SERVICE MANUAL 
FOR 
MODEL 388 
AM-FM-MX TUNER AMPLIFIER 

SPECIFICATIONS 

TUNER (FM-MPX) 

- Usable Sensitivity (HF) - 3% THD, Noise and Hum: 1.7 µV 
- Signal-to-Noise Ratio: 65 dB 
- Total Harmonic Distortion, Mono: 0.8% 
- Frequency Deviation (Drift) less than 0.05% 
- Frequency Response: 50 to 15,000 Hz ± 1 db 
- Capture Ratio: 2.5 db 
- Selectivity (400 kc off channel): 43 db 
- Spurious Response Rejection (Cross modulation rejection): 60 db 
- 19 kc Pilot Suppression: 60 db 
- 38 kc Sub-carrier Suppression: 50 db 
- AM Suppression: 60 db 
- Tuning Range: 87 to 109 mc 
- Accuracy of Calibration: 0.5% 
- Separation: 40 db 

- This is limit of FCC stereo broadcast specifications. All H. H. Scott tuners have far wider frequency response. 

TUNER (AM) 

- Usable Sensitivity (External terminals): 20 µV 
- Volume Sensitivity: 4 µV 
- Audio Hum and Noise (Ref. 1 v Output): 52 db 
- Tuning Range: 530 to 1650 kc 
- Bandwidth (-6 db): 3.5 kc 

AMPLIFIER 

- Tape Output: 
  - Rated voltage output to tape recorder: 0.5 v 
  - Recommended load resistance: greater than 200 k ohms 
  - Recommended cable capacitance - less than 200 pF 
  - Max. Low - Input Impedance: 47 k ohms 
  - Signal for rated output (with switched): 3, 5, 9 µV 
  - S/N Ratio: 65 db 
  - Tape Head - Input Impedance: 47 k ohms 
  - Signal for rated output: 3.0 µV 
  - S/N Ratio: -52 db 
  - High Level Inputs - Input Impedance: 47 k ohms 
  - Signal for rated outputs: 0.5 v 
  - S/N Ratio: -80 db 
  - Frequency Response in flat position: 20 to 20,000 Hz ± 1 db 
  - Treble controls: boost and cut at 10,000 Hz 
  - Bass controls: boost and cut at 50 Hz 
  - Loudness Compensation, maximum: +3 db at 50 Hz's 
  - Scratch Filter: 6 db @ 10 kc 
  - Rumble Filter: 8 db @ 50 Hz's 

- Music Power Rating (watts/channel) @ 0.8% harmonic distortion: 
  - 0 4 ohms: 60/60 watts 
  - 0 8 ohms: 20/20 watts 

- Continuous Output - Single Channel @ 8 ohms: 40 watts 
- 0.8% Harmonic Distortion: 30/30 watts 
- Total Harmonic Distortion at rated output: 0.8% 
- Frequency Response - Power Amplifier @ 1 w: 
  - 20 to 20,000 Hz ± 1 db 
  - Power Bandwidth at rated distortion (IEFF method): 20 to 20,000 Hz 

- Hum and Noise: +80 db 
- Damping Factor: 20 
- Line Voltage and Frequency: 105-125 v, 50-60 Hz 
- Power Consumption @ 117 volts, 60 Hz: 35-175 w
388 TEST PROCEDURE, AUDIO

EQUIPMENT NEEDED
Audio Oscillator
VOM
Oscilloscope
Triplet VOM Model 650 or 650A
Load Box
Attenuator
Distortion Analyzer
Variable Transformer or 117v Regulated Line
FM Generator
Multiplex Generator
15 kh Low Pass Filter

SET CONTROLS TO THE FOLLOWING:

Front Panel
Input Selector EXTRA
Stereo Selector STEREO
Tone Controls (Bass & Treble) FLAT "O"
Loudness - Power AC-Off
Balance Control OFF
Rumble Filter OUT
Scratch Filter OUT
Tape Monitor OUT
Compensator LOUDNESS
Speaker MAIN
Speaker ON

Rear Panel
Phono Sensitivity C

Internal
Potentiometers A1-A31 & A102 - B31 (balance Pot) Max ON
Potentiometers A2 - B32 & A102 - B32 (Bias Pot) Max ON

PRELIMINARY VISUAL INSPECTION AND RESISTANCE MEASUREMENTS

Inspect unit for defects such as broken wires, cracked terminals and jacks, loose transformer bolts, broken components, unsoldered or cold solder joints, TO-3 heat sink alignment, short circuits, lead dress, scrap in units and other such defects. Shake unit to free all scrap. Check to see that all transistors (where applicable) have been installed properly and in correct sockets. Check diodes for proper polarity.

Measure resistance to chassis in the following locations (negative side of VOM Battery to chassis):

OUTPUT Transistor Collector (supply side) (Q10 & Q110) - 500 ea. channel
OUTPUT Transistor Collector (mid-point) (Q11 & Q111) - 1.5k ea. channel
Main Speaker "P" Terminal - 470
+2v source for amplifier section - 1.4k
+2v source for amplifier section - 9k
+2v source for tuner section - 230
+12v source for tuner section - 146

Measure resistance across each 881-5 diode on best scale (total) on R31 scale
- 4.5 to 8 ohms

AUDIO SECTION TEST PROCEDURE

1. BIAS AND BALANCE ADJUSTMENT AND VOLTAGE CHECKS

With no signal input and 8 ohm loads connected to Main Speaker taps, turn power on keeping loudness pot at minimum setting. Watch carefully for any signs of voltage shorts or overheating.  

2.
388 TEST PROCEDURE, AUDIO (Continued)

Measure voltage at collector of Q10 - should measure between 68 and 72 volts. Set voltage at collector of lower OUTPUT transistors, Q11 left channel and Q11 right channel, for one-half supply voltage, approximately 35 volts, using A2-R31 (left channel) and A102-R32 (right channel) balance pots. Using Triplott VOM set to 12 ma scale, adjust bias pots for 0.8 ma current at each test point, in rear of the unit to ground by adjusting A2-R31 (left channel) and A102-R32 (right channel).

Recheck balance adjustment and reset balance pots if necessary.

Check the following voltages on Z-PC-PS-2 with respect to chassis:

Zener Diodes
+97v ± 10%
+12v ± 10%

Audio voltages - nominal
+70v
+25v
+12v

Tuner voltages - nominal
+25v
+12v

2. SENSITIVITY CHECK

Connect audio oscillator through attenuator into EXTRA input jack. Set attenuator for an output from attenuator of 0 db on 3v scale of VTVM, 400 cps. Turn loudness control to maximum. Observe OUTPUT at speaker terminals of 0 db on 10 volt scale ± 1 db. Turn loudness to minimum. At this point recheck and readjust bias if necessary.

