INSTRUCTIONS FOR BUSY CIRCUIT PL-4036425-G1 OPTION 5830

Busy Option 5830 provides an indication of the channel busy conditions when the operator of the General Electric Simultaneous Duplex MTS unit wishes to make a call. A BUSY lamp on the 4EC44A10-A11 Control Unit is illuminated when the channel is busy. The Initiate Circuit is locked out also. Other indicating devices, such as a buzzer or bell, may be incorporated if desired.

SPECIFICATIONS

Pick-up Voltage (High Sensitivity):	0.5 microvolt input to rec. antenna jack (-20 db quieting)
Pick-up Voltage (Desensitized):	20 microvolts max input to rec antenna jack
Power Input, Filament:	12 volts DC at 150 ma
B+:	210 volts at 10.5 ma

INSTALLATION

The Busy Circuit is mounted on a sub-assembly that mounts on the 4ER25F10 or 4ER25E10 Receiver chassis. Busy Circuit Modification Kit, PL-4036425, is available for field installation of the Busy Option. Instructions for installation of the Kit is provided on Installation Diagram 19C300336. (See Table of Contents).

ADJUSTMENT

1. Remove RF from the Receiver so that only noise is present at the 2nd Limiter Plate.

2. Adjust SENS Control (R9) for drop out relay.

3. RF applied to the antenna input of the Receiver to cause the relay (K1) to pick up should be less than that required for -20 db quieting.

4. For a less sensitive setting of R9, turn the Control further CCW until the desired pick up level is reached.

CIRCUIT DESCRIPTION

A DC voltage from the 1st Limiter grid in the MTS Receiver is applied to XV-1 through a voltage divider composed of R1 and R3. Audio noise voltage from the Discriminator Transformer B+ terminal is also supplied to XV1-2. This noise voltage is passed through a high pass filter consisting of C2, C3 and R4. The noise is rectified by the detector portion of V1 and, under no carrier condition, keeps the other half of V1 at cut-off.

When simultaneous reduced noise and increased limiter voltage occurs (presence of carrier), the second half of V1 conducts. Relay K1 contacts 9 and 10 close providing the necessary DC to operate the Busy Lamp (or other indicating device). K1-5 and 6 open to lock out the Initiate Circuit.

PARTS LIST

Symbol	G-E Part No.	Description
C1	7388160-P1	Capacitor, fixed ceramic disc: (insulated), high dielectric) single unit, tinned copper leads, 0.01 μf +80% -20%, 450 VDCW; sim to Centralab DA-048.
C2 and C3	7491096-P43	Capacitor, paper, molded plastic: 0.0022 μf ±20%, 600 VDCW; sim to Sprague 109P22206.
C4 and C5	7488160-P1	Capacitor, fixed ceramic disc: (insulated, high dielectric) single unit, tinned copper leads, 0.01 μf +80% -20%, 450 VDCW; sim to Centralab DA-048.
DS705		Lamp, Incandescent: (Miniature bayonet base) design volts 18, design current 0.15 amps; sim to G-E 1445.
K1	5491595-P1	Relay: 5800 ohms ±10%, 3.6 ma DC pick-up, 1 ma DC drop-out, 3 pf, max operating time 15 ms, max releasing time 6 ms, contact load 0.5 amp at 28 VDC; sim to Relay T154X86
R1	3R77-P185K	Resistor, composition: 1.8 megohm ±10%, 1/2 w.
R2	3R77-P224K	Resistor, composition: 0.22 megohm ±10%, 1/2 w.
R3	3R77-P514K	Resistor, fixed composition: 0.51 megohm ±10%, 1/2 w.
R4	3R77-P104K	Resistor, composition: 0.10 megohm ±10%, 1/2 w.

Symbol	G-E Part No.	Description
R5	3R77-P105K	Resistor, composition: 1.0 megohm ±10%, 1/2 w.
R6	3R79-P562K	Resistor, composition: 5600 ohms ±10%, 2 w.
R7	3R79-P153K	Resistor, composition: 15,000 ohms ±10%, 2 w.
R8	3R77-P102K	Resistor, composition: 1000 ohms ±10%, 1/2 w.
R9	5494774-P102	Potentiometer, carbon film: 1000 ohms ±20%, linear taper, 0.3 w; sim to Chicago Tel Supply 70.
V1		12AT7 tube.
XDS705	7144663-P11	Socket, Indicator: Miniature jewel, insulating tube, miniature bayonet base, mounting bracket. (Used with T-3-1/4 size bulb); sim to Dialight 2-15.
XK1	5491595-P4	Socket, Relay: White nylon, 10 contacts; sim to Allied Control 30054-1.
XV1	7484399-P1	Socket, Tube: turret 9 pin min, top mount, shield base.

