SUPER SATELITE TRANSMITTER

Specifications

RF Output 3.5 Watts with 5 Watts Input power

Modulation 8A3 with 100% AM Plate Modulation

RF Output Impedance Pi-Network tuning to match 30-75 ohms

Mic Input Slide Switch to select Hi-Z for Ceramic or Crystal Mic; Lo-Z position for Carbon Microphone

PI Tuning output controls on Front Panel units thru 1974; 1975/6 models had output controls inside transmitter

Meter reads RF Watts into 50 ohm load

Transmits on 23 channels with xtal controlled synthesizer

Tone Control adjusts modulation tone

Ant Switch on front panel selects Beam or Ground Plane connectors

Mode Switch selects xtal, variable, or CAP receive operation

Power Supply AC 120VAA .8Amps 100 Watts
DC 12.6VDC 8.5 Amps Receive, 9 Amps Transmit

CAP oscillator (V16b) is not in later production units but the crystal socket is. It uses 13Mhz Standard Satelite or Ravelle Six xtals (ch 10R for 26.620Mhz).

DC POWER SUPPLY oscillator (vibrator substitute) is omitted in late production units so they will not operate on 12VDC.

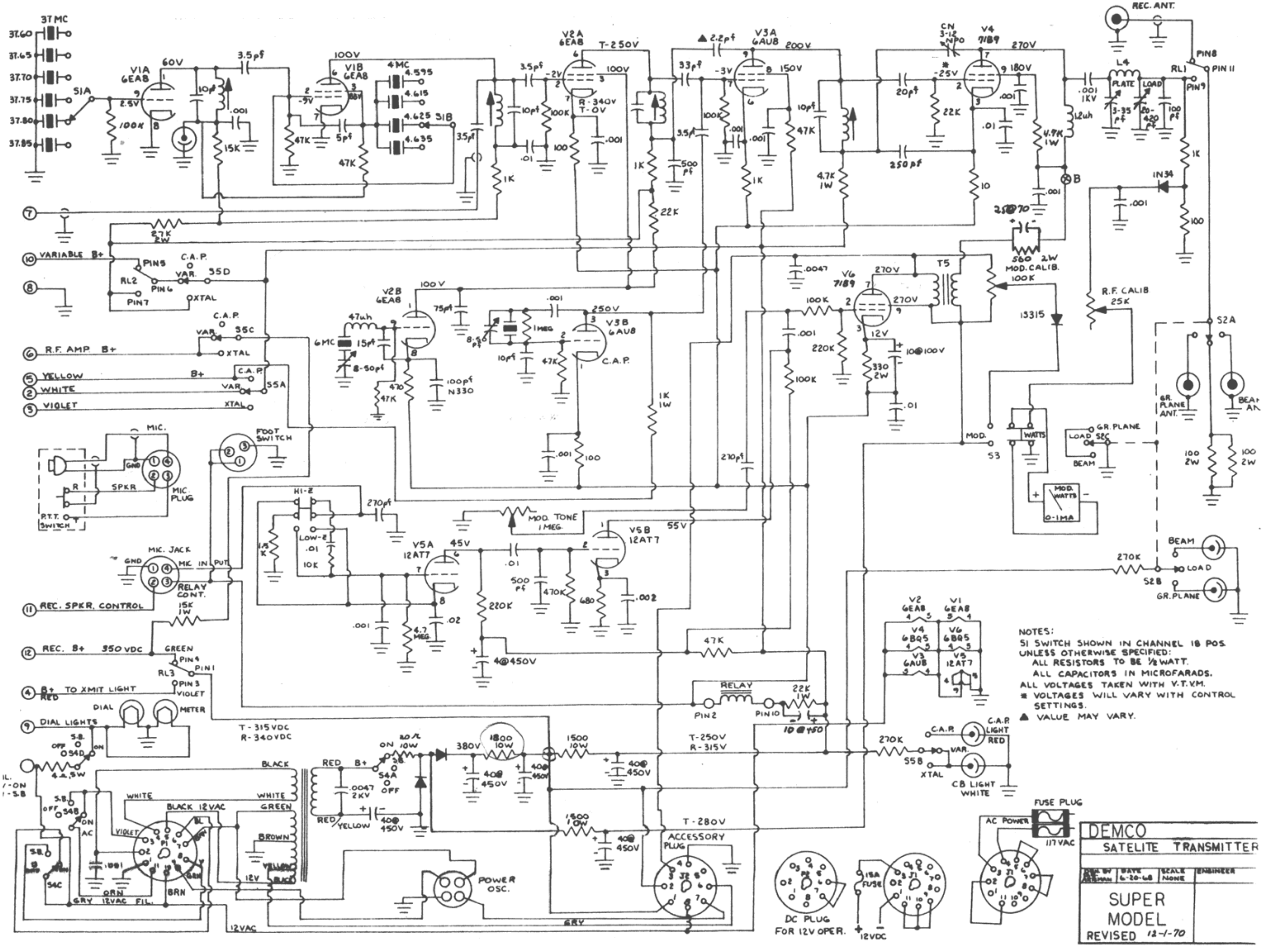
TUBE NOTE V14 can be 6U8/6KD8, 6EA8 or 6GH8=(best choice) 37Mhz Oscillator. To see if oscillator is operating use 4.7K resistor at tip of frequency counter probe to pin 9. Later production units had a NE83 neon light in series with 15K to ground as a voltage regulator tied at the junction of R112/C112/C111. To tune A11 put 1 Megohm resistor on DC probe of VTVM and measure for maximum negative voltage at pin 2/grid, then turn slug downward 1/4 turn. See also next step.