3. DISTORTION CHECK

Using a 400 Hz distortion analyser, distortion must be no greater than 0.6% at 16 volts into 8 ohms, 40 watts.

4. LEVEL CONTROL CHECK

Check tracking of Left and Right channels in 10 db steps to -40 db, maximum deviation 2 db.

Check loudness response in electrical flat position:

<table>
<thead>
<tr>
<th>L/V in Loudness</th>
<th>L/V in Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat Response</td>
<td></td>
</tr>
<tr>
<td>1 kc = 0 db</td>
<td></td>
</tr>
<tr>
<td>10 kc: +3 db ± 2 db</td>
<td></td>
</tr>
<tr>
<td>50 cps: 9 db ± 2 db</td>
<td></td>
</tr>
</tbody>
</table>

With level control at minimum, OUTPUT should be -75 db with respect to 16 volts or 32 watt level.

5. TONE CONTROL CHECK 42 db

With loudness at maximum, adjust attenuator to obtain 0 db on 3 volt scale at 1 kc. Use attenuator to obtain OUTPUT on 3 volt scale for Bass and Treble Boost measurements.

<table>
<thead>
<tr>
<th>Bass 50 Hz</th>
<th>Treble 10 KHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boost 12 db</td>
<td>10 db</td>
</tr>
<tr>
<td>Cut 14 db</td>
<td>10 db</td>
</tr>
</tbody>
</table>

6. FREQUENCY RESPONSE CHECK

Set Tone controls and balance control flat ("O" Position).

Attenuate oscillator to obtain 0 db on 3 volt scale at 1 kc when measured at speaker terminals with 8 ohm load. Sweep oscillator frequency and monitor OUTPUT. Maximum variation ± 1 db from 40 Hz to 15 KHz. 3 db down points should be between 10-17 Hz low end, 25-40 KHz high end. Return to 1 KHz.

7. CROSSTALK CHECK

Feed input into Right channel. Record left channel with Stereo Selector switch in Mono position, 1 kc signal. Switch Stereo Selector switch to Stereo. Measure 45 db loss minimum. Return oscillator to Left Channel Input.
8. **STEREO SELECTOR SWITCH CHECK**

<table>
<thead>
<tr>
<th>Left Channel Input</th>
<th>Stereo Switch Position</th>
<th>For Right Channel Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal (-.6 dB)</td>
<td>Source Left</td>
<td>Signal (-1.5 dB)</td>
</tr>
<tr>
<td>Signal (-3 dB)</td>
<td>Source Right</td>
<td></td>
</tr>
<tr>
<td>Signal (0 dB)</td>
<td>Monaural</td>
<td></td>
</tr>
<tr>
<td>No Signal</td>
<td>Stereo</td>
<td>Signal (-0 dB)</td>
</tr>
<tr>
<td>No Signal</td>
<td>Left Input</td>
<td></td>
</tr>
<tr>
<td>Signal (-1.5 dB)</td>
<td>Right Input</td>
<td></td>
</tr>
<tr>
<td>No Signal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rumble In**
50 Hz +9 24 dB

**Scratch In**
10 kHz +7 24 dB

9. **RUMBLE-SCRATCH FILTER**

- Normal output level 0 dB on 3V scale, loudness pot max.

10. **BALANCE CONTROL CHECK**

- With oscillator in left channel input, monitor channel output. Turn Balance pot to Balance Left. Note no loss of signal. Turn Balance pot to Balance Right. Note complete loss of signal.

- Repeat for opposite effect when feeding and monitoring right channel.

11. **SPEAKER SWITCH CHECK**

- Feed signal to left input, monitor left channel main speaker outputs. Switch Main-Remote speaker switch to remote. Note complete loss of signal. Switch monitor to left channel remote speaker output and observe signal restored. Switch speaker on-off switch to off and note complete loss of signal. Switch monitor back to main speaker terminals, speaker on-off to on and Speaker Main-Remote to Main. Signal should be restored only after all switches are in their proper positions.

12. **REGULATION CHECK, 1 KΩ**

- With signal output of 1 kΩ, 0 dB on 3 volt scale, remove 8 ohm load. Note 0.5dB max. rise in output.

13. **PHONE JACK (FRONT PANEL) CHECK** - Input 1 channel, selector-stereo

- With signal output of 1 kΩ, 0 dB on 3 volt scale at speaker terminals, remove VVM from 8 load and connect output from phone jack to VVM. Tip of phone jack is right channel. Phone jack output should be +5 dB with respect to speaker terminal output.

14. **DERIVED CENTER CHANNEL OUTPUT CHECK**

- Remove phone jack output from VVM. Switch stereo selector switch to stereo. Connect VVM to derived center channel output. Derived center channel output level should be +25.5 dB with respect to speaker terminal output. Remove VVM from derived center channel output and reconnect to 8 ohm load. Return Stereo Selector switch to stereo position.

15. **TAPE MONITOR SWITCH CHECK**

- Before removing or inserting inputs turn loudness control to minimum; with signal output of 1 kΩ, on 3 volt scale at speaker terminals, Extra Input, switch Tape Monitor switch to IN position. Note complete loss of signal. Remove signal input from EXTRA input jack and plug signal into TAPE IN jack. Note signal restored as before. Switch tape monitor to OUT position; again note signal lost. Remove signal from TAPE IN jack and insert in TAPE OUT jack. Note signal restored.

16. **PREAMP GAIN CHECK**

- Return signal input to EXTRA input and adjust level for output of 1 kΩ, 0 dB on 3 volt scale with loudness control at maximum. Turn input selector to Phono. Attenuate input signal 45 dB and plug input into Phono input. Output should be 0 on the 3 volt scale ±1 dB.
388 TEST PROCEDURE, AUDIO (Continued)

Switch phono sensitivity from "C" position to other positions and observe the following gain changes with respect to the "C" position:

<table>
<thead>
<tr>
<th>Position</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;</td>
<td>-4 db +11 db</td>
</tr>
<tr>
<td></td>
<td>-8 db +1 db</td>
</tr>
</tbody>
</table>

Return Phono sensitivity switch to "C" position. Turn loudness control to minimum.

Remove input from Phono Input and place in Tape Head input. Turn loudness control to maximum. Output should be in the same +40 -2 db as it was in the "C" phono position.

