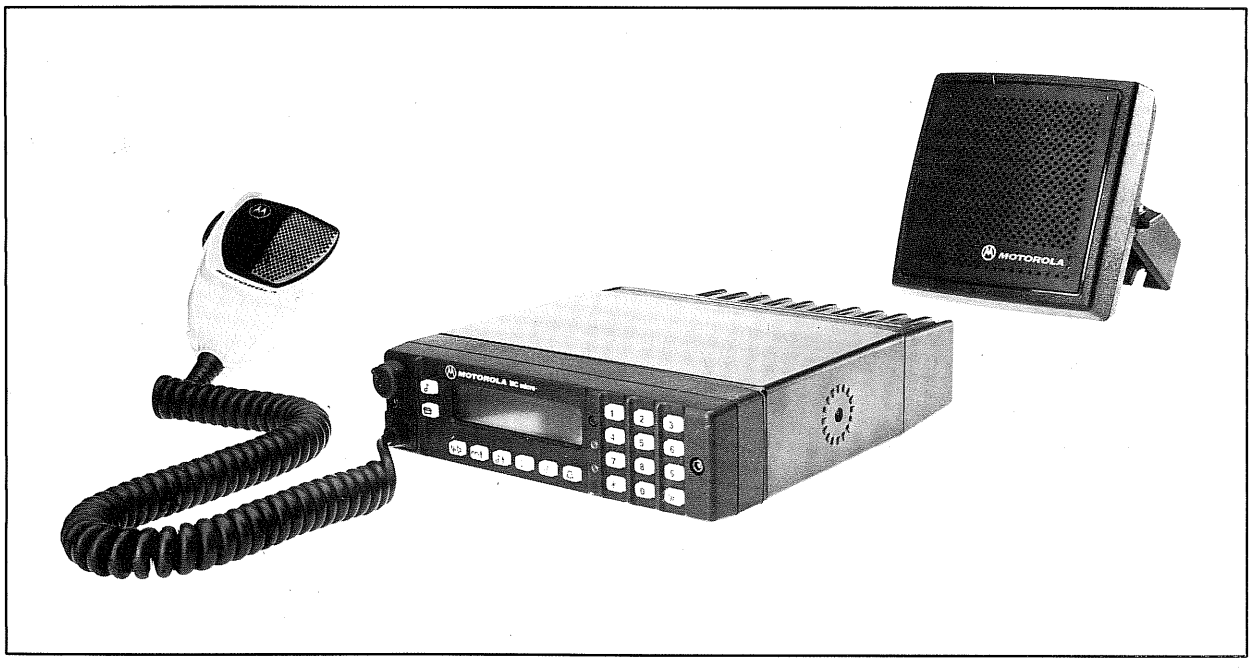
MOTOROLA

MC micro

403 – 433 MHz
438 – 470 MHz

TECHNISCHE UNTERLAGEN
SERVICE SHEETS

INSTRUCCIONES DE MANTENIMIENTO
NOTICE TECHNIQUE



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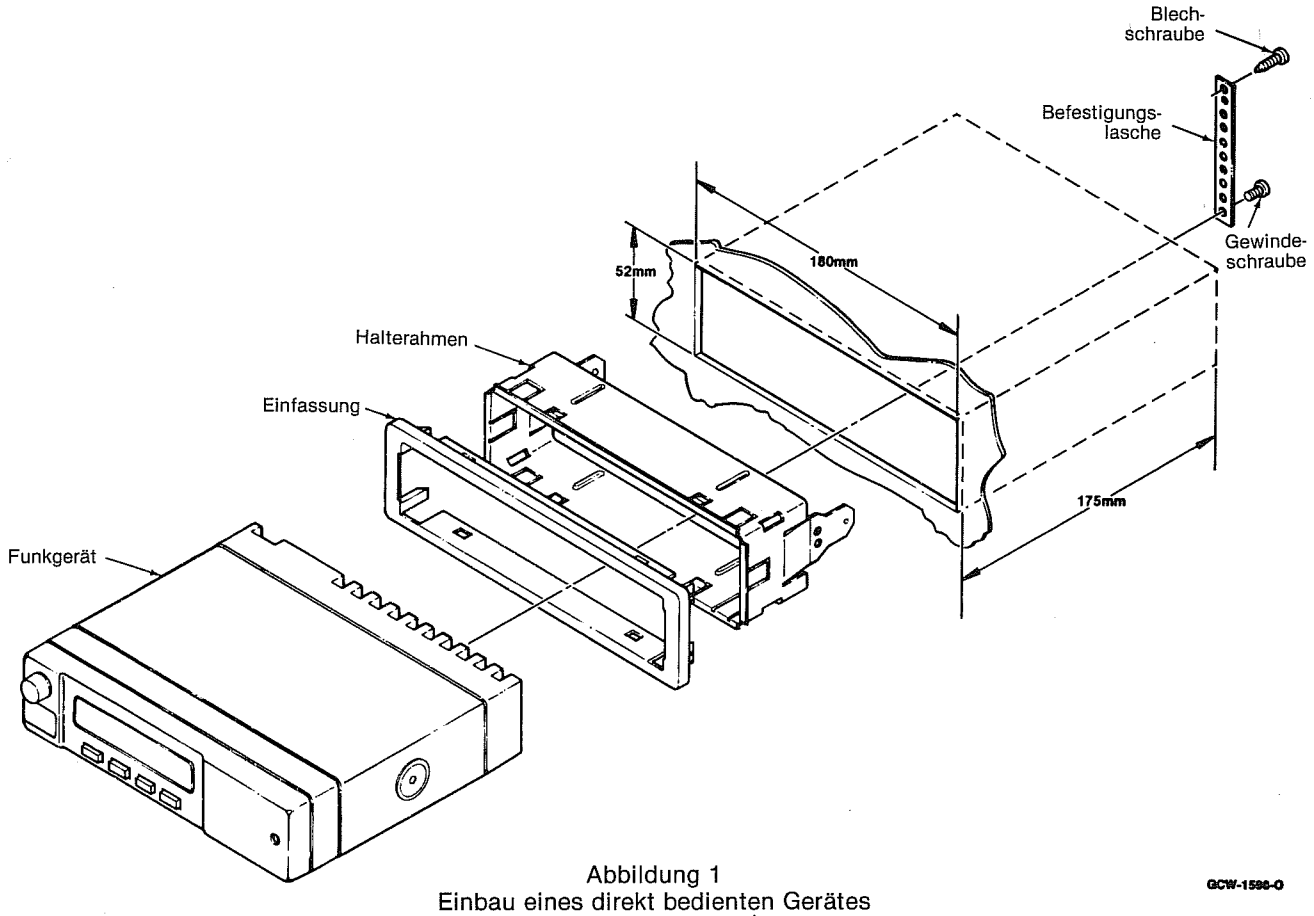


Abbildung 1
Einbau eines direkt bedienten Gerätes
in das Armaturenbrett

GCW-1596-O

1. EINBAU

1.1 MONTAGE DER ANTENNE

Die Montage der Antenne erfolgt in Übereinstimmung mit den der Antenne beigepackten Einbauvorschriften. Dann wird das Kabel zur vorgesehenen Einbaustelle des Funkgerätes verlegt, überschüssiges Kabel wird abgeschnitten, und danach wird der Stecker am Kabel montiert.

1.2 EINBAU IM ARMATURENBRETT

1.2.1 Direkt bedientes Gerät

(1) Den Autoradio-Ausschnitt des Armaturenbrettes öffnen und ggf. auf die in Abbildung 1 gezeigten Abmessungen vergrößern.

(2) Den Halterahmen in den Ausschnitt einsetzen und durch Verbiegen der sechs Laschen (siehe Abbildung 2) sichern. Die Einfassung über den Halterahmen stülpen.

(3) Das Funkgerät bis zum Einrasten in den Halterahmen schieben.

(4) Die Befestigungslasche entsprechend der Abbildung 1 mit einer Blechschraube an der Karosserie und mit einer Gewindeschraube am Kühlkörper des Funkgerätes befestigen.

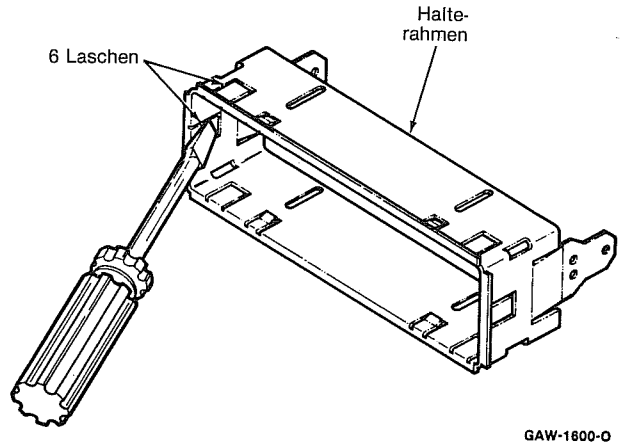
1.2.2 Einbau des Bedienteiles (abgesetztes Gerät)

(1) Die beiden Montagewinkel mit Inbusschrauben am Bedienteil befestigen (Abbildung 3).

(2) Den Autoradio-Ausschnitt des Armaturenbrettes öffnen und ggf. auf die in Abbildung 3 gezeigten Abmessungen vergrößern.

(3) Den Halterahmen des Bedienteiles in den Ausschnitt einsetzen und durch Verbiegen der sechs Laschen (siehe Abbildung 2) sichern.

(4) Das Bedienteil bis zum Einrasten in den Halterahmen schieben.



GAW-1600-O

Abbildung 2
Montage des Halterahmens

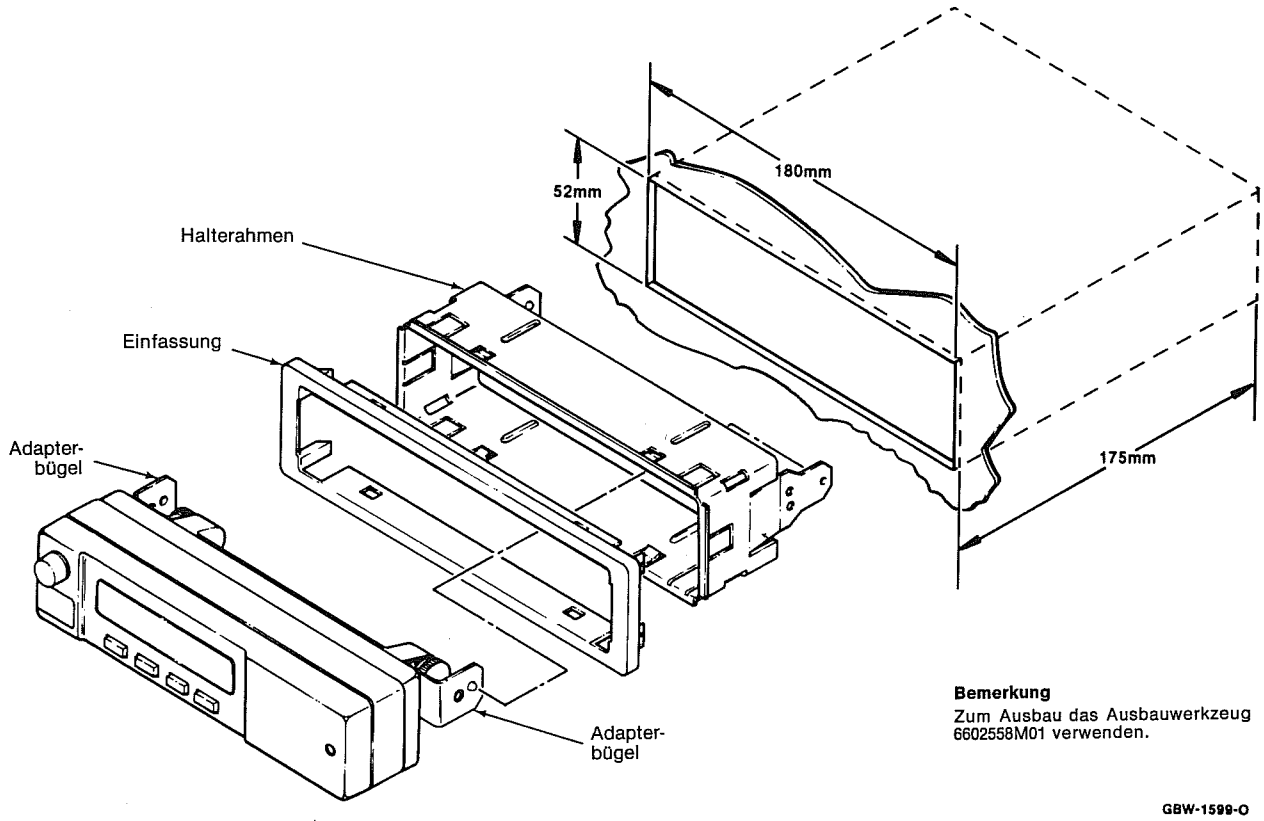
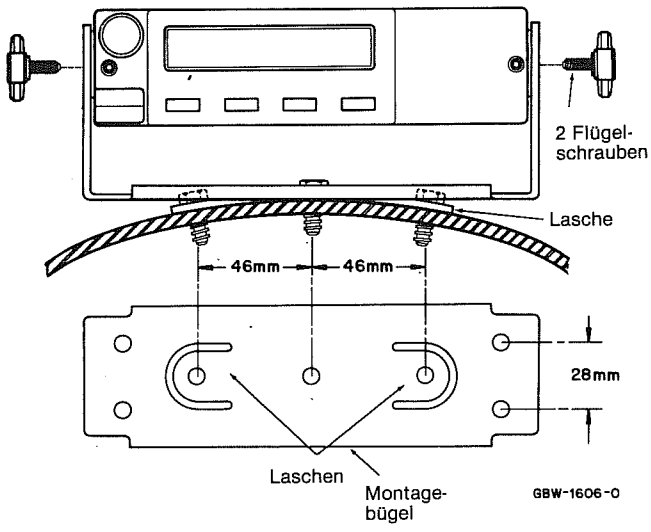


Abbildung 3
Einbau eines Bedienteiles
in das Armaturenbrett

Aufbau-Montage



Unterbau-Montage

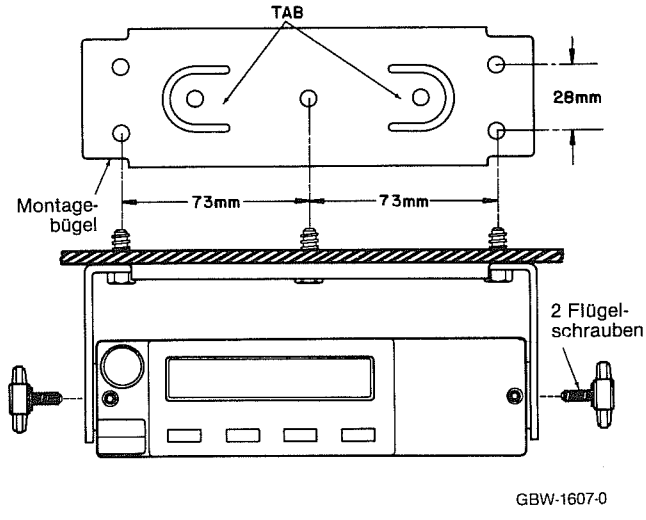


Abbildung 4
Montage des Funkgerätes

1.3 EINBAU IN AUFHÄNGEBÜGEL

(1) Das Funkgerät durch Lösen der beiden Flügelschrauben (siehe Abbildung 4) von dem Aufhängebügel trennen.

(2) Mit dem Bügel als Bohrschablone die Bohrungen an vorgesehener Einbaustelle markieren. Die drei Innenlöcher sind für die Montage auf gewölbter Fläche gedacht, während das mittlere Loch sowie die vier außenliegenden Löcher für die Montage auf planem Untergrund vorgesehen sind.

(3) Nach Körnung der markierten Stellen die Löcher mit 4 mm Durchmesser bohren.

(4) Den Befestigungsbügel mit Hilfe der mitgelieferten Blechschrauben befestigen.

(5) Das Funkgerät in den Befestigungsbügel einhängen und die Flügelschrauben anziehen.

1.4 LAUTSPRECHERMONTAGE

(1) Den Lautsprecher durch Lösen der beiden Flügelschrauben von dem Aufhängebügel trennen.

(2) Eine geeignete Einbaustelle bestimmen.

(3) Mit dem Bügel als Bohrschablone die drei Bohrungen an vorgesehener Einbaustelle markieren.

(4) Nach Körnung der markierten Stellen die Löcher mit 4 mm Durchmesser bohren.

(5) Den Befestigungsbügel mit Hilfe der mitgelieferten Blechschrauben befestigen (Abbildung 5).

(6) Den Lautsprecher in den Befestigungsbügel einsetzen und die Flügelschrauben anziehen.

(7a) Nur für direkt bediente Geräte: den Stecker des Lautsprechers mit der neunpoligen Zubehörbuchse an der Rückwand des Gerätes verbinden. Siehe Abbildung 6.

(7b) Nur für abgesetzt bediente Geräte: ein Loch mit 6 mm Durchmesser in die Vertiefung der Rückwand bohren.

(8) Nur für abgesetzt bediente Geräte: die Kabelhülse 11 cm weit auf das Kabel zurückschieben.

(9) Nur für abgesetzt bediente Geräte: die beiden Lautsprecherdrähte (ohne Stecker und Abdeckung) durch die Rückwand hindurch führen (dabei die Gummitülle nicht vergessen) und dann mit den entsprechenden Anschlüssen der Logikplatine verbinden. Siehe dazu die Abbildung 7.

Achtung

Zur Gerätebefestigung sind nur die Original-Befestigungsschrauben zu verwenden. Soll ein Funkgerät mit einer anderen, dünnwandigeren Gerätehalterung eingebaut werden, so ist die Stärke des Befestigungswinkels (Schenkelstärke) des Originalteils mittels Unterlegscheibe auszugleichen, andernfalls besteht Beschädigungsgefahr für das Gerät.

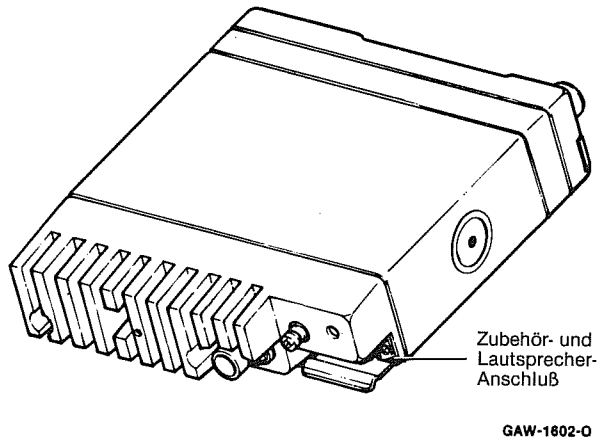


Abbildung 6
Lautsprecheranschluß
beim direkt bedienten Gerät

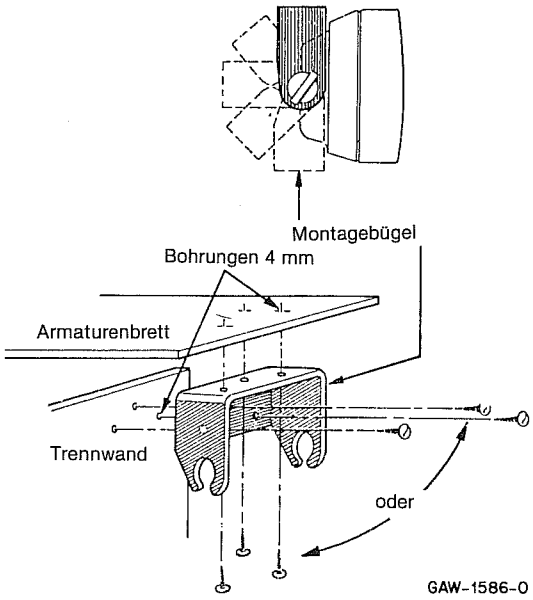


Abbildung 5
Unterbau des Lautsprechers

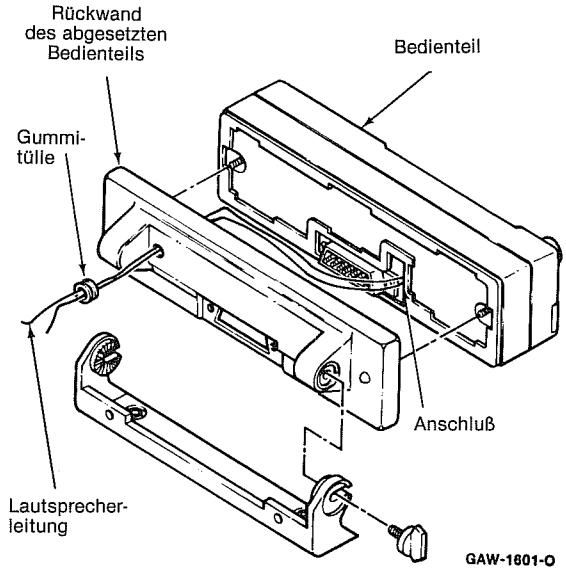


Abbildung 7
Lautsprecheranschluß beim abgesetzten Gerät

2 AUSBAU UND ZUSAMMENBAU

2.1 FUNKGERÄT

2.1.1 Ausbau von Bedienteil und Gehäuse, Entfernung des Chassis-Abdeckbleches

(1a) Nur für direkt bediente Geräte: die Befestigungsschrauben des Bedienteiles, wie in Abbildung 8 gezeigt, entfernen und das Bedienteil vom Funkgerät abziehen. Auch das Gehäuse in gleicher Richtung entfernen.

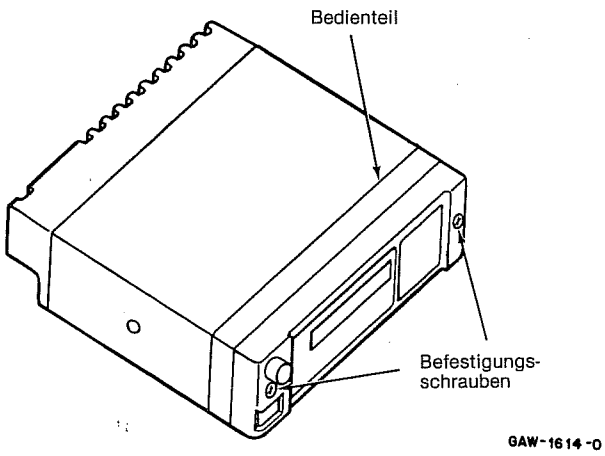


Abbildung 8
Befestigungsschrauben am Bedienteil

(1b) Nur für abgesetzt bediente Geräte: den Steckverbinder des Bedienteil-Kabels nach Lösen seiner beiden Halteschrauben abziehen (siehe Abbildung 9). Die beiden Gehäuse-Befestigungsschrauben lösen und das Gehäuse nach hinten wegziehen.

(2) Das Chassis-Abdeckblech an den Ecken leicht anheben und dann entfernen. Siehe Abbildung 10. Darauf achten, daß das Abdeckblech nicht verbogen wird.

2.1.2 Ausbau des Kühlkörpers

(1) Den sechspoligen Steckverbinder vom abgewinkelten Stecker auf der Logikplatine abziehen. Siehe Abbildung 11.

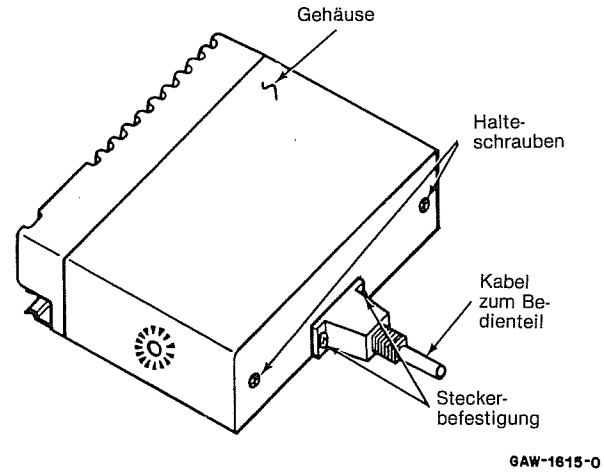


Abbildung 9
Befestigungsschrauben an der Gehäuse-Rückwand

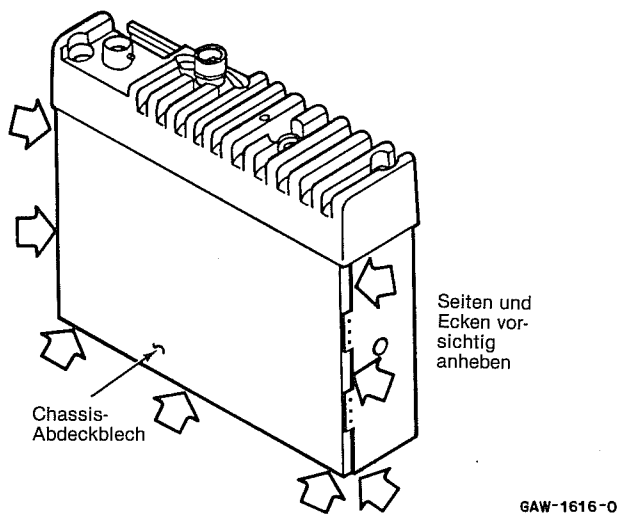


Abbildung 10
Abdeckblech entfernen

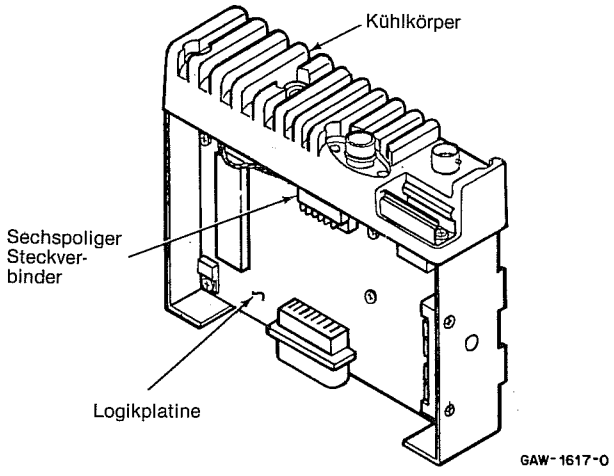


Abbildung 11
Lage des sechspoligen Steckverbinders

(2) Die beiden Koaxkabel (je eins für Sender und Empfänger) von der HF-Platine abziehen. Siehe Abbildung 12.

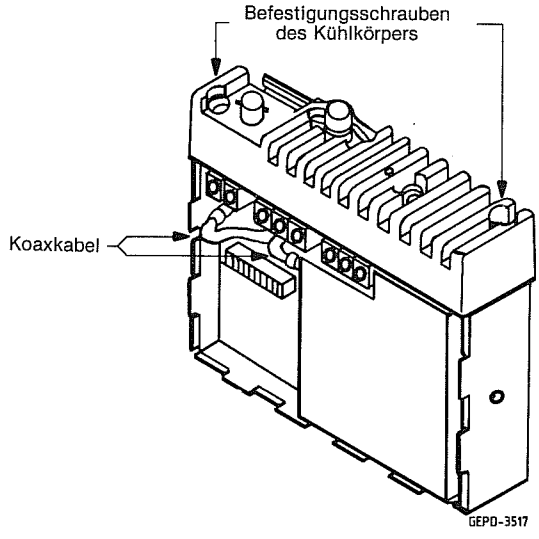


Abbildung 12
Koaxkabel und Befestigungsschrauben des Kühlkörpers

(3) Den Kühlkörper nach Lösen seiner Befestigungsschrauben entfernen (siehe Abbildung 12). Dabei die beiden Koaxialkabel vorsichtig durch die Löcher in der Trennwand führen.

2.1.3 Ausbau der HF- und Logikplatinen

(1) Zuerst den Kühlkörper der HF-Endstufe ausbauen. Dann alle Befestigungsschrauben der HF-Platine lösen und die Platine entfernen, wie in Abbildung 13 gezeigt.

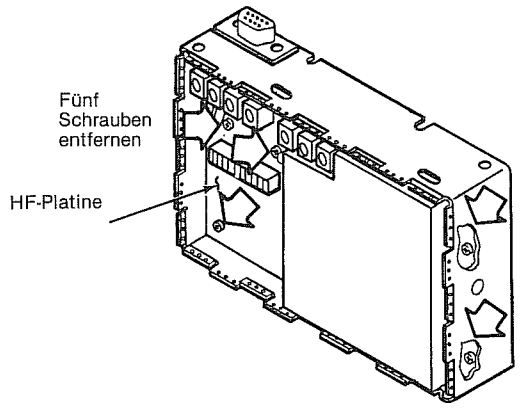


Abbildung 13
Ausbau der HF-Platine

(2) Nach Ausbau der HF-Platine das Gerät umdrehen und alle Befestigungsschrauben der Logikplatine (siehe Abbildung 14) lösen.

(3) Die beiden Befestigungsschrauben des Spannungsreglers (siehe Abbildung 14) lösen und die Logikplatine entfernen.

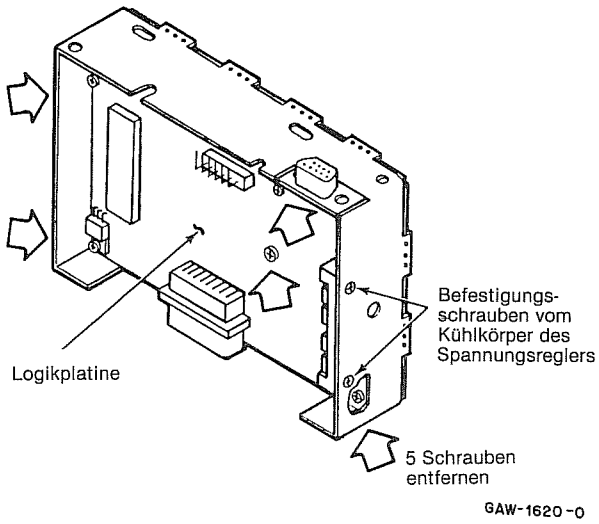


Abbildung 14
Ausbau der Logikplatine

2.1.4 Ausbau der HF-Endstufe

(1) Das Abschirmblech der Endstufe ausbauen. Dazu alle Seiten und Ecken des Abschirmbleches vorsichtig anheben (Abbildung 15) bis es sich leicht wegziehen läßt; dabei auf die beiden Koaxkabel achten.

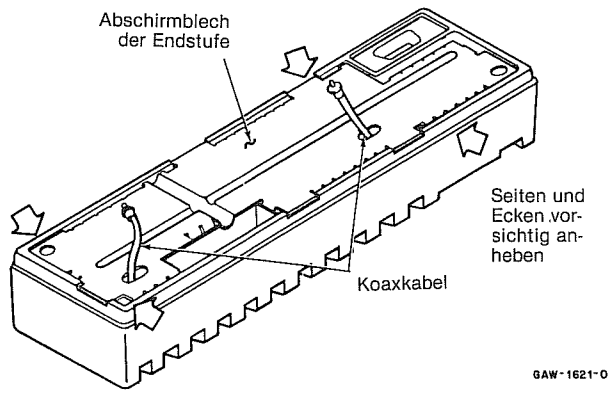


Abbildung 15
Ausbau des Abschirmbleches der Endstufe

(2) Die Befestigungsmutter des Endstufentransistors lösen (Abbildung 16).

(3) Die Stromversorgungs- und Antennendrähte ablöten (Abbildung 17).

(4) Bei einer 25W-Endstufe die Transistor-Befestigungsmutter (Abbildung 16) lösen.

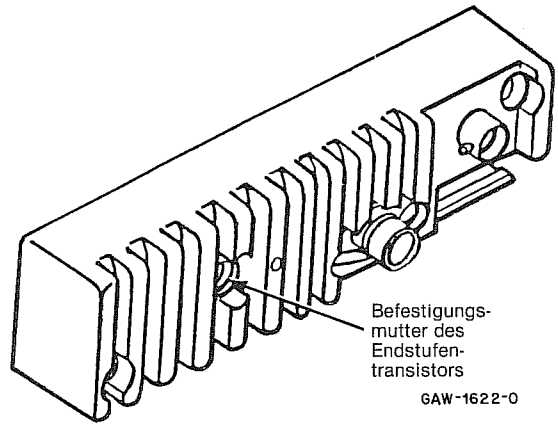


Abbildung 16
Befestigungsmutter des
25W-Endstufentransistors

(5) Sämtliche Befestigungsschrauben der Endstufenplatine (Abbildung 17) entfernen und die Platine entnehmen.

2.1.5 Zusammenbau

Den Ausbauvorgang in umgekehrter Reihenfolge durchführen und alle Schrauben mit dem in Tabelle 1 angegebenen Drehmoment anziehen. Bevor die Logikplatine mit der HF-Platine verbunden wird, muß auf die Kontaktfläche des elfpoligen Steckverbinders das Kontaktschmiermittel mit der Motorola-Nummer 1180344A80 aufgetragen werden.

Hinweis

Bei der Geräte-Montage ist das RX-Koaxkabel über das TX-Koaxkabel zu legen.

Teilenummer	Schraubentyp	Einbaustelle	Werkzeug	Anzugs-Drehmoment (Nm)
0300132436	Nirosta-Kreuzkopf-Zylinderkopfschraube M5 x 21	Lautsprechergehäuse hinten	P-2	0,5 - 0,7
0300136756	Einfach-Sechskant-Gewindeschraube M16 x 6	(a) Haltebügel am Armaturenbrett (b) Halterung des Lautsprechers	Sechskantschlüssel 8 mm	vor Ort eingebaut
0300136518	Kreuzkopfschraube M13 x 16 mit P-Gewinde	Tischuntersatz	P-2	1,1 - 1,4
0380165J05	Einfach-Sechskant-Zylinderkopfschraube M4 x 8	Haltebügel für Armaturenbretteinbau	Sechskantschlüssel 7 mm	vor Ort eingebaut
0380029J01	Innensechskant-Zylinderkopfschraube M3 x 35 (schwarz)	Bedienteil Einbau vorne/hinten	Innensechskantschlüssel 2,5 mm	0,35
0380030J01	Pozidrive-Zylinder-Gewindeschraube	Platinen im Bedienteil	P2-2	0,8
0380036J01	T-Schraube (Mattschwarz)	Halterung des abgesetzten Bedienteils	—	vor Ort eingebaut
0380165J01	Pozidrive-Zylindergewindeschraube M4 x 28 (schwarz)	Befestigung des Kühlkörpers	P2-2	1,4 - 1,6
0380165J02	Pozidrive-Zylindergewindeschraube M3 x 6 (verzinkt)	Steckverbinder des Bedienteiles	P2-2	1,1
0380165J04	Pozidrive-Zylinderschraube M3 x 7 (schwarz)	vom Gehäuse zum Chassis (abgesetzt)	P2-1	1,1 - 1,4
0380269H01	Pozidrive-Taptite-Zylinderschraube M2,5 x 6 (verzinkt)	Bauteile am Kühlkörper	P2-1	0,7 - 0,9
0380269H02	Pozidrive-Taptite-Flachkopfschraube M2,5 x 8 (verzinkt)	Kühlkörper	P2-1	0,7 - 0,9
0380269H02	Pozidrive-Taptite-Zylinderschraube M3 x 8 (verzinkt)	(a) Stromstecker (b) HF-Kopf	P2-1	0,7 - 0,9 0,9 - 1,1
0380269H04	Pozidrive-Taptite-Zylinderschraube M3 x 6 (verzinkt)	(a) HF/Logikplatinen (b) Zubehöranschluß	P2-1	0,7 - 0,9 0,9 - 1,1
0302097B01	Sechskantspannmutter 0,5"	HF-Kopf (Antennenanschluß)	Sechskantschlüssel 0,5 Zoll	2,0 - 2,3
0380270H01	T-Schraube	Befestigungsbügel des Funkgerätes	—	vor Ort eingebaut
0384244C03	Flügelmutter	Befestigungsbügel des Lautsprechers	—	vor Ort eingebaut
0300129892	Sechskantmutter	Endstufentransistor (Flanschbefestigung am Kühlkörper)	Sechskantschlüssel 8 mm	0,6

Tabelle 1
Anzugs-Drehmomente

2.2 BEDIENTEIL AUSBAUEN (bei direkt bedienten Geräten)

(1) Den Stecker des Mikrofonkabels abziehen. Dazu die Dichtungslasche zurückziehen, die darunter befindliche Verriegelungszunge nach innen drücken und dann den Stecker abziehen.

(2) Die beiden Inbusschrauben (2,5 mm) der Frontplatte lösen.

(3) Rückwand und Dichtungsring des Bedienteils abziehen.

(4) Den Knopf des Lautstärkereglers von der Achse ziehen.

(5) Die fünf Kreuzschlitzschrauben der Platinenbefestigung lösen.

(6) Die Platine herausziehen. Dabei ist zu beachten, daß die Achse des Lautstärkereglers mit einer Dichtung versehen ist und daß seine Anschlußdrähte mit der Platine verlötet sind.

(7) Im Befestigungsrahmen zwischen den beiden Platinen (nur eingebaut, wenn das Bedienteil zwei Platinen enthält) befindet sich eine Massefeder. Diese Feder ist für die Funktion unerläßlich und muß beim Zusammenbau wieder an vorgesehener Stelle eingebaut werden.

(8) Die acht Kreuzschlitzschrauben des Befestigungsrahmens lösen.

(9) Den Befestigungsrahmen entnehmen. Dabei ist zu beachten, daß die vordere Platine und die Tastatur(en) mit dem Befestigungsrahmen verbunden ist (sind).

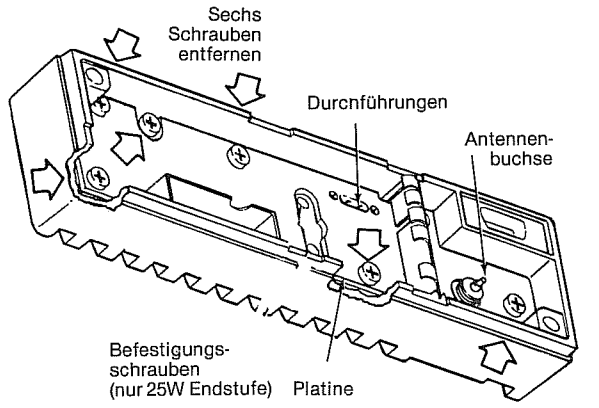


Abbildung 17
Ausbau der Endstufenplatine

(10) Die beiden Schaltmatten sind über ihre jeweiligen Führungsstifte gestülpt und können einfach abgezogen werden. Die Kontaktflächen der Schaltmatten und der Platine müssen peinlichst sauber gehalten werden. Die Platine ist durch Schnappverschluß mit dem Befestigungsrahmen verbunden.

(11) Das Display wird ausgebaut, indem die sechs Laschen, welche die Display-Einheit mit der Platine verbinden, gerade gebogen werden. Zu beachten ist, daß diese Baueinheit zwei Kontaktleisten und einen Lichtleiter enthält.

(12) Tasten oder Blindstopfen können nach Ausbau des dazugehörigen Lichtleiters entfernt werden.

(13) Beim Zusammenbau sind die vorhergehenden Schritte in umgekehrter Reihenfolge auszuführen.

2.3 ABGESETZTES BEDIENTEIL

(1) Das Bedienteil zerlegen, so wie es in den vorherigen Schritten 1 bis 13 ausgeführt wurde.

(2) Die beiden Halteschrauben des Fernbedienkabelsteckers lösen und den Stecker vom abgesetzten Bedienteil abziehen. Man kann das Bedienteil auch ausbauen ohne die Steckverbindung zu trennen. Dazu wird das Bedienteil nach Lösen der beiden Flügelschrauben aus der Halterung genommen.

(3) Ist am abgesetzten Bedienteil ein Lautsprecher angeschlossen, so wird dessen Steckverbinder nach Entfernen der Bedienteilrückwand abgezogen.

2.4 ZUBEHÖRSTECKER

(1) Mit einem Schraubenzieher das Steckergehäuse an zwei Seiten anheben und dann wegziehen wie in Abbildung 18 gezeigt.

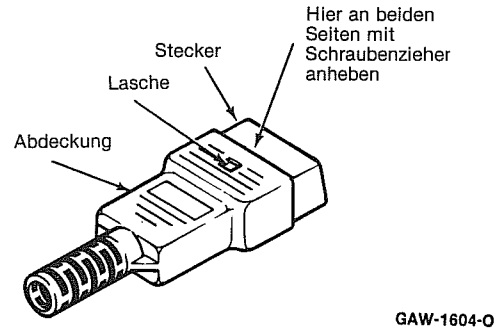


Abbildung 18
Steckergehäuse entfernen

(2) Die Stifte aus dem dazugehörigen Isolierstück ziehen, die Zugentlastung aufspreizen und entfernen. Kabel samt Stiften aus dem Steckergehäuse ziehen.

(3) Der Zusammenbau erfolgt in umgekehrter Reihenfolge. Dabei muß die Zugentlastung wieder ordnungsgemäß (wie in Abbildung 19) montiert werden.

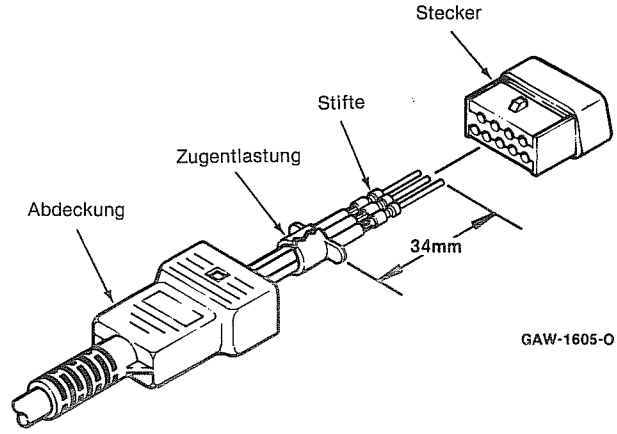
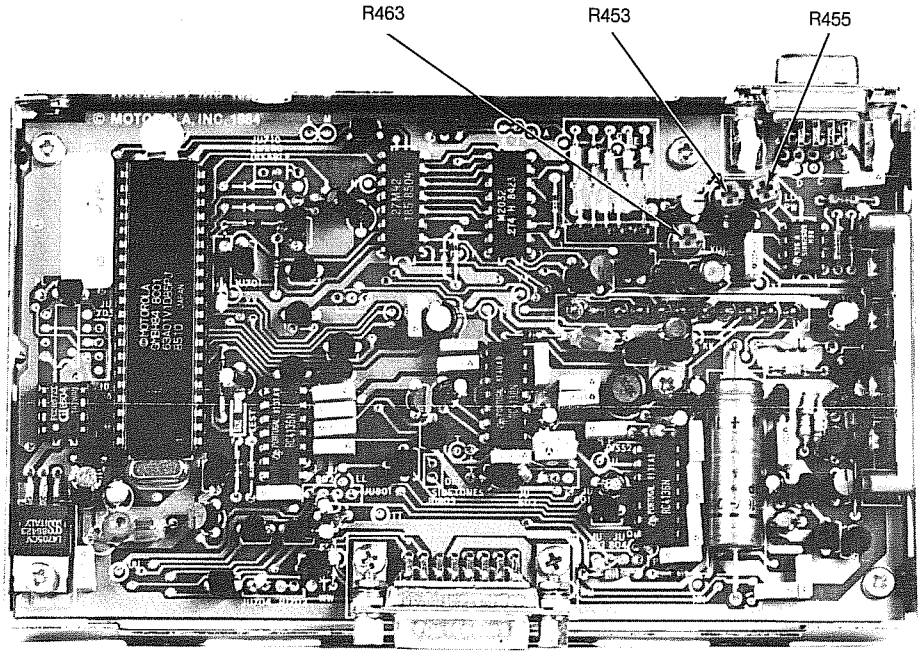


Abbildung 19
Montage der Zugentlastung



GBW-2101-O

Abbildung 20
Abgleichpunkte der Logikplatine

3 ABGLEICHANLEITUNG

Achtung!

Den Sender nur beim Abgleichen oder zur Durchführung von Messungen tasten!

3.1 ALLGEMEINES

Wenn nicht anders angegeben sind alle Messungen bei einer Versorgungsspannung von 13,2V ±0,1V durchzuführen. Den Sender nur beim Abgleichen oder zur Durchführung von Messungen tasten!

Anweisungen, einen Regler rechtsherum (im Uhrzeigersinn) oder linksherum (entgegen dem Uhrzeigersinn) zu drehen, sind bei Ansicht von der Bestückungsseite zu verstehen.

Die Abbildungen 20 und 21 zeigen die Lage der Abgleichpunkte.

Beim Abgleich gemäß Abschnitten 3.2, 3.3, 3.4 und 3.5 muß das Gerät bis auf das Chassis und die Abschirmbleche des Chassis und des Synthesizers zusammengebaut sein. Alle Teile müssen sich allerdings wieder an vorgesehener Stelle befinden, wenn das Gerät nach dem Abgleich zur Überprüfung seiner Daten gemessen wird.

Empfohlene Meßgeräte

R2001D R2200B	Funk-System-Meßplatz, oder Service-Monitor
GTF180A GTF244A	Prüfgerät für Mobilgeräte mit Adapterkabel für MC micro
PFT4053A	Psophometrisches Filter
FTP3005B	Fünfton-Prüfgerät (bei Verwendung des R2001D nicht erforderlich)
R1011B S1347D	Netzteil, oder Netzteil für Funkgeräte mit niedriger HF-Ausgangsleistung (unter 10W)
R1037A R1024B	Digitales Multimeter, oder Digitales Multimeter

3.2 SENDERABGLEICH

(1) Voreinstellungen:

* R453 (HI PWR) an den linken Anschlag
* R455 (LO PWR) an den linken Anschlag
* R463 (VOLT LIMIT) an den rechten Anschlag

L201

a) Kern an Becheroberkante bei FTX von 403–420 MHz

b) Kern in Mittelstellung, ca. 5 Umdrehungen von Becheroberkante für FTX von 420–433 MHz oder 433–450 MHz

c) Kern voll eingedreht bei FTX von 450–470 MHz

(2) Die Stromversorgung auf 13,2V ±0,1V einstellen (bzw. auf 12,6V bei 6W-Modellen der Modellreihe MAU1).

(3) Den Kanal mit der höchsten Sendefrequenz einstellen.

(4) Am Sender ein genaues HF-Wattmeter (mit 50 Ohm Abschluß) anschließen.

(5) Ein Gleichspannungsvoltmeter mit mindestens 11 MegOhm Eingangsimpedanz zwischen dem Prüfpunkt der Steuerleitung (SL) und Masse anschließen.

(6) Den Sender tasten und Abgleichkondensator C221 einstellen, bis am Voltmeter eine Anzeige von 6,0V erfolgt.

(7) Den Kanal mit der niedrigsten Sendefrequenz wählen, den Sender tasten und sicherstellen, daß die Prüfspannung mindestens 2,5V beträgt.

(8) Einen beliebigen Sendekanal einstellen (bei der Option MAB889 „Kanalabhängige HF-Ausgangsleistung" ist ein Kanal mit hoher HF-Leistung einzustellen).

(9) Den Sender tasten und die HF-Ausgangsleistung mit dem Potentiometer R453 (HI PWR) auf folgende Werte einstellen:

Modell	HF-Leistung
MAU0	1,0 W
MAU1	6,0 W
MAU2	10,0 W
MAU3	25,0 W

(10) Die Sendeleistung aller Kanäle (alle Kanäle mit hoher HF-Leistung bei MAB889) überprüfen und

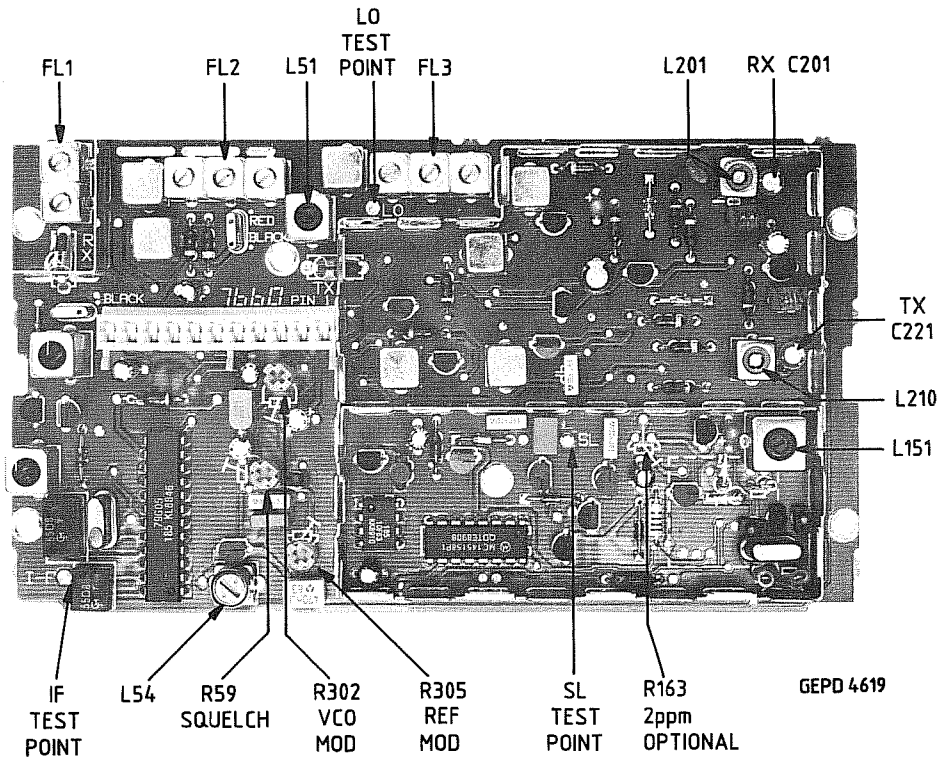


Abbildung 21
Abgleichpunkte auf der HF-Platine

notieren. Bei den Modellen MAU0, MAU2 und MAU3 den Kanal mit der niedrigsten HF-Ausgangsleistung feststellen. Beim Modell MAU1 den Kanal mit der höchsten HF-Ausgangsleistung ermitteln. Werden mehrere Kanäle mit gleicher Maximal- bzw. Minimalleistung gefunden, ist auf einen dieser Kanäle zu schalten.

(11) Auf allen Sendekanälen (bei der Option MAB 889 auf allen Sendekanälen mit hoher HF-Leistung) beim Tasten des Senders die Prüfspannung am Anschluß 4 des Steckverbinders P6 (oder am Prüfpunkt CV der Logikplatine) ermitteln. Die Kanalnummer des ermittelten Kanals samt dazugehöriger Prüfspannung notieren. Werden mehrere Kanäle mit gleicher Maximalanzeige gefunden, so ist auf einen dieser Kanäle zu schalten. Wenn diese Spannung mehr als 10V beträgt ist mit Schritt 14 fortzufahren, sonst fahre man mit Schritt 12 fort.

(12) Den bei Schritt 11 ermittelten Kanal mit der höchsten Prüfspannung einschalten und das Spannungsbegrenzungspotentiometer R463 (VOLT LIMIT) an den linken Anschlag sowie das Potentiometer R453 (HI PWR) an den rechten Anschlag drehen.

(13) Den Sender tasten und mit dem Spannungsbegrenzungspoti R463 (VOLT LIMIT) die in Schritt 11 ermittelte Prüfspannung (an P6-4 bzw. Prüfpunkt CV gemessen) um 2,0V erhöhen.

(14) Den bei Schritt 10 ermittelten Kanal einstellen, den Sender tasten und mit dem Potentiometer R453 (HI PWR) die folgenden Werte der HF-Ausgangsleistung einstellen:

Modell	HF-Leistung
MAU0	1,1 W
MAU1	5,6 W
MAU2	10,7 W
MAU3	26,8 W

(15) Sicherstellen, daß alle Kanäle (alle Kanäle hoher Leistung bei der Option MAB889) die geforderte HF-Leistung von 1W (MAU0), 10W (MAU2) bzw. 25W (MAU3) aufweisen. Beim Modell MAU1 darf die HF-Ausgangsleistung der einzelnen Kanäle einen Wert von 6,0W nicht überschreiten.

(16) Bei Geräten mit der Option MAB889 (Kanalabhängiger HF-Ausgangsleistung) ist ein Kanal mit niedriger Ausgangsleistung einzustellen. Dann den Sender tasten und bei MAU1- und MAU2-Modellen mit dem Potentiometer R455 (LO PWR) eine Ausgangsleistung von 1W (bzw. die geforderte HF-Ausgangsleistung) einstellen. Sicherstellen, daß die Ausgangsleistung 0,7 bzw. 1,4W beträgt, ggf. R455 geringfügig nachjustieren. Bei MAU0-Modellen ist an diesem Regler eine Leistung von 100 mW (oder die geforderte HF-Ausgangsleistung) einzustellen, die zwischen 70 und 140 mW variieren darf.

3.3 ABGLEICH DES REFERENZOSZILLATORS

(1) Die Antennenbuchse über einen geeigneten Abschwächer mit einem genauen Frequenzzähler verbinden.

(2) Einen beliebigen Sendekanal einstellen.

(3) Den Sender tasten und L151 (oder, bei 2ppm-Geräten, R163) auf genauer Sendefrequenz ±100 Hz abgleichen.

(4) Die Trägerfrequenzen aller Sendekanäle überprüfen und sicherstellen, daß sie dem Programm entsprechen.

3.4 HUBEINSTELLUNG

(1) Die Antennenbuchse über einen geeigneten Abschwächer mit einem genauen Hubmesser verbinden.

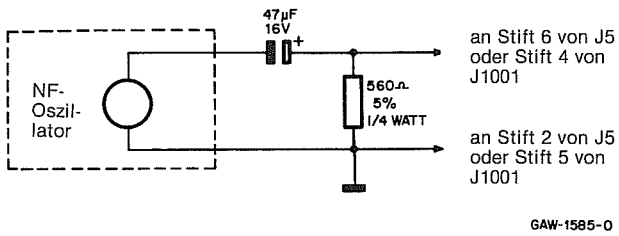


Abbildung 22
Einspeisung eines NF-Signals
in die Mikrofonbuchse

(2) An die Mikrofonbuchse wird ein NF-Generator angeschlossen, wie in Abb. 22 gezeigt. Der Generator soll eine Tonfrequenz von 1000 Hz bei einer Amplitude von 800 mV eff. abgeben.

(3) Die Modulationssteller R302 (VCO MOD) und R305 (REF MOD) an den linken Anschlag drehen. Bei Geräten mit 25kHz Kanalabstand muß R305 jedoch an den rechten Anschlag gedreht werden.

(4) Einen beliebigen Sendekanal einstellen. Bei „Private-Line"-Geräten ist ein Kanal mit „PL"-Modulation zu wählen.

(5) Den Sender tasten und mit dem Poti R302 (VCO MOD) den Hub wie folgt einstellen:
±4,6 kHz bei 25 kHz Kanalabstand
±3,7 kHz bei 20 kHz Kanalabstand
±2,3 kHz bei 12,5 kHz Kanalabstand.

Hinweis

Bei asymmetrischem Hub ist nur die höhere Anzeige zu bewerten.

(6) Bei Geräten für 25 kHz Kanalabstand ist die Vc einstellung jetzt beendet. Für die Geräte mit 20 und 12,5 kHz Kanalabstand ist mit Schritt 7 fortzufahren.

(7) Den NF-Generator auf 200 Hz justieren. Der Ausgangspegel bleibt auf 800 mV eff. eingestellt.

(8) Der Oszillograph muß an den Demodulator-Ausgang des Hubmessers angeschlossen sein. Dieser Ausgang darf keine De-emphasis aufweisen und muß gleichstromgekoppelt sein (Wechselspannungskopplung ist erlaubt, wenn die Eckfrequenz maximal 2 Hz beträgt). Den Sender tasten und das demodulierte Signal am Oszillographen beobachten. Mit Hilfe des Reglers R305 (REF MOD) ein möglichst flaches Rechtecksignal mit minimaler Neigung einstellen.

(9) Am NF-Generator wieder eine Tonfrequenz von 1 kHz bei einer Amplitude von 800 mV eff. einstellen und Schritt 5 wiederholen.

3.5 EMPFÄNGERABGLEICH

Hinweis

Der Empfänger darf erst nach dem Abgleich des VCO und des Referenzoszillators (siehe Absatz 3.2) abgeglichen werden.

L210 Vorabgleich

a) Kern an Becheroberkante bei FRX von 403 bis 420 MHz

b) Kern in Mittelstellung, ca. 5 Umdrehungen von Becheroberkante für FRX von 420–433 MHz oder 433–450 MHz

c) Kern voll eingedreht bei FRX von 450–470 MHz.

3.5.1 Empfänger-VCO

(1) Ein Gleichspannungsvoltmeter mit mindestens 11 MegOhm Impedanz an Prüfpunkt SL anschließen.

(2) Bei Mehrkanalgeräten den Kanal mit der höchsten Empfangsfrequenz einstellen.

(3) Den VCO Abgleichkondensator des Empfängers (C201) abgleichen, bis eine Spannung von 6,0V abgelesen wird.

(4) Den Kanal mit der niedrigsten Empfangsfrequenz wählen und sicherstellen, daß die Prüfspannung mindestens 2,5V beträgt.

3.5.2 Empfänger

(1) Die Abgleichfrequenz wie folgt ermitteln:

(a) Bei Einkanalgeräten und Vielkanalgeräten mit einer Empfangsfrequenz ist dies die Betriebsfrequenz des Empfängers.

(b) Bei Mehrkanalgeräten mit einer Schaltbandbreite von weniger als 2 MHz ist dies die höchste Empfangsfrequenz.

(c) Bei Mehrkanalgeräten mit einer Schaltbandbreite zwischen 2 und 4 MHz wird die Mittenfrequenz F_m gefunden, indem die höchste (F_h) und tiefste (F_t) Betriebsfrequenzen addiert und dann durch zwei geteilt werden:

$$F_m = (F_h + F_t) : 2$$

Auf dieser Mittenfrequenz ±500 kHz wird abgeglichen, wenn ein Betriebskanal in diese Toleranz fällt; sonst muß eine Abgleichfrequenz = F_m programmiert werden (gilt nur für EZ-Typen).

(2) Den Kanal mit der Abgleichsfrequenz (wie in Schritt 1 ermittelt) einstellen. Bei Geräten der Typenreihe EV ist werksseitig ein Abgleichkanal vorprogrammiert. Um diesen Kanal einzuschalten, müssen die beiden mit TEST bezeichneten Stifte auf der Logikplatine durchverbunden werden.

(3) Zwischen den Stiften 4 und 5 (Masse) von J5 einen NF-Lastwiderstand von 2 Ohm anschliessen. Die NF über diesen Widerstand wird als Prüfspannung herangezogen.

(4) Die 8 Spulenkerne der 3 Eingangsfilter bis zur Oberkante der Filterbecher einstellen.

(5) Ein Gleichspannungsvoltmeter zwischen dem Oszillatorprüfpunkt L0 und Masse anschließen.

(6) Die drei Kerne von FL3 auf maximale Prüfspannung (typ. 2,5–4,2V) abgleichen, wobei der zum Mischer Q2 gelegene Kern auf gleicher Höhe wie die zwei weiteren Kerne liegen soll, selbst wenn so nicht das Spannungsmaximum erreicht wird.

(7) An der Antennenbuchse des Gerätes einen Meßsender anschließen, so daß das Empfängerrauschen vom unmodulierten Meßsendersignal vollständig unterdrückt wird.

(8) Zwischen dem ZF-Prüfpunkt IF und Masse ein NF-Voltmeter mit einem Frequenzbereich von mindestens 500 kHz (z.B. HP331A Distorsin Analyzer) oder ein entsprechend eingestelltes Oszilloskop anschließen. Das Ausgangssignal des Meßsenders ständig solange erhöhen, bis eine Prüfspannung von 30 mV eff. abgelesen wird. Danach die Spulen FL1, FL2 und FL3 auf Maximalanzeige abgleichen und dabei das Ausgangssignal des Meßsenders während des Abgleichvorgangs ständig soweit verringern, daß die Anzeige immer etwa 30 mV eff.

bleibt. Der Abgleichvorgang wird einmal wiederholt, wenn die Schaltbandbreite kleiner als 2 MHz ist. Ansonsten auf den niedrigsten Kanal schalten, die Anzeige notieren und zum Vergleich auf den höchsten Kanal schalten. FL2 so nachgleichen, daß an den Bandenden jeweils maximale Anzeige erreicht wird. Vorgang mindestens einmal wiederholen.

(9) Den Ausgangspegel des Meßsenders auf 1mV einstellen. Modulationsfrequenz: 1 kHz. Hub:
±3,0 kHz bei 25 kHz Kanalabstand
±2,4 kHz bei 20 kHz Kanalabstand
±1,5 kHz bei 12,5 kHz Kanalabstand.

Am Lautstärkeregler eine NF-Ausgangsspannung (am 2 Ohm Lastwiderstand) von 1V einstellen. Dann langsam die Spule des Quadraturdetektors L54 auf maximale NF-Ausgangsspannung einstellen.

(10) Die Rauschsperre wird wie folgt eingestellt:

(a) R59 (SQCH) an den linken Anschlag drehen.

(b) Ein HF-Signal mit einer Amplitude von 1mV einspeisen. Modulationsfrequenz: 1 kHz, Hub:
bei 25 kHz Kanalabstand: ±3 kHz
bei 20 kHz Kanalabstand: ±2,4 kHz
bei 12,5 kHz Kanalabstand: ±1,5 kHz.

(c) Am Lautstärkeregler ein Ausgangssignal von 1,7 V am 2 Ohm Lastwiderstand einstellen.

(d) Den HF-Eingangspegel verringern, bis ein SINAD-Wert von 10 dB (bewertet gemäß CCITT) erzielt wird.

(e) Mit der entsprechenden Taste auf der Frontplatte die Rauschsperre einschalten.

(f) Den Rauschsperrenregler zuerst langsam nach rechts drehen, bis das Empfängerrauschen gerade verschwindet, und danach langsam in entgegengesetzter Richtung, bis das Rauschen gerade wieder hörbar wird.

(g) Das Eingangssignal zuerst auf Minimum stellen und dann langsam erhöhen, bis der Empfänger gerade öffnet. In diesem Zustand muß der CCITT bewertete SINAD-Wert zwischen 8 und 12 dB liegen. Ggf. R59 geringfügig nachgleichen.

(11) Nach Abgleichen sollten die Eingangsspulen FL 1, FL 2 und FL 3 mit Farbe gesichert werden.

Drahtbrücke	Beschreibung	Zustand	Logikplatine GLN6627A mit Select 5
JU551 JU552	Empfänger-NF Empfänger-NF	ohne De-Emphasis (Frequenzmodulation) ohne De-Emphasis (Frequenzmodulation)	eingebaut ausgebaut
JU601 JU602	Sender-NF Sender-NF	ohne De-Emphasis (Frequenzmodulation) ohne De-Emphasis (Frequenzmodulation)	eingebaut ausgebaut
JU551 JU552	Empfänger-NF Empfänger-NF	mit De-Emphasis (Phasenmodulation) mit De-Emphasis (Phasenmodulation)	ausgebaut eingebaut
JU601 JU602	Sender-NF Sender-NF	mit De-Emphasis (Phasenmodulation) mit De-Emphasis (Phasenmodulation)	ausgebaut eingebaut
JU701 JU702	Serieller EEPROM Power Strobe	über U705-6 über 701-19	ausgebaut eingebaut
JU703 JU704 JU705	Konfiguration mit Speicher	über U705-6 WR an U702-23 Masse an U702-20	ausgebaut ausgebaut eingebaut
JU706 JU707	Speicherbetrieb	MP0 MP1	ausgebaut eingebaut
JU709	Notruf	Spezialanwendungen	ausgebaut
JU801 JU802	Auswerterfilter	Select 5 „Private-Line“	eingebaut ausgebaut
JU803 JU804	Wecktöne	Regelbare Lautstärke Feste Lautstärke	eingebaut ausgebaut
JU805	Mithörtöne	aktiviert	eingebaut
JU806	Auswerterfilter	Select 5	

Tabelle 2
Drahtbrücken auf der Logikplatine bei Geräten der Modellreihe EV

Option	Brücke	Zustand	Logikplatine GLN6627A mit Select 5
MAB459	JU805	ohne Mithörfunktion	ausgebaut
MAB875	JU803 JU804	Wecktonlautstärke fest eingestellt	ausgebaut eingebaut
MAB884	JU551 JU552 JU601 JU602	Frequenzmodulation	eingebaut ausgebaut eingebaut ausgebaut

Tabelle 3
Drahtbrücken auf der Logikplatine
bei optionsbestückten Geräten der Modellreihe EV

Platine	Anzeiger	Anzeige	Bedeutung
GLN6627A	LCD's auf Logikplatine	ERR 1	ROM-Fehler: Fehlerhaftes Muster in U702. U702 ersetzen.
		ERR 2	EEPROM-Fehler: Fehlerhaftes Muster in U703. Neues EEPROM bestellen/programmieren.
		ERR 3	ROM- oder EEPROM-Fehler.
GLN6628B	Schnelle Tonfolge		EEPROM-Fehler. Neues EEPROM bestellen/ programmieren.