TRANSMITTER ALIGNMENT: The way to get the best performance is to tune L12 (A11) and L13 for highest S-meter reading on the receiver--xtal mode with crystal controlled signal generator to antenna connection. Then L12 needs to go downward 1/4 turn as it would using the VTVM probe. L13 needs adjustment down 1/4 turn also. L14 (A20) and L15 (A21) can be tuned for the strongest signal on wattmeter into a dummy load. The S-meter of another CB receiver nearby can be monitored for strongest signal to be sure the main transmit signal is on 27 Mhz in lieu of having a sprectrum analyzer. C143 & C144 are inside on top of the chassis near the left front of the transmitter in later units instead of having knobs on the front panel. These are tuned using wattmeter on channel 12 with an output balance check on channels 1 & 23.

24 **Position Channel selector** switch on late 1973 thru 1976 models has jumper-loop wire below/beside crystals to disable chan 24.

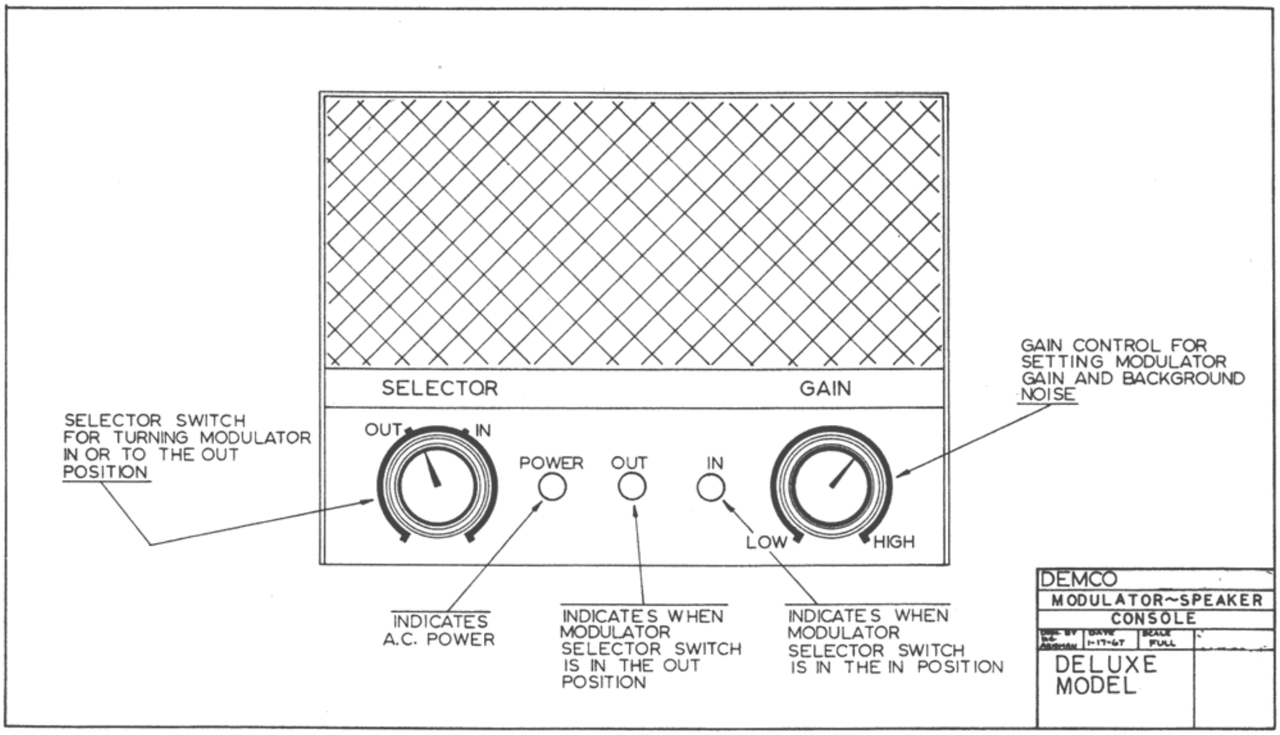
RF **FEEDBACK/Squeal** problems: late production units omit C155 and R101. Add .001ufd capicitor from junction C154/R144/(C155) to ground (if needed to cure squeal on transmit).