17. PHONO AND TAPE HEAD FREQUENCY RESPONSE CHECK +2 db

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Tape</th>
<th>Phono</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kHz</td>
<td>0 db</td>
<td>0 db (REF.)</td>
</tr>
<tr>
<td>10 kHz</td>
<td>-10 db</td>
<td>-14 db</td>
</tr>
<tr>
<td>100 Hz</td>
<td>+19 db</td>
<td>+13 db</td>
</tr>
</tbody>
</table>

18. HUM AND NOISE CHECKS

<table>
<thead>
<tr>
<th>Selector Switch Position</th>
<th>Loudness Max</th>
<th>Loudness Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra</td>
<td>5 mv</td>
<td>3 mv</td>
</tr>
<tr>
<td>Phone (shorted inputs)</td>
<td>30 mv</td>
<td>3 mv</td>
</tr>
<tr>
<td>Tape Head (shorted inputs)</td>
<td>45 mv</td>
<td>3 mv</td>
</tr>
</tbody>
</table>

Check for absence of high-frequency osc. with treble control at max. and loudness control at 2 o'clock.

19. REPEAT STEPS 2 THROUGH 18 FOR RIGHT CHANNEL.
TROUBLE

1. No B1 + 25V
2. B+ 1OM approximately 7v.

POSSIBLE CAUSE

1. C2 shorted, should be dressed away from power resistors.
2. C1 or C2 installed backwards, observe polarity.
TROUBLESHOOTING GUIDE FOR OUTPUT SECTION

Note: On schematic where reference is made to Sheet 1, refer to Multiplex Section.

Trouble

1. Blows line fuses
2. Speaker fuse blown
3. Blown output transistors (no output) also cause bias and balance problems
4. Intermittent output
5. No output phone AM & FM, excessive hum.
6. Noisy output phone only
7. Low Output
8. Noisy controls or intermittent switches
9. Earphones do not correspond to speakers.

Probable Cause

1. Shorted QP-8; shorted SR2/50, (D401 or D403), shorted CEC 1000/30 (C407).
2. Check speakers & speaker cables
3. Shorted QP-8, shorted Q3, Q5, Q6, open resistor (R13, R16, R113, R116). If this occurs, replace all components listed in particular channel (R13, R14, R114, R113), also 390 ohm resistor on T02 board (R27). Defective (Q1 or Q2) could also cause this problem, but does not need replacing unless defective.
4. Check all solder connections on T02, P5; or intermittent capacitors.
5. Defective Q1, Q2, or Q3 on PC-P5.
8. Use cleaning solvent without an oil base and spray liberally in affected area.
9. Miswire on phone jack or leads coming from PC-02.
All Peak to Peak measurements taken with 15 volts RMS output in Phono pass, with 8 ohm load; also 4 millivolt input.

There is no appreciable gain through the output section.
388 TEST PROCEDURE, FM

FM TUNER SECTION TEST PROCEDURE

SET CONTROLS TO THE FOLLOWING:

Front Panel
Input Selector - FM
Stereo Selecton - Stereo
Tone Controls - Flat 'Q'
Loudness-Power - 'AC On'
Balance - 'G'
Rumble & Scratch Filters - OUT
Tape Monitor - OUT
Compensator - Loudness
Speaker - Main
Speaker - On

Internal
Stereo Threshold Adj. - Max. CW
Connect 15 kc low pass filter to Tape Out jacks of receiver.

1. MONO ALIGNMENT AND SENSITIVITY CHECKS

Front End and IF Alignment
a) With about 10 uv Generator output, align and peak front end for max. output (balance output within 1 db at 92 and 106 mc).
b) With 3 uv input, align IF's for max. audio.
c) With 20 uv input, align detector for min. distortion.

Sensitivity and Distortion

d) Measure sensitivity of tuner with 2 uv RF input. Must obtain 30 db usable sensitivity at 92, 98, and 106 mc.
e) Recheck distortion, 20 uv input 400 cps max. distortion 0.8%.

FM Hum Check
f) Tune to 91.5 mhz measure min. of 60 db drop from reference (plug may be reversed if necessary).
g) Tune to 90 mhz change modulation from 400 cts to 8 cts. Note decrease of 12 to 12 db in output from 400 Hz reference.

Calibration Check

h) Check calibration against stations - max. tolerance ±0.2 mc.

Filter Check

i) With output meter and scope connected to Left channel Tape Out jack, check for less than 1 db change in output when switching in sub-channel filter (located on Balance control).

Audio Hum Check

j) Short base of Q305 to GND. - max. hum 1.5 mv each channel (Tape Output jack).

2. MULTIPLEX ALIGNMENT

Switch stereo selector switch to STEREO.

Pilot Adjustment

a) Attach scope probe - low capacity probe - to test point at junction of L501, C509, B504, Q503-C and R507. Peak 2501 and L501 for max. pilot. With VOM measure 4-6 volt drop across 4K resistor R526.

Oscillator Sync. Adjustment

b) Attach scope probe to Tape Output jack of Left channel. Switch scope input to horizontal input. Feed horizontal input from right channel output of master generator. Adjust tuner frequency to Left signal frequency. Pull Transistors Q501 and Q502. Adjust T502 for zero beat as seen on scope. Replace both Transistors Q501 and Q502 and return scope sync. to internal.
388 TEST PROCEDURE, FM (Continued)

Separation Adjustment

c) Attach scope probe to Tape Output Jack of Left channel. Adjust scope to obtain proper pattern and adjust L501 for min. output observed on scope. Adjust Left channel separation adjust (R514) for min. output. Attach scope probe to Tape Output Jack of Right channel. Adjust Right channel separation adjust (R555) for min. output. Repeat Left and Right channel separation adjustments until no further improvements are observed.

d) Using Trimpot V.O.M. measure voltage across 849 bulb. If necessary adjust resistor R504 for 0.9 to 1.2v.

e) Final separation measurements are to be made in each channel:
- 400 cps modulation 30 db min. separation
- If separation specs are not met, recheck IF's for proper alignment. Also recheck oscillator sync. adjustment and separation adjustment described above. Seal separation pots.

Stereo Switchover Adjustment

d) Adjust threshold pot, so indicator is just extinguished off stations. Check switchover point to between 7-15 uv from generator.

3. AUDIO OUTPUT LEVELS

RF input to 100 uv. Stereo Selector switch to Mono. Note and record output voltage at Tape Out jacks. (Should be 2v ±2 db and within 2 db of each other.) Switch stereo selector to STEREO. Output must remain within 2 db of mono level.

4. Check and if necessary re-adjust meter to read zero OFF station.

388 TUNER - AM SECTION

1. Switch tuner to AM position, output from tape output jack.

2. Connect signal generator at 655 KHz through .05 capacitor to green lead from IF board to feedthrough terminal in front end. Clip ground lead to chassis. Remove RF transistor.

3. Peak IF's and detector for maximum A.G.C. (tuning meter indication) of audio noise output, using no modulation. Final peaking should be done with 20 uv from generator with output level of 100 mv ±2 db.