Tabelle 4
Fehleranzeigen

Ton	GLN6984A, GLN6627A	GLN6628B
800 Hz/200 ms	Unerlaubter Tastendruck	—
600 Hz/200 ms	—	Unerlaubter Tastendruck
800 Hz Dauerton	Unerlaubter Tastversuch (z.B.: Funkgerät nicht in Mithörbetrieb)	
800 Hz pulsierender Ton	Synthesizer nicht eingerastet	

Tabelle 5
Warntöne

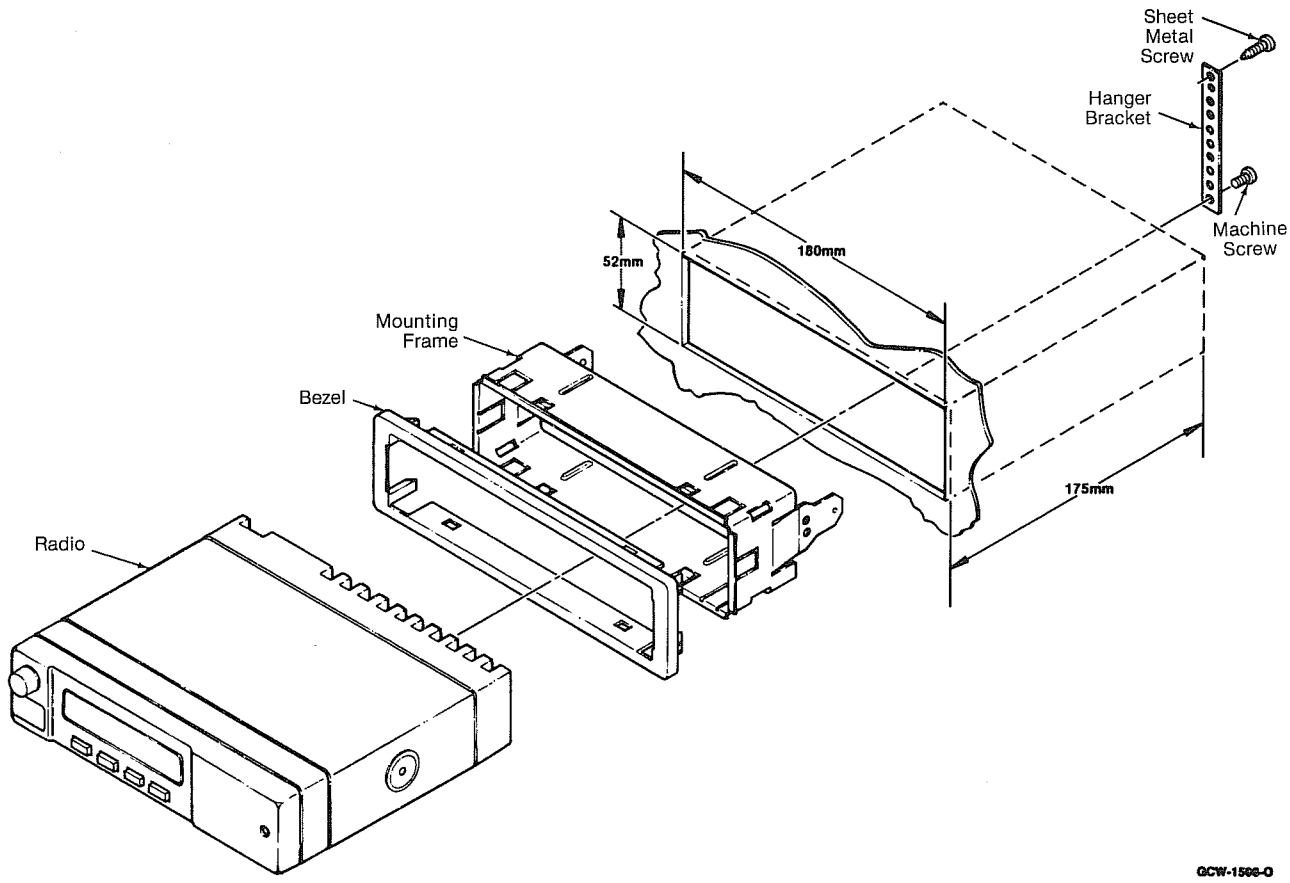


Figure 1
Mounting Complete Radio in Dashboard

1 INSTALLATION

1.1 TO INSTALL THE ANTENNA

Follow the instructions that come with the antenna for installing it on the vehicle. Run the coaxial cable to the place in the vehicle at which you intend to mount the radio's transceiver. Cut off any excess wire and install the connector on the cable.

1.2 TO INSTALL THE RADIO IN AN AUTOMOTIVE DASHBOARD

1.2.1 Radio with control head

(1) Open the radio cutout in the dashboard, and enlarge it, if necessary, to the dimensions shown in Figure 1.

(2) Insert the mounting frame into the cutout and bend the six tabs (Figure 2) to hold it in place. Press the bezel onto the mounting frame.

(3) Slide the radio into the mounting frame until it snaps firmly into place.

(4) Attach the hanger bracket (Figure 1) to the structure of the vehicle with a sheet-metal screw, and to the back of the radio's heat sink with a machine screw.

1.2.2 Control head only (remote-mounted radio)

(1) Attach the adapter brackets to the control head with internal-hex machine screws (Figure 3).

(2) Open the radio cutout in the dashboard or enlarge the cutout to the dimensions shown in Figure 3.

(3) Insert the mounting frame into the cutout (Figure 3) and bend the six tabs to hold it there (Figure 2). Press the bezel onto the mounting frame.

(4) Slide the control head into the mounting frame until it snaps firmly into place.

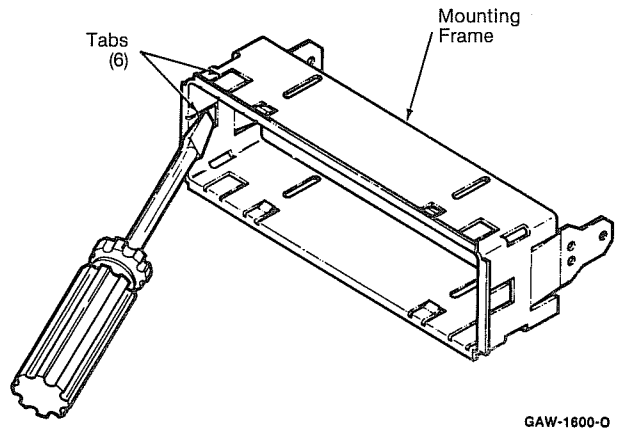


Figure 2
Mounting Frame Detail

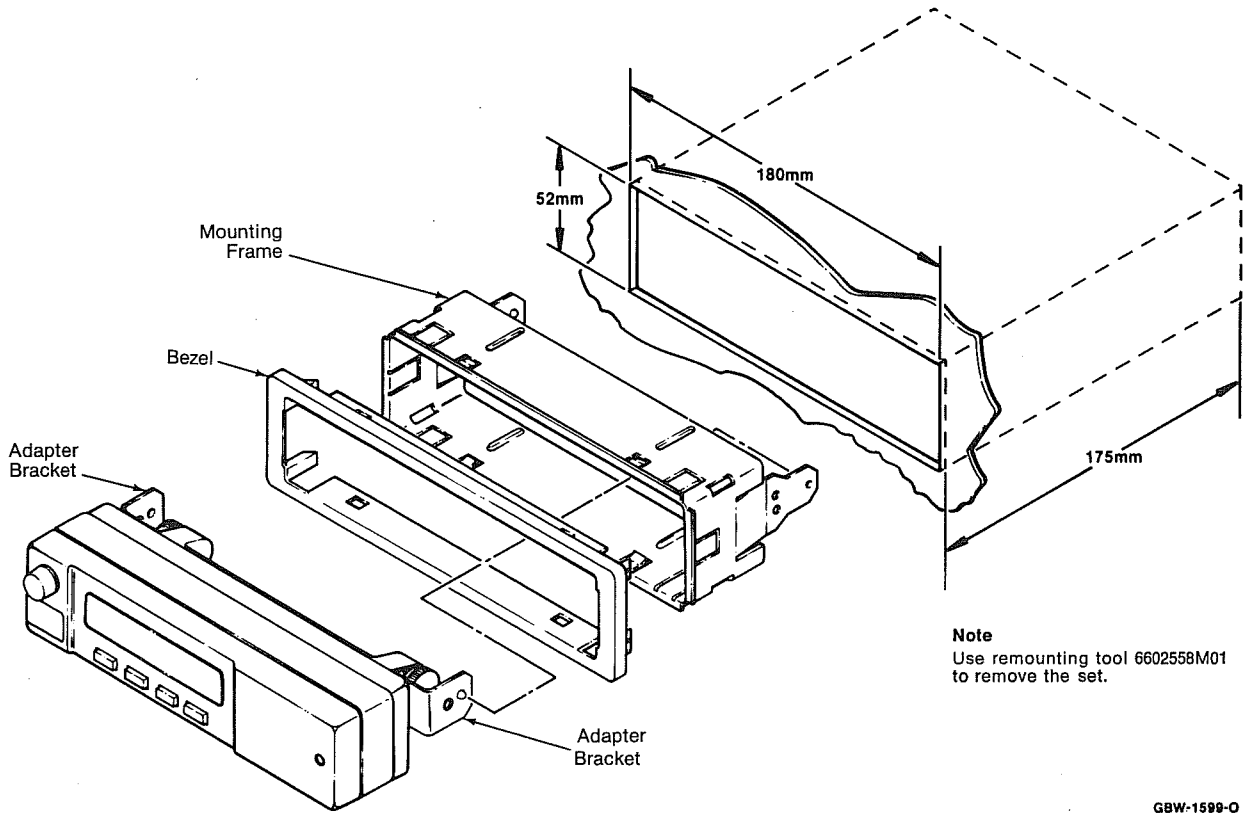


Figure 3
Mounting Control Head in Dashboard

Transmission Hump Mounting

Below Dash Mounting

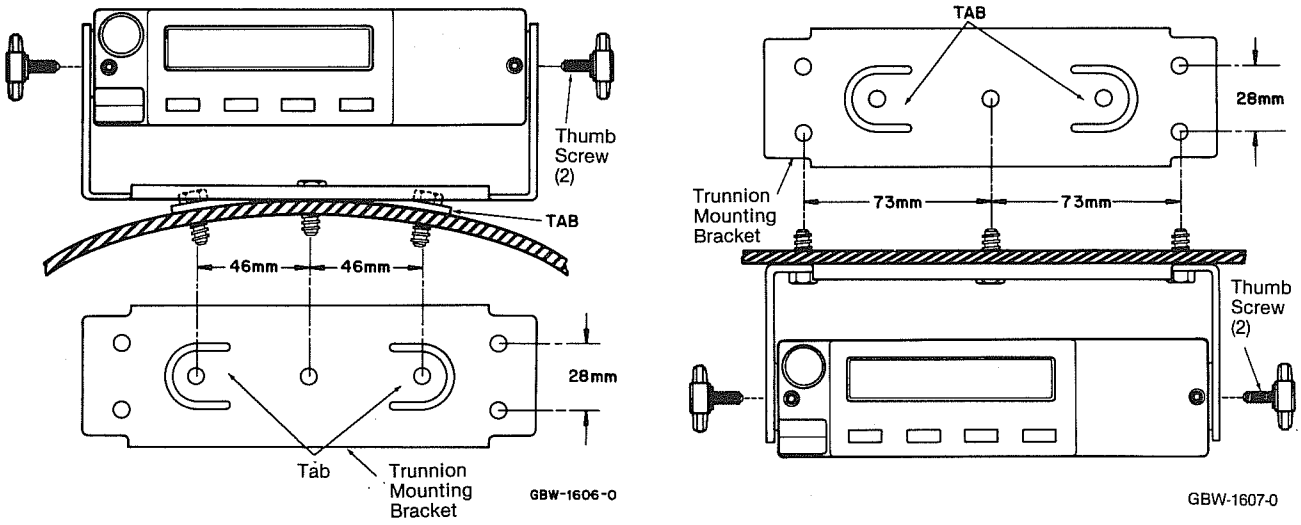


Figure 4
Trunnion Mount for Radio

1.3 TO MOUNT THE RADIO WITH A TRUNNION UNDER THE DASH OR ON THE TRANSMISSION HUMP (Figure 4)

(1) Loosen the two wing bolts and remove the radio from the trunnion mounting bracket.

(2) Using the trunnion mounting bracket as a template, mark the positions of the holes on the mounting surface. Use the innermost three holes for a curved mounting surface such as the transmission hump, and the center hole and four outermost holes for a flat surface.

(3) Centerpunch the spots you have marked and drill a four-millimeter hole at each.

(4) Secure the trunnion mounting bracket to the surface with sheet-metal screws.

(5) Replace the radio in the trunnion mounting bracket and tighten the wing bolts.

1.4 TO INSTALL AN EXTERNAL SPEAKER

(1) Remove the speaker from the trunnion bracket by loosening the two wing screws.

(2) Choose a place to mount the speaker.

(3) Using the trunnion bracket as a template, mark the locations of the three mounting holes.

(4) Centerpunch and drill a four-millimeter hole at each location.

(5) Mount the trunnion bracket with the screws supplied (Figure 5).

(6) Insert the speaker into the trunnion bracket and tighten the two wing screws.

(7a) (Dash mount) Push the external speaker accessory plug into the nine-pin accessory connector at the back of the radio (Figure 6).

(7b) (Remote mount) Drill a 5.8 mm hole in the remote back housing at the recessed spot.

(8) (Remote mount) Slide the grommet 11 cm up the cable.

(9) (Remote mount) Push the external speaker wire terminals (with plug and cover removed) through the remote back housing and plug them into the sockets on the control head circuit board (Figure 7). Be sure to install a grommet in the hole in the back housing.

Caution

The radio shall be fixed to its mounting by means of the thumb screws supplied with the unit. If a different mounting bracket of thinner material is used, then O-rings must be added to compensate for lacking material thickness as compared to the original trunnion, otherwise the radio will be damaged.

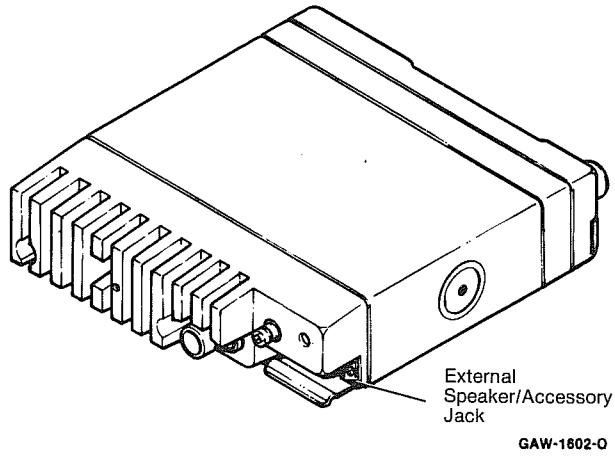


Figure 6
Speaker Connection for
Dash-Mounted Radio

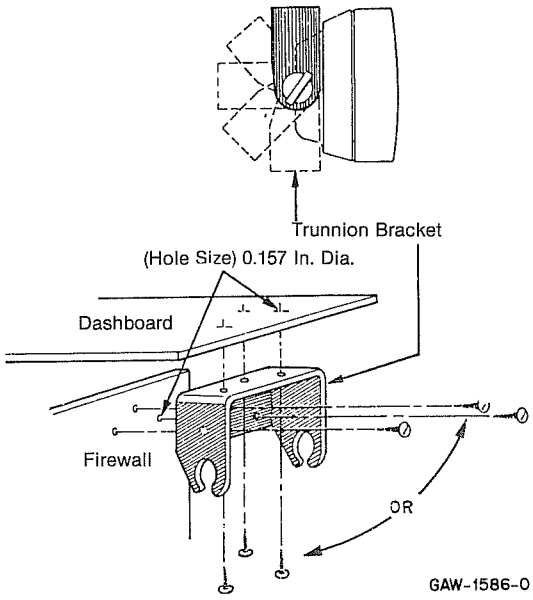


Figure 5
Mounting Speaker under Dashboard

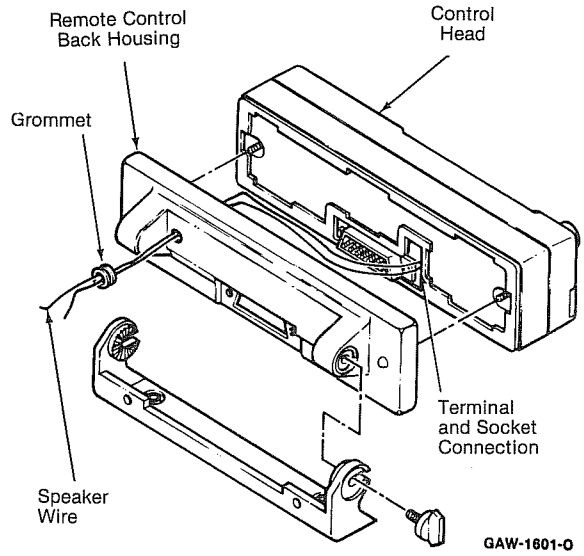


Figure 7
Speaker Connection for
Remote-Mounted Radio

2 DISASSEMBLY AND ASSEMBLY

2.1 RADIO

2.1.1 To remove the control head, housing sleeve, and chassis cover:

(1a) (Dash-mounted radios only) Remove the control head mounting screws (Figure 8). Pull the control head off and away from the radio. Slide the housing sleeve off in the same direction.

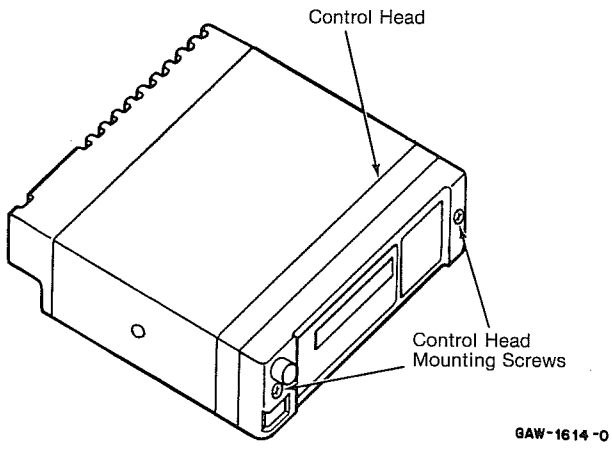


Figure 8
Control Head Mounting Screws

(1b) (Remote-mounted radios only) Remove the cable mounting screws (Figure 9). Pull off the remote cable. Remove the housing sleeve screws and slide housing sleeve off the radio.

(2) Remove the chassis cover from the chassis by prying each corner and side a slight amount (Figure 10). Be careful not to overbend any one corner or side.

2.1.2 To remove the power amplifier heat sink:

(1) Disconnect the right-angle six-pin connector from the logic board (Figure 11).

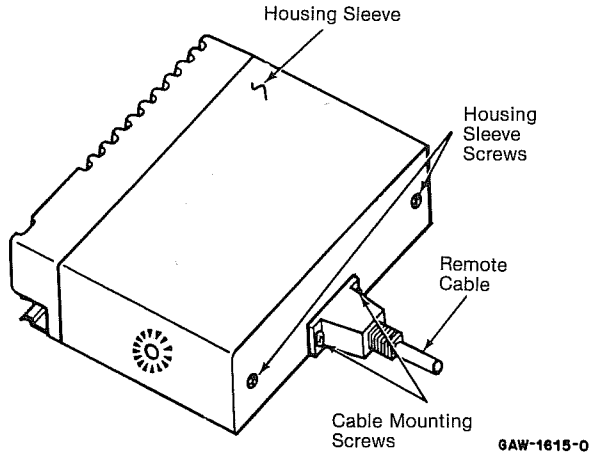


Figure 9
Sleeve Screws and Cable Mounting Screws

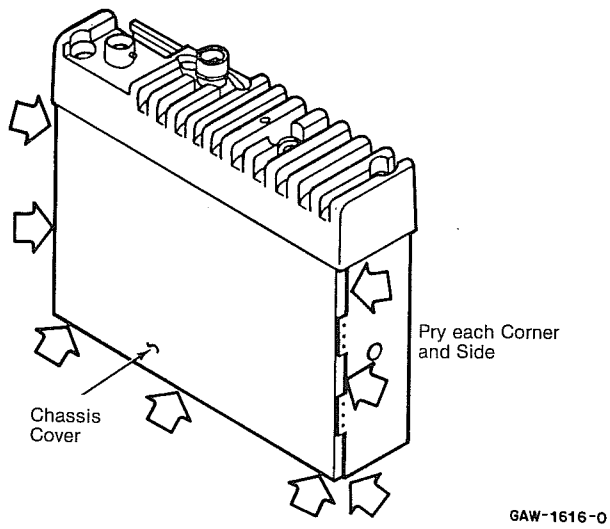


Figure 10
Removing Chassis Cover

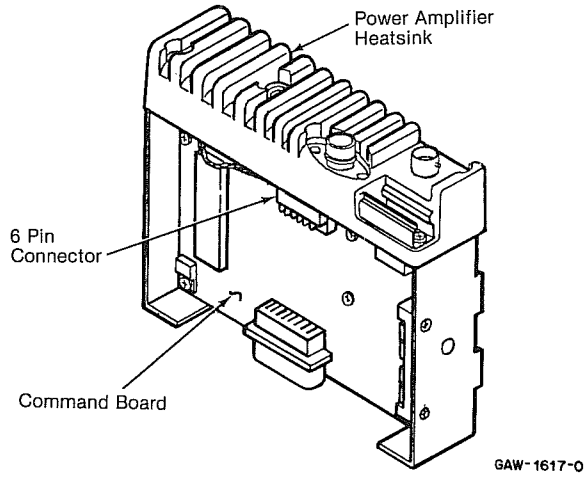


Figure 11
Location of Right-Angle 6-Pin Connector

(2) Disconnect the transmit and receive coaxial cables from the RF board (Figure 12).

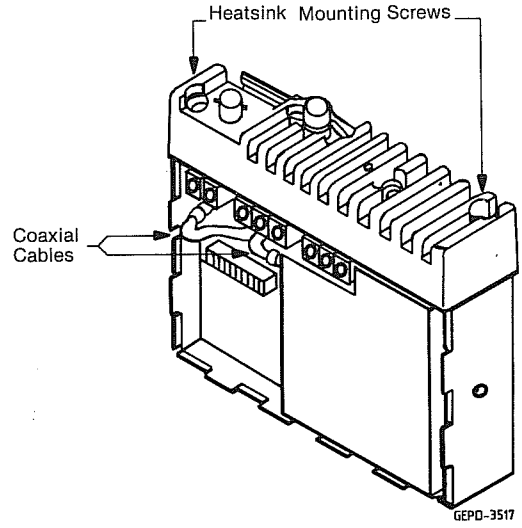


Figure 12
Coaxial Cables and
Heatsink Mounting Screws

(3) Remove the heat sink mounting screws (Figure 12) and pull the heat sink off the chassis, at the same time carefully feeding the transmit and receive coaxial cables through their holes in the chassis.

2.1.3 To remove the RF circuit board and the command circuit board:

(1) First remove the power amplifier heat sink. Then remove all the RF board mounting screws and take out the RF board (Figure 13).

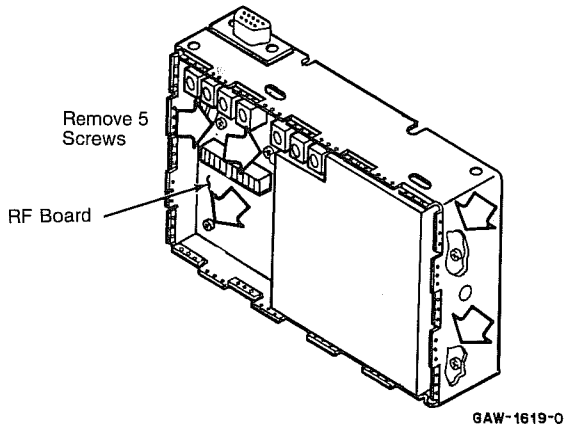


Figure 13
Removing RF Board

(2) Once the RF board is out, turn the radio over and remove all the command board mounting screws (Figure 14).

(3) Now remove the two regulator heat sink mounting screws from the side of the chassis (Figure 14). You can now lift out the command board.

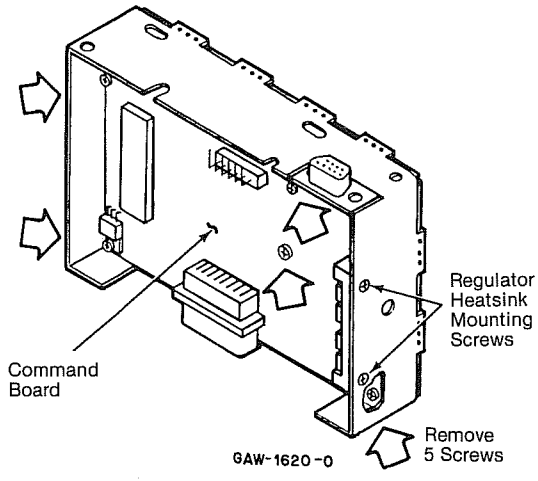


Figure 14
Removing Command Board

2.1.4 To remove the power amplifier circuit board:

(1) Remove the power amplifier shield by carefully prying each corner and side until you can slide the shield off easily (Figure 15). Remove the shield completely by guiding the coaxial cables out.

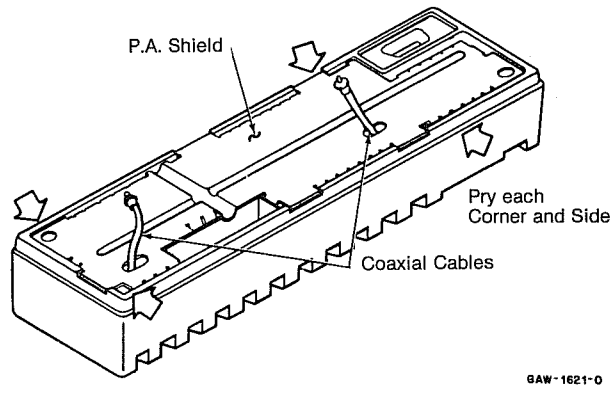


Figure 15
Removing PA Shield

(2) Remove the transistor mounting nut from the back of the heat sink (Figure 16).

(3) Unsolder the A+ power connector feed-through leads and the antenna connector lead (Figure 17).

(4) (25-watt radio only) Remove the transistor mounting screws as shown in Figure 17.

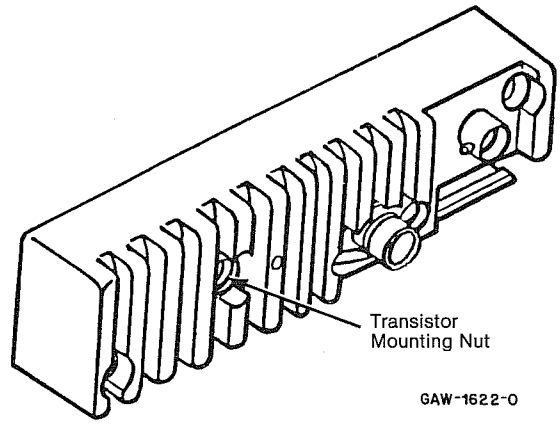


Figure 16
Transistor Mounting Nut

(5) Remove all the mounting screws for the PA board (Figure 17) and take out the PA board.

2.1.5 To re-assemble the radio:

Reverse the disassembly procedure and tighten all screws to the torques specified in Table 1. (Apply contact lubricant, Part No. 1180344A80 to the contact area of the 11-pin board connectors immediately before joining the logic and RF boards.)

Note

To assemble the radio place the RX coax cable over the TX coax cable.

Part Number	Description	Location	Driver Size	Torque
03-00132436	Machine, Phillips-head, S.S. 6-32 x 13/16	External Speaker Rear Housing	P-2	0.5-0.7 Nm (4-6 in.-lb.)
03-00136756	Tapping, Plain Hex 10-16 x 5/8	(a) In-Dash Mount Hanger (b) External Speaker Mounting Trunnion	5/16" Hex Driver	Field Installed
03-00136518	Type P Thread Form, Phillips Pan 8-18 x 5/8	Base Tray	P-2	1.1-1.4 Nm (10-12 in.-lb.)
03-80165J05	Machine, Plain Hex M4 x 8	In-Dash Mount Hanger	7mm Hex Driver	Field Installed
03-80029J01	Machine, Internal Plain Hex M3 x 35 (black)	Control Head Front/Rear Mounting	2.5mm Internal Hex Driver	0.35 Nm (10 in.-lb.)
03-80030J01	Tapping, Pozi., Pan Head M3 x 10	Control Head Boards	P2-2	0.8 Nm (7 in.-lb.)
03-80036J01	T-Knob (Shadow Black)	Remote Control Head Trunnion	—	Field Installed
03-80165J01	Machine, Pozi., Pan Head M4 x 28 (Black)	3mm Engagement Heat Sink Mounting	P2-2	1.4-1.6 Nm (12-14 in.-lb.)
03-80165J02	Machine, Pozi., Pan Head M3 x 6 (Zinc)	(a) Front Mount Control Head Connector (b) Remote Mount Connector	P2-2	1.1 Nm (10 in.-lb.)
03-80165J04	Machine, Pozi., Pan Head M3 x 7 (Black)	3mm Engagement Housing to Chassis (Remote Mount)	P2-1	1.1-1.4 Nm
03-80269H01	Taptite, Pozi., Pan Head M2.5 x 6 (Zinc)	3,5mm Engagement Heatsink Devices	P2-1	0.7-0.9 Nm (4-6 in.-lb.)
03-80269H02	Taptite, Pozi., Flat Head M2.5 x 8 (Zinc)	4.0mm Engagement Heatsink Mounting	P2-1	0.7-0.9 Nm (6-8 in.-lb.)
03-80269H03	Taptite, Pozi, Pan Head M3 x 8 (Zinc)	(a) Power Connector (2.5mm Engagement) (b) P.A. Deck (6.0mm Engagement	P2-1	0.7-0.9 Nm (6-8 in.-lb.) 0.9-1.1 Nm (8-10 in.-lb.)
03-80269H04	Taptite, Pozi., Pan Head M3 x 6 (Zinc)	(a) RF/Command Brd. Mounting (2mm Engagement) (b) Accessory Connector Ret. (5mm Engagement)	P2-1	0.9-1.1 Nm (8-10 in.-lb.) 0.9-1.1 Nm (8-10 in.-lb.)
03-02097B01	Hex/Tension Nut 1/2" (Part of Antenna Connector Assembly)	PA Deck (Antenna Receptacle)	1/2" Hex Driver	2.0-2.3 Nm (18-20 in.-lb.)
03-80270H01	Tee Knob Screw	Radio Mounting Trunnion	—	Field Installed
03-84244C03	Wing Screw	External Speaker Mounting Trunnion	—	Field Installed
03-00129892	Hex Lock Nut (8-32)	Flange Mount Power Transistor (PA Heat Sink)	5/16" Hex Driver	0.6 Nm (5.0 in.-lb.)

Table 1
Fasteners, Tools, and Torques

2.2 CONTROL HEAD (attached to radio)

To disassemble the control head:

(1) Remove the microphone cable by pulling the gasket back, pressing the connector tab, and pulling the cable.

(2) Remove both front mounting screws with a 2.5 mm hex driver.

(3) Pull the back cover and the gasket from the back of the control head.

(4) Pull the volume knob off the front of the radio. You need no tools for this because the knob is pressed onto its shaft.

(5) Remove the five screws holding the rear printed circuit board.

(6) Pull the rear printed circuit board out. Notice that the volume potentiometer is attached to this board, and that its gasket fits around its shaft.

(7) Pull the ground spring from the hole in the left side of the internal chassis. (The control head on non-display models does not have this ground spring.)

(8) Remove all six screws holding the internal chassis to the front housing.

(9) Pull the internal chassis from the housing. Note that the front printed circuit board and the two elastomeric keypads are attached to the internal chassis. (The control head on non-display models has only one keypad.)

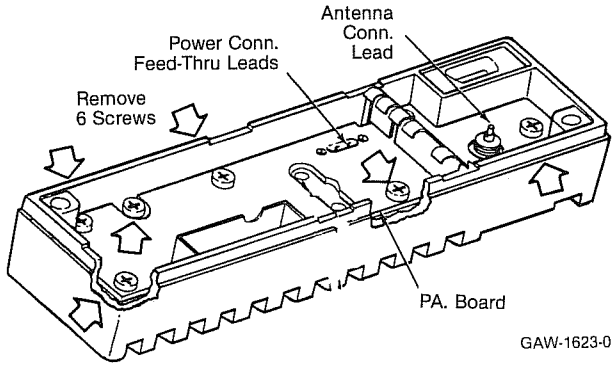


Figure 17
Removing PA Board

(10) The two elastomeric keypads are stretched over their guide pins. To remove one, just pull a corner of the keypad. You must keep the insides of the keypad domes and the gold keypad circuits in the circuit board as clean as possible. Note that the circuit board snaps into the internal chassis.

(11) To remove the LCD glass assembly from the front circuit board, bend the six twist tabs in the LCD bracket and pull the assembly. Note that an LCD lightpipe and two elastomeric connectors form part of this assembly. (The non-display models do not have an LCD assembly.)

(12) To remove any of the buttons or plugs, lift the corresponding lightpipe and pull the appropriate button.

(13) To assemble the control head, follow the above steps in reverse order.

2.3 CONTROL HEAD (remote mounted)

(1) Remove and disassemble the control head following Steps 1 to 13, above.

(2) Remove the control cable assembly from the control head by removing the two machine screws from inside the remote-mounted back cover, then pulling the cable out. (To remove the entire remote control head without separating the cable assembly, remove the two wing nuts and pull the unit.)

(3) If the radio has an external speaker attached to the remote-mounted control head, unplug the speaker cable from the back circuit board after you have removed the back cover.

2.4 ACCESSORY CONNECTOR

(1) With a screwdriver pry the cover clear of the nib on each side (Figure 18). Pull the plug out of the cover.

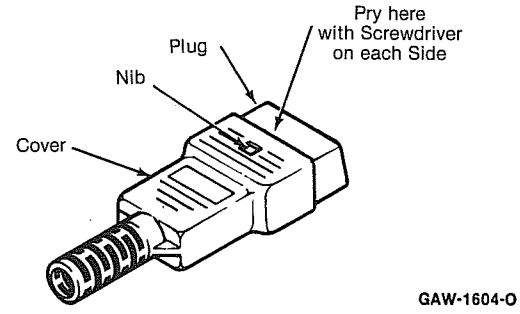


Figure 18
Removing Plug Cover

(2) Remove the wire terminals from the plug. Spread the strain relief apart with pliers and remove it. Route the wire (with terminals attached) out through the connector cover.

(3) To re-assemble, follow the reverse of the same procedure, being sure to position the strain relief properly (Figure 19).

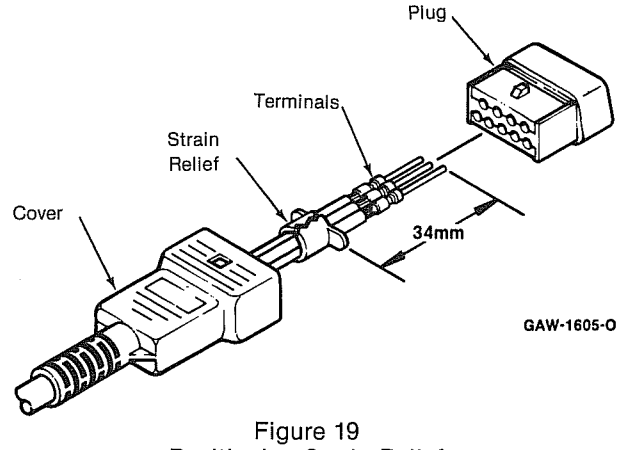


Figure 19
Positioning Strain Relief

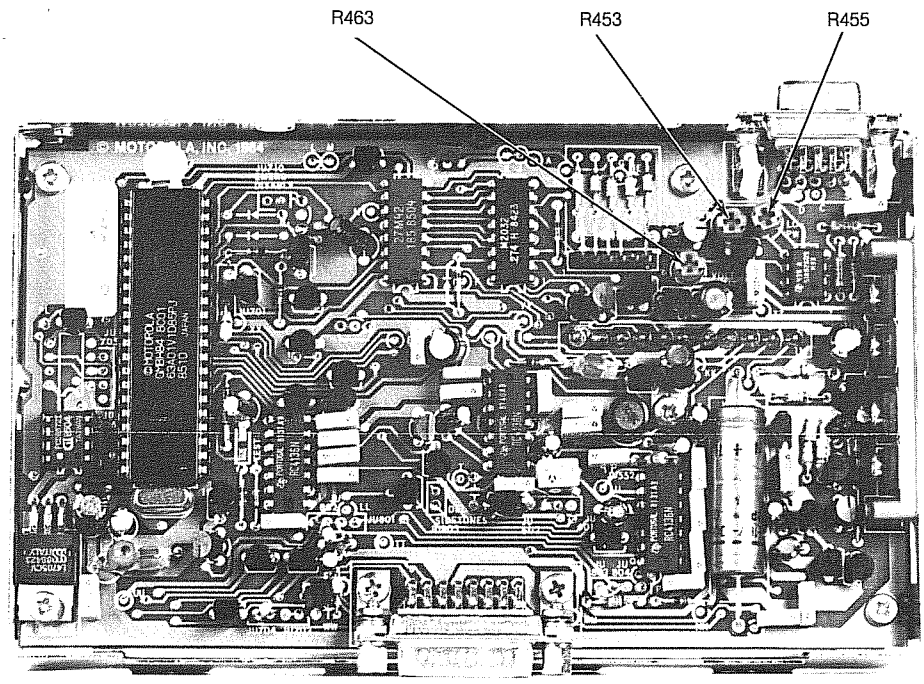


Figure 20
Alignment Points on Command Board

GBW-2101-O

3. ALIGNMENT

Note

Key the radio while making adjustments or measurements.

3.1 GENERAL

Perform all adjustments at a supply voltage of 13.2 ±0.1 volts dc, unless the instructions call for a different voltage.

Interpret instructions to turn controls clockwise (CW) or counterclockwise (CCW) to mean "as viewed from the component side of the circuit board."

Figures 20 and 21 show the locations of the components.

When you perform any of the tune-up procedures given in Sections 3.2, 3.3, 3.4, and 3.5, the radio must be completely assembled except for the chassis cover, the top cover of the synthesizer compartment, and the radio sleeve. When you have completed the tune-up, install the synthesizer cover, chassis cover, and sleeve before testing the radio against specifications.

The following test equipment is recommended for aligning and servicing the MC micro radio:

R2001D	Communication System Analyzer
or	
R2200B	Service Monitor
GTF180A GTF244A	Mobile Test Set with Adapter Cable for MC micro
PFT4053A	Psophometric Filter
FTP3005B	Select 5 Test Unit (not required with R2001D.)
R1011B	Power Supply
or	
S1347D	Power Supply (for radios with 10 watts or less power)
R1037A	Digital Multimeter
or	
R1024B	Digital Multimeter

3.2 TO ADJUST THE TRANSMITTER

(1) Preset the following pots:

* HI PWR	R453	Fully CCW
* LO PWR	R455	Fully CCW
* VOLT LIMIT	R463	Fully CW

L201

a) Core flush with top of can for Tx frequencies from 403–420 MHz

b) Core approx. 5 turns below top of can for Tx frequencies 420–433 MHz or 433–450 MHz.

c) Core fully brought up for Tx frequencies 450–470 MHz.

(2) Adjust the radio's dc supply voltage to 13.2 ±0.1 VDC (12.6 VDC for MAU1, six-watt models).

(3) Select the channel with the highest transmit frequency.

(4) Connect the radio antenna output to an accurate RF power meter that provides a 50-ohm load.

(5) Connect a dc voltmeter from the steering line test point (SL) to ground. Meter impedance should be 11 megohms or more.

(6) Key the radio and adjust capacitor C221 until the voltmeter reads 6.0 VDC.

(7) Select the channel with the lowest transmit frequency. Key the radio and verify that the dc voltage is at least 2.5 VDC.

(8) Select any transmit channel. (If the radio has the MAB889 slaved RF power option, select any high-power transmit channel.)

(9) Key the radio and adjust R453 (HI PWR) for:

Model Number	Power Setting
MAU0	1.0 Watt
MAU1	6.0 Watts
MAU2	10.0 Watts
MAU3	25.0 Watts

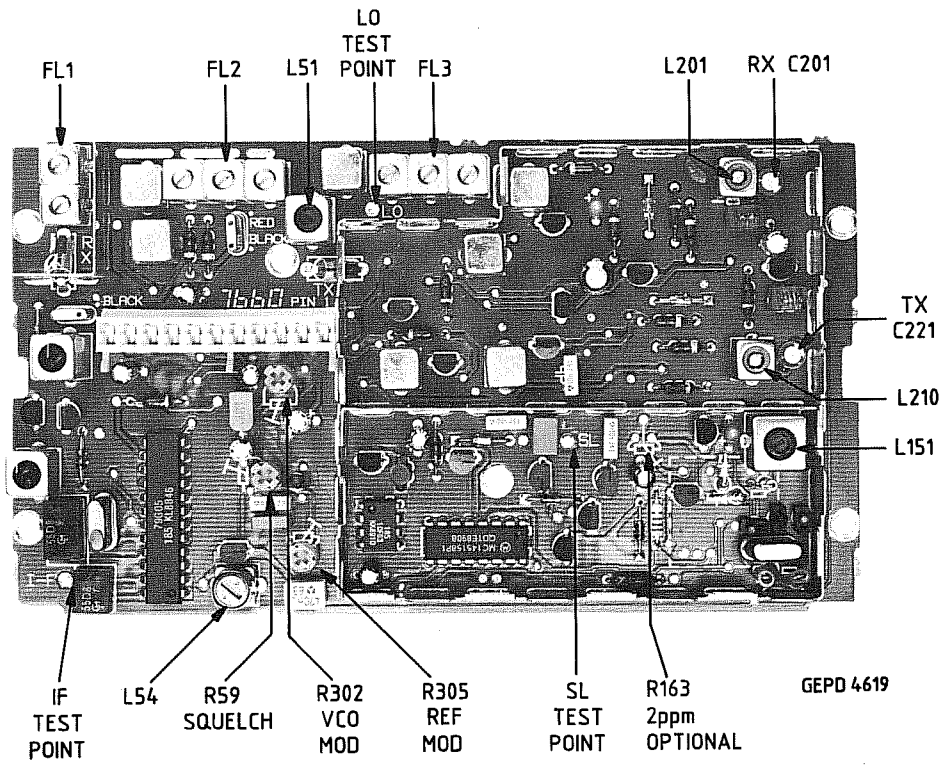


Figure 21
Alignment Points on RF Board

(10) Switch through all channels (all high-power channels for MAB889). On each channel, key the radio and note the power output. For MAU0, MAU2, and MAU3 models, note the channel that gives the minimum power output; for MAU1 models note the channel that gives the maximum power output. If more than one channel gives the same maximum or minimum power, choose any one of those channels.

(11) Switch through all transmit channels (all high-power channels for MAB889). On each channel, key the radio while watching the dc voltage at Pin 4 of connector P6, or at test point CV on the command board. Record the number of the channel that gives the greatest voltage, and what that voltage is. (If more than one channel gives the same maximum voltage, choose any one of those channels.) If it is greater than 10.0 VDC, go to Step 14. If not, go to Step. 12.

(12) On the channel that Step 11 showed to have the highest dc voltage, turn R463, fully CCW. Turn R453 fully CW.

(13) Key the radio. Adjust the voltage limit pot, R463, for a dc voltage 2.0 volts higher than the voltage level recorded in Step 11, as measured at pin 4 of P6 or at test point CV.

(14) Set the channel selector to the channel that was noted in Step 10. Key the radio and adjust R453, for:

Model Number	Power Setting
MAU0	1.1 Watt
MAU1	5.6 Watts
MAU2	10.7 Watts
MAU3	26.8 Watts

(15) Verify that all channels (all high-power channels in MAB889) produce at least 1.0, 10.0, or 25.0 watts, as appropriate, for MAU0, MAU2, and MAU3 models. Verify that no channel produces more than 6.0 watts for MAU1 models.

(16) If the radio has Option MAB889 (slaved RF power level), select any low-power channel. Key the radio and adjust R455 for an output power of 1.0 watt (or other specified power setting) for MAU1 and MAU2 models. Verify that the RF power output on all low-power channels is between 0.7 and 1.4 watts. Readjust R455 slightly if necessary. For MAU0 models, adjust R455, for an output power of 0.1 watt or some other specified power level. Verify that the RF power output on all low-power channels is between 70 and 140 mW.

3.3 TO ADJUST THE REFERENCE OSCILLATOR

(1) Connect the radio antenna output to an accurate frequency counter through a suitable attenuator.

(2) Select any transmit channel.

(3) Key the radio and adjust L151 (all models except those with 2 ppm stability) or R163 (models with 2 ppm stability) until the exact transmit frequency (±100 Hz) appears on the counter.

(4) Check all transmit channels to verify that the correct transmit frequencies have been programed.

3.4 TO ADJUST THE DEVIATION

(1) Connect the radio antenna output to a modulation analyzer or test receiver through a suitable attenuator.

(2) Connect an audio oscillator to the microphone audio input through the circuit shown in Figure 22. Set the oscillator frequency to one kHz and the output level to 800 mV RMS.

(3) Preset pots R302 (VCO MOD) and 305 R305 (REF MOD) fully CCW. For 25-kHz channel-spacing models only, set R305 (REF MOD) fully CW.

(4) Select any transmit channel. For PL models select any channel that transmits PL.

(5) Key the radio and adjust the VCO MOD pot, R302, for the appropriate deviation level:

Channel Spacing	Deviation Setting
25 kHz	±4.6 kHz
20 kHz	±3.7 kHz
12.5 kHz	±2.3 kHz

Note

If + and — deviation readings differ, use only the higher reading.

(6) For 25-kHz channel-spacing models only, the procedure is complete. For others, continue with Step 7.

(7) Change the audio oscillator frequency to 200 Hz, and maintain the output level at 800 mV rms.

(8) Key the radio and observe the waveform on an oscilloscope connected to the demodulated output of a test receiver. The test receiver should be non-de-emphasized, and there must be dc coupling between the test receiver and the scope. (AC coupling is suitable if the corner frequency is 2 Hz or lower.) Adjust R305 (REF MOD) for the flattest square-wave response with minimum tilt.

(9) Return the audio oscillator frequency to one kHz, 800 mV rms, and repeat Step 5.

3.5 TO ALIGN THE RECEIVER:

Note

Adjust the transmitter VCO and reference oscillator (Section 3.2, above) before aligning the receiver.

L201 Preset

a) Core from with top of can for Tx frequencies from 403–420 MHz

b) Core approx. 5 turns below top of can for Tx frequencies 420–433 MHz or 433–450 MHz

c) Core fully brought up for Tx frequencies 450–470 MHz.

3.5.1 Receiver VCO

(1) Connect a high-impedance (11 megohms or greater) dc voltmeter from the steering line test point (SL) to ground.

(2) (Radios with more than one receive frequency) Select the channel with the highest receive frequency.

(3) Adjust the VCO capacitor (C221) until the voltmeter reads 6.0 VDC.

(4) Select the channel with the lowest receive frequency and verify that the test voltage is at least 2.5 VDC.

3.5.2 Receiver

(1) Find the tune-up frequency, f_{tune}, as follows:

(a) On single-channel radios and multi-channel radios with a single receive frequency:

$$f_{tune} = f_{receive}$$

(b) On multi-channel radios that have a receive bandwidth of two MHz or less:

f_{tune} = frequency of highest-frequency channel

(c) On multi-channel radios that have a receive bandwidth greater than two MHz but less than or equal to four MHz, find f_{mid}, where:

$$f_{mid} = (f_{highest} + f_{lowest}) : 2$$

If one of the radio's channels has a frequency within 500 kHz of f_{mid}, perform the tune-up on that channel. If not, you must either get a tune-up PROM programed to f_{mid}, or program the tune-up frequency, f_{mid}, into the radio (EZ models only). EV models contain a preprogramed tune-up channel, accessed by temporarily shorting the TEST pins on the command board.

(2) Set the channel selector switch to the channel of the tune-up frequency as determined in Step 1, above.

(3) Connect a two-ohm resistive load across Pin 4 of J5 (hot lead) and Pin 5 of J5 (ground lead). Monitor the audio output across this load resistor.

(4) Preset the 8 cores of the 3 RF filters flush with top of can.

(5) Connect a dc voltmeter from the local oscillator test point (L0) to ground.

(6) Adjust the 3 cores of FL3 for maximum dc voltage (typ. 2.5–4.2 V). The core near the mixer Q2 must be in the same position as the two other cores, even if the peak voltage is not reached.

(7) Connect an RF signal generator to the antenna connector and adjust it to generate an unmodulated on-channel signal strong enough to quiet the receiver.

(8) Connect an ac voltmeter with a bandwidth of at least 500 kHz (an HP331 A Distorsion Analyzer, for example) or an oscillator set accordingly from the IF test point to ground. Increase the RF generator output until it reads approximately 30mV. Adjust the RF filter coils FL1, FL2 and FL3 until the voltmeter peaks. Reduce the generator's RF level as necessary to maintain approximately 30mV RMS on the meter during this procedure. Repeat the adjustment once, if the operation bandwidth is less than 2MHz. Otherwise select the lowest channel, note the reading and then switch to the highest channel for a test. Re-adjust the RF filter coil FL2 for constant peak readings. Repeat the adjustment once at least.

(9) Set the RF level of the generator to one mV. Modulate it with a one-kHz tone at 60 % of full system deviation. Full system deviation for a channel spacing of 25 kHz is ±5 kHz; for 20 kHz ±4 kHz; for 12.5 kHz ±2.5 kHz. Adjust the volume control to get an audio level of about one volt RMS across the two-ohm load. Slowly peak the quad coil, L54 for maximum audio output.

(10) Adjust the squelch as follows:

(a) Preset the squelch control R59, fully CCW.

(b) Apply an on-channel RF signal at a level of one mV. Modulate with a one-kHz tone at 60 % of full system deviation.

(c) Adjust the volume control for 1.7 volts RMS across the two-ohm load.

(d) Reduce the RF level until the CCITT-weighted SINAD is 10 dB.

(e) Enable the carrier-squelch mode with the front panel switch.

(f) Slowly turn the squelch control CW until the audio is squelched (muted), then very slowly turn CCW until the radio just unsquelches (unmutes).

(g) Reduce the generator RF level to zero, slowly increase the level until the radio just unsquelches, and verify that the CCITT-weighted SINAD at this RF level is between 8 and 12 dB SINAD. Readjust R59 slightly if necessary.

(11) After alignment is complete, you should secure the slugs of FL1, FL2, and FL3 with paint to prevent detuning.

Jumper	Description	State	Command Board GLN6627A mit SELECT 5
JU551 JU552	RX Audio RX Audio	Flat response Flat response	In Out
JU601 JU602	TX Audio TX Audio	Flat response Flat response	In Out
JU551 JU552	Rx Audio RX Audio	De-emphasis response De-emphasis response	Out In
JU601 JU602	TX Audio TX Audio	De-emphasis response De-emphasis response	Out In
JU701 JU702	Serial EEPROM Power Strobe	Via U705-6 Via 701-19	Out In
JU703 JU704 JU705	Memory Type Configuration	+5 Volts to U705-26 WR an U702-23 Ground U702-20	Out Out In
JU706 JU707	Memory Mode	MP0 MP1	Out In
JU709	Emergency	Special Application	Out
JU801 JU802	Decode Filter	Select 5 PL	In Out
JU803 JU804	Alert Tones	Variable Level Fixed Level	In Out
JU805	Sidetone	Enable	In
JU806	Decode Filter	Select 5	

Table 2
Jumper Table for EV Command Board

Option	Jumper	State	Command Board GLN6627A with SELECT 5
MAB459	JU805	Sidetone Disabled	Out
MAB875	JU803 JU804	Fixed-Level Alert Tones	Out In
MAB884	JU551 JU552 JU601 JU602	Flat Audio Response	In Out In Out

Table 3
Jumper Table for EV Options

Board	Medium	Indication	Meaning and Remedial Action
GLN6627A	LCD's on Control Head	ERR 1	ROM Error: The pattern stored in U702 is incorrect. Replace U702.
		ERR 2	EEPROM Error: The pattern stored in U703 is incorrect. Order or program a replacement for U703.
		ERR 3	ROM and EEPROM error. Perform the remedial actions for each.
GLN6628B	Sound	Rapid beeping	EEPROM Error: Order or program a replacement.

Table 4
Error Indications

Tone	GLN6984A, GLN6627A	GLN6628B
800 Hz/200 msec	Illegal Key	—
600 Hz/200 msec	—	Illegal Key
800 Hz continuous	Illegal PTT (Example: Radio not in Monitor Mode)	
800 Hz intermittent	Synthesizer Out of Lock	

Table 5
Error Tones

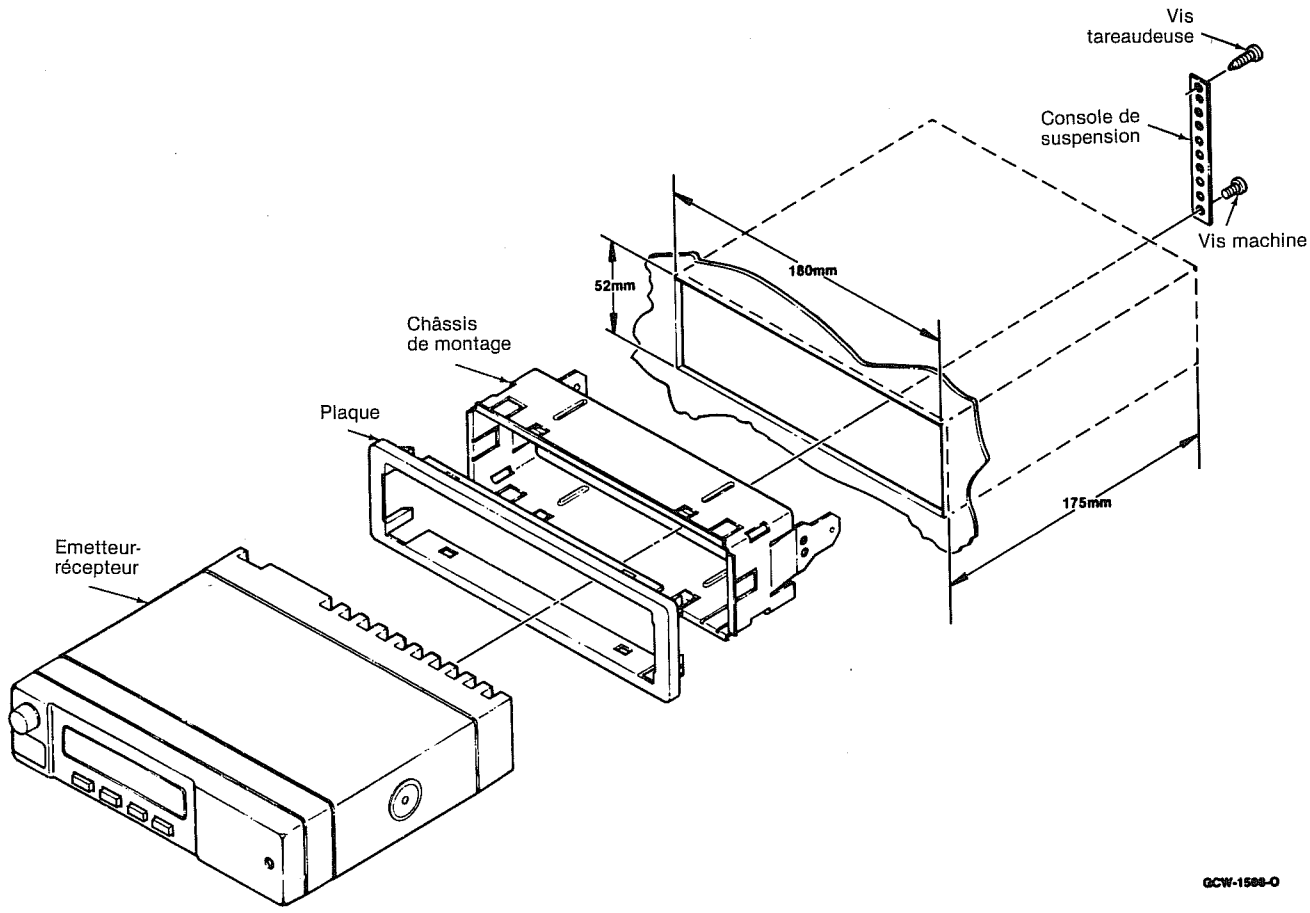


Figure 1
Installation de l'appareil dans
le tableau de bord

1. INSTALLATION

1.1 CABLAGE

Installer l'antenne en suivant les instructions données avec celle-ci et poser le câble coaxial jusqu'à l'emplacement prévu pour le support. Coupez l'excès de câble et installez le connecteur sur le câble.

1.2 INSTALLATION DANS LE TABLEAU DE BORD

1.2.1 Montage directe

(1) Dégagez l'ouverture dans le tableau de bord, et agrandissez-la si nécessaire aux dimensions indiquées sur la figure 1.

(2) Introduisez le châssis de montage dans l'ouverture et tordez les six onglets (voir figure 2) pour le maintenir en place. Installez la plaque sur le châssis de montage en pressant dessus.

(3) Faites glisser la radio dans le châssis de montage jusqu'à ce qu'elle soit bien agrippée.

(4) Fixez la console de suspension (voir figure 1) avec les vis fournies.

1.2.2 Boîte de commande seule

(1) Fixez les consoles adaptrices sur la boîte de commande. Voir figure 3.

(2) Dégagez l'ouverture dans le tableau de bord, et agrandissez-la si nécessaire aux dimensions indiquées sur la figure 3.

(3) Introduisez le châssis de montage dans l'ouverture (voir figure 3) pour le maintenir en place. Installez la plaque sur le châssis de montage en pressant dessus.

(4) Faites glisser la boîte de commande dans le châssis de montage jusqu'á ce qu'elle soit bien agrippée.

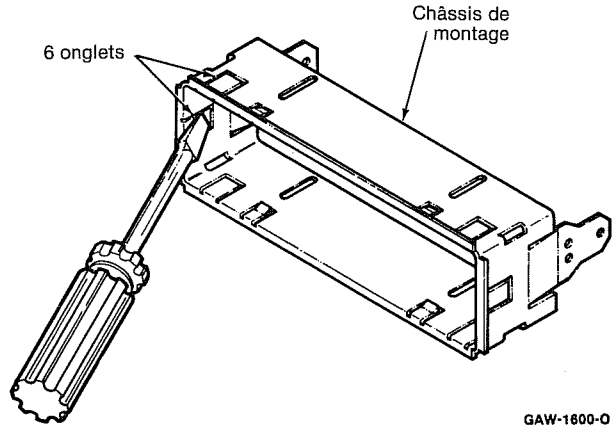


Figure 2
Châssis de montage

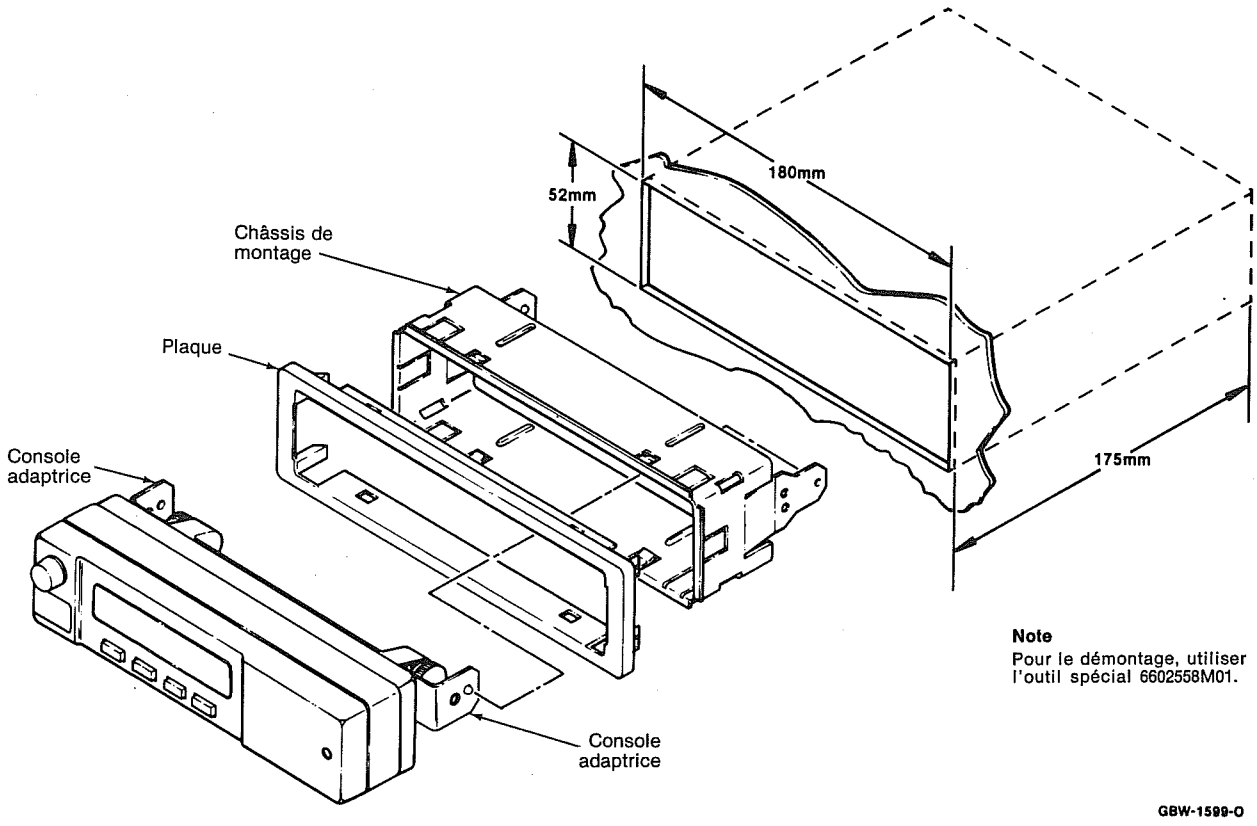


Figure 3
Montage de la boîte de commande
dans le tableau de bord

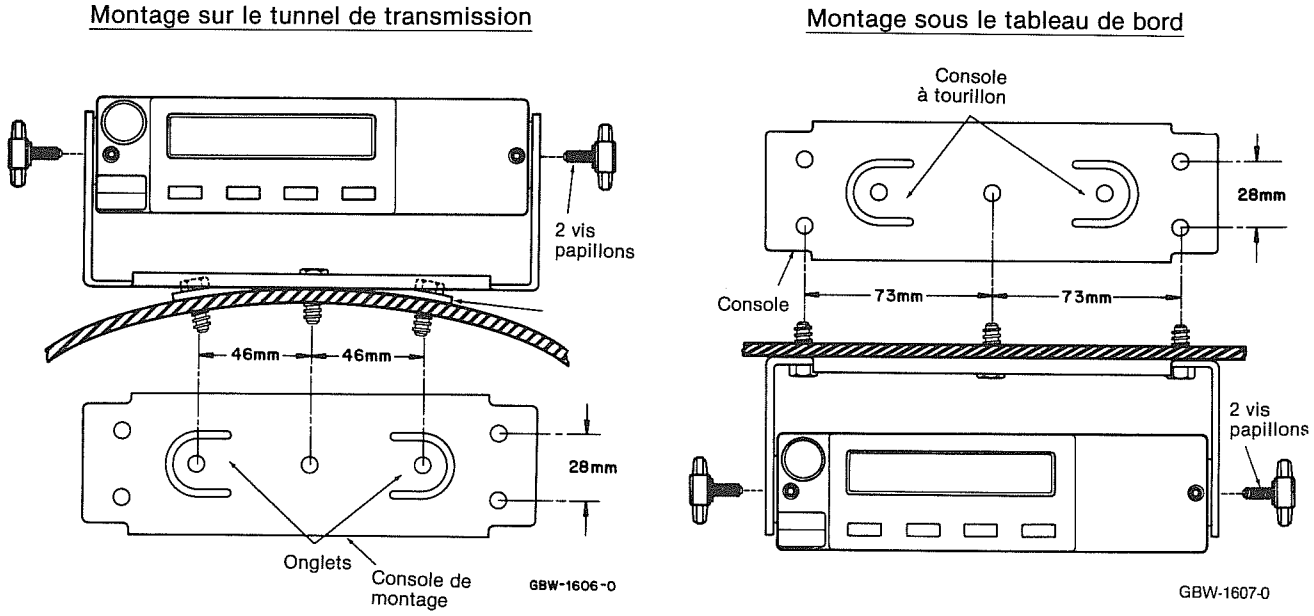


Figure 4
Montage sur tourillon

1.3 MONTAGE AVEC TOURILLON SOUS LE TABLEAU DE BORD OU SUR LE TUNNEL DE TRANSMISSION (voir figure 4)

(1) Déserrez les deux vis papillons et déposez la radio de la console de montage à tourillon.

(2) En vous servant de cette console de montage comme modèle, marquez la position des trous sur la surface de montage. Utilisez les trois trous situés le plus au centre pour une surface de montage courbée, et le trou central et les quatre trous extérieurs pour une surface plane.

(3) Marquez au pointeau les points et percez un trou de 4 mm à chaque emplacement.

(4) Fixez la console de montage à tourillon sur la surface de support avec les vis prévus.

(5) Remontez la radio dans la console et serrez les vis papillons.

1.4 INSTALLATION DU HAUT-PARLEUR

(1) Déposez le haut-parleur de la console à tourillon en déserrant les deux vis papillons.

(2) Choisissez un endroit pour le montage du haut-parleur.

(3) En utilisant la console à tourillon comme modèle, marquez les emplacements des trois trous de montage.

(4) Pointez et percez un trou de 4 mm en chaque emplacement.

(5) Montez la console à tourillon avec les vis fournies (voir figure 5).

(6) Introduisez le haut-parleur dans la console à tourillon et serrez les deux vis papillons.