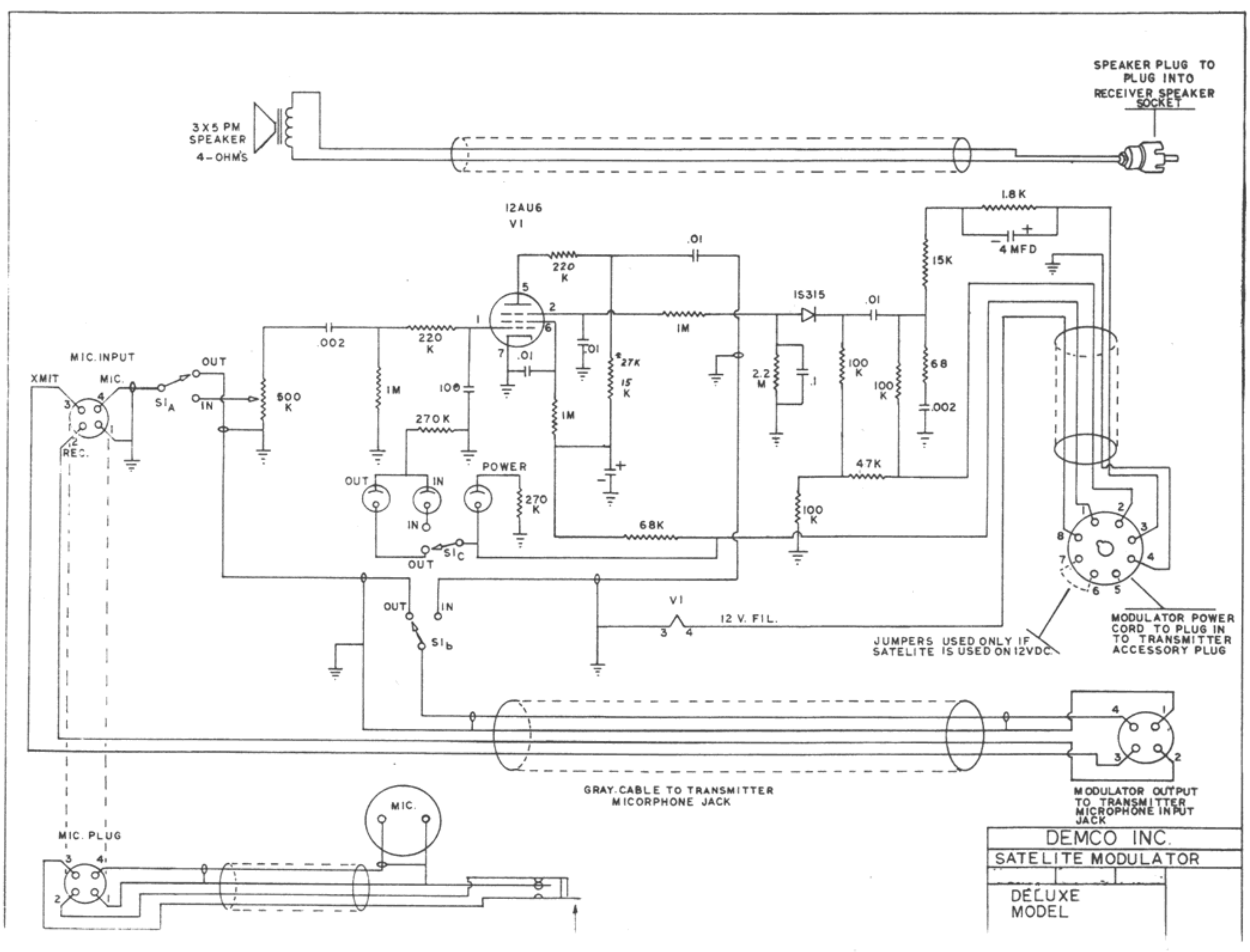
RELAY: Sams picture is Potter & Brumfield type KRP14DG-110VDC (11 pin octal 3PDT style). Later units had a 4PDT rectangular plug in relay of one of the following interchangable numbers: Comar CRL1906A-1-01, AMF Potter & Brumfield KHU17D11-110V, or Omron MY4-100/110VDC.

