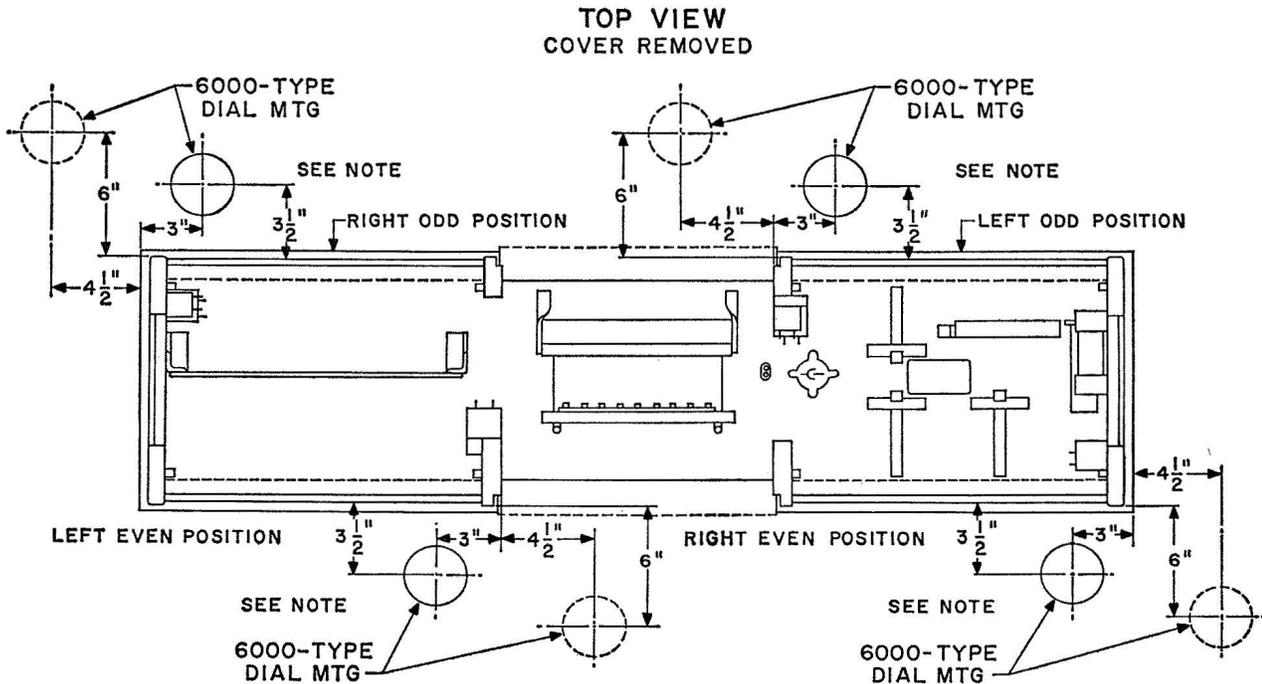
The smaller cutout or opening is for cable or cables to the turret and the larger opening is for the attendant cords.

5.02 Locate turret over openings with center lines of turret in position as shown in Fig. 2 and fasten turret securely to table.

5.03 If local conditions permit, locate turret so that there will be approximately 1 foot of table space between ends of adjacent turret and 6 inches of table space at the end of each end turret.

5.04 Number the turret positions, assigning odd numbers to one side and even numbers to the other side. Have the odd and even sides correspond to stenciling on turret.

5.05 If dials are required, mount 6000-type dial mounting as shown in Fig. 3. Drill a 1/4-inch hole for dial wiring in table top at location of each dial.



Note: For commercial table, use location shown by solid circle. For special table having typewriter cutouts, use location shown by dotted circle.

Fig. 3 - Turret Layout

**5.06** At each attendant position, install a 30, 199A, or 201A jack mounting for connecting the attendant telephone set (see Fig. 1). For commercial tables having an apron, use 30 or 199A jack mounting. For special tables having no apron, use 201A jack mounting.

**5.07** Locate the battery cutoff switch or key for the No. 2A order turret where it will be readily accessible for operation by the turret attendants or by attendants of the associated PBX.

**5.08** The center panel on each side of the turret is equipped with one 55A designation strip above each group of lamp sockets and jack mountings. A suitable trunk designation should be placed in each strip to identify each trunk.

