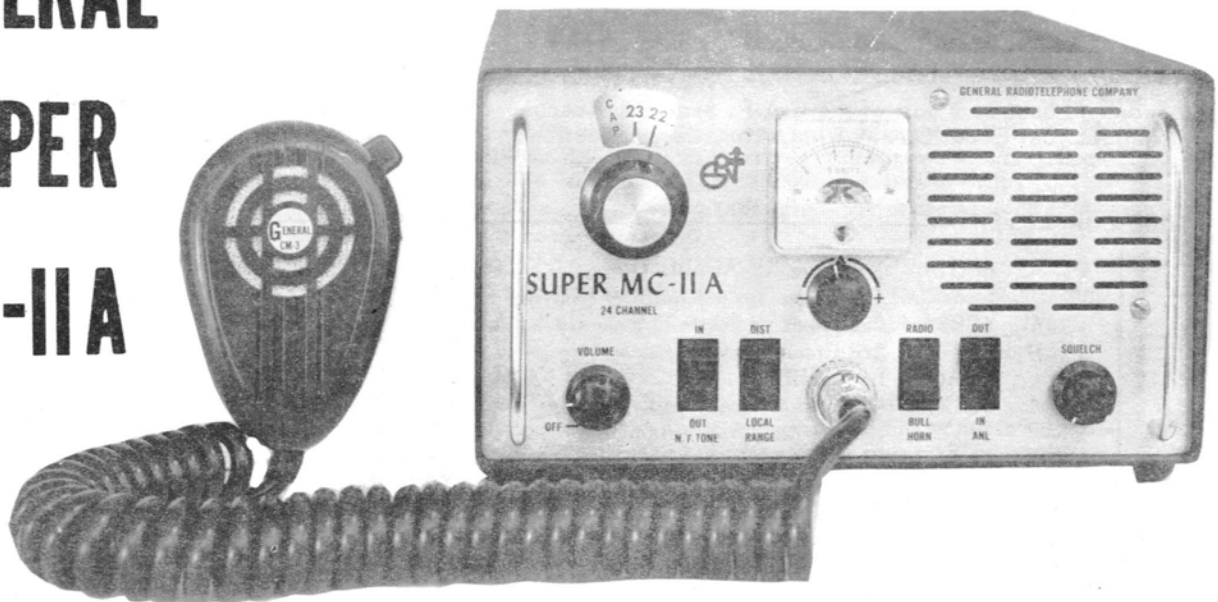


**TRANSISTORIZED POWER SUPPLY**  
**HIGH-LEVEL PUSH-PULL MODULATION**  
**DUAL CONVERSION RECEIVER**  
**"PASS BAND" FINE TUNE CONTROL**  
**24 CHANNEL**

**TURRETUNER®**

**'GENERAL'**  
**SUPER**  
**MC-IIA**



**GENERAL RADIOTELEPHONE COMPANY**  
3501 West Burbank Boulevard, Burbank, California. 91505. Telephone: (213)-849-6891

# TRANSCEIVER MODEL

# SUPER MC-11A

OCT. 10, 1968

## OPERATIONAL GUIDE

Dear Customer:

In order that you may obtain maximum operating range and long, useful life we sincerely suggest that you read the following carefully.

### SUPER MC-11A WARRANTY

All parts except transistors and chassis are warranted for a period of 90 days from date of purchase. Said warranty becomes void upon failure to return warranty registration within 10 days from date of purchase. Parts replacements will be made subject to examination by General Radiotelephone. Parts becoming defective from other than normal use or removed from units that have been otherwise modified to a point which in the opinion of the company does not constitute normal use, thereby voids any obligation to make repair and/or replacement of said part. Transformer and associated components which have been permanently damaged beyond repair due to obvious defeat of recommended fuse protection are not subject to warranty replacement. Defective parts having leads cut off will not be replaced. All repairs and/or replacements will be made F.O.B. factory only. Sets returned for realignment due to customer tampering will be charged \$10.00 minimum. General Radiotelephone assumes no liability for loss or damage in transit either to or from factory in uninsured parcels or due to improper packing. All sets returned to factory for repair must be in suitable container for shipment. When units are not packaged properly to prevent damage upon return the Company reserves the right to use and charge for packaging materials. This warranty is non-transferrable.

### WARNING

CIVIL AIR PATROL, Channel 26.620 MC, may be monitored. However, transmissions on this frequency are not permitted under C.B. License. Use is strictly limited to CAP members and/or those persons authorized by Local C.A.P. Authority.

If you desire to become a part of the C.A.P. Search & Rescue Team, contact your Local C.A.P. Wing, Attn. Communications Officer.

### WARRANTY AND OUT OF WARRANTY REPAIRS

REPAIR SERVICE: For distributors, dealers, or users, all service made beyond the 90-day warranty period on when warranty card has not been received

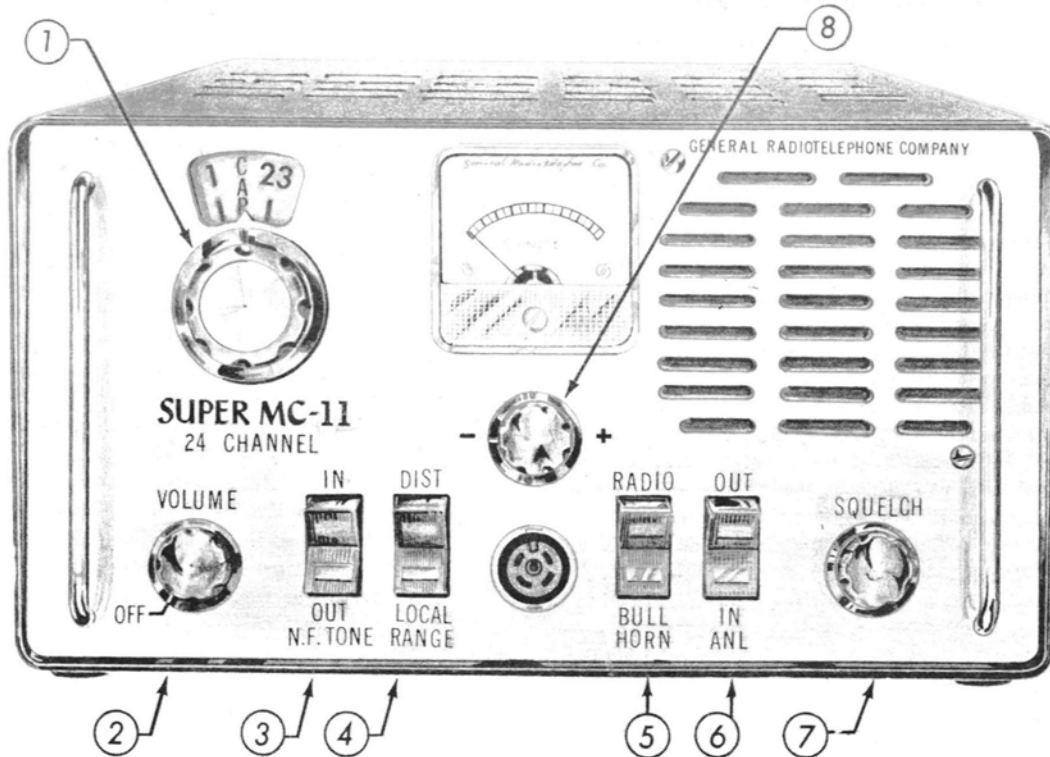
WILL BE RETURNED  
C. O. D.  
PLUS  
FREIGHT COLLECT

