MOBILE RADIO

# MAINTENANCE MANUAL

## 138—174 MHz, 100/110-WATT POWER AMPLIFIER
## 19C320414G3 MOBILE "M" 138—174 MHz
## 19C320414G6 MOBILE "E" 138—174 MHz
## 19C320414G8 STATION INTERMITTENT DUTY, 150.8—174 MHz
## 19C320414G9 STATION INTERMITTENT DUTY, 138—155 MHz
## 19D417524G2 STATION CONTINUOUS DUTY, 138—155 MHz
## 19D417524G4 STATION CONTINUOUS DUTY, 150.8—174 MHz

TABLE OF CONTENTS



## DESCRIPTION

The PA assembly uses seven RF power transistors to provide 100 watts output power for MASTR® Executive II and 110 watts output power for MASTR II. The output power is adjustable over a range of 30 to 100 watts for MASTR Executive II and 35 to 110 watts for MASTR II. Seven transistors are used in the power control circuit.

**CAUTION**

Mobile and Station Power Amplifiers ARE NOT interchangeable due to different chassis grounding requirements.

In Station applications, the chassis ground and PA board ground are common.

In Mobile applications, the PA board is isolated from vehicle ground.

Supply voltage for the PA is connected through power leads (from the system-audio-squelch board (SAS) on MASTR Executive II and from the system board on MASTR II) to feedthrough capacitors C297 and C298 on the bottom of the PA assembly. C297, C298, C299, L295 and L296 prevent RF from getting on the power leads. Diode CR295 will cause the main fuse in the fuse assembly to blow if the polarity of the power leads is reversed, providing reverse voltage protection for the radio.

The PA assembly is insulated from vehicle ground to permit operation in positive or negative ground vehicles.

**NOTE**

In positive ground vehicles, A- is "hot" with respect to vehicle ground. Shorting the transmitter PA printed wiring board ground pattern to the radio case may cause one of the in-line fuses to blow.

Centralized metering jack J205 is provided for use with GE Test Set Model 4EX3A11 or Test Kit 4EX8K12. The Test Set meters the Ampl-1 drive (exciter output), Ampl-1 voltage, driver current, PA current and PA voltage.

## CIRCUIT ANALYSIS

### RF AMPLIFIERS

The exciter output is coupled through an RF cable to PA input jack J201. The RF is coupled through a matching network to the base of Class C amplifier Q201. The network matches the 50-ohm input to the base of Q201, and consists of T201, C203, C204 and L202. R201, L201, and C275 are a stabilizing network in the base circuit of Q201.

Part of the RF input is rectified by CR201 and is applied to voltage dividers R202, R231 and R203. The voltage is divided to activate the Power Control circuit and for metering the Ampl-1 drive at J205.

Collector voltage to Q201 (Ampl-1) is controlled by the Power Control circuit, and is applied through a collector stabilizing network (L213 and R213) and collector feed network T202 and C276. The collector voltage of Q201 is metered through R212 at J205.

The output of Q201 is coupled to the base of the second class C amplifier (Q202) through a matching network consisting of T202, C210, T203, C211 and C212. Collector voltage to Q202 is applied through collector stabilizing network L226 and R232 and collector feed network L203 and C17.

The output of Q202 is applied to the base of Class C driver Q203 through a low-pass filter matching network (L220, C218, C220 and C221). Collector voltage to Q203 is coupled through collector stabilizing network Z202 and collector feed network L204 and C225.

Collector current for Q203 is metered across tapped manganin resistor R215 at J205 (Driver Current). The reading is taken on the one-volt scale with the High Sensitivity button pressed, and read as 10 amperes full scale.

Following Q203 is a matching network (L221, C227, C4209, T204 and C229) that matches the output of Q203 to the 50-ohm microstrip impedance (W207) to the input of power divider Z207.

The power amplifier stages consist of four identical paralleled Class C PA circuits (Q204 through Q207). The output of Z207 is coupled through impedance-matching networks T205-C230 and T206-C231 to additional power dividers Z208 and Z209. Z208 provides drive for PA transistors Q204 and Q205, while Z209 provides drive for Q206 and Q207.

One output of Z208 is applied to the base of Q204 through an impedance matching network (T207, C236, C240 and C241). C265, L214 and R208 are a stabilizing network in the base of Q204. Supply voltage for Q204 is coupled through collector stabilizing network Z203, and collector feed network L205 and C248.

Collector current for Q204 through Q207 is metered across paralleled tapped manganin resistors R207 and R216. The reading is taken on the one-volt scale with the High Sensitivity button pressed, and read as 30 amperes full scale.

The output of Q204 is coupled through a matching network (L222, C256, T211 and C260) and added to the output of Q205 in power combiner Z210. The outputs of Q206 and Q207 are coupled through matching networks to power combiner Z211. Following Z210 and Z211 are impedance-matching networks (T215-C268 and T216-C269) that match the outputs of Z210 and Z211 to power combiner Z212. The combined PA output is applied to 50-ohm microstrip W209, and is coupled through a low-pass filter to the antenna through antenna switch K201. Capacitors C278, C279, C280, C223, C232, C226, C223 and C4208 provide isolation for ± ground operation.

**WARNING**

The RF Power Transistors used in the transmitter contain Beryilium Oxide, a TOXIC substance. If the ceramic, or other encapsulation is opened, crushed, broken or abraded, the dust may be hazardous if inhaled. Use care in replacing transistors of this type.

## POWER CONTROL CIRCUIT

When the transmitter is keyed, rectified RF from CR201 is applied to the base of switch Q208, turning it on. Turning on Q208 turns on voltage regulator Q209, supplying a constant voltage to Power Adjust potentiometer R223.

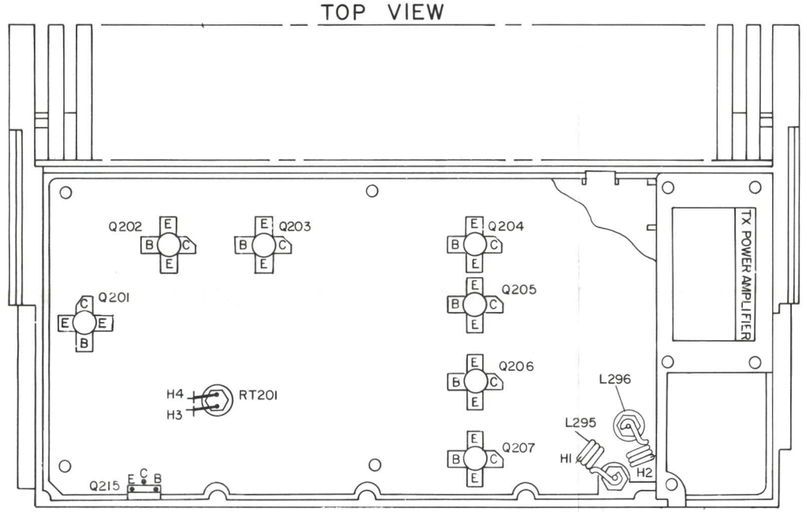
Q213, Q214 and Q215 operate as an amplifier chain to supply voltage to the collector of Q201 (Ampl-1). The setting of R223 determines the voltage applied to the base of Q214. The higher the voltage at the base of Q214, the harder the amplifiers conduct, supplying more collector voltage to Q201. The lower the voltage at the base of Q214, the less collector voltage is supplied to Q201. Reducing the supply voltage to Q201 reduces the drive to Q202 and Q203, thereby reducing the power output of the PA. The power output can be adjusted by R223 from approximately 30 to 100 watts for MASTR Executive II and 35 to 110 watts for MASTR II.

**CAUTION**

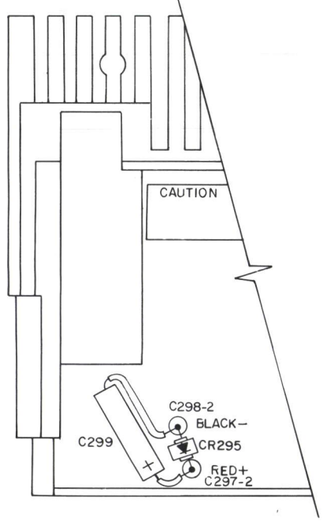
Due to the reduced heat dissipation capability of the MASTR Executive II heat sink assembly, the MASTR Executive II transmitter should not be adjusted above 100 watts.

