

INSTRUCTION MANUAL

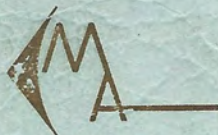
MODEL RPL-4

REMOTE PICKUP LINK

(450-470 MHz)

Tx #30831 & Rx #32258

@ 455.750 MHz & 455.800 MHz



MOSELEY ASSOCIATES, INC.

SANTA BARBARA RESEARCH PARK

GOLETA, CALIFORNIA 93017

INSTRUCTION MANUAL

MODEL RPL-4
REMOTE PICKUP LINK
(450-470 MHz)

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INSTRUCTION MANUAL

MODEL RPL-4

REMOTE PICKUP LINK

I. INTRODUCTION

The Model RPL-4 Remote Pickup Link was designed to provide a high-quality program link between the broadcast studio and an outside or remote broadcast location. Operating in the 450-470 MHz band, the RPL-4 System is designed for two-channel operation with the second set of crystals optionally available.

The RPL-4 consists of a Transmitter and a Receiver. The Transmitter was designed to operate continuously from 120/240 VAC, 50-60 Hz and from 13.5 VDC negative ground, and it is supplied with an AC power cord and a DC cable connector.

The Transmitter has been compactly and ruggedly designed to facilitate its use in mobile or fixed portable service. All input and output connectors are conveniently located near the front panel of the Transmitter for operator convenience. Easy access is afforded to all circuitry due to the modular design of the system.

Metering of important parameters is provided on the RPL-4 Transmitter. For monitoring audio levels, a PEAK AUDIO position is provided. Metering is also provided for relative FORWARD POWER, relative REFLECTED POWER, relative I.P.A DRIVE, actual FINAL CURRENT, and POWER SUPPLY VOLTAGE.

For applications requiring higher RF output, the Moseley Associates Model AMP-4 may be used in conjunction with the RPL-4 Transmitter. The Model AMP-4 provides a 5 dB power gain. With a 10-watt input, the AMP-4 will yield 32 watts of RF output. This amplifier is not recommended in aeronautical service. This follows the policy of limiting airborne transmitter power output to 18 watts.

The Receiver requires only 1-3/4 inches of vertical rack space. To assist the operator in optimizing antenna orientation for remote pickup broadcasts, a front-panel signal-strength meter continuously monitors the received signal. Selectors are provided to select the desired frequency channel either from the front panel or from a remote location.

II. SPECIFICATIONS

A. Overall System

Audio Response	± 1.5 dB, 30-10,000 Hz
Distortion	Less than 1.3%, 30-10,000 Hz
Signal-to-noise ratio	55 dB below 100% modulation (60 dB typical)
Frequency Range	450-470 MHz, Two Frequency operation within 2 MHz spacing. One set of crystals supplied with link.

B. Transmitter

RF Output	13 watts maximum, 10 watts minimum into 50 Ω load. Output connector Type BNC female.
VSWR Protection	Withstands infinite VSWR at all phase angles.
Deviation	RPL-4A 5 kHz (7.5 kHz max audio) for 100% modulation. RPL-4B 10 kHz (15 kHz max audio as applicable) optional for 100% modulation.
Frequency Stability	$\pm 0.00025\%$ (-30°C to 50°C)

RPL-4A Frequency Group No. 2

Group No. 2 Channels are: (MHz)

450.0875	455.0875
450.1125	455.1125
450.1875	455.1875
450.2125	455.2125
450.2875	455.2875
450.3125	455.3125
450.3875	455.3875
450.4125	455.4125
450.4875	455.4875
450.5125	455.5125
450.5875	455.5875
450.6125	455.6125

RPL-4B Frequency Group N1, R and S

Group No. 1 Channels are: (MHz)

450.050	455.050
450.150	455.150
450.250	455.250
450.350	455.350
450.450	455.450
450.550	455.550

Group R Channels are: (MHz)

450.650	455.650
450.700	455.700
450.750	455.750
450.800	455.800
450.850	455.850

Group S Channels are: (MHz)

450.925	455.925
---------	---------

Operating Temperature Range	-30°C to 50°C
Audio Inputs	3 independent channels (two microphone and one line).
Audio Input Impedances Line	50,000Ω bridging, unbalanced
Microphone	50-150Ω, balanced, floating
Audio Input Levels Line	-15 dBm to +10 dBm from 600Ω source
Microphone	-60 dBm to -40 dBm
Audio Peak Limiter	Control Range greater than 25 dB, attack time 1 ms, release time 700 ms
Metering	Peak Audio, Forward RF Power, Reflected RF Power, Final Amp. Current, I.P.A. RF Drive, and Power Supply Voltage
Audio Monitoring	Utility output with adjustable gain for feeding headphones or other audio amplifiers.

Power Requirements AC

120/240 VAC, $\pm 15\%$, 50-60 Hz, 45 watts maximum

DC

13.5 VDC, filtered, negative ground, 2.5A maximum; 15 VDC maximum, 12 VDC minimum.

Size

4" (10.2 cm) high, 14.5" (36.8 cm) wide, 11" (27.9 cm) deep

Weight

16 pounds net (7.2 kg. net)

C. Receiver

Sensitivity

1.5 microvolt maximum for 20 dB quieting, 10 microvolts maximum for 40 dB SNR.

Selectivity

5 kHz Deviation

-6 dB @ ± 22 kHz
-60 dB @ ± 42 kHz

10 kHz Deviation

-6 dB @ ± 44 kHz
-60 dB @ ± 75 kHz

All Spurious Responses

65 dB below -40 dBm reference

Frequency Stability

$\pm 0.0005\%$ (-20°C to 50°C)

RF Input

50 Ω unbalanced, input connector Type N female

Audio Output

+10 dBm @ 100% modulation, 600 Ω balanced

Squelch

Automatic and adjustable, electronic. Carrier-operated relay output (Form C contacts) optionally available.

Operating Temperature Range

-30°C to 50°C

Power Requirements

120/240 VAC, $\pm 15\%$, 50-60 Hz, 10 watts

RPL-4

Rev. 4/78

-4-

Size	1-3/4 inches high, 19 inches wide, 10 inches deep (4.5 cm x 48 cm x 25 cm)
Weight	10 pounds net (4.5 kg. net)

III. UNPACKING

The RPL-4 Transmitter and Receiver should be unpacked and carefully inspected for concealed damage due to shipping. Retain all boxes and packing material in the event a claim is to be filed against the carrier for damages.

NOTE

Do not attempt any tuning at this time. Field Adjustment Procedures are outlined on pages 12 and 13 of this manual.

IV. INITIAL CHECK-OUT PROCEDURE

In order to check out the equipment, it will be necessary to connect a 50 Ω RF termination with a dissipation rating in excess of 15 watts to the BNC connector on the rear of the Transmitter. Check to see that the Transmit Function selector is in the STANDBY position and that the POWER AUDIO switch is not depressed. Connect the line cord to a source of 120 VAC, 50-60 Hz. Note: For 240 VAC, 50-60 Hz operation, refer to drawing 91C6667 for information on rewiring the primary of transformer T101.

Once the Transmitter has been properly terminated, depress the push button marked POWER AUDIO. This applies power to the audio section, multiplier/driver, and the RF power amplifier. Note, however, there will not be any RF output at this time. Place the Metering Selector in the FORWARD POWER position and select the proper Transmit Function. Either FREQ 1 or FREQ 2 may be selected if the optional set of crystals for dual frequency operation has been installed. If the system is set up for single frequency operation, FREQ 1 will be used.

Once the proper Transmit Function has been depressed, there should be an indication on the front-panel meter which is a reading of relative forward power. It would be advisable to check the actual power output with a wattmeter to become familiar with the relative

meter readings in relation to their actual values. The wattmeter should read between 10 and 15 watts. The metering functions of REFLECTED POWER and I.P.A. DRIVE are also relative values while PEAK AUDIO, FINAL CURRENT, and POWER SUPPLY (Vcc) are actual readings. The lower scale on the meter is used for two readings; FINAL CURRENT (0-2.5 amps) and Vcc (0-25 VDC). PEAK AUDIO in dB is read on the upper scale.

Actual values may be compared with the final test values which are located at the end of the text of this manual. Variations of 20% may be expected.

Once it has been established that the Transmitter is operating properly, place the Receiver nearby and connect it to the 120 VAC, 50-60 Hz source. Note that the RPL-4 Receiver does not have a power switch. The L.E.D. indicator located on the front panel will illuminate when the Receiver is connected to the power source. For 240 VAC, 50-60 Hz operation, see drawing 91C6670. A small piece of wire should be inserted into the Type N connector located on the rear of the chassis to minimize multipath effects. The 600 Ω balanced output of the Receiver should be connected to a monitor amplifier or suitable test equipment. If specific audio measurements are to be made, the Receiver output should be terminated with a 560 Ω resistor.

To verify the operation of the RPL-4 System, apply a +10 dBm signal at 700 Hz to the Line Input of the Transmitter. Adjust the Line Input Control until the meter on the Transmitter reads 0 dB with the Metering Selector in the PEAK AUDIO position. If the Receiver is terminated properly, a +10 dBm signal should be present at the output.

The microphone inputs may be tested at this time. These inputs have an impedance of 50-150 Ω .

V. INSTALLATION

A. Transmitter

The Transmitter may be operated from AC and DC power sources. As received from the factory, the RPL-4 is wired for both 120 VAC, 50-60 Hz, and 13.5 VDC operation. Never connect both AC and DC inputs at the same time. If it is desired to operate the Transmitter from 240 VAC, 50-60 Hz, it will be necessary to rewire the primary of transformer T101 as shown in drawing 91C6667. If the RPL-4 Transmitter is to be operated from 13.5 VDC, connect the DC source using the cable connector provided. The cable connector is keyed so that

it can be connected only one way; however, care should be taken when connecting the DC power cable to the cable connector to insure proper polarity. See drawing 91C6667 for proper connection. Diode protection has been provided within the regulator, and in the event the polarity is accidentally reversed, the Transmitter will blow the DC fuse.

CAUTION

Do not connect the RPL-4 Transmitter to a DC source greater than 15 VDC as damage to the unit may result.

When the Transmitter is to be used in a fixed location, care should be taken to provide adequate ventilation. If the Transmitter is used for mobile operation, it may be desirable to fabricate a mounting bracket. Due to the wide variety of applications and vehicles, no mounting bracket is supplied or available. The same considerations regarding air circulation still apply in mobile operation.

B. Receiver

The Receiver operates from 120 VAC, 50-60 Hz. If it is desired to operate from 240 VAC, it will be necessary to rewire the primary of the power transformer; see drawing 91C6670 for details.

If remote selection of the frequency channel is desired, use the appropriate barrier terminals on the rear of the chassis. A SPDT contact configuration is required for this function. The program output of the Receiver is available from the same barrier strip.

C. Antenna and Transmission Line

Transmission line considerations will determine to some extent the placement of the Transmitter and Receiver. Lengthy transmission lines will introduce unwanted amounts of attenuation. Therefore, it is always good practice to place both the Transmitter and Receiver as close to the antenna as possible. If a long length of transmission line is required, use the lowest loss line practical.

There are many possible antenna configurations which will work satisfactorily with the RPL-4, and the choice should be determined by the application and service of the equipment. The internal metering of the RPL-4 may be used to help match the antenna to the

transmitter. Observe the reflected power by placing the Metering Selector in the REFLECTED POWER position. Tune the antenna for minimum indication on the meter, consistent with maximum forward power. It should not be necessary to adjust the Transmitter as it has been factory aligned for operation into a 50 Ω load. When installing the antennas, make sure that both the transmitting and receiving antennas are polarized in the same plane.

VI. OPERATION

A. Transmitter

To place the RPL-4 Transmitter into operation, check to see that the POWER AUDIO switch is not depressed and that the Transmit Function is in STANDBY. Connect the AC power cord to a source of 120 VAC, 50-60 Hz, or connect a DC source of 13.5 VDC, negative ground, to the DC power plug located on the rear of the chassis. Never connect both AC and DC inputs at the same time. Due to the wide variety of mobile installations, no DC power cable is provided. However, a connector is provided to allow for the fabrication of a suitable power cable. When fabricating this cable, be certain to observe the correct polarity, and select the proper wire size to avoid excessive voltage drop.

Connect all audio equipment that is to be used in conjunction with the RPL-4 to the Transmitter. The two Microphone Inputs are located on the right side of the chassis, while the Line input and Utility Output jacks are located on the left side. Connect the RF transmission line to the antenna and to the BNC connector located on the rear of the chassis.

Power is applied to the audio section, multiplier/driver, and RF power amplifier by depressing the push button labeled POWER AUDIO. However, this does not place the Transmitter in a radiating condition. To place the Transmitter on the air once the POWER AUDIO push button has been depressed, simply select the proper Transmit Function.

Either FREQ 1 or FREQ 2 may be selected if the system has been equipped with the optional set of crystals for dual frequency operation. FREQ 1 will be used if the system is not equipped with the optional crystals.

Relative forward power, as well as other metering functions, may be observed by selecting the appropriate position on the Metering Selector.

With the POWER AUDIO push button depressed and the Transmit Function in STANDBY, the audio mixer section of the Transmitter may be used for other applications, or this condition may be used to preset audio levels before placing the Transmitter in a radiating condition.

B. Receiver

The operation of the RPL-4 Receiver is very simple since there are only three controls for the operator's use; the receiver frequency selectors labeled FREQ 1 and FREQ 2, and REMOTE SELECT. The frequency selectors are used to determine on which channel the Receiver will operate. The REMOTE SELECT is used when it is desired to select the Receiver frequency channel from a remote location. Barrier terminals have been provided on the rear of the chassis for this function. An SPDT contact configuration is required.

A relative signal strength meter has been incorporated into the Receiver to assist in the setup of the RPL-4 System. Also incorporated in the Receiver is a provision for an optional carrier-operated relay which may be used for external control purposes.