NOTE: The license and operational requirements for the MC-11 are subject to Part 95 FCC Regulations.

### TUBE COMPLEMENT

V1	6BQ7A	Receiver RF Amplifier	X1	IN914	AVC Clamp Diode
V2	6CW4	1st Mixer	X2	IN914	Detector Diode
V3-A	6GH8A	2nd Mixer	X3	IN914	ANL Diode
V3-B	6U8	2nd Convertor Osc	X4	IN914	Squelch Diode
V4	6BA6	IF Amplifier	X5	IN99	Meter Rectifier
V5-A	12AX7A	Microphone Pre-Amp.	X6	Rectifier, 750 ma, 600v Silicon	
V5-B	12AX7A	Rec. & Xmit Audio Amp.	X7	Rectifier, 750 ma, 600v Silicon	
V6-A	ECLL800	Phase Inverter	X8	Rectifier, 750 ma, 600v Silicon	
V6-B	ECLL800	Mod. & Rec. Audio Output	X9	Rectifier, 750 ma, 600v Silicon	
V6-C	ECLL800	Mod. & Rec. Audio Output	X10	ZD6, Mod. Lim. Zener Diode	
V7-A	6AL11	Receive and Xmit Osc	X11	ZD6, Mod. Lim. Zener Diode	
V7-B	6AL11	Xmit Buffer/ Doubler			
V8	6CW4	1.728 mc Osc			
V9	6GE5	Transmit Power Amp.	Y2	1.728 mc	Crystal

## FRONT PANEL CONTROL FUNCTIONS



### 1. CHANNEL SELECTOR.

The MC-11 has the all-new TurretTuner<sup>®</sup> which gives a choice of 23 CB channels plus Civil Air Patrol (CAP) frequencies. The selector may be rotated in either direction. Being cast of high quality nylon, this new Turret design enjoys practically unlimited life expectancy. Silver plated spring contacts are provided. Only an occasional speck of "Lubriplate" is required on the spring contacts.

### 2. VOLUME CONTROL, ON - OFF.

The volume control is coupled to the ON-OFF switch at the left side of the front panel. Audio output is continuously adjustable from silent to over 3 watts of audio output. This control is also used to adjust power level in Bull Horn operation.

### 3. NOISE FILTER TONE SWITCH

Provides treble attenuation and noise filter.

### 4. LOCAL - DIST. SWITCH

Two sensitivity ranges are provided for best signal to noise ratio under different conditions. The set will be operated in the "LOCAL" position most of the time. When operating in extremely quiet areas and where greater distance is to be covered, set the range switch to "DIST". This will provide maximum sensitivity. It should be noted that the efficiency of the squelch control depends upon this switch being in the correct position.

### 5. BULL-HORN SWITCH.

A "RADIO/BULL-HORN" switch is provided to allow for use as a Loud Hailer or Public Address system. A plug at the rear of the set is used to attach an External Speaker

### 6. AUTOMATIC NOISE LIMITER SWITCH. (ANL)

A switch is provided on the front panel which disables the ANL when desired. This serves two purposes. It allows for an aural comparison of noise level versus noise limiting and in some locations which are far removed from man-made noise, allows for slightly more receive sensitivity. Comparing reception with switch "IN" and "OUT" indicates whether or not the ANL is functioning.

### 7. SQUELCH CONTROL

A front panel adjustable squelch control is provided to mute the audio signal when no signal is received. It may be adjusted open at any desired signal level from .1 uv to 2000 uv.

### 8. "PASS BAND" RECEIVER TUNING

A front panel control is provided to tune the receiver  $\pm 10$  kc from center frequency. This allows an off frequency signal to be tuned in.