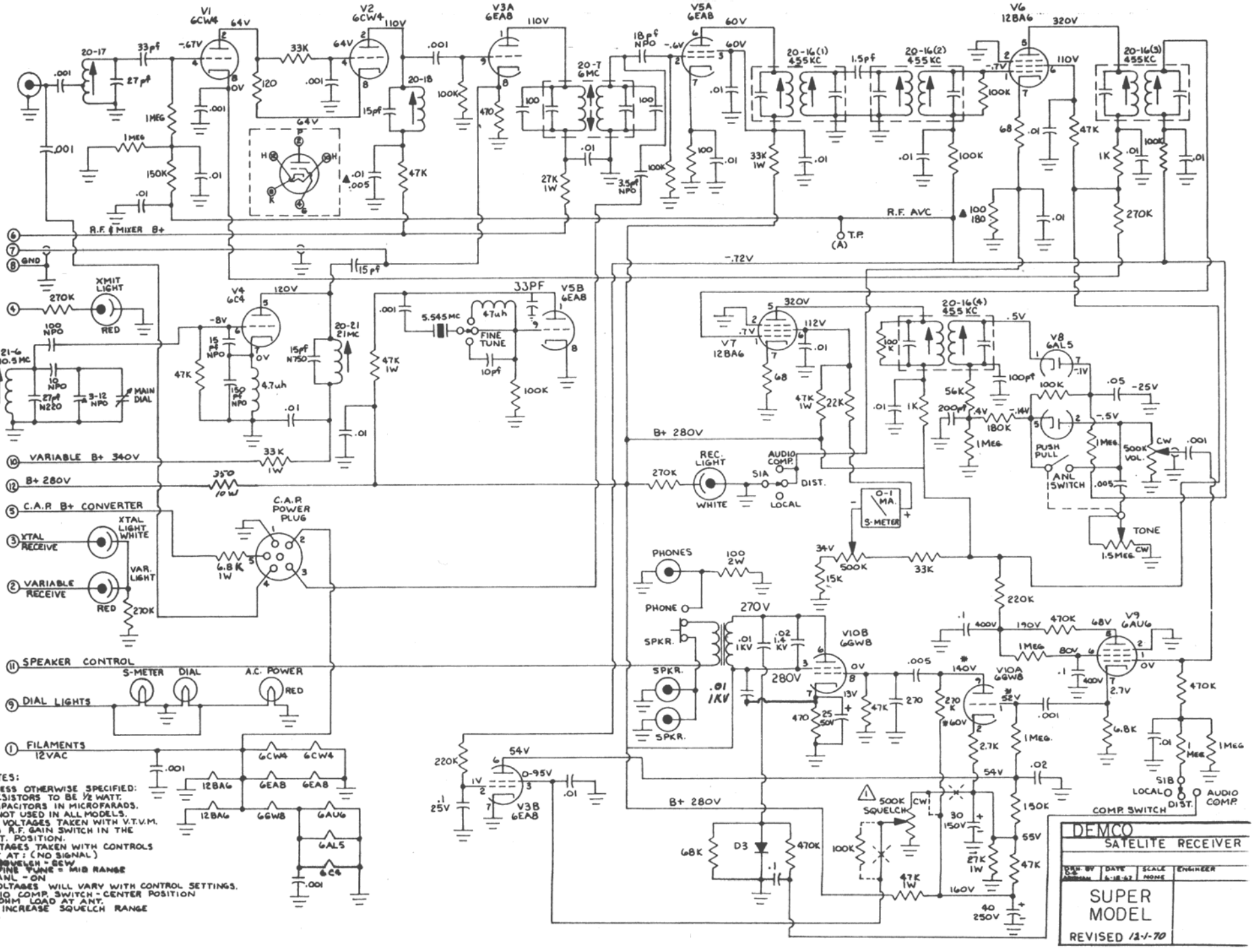


NOTES:
S1 SWITCH SHOWN IN CHANNEL 18 POS.
UNLESS OTHERWISE SPECIFIED:
ALL RESISTORS TO BE ½ WATT.
ALL CAPACITORS IN MICROFARADS.
ALL VOLTAGES TAKEN WITH V.T.V.M.
* VOLTAGES WILL VARY WITH CONTROL SETTINGS.
▲ VALUE MAY VARY.

