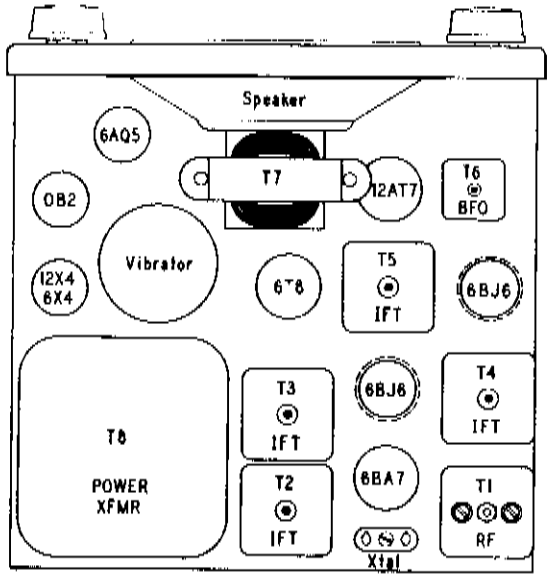
# INSTRUCTION MANUAL

# GONSET

## *Super-ceiver*

## MODEL 3041

801 S. MAIN ST. GONSET BURBANK, CALIF.




TOP VIEW-CHASSIS

## GENERAL

The Gonset Super-Ceiver is designed to serve as the "tail end" for any good quality amateur band converter, the combination of the two making a mobile communications receiver having "fixed station" performance. Because of the comparatively sharp i-f system, it is not recommended for use with a general coverage converter such as the Gonset "3-30" or any other continuous coverage converter not having band-spread tuning.

As shipped from the factory, the Super-Ceiver is normally furnished with a crystal for 1430 kc. input to match the output of the Gonset Super-Six converter. The actual crystal frequency is 265 kc. higher than the input frequency. When the Super-Ceiver is to be used with a converter having an output frequency of 1525 kc. (Morrow) or 1550 kc. (RME), the crystal furnished with the Super-Ceiver should be returned with the warranty registration card with a request that it be exchanged for the appropriate crystal.

When used with the Gonset Tri-Band (1440 kc. output), it is possible to use the crystal furnished with the Super-Ceiver by retrimming the 75 meter oscillator trimmer on the converter. The calibration will be off 10 kc. on 10 and 20 meters, but this is not noticeable on these two bands. Do not attempt to correct the calibration by adjustment of the oscillator coil slug on the Tri-Band.

The Super-Ceiver is provided with a compact, built-in speaker which will deliver good volume. However, where a "custom" auto radio is already in the car with a larger, dash-mounted speaker, it is recommended that it be substituted for the speaker in the Super-Ceiver. To do this, simply unsolder the lead from the left voice coil terminal on the Super-Ceiver speaker and solder back upon itself. Then run a pair of leads from the two screw terminals on the rear lip of the chassis to the voice coil terminals of the auto set speaker. No switching is necessary; both receivers are left connected to the voice coil of the auto speaker at all times. No significant loss in volume or tone quality will result on either receiver.

It will be noted that two separate voice coil wires are employed in order to avoid a common chassis ground through the car body, which is a potential source of noise pick-up.

The Super-Ceiver is normally shipped wired for 6 volt operation. The unit is quickly and easily changed for 12 volt operation by following the instructions given in a later section.

## MOUNTING

The main unit normally will be mounted under the dash as shown in the illustration, to facilitate reaching the b-f-o pitch control and noise clipper in-out switch. However, if a space problem prevents this, the unit may be mounted directly on the fire wall up under the dash, as these two controls ordinarily will not be used much. The control head containing the more pertinent controls is designed to match and mount under a Super-Six or Tri-Band converter, which in turn may be mounted on a steering post mounting bracket (an optional accessory) where feasible. However, the versatility resulting from the small size of the control unit permits a wide latitude of mounting arrangements and therefore the method of mounting is left to the owner's discretion.

To remove the chassis from the cabinet, the single Dzus fastener on the rear should be turned counterclockwise to release.