4. Remove signal generator coupling to IF's, connect generator to external antenna terminals. Install RF transistor.

5. Tune oscillator and mixer cnl to 600 KHz and oscillator and mixer trimmer to 1600 KHz. Tune RF trimmer at 1400 KHz, and antenna slug at 600 KHz.

6. Repeat Step 5 until unit is aligned and maximum output at given frequencies has been achieved. Check calibration.

590 KHz 410 KHz 850 KHz 1050 1510 (tol. ±20 KHz)

7. Check signal-to-noise at 600 KHz. 100 uv for 10 db, at 1400 KHz, 10uv for 10 db.

8. Remove generator connection from external antenna terminals, loop around low end of loop antenna using 47 ohm resistor, and at 1400 KHz peak antenna trimmer.

9. Check output level left and right tape jacks, at 1000 uv output should be 250 mv ±2db.

10. With phones, check for AM calibration, oscillation, harmonic pickup, etc.

11. With AM tuned to low end of band, meter adjust control so meter reads "0". Switch to FM and note little or no change, max. difference between AM and FM across band, 2 meter divisions.
TROUBLE SHOOTING GUIDE FOR 588 FRONT END & RF - 1

TROUBLE

1. No Signal FM & AM
2. No Signal FM
3. No Signal or low
4. Dead spots & oscillation F.M.
5. No AM Signal

POSSIBLE CAUSE

1. T201 Shorted to ground
   LRF = 33 open (L204, L207, L203)
2. q204
3. q203, q202, q201
4. L202 Open
5. T2, Q1, Q2, L210, L211
TROUBLESHOOTING GUIDE FOR AM - IF'S

TROUBLE                      POSSIBLE CAUSE

1. No output               1. Be sure all screws are tightened on 4 corners of the board.
2. Good signal, but noisy  2. DGH3 (D1) open or off value
3. Meter pegging output    3. L1 open
4. Low meter indication    4. DGH-1 in meter ckt open
TROUBLE

Low output; no output
Erratic meter movement

POSSIBLE CAUSE

Defective Q301, Q302, Q303
Q301

Output of IF with 100% modulation and IMV input.

.5 volts peak to peak
1. 22v Peak to Peak. Pilot signal taken at Step A in Test Procedure

2. 15v Peak to Peak (Output of multiplex)

3. 15v Peak to Peak (Left & Right channels)

**TROUBLE**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>11v</td>
<td>Low Pilot</td>
</tr>
<tr>
<td>0v</td>
<td>Poor Separation in one channel</td>
</tr>
<tr>
<td>.2v</td>
<td>Not Switching to stereo except on very strong signal</td>
</tr>
<tr>
<td>11v</td>
<td>Intermittent low output both channels</td>
</tr>
<tr>
<td>16.5v</td>
<td>No output 1 channel</td>
</tr>
<tr>
<td>9v</td>
<td>Stereo light frequently burning out</td>
</tr>
</tbody>
</table>

**POSSIBLE CAUSE**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C508, Q503</td>
<td>Defective D507, D508, D509 or D510</td>
</tr>
<tr>
<td>C523</td>
<td>Check pilot signal, if OK then check</td>
</tr>
<tr>
<td>Cold Solder or defective 502</td>
<td>Intermittent low output both channels</td>
</tr>
<tr>
<td>C522 or C521 open</td>
<td>Change R504 to limit voltage across light to .5-1.2v</td>
</tr>
</tbody>
</table>

**VOLTAGES MEASURED WITH 300 OHM LOAD ON EXTERNAL FM ANTENNA TERMINALS, INPUT SWITCH IN "FM" POSITION, MODE SWITCH IN "MONO" POSITION, TUNER OFF-STATION.**

**VOLTAGES MEASURED UNDER SAME CONDITIONS AS ABOVE EXCEPT MODE SWITCH IN "AUTOMATIC STEREO" POSITION WITH STEREO SIGNAL FED INTO TUNER.**
<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>Customer List</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-DC-14</td>
<td>Dial Cord</td>
<td>$1.75</td>
</tr>
<tr>
<td>A-PW-A</td>
<td>Flywheel Assembly</td>
<td>4.80</td>
</tr>
<tr>
<td>CEC-250/50-1000/30</td>
<td>Electrolytic Capacitor</td>
<td>3.90</td>
</tr>
<tr>
<td>CEC-1000/75</td>
<td>Electrolytic Capacitor</td>
<td>4.32</td>
</tr>
<tr>
<td>CEC-2000/65</td>
<td>Electrolytic Capacitor</td>
<td>4.74</td>
</tr>
<tr>
<td>CETH-5/15</td>
<td>Electrolytic Capacitor</td>
<td>.84</td>
</tr>
<tr>
<td>D-SI-1</td>
<td>Silicon Diode</td>
<td>.40</td>
</tr>
<tr>
<td>F-AGX-2</td>
<td>Speaker Fuse</td>
<td>.24</td>
</tr>
<tr>
<td>F-SB-15</td>
<td>Power Fuse</td>
<td>.65</td>
</tr>
<tr>
<td>J-307-5</td>
<td>Phone Jack</td>
<td>.65</td>
</tr>
<tr>
<td>KN-P-6LTT (4)</td>
<td>Plastic Knobs</td>
<td>.65</td>
</tr>
<tr>
<td>KN-P-6CTT (2)</td>
<td>Plastic Knobs</td>
<td>.65</td>
</tr>
<tr>
<td>KN-P-8CTT (2)</td>
<td>Plastic Knob</td>
<td>.75</td>
</tr>
<tr>
<td>KN-P-12PTT (1)</td>
<td>Plastic Knob</td>
<td>.75</td>
</tr>
<tr>
<td>M-SS-6</td>
<td>Meter</td>
<td>9.00</td>
</tr>
<tr>
<td>N-388-1</td>
<td>Panel</td>
<td>14.40</td>
</tr>
<tr>
<td>N-D-AM/FM-6</td>
<td>Dial Glass</td>
<td>2.94</td>
</tr>
<tr>
<td>OP-8</td>
<td>Power Transistor</td>
<td>6.00</td>
</tr>
<tr>
<td>RCV-50K-PH</td>
<td>Potentiometer</td>
<td>.96</td>
</tr>
<tr>
<td>RCV-50KT-SW-PP</td>
<td>Potentiometer</td>
<td>1.89</td>
</tr>
<tr>
<td>RCVG-100K-T</td>
<td>Potentiometer</td>
<td>1.75</td>
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<tr>
<td>RCVD-100K-SW-38</td>
<td>Potentiometer</td>
<td>2.45</td>
</tr>
<tr>
<td>SW-5-.82</td>
<td>Wire Wound Resistor</td>
<td>.20</td>
</tr>
<tr>
<td>SBV-100G</td>
<td>Wire Wound Resistor</td>
<td>1.20</td>
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<td>SR-1-5</td>
<td>Silicon Rectifier</td>
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<td>SR-2-50</td>
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<td>SWH-37-2-1</td>
<td>Stereo Selector Switch</td>
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<td>SBH-125</td>
<td>Input Selector Switch</td>
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<td>SS-22-3/3A</td>
<td>Slide Switch</td>
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<td>SS-43</td>
<td>Slide Switch</td>
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<td>TR-12-18</td>
<td>Power Transformer</td>
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<td>V-PL-49</td>
<td>Neon Light Bulb</td>
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<td>V-PL-1847</td>
<td>Pilot Light Bulb</td>
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<td>Z-PC-O-2</td>
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<td>Z-PC-1F-1</td>
<td>IF (FM) Board</td>
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<td>Z-PC-1F-2</td>
<td>IF (AM) Board</td>
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<td>Tone/Driver Board</td>
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<td>Multiplex Board</td>
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<td>Z-AM/FM-7</td>
<td>Front End</td>
<td>41.10</td>
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<tr>
<td>Z-ANT-AM-5</td>
<td>AM Antenna</td>
<td>3.25</td>
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</table>
VOLTAGE CHECKS (WA703)