VII. CIRCUIT DESCRIPTION

A. Transmitter

The transmitter is comprised of five major subassemblies: power supply, VCXO, multiplier/driver, RF power amplifier, and audio section.

1. Power Supply

The power supply regulator exhibits an exceptionally low forward voltage drop so that it cannot only regulate the rectified filtered AC input, but also the unregulated 12-15 VDC input for extremely stable RPL-4 operation. Q102 biases and temperature compensates Q104, the current clamping transistor. Q103 is a current driver for the series pass transistor Q101, CR101, CR102, and CR103 set a bias on the voltage regulator IC101. See drawings 91B6908 and 20A2576.

2. Two-Channel VCXO

In order to generate a stable signal at the output frequency in the 450-470 MHz band and at the same time frequency-modulate the carrier, a VCXO (voltage-controlled crystal oscillator) is used. Q1, L1, C10, C11, and Y1 comprise the basic 4 MHz oscillator. Frequency multiplication of 108 times following the oscillator produces the desired output frequency. To produce frequency modulation (refer to drawing 91C7164), two diodes, CR1 and CR2 which change capacity as a function of voltage, are employed in the oscillator circuitry. Temperature compensation is achieved by application of DC bias to the modulator diodes. Thermistors (temperature variable resistors) R10 and R12 and a resistor network, (R15, R9, R11, R13, R14, and R18), provide the necessary corrective bias for operation over the specified temperature range.

The Channel 1 VCXO, Q1, output drives emitter follower Q2 which isolates the oscillator circuitry from loading. Q5 is used as an OR amplifier and passes the 4 MHz signal from whichever crystal oscillator is operating. Q6 is a current amplifier with an RF output of approximately 0 dBm into 50 ohms. In Channel 2 operation, transistors Q3 and Q4 operate in the same manner as Q1 and Q2.

In order to limit the RF bandwidth with high frequency audio a three section audio low pass filter, U1, limits the upper audio which can be transmitted. The RPL-4A is limited to 7.5 kHz and the RPL-4B is limited to 15 kHz.

3. Multiplier/Driver

Transistor Q1 is a frequency tripler followed by another tripler, Q2, operating with output frequencies at 12.5 to 13.5 and 37.5 to 40 MHz respectively. Tuned circuits (L2, C4, C8), (L3, C10, C11), (L4, C13, C14), (L10, C16), (L5, C5, C17) and (C6, C19, L6) are employed to remove undesired frequency components appearing because of frequency multiplication. CR3, C45, C46, C44, L1, R21, R22, and R23 are part of a phase modulator and are not used in the RPL-4 series of transmitter. Tripler Q3 multiplies the signal to 112.5-120 MHz with (L7, C23, C31) and (C25, C40, L8) passing only the desired signal to Q4. This transistor is used to double the signal to 225-240 MHz with (L9, C28), (L17, C41) and (C29, Z2) used to remove all unwanted signals. Q5, an amplifier with the output

at 225-240 MHz, and filter (L13, C55, C32, Z5), amplify and filter the signal before it is doubled in the final transistor Q6. The filter (L15, C34), (L11, C38) and (L12, C39) is triple-tuned to the desired output, reducing all unwanted signals to at least 50 dB lower than the 100 MW nominal 450-470 MHz desired signal. See drawings 91C6900 and 20A2549.

4. RF Power Amplifier

The RF power amplifier is located at the rear of the chassis. The schematic and component layout can be seen in drawings 91B6864 and 20A2549.

The approximately 100 milliwatts of RF power developed in the Multiplier/Driver subassembly is applied to the Power Amplifier subassembly where Q701, Q702 and Q703 amplify the 450-470 MHz signal to power level of 10 watts nominal into 50 ohms. C702, C701, C703, L701, Z701, and R701 filter and match the 50 ohm input signal to the base of Q701. C706, C707, L702, Z703, and R709 match and filter the RF signal from the output of Q701 to the input of Q702. C710, C711, R702, and Z705 match the output of Q702 to the input of Q703. The output of Q703, the final output transistor, is matched to the antenna output with a complex matching network formed by L704, L705, L706, L707, C727, C715, C716, C717 and C718. This highly selective multisection filter attenuates all unwanted signals to at least 60 dB below the main signal. A dual-directional coupler samples the relative forward and reflected RF powers which are indicated on the front-panel meter. The overall amplifier efficiency is on the order of 50 percent.

5. Audio Section

The audio printed circuit board is located directly behind the front panel. Schematic and component layout can be seen in drawings 91C6584 and 20A2356. The audio sections consists of three major subsections; mixer, limiter amplifier, and peak audio limiter.

There are three inputs available; two 50-150 Ω balanced, floating microphone inputs, and one 50,000 Ω bridging, unbalanced line input. These inputs are combined electronically by an active mixer, IC2. The output of the active mixer is applied to the limiter amplifier, IC3. IC3 supplies audio to the utility amplifier and the phase inverter which, in turn, feeds the meter driver and peak detector.

The peak audio limiter is composed of a solid-state optical attenuator, limiter amplifier IC3, phase inverter IC5, peak detector IC7, and buffer amplifier IC8. This limiter has an attack time of 1 millisecond and a release time of 700 milliseconds with a typical control range greater than 25 dB.

The utility amplifier output is an unbalanced 600Ω with an output of 0 dBm, which can be used to drive a monitor amplifier, headphones, tape recorder, or telephone line.

Adjustments are provided for Modulation Level (R35), Utility Level (R27), Meter Calibration (R47), Meter Zero Adjust (R66), and Meter Acceleration (R51). It is not recommended that the Meter Acceleration be adjusted in the field as it has been pre-adjusted at the factory for optimum response and should require no further adjustment.

Pre-emphasis is standard on the RPL-4. However, if it is desired to operate the system without pre-emphasis, refer to drawings 91C6584 and 20A2356 for information on pre-emphasis components.

B. Receiver

The RPL-4 Receiver is a superheterodyne, dual-conversion type Receiver employing 30 MHz and 10.7 MHz I.F. frequencies. The Receiver is composed of nine subassemblies; preselector, pre-amplifier, balanced mixer/I.F., two-channel local oscillator, 30 MHz-10.7 MHz converter, crystal bandpass filter, FM demodulator, audio processor and power supply. The schematic for the Receiver can be seen in drawing 91C6670. (See Figure 2 for subassembly layout). The received signal is applied to the three-section helical preselector which is followed by a low-noise preamplifier. Local oscillator injection and the incoming signal are applied to a double balanced mixer which is followed by a 30 MHz bandpass filter and amplifier. This resulting signal is then applied to the second converter which converts the 30 MHz signal down to 10.7 MHz. The output of this converter is passed through a 10.7 MHz crystal bandpass filter and applied to the FM demodulator. The FM demodulator is of the ratio type, and included in the demodulator is a high gain RF amplifier limiter IC. The output of the demodulator is then applied to the audio processor where it undergoes amplification and filtering before reaching the 600Ω balanced output of the receiver.

The receiver employs a variable electronic squelch. The squelch level is adjusted by R6 on the audio processor board.

The output of the Receiver may be adjusted from its nominal +10 dBm output at 100% modulation ± 3 dBm by R26 on the audio processor board. Also, provisions are included on the audio processor board to allow for the addition of an attenuator pad to provide an output other than the nominal +10 dBm.

De-emphasis is standard on the RPL-4 Receiver. If it is desired to run the system flat, refer to drawing 91C6595 and 20A2367 for information on de-emphasis components.

VIII. FIELD ADJUSTMENTS

A. Transmitter

Complete tuning of the Transmitter in the field is not recommended. However, slight frequency adjustments may be accomplished by adjusting L2 for Channel 1 and L7 for Channel 2.

B. Receiver

In normal operation there will be little or no need to adjust the Receiver in the field. However, C101, C102 and C103 on the pre-selector may be adjusted to improve Receiver sensitivity. Trimmer capacitors are provided within the two-channel local oscillator to allow for adjustment of the oscillator frequency. Capacitor C103 adjusts the Channel 1 frequency, and C111 adjusts the Channel 2 frequency.

IX. SERVICING

If it should become necessary to troubleshoot the RPL-4 System, complete schematics and component layout diagrams have been provided and are located at the rear of this manual. All test point voltages are shown on the schematics to aid in localizing any problem. Because of its modular design, the RPL-4 should be relatively simple to troubleshoot should it become necessary.

If factory assistance is needed, please note all pertinent voltages, attempts made in trying to locate the trouble, and any other information that may be helpful in diagnosing the problem. Contact Moseley Associates, Inc. at any time regarding any problem encountered with the RPL-4. Direct any inquiries on the operation of the RPL-4 to our Customer Service Department.

X. OPTIONAL MODEL AMP-4 RF POWER AMPLIFIER

When it is felt that additional output from the RPL-4 Transmitter is desired for extended coverage or other requirements, the Model AMP-4 RF Power Amplifier may be used in conjunction with the RPL-4 Transmitter. This amplifier provides a nominal 5 dB power gain, and with a 10-watt input will produce an output near 35 watts. Installation of the AMP-4 is straightforward. Consideration should be given to placement of the amplifier so air can circulate freely by the heat sink. Further, wiring for the DC supply voltage to the AMP-4 should be of sufficient size to provide up to 6 amperes of current without an appreciable voltage drop. Voltage requirements are 13.5 VDC, negative ground. It is suggested that wire of equivalent size be used for ground return to a common point. In a vehicle, do not rely on the body as a ground return. No control of the AMP-4 is required since only negligible current is drawn only with the presence of RF input. It should be noted that the AMP-4 is Type Accepted for use with the RPL-4A & B only, although it will work with other equipment.

MOSELEY ASSOCIATES, INC.

TEST DATA

MODEL RPL-4

450 MHz

Date 6 Jan. 1981
 F.O. No. 11-6051
 Tester Conrad

Customer KFRC
 Tx Serial No. 30831
 Rx Serial No. 32258
 Frequency 455.750 MHz
 2nd Freq. 455.800 MHz

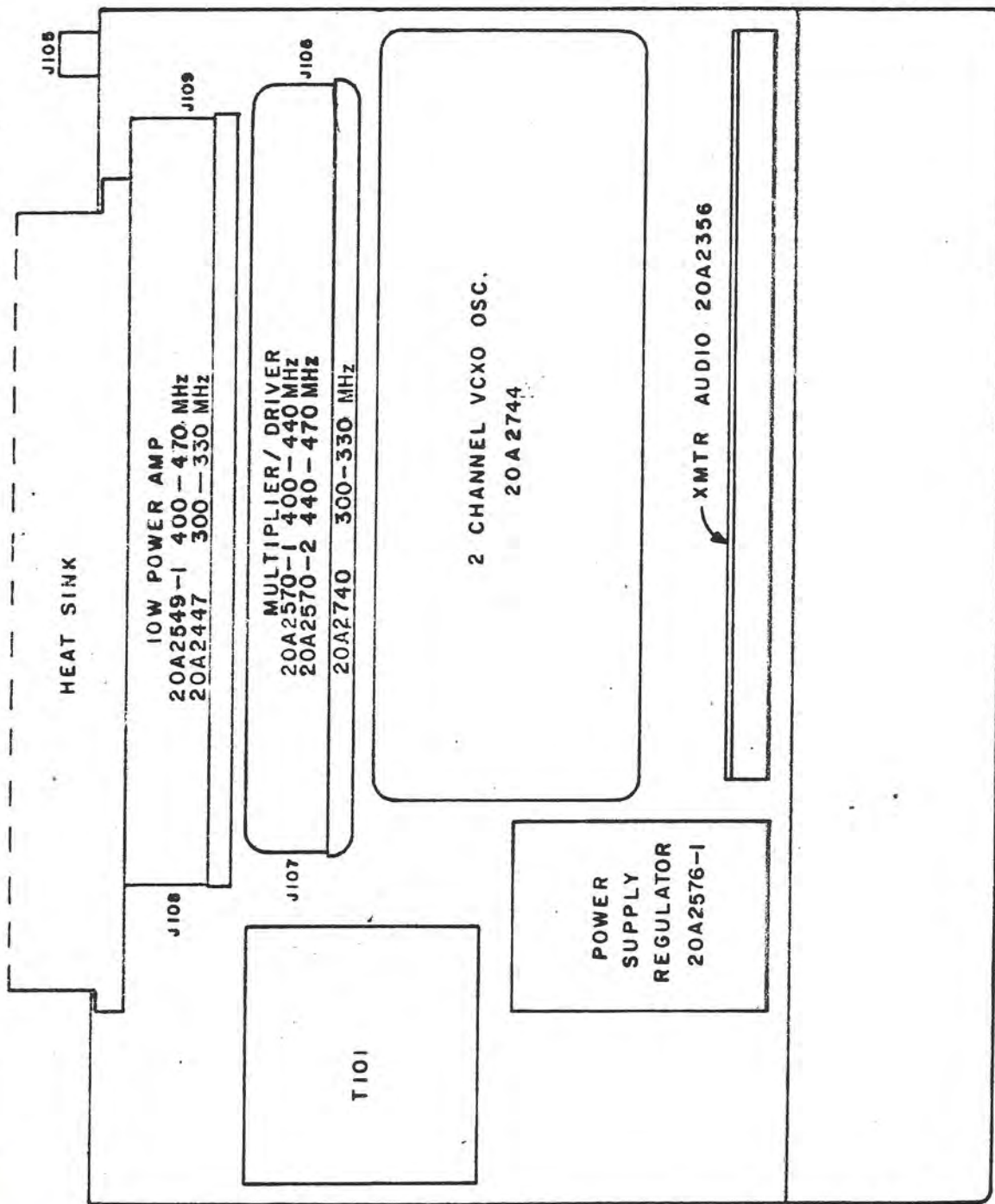
Transmitter Meter Readings		Receiver Meter Readings			
Vcc	<u>11.5</u>	μ Volts	SNR	Signal Strength	
IPA Drive	<u>16.5</u>	3.0	<u>32/32</u>	20 dB Min	<u>5.0/5.2</u>
Final Current 2 amp max	<u>14.5</u>	10	<u>42/42</u>		<u>6.4/6.4</u>
Forward Power	<u>17.5</u>	30	<u>52/52</u>		<u>7.0/7.0</u>
Reflected Power	<u>1.5</u>	100	<u>60/59</u>		<u>7.4/7.4</u>
Audio set for 100%	<u>0 dB</u>	300	<u>62/62</u>		<u>7.9/7.8</u>
Measured Tx Power (watts)	<u>10.0</u>	1,000	<u>63/63</u>		<u>8.3/8.3</u> 7.5-9.5