## ELECTRICAL CONNECTIONS

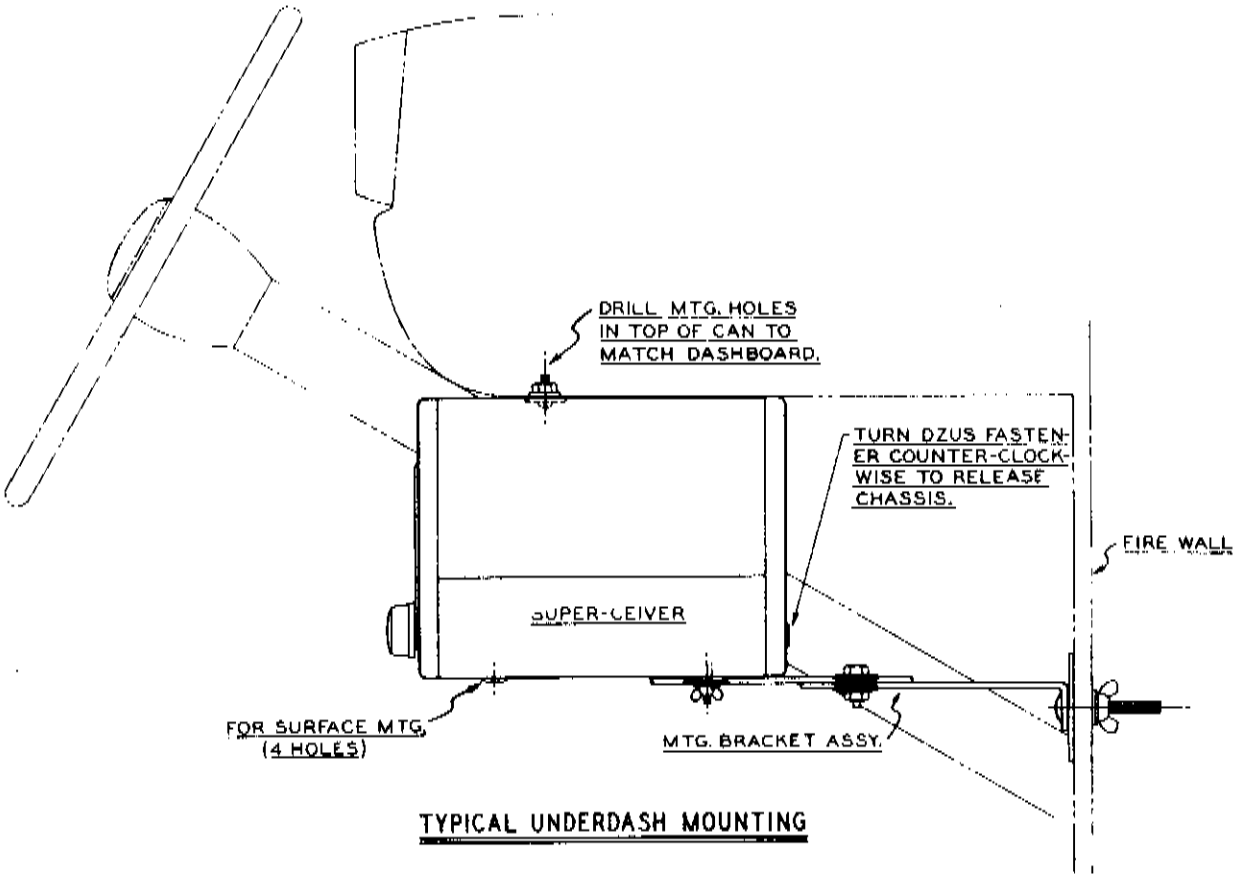
To connect a converter to the Super-Ceiver, the converter wires are soldered to plug PL-3, which in turn plugs into socket SOC-3 on the back of the control head. Pin number coding is shown on the accompanying pictorial diagram.

Regulated plate voltage at 105 volts is available for the converter oscillator where the oscillator is fed via a separate lead, as in the Super-Six. Do not attempt to run an entire converter from this pin, as the regulator tube will lose control at low supply voltage if more than about 8 ma. is drawn.

AVC voltage is available at pin #2 for use on those converters designed to take a-v-c. Any shunting resistance imposed across pin #2 to ground should exceed 10 megohms.

In the interest of versatility, the cathodes of the stages on the r-f gain pot are brought out to pin #3. This permits simultaneous manual r-f gain of the r-f stage in the converter if desired. Ordinarily, in most installations, this pin will not be used.

Battery power (6 or 12 volts) is fed to the Super-Ceiver via two separate, externally fused pigtails. The brown lead supplies the heaters and should be connected to a convenient point such as the ammeter. The gray lead feeds the vibrator and in an installation utilizing a transmitter should be connected to the battery via a back contact on the T/R relay feeding the dynamotor or vibrator supply. This not only mutes the receiver automatically on




TYPICAL UNDERDASH MOUNTING

transmit, but also saves the vibrator drain during transmit periods. If the gray lead must be extended to reach the relay, use heavy gauge wire to avoid voltage drop.

With a typical lag in transmitter plate voltage build up, as occurs with a dynamotor or with a vibrator pack having a large input condenser, no feedback "yoop" will occur when switching from receive to transmit. To avoid a yoop when switching from transmit to receive, particularly with a dynamotor, it may be necessary to employ a "dumping resistor" on the T/R relay. This may consist of a 220 ohm 2 watt resistor so connected that it shorts the transmitter high voltage to ground (or else to the hot "A" lead) when the relay is in the receive position.