DEMCO			
SATELITE TRANSMITTER			
DRAWN BY	DATE 6-20-68	SCALE NONE	ENGINEER
SUPER MODEL			
REVISED 12-1-70			


SELECTOR
GAIN
OUT
IN
POWER
OUT
IN
LOW
HIGH
SELECTOR SWITCH FOR TURNING MODULATOR IN OR TO THE OUT POSITION
GAIN CONTROL FOR SETTING MODULATOR GAIN AND BACKGROUND NOISE
INDICATES A.C. POWER
INDICATES WHEN MODULATOR SELECTOR SWITCH IS IN THE OUT POSITION
INDICATES WHEN MODULATOR SELECTOR SWITCH IS IN THE IN POSITION
DEMCO
MODULATOR~SPEAKER CONSOLE
DATE 1-17-67
SCALE FULL
DELUXE MODEL


3X5 PM SPEAKER 4-OHM'S
SPEAKER PLUG TO PLUG INTO RECEIVER SPEAKER SOCKET
12AU6 V1
MIC. INPUT
XMIT
MIC.
REC.
OUT
IN
S1A
500 K
.002
220 K
1M
100
270 K
.01
220 K
1M
27K
15 K
1M
68K
1S315
.01
1.8K
4 MFD
15K
2.2 M
.1
100 K
100 K
68
.002
47K
100 K
OUT
IN
POWER
270 K
S1C
S1b
V1
12 V. FIL.
JUMPERS USED ONLY IF SATELITE IS USED ON 12VDC.
MODULATOR POWER CORD TO PLUG IN TO TRANSMITTER ACCESSORY PLUG
GRAY CABLE TO TRANSMITTER MICORPHONE JACK
MODULATOR OUTPUT TO TRANSMITTER MICROPHONE INPUT JACK
MIC. PLUG
MIC.
DEMCO INC.
SATELITE MODULATOR
DELUXE MODEL