Transmitter Deviation Control		System Performance		
Set for -15 dBm input = 100% Modulation		Frequency	Distortion	Response
Deviation <u>10</u> kHz		Hz	%	dB
Receiver Audio Gain Control		70	<u>.36/.20</u>	<u>-10.0/-10.5</u>
Set for +10 dBm output = 100% Modulation		700	<u>.23/.25</u>	<u>-10.0/-10.2</u>
SNR <u>60/61</u> dB referenced to 100% Modulation		3,000	<u>.56/.58</u>	<u>-10.2/-10.2</u>
at full saturation		7,000	<u>.49/.53</u>	<u>-9.9/-9.7</u>
Power Supply to be set using DVM		10,000	<u>.15/.20</u>	<u>-9.5/-9.0</u>
Transmitter Power Supply set for <u>11.5</u> VDC,		15,000	<u>.17/.18</u>	<u>-10.8/-10.3</u>
RF out <u>10.0</u> watts				
Receiver Power Supply set for <u>11.5</u> VDC				<u>0.7/0.8</u>
Audio V P-P at brown test point on VCXO card		Receiver sensitivity <u> </u> μ V		
for 100% modulation <u>.35</u> V P-P		for 20 dB quieting.		
Audio V P-P at yellow test point on VCXO card		DC <u> </u> X		
for 100% modulation <u>.32</u> V P-P		MIKES <u> </u> X		
Spurious Emissions <u>-60 dB</u>		UTILITY <u> </u> X		
Readings taken into 50 Ω load				
Receiver squelch set for <u>1.3</u> μ V 25 db SNR				

Transmitter Test Point Readings

Test Points		Mult/Driver			
VCXO 1	VDC	VCXO 2	VDC		VDC
Brown <u>1.35</u>	1.75 nominal	Yellow <u>1.36</u>	1.75	Brown <u>3.01</u>	2.50
Red <u>6.47</u>	6.5 nominal	Green <u>5.97</u>	6.5	Red <u>0.29</u>	0.30
Orange <u>2.92</u>	3.1 nominal	Orange <u>2.87</u>	3.1	Orange <u>0.94</u>	0.85
				Yellow <u>0.70</u>	1.00
				Green <u>0.66</u>	0.60
				Blue <u>0.54</u>	0.40

Rev. 12/7/78
 mlc



MOSELEY ASSOCIATES, INC.
 SANTA BARBARA RESEARCH PARK
 GOLETA, CALIFORNIA 93117

FIGURE 1

RPL-4 TRANSMITTER LAYOUT

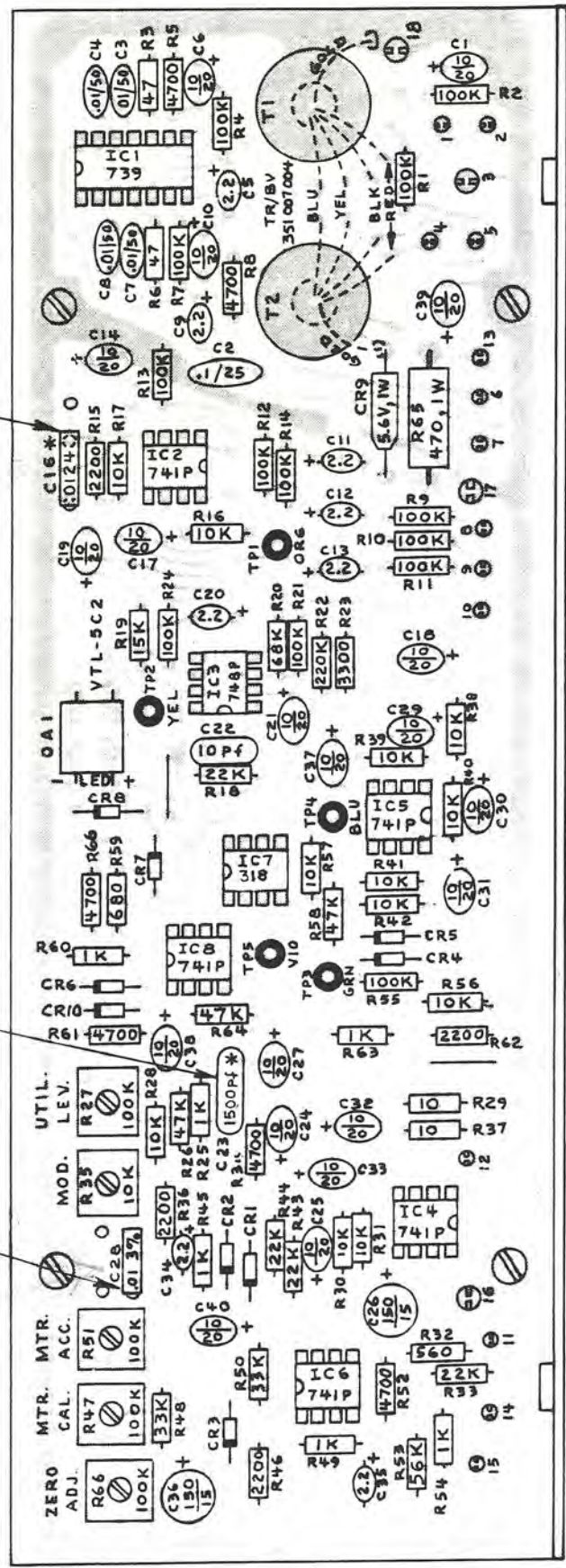
TOL: FRAC. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, ≤ 1 IN.	
DWN	FX Y
CHK	6/29/73 SCALE: 1/2
ENG	SLM

21A2449 B0

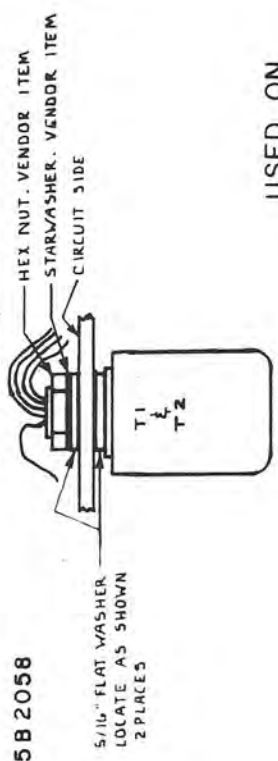
DATE	REVISIONS	ADD NEW PART NUMBER
26 JUN 78	EC12	AJB.
26 JUL 78	ECO1762	AJB.
26 JUL 78	ECO1762	AJB.

SEE NOTE 6

SEE NOTE 6




5B 2058



- NOTES:
- 1 UNLESS OTHERWISE SPECIFIED;
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.
 - 2 -□- DENOTES IN4154 DIODE.
 - 3 P.C. BOARD 51A5435-REV.C
 - 4 SCHEMATIC 91C6584.
 - 5 * REMOVE C16 & C23 TO REMOVE
DE-EMPHASIS.
 - 6 C16, C23, C28 TO BE INSTALLED
IN FINAL TEST IF NEEDED.

USED ON
SEE 92C1177

**MOSELEY ASSOCIATES, INC.**
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT
XMTR AUDIO

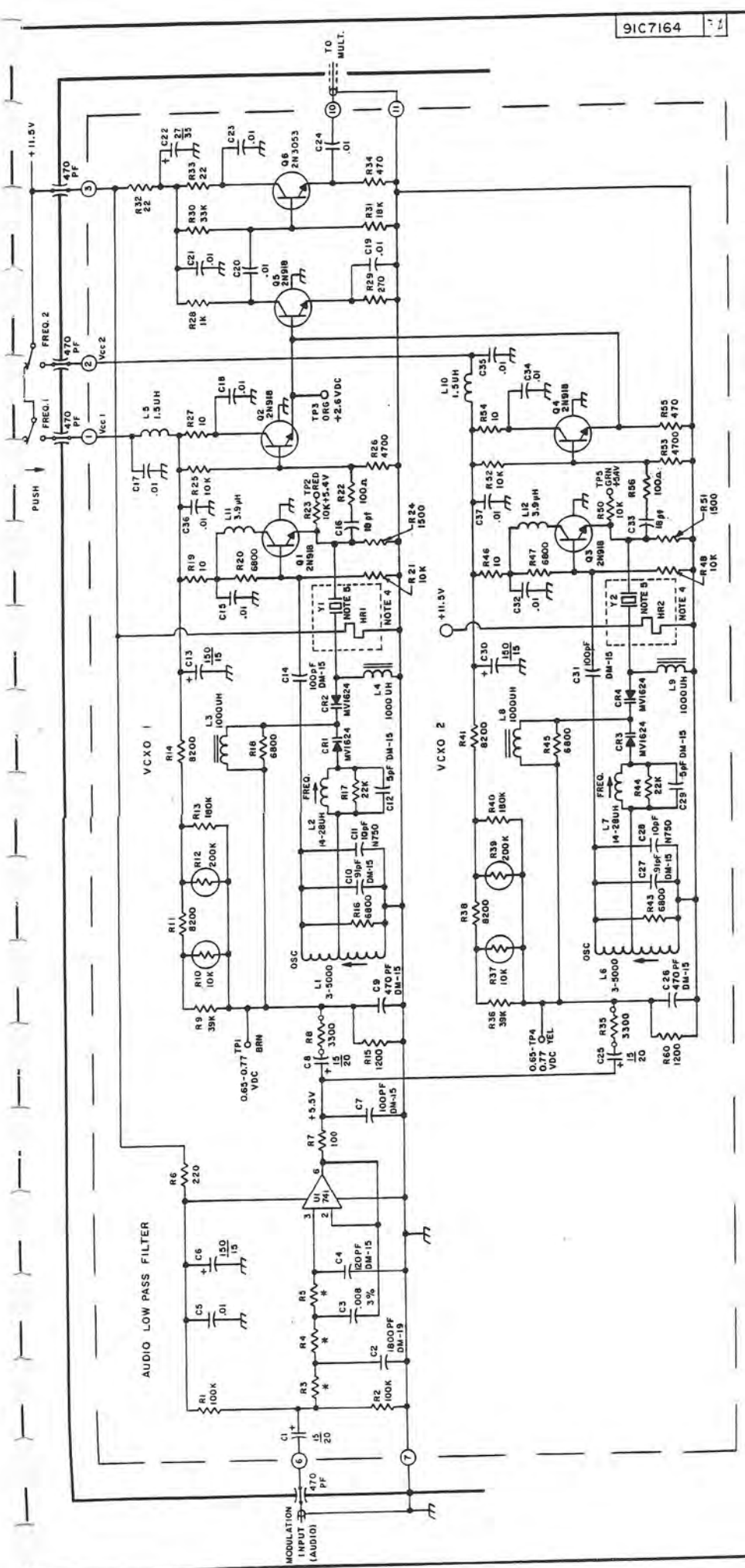
TOL: FRACT. $\pm 1/32$, XX $\pm .030$, XXX $\pm .010$, $< \pm 1/20$
DWN FXY 4/9/73 SCALE: FULL
CHK
ENG

MGMT. APPR.

REVISIONS	
DATE	
21 MARCH 75	L1
A	OAI WAS MOUNTED VERT
B	ADD GOLD WIRES, ADD BRACKET JHM 20 NOV 75
C	ADD TRANSFORMER I.D. B72 3-21-77 JAM
D	ADD FLAT WASHER TO T1 & T2. 30MMX78 BWF
E	27 FEB. 79 ECO1063A JB
F	R53 WAS 68K. ECO 1116
G	ECO 118K 27JUN79
H	ECO1423 90CT79 DTW
I	CLARIFIED DETAIL DVG
J	ADDED TERMINALS & NOTE 6
K	27 FEB. 79 ECO1063A JB
L	ADD FLAT WASHER TO T1 & T2. 30MMX78 BWF
M	ECO1423 90CT79 DTW
N	CLARIFIED DETAIL DVG
O	ADDED TERMINALS & NOTE 6
P	27 FEB. 79 ECO1063A JB
Q	ADD TRANSFORMER I.D. B72 3-21-77 JAM
R	ADD GOLD WIRES, ADD BRACKET JHM 20 NOV 75
S	OAI WAS MOUNTED VERT
T	21 MARCH 75

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5/71 DIETERICH-POST CLEARPRINT 1020-8



* VARIABLE COMPONENTS

R3, R4, R5	8200 Ω	(RPL-4B)
15 KHz LPP	10 K	(RPL-3A, RPL-4A)
7.5 KHz LPP		

- NOTES:
- UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.
 - P.C. BOARD 51A5821-01, REV.-B
 - COMPONENT LAYOUT 20A2744.
 - HRI & HR2 ARE PROPORTIONAL CONTROL HEATERS.
 - FREQUENCY Y1 BYZ
140-170 MHz 30A0059
215-240 MHz 30A0060
420-470 MHz 30A0058
 - R35 SELECTED AND INSTALLED BY TEST.