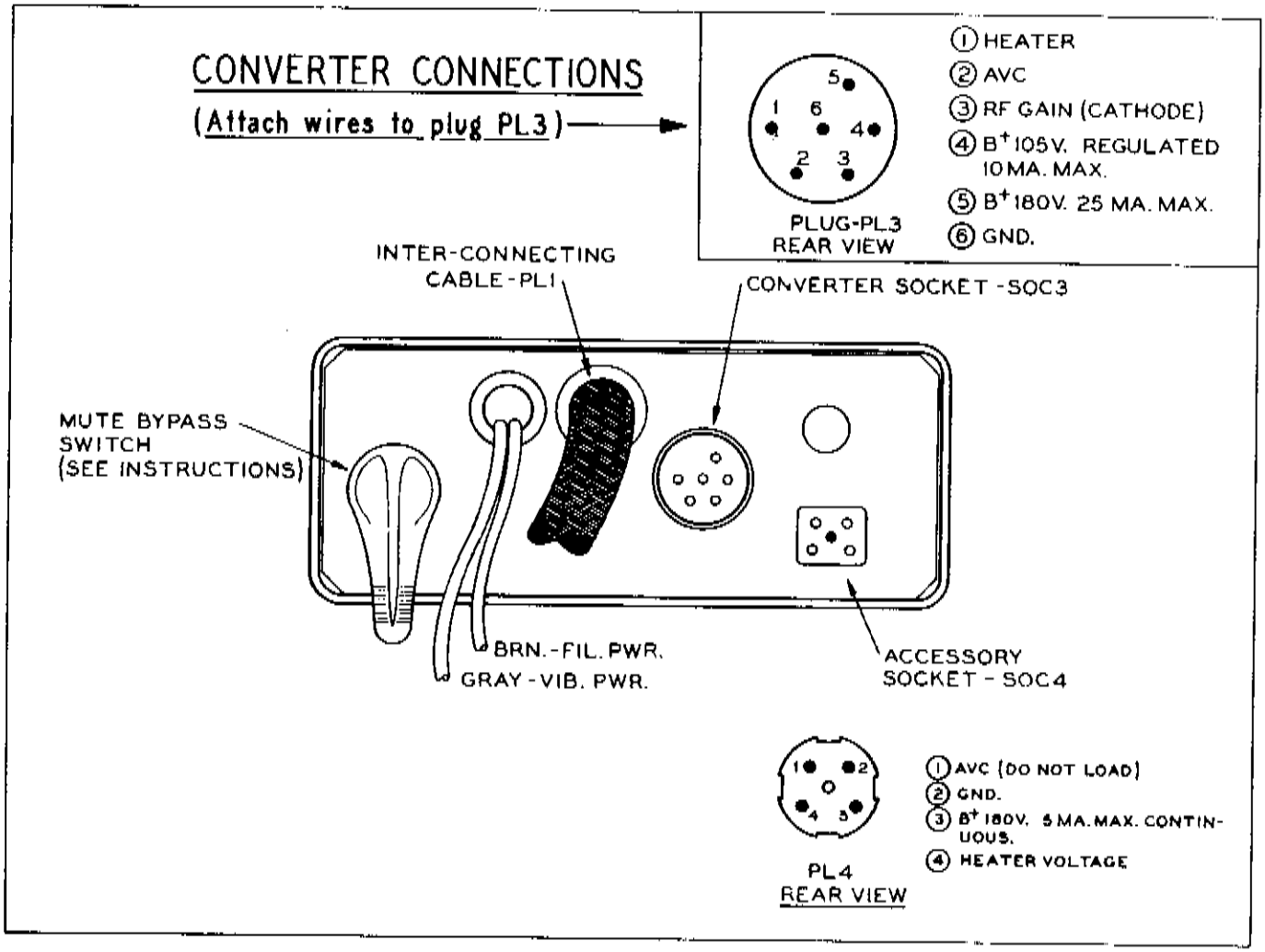
To permit spotting the transmitter v-f-o or crystal oscillator on the receiver dial, it is necessary to apply battery voltage to the Super-Ceiver vibrator when the transmitter high voltage is on. This is accomplished by means of the mute disabling switch on the rear of the control unit. To prevent the Super-Ceiver from being muted when the transmitter is thrown on, simply throw the switch lever to the right. This switch lever is the one which protrudes below the control unit (on the rear). For mute operation via the T/R relay, the switch lever is left thrown to the left. When no transmitter is employed, both the brown and gray pigtails should be connected to the battery bus in order to minimize voltage drop through the wires.

## OPERATION

With all cables connected and the receiver and converter turned on, and the Super-Ceiver chassis slid forward out of its case, turn the a-f gain control full up and the r-f gain control well down to give a low level of background noise. Then, with a wedge or blade-tipped plastic alignment tool, adjust the two trimmers on the top of the double tuned r-f input transformer for maximum gain as evidenced by maximum noise. (This is the square shield can closest to the left rear corner.) With a Super-Six or Tri-Band converter, this adjustment should be made after first screwing the output trimmer on the converter nearly all the way out (or removing the screw altogether). With other makes of converters, follow the manufacturer's recommendation regarding any output trimmer adjustments.

The Super-Ceiver is now ready for use and may be replaced in its cabinet. Because of the number of controls provided for maximum versatility and performance, it will take a day or so to become familiar with all the controls and their functioning. However, a few tips will speed the familiarization.

There is no on-off switch on the squelch. It is




disabled simply by turning the threshold control full to the right, but not so far as to click the switch.

The b-f-o is turned on by turning the squelch control fully clockwise until the switch clicks. This turns on the b-f-o, disables the squelch, and disables the a-v-c.

After a few days experience with operation of the squelch, one will learn under what conditions it can be used to advantage. The widely varying background noise level existing on some bands in some localities will make operation of the squelch impractical except when receiving very strong signals, permitting the threshold control to be backed way off.

If turning the squelch control fully counterclockwise does not squelch the receiver (due to high background noise level), then the r-f gain control should be backed off enough to squelch the receiver.

The best ratio of r-f gain to a-f gain to use on phone signals will depend upon the converter gain, ambient noise level, and other factors. Running the r-f gain at too low a setting will reduce the a-v-c action. Too high a setting will cause strong ambient noise to "load up" the a-v-c, causing trouble on weak signals. The separate controls permit the optimum adjustment to be made under any particular receiving conditions.

When receiving c-w or single sideband signals, the a-f gain control should be run full or nearly full on, and the r-f gain control used to adjust volume. This will reduce blocking by strong signals, and provide optimum b-f-o injection. On 40 and 75 meters it will be possible to receive single sideband signals while under way with most converters if the h-f oscillator plate voltage is voltage regulated. On the higher frequency bands, however, changes in heater voltage will cause sufficient oscillator shift to preclude satisfactory s.s.b. reception except when parked.