Temperature protection is provided by Q210, Q211, and thermistor RT201 which is mounted in the PA heatsink. Under normal operating conditions, the circuit is inactive (Q210 is on and Q211 is off). When the heatsink temperature reaches approximately 100°C, the resistance of RT201 decreases. This increases the base voltage applied to Q210, turning it off. Turning off Q210 allows Q211 to turn on, decreasing the voltage at Power Adjust potentiometer R223. This reduces the base voltage to Q214 which causes Q213 and Q215 to conduct less, reducing the collector voltage to Q201 (Ampl-1). This reduces the transmitter output power, keeping the heatsink at approximately 100°C. When the heatsink temperature decreases below 100°C, the temperature control circuit turns off, allowing the normal transmitter power output.

PA ASSEMBLY
TOP VIEW

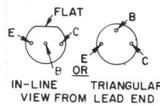



BOTTOM VIEW



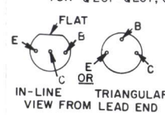

▲ 19D416964G2 & G3
✱ 19D416964G3
◇ USED ON 19C320414G6 ONLY

LEAD IDENTIFICATION
FOR Q101 - Q109, Q208, Q213, Q214

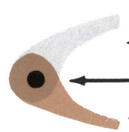



NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.

LEAD IDENTIFICATION
FOR Q201 - Q207, Q209, Q210, & Q211

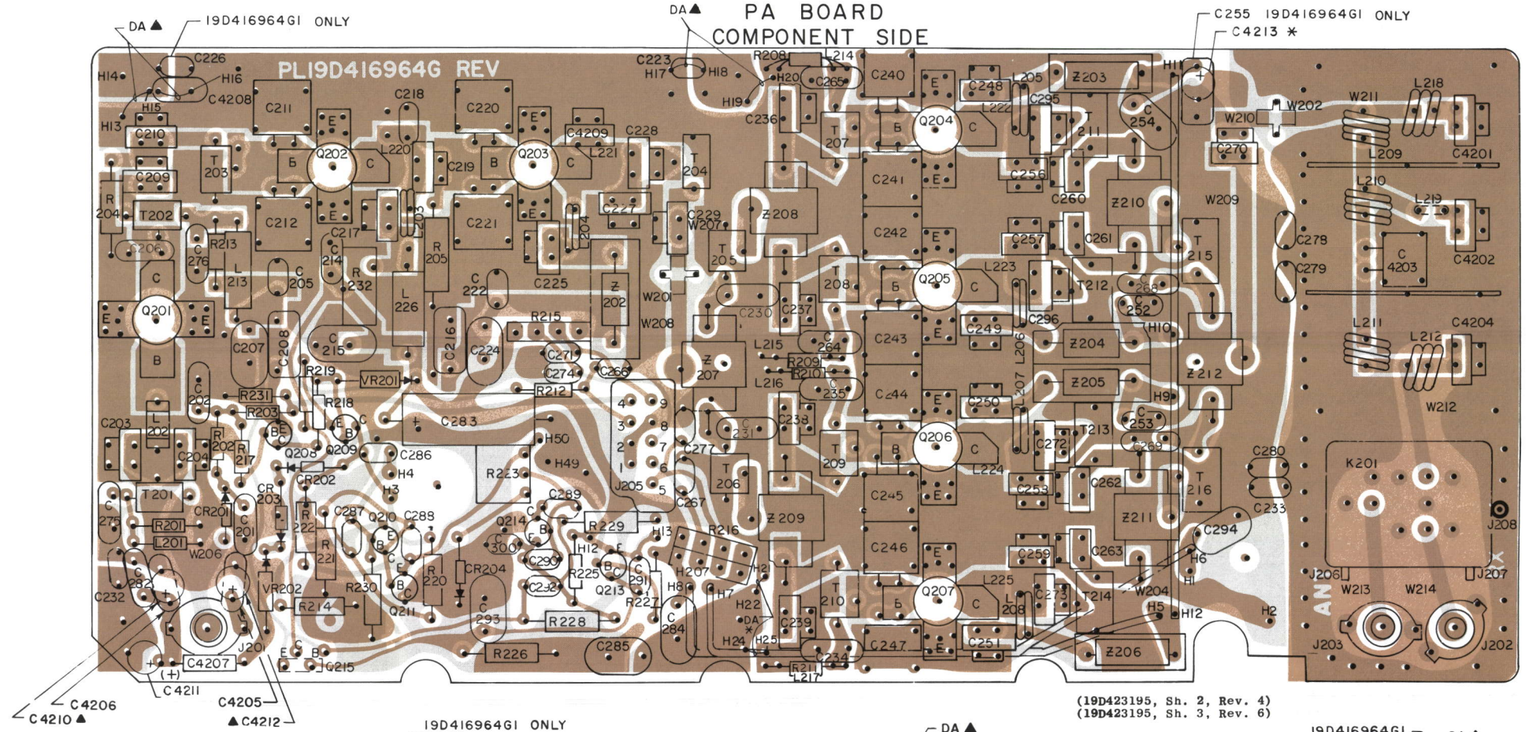



NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.



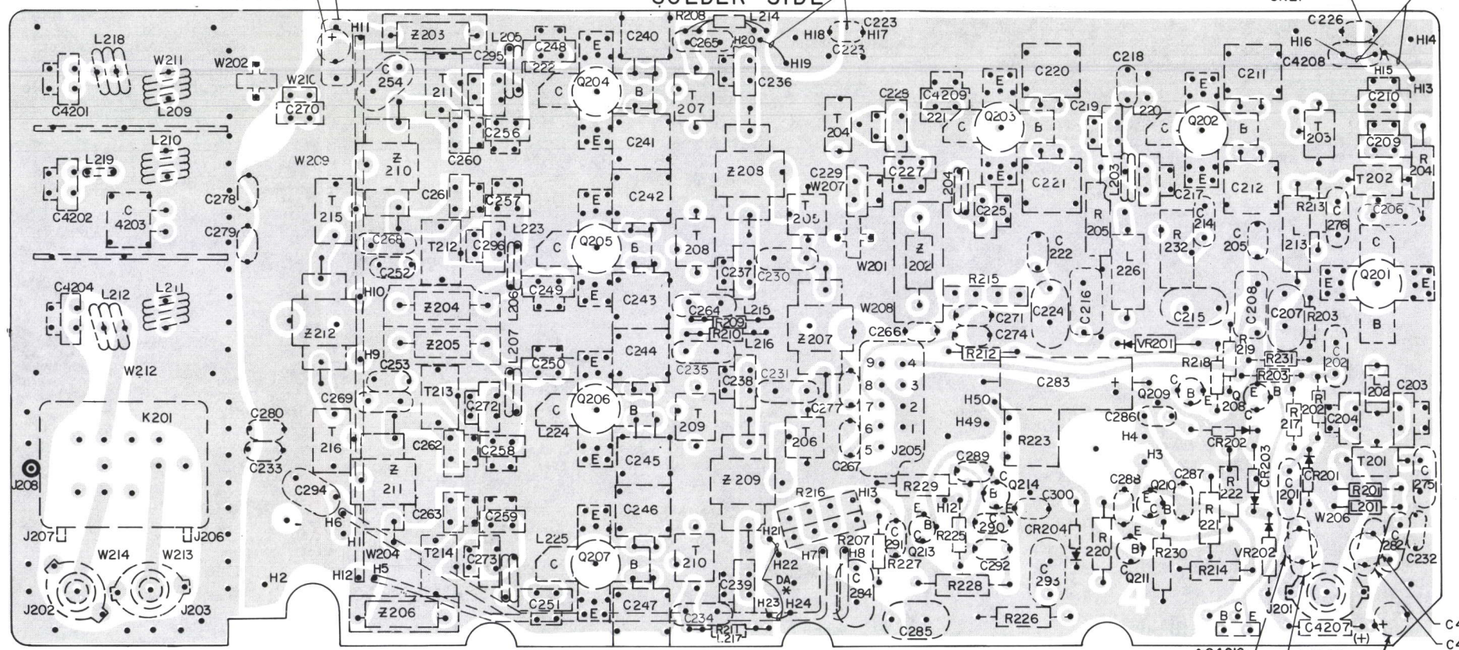
RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE

PA BOARD
COMPONENT SIDE




(19D423195, Sh. 2, Rev. 4)
(19D423195, Sh. 3, Rev. 6)

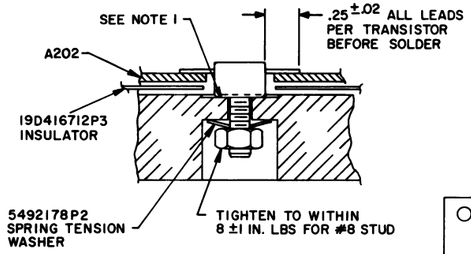
SOLDER SIDE



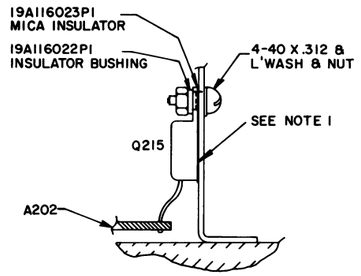

(19R622041, Rev. 20)
(19D423195, Sh. 2, Rev. 4)

## OUTLINE DIAGRAM

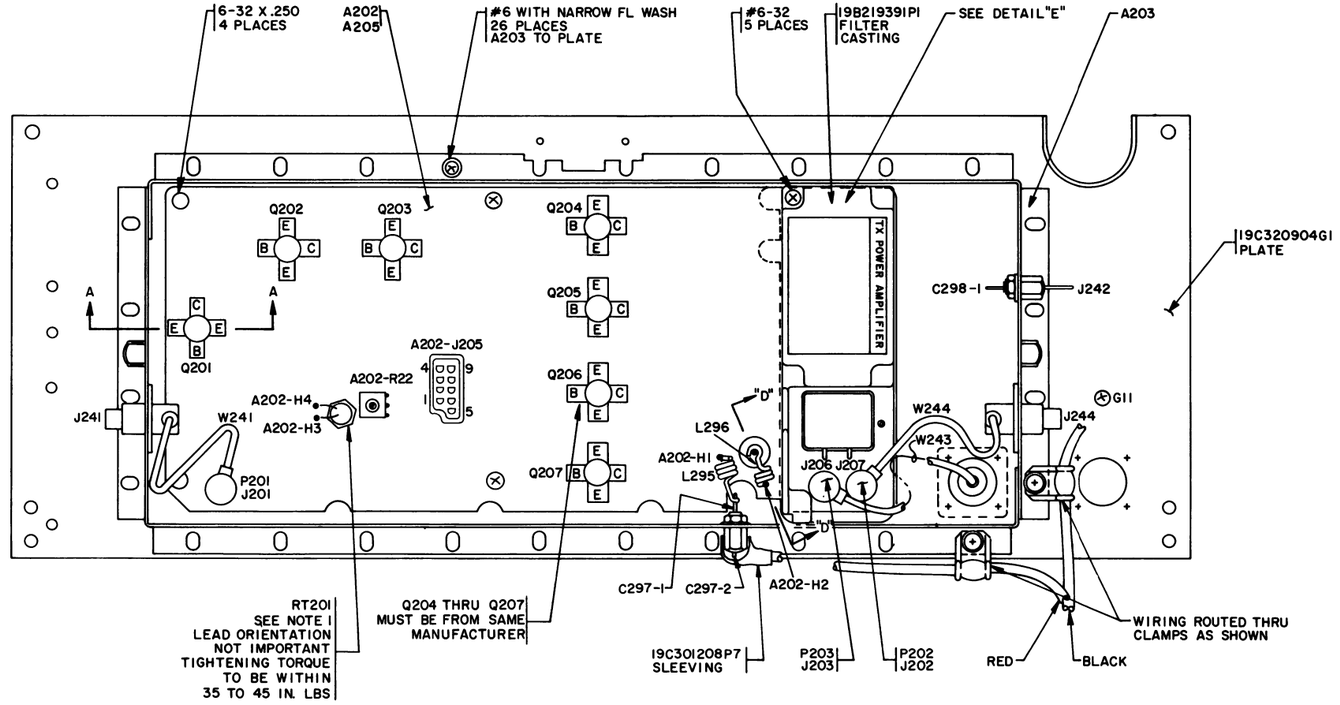
138—174 MHz, 100/110 WATT
POWER AMPLIFIER 19C320414G3, G6, G8 & G9
MOBILE AND INTERMITTENT DUTY STATION

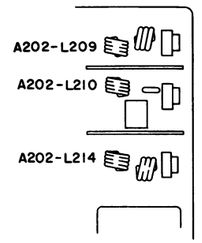



SECTION A-A
TYP MTG FOR Q201 THRU Q207

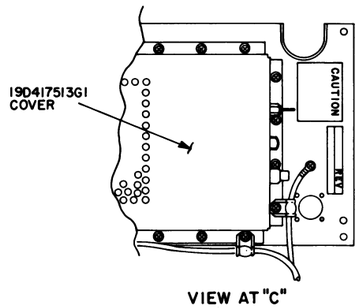



SECTION B-B

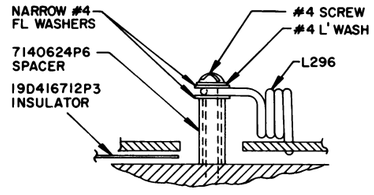


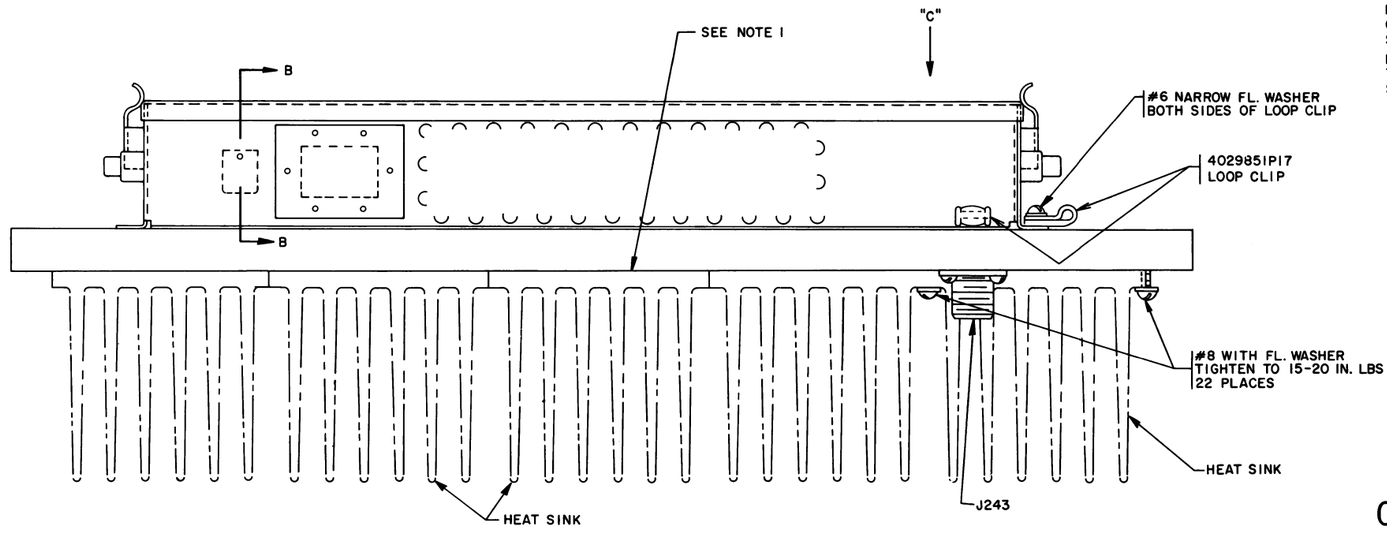

DETAIL "E"
(VIEW OF A202 WITH COVER REMOVED)




VIEW AT "C"




SECTION D-D

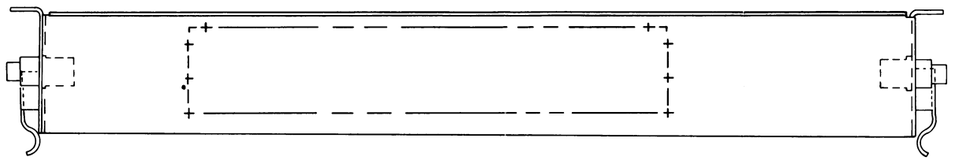



NOTES:
1. APPLY SILICONE GREASE TO BOTH SIDES OF MICA INSULATOR TO MOUNTING SURFACE OF Q201 THRU Q207 & RT201 AND UNPAINTED FLAT SURFACE OF HEAT SINKS.
   NO GREASE ALLOWED ON THE THREADED PORTION OF THE MTG STUD.