20A2570

LI

GROMMET G4-02

NOTE 6. * TYPICAL VALUES

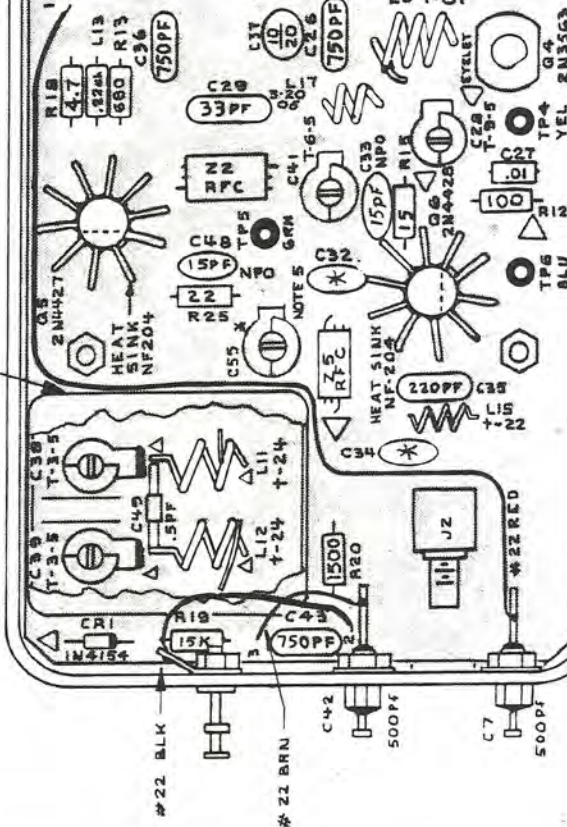
ITEM 1	C5	C6	C8	C10	C13	C31	C32	C34	C40	C55
	5.8PF	10PF	250PF	270PF	250PF	10PF	33PF	15PF	10PF	T-6-5
ITEM 2										
	6.8PF	10PF	220PF	200PF	240PF	10PF	15PF	68PF	10PF	OMIT
ITEM 3										
	15PF	15PF	330PF	360PF	360PF	15PF	33PF	15PF	15PF	T-6-5

400 - 440 MHZ
440 - 470 MHZ
370 - 400 MHZ

LI1-LI2 SPACING

1" MAX.

SHIELD TO BE
INSTALLED BY TEST
SHIELD 5A2+25



LABEL
20A2570

ENCLOSURE 5B2430

NOTCH DENOTES
+ SIDE

MOUNT C2, 0.1 CAPACITOR
ABOVE R3

TAP
DETAIL

L12

L11

DO NOT STRETCH
COIL L11, L12TYP COIL
MOUNTING

1/8" MAX.

NOTES

1. UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS. 1/4W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.

2. ↓ DENOTES ROTOR SIDE

+ " COIL 3-2001-()
* " TORROID 3-3001-()
△ " SOLDER BOTH SIDES OF P.C. BOARD.

SOLDER ALL COMPONENTS TO GND PLANE WHERE POSSIBLE.

3. P.C. BOARD 51A5708-01

4. SCHEMATIC 91C6900

5. INSTALL C32 1/8" OFF OF BOARD.

USED ON: SEE 92C1177



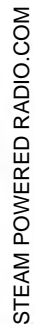
MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT
450MHZ MULT/DRIVER XMTR

TOL: FRACT. ± 1/32, .XX ± .030, .XXX ± .010, < ± 1/2°
DWN G-M 3-18-76 SCALE: FULL
CHK FXY 6APR 76
ENG E.H. 4-6-76

REVISIONS	DATE	MGMT. APPR.
A	3-19-76 PER E.C.D. 800. REWORK AND VALUE CHGS	
B	WAS 470A. 5-13-76 DELETE C47 & R14, R6	
C	PER E.C.D. 822. 5-30-76 JUMPER (ON) OF Q5 & CHG5	
D	HEAT SINK WAS NF-204 & ADDED ECO 851 22 DEC 76 FXY	
E	PER ECD 860 3 FEB 77 B.H.	
F	C32 WAS 10PF NPO	
G	PER ECD 860 3 FEB 77 B.H.	
H	ADDED C32-54. ADDED R24. VALUE CHANGE PER ECD 928.	
I	ADDED C32-54. ADDED R24. 2 MARCH 78 FLYING	
J	CHANGED .01M CAPACITORS. C2, C15, 20, 21, 22, & 27. PER ECD 903	
K	ADDED TO NOTE 6. ECO 115B 2 JUN 80 D.T.W.	
L	C5 C6 C31 C40 AND ITEM 3 ADDED TO NOTE 6.	
LI	ADD USED TERM TO DWG. 1 AUG 80 RCO 1517 A.D.	

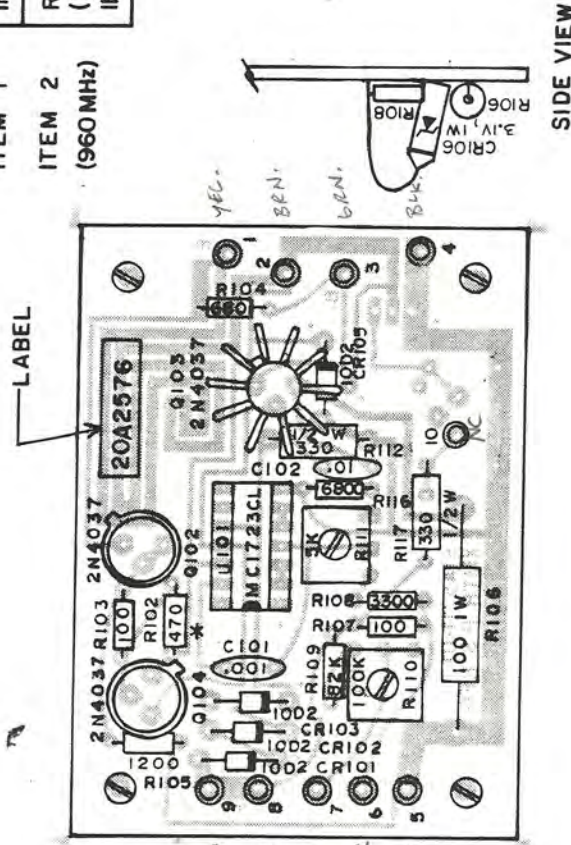
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- ITEM 1

INSTALL RI07 AS SHOWN
- ITEM 2

REMOVE RI07, INSTALL CRI06 (3.1V, 1W ZENER) AS SHOWN IN SIDE VIEW



- NOTES
1. UNLESS OTHERWISE SPECIFIED ALL RESISTOR VALUES ARE IN OHMS 1/4W, 10 %

CAPACITOR VALUES ARE IN MICROFARADS.
2. P. C. BOARD 51A5711

3. SCHEMATIC 91B6908

4. * DENOTES SELECTED VALUE, TYPICAL 470 OHM.

USED ON : SEE 92C1177

MOSELEY ASSOCIATES, INC.

SANTA BARBARA RESEARCH PARK

GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT

X MTR P.S. REG

TOL: FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $< \pm 1/2^{\circ}$

DWN L.I. 30APR76 SCALE: FULL

CHK FXY 7 MAY 76

ENG 8/18/82 562

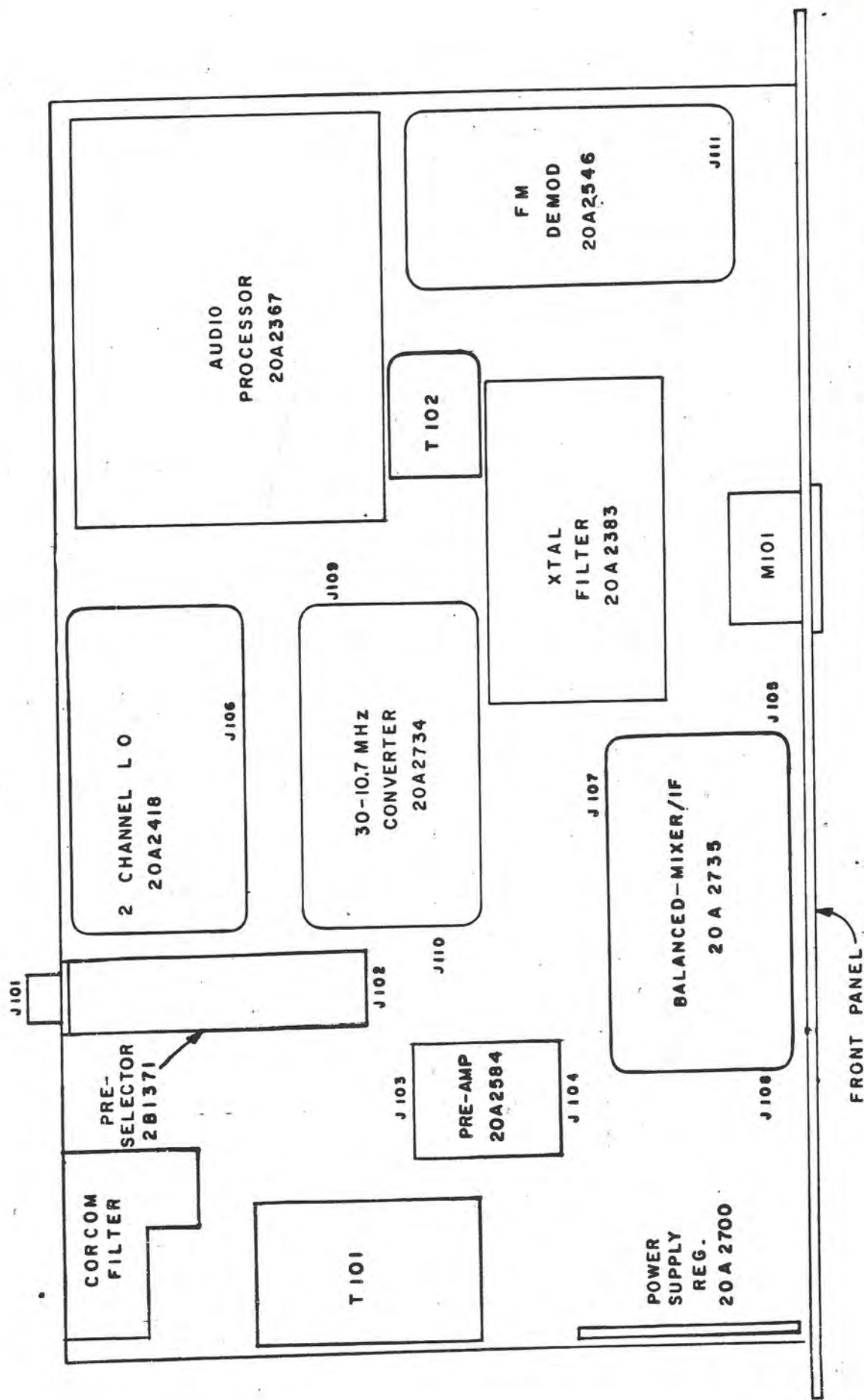
20A2576 F

MGMT. APPR.

DATE

REVISIONS

A	Q106 WAS 2N4037	1.1.
B	ADD RI02 VALUE	15DEC76
C	RI03 WAS 680, RI05 WAS 820, F.X.Y.	20DEC76
D	REMOVE RI03-15, CRI04, Q105 & 6. ADD ITEM 2 ECD 887	7JUN77
E	ADD RI17, ECD 1064 & 1065 (HNS, NOTE 4 18JAN79, F.X.Y.)	
F	LI01 READED IC	5 JUL 80 ECD 1757-AJ.B.



M MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

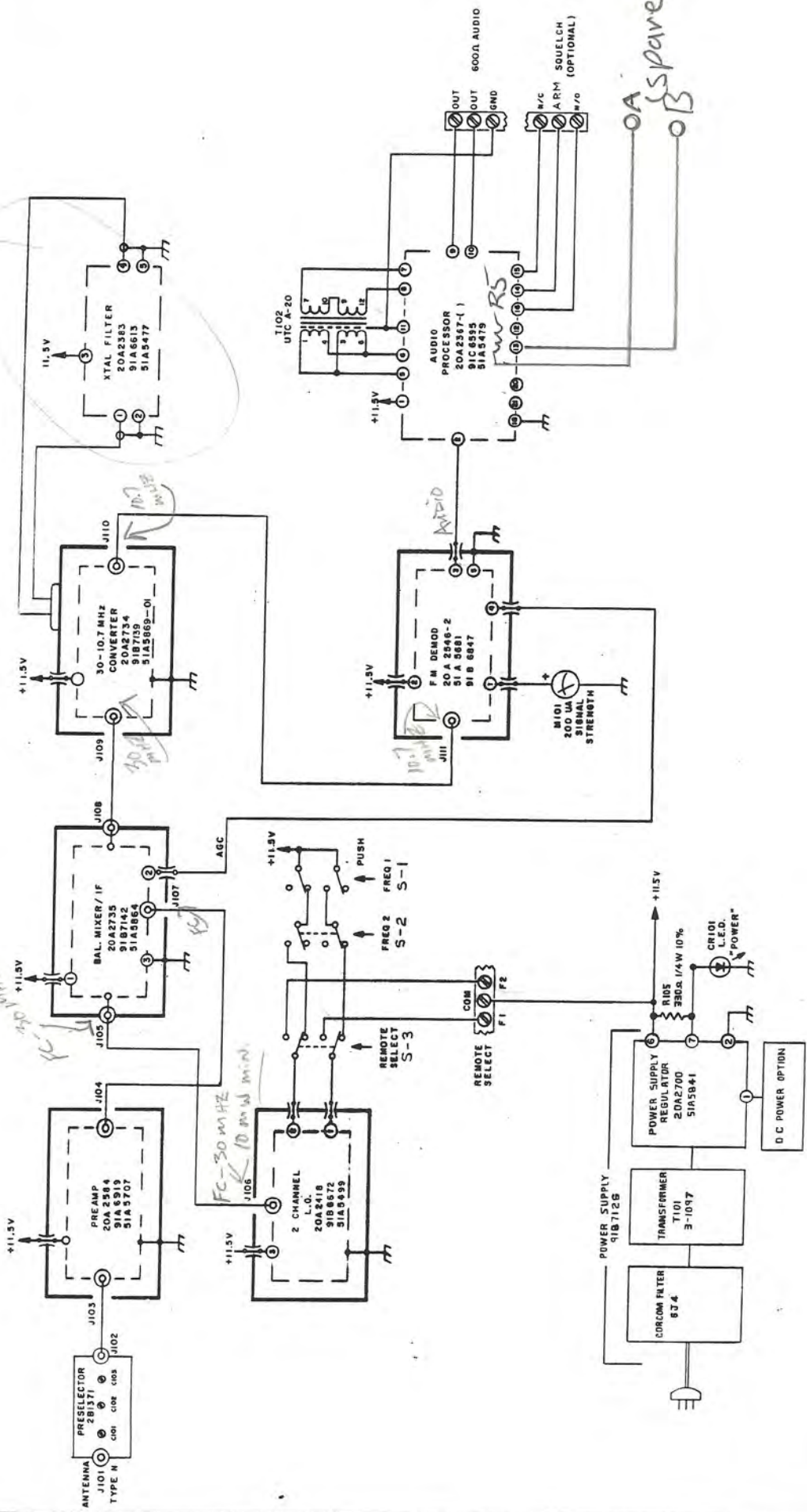
FIGURE 2

RPL-4 RECEIVER LAYOUT

TOL: FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX
DWN F XY 6/28/73 SCALE: 1/2

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10/21 DIETBICH BOY CLEARPRINT 1020-8



NOTES
 1. P.C. BOARDS ARE SHOWN IN DASH LINES.
 20 PREFIX IS MODULE NUMBER. - () DETERMINES FREQUENCY.
 31 PREFIX IS SCHEMATIC DRAWING NUMBER.
 51 PREFIX IS P.C. BOARD NUMBER.