# CIRCUIT DESCRIPTION

## CIRCUIT DESCRIPTION OF THE RECEIVER:

The R-F amplifier V1 is a high gain twin triode used in a cascode circuit with separate antenna input coil and clamp AVC circuit to get maximum gain with minimum noise. The gain of V1 is automatically controlled by the AVC line and manually controlled by the Range switch. The signal from V1 is fed to the 1st mixer V2 where it is mixed with the channel oscillator signal from V7-A. The mixing of these two frequencies produces sum and difference frequencies 50.713 MC and 3.456 MC. The 1st IF transformer L6 selects the difference frequency 3.456 MC and feeds it to the 2nd mixer V3A. The selected signal is mixed in V3A with the 2nd conversion frequency 3.912 MC from oscillator V3B. This 3.912 MC oscillator is adjustable  $\pm 5$  KC from center by a control on the front panel. This allows you to fine tune the receiver to receive an off frequency signal. The mixing of these frequencies produces sum and difference frequencies 7.368 MC and 456 KC. IF transformer L8, L9 and L10 select the difference frequency 456 KC. The five tuned circuits of these transformers also provide a high degree of selectivity while maintaining a flat response across the channel limits. This 456 KC signal is amplified in V4, a variable gain amplifier. The gain of V4 is automatically controlled by the AVC voltage and is manually controlled by the Range switch. The Range switch is provided to allow you to select the best sensitivity for different signal and noise conditions. The AVC voltage is used to automatically control the gain of V1 and V4 to prevent overloading of the receiver. IF transformer L11 at the output of V4 couples the signal to the IN914 detector diode X2. The audio detected from the signal is fed through an R-C network to the IN914 noise limiter diode X3. The noise limiter has a switch on the front panel to allow you to compare the noise with and without the limiter operating. The IN914 detector diode also generates the negative AVC voltage. A squelch is provided so that you may mute the receiver. The squelch diode X4 operates in the following manner. When the voltage at the cathode end of the diode is more positive than the voltage at the anode end, the diode will not allow the detected signal to pass. The squelch control is provided so that the cathode voltage may be adjusted to turn off or turn on the diode. While X4 receives its cathode voltage from the manually adjusted squelch control, it receives its anode voltage from a point that is automatically adjusted by received signals. The received signal produces a negative voltage, at diode X2, which is fed through the AVC line to the control grid of V4. This negative voltage lowers the plate and screen grid current of V4 which allows the voltage of the screen grid to rise. The anode end of diode X4 is connected to the screen grid of V4 through resistor R26, as the voltage rises on the screen grid it also rises on the anode end of X4. If the squelch control has been set to turn off the background noise and a signal is received, the anode end of X4 becomes more positive than the cathode end which

turns on X4 and allows the audio to pass through to the volume control. The adjustable volume control sets the amount of audio that is heard from the speaker. From the volume control the audio is amplified in V5-B/V6.A.B.C. and fed through output transformer T1 to the speaker. A jack is provided at the rear of the chassis to allow an external speaker to be connected. When the external spk. is plugged in, the internal speaker is automatically turned off. An external speaker may also be connected to the 9-pin accessory socket using pins 4 & 6 or 8 & 9. When using this connection, both the internal and external speakers will be operating. See page 8 for more information on external speaker wiring. The receiver audio is also used in the "BULL-HORN" mode of operation. With the "B.H. Radio" switch in the B.H. position V3-B the 2nd. conversion oscillator is turned off, and the 100 V. neg. line is removed from the relay.

This shuts the receiver off and prevents the transmitter from operating when the microphone button is pressed.

## OPERATION OF THE "BULL HORN" is as follows:

With the microphone button pressed, the audio from the microphone will be amplified in V5-A the microphone Pre - Amp and coupled to the receiver volume control, which allows you to adjust the volume of the "Bull Horn". The receiver 1st audio amplifier amplifies the audio and couples it to the receiver audio power output amplifier V6.A.B.C. The output transformer T1 is connected to pins 4 & 8 of the accessory socket and to the external speaker socket.

## CIRCUIT DESCRIPTION OF THE TRANSMITTER:

The input frequency determining crystal for the receiver is also used as the transmitter output frequency control. This crystal is mounted in the turret at the left front of the chassis. This turret allows 24 crystals to be utilized without the problem of correlation difference due to lead length differences. The fixed contact points, with the crystals rotating to engage them, assures that each crystal will have the same capacity in the oscillator circuit. With this system no correlation differences will be possible. Also with this system, unlike the synthesized types, should one turret crystal become defective only one channel becomes inoperative. Channel 11, for example, is produced by mixing the 1.728 MC signal, from crystal oscillator tube V8, with the turret crystal frequency of 11.8145 MC in tube V7-A. This produces a frequency of 13.5425 MC, which is selected by coil L13 and fed to the buffer / doubler tube V7-B. The signal is amplified by the tube and, because coil L14 is tuned to twice the input frequency, the output signal is 27.085

MC, which is the desired channel frequency. This signal is then fed to the power amplifier tube. V9 is the output amplifier of the transmitter, operating in class C, and is coupled to the antenna through the Pi-Net coil L17. Harmonic radiation is held to a minimum by the use of tuned circuit L4 and C85, the TVI Trap. The power amplifier is high level modulated by the push-pull modulator V6. The modulator operates in class AB-1 and is coupled to the power amplifier by transformer T1. V6 is a three section tube with the two pentodes as the high power modulators and the triode as a phase inverter to drive the pentodes. The output of the microphone is amplified in V5-A and B and coupled to the phase inverter. The audio output of the receiver is coupled directly to V5-B.

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#### WARNING: FOR EXPORT USES ONLY.

Because of the high power capability of the MC-11 a resistor is used in series with the secondary of the modulation transformer to limit the final amplifier power input to 5 watts. This resistor R45 is rated at 15 watts and is mounted on the shield plate between the power supply and the receiver IF strip.

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#### MAINTENANCE PROCEDURE & SERVICE DATA:

**CAUTION:** Tampering with alignment by user will not be covered by warranty. A charge of \$10.00 will be made for realignment by the factory. Unless you are completely equipped, do not tamper with adjustments.

**TO REMOVE THE CHASSIS FROM THE CABINET,** turn the unit on its top, and with a blade type screw driver remove the four feet. Turn the unit right side up and slide the chassis out the front of the cabinet.

**FREQUENCY ADJUSTMENT:** Adjustments of channel crystals should be made only during transmit mode of operation. This will result in the correct crystal frequency for the receiver. Readings should be taken across all channels and an average deviation noted. Trimmer C67 is provided to adjust the turret crystals to frequency. The measurement of the transmitter frequency must be made with an instrument of .001% accuracy or better.

**TRANSMITTER ALIGNMENT:** Due to the nature of the frequency mixing circuits used in the MC-11, it is imperative that the following procedure be followed in the exact sequence shown. All tuning can be done using a R.F. wattmeter with dummy load ( such as the General model 615-C, or equal ) and a VTVM with ranges of 0-10 VDC and 0-100 VDC with an input impedance of at least 10 megohms. All frequencies should be checked using General's model CG-3 frequency counter or any accurate heterodyne frequency meter.