(7a) (Montage direct) Enfoncez la prise accessoire du haut-parleur dans le connecteur à neuf broches sur le dos de la radio (voir figure 6).

(7b) (Montage à distance) Percez un trou de 6 mm dans le dos du boîtier à l'emplacement enfoncé.

(8) (Montage à distance) Faites glisser le passe-fil 11 cm en remontant le câble.

(9) (Montage à distance) Poussez les bornes des fils du haut-parleur (après avoir déposé prise et couvercle) à travers le boîtier arrière à distance, et branchez-les dans les broches (voir figure 7). Ne pas oublier d'installer un passe-fil sur le trou dans le boîtier arrière.

Attention

Installer l'appareil à l'aide des vis à oreilles originales. Si l'on effectue l'installation avec un support à tôle fine au lieu de la suspension originale, utiliser des disques supplémentaires pour compenser la tôle du support originale, sinon l'appareil radio peut-être endommagé.

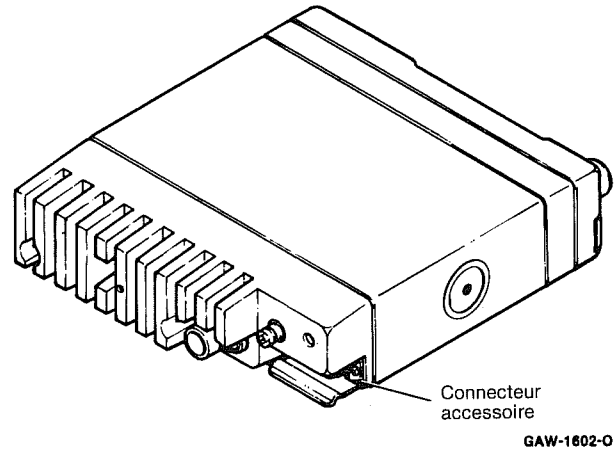


Figure 6
Connexion du haut-parleur
(Montage direct)

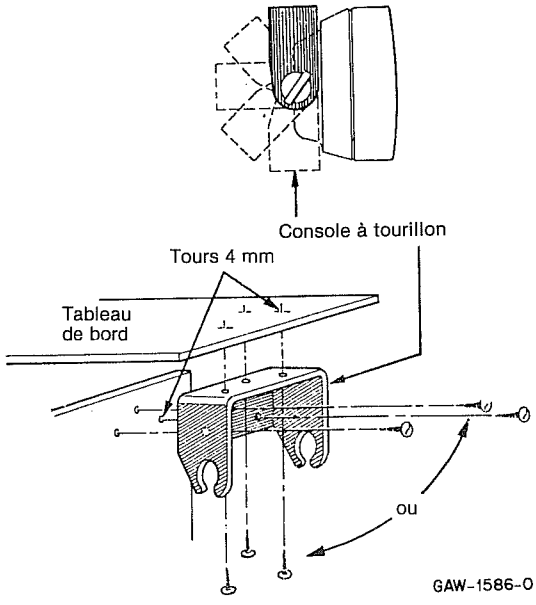


Figure 5
Haut-parleur sous tableau de bord

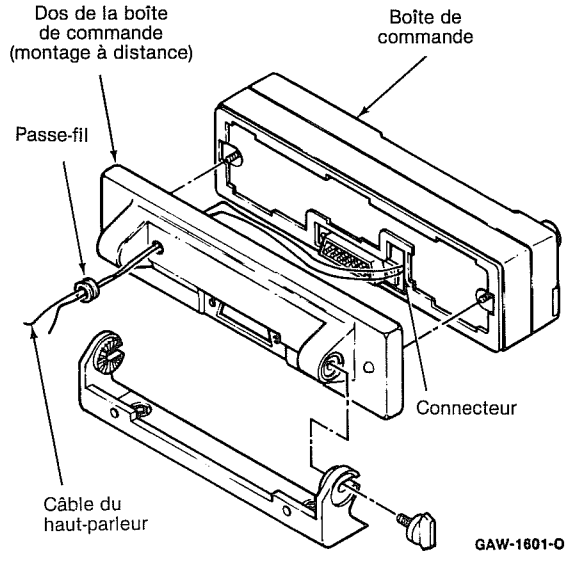


Figure 7
Connexion du haut-parleur
(Montage à distance)

2 DEMONTAGE ET MONTAGE

2.1 EMETTEUR-RECEPTEUR

2.1.1 Démontage de la boîte de commande, du boîtier et du couvercle

(1a) (Montage direct) Déserrez les vis de montage de la boîte de commande (voir figure 8). Tirez la boîte de commande et sortez-la. Faites sortir le boîtier en le faisant glisser dans la même direction.

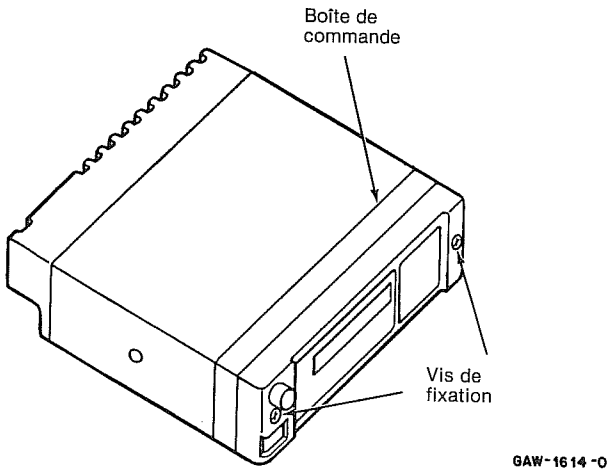


Figure 8
Vis de montage de la boîte de commande

(1b) (Montage à distance) Déserrez les vis de montage de câble (voir figure 9). Sortez le câble en tirant dessus. Déposez le boîtier et sortez-le de la radio.

(2) Déposez le couvercle de châssis en jouant légèrement sur chaque coin et sur chaque côté (voir figure 10). Faites attention de ne trop tordre un coin ou un côté.

2.1.2 Démontage du dissipateur thermique

(1) Débranchez le connecteur six broches de la platine de commande (voir figure 11).

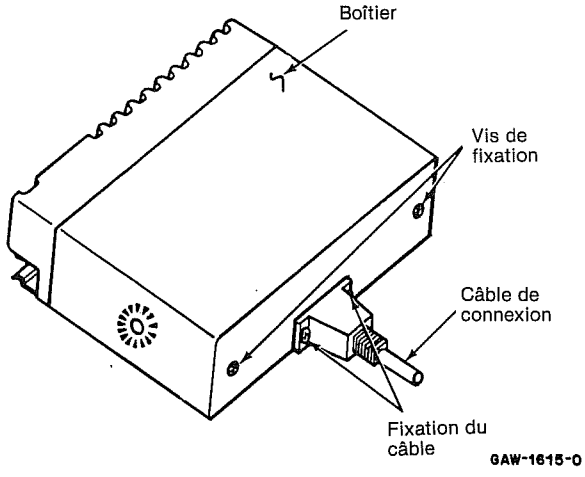


Figure 9
Vis de fixation

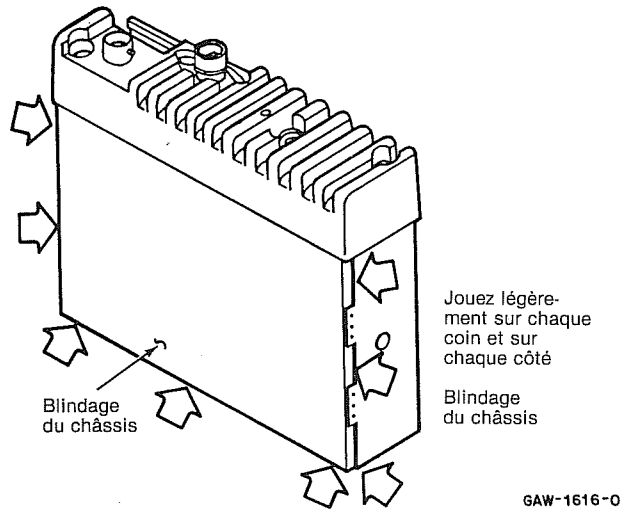


Figure 10
Démontage du couvercle

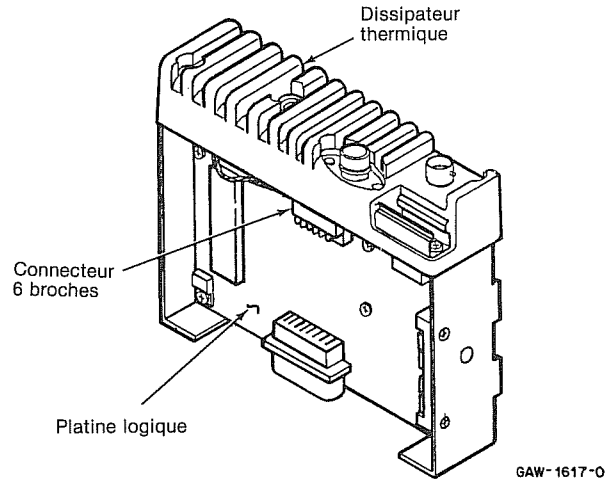


Figure 11
Connecteur six broches

(2) Débranchez les deux câbles coaxials de la platine HF (voir figure 12).

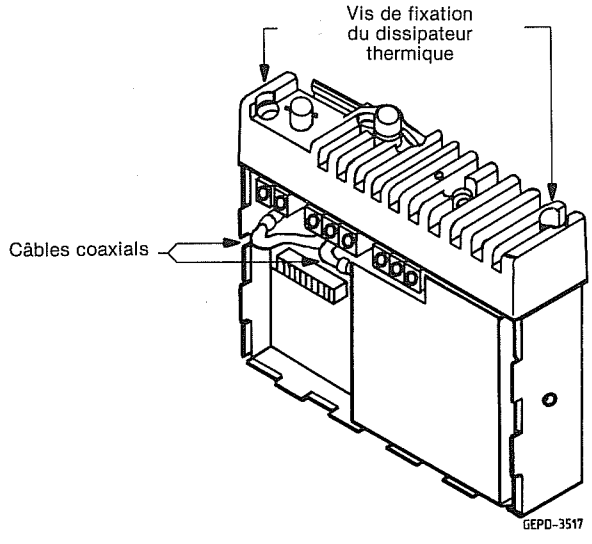


Figure 12
Câbles coaxials et vis de fixation du dissipateur thermique

(3) Déserrez les vis de montage du dissipateur thermique (voir figure 12) et sortez-le du châssis en tirant dessus, en faisant attention de bien faire passer les câbles coaxials par leurs trous dans le châssis.

2.1.3 Démontage de la platine HF et de la platine de commande

(1) Déposez d'abord le dissipateur thermique de l'étage final. Puis, déposez toutes les vis de montage et sortez la platine HF (voir figure 13).

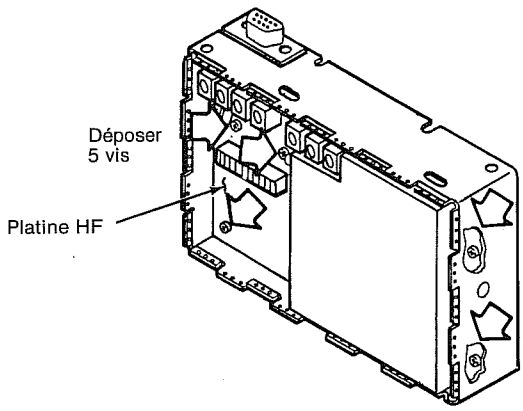


Figure 13
Démontage de la platine HF

(2) Une fois que la platine HF est sortie, retournez l'appareil et déserrez toutes les vis de fixation de la platine de commande (voir figure 14).

(3) Déserrez les deux vis de montage du dissipateur thermique du côté du châssis (voir figure 14). Vous pouvez maintenant sortir la platine de commande en la soulevant.

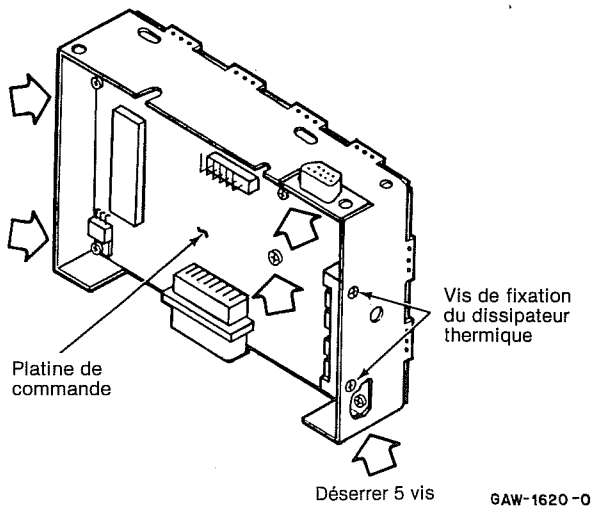


Figure 14
Démontage de la platine de commande

2.1.4 Démontage de la platine de l'amplificateur de puissance de l'émetteur

(1) Déposez le blindage en jouant avec soin sur chaque coin et sur chaque côté jusqu'à ce que vous puissiez facilement faire glisser le blindage (voir figure 15) en guidant les câbles coaxials.

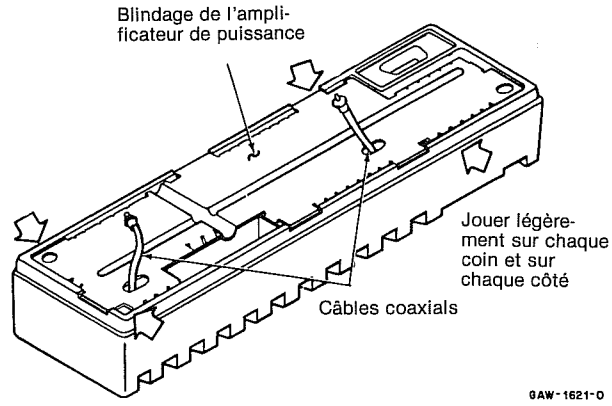


Figure 15
Démontage du blindage de
l'amplificateur de puissance

(2) Déserrez l'écrou de montage de l'arrière du dissipateur thermique (voir figure 16).

(3) Dessoudez les fils A+ du connecteur d'alimentation et du connecteur d'antenne (voir figure 17).

(4) (Appareils 25W seulement) Déposez les vis de montage du transistor comme indiqué sur la figure 17.

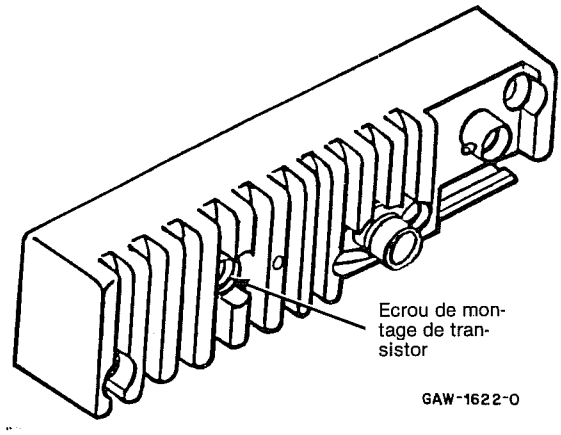


Figure 16
Ecrous de montage de transistor

(5) Déposez toutes les vis de montage de la platine de l'amplificateur de puissance HF (voir figure 17) et sortez la.

2.1.5 Montage

Suivez la procédure de démontage dans l'ordre inverse, et serrez les vis aux couples indiqués sur le tableau 1. Appliquez le lubrifiant de contact, Motorola Pièce No. 1180344A80 sur la surface de contact des connecteurs 11 brochés immédiatement avant la jonction des platines de commande et HF.

Remarque

Pour le montage de la radio placer le câble coaxial RX au-dessus du câble coaxial TX.

Pièce No.	Description	Emplacement	Taille outil	Couplage
0300132436	Vis tête Phillips, acier inox 6-32 x 13/16	Boîtier arrière du haut-parleur	P-2	0,5-0,7 Nm (4-6 in.-1b.)
0300136756	Vis taraudante 10-16 x 5/8	(a) Suspension tableau de bord (b) Tourillon de montage	Clé 5/16"	Installé sur place
0300136518	Vis à pans Phillips type P8-18 x 5/8	Berceau	P-2	1,1-1,4 Nm (10-12 in.-1b.)
0380165J05	Vis ordinaire M4 x 8	Suspension tableau de bord	Clé 7 mm	Installé sur place
0380029J01	Vis ordinaire M3 x 35 (noir)	Boîte de commande avant/arrière	Clé 2,5 mm	0,35 Nm (10 in.-1b.)
0380030J01	Vis Pozidrive taraudante M3 x 10	Platines de la boîte de commande	P2-2	0,8 Nm (7 in.-1b.)
0380036J01	Bouton-T (noir ombre)	Tourillon de la boîte de commande	—	Installé sur place
0380165J01	Vis Pozidrive M4 x 28 (noir)	Engagement: 3 mm Dissipateur thermique	P2-2	1,4-1,6 Nm (12-14 in.-1b.)
0380165J02	Vis Pozidrive M3 x 6 (zinc)	Connecteur de la boîte de commande	P2-2	1,1 Nm (10 in.-1b.)
0380165J04	Vis Pozidrive M3 x 7 (noir)	Engagement: 3 mm Boîtier chassis	P2-1	1,1-1,4 Nm (10-12 in.-1b.)
0380269H01	Vis Pozidrive Taptite M2,5 x 6 (zinc)	Engagement: 3,5 mm Dissipateur thermique	P2-1	0,7-0,9 Nm (4-6 in.-1b.)
0380269H02	Vis Pozidrive Taptite M2,5 x 8 (zinc)	Engagement: 4 mm Dissipateur thermique	P2-1	0,7-0,9 Nm (6-8 in.-1b.)
0380269H02	Vis Pozidrive Taptite M3 x 8 (zinc)	(a) Connecteur d'alimentation (Engagement: 2,5 mm) (b) Amplif. de puissance HF (Engagement: 6 mm)	P2-1	0,7-0,9 Nm (6-8 in.-1b.) 0,9-1,1 Nm (8-10 in.-1b.)
0380269H04	Vis Pozidrive Taptite M3 x 6 (zinc)	(a) Platine HF/Commande (Engagement: 2 mm) (b) Connecteur d'accessoires (Engagement: 5 mm)	P2-1	0,7-0,9 Nm (8-10 in.-1b.) 0,9-1,1 Nm (8-10 in.-1b)
0302097B01	Ecrou tension 1/2" (Partie de l'unité connecteur d'antenne)	Amplificateur de puissance HF	Clé 1/2"	2,0-2,3 Nm (18-20 in.-1b.)
0380270H01	Vis de bouton-T	Tourillon de montage	—	Installé sur place
0384244C03	Vis papillon	Tourillon haut-parleur	—	Installé sur place
0300129892	Ecrou de blocage	Transistor de l'amplificateur de puissance HF	Clé 5/16"	0,6 Nm (5,0 in.-1b.)

Tableau 1
Fixations, outils et couples de serrage

2.2 DEMONTAGE DE LA BOITE DE COMMANDE (Montage direct)

(1) Sortez le câble de microphone en tirant le joint en arrière, en pressant sur l'onglet et en tirant le câble.

(2) Déserrez les deux vis de montage avec une clé de 2,5 mm.

(3) Sortez le couvercle et le joint de l'arrière en tirant dessus.

(4) Sortez le bouton de volume en tirant dessus. Vous n'avez pas besoin d'outils pour cela, car le bouton est emmanché sur son arbre.

(5) Déserrez les cinq vis taraudeuses maintenant la platine.

(6) Sortez la platine arrière en tirant dessus. Notez que le joint du potentiomètre de volume est ajusté autour de son arbre.

(7) Sortez le ressort de masse du trou du côté gauche du châssis intérieur (en plastique). La boîte de commande sur les modèles EZ ne comprend pas ce ressort de masse.

(8) Déserrez les 6 vis taraudeuses maintenant le châssis intérieur sur le panneau avant.

(9) Sortez le châssis intérieur du boîtier. Notez que la platine avant et les deux patins élastomériques sont fixés sur le châssis intérieur. La boîte ne comprend qu'un seul patin (clavier).

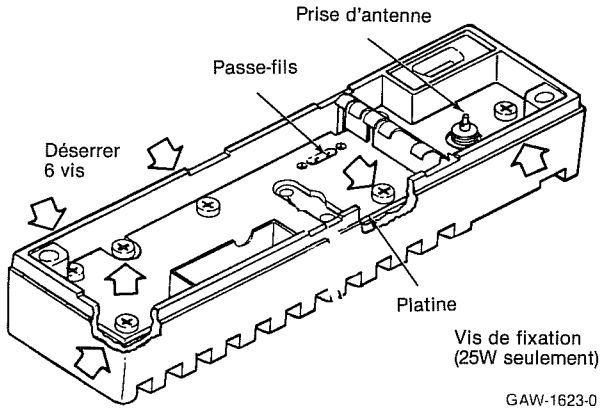


Figure 17
Démontage de la platine de l'amplificateur de puissance HF

(10) Les deux patins élastomériques sont tirés sur leurs broches guides. Pour le démontage, il suffit de tirer sur un coin du patin. Vous devrez maintenir la propreté de l'intérieur des dômes de patin et des circuits en or de votre mieux. Notez que la platine s'emboîte dans le châssis interne fermement.

(11) Pour le démontage de l'ensemble verre LCD de la platine avant, tordez les six onglets dans la console LCD et tirez sur l'ensemble. Notez qu'un conduit lumineux LCD et deux connecteurs élastomériques font partie de cet ensemble. Les modèles EZ ne comprennent pas d'ensemble LCD.

(12) Pour le démontage des boutons ou des prises, soulevez le conduit lumineux correspondant et tirez sur le bouton approprié.

(13) Pour remonter la boîte de commande, suivez l'ordre inverse des opérations ci-dessus.

2.3 DEMONTAGE DE LA BOITE DE COMMANDE (Montage à distance)

(1) Déposez et démontez la boîte de commande en suivant les instructions 1 à 13 du paragraphe 2.2.

(2) Déposez l'ensemble câble de commande en déserrant les deux vis de l'interieur du panneau arrière, puis sortez le câble en tirant dessus. Pour déposer la boîte de commande complète sans séparer l'ensemble câble, déposez les deux écrous papillons et tirez sur l'unité.

(3) S'il y a un haut-parleur connecté sur la boîte de commande, débranchez le câble haut-parleur de la platine arrière après avoir déposé le panneau arrière.

2.4 CONNECTEUR ACCESSOIRE

(1) Avec un tournevis dégagez le couvercle de l'onglet de chaque côté (voir figure 18). Sortez la prise en tirant dessus.

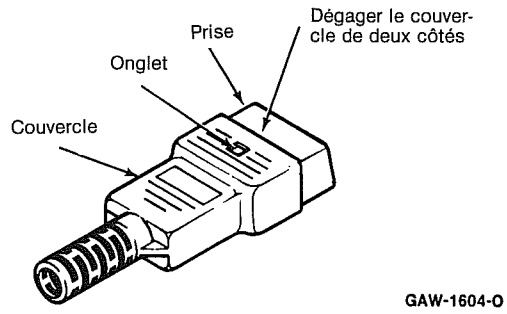


Figure 18
Dégagement du couvercle de la prise

(2) Déposez les bornes du conducteur de la prise. Avec une paire de pinces, écartez le système de détente de contraintes et déposez-le. Faites sortir le conducteur (avec les bornes fixées) en le faisant passer par le couvercle du connecteur.

(3) Pour remonter, suivez l'ordre inverse des opérations ci-dessus, en faisant attention de mettre le système de détente de contraintes correctement en place (voir figure 19).

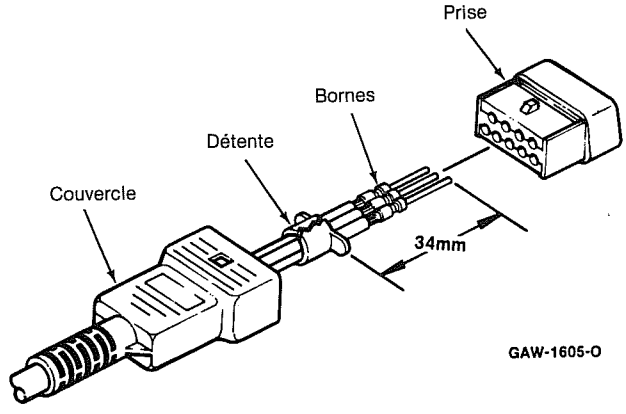


Figure 19
Détente de contraintes

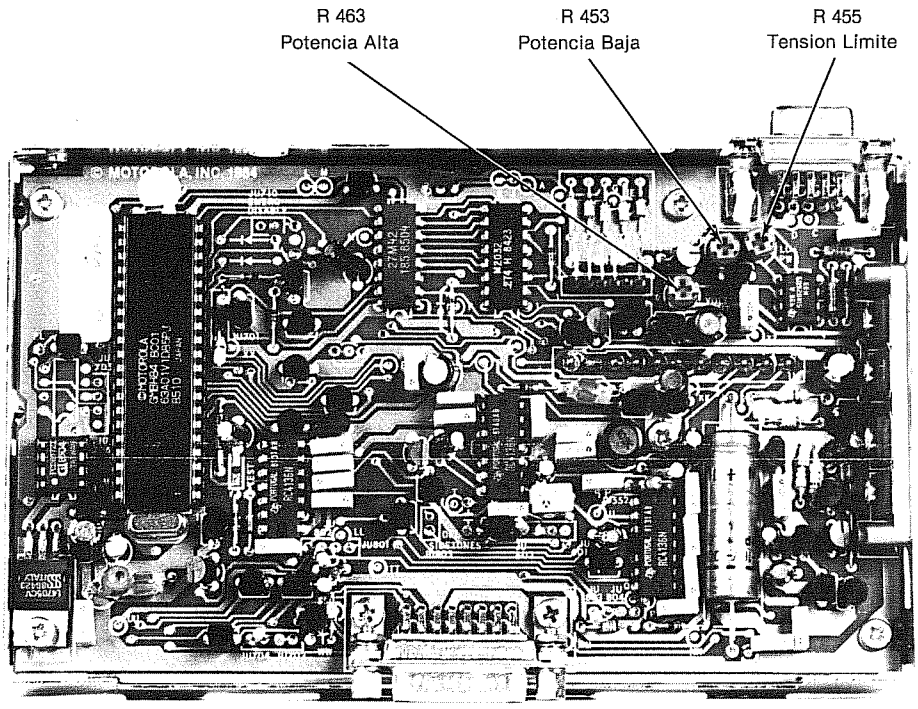


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Figure 20
Points de réglage sur la platine de commande

3 REGLAGE

Remarque

Pendant le réglage, ne transmettre qu'en cas de nécessité.

3.1 REMARQUES GENERALES

Effectuez le réglage avec une tension d'alimentation de 13.2 V ±0.1 V c.c., sauf indication contraire dans les instructions. Dans le cadre de ces instructions, la rotation des potentiomètres sous-entend que l'on regarde le côté composants de la platine. Les figures 20 et 21 présentent les emplacements des composants.

Lorsque vous éffectuez les procédures présentés dans les paragraphes 3.2, 3.3, 3.4, et 3.5, l'appareil doit être complètement assemblé à l'exception du couvercle de châssis, du couvercle du synthétiseur et le boîtier. Lorsque vous avez fini le réglage, installez toutes les couvercles et le boîtier avant de tester l'appareil aux spécifications.

Appareils de mesure recommandés

R2001D R2200B	Communications Service Monitor, ou Service Monitor.
GTF180A GTF244A	Testeur mobile, avec Câble adapteur pour MC micro.
PFT4053A	Filtre Psophometrique
FTP3005B	Unité d'essai cinq tonalités (non requis avec R2001D).
R1011B S1327	Bloc d'alimentation, ou Bloc d'alimentation (pour émetteurs avec puissance HF inférieure à 10W.
R1037A R1024B	Multimètre numérique, ou Multimètre numérique.

3.2 REGLAGE DE L'EMETTEUR

(1) Pré-consignez les potentiomètres comme suit:

* R453 (HI PWR) à fond à gauche
* R455 (LO PWR) à fond à gauche
* R463 (VOLT LIMIT) à fond à droite

(2) Ajustez la tension d'alimentation à 13,2V ±0,1V.

(3) Choisissez le canal d'émission ayant la fréquence la plus élevée.

(4) Branchez la sortie de l'émetteur à un wattmètre fournissant une charge de 50 Ohm.

(5) Branchez un voltmètre cc entre le point de mesure SL et la masse. L'impédance du voltmètre doit être de 11 Megohm ou plus.

(6) Transmettez et ajustez L210 jusqu'à ce que le voltmètre affiche 6,0V cc.

(7) Choisissez le canal de fréquence d'émission la plus basse. Vérifiez que la tension cc soit au moins 3,0V en transmettant.

(8) Choisissez un canal quelconque (en cas d'appareil avec option MAB889 un canal haute puissance).

(9) Transmettez et ajustez R453 (HI PWR) pour une puissance HF comme suit:

Modèle	Puissance HF
MAU0	1,0W
MAU1	6,0W
MAU2	10,0W
MAU3	25,0W

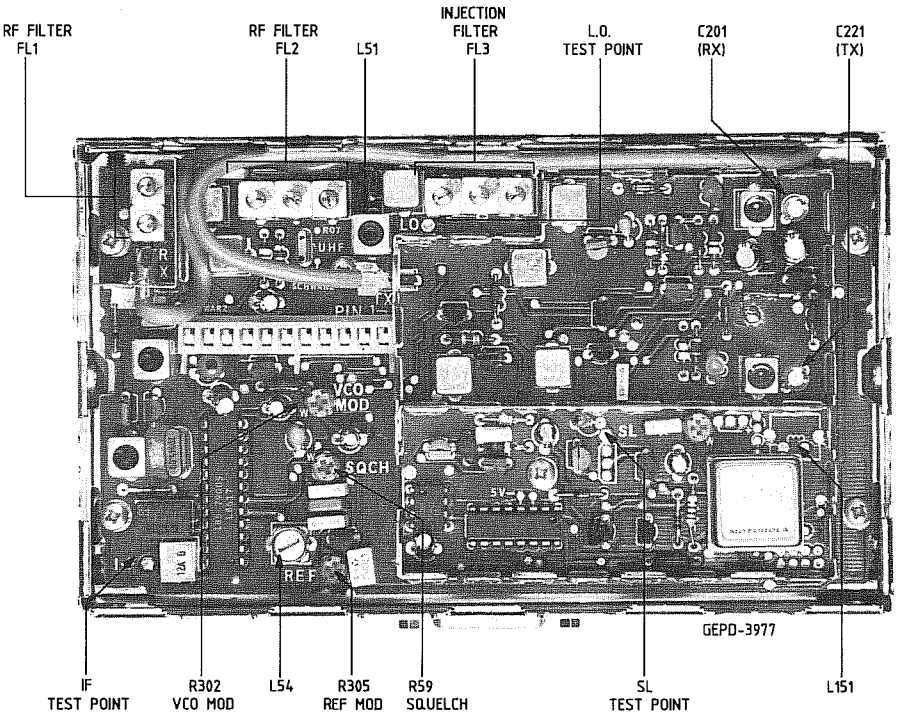

Figure 21
Points de réglage sur la platine HF

(10) Passez en émission sur tous les canaux (tous les canaux haute puissance pour MAB889). Pour chaque canal, transmettez et notez la puissance de sortie. Pour les modèles MAU0, MAU2 et MAU3, notez le canal produisant la puissance de sortie minimale; pour MAU1 notez le canal produisant la puissance de sortie maximale. Si plus d'un canal produit la même puissance de sortie minimale ou maximale, choisissez l'un quelconque de ces canaux.

(11) Passez en émission sur tous les canaux (tous les canaux haute puissance pour MAB889). Sur chaque canal, transmettez en surveillant la tension cc à la broche 4 du connecteur P6, ou au point de mesure CV sur la platine de commande. Notez le numéro du canal produisant la tension la plus forte, et la valeur de cette tension. Si plus d'un canal produit la même tension maximale, choisissez l'un quelconque des canaux. Si cette valeur est supérieure à 100V cc, passez à l'opération 14. Sinon, passez à l'opération 12.

(12) Sur le canal ayant produit la tension cc la plus forte lors de l'opération 11, tournez le potentiomètre VOLT LIMIT (R463) à fond vers la gauche. Tournez le potentiomètre HI PWR (R 453) à vers la fond vers la droite.

(13) Transmettez et ajustez R463 pour une tension cc de 2,0V plus forte que le niveau de tension noté lors de l'opération 11, et mesuré à la broche 4 du connecteur P6 ou au point de mesure CV.

(14) Consignez le sélecteur de canal au canal noté lors de l'opération 10. Transmettez et ajustez le potentiomètre HI PWR (R453) pour:

Modèle	**Puissance HF**
MAU0	1,1W
MAU1	5,6W
MAU2	10,7W
MAU3	25,0W

(15) Vérifiez que tous les canaux (tous les canaux haute puissance pour MAB889) produisent au moins 1,0W, 10,0W ou 25,0W, comme requis, pour les modèles MAU0, MAU2 et MAU3. Vérifiez qu'aucun canal ne produise plus de 6,0W pour les modèles MAU1.

(16) Si l'appareil comprend l'option MAB889, choisissez un quelconque canal basse puissance. Transmettez et ajustez R455 (LO PWR) pour produire une puissance de sortie de 1,0W (ou toute autre consigne de puissance spécifiée) pour les modèles MAU1 et MAU2. Vérifiez que la puissance de sortie HF pour tous les canaux basse fréquence tombe entre 0,7W et 1,4W. Réajustez légèrement R455 si nécessaire. Pour les modèles MAU0, ajustez R455 pour obtenir une puissance de 0,1W ou toute autre puissance spécifiée. Vérifiez que la puissance de sortie pour tout canal basse puissance tombe entre 70mW et 140mW.

3.3 REGLAGE DE L'OSCILLATEUR DE REFERENCE

(1) Branchez un compteur de fréquence précis par l'intermédiaire d'un atténuateur convenable sur la prise d'antenne.

(2) Choisissez un quelconque canal d'émission.

(3) Transmettez et ajustez L151 (R163 dans les modèles 2ppm) jusqu'à ce que la fréquence d'émission ±100 Hz sera affichée.

(4) Vérifiez tous les canaux pour vous assurer de la programmation correcte des fréquences d'émission.

3.4 AJUSTAGE DE L'EXCURSION EN FREQUENCE

(1) Branchez la prise d'antenne sur un compteur de fréquence précis par l'intermédiaire d'un atténuateur convenable.

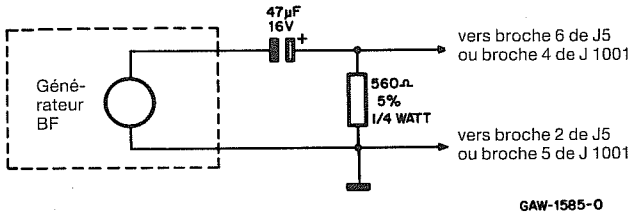

Figure 22
Branchement du générateur BF
sur l'entrée microphone

(2) Branchez un générateur B.F. ayant une impédance de sortie de 600 Ohm sur l'entrée microphone (voir figure 22). Consignez la fréquence du générateur sur 1 kHz et le niveau de sortie sur 800 mV efficaces.

(3) Pré-consignez les potentiomètres R302 (VCO MOD) et R305 (REF MOD) à fond vers la gauche. Pour les appareils ayant un espacement entre voies de 25 kHz, à tournez R305 à fond vers la droite.

(4) Choisissez un canal d'émission ayant une fréquence près du milieu de la gamme. Pour les modèles »Private-Line«, choisissez un canal transmettant la tonalité »Private-Line«.

(5) Passez en émission et tournez R302 pour obtenir:

±4,6 kHz (espacement 25 kHz)
±3,7 kHz (espacement 20 kHz)
±2,3 kHz (espacement 12,5 kHz).

Remarque

Si les lectures d'excursion positive et négative diffèrent, utilisez seulement la lecture supérieure.

(6) Pour les modèles à espacement entre voies de 25 kHz seulement, la procédure est terminée. Pour les autres modèles, passez à l'opération 7.

(7) Changez la fréquence du générateur BF à 200 Hz, et maintenez le niveau de sortie à 0,8V.

(8) Transmettez et observez la forme d'onde sur un oscilloscope branché sur la sortie démodulée d'un récepteur d'essai. Ce récepteur devrait être non-atténué, et il doit y avoir un couplage cc entre le récepteur et l'oscilloscope (un couplage alternatif convient si la fréquence de coin est de 2 Hz ou moins). Tournez R305 (REF MOD) pour produire la réponse onde carrée la plus plate avec une inclinaison minimale.

(9) Retournez la fréquence du générateur BF à 1 kHz, 0,8V efficace, et répétez l'opération 5.

3.5 REGLAGE DU RECEPTEUR

Attention

Ajustez l'oscillateur VCO de l'émetteur et l'oscillateur de référence (voir § 3.2 et § 3.3) avant de procéder à l'alignement du récepteur.

3.5.1 VCO du récepteur

(1) Branchez un voltmètre c.c. de haute impédance (11 MegOhm minimum) entre le point de mesure SL et la masse.

(2) Appareils multicanaux: Choisissez le canal de réception ayant la fréquence la plus basse.

(3) Ajustez la bobine VCO (L201) pour obtenir une affichage de 6,0 V c.c.

(4) Choisissez le canal ayant la fréquence de réception la plus basse et assurez-vous que la tension cc soit au moins 3,0 V.

3.5.2 Récepteur

(1) Trouvez la fréquence d'accord (f_{accord}) comme suit:

(a) Pour les récepteurs monocanal et multicanal avec de fréquence de réception unique:

$f_{accord} = f_{réception}$

(b) Pour les appareils multicanaux ayant une largeur de bande réceptrice de 2 MHz ou moins:

f_{accord} = fréquence du canal de plus haute fréquence

(c) Pour les appareils multicanaux ayant une largeur de bande de réception de plus de 2 MHz mais moins de 4 MHz (inclus), trouvez f_{accord} comme suit:

$f_{accord} = (f_{haut} + f_{bas}) : 2$

Si l'un des canaux a une fréquence à moins de 500 kHz de f_{accord}, effectuez l'accord sur ce canal. Sinon, vous devrez obtenir une puce PROM d'accord (seulement pour les modèles EZ).

(2) Consignez le sélecteur de canal au canal de la fréquence d'accord déterminée lors de l'opération ci-dessus. La fréquence d'accord est pré-programmée dans les modèles EZ. Pour le réglage sur f_{accord}, il suffit de court-circuiter les deux bornes d'essai TEST sur la platine de commande.

(3) Branchez une charge résistive entre les broches 4 et 5 de J5. Surveillez la sortie audio dans cette charge résistive.

(4) Fixez les bobines FL1, FL2 et FL3 de la manière suivante:

Platine HF	Fréquence de réception	Position pré-consignée
GLE6140B GLE6146B GLE6152B	378-392 392-405	2 mm au-dessus du bord supérieur de la boîte de blindage 2 mm au-dessous du bord supérieur de la boîte de blindage
GLE6141B GLE6144B GLE6147B GLE6151B GLE6153B GLE6157B	403-418 418-433	2 mm au-dessus du bord supérieur de la boîte de blindage 2 mm au-dessous du bord supérieur de la boîte de blindage
GLE6142B GLE6145B GLE6148B GLE6150B GLE6154B GLE6156B	440-455 455-470	2 mm au-dessus du bord supérieur de la boîte de blindage 2 mm au-dessous du bord supérieur de la boîte de blindage
GLE6143B GLE6149B GLE6155B	422-436 436-450	2 mm au-dessus du bord supérieur de la boîte de blindage 2 mm au dessous du bord supérieur de la boîte de blindage

(5) Branchez un voltmètre c.c. entre le point de mesure LO et la masse.

(6) Ajustez les bobines FL3, en commençant par celle du centre, pour produire une tension c.c. maximale, typiquement entre 2.1 et 3.5 V c.c. Répétez cette opération jusqu'à ce que vous ne puissiez pas augmenter cette valeur.

(7) Branchez un générateur HF (non modulé) sur le connecteur d'antenne, calé sur la fréquence de trafic. Réglez le niveau de sortie pour étouffer le récepteur.

(8) Branchez un voltmètre c.a. avec une largeur de bande d'au moins de 500 kHz (un analyseur de distorsion HP331A par exemple) entre le point de mesure IF et la masse. Augmentez la sortie du générateur jusqu'à ce que le voltmètre c.a. indique environ 30mV. Tournez les noyaux des bobines L1, L3, L4, et L5 jusqu'à ce que le voltmètre atteigne le maximum. Réduisez le niveau de sortie du générateur comme requis pour maintenir 30mV eff. sur l'appareil lors de cette procédure. Répétez cette mise à point jusqu'à ce que vous ne puissiez plus faire augmenter la tension de mesure.

(9) Consignez le niveau de sortie du générateur à 1 mV. Modulez-le avec une tonalité de 1 kHz à une excursion de fréquence de:

±3 kHz (espacement 25 kHz)
±2,4 kHz (espacement 20 kHz)
±1,5 kHz (espacement 12,5 kHz).

Ajustez la commande de volume pour produire un niveau audio d'environ 1v eff. sur la charge de 2 Ohm. Ajustez lentement la bobine L52 pour produire un signal audio maximal.

(10) Ajuster le squelch comme suit:

(a) Pré-consignez le potentiomètre R59 (SQCH) à fond vers la gauche.

(b) Appliquez un signal HF, modulé d'un ton de 1 kHz à un niveau de 1 mV et une excursion en fréquence de:
±3 kHz (espacement 25 kHz)
±2,4 kHz (espacement 20 kHz)
±1,5 kHz (espacement 12,5 kHz).

(c) Ajustez la commande de volume pour produire un niveau audio d'environ 1,7V eff. sur la charge de 2 Ohm.

(d) Réduisez le niveau de sortie du générateur jusqu'a ce qu'une valeur SINAD de 10 dB (mesurée selon CCITT) soit obtenu.

(e) Activez le mode squelch à l'aide de la touche correspondante sur le panneau avant.

(e) Coupez le squelch par la touche correspondante sur le panneau avant.

(f) Tournez le squelch vers la droite jusqu'à ce que le bruit de fond cesse. Puis, tournez dans le sens inverse jusqu'à ce que le bruit redevienne tout juste audible.

(g) Réduisez le niveau de sortie du générateur à zero ce que le bruit devient audible, et vérifiez que la valeur SINAD (mesurée selon CCITT) se trouve entre 8 et 12 dBQ. Reajustez R59 un peu si requis.

(11) Après avoir effectué le réglage des bobines FL1, FL2 et FL3 fixez-les avec de la peinture.

Pont	Description	Condition	Platine de commande GLN6627A avec Select 5
JU551 JU552	Audio du récepteur Audio du récepteur	Modulation de fréquence Modulation de fréquence	inséré non inséré
JU601 JU602	Audio de l'émetteur Audio de l'émetteur	Modulation de fréquence Modulation de fréquence	inséré non inséré
JU551 JU552	Audio du récepteur Audio du récepteur	Modulation de phase Modulation de phase	non inséré inséré
JU601 JU602	Audio de l'émetteur Audio de l'émetteur	Modulation de phase Modulation de phase	non inséré inséré
JU701 JU702	EEPROM sérielle Power Strobe	par U705-6 par U701-19	non inséré inséré
JU703 JU704 JU705	Configuration avec mémoire	par U705-6 WR à U702-23 Terre à U702-20	non inséré non inséré inséré
JU706 JU707	Opération mémoire	MP0 MP1	non inséré inséré
JU709	Urgence	Application spéciale	non inséré
JU801 JU802	Filtre décodage	Select 5 »Private-Line«	inséré non inséré
JU803 JU804	Tonalités d'alerte	Niveau variable Niveau fixe	inséré non inséré
JU805	Moniteur	En circuit	inséré
JU806	Filtre décodage	Select 5	

Tableau 2
Ponts sur la platine de commande pour appareils standard de la série EV

Option	Pont	Condition	Platine de commande GLN6626A avec Select 5
MAB459	JU805	Sans fonction moniteur	non inséré
MAB875	JU803 JU804	Niveau d'alerte fixe	non inséré inséré
MAB884	JU551 JU552 JU601 JU602	Modulation de fréquence	inséré non inséré inséré non inséré

Tableau 3
Ponts sur la platine de commande
pour appareils à options de la série EV

Platine	Indicateur	Indication	Signification
GLN6627A	Affichage LCD sur platine de commande	ERR 1	Erreur ROM: Le modèle en mémoire dans U702 est incorrect. Changez U702.
		ERR 2	Erreur EEPROM: U703 en panne. Commandez une EEPROM de rechange ou reprogrammez.
		ERR 3	Erreur ROM ou EEPROM.
GLN6628B	Tonalités rapides		Erreur EEPROM. Commandez une EEPROM de rechange ou reprogrammez.

Tableau 4
Indications d'erreur

Ton	GLN6984A, GLN6627A	GLN6628B
800 Hz/200 ms	Manipulation illégale	—
600 Hz/200 ms	—	Manipulation illégale
800 Hz continu	Manipulation illégale (p.e.: Appareil n'est pas en mode moniteur)	
800 Hz intermittent	Synthétiseur hors programmation	

Tableau 5
Tonalités d'avertissement

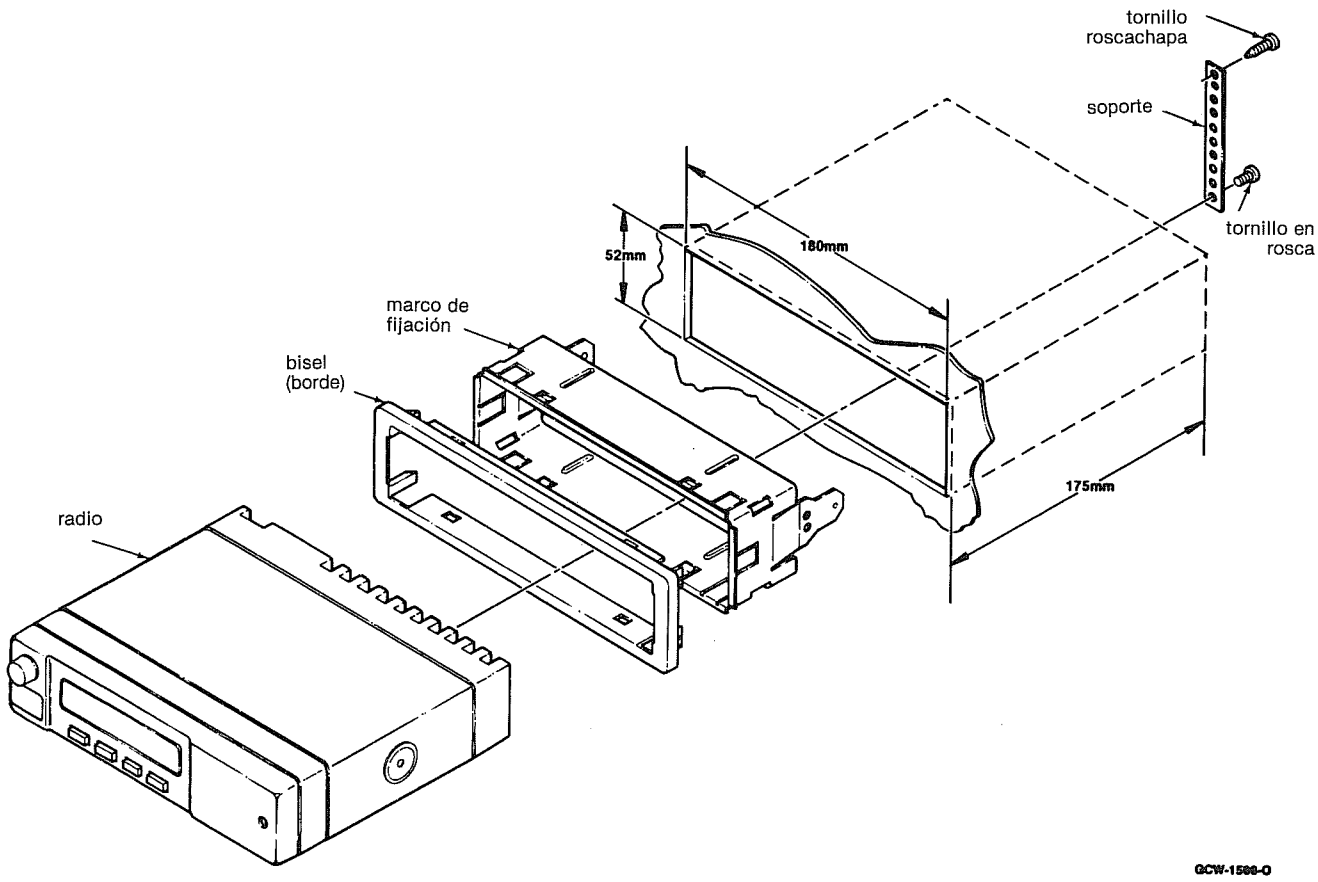

Figura 1
Montaje radio completo en el tablero de mandos
del automóvil

1. INSTALACIÓN

1.1 MONTAJE DE LA ANTENA

Según las instrucciones que vienen con la antena para instalarla en el automóvil. Entonces colocar el cable en el lugar, dentro del coche, donde usted quiere poner el aparato de radio. Cortar el cable sobrante e instalar en él el enchufe macho.

1.2. MONTAJE DE LA RADIO EN EL TABLERO DE MANDOS

1.2.1 Radio en el tablero

(1) Abrir incisión para la radio en el tablero y agrandarla si fuera necesario hasta conseguir las dimensiones que aparecen en la Figura 1.

(2) Meter el marco de fijación en la incisión y doblar las seis bridas (Figura 2) para sujetarlo en su sitio. Cubrir con el bisel (borde).

(3) Meter la radio en el marco de fijación hasta que encaje bien.

(4) Sujetar el soporte (Figura 1) a la carrocería del automóvil con un tornillo roscachapa y al cuerpo refrigerante de la radio con un tornillo en rosca.

1.2.2 Instalación de los mandos de la radio

(1) Sujetar ambas abrazaderas con tornillos en rosca a los mandos (Figura 3).

(2) Abrir incisión para la radio en el tablero y agrandarla si fuera preciso a las dimensiones que aparecen en la Figura 3.

(3) Colocar el marco de fijación dentro de la incisión (Figura 2) y asegurarlo doblando las seis bridas. Colocar el bisel (borde).

(4) Empujar los mandos de la radio en el marco de fijación hasta que encaje todo bien.

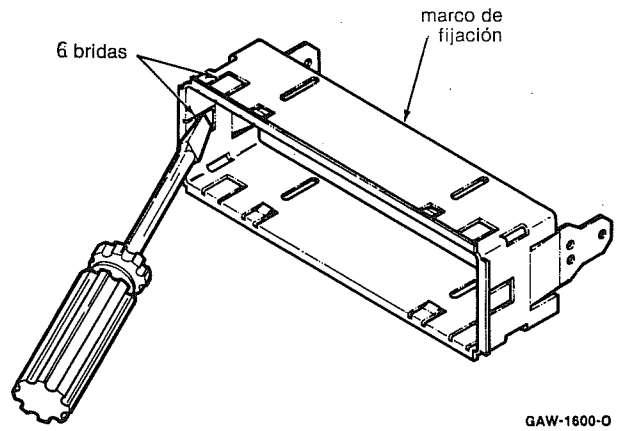

Figura 2
Montaje del marco de fijación

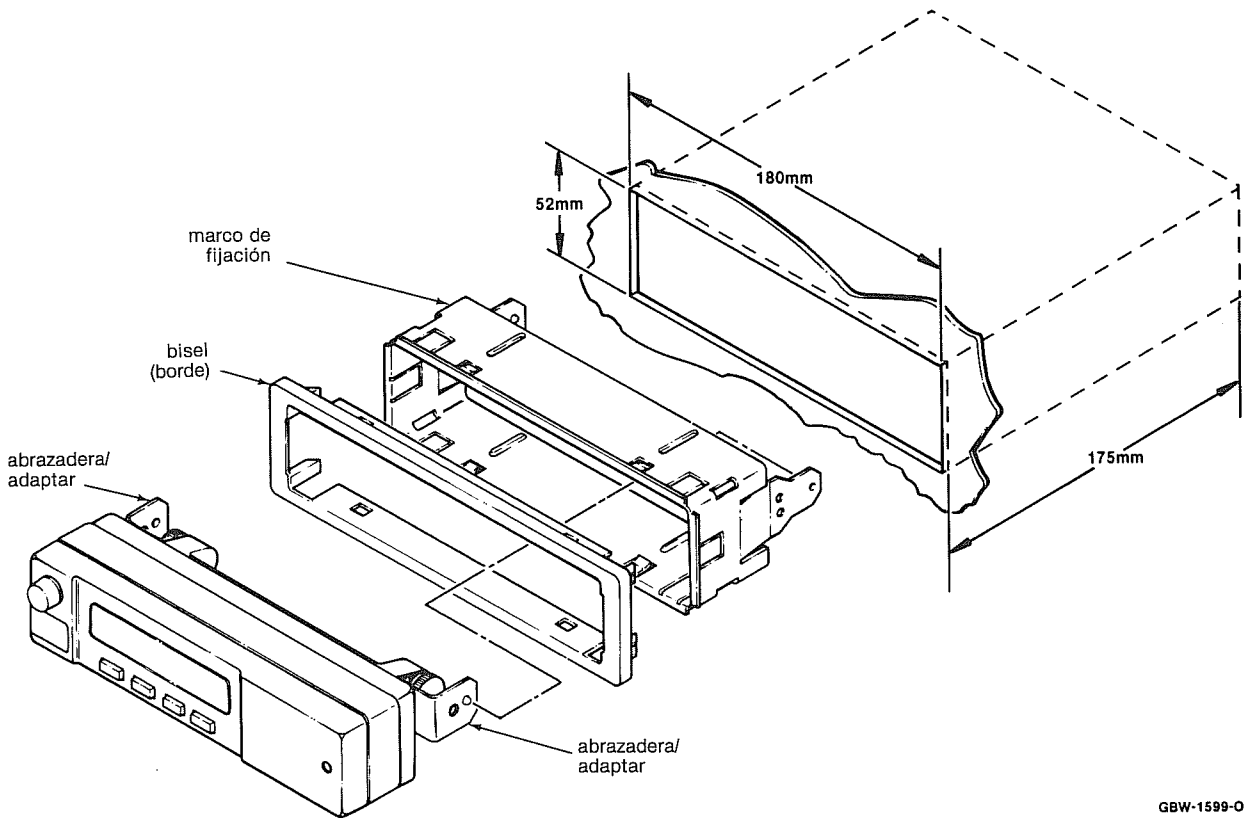

Figura 3
Montaje mandos de la radio en el tablero del automóvil

Montaje estructura superior

montaje debajo del tablero de mandos

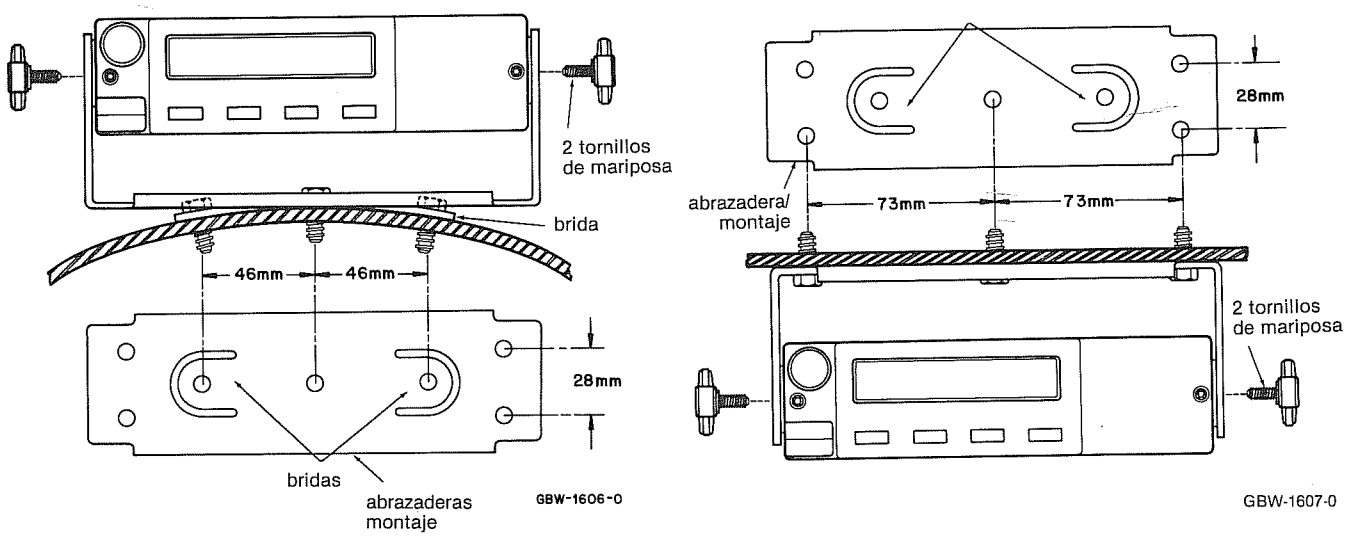

Figura 4
Montaje del radio

1.3 MONTAJE EN EL ESTRIBO DE SUSPENSIÓN

(1) Separar la radio, soltando los dos tornillos mariposa, (ver Figura 4) del estribo de suspensión.

(2) Usar la abrazadera como plantilla de taladrar para marcar las tres perforaciones en el lugar previsto para la instalación. Usar los tres agujeros de más adentro para el montaje de cuerpos curvados; el agujero central y los cuatro agujeros más exteriores para una superficie plana.

(3) Después de marcar con un punzón los lugares elegidos, perforar los agujeros de 4 mm de diámetro.

(4) Asegurar la abrazadera mediante los tornillos rosca que facilitamos.

(5) Colgar la radio en la abrazadera y apretar los tornillos mariposa.

1.4 INSTALACIÓN DEL ALTAVOZ

(1) Sacar el altavoz del estribo de suspensión después de soltar los dos tornillos de suspensión.

(2) Escoger un lugar adecuado para montar el altavoz.

(3) Usar la abrazadera como plantilla de taladrar para marcar las tres perforaciones en el lugar previsto para la instalación.

(4) Marcar con el punzón y hacer cuatro agujerods de 4 mm de diámetro.

(5) Asegurar la abrazadera mediante los tornillos rosca que facilitamos (Figura 5).

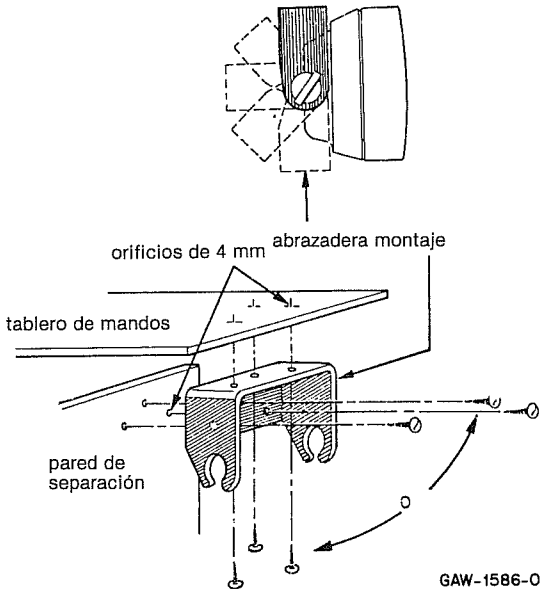

Figura 5
Montaje del altavoz debajo del tablero de mandos del automóvil

(6) Insertar el altavoz en la abrazadera y apretar los tornillos de mariposa.

(7a) Sólo para caja en el tablero: conectar el enchufe del altavoz con el borne nonodo accesorio en la parte trasera de la radio (ver Figura 6).

(7b) Sólo para radios con caja lejos del tablero: perforar un agujero de 6 mm de diámetro en la cavidad de la parte trasera.

(8) Sólo para radios con caja lejos del tablero: empujar atrás arandela aisladora unos 11 cm en el cable.

(9) Sólo para radios con caja lejos del tablero: ambos alambres del altavoz (sin enchufe macho y sin cubierta) llevarlos a través de la parte trasera (no olvidar la arandela de goma), y después unir con las correspondientes conexiones de la parte trasera (ver Figura 7).

Atención

Para figar el aparato en el soporte original debe utilizarse los tornillos previstos para este montaje. Si se monta el aparato con un soporte de material delgado, utilize arandelas para compensar esta diferencia. En caso de no montares las arandelas, puede dañare el aparato.

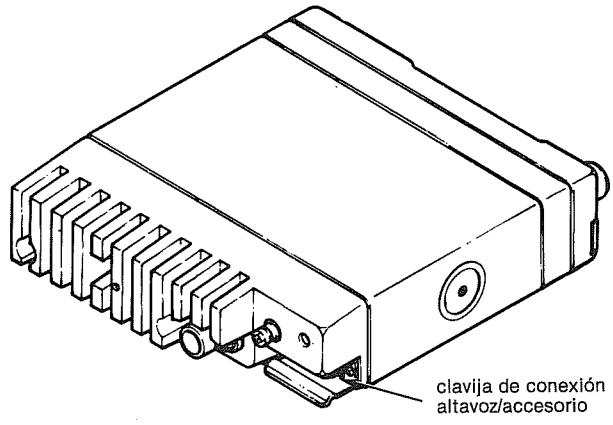

Figura 6
Conexión del altavoz para radio en el tablero de mandos del coche.

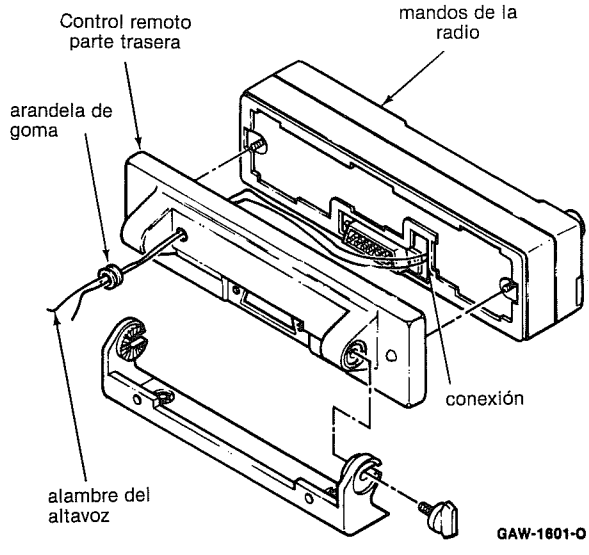

Figura 7
Conexión altavoz en radios montados lejos del tablero

2 MONTAJE Y DESMONTAJE

2.1 RADIO

2.1.1 Para quitar la cabeza de contról, el alojamiento de enchufe y la cubierta del chassis

(1a) Radios montadas en salpicadero, Quitar las tuercas de montaje de la cabeza de contról (Figura no. 8). Tirar de la cabeza de contról de la radio. Deslizar hacia fuera el enchufe del alojamiento en la misma dirección.

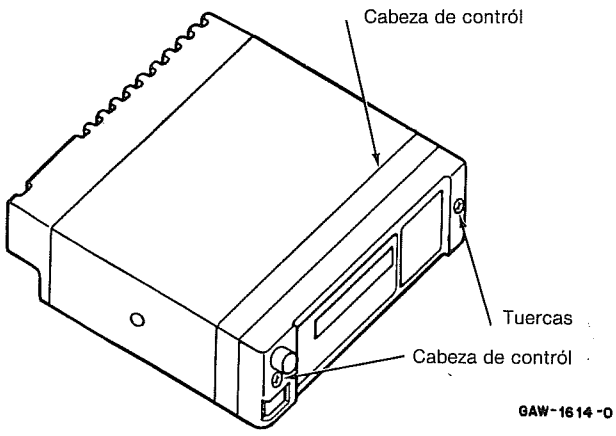

Figura 8
Montaje tuercas cabeza de contról

(1b) Solamente para radios montadas remotamente. Quitar las tuercas de montaje de cable (Figura no. 9). Tirar del cable remoto. Quitar las tuercas del alojamiento de enchufe y deslizar el enchufe de alojamiento de la radio.

(2) Quitar la cubierta del chassis doblando cada esquina lateral un poco (Figura no. 10). Tengan cuidado de no doblar demasiado las esquinas laterales.

2.1.2 Para quitar el disipador de calor del amplificador de potencia

(1) Desconectar el conector de seis terminales del enchute en ángulo recto en la tarjeta de referencia (Figura no. 11).