MOSELEY ASSOCIATES, INC.		SCHEMATIC		RPL-4 RECEIVER 450-470MHz	
DATE	REV	DATE	REV	DATE	REV
10/1/70	1	10/1/70	1	10/1/70	1
10/1/70	2	10/1/70	2	10/1/70	2
10/1/70	3	10/1/70	3	10/1/70	3
10/1/70	4	10/1/70	4	10/1/70	4
10/1/70	5	10/1/70	5	10/1/70	5
10/1/70	6	10/1/70	6	10/1/70	6
10/1/70	7	10/1/70	7	10/1/70	7
10/1/70	8	10/1/70	8	10/1/70	8
10/1/70	9	10/1/70	9	10/1/70	9
10/1/70	10	10/1/70	10	10/1/70	10
10/1/70	11	10/1/70	11	10/1/70	11
10/1/70	12	10/1/70	12	10/1/70	12
10/1/70	13	10/1/70	13	10/1/70	13
10/1/70	14	10/1/70	14	10/1/70	14
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10/1/70	28	10/1/70	28	10/1/70	28
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10/1/70	52	10/1/70	52	10/1/70	52
10/1/70	53	10/1/70	53	10/1/70	53
10/1/70	54	10/1/70	54	10/1/70	54
10/1/70	55	10/1/70	55	10/1/70	55
10/1/70	56	10/1/70	56	10/1/70	56
10/1/70	57	10/1/70	57	10/1/70	57
10/1/70	58	10/1/70	58	10/1/70	58
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10/1/70	66	10/1/70	66	10/1/70	66
10/1/70	67	10/1/70	67	10/1/70	67
10/1/70	68	10/1/70	68	10/1/70	68
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10/1/70	82	10/1/70	82	10/1/70	82
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10/1/70	97	10/1/70	97	10/1/70	97
10/1/70	98	10/1/70	98	10/1/70	98
10/1/70	99	10/1/70	99	10/1/70	99
10/1/70	100	10/1/70	100	10/1/70	100



- 1 UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%.
CAPACITOR VALUES ARE IN MICROFARADS.
- 2 P.C. BOARD 51A5707
- 3 SCHEMATIC 91A6919.
- 4 • DENOTES SOLDER ON TOP SIDE OF BOARD

USED ON: SEE 92C1176



MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT

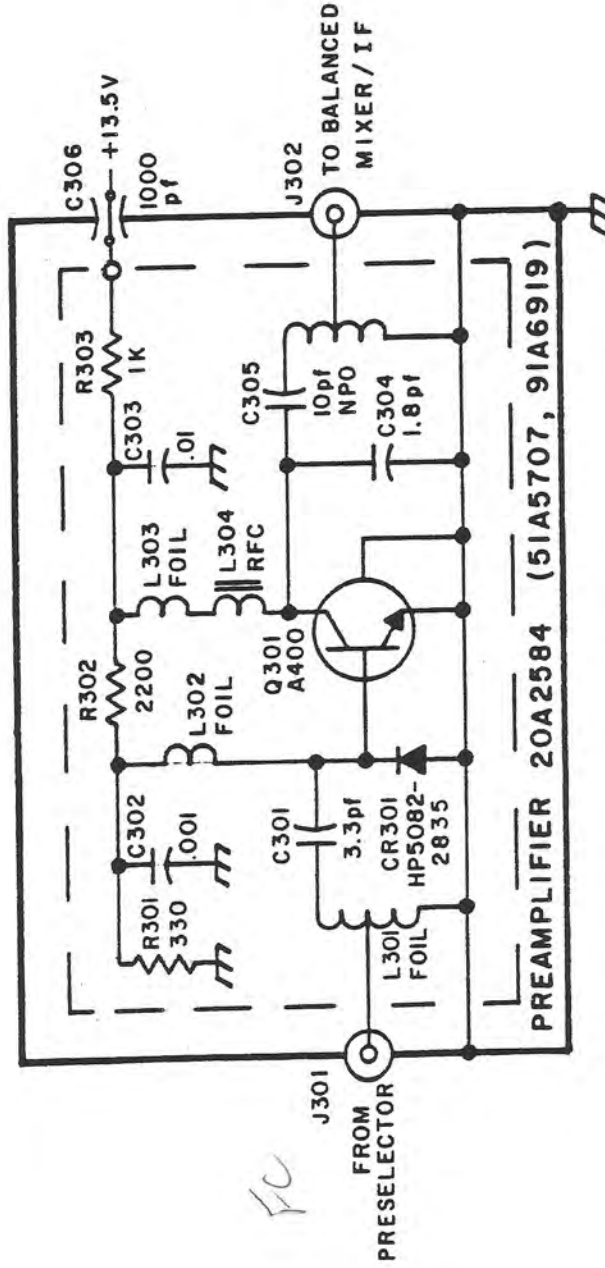
TOL: FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $\angle \pm 1/2^\circ$

DOWN	F X Y	28 JUN 76	SCALE:
------	-------	-----------	--------

CHK		
ENG	207	29 JUN 76

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THE DISTRICT OF COLUMBIA



NOTES:

- 1 UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%.
CAPACITOR VALUES ARE IN MICROFARADS.
- 2 P.C. BOARD 51A5707.
- 3 COMPONENT LAYOUT 20A2584.

MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93011

SCHEMATIC
RCVR 450 MHz PREAMPLIFIER

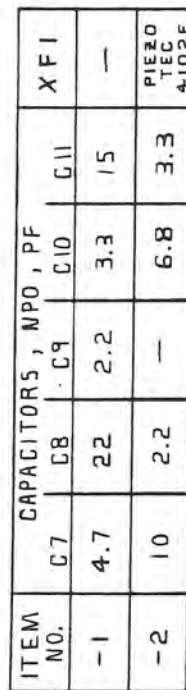
TOL: FRACT. $\pm 1/2\%$, .XX $\pm .02\%$, .XXX $\pm .01\%$, $< \pm 1/2\%$
DWN FXY 25JUN76 SCALE:
CHK
END 20A2584 29JUN76

DATE

REVISIONS

91A6919

STEAM POWERED RADIO.COM



8 FOR ITEM 2 C9 IS REPLACED BY XFI.

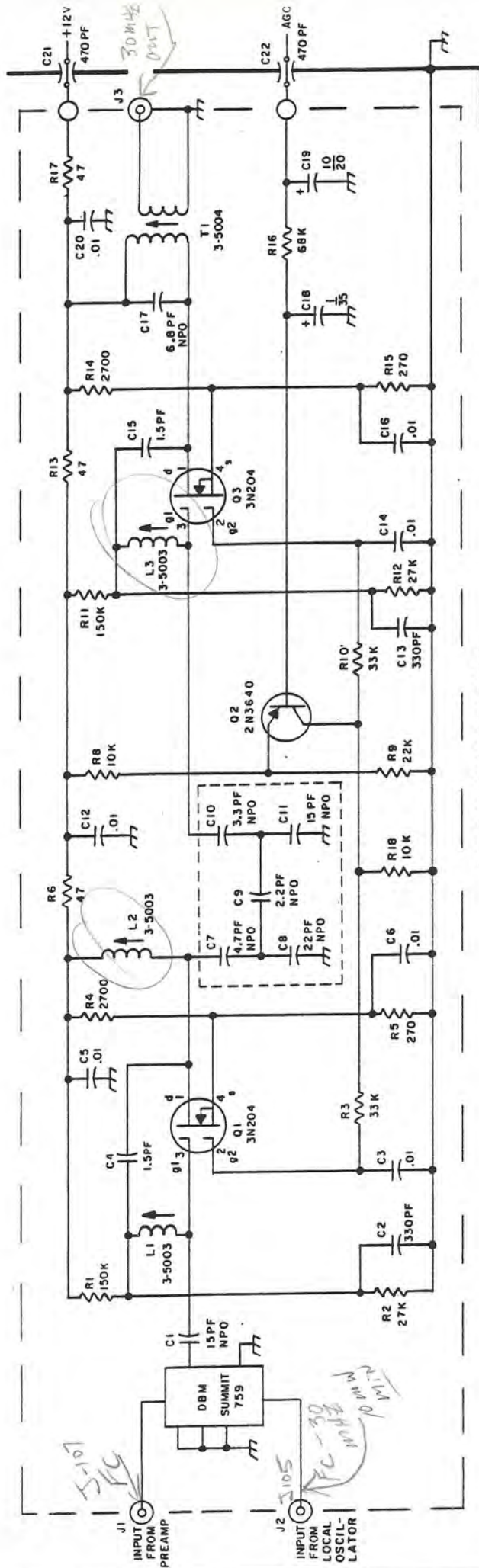
USED ON: SEE 92C1176

MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

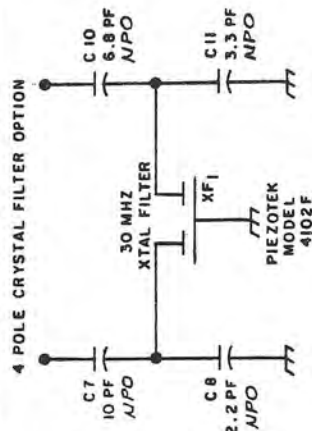
COMPONENT LAYOUT

TOL: PRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $\angle \pm 1/2^\circ$	
DWN	BWF 26 DEC 78
CHK	SCALE: 1:1
ENG	DAC 19 JAN 79
	20A 2735
	C2

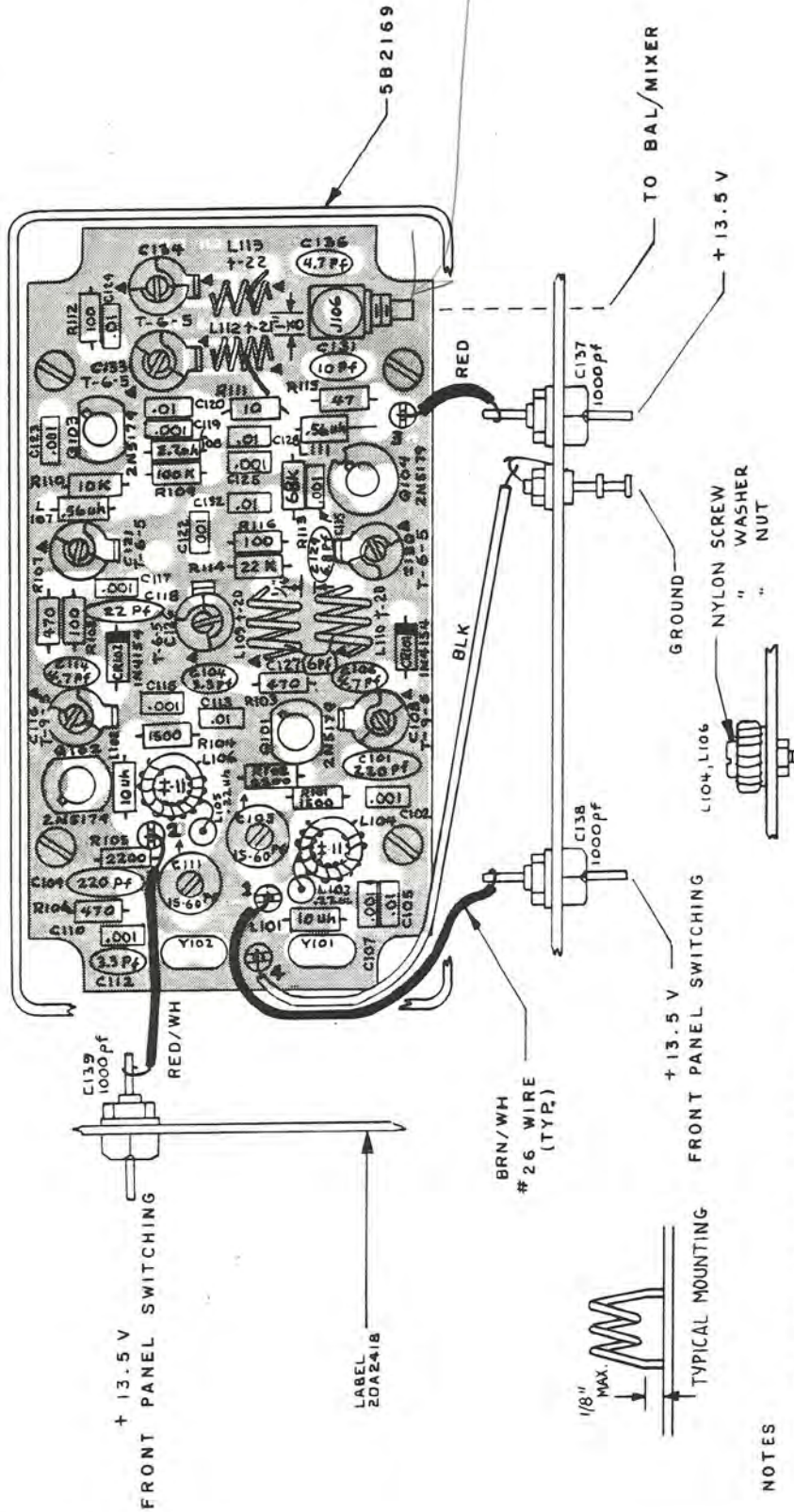
REVIEWS		DATE	MGMT. APPR.
A	RELEASED.	25 JAN 79 F.X.Y.	
B	ADDED NOTE # 2	20 APR 79 ECO 109B A.J.B.	
B1	CHANGED AND LABEL ADDED PC01486, NOTE 7 ADDED PC01484; 12DEC79 DTW.		
C1	ADDED ITEM NO. 1-2, ADDED NOTE 8, PC01629 3-4-80 J.C.R.		
C2	CHANGED "U" NOS. PER PC01706 L.D.H. 30-APR 80		