1. Turn the osc. coil L13, the buffer coil L14 and the pi-net coil L17, full counter clockwise, (out).
2. Turn to channel 11 or 12 and connect the VTVM to pin 8 of V7-B. Key the transmitter on and adjust osc. coil L13 to the first peak reading on the VTVM. ( Approx. -6 to -10 VDC )
3. Move the VTVM to pin 11 of V9 and switch to the

100 VDC range. Adjust the buffer / doubler coil L14 for the first maximum deflection of the VTVM. ( Approx. -30 to -45 VDC ). With the VTVM still connected to this point, check the adjustment of L13 to make sure that it is peaked.

4. Disconnect the VTVM and adjust the pi-net coil L17 for maximum output on the wattmeter. Adjust the pi-net capacitor C19 for maximum power output, then recheck L17 to make sure that it is peaked. Continue peaking these two until the output power is maximum.
5. Repeak L14 and L17 for maximum power output with modulation. Check power with modulation on channels 1 and 23 to make sure that they are balanced.
6. Tune the TVI trap L4 by turning the MC-11 to channel 23 and observe a nearby TV set tuned to channel 2. Tune for minimum interference on the TV set.
7. Adjust the position of the black wire ( on the pi-net coil ) to adjust the transmit reading of the meter on the front panel of the MC-11.
8. Check all channels for correct frequency.
9. When connected to an antenna, retune L17 and C19 for maximum balanced output power with modulation on channels 1 and 23 if necessary.
10. For export use only, all of the above alignment adjustments must be done AFTER resistor R45 has been jumpered.

**RECEIVER ALIGNMENT:** Receiver alignment requires a frequency source having outputs at 456 KC, 3.456 MC and a channel frequency near the center of the CB channels, 10-11-12 etc. The channel frequency signal should have an accuracy of .001% or better. Connect a VTVM to pin 2 of L11 the last IF. Sequence of tuning is as follows.

1. Connect the 456 KC signal to pin 2 of V3-A. Adjust level of signal for a reading of about - 1 volt on the VTVM.
2. Tune the top and bottom of L8, L9, L10 and L11 for maximum reading on the VTVM. Lower the 456 KC signal, while tuning, to remain around - 1 volt. Settings from original should never vary more than a half turn.
3. Remove the 456 KC signal.
4. Connect the 3.456 MC signal to pin 4 of V2.
5. Set the receiver fine tune control & C22 to mid position.
6. Tune the 2nd. Conversion oscillator coil L7 for maximum reading on the VTVM.
7. Tune the top and bottom of L6 for maximum reading on the VTVM.
8. Remove the 3.456 MC signal.
9. Connect the channel frequency signal to the antenna connector.
10. Tune coils L1 and L5 for maximum reading on the VTVM. Lower the signal level, while tuning, to remain around - 1 volt on the VTVM.
11. Remove the channel frequency signal.
12. Remove the VTVM.
13. With a dummy 50 ohm load connected to the antenna connector adjust R66, the S meter control, for a zero reading on the S meter.
14. Replace set in cabinet. Set fine tuning control to mid position, and through the hole in the bottom of the cabinet adjust C22 to receive the correct channel shown on the channel selector.

**NOTE:** Alignment steps 1-13 will be necessary only if the coils or associated parts have been replaced or tampered with.