## 6.00 CONNECTIONS

**6.01** Terminate incoming trunk cable on left-hand (standing at right even position) 149A terminal strip on terminals marked TRK RELS 1 to 10. Do not terminate more than ten trunks in one turret. Where more than ten trunks are involved, terminate trunks 11 to 20 on the corresponding terminals in the second turret, trunks 21 to 30 in the third turret, etc.

**6.02** Run local strap wiring from TRK RELS terminals to the proper answering jack terminals. These straps will go from the upper terminals on the left-hand 149A terminal strip either to the lower terminals on the same strip or to terminals on the 100D terminal strip, depending upon which answering jacks are to be wired to trunk relay equipment. In general, the relay equipment is wired to jacks 1 to 10 in the first turret, to jacks 11 to 20 in the second turret, etc.

**6.03** To provide for multiplying of trunks at installations of more than one turret, run cable between answering jack terminals in the

first turret and corresponding terminals in other turrets.

**6.04** If the trunks are multiplied to an associated PBX, terminate the cable from the PBX on the associated trunk relay equipment terminal. Terminate the cable at the PBX as shown on one of the following drawings depending upon the type of PBX involved.

Type PBX	Drawing Number
550 and 551	ES-65134-01
555	SD-66537-01
600C	ES-65135-01
700C	ES-65119-01
605A and 701A	SD-66076-01

**6.05** Terminate battery and ground leads at proper lugs on the fuse panel in each turret. Equip each circuit in use on fuse panel with a 35A fuse.

**6.06** When idle trunk indicating lamps on the No. 2A order turret are used, close the chain circuit leads through each trunk circuit which is equipped but not used. This is done by blocking the *S* relay operated, with a 136B blocking tool, and removing the *T* battery fuse.

**6.07** See Fig. 4 for strapping options for manual or dial operation, station line, call circuits, conference connections, attendant telephone set jacks, chain circuit, and trunking arrangements.

**6.08** Table A gives turret listings for different battery voltages and exterior finishes.

## 7.00 DRAWINGS

For convenience, various drawings covering equipment and wiring details are listed in Table B.

**TABLE A**  
**TURRET LISTING**

Turret Code	Finish	Battery Range (See Note 1)
		volts
J53102A, L1*	Oak (102AG)	15 to 26 or 20 to 28
J53102A, L2*	Mahogany (105T)	15 to 26 or 20 to 28
J53102B, L1*	Oak (102AG)	32 to 46, 44 to 50, or 45 to 52
J53102B, L2*	Mahogany (105T)	32 to 46, 44 to 50, or 45 to 52
J53105A, L1†	Oak (102AG)	15 to 26
J53105A, L2†	Mahogany (105T)	15 to 26
J53105B, L1†	Oak (102AG)	20 to 28
J53105B, L2†	Mahogany (105T)	20 to 28
J53105C, L1†	Oak (102AG)	44 to 50 or 45 to 52
J53105C, L2†	Mahogany (105T)	44 to 50 or 45 to 52
J53105D, L1†	Oak (102AG)	32 to 46
J53105D, L2†	Mahogany (105T)	32 to 46