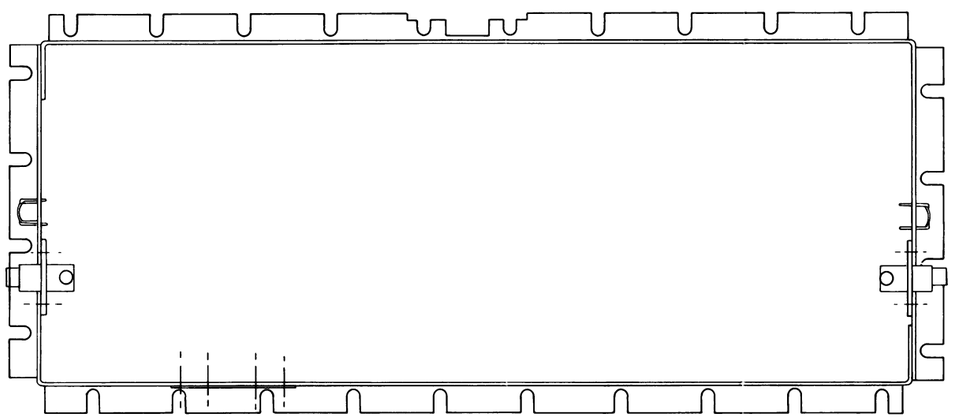
(19D423087, Rev. 1)

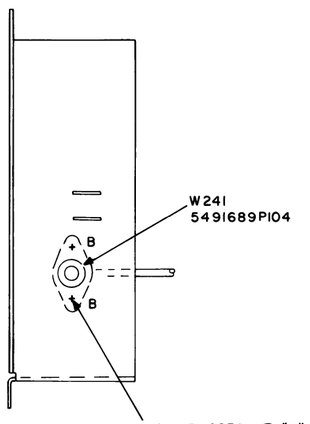
# OUTLINE DIAGRAM

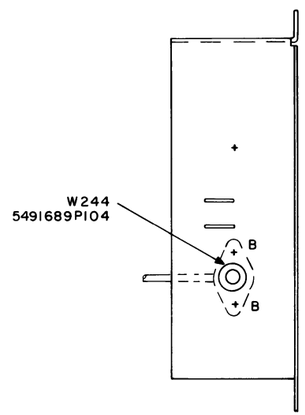
138—174 MHz, 110 WATT POWER AMPLIFIER
19D417524G2 & G4 CONTINUOUS DUTY STATION

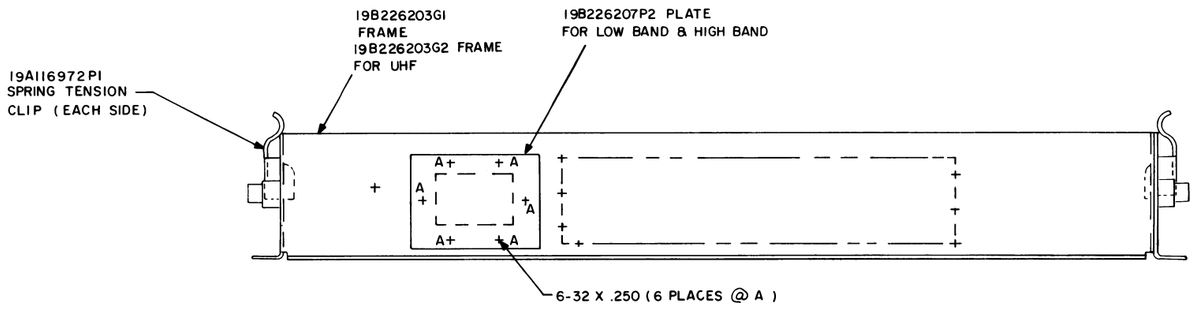


A203





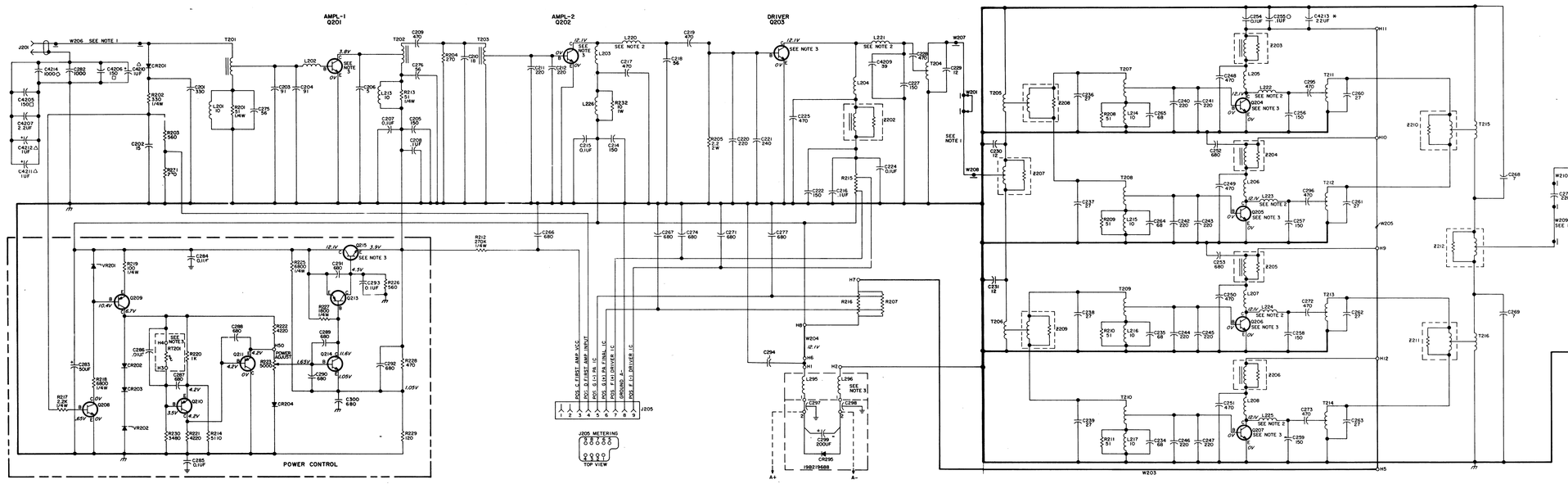




(19D423098, Rev. 0)

# OUTLINE DIAGRAM

**FRAME ASSEMBLY FOR INTERMITTENT AND CONTINUOUS DUTY TRANSMITTERS**




## VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MADE WITH THE TRANSMITTER KEYED, AND MEASURED WITH A 20,000 OHMS-PER-VOLT METER WITH REFERENCE TO A- AND NOT CHASSIS GROUND. AN RF CHOKE (25-50 MICROHENRYS) IS USED IN THE HOT METER LEAD TO AVOID DETUNING RF CIRCUITS.

NOTE: READINGS AT Q215 COLLECTOR AND IN THE POWER CONTROL CIRCUIT WERE TAKEN WITH THE TRANSMITTER ADJUSTED FOR 110 WATTS OUTPUT. THESE READINGS WILL VARY DEPENDING ON THE SETTING OF POWER ADJUST CONTROL, R223.

ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS, UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY MF=MICROFARADS. INDUCTOR VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HOLDING THE SPECIFICATIONS SHOWN ON THE PARTS LIST FOR THAT PART.