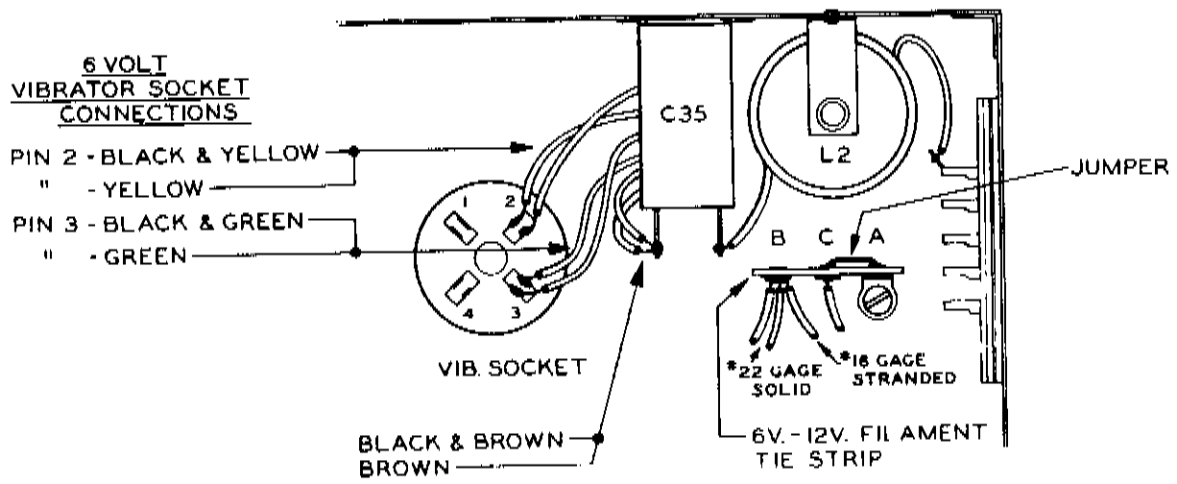
On both c-w and s.s.b. the b-f-o pitch control on the main cabinet should be adjusted for the desired amount of "offset." When using the b-f-o simply to aid in "spotting" the transmitter frequency or locating weak phone carriers, the pitch control should be adjusted to give the lowest pitch to the background hiss when no station is tuned in. This places the b-f-o frequency at the exact center of the i-f pass band.

Ordinarily the noise clipper will be left turned on at all times except when receiving c-w or s.s.b. signals, or as an aid in peaking up trimmers on background noise.

It will be noted that when a conventional phone signal is tuned in "on the nose," all modulation frequencies above about 2500 cycles are highly attenuated. This is normal and is caused by the clipping of the sidebands by the narrow pass band of the i-f

# 6 VOLT - 12 VOLT CHANGEOVER CONNECTIONS

CONNECTIONS SHOWN ARE FOR 6 VOLT OPERATION. FOR 12 VOLT CONVERSION, CHANGE WIRES AS DESCRIBED IN TEXT.




system. This characteristic is typical of any receiver having a sharp i-f system.

Should the occasion arise for aligning or checking the alignment of the i-f system, a Walsco type 2526 alignment tool (or equivalent) is required. The slugs for both primary and secondary windings of each i-f-t are reached from the top of the can. The specified alignment tool is designed to permit insertion through the keyed hole in the top slug to reach the bottom slug. To adjust the lower slug, the tool is passed through the top slug and down until it engages with the keyed hole in the bottom slug.

## ACCESSORY CONNECTOR

A separate connector socket, SOC-4, is provided on the back of the control unit for connection of a vacuum tube type "S-meter" or for other purposes. As shown on the pictorial schematic, plate voltage, heater voltage, ground, and a-v-c voltage are accessible by making connections to PL-4 and plugging into SOC-4. The maximum permitted continuous B drain is 5 ma., which is adequate for an S-meter of the vacuum tube type. The B plus connection also may be used via a "spotting switch" to permit turning on the transmitter oscillator for frequency checking purposes without need for actuating the main transmitter power supply via the T/R relay. For this application, as much as 25 ma. may be drawn from pin 3 for periods not exceeding a few seconds.

## 6 TO 12 VOLT CONVERSION

While the Super-Ceiver is available for 12 volt operation, provision is made for quick conversion from one to the other should the need ever arise. Referring to the accompanying illustration of the referenced wires and tie points, a 6 volt model is converted for 12 volt operation as follows: (For conversion from 12 to 6 volts, simply reverse the procedure.)

1. Remove solid jumper wire from terminal C on heater tie strip to ground.

2. Unsolder brown stranded wire from terminal B on heater tie strip and solder to terminal C.

3. Unsolder from hash condenser C-35 the two leads that come from power transformer T-8, tape the ends individually, and push them out of the way under C-35 and L-2.

4. Unsolder the four primary leads from the vibrator socket (connected in pairs) and resolder the black-yellow lead to vibrator socket pin #2 and the green lead to pin #3. Solder the black-green lead and the yellow lead to the terminal on C-35 from which wires were previously removed.