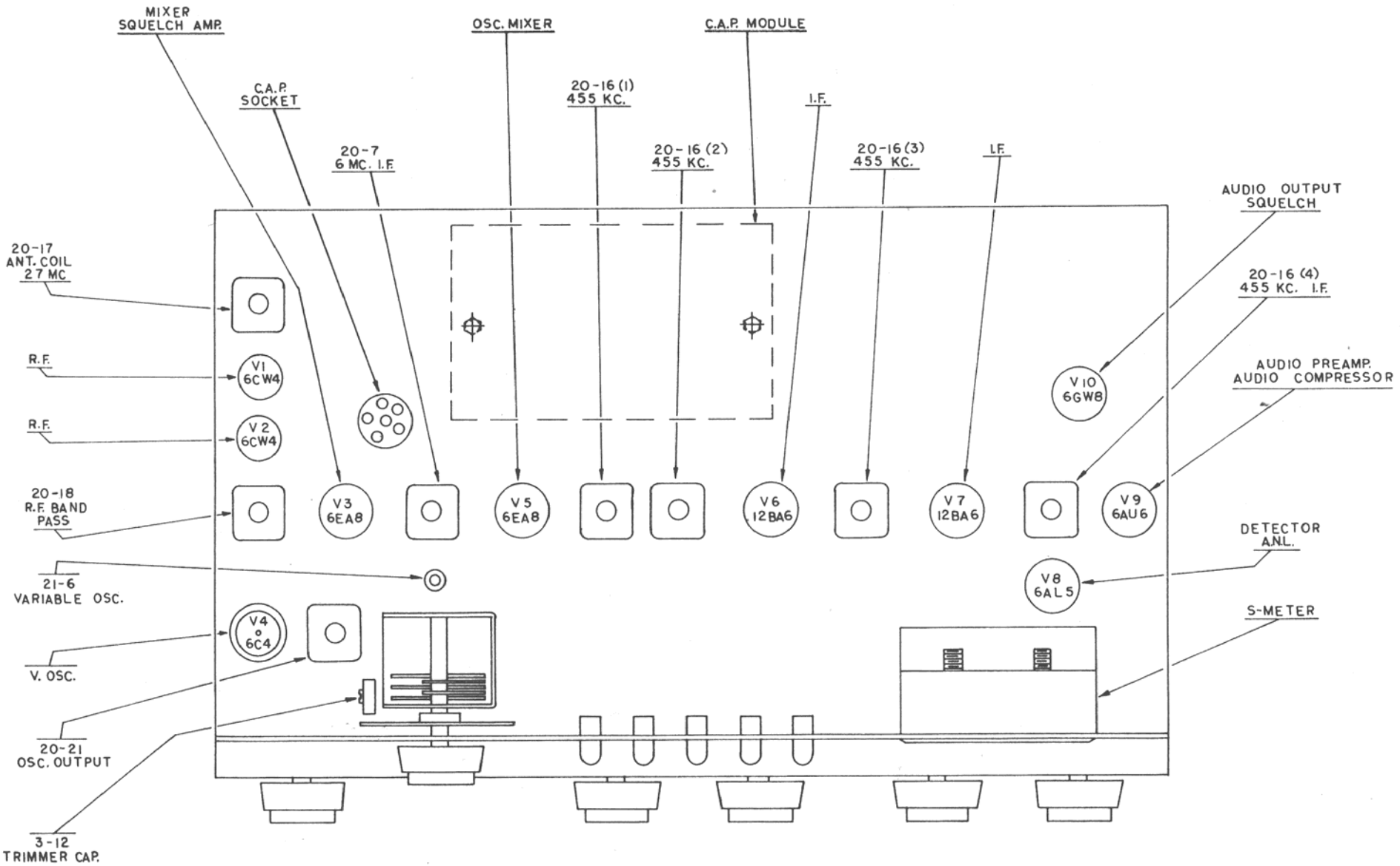


NOTES:
UNLESS OTHERWISE SPECIFIED:
RESISTORS TO BE ½ WATT.
CAPACITORS IN MICROFARADS.
▲ - NOT USED IN ALL MODELS.
ALL VOLTAGES TAKEN WITH V.T.V.M. AND R.F. GAIN SWITCH IN THE DIST. POSITION.
VOLTAGES TAKEN WITH CONTROLS SET AT: (NO SIGNAL)
SQUELCH - CCW
FINE TUNE - MID RANGE
ANL - ON
* - VOLTAGES WILL VARY WITH CONTROL SETTINGS.
AUDIO COMP. SWITCH - CENTER POSITION
50 OHM LOAD AT ANT.
⚠ INCREASE SQUELCH RANGE

DEMCO
SATELITE RECEIVER

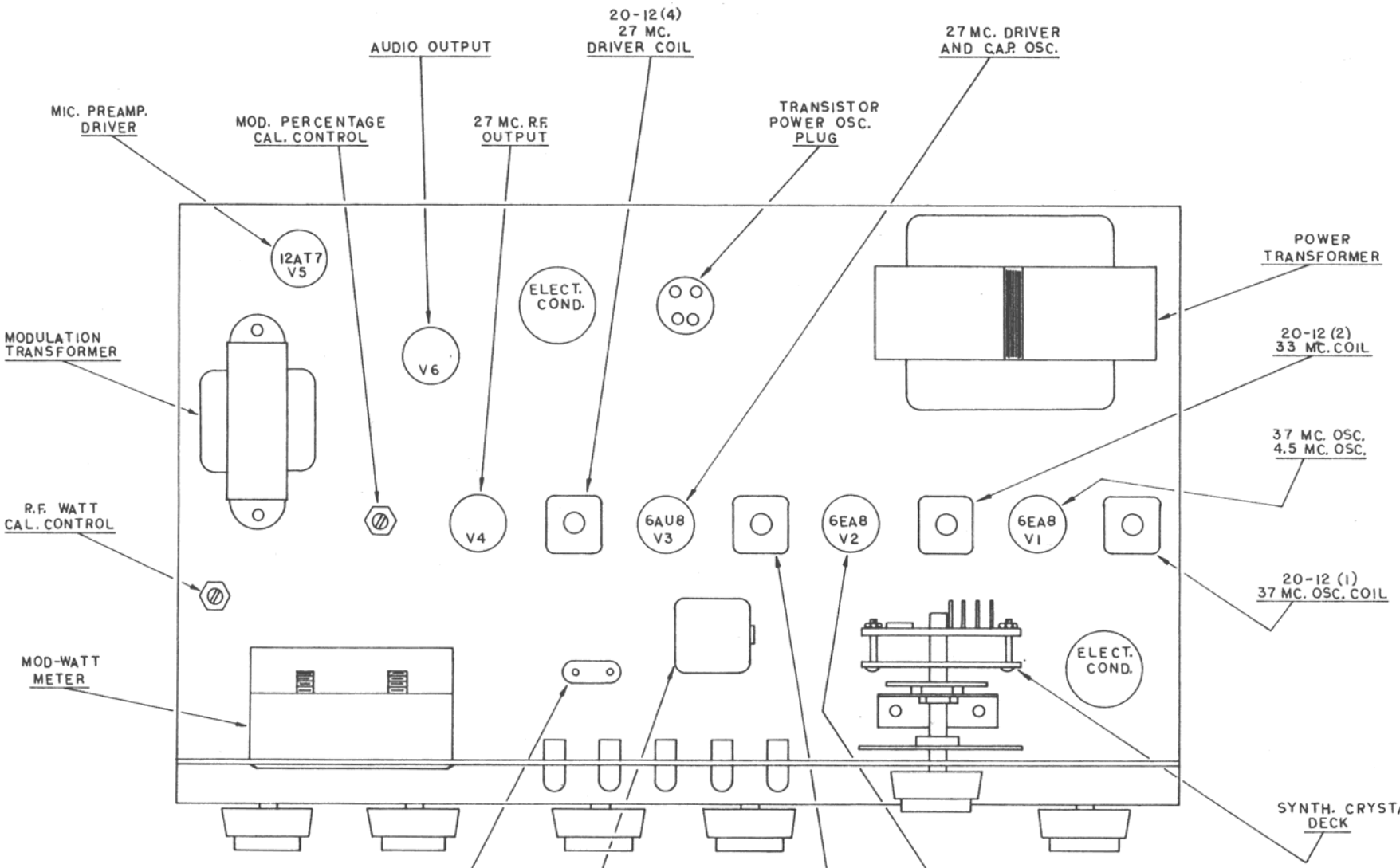
DRG. BY	DATE	SCALE	ENGINEER
	6-18-62	NONE	