NOTES:
1. 50 OHM MICROSTRIP PART OF PWB.
2. PART OF PWB.
3. CALLED FOR ON PL19C320414G3.
4. ⏚ INDICATES A-
   ⏚ INDICATES VEHICLE GROUND
5. COMPONENT USED ONLY IN CERTAIN GROUPS AS FOLLOWS
   * USED IN 19D416964G3
   △ USED IN 19D416964G2 & G3
   □ USED IN 19D416964G1
   ○ USED IN 19D416964G1 & G2
   ◇ USED IN 19C320414G8

| STANDARD PA ASSEMBLY | REV LTR | HEAT SINK ASM | REV LTR | CPNT. BD. ASM | REV LTR | FREQ RANGE | APPLICATION |
|---|---|---|---|---|---|---|---|
| 19C320414G3 | A | 19B219688G3 | | 19D416964G1 | G | 138-174 MHz | "M" MOBILES |
| | | | | | | | |
| 19C320414G6 | B | 19B219688G5 | | 19D416964G1 | G | 138-174 MHz | "L" MOBILES |
| 19C320414G8 | | 19B219688G3 | | 19D416964G2 | | 150.8-174MHz | STATIONS |
| 19C320414G9 | | 19B219688G3 | | 19D416964G3 | | 136-155 MHz | STATIONS |

(19B621940, Rev. 21)

# SCHEMATIC DIAGRAM

138—174 MHz, 100/110 WATT POWER AMPLIFIER
19C320414G3, G6, G8 & G9
MOBILE AND INTERMITTENT DUTY STATION

Issue 4

## PARTS LIST

LBI4557G

138-174 MHz, 110 WATT POWER AMPLIFIER
19C320414G3 STD PKG 138-174 MHz
19C320414G6 STD PKG 138-174 MHz
19C320414G8 STATION INTER. DUTY 138-155 MHz
19C320414G9 STATION INTER. DUTY 150.8-174 MHz

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C4314* | 5494481P11 | Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. Added to G6 by REV B. |
| | | - - - - - - - - - - INDUCTORS - - - - - - - - - - |
| L295 and L296 | 19A129563P1 | Coil. |
| | | - - - - - - - - - - TRANSISTORS - - - - - - - - - - |
| Q201 | 19A134060P1 | Silicon, NPN; 2.8 watts- power output. |
| Q202 | 19A134060P2 | Silicon, NPN; 17 watts- power output. |
| Q203B | 19A134060P4 | Silicon, NPN; 44 watts- power output. |
| Q204 thru Q207 | 19A134060P3 | Silicon, NPN; 40 watts- power output. |
| Q215 | 19A116743P1 | Silicon, NPN. |
| | | - - - - - - - - - - THERMISTORS - - - - - - - - - - |
| RT201 | 19A129379G1 | Thermistor: 40E ohms ±20%, color code white; sim to Carborundum Type 800A02-6. |
| | | POWER AMPLIFIER BOARD<br>19D416996G1<br>19D416996G2<br>19D416996G3 |
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C201 | 7488162P39 | Silver mica: 330 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C202 | 7489162P8 | Silver mica: 15 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C203 and C204 | 19A116678P91J | Silver mica: 91 pF ±5%, 250 VDCW. |
| C205* | 19A116655P6 | Ceramic disc: 150 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In REV B and earlier: |
| | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C206 | 7489162P101 | Silver mica: 5 pF ±10%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C207 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C208* | 19A116966P107 | Metallized polyester: 0.1 µF ±10%, 50 VDCW. |
| | | In KEY C and earlier: |
| | 5496267P13 | Tantalum: 2.2 µF ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C209 | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C210 | 19A116678P18J | Metallized teflon: 18 pF ±5%, 250 VDCW. |
| C211 and C213 | 19A116795P220J | Mica: 220 pF ±5%, 250 VDCW. |
| C214* | 19A116655P6 | Ceramic disc: 150 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In REV B and earlier: |
| | 19A116678P47J | Mica: 470 pF ±5%, 250 VDCW. |
| C215 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C216* | 19A116966P107 | Metallized polyester: 0.1 µF ±10%, 50 VDCW. |
| | | In KEY C and earlier: |
| | 5496267P13 | Tantalum: 2.2 µF ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C217 | 19A116799P200J | Mica: 200 pF ±5%, 250 VDCW. |