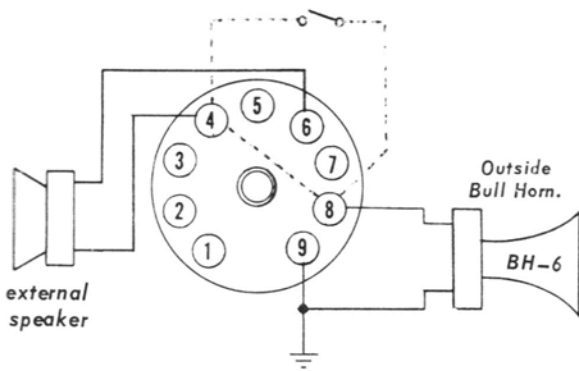


# PARTS LIST

Jan. 1st. 1969

C1	47 PF, 10%, NPO, 500 V	C78	.005 MF, GMV, 1 KV	R1	56 K, 10%, 1/2 W	S1	DPDT, Local-Dist. Range, Sw.
C2	.003 MF, 20%, 1 KV	C79	12 PF, 10%, NPO, 1 KV	R2	470 K, 10%, 1/2 W	S2	DPDT, ANL Sw.
C3	33 PF, 10%, NPO, 300 V	C80	200 PF, 20%, 600 V	R3	150 Ohms, 10%, 1/2 W	S3	DPDT, Radio - B.H. Sw.
C4	.001 MF, GMV, 1 KV	C81	.001 MF, GMV, 1 KV	R4	560 K, 10%, 1/2 W	S4	DPDT, Noise Filter Tone Sw
C5	.03 MF, +80-20%, 300 V	C82	500 PF, 20%, 2 KV	R5	330 K, 10%, 1/2 W	S5	On - Off Sw. (part of R28)
C6	.003 MF, 20%, 1 KV	C83	500 PF, 20%, 2 KV	R6	33 or 47 MEG, 10%, 1/2 W	S6	P.T.T. Sw. ( On Mic. )
C7	.003 MF, 20%, 1 KV	C84	.001 or .002 MF, GMV, 2 KV	R7	100 K, 10%, 1/2 W	T1	Mod.-Output Transf. (M-25A)
C8	.005 MF, GMV, 1 KV	C85	15 PF, 10%, NPO, 500 V	R8	150 Ohms, 10%, 1/2 W	T2	Power Transf. 29078 ( or -3 )
C9	470 PF, 20%, 1 KV	C86	.05 MF, +80-20%, 100 V	R9	330 K, 10%, 1/2 W	T3	Transistor Driver (TD-3)
C10	82 PF, 5%, NPO, 300 V	C87	.003 MF, 20%, 1 KV	R10	2.2 MEG, 10%, 1/2 W	V1	6BQ7A, RF Amp.
C11	.22 MF, 10%, 300 V, Mylar	C88	.003 MF, 20%, 1 KV	R11	330 Ohms, 10%, 1/2 W	V2	6CW4, 1st. Mixer
C12	200 PF, 20%, 300 V, Ceramic	C89A	.005 MF, GMV, 1 KV	R12	47 K, 10%, 1/2 W	V3	6U8A/6GH8A, 2nd. Mixer, 1st. IF Amp, 2nd. Conv. Osc.
C13	.003 MF, 20%, 1 KV	C89B	.005 MF, GMV, 1 KV	R13	470 Ohms, 10%, 1/2 W	V4	6BA6, 2nd. IF Amp.
C14	47 PF, N750	C90	40 x 40 MF, 450 V	R14	47 K, 10%, 1/2 W	V5	12AX7A, Mic. Pre-Amp. Audio Amp.
C15	( inside L6 )	C91	25 MF, 450 V, Electrolytic	R15	3.9 K, 10%, 2 W	V6	ECLL800, Phase Inv. Mod. & Rec. Audio Output
C16	.003 MF, 20%, 1 KV	C92	.003 MF, 20%, 1 KV	R16	1 K, 10%, 1/2 W	V7	6AL11, Rec. Xmtr. Osc., and Buffer / Doubler
C17	3.3 PF, 10%, NPO, 300 V	C93	.47 MF, 20%, 250 V	R17	330 K, 10%, 1/2 W	V8	6CW4, 1.728 MC. Osc.
C18	.02 MF, 20%, 30 V	C94	4-12 PF, Variable	R18	100 K, 10%, 1/2 W	V9	6GE5, Power Amp.
C19	10-180 PF, Variable	C95	10 MF, 30 V, Electrolytic	R19	68 Ohms, 10%, 1/2 W	X1	IN914, Silicon, AVC Clamp Diode
C20	.003 MF, 20%, 1 KV	CM-3	Microphone, Ceramic	R20	820 K, 10%, 1/2 W	X2	IN914, Silicon, Detector Diode
C21	.01 MF, GMV, 500 V	F1	1.5 Amp Fuse	R21	47 K, 10%, 1 W	X3	GR700, Silicon, Noise Limiter Diode
C22	4-12 PF, variable	F2	10 Amp Fuse	R22	820 K, 10%, 1/2 W	X4	GR700 Silicon, Squealch Diode
C23	100 PF, 10%, NPO, 1 KV	J1	Antenna Connector, SO-239	R23	470 K, 10%, 1/2 W	X5	IN99, Germanium, Meter Diode
C24	0.5-4.0 PF, Air Trimmer	J2	External Speaker Jack	R24	820 K, 10%, 1/2 W	X6	600 V, 1 Amp Silicon Rectifier
C25	200 PF, 10%, 300 V	J3	115 VAC Power Cord Socket ( 11 - Pin Female )	R25	470 K, 10%, 1/2 W	X7	600 V, 1 Amp Silicon Rectifier
C26	68 or 82 PF, N-150, 300 V	J4A	12 VDC Power Cord Socket	R26	3.9 Meg, 10%, 1/2 W	X8	600 V, 1 Amp Silicon Rectifier
C27	.1 MF, Z5U, 200 V	J4B	( 11 - Pin Female )	R27	3.9 Meg, 10%, 1/2 W	X9	600 V, 1 Amp Silicon Rectifier
C28	200 PF, S. Mica	J5	9 - Pin Accessory Socket	R28	1 Meg, Control	X10	ZD6, Mod. Limiter, Zener Diode
C29	( inside L8 )	J6	Microphone Jack ( Socket ) 8-700/60HA4F	R29	82 K, 10%, 1/2 W	X11	ZD6, Mod. Limiter, Zener Diode
C30	.003 MF, 20%, 1 KV	K1	Relay, 2.5 K Coil, DPDT	R30	100 K, Control	Y2	1.728 MC. Crystal
C31	2.2 PF, Type QC	L1	Antenna Coil	R31	82 K, 10%, 1/2 W	Crystal Turret - Type B Crystals	
C32	200 PF, S. Mica, ( inside L9 )	L3	33 UH, RFC	R32	47 K, 10%, 1/2 W	Specifications and prices subject to change without notice.	
C33	2.2 PF, Type QC	L4	TVI Trap	R33	1 Meg, 10%, 1/2 W	General Radiotelephone Co. Reserves the right to modify or change any design or equipment without being liable to modify, change or exchange previously delivered equipment.	
C34	200 PF, S. Mica	L5	1st. Mixer Coil, 27 MC	R34	56 K, 10%, 1/2 W		
C35	( inside L10 )	L6	1st. IF Transf., 3.456 MC.	R35	470 K, 10%, 1/2 W		
C36	.005 MF, GMV, 1 KV	L7	Rec. Osc. Coil, 3.912 MC.	R36	500 K, Pot.		
C37	68 PF, Type QC	L8	2nd. IF Transf., 456 KC	R37	100 K, 10%, 1/2 W		
C38	.02 MF, 20%, 30 V	L9	2nd. IF Coil, 456 KC	R38	100 K, 10%, 1/2 W		
C39	.005 MF, GMV 1 KV	L10	2nd. IF Transf., 456 KC	R39	1.5 K, 10%, 1/2 W		
C40	.22 MF, 10%, 300 V, Mylar	L11	2nd. IF Transf., 456 KC	R40	270 K, 10%, 1/2 W		
C41	.005 MF, GMV, 1 KV	L12	5.6 UH, RFC	R41	270 K, 10%, 1/2 W		
C42	200 PF, S. Mica	L13	Rec. Xmtr. Osc. Coil	R42	100 K, 10%, 1/2 W		
C43	( inside L11 )	L14A	Buffer Coil	R43	150 Ohms, 10%, 1 W		
C44	200 PF, 10%, 300 V Ceramic	L15	60 UH, RFC	R44	4.7 K, 10%, 1 W		
C45	.05 MF, +80-20%, 100 V	L16	33 UH, RFC	R45	4.0 K, 10%, 15 W Candohm Res.		
C46	.005 MF, 20%, 1 KV	L17	Pi - Network	R46	10 Ohms, 10%, 2 W, WW		
C47	.22 MF, 10%, 300 V, Mylar	L18	Filter Choke	R47	47 K, 10%, 1/2 W		
C48	.005 MF, GMV, 1 KV	L19	Filter Choke	R48	47 K, 10%, 1 W		
C49	.001 MF, GMV, 1 KV	L20	1.5 Hy., 200 Ma., Choke ( No. 6369 )	R50	33 K, 10%, 1/2 W		
C50	.22 MF, 10%, 300 V, Mylar	L21	10 UH, RFC	R51	150 K, 10%, 1 W		
C51	470 PF, 20%, 300 V	L22	33 UH, RFC	R52	150 K, 10%, 1 W		
C52	.001 MF, GMV, 1 KV	ML1	Meter Lamp	R53	47 K, 10%, 1/2 W		
C53	.005 MF, GMV, 1 KV	ML2	Meter Lamp	R54	47 K, 10%, 1/2 W		
C54	470 PF, 20%, 300 V	P1	Microphone Plug (8-7001/09CL4M)	R55	100 K, 10%, 1/2 W		
C55	100 PF, 20%, 300 V	P2	11 - Pin Male Power Plug	R56	15 K, 10%, 5 W		
C56	.005 MF, GMV, 1 KV	P3	B.H. ( P.A. ) 9 - Pin Plug	R57	330 K, 10%, 1/2 W		
C57	10 MF, 30 V, Electrolytic	PL-1	No. 12 or No. 47 pilot light	R58	68 K, 10%, 1 W		
C58	.01 MF, GMV, 500 V	Q1	2N511 or DTG-600 Pwr. Trans.	R59	39 K, 10%, 1 W		
C59	10 MF, 30 V, Electrolytic	Q2	2N511 or DTG-600 Pwr. Trans.	R60	150 Ohms, 10%, 1 W		
C60	2.2 PF, ± .25 PF, NPO			R61	1.8 Ohms, 10%, 1 W		
C61	.22 PF, ± .25 PF, NPO			R62	10 Ohms, 10%, 1/2 W		
C62	.22 MF, 10%, 300 V, Mylar			R63	56 Ohms, 10%, 1/2 W		
C63	.01 MF, GMV, 500 V			R64	No. 1495 Lamp		
C64	47 PF, 10%, NPO, 300 V			R65	10 Ohms, 10%, 2 W, WW		
C65	20 MF, 150 V, Electrolytic			R66	3 K, Control		
C66	3.3 PF, Type QC			R67	150 K, 10%, 1 W		
C67	2-8 PF, Var.			R68	1300 Ohms, 15 W, Candohm		
C68	.005 MF, GMV, 500 V			R69	150 Ohms, 10%, 1/2 W		
C69	33 PF, 10%, NPO, 300 V			R70	100 Ohms, 10%, 1/2 W		
C70	68 PF, S. Mica, 300 V			R71	100 Ohms, 10%, 1/2 W		
C71	.01 MF, GMV, 1 KV						
C72	33 PF, 10%, NPO, 500 V						
C73	22 PF, 10%, NPO, 500 V						
C74	47 PF, 10%, NPO, 300 V						
C75	15 or 22 PF, 10%, NPO, 300 V						
C76	.001 MF, GMV, 1 KV						
C77	.003 MF, 20%, 1 KV						

