

# SHEET INDEX

| SHEET INDEX |                                                                           |           |           |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               |     |
|-------------|---------------------------------------------------------------------------|-----------|-----------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|--|---------------|-----|
| FIG.        | CONTENTS                                                                  | SHEET NO. | ISSUE NO. |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  | OLD SHEET NO. |     |
|             |                                                                           |           | 7         | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |  |  |  |  |  |  |               |     |
|             | SHEET INDEX<br>SUPPORTING INFORMATION                                     | 010       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 011 |
|             | CKT. NOTES<br>BAT. VARIATION<br>WORKING LIMITS<br>KEY TOP<br>OPTIONS USED | 011       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 011 |
| 1           | M STA                                                                     | 012       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 011 |
| 2           | C STA (MFR DISC.)                                                         | 013       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 011 |
| 3           | C STA                                                                     |           |           |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               |     |
|             | CKT REQ                                                                   | 014       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 012 |
| 51          |                                                                           | 015       | 7         |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |  |  |  |  |               | 012 |

|            |           |            |           |            |           |
|------------|-----------|------------|-----------|------------|-----------|
| DWG<br>ISS | CD<br>ISS | DWG<br>ISS | CD<br>ISS | DWG<br>ISS | CD<br>ISS |
| 1          | 1         | 2A         | 1         | 3D         | 2D        |
| 4D         | 2D        | 5D         | 2D        | 6A         | 3A        |
| 7D         | 3A        | 2-10-59    | 57/44     | WFW        | LNA       |

## SUPPORTING INFORMATION

| CATEGORY       | NO.         |
|----------------|-------------|
| EQUIPMENT INFO | ED-69138-01 |

## SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE: 7D

|                                                                                                                                                                     |  |                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|
| SD-69105-01                                                                                                                                                         |  | AT&TCO<br>STANDARD |  |
| Station Systems<br>KEY TELEPHONE SYSTEM NO. 1A<br>PRIVATE LINE CIRCUIT<br>For an Off-Premise Extension Station<br>Arranged to Provide for<br>Central Office Service |  |                    |  |
| (PL)                                                                                                                                                                |  | SD-69105-010       |  |
| BELL TELEPHONE LABORATORIES<br>INCORPORATED                                                                                                                         |  | 6 SHEETS           |  |
| DWG. REE<br>35                                                                                                                                                      |  | PRINTED IN U.S.A.  |  |

CIRCUIT NOTES:

101. (A) WHEN A KEY TEL. SET IS USED AT THE KEY STATION, CONNECT THE GREEN-WHITE AND RED-WHITE CONDUCTORS OF THE KEY TEL. SET TO THE "CT" TERMINAL.  
(B) WHEN A HAND TEL. SET WITH SEPARATELY MOUNTED KEYS IS USED AT THE KEY STATION, STRAP THE "CT" AND "LR" TERMINALS OF THE KEY.

| FEATURE OR OPTION                                       | PROVIDE      |                      |
|---------------------------------------------------------|--------------|----------------------|
|                                                         | FIGS.        | APP OR WIR. QUANTITY |
| "M" STATION                                             | 1            | 1 PER STA            |
| "C" STATION                                             | 2<br>3       | 1 PER STA            |
| SIDETONE BALANCE IN ACCORDANCE WITH LOCAL INSTRUCTIONS. | A<br>OR<br>C |                      |
|                                                         |              |                      |

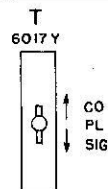
103. CONNECT RINGER AND CONDENSER OF KEY TEL. SET TO "T" AND "R" TERMINALS IN SET.

| RECORD OF FIGURES, WIRING & APPARATUS CHANGES |                               |                       |          |                |      |        |
|-----------------------------------------------|-------------------------------|-----------------------|----------|----------------|------|--------|
| CHANGED ON ISS.                               | IF JOB RECORDS DO NOT SPECIFY | THIS OPTION WAS FURN. | SEE NOTE | USE IN CIRCUIT |      |        |
|                                               |                               |                       |          | STD.           | ASM. | M.D.   |
| 5-D                                           | Z OR Y                        | Z                     |          | Y              |      | Z      |
| 6-A                                           |                               |                       |          | FIG. 3         |      | FIG. 2 |
| 6-A                                           |                               |                       |          | W              |      | X      |
|                                               |                               |                       |          |                |      |        |

14-26V.