Pin 1    B+ 12 Volts
Set VOM on 3 volt scale: positive lead of meter on pin 1, negative
lead on pin 2 and/or pin 6. If voltage is
apparent, then that particular stage of IC
is operating normally

No output or distortion
Meter operates okay check diodes D303 and D304 for defect

Meter pegging either direction defective D301 or D302
CAPACITORS
C13, C113--------------CC-0.005
C603-----------------------CC-0.02
C3, C103------------------CC-0.027
C4, C104------------------CC-0.007
C401, C402----------------CC-0.01/1KV
C511-----------------------CC-120
C7, C107-------------------CC-180
C1, C101-------------------CC-330
C601-----------------------CC-1300
C12, C112------------------CC-47-NO
C109-----------------------C62-2000/65
C406-----------------------GEC-250/50 1000/30
C405-----------------------GEC-1000/75
C9, C109------------------C65-2000/65
C2------------------------GET-35/75
C407-----------------------GEC-1000/30
C2, C102-------------------CMH-.022/250V
C522, C521, C403, C604-----CMH-.12/250V
C602-----------------------CMH-.67/250
C5,C6,C8,C105,C108--------CMH-.068/250

TRANSISTORS
Q10, Q11, Q110, Q111------QP-8

RESISTORS
R7, R107------------------RC11-390
R6, R106------------------RC11-1k
R1, R101------------------RC11-2.2M
R602----------------------RC21-47
R3, R103, R607----------------RC21-220
R605----------------------RC21-1.5
R606----------------------RC21-1.8
R604----------------------RC21-2.7
R4, R104------------------RC21-6.8
R2, R102, R9, R109, R18, R118---RC21-10K
R10, R110------------------RC7-.12K
R603----------------------RC21-22K
R12, R112------------------RC21-29K
R331, R334----------------RC21-100K
R601----------------------RC21-220K
R601----------------------RC21-820
R14, R114------------------BC31-3.3
R13, R15, R113, R115-------RW5-.52
R608----------------------RWV-100G

KNOWS
KN-P-8CT
KN-P-6CTT
KN-P-6LT
KN-P-12PTT

Ceramic Capacitor

Electrolytic Capacitor

Electronic Capacitor

Dipped Mylar Capacitor

Transistor

1/4 Watt Resistor

1/4 Watt Resistor

1/4 Watt Resistor

1 Watt Resistor

Wire Wound Resistor

Plastic Knob
<table>
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<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>CHOKES</strong></td>
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<tr>
<td>L601</td>
<td>Choke</td>
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<td></td>
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<tr>
<td><strong>DIODES</strong></td>
<td></td>
</tr>
<tr>
<td>D1, D2, D101, D102</td>
<td>Silicon Rectifier</td>
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<tr>
<td>D401, D402</td>
<td>Silicon Diode</td>
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<td>D601</td>
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<tr>
<td><strong>POTENTIOMETERS</strong></td>
<td>Stere Threshold</td>
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<tr>
<td>R602</td>
<td>Balance</td>
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<tr>
<td>R601</td>
<td>Bass, Treble</td>
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<tr>
<td>R8, R106, R11, R111</td>
<td>Loudness</td>
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<tr>
<td>R5, R105</td>
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<td><strong>TRANSFORMERS</strong></td>
<td>Power Transformer</td>
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<td>T1</td>
<td>Power Transformer Overseas</td>
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<td>T1</td>
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<td><strong>SWITCHES</strong></td>
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<td>SWM-37-2-1</td>
<td>Rotary Switch Stereo</td>
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<td>SWM-125</td>
<td>Rotary Switch Input</td>
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<td>SS-22-3/3A</td>
<td>Loudness compensator, Speaker</td>
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<tr>
<td>SS-43</td>
<td>Rumble filter, Scratch filter,</td>
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<td></td>
<td>Tape</td>
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<td>Phono Sensitivity</td>
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<td><strong>MISCELLANEOUS</strong></td>
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<tr>
<td>A-F-1</td>
<td>Plastic Feet</td>
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<td>A-FW-A</td>
<td>Flywheel ASS'y</td>
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<td>A-PSR-1</td>
<td>Pointer</td>
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<td>A-FL-3/8</td>
<td>Nylon Pulley</td>
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<td>F-ASX-2</td>
<td>Fuse</td>
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<td>F-SB-1/4A</td>
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<tr>
<td>J-3-ST-5</td>
<td>Jack Triple</td>
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<tr>
<td>MS5-6</td>
<td>Meter</td>
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<td><strong>SUB ASSEMBLIES</strong></td>
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<tr>
<td>2-AM-FM-7</td>
<td>AM-FM Front End</td>
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<tr>
<td>2-PC-MM-11</td>
<td>Mult plex (printed Circuit</td>
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<tr>
<td>2-PC-IF-2</td>
<td>IF-AM (printed circuit board</td>
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<tr>
<td>2-PC-PS-2</td>
<td>Power Supply(printed board</td>
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<tr>
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<tr>
<td>2-PC-G-2</td>
<td>Output(Printed circuit board</td>
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<tr>
<td>2-PC-IF-1</td>
<td>FM IF (printed circuit board</td>
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<td>complete)</td>
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<tr>
<td>2-PC-P-5</td>
<td>Pre-amp(printed circuit board</td>
</tr>
<tr>
<td></td>
<td>complete)</td>
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<tr>
<td>2-PC-TD-2</td>
<td>Tone Driver(circuit board</td>
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<tr>
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<td>complete)</td>
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<tr>
<td>2-WF-3</td>
<td>Whistle Filter</td>
</tr>
</tbody>
</table>
CAPACITORS
C501 --------------- CM19-220
C502, C509 --------------- CM20-4700
C503, C510 --------------- CTT-1/25
C504, C508, C514, C550-CTT-4.7/20
C505 --------------- CC-1200
C506 --------------- CC-.001
C507 --------------- CC-.01
C512, C513 --------------- CM19-330
C515 --------------- CC-120
C516 --------------- CC-1800
C517 --------------- CTT-10/20
C518 --------------- CM20/390
C519 --------------- CM20/150
C523 --------------- CTT-1/25