Readings of ±10% are normal

## TUBE SOCKET VOLTAGE CHART

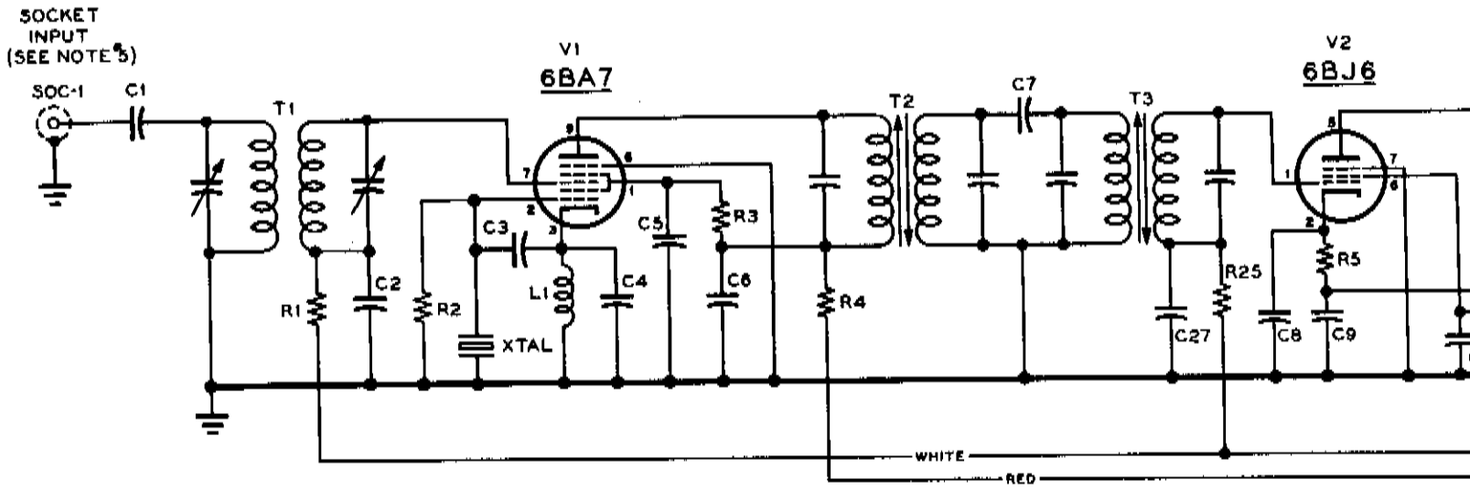
| Tube | Pin Numbers | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| V1 (6BA7) | 78 | -17 | - | 0<br>-<br>0 | ± 6<br>-<br>± 6 | - | -1.3 | - | 158 |
| V2 (6BJ6) | -1 | 1.25 | 0<br>-<br>0 | ± 6<br>-<br>± 6 | 165 | 55 | - | - | - |
| V3 (6BJ6) | - | 1.25 | 0<br>-<br>± 12 | ± 6<br>-<br>± 6 | 165 | 55 | - | - | - |
| V4 (6T8) | -1 | -0.85 | -0.8 | 0<br>-<br>0 | ± 6<br>-<br>± 6 | -1.5 | - | -1 | + 24 *<br>-0.1 |
| V5 (6AQ5) | - | 10.5 | ± 6<br>-<br>± 6 | 0<br>-<br>± 12 | 228 | 170 | - | - | - |
| V6 (12AT7) | (b-f-o on)<br>54 | -3 | - | 0<br>-<br>± 12 | 0<br>-<br>± 12 | 160*<br>62 | 1/4*<br>-0.8 | 107*<br>0 | ± 6<br>± 6 |
| V7 (OB2) | 107 | - | - | - | 107 | - | - | - | - |
| V8 (6X4)<br>(12X4) | 215 AC | 107 | ± 6<br>-<br>± 12 | 0<br>-<br>0 | - | 215 AC | 240 | - | - |

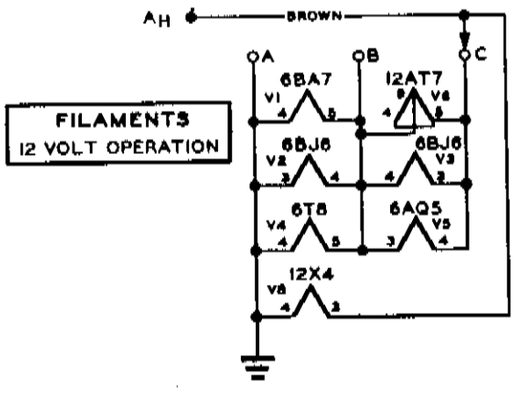
NOTE: All readings taken with RCA Volt-Ohmist, are plus DC unless otherwise indicated, and are for 6.3 volts input to control head with 6 volt connection. All voltages will run slightly higher with 12.6 volt operation. Test conditions are no r-f input, clipper on, RF gain control full on, squelch control full clockwise and BFO off unless otherwise indicated.

* Squelch control full counterclockwise

5. Substitute a type 12X4 for the 6X4 rectifier tube, a Mallory G-659 vibrator for the type 659, and 5 ampere fuses for the 10 ampere primary fuses.

NOTE: Before plugging in the converter make sure it is wired for 12 volt heater supply. The Super-Six converter is available in a 12 volt model. Instructions for converting a 6 volt model to 12 volts will be furnished on request.