WORKING LIMITS

|                      | "M" STATION TO C.O.                                     | "M" STATION TO "C" STATION | "C" STATION TO "M" STATION         | "C" STATION TO CENT. OFFICE |
|----------------------|---------------------------------------------------------|----------------------------|------------------------------------|-----------------------------|
|                      |                                                         |                            | BATAT "M" STATION                  |                             |
|                      |                                                         |                            | 14V. 16V. 18V.                     |                             |
| MIN. INS. RES.       | 20,000 $\sim$                                           | 20,000 $\sim$              |                                    |                             |
| SUPERVISION          |                                                         |                            |                                    | 1200 $\sim$                 |
| DIALING & RINGING    |                                                         |                            |                                    | SAME AS CENT. OFF. RANGE    |
| PRIVATE LINE RINGING | A-C RING SUPPLY                                         |                            |                                    |                             |
| HAND GENERATOR       |                                                         | 1200 $\sim$                |                                    |                             |
| HOLDING              | SEE RANGE CHART FOR 1A KEY TEL. SYSTEM - WITH HOLD ONLY |                            |                                    |                             |
| BUZZER SIGNALING     |                                                         |                            | 830 $\sim$ 1080 $\sim$ 1330 $\sim$ |                             |
| EARTH POTENTIAL      |                                                         |                            | -6V. -6V. -6V. +20V. +20V. +20V.   |                             |



| OPTIONS USED |               |
|--------------|---------------|
| FIGS.        | APP OR WIRING |
| 1            | Z             |
| 2            | Y             |
| 3            | X             |
|              | W             |
|              | C             |
|              | A             |

KEY TELEPHONE SYSTEM NO. 1A  
PRIVATE LINE CIRCUIT

SD-69105-011

BELL TELEPHONE LABORATORIES  
INCORPORATED

OWS 4135  
3S

PRINTED IN U. S. A.



FIG. 2  
(MFR.DISC)  
"C" STATION

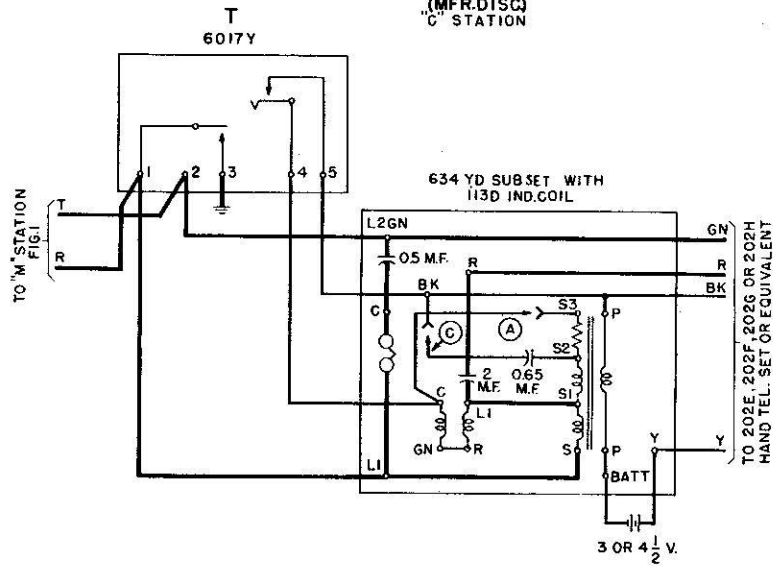
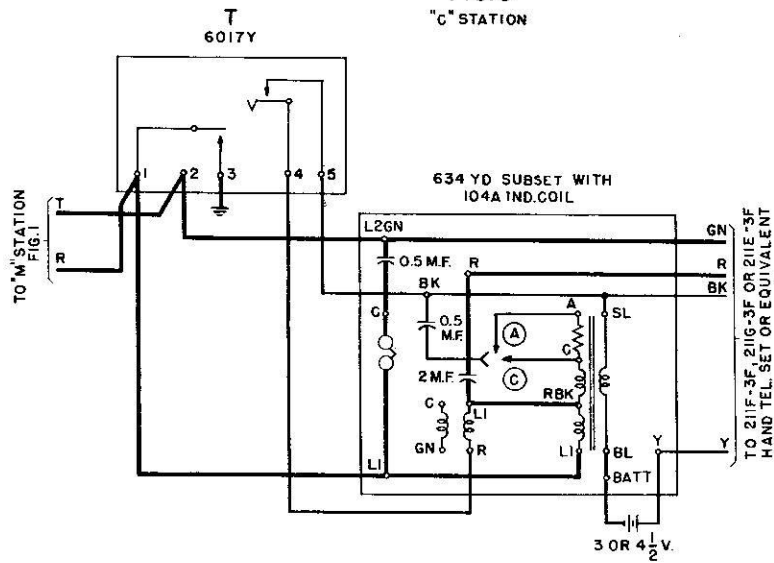


FIG. 3  
"C" STATION



KEY TELEPHONE SYSTEM NO. 1A  
PRIVATE LINE CIRCUIT

SD-69105-013

BELL TELEPHONE LABORATORIES  
INCORPORATED

DWG. SIZE  
3S

PRINTED IN U. S. A.