Capacitor Mica
Capacitor Tantalum Tubular
Ceramic Capacitor
Capacitor Mica
Ceramic Capacitor
Capacitor Tantalum Tubular
Capacitor Mica
Capacitor Tantalum Tubular

TRANSISTORS
Q501, Q505, Q507 -------- 2N3702
Q502 --------------- 2N2926 or 2N3705
Q503 --------------- AE1001 or AE1001
Q504 --------------- 2N3702
Q506 --------------- 2N2926

Transistor

RESISTORS
R501, R524 --------------- RC21-47K
R502 --------------- RC21-22K
R503 --------------- RC21-3.3K
R504 --------------- RGl1-39
R505, R517, R524 --------------- RC21-4.7K
R506 --------------- RC21-180
R507 --------------- RC21-470K
R508 --------------- RC21-470
R509, R510, R519, R518 --------------- RC21-10K
R511 --------------- RC21-150K
R512, R533 --------------- RC21-16K
R513 --------------- RC21-62K
R515 --------------- RC21-330
R516, R530 --------------- RC21-2.2K
R520 --------------- RC21-12K
R521 --------------- RC21-100K
R522, R523 --------------- RC21-10K
R525 --------------- RC21-1K
R526 --------------- RC21-820
R527 --------------- RC21-33K
R529 --------------- RC21-15K
R532 --------------- RC21-3.9K

1/2 Watt Carbon Resistor
1/2 " " "
1/2 " " "
1/2 " " "
1/4 " " "
1/2 " " "
1/2 " " "
1/2 " " "
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1/2 " " "
1/2 " " "
1/2 " " "
1/2 " " "

Silicon Rectifier
Silicon Rectifier

DIODES
D501 --------------- SR-1-5
D502, D503, D504, D505, D507, D508, D509, D510 --------------- 0-0M-3
D506 --------------- 0-01-1

Diode

Diode
MISCELLANEOUS

L501------------------LV-.015T-PC
L502------------------LV-.015-PC
L503------------------L-RFC-.01
T501------------------TRV-.015T-PC
T502------------------TRV-.03N5T-PC
       RCW=2 x 10K-PC
       PEC-312

Variable Coil
Variable Coil
RF Choke
Variable Transformer (Can Type)
" "
Variable Carbon Resistor
Packaged Electrical Circuits
CAPACITORS
C1, C2 -----------------CM-.22/250

RESISTORS
R1, R9-------------------RW5-12
R2, R8-------------------RC31-220
R3, R7-------------------RC31-270
R5----------------------RC21-4.7K
R4, R6-------------------RC01-82K

5 Watt Wire Wound Resistor
1 Watt Carbon Resistor
1/4 " " "
1/2 " " "
3/4 " " "

MASTER PARTS LIST
## CAPACITORS

<table>
<thead>
<tr>
<th>Part</th>
<th>Designation</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>C301</td>
<td>CTT-10/20</td>
<td>Capacitor Tantalum Tubular</td>
</tr>
<tr>
<td>C302</td>
<td>C326</td>
<td>Ceramic Capacitor</td>
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<tr>
<td>C303, C306, C311, C317</td>
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<tr>
<td>C316, C321, C327</td>
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<tr>
<td>C304, C305, C307, C309, C308, C310, C313</td>
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<td>C314, C318, C319</td>
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<td>C312, C320</td>
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<tr>
<td>C315</td>
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<td>C270K</td>
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<td>C270K</td>
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<td>C325</td>
<td>CC-1.0</td>
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## TRANSISTORS

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<td>Q301, Q302</td>
<td>See Transistor Chart</td>
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<td>Q303</td>
<td>QRF-2</td>
<td>RF Transistors</td>
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<tr>
<td>Q304, Q305</td>
<td>SE3001 or ME3001</td>
<td>Transistor</td>
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## RESISTORS

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<th>Part</th>
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<tr>
<td>R301</td>
<td>RG21-100K</td>
<td>1/2 Watt Carbon Resistor</td>
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<tr>
<td>R302, R330</td>
<td>RG21-10K</td>
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<tr>
<td>R303, R309, R326</td>
<td>RG21-330</td>
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<tr>
<td>R306</td>
<td>RG21-2.2K</td>
<td>1/2 Watt Carbon Resistor</td>
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<tr>
<td>R305, R312, R319</td>
<td>RG21-47K</td>
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<tr>
<td>R306, R314</td>
<td>RG21-4.7K</td>
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<tr>
<td>R307, R313, R320, R323, R329</td>
<td>RG21-15K</td>
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<tr>
<td>R328</td>
<td>RG21-220</td>
<td>1/2 Watt Carbon Resistor</td>
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<tr>
<td>R310, R317</td>
<td>RG21-47</td>
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<tr>
<td>R311, R318</td>
<td>RG21-22GK</td>
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<td>R315, R316, R322, R306-RG21-470</td>
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<td>R321</td>
<td>RG21-47</td>
<td>1/2 Watt Carbon Resistor</td>
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<tr>
<td>R324</td>
<td>RG21-330</td>
<td>1/2 Watt Carbon Resistor</td>
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<td>R325</td>
<td>RG21-27</td>
<td>1/2 Watt Carbon Resistor</td>
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<td>R327</td>
<td>RG21-1.8K</td>
<td>1/2 Watt Carbon Resistor</td>
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<tr>
<td>R329</td>
<td>RG21-68</td>
<td>1/2 Watt Carbon Resistor</td>
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## DIODES

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<td>D301, D302</td>
<td>DQM-2</td>
<td>Diode</td>
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<td>D303, D304</td>
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## MISCELLANEOUS

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<tbody>
<tr>
<td>T301, T302, T303</td>
<td>TR7-10.7 FC</td>
<td>Variable Transformer (Can Type)</td>
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<td>T304</td>
<td>TTV-10.7D-FC</td>
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<tr>
<td>L301</td>
<td>L-RPC-2.2</td>
<td>RF Choke</td>
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### Master Parts List