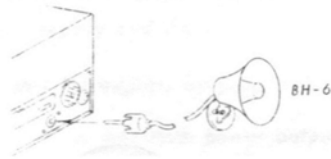
# EXTERNAL SPEAKER OPERATION



## A. REMOTE OR EXTERNAL SPEAKER WIRING FOR RADIO AND BULL HORN:

An external BH-6 speaker may be used by connecting to pins no. 8 & 9, and an external speaker may be used by connecting to pins no. 4 & 6, as shown on the diagram. Both speakers will work at the same time as the internal MC-11 speaker. All speakers should have a 4 to 8 ohm impedance voice coil. If it is desired to silence the MC-11 speaker and the external speaker, while using the bull horn, a S.P.S.T. "on-off" switch may be connected between pins no. 4 & 8 as shown. When this is done, the wire jumper between pins no. 4 & 8 (on the socket inside of the MC-11) must be removed.

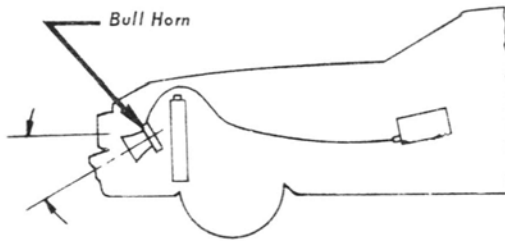
**CAUTION:** Do not operate this added switch unless the bull horn is connected. Solder wires carefully as there is high-voltage present on adjacent pins of this socket.



## B. EXTERNAL SPEAKER WIRING RADIO, B.H., P.A.

An external BH-6 speaker or external speaker may be attached by using the break-in jack at the rear of the chassis. The internal speaker will be turned off when external speaker is plugged in. Be sure to place the Bull Horn speaker outside vehicle.

**CAUTION:** Do not operate Bull Horn switch unless Additional speaker load is connected.



**C. TYPICAL AUTO INSTALLATION OF BULL HORN:** When mounting speaker behind grille, tilt horn about 30° downward to prevent buildup of mud or ice in speaker. Use a 4-8 ohm weather-proof speaker, such as the BH-6. Standard 8-16 ohm units will produce distortion and less audio power.

# VOLTAGE TEST DATA

All voltages read with controls in CCW position. N.F. TCNE "IN", Range switch on "DIST.", ANL switch on "OUT", Bull Horn on "RADIO". Use VTVM. Operate at 117 VAC. 10% variation permissible. All voltages positive unless indicated otherwise. Antenna tied into dummy load.