**Note 1:** Specify voltage range for No. 2A turret units so that proper type lamps will be furnished.

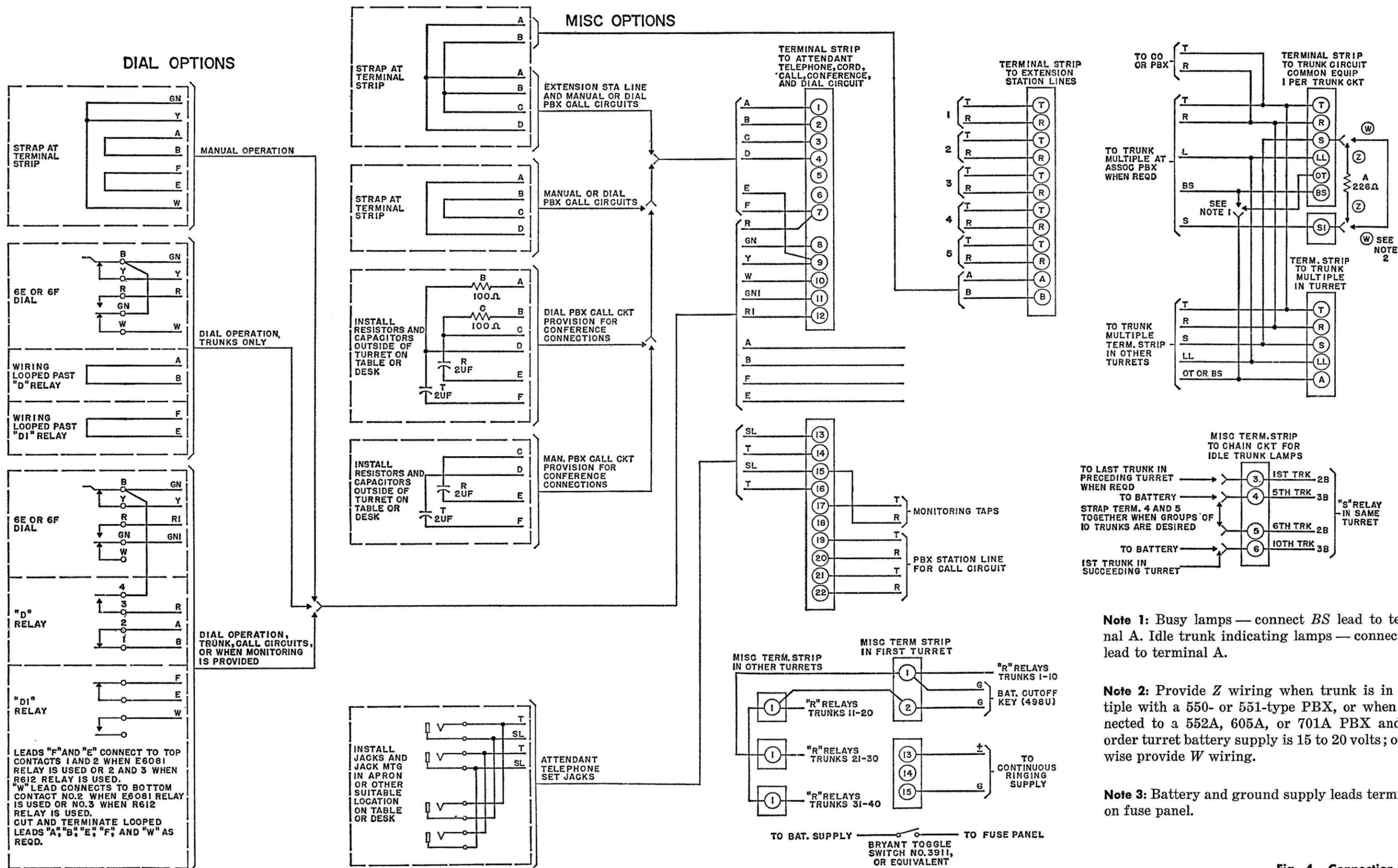
**Note 2:** No. 2A turret units with 103N finish or 104M finish are also available for additions to existing installations of older No. 2 turrets when definitely specified.

\* No. 2A order turret unit

† No. 2 order turret unit (Manufacture Discontinued)

**TABLE B**  
**LIST OF CIRCUIT DRAWINGS**

	Title	Drawing Number
No. 2 Order Turret	Assembly Equipment Local Cable	ED-65266-01 ED-65268-01 ED-65267-01
	Cord, Dial, Trunk, Station Line, and Associated Attendant Telephone, Conference, and Ringing Circuits	SD-66322-01
	Modification to Provide for a Battery Cutoff Key	ES-396112
No. 2A Order Turret	Assembly Equipment Cabling Cord and Call Circuit and Attendant Telephone and Dial Circuit	ED-65419-01 ED-65420-01 ED-65421-01 SD-66452-011 -012 -013
	2-way Trunk Station Line Circuit	SD-66453-01 SD-66454-01
	Auxiliary Signal, Battery Cutoff, and Ringing Lead Circuits	SD-66455-01
	Locations for 4A and 5A Hand Set Hangers on Non- multiple Switchboards and Order Turrets	ED-65309-01



**Note 1:** Busy lamps — connect BS lead to terminal A. Idle trunk indicating lamps — connect OT lead to terminal A.

**Note 2:** Provide Z wiring when trunk is in multiple with a 550- or 551-type PBX, or when connected to a 552A, 605A, or 701A PBX and the order turret battery supply is 15 to 20 volts; otherwise provide W wiring.

**Note 3:** Battery and ground supply leads terminate on fuse panel.

Fig. 4 — Connection Data