CRYSTAL FILTER FIELD INSTALLATION



STEAM POWERED RADIO.COM



NOTES

1 UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10 %
CAPACITOR VALUES ARE IN MICROFARADS

2 P C BOARD 51A5499

3 SCHEMATIC 91B6672

4 † DENOTES COIL 3-2001-()

5 ‡ DENOTES TOROID 3-3001-()

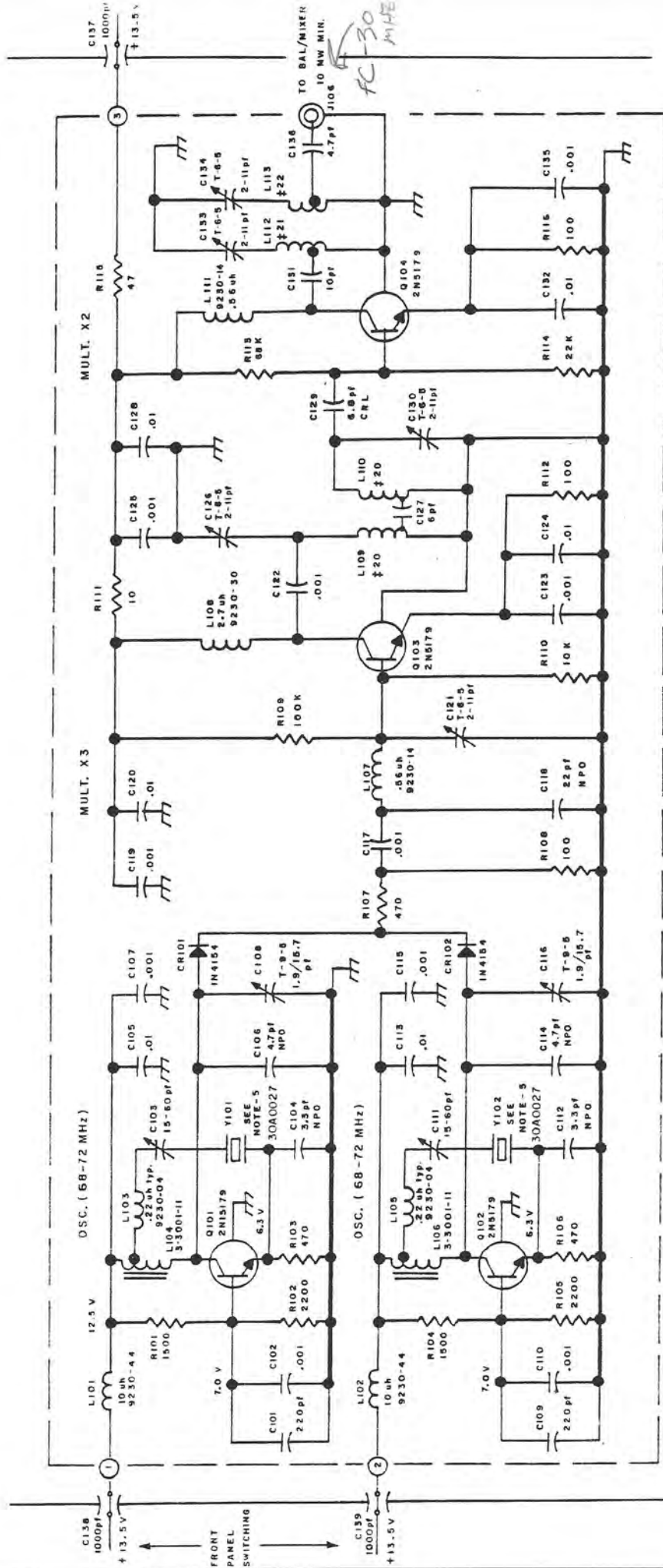
6 Y 101, Y102 = FC-30.000 MHz (30A0027)

6

7 ▲ DENOTES SOLDER ON TOP SIDE OF BOARD.

REVISIONS		DATE		MGMT. APPR.	
A	VALUE CHANGES PER ECO # 640	JHM	19 FEB 74		
B	CORRECT L103 TURNS	JHM	22 MAR 74		
C	REVISE L109 L110 L112 & L113. ADD MOUNTING VIEWS. 28 AUG 75 F.X.Y.				
D	REMOVE RED LABEL ON BRN/WHT WIRE JHM 24 OCT 75				
E	DELETED Z101 PER E.C.O. 775. 12-10-75 GM				
F	TYPE CHG PER E.C.O. 703. 10 MARCH 78 FH				
G	OVERLAY CHANGE. D.T.W.				

MOSELEY ASSOCIATES, INC.		SANTA BARBARA RESEARCH PARK		GOLETA, CALIFORNIA 93017	
COMPONENT LAYOUT		2 CHANNEL LO RPL-4 RCVR		20A2418	
TOL: FRACT. ± 1/32, .XX ± .030, .XXX ± .010, < ± 1/2"		DWN JHM	12-13-73	SCALE:	
CHK FXY	12/17/73	ENG SLM	17 DEC 73		
					F1



NOTES

1 UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS, 1/4 W. 10%
CAPACITOR VALUES ARE IN MICROFARADS

2 P C BOARD 51A3499

3 COMPONENT LAYOUT 20A7418

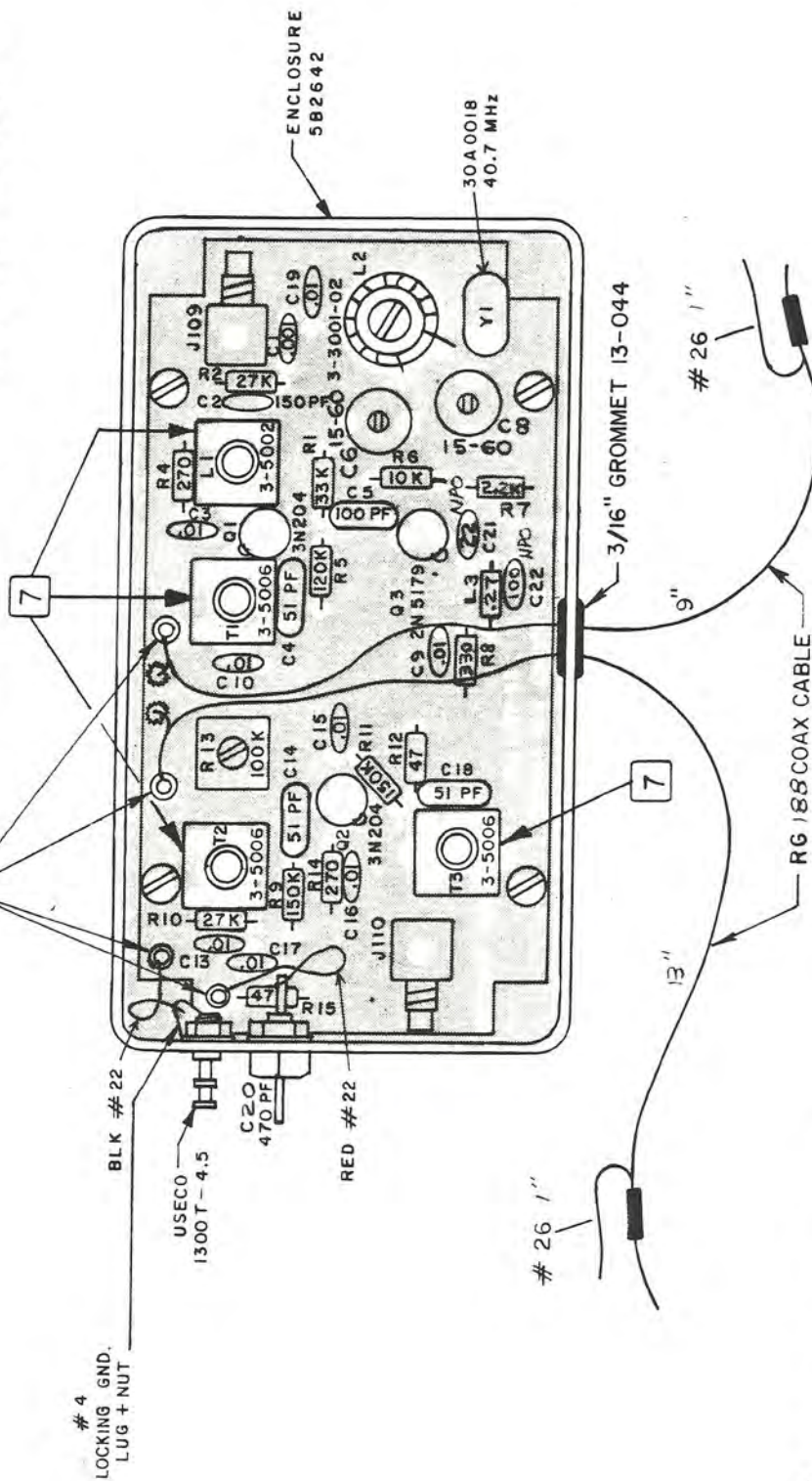
4 4 DENOTES COIL 3-2001-1

5 Y101 AND Y102 FC-30.000 MHz

STEAM POWERED RADIO.COM

MOSELEY ASSOCIATES, INC.	
SANTA BARBARA RESEARCH PARK	
GOLETA, CALIFORNIA 9017	
SCHEMATIC	
2 CHANNEL LO RPL-4 RCVR	
TOL: FRACT. $\pm 1/32$	XX $\pm .030$, XXX $\pm .010$, $\pm 1/2$
DWN	JANA 12-9-73 SCALE
CHK	FXY 12/17/73
ENG	STW 12/22/73
91B6672 B	

INSTALL SWAGED TERMINAL POSTS. USECO 2520 B-4.5 (23-015)



NOTES

- UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%.
CAPACITORS ARE IN MICROFARADS.

- 2 P. C. BOARD 51A 5869-12, 22

- 3 SCHEMATIC 91B7139

- 4

- 5

- 9

- 7 REMOVE THE 8/32 SCREWS FROM T₁, T₂, T₃ & L₁ AFTER THEY HAVE BEEN SOLDERED IN PLACE AND INSTALL THE SAME COLOR THREADED CORE AS APPEARS ON TOP OF THE CUP AS SEEN THRU THE TOP OF THE CAN.

STEAM POWERED RADIO.COM



SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT

30-10.7 MHz CONVERTER RCVR

TOL: FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $\angle \pm 1/2^\circ$

NMD	BWF	22 DEC 78	SCALE:
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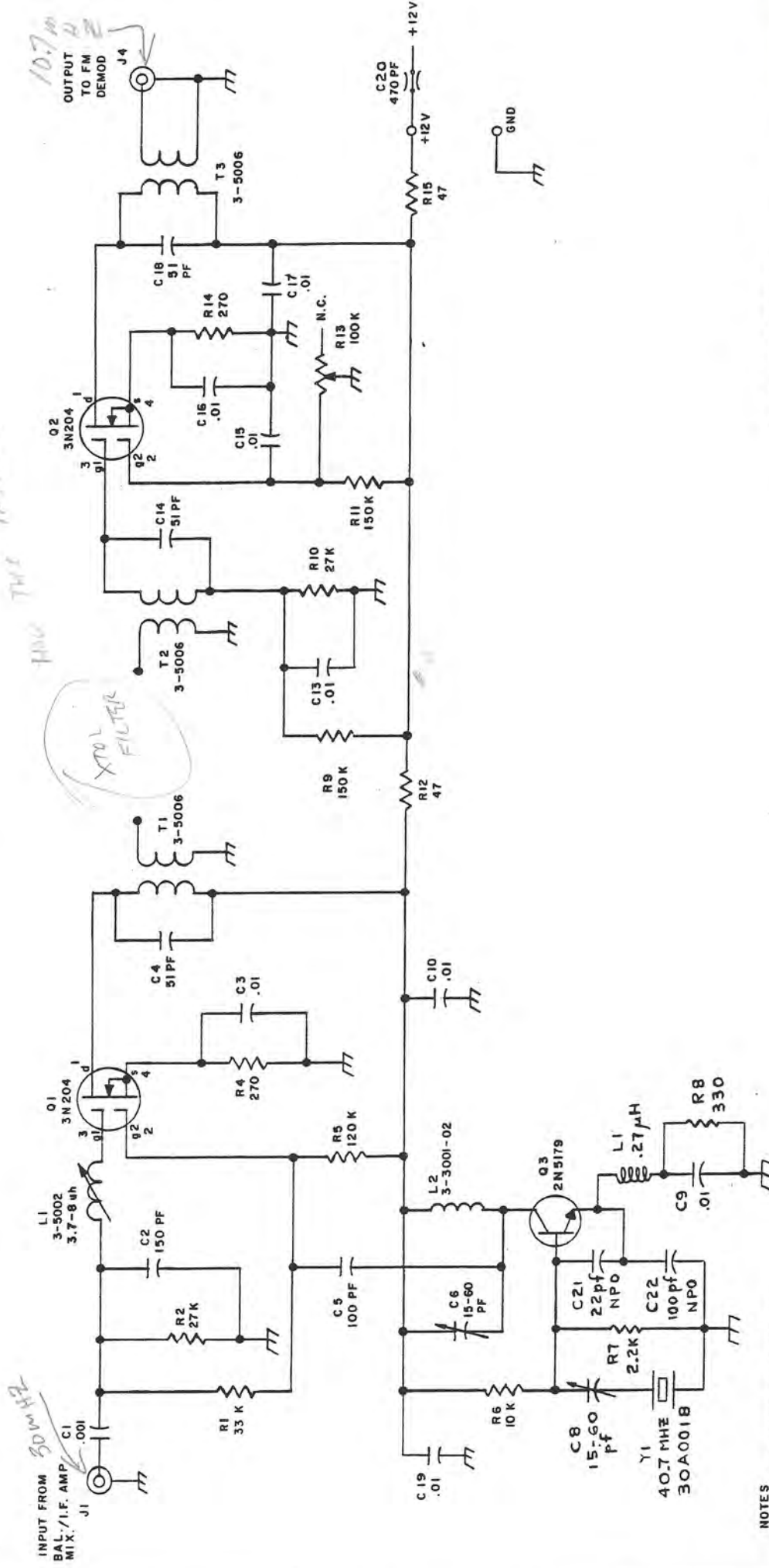
CHK			
-----	--	--	--