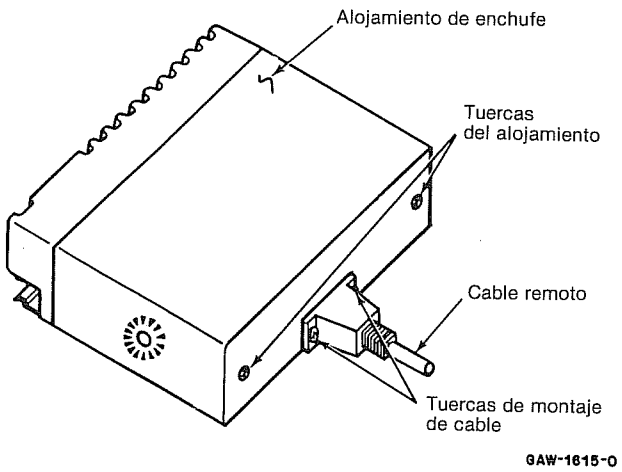

Figura 9
Tuercas de montaje de cable

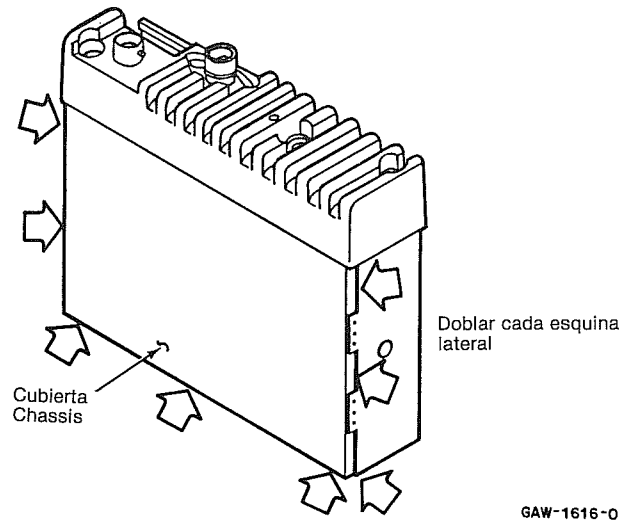

Figura 10
Desmontaje cubierta chassis

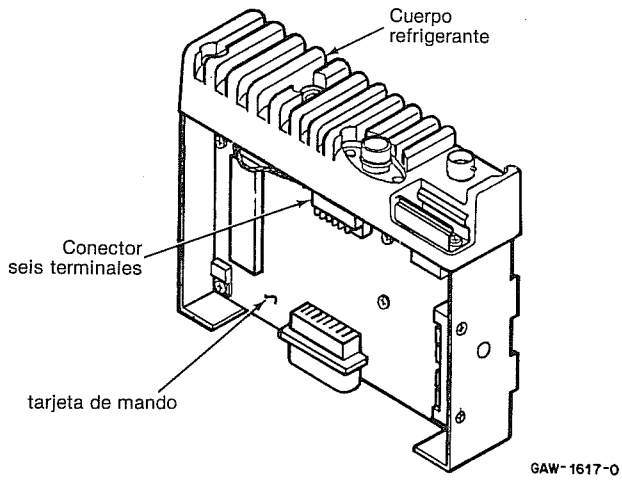

Figura 11
Localización conector seis terminales

(2) Desconectar los dos cables coaxiales de transmitir, recibir de la tarjeta de referencia (Figura no. 12).

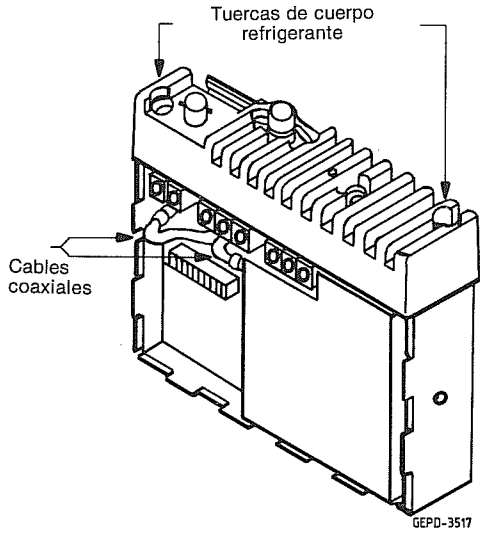

Figura 12
Cables coaxiales y tuercas de montaje del disipador

(3) Quitar las tuercas de montaje del cuerpo refrigerante (Figura no. 12) y tirar del cuerpo refrigerante del chassis, al mismo tiempo pasar cuidadosamente los cables coaxiales por sus agujeros en el chassis.

2.1.3 Para quitar la tarjeta »RF« y la tarjeta de mando:

(1) Primero quitar el dispador del amplificador de potencia. Quitar todas las tuercas de montaje de la tarjeta de »RF« y sacar la tarjeta de »RF« (Figura no. 13).

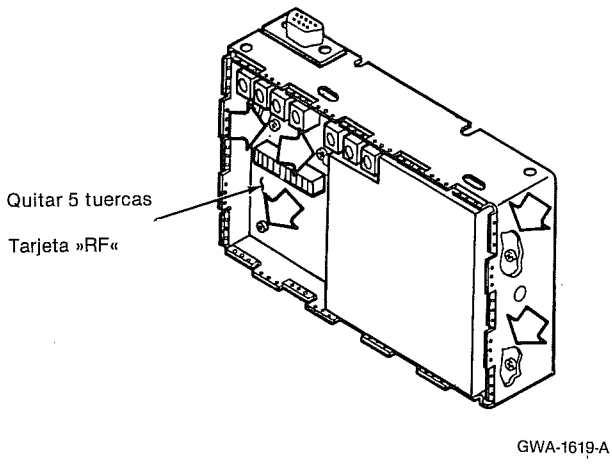

Figura 13
Desmontaje tarjeta »RF«

(2) Una vez que la tarjeta de »RF« está fuera, dar la vuelta a la radio y quitar todas las tuercas de la tarjeta de mando (Figura no. 14). Ahora se puede sacar la tarjeta de mando.

(3) A continuación quitar las dos tuercas de montaje del disipador de calor del lateral de chassis (Figura no. 14). Ahora se puede sacar la tarjeta de mando.

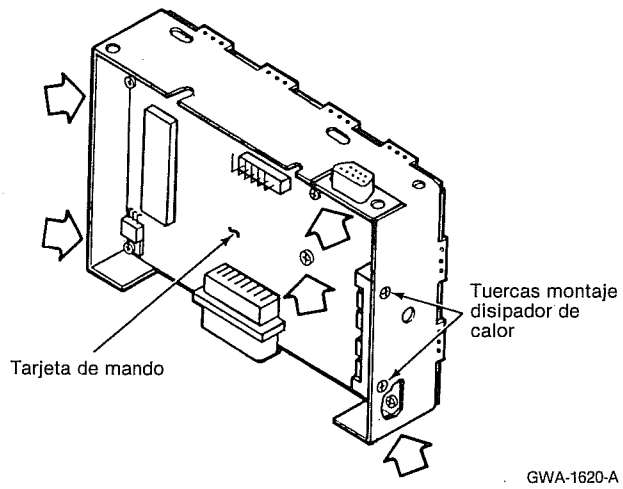

Figura 14
Desmontaje de la tarjeta de mando

2.1.4 Para quitar la tarjeta del amplificador de potencia

(1) Quitar el blindaje del amplificador de potencia, doblando cada esquina lateral hasta que se pueda deslizar facilmente el blindaje. Quitar el blindaje, guiando los coxiales hacia fuera (ver Figura 15).

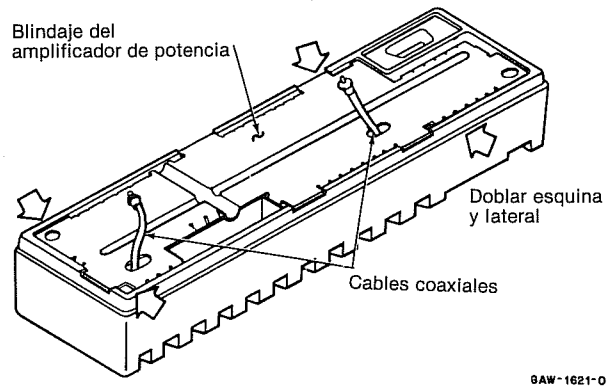

Figura 15
Desmontaje blindaje

(2) Quitar la tuerca de montaje del transistor del disipador de calor (Figura no. 16).

(3) Desoldar el pasamuro A+ y el terminal conector de la antena (Figura no. 17).

(4) Radios de 25 watios solamente) quitar las tuercas de montaje del transistor como se indica en la Figura no. 17.

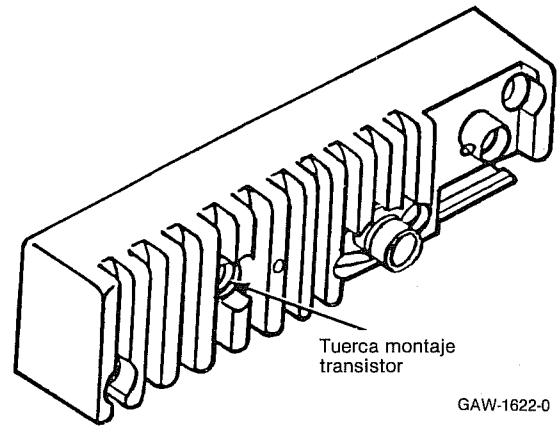

Figura 16
Tuerca montaje transistor

(5) Quitar todas las tuercas de montaje de la tarjeta del amplificador de potencia y sacar la tarjeta del amplificador de potencia (Figura 17).

2.1.5 Para volver a montar la radio

Invertir el procedimiento anterior ajustando todas las tuercas.

Notas

Para el montaje de la radio instalar el cable baja frecuencia del receptor sobre el cable baja frecuencia del emisor.

No. de pieza	Tipo de tornillo	Punto de montaje	Herramienta	Par de apriete (Nm)
0300132436	Tornillo de cabeza cilíndrica con ranura en cruz de acero inoxidable M5 x 21	lado trasero del chasis del altavoz	P-2	0,5 a 0,7
0300136756	Tornillo prisionero de cabeza hexagonal M16 x 6	(a) Estribo de sujeción en el tablero de instrumentos (b) Soporte del altavoz	Llave hexagonal 8 mm	instalado „in situ"
0300136518	Tornillo con ranura en cruz M13 x 16 con rosca P	bastidor de la mesa	P-2	1,1 a 1,4
0380165J05	Tornillo de cabeza cilíndrica hexagonal M4 x 8	estribo de sujeción para el montaje del tablero de instrumentos	Llave hexagonal 7 mm	instalado „in situ"
0380029J01	Tornillo de cabeza cilíndrica con hexágono interior M3 x 35 (negro)	módulo de mondo montaje delante/ detrás	Llave de hexágono interior 2,5 mm	0,35
0380030J01	Tornillo prisionero cilíndrico tipo Pozidrive	pletinas en el módulo de mando	P2-2	0,8
0380036J01	Tornillo en T (negro mate)	soporte del módulo de mando retraído	—	instalado „in situ"
0380165J0	Tornillo prisionero cilíndrico tipo Pozidrive M4 x 28 (negro)	fijación del termodisipador	P2-2	1,4 a 1,6
0380165J02	Tornillo prisionero cilíndrico tipo Pozidrive M3 x 6 (galvanizado)	unión de enchufe del módulo de mando	P2-2	1,1
0380165J04	Tornillo cilíndrico tipo Pozidrive M3 x 7 (negro)	de la carcasa al chasis (montaje en forma retraída)	P2-1	1,1 a 1,4
0380269H01	Tornillo cilíndrico tipo Pozidrive-Taptite M2,5 x 6 (galvanizado)	elementos estructurales en el termodisipador	P2-1	0,7 a 0,9
0380269H02	Tornillo de cabeza plana tipo Pozidrive-Taptite M2,5 x 8 (galvanizado)	termodisipador	P2-1	0,7 a 0,9
0380269H02	Tornillo cilíndrico tipo Pozidrive-Taptite M3 x 8 (galvanizado)	(a) tomacorriente (b) cabeza de alta frecuencia	P2-1	0,7 a 0,9 0,9 a 1,1
0380269H04	Tornillo cilíndrico tipo Pozidrive-Taptite M3 x 6 (galvanizado)	(a) pletinas de alta frecuencia y de lógica (b) conexión de accesorios	P2-1	0,7 a 0,9 0,9 a 1,1
0302097B01	Tuerca hexagonal tensora de 0,5 pulgadas	cabeza de alta frecuencia (conexión antena)	Llave hexagonal de 0,5"	2,0 a 2,3
0380270H01	Tornillo en T	estribo de sujeción del aparato radiofónico	—	instalado „in situ"
0384244C03	Tuerca de mariposa	estribo de sujeción del altavoz	—	instalado „in situ"
0300129892	Tuerca hexagonal	transistor del paso amplificador final (fijación mediante brida en el cuerpo del termodisipador)	Llave hexagonal 8 mm	0,6

Tabla 1
Pares de apriete

2.2 CABEZA DE CONTROL (Unida a radio)

Para desmontar la cabeza de contról:

(1) Quitar el cable del micrófono tirar de la junta, presionar lengueta del conector, y tirar del cable.

(2) Quitar las dos tuercas de montaje.

(3) Tirar de la cubierta trasera y de la junta de la parte trasera de la cabeza de contról.

(4) Tirar del botón de volumen del frontal de la radio. No se necesitan herramientas ya que está a presión.

(5) Quitar las cinco tuercas que mantienen el circuito impreso.

(6) Tirar del circuito impreso trasero. Tome en cuenta que el potenciometro de volumen está unido a esta tarjeta, y que su junta está ajustando el eje.

(7) Tirar del muelle de tierra del agujero en el lado izquierdo del chassis interno. (La cabeza de contról de modelos sin pantalla no tienen este muelle de tierra).

(8) Quitar las seis tuercas que mantienen el chassis unido al alojamiento frontal.

(9) Tirar del chassis interno del alojamiento. Observed si la tarjeta del circuito impreso frontal y los teclados están unidos al chassis interno (la cabeza de contról de modelos sin pantalla tienen solamente un teclado).

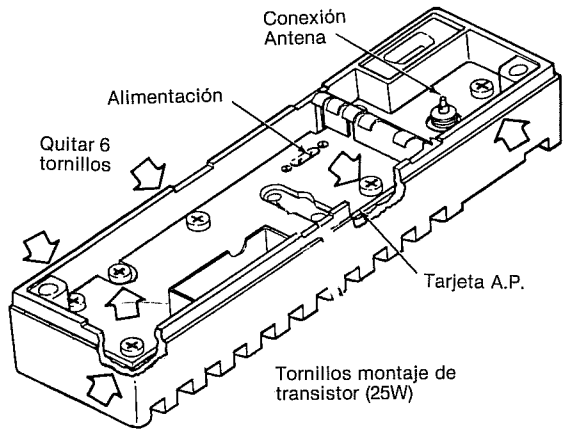

Figura 17
Extracción tarjeta amplificador de potencia

(10) Los dos teclados están extendidos sobre sus guias-conectores.

(11) Para quitar el conjunto de cristal líquido (LCD) de la tarjeta del circuito, doblense las seis leguetas en el LCD y tiresé del conjunto (los modelos sin pantalla no tienen conjunto LCD).

(12) Para quitar cualquiera de los botones o enchufes subase la correspondiente funda y tirese del botón apropiado.

(13) Para montar la cabeza de contról, siganse las anteriores etapas en orden inverso.

2.3 CABEZA DE CONTRÓL (montado remotamente)

(1) Quitar y desmontar la cabeza de contról siguiendo las etapas 1 a 13 como anteriormente.

(2) Quitar el conjunto de cable de contról de la cabeza de contról, quitando las dos tuercas del interior de la cubierta trasera, luego tirar del cable (para quitar la cabeza de contról entera sin separar el conjunto cable, quitar las dos tuercas y tirar de la unidad).

(3) Si la radio tiene un altavoz externo unido a la cabeza de contról montada remotamente, desconectar el cable del altavoz de la tarjeta del circuito trasero, después de quitar la cubierta trasera.

2.4 CONECTOR ACCESSORIO

(1) Con un destornillador doblar la cubierta de la punta de cada lado (Figura no. 18). Sacar el enchufe de su cubierta.

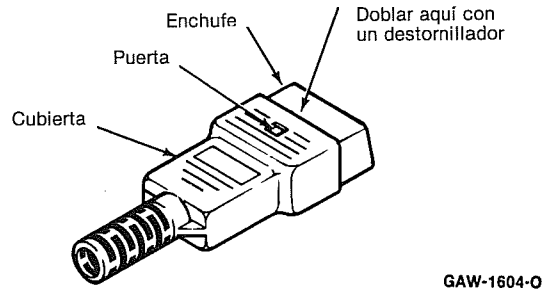

Figura 18
Desmontaje cubierta de enchufe

(2) Quitar los terminales de hilos del enchufe. Sacar los hilos (con los terminales unidos) através de la cubierta del conector.

(3) Para montar, seguir el procedimiento inverso, asegurarse, que el fijador de cables está en su posición correcta (Figura no. 19).

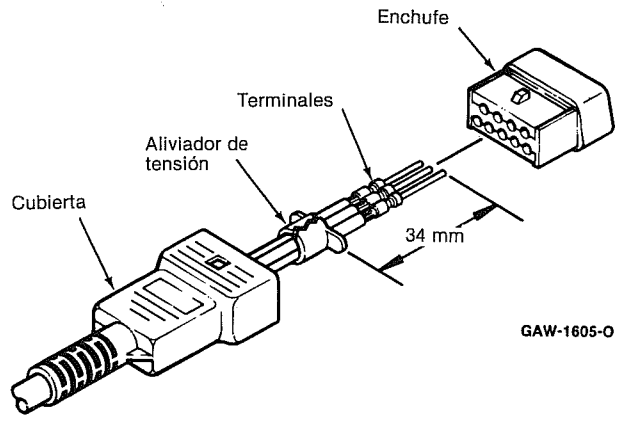

Figura 19
Posicionamiento del alviador de presión

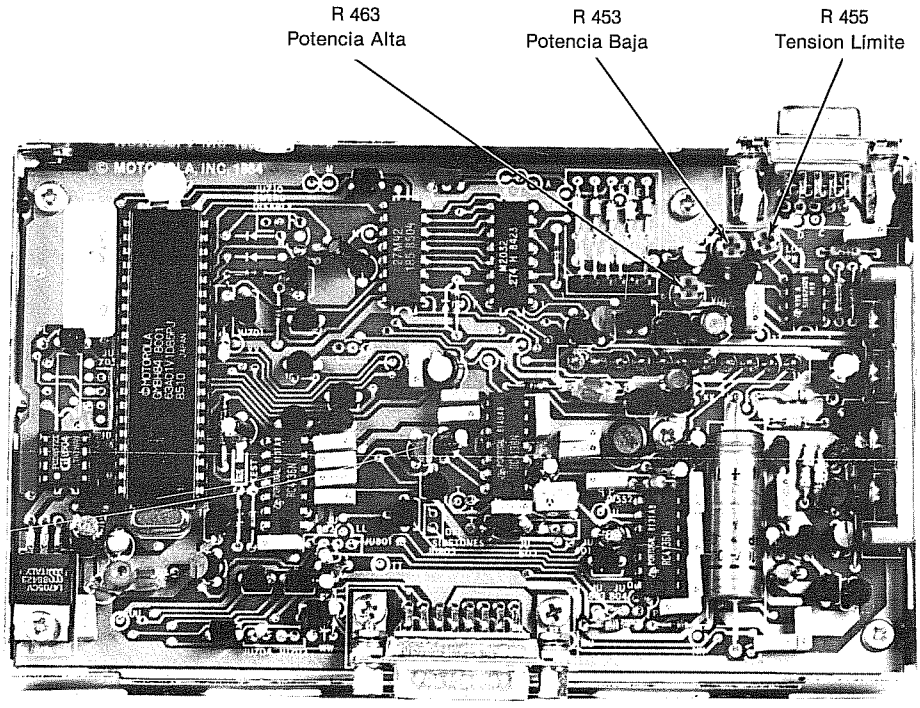

Figura 20
Puntos de ajuste tarjeta de mando

GBW-2101-0

3 AJUSTE

Notas
Poner en transmisión la radio solamente cuando se hagan ajustes o medidas.

3.1 GENERAL

Realizar todos los ajustes con una tensión de 13,2 ± 0,1 vóltios de c.c., a menos que las instrucciones digan o especifiquen una tensión diferente.

Las instrucciones en el sentido de las agujas del reloj (SAR) o sentido contra-agujas de reloj (SCAR) se dan »mirando la tarjeta del circuito desde el lado de los componentes«.

Las Figuras 20 y 21 indican la locación de los componentes.

Cuando se realizan cualquiera de los procedimientos de sintonía de datos en las secciones 3.2, 3.3, 3.4 y 3.5 la radio debe estar completamente montada, excepto por la cubierta del chassis, el tope de la cubierta del compartimento del sintetizador, y la funda de la radio. Cuando se haya completado la sintonía, instalar la cubierta del sintetizador, la cubierta del chassis, y la funda, antes de probar la radio según especificaciones.

Se recomienda el siguiente equipo de prueba para el ajuste y mantenimiento de la radio MC micro;

R-2001D Analizador Sistemas de Comunicaciones, o
R-2200B Monitor de Servicio.

GTF180A Kit de Pruebas.
GTF244A Adaptador de cable MC micro.

PFT4053A Filtro Sofométrico.

FTP3005B Unidad de Prueba »Select 5« (no se necesita con R2001D).

R1011B Fuente de Alimentación, o
S1347D Fuente de Alimentación (para radios de 10 vátios o menos potencia).

R1037A Multímetro Digital, o
R1024B Multímetro Digital.

3.2 PARA AJUSTAR EL TRANSMISOR.

(1) Poner los potenciometros de la siguiente forma:

* Potencia alta R453: Totalmente sentido contra agujas de reloj.
* potencia baja R455: Totalmente sentido contra agujas del reloj.
* Tensión límite R463: Totalmente sentido agujas reloj.

(2) Ajustar la fuente de alimentación de la radio a 13,2 vóltios c.c. (12,6 vóltios para MAU 1, modelos de seis watios).

(3) Seleccionar el canal con la frecuencia de transmisión más alta.

(4) Conectar la salida de antena de la radio a un medidor de potencia de radio-frecuencia que de, una carga de 50 Ohms.

(5) Conectar un voltímetro de c.c. desde el punto de prueba de la línea de gobierno (SL) a tierra. La impedancia del voltímetro deberá ser de 11 megaohms o más.

(6) Activar la transmisión y ajustar la bobina L210 hasta que el voltímetro lea 7,0 vóltios c.c.

(7) Seleccionar el canal de la frecuencia más baja de transmisión. Activar la transmisión, y verificar que la tensión es por lo menos 3,0 vóltios c.c.

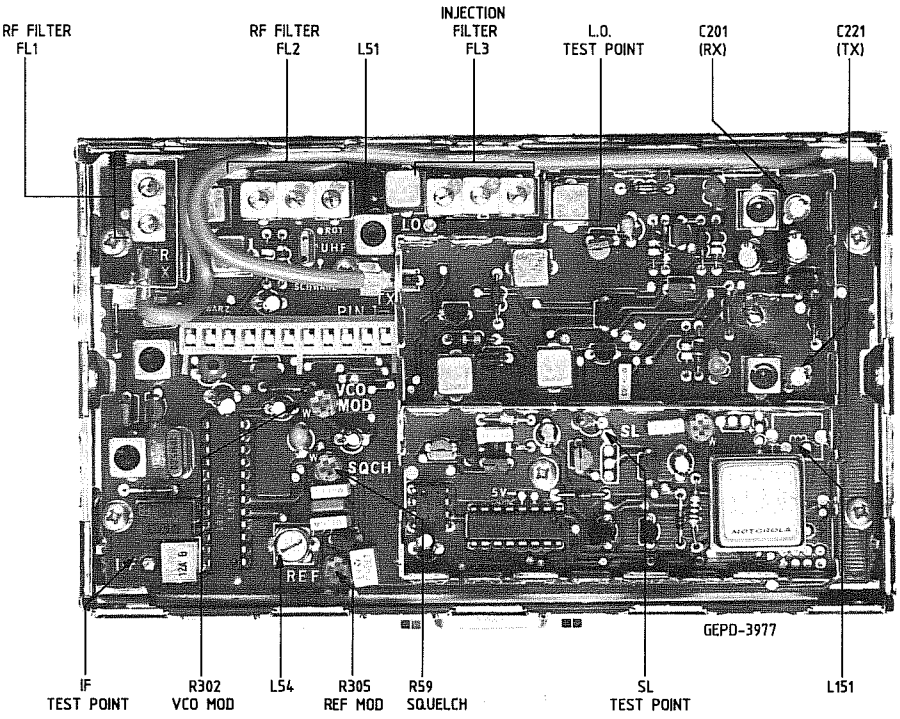

Figura 21
Puntos de prueba en tarjeta de »RF«

(8) Seleccionar cualquier canal de transmisión (si la radio tiene la opción de »RF« esclava, seleccionar cualquier canal de transmisión de alta potencia).

(9) Poner en funcionamiento la radio y ajustar R453 (ajuste de potencia) para:

No. de Modelo	Potencia
MAU0	1.0 watios
MAU1	6.0 watios
MAU2	10.0 watios
MAU3	25.0 watios

(10) Hacer la conmutación de todos los canales (todos los canales de alta potencia para MAB889). En cada canal, activar la transmisión y observar la potencia de salida. Para modelos MAU0, MAU2, MAU3, observar el canal que da mínima potencia de salida; para los modelos MAU1 observar el canal que da máxima potencia de salida. Si más de un canal da la misma máxima o mínima potencia, escoger cualquiera de esos canales.

(11) Hacer la conmutación de todos los canales de transmisión (todos los canales de alta potencia para MAB889). En cada canal activar la transmisión al mismo tiempo que se observa la tensión de c.c. en el terminal 4 del conector P6, o en el punto de prueba CU de la tarjeta de mando.

(12) En el canal en el cual la etapa 11) indicó tener la tension c.c. más alta, girar el potenciometro de tensión límite, R463, totalmente contra el sentido de las agujas del reloj. Girar el potenciometro de alta potencia, R453, totalmente en el sentido de las agujas del reloj.

(13) Activar la transmisión. Ajustar el potenciometro de tensión límite, R463, para una tensión de c.c., 2,0 vóltios más alta que la tensión registrada en el punto (11), como se midio en el terminal 4 de P6 ó en el punto de prueba CV.

(14) Seleccionar el canal que fué anotado en el punto (10). Poner en funcionamiento la transmisión y ajustar el potenciometro de alta potencía, R453 para:

No. Modelo	Potencia
MAU0	1,1 watios
MAU1	5,6 watios
MAU2	10,7 watios
MAU3	26,8 watios

(15) Verficar que todos los canales (todos los canales de alta potencia en MAB889) producen al menos 1,0, 10,0, 25,0 watios, para los modelos MAU0, MAU2, y MAU3, respectivamente. Verficar que ningún canal produce más de 6,0 watios para los modelos MAU1.

(16) Si la radio tiene la opción MAB889, nivel de potencia esclava, seleccionar cualquier canal de potencía baja. Conectar la transmisión y ajustar el potenciometro de potencia baja, R455, para una potencia de salida de 1,0 watios (u otra potencia especificada), para los modelos MAU1 y MAU2. Verificar que la potencia de salida de »RF» en todos los canales de baja-potencia está entre 0,7 y 1,4 de watio. Para los modelos MAU0, ajustar el potenciomentro de baja potencia, R455, para una potencia de salida de 0,1 watio, o algún otro nivel de potencia especificado. Verificar que la potencia de salida de todos los canales de baja potencia está entre 70 y 140 miliwatios.

3.3 AJUSTE DEL OSCILADOR DE REFERENCIA

(1) Conectar la salida de antena del equipo a un frecuencímetro exacto, através del atenuador adecuado.

(2) Seleccionar cualquier canal de transmisión.

(3) Activar la transmisión y ajustar L151 (todos los modelos excepto los de estabilidad de 2ppm) o R163 (modelos con estabilidad de 2 ppm), hasta obtener la frecuencia de transmisión exacta, ± 100Hz, en contador.

(4) Comprobar todos los canales de transmisión para verificar que se han programado todas las frecuencias correctamente.

3.4 PARA AJUSTAR LA DESVIACIÓN.

(1) Conectar la salida de antena de la radio a un analizador modulador o receptor de prueba através de un alternador adecuador.

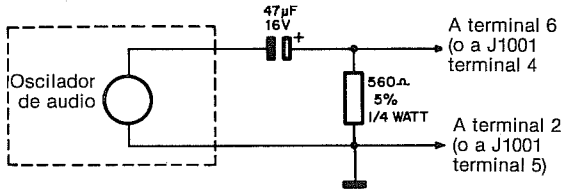

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Figura 22
Conexión del oscilador audio al micrófono

(2) Conectar el audio oscilador a la entrada de audio del micrófono através del circuito indicado en la Figura no. 22. Poner la frecuencia del oscilador a un kHz y el nivel de salida a 800 mV.

(3) Poner los potenciometros R302 (VCO MOD) y R305 (REF MOD) totalmente en sentido contrario a las agujas del reloj. Para modelos 25kHz espacio, solamente poner R305 (REF MOD) totalmente en sentido de las agujas del reloj.

(4) Seleccionar cualquier canal de transmisión. Para modelos con »PL« (línea privada), seleccionar cualquier canal que transmista »PL«.

(5) Poner en transmisión y ajustar el potenciometro VCO MOD, R302 para el nivel apropiado de desviación.

Espacio canal	Establecimiento de desviación
25,0 kHz	± 4,6 kHz
20,0 kHz	± 3,7 kHZ
12,5 kHz	± 2,3 kHz

Observación
Si las lecturas + y - difieren, utilizar solamente la lectura más alta.

(6) Para los modelos espacio de 25 kHz, el procedimiento está completo. Para otros continuar con el punto (7).

(7) Cambiar la frecuencia del oscilador de audio a 200 Hz, y mantener el nivel de salida a 800 milivoltios.

(8) Conectar la transmisión y observar la forma de onda en un osciloscopio conectado a la salida demodulada de un receptor de prueba. El receptor de prueba deberá ser sin deenfasis, y debe existir acoplamiento de c.c. entre el receptor de prueba y el osciloscopio (acoplamiento po c.a. es adecuado si la frecuencia de corte es 2 Hz o más baja). Ajustar R305 (REF MOD) para la respuesta de la onda cuadrada más plana con mínima distorsión.

(9) Volver a la frecuencia del oscilador de audio a un kHz, 800 millivóltios y repetir el punto (5).

3.5 PARA AJUSTAR EL RECEPTOR.

Observación
Ajustar el transmisor VCO (Oscilador controlado por tensión) y el oscilador de referencía (Sección 3.2) antes de ajustar el receptor.

3.5.1 Receptor VCO.

(1) Conectar un voltímetro de alta impedancía (11 megaohmios o mayor) desde el punto de prueba SL de la línea de gobierno a tierra.

(2) Radios con más de una frecuncia de recepción: Seleccionar el canal con la frecuencia de recepción más baja.

(3) Ajustar la bobina del receptor VCO (L201) hasta que el voltímetro lea 7,0 vóltios.

(4) Seleccionar el canal de la frecuencia más baja de recepción y verificar que la tensión es por lo menos 3,0 vólticos c.c.

3.5.2 Receptor

(1) Encontrar la frecencia de sintonía, sintonía, como se describe:

(a) En radios con un solo canal y en radios multicanales con una sola frecuencia de recepción:
sintonía = Prececion

(b) En radio multicanales que tengan un ancho de banda de recepción de dos MHz o menos:

$f_{sintonía}$ = Frecuencia del canal de frecuencia más alta

(c) En radio multicanales que tengan un ancho de banda de recepción mayor de dos MHz pero igual o menos que cuatro MHz, determinar $f_{central}$ donde:

$f_{central} = (f_{más\ alta} + f_{más\ baja}) : 2.$

Si uno de los canales de la radio tiene frecuencia entre 500 kHz de $f_{central}$, realizar la sintonía en ese canal. Si no es así, se debe o bien conseguir un PROM de sintonía programado a $f_{central}$, o bien programar la frecuencia central, en la radio.

(2) Poner el interruptor del selector de canales al canal de la frecuencia de sintonía como se determina en el punto (1) como se indica arriba.

(3) Conectar una carga resistiva de 2 ohmios através del terminal 4 de J5 y terminal 5 de J5 (tierra). Observar la salida de audio através de esta carga resistiva.

(4) Preajustar las bobinas FL1, FL2 y FL3 de la manera siguiente:

Platina RF	frecuencia de récepción	Posición previda
GLE6140B GLE6146B GLE6152B	378-392 392-405	2 mm bajo la superficie del bote de blindaje 2 mm sobre la superficie del bote de blindaje
GLE6141B GLE6144B GLE6147B GLE6151B GLE6153B GLE6157B	403-418 418-433	2 mm bajo la superficie del bote de blindaje 2 mm sobre la superficie del bote de blindaje
GLE6142B GLE6145B GLE6148B GLE6150B GLE6154B GLE6156B	440-455 455-470	2 mm bajo la superficie del bote de blindaje 2 mm sobre la suberficie del bote de blindaje
GLE6143B GLE6149B GLE6155B	422-436 436-450	2 mm bajo la superficie del bote de blindaje 2 mm sobre la superficie del bote de blindaje

(5) Conectar un vóltimetro de c.c. del punto de prueba del oscilador local (LO) a tierra.

(6) Ajustar las bobinas FL1, FL2 y FL3, comenzar par la bobina del centro, para una tensión máxima de c.c. tipicamente entre 2,1 y 3,5 vólticos c.c. Repetir hasta que no se pueda incrementar más la tensión de c.c.

(7) Conectar un generador de tensión de RF al conector de atena y ajustarlo a fin de generar la señal no modulada en el canal, lo suficientemente fuerte para silenciar el receptor.

(8) Conectar un voltímetro a c.a. con un ancho de banda de al menos 500 kHz, (un analizador de dedistorsión HP331A por ejemplo) desde el punto de prueba de IF (Frecuencia Intermedia) a tierra. Aumentar la salida del generador de »RF«, hasta que el voltímetro de c.a. indique aproximadamente 30mvoltios. Ajustar las bobinas de los filtros de »RF« (L1, L3, L4 y L5) hasta que el voltímetro alcance un máximo. Reducir el nivel de RF del generador, tanto como sea necesario para mantener aproximadamente 30mvoltios rms en el medidor, durante este proceso. Repetir el ajuste hasta que no se pueda aumentar más la tensión.

(9) Ajustar el nivel de »RF« del generador a un milivóltio. Modularlo con un tono de un kHz, a 60% de la desviación total del sistema (la deviación total del sistema para una separación de canal de 25kHz es 5kHz; para 20kHz, 4kHz; para 12,5kHz, 2,5kHz). Ajustar el control de volumen para conseguir un nivel de audio de alrededor de un vóltio rms através de la carga de dos ohmios. Lentamente ajustar la bobina L54 para la salida máxima de audio.

(10) Ajustar el silenciador como se detalla:

(a) Preajustar el potenciometro del silenciador, R59, totalmente en sentido contrario a las agujas del reloj.

(b) Aplicar una señal de RF en el canal a un nivel de un milivóltio. Modular con un tono de un kHz a 60% de desviación total del sistema.

(c) Ajustar el volumen de contról para 1,7 vóltios rms através de la carga de dos ohmios.

(d) Reducir el nivel de RF hasta que el valor ponderado del SINAD-CCITT sea 10dB.

(e) Poner en funcionamiento el modo de silenciamiento por portadora con el interruptor del panel frontal.

(f) Girar lentamente el potenciometro del silenciador en el sentido de las agujas del reloj hasta que el audio enmudezca, luego muy lentamente girar el potenciometro contra el sentido de las agujas del reloj hasta que la radio empiece a sonar.

(g) Reducir el nivel generador de RF a cero, aumentar ligeramente el nivel hasta que la radio empiece a sonar, y verificar el valor ponderado del SINAD-CCITT, a este nivel de RF está entre 8 y 12dB SINAD. Si es necesario reajustar ligeramente R59.

(11) Asegurar las bobinas FL1, FL2 y FL3 con de pintura después del ajustamiento.

Puente de hilos	**Descriptión**	**Estado**	**Platina lógica GLN6627A con Select 5**
JU551 JU552	Baja frecuencia del receptor Baja frecuencia del receptor	Frecuencia modulada Frecuencia modulada	incorporado non incorporado
JU601 JU602	Baja frecuencia del emisor Baja frecuencia del emisor	Frecuencia modulada Frecuencia modulada	incorporado non incorporado
JU551 JU552	Baja frecuencia del receptor Baja frecuencia del receptor	Fase modulada Fase modulada	no incorporado incorporado
JU601 JU602	Baja frecuencia del emisor Baja frecuencia del emisor	Fase modulada Fase modulada	no incorporado incorporado
JU701 JU702	EEPROM en serie, Impulso referencial de potencia	a través de U705-6 a través de 701-19	no incorporado incorporado
JU703 JU704 JU705	Configuración con memoria	a través de U705-6 WR a U702-23 Masa a U702-20	no incorporado no incorporado incorporado
JU706 JU707	Funcionamiento de memoria	MP0 MP1	no incorporado incorporado
JU709	Llamada de emergencia	Aplicaciones especiales	no incorporado
JU801 JU802	Filtro evaluador	Select 5 Linea privade („Private Line“)	incorporado no incorporado
JU803 JU804	Sonidos de aviso	nivel de sonido regulable nivel de sonido fijo	incorporado no incorporado
JU805	Sonidos de audiomonitorización	activado	incorporado
JU806	Filtro evaluador	Select 5	

Tabla 2
Puentes de hilos en la platina lógica en los aparatos de la serie EV

Opción	Puente	Estado	Platina lógica GLN6627A con Select 5
MAB459	JU805	sin función de audiomonitorización	no incorporado
MAB875	JU803 JU804	nivel del sonido de aviso fiio	no incorporado incorporado
MAB884	JU551 JU552 JU601 JU602	frecuencia modulada	incorporado no incorporado incorporado no incorporado

Tabla 3
Puentes de hilos en la platina lógica
en los aparatos con extras opcionales de la serie EV

Platina	Elemento avisador	Indicación	Significado
GLN6627A	Pantallas de cristales líquidos en la platina lógica	ERR 1	Fallo de la ROM: configuración defectuosa en U702. Reemplazar U702.
		ERR 2	Fallo de la EEPROM: configuración defectuosa en U703. Reemplazar/reprogramar EEPROM.
		ERR3	Fallo de la ROM o de la EEPROM.
GLN6628B	Sonidos intermitententes rápidos		Fallo de la EEPROM. Reemplazar/reprogramar EEPROM.

Tabla 4
Señales de fallos

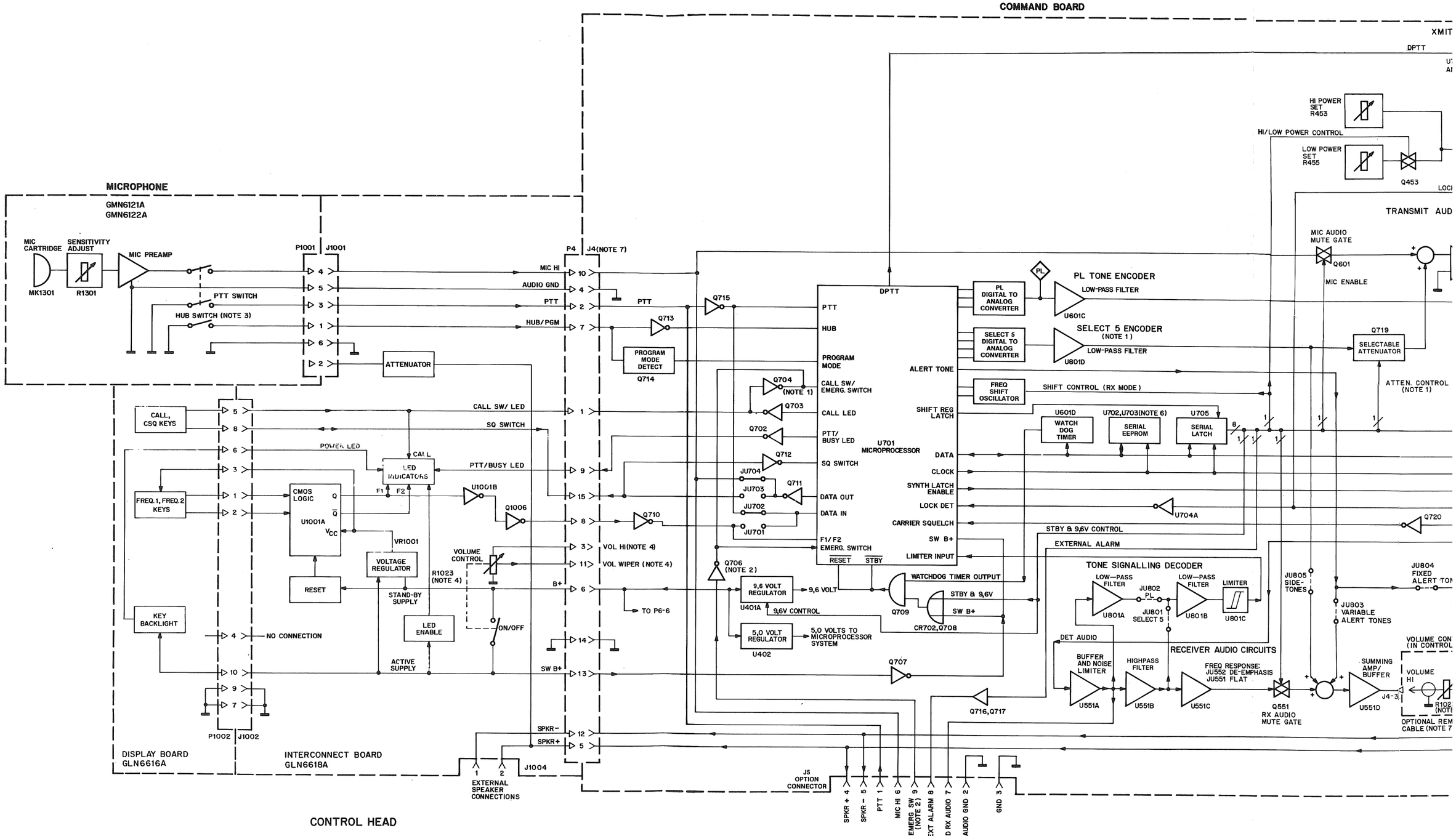
Sonido	GLN6984A, GLN6627A	GLN6628B
800 Hz/200 ms	Accionamiento de tecla no admisible	—
600 Hz/200 ms	—	Accionamiento de tecla no ad. ,ible
800 Hz sonido permanente	Accionamiento de tecla no admisible (ejemplo: sin audiomonitorización por el aparato radiofónico)	
800 Hz sonido intermitente	Sintesizador no accionado	

Tabla 5
Sonidos de aviso

SECTION 2

SCHEMATICS & CIRCUIT BOARDS

SCHALTPLÄNE & PLATINEN
SCHEMAS ET CIRCUITS IMPRIMES
ESQUEMAS Y TARJETA-CIRCUITOS


COMMAND BOARD
MICROPHONE
GMN6121A
GMN6122A
MIC CARTRIDGE
MK1301
SENSITIVITY ADJUST
R1301
MIC PREAMP
PTT SWITCH
HUB SWITCH (NOTE 3)
P1001
J1001
P4
J4(NOTE 7)
MIC HI
AUDIO GND
PTT
HUB/PGM
ATTENUATOR
CALL, CSQ KEYS
FREQ.1, FREQ.2 KEYS
KEY BACKLIGHT
CALL SW/ LED
SQ SWITCH
POWER LED
CALL LED INDICATORS
PTT/BUSY LED
CMOS LOGIC
U1001A
F1
F2
U1001B
Q1006
VR1001
VOLTAGE REGULATOR
RESET
STAND-BY SUPPLY
ACTIVE SUPPLY
LED ENABLE
VOLUME CONTROL
R1023 (NOTE 4)
ON/OFF
NO CONNECTION
VOL HI(NOTE 4)
VOL WIPER (NOTE 4)
B+
SW B+
TO P6-6
SPKR-
SPKR+
P1002
J1002
J1004
EXTERNAL SPEAKER CONNECTIONS
DISPLAY BOARD
GLN6616A
INTERCONNECT BOARD
GLN6618A
CONTROL HEAD
PTT
Q715
Q713
PROGRAM MODE DETECT
Q714
Q704 (NOTE 1)
Q703
Q702
Q712
JU704
JU703
JU702
JU701
Q711
Q710
Q706 (NOTE 2)
9,6 VOLT REGULATOR
U401A
9,6 VOLT
9,6V CONTROL
5,0 VOLT REGULATOR
U402
5,0 VOLTS TO MICROPROCESSOR SYSTEM
Q707
Q716,Q717
U701 MICROPROCESSOR
HUB
PROGRAM MODE
CALL SW/ EMERG. SWITCH
CALL LED
PTT/ BUSY LED
SQ SWITCH
DATA OUT
DATA IN
F1/F2 EMERG. SWITCH
RESET
STBY
ALERT TONE
SHIFT REG LATCH
DATA
CLOCK
SYNTH LATCH ENABLE
LOCK DET
CARRIER SQUELCH
SW B+
LIMITER INPUT
WATCHDOG TIMER OUTPUT
STBY & 9.6V
SW B+
CR702,Q708
Q709
PL TONE ENCODER
PL DIGITAL TO ANALOG CONVERTER
LOW-PASS FILTER
U601C
SELECT 5 ENCODER
(NOTE 1)
SELECT 5 DIGITAL TO ANALOG CONVERTER
LOW-PASS FILTER
U801D
FREQ SHIFT OSCILLATOR
SHIFT CONTROL (RX MODE)
U601D
WATCH DOG TIMER
U702,U703(NOTE 6)
SERIAL EEPROM
U705
SERIAL LATCH
U704A
STBY & 9.6V CONTROL
EXTERNAL ALARM
TONE SIGNALLING DECODER
LOW—PASS FILTER
U801A
JU802 PL
JU801 SELECT 5
LOW—PASS FILTER
U801B
LIMITER
U801C
JU805 SIDE-TONES
JU804 FIXED ALERT TONE
JU803 VARIABLE ALERT TONES
DET AUDIO
RECEIVER AUDIO CIRCUITS
BUFFER AND NOISE LIMITER
U551A
HIGHPASS FILTER
U551B
FREQ RESPONSE: JU552 DE-EMPHASIS JU551 FLAT
U551C
Q551 RX AUDIO MUTE GATE
SUMMING AMP/ BUFFER
U551D
J4-3
VOLUME HI
OPTIONAL REM CABLE (NOTE 7
HI POWER SET R453
HI/LOW POWER CONTROL
LOW POWER SET R455
Q453
TRANSMIT AUD
MIC AUDIO MUTE GATE
Q601
MIC ENABLE
Q719
SELECTABLE ATTENUATOR
ATTEN. CONTROL (NOTE 1)
VOLUME CON (IN CONTROL
XMIT
DPTT
J5 OPTION CONNECTOR
SPKR + 4
SPKR - 5
PTT 1
MIC HI 6
EMERG SW (NOTE 2) 9
EXT ALARM 8
BUFFERED RX AUDIO 7
AUDIO GND 2
GND 3

COMMAND BOARD

RF POWER AMPLIFIER BOARD

XMIT POWER CONTROL

DPTT

U704B,C,D, AND CR451

HI POWER SET R453

HI/LOW POWER CONTROL

LOW POWER SET R455

Q453

CONTROL VOLTAGE DISABLE

U401B

LOCK DETECT

C.V.

VOLTAGE LIMIT

R463

Q403

P6 J6

THERMAL SHUTBACK 1 BLU

DETECTOR 2 GRN

9,6T 3 YEL

CONTROL VOLTAGE 4 ORG

KEYWAY 5 RED

B+ 6

TRANSMIT AUDIO

MIC AUDIO MUTE GATE

Q601

MIC ENABLE

LIMITER AND FREQ RESPONSE: JU602 PRE-EMPHASIS JU601 FLAT

U601A

SPLATTER FILTER

U601B

P3 J3

VCO MOD 1

PL TONE ENCODER

PL DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U601C

SELECT 5 ENCODER (NOTE 1)

SELECT 5 DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U601D

Q719

SELECTABLE ATTENUATOR

ATTEN. CONTROL (NOTE 1)

TO J4-6

FREQ SHIFT OSCILLATOR

SHIFT CONTROL (RX MODE)

U601D WATCH DOG TIMER

U702,U703(NOTE 6) SERIAL EEPROM

U705 SERIAL LATCH

Q721

T/R SHIFT 6

DATA 3

CLOCK 4

SYNTH LATCH ENABLE 2

LOCK DETECT 5

CARRIER SQUELCH 9

DETECTOR AUDIO 10

9,6V 7

8

SPARE 11

U704A

Q720

STBY & 9,6V CONTROL

EXTERNAL ALARM

DPTT

PTT

HUB

PROGRAM MODE

CALL SW/ EMERG. SWITCH

CALL LED

PTT/ BUSY LED

SQ SWITCH

DATA OUT

DATA IN

F1/F2 EMERG. SWITCH

RESET STBY

U701 MICROPROCESSOR

ALERT TONE

SHIFT REG LATCH

DATA

CLOCK

SYNTH LATCH ENABLE

LOCK DET

CARRIER SQUELCH

SW B+

LIMITER INPUT

Q715

Q704 (NOTE 1)

Q703

Q702

Q712

JU704

JU703

JU702

JU701

Q711

Q706 (NOTE 2)

9,6 VOLT REGULATOR

U401A

9,6 VOLT

9,6V CONTROL

5,0 VOLT REGULATOR

U402

5,0 VOLTS TO MICROPROCESSOR SYSTEM

WATCHDOG TIMER OUTPUT

Q709

STBY & 9,6V

SW B+

CR702,Q708

Q707

Q716,Q717

TONE SIGNALLING DECODER

LOW-PASS FILTER

U801A

JU802 PL

JU801 SELECT 5

LOW-PASS FILTER

U801B

LIMITER

U801C

JU805 SIDE-TONES

JU804 FIXED ALERT TONES

JU803 VARIABLE ALERT TONES

DET AUDIO

RECEIVER AUDIO CIRCUITS

BUFFER AND NOISE LIMITER

U551A

HIGHPASS FILTER

U551B

FREQ RESPONSE: JU552 DE-EMPHASIS JU551 FLAT

U551C

Q551 RX AUDIO MUTE GATE

SUMMING AMP/ BUFFER

U551D

J4-3

VOLUME CONTROL (IN CONTROL HEAD)

VOLUME HI

R1023 (NOTE 4)

J4-11

OPTIONAL REMOTE MOUNT CABLE (NOTE 7)

Q508

P.A. ENABLE

B+

Q501, Q502

Q503- Q507

TO SPEAKER

AUDIO POWER AMPLIFIER AND HIGH-PASS FILTER

DUAL VCO SYNTHESIZER

VCO MOD

R302

BUFFERS

TX VCO

Q205

Q207

Q208

TX INJECTION

PAD

J2 P2 50 OHM COAX

PAD

RX INJECTION

PAD

FEEDBACK BUFFER

SL

STEERING LINE

RX VCO

Q201

Q203

Q204

PAD

Q107

T/R SHIFT

REF MOD R305

REFERENCE OSCILLATOR

14,4 MHz

Q151, Q152, Y151

PRESCALER

U102

LOOP FILTER

CHARGE PUMP

Q102-Q105

SYNTHESIZER I.C.

U101

LOCK DETECT BUFFER

Q101

Q251

VCO SUPPLY FILTER

8,5V

5,0 VOLT REGULATOR

VR101

5,0V TO SYNTH

9,6V

50 OHM COAX

P1 J1

2-CELL HELICAL FILTER

FL1

RF AMP

Q1

3-CELL HELICAL FILTER

FL2

FIRST MIXER Q2

Y51A

21,4 MHz XTAL FILTER

Y51B

21,4 MHz XTAL FILTER

CARRIER SQUELCH

DETECTOR AUDIO

LOW-PASS FILTER

Q54

J5 OPTION CONNECTOR

SPKR + 4

SPKR - 5

PTT 1

MIC HI 6

EMERG SW (NOTE 2) 9

EXT ALARM 8

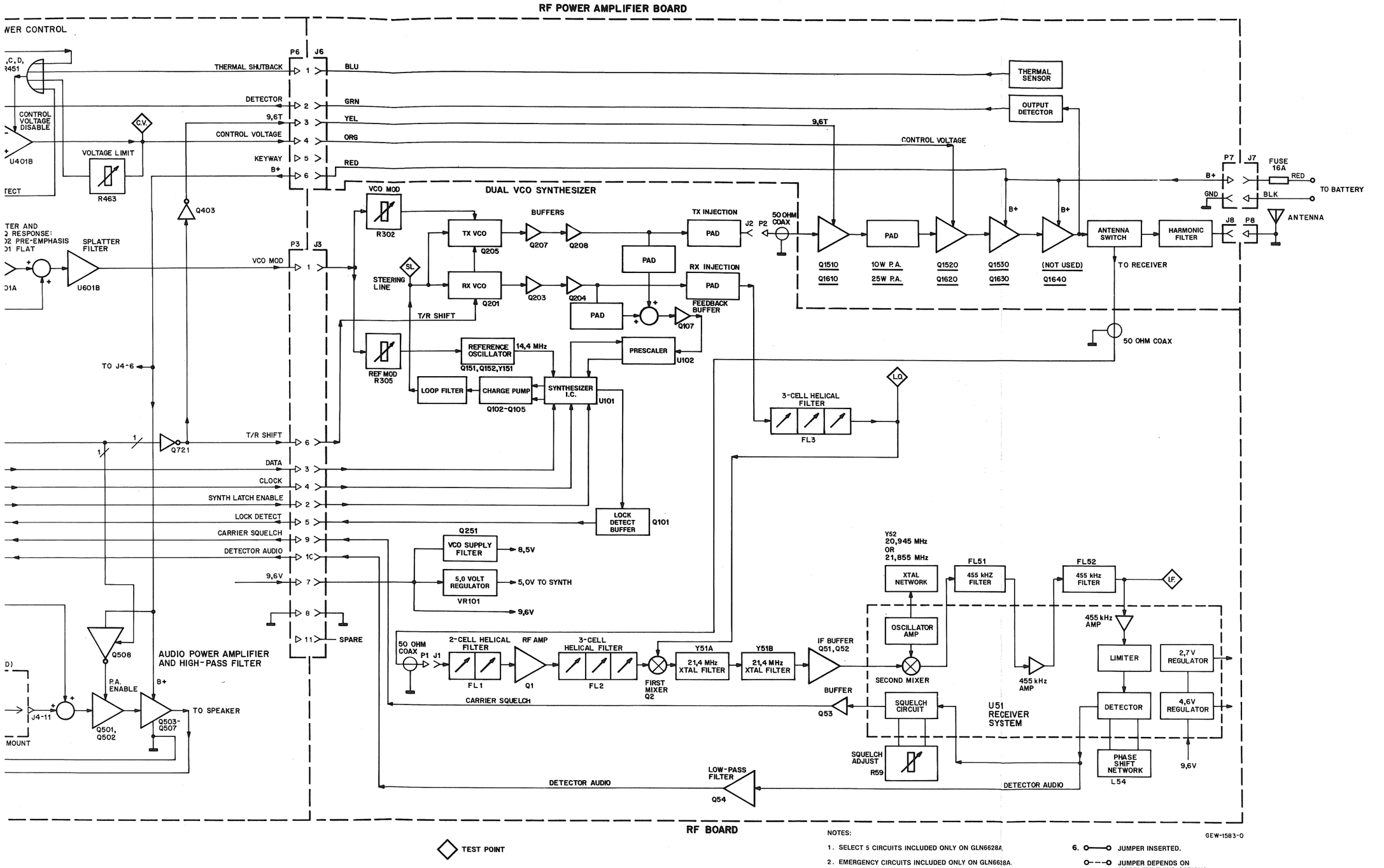
BUFFERED RX AUDIO 7

AUDIO GND 2

GND 3

RF BOARD

TEST POINT

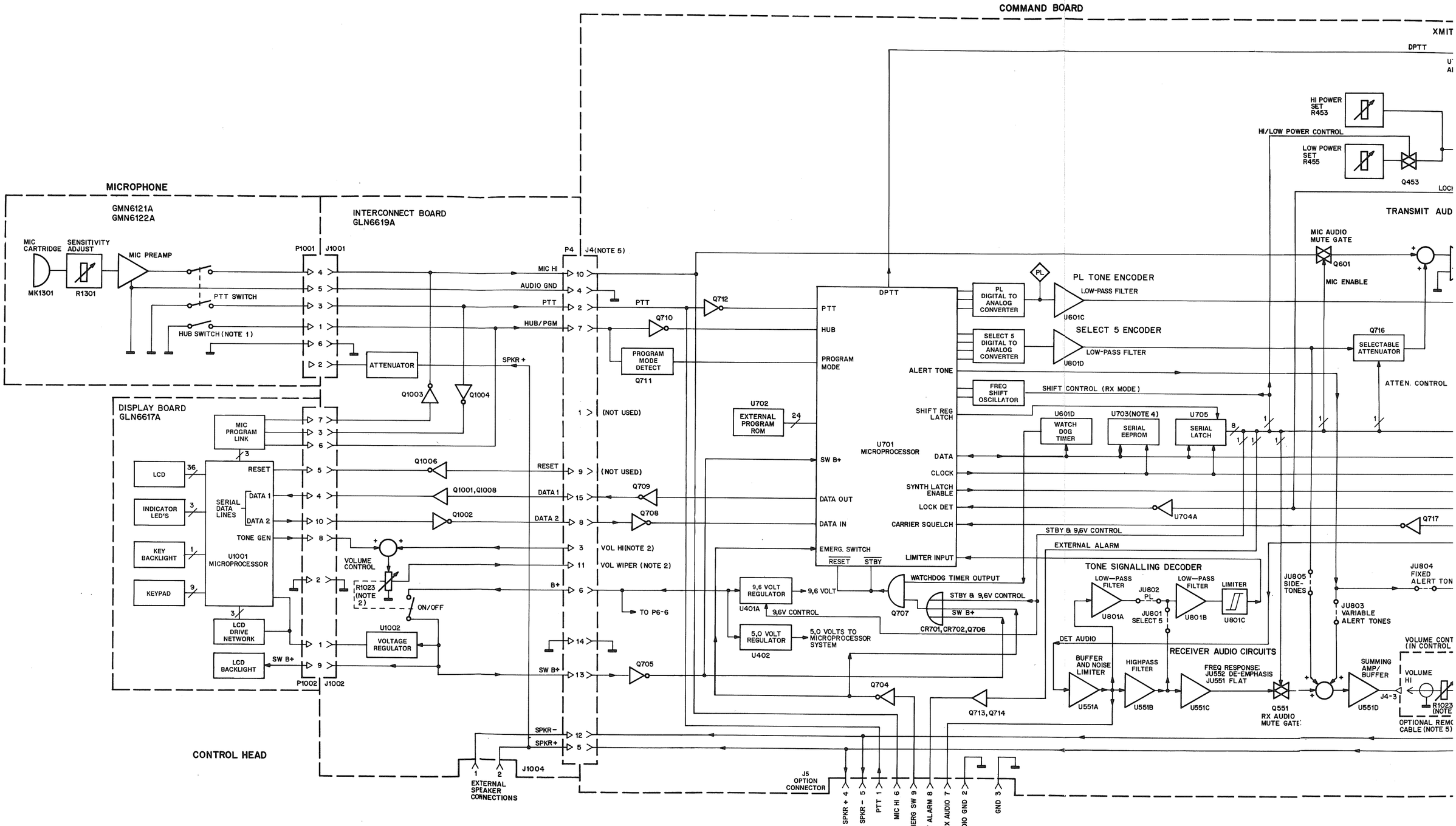


NOTES:

1. SELECT 5 CIRCUITS INCLUDED ONLY ON GLN6628A.
2. EMERGENCY CIRCUITS INCLUDED ONLY ON GLN6628A.
3. HUB SWITCH FOR GMN6122A ONLY.
4. THE VOLUME CONTROL, R1023, IS LOCATED IN THE CONTROL HEAD. IT IS REPEATED ON THE COMMAND BAORD TO CLEARLY SHOW ITS FUNCTION IN THE RECEIVER AUDIO CIRCUITS.
5. THESE LINES HAVE NO FUNCTION WHEN USED IN THIS CONFIGURATION.
6. ○——○ JUMPER INSERTED.
   ○- - -○ JUMPER DEPENDS ON MODEL TYPE AND OPTIONS ORDERED.
   ○ ○ JUMPER NOT INSERTED.
7. PART TYPE AND USAGE DEPENDS ON RADIO TYPE AND OPTIONS.
8. AN OPTIONAL REMOTE MOUNT CABLE CAN BE USED TO CONNECT THE CONTROL HEAD AND THE RADIO TOGETHER.

EZ Models with LCD Control Heads
G1041A, G1042A or G1043A

Functional Block Diagram



EV Models with LCD Control Head
G1053A

Functional Block Diagram

COMMAND BOARD

RF POWE

XMIT POWER CONTROL

DPTT

U704B,C,D, AND CR451

HI POWER SET R453

HI/LOW POWER CONTROL

LOW POWER SET R455

Q453

CONTROL VOLTAGE DISABLE

U401B

LOCK DETECT

C.V.

VOLTAGE LIMIT

R463

P6

J6

THERMAL SHUTBACK 1 — BLU

DETECTOR 2 — GRN

9,6T 3 — YEL

CONTROL VOLTAGE 4 — ORG

KEYWAY 5 — RED

B+ 6

DUAL VCO SYNTHESIZ

VCO MOD

R302

BUFFERS

TX VCO

Q205

Q207

Q20

SL

STEERING LINE

RX VCO

Q201

Q203

Q204

T/R SHIFT

REFERENCE OSCILLATOR 14,4 MHz

Q151, Q152, Y151

REF MOD R305

LOOP FILTER

CHARGE PUMP

Q102-Q105

SYNTHESIZ I.C.

TRANSMIT AUDIO

MIC AUDIO MUTE GATE

Q601

MIC ENABLE

LIMITER AND FREQ RESPONSE: JU602 PRE-EMPHASIS JU601 FLAT

U601A

SPLATTER FILTER

U601B

Q403

P3

J3

VCO MOD 1

P4

J4(NOTE 5)

MIC HI 10

AUDIO GND 4

PTT 2

HUB/PGM 7

SPKR +

PTT

Q712

Q710

PROGRAM MODE DETECT

Q711

DPTT

PL

PL TONE ENCODER

PL DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U601C

SELECT 5 ENCODER

SELECT 5 DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U801D

Q716

SELECTABLE ATTENUATOR

ATTEN. CONTROL

TO J4-6

PTT

HUB

PROGRAM MODE

ALERT TONE

SHIFT REG LATCH

DATA

CLOCK

SYNTH LATCH ENABLE

LOCK DET

CARRIER SQUELCH

LIMITER INPUT

U701 MICROPROCESSOR

SW B+

DATA OUT

DATA IN

EMERG. SWITCH RESET STBY

U702 EXTERNAL PROGRAM ROM 24

1 (NOT USED)

RESET 9 (NOT USED)

DATA 1 15 — Q709

DATA 2 8 — Q708

3 VOL HI(NOTE 2)

11 VOL WIPER (NOTE 2)

B+ 6 — TO P6-6

14

SW B+ 13 — Q705

SPKR− 12

SPKR+ 5

J1004

ONS

FREQ SHIFT OSCILLATOR

SHIFT CONTROL (RX MODE)

U601D WATCH DOG TIMER

U703(NOTE 4) SERIAL EEPROM

U705 SERIAL LATCH

8

Q718

T/R SHIFT 6

DATA 3

CLOCK 4

SYNTH LATCH ENABLE 2

LOCK DETECT 5

CARRIER SQUELCH 9

DETECTOR AUDIO 10

9,6V 7

8

SPARE 11

U704A

Q717

STBY & 9,6V CONTROL

EXTERNAL ALARM

WATCHDOG TIMER OUTPUT

STBY & 9,6V CONTROL

SW B+

Q707

CR701, CR702, Q706

9,6 VOLT REGULATOR

U401A

9,6V CONTROL

9,6 VOLT

5,0 VOLT REGULATOR

U402

5,0 VOLTS TO MICROPROCESSOR SYSTEM

Q704

Q713, Q714

TONE SIGNALLING DECODER

LOW—PASS FILTER

U801A

JU802 PL

JU801 SELECT 5

LOW—PASS FILTER

U801B

LIMITER

U801C

JU805 SIDE-TONES

JU804 FIXED ALERT TONES

JU803 VARIABLE ALERT TONES

DET AUDIO

RECEIVER AUDIO CIRCUITS

BUFFER AND NOISE LIMITER

U551A

HIGHPASS FILTER

U551B

FREQ RESPONSE: JU552 DE-EMPHASIS JU551 FLAT

U551C

Q551 RX AUDIO MUTE GATE

SUMMING AMP/ BUFFER

U551D

J4-3

VOLUME CONTROL (IN CONTROL HEAD)

VOLUME HI

R1023 (NOTE 2)

OPTIONAL REMOTE MOUNT CABLE (NOTE 5)

J4-11

Q508

P.A. ENABLE

AUDIO POWER AMPLIFIER AND HIGH-PASS FILTER

B+

Q501, Q502

Q503- Q507

TO SPEAKER

Q251

VCO SUPPLY FILTER

8,5V

5,0 VOLT REGULATOR

VR101

5,0V TO SYNTH

9,6V

50 OHM COAX

P1 J1

2-CELL HELICAL FILTER

FL1

RF AMP

Q1

3 HELIC

CARRIER SQUELCH

DETECTO

J5 OPTION CONNECTOR

SPKR + 4

SPKR − 5

PTT 1

MIC HI 6

EMERG SW 9

EXT ALARM 8

BUFFERED RX AUDIO 7

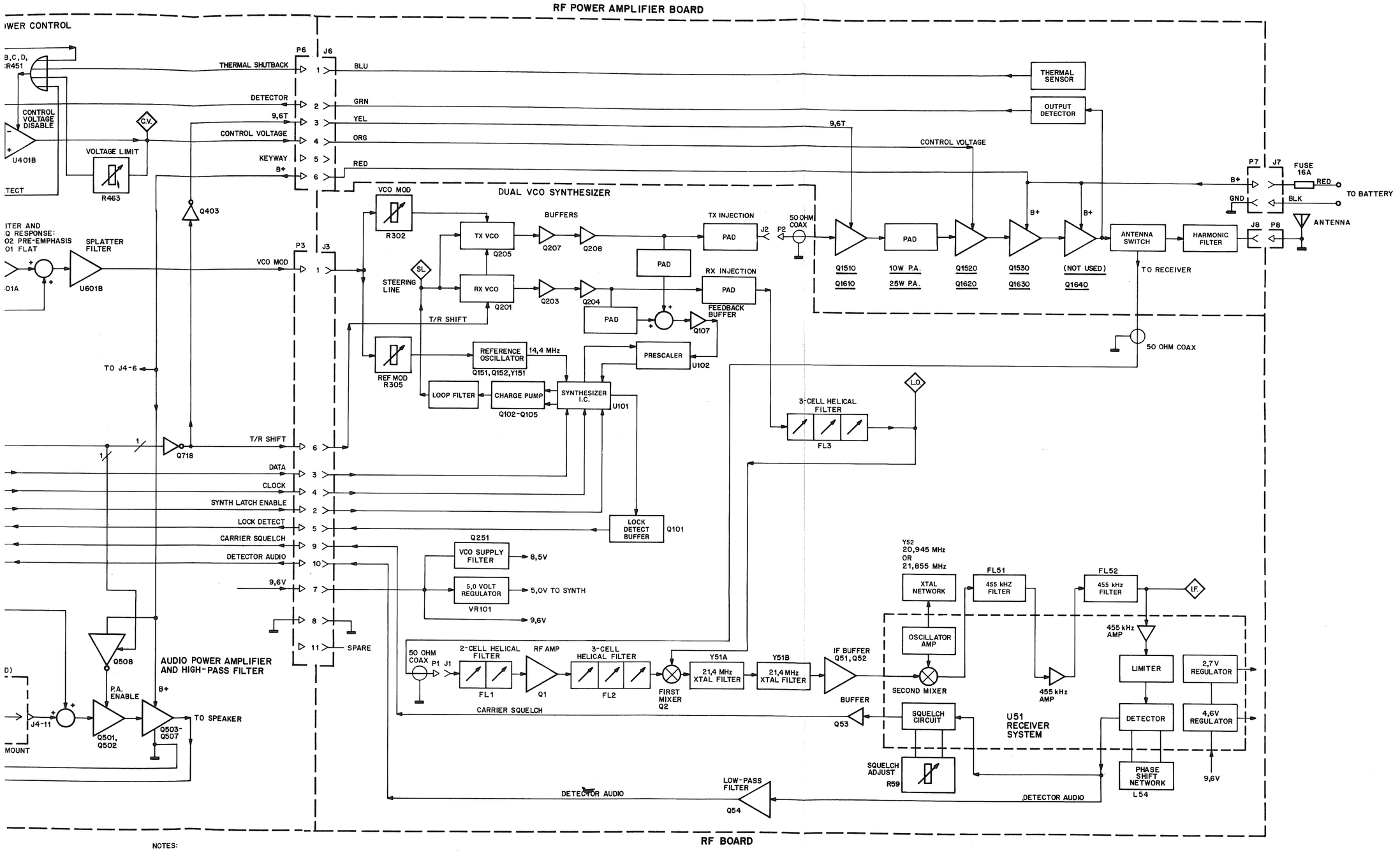
AUDIO GND 2

GND 3

NOTES:

1. HUB SWITCH FOR GMN6122A ONLY.
2. THE VOLUME CONTROL, R1023, IS LOCATED IN THE CONTROL HEAD. IT IS REPEATED ON THE COMMAND BOARD TO CLEARLY SHOW IT'S FUNCTION IN THE RECEIVER AUDIO CIRCUITS.
3. o—o JUMPER INSERTED.
   o- - -o JUMPER DEPENDS ON MODEL TYPE AND OPTIONS ORDERED.
   o o JUMPER NOT INSERTED.
4. PART TYPE AND USAGE DEPENDS ON RADIO TYPE AND OPTIONS.
5. AN OPTIONAL REMOTE MOUNT CABLE CAN BE USED TO CONNECT THE CONTROL HEAD AND THE RADIO TOGETHER.