**Capacitors**

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<th>Part</th>
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<tbody>
<tr>
<td>C1, C7</td>
<td>Capacitor Mylar Molded</td>
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<tr>
<td>C2, C5</td>
<td>Ceramic Capacitor</td>
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<tr>
<td>C3, C13</td>
<td>Ceramic Capacitor</td>
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<tr>
<td>C6</td>
<td>Electrolytic Printed Circuit Type</td>
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<tr>
<td>C7, C8, C9</td>
<td>Ceramic Capacitor</td>
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<tr>
<td>C10</td>
<td>Miniature Tubular Electrolytic</td>
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<tr>
<td>C11, C14</td>
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**Resistors**

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<td>R2</td>
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<td>R3</td>
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<td>R4</td>
<td>1/4 &quot; &quot; &quot;</td>
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<td>R5</td>
<td>1/4 &quot; &quot; &quot;</td>
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<tr>
<td>R6, R13, R14</td>
<td>1/4 &quot; &quot; &quot;</td>
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<tr>
<td>R9</td>
<td>1/4 &quot; &quot; &quot;</td>
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<td>R17</td>
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**Diode**

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**Miscellaneous**

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<td>Variable Transformer (Can Type)</td>
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<tr>
<td>T3</td>
<td>Variable Transformer (Can Type)</td>
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<td>RF Choke</td>
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<tr>
<td>L4</td>
<td>&quot; &quot;</td>
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</table>
CAPACITORS
C1-------------------CEVM-5/15
C2, C3-----------------CEV-50/75
C4-------------------CEVM-250/30

RESISTORS
R1-------------------RC21-8.2K
R2-------------------RC21-150
R3-------------------RMS-1K
R4-------------------RC31-470
R5-------------------RW3-270
R6-------------------RWB-220
R7-------------------RC01-150

MINIATURE TUBULAR ELECTROLYTIC
CAPACITOR ELECTROLYTIC TUBULAR
MINIATURE TUBULAR ELECTROLYTIC

1/2 Watt Carbon Resistor
1/2 " " Wire Wound Resistor
1 Watt Carbon Resistor
Wire Wound Resistor
2 Watt Carbon Resistor

DIODE
D1-------------------DZ-12
D2-------------------DZ-27

ZENER DIODE
" "
CAPACITORS
C1, C5-------------------CEPC-1/25
C2, C3-------------------CEPC-10/20
C6-------------------CEPC-100/6
C6, C7-------------------CEPC-25/25
C8, C11-------------------CEPM-250/3
C9-------------------CD-47 HE
C10-------------------CEPC-25/25
C12-------------------CEY-50/75
C15-------------------CD-130

Electrolytic Printed Circuit Type
Capacitor Tantalum Tubular
Electrolytic Printed Circuit Type
Miniature Tubular Electrolytic
Capacitor
Ceramic Capacitor
Electrolytic Printed Circuit Type
Capacitor Electrolytic Tubular
Ceramic Capacitor

TRANSISTORS
Q1-------------------2N2925 or 2N3711
Q2-------------------2N2924 or 2N3710
Q3-------------------QA-10 (Green Dot)
Q4-------------------QA-9
Q5-------------------QA-10 (Red/Blue/Green)
Q6-------------------QA-10 (Blue/Green)

Transistor

RESISTORS
R2-------------------RC21-4.7K
R3-------------------RC21-47K
R4, R5, R21, R25-------------------RC21-15K
R6-------------------RC21-1.8K
R7-------------------RC21-1.2K
R8-------------------RC21-68
R9-------------------RC21-33K
R10-------------------RC21-56K
R11, R16-------------------RC21-2.7K
R12-------------------RC21-6.8K
R13, R29-------------------RC21-3.9K
R14-------------------RC21-6.8K
R15-------------------RC21-18K
R16, R23-------------------RC21-270
R17-------------------RC21-82K
R18-------------------RC21-47
R19, R26-------------------RC21-3.3K w/CC120
R20-------------------RC21-220
R21-------------------RC21-1.5K w/CC470
R22-------------------RC21-390
R30-------------------RC21-1K

1/2 Watt Carbon Resistor

D'CODE
DI-------------------SR-1-5

Silicon Rectifier
CAPACITORS
C1---------------------CECM-2/25
C2, C3-------------------CECM-10/25
C4, C10-------------------CC-330X
C5----------------------CECM-250/3
C6----------------------CECM-5/15
C7----------------------CECM-50/25
C8----------------------CC-.0056 10%
C9----------------------CC-.0012 10%
C11---------------------CC-470K
C12---------------------CC-680/10%

TRANSISTORS
Q1----------------------See Transistor Chart
Q2----------------------2N3292 or 2N3703
Q3----------------------2N2213

RESISTORS
R1, R5, R9---------------RG21-63K
R2, R9-------------------RG21-33K
R3-----------------------RG21-470
R4, R10-----------------RG21-5.6K
R6, R15-----------------RG21-12K
R7----------------------RG21-27K
R12---------------------RG21-1K
R12---------------------RG21-6.8K
R13---------------------RG21-920
R14, R16----------------RG21-47K
R17---------------------RG21-4.7K

INDUCTORS
L1----------------------L-RPC-.05

Miniature Tubular Electrolytic
Ceramic Capacitor
Miniature Tubular Electrolytic
Ceramic Capacitor

Transistor
1/2 Watt Carbon Resistor
1/2 " " "
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1/2 " " "

RF Choke
MASTER PARTS LIST

CAPACITORS
C218-------------------------CC-.001
C223, C217, C206, C205---------CC-.005
C219, C226, C213, C207, C205-----CC-.005
C215--------------------------CC-.47
C202, C211, C225, C216---------CC-.5 NPO
C232, C235---------------------CC-8.2 N1500
C221--------------------------CC-12NPO
C209--------------------------CC-.15 NPO
C208, C224---------------------CCF-.001
C210, C222---------------------CTV-10
C218--------------------------CMM-.068/50 20%

Ceramic Capacitor

Capacitor Feed Thru

Trimmer Capacitor

Mylar Capacitor

TRANSISTORS
Q204-------------------------Q-RF-2
Q201, Q202, Q203-------------Q-RF-3

Transistors

RESISTORS
R206--------------------------RC11-68
R201, R202, R203, R204, R212-----RC11-220
R205--------------------------RC11-470
R215--------------------------RC11-18
R214--------------------------RC11-2.2K
R213--------------------------RC11-4.7K
R207, R209---------------------RC11-220K
R210--------------------------RC11-1M
R208--------------------------RC11-2.2K
R211, R216---------------------RC11-47

1/2 Watt Resistor

1/4 Watt Resistor

Silicone Diode

RF Choke

Antenna Coil FM

OSC & Mixer Coil FM

TRANSFORMER
T-201------------------------TFV-10.7 PC

IF Transformer

SUB ASSEMBLY
Z-PC-RF-1

RF PC Board Assembly

Miscellaneous
XQ-4GR-w/mounting rings
XQ-4R-w/mounting rings

Transistor Socket
TO: All Reps & Warranty Service Stations  

SUBJECT: P.C. boards used in the 388  

The following information on the 388 supplements the list of P.C. board changes already sent to you.  