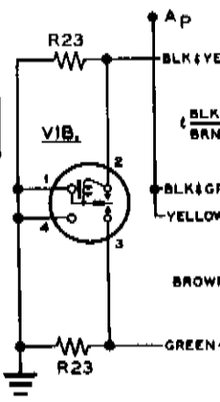



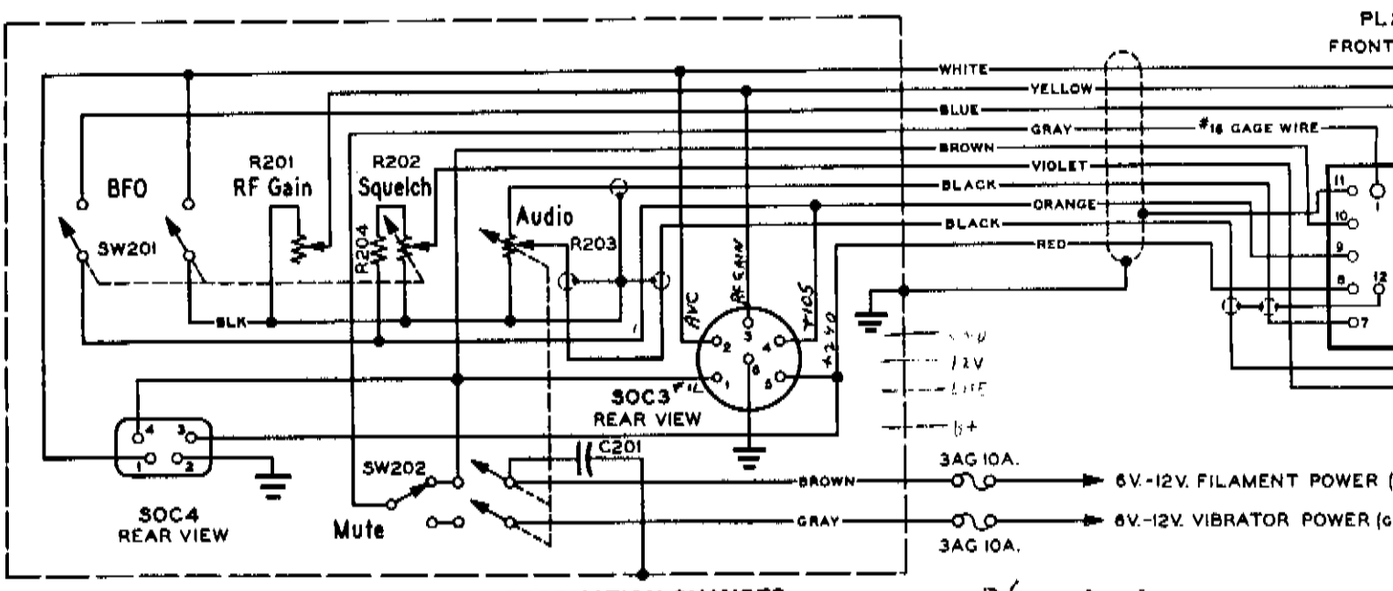

FILAMENTS
12 VOLT OPERATION

NOTE:

1. BFO SWITCH OPERATES AT EXTREME CLOCKWISE END OF SQUELCH CONTROL.
2. SOC3-CONVERTER SOCKET
3. SOC4-AUXILIARY TUNER SOCKET
4. INTERMEDIATE FREQUENCY-265 KC ±1 KC
5. $F_{XTAL} = F_{SIG} + 265$ KC WHERE $F_{SIG}$ IS INPUT FREQUENCY OF SUPER-CEIVER.
6. REMOVE JUMPER TO SILENCE ENCLOSED SPEAKER WHEN USING REMOTE SPEAKER.
7. USE WALSCO #2526 OR EQUAL, TO ALIGN IF TRANSFORMERS.