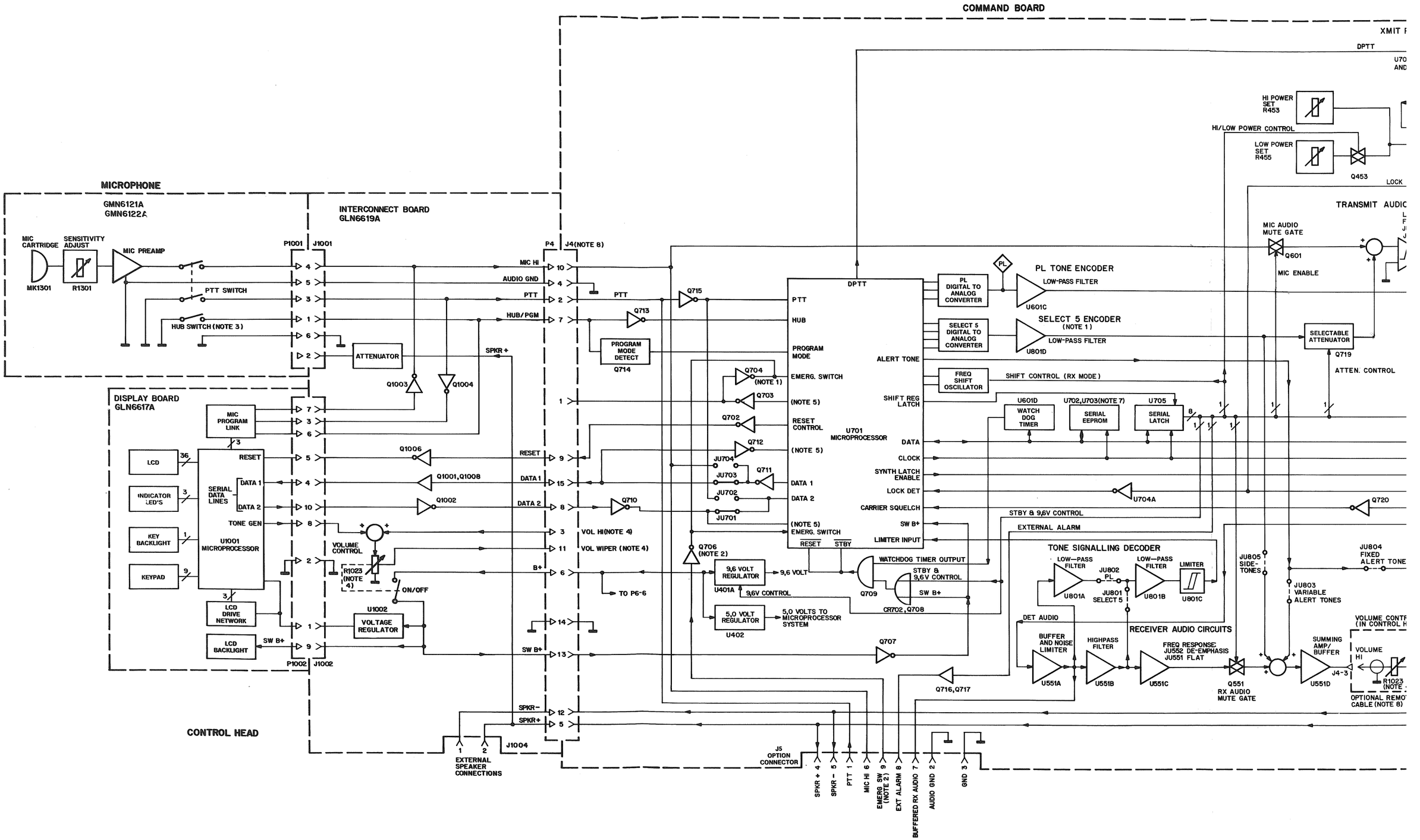
◇ TEST POINT



NOTES:

1. HUB SWITCH FOR GMN6122A ONLY.
2. THE VOLUME CONTROL, R1023, IS LOCATED IN THE CONTROL HEAD. IT IS REPEATED ON THE COMMAND BOARD TO CLEARLY SHOW IT'S FUNCTION IN THE RECEIVER AUDIO CIRCUITS.
3. ○—○ JUMPER INSERTED.
   ○- - -○ JUMPER DEPENDS ON MODEL TYPE AND OPTIONS ORDERED.
   ○ ○ JUMPER NOT INSERTED.
4. PART TYPE AND USAGE DEPENDS ON RADIO TYPE AND OPTIONS.
5. AN OPTIONAL REMOTE MOUNT CABLE CAN BE USED TO CONNECT THE CONTROL HEAD AND THE RADIO TOGETHER.

◇ TEST POINT


COMMAND BOARD
MICROPHONE
GMN6121A
GMN6122A
INTERCONNECT BOARD
GLN6619A
MIC CARTRIDGE
MK1301
SENSITIVITY ADJUST
R1301
MIC PREAMP
PTT SWITCH
HUB SWITCH (NOTE 3)
P1001
J1001
P4
J4(NOTE 8)
MIC HI
AUDIO GND
PTT
HUB/PGM
ATTENUATOR
SPKR +
Q1003
Q1004
PROGRAM MODE DETECT
Q714
Q713
Q715
DPTT
PTT
HUB
PROGRAM MODE
EMERG. SWITCH
ALERT TONE
SHIFT REG LATCH
DATA
CLOCK
SYNTH LATCH ENABLE
LOCK DET
CARRIER SQUELCH
SW B+
LIMITER INPUT
U701 MICROPROCESSOR
RESET CONTROL
(NOTE 5)
Q704 (NOTE 1)
Q703
Q702
Q712
JU704
JU703
JU702
JU701
Q711
DATA 1
DATA 2
RESET
STBY
Q706 (NOTE 2)
9,6 VOLT REGULATOR
U401A
9,6V CONTROL
5,0 VOLT REGULATOR
U402
5,0 VOLTS TO MICROPROCESSOR SYSTEM
WATCHDOG TIMER OUTPUT
STBY & 9,6V CONTROL
SW B+
Q709
CR702, CR708
Q707
Q716, Q717
PL
PL DIGITAL TO ANALOG CONVERTER
PL TONE ENCODER
LOW-PASS FILTER
U601C
SELECT 5 DIGITAL TO ANALOG CONVERTER
SELECT 5 ENCODER
(NOTE 1)
U801D
FREQ SHIFT OSCILLATOR
SHIFT CONTROL (RX MODE)
U601D WATCH DOG TIMER
U702,U703(NOTE 7) SERIAL EEPROM
U705 SERIAL LATCH
HI POWER SET R453
HI/LOW POWER CONTROL
LOW POWER SET R455
Q453
LOCK
TRANSMIT AUDIO
MIC AUDIO MUTE GATE
Q601
MIC ENABLE
SELECTABLE ATTENUATOR
Q719
ATTEN. CONTROL
Q720
STBY & 9,6V CONTROL
EXTERNAL ALARM
U704A
TONE SIGNALLING DECODER
LOW-PASS FILTER
U801A
JU802 PL
JU801 SELECT 5
LOW-PASS FILTER
U801B
LIMITER
U801C
JU805 SIDE-TONES
JU804 FIXED ALERT TONE
JU803 VARIABLE ALERT TONES
DET AUDIO
RECEIVER AUDIO CIRCUITS
BUFFER AND NOISE LIMITER
U551A
HIGHPASS FILTER
U551B
FREQ RESPONSE: JU552 DE-EMPHASIS JU551 FLAT
U551C
Q551 RX AUDIO MUTE GATE
SUMMING AMP/ BUFFER
U551D
J4-3
VOLUME HI
R1023 (NOTE
OPTIONAL REMO CABLE (NOTE 8)
DISPLAY BOARD
GLN6617A
MIC PROGRAM LINK
LCD
INDICATOR LED'S
KEY BACKLIGHT
KEYPAD
SERIAL DATA LINES
DATA 1
DATA 2
TONE GEN
U1001 MICROPROCESSOR
LCD DRIVE NETWORK
LCD BACKLIGHT
VOLUME CONTROL
R1023 (NOTE 4)
ON/OFF
U1002
VOLTAGE REGULATOR
SW B+
P1002
J1002
Q1006
Q1001,Q1008
Q1002
RESET
DATA 1
DATA 2
VOL HI(NOTE 4)
VOL WIPER (NOTE 4)
B+
TO P6-6
SW B+
SPKR-
SPKR+
CONTROL HEAD
J1004
EXTERNAL SPEAKER CONNECTIONS
J5 OPTION CONNECTOR
SPKR + 4
SPKR - 5
PTT 1
MIC HI 6
EMERG. SW (NOTE 2) 9
EXT ALARM 8
BUFFERED RX AUDIO 7
AUDIO GND 2
GND 3

COMMAND BOARD

RF POWER AMPLIFIER BOARD

XMIT POWER CONTROL

DPTT

U704B,C,D, AND CR451

HI POWER SET R453

HI/LOW POWER CONTROL

LOW POWER SET R455

Q453

CONTROL VOLTAGE DISABLE

U401B

LOCK DETECT

VOLTAGE LIMIT

R463

C.V.

Q403

TRANSMIT AUDIO

MIC AUDIO MUTE GATE

Q601

MIC ENABLE

LIMITER AND FREQ. RESPONSE: JU602 PRE-EMPHASIS JU601 FLAT

U601A

SPLATTER FILTER

U601B

PL TONE ENCODER

PL DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U601C

SELECT 5 ENCODER (NOTE 1)

SELECT 5 DIGITAL TO ANALOG CONVERTER

LOW-PASS FILTER

U801D

SELECTABLE ATTENUATOR

Q719

ATTEN. CONTROL

TO J4-6

FREQ SHIFT OSCILLATOR

SHIFT CONTROL (RX MODE)

U601D WATCH DOG TIMER

U702,U703(NOTE 7) SERIAL EEPROM

U705 SERIAL LATCH

8

U701 MICROPROCESSOR

DPTT

PTT

HUB

PROGRAM MODE

EMERG. SWITCH

(NOTE 5)

RESET CONTROL

(NOTE 5)

DATA 1

DATA 2

(NOTE 5) EMERG. SWITCH

RESET

STBY

ALERT TONE

SHIFT REG LATCH

DATA

CLOCK

SYNTH LATCH ENABLE

LOCK DET

CARRIER SQUELCH

SW B+

LIMITER INPUT

Q715

Q704 (NOTE 1)

Q703

Q702

Q712

Q711

JU704

JU703

JU702

JU701

U704A

STBY & 9,6V CONTROL

EXTERNAL ALARM

Q706 (NOTE 2)

9,6 VOLT REGULATOR

U401A

9,6 VOLT

9,6V CONTROL

5,0 VOLT REGULATOR

U402

5,0 VOLTS TO MICROPROCESSOR SYSTEM

WATCHDOG TIMER OUTPUT

STBY & 9,6V CONTROL

SW B+

Q709

CR702,708

Q707

Q716,Q717

TONE SIGNALLING DECODER

LOW-PASS FILTER

U801A

JU802 PL

JU801 SELECT 5

LOW-PASS FILTER

U801B

LIMITER

U801C

JU805 SIDE-TONES

JU804 FIXED ALERT TONES

JU803 VARIABLE ALERT TONES

DET AUDIO

RECEIVER AUDIO CIRCUITS

BUFFER AND NOISE LIMITER

U551A

HIGHPASS FILTER

U551B

FREQ RESPONSE: JU552 DE-EMPHASIS JU551 FLAT

U551C

Q551 RX AUDIO MUTE GATE

SUMMING AMP/ BUFFER

U551D

VOLUME CONTROL (IN CONTROL HEAD)

VOLUME HI

R1023 (NOTE 4)

OPTIONAL REMOTE MOUNT CABLE (NOTE 8)

J4-3

J4-11

Q508

P.A. ENABLE

Q501, Q502

B+

Q503-Q507

TO SPEAKER

AUDIO POWER AMPLIFIER AND HIGH-PASS FILTER

P6 J6

THERMAL SHUTBACK 1 BLU

DETECTOR 2 GRN

9,6T 3 YEL

CONTROL VOLTAGE 4 ORG

KEYWAY 5 RED

B+ 6

P3 J3

VCO MOD 1

T/R SHIFT 6

DATA 3

CLOCK 4

SYNTH LATCH ENABLE 2

LOCK DETECT 5

CARRIER SQUELCH 9

DETECTOR AUDIO 10

9,6V 7

8

11 SPARE

Q721

Q720

DUAL VCO SYNTHESIZER

VCO MOD

R302

STEERING LINE

SL

BUFFERS

TX VCO

Q205

Q207

Q208

TX INJECTION

PAD

J2 P2 50 OHM COAX

RX VCO

Q201

Q203

Q204

RX INJECTION

PAD

FEEDBACK BUFFER

T/R SHIFT

PAD

Q107

REFERENCE OSCILLATOR

Q151, Q152, Y151

14.4 MHz

PRESCALER

U102

REF MOD R305

LOOP FILTER

CHARGE PUMP

Q102-Q105

SYNTHESIZER I.C.

U101

LOCK DETECT BUFFER

Q101

Q251

VCO SUPPLY FILTER

8,5V

5,0 VOLT REGULATOR

VR101

5,0V TO SYNTH

9,6V

50 OHM COAX

P1 J1

2-CELL HELICAL FILTER

FL1

RF AMP

Q1

3-CELL HELICAL FILTER

FL2

FIRST MIXER Q2

Y51A

21,4 MHz XTAL FILTER

Y51B

21,4 MHz XTAL FILTER

3-CEL F

CARRIER SQUELCH

DETECTOR AUDIO

LOW-PASS FILTER

Q54

J5 OPTION CONNECTOR

SPKR + 4

SPKR - 5

PTT 1

MIC HI 6

EMERG. SW (NOTE 2) 9

EXT ALARM 8

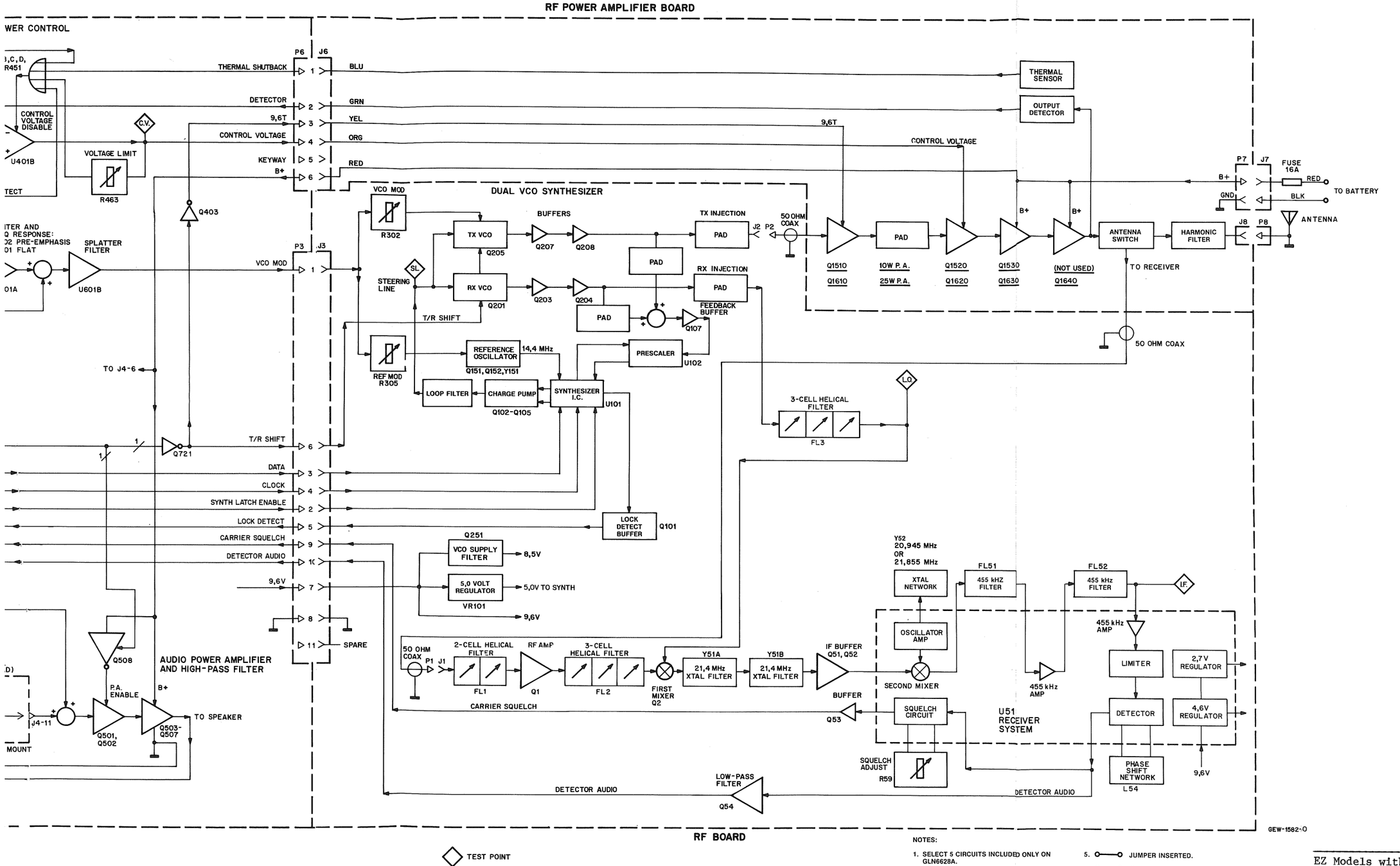
BUFFERED RX AUDIO 7

AUDIO GND 2

GND 3

RF BOARD

TEST POINT



TEST POINT

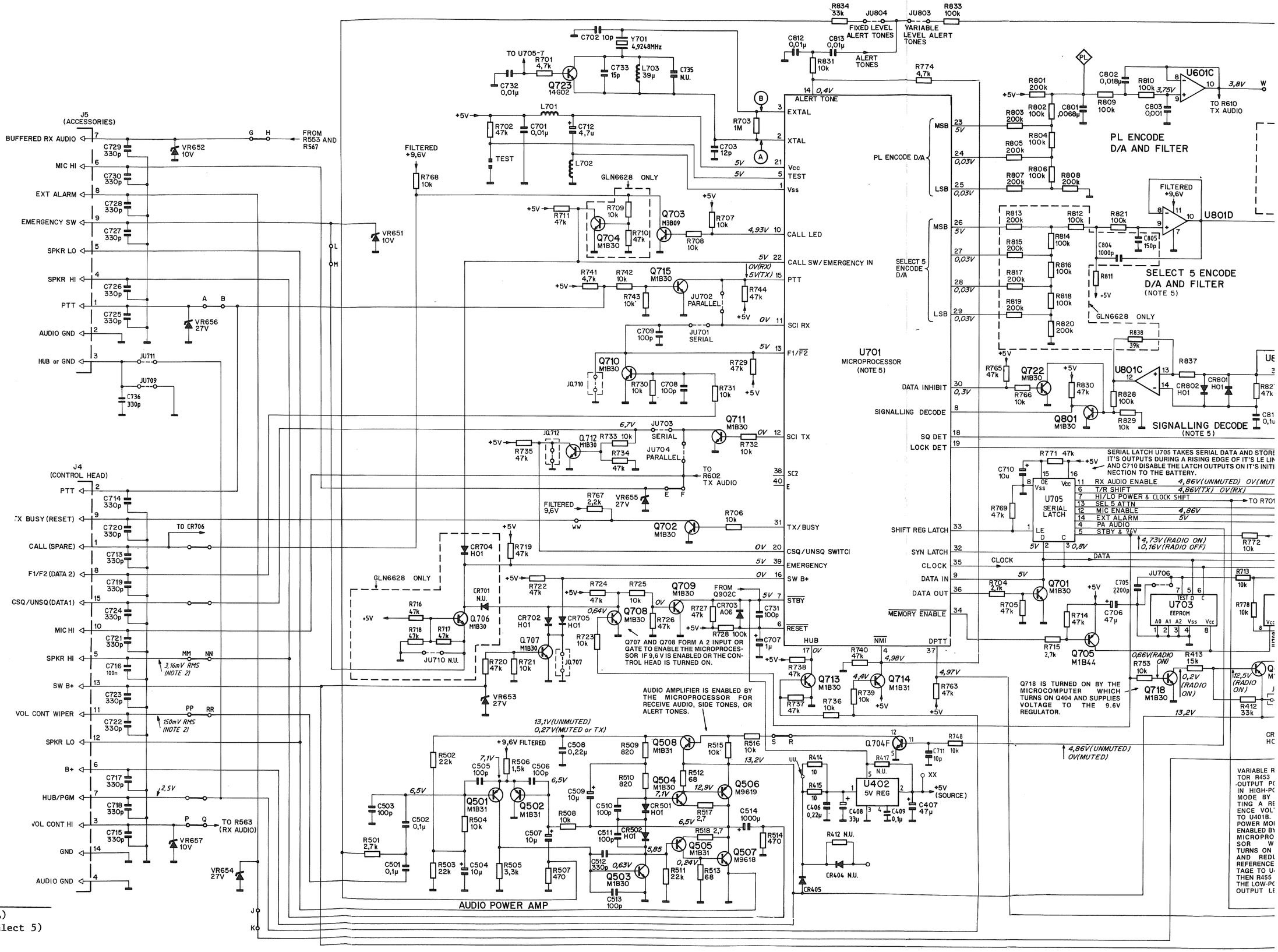
NOTES:

1. SELECT 5 CIRCUITS INCLUDED ONLY ON GLN6628A.
2. EMERGENCY CIRCUITS INCLUDED ONLY ON GLN6628A.
3. HUB SWITCH FOR GMN6122A ONLY.
4. THE VOLUME CONTROL, R1123, IS LOCATED IN THE CONTROL HEAD. IT IS REPEATED ON THE COMMAND BOARD TO CLEARLY SHOW ITS FUNCTION IN THE RECEIVER AUDIO CIRCUITS.
5. JUMPER INSERTED. JUMPER DEPENDS ON MODEL TYPE AND OPTIONS ORDERED. JUMPER NOT INSERTED.
6. PART TYPE AND USAGE DEPENDS ON RADIO TYPE AND OPTIONS.

   AN OPTIONAL REMOTE MOUNT CABLE CAN BE USED TO CONNECT THE CONTROL HEAD AND THE RADIO TOGETHER.

EZ Models with Optional Control Heads G1031A, G1032A or G1033A

Functional Block Diagram



GLN6984A Command Board (PL)
GLN6628B Command Board (Select 5)

Schematic Diagram

SIGNALLING TONE OUTPUT LEVEL IS REDUCED BY THE MICROPROCESSOR TURNING ON Q719, FORMING A VOLTAGE DIVIDER WITH R835 AND R836.

SERIAL LATCH U705 TAKES SERIAL DATA AND STORES IT ON IT'S OUTPUTS DURING A RISING EDGE OF IT'S LE LINE. R771 AND C710 DISABLE THE LATCH OUTPUTS ON IT'S INITIAL CONNECTION TO THE BATTERY.

Q718 IS TURNED ON BY THE MICROCOMPUTER WHICH TURNS ON Q404 AND SUPPLIES VOLTAGE TO THE 9.6V REGULATOR.

AUDIO AMPLIFIER IS ENABLED BY THE MICROPROCESSOR FOR RECEIVE AUDIO, SIDE TONES, OR ALERT TONES.

VARIABLE RESISTOR R453 SETS OUTPUT POWER IN HIGH-POWER MODE BY SETTING A REFERENCE VOLTAGE TO U401B. LOW-POWER MODE IS ENABLED BY THE MICROPROCESSOR WHICH TURNS ON Q453 AND REDUCES REFERENCE VOLTAGE TO U401B. THEN R455 SETS THE LOW-POWER OUTPUT LEVEL.

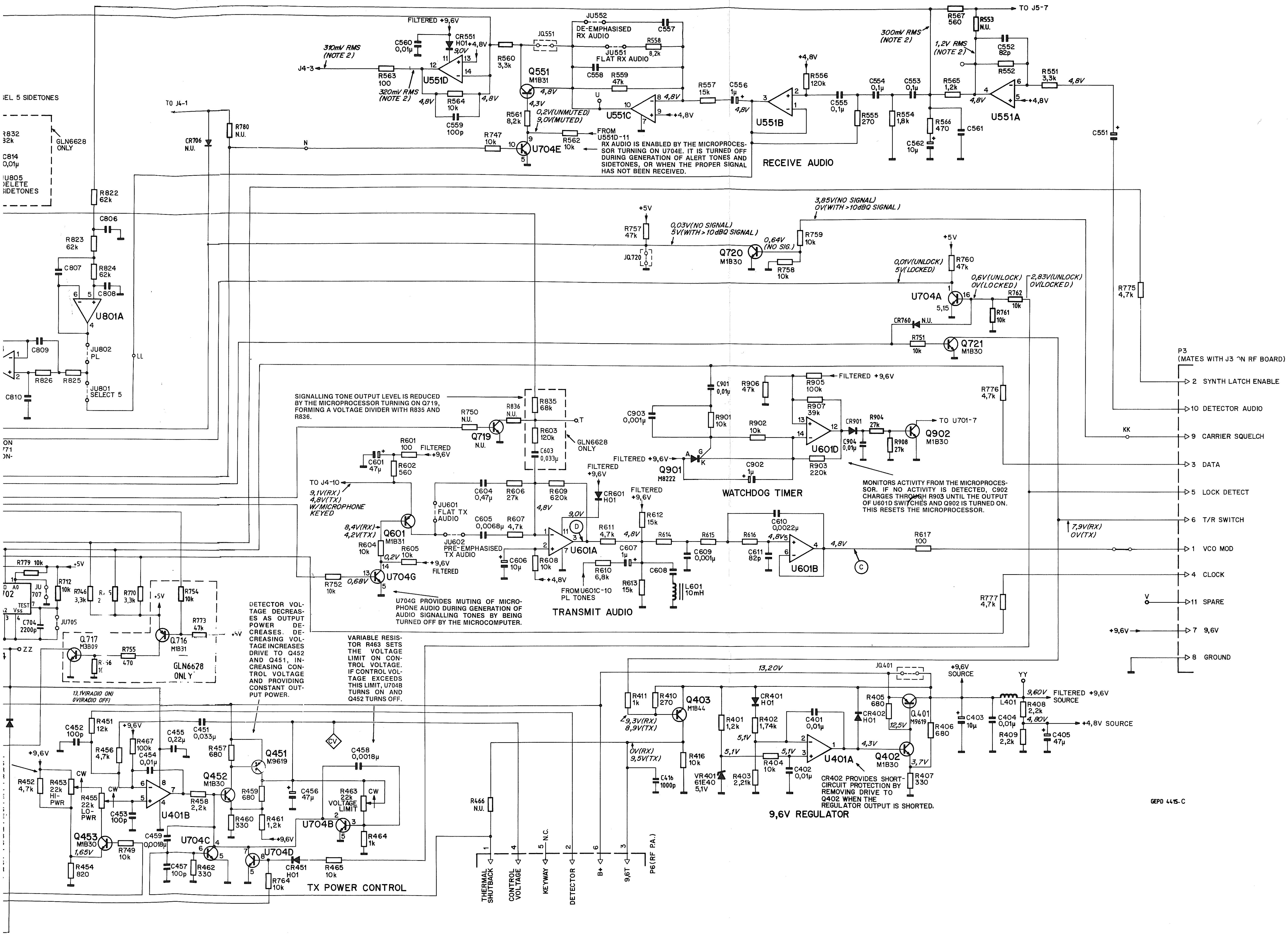
DETECTOR VOLTAGE DECREASES AS OUTPUT POWER DECREASES. DECREASING VOLTAGE INCREASES DRIVE TO Q452 AND Q451, INCREASING CONTROL VOLTAGE AND PROVIDING CONSTANT OUTPUT POWER.

VARIABLE RESISTOR R463 SETS THE VOLTAGE LIMIT ON CONTROL VOLTAGE. IF CONTROL VOLTAGE EXCEEDS THIS LIMIT, U704B TURNS ON AND Q452 TURNS OFF.

U704G PROVIDES MUTING OF MICROPHONE AUDIO DURING GENERATION OF AUDIO SIGNALLING TONES BY BEING TURNED OFF BY THE MICROCOMPUTER.

AUDIO POWER AMP

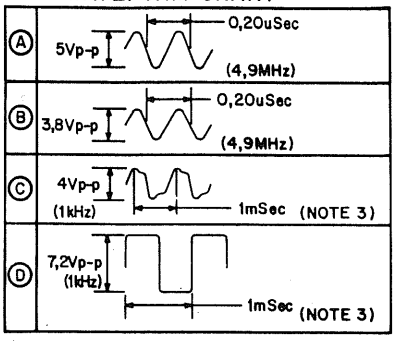
TX POWER CONTROL



RECEIVE AUDIO
TRANSMIT AUDIO
WATCHDOG TIMER
TX POWER CONTROL
9,6V REGULATOR
RX AUDIO IS ENABLED BY THE MICROPROCESSOR TURNING ON U704E. IT IS TURNED OFF DURING GENERATION OF ALERT TONES AND SIDETONES, OR WHEN THE PROPER SIGNAL HAS NOT BEEN RECEIVED.
SIGNALLING TONE OUTPUT LEVEL IS REDUCED BY THE MICROPROCESSOR TURNING ON Q719, FORMING A VOLTAGE DIVIDER WITH R835 AND R836.
U704G PROVIDES MUTING OF MICROPHONE AUDIO DURING GENERATION OF AUDIO SIGNALLING TONES BY BEING TURNED OFF BY THE MICROCOMPUTER.
MONITORS ACTIVITY FROM THE MICROPROCESSOR. IF NO ACTIVITY IS DETECTED, C902 CHARGES THROUGH R903 UNTIL THE OUTPUT OF U601D SWITCHES AND Q902 IS TURNED ON. THIS RESETS THE MICROPROCESSOR.
DETECTOR VOLTAGE DECREASES AS OUTPUT POWER DECREASES. DECREASING VOLTAGE INCREASES DRIVE TO Q452 AND Q451, INCREASING CONTROL VOLTAGE AND PROVIDING CONSTANT OUTPUT POWER.
VARIABLE RESISTOR R463 SETS THE VOLTAGE LIMIT ON CONTROL VOLTAGE. IF CONTROL VOLTAGE EXCEEDS THIS LIMIT, U704B TURNS ON AND Q452 TURNS OFF.
CR402 PROVIDES SHORT-CIRCUIT PROTECTION BY REMOVING DRIVE TO Q402 WHEN THE REGULATOR OUTPUT IS SHORTED.
P3 (MATES WITH J3 ON RF BOARD)
2 SYNTH LATCH ENABLE
10 DETECTOR AUDIO
9 CARRIER SQUELCH
3 DATA
5 LOCK DETECT
6 T/R SWITCH
1 VCO MOD
4 CLOCK
11 SPARE
7 9,6V
8 GROUND
P6 (RF PA.)
THERMAL SHUTBACK
CONTROL VOLTAGE
KEYWAY
DETECTOR
B+
9,6T
FILTERED +9,6V SOURCE
+4,8V SOURCE
TO J5-7
TO J4-3
TO J4-1
TO J4-10
TO U701-7
GEPD 4415-C

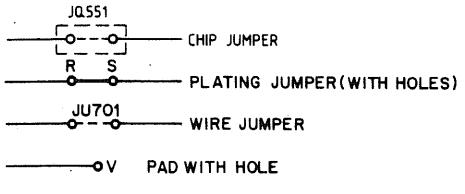
REF. #	CIRCUIT
001-400	SEE RF BOARD
401-450	DC REGULATION
451-500	TX POWER CONTROL
501-550	AUDIO POWER AMP
551-600	RX AUDIO
601-650	TX AUDIO
651-700	PROTECTION
701-799	SIGNALLING LOGIC
801-899	SIGNALLING ANALOG
901-950	WATCHDOG TIMER

WAVEFORM CHART



NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL RESISTOR VALUES ARE IN OHMS.
2. IN RX-MODE WITH ON-CHANNEL SIGNAL, 1 kHz MODULATION AT 60% FSD; VOL CONT. SET FOR 5W AT SPEAKER.
3. IN TX-MODE WITH 1 kHz SIGNAL, 80mV RMS, AT MIC INPUT.
4. D.C. VOLTAGES ARE IN RECEIVE MODE UNLESS NOTED.
5. SEE PARTS LIST FOR COMPONENT VALUE.



Control Head Type	JU701	JU702	JU703	JU704
Serial	in	out	in	out
Parallel	out	in	out	in

Signalling	JU801	JU802
Select 5 (GLN6628B)	in	out
"Private-Line" (GLN6984A)	out	in

Alert Tones	JU803	JU804
Variable Level	in	out
Fixed Level	out	in

Accessory Connector J5-3	JU709	JU711
J5 - 3 = GND	in	out
J5 - 3 = HUB	out	in

EEPROM Type	JU705	JU706	JU707	JU708
1 x 128 byte	X	out	X	X
2 x 128 byte	out	out	out	X
1 x 256 byte	X	out	X	X
2 x 256 byte	out	out	out	in
1 x 512 byte	X	in	X	X
2 x 512 byte	in	in	in	out

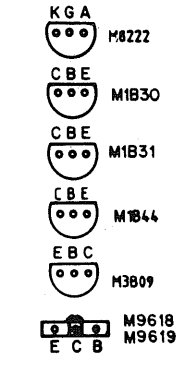
X = don't care

Audio Response	JU551	JU552	JU601	JU602
De-/Pre-emphasis	out	in	out	in
Flat Audio	in	out	in	out

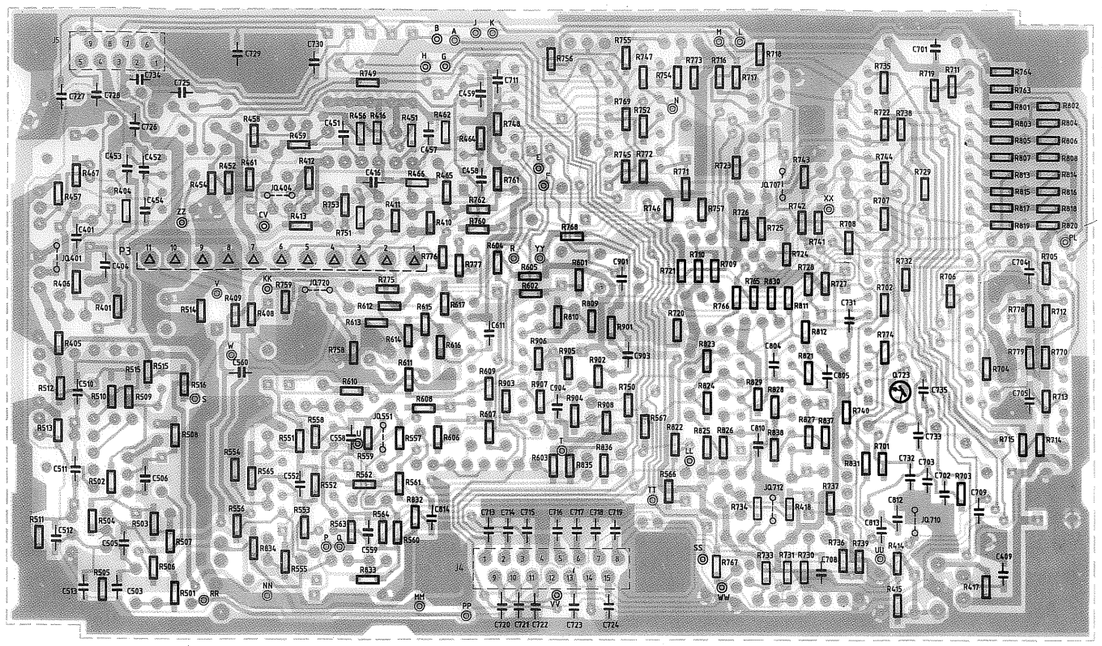
Select 5 Options (GLN6628B only)

	Sidetones JU805	Emergency JU710
Enabled.	in	out
Disabled	out	in

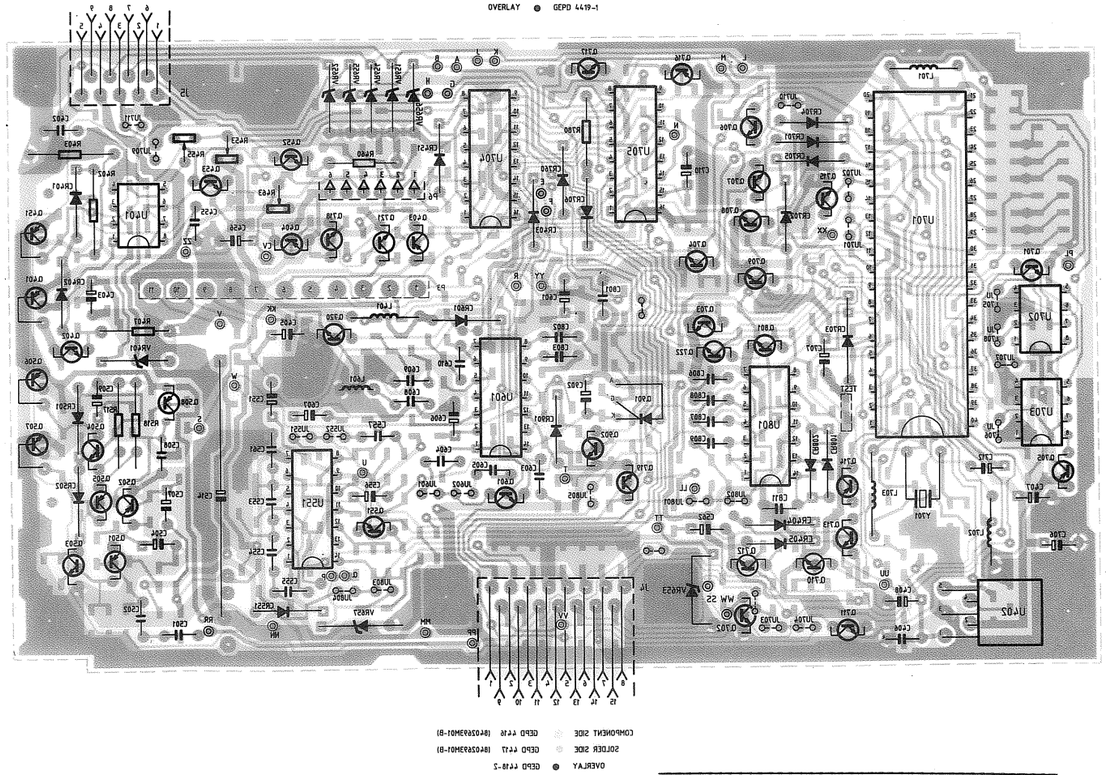
TRANSISTOR
SOLDER-SIDE VIEW



Jumper Table and Legend for
GLN6984A Command Board (PL)
GLN6628B Command Board (Select 5)



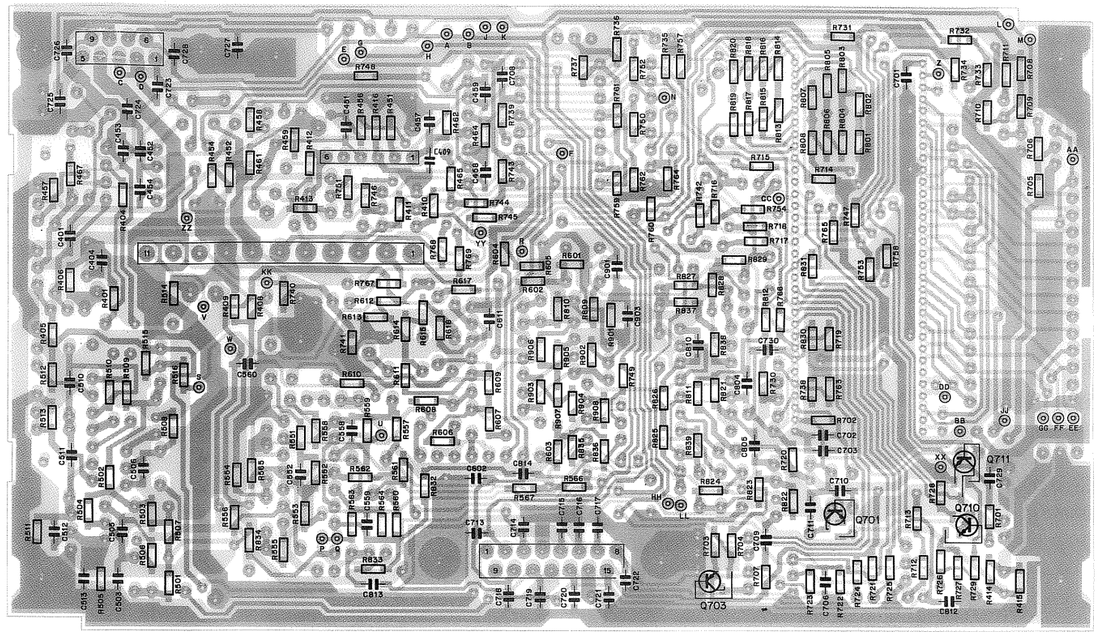
COMPONENT SIDE GEPD 4416 (8402693M01-B)
SOLDER SIDE GEPD 4417 (8402693M01-B)
OVERLAY GEPD 4419-1



COMPONENT SIDE GEPD 4416 (8402693M01-B)
SOLDER SIDE GEPD 4417 (8402693M01-B)
OVERLAY GEPD 4419-2

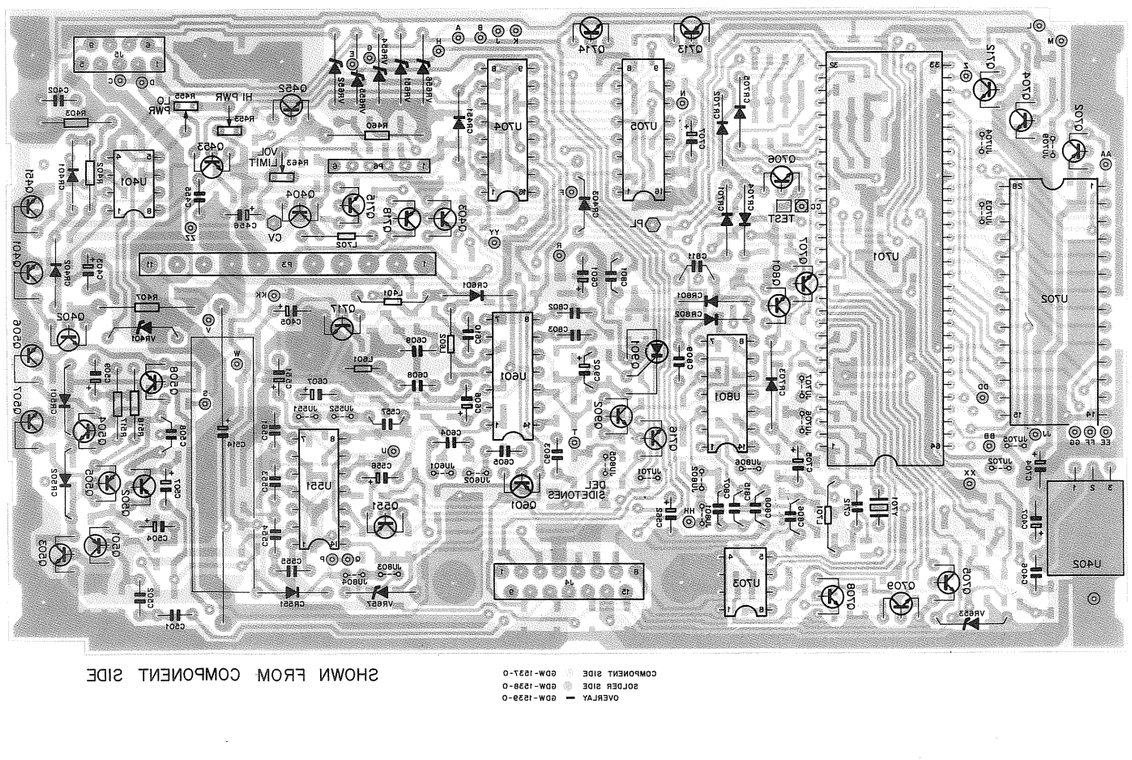
GLN6984A Command Board (PL)
GLN6628B Command Board (Select 5)

Circuit Board Details



SHOWN FROM SOLDER SIDE

COMPONENT SIDE GDW-1537-O
SOLDER SIDE GDW-1538-O
OVERLAY GDW-1540-A

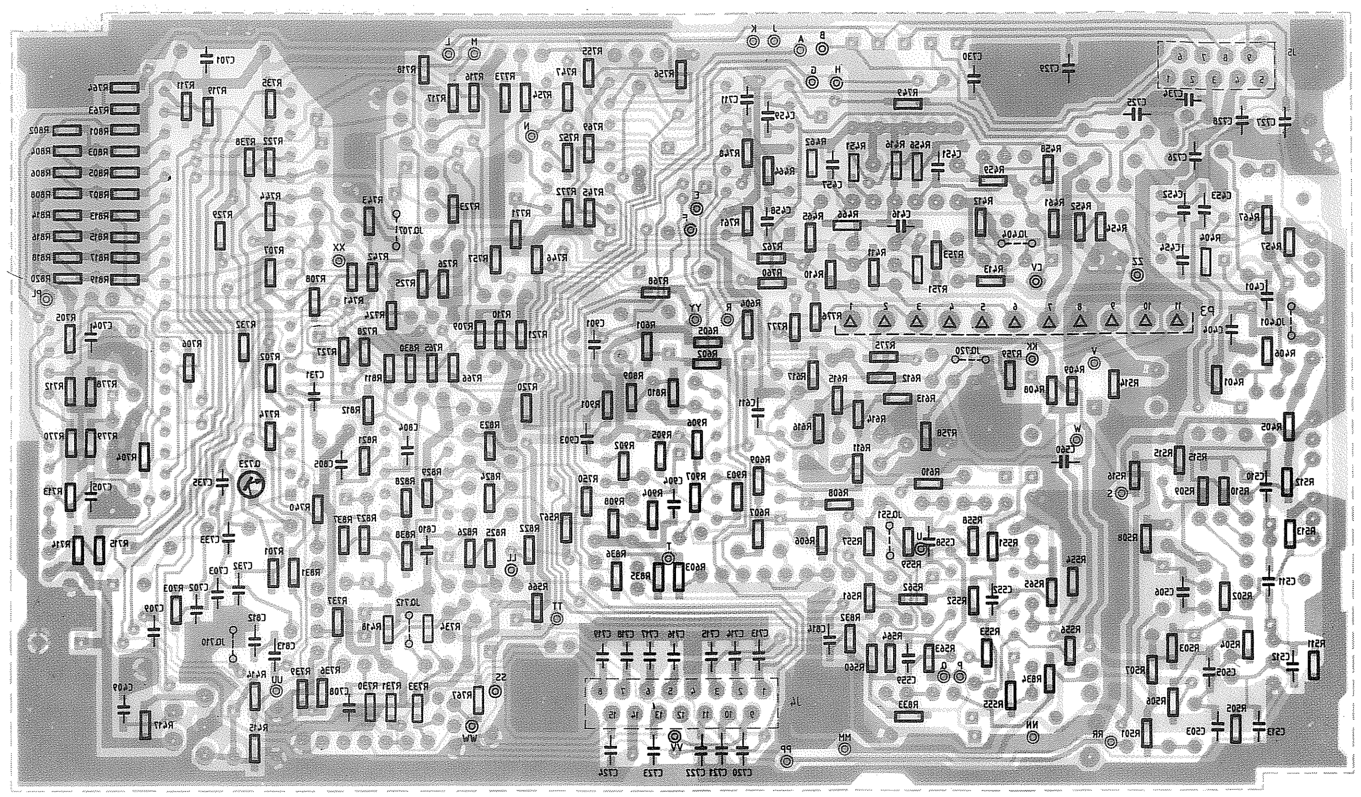


SHOWN FROM COMPONENT SIDE

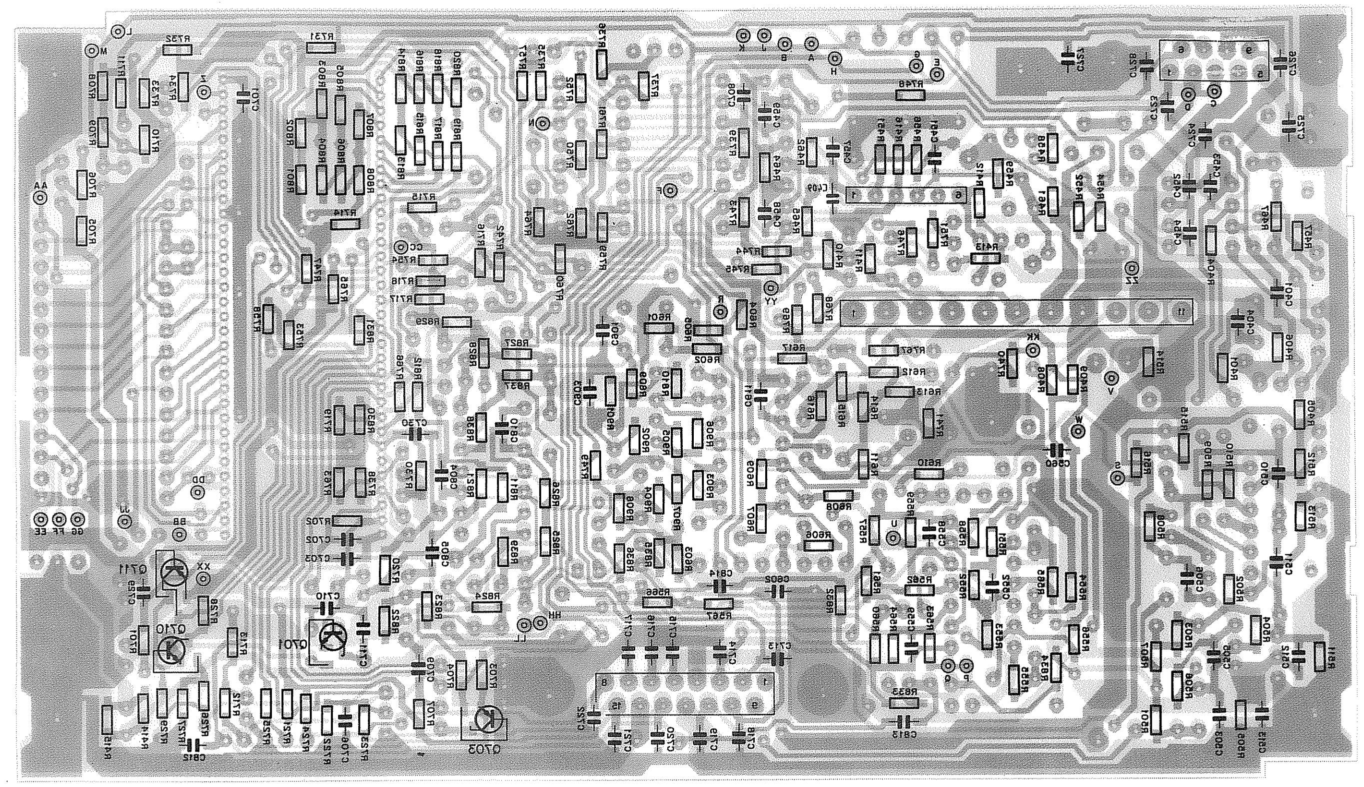
COMPONENT SIDE GDW-1537-O
SOLDER SIDE GDW-1538-O
OVERLAY GDW-1539-O

GLN6627A Command Board (Select 5)

Circuit Board Details

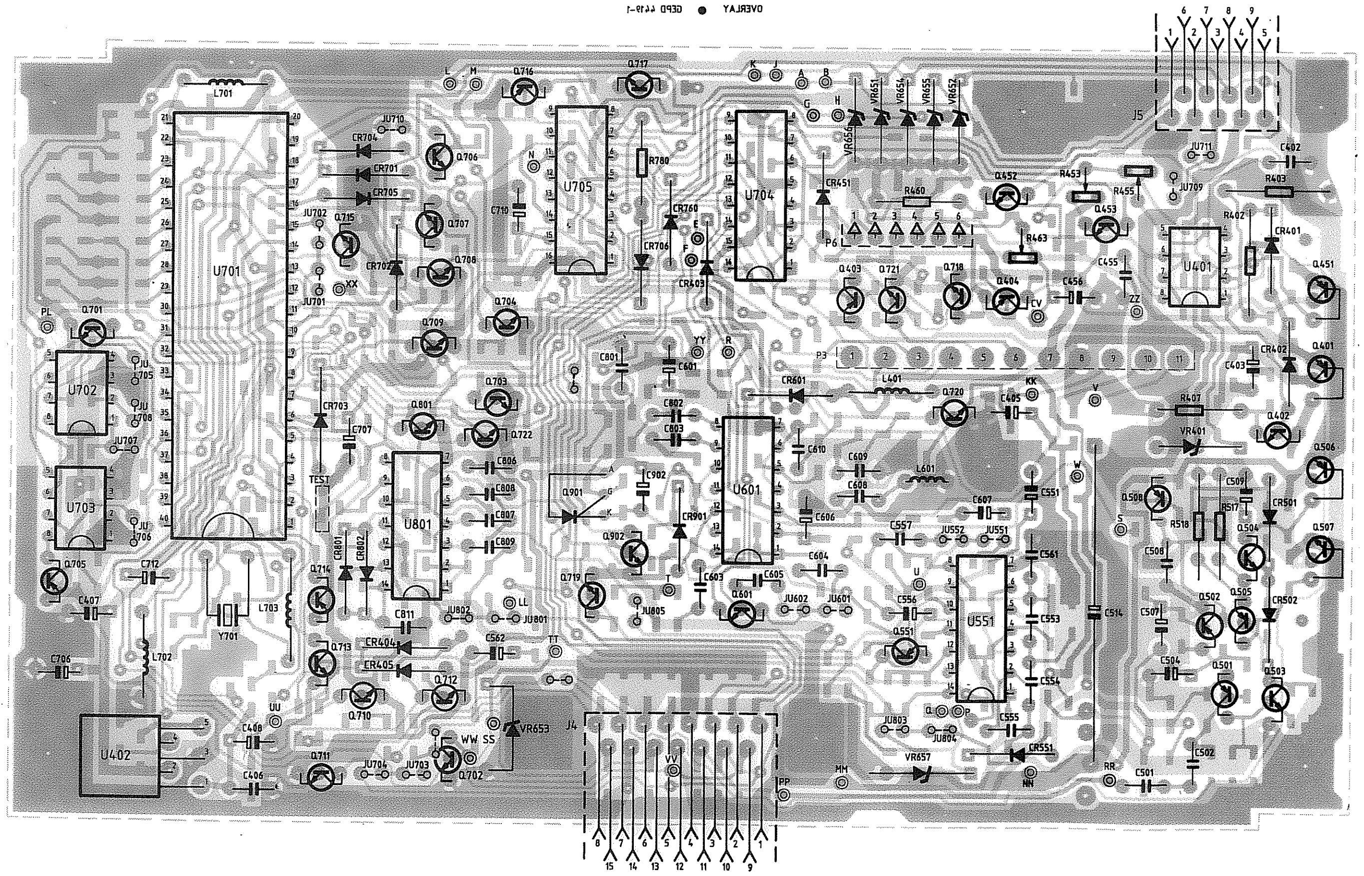


COMPONENT SIDE GEPD 4416 (8402693M01-B)
SOLDER SIDE GEPD 4417 (8402693M01-B)
OVERLAY GEPD 4419-1



SHOWN FROM SOLDER SIDE

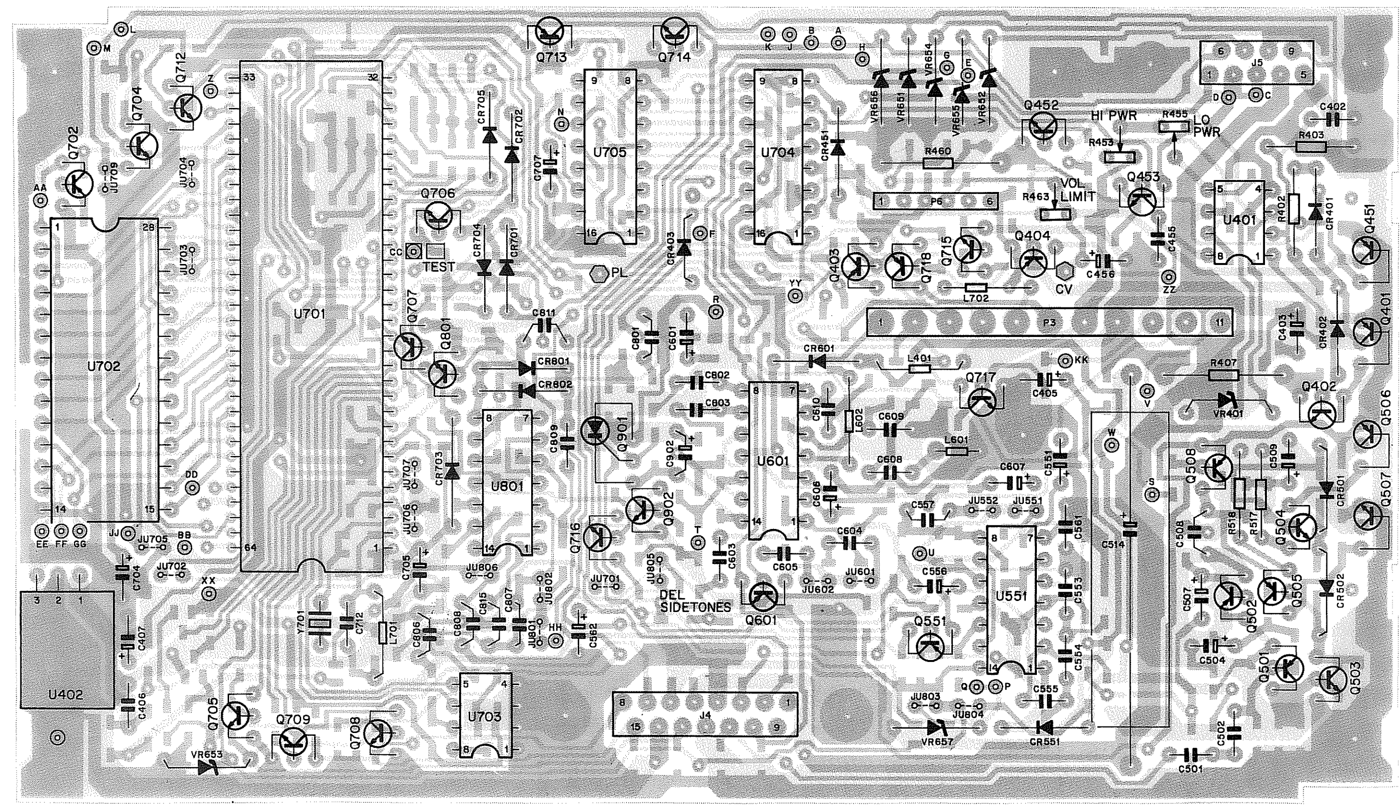
COMPONENT SIDE GDW-1537-0
SOLDER SIDE GDW-1538-0
OVERLAY GDW-1540-A



COMPONENT SIDE GEPD 4416 (8402693M01-B)
SOLDER SIDE GEPD 4417 (8402693M01-B)
OVERLAY GEPD 4418-2

GLN6984A Command Board (PL)
GLN6628B Command Board (Select 5)

Circuit Board Details

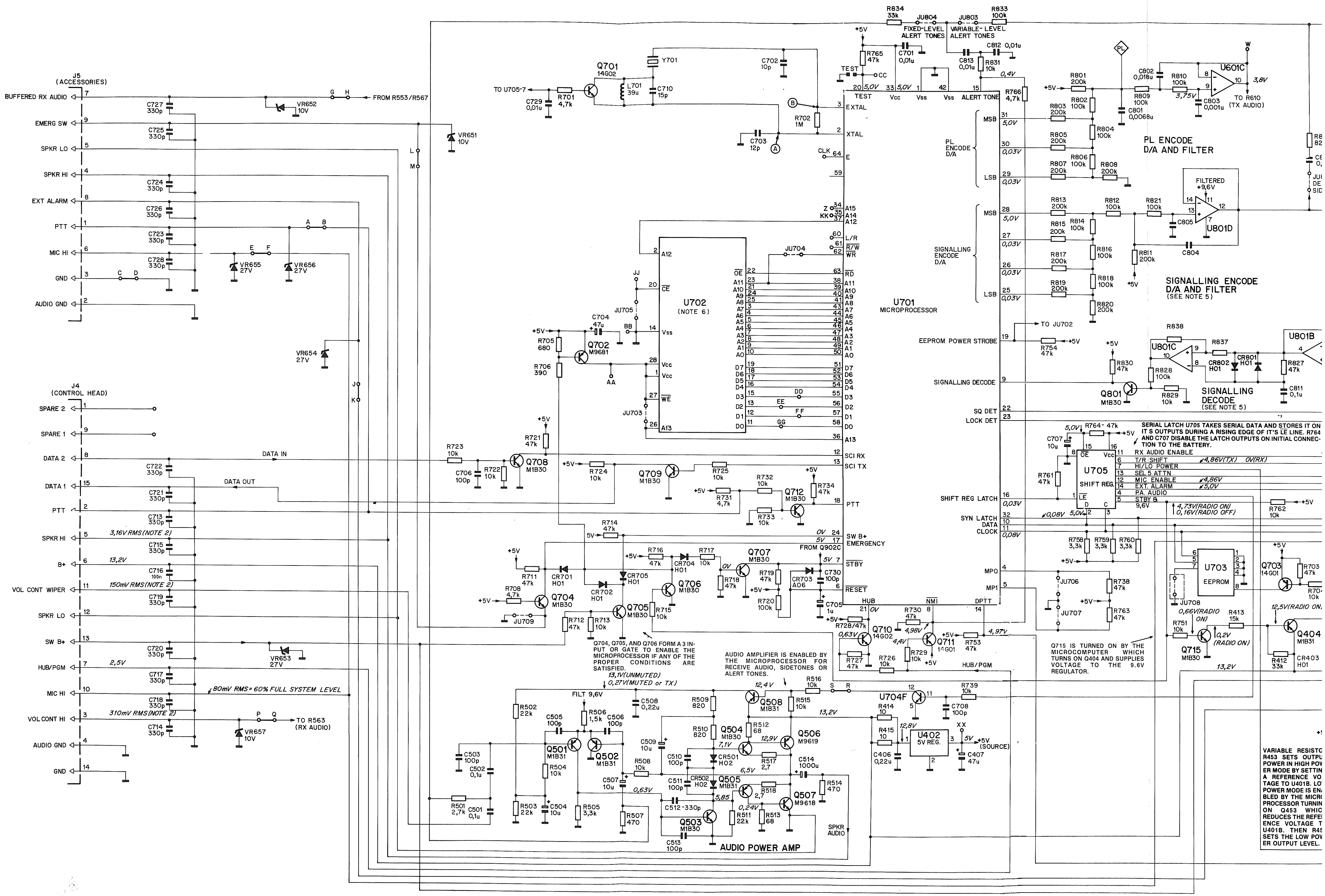


SHOWN FROM COMPONENT SIDE

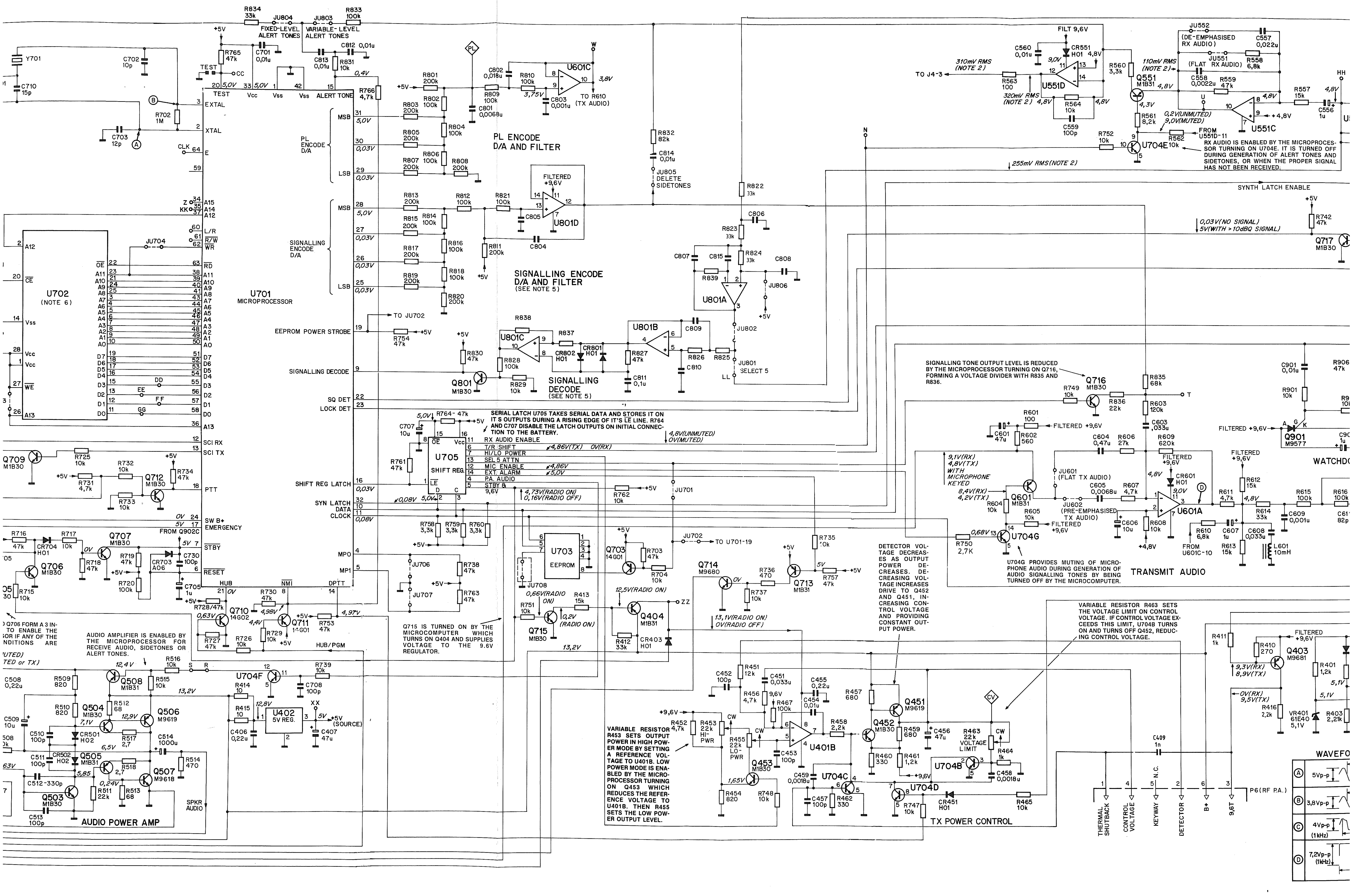
COMPONENT SIDE GDW-1537-0
SOLDER SIDE GDW-1538-0
OVERLAY GDW-1539-0

GLN6627A Command Board (Select 5)

Circuit Board Details



J5 (ACCESSORIES)
BUFFERED RX AUDIO
EMERG SW
SPKR LO
SPKR HI
EXT ALARM
PTT
MIC HI
GND
AUDIO GND
FROM R553/R567
J4 (CONTROL HEAD)
SPARE 2
SPARE 1
DATA 2
DATA 1
PTT
SPKR HI
B+
VOL CONT WIPER
SPKR LO
SW B+
HUB/PGM
MIC HI
VOL CONT HI
AUDIO GND
GND
DATA IN
DATA OUT
3,16V RMS (NOTE 2)
13,2V
150mV RMS (NOTE 2)
2,5V
80mV RMS = 60% FULL SYSTEM LEVEL
310mV RMS (NOTE 2)
TO R563 (RX AUDIO)
TO U705-7
U702 (NOTE 6)
U701 MICROPROCESSOR
FIXED-LEVEL ALERT TONES
VARIABLE-LEVEL ALERT TONES
TEST
EXTAL
XTAL
ALERT TONE
EEPROM POWER STROBE
SIGNALLING DECODE
SQ DET
LOCK DET
SHIFT REG LATCH
SYN LATCH
DATA
CLOCK
MPO
MP1
SCI RX
SCI TX
STBY
RESET
SW B+ EMERGENCY
FROM Q902C
HUB
NMI
DPTT
TO JU702
PL ENCODE D/A
PL ENCODE D/A AND FILTER
SIGNALLING ENCODE D/A
SIGNALLING ENCODE D/A AND FILTER (SEE NOTE 5)
SIGNALLING DECODE (SEE NOTE 5)
FILTERED +9,6V
TO R610 (TX AUDIO)
U705 SHIFT REG.
RX AUDIO ENABLE
T/R SHIFT
HI/LO POWER
SEL 5 ATTN
MIC ENABLE
EXT. ALARM
PA AUDIO
STBY B
4,86V(TX) 0V(RX)
4,73V(RADIO ON)
0,16V(RADIO OFF)
SERIAL LATCH U705 TAKES SERIAL DATA AND STORES IT ON IT S OUTPUTS DURING A RISING EDGE OF IT'S LE LINE. R764 AND C707 DISABLE THE LATCH OUTPUTS ON INITIAL CONNECTION TO THE BATTERY.
U703 EEPROM
Q715 IS TURNED ON BY THE MICROCOMPUTER WHICH TURNS ON Q404 AND SUPPLIES VOLTAGE TO THE 9.6V REGULATOR.
0,66V(RADIO ON)
0,2V (RADIO ON)
12,5V(RADIO ON)
Q704, Q705, AND Q706 FORM A 3 INPUT OR GATE TO ENABLE THE MICROPROCESSOR IF ANY OF THE PROPER CONDITIONS ARE SATISFIED.
13,1V(UNMUTED)
0,27V(MUTED or TX)
AUDIO AMPLIFIER IS ENABLED BY THE MICROPROCESSOR FOR RECEIVE AUDIO, SIDETONES OR ALERT TONES.
FILT 9,6V
U402 5V REG.
+5V (SOURCE)
SPKR AUDIO
AUDIO POWER AMP
HUB/PGM
VARIABLE RESISTO
R453 SETS OUTPU
POWER IN HIGH POV
ER MODE BY SETTIN
A REFERENCE VO
TAGE TO U401B. LO
POWER MODE IS EN
BLED BY THE MICR
PROCESSOR TURNIN
ON Q453 WHIC
REDUCES THE REFE
ENCE VOLTAGE T
U401B. THEN R45
SETS THE LOW POV
ER OUTPUT LEVEL.