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| C218* | 7489162P91 | Silver mica: 56 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| | | In REV B & earlier: |
| | 19A116679G8J | Mica: 68 pF ±5%, 250 VDCW. |
| C219 | 19A116679G47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C220 | 19A116795P220J | Silver mica: 220 pF ±5%, 250 VDCW. |
| C221 | 19A116795P240J | Silver mica: 240 pF ±5%, 250 VDCW. |
| C222* | 19A116655P8 | Ceramic disc: 150 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In REV B & earlier: |
| | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C223 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C224 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C225 | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C226 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C227 | 19A116678P150J | Silver mica: 150 pF ±5%, 250 VDCW. |
| C228 | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C229 | 19A116678P12J | Metallized teflon: 12 pF ±.5 pF, 250 VDCW. |
| C230 thru C251 | 7489162P7 | Silver mica: 12 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C252 and C253 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C254 and C255 | 7489162P23 | Silver mica: 68 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C256 | 7489162P27 | Metallized teflon: 27 pF ±5%, 250 VDCW. |
| C257 thru C259 | 19A116678P47J | Mica: 470 pF ±5%, 250 VDCW. |
| C260 thru C263 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C264 and C265 | 7489162P23 | Silver mica: 68 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C266 and C267 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C268 and C269 | 7489162P3 | Silver mica: 7 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C270 | 19A116678P220J | Silver mica: 220 pF ±5%, 250 VDCW. |
| C271 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C272 and C273 | 19A116678P47J | Mica: 470 pF ±5%, 250 VDCW. |
| C274 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C275 and C276 | 7489162P21 | Silver mica: 56 pF ±5%, 500 VDCW; sim to Electro Motive Type DM-15. |
| C277 thru C280 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| C282* | 19A116655P19 | Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In KEY B & earlier: |
| | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C283 | 19A115580P4 | Electrolytic: 50 µF +150% -10%, 25 VDCW; sim to Sallory Type TT4. |
| C284 and C285 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C286 | 19A116080P101 | Polyester: 0.01 µF ±20%, 50 VDCW. |
| C288 thru C292 | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C293 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C294* | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. Added by REV C. |
| C295 and C296 | 19A116678P47J | Silver mica: 470 pF ±5%, 250 VDCW. |
| C300* | 19A116655P17 | Ceramic disc: 680 pF ±20%, 1000 VDCW; sim to RMC Type JF Discap. Added by REV G. |
| C4201 | 19A116679P8D | Metallized teflon: 8 pF ±.5 pF, 250 VDCW. |
| C4202 | 19A116679P22J | Metallized teflon: 22 pF ±5%, 250 VDCW. |
| C4203 | 19A116795P29J | Metallized teflon: 29 pF ±5%, 250 VDCW. |
| C4204 | 19A116679P8D | Metallized teflon: 8 pF ±.5 pF, 250 VDCW. |
| C4205 and C4206 | 19A116655P8 | Ceramic disc: 150 pF ±10%, 1000 VDCW; sim to RMC Type JF Discap. |
| C4207 | 5496267P13 | Tantalum: 2.2 µF ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C4208 | 19A116080P107 | Polyester: 0.1 µF ±10%, 50 VDCW. |
| C4209 | 19A116679P39J | Metallized teflon: 39 pF ±5%, 250 VDCW. |
| C4210 thru C4212 | 19A134202P14 | Tantalum: 1 µF ±20%, 35 VDCW. |
| C4213 | 19A134202P6 | Tantalum: 22 µF ±20%, 15 VDCW. |
| | | - - - - - - - DIODES AND RECTIFIERS - - - - - - - |
| CR201* | 19A116032P2 | Silicon, hot carrier: Fwd. drop .410 volts max. |
| | | In KEY D & earlier: |
| | 19A115250P1 | Silicon, fast recovery, 225 mA, 50 PIV. |
| CR202 thru CR204 | 19A115250P1 | Silicon, fast recovery, 225 mA, 50 PIV. |
| | | - - - - - - - JACKS AND RECEPTACLES - - - - - - - |
| J201 thru J203 | 19A130924G1 | Receptacle, coaxial: sim to Cinch 14B11613. |
| J205 | 19B219374G1 | Connector: 9 contacts. |
| J206 and J207 | | (Part of K201). |
| J208 | 4033513P4 | Contact, electrical: sim to Bead Chain LS2-3. |
| | | - - - - - - - - - - RELAYS - - - - - - - - - - |
| K201 | 19A116722P1 | Hermetic sealed: 125 ohms ±20%, 1 form C contact, 9.6 to 15.8 VDC (over the temp range indicated). |
| | | - - - - - - - - - - INDUCTORS - - - - - - - - - - |
| L201 | 19B209420P125 | Coil, RF: 10.0 µh ±10%, 3.10 ohms DC res max; sim to Jeffers 4446-4K. |
| L202 | 19A129616P1 | Strap. |
| L203 thru L208 | 19A129561P1 | Coil. |
| L209 thru L211 | 19A129569P1 | Coil. |
| L212 | 19A129570P1 | Coil. |
| L213 | 7488079P43 | Choke, RF: 10.0 µh ±10%, 0.30 ohms DC res max; sim to Jeffers 4422-4K. |
| L214 thru L217 | 19B209420P125 | Coil, RF: 10.0 µh ±10%, 3.10 ohms DC res max; sim to Jeffers 4446-4K. |
| L218 | 19A129570P1 | Coil. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| L219 | 19A129575P1 | Coil. |
| L220 thru L223 | | (Part of 19D429195P1 printed wiring board). |
| L226* | 19A129346G1 | Coil. Added by REV C. |
| | | - - - - - - - - - - TRANSISTORS - - - - - - - - - - |
| Q208 | 19A115910P1 | Silicon, NPN; sim to Type 2N3904. |
| Q209 thru Q211 | 19A115768P1 | Silicon, PNP; sim to Type 2N3702. |
| Q213 | 19A129187P1 | Silicon, PNP. |
| Q214 | 19A115720P1 | Silicon, NPN; sim to Type 2N2222. |
| | | - - - - - - - - - - RESISTORS - - - - - - - - - - |
| R201 | 3R152P510J | Composition: 51 ohms ±5%, 1/4 w. |
| R202 | 3R152P331J | Composition: 330 ohms ±5%, 1/4 w. |
| R203* | 3R152P561J | Composition: 560 ohms ±5%, 1/4 w. |
| | | In KEY B & earlier: |
| | 3R152P821J | Composition: 820 ohms ±5%, 1/4 w. |
| R204 | 3R77P271J | Composition: 270 ohms ±5%, 1/2 w. |
| R205 | 19B209022P123 | Wirewound: 2.2 ohms ±10%, 2 w; sim to IRC Type BWH. |
| R207 | 19C320021P1 | Shunt resistor. |
| R208 thru R211 | 3R77P510J | Composition: 51 ohms ±5%, 1/2 w. |
| R212 | 3R152P274J | Composition: 0.27 megohm ±5%, 1/4 w. |
| R213 | 3R152P510J | Composition: 51 ohms ±5%, 1/4 w. |
| R214 | 19A116278P269 | Metal film: 5110 ohms ±2%, 1/2 w. |
| R215 | 19C320212P2 | Shunt resistor. |
| R216 | 19C320212P1 | Shunt resistor. |
| R217 | 3R152P222J | Composition: 2.2K ohms ±5%, 1/4 w. |
| R218 | 3R152P682J | Composition: 6.8K ohms ±5%, 1/4 w. |
| R219 | 3R152P101J | Composition: 100 ohms ±5%, 1/4 w. |
| R220 | 19A116278P201 | Metal film: 1K ohms ±2%, 1/2 w. |
| R221 and R222 | 19A116278P261 | Metal film: 4.2K ohms ±2%, 1/2 w. |
| R223 | 19A116559P102 | Variable, cermet: 5K ohms ±20%, .5 w; sim to CTS Series 360. |
| R225 | 3R152P682J | Composition: 6.8K ohms ±5%, 1/4 w. |
| R226 | 3R77P561J | Composition: 560 ohms ±5%, 1/2 w. |
| R227 | 3R152P182J | Composition: 1.8K ohms ±5%, 1/4 w. |
| R228 | 3R77P471J | Composition: 470 ohms ±5%, 1/2 w. |
| R229 | 3R77P121J | Composition: 120 ohms ±5%, 1/2 w. |
| R230 | 19A116278P253 | Metal film: 3.48K ohms ±2%, 1/2 w. |
| R231* | 3R152P271J | Composition: 270 ohms ±5%, 1/4 w. Added by REV C. |
| R232* | 3R76P100K | Composition: 10 ohms ±10%, 1 w. Added by REV C. |
| | | - - - - - - - - - - TRANSFORMERS - - - - - - - - - - |
| T201 thru T203 | 19A129564G1 | Coil. |
| T204 | 19A129574G1 | Coil. |
| T205 and T206 | 19A129633G1 | Coil. |
| T207 thru T210 | 19A129564G1 | Coil. |
| T211 thru T214 | 19A129574G1 | Coil. |
| T215* and T216* | 19A129574G1 | Coil. |
| | | In KEY E and earlier: |
| | 19A129633G1 | Coil. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| | | - - - - - - - - - - VOLTAGE REGULATORS - - - - - - - - - - |
| VR201 | 4036887P1 | Silicon, Zener. |
| VR202 | 4036887P5 | Silicon, Zener. |
| | | - - - - - - - - - - CABLES - - - - - - - - - - |
| W201 and W202 | 19A129571P1 | Strap. |
| W203 | 19B219885P2 | Jumper. |
| W204 | 19B219930P1 | Jumper. |
| W205 | 19C320288P1 | Strap, connector. |
| W206 thru W214 | | (Part of 19D429195P1 printed wiring board). |
| | | - - - - - - - - - - FILTERS - - - - - - - - - - |
| Z201* | 19B219649G1 | Filter. Deleted by REV C. |
| Z202 thru Z206 | 19B219649G1 | Filter. |
| Z207 | 19A129563G4 | Hybrid filter. |
| Z208 thru Z211 | 19A129563G3 | Hybrid filter. |
| Z212 | 19A129563G4 | Hybrid filter. |
| | | HEAT SINK ASSEMBLY<br>19B219648G3 STD PKG<br>19B219648G15 SYS PKG |
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C297 and C298 | 19A116708P1 | Ceramic, feed-thru: 0.01 pF -100 -0%, 500 VDCW; sim to Erie Style 327. |
| C299 | 19A115680P10 | Electrolytic: 300 µF +150% -10%, 18 VDCW; sim to Sallory Type TT4. |
| | | - - - - - - - DIODES AND RECTIFIERS - - - - - - |
| CR295 | 19A116783P1 | Silicon, NPN. |
| | | - - - - - - - - - MISCELLANEOUS - - - - - - - - - |
| | 19D416733G3 | Heat sink, casting. (STD PKG). |
| | 19D417106G3 | Heat sink, casting. (SYS PKG). |
| | 19B219393G1 | Filter casting. |
| | 19D416712P3 | Insulator. (Located under Power Amplifier Board). |
| | 19B201074P320 | Tap screw: No. 6-32 x 1-1/4. (Secures Filter Casting). |
| | 5492178P2 | Washer, spring tension: sim to Wallace Barnes 375-20. (Used with Q201-Q207). |
| | X207P15C6 | Hexnut: No. 8-32. (Used with Q201-Q207). |
| | 19A134016P1 | Insulator, bushing. (Used with Q215). |
| | 19A116023P1 | Insulator, plate. (Used with Q215). |
| | 19A129361P2 | Shield. (Located between L209 and L210, L211). |
| | 19A129639P1 | Cover, heat sink. (SYSTEM PACKAGE). |

## PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - POWER AMPLIFIER 19C320414G3, G6

REV. A, B & C - POWER AMPLIFIER BOARD 19D416996G1
Incorporated into Initial Shipment