COMMUNICATION PRODUCTS DEPARTMENT
GENERAL ELECTRIC COMPANY
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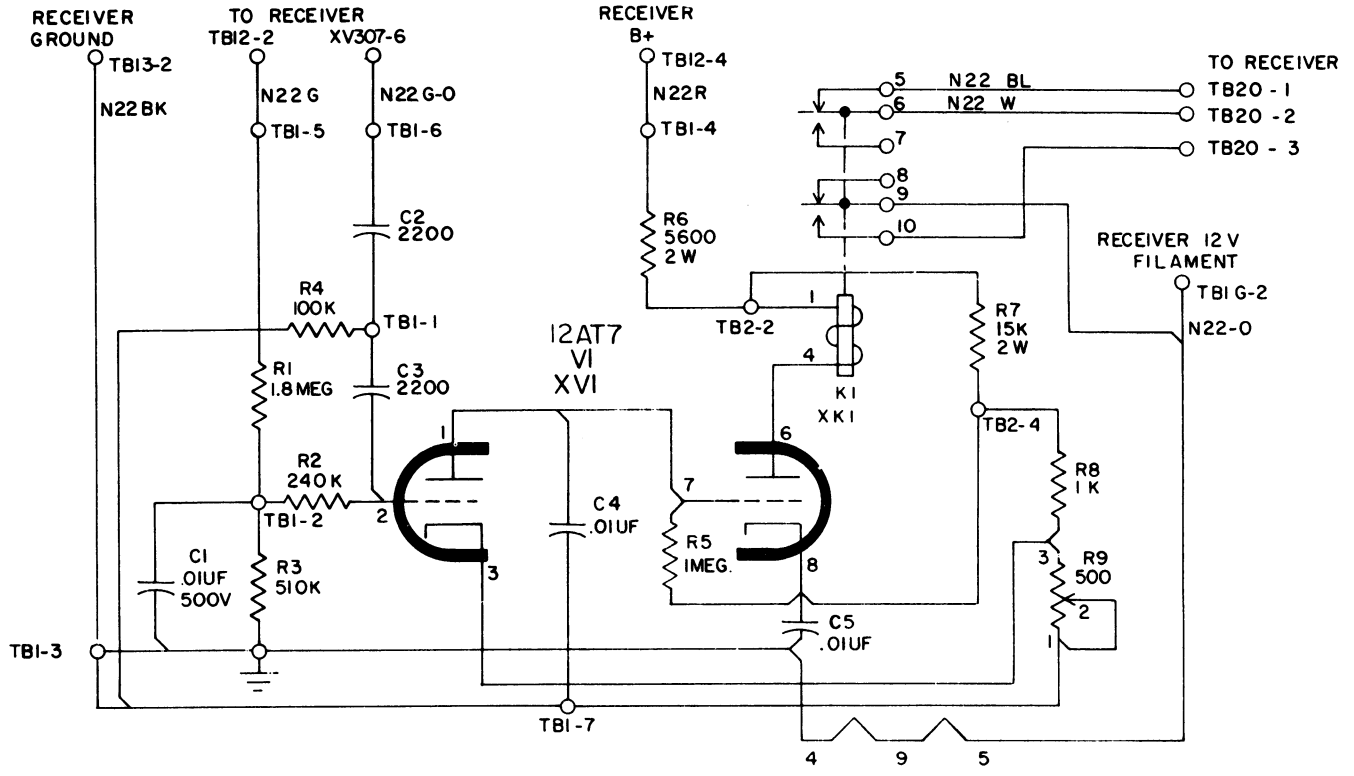