## CIRCUIT REQUIREMENTS

KEY TELEPHONE SYSTEM NO. 1A, PRIVATE LINE CIRCUIT (PL)

DRAWING

ISSUE

7D

CHG

| APPARATUS |       |        |      | MECH REQ |             |           | CIRCUIT PREPARATION |                |          |               | TEST SET PREP |          | SEE TEST NOTE |               | DIRECT CURRENT FLOW REQ |         |                                                                    |  | REMARKS |
|-----------|-------|--------|------|----------|-------------|-----------|---------------------|----------------|----------|---------------|---------------|----------|---------------|---------------|-------------------------|---------|--------------------------------------------------------------------|--|---------|
| DESIG     | CODE  | OPTION | FIG. | BSP FIG. | CONT PRESS. | ARM. TRVL | BLOCK ON INSULATE   | TEST CLIP DATA |          | TEST SET PREP | SEE TEST NOTE | TEST WDG | TEST FOR      | AFTER SOAK NA | TEST MA                 | READ MA |                                                                    |  |         |
|           |       |        |      |          |             |           |                     | CONN BAT.      | CONN GRD |               |               |          |               |               |                         |         |                                                                    |  |         |
|           |       |        |      |          |             |           |                     |                |          |               |               |          |               |               |                         |         |                                                                    |  |         |
| RELAYS    |       |        |      |          |             |           |                     |                |          |               |               |          |               |               |                         |         |                                                                    |  |         |
| BF        | U995  |        | I    | 193/149  | H           | 47        |                     | TR(BF)         | BF(BF)   | M             |               | P/S      | O             |               | 33.5                    | 31.5    |                                                                    |  |         |
| CT        | Y198  |        | I    | 163/163  | H           | 59        | 10B(CT)             |                | T(CT)    | GRD           | 2             |          | O             |               | 63                      | 60      |                                                                    |  |         |
|           |       |        |      |          |             |           |                     |                | T(CT)    | GRD           | 2             |          | H             |               | 11.9                    | 11.3    |                                                                    |  |         |
|           |       |        |      |          |             |           |                     |                | T(CT)    | GRD           | 2             |          | R             |               | 2.5                     | 2.9     |                                                                    |  |         |
| H         | B1158 |        | I    | 14       |             | 30        | 1T(CT)              | 7T(CT)         | 2M(H)    | M             | I             | P        | O             |               | 20                      | 19      |                                                                    |  |         |
|           |       |        |      |          |             |           | 1T(CT)              | 7T(CT)         | 2M(H)    | M             |               | P        | NO            |               | 13.4                    | 14.1    |                                                                    |  |         |
|           |       |        |      |          |             |           | 1T(CT)              | 7T(CT)         | 2M(H)    | M             |               | P        | R             |               | 9.3                     | 9.8     |                                                                    |  |         |
|           |       |        |      |          |             |           | 1B(CT)              | 3M(H)          | 7B(CT)   | M             |               | S        | O             |               | 20                      |         |                                                                    |  |         |
|           |       |        |      |          |             |           | 1B(CT),2(H)         | 1(L)           | 7B(CT)   | M             |               | T/Q      | O             |               | 20                      |         |                                                                    |  |         |
| HO        | B1172 |        | I    | 14       |             | 30        |                     |                | 1T(SR)   | GRD           |               |          | O             |               | 1.2                     | 1.1     |                                                                    |  |         |
|           |       |        |      |          |             |           |                     |                | 1T(SR)   | GRD           |               |          | NO            |               | 0.7                     | 0.8     |                                                                    |  |         |
| L         | B1159 |        | I    | 14       |             | 30        |                     | 1T(CT)         | 2M(L)    | M             |               |          | O             |               | 8.7                     | 8.2     |                                                                    |  |         |
|           |       |        |      |          |             |           |                     | 1T(CT)         | 2M(L)    | M             |               |          | R             |               | 3.9                     | 4.1     |                                                                    |  |         |
| LI        | B1173 |        | I    | 8        |             | 30        | RI(O), (SR)NO       | 3B(RI)         | 3T(RI)   | M             |               | P/S      | O             | FS            | 6.1                     | 5.8     |                                                                    |  |         |
|           |       |        |      |          |             |           |                     | 3B(RI)         | 3T(RI)   | M             |               | P/S      | R             | FS            | 3.2                     | 3.4     |                                                                    |  |         |
| R         | I86C  |        | I    |          |             |           | (RI)NO              |                |          |               | 3             |          | O             |               | AC                      | AC      |                                                                    |  |         |
|           |       |        |      |          |             |           |                     | 1T(R)          |          | BAT.          |               |          | O             |               | 3.2                     | 3       |                                                                    |  |         |
|           |       |        |      |          |             |           |                     | 1T(R)          |          | BAT.          |               |          | NO            |               | 1.5                     | 1.6     |                                                                    |  |         |
| RI        | U994  |        | I    | 132/132  | H           | 47        |                     |                | T(RI)    | GRD           |               |          | O             |               | 22                      | 20.5    |                                                                    |  |         |
| S         | B1171 |        | I    | 14       |             | 30        | (RI)O               |                | 7B(BF)   | GRD           |               | P1       | O             | 25            | 14.5                    | 13.8    |                                                                    |  |         |
|           |       |        |      |          |             |           | (RI)O               |                | 7B(BF)   | GRD           |               | P1       | NO            | 25            | 9.7                     | 10.3    |                                                                    |  |         |
|           |       |        |      |          |             |           | (RI)O               |                | 7B(BF)   | GRD           |               | P1       | R             | 25            | 6.9                     | 7.3     |                                                                    |  |         |
|           |       |        |      |          |             |           | (RI)O               | 2T(BF)         |          | BAT.          |               | P2       | O             |               | 16                      |         |                                                                    |  |         |
| SR        | Y197  | Z      | I    | 188/108  | SPL         | SPL       | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | O             | FS            | 41.5                    | 39.5    | FOR TESTING AND READJUSTING PURPOSES 18V MINIMUM WILL BE REQUIRED. |  |         |
|           |       |        |      |          |             |           | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | H             | FS            | 5.3                     | 5       |                                                                    |  |         |
|           |       |        |      |          |             |           | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | R             | FS            | 1.5                     | 1.8     |                                                                    |  |         |
| SR        | Y282  | Y      | I    | 188/203  | SPL         | SPL       | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | O             | FS            | 41.5                    | 39.5    | FOR TESTING AND READJUSTING PURPOSES 18V MINIMUM WILL BE REQUIRED. |  |         |
|           |       |        |      |          |             |           | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | H             | FS            | 5.3                     | 5       |                                                                    |  |         |
|           |       |        |      |          |             |           | (CT)NO              |                | T(SR)    | GRD           | 2,4           |          | R             | FS            | 2                       | 2.6     |                                                                    |  |         |