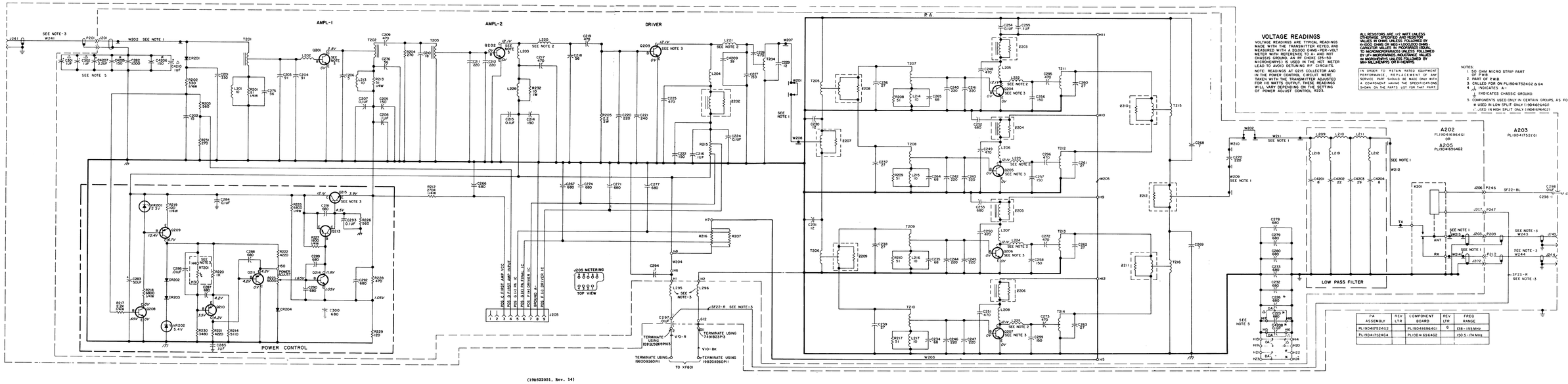
REV. D - To incorporate new capacitors. Changed C208, C216 and C255.

REV. E - To improve operation in cold temperature and wide frequency spacing applications. Changed CR201.

REV. F - To increase power output efficiency at the low end of the band. Changed T215 and T216.

REV. G - To prevent the RF Power output level from changing when the cover is put on the PA. Added C300.

REV. H - POWER AMPLIFIER 19C320414G6
To improve operation in "E" Series Mobiles. Added C4214.




# SCHEMATIC DIAGRAM

138—174 MHz, 110 WATT POWER AMPLIFIER
19D417524G2 & G4 CONTINUOUS DUTY STATION

Issue 2

## PARTS LIST

LBI-4747C

138-174 MHz, 110 WATT
POWER AMPLIFIER
CONTINUOUS DUTY
19D417529G2 138-155 MHz
19D417529G4 150.8-174 MHz

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| A202, A205 | | POWER AMPLIFIER BOARD<br>A202 19D416804G1 138-155 MHz<br>A205 19D416964G2 150.8-174 MHz |
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C201 | 7489162P39 | Silver mica: 330 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C202 | 7489162P6 | Silver mica: 15 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C203 and C204 | 19A116679P91J | Mica: 91 pf ±5%, 250 VDCW. |
| C205* | 19A116655P8 | Ceramic disc: 150 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In KEY B and earlier: |
| | 19A116655P3 | Ceramic disc: 100 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C206 | 7489162P101 | Silver mica: 5 pf ±10%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C207 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C208* | 19A116966P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| | | In KEY C and earlier: |
| | 5496267P13 | Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C209 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C210 | 19A116679P1A2 | Metallized teflon: 18 pf ±5%, 250 VDCW. |
| C211 and C212 | 19A116795P250J | Mica: 250 pf ±5%, 250 VDCW. |
| C214* | 19A116655P8 | Ceramic disc: 150 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In KEY B and earlier: |
| | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C215 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C216* | 19A116966P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| | | In KEY C and earlier: |
| | 5496267P13 | Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C217 | 19A116679P200J | Mica: 200 pf ±5%, 250 VDCW. |
| C218 | 7489162P21 | Silver mica: 56 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C219 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C220 | 19A116795P220J | Mica: 220 pf ±5%, 250 VDCW. |
| C221 | 19A116795P240J | Mica: 240 pf ±5%, 250 VDCW. |
| C222* | 19A116655P8 | Ceramic disc: 150 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap. |
| | | In KEY B and earlier: |
| | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C223 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C224 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C225 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C226 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C227 | 19A116679P150J | Mica: 150 pf ±5%, 250 VDCW. |
| C228 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| C229 | 19A116679P15J | Metallized teflon: 13 pf ±5%, 250 VDCW. |
| C230 and C231 | 7489162P7 | Silver mica: 12 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C232 and C233 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C234 and C235 | 7489162P23 | Silver mica: 68 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C236 thru C239 | 19A116679P27J | Metallized teflon: 27 pf ±5%, 250 VDCW. |
| C240 thru C247 | 19A116795P220J | Mica: 220 ohms ±5%, 250 VDCW. |
| C248 thru C251 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C252 and C253 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C254 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C255* | 19A116966P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| | | In KEY C and earlier: |
| | 5496267P13 | Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C256 thru C259 | 19A116679P150J | Mica: 150 pf ±5%, 250 VDCW. |
| C260 thru C263 | 19A116679P27J | Metallized teflon: 27 pf ±5%, 250 VDCW. |
| C264 and C265 | 7489162P23 | Silver mica: 68 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C266 and C267 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C268 thru C269 | 7489162P9 | Silver mica: 7 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C270 | 19A116679P22GJ | Mica: 220 pf ±5%, 250 VDCW. |
| C271 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C272 and C273 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C274 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C275 and C276 | 7489162P21 | Silver mica: 56 pf ±5%, 500 VDCW; sim to Electro Motive Type IM-15. |
| C277 thru C280 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C282 | 19A116655P19 | Ceramic disc: 1000 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C283 | 19A115660P4 | Electrolytic: 50 µf +150% -10%, 25 VDCW; sim to Mallory Type TTL. |
| C284 and C285 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C286 | 19A116080P101 | Polyester: 0.01 µf ±20%, 50 VDCW. |
| C287 thru C292 | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. |
| C293 and C294 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C295 and C296 | 19A116679P470J | Mica: 470 pf ±5%, 250 VDCW. |
| C300* | 19A116655P17 | Ceramic disc: 680 pf ±20%, 1000 VDCW; sim to RMC Type JF Discap. Added by REV G. |
| C4201 | 19A116679P8D | Metallized teflon: 8 pf ±.5 pf, 250 VDCW. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| C4202 | 19A116679P22J | Metallized teflon: 22 pf ±5%, 250 VDCW. |
| C4203 | 19A116795P39J | Mica: 39 pf ±5%, 250 VDCW. |
| C4204 | 19A116679P8D | Metallized teflon: 8 pf ±.5 pf, 250 VDCW. |
| C4205 and C4206 | 19A116655P8 | Ceramic disc: 150 pf ±10%, 1000 VDCW; sim to RMC Type JF Discap. |
| C4207 | 5496267P13 | Tantalum: 2.2 µf ±20%, 20 VDCW; sim to Sprague Type 150D. |
| C4208 | 19A116080P107 | Polyester: 0.1 µf ±10%, 50 VDCW. |
| C4209 | 19A116679P39J | Metallized teflon: 39 pf ±5%, 250 VDCW. |
| C4210 thru C4212 | 19A134202P14 | Tantalum: 1 µf ±20%, 35 VDCW. |
| | | - - - - - - - - DIODES AND RECTIFIERS - - - - - - - - |
| CR201* | 19A116052P2 | Silicon. |
| | | In REV D and earlier: |
| | 19A115250P1 | Silicon. |
| CR202 thru CR204 | 19A115250P1 | Silicon. |
| | | - - - - - - - - JACKS AND RECEPTACLES - - - - - - - - |
| J201 thru J203 | 19A130924G1 | Receptacle, coaxial: sim to Cinch 14H11813. |
| J205 | 19B219374G1 | Connector: 9 contacts. |
| J206 and J207 | | (Part of E201). |
| J208 | 4033513P4 | Contact, electrical: sim to Bead Chain LS3-3. |
| | | - - - - - - - - - - RELAYS - - - - - - - - - - |
| K201 | 19A116722P1 | Hermetic sealed: 125 ohms ±20%, 1 form C contact, 5.6 to 15.8 VDC (over the temp range indicated). |
| | | - - - - - - - - - - INDUCTORS - - - - - - - - - - |
| L201 | 19B209420P125 | Coil, RF: 10.0 µh ±10%, 3.10 ohms DC res max; sim to Jeffers 4446-4K. |
| L202 | 19A129616P1 | Strap. |
| L203 thru L208 | 19A129561P1 | Coil. |
| L209 thru L211 | 19A129569P1 | Coil. |
| L212 | 19A129570P1 | Coil. |
| L213 | 7488079P43 | Choke, RF: 10.0 µh ±10%, 0.30 ohms DC res max; sim to Jeffers 4432-4K. |
| L214 thru L217 | 19B209420P125 | Coil, RF: 10.0 µh ±10%, 3.10 ohms DC res max; sim to Jeffers 4446-4K. |
| L218 | 19A129570P1 | Coil. |
| L219 | 19A129575P1 | Coil. |
| L220 thru L225 | | (Part of 19D423195P1 printed wiring board). |
| L226 | 19A129346G1 | Coil. |
| | | - - - - - - - - - - TRANSISTORS - - - - - - - - - - |
| Q208 | 19A115910P1 | Silicon, NPN; sim to Type 2N3904. |
| Q209 thru Q211 | 19A115768P1 | Silicon, PNP; sim to Type 2N3702. |
| Q213 | 19A129187P1 | Silicon, PNP. |
| Q214 | 19A115720P1 | Silicon, NPN; sim to Type 2N2222. |
| | | - - - - - - - - - - RESISTORS - - - - - - - - - - |
| R201 | 3R152P510J | Composition: 51 ohms ±5%, 1/4 w. |
| R202 | 3R152P331J | Composition: 330 ohms ±5%, 1/4 w. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| R203 | 3R152P561J | Composition: 560 ohms ±5%, 1/4 w. |
| R204 | 3R77P27J | Composition: 270 ohms ±5%, 1/2 w. |
| R205 | 19B209022P123 | Wirewound: 2.2 ohms ±10%, 2 w; sim to IRC Type BWH. |
| R207 | 19C130212P1 | Shunt resistor. |
| R208 and R211 | 3R77P510J | Composition: 51 ohms ±5%, 1/2 w. |
| R212 | 3R152P274J | Composition: 270K ohms ±5%, 1/4 w. |
| R213 | 3R152P510J | Composition: 51 ohms ±5%, 1/4 w. |
| R214 | 19A116278P269 | Metal film: 5110 ohms ±2%, 1/2 w. |
| R215 | 19C130212P2 | Shunt resistor. |
| R216 | 19C130212P1 | Shunt resistor. |
| R217 | 3R152P223J | Composition: 2.2K ohms ±5%, 1/4 w. |
| R218 | 3R152P682J | Composition: 6.8K ohms ±5%, 1/4 w. |
| R219 | 3R152P101J | Composition: 100 ohms ±5%, 1/4 w. |
| R220 | 19A116278P201 | Metal film: 1K ohms ±2%, 1/2 w. |
| R221 and R222 | 19A116278P261 | Metal film: 4.22K ohms ±2%, 1/2 w. |
| R223 | 19A116559P102 | Variable, cermet: 5K ohms ±20%, .5 w; sim to CTS Series 360. |
| R225 | 3R152P682J | Composition: 6.8K ohms ±5%, 1/4 w. |
| R226 | 3R77P56lJ | Composition: 560 ohms ±5%, 1/2 w. |
| R227 | 3R152P182J | Composition: 1.8K ohms ±5%, 1/4 w. |
| R228 | 3R77P471J | Composition: 470 ohms ±5%, 1/2 w. |
| R229 | 3R77P121J | Composition: 120 ohms ±5%, 1/2 w. |
| R230 | 19A116278P253 | Metal film: 3.48K ohms ±2%, 1/2 w. |
| R231 | 3R152P271J | Composition: 270 ohms ±5%, 1/4 w. |
| R232 | 3R78P100K | Composition: 10 ohms ±10%, 1 w. |
| | | - - - - - - - - - - TRANSFORMERS - - - - - - - - - - |
| T201 thru T203 | 19A129564G1 | Coil. |
| T204 thru T206 | 19A129574G1 | Coil. |
| T207 thru T210 | 19A129564G1 | Coil. |
| T211 thru T214 | 19A129574G1 | Coil. |
| T215* and T216* | 19A129574G1 | Coil. |
| | | In KEY E and earlier: |
| | 19A129633G1 | Coil. |
| | | - - - - - - - - - - VOLTAGE REGULATORS - - - - - - - - - - |
| VR201 | 4036887P1 | Silicon, Zener. |
| VR202 | 4036887P5 | Silicon, Zener. |
| | | - - - - - - - - - - CABLES - - - - - - - - - - |
| W201 and W202 | 19A129571P1 | Strap. |
| W203 | 19B219885P2 | Jumper. |
| W204 | 19B219930P1 | Jumper. |
| W205 | 19C130288P1 | Strap, connector. |
| W206 thru W214 | | (Part of 19D423195P1 printed wiring board). |
| | | - - - - - - - - - - FILTERS - - - - - - - - - - |
| Z202 thru Z206 | 19B219649G1 | Filter. |