TUBES	PIN 1		PIN 2		PIN 3		PIN 4		PIN 5		PIN 6		PIN 7		PIN 8		PIN 9		PIN 10		PIN 11		PIN 12	
	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R
V1 6BQ7	180	145	-1.5	-.3	1.8	1.8	FIL Y.	FIL Y.	0	0	300	230	195	140	180	140	0	0	-	-	-	-	-	-
V2 6CW4	-	-	45	26	-	-	-3	-1.5	-	-	-	-	-	-	0	0	-	-	0	0	-	-	FIL Y.	FIL Y.
V3 6U8/6GH8A	0	-2	-6	-3	205	150	FIL Y.	FIL Y.	0	0	340	295	3	2	-2.5	-120	-.5	-130	-	-	-	-	-	-
V4 6BA6	-.5	-.8	0	0	FIL G.	FIL G.	FIL Y.	FIL Y.	340	295	120	100	.8	.9	-	-	-	-	-	-	-	-	-	-
V5 12AX7A	80	290	-.7	0	0	20	0	0	0	0	250	180	0	0	2	1.5	FIL Y.	FIL Y.	-	-	-	-	-	-
V6 ECLL800	100	80	0	0	340	290	FIL Y.	FIL Y.	FIL G.	FIL G.	0	0	11	9	340	290	310	255	-	-	-	-	-	-
V7 6AL11	0	0	0	0	-8.5	-6	-6	-.4	0	0	340	295	165	140	-5	-120	0	0	175	180	340	295	FIL Y.	FIL Y.
V8 6CW4	-	-	60	295	-	-	-29	-120	-	-	-	-	-	-	0	0	-	-	0	0	-	-	FIL Y.	FIL Y.
V9 6GE5	FIL G.	FIL G.	70	150	-	-	0	0	-	-	-	-	225	295	-	-	-	-	0	0	-20	-120	FIL Y.	FIL Y.

### POWER SUPPLY.

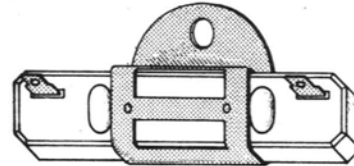
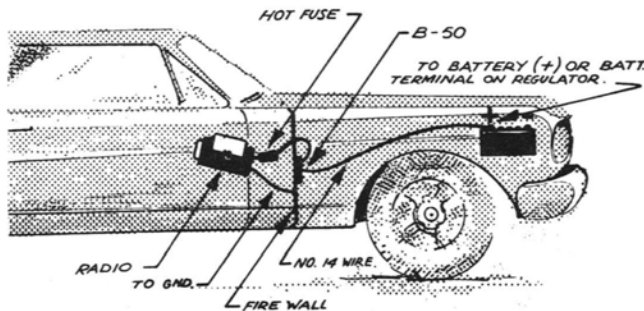
The MC-11 power supply is completely self-contained to operate from 12V DC, or 115V AC. Changes are made automatically by simply switching power cords. The MC-11 will work from either neg. or pos. ground power sources with the correct lead. When operating from a 12 V. power source, be certain that the ground wire of the plug is fastened solidly to the frame of your car or boat. A poor ground will result in burning of the antenna choke coil due to current passing through the antenna. 115 V operation. Attach 11 pin plug to MC-11 first, then put male plug into 115 V outlet. Power Drain - 115 Volts VAC, 70 Watts; 12 VDC, 6 Amps.

### BATTERY OPERATION

For best operation attach the negative and positive 12 V DC wires directly to the battery terminals. Use no. 14 plastic covered wire. Fuse lead goes to the battery terminal that is not connected to the chassis of the auto.

### WARNING

Measure battery voltage, which should never exceed 13.6 volts. Newer autos with alternators may be found to have regulator setting as high as 14.6 volts. Continued uses at this high voltage level will shorten the life of the transistors and may damage set. If necessary have the voltage regulator adjusted by a qualified mechanic and use a General B-50 Ballast resistor to maintain proper voltage regulation.



### WARNING

Any adjustments which affect the transmitter frequency of this set must be made by persons holding proper license from federal communications commission.



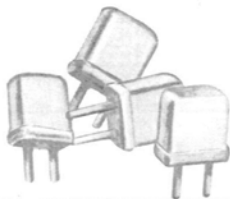
### MICROPHONE:

The Microphone supplied with the General MC-11 is tailored especially for rugged high level performance. The built-in pre-amplifier of the MC-11 will assure 100% modulation at all times. Best audio quality may be heard by holding microphone at least 4 inches from the mouth.



### GENERAL BH-6 BULL HORN:

The recommended remote speaker for use with the MC-11 is the General BH-6. Remember that the MC-11 produces over 10 watts of audio, hence a speaker capable of continuous use at this power level is a must. The use of a speaker higher than 8 ohms instead of the recommended 4-8 will not only result in distortion, but will cause high plate voltage peaks, shortening the life of the tubes.



### CRYSTALS:

The MC-11 uses type "B" crystals which are specially cut to provide transmit and receive functions without the need for separate crystals. When inserting crystals, note that the rear of the turret has channel numbers cast into the surface to aid in locating proper positions. Each crystal has a small dot of solder near the top. This dot should be kept on the outside of the crystal slot. When removing crystals, use long-nose pliers. Do not use any twisting motion which may bend or break the pins. Simply grip the crystal by the outer pin and gently pull toward the rear of the set. This will disengage the front lip. Then lift away from center of the turret.



# WARNING

## FOR EXPORT USE ONLY

Because of the high power capability of this unit a resistor is used in series with the secondary of the modulation transformer to limit the final amplifier power input to 5 watts. This resistor, R45, is rated at 15 watts and is mounted on the shield plate between the power supply and the receiver IF strip. When using this unit for export, by-pass R45 with a heavy duty buss wire for maximum power output. For uses in the USA the MC-11 is subject to part 95, FCC regulations.

## "SNAP-RAK" MOBILE MOUNTS

The MH-1 and MH-7 Mobile Mounting Hoods insure the utmost ease of installation and versatility in movement of your MC-11 from vehicle to vehicle. The MC-11 "snaps" in or out in seconds without the use of tools! These heavy duty, nickel plated mobile mounts may be installed under dash, on the floor, in the trunk - almost anywhere! Features: heavy duty rubber shock mounts and 800 lb. test snap locks.

The MH-1 is preferred for normal mounting applications, such as automobiles, delivery trucks, etc. The MH-7 Shock Mount eliminates severe vibration conditions as found in heavy duty equipment such as jeeps, trucks, fork lifts, boats, etc.

Your General Dealer has a complete line of "Snap-Raks" to fit any need or requirement. See him today.