## TEST NOTES:

1. ADJUST FRONT CONTACT FOLLOW AND SEPARATION AS CLOSE TO THE MINIMUM 5 AS POSSIBLE. TENSION RELAY SO THAT IT FAILS TO OPERATE ON THE READJUST OPERATE CURRENT AND THEN BACK OFF THE ADJUSTING SCREW UNTIL THE RELAY WILL OPERATE.
2. ADJACENT RELAYS SHALL NOT BE ENERGIZED. SEE BSP.
3. TEST AND READJUST RELAY FOR OPERATION ON RINGING CURRENT BY CONNECTING MINIMUM 95V, MAXIMUM 111V, 1100-1200 RPM RINGING CURRENT THRU 8500Ω NONINDUCTIVE RESISTANCE TO 1T(R) AND RING. GROUND TO B(R). REPEAT WITH OR INSTEAD OF 8500Ω. OPEN LINE TOWARDS CENTRAL OFFICE WHILE MAKING RINGING TESTS. IF THE PRECEDING CANNOT BE FOLLOWED, TEST AND READJUST (R) RELAY FOR OPERATION ON AC BY RINGING ON LINE FROM CENTRAL OFFICE.
4. ARM. TRVL SPECIAL 41.  
FRONT CONTACT MAKE 6 READJ, 4 TEST.  
MIN TENSION 1T, 2B SPRINGS, 10 GRAMS READJ, 8 GRAMS TEST.

KEY TELEPHONE SYSTEM NO. 1A  
PRIVATE LINE CIRCUITBELL TELEPHONE LABORATORIES  
INCORPORATED

3S

SD-69105-014

PRINTED IN U. S. A.

FIG. 51