| SYMBOL | GE PART NO. | DESCRIPTION |
|---|---|---|
| Z207 | 19A129563G4 | Hybrid filter. |
| Z208 thru Z211 | 19A129563G3 | Hybrid filter. |
| Z212 | 19A129563G4 | Hybrid filter. |
| A203 | | FRAME ASSEMBLY<br>19D417529G1 |
| | | - - - - - - - - - - CABLES - - - - - - - - - - |
| W241 | 5491689P104 | Cable, RF: approx 3-5/8 inches long, 350 VRMS, 500 VDC operating voltage. |
| W244 | 5491689P104 | Cable, RF: approx 3-5/8 inches long, 350 VRMS, 500 VDC operating voltage. |
| A205 | | (See A202). |
| | | - - - - - - - - - - CAPACITORS - - - - - - - - - - |
| C297 and C298 | 19A116700P1 | Ceramic, feed-thru: 0.01 pf +100% -0%, 500 VDCW; sim to Erie Style 327. |
| | | - - - - - - - - - - INDUCTORS - - - - - - - - - - |
| L295 | 19A129562P9 | Coil. |
| L296 | 19A129563P1 | Coil. |
| | | - - - - - - - - - - PLUGS - - - - - - - - - - |
| P246 and P247 | 6036634P1 | Contact, electrical; sim to AMP 42428-2. |
| | | - - - - - - - - - - TRANSISTORS - - - - - - - - - - |
| Q201 | 19A134060P1 | Silicon, NPN. |
| Q202 | 19A134060P2 | Silicon, NPN. |
| Q203B | 19A134060P4 | Silicon, NPN. |
| Q204 thru Q207 | 19A134060P3 | Silicon, NPN. |
| Q215 | 19A116742P1 | Silicon, NPN. |
| | | - - - - - - - - - - THERMISTORS - - - - - - - - - - |
| RT201 | 19A129379G1 | Thermistor. |
| | | - - - - - - - - - - CABLES - - - - - - - - - - |
| W243 | 19A129313G6 | Cable, antenna: approx 10 inches long. |
| | | - - - - - - - - - - MISCELLANEOUS - - - - - - - - - - |
| | 19B226213G1 | Heat sink, casting. (Quantity 4). |
| | 19B226213G2 | Heat sink, casting. (Quantity 1). |
| | 19B219391G1 | Filter casting. |
| | 19D416713P3 | Insulator. (Located under Power Amplifier Board). |
| | 5492178P2 | Washer, spring tension: sim to Wallace Barnes 375-20. (Used with Q201-Q207). |
| | 19A116023P1 | Insulator, bushing. (Used with Q215). |
| | 19A116023P1 | Insulator, plate. (Used with Q215). |
| | X5602P015 | "O" Ring. (Used with Q215). |
| | 9402P706 | Washer: No. 6. (Used with Q215). |
| | 19A129885P1 | Insulator. (Used with Q215). |
| | 19D417513G1 | Cover. |

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

## PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter", which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

POWER AMPLIFIER BOARD 19D416964G1

REV. A,B&C - Incorporated into Initial Shipment.

REV. D - To incorporate improved tv-pass capacitors, Changed C208, C216 & C255.

REV. E - To improve performance in cold temperature and wide frequency spacing. Changed CR201.

REV. F - To increase power output efficiency at the low end of the band. Changed T215 and T216, 19D416964G1 POWER AMPLIFIER BOARD

REV. G - Added capacitor C300 to improve power output level stability.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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