U701
MICROPROCESSOR
U702
(NOTE 6)
PL ENCODE
D/A AND FILTER
SIGNALLING ENCODE
D/A AND FILTER
(SEE NOTE 5)
SIGNALLING
DECODE
(SEE NOTE 5)
FIXED-LEVEL ALERT TONES
VARIABLE-LEVEL ALERT TONES
DELETE SIDETONES
EEPROM POWER STROBE
SIGNALLING DECODE
SHIFT REG LATCH
SYN LATCH
DATA
CLOCK
TO JU702
TO U701-19
SERIAL LATCH U705 TAKES SERIAL DATA AND STORES IT ON IT'S OUTPUTS DURING A RISING EDGE OF IT'S LE LINE. R764 AND C707 DISABLE THE LATCH OUTPUTS ON INITIAL CONNECTION TO THE BATTERY.
U705
SHIFT REG.
RX AUDIO ENABLE
T/R SHIFT
HI/LO POWER
SEL 5 ATTN
MIC ENABLE
EXT. ALARM
P.A. AUDIO
STBY B
U703
EEPROM
Q715 IS TURNED ON BY THE MICROCOMPUTER WHICH TURNS ON Q404 AND SUPPLIES VOLTAGE TO THE 9.6V REGULATOR.
AUDIO AMPLIFIER IS ENABLED BY THE MICROPROCESSOR FOR RECEIVE AUDIO, SIDETONES OR ALERT TONES.
AUDIO POWER AMP
U402
5V REG.
SPKR AUDIO
HUB/PGM
RX AUDIO IS ENABLED BY THE MICROPROCESSOR TURNING ON U704E. IT IS TURNED OFF DURING GENERATION OF ALERT TONES AND SIDETONES, OR WHEN THE PROPER SIGNAL HAS NOT BEEN RECEIVED.
(DE-EMPHASISED RX AUDIO)
(FLAT RX AUDIO)
TO J4-3
SYNTH LATCH ENABLE
SIGNALLING TONE OUTPUT LEVEL IS REDUCED BY THE MICROPROCESSOR TURNING ON Q716, FORMING A VOLTAGE DIVIDER WITH R835 AND R836.
(FLAT TX AUDIO)
(PRE-EMPHASISED TX AUDIO)
U704G PROVIDES MUTING OF MICROPHONE AUDIO DURING GENERATION OF AUDIO SIGNALLING TONES BY BEING TURNED OFF BY THE MICROCOMPUTER.
TRANSMIT AUDIO
WATCHDO
DETECTOR VOLTAGE DECREASES AS OUTPUT POWER DECREASES. DECREASING VOLTAGE INCREASES DRIVE TO Q452 AND Q451, INCREASING CONTROL VOLTAGE AND PROVIDING CONSTANT OUTPUT POWER.
VARIABLE RESISTOR R463 SETS THE VOLTAGE LIMIT ON CONTROL VOLTAGE. IF CONTROL VOLTAGE EXCEEDS THIS LIMIT, U704B TURNS ON AND TURNS OFF Q452, REDUCING CONTROL VOLTAGE.
VARIABLE RESISTOR R453 SETS OUTPUT POWER IN HIGH POWER MODE BY SETTING A REFERENCE VOLTAGE TO U401B. LOW POWER MODE IS ENABLED BY THE MICROPROCESSOR TURNING ON Q453 WHICH REDUCES THE REFERENCE VOLTAGE TO U401B. THEN R455 SETS THE LOW POWER OUTPUT LEVEL.
TX POWER CONTROL
P6(RF P.A.)
THERMAL SHUTBACK
CONTROL VOLTAGE
KEYWAY
DETECTOR
B+
9,6T
WAVEFO

REF NO.	CIRCUIT
001-400	SEE RF BOARD
401-450	DC REGULATION
451-500	TX POWER CONTROL
501-550	AUDIO POWER AMP
551-600	RX AUDIO
601-650	TX AUDIO
651-700	PROTECTION AND RFI
701-799	SIGNALLING LOGIC
801-899	SIGNALLING ANALOG
901-950	WATCHDOG TIMER

SOLDER-SIDE VIEW

PLATING JUMPER (WITH HOLES) — R S

PAD WITH HOLE — CC

JU701 WIRE JUMPER

CHIP JUMPER JU708

GEW-1572-D

RECEIVE AUDIO

TRANSMIT AUDIO

WATCHDOG TIMER

9,6V REGULATOR

TX POWER CONTROL

WAVEFORM CHART

NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL RESISTOR VALUES ARE IN OHMS.
2. IN RX-MODE WITH ON-CHANNEL SIGNAL, 1 kHz MODULATION AT 60% FSD; VOL CONT. SET FOR 5W AT SPEAKER.
3. IN TX-MODE WITH 1 kHz SIGNAL, 80mV RMS, AT MIC INPUT.
4. D.C. VOLTAGES ARE IN RECEIVE MODE UNLESS NOTED.
5. SEE PARTS LIST FOR COMPONENT VALUE.
6. SEE PARTS LIST FOR THE PART NUMBER FOR MEMORY DEVICE U702.

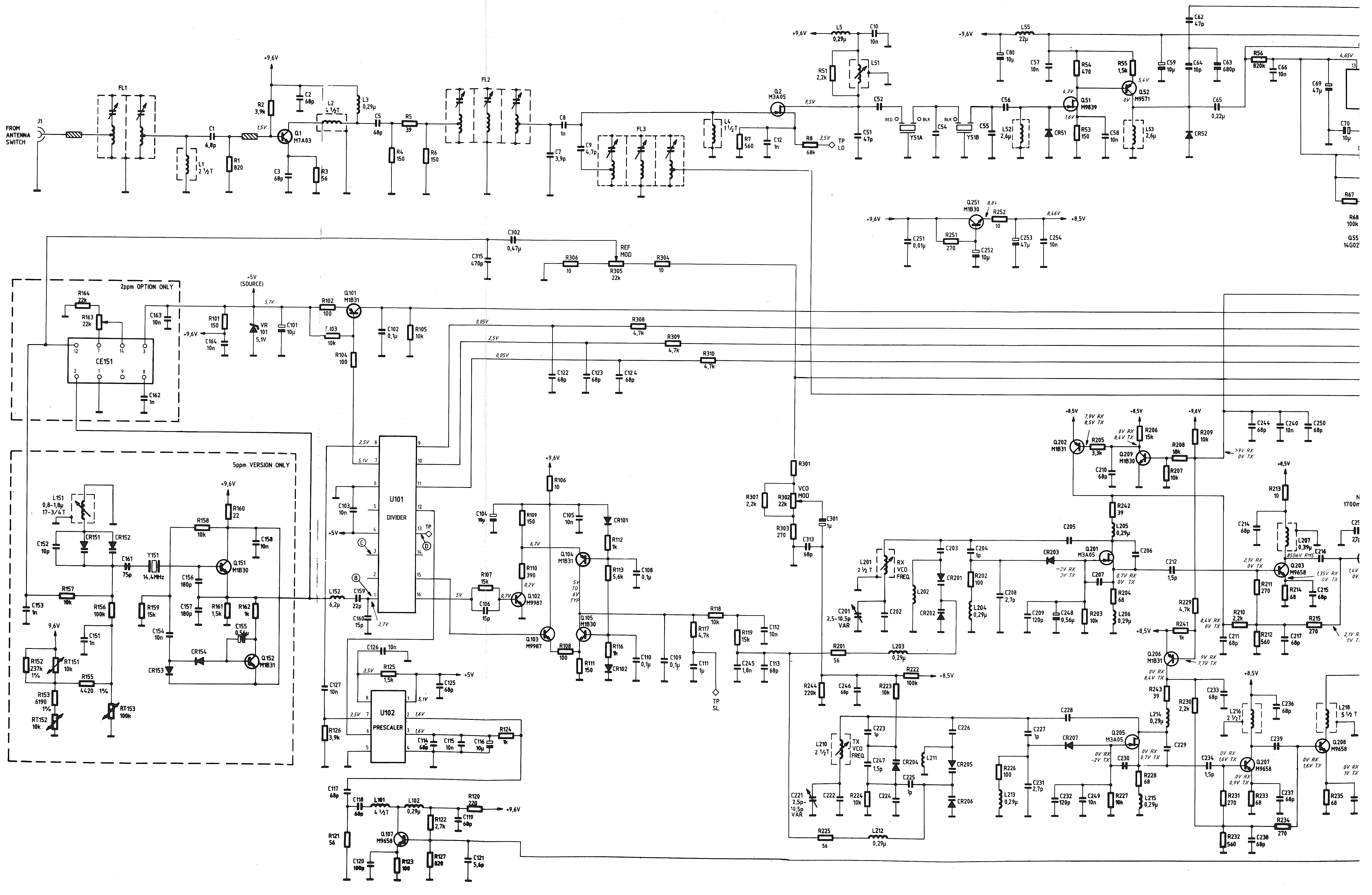
GLN6627A Command Board (Select 5)

Schematic Diagram

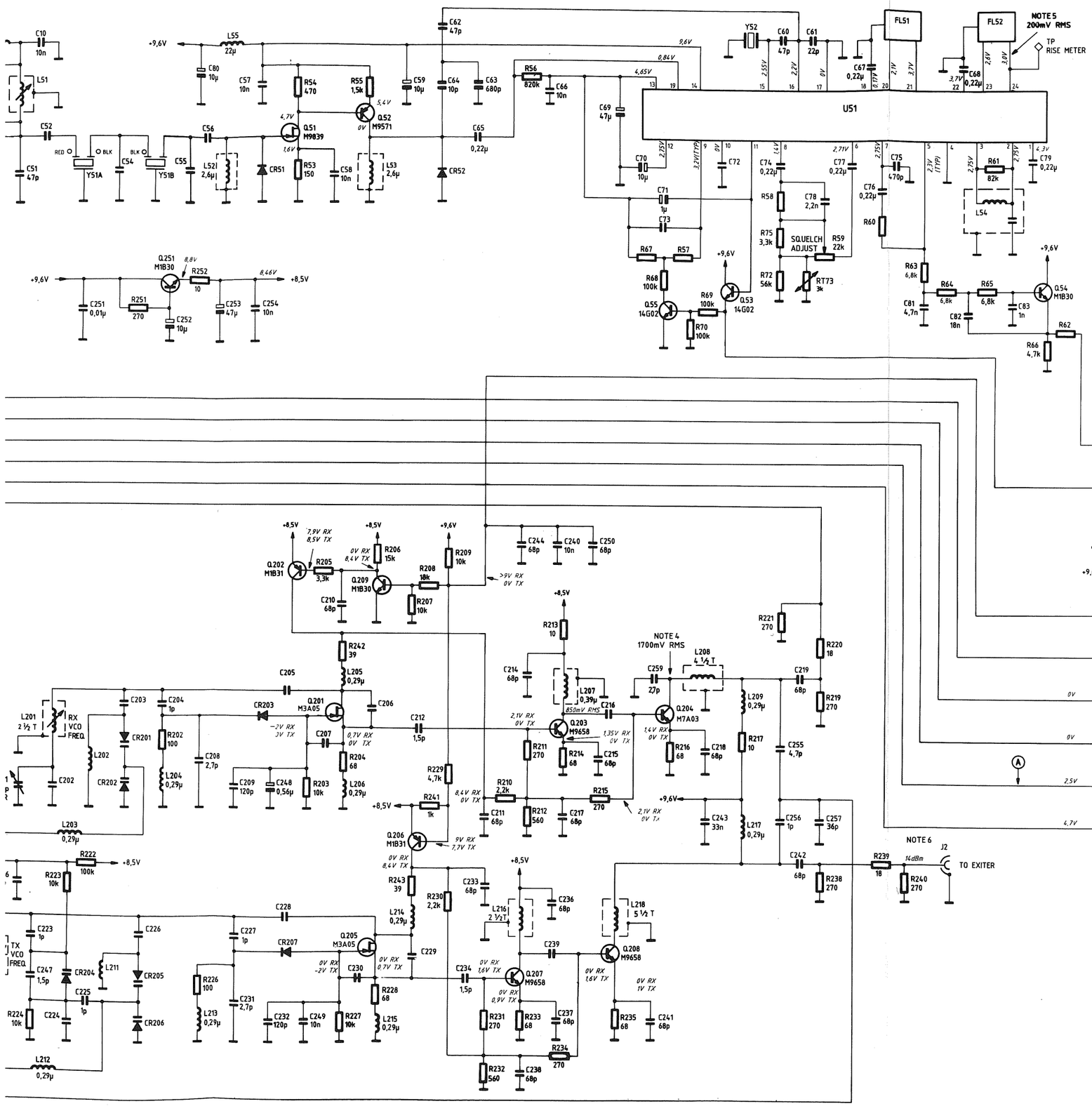
GLE6141	UHF low 403 - 433MHz	20/25kHz Channel Spacing
GLE6142	UHF high 438 - 470MHz	20/25kHz Channel Spacing
GLE6144	UHF X1 403 - 433MHz (R) 438-470MHz (T)	20/25kHz Channel Spacing
GLE6145	UHF X2 438 - 470MHz (R) 403-433MHz (T)	20/25kHz Channel Spacing
GLE6147	UHF low 403 - 433MHz	20/25kHz Channel Spacing
GLE6148	UHF high 438 - 470MHz	20/25kHz Channel Spacing
GLE6150	UHF X2 438 - 470MHz (R) 403-433MHz (T)	20/25kHz Channel Spacing
GLE6151	UHF X1 403 - 433MHz (R) 438-470MHz (T)	20/25kHz Channel Spacing
GLE6153	UHF low 403 - 433MHz	12.5kHz Channel Spacing
GLE6154	UHF high 438 - 470MHz	12.5kHz Channel Spacing
GLE6156	UHF X2 438 - 470MHz (R) 403-433MHz (T)	12.5kHz Channel Spacing
GLE6157	UHF X1 403 - 433MHz (R) 438-470MHz (T)	12.5kHz Channel Spacing

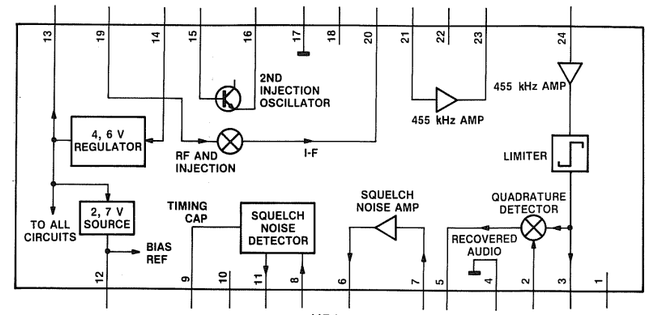
GLE6140B & GLE6150B Series RF Boards 25 kHz
GLE6150B Series RF Boards 12.5 kHz Channel Spacing

Schematic Diagram



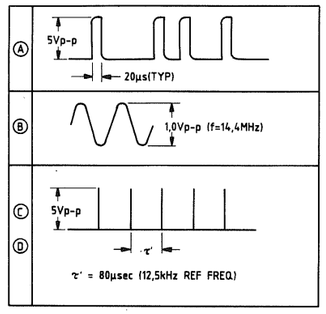
FROM ANTENNA SWITCH
J1
FL1
L1 2 1/2T
C1 6,8p
R1 820
Q1 M7A03
R2 3,9k
+9,6V
C2 68p
L2 1 1/2T
L3 0,29µ
C3 68p
R3 56
C5 68p
R4 150
R5 39
R6 150
FL2
C8 1n
C7 3,9p
C9 4,7p
FL3
L4 1 1/2T
R7 560
C12 1n
Q2 M3A05
R8 68k
TP LO
L5 0,29µ
C10 10n
R51 2,2k
L51
C52
C51 47p
Y51A
C54
Y51B
C55
C56
L52 2,6µ
CR51
Q51 M9839
R53 150
C58 10n
L55 22µ
C80 10µ
C57 10n
R54 470
R55 1,5k
Q52 M9571
L53 2,6µ
C59 10µ
C62 47p
C64 10p
C63 680p
CR52
C65 0,22µ
R56 820k
C66 10n
C69 47µ
C70 10µ
R67
R68 100k
Q55 14G07
Q251 M1B30
R252 10
R251 270
C251 0,01µ
C252 10µ
C253 47µ
C254 10n
+8,5V
C302 0,47µ
C315 470p
REF MOD
R306 10
R305 22k
R304 10
2ppm OPTION ONLY
R164 22k
R163 22k
C163 10n
CE151
C162 1n
+5V (SOURCE)
R101 150
C164 10n
VR 101 5,1V
C101 10µ
R102 100
Q101 M1B31
R103 10k
R104 100
C102 0,1µ
R105 10k
R308 4,7k
R309 4,7k
R310 4,7k
C122 68p
C123 68p
C124 68p
5ppm VERSION ONLY
L151 0,8-1,8µ 17-3/4 T
CR151
CR152
C152 10p
C161 75p
Y151 14,4MHz
R158 10k
R160 22
C158 10n
Q151 M1B30
C156 180p
C157 180p
R161 1,5k
R162 1k
C155 0,56µ
R157 10k
C153 1n
R156 100k
C151 1n
R159 15k
C154 10n
CR154
CR153
Q152 M1B31
R152 237k 1%
RT151 10k
R155 4420 1%
R153 6190 1%
RT152 10k
RT153 100k
U101 DIVIDER
C103 10n
L152 6,2µ
C159 22p
C160 15p
TP
R106 10
C104 10µ
R109 150
C105 10n
CR101
R112 1k
R113 5,6k
C108 0,1µ
R110 390
R107 15k
C106 15p
Q102 M9987
Q104 M1B31
Q105 M1B30
Q103 M9987
R108 100
R111 150
R116 1k
CR102
C110 0,1µ
C109 0,1µ
R118 10k
R117 4,7k
C111 1µ
R119 15k
C112 10n
C245 1,8n
C113 68p
TP SL
C126 10n
R125 1,5k
C125 68p
C127 10n
U102 PRESCALER
R126 3,9k
C114 68p
C115 10n
C116 10µ
R124 1k
C117 68p
C118 68p
L101 4 1/2T
L102 0,29µ
R120 220
C119 68p
R122 2,7k
Q107 M9658
R121 56
C120 100p
R123 100
R127 820
C121 5,6p
R301
R307 2,2k
R302 22k
VCO MOD
R303 270
C301 1µ
C313 68p
L201 2 1/2 T
RX VCO FREQ
C201 2,5–10,5p VAR
C202
L202
C203
CR201
CR202
C204 1p
R202 100
L204 0,29µ
C208 2,7p
CR203
C205
Q201 M3A05
C206
C207
C209 120p
C248 0,56µ
R203 10k
R204 68
L206 0,29µ
R242 39
L205 0,29µ
R201 56
L203 0,29µ
R244 220k
C246 68p
R223 10k
R222 100k
L210 2 1/2T
TX VCO FREQ
C223 1p
C247 1,5p
CR204
L211
C226
CR205
CR206
C221 2,5p–10,5p VAR
C222
R224 10k
C224
C225 1p
R225 56
L212 0,29µ
C228
R226 100
L213 0,29µ
C227 1p
C231 2,7p
CR207
Q205 M3A05
C230
C232 120p
C249 10n
R227 10k
R228 68
L215 0,29µ
C229
Q202 M1B31
R205 3,3k
C210 68p
Q209 M1B30
R206 15k
R207 10k
R208 18k
R209 10k
C244 68p
C240 10n
C250 68p
R213 10
C214 68p
L207 0,39µ
C216
Q203 M9658
R211 270
R214 68
C215 68p
C212 1,5p
R229 4,7k
R241 1k
R210 2,2k
C211 68p
R212 560
C217 68p
R215 270
Q206 M1B31
R243 39
L214 0,29µ
R230 2,2k
C233 68p
L216 2 1/2T
C236 68p
L218 5 1/2 T
C234 1,5p
Q207 M9658
C239
Q208 M9658
R231 270
R233 68
C237 68p
R234 270
R235 68
R232 560
C238 68p





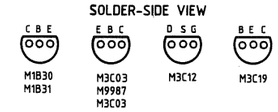
U51
INTERNAL BLOCK DIAGRAM

WAVEFORM CHART

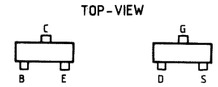


NOTES:
1. UNLESS OTHERWISE SPECIFIED, RESISTOR VALUES ARE IN OHMS, INDUCTORS ARE IN µH
2. REFER TO TABLES IF COMPONENT VALUE IS NOT SHOWN.
3. VOLTAG DESIGNATIONS:
   RX: RECEIVE MODE
   TX: TRANSMIT MODE
   IF NOT SPECIFIED, VOLTAGES ARE IN THE RECEIVE MODE.
4. MEASURED IN THE RECEIVE MODE WITH A HIGH-IMPEDANCE RF MILLIVOLTMETER.
5. SAME AS 4., EXEPT WITH AN ON-CHANNEL SIGNAL APPLIED AT A LEVEL OF -75dBm.
6. MEASURED IN THE TRANSMIT MODE

SOLDER-SIDE VIEW

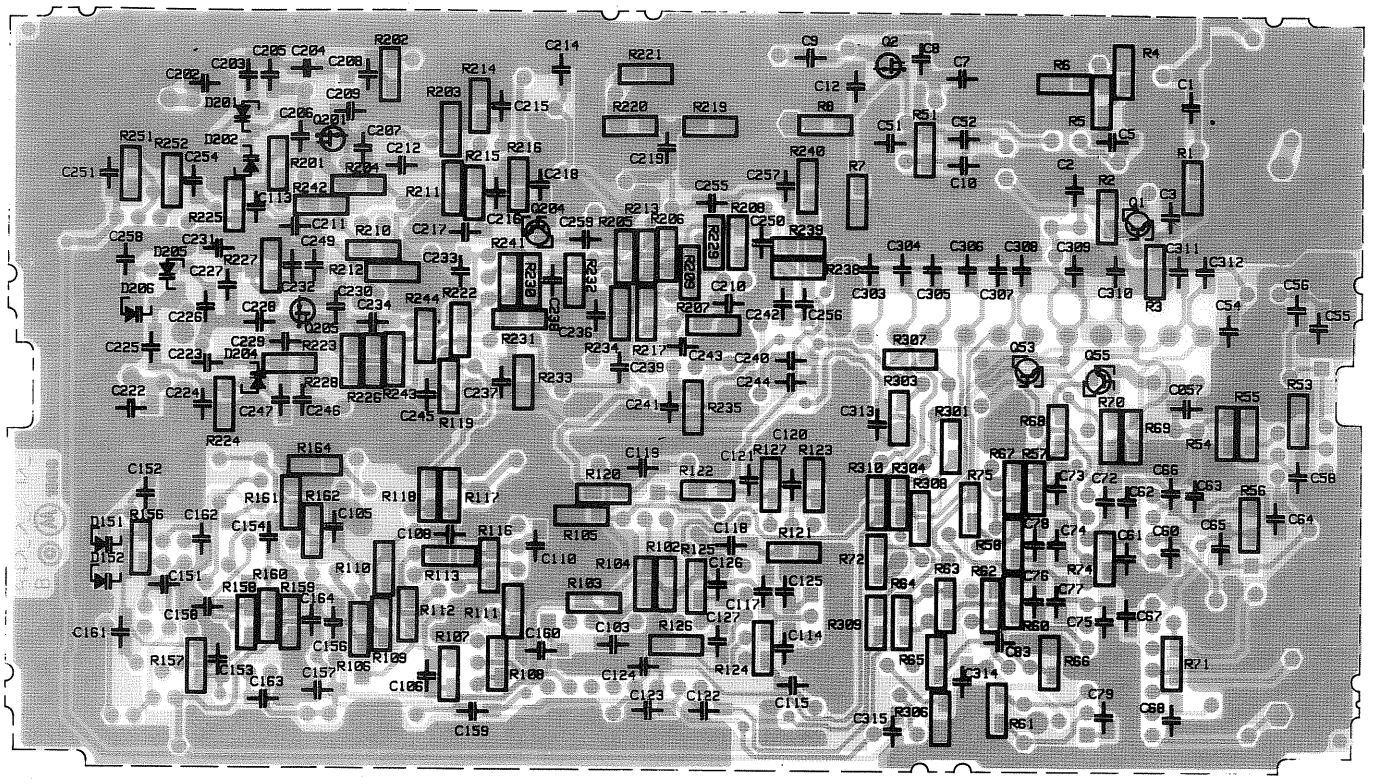


TOP-VIEW



CHIP VARACTOR
(VIEW FROM TOP OF DIODE HOUSING)

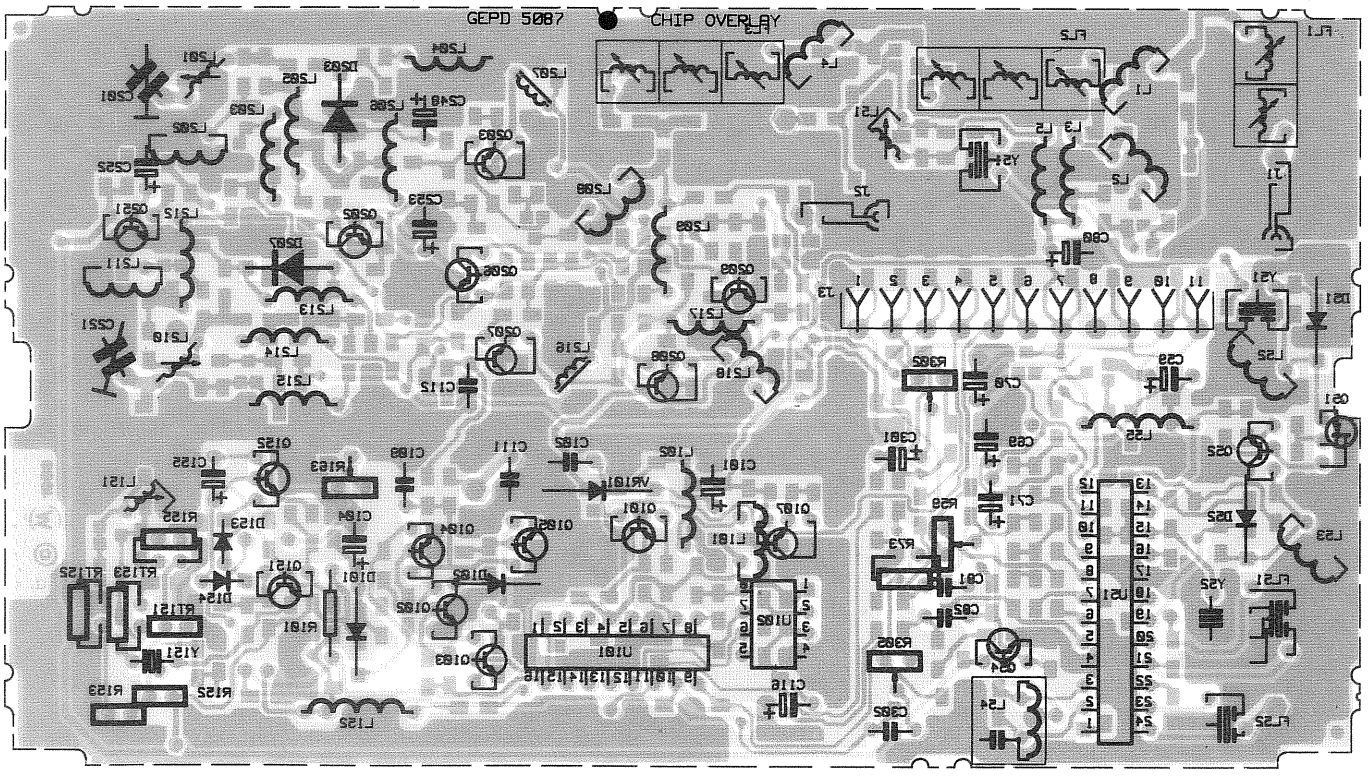
GEPD 4597-3



GEPD 5084 COMPONENT SIDE (8402027N02)

GEPD 5085 SOLDER SIDE (8402027N02)

GEPD 5087 CHIP OVERLAY



GEPD 5086 OVERLAY

GEPD 5085 SOLDER SIDE (8402027N02)

GEPD 5084 COMPONENT SIDE (8402027N02)

GLE6140B & GLE6150B Series RF Boards 25 kHz
GLE6150B Series RF Boards 12.5 kHz Channel Spacing

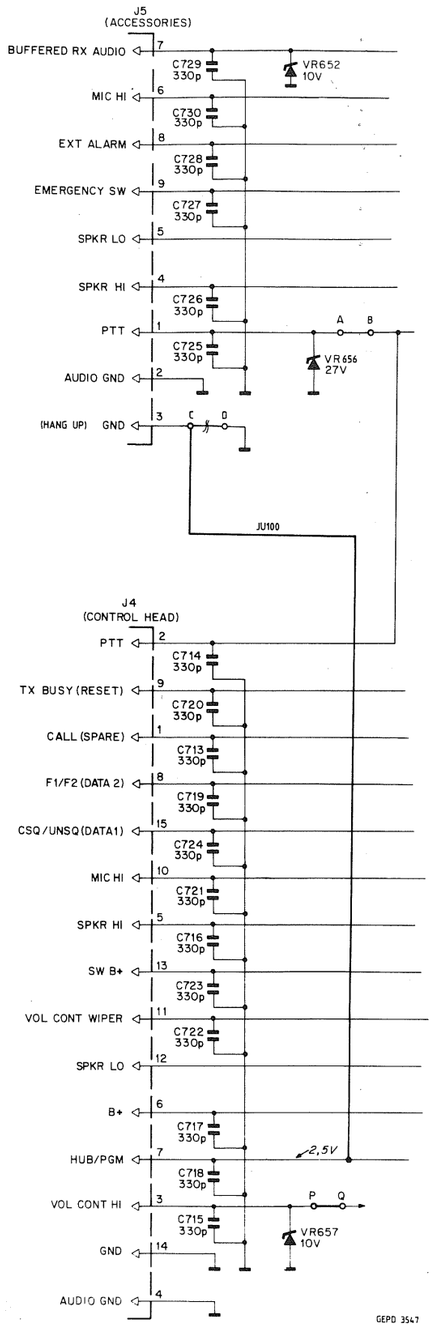
Circuit Board Details

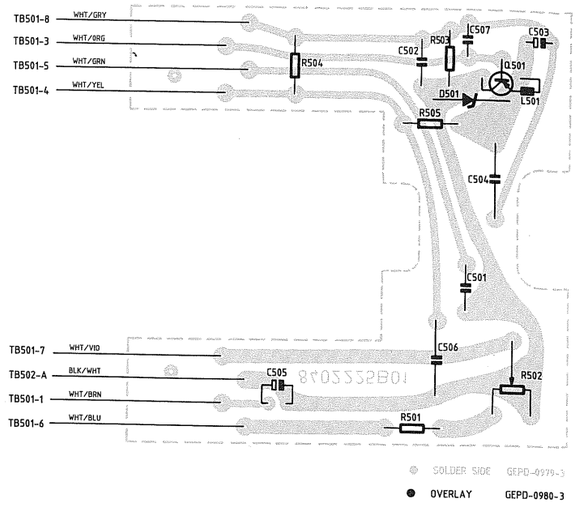
GEPD 5084 COMPONENT SIDE (8402027N02)
GEPD 5085 SOLDER SIDE (8402027N02)
GEPD 5086 OVERLAY

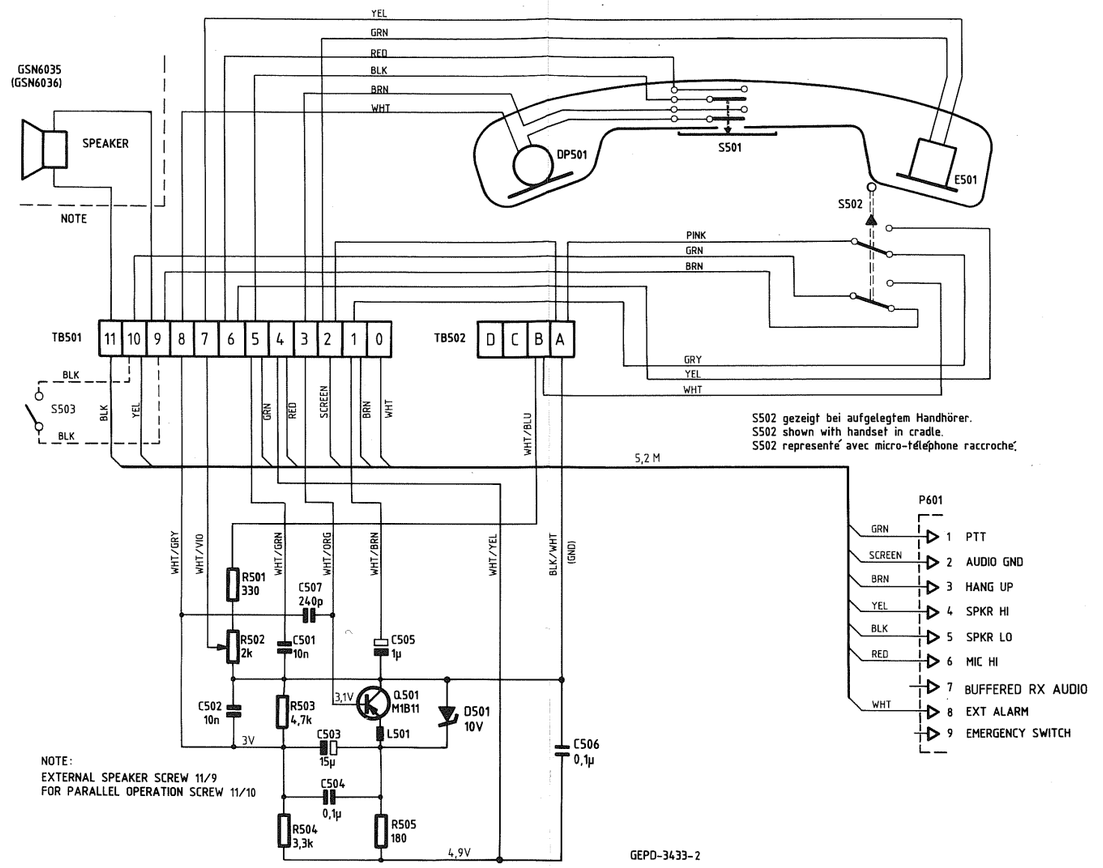
GEPD 5084 COMPONENT SIDE (8402027N02)
GEPD 5085 SOLDER SIDE (8402027N02)
GEPD 5086 OVERLAY

Circuit Board Details

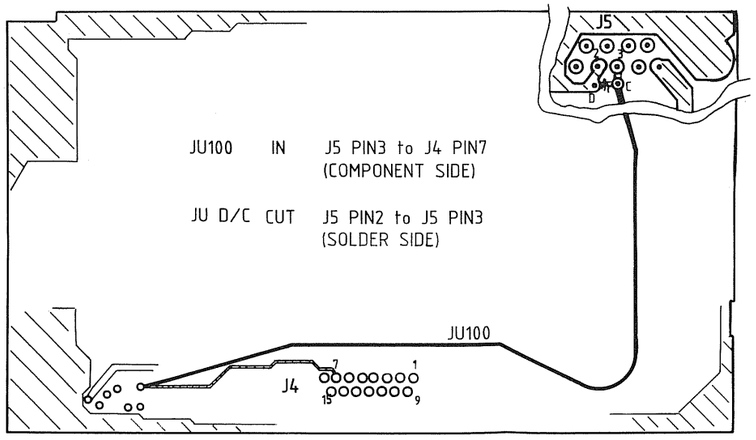
GLB6150B Series RF Boards 12.5 kHz Channel Spacing
GLB6140B & GLB6150B Series RF Boards 25 kHz







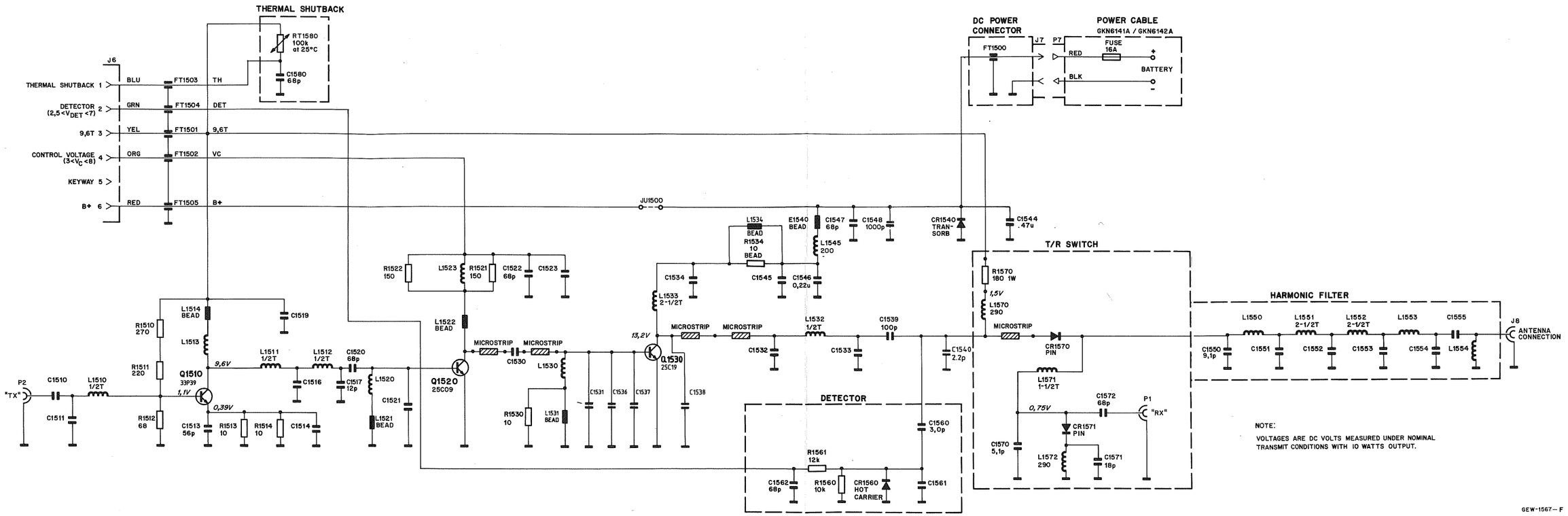
GKN6175A HANG-UP FUNCTION ACCESSORY CONNECTOR MODIFICATION COMMAND BOARD GLN6627A



COMPONENT SIDE

GEPD 3434-1

NOTE:
The external speaker must be connected
to TB501 inside the handset.
The speaker's original connector must be cut and the
cable connected to the appropriate screw-terminals.



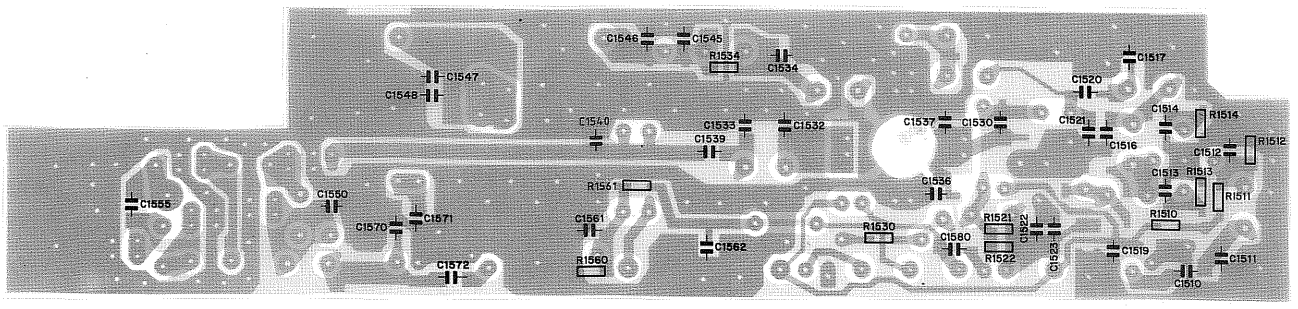
NOTE:

VOLTAGES ARE DC VOLTS MEASURED UNDER NOMINAL TRANSMIT CONDITIONS WITH 10 WATTS OUTPUT.

GEW-1567— F

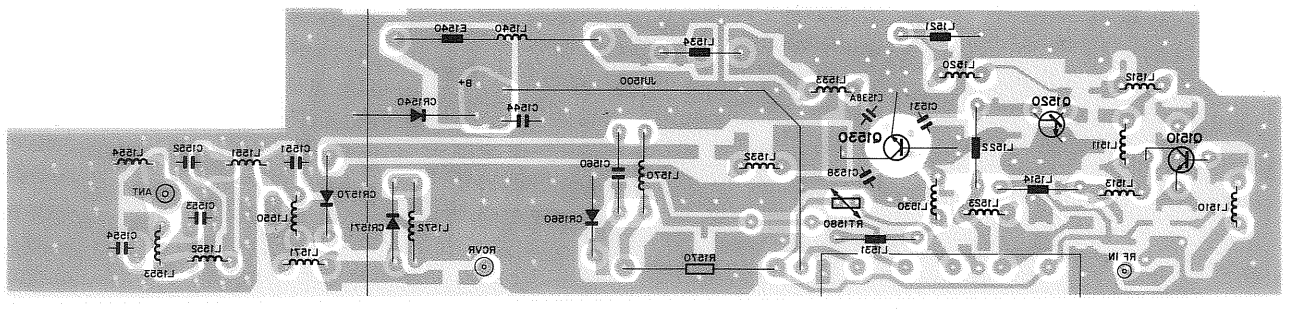
GLE6162A(403-433 MHz)/GLE6163A(438-470 MHz)
10W Power Amplifier

Schematic Diagram



SHOWN FROM SOLDER SIDE

SOLDER SIDE GDW-1554-A
COMPONENT SIDE GDW-1553-A
OVERLAY GDW-1556-C



SHOWN FROM COMPONENT SIDE

SOLDER SIDE GDW-1554-C
COMPONENT SIDE GDW-1553-C
OVERLAY GDW-1555-B

GLE6162A(403-433 MHz)/GLE6163A(438-470 MHz)
10W Power Amplifier

Circuit Board Detail

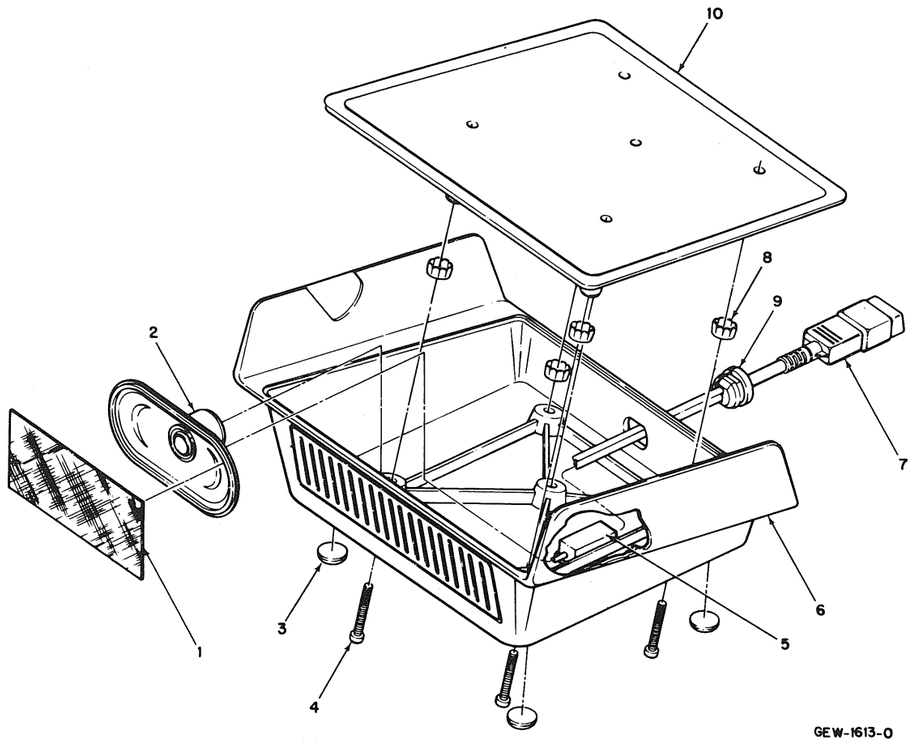
SHOWN FROM COMPONENT SIDE

SOLDER SIDE GDW-1554-O
COMPONENT SIDE GDW-1553-O
OVERLAY GDW-1555-B

Circuit Board Detail

10W Power Amplifier
GLE6162A(403-433 MHz)\GLE6163A(438-470 MHz)

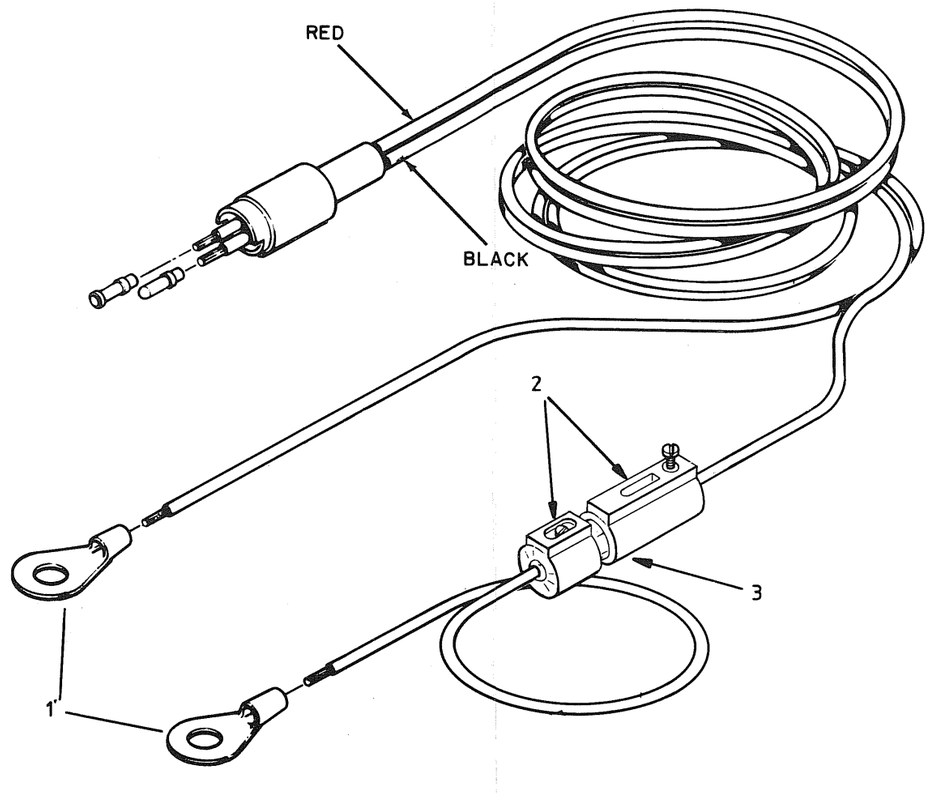
BASE SPEAKER TRAY



GEW-1613-0

Symbol	Part Number	Description
(1)	3580009K01	Cloth Grill
(2)	5080085D01	Speaker
(3)	7510606A06	Foot Rubber, 4 used
(4)	0300136581	Screw Tapping, 5 used
(5)	1782177B53	Resistor 2 Ohms 10% 5W
(6)	1580155J01	Housing Speaker
(7)	0102712B64	Cable Accessory
(8)	3880000K01	Clip Fastener, 5 used
(9)	4282018H18	Retainer Cable
(10)	1580154J02	Cover Speaker Housing

POWER CABLE

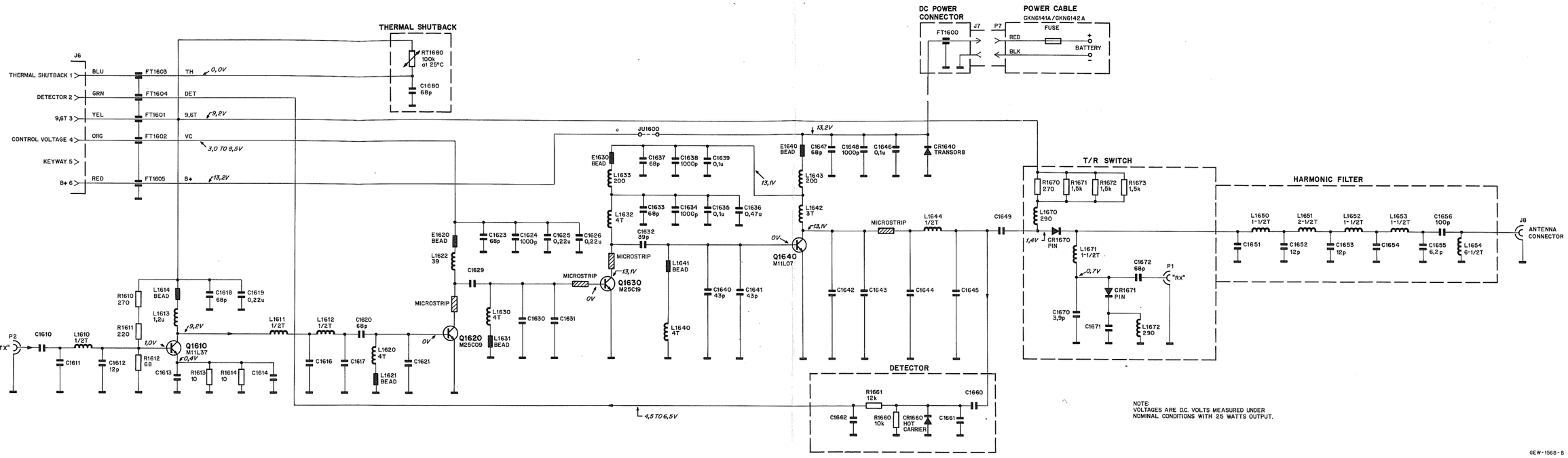


GEPD 4596-1

Symbol	Part Number	Description
(1)	2984770A16	Lug Ring
(2)	0902066N01	Fuseholder
(3)	6502065N07	Fuse 16A

GRN6118A Base Speaker Tray
GKN6141A DC Power Cable 2,4m
GKN6142A DC Power Cable 5,2m

Mechanical Parts

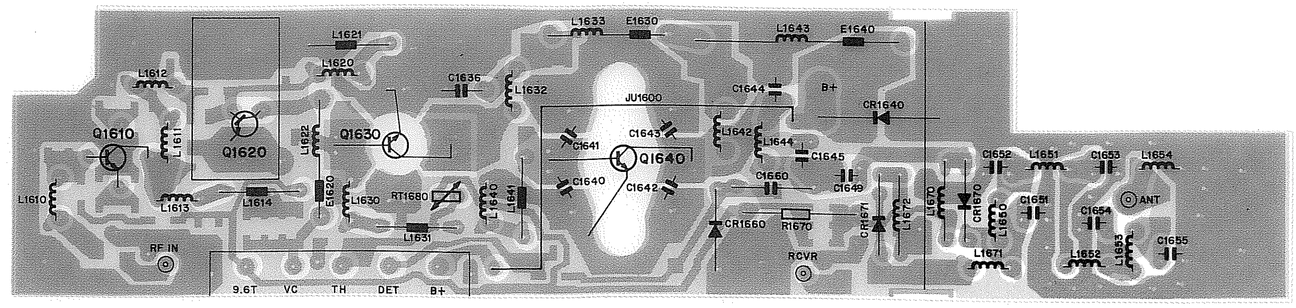


NOTE:
VOLTAGES ARE D.C. VOLTS MEASURED UNDER NOMINAL CONDITIONS WITH 25 WATTS OUTPUT.