SUPER MODEL
REVISED 12-1-70



TOP VIEW
OF RECEIVER

DEMCO			
SATELITE RECEIVER			
DRN. BY C.E. ARTIMAN	DATE 6-12-68	SCALE NONE	ENGINEER
SUPER MODEL			
REVISED 6-1-68			



TOP VIEW
OF TRANSMITTER

DEMCO
SATELITE TRANS.

DRN. BY	DATE	SCALE	ENGINEER
D.A. ARISMAN	6-5-68	NONE	

SUPER MODEL
REVISED 6-1-68

TRANSMITTER R.F. ALIGNMENT CONTROL SETTINGS

1. SELECTOR switch on the transmitter in the C.A.P. position.
2. ANT. switch in the center position. This connects the transmitter output to the internal load.
3. MOD-WATTS switch to WATTS
4. LOAD and PLATE controls to center position.
5. Plug a half-frequency, channel 12 crystal into the C.A.P. crystal socket.

TRANSMITTER R.F. ALIGNMENT

The half-frequency crystal used in this procedure should be on the DEMCO DS20T type.

Step No.	Test Equipment Connections	Adjust.	Remarks
1.	V.T.V.M. to pin 2 of V3B Reading will be negative volts.	8-50 Trimmer on C.A.P. socket	Key transmitter. Trimmer may need to be adjusted to insure the operation of the half-frequency crystal. This will be indicated by a sharp increase in the reading.
2.	V.T.V.M. to pin 7 of V3A Reading will be negative volts	20-12 (3)	Key transmitter and adjust for maximum negative voltage.
3.	V.T.V.M. through a 100K ½ Watt resistor to pin 2 of V4	20-12 (4)	Adjust for maximum reading on transmitter R.F. watt meter.
4.	Turn selector switch to XTAL., or VAR. channel selector to channel 12		Repeat steps 2,3 & 4.

NEUTRALIZATION

If any parts or tubes in the circuits associated with V3 and V4 of the transmitter have been replaced or moved, the transmitter must be neutralized according to the procedure below. Misadjustment of this section can result in radiation of signals on frequencies not alloted for citizens band.

1. The transmitter should be aligned and set according to step 5 of the transmitter R.F. alignment.
2. Discount the green transformer lead from point B (on the schematic).
3. Temporarily connect a short jumper across the 1000 ohm ½ watt resistor on the LOAD tuning capacitor.
4. Key the transmitter and adjust the 3-12 trimmer capacitor (CN on schematic) for minimum reading on the R.F. Watt Meter.
5. Remove the jumper from the 1000 ohm 1 watt resistor and reconnect the green transformer lead.
6. Repeat step 5 of the Transmitter R.F. alignment.

I. F. ALIGNMENT SETTINGS

1. Selector switch on transmitter in the xtal position.
2. Squelch control in completely C.C.W. position.
3. Channel selector on transmitter at either channels 11 or 12.
4. Audio compressor switch in the center position (which is Dist.)
5. A.N.L. switch pulled out so it is in the off position.
6. Fine tuning control in mid range.
7. Antenna switch in center position for internal 50 ohm load.

RECEIVER I.F. AND R.F. ALIGNMENT

Connect D.C. probe of V.T.V.M. to point (A) and negative to chassis. Use the 5 V. scale on V.T.V.M. generator output for approximately 3 VDC Negative for all adjustments.