ENG	DAC	19 JAN 79
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20A2734	E4
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76 DIETRICH-POST CLEARPRINT 1020-8

91B7139 C4



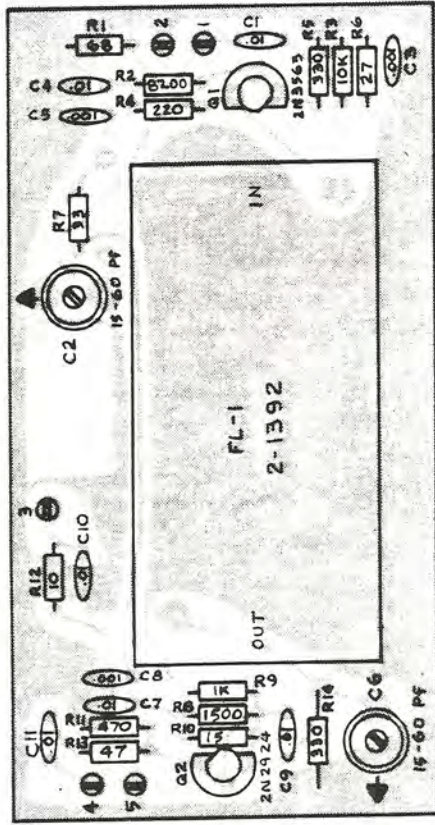
- NOTES
- 1 UNLESS OTHERWISE SPECIFIED RESISTORS ARE IN OHMS, 1/4 W, 10% CAPACITORS ARE IN MICROFARADS.
 - 2 P.C. BOARD 51A5869
 - 3 COMPONENT LAYOUT 20A 2734

MOSELEY ASSOCIATES, INC.		SANTA BARBARA RESEARCH PARK		GOLETA, CALIFORNIA 93117	
SCHEMATIC		30-10.7 MHz CONVERTER		SCALE: 1/2" = 1"	
TOL. FRACT. ± 1/2%	XX ± 5%	XXX ± 10%	± 1/2"	DATE	
DWN	AWF	12 DEC 78	1/2" = 1"	REVISIONS	
CHK	1/2	7-12-79	1/2" = 1"	DATE	
ENG	1/2	1/2/79	1/2" = 1"	DATE	
91B7139		C4		91B7139	

STEAM POWERED RADIO.COM

PRINTED ON DIETRICH-POST CLEARPRINT 1020-8

HDD 1-5700-20



NOTES:

1. UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.

2. P.C. BOARD 51A5477

3. SCHEMATIC 91A6613

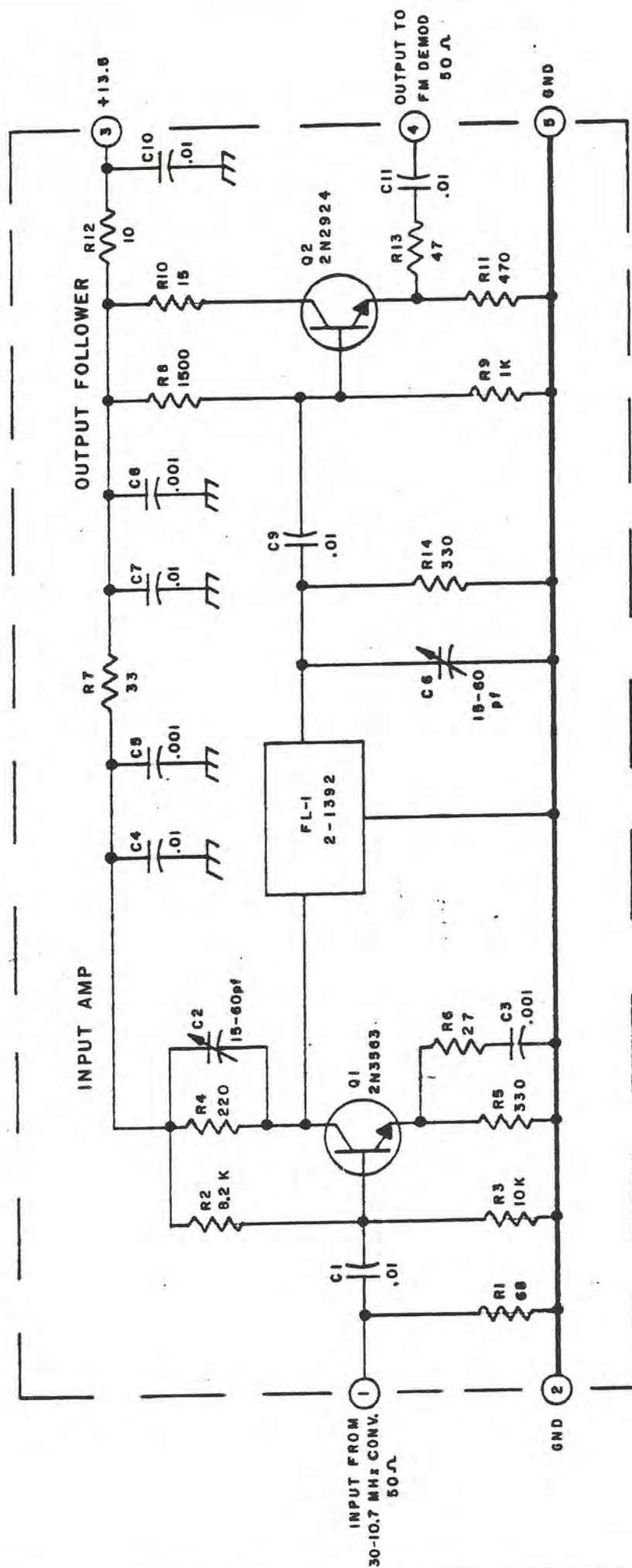
USED ON
PCL-101 RCVR
RPL-4 "

MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

**COMPONENT LAYOUT
XTAL FILTER INTERFACE**

TOL: FRACT. $\pm 1/22$, .XX $\pm .030$, .XXX $\pm .018$, $\angle \pm 1/2^{\circ}$	DWN	REB	9-24-73	SCALE: FULL
CHK	FXY	9/27/73		
ENG	SLM	20A2383		

MGMT. APPR.		REVISIONS		DATE	
A	BOARD REVERSED	REB	9-26-73		
B	Q-2 WAS 2N5563	R-2 WAS 47K	12-14-73		
C	FL-1 WAS A4880 KF 67AN75				
D	ARTWORK REV. B				
E	ECO 914, 8 DEC 77	FXY			
F	FLI WAS 2A1376				
	50A0056 TO 2-1392 19 DEC 77 FXY				



NOTES:

- 1 UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4W, 10%.
CAPACITOR VALUES ARE IN MICROFARADS.

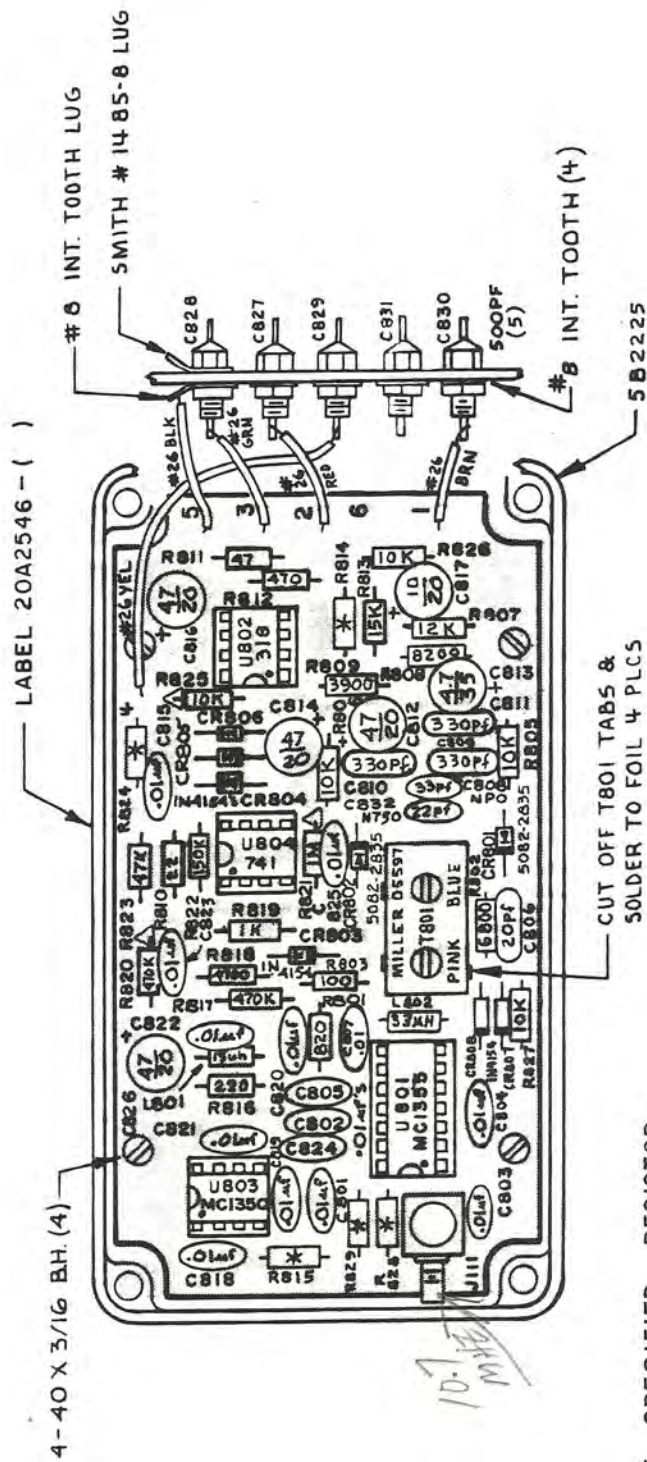
- 2 P.C. BOARD 91A6613.
- 3 COMPONENT LAYOUT 20A2383.

USED ON:
SEE 92C1176

MOBELEY ASSOCIATES, INC.
 SANTA BARBARA RESEARCH PARK
 GOLETA, CALIFORNIA 93017

SCHEMATIC
XTAL FILTER INTERFACE

TOL. FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $< \pm 1/2$		SCALE:
DWN	F X Y	6/25/73
CHK		
ENG	SLM	11 Sep 73
91A6613		E



NOTES:

1. UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS 1/4 W, 10%, CAPACITOR VALUES ARE IN MICROFARADS.
2. P.C. BOARD 51A5681.
3. SCHEMATIC 91B6847.
4. Δ SOLDER RESISTOR LEADS ON BOTH SIDES OF P.C. BOARD

5. * = PARTS DEPENDENT ON DEVIATION - VALUES FOLLOW:

	R815	R828	R829	R814	R824	DEV
ITEM 1	47	DELETE	JUMPER W/TEFLON	680K	1500	5KHZ
ITEM 2	27	56	680	470K	1500	12KHZ
ITEM 3	27	56	680	470K	JUMPER W/TEFLON	12KHZ



MOSELEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT

RCVR FM DEMOD & MTR AMP

TOL: FRACT. $\pm 1/32$, .XX $\pm .030$, .XXX $\pm .010$, $< \pm 1/2$

DWN G-M 8-29-75 SCALE: FULL

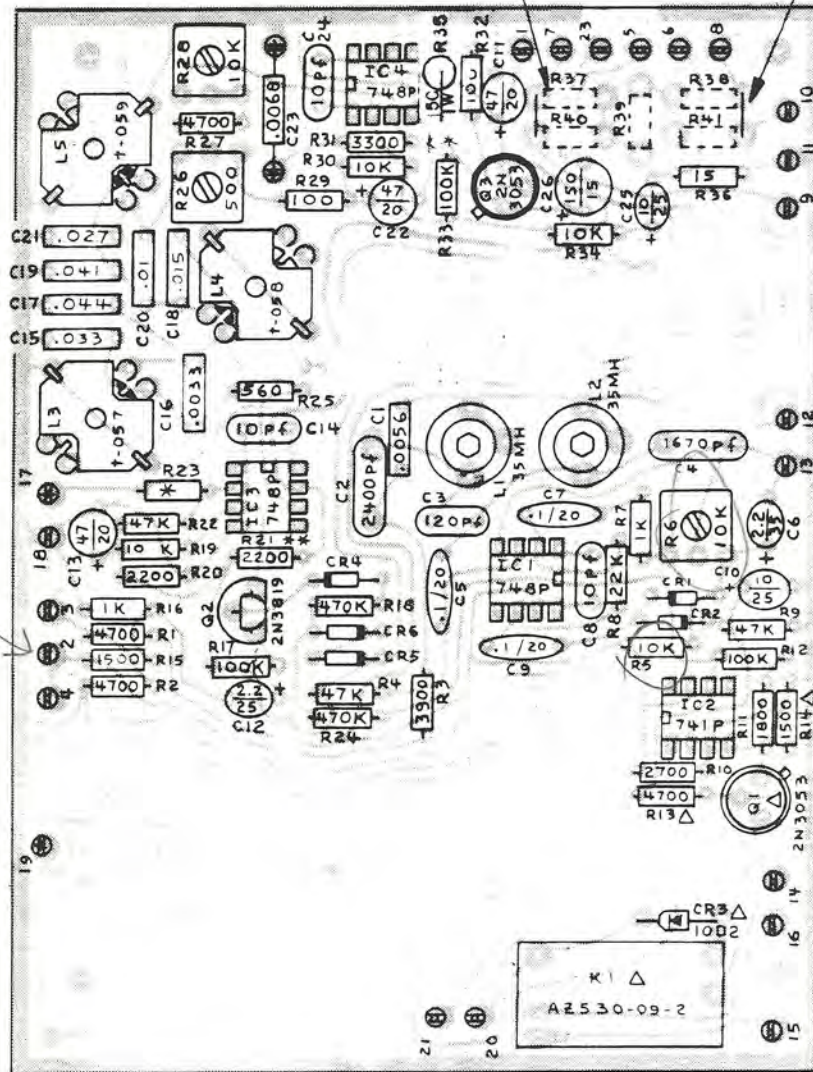
CHK FXY 11 SEP. 75

ENG 20A2546 L1

MGMT. APPR.