GEW-1568-B

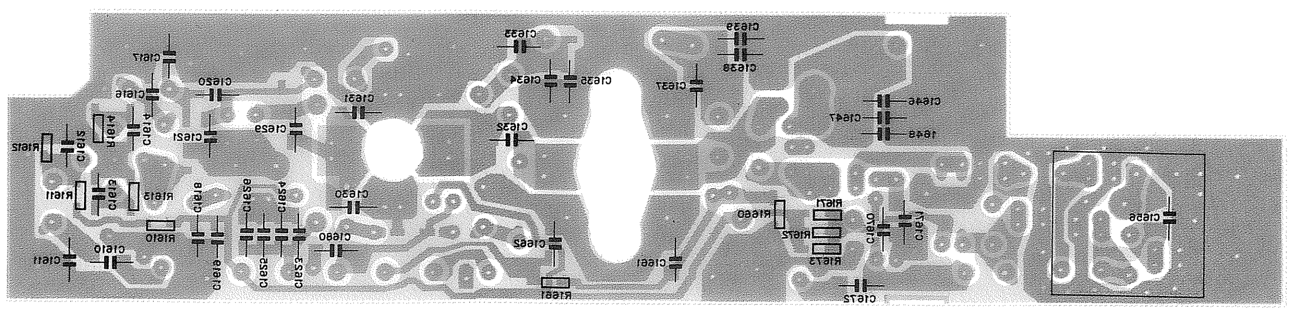
GLE6159A(403-433 MHz)/GLE6160A(438-470 MHz)
25W Power Amplifier

Schematic Diagram



SHOWN FROM COMPONENT SIDE

SOLDER SIDE GDW-1558-A
COMPONENT SIDE GDW-1557-A
OVERLAY — GDW-1559-A

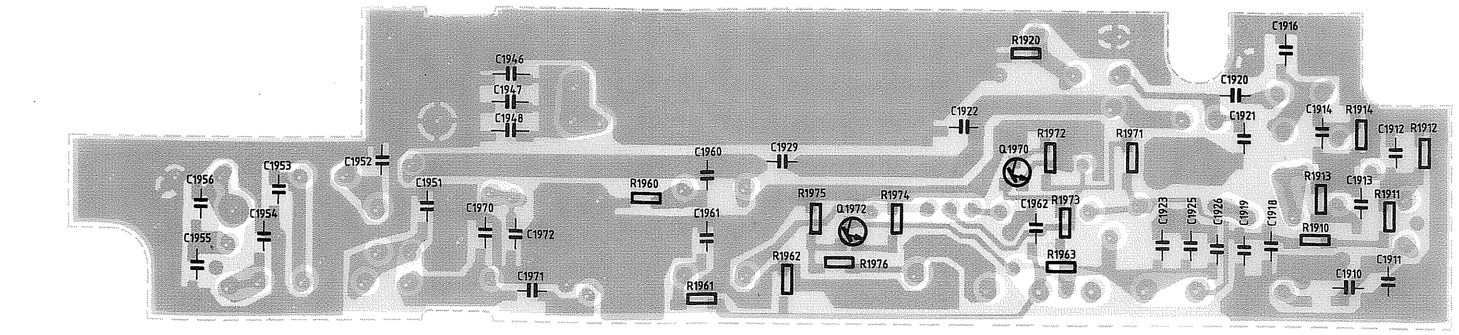


SOLDER SIDE GDW-1558-A
COMPONENT SIDE GDW-1557-A
OVERLAY — GDW-1560-A

SHOWN FROM SOLDER SIDE

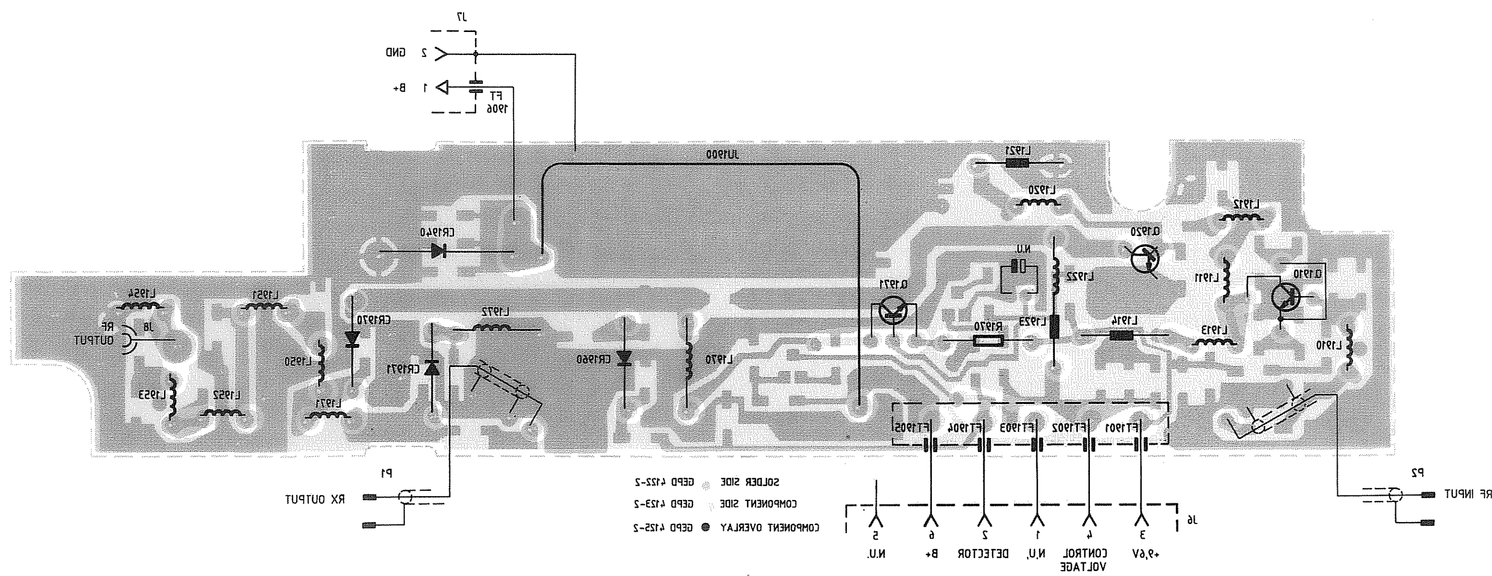
GLE6159A(403-433 MHz)/GLE6160A(438-470 MHz)
25W Power Amplifier

Circuit Board Detail



SOLDER SIDE GEPD 4122-2
COMPONENT SIDE GEPD 4123-2
CHIP OVERLAY ● GEPD 4124-2

SHOWN FROM SOLDER SIDE

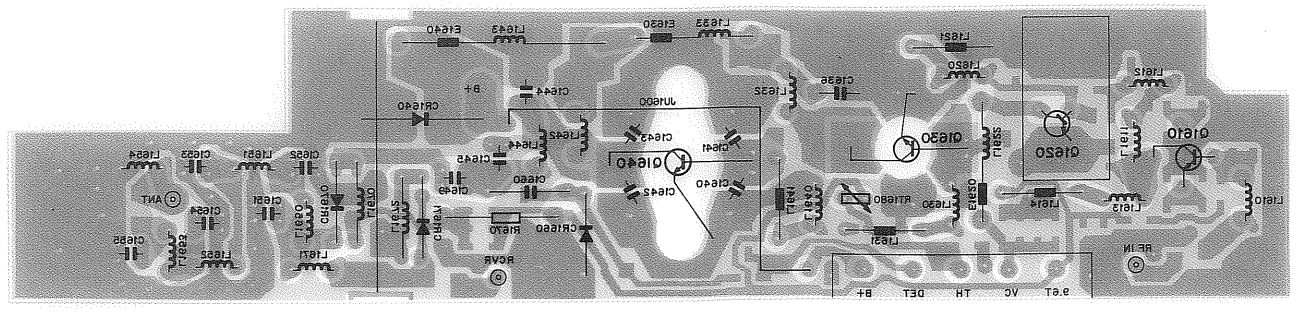


SOLDER SIDE GEPD 4122-2
COMPONENT SIDE GEPD 4123-2
COMPONENT OVERLAY ● GEPD 4125-2

SHOWN FROM COMPONENT SIDE

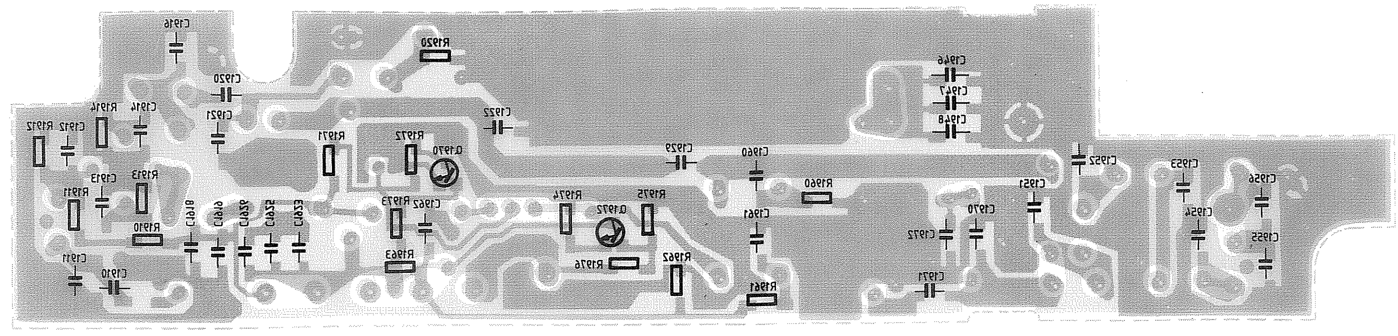
GLE6165A (433-470 MHz)
0.1 - 1W Power Amplifier

Circuit Board Detail



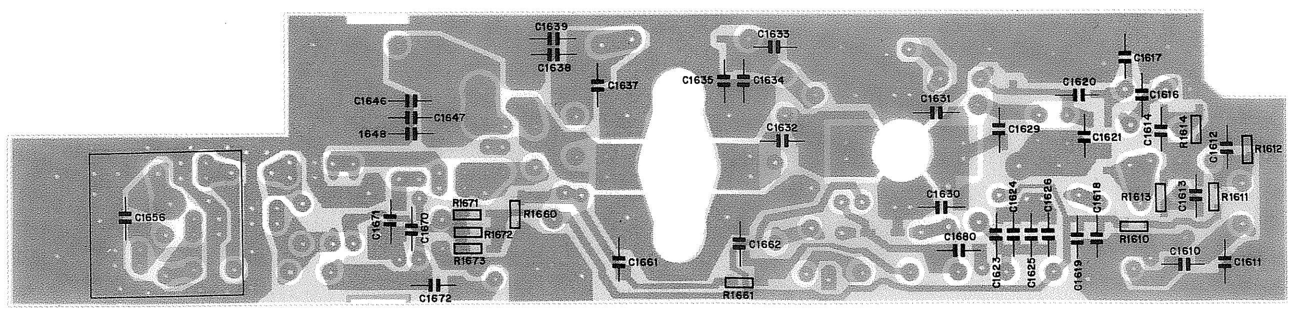
SHOWN FROM COMPONENT SIDE

SOLDER SIDE GDW-1558-A
COMPONENT SIDE GDW-1557-A
OVERLAY GDW-1559-A



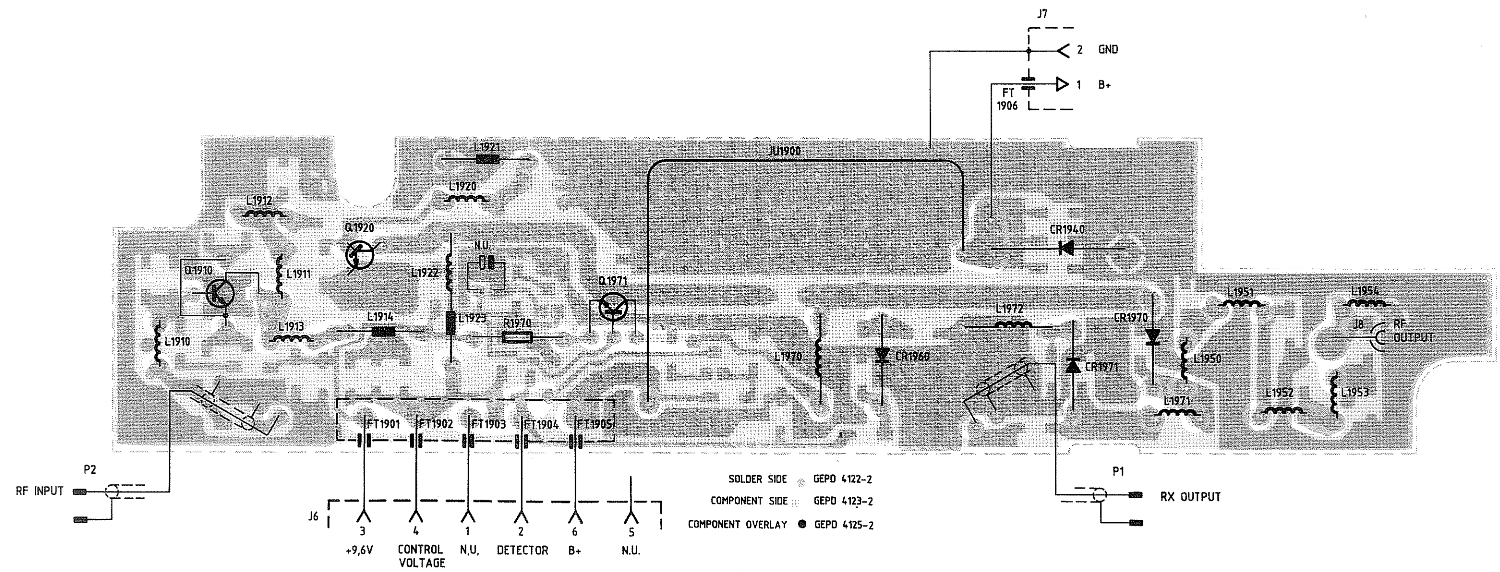
SOLDER SIDE GEPD 4122-2
COMPONENT SIDE GEPD 4123-2
CHIP OVERLAY GEPD 4124-2

SHOWN FROM SOLDER SIDE



SHOWN FROM SOLDER SIDE

SOLDER SIDE GDW-1558-A
COMPONENT SIDE GDW-1557-A
OVERLAY GDW-1560-A



SOLDER SIDE GEPD 4122-2
COMPONENT SIDE GEPD 4123-2
COMPONENT OVERLAY GEPD 4125-2

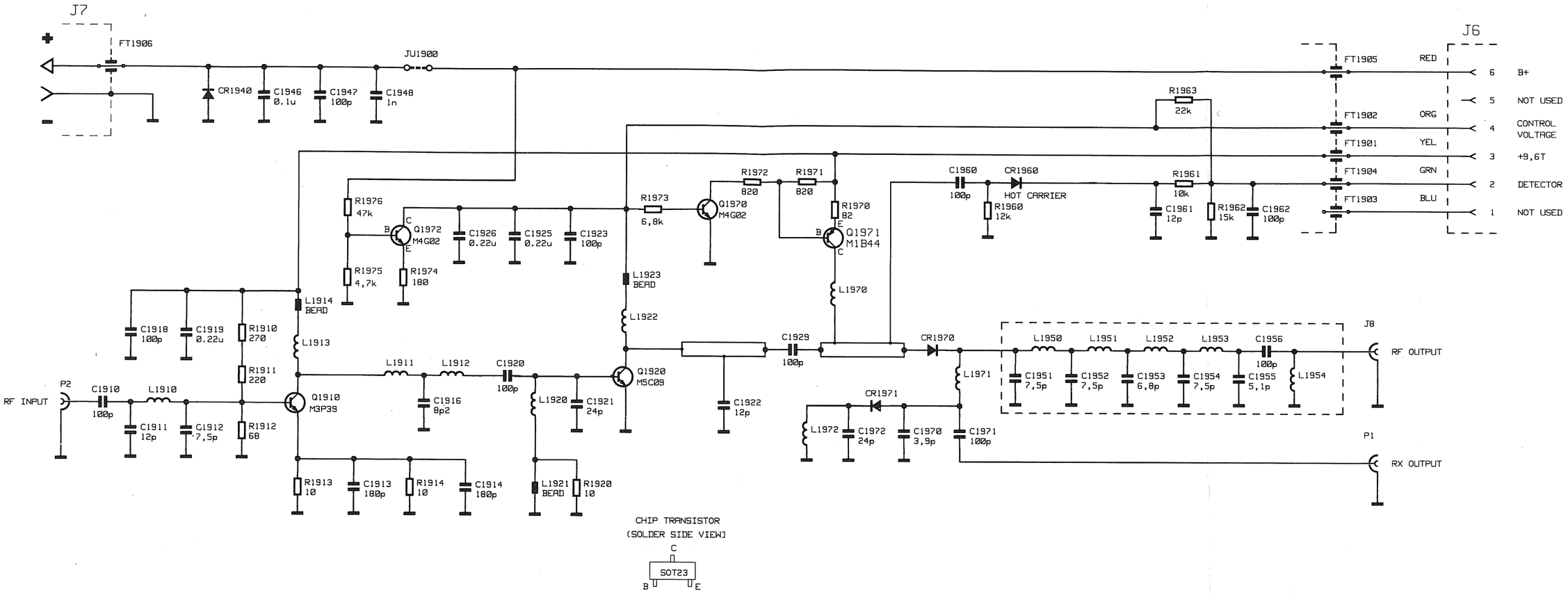
SHOWN FROM COMPONENT SIDE

GLE6159A(403-433 MHz)/GLE6160A(438-470 MHz)
25W Power Amplifier

Circuit Board Detail

GLE6165A (433-470 MHz)
0.1 - 1W Power Amplifier

Circuit Board Detail

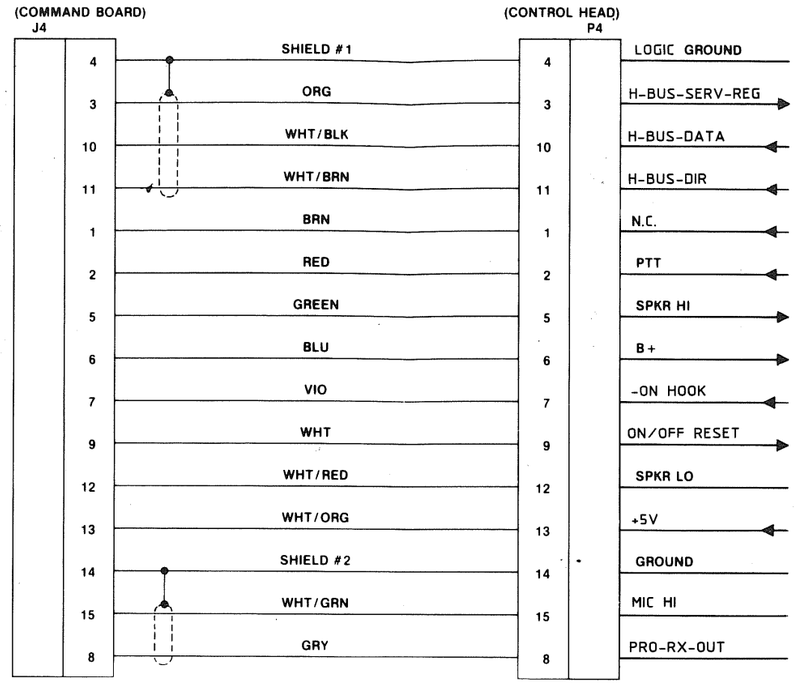


GEPD 5034

GLE6165A (433-470 MHz)
0.1 - 1W Power Amplifier

Schematic Diagram

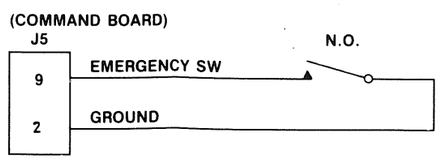
REMOTE MOUNT CABLES



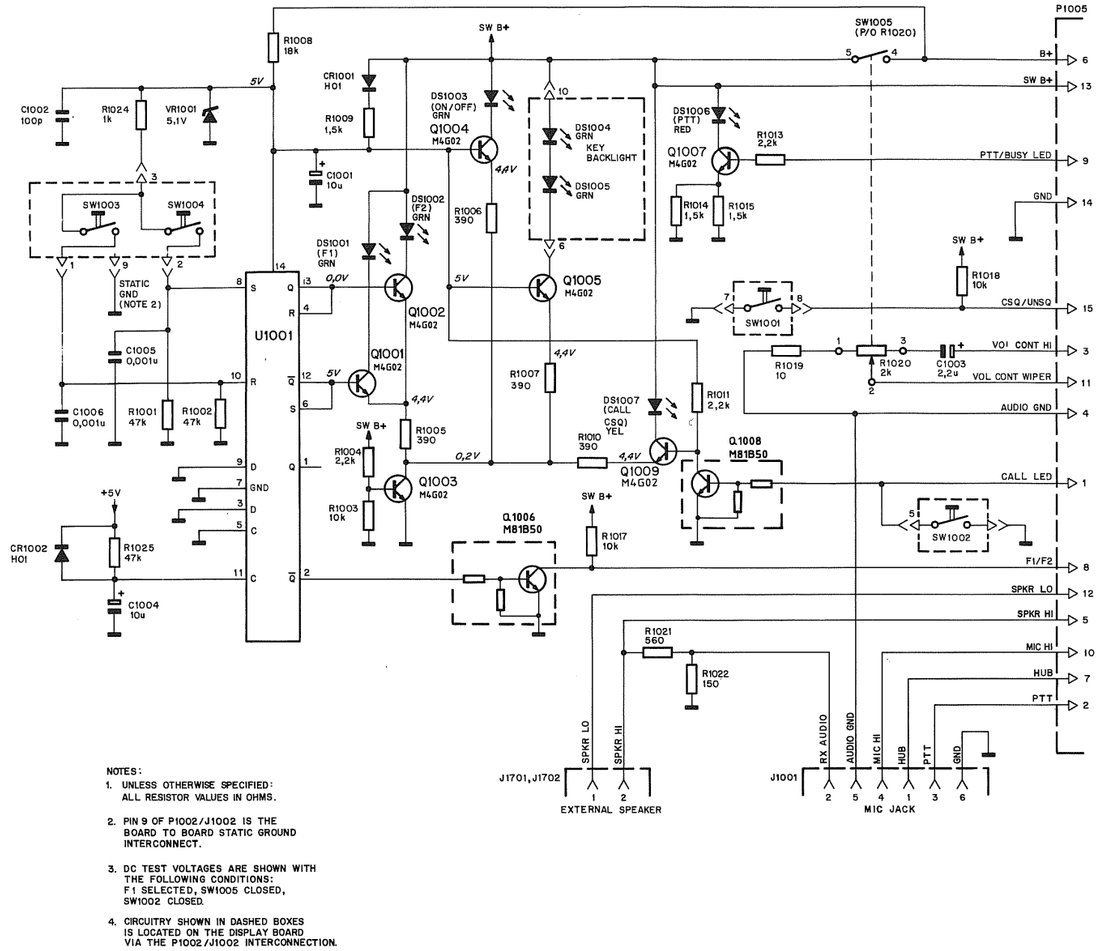
*** CABLE PIN ASSIGNMENTS ARE FOR PARALLEL CONTROL HEAD. FUNCTIONS IN PARENTHESES ARE THE DIFFERENCES ENCOUNTERED WHEN USING A SERIAL CONTROL HEAD.**

GEPD 4632

EMERGENCY SWITCH OPTION GLN6612A



GAW-1945-A



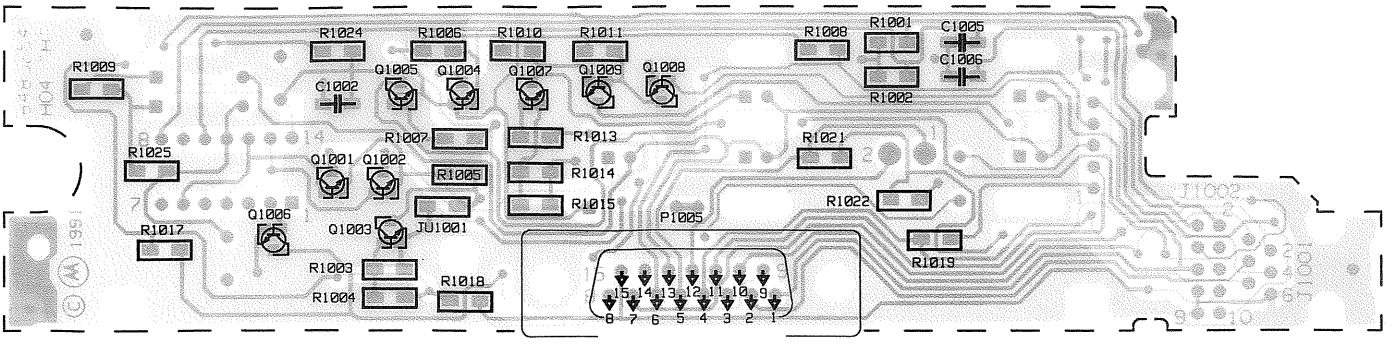
NOTES:

1. UNLESS OTHERWISE SPECIFIED: ALL RESISTOR VALUES IN OHMS.
2. PIN 9 OF P1002/J1002 IS THE BOARD TO BOARD STATIC GROUND INTERCONNECT.
3. DC TEST VOLTAGES ARE SHOWN WITH THE FOLLOWING CONDITIONS: F1 SELECTED, SW1005 CLOSED, SW1002 CLOSED.
4. CIRCUITRY SHOWN IN DASHED BOXES IS LOCATED ON THE DISPLAY BOARD VIA THE P1002/J1002 INTERCONNECTION.

GDW-1575-1

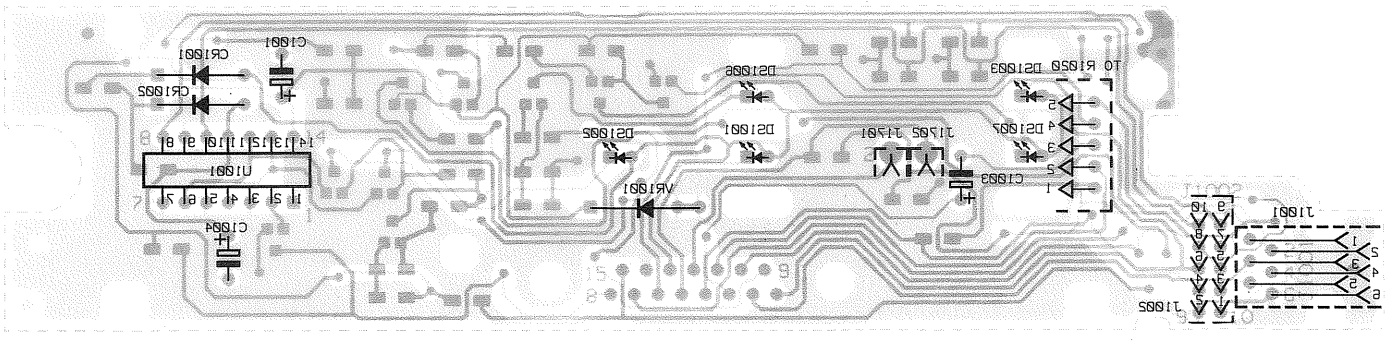
Schematic Diagram
GKN6146A/GKN6148A Remote Mount Cable
GLN6612A Optional Emergency Switch

GLN6616A Control Head Display Board
GLN6618B Interconnect Board



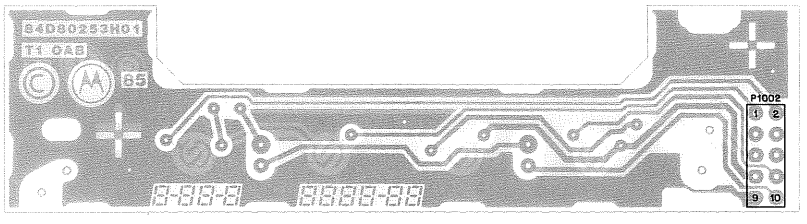
COMPONENT SIDE GEPD 5152 (8480254H04)
SOLDER SIDE GEPD 5153 (8480254H04)
CHIP OVERLAY GEPD 5155-1

SHOWN FROM SOLDER SIDE



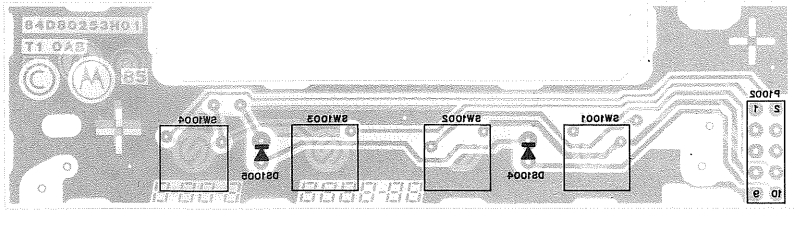
(8480254H04) GEPD 5152 COMPONENT SIDE
(8480254H04) GEPD 5153 SOLDER SIDE
GEPD 5154 COMPONENT OVERLAY

SHOWN FROM COMPONENT SIDE



SHOWN FROM SOLDER SIDE

COMPONENT SIDE GDW-1517-O
SOLDER SIDE GDW-1518-O
OVERLAY GDW-1520-O



SHOWN FROM COMPONENT SIDE

COMPONENT SIDE GDW-1517-O
SOLDER SIDE GDW-1518-O
OVERLAY GDW-1520-O

GLN6618B Interconnect Board (top)
GLN6616A Control Head Display Board (bottom)

Circuit Board Details

COMPONENT SIDE — GEPD 5152 — (8480254H04)
SOLDER SIDE — GEPD 5153 — (8480254H04)
CHIP OVERLAY — GEPD 5154-1

SHOWN FROM SOLDER SIDE

COMPONENT SIDE — GEPD 5152 — (8480254H04)
SOLDER SIDE — GEPD 5153 — (8480254H04)
COMPONENT OVERLAY — GEPD 5154

SHOWN FROM COMPONENT SIDE

COMPONENT SIDE — GDW-1517-O
SOLDER SIDE — GDW-1518-O
OVERLAY — GDW-1520-O

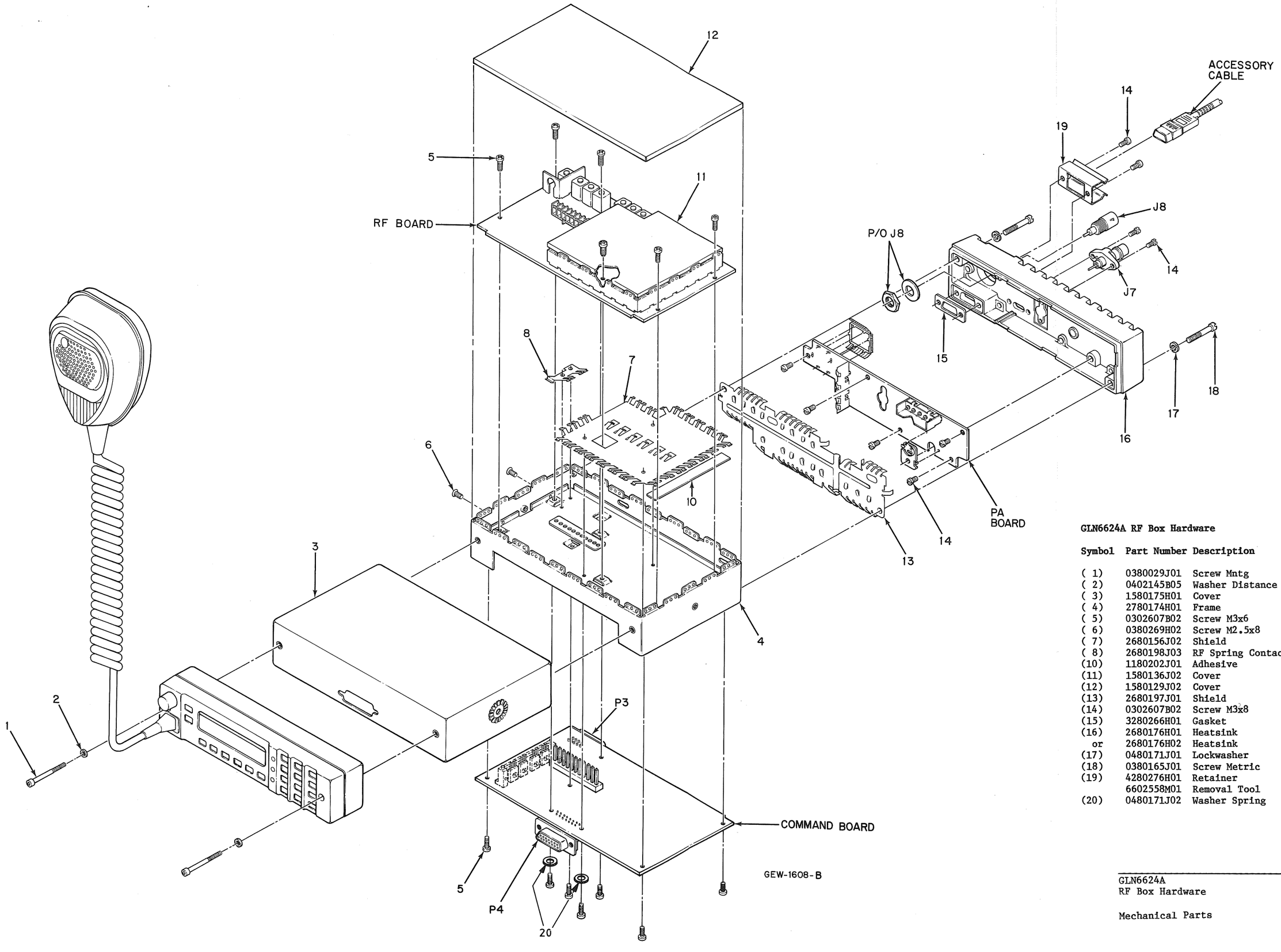
SHOWN FROM SOLDER SIDE

COMPONENT SIDE — GDW-1517-O
SOLDER SIDE — GDW-1518-O
OVERLAY — GDW-1519-O

SHOWN FROM COMPONENT SIDE

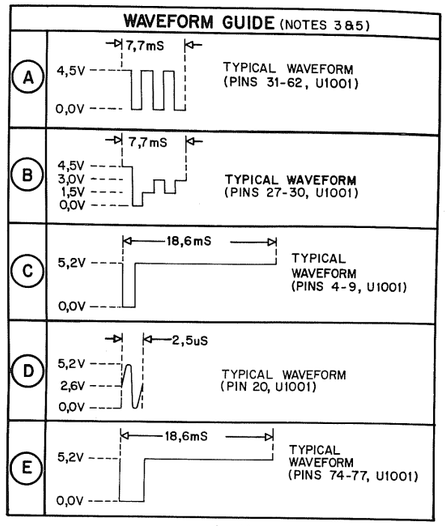
Circuit Board Details

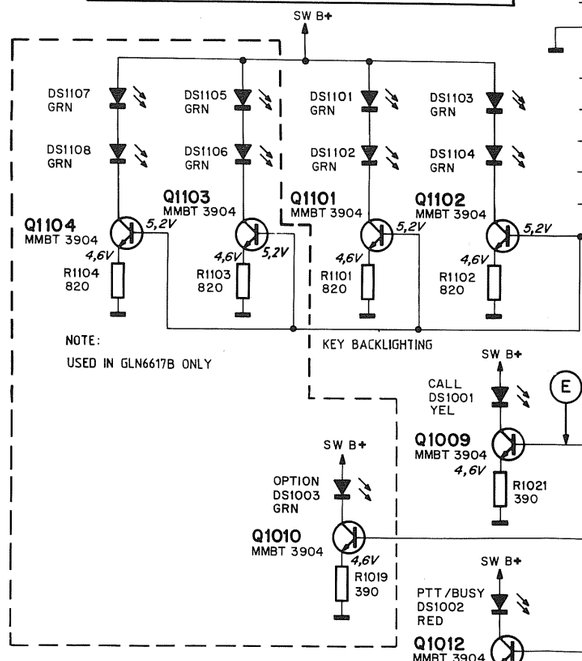
GLN6618A Control Head Display Board (bottom)
GLN6618B Interconnect Board (top)



GLN6624A RF Box Hardware

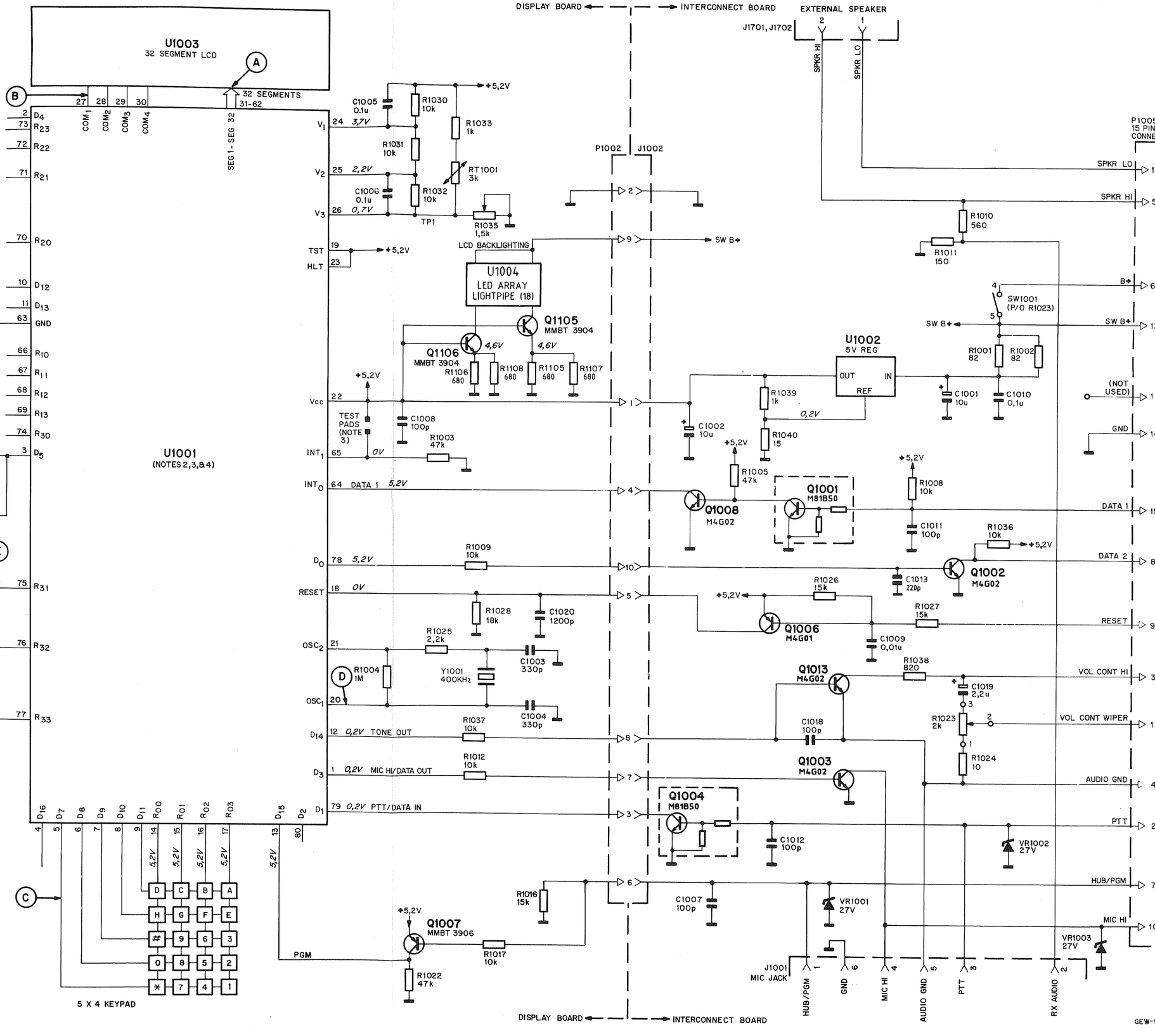
Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	1580175H01	Cover	Radio Housing
(4)	2780174H01	Frame	Chassis
(5)	0302607B02	Screw M3x6	13 used
(6)	0380269H02	Screw M2.5x8	2 used
(7)	2680156J02	Shield	RF
(8)	2680198J03	RF Spring Contact	
(10)	1180202J01	Adhesive	RF Shield
(11)	1580136J02	Cover	RF Shield
(12)	1580129J02	Cover	Chassis Frame
(13)	2680197J01	Shield	PA Ground
(14)	0302607B02	Screw M3x8	11 used
(15)	3280266H01	Gasket	
(16)	2680176H01	Heatsink	10W Radio
or	2680176H02	Heatsink	25W Radio
(17)	0480171J01	Lockwasher	2 used
(18)	0380165J01	Screw Metric	2 used
(19)	4280276H01	Retainer	Accessory Cable
	6602558M01	Removal Tool	2 required
(20)	0480171J02	Washer Spring	2 required





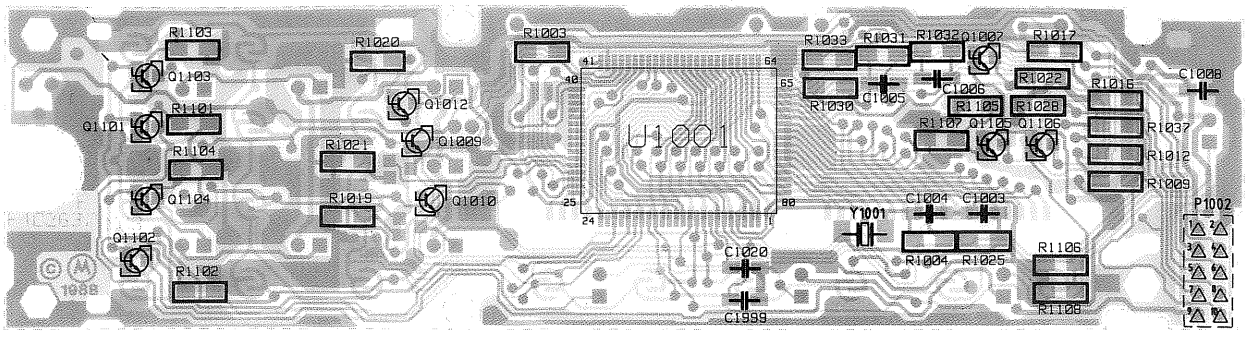
NOTES:

1. UNLESS OTHERWISE SPECIFIED; ALL RESISTOR VALUES ARE IN OHMS.
2. ALL KEYS SHOWN ARE MOMENTARY.
3. DC VOLTAGES SHOWN ARE AFTER THE TEST PADS ARE MOMENTARILY SHORTED WITH NO RADIO ATTATCHED.
4. THE VOLTAGES ON PINS 24, 25, 26 OF U1001 ARE WITH THE VOLTAGE FROM PIN 22 TO PIN 26 ADJUSTED TO 4,5V AT 25°C BY R1035.
5. ALL WAVEFORMS ARE DC COUPLED.
6. FOR PROGRAMMING, THE MIC HI AND PTT BECOME DATA LINES.



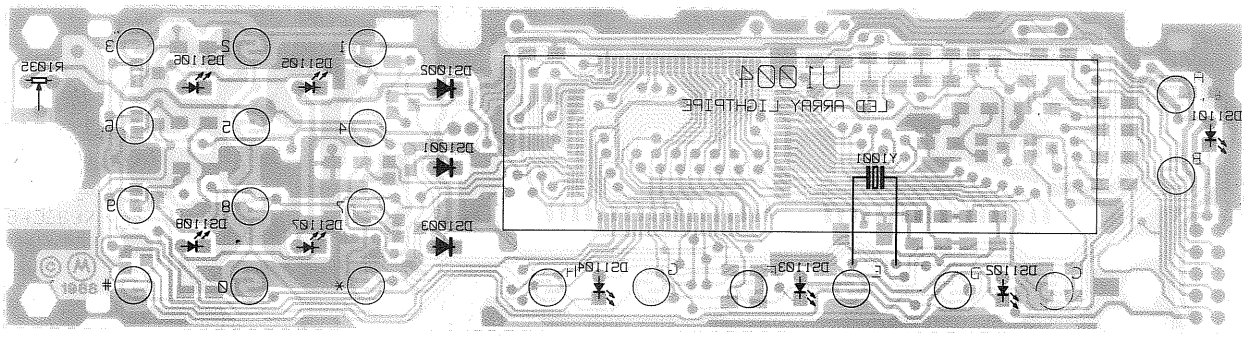
GLN6960B LCD Control Head Display Board 2A
GLN6617B LCD Control Head Display Board
GLN6619C Interconnect Board

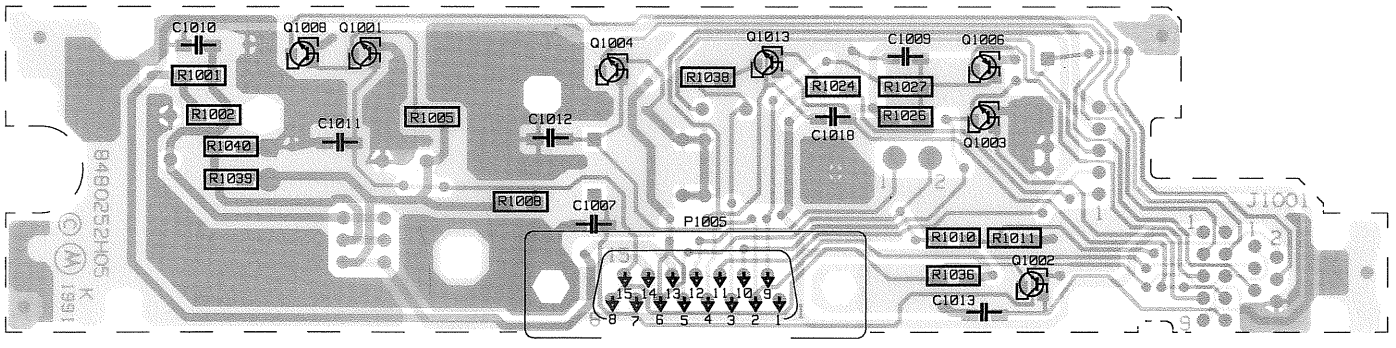
Schematic Diagram



COMPONENT SIDE ○ GEPD 4421-1 (8402637M03)
SOLDER SIDE ○ GEPD 4420-1 (8402637M03)
CHIP OVERLAY ● GEPD 4423-1

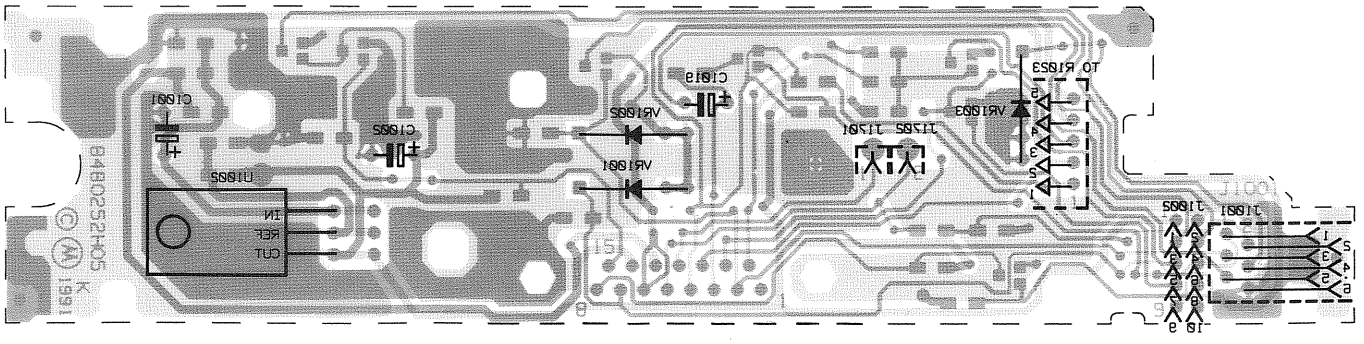
SHOWN FROM SOLDER SIDE





COMPONENT SIDE ○ GEPD 5158 (8480252H05)
SOLDER SIDE ○ GEPD 5159 (8480252H05)
CHIP OVERLAY ● GEPD 5160-1

SHOWN FROM SOLDER SIDE



GLN6960B LCD Control Head Display Board 2A (top)
GLN6617B LCD Control Head Display Board (top)
GLN6619C Interconnect Board (bottom)

Circuit Board Details

COMPONENT SIDE ○ GEPD 4421-1 (8402637M03)
SOLDER SIDE ○ GEPD 4420-1 (8402637M03)
CHIP OVERLAY ● GEPD 4423-1

SHOWN FROM SOLDER SIDE

COMPONENT SIDE ○ GEPD 4421-1 (8402637M03)
SOLDER SIDE ○ GEPD 4420-1 (8402637M03)
COMPONENT OVERLAY ● GEPD 4422-2

SHOWN FROM COMPONENT SIDE

COMPONENT SIDE ○ GEPD 5158 (8480252H05)
SOLDER SIDE ○ GEPD 5159 (8480252H05)
CHIP OVERLAY ● GEPD 5160-1

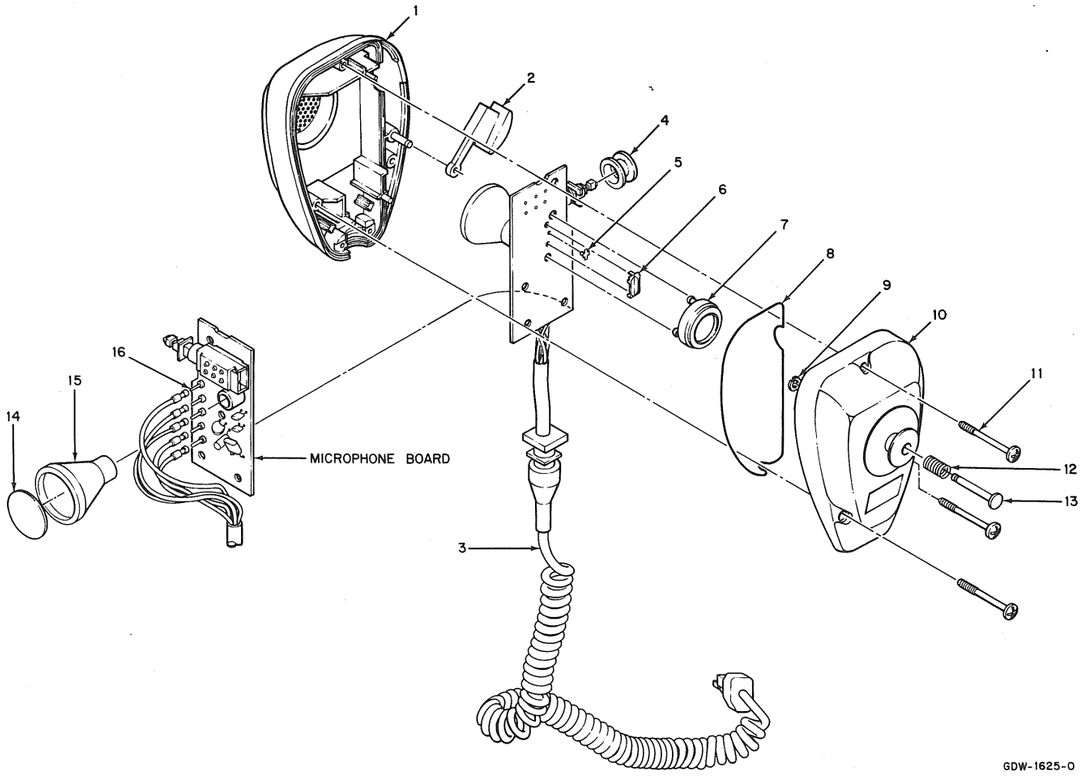
SHOWN FROM SOLDER SIDE

SHOWN FROM COMPONENT SIDE

COMPONENT SIDE ○ GEPD 5158 (8480252H05)
SOLDER SIDE ● GEPD 5159 (8480252H05)
COMPONENT OVERLAY ○ GEPD 5161

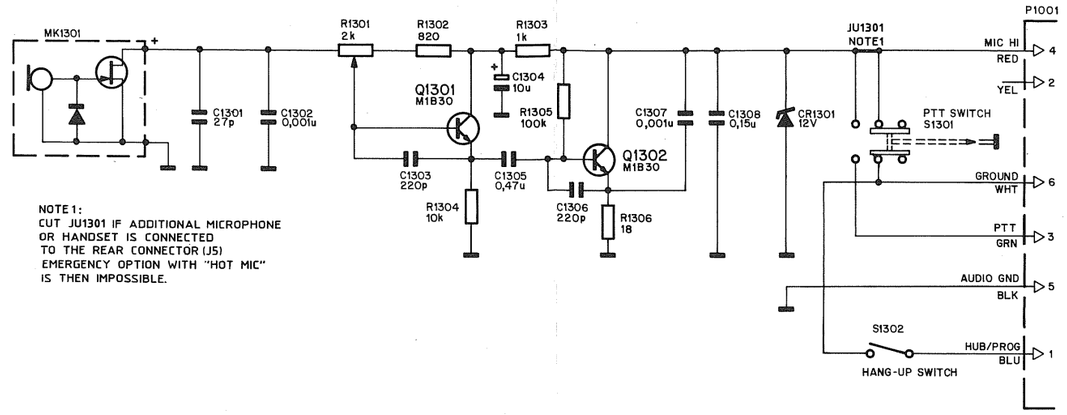
Circuit Board Details

GLN6960B LCD Control Head Display Board 2A (top)
GLN6617B LCD Control Head Display Board (top)
GLN6619C Interconnect Board (bottom)



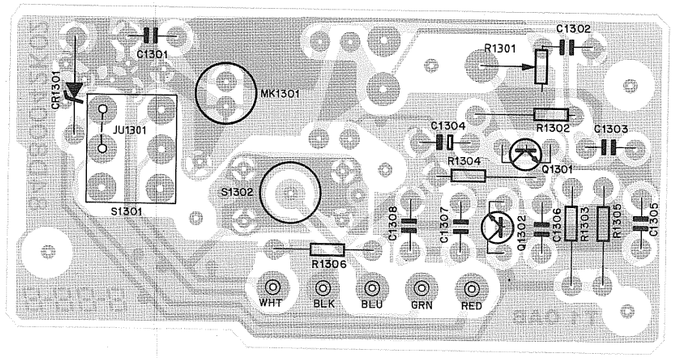
GDW-1625-0

Symbol	Part Number	Description
(1)	1580137D05	Housing Front
(2)	3880144D03	Button PTT
(3)	3080039J01	Cord Cable
(4)	0580221K01	Grommet Switch
(5)	4080252E03	Contact Monitor Switch
(6)	4080252E04	Button Monitor Switch
(7)	3280253E01	Plate Gasket Monitor Switch
(8)	3280143D01	Gasket Housing
(10)	0102713B19	Assembly Rear Housing
(11)	0380076E04	Screw Metric, 3 used
(12)	4180096E02	Plunger Spring
(13)	4580113D02	Actuator Plunger
(14)	3580089D01	Felt Baffle
(15)	0580148D01	Grommet Cartridge
(16)	3910184A10	Plug Contact

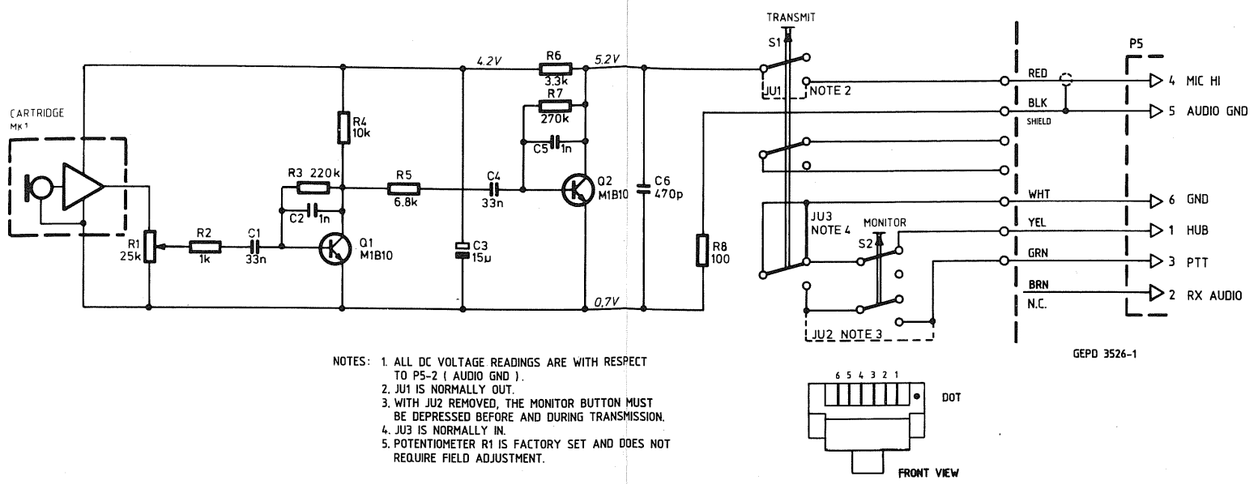


NOTE 1:
CUT JU1301 IF ADDITIONAL MICROPHONE
OR HANDSET IS CONNECTED
TO THE REAR CONNECTOR (J5)
EMERGENCY OPTION WITH "HOT MIC"
IS THEN IMPOSSIBLE.

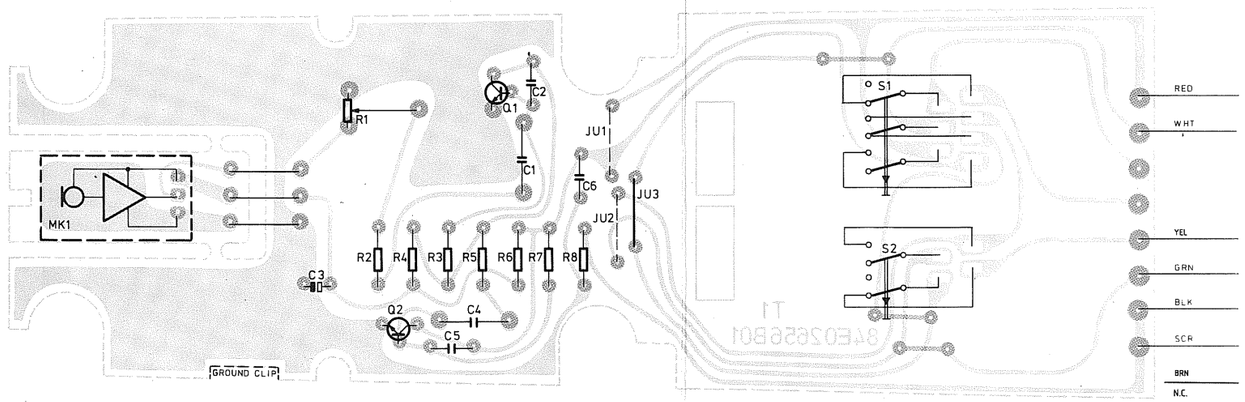
GEPD 4631-1

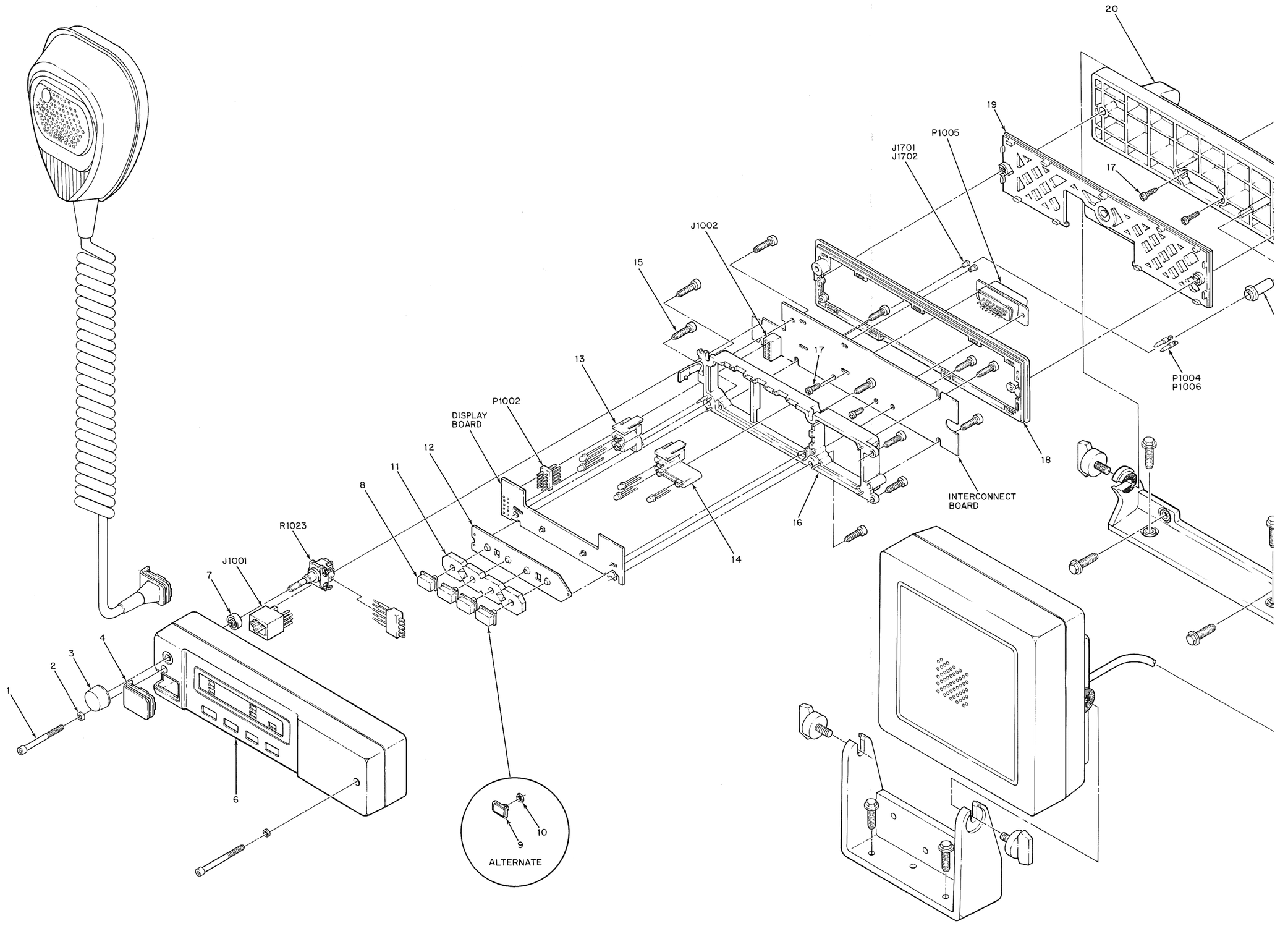


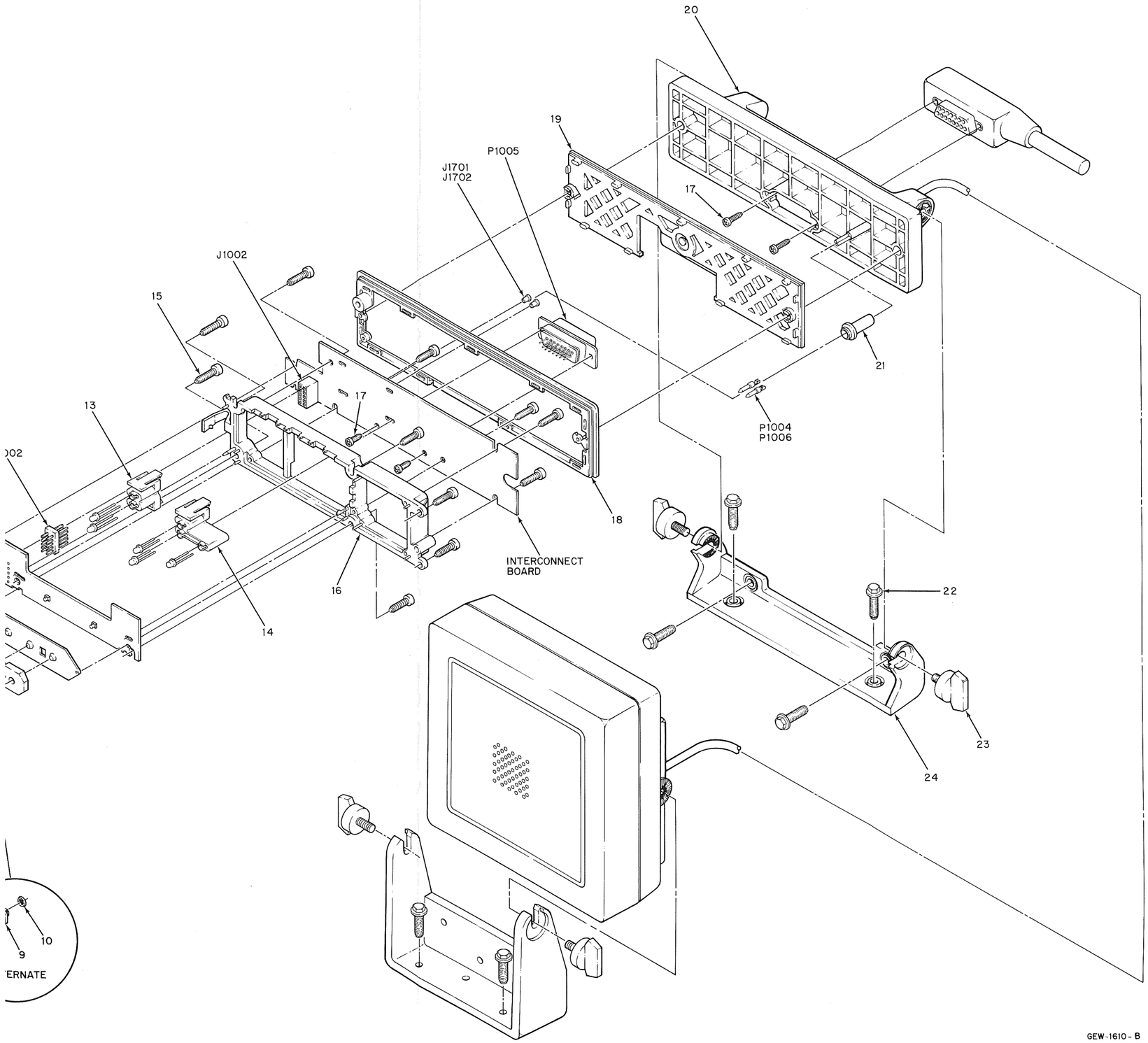
COMPONENT SIDE — GDW-1589-0
SOLDER SIDE — GDW-1590-1
OVERLAY — GDW-1591-3



NOTES:
1. ALL DC VOLTAGE READINGS ARE WITH RESPECT TO P5-2 (AUDIO GND).
2. JU1 IS NORMALLY OUT.
3. WITH JU2 REMOVED, THE MONITOR BUTTON MUST BE DEPRESSED BEFORE AND DURING TRANSMISSION.
4. JU3 IS NORMALLY IN.
5. POTENTIOMETER R1 IS FACTORY SET AND DOES NOT REQUIRE FIELD ADJUSTMENT.