Step No.	Test Equipment Connections	Gen. Freq.	Adjust.	Remarks
1.	High side of Gen. thru .01 mfd to pin 1 of V7. Low side to chassis	455 KC 400% Mod.	20-16(4) top & bottom	Adjust for max. reading on V.T.V.M. 5 V. scale
2.	High side of Gen. thru .01 mfd to pin 1 of V6. Low side to chassis	455 KC 400% Mod.	20-16(3) top & bottom	Same as above
3.	High side of Gen. thru .01 mfd to pin 2 of V5A. Low side to chassis	455 KC 400% Mod.	20-16(2) 20-16(1) top & bottom	Same as above
4.	High side of Gen. thru .01 mfd to pin 9 of V3A. Low side of chassis	6MC 400% Mod.	20-7 top & bottom	Same as above
5.	V.T.V.M. to pin 9 of V1A in transmitter (37 mc. OSC. in transmitter)		20-12(1)	Adjust for max. negative volts. Then back off 1/2 of a turn. This must be done on channel 23, then return to channel 12
6.	High side of Gen. to ant. input on receiver. V.T.V.M. to point A in receiver	Ch. 12 ±.005%	20-12(2)	Adjust for max.negative volts on the 3V scale on V.T.V.M. at point (A) in receiver
7.	Same as above	Ch. 12 ±.005%	All coils listed above	For max.reading make sure the fine tuning is in center position. The S-meter may be used for this step.
8.	Same as above	Ch. 12 ±.005%	20-12(2)	Same as above

This now completes the receiver I.F. and R.F. alignment. The only receiver alignment left is the variable tuning which follows.

VARIABLE ALIGNMENT CONTROL SETTINGS

1. Selector switch on transmitter in the center position. This is the variable position.
2. Squelch control fully C.C.W.
3. Audio compressor in the center position. This is the distant position.
4. Fine tuning control in mid range.
5. Signal gen. to be ± .005% Frequency tolerance.

IMPORTANT! If dial is not reading on channel due to age or shipping damage, coil 21-6 may be adjusted to re-center channels on dial. Do not adjust the 3-12 trimmer cap for this adjustment as this is for tracking only.

VARIABLE DIAL TRACKING

Sig. gen. for injection should be held so that S-meter reads about S-7 on the S-meter of the receiver. A•generator of .005% tolerance should be used or a signal from another transmitter with .005% tolerance.

Step No.	Test Equipment Connections	Gen. freq.	Adjust.	Remarks
1.	Sig. gen. set on ch. 1	26.695 (ch.1)	slug on L3	Set receiver dial on 1 and adjust slug for max S-meter reading on receiver. This adjustment is extremely critical.
2.	Sig. gen. set at ch. 23	27.255 (ch.23)		Turn receiver dial to channel 23. Now rock the dial for peak reading on the S-meter. Dial should line up with number 23. If the dial reads on the low side of 23, adjust the 3-12 trimmer on variable condenser. Turn trimmer 1/32", C.C.W. If dial reads high, turn trimmer C.W. 1/32". Now repeat steps 1 & 2 until dial tracks properly.

SUPER SATELITE BASE STATION

POWER MODULATOR - SPEAKER CONSOLE

Your new built-in Power Modulator will work only with a Deluxe Satelite Base Station. To install your modulator-speaker console, plug in the modulator to the base station as shown in the pictorial diagram or as follows: Plug the small speaker plug, which is on the modulator, into one of the speaker sockets on the rear apron of the receiver. Next, take the gray cable with the 8 pin plug and plug it into the accessory socket on the rear apron of the transmitter. Then, unplug the microphone from the transmitter and plug it into the rear of the modulator marked mic. input. Then, plug the gray cable, with the four pin plug, into the back of the transmitter marked mic. input. Make sure that only a Hi-Z mike is used and the impedance switch is in the Hi-Z position. This completes the hook up.

OPERATING INSTRUCTIONS

After you have turned on your base station, the red power light on the front control panel of the modulator should be on. Next, turn the selector switch on the front of the modulator to the out position. The white light should now be on. Now, turn the gain control on the front of the modulator to the three o'clock position. Set the ant. switch on the transmitter to the internal 50 ohm load position and the transmitter red meter switch to the mod. position. Now, key the transmitter and speak into the microphone about a foot away. Then, switch the selector switch on the modulator, alternating to the in and out positions, and watch the difference in modulation deflection on the transmitter meter. When speaking into the mike in the out position, the deflection on the meter will be slight. When you switch to the in position, the deflection should increase considerably. This is only a relative reading so the actual percentage of meter movement is not critical. The important thing is to have a substantial difference between the in and out positions. If this happens, you can assume the modulator is operating properly. Then, you can switch the ant. switch on the transmitter back to either of the antennas and start transmitting.

In the same cabinet, you also have your Satelite speaker. If you prefer even greater and crisper audio, you can have twin speaker operation. Simply plug an auxiliary speaker console into the extra speaker plug at the rear of the receiver.