DATE	REVISIONS
9-24-75	1
R812 WAS 100K	
G-M	
12-17-75	2
ADD CR807, CR808, R827, L802	
ADD CR808, R814, CR809	
ADD CR808, R814, CR809	
PER R808, 18 MAY 76 F.X.Y.	
ADD R824, R828, R829 & CR829	
R814 WAS IM1C0712 TDEC77 F.X.Y.	
R805 & 804 WERE 470K, R826 WAS 47K	
WITH ECO 912, 19 DEC 77 F.X.Y.	
T801 WAS 804 EFFECTIVE	
5/16" 30 DEC 77 F.X.Y.	
CR801 & CR802 HEIGHT WAS	
IN 4 F. ECO 944, 9 JUN 78 F.X.Y.	
L802 WAS 100K, CR801 & 2 WERE	
IN 4 F. ECO 944, 9 JUN 78 F.X.Y.	
7 AUG. 78	
A.J.B.	
5 HEIGHT REQD, ECO 960	
REMOVE CR801 & CR802 TO	
808, 28 AUG 80 A.J.B.	
CORRECTION: SHAW CR801, CR802	
808, 28 AUG 80 A.J.B.	
10-4, 9 FEB. 79 BWF	
CR817 WAS 47K, ECO	
1708 LDM 1 MAY 80	
"U11" WAS "J801" PER PCO	
U802, 804, 801, 803 REQD 1C	
8 JUN 80 ECO 1754 A.J.B.	
ECO 1810 LDM 14 JUL 80	
ADDED ITEM 3 TO TABLE	

Audio 7-107
1.0 Kp.



* FREQUENCY DEPENDENT PART
R23

ITEM 1 (148-174 MHz)	330 K
ITEM 2 (215-230 MHz)	330 K
ITEM 3 (450-470 MHz)	220 K

R37 THROUGH R41
OPTIONAL RESISTORS

JUMPER 2 PLACES IF OPTIONAL
RESISTORS NOT USED

USED ON

SEE 92C1176

STEAM POWERED RADIO.COM



MOBLEY ASSOCIATES, INC.
SANTA BARBARA RESEARCH PARK
GOLETA, CALIFORNIA 93017

COMPONENT LAYOUT AUDIO PROCESSOR RCVR

TOL. FRACT. $\pm 1/25$, .XX $\pm .030$, .XXX $\pm .016$, $< \pm 1/20$
DWN FXY 5/7/73 SCALE: FULL

CHK
ENG SCM 20 June 73 20A2367 H

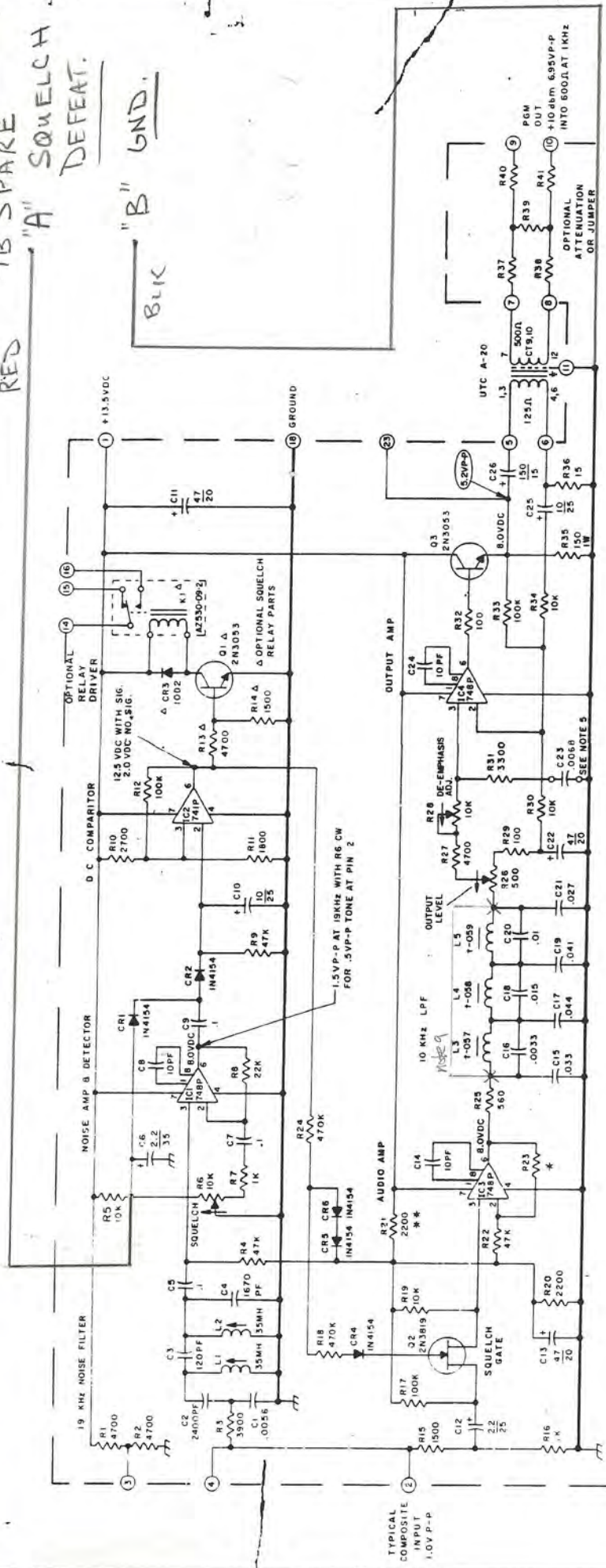
MGMT. APPR.	
REVISIONS	
DATE	
A	ADD NOTE FOR JUMPER WIRES B / 29/73
B	C12 WAS 10/25, ECO 613 10/11/73 REB
C	ADD NOTE "USED ON" 12-1-73 JAM
D	R31 WAS 1500 11/FEB/74 REB
E	24.3. ECO 634 CHANGE VALUES R15, ITEM ECO 767 10 NOV 75 P.X.Y.
F	R25 WAS 2502, R29 WAS 3902, DELETE ITEM 2
G	R35 WAS 1/4 W, R23 CHANGE 24 OCT. 78 BWF
H	R21 WAS 1500, ECO 974, 31 OCT 78 FXY
I	P.C. BOARD WAS 51A5479

NOTES

- UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4 W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.
- P.C. BOARD 51A5848
- SCHEMATIC 91C6595.
- DENOTES IN4154 DIODE.
- * DENOTES SELECTED VALUE.
- † DENOTES CUP CORE COIL 2C1400.
- REMOVE C23 TO REMOVE DEEMPHASIS.
- Δ OPTIONAL SQUELCH RELAY PARTS.

RED
TB SPARE
"A" SQUELCH
DEFEAT.

"B" GND.
BLK



* FREQUENCY DEPENDENT PART
993

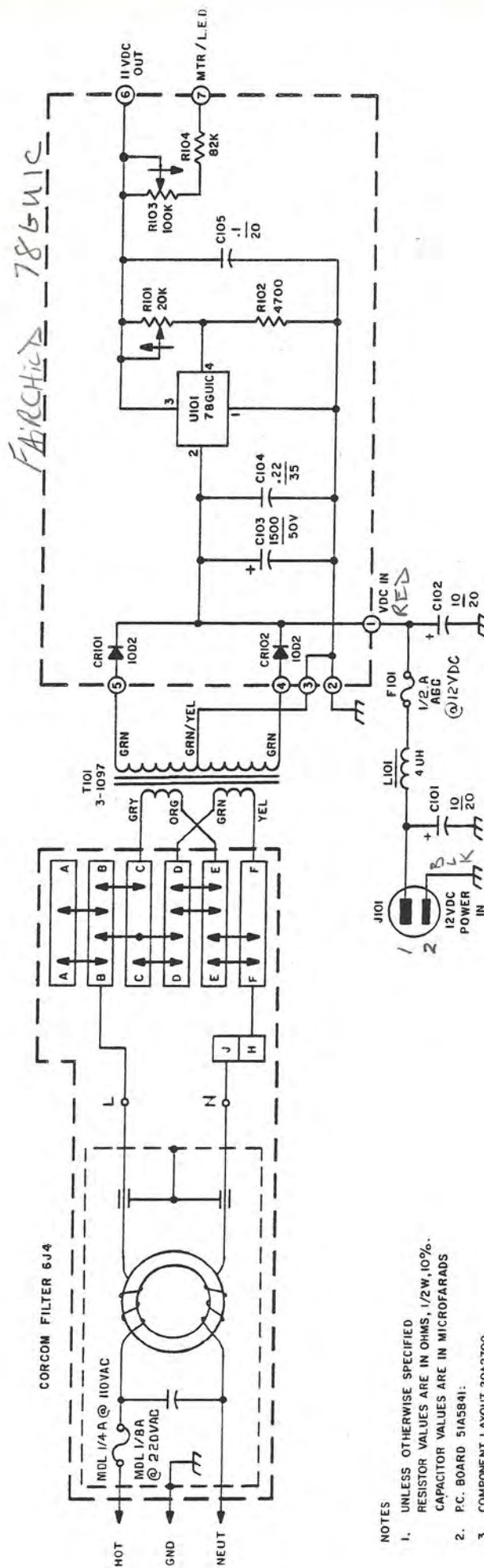
ITEM 1	148-174 MHz
ITEM 2	215-230 MHz
ITEM 3	450-470 MHz

NOTES:

- UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/4W, 10%
CAPACITOR VALUES ARE IN MICROFARADS.
- IC'S LISTED AS 741 (E.G.) ARE SN7241P
- P.C. BOARD: 51A2848
- COMPONENT LAYOUT: 20A2367
- * DENOTES SELECTED VALUE
- REMOVE C23 TO REMOVE DEEMPHASIS.
- T DENOTES CUP CORE COIL ZC1400.
- FOR PCM OUTPUT 86VP-P IS REQUIRED
AT PIN 2.
- READINGS AT 1KHZ

9 10kHz low pass filter bypassed for 15kHz audio response


MOSELEY ASSOCIATES, INC.
AUDIO PROCESSOR
RCVR
TOL. PARTS: 1/2W, 1/4W, 1/8W, 1/16W, 1/32W, 1/64W, 1/128W, 1/256W, 1/512W, 1/1024W, 1/2048W, 1/4096W, 1/8192W, 1/16384W, 1/32768W, 1/65536W, 1/131072W, 1/262144W, 1/524288W, 1/1048576W, 1/2097152W, 1/4194304W, 1/8388608W, 1/16777216W, 1/33554432W, 1/67108864W, 1/134217728W, 1/268435456W, 1/536870912W, 1/1073741824W, 1/2147483648W, 1/4294967296W, 1/8589934592W, 1/17179869184W, 1/34359738368W, 1/68719476736W, 1/137438953472W, 1/274877906944W, 1/549755813888W, 1/1099511627776W, 1/2199023255552W, 1/4398046511104W, 1/8796093022208W, 1/17592186044416W, 1/35184372088832W, 1/70368744177664W, 1/140737488355328W, 1/281474976710656W, 1/562949953421312W, 1/1125899906842624W, 1/2251799813685248W, 1/4503599627370496W, 1/9007199254740992W, 1/18014398509481984W, 1/36028797018963968W, 1/72057594037927936W, 1/144115188075855872W, 1/288230376151711744W, 1/576460752303423488W, 1/1152921504606846976W, 1/2305843009213693952W, 1/4611686018427387904W, 1/9223372036854775808W, 1/18446744073709551616W, 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NOTES

1. UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS, 1/2W, 10%.
CAPACITOR VALUES ARE IN MICROFARADS
2. P.C. BOARD 51A5841:
3. COMPONENT LAYOUT 20A2700.
4. R 103 AND R104 ONLY USED IN PCL - 101.

STEAM POWERED RADIO.COM

		MOSELEY ASSOCIATES, INC. SANTA BARBARA RESEARCH PARK GOLETA, CALIFORNIA 93011	
P. S. REGULATOR		SCHEMATIC	
RCYR		RCYR	
TOL: FRACT. $\pm 1/32$. .XX $\pm .39$. .XX $\pm .010$. $> 1/$		DIN 15917 SCALE:	
CHK	ENG	DATE	TIME
9/18/76	9/18/76	9/18/76	9/18/76

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