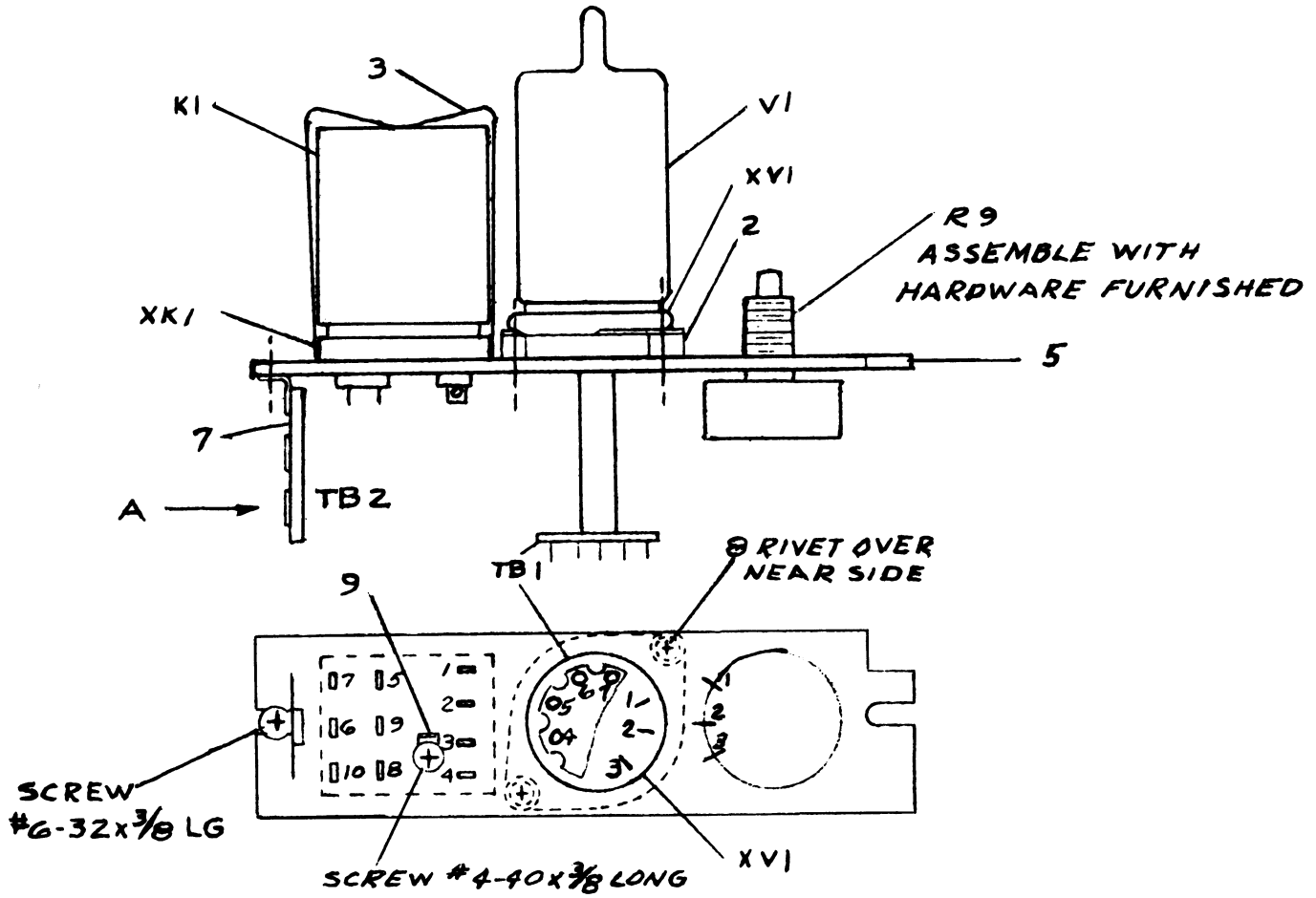
ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG = 1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF = MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

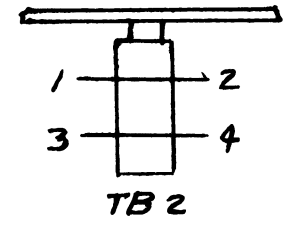
CPD 310A

Elementary Diagram

MTS BUSY CIRCUIT
PL-4036259-G1; OPTION 5830

(B-5492642, Rev. 2)





VIEW AT "A"

Outline Diagram

MTS BUSY CIRCUIT
PL-4036425-G1; OPTION 5830

(A-4036259, Rev. 1)

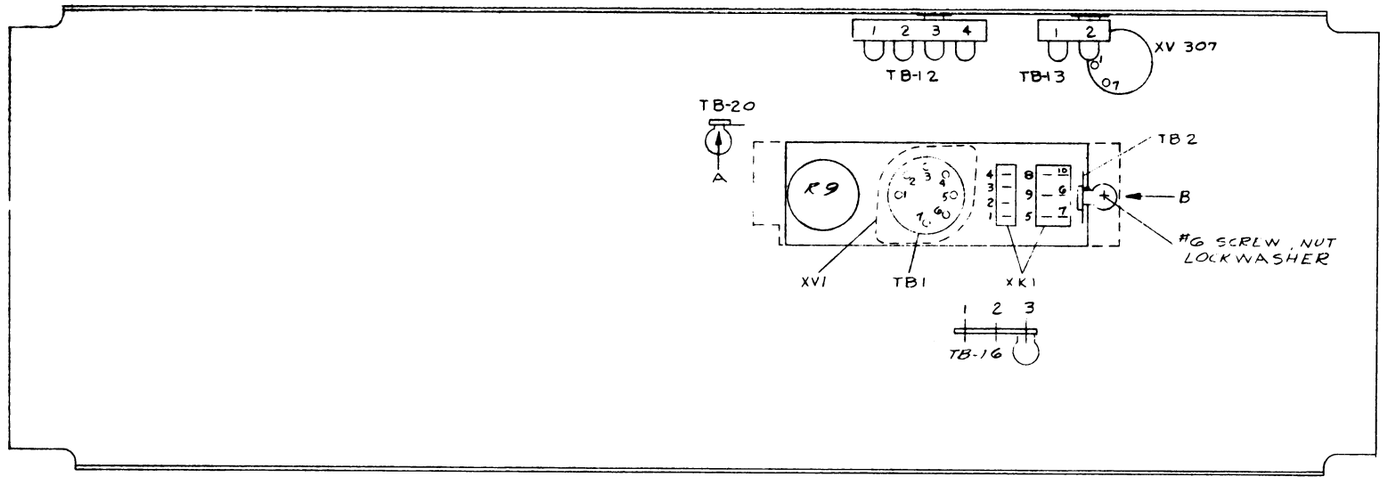
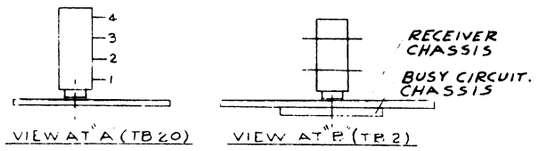