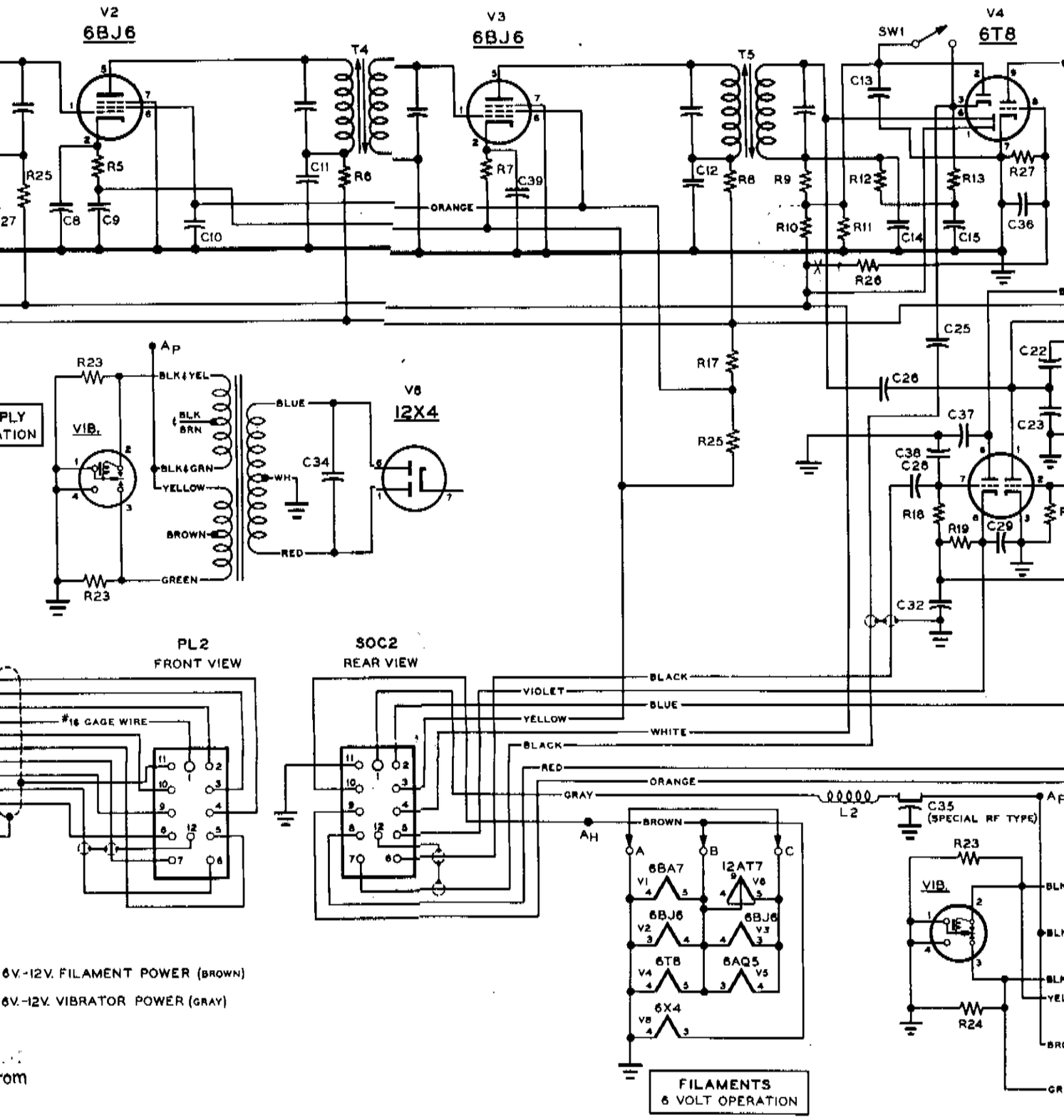
POWER SUPPLY
12 VOLT OPERATION




PRODUCTION CHANGES:
R7 changed to 2700 ohms 0.5 watt. R[illegible] moved from bottom of R10 to top. R9 changed to 470K.

| | | | |
|---|---|---|---|
| C1 - 30 MMF | C13 - 50 MMF | C25 - .01 MFD GMV CERAMIC | C37 - .002 M |
| C2 - .01 MFD GMV CERAMIC | C14 - 50 MMF | C26 - 5 MMF | C38 - 470 M |
| C3 - 30 MMF | C15 - .01 MFD GMV CERAMIC | C27 - .01 MFD GMV CERAMIC | C39 - .01 M |
| C4 - 500 MMF | C16 - .001 MFD GMV CERAMIC | C28 - .001 MFD GMV CERAMIC | R1 - 1.2 M |
| C5 - .01 MFD GMV CERAMIC | C17 - 25 MFD 25V. ELECTROLYTIC | C29 - 4 MFD 150V. ELECTROLYTIC | R2 - 100K |
| C6 - .01 MFD GMV CERAMIC | C18 - .0047 MFD. 1600V. PAPER | C30 - .001 MFD GMV CERAMIC | R3 - 15K |
| C7 - 2 MMF | C19 - .01 MFD GMV CERAMIC | C31 - .01 MFD GMV CERAMIC | R4 - 2.7K |
| C8 - .01 MFD GMV CERAMIC | C20 - .01 MFD GMV CERAMIC | C32 - .01 MFD GMV CERAMIC | R5 - 470 |
| C9 - .25 MFD 200V. | C21 - 20 MFD 350V ELECTROLYTIC | C33 - 12 MFD 450V. ELECTROLYTIC | R6 - 2.7K |
| C10 - .1 MFD 600V. | C22 - 270 MMF | C34 - .0068 MFD 1600V. | R8 - 2.7K |
| C11 - .01 MFD GMV CERAMIC | C23 - 1000 MMF | C35 - .5 MFD 120V. | R9 - 270 |
| C12 - .01 MFD GMV CERAMIC | C24 - 25 MMF | C36 - .01 MFD GMV CERAMIC | R10 - 1.2 M |




6V.-12V. FILAMENT POWER (BROWN)

6V.-12V. VIBRATOR POWER (GRAY)