Use this information when ordering P.C. boards from the factory.

<table>
<thead>
<tr>
<th>UNIT</th>
<th>PC BOARD</th>
<th>LABEL</th>
<th>USE</th>
<th>CHANGE REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>388</td>
<td>Z-PC-O-2</td>
<td>N-PC-113-1L</td>
<td>Output</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Z-PC-IF-1</td>
<td>N-PC-107-1L</td>
<td>FM/IF strip</td>
<td>Remove R321 (RC21-47)</td>
</tr>
<tr>
<td></td>
<td>Z-PC-IF-2</td>
<td>N-PC-118-1L</td>
<td>AM/IF strip</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Z-PC-MK-11</td>
<td>N-PC-109-6L</td>
<td>Mpx.</td>
<td>Add C521, C522</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(CERM-5/13)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Add R531, R534,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(RC21-100X)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Add C511 (CC-120)</td>
</tr>
<tr>
<td></td>
<td>Z-PC-P-5</td>
<td>N-PC-111-1L</td>
<td>Preamp</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Z-PC-PS-2</td>
<td>N-PC-120-1L</td>
<td>Power Supply</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Z-PC-TD-2</td>
<td>N-PC-110-2L</td>
<td>Tone/Driver</td>
<td>None</td>
</tr>
</tbody>
</table>

Best regards,

Fred Holmes  
Service Manager

FN: kc
DATE: February 2, 1966
TO: Reps & All Warranty Service Stations
FROM: F. Holmes
SUBJECT: Usage of QRF-3 in Z-AM/FM-7 and Z-FM-16

Our present vendor, Texas Instruments, has established the following color code:

<table>
<thead>
<tr>
<th>IdSS in ma</th>
<th>Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 - 1</td>
<td>Red</td>
</tr>
<tr>
<td>1 - 2</td>
<td>Orange</td>
</tr>
<tr>
<td>2 - 4</td>
<td>Yellow</td>
</tr>
<tr>
<td>4 - 8</td>
<td>Green</td>
</tr>
<tr>
<td>8 - 15</td>
<td>Blue</td>
</tr>
</tbody>
</table>

These field-effect transistors shall be used in the following manner:

<table>
<thead>
<tr>
<th>Choice</th>
<th>Q201</th>
<th>Q202</th>
<th>Q203</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green</td>
<td>Yellow</td>
<td>Orange</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Green</td>
<td>Yellow</td>
</tr>
<tr>
<td>3</td>
<td>Yellow</td>
<td>Orange</td>
<td>Red</td>
</tr>
</tbody>
</table>

Within any front end the above choices must be used as indicated above, i.e., no other mixing of colors.

Fred Holmes
Service Manager

FH: kc
**SERVICE BULLETIN**

**FOR**

**MODEL 888**

**AM-FM-HF TUNER-AMPLIFIER**

### SPECIFICATIONS

**TUNER (FM-NPR)**
- Usable Sensitivity (IFM) - 3% THD, Noise and Hum: 1.6 µV
- Signal to Noise Ratio: 75 dB
- Total Harmonic Distortion, Mono: 0.8%
- Frequency Deviation (Shift) less than 0.02%
- Frequency Response: 40 to 120,000 cps ± 1 dB
- Capture Ratio: 50 dB
- Selectivity (400 kHz off channel): 55 dB
- Spurious Response Rejection (gross modulation rejection): 60 dB
- 19 kHz Pilot Suppression: 60 dB
- 35 kHz Sub-carrier Suppression: 87 dB
- AM Suppression: 109 dB
- Tuning Range: 87 to 108 MHz
- Accuracy of Calibration: 0.5%
- Separation: greater than 35 dB

*This is a limit of FCC Stereo Broadcast specifications. All H. H. Scott tuners have far wider frequency response.*

**TUNER (AM)**
- Usable Sensitivity (External terminals): 20 µV
- Volume Sensitivity: 6 µV
- Audio Hum and Noise (Ref. 1 V Output): 32 dB
- Tuning Range: 330 to 1650 KHz
- Bandwidth (-6 dB): 5.5 kHz

**AMPLIFIER**
- Tape Output: 0.5 V
  - Signal for rated output: 200 kHz
  - 200 kHz HPF
  - HPF
- Tape Head - Input impedance: 47 k ohms
- S/N Ratio: 3:1, 9 kHz
- S/N Ratio: 55 dB
- High Level Inputs: 57 k ohms
- Signal for rated output: 3.0 V
- S/N Ratio: 52 dB
- Noise: 57 k ohms
- S/N Ratio: 60 dB
- Frequency Response in flat position: 8 dB at 10,000 cps
- Treble controls: boost and cut at 10,000 cps
- Bass controls: boost and cut at 500 cps
- Loudness Compensation, maximum: 10 dB @ 100 kHz

**Filter**
- Scratch filter: 8 dB @ 100 kHz
- Baffle filter: 8 dB @ 500 cps
- Music Power Rating (watts/channel) @ 0.8% harmonic distortion:
  - 0.5 watts
  - 0.5 watts
  - 8 ohms
  - 0.5 watts
  - 8 ohms
  - 8 ohms
- Continuous Output: Single Channel @ 8 ohms: 60/50 watts
- Continuous Output: Both Channels @ 8 ohms: 20/30 watts
- 0.8 % Harmonic Distortion:
  - 30/10 watts
  - Total Harmonic Distortion at rated output: 0.8 %
  - Frequency Response - Power Amplifier @ 1 w:
    - 20 to 20,000 cps ± 1 dB
    - 20 to 20 kHz
    - Hum and Noise: 0 dB
    - Distortion factor: 0.5
    - Line Voltage and Frequency: 105-125 V, 50 - 60 cps
    - Power Consumption @ 117 volts, 60 cps: 35-115 watts

### Balance Adjust
- Set balance controls on each channel for 35 volts at balance test point. (see schematic)

### Bias Adjust
- Bias adjustment should be made only after the unit has been run for 2 minutes at the clipping point into an 8 ohm load.
- Set the bias controls on each channel for .08 ma using a Triplet model 630 V.O.M. set on the 12 ma scale.
- If the Triplet model 630 V.O.M. is not available, use a DC VOM and adjust bias for 17 ma.

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**D-382-2**

© 1966 H.H.S.COTT INC.
SCOTT MODEL 388 AM-FM-FM STEREO RECEIVER

Set 1 - Right