FIG. 1



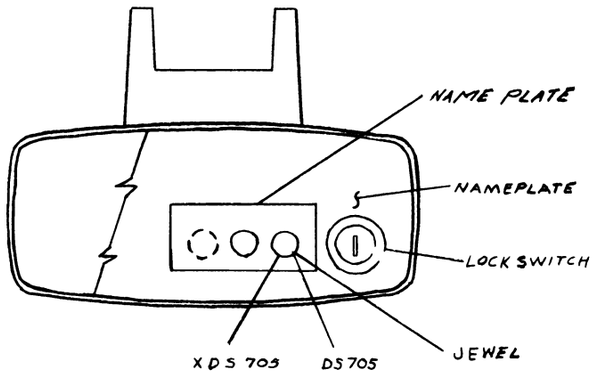


FIG. 2

CONNECTION TABLE		
WIRE	FROM BUSY CIRCUIT	TO RECEIVER
N22 BK	TB1-3	TB13-2
N22 G	TB1-5	TB12-2
N22 GO	TB1-6	XV307-6
N22 R	TB1-4	TB12-4
N22 O	XV1-5	TB16-2
N22 BL	XK1-5	TB20-1
N22 O-BK	XK1-10	TB20-3
N22 W	XK1-6	TB20-2
	FROM BUSY LAMP	TO CONTROL UNIT MODEL 4EC44A11&13
WHITE	XDS705	J701-19
BLACK	XDS705	S701-B-4
	FROM BUSY LAMP	TO CONTROL UNIT MODEL 4EC44A10&12
WHITE	XDS705	J701-19
BLACK	XDS705	TB3-3

INSTRUCTIONS:

FIG. 1

1. REMOVE COVER, IF PRESENT, FROM COUTOUT IN RECEIVER CHASSIS.
2. INSTALL BUSY CIRCUIT ASSEMBLY IN CUTOUT IN RECEIVER CHASSIS AS SHOWN.
3. CONNECT WIRES HANGING FROM BUSY CIRCUIT ASSEMBLY, TO RECEIVER AS SHOWN IN CONNECTION TABLE.
4. REMOVE JUMPER PRESENT BETWEEN TB20-1 AND TB20-2.

FIG. 2

1. REMOVE KNURLED RING ON LOCKSWITCH AND REMOVE NAMEPLATE.
* 2. INSTALL XDS705.
* 3. CONNECT WIRES FROM SOCKET AS SHOWN IN CONNECTION TABLE.
4. INSTALL LAMP IN XDS705.
5. REMOVE JEWEL FROM FRONT NAMEPLATE.
6. REMOVE STICK-ON NAMEPLATE FROM FRONT NAMEPLATE.
**7. ADD NEW STICK-ON NAMEPLATE TO FRONT NAMEPLATE.
8. REASSEMBLE JEWEL TO TRANS. HOLE ON FRONT NAMEPLATE.
9. ADD JEWEL TO BUSY HOLE ON FRONT NAMEPLATE.
10. REASSEMBLE CONTROL.

* APPLIES TO THE FOLLOWING OR LATER REVISIONS ONLY:
4EC44A10 REV.D
4EC44A11 REV.D
4EC44A12 REV.D
4EC44A13 REV.D

** IF USED WITH CALL LIGHT, REMOVE STICK-ON NAMEPLATE COMPLETELY.

Installation Diagram

MTS BUSY CIRCUIT
PL-4036425-G1; OPTION 5830

(19C300336, Rev. 5)