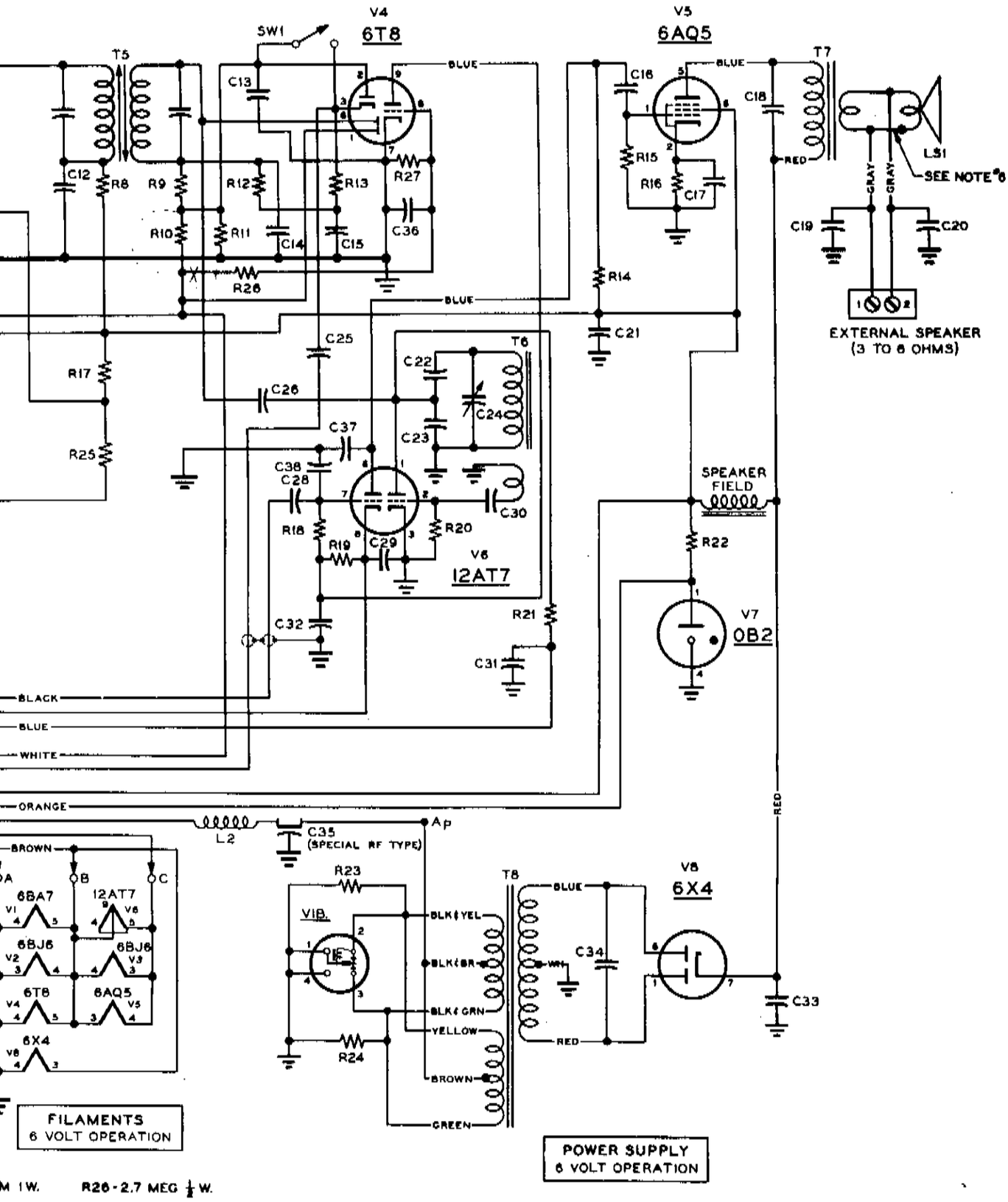
rom

C37-.002 MFD GMV CERAMIC
AMIC — C38-470 MMF
C39-.01 MFD GMV CERAMIC
MIC — R1 - 1.2 MEG ½W.
RAMIC — R2 - 100K ½W.
TROLYTIC — R3 - 15K 1 W.
RAMIC — R4 - 2.7K ½W.
AMIC — R5 - 470 OHM ½W.
AMIC — R6 - 2.7K ½W.
CTROLYTIC — R7 - ~~470~~ 330 OHM ½W.
R8 - 2.7K ½W.
R9 - ~~270K~~ 220K ½W.
AMIC — R10 - 1.2 MEG ½W.

R11 - 270K ½W.
R12 - 1.2 MEG ½W.
R13 - 1.2 MEG ½W.
R14 - 100K ½W.
R15 - 470K ½W.
R16 - 470 OHM 1 W.
R17 - 39K ½W.
R18 - 8.2 MEG ½W.
R19 - 1.2 MEG ½W.
R20 - 47K ½W.
R21 - 47K 1 W.
R22 - 3.3K 5 W.-W.W.

R23 - 150 OHM 1 W.
R24 - 150 OHM 1 W.
R26 - 2.7 MEG ½W.
R27 - 1.2 MEG ½W.
R28 - 27K ½W.
R201-10K POT R.F. TAPER
R202 - 50K POT LINEAR TAPER - W/SPECIAL SW.
R203 - 250K POT AUDIO TAPER
R204 - 1K ½W.
L1 - MIXER CHOKE - 50 MH
L2 - VIB. FILTER CHOKE - MOTOROLA #24A800592
LS1 - 5" SPEAKER - 620 OHM FIELD.
PL2 - PLUG - CINCH #12521
SOC1 - ANTENNA INPUT - CINCH #2611

SOC2 - SOCKET - CIN
SOC3 - SOCKET - 6 PI
SOC4 - SOCKET - 4 PI
T1 - R.F. TRANSFO
T6 - BFO TRANSFO
T7 - OUTPUT TRA
T8 - POWER TRAN
T2, T3, T4, T5 - I.F. T
6V. VIBRATOR
12V. VIBRATOR
SW201 - PART OF R2




FILAMENTS
6 VOLT OPERATION

POWER SUPPLY
6 VOLT OPERATION

M 1W. R26 - 2.7 MEG ½ W.

M 1W. R27 - 1.2 MEG ½ W.

½ W.

T R.F. TAPER

OT LINEAR TAPER - W/SPECIAL SW.

POT AUDIO TAPER

W.

CHOKE - 50 MH

LTER CHOKE - MOTOROLA #24A800592

AKER - 820 OHM FIELD.

CINCH #12521

NNA INPUT - CINCH #2611

SOC2 - SOCKET - CINCH #12523

SOC3 - SOCKET - 6 PIN - CINCH #11916

SOC4 - SOCKET - 4 PIN - CINCH #2675

T1 - R.F. TRANSFORMER - MILLER #112-W1

T6 - BFO TRANSFORMER - 265KC - RATEL #262BF

T7 - OUTPUT TRANSFORMER - MERIT #A2931 OR #21V53

T8 - POWER TRANSFORMER - SPECIAL

T2, T3, T4, T5 - I.F. TRANSFORMER - 265KC - SPECIAL

6V. VIBRATOR - MALLORY #859

12V. VIBRATOR - MALLORY #G859

SW201 - PART OF R202

SW1 & SW202 - SPDT SWITCH - OAK #23

C201 - .25 MFD 100V. PAPER

# GONSET SUPER-CEIVER
## MODEL 3041

GONSET

801 S. Main Street Burbank, California

B-11-3-53