Model MH-1 (\$6.95), Top Mounted



# PRECAUCION

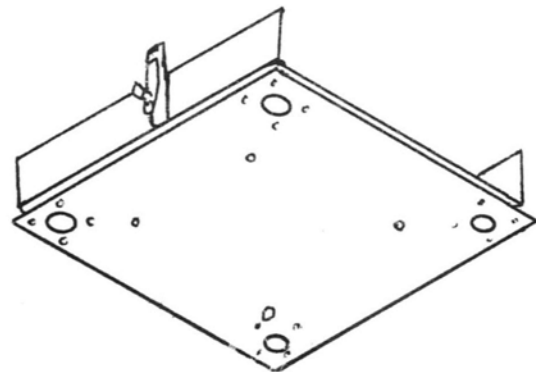
## PARA EXPORTACION SOLAMENTE

En vista que la presente unidad esta construida para alta potencia, el secundario del transformador de modulación lleva una resistencia en serie para limitar a 5 watos la potencia de entrada al amplificador final de potencia. Dicha resistencia R45 (2.4K, 15 watos) esta instalada en la placa de blindaje localizada entre la fuente de alimentacion y los terminales de frecuencia intermedia del receptor. Para potencia de salida maxima cuando se use esta unidad para exportacion, poner un puente atravez de la resistencia R45 con un alambre no. 16.

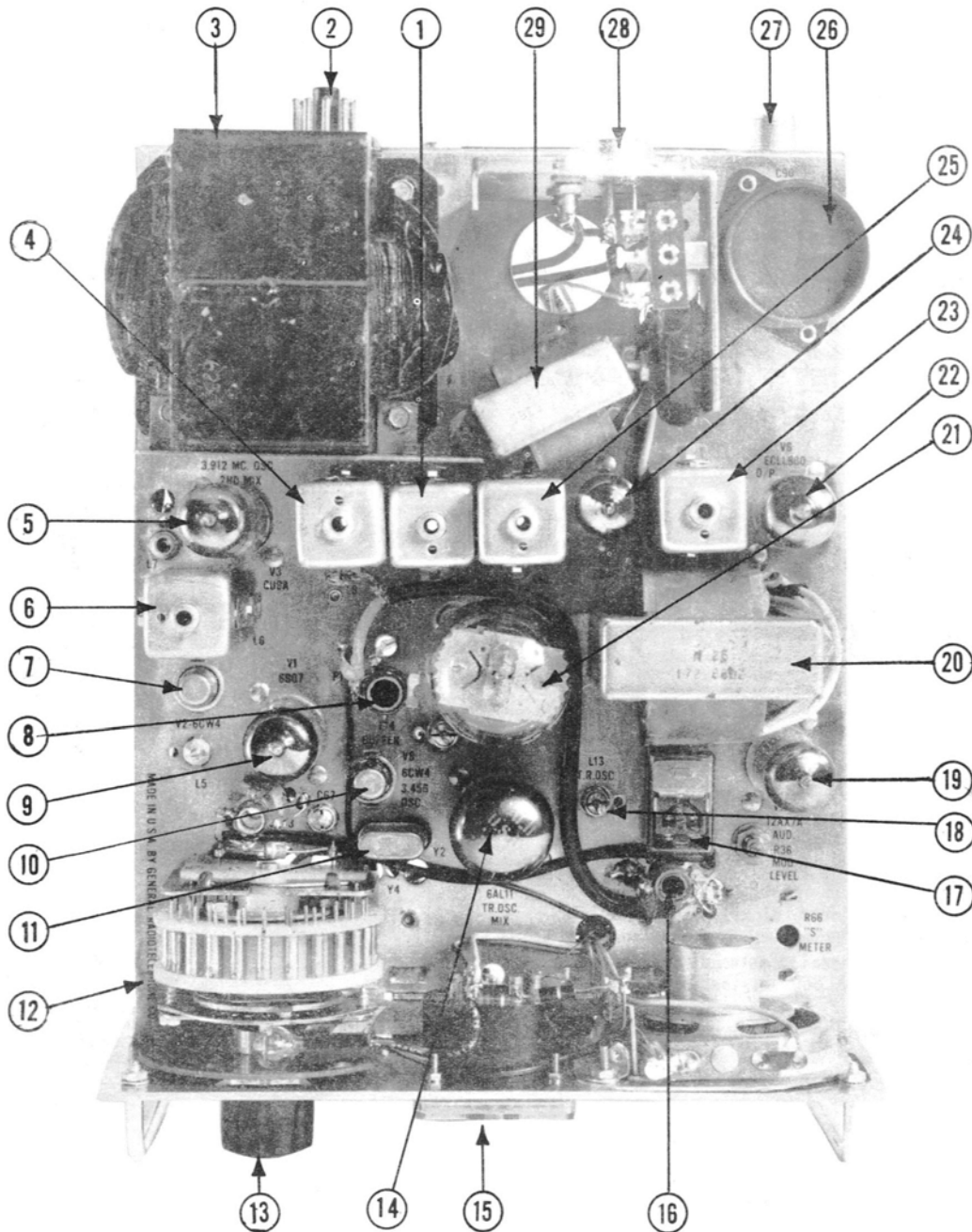
Model MH-1 (\$6.95) Bottom Mounted



Model MH-7 (\$14.95) Shock Mount Assembly



# CHASSIS DETAILS



1. L9, 2nd I.F. Coil, 456 KC.
2. Power Plug.
3. Power Transformer.
4. L8, 2nd I.F. Transf. 456 KC.
5. V3, 3,912 MC Osc. 2nd Mixer. 6U8-A / 6GH8A
6. L6, 3,456 MC. Mixer.
7. V2, 6CW4, 1st. Mixer
8. L17, Pi-Network.
9. V1, 6BQ7 R.F. Amplifier.

10. V8, 6CW4,
11. Y2, Crystal Transmit Synthesizer.
12. 24 Channel Turret.
13. Channel Selector.
14. V7, 6AL11, Transm. & Rec. Osc.
15. "S" Meter.
16. L4, TVI Trap.
17. K1, Relay.
18. L13, Transm. & Rec. Osc. Coil.
19. V5, 12AX7A, Mic. Pre-Amp.

20. Modulation transformer.
21. V9, 6GE5, Power Amp
22. V6, ECLL800 Phase inverter mod.
23. L11, 2nd I.F. Transformer. 456 KC.
24. V4. 6BA6, 2nd I.F. Amp.
25. L10, 2nd I.F. Transformer, 456 KC.
26. C90, 30 x 30 MF, 450 V.
27. J1, SO-239 Antenna Connector.
28. Transistorized Power Supply.
29. L20, Filter Choke.