20
19
P1005
J1701
J1702
17
J1002
15
17
13
P1002
DISPLAY
BOARD
12
11
8
18
INTERCONNECT
BOARD
16
14
R1023
J1001
7
4
3
2
1
6
9
10
ALTERNATE
P1004
P1006



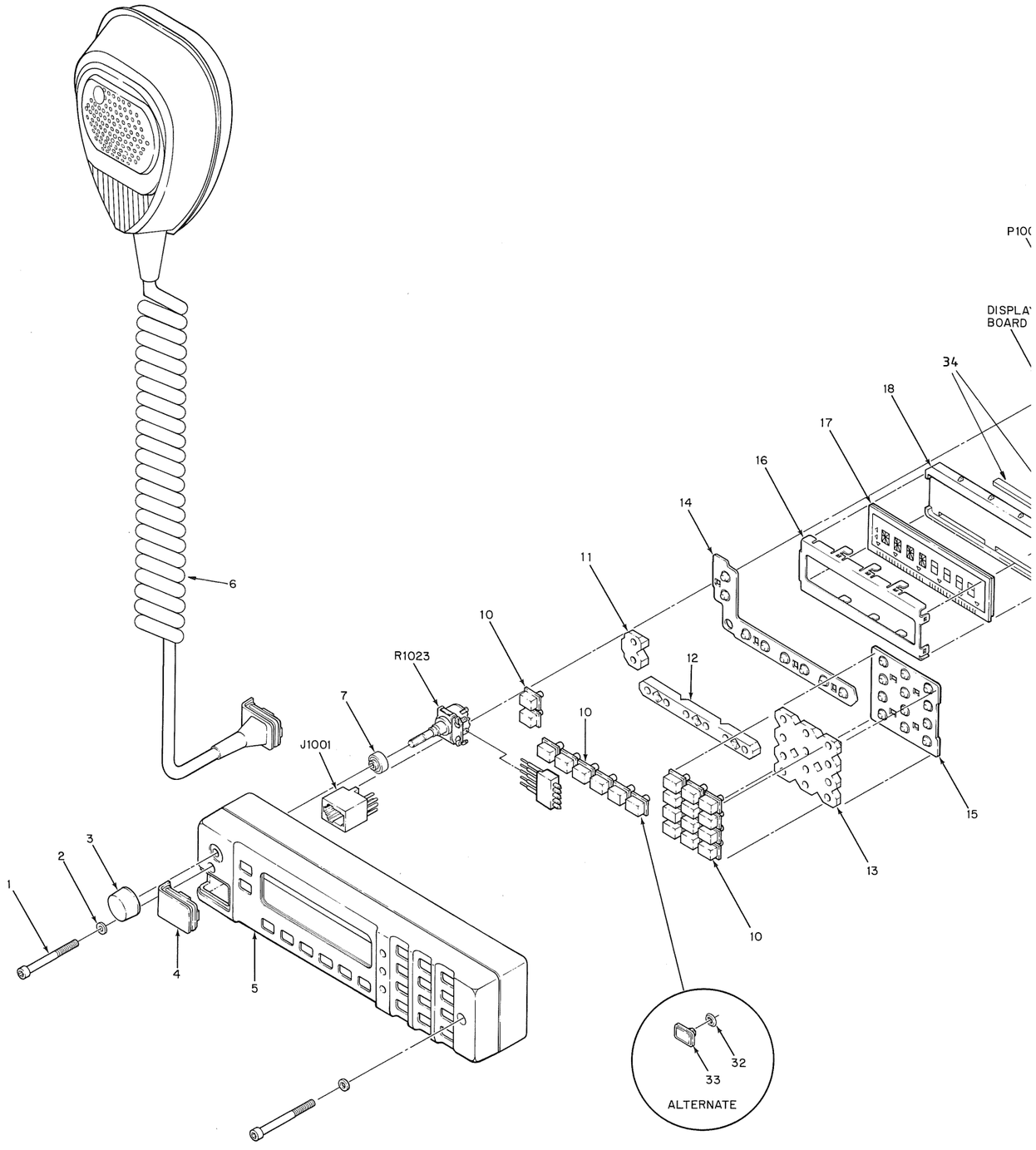
GEW-1610-B

GLN6620A Non-LCD Control Head Hardware
for Control Heads G1031A, G1032A & G1033A

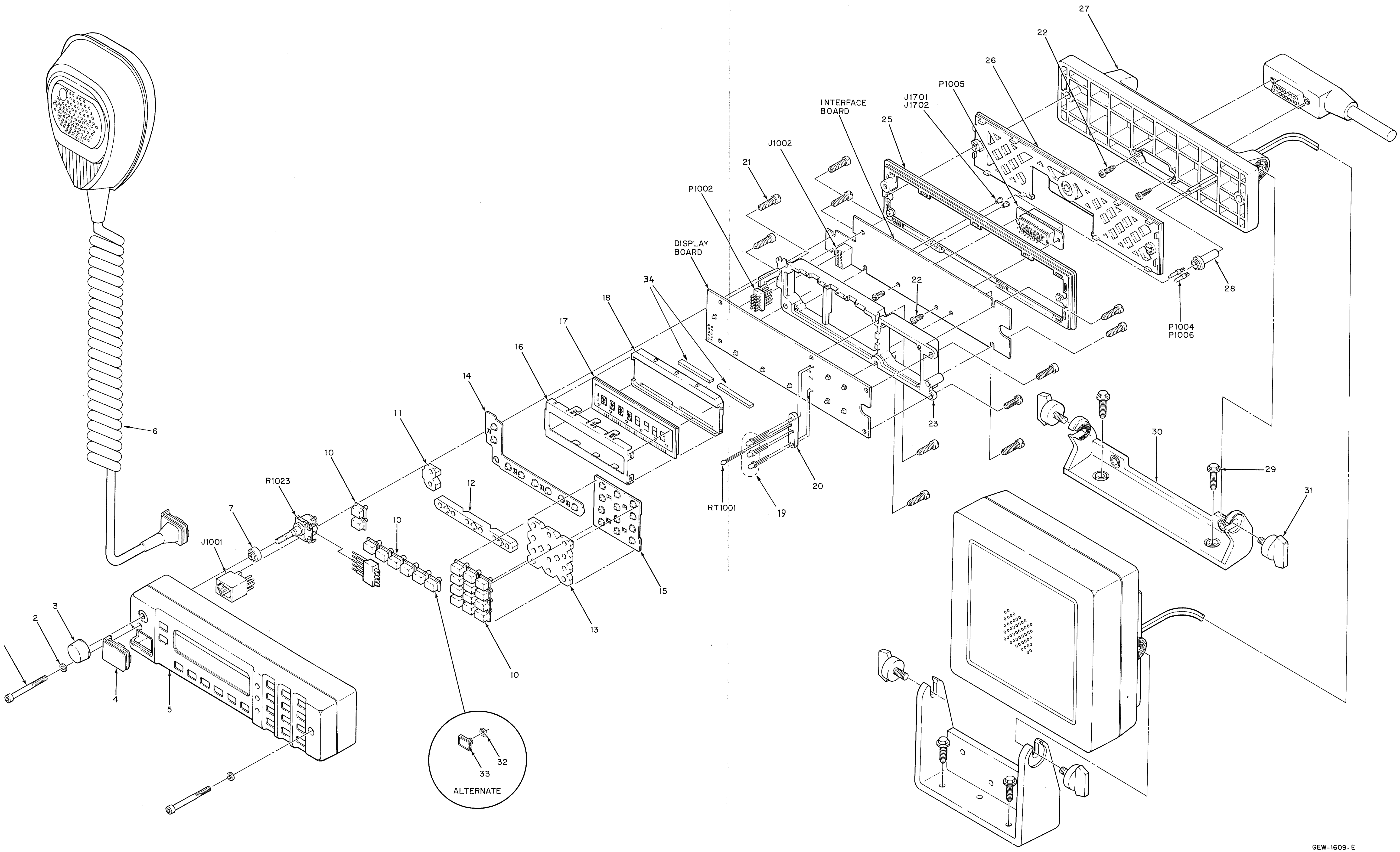
Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	3602063N01	Knob	Volume Control
(4)	1580022J01	Cover	Microphone Connector
(6)	1580237J01	Housing	Front
(7)	3280034J01	Gasket	Potentiometer
(8)	3880230J--	Key	
(9)	3880284J02	Button	Plug
(10)	3280119J02	Gasket	
(11)	6180287J01	Lightpipe	(1 x 4)
(12)	7580236J01	Elastomeric Pad	(1 x 4)
(13)	4280021J02	Retainer	LED
(14)	4280021J01	Retainer	LED
(15)	0380030J01	Screw M3x10	8 used
(16)	2780233J01	Frame	Internal Chassis
(17)	0384723C02	Screw M3x6	4 used
(18)	3280032J01	Gasket	Housing
(19)	1580031J01	Back Cover	Housing
(20)	1580037J01	Back Cover	(Remote Mount)
(21)	3280120J01	Grommet	Speaker
(22)	0300136756	Screw Tpng	4 used
(23)	0380036J01	Screw Trunnion	2 used
(24)	0780035J01	Trunnion	Remote Mount

GLN6621A & GLN6623A
LCD Control Head Exploded View

Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	3602063N01	Knob	Volume Control
(4)	1580022J01	Cover	Microphone Connector
(5)	1502314M02	Housing	Front
(6)	3080039J01	Cord	Cable
(7)	3280034J01	Gasket	Potentiometer
(10)	3880220H--	Key	Refer to page 2-40
(11)	6180287J01	Lightpipe	(1 x 4)
(12)	6180288J01	Lightpipe	(1 x 8)
(13)	6180286J01	Lightpipe	(3 x 4)
(14)	7580217H01	Elastomeric Pad	L-Shape
(15)	7580218H01	Elastomeric Pad.	(3 x 4)
(16)	0702402Y01	Bracket	LCD
(17)	7280045K01	Display	LCD
(18)	6102059N03	Lightpipe	LCD
(19)	4880014J02	LED	Yellow
	4880014J01	LED	Red
	4880014J03	LED	Green
(20)	4280283J01	Retainer	LED
(21)	0380030J01	Screw M3x10	8 used
(22)	0384723C02	Screw M3x6	4 used
(23)	2780233J01	Frame	Internal Chassis
(25)	3280032J01	Gasket	Housing
(26)	1580031J01	Back Cover	Housing
(27)	1580037J01	Back Cover	(Remote Mount)
(28)	3280120J01	Grommet	Speaker
(29)	0300136756	Screw Tpng	4 used
(30)	0780035J01	Trunnion	Remote Mount
(31)	0380036J01	Screw Trunnion	2 used
(32)	3880284J02	Button	Plug
(33)	3280119J02	Gasket	
(34)	2880019J03	Connection Elastomeric	



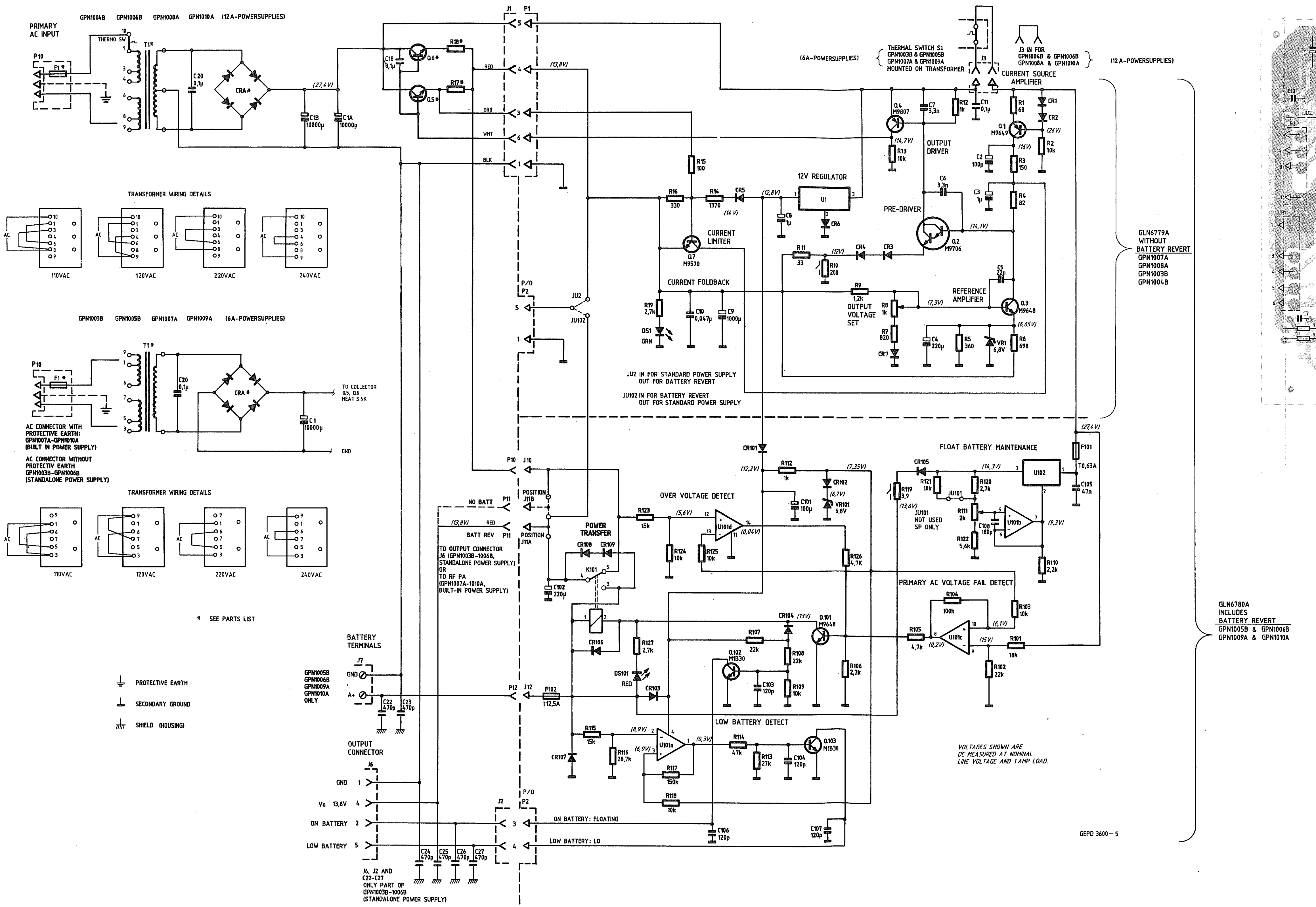
LCD Control Heads G1041A, G1042A & G1043A
(for EZ Models)
LCD Control Heads G1053A (for EV Models)
Schematic Diagram & Circuit Board Details

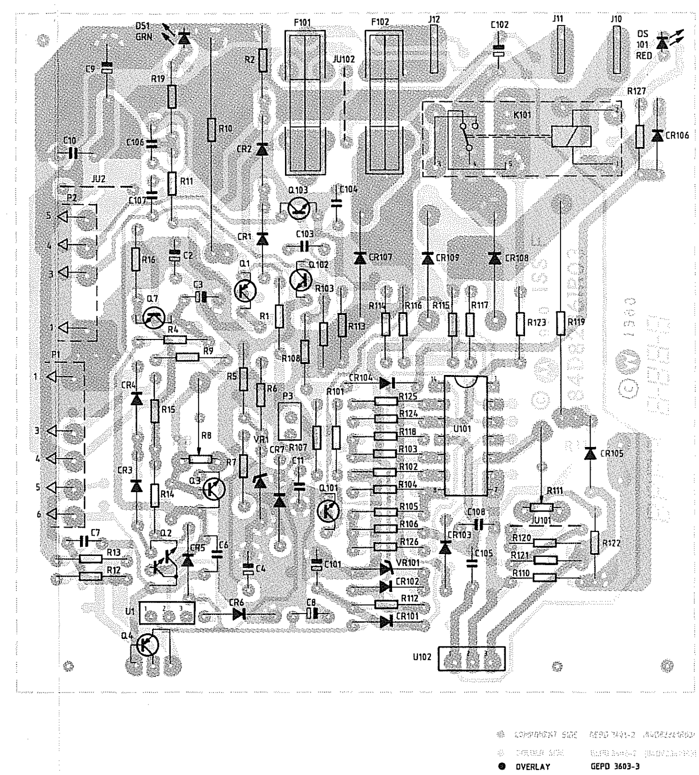

27
22
26
P1005
J1701
J1702
INTERFACE
BOARD
25
J1002
21
P1002
DISPLAY
BOARD
34
18
17
16
14
11
10
12
R1023
7
J1001
6
22
28
P1004
P1006
23
30
29
31
20
RT1001
19
15
13
10
10
2
3
4
5
33
32
ALTERNATE

GEW-1609-E

NOTE
The unit's nameplate is located at the housing bottom.

HINWEIS
Das Typenschild befindet sich auf der Gehäuseunterseite.





NOTE To order a power supply as a separate item:	
Order	**to obtain**
G1104	GPN1003B
G1050 *	GPN1003B
G1105	GPN1004B
G1106	GPN1005B
G1107	GPN1006B

* Order G1050 for MC transmac

HINWEIS Einzelne Netzteile sind wie folgt zu bestellen:	
Bestellbez.	**Netzteil Typ**
G1104	GPN1003B
G1050 *	GPN1003B
G1105	GPN1004B
G1106	GPN1005B
G1107	GPN1006B

* G1050 für MC transmac bestellen

GPN1003B, GPN1004B, GPN1005B & GPN1006B
Power Supplies
(includes GLN6779C & GLN6780C Regulator Boards)

Schematic Diagram

CONTROL HEAD 1

38D80230J01	1	38D80230J05	♪	38D80230J09	A
38D80230J02	2	38D80230J06	⊶	38D80230J10	B
38D80230J03	⏦	38D80230J07	⌂	38D80230J11	
38D80230J04	⏦▷	38D80230J08	P/C		

CONTROL HEAD 2 & 3

38D80220H01	1	38D80220H21	((▷	38D80220H38	~↑
38D80220H02	2	38D80220H22	⏦	38D80220H39	⊶
38D80220H03	3	38D80220H23	⏦▷	38D80220H40	↑
38D80220H04	4	38D80220H24	Y1	38D80220H41	Y
38D80220H05	5	38D80220H25	♪	38D80220H42	☼
38D80220H06	6	38D80220H26	⌒	38D80220H65	P/C
38D80220H07	7	38D80220H27	⌒	38D80220H66	A
38D80220H08	8	38D80220H28	🔔	38D80220H67	B
38D80220H09	9	38D80220H30	✳	38D80220H68	C
38D80220H10	0	38D80220H31	⧉	38D80220H69	I.D.
38D80220H11	I	38D80220H32	◈	38D80220H70	♪↑
38D80220H12	II	38D80220H33	⌂	38D80220H71	⧉
38D80220H15	⌒↑	38D80220H34	#	38D80220H72	↓
38D80220H18	♪→	38D80220H35	♪1	38D80220H73	⬤
38D80220H19	Y	38D80220H36	♪10	38D80220H74	
38D80220H20	Y10	38D80220H37	♪↑		

GEPD 5150-1

Nomenclature for Pushbutton Keys

SECTION 3

PARTS LISTS
STÜCKLISTEN
LISTE DES COMPOSANTS
LISTA DE COMPONENTES

GKN6146A & GKN6148A
Cables, Remote Mount

Symbol	Part Number	Description	Value
	3080038J01	Cable 5.5m	(GKN6146A)
	3080038J02	Cable 3.0m	(GKN6148A)

GLE6141B RF Board, 25kHz (403-433MHz) 5ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.25pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9
C 8	2113741B21	1000
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.10uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF 80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF 80-20%
C 68	2111032B15	0.22uF 80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B57	0.033uF 80-20%
C 73	2113741B53	0.022uF 80-20%
C 74	2111032B15	0.22uF 80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF 80-20%
C 77	2111032B15	0.22uF 80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF 80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF 80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF 80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117	2113740B45	68
C118	2113740B45	68
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122	2113740B45	68
C123	2113740B45	68
C124	2113740B45	68
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C151	2113741B21	0.001uF 10%
C152	2113740B25	10
C153	2113741B21	0.001uF 10%
C154	2113741B45	0.01
C155	2311013F10	0.56 25V
C156	2113740B55	180
C157	2113740B55	180
C158	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C161	2113740B46	75
C164	2113741B45	0.01
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22
C206	2111031A11	6.8 0.5pF
C207	2113740B21	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B49	100 0.5pF
C217	2113740B45	68
C218	2113740B45	68
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.5pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113740B15	3.9 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C259	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303	2113740B31	18
C304	2113740B31	18
C305	2113740B31	18
C306	2113740B31	18
C307	2113740B31	18
C308	2113740B31	18
C309	2113740B31	18
C310	2113740B31	18

C311	2113740B31	18
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470 10%

DIODE: (SEE NOTE)

CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR151	4805129M21	Silicon varactor
CR152	4805129M21	Silicon varactor
CR153	4883654H01	Silicon
CR154	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A01	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier

HELICAL FILTER:

FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell

CERAMIC FILTER:

FL51	9180097D06	455 kHz 6-pole
FL52	9180098D06	455 kHz 4-pole

CONNECTOR:

J1	0980168K01	Coaxial
J2	0980168K01	Coaxial
J3	0980179H01	11-pin socket

COIL:

L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Coil
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Coil
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Coil
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Coil
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Coil
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Coil
L 54	2480000E01	455kHz quad det with capacitor
L 54A	1402619B01	Insulator
L 55	2402130M09	23uH Choke
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L151	2402694M01	17.75 turns (orange)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203	2482723H40	0.29uH (yellow)
L204	2482723H40	0.29uH (yellow)
L205	2482723H40	0.29uH (yellow)
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L207A	2680153J02	Coil
L208	2411030B08	4.5 turns (brown)
L208A	2684800H03	Coil
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030B05	5.5 turns (blue)
L212	2482723H40	0.29uH (yellow)
L213	2482723H40	0.29uH (yellow)
L214	2482723H40	0.29uH (yellow)
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns (blue)
L216A	2680153J02	Coil
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Coil
MP 1	2602484M01	Shield
MP 2	2680182H01	Shield Frame
MP 3	2602498M01	Shield VCO

TRANSISTOR: (SEE NOTE)

Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M3B19
Q151	4802081B30	M1B30
Q152	4802081B31	M1B31
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30

RESISTOR: fixed 5% 0.125W

R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6800
R 64	0611077A94	6800
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68	0611077B23	100k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	56k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k
R117	0611077A90	4.7k
R118	0611077A98	10k

R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R152	0610621E25	237k 1% 0.25W
R153	0610621C71	6.19k 1% 0.25W
R155	0610621C57	4.42k 1% 0.25W
R156	0611077B23	100k
R157	0611077A98	10k
R158	0611077A98	10k
R159	0611077B03	15k
R160	0611077A34	22
R161	0611077A78	1.5k
R162	0611077A74	1k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308	0611077A90	4.7k
R309	0611077A90	4.7k
R310	0611077A90	4.7k

		THERMISTOR:
RT151	0683600K06	10k
RT151A	1402580M01	Insulator
RT152	0683600K06	10k
RT152A	1402580M01	Insulator
RT153	0683600K05	100k
RT153A	1402580M01	Insulator

		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Linear receiver system
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL:
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 51A	7505295B07	
YY 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
Y151	4802443B21	14.4MHz
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6142B RF Board, 25kHz (438-470MHz) 5ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B21	6.8 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113740B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.10uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF 80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF 80-20%
C 68	2111032B15	0.22uF 80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B57	0.033uF 80-20%
C 73	2113741B53	0.022uF 80-20%
C 74	2111032B15	0.22uF 80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF 80-20%
C 77	2111032B15	0.22uF 80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF 80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15

C108	2113741B69	0.1uF 80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF 80-20%
C111	0811044A33	1
C112	0811051A07	0.01uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117	2113740B45	68
C118	2113740B45	68
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122	2113740B45	68
C123	2113740B45	68
C124	2113740B45	68
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C151	2113741B21	0.001uF 10%
C152	2113740B25	10
C153	2113741B21	0.001uF 10%
C154	2113741B45	0.01uF 10%
C155	2311013F10	0.56 25V
C156	2113740B55	180
C157	2113740B55	180
C158	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C161	2113740B46	75
C164	2113741B45	0.01uF
C201	2002473M01	2.5-10pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113741B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B13	3.3 0.5pF
C217	2113740B45	68
C218	2113740B45	68
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.5pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303	2113740B31	18
C304	2113740B31	18
C305	2113740B31	18
C306	2113740B31	18
C307	2113740B31	18
C308	2113740B31	18
C309	2113740B31	18
C310	2113740B31	18
C311	2113740B31	18
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470 10%

DIODE: (SEE NOTE)

CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR151	4805129M21	Silicon varactor
CR152	4805129M21	Silicon varactor
CR153	4883654H01	Silicon
CR154	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier

HELICAL FILTER:

FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell

CERAMIC FILTER:

FL51	9180097D06	455 kHz 6-pole
FL52	9180098D06	455 kHz 4-pole

CONNECTOR:

J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket

COIL:

L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Coil
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Coil
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Coil
L 5	2482723H40	0.29uH (yellow)
L 51	2480299D01	17.75 turns (orange)
L 51A	2680153J02	Coil
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Coil
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Coil
L 54	2480000E01	Quad det with capacitor
L 54A	1402619801	Insulator
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L151	2480299D01	17.75 turns (orange)
L151A	2680153J01	Coil
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203	2482723H40	0.29uH (yellow)
L204	2482723H40	0.29uH (yellow)
L205	2482723H40	0.29uH (yellow)
L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (green)
L207A	2680153J02	Coil

L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Coil
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A04	4.5 turns (green)
L212	2482723H40	0.29uH (yellow)
L213	2482723H40	0.29uH (yellow)
L214	2482723H40	0.29uH (yellow)
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Coil
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Coil

TRANSISTOR: (SEE NOTE)

Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M3B19
Q151	4802081B30	M1B30
Q152	4802081B31	M1B31
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30

RESISTOR: fixed 5% 0.125W

R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68	0611077B23	100k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	3k
R 73	1402580M01	3.3k
R 75	0611077A86	3.3k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R152	0610621E25	237k 1% 0.25W
R153	0610621C71	6.19k 1% 0.25W
R155	0610621C57	4.42k 1% 0.25W
R156	0611077B23	100k
R157	0611077A98	10k
R158	0611077A98	10k
R159	0611077B03	15k
R160	0611077A34	22
R161	0611077A78	1.5k
R162	0611077A74	1k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308	0611077A90	4.7k
R309-R310	0611077A90	4.7k

		THERMISTOR:
RT151	0683600K06	10k
RT151A	1402580M01	Insulator
RT152	0683600K06	10k
RT152A	1402580M01	Insulator
RT153	0683600K05	100k
RT152A	1402580M01	Insulator
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL:
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
Y151	4802443B21	14.4MHz
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6144B RF Board, 25kHz
(Tx: 438-450MHz; Rx: 420-433MHz) 5ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9
C 8	2113740B21	0.001uF
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF 80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF 80-20%
C 68	2111032B15	0.22uF 80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B57	0.033uF 80-20%
C 73	2113741B53	0.022uF 80-20%
C 74	2111032B15	0.22uF 80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF 80-20%
C 77	2111032B15	0.22uF 80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF 80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF 80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF 80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117	2113740B45	68
C118	2113740B45	68
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C151	2113741B21	0.001uF 10%
C152	2113741B25	10
C153	2113741B21	0.001uF 10%
C154	2113741B45	0.01uF 10%
C155	2311013F10	0.56 25V
C156	2113740B55	180
C157	2113740B55	180
C158	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C161	2113740B46	75
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22 0.5pF
C206	2113740B19	5.6 0.5pF
C207	2113740B21	6.8 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214-C215	2113740B45	68
C216	2113740B49	100 0.5pF
C217-C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.25pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241-C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V

C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113741B31	18
C313	2113740B45	68
C315	2113740B65	470 10%
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR151	4805129M21	Silicon varactor
CR152	4805129M21	Silicon varactor
CR153	4883654H01	Silicon
CR154	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Hot carrier
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz, 6-pole
FL52	9180098D06	455 kHz, 4-pole
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2580000E01	Quad det with capacitor
L 54A	1402619B01	Insulator
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L151	2402694M02	17.75 turns (orange)
L151A	2680153J01	Shield
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A04	4.5 turns (green)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M3B03
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q151	4802081B30	M1B10
Q152	4802081B31	M1B31
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR: fixed 5% 0.125W
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68-		
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor 3k
R 73	1402580M01	Insulator
R 75	0611077A86	3.3k
R101	0602438B15	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1.0k
R113	0611077A92	5.6k
R116	0611077A74	1.0k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56

R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R152	0610621E25	237k 1% 0.25W
R153	0610621C71	6.19k 1% 0.25W
R155	0610621C57	4.42k 1% 0.25W
R156	0611077B23	100k
R157	0611077A98	10k
R158	0611077A98	10k
R159	0611077B03	15k
R160	0611077A34	22
R161	0611077A78	1.5k
R162	0611077A74	1k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308	0611077A90	4.7k
R309	0611077A90	4.7k
R310	0611077A90	4.7k
		THERMISTOR:
RT151	0683600K06	10k
RT151A	1402580M01	Insulator
RT152	0683600K06	10k
RT152A	1402580M01	Insulator
RT153	0683600K05	100k
RT153A	1402580M01	Insulator
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL:
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
Y151	4802443B21	14.4MHz
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6145B RF Board, 25kHz
(Tx: 420-433MHz; Rx: 438-450MHz) 5ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B21	6.8 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B57	0.033uF +80-20%
C 73	2113741B53	0.0022uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V

C117	2113740B45	68
C118	2113740B45	68
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-		
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C151	2113741B21	0.001uF 10%
C152	2113740B25	10
C153	2113741B21	0.001uF 10%
C154	2113741B45	0.01uF 10%
C155	2311013F10	0.56 2 V
C156	2113740B55	180
C157	2113740B55	180
C158	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C161	2113740B46	75
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B23	8.2 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113741B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B15	3.9 0.25pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B13	3.3
C217	2113740B45	68
C218	2113740B45	68
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.5pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113741B15	3.9uF 0.25pF
C240	2113741B45	0.01uF
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.01uF
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C259	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	410 10%

		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR151	4805129M21	Silicon varactor
CR152	4805129M21	Silicon varactor
CR153	4883654H01	Silicon
CR154	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz, 6-pole
FL52	9180098D06	455 kHz, 4-pole
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	Quad det with capacitor
L 54A	1402619B01	Insulator
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L151	2402694M01	17.75 turns (orange)
L151A	2680153J01	Shield
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A05	5.5 turns (blue)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31

Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q151	4802081B30	M1B30
Q152	4802081B31	M1B31
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30

RESISTOR: fixed 5% 0.125W

R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68-		
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor 3k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R152	0610621E25	237k 1% 0.25W
R153	0610621C71	6.19k 1% 0.25W
R155	0610621C57	4.42k 1% 0.25W
R156	0611077B23	100k
R157	0611077A98	10k
R158	0611077A98	10k
R159	0611077B03	15k
R160	0611077A34	22
R161	0611077A78	1.5k
R162	0611077A74	1k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A66	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308-		
R310	0611077A90	4.7k

THERMISTOR:

RT151	0683600K06	10k
RT151A	1402580M01	Insulator
RT152	0683600K06	10k
RT152A	1402580M01	Insulator
RT153	0683600K05	100k
RT153A	1402580M01	Insulator

INTEGRATED CIRCUIT: (SEE NOTE)

U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler

ZENER DIODE: (SEE NOTE)

VR101	4882256C15	5.1V 5%

CRYSTAL:

Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
Y151	4802443B21	14.4MHz

NON-REFERENCED ITEMS:

8402027N02	PCB
2680182H01	RF shield
2680153J01	Coil shield, 3 used
2680153J02	Coil shield, 7 used
2680210K01	Coil shield

GLE6147B RF Board, 25kHz (403-433MHz) 2ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B21	0.001uF 10%
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	10uF 20% 20V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B55	0.033uF +80-20%
C 73	2113741B53	0.022uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811051A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-		
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-		
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22
C206	2113740B19	5.6 0.5pF
C207	2113740B21	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210-		
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B49	100
C217-		
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.25pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113740B15	3.9 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113741B31	18
C313	2113740B45	68
C315	2113740B65	470 10%
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz 6-pole
FL52	9180098D06	455 kHz 4-pole
		CONNECTOR:
J1,J2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket

COIL:

L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (red)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	Quad det with capacitor
L 54A	1402619B01	Insulator
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A05	5.5 turns (blue)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Shield

TRANSISTOR: (SEE NOTE)

Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30

RESISTOR: fixed 5% 0.125W unless otherwise stated

R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68	0611077B23	100k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor
R101	0602438B15	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A49	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1.5k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k

R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308-		
R310	0611077A90	4.7k
		INTEGRATED CIRCUIT:
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE:
VR101	4882256C15	5.1V 5%
		CRYSTAL:
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6148B RF Board, 25kHz (438-470MHz) 2ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B21	6.8uF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B06	2.2uF 20%
C 72	2113741B57	0.033uF +80-20%
C 73	2113741B53	0.022uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-		
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-		
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113741B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B11	2.7 0.25pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B13	3.3 0.25pF
C217-		
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.5pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C259	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%

C302	0811051A17	0.47uF 63V
C303-		
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470 10%
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz 6-pole
FL52	9180098D06	455 kHz 4-pole
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2480299D01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	Quad det with capacitor
L 54A	1402619B01	Insulator
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A04	4.5 turns (green)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B08	4.5 turns (brown)
L218A	2680153J02	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR: fixed 5% 0.125W
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2200
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B29	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 66	0611077A94	6.8k
R 67	0611077A91	5.1k
R 68-		
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	3k
R 73	1402580M01	Insulator
R 75	0611077A86	3.3
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1.0k
R113	0611077A92	5.6k
R116	0611077A74	1.0k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k

R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R236	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308-R310	0611077A90	4.7k
		INTEGRATED CIRCUIT:
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE
VR101	4882256C15	5.1V 5%
		CRYSTAL
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6150B RF Board, 25kHz
(Tx: 420-433MHz; Rx: 438-450MHz) 2ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B21	6.8 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B57	0.033uF +80-20%
C 73	2113741B53	0.022uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001 10%
C163	2113741B45	0.01 10%
C164	2113741B45	0.01 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113741B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2111031A13	3.3 0.25pF
C217-C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.5pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	2.2 0.25pF

C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-		
C238	2113740B45	68
C239	2113740B15	3.9 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 25V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113741B31	18
C313	2113740B45	68
C314	2113740B45	0.01uF 10%
C315	2113740B65	410 10%
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A01	Hot carrier
		HELICAL FILTER:
FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz, 6-pole
FL52	9180098D06	455 kHz, 4-pole
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	Quad det with capacitor
L 54A	2680153J01	Shield
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (white)
L207A	2680153J01	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J01	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A05	5.5 turns (blue)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J01	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J01	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR fixed: 5% 0.125W unless otherwise stated
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68-		
R 70	0611077B23	100k
R 72	0611077B17	56k

R 73	0683600K11	Thermistor
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602438B15	150, 0.5W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1.0k
R113	0611077A92	5.6k
R116	0611077A74	1.0k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077A96	8.2k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308-R310	0611077A90	4.7k

		INTEGRATED CIRCUIT:
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE:
VR101	4882256C15	5.1V 5%
		CRYSTAL:
Y 51	9180082J01	Filter (matched pair Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6151B RF Board, 25kHz
(Tx: 438-450MHz; Rx: 420-433MHz) 2 ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B21	0.001uF 10%
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	0611077A01	Jumper
C 54	2113740B17	4.7 0.5pF
C 55	2113740B19	5.6 0.5pF
C 56	0611077A01	Jumper
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B55	0.033uF +80-20%
C 73	2113741B53	0.022uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V

C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117	2113740B45	68
C118	2113740B45	68
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-		
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22 0.5pF
C206	2113740B19	5.6 0.5pF
C207	2113740B21	6.8 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B49	100
C217	2113740B45	68
C218	2113740B45	68
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.5pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236	2113740B45	68
C237	2113740B45	68
C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470 10%
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)

		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell
		CERAMIC FILTER:
FL51	9180097D06	455 kHz, 6-pole
FL52	9180098D06	455 kHz, 4-pole
		CONNECTOR RECEPTACLE:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B02	1.5 turns (red)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	quad detector, with capacitor
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203	2482723H40	0.29uH (yellow)
L204	2482723H40	0.29uH (yellow)
L205	2482723H40	0.29uH (yellow)
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A04	4.5 turns (green)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C12	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658

Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043B19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR, fixed: 5% 0.125W
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B27	150k
R 58	0611077B27	150k
R 59	1805500L08	22k variable
R 60	0611077B27	150k
R 61	0611077B21	82k
R 62	0611077A90	4.7k
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A91	5.1k
R 68-		
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602369M86	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1.0k
R113	0611077A92	5.6k
R116	0611077A74	1.0k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	32
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077A60	270
R251	0611077A60	270k
R252	0611077A26	10
R301	0611077A92	5.6k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308-		
R310	0611077A90	4.7k
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL: (SEE NOTE)
Y 51	9180082J01	Filter (matched pair, Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used
	2680210K01	Coil shield

GLE6153B RF Board, 12.5kHz (403-433MHz) 2 ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B21	0.001uF 10%
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	2113740B25	10
C 54	2113740B31	18
C 56	2113740B21	6.8 0.5pF

C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	0.1uF 20% 15V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113741B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1.0uF 20%
C 72	2113741B69	0.1uF +80-20%
C 73	2113741B57	0.033uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811033A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-		
C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-		
C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22
C206	2113740B19	5.6 0.5pF
C207	2113740B21	6.8 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B49	100
C217-		
C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.5pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	1.5 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.5pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-		
C238	2113740B45	68
C239	2113740B15	3.9 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C258	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113741B31	18
C313	2113740B45	68
C315	2113740B65	470
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell
		CERAMIC FILTER:
FL51	9180097D04	455 kHz 6-pole
FL52	9180098D04	455 kHz 4-pole
		CONNECTOR:
J1,J2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 1A	2680153J02	Shield
L 2	2411030B08	4.5 turns (brown)
L 2A	2680153J02	Shield
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (red)
L 4A	2680153J02	Shield
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 51A	2680153J01	Shield
L 52	2482835G03	2.6uH (red-blue-gold)
L 52A	2680153J01	Shield
L 53	2482835G03	2.6uH (red-blue-gold)
L 53A	2680153J01	Shield
L 54	2480000E01	Quad detector, with capacitor
L 54A	2680153J01	Shield
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)

L201	2480117K03	Coil
L202	2411030A05	5.5 turns (blue)
L203	2482723H40	0.29uH (yellow)
L204	2482723H40	0.29uH (yellow)
L205	2482723H40	0.29uH (yellow)
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L207A	2680153J02	Shield
L208	2411030B08	4.5 turns (brown)
L208A	2680153J02	Shield
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A05	5.5 turns (blue)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L216A	2680153J02	Shield
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
L218A	2680153J02	Shield
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR, fixed: 5% 0.125W unless otherwise stated
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B11	33k
R 59	1805500L08	22k variable
R 60	0611077B15	47k
R 61	0611077B21	82k
R 62	0611077A64	470
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A90	4.7k
R 68	0611077B21	82k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1.0k
R113	0611077A92	5.6k
R116	0611077A74	1.0k
R117	0611077A90	2.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270k
R252	0611077A26	10
R301	0611077B03	15k
R302	1805500L08	22k variable
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable
R306	0611077A26	10
R307	0611077A82	2.2k
R308	0611077A90	4.7k
R309	0611077A90	4.7k
R310	0611077A90	4.7k
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler

		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL: (SEE NOTE)
Y 51	9180082J02	Filter (matched pair, Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used

GLE6154B RF Board, 12.5kHz (438-470MHz) 2 ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated
C 1	2113740B21	6.8 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.25pF
C 8	2113740B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	2113740B25	10
C 54	2113740B31	18
C 56	2113740B21	6.8 0.5pf
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	10uF 20% 20V
C 60	2113740B41	47
C 61	2113740833	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311013D57	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B69	0.1uF +80-20%
C 73	2113741B57	0.033uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470 10%
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF 50V
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C213	2113740B01	1.0 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B13	3.3 0.25pF
C217-C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.5pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2111032A21	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C259	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470 10%
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		HELICAL FILTER:
FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell
FL51	9180097D04	FILTER CER
FL52	9180098D04	FILTER CER
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon

CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 2	2411030B08	4.5 turns (brown)
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 52	2482835G03	2.6uH (red-blue-gold)
L 53	2482835G03	2.6uH (red-blue-gold)
L 54	2580000E01	XMFR 455kHz
L 55	2402130M09	22uH 170mA (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil RF tunable
L202	2411030A05	5.5 turns (blue)
L203-L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (white)
L208	2411030B08	4.5 turns (brown)
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil RF tuneable
L211	2411030A04	4.5 turns (green)
L212-L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	4.5 turns (red)
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR, fixed: 5% 1/8W unless otherwise stated
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B11	33k
R 59	1805500L08	22k variable 20%
R 60	0611077B15	47k
R 61	0611077B21	82k
R 62	0611077A66	470
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A90	4.7k
R 68	0611077B21	82k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor 3k
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18

R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077B03	15k
R302	1805500L08	22k variable 20%
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable 20%
R306	0611077A26	10
R307	0611077A82	2.2k
R308-R310	0611077A90	4.7k
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL: (SEE NOTE)
Y 51	9180082J02	Filter (matched pair, Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield frame
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used

GLE6156B RF Board, 12.5kHz
(Tx: 420-433MHz; Rx: 438-450MHz) 2 ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B21	6.8 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.25pF
C 8	2113740B45	68
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	2113740B25	10
C 54	2113740B31	18
C 56	2113740B21	6.8 0.5pF
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	10uF 20% 20V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311013D57	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B69	0.1uF +80-20%
C 73	2113741B57	0.033uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.01uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B13	3.3 0.25pF
C204	2113740B01	1 0.25pF
C205	2113740B27	12
C206	2113740B17	4.7 0.5pF
C207	2113740B19	5.6 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B13	3.3 0.25pF
C217-C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B17	4.7 0.25pF
C223	2113740B01	1.0 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B17	4.7 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B27	12
C229	2113740B19	5.6 0.5pF
C230	2113740B19	5.6 0.5pF
C231	2113740B11	2.7 0.25pF
C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-C238	2113740B45	68
C239	2113740B15	3.9 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113740B45	0.01uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36

C259	2113740B09	2.2 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470
		CHANNEL ELEMENT:
CE151	KXN1123A	Reference oscillator (14.4MHz)
		DIODE: (SEE NOTE)
CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A01	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A11	Hot carrier
		HELICAL FILTER:
FL1	9180081J01	2-cell
FL2	9180081J02	3-cell
FL3	9180081J03	3-cell
		CERAMIC FILTER:
FL51	9180097D04	455 kHz 6-pole
FL52	9180098D04	455 kHz 4-pole
		CONNECTOR:
J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket
		COIL:
L 1	2411030B05	2.5 turns (green)
L 2	2411030B08	4.5 turns (brown)
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 52	2482835G03	2.6uH (red-blue-gold)
L 53	2482835G03	2.6uH (red-blue-gold)
L 54	2580000E01	XMFR 455kHz
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B07	3.5 turns (white)
L208	2411030B08	4.5 turns (brown)
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil RF TUNEABLE
L211	2411030A05	5.5 turns (blue)
L212-		
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns(blue)
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)
		TRANSISTOR: (SEE NOTE)
Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658 (alt: M9932)
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30
		RESISTOR: fixed 5% 1/8W unless otherwise stated
R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B11	33k
R 59	1805500L08	22k variable 20%
R 60	0611077B15	47k
R 61	0611077B21	82k
R 62	0611077A66	470
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A90	4.7k
R 68	0611077B21	82k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor 3k
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602369M27	150 ... 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A66	470
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k
R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560

R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R238	0611077A60	270
R239	0611077A32	18
R240	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270k
R252	0611077A26	10
R301	0611077B03	15k
R302	1805500L08	22k variable 20%
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable 20%
R306	0611077A26	10
R307	0611077A82	2.2k
R308-R310	0611077A90	4.7k
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL: (SEE NOTE)
Y 51	9180082J02	Filter (matched pair, Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used

GLE6157B RF Board, 12.5kHz
(Tx: 438-450MHz; Rx: 420-433MHz) 2 ppm

SYMBOL	PART NO.	DESCRIPTION
		CAPACITOR, fixed: pf 5% 50V unless otherwise stated
C 1	2113740B23	8.2 0.5pF
C 2	2113740B45	68
C 3	2113740B45	68
C 5	2113740B45	68
C 7	2113740B15	3.9 0.5pF
C 8	2113741B21	0.001uF 10%
C 9	2113740B17	4.7 0.25pF
C 10	2113741B45	0.01uF 10%
C 12	2113741B21	0.001uF 10%
C 51	2113740B41	47
C 52	2113740B25	10
C 54	2113740B31	18
C 56	2113740B21	6.8 0.5pF
C 57	2113741B45	0.01uF 10%
C 58	2113741B45	0.01uF 10%
C 59	2311048B13	10uF 20% 20V
C 60	2113740B41	47
C 61	2113740B33	22
C 62	2113740B41	47
C 63	2113740B69	680
C 64	2113740B25	10
C 65	2111032B15	0.22uF +80-20%
C 66	2113741B45	0.01uF 10%
C 67	2111032B15	0.22uF +80-20%
C 68	2111032B15	0.22uF +80-20%
C 69	2311054G08	10uF 10% 20V
C 70	2311048B13	10uF 20% 16V
C 71	2311048B05	1uF 20%
C 72	2113741B69	0.1uF +80-20%
C 73	2113741B57	0.033uF +80-20%
C 74	2111032B15	0.22uF +80-20%
C 75	2113740B65	470
C 76	2111032B15	0.22uF +80-20%
C 77	2111032B15	0.22uF +80-20%
C 78	2113741B29	0.0022uF 10%
C 79	2111032B15	0.22uF +80-20%
C 80	2311048B13	10uF 20% 16V
C 81	0811051A05	0.0047uF 63V
C 82	0811044A34	0.018uF 63V
C 83	2113740B73	0.001uF
C101	2311048B13	10uF 20% 16V
C102	0811051A13	0.1uF 63V
C103	2113741B45	0.01uF 10%
C104	2311048B13	10uF 20% 16V
C105	2113741B45	0.01uF 10%
C106	2113740B29	15
C108	2113741B69	0.1uF +80-20%
C109	0811051A13	0.1uF 63V
C110	2113741B69	0.1uF +80-20%
C111	0811044A33	1uF
C112	0811051A07	0.1uF 63V
C113	2113740B45	68
C114	2113740B45	68
C115	2113741B45	0.01uF 10% 50V
C116	2311048B13	10uF 20% 16V
C117-C119	2113740B45	68
C120	2113740B49	100
C121	2113740B19	5.6 0.5pF
C122-C125	2113740B45	68
C126	2113741B45	0.01uF 10%
C127	2113741B45	0.01uF 10%
C159	2113740B33	22
C160	2113740B29	15
C162	2113741B21	0.001uF 10%
C163	2113741B45	0.01uF 10%
C164	2113741B45	0.01uF 10%
C201	2002374M03	2.5-10.5pF variable
C202	2113740B21	6.8 0.5pF
C203	2113740B15	3.9 0.25pF
C204	2113740B01	1.0 0.25pF
C205	2113740B33	22
C206	2113740B19	5.6 0.5pF
C207	2113740B21	6.8 0.5pF
C208	2113740B11	2.7 0.5pF
C209	2113740B51	120
C210	2113740B45	68
C211	2113740B45	68
C212	2113740B05	1.5 0.25pF
C214	2113740B45	68
C215	2113740B45	68
C216	2113740B49	100
C217-C219	2113740B45	68
C221	2002374M03	2.5-10.5pF variable
C222	2113740B15	3.9 0.25pF
C223	2113740B01	1 0.25pF
C224	2113740B09	2.2 0.25pF
C225	2113740B01	1.0 0.25pF
C226	2113740B13	3.3 0.25pF
C227	2113740B01	1.0 0.25pF
C228	2113740B25	10
C229	2113740B19	5.6 0.5pF
C230	2113740B17	4.7 0.5pF
C231	2113740B11	2.7 0.25pF

C232	2113740B51	120
C233	2113740B45	68
C234	2113740B05	1.5 0.25pF
C236-		
C238	2113740B45	68
C239	2113740B13	3.3 0.25pF
C240	2113741B45	0.01uF 10%
C241	2113740B45	68
C242	2113740B45	68
C243	2113741B57	0.033uF 10%
C244	2113740B45	68
C245	2113740B78	0.0018uF
C246	2113740B45	68
C247	2113740B05	1.5 0.25pF
C248	2311013F10	0.56uF 10% 35V
C249	2113741B21	0.001uF 10%
C250	2113740B45	68
C251	2113741B45	0.01uF 10%
C252	2311048B13	10uF 20% 16V
C253	2311048B19	47uF 20% 16V
C254	2113741B45	0.1uF 10%
C255	2113740B17	4.7 0.25pF
C256	2113740B01	1.0 0.25pF
C257	2113740B38	36
C259	2113740B11	2.7 0.25pF
C301	2311048B05	1uF 20%
C302	0811051A17	0.47uF 63V
C303-		
C312	2113740B31	18
C313	2113740B45	68
C315	2113740B65	470

CHANNEL ELEMENT:

CE151	KXN1123A	Reference oscillator (14.4MHz)

DIODE: (SEE NOTE)

CR 51	4883654H01	Silicon
CR 52	4883654H01	Silicon
CR101	4883654H01	Silicon
CR102	4883654H01	Silicon
CR201	4802081B35	Silicon varactor
CR202	4802081B35	Silicon varactor
CR203	4884616A11	Hot carrier
CR204	4805129M21	Silicon varactor
CR205	4802081B35	Silicon varactor
CR206	4802081B35	Silicon varactor
CR207	4884616A01	Hot carrier

HELICAL FILTER:

FL1	9180081J04	2-cell
FL2	9180081J05	3-cell
FL3	9180081J06	3-cell

CERAMIC FILTER:

FL51	9180097D04	455 kHz 6-pole
FL52	9180098D04	455 kHz 4-pole

CONNECTOR:

J 1	0980168K01	Coaxial
J 2	0980168K01	Coaxial
J 3	0980179H01	11-pin socket

COIL:

L 1	2411030B05	2.5 turns (green)
L 2	2411030B08	4.5 turns (brown)
L 3	2482723H40	0.29uH (yellow)
L 4	2411030B01	1.5 turns (brown)
L 5	2482723H40	0.29uH (yellow)
L 51	2402694M01	17.75 turns (orange)
L 52	2482835G03	2.6uH (red-blue-gold)
L 53	2482835G03	2.6uH (red-blue-gold)
L 54	2580000E01	XMFR 455kHz
L 55	2402130M09	22uH (red)
L101	2411030B08	4.5 turns (brown)
L102	2482723H40	0.29uH (yellow)
L152	2482723H37	6.2uH (blue)
L201	2480148M02	Coil
L202	2411030A05	5.5 turns (blue)
L203-		
L206	2482723H40	0.29uH (yellow)
L207	2411030B15	10.5 turns (white)
L208	2411030B08	4.5 turns (brown)
L209	2482723H40	0.29uH (yellow)
L210	2480148M02	Coil
L211	2411030A04	4.5 turns (green)
L212	2482723H40	0.29uH (yellow)
L213	2482723H40	0.29uH (yellow)
L214	2482723H40	0.29uH (yellow)
L215	2482723H40	0.29uH (yellow)
L216	2411030B06	2.5 turns (blue)
L217	2482723H40	0.29uH (yellow)
L218	2411030B10	5.5 turns (red)

TRANSISTOR: (SEE NOTE)

Q 1	4813827A03	M7A03
Q 2	4813823A05	M3A05
Q 51	4811043C12	J310
Q 52	4811043C03	M9571
Q 53	4880214G02	MBT3904
Q 54	4802081B30	M1B30
Q 55	4880214G02	MBT3904
Q101	4802081B31	M1B31
Q102	4800869987	M9987
Q103	4800869987	M9987
Q104	4802081B31	M1B31
Q105	4802081B30	M1B30
Q107	4811043C19	M9658
Q201	4813823A05	M3A05
Q202	4802081B31	M1B31
Q203	4811043C19	M9658
Q204	4813827A03	M7A03
Q205	4813823A05	M3A05
Q206	4802081B31	M1B31
Q207	4811043C19	M9658
Q208	4811043C19	M9658
Q209	4802081B30	M1B30
Q251	4802081B30	M1B30

RESISTOR, fixed: 5% 1/8W

R 1	0611077A72	820
R 2	0611077A88	3.9k
R 3	0611077A44	56
R 4	0611077A54	150
R 5	0611077A40	39
R 6	0611077A54	150
R 7	0611077A68	560
R 8	0611077B19	68k
R 51	0611077A82	2.2k
R 53	0611077A54	150
R 54	0611077A66	470
R 55	0611077A78	1.5k
R 56	0611077B45	820k
R 57	0611077B31	220k
R 58	0611077B11	33k
R 59	1805500L08	22k variable 20%
R 60	0611077B15	47k
R 61	0611077B21	82k
R 62	0611077A66	470
R 63	0611077A94	6.8k
R 64	0611077A94	6.8k
R 65	0611077A94	6.8k
R 66	0611077A90	4.7k
R 67	0611077A90	4.7k
R 68	0611077B21	82k
R 69	0611077B23	100k
R 70	0611077B23	100k
R 72	0611077B17	56k
R 73	0683600K11	Thermistor 3k
R 73	1402580M01	Insulator NTC
R 75	0611077A86	3.3k
R101	0602369M27	150 0.6W
R102	0611077A50	100
R103	0611077A98	10k
R104	0611077A50	100
R105	0611077A98	10k
R106	0611077A26	10
R107	0611077B03	15k
R108	0611077A50	100
R109	0611077A54	150
R110	0611077A64	390
R111	0611077A54	150
R112	0611077A74	1k
R113	0611077A92	5.6k
R116	0611077A74	1k

R117	0611077A90	4.7k
R118	0611077A98	10k
R119	0611077B03	15k
R120	0611077A58	220
R121	0611077A44	56
R122	0611077A84	2.7k
R123	0611077A50	100
R124	0611077A74	1k
R125	0611077A78	1.5k
R126	0611077A88	3.9k
R127	0611077A72	820
R163	1805500L08	22k variable 20%
R164	0611077B07	22k
R201	0611077A44	56
R202	0611077A50	100
R203	0611077A98	10k
R204	0611077A46	68
R205	0611077A86	3.3k
R206	0611077B03	15k
R207	0611077A98	10k
R208	0611077B05	18k
R209	0611077A98	10k
R210	0611077A82	2.2k
R211	0611077A60	270
R212	0611077A68	560
R213	0611077A26	10
R214	0611077A46	68
R215	0611077A60	270
R216	0611077A46	68
R217	0611077A26	10
R219	0611077A60	270
R220	0611077A32	18
R221	0611077A60	270
R222	0611077B23	100k
R223	0611077A98	10k
R224	0611077A98	10k
R225	0611077A44	56
R226	0611077A50	100
R227	0611077A98	10k
R228	0611077A46	68
R229	0611077A90	4.7k
R230	0611077A82	2.2k
R231	0611077A60	270
R232	0611077A68	560
R233	0611077A46	68
R234	0611077A60	270
R235	0611077A46	68
R239	0611077A60	270
R241	0611077A74	1k
R242	0611077A40	39
R243	0611077A40	39
R244	0611077B31	220k
R251	0611077A60	270
R252	0611077A26	10
R301	0611077B03	15k
R302	1805500L08	22k variable 20%
R303	0611077A60	270
R304	0611077A26	10
R305	1805500L08	22k variable 20%
R306	0611077A26	10
R307	0611077A82	2.2k
R308-R310	0611077A90	4.7k
		INTEGRATED CIRCUIT: (SEE NOTE)
U 51	5105479G05	Nucleus
U101	5184704M75	Divider
U102	5183977M45	Prescaler
		ZENER DIODE: (SEE NOTE)
VR101	4882256C15	5.1V 5%
		CRYSTAL: (SEE NOTE)
Y 51	9180082J02	Filter (matched pair, Y51A/B)
Y 52	4802019N01	20.945MHz | Replace with part as
or	4802019N02	21.855MHz | originally supplied
		NON-REFERENCED ITEMS:
	2680182H01	RF shield
	2680153J01	Coil shield, 3 used
	2680153J02	Coil shield, 7 used

GLE6159A PA Assembly, 25W (403-433 MHz)
GLE6160A PA Assembly, 25W (438-470 MHz)

Symbol	Part Number	Description	
		CAPACITOR: fixed 5% 50V unless otherwise stated	
C1610	2113740B50	110pF	(GLE6159A)
or	2113740B45	68pF	(GLE6160A)
C1611	2113740B21	18pF	(GLE6159A)
or	2113740B27	12pF	(GLE6160A)
C1612	2113740B27	12pF	
C1613	2113740B50	110pF	(GLE6159A)
or	2113740B37	82pF	(GLE6160A)
C1614	2113740B50	110pF	(GLE6159A)
or	2113740B37	82pF	(GLE6160A)
C1616	2113740B21	6.8pF	(GLE6159A)
or	2113740B17	4.7pF 0.25pF	(GLE6160A)
C1617	2113740B21	18pF	(GLE6159A)
or	2113740B19	5.6pF 0.25pF	(GLE6160A)
C1618	2113740B45	68pF	
C1619	2111032B15	0.22uF +80-20%	
C1620	2113740B45	68pF	
C1621	2113740B25	10pF 0.5pF	(GLE6159A)
or	2113740B19	5.6pF 0.25pF	(GLE6160A)
C1623	2113740B45	68pF	
C1624	2111032A09	0.001uF +80-20%	
C1625	2111032B15	0.22uF +80-20%	
C1626	2111032B15	0.22uF +80-20%	
C1629	2113740B40	27pF	(GLE6159A)
or	2113740B37	33pF	(GLE6160A)
C1630	2113740B40	27pF	(GLE6159A)
or	2113740B32	20pF	(GLE6160A)
C1631	2113740B36	30pF	(GLE6159A)
or	2113740B34	24pF	(GLE6160A)
C1632	2113740B37	39pF 100V	
C1633	2113740B45	68pF	
C1634	2111032A09	0.001uF +80-20%	
C1635	2113741B69	0.1uF X7R	
C1636	0811051A17	0.47uF 63V	
C1637	2113740B45	68pF	
C1638	2111032A09	0.001uF +80-20%	
C1639	2113741B69	0.1uF X7R	
C1640	2111078B33	43pF 100V	
C1641	2111078B33	43pF 100V	
C1642	2184736B26	36pF	(GLE6159A)
or	2184736B27	39pF	(GLE6160A)
C1643	2184736B27	39pF	(GLE6159A)
or	2184736E12	39pF	(GLE6160A)
C1644	2180240G38	22pF 250V	(GLE6159A)
or	2180240G35	15 1pF 250V	(GLE6160A)
C1645	2180240G12	6.8pF 250V	(GLE6159A)
or	2180240G13	7.5 0.25pF 250	(GLE6160A)
C1646	2113741B69	0.1uF X7R	
C1647	2113740B45	68pF	
C1648	2111032A09	0.001uF +80-20%	
C1649	2180240G27	51pF 250V	(GLE6159A)
or	2180240G27	56pF 250V	(GLE6160A)
C1651	2180240G18	12pF 250V	(GLE6159A)
or	2180240G16	10pF 250V	(GLE6160A)
C1652	2180240G18	12pF 250V	
C1653	2180240G18	12pF 250V	
C1654	2180240G15	9.1pF 250V	(GLE6159A)
or	2180240G16	10pF 250V	(GLE6160A)
C1655	2180240G11	6.2 0.25pF 250V	
C1656	2111078B42	100pF 100V	
C1660	2182450B11	3pF 500V	(GLE6159A)
or	2182450B18	2pF 500V	(GLE6160A)
C1661	2111078B10	7.5pF 100V	(GLE6159A)
or	2111078B11	8.2 0.5pF 100V	(GLE6160A)
C1662	2113740B37	82pF	(GLE6159A)
or	2113740B45	68pF	(GLE6160A)
C1670	2113740B15	3.9 0.25pF	
C1671	2111078B21	20pF 100V	(GLE6159A)
or	2111078B19	16pF 100V	(GLE6160A)
C1672	2113740B45	68pF	
C1680	2113740B45	68pF	
		DIODE:	
CR1640	4880236E07	Zener 28V	
CR1660	4884616A01	Hot carrier	

CR1670	4880010E01	Silicon PIN	
CR1671	4880010E01	Silicon PIN	
		FILTER:	
FT1601-FT1605	0102712B02	Assy Feedthru bracket	
		CONNECTOR:	
J 7	0980038K01	Power	
J 8	0902097B04	50 Ohm	
		COIL, RF:	
E1620	7683960B01	Coil	0.5 turn
E1630	7683960B01	Coil	0.5 turn
E1640	7683960B01	Coil	0.5 turn
L1610	2411030E01	Coil brn	
L1611	2411030E01	Coil brn	
L1612	2411030E02	Coil brn	
L1613	2480044F04	Coil	1.2uH
L1614	2480036A01	Coil	0.5 turn
L1620	2411030A03	Coil yel	4 turns
L1621	2480036A01	Coil	0.5 turn
L1622	2482723H44	Coil blu/yel	0.039uH
L1630	2411030A03	Coil yel	4 turns
L1631	2480036A01	Coil	0.5 turn
L1632	2411030A03	Coil yel	4 turns
L1633	2482723H46	Coil blu/grn	0.2uH
L1640	2411030A03	Coil yel	4 turns
L1641	2480036A01	Coil	0.5 turn
L1642	2411030A02	Coil orange	3 turns
L1643	2484346A02	Coil	0.23uH
L1644	2411030E02	Coil red	
L1650	2411030B03	Coil orange	1.5 turns
L1651	2411030B05	Coil green	2.5 turns
L1652	2411030B02	Coil red	1.5 turns
L1653	2411030B03	Coil orange	1.5 turns
L1654	2411030B11	Coil orange	6.5 turns
L1670	2482723H40	Coil yel/blk	0.29uH
L1671	2411030B02	Coil red	1.5 turns
L1672	2482723H40	Coil yel/blk	0.29uH
		TRANSISTOR:	
Q1610	4884411L37	11L37	
Q1620	4880225C09	M25C09	
Q1630	4880225C19	M25C19	
Q1640	4884411L07	11L07	
		RESISTOR:	
R1610	0611077A60	270 5% 0.125W	
R1611	0611077A58	220 5% 0.125W	
R1612	0611077A46	68 5% 0.125W	
R1613	0611077A26	10 5% 0.125W	
R1614	0611077A26	10 5% 0.125W	
R1660	0611077A98	10k 5% 0.125W	
R1661	0611077B01	12k 5% 0.125W	
R1670	0602369M29	220 5% 0.6W	
R1671-R1673	0611077A78	1.5k 5% 0.125W	
		THERMISTOR:	
RT1680	0683600K05	100k	
		NON-REFERENCED ITEMS:	
	2980014A03	Coax Terminal clip, 2 used	
	1580151J01	Housing	Connector
	2680092K01	Connector	Shield
	2680199J01	Filter	Shield
	2280172J01	Polarizing	Pin
	3080116K01	Coax	Receive
	3080116K02	Coax	Transmit
	2680222H01	Heatsink	
	4280201J01	Clip ground, 2 used	
	0200007003	Nut	
	0302807B02	Screw, taptite 2 used	
	0880257H01	Contact	5 used

NOTE

For optimum performance, diodes, transistors, integrated circuits and crystals must be ordered by Motorola part numbers.

GLE6162A PA Assembly, 1-10W (403-433 MHz)
GLE6163A PA Assembly, 1-10W (438-470 MHz)

Symbol	Part Number	Description	
		CAPACITOR: fixed 5% 50V unless otherwise stated	
C1510	2113740B45	68pF	
C1511	2113740B28	13pF	
C1512	2113740B22	12pF	(GLE6162A only)
C1513	2113740B43	56pF	
C1514	2113740B43	56pF	
C1515	2113740B09	2.2pF Chip	
C1516	2113740B17	4.7 0.25pF	
C1517	2113740B27	12pF	
C1518	2113740B49	100pF Chip	
C1519	2111032B15	0.22uF +80-20%	
C1520	2113740B45	68pF	
C1521	2113740B31	18pF	(GLE6162A)
C1521	2113740B36	30pF	(GLE6163A)
C1522	2113740B45	68pF	
C1523	2111032B15	0.22uF +80-20%	
C1524	2111032B15	0.22uF Chip	
C1525	2111032B15	0.22uF Chip	
C1530	2113740B33	22pF	
C1531	2111078B34	47pF 100V	(GLE6163A)
C1532	2111078B33	43pF 100V	(GLE6162A)
or	2111078B25	27pF 100V	(GLE6163A)
C1533	2111078B12	9.1 0.5pF	(GLE6162A)
or	2111078B08	6.2 0.25pF 100V	(GLE6163A)
C1534	2113740B45	68pF	
C1535	2113740B73	1nF Chip	
C1536	2113740B34	24pF	(GLE6162A)
C1537	2113740B38	36pF	(GLE6162A)
or	2113740B19	5.6pF	(GLE6163A)
C1538	2111078B11	8.2 0.5pF 100V	(GLE6162A)
or	2113740B27	12pF	(GLE6163A)
C1539	2111078B42	100pF 100V	
C1540	2113740B09	2.2pF	(GLE6162A)
C1544	0811051A17	0.47uF 63V	
C1545	2113740B33	22pF	(GLE6162A)
or	2113740B45	68pF	(GLE6163A)
C1546	2111032B15	0.22uF +80-20%	
C1547	2113740B45	68pF	
C1548	2113740B73	0.001uF	
C1549	2111032B15	0.22uF Chip	
C1550	2111078B12	9.1 0.5pF 100V	
C1551	2180240G15	9.1pF 250V	(GLE6162A)
or	2180240G16	10pF 250V	(GLE6163A)
C1552	2180240G17	12pF 250V	(GLE6162A)
or	2180240G13	7.5 0.25pF 250V	(GLE6163A)
C1553	2180240G17	12pF 250V	(GLE6162A)
or	2180240G16	10pF 250V	(GLE6163A)
C1554	2180240G09	5.1pF 250V	(GLE6162A)
or	2180240G15	9.1 0.25pF 250V	(GLE6163A)
C1555	2111078B42	100pF 100V	(GLE6162A)
or	2111078B18	15pF 100V	(GLE6163A)
C1560	2182450B11	3pF 500V	
C1561	2113740B27	12pF	(GLE6162A)
or	2113740B24	9.1 0.25pF	(GLE6163A)
C1562	2113740B45	68pF	
C1570	2113740B17	4.7 0.25pF	(GLE6162A)
or	2113740B18	5.1 0.25pF	(GLE6163A)
C1571	2111078B23	24pF 100V	(GLE6162A)
or	2111078B20	18pF 100V	(GLE6163A)
C1572	2113740B45	68pF	
C1580	2113740B45	68pF	
		DIODE:	
CR1540	4880236E07	Zener 28V, Transorb	
CR1560	4811034G25	Hot carrier	
CR1570	4880010E01	Silicon PIN	
CR1571	4880010E01	Silicon PIN	
		FILTER:	
FT1501-FT1505	0102712B02	Assy Feedthru bracket	
		CONNECTOR:	
J 7	0980038K01	Power	
J 8	0902097B04	50 Ohm	
		COIL, RF:	
E1540	7683960B01	0.5 turns	

L1510	2411030E01	brn 0.5 turns
L1511	2411030E01	brn 0.5 turns
L1512	2411030E02	red 0.5 turns
L1513	2411030B11	6.5 turns (orange)
L1514	2480036A01	0.5 turns, choke Ferrit
L1520	2411030A02	3 turns (orange)
L1521	2480036A01	0.5 turns, choke Ferrit
L1522	2480036A01	0.5 turns, choke Ferrit
L1523	2411030A05	6 turns (blue)
L1530	2411030A02	3 turns (orange)(GLE6163A)
or	2411030A03	4 turns (yellow) (GLN6162A)
L1531	2480036A01	0.5 turn
L1532	2411030A05	0.5 turn (green)(GLE6162A)
or	2411030E04	yel, 0.5 turns (GLE6163A)
L1533	2411030B05	2.5 turns (green)
L1534	2411036A01	0.5 turn, choke Ferrit
L1540	2484346A02	0.23uH, sleeved
L1550	2411030B05	2.5 turns (green) (GLE6162A)
or	2411030B04	1.5 turns (yellow) (GLE6163A)
L1551	2411030B05	2.5 turns (green)
L1552	2411030B05	2.5 turns (green)
L1553	2411030B03	3 turns (orange) (GLE6162A)
or	2411030B04	1.5 turns (yellow) (GLE6163A)
L1554	2411030B07	10.5 turns (white) (GLE6162A)
or	2411030B07	3.5 turns (white) (GLE6163A)
L1570	2482723H40	0.29uH (yellow/black)
L1571	2411030B05	2.5 turns (green) (GLE6162A)
or	2411030B03	1.5 turns (orange) (GLE6163A)
L1572	2482723H40	0.29uH (yellow/black)
		TRANSISTOR:
Q1510	4882233P39	M1L37
Q1520	4880225C09	M25C09
Q1530	4880225C19	M25C19
		RESISTOR:
R1510	0611077A60	270 5% 0.125W
R1511	0611077A58	220 5% 0.125W
R1512	0611077A46	68 5% 0.125W
R1513	0611077A26	10 5% 0.125W
R1514	0611077A26	10 5% 0.125W
R1515	0611077A58	220 5% 0.125W Chip
R1521	0611077A54	150 5% 0.125W
R1522	0611077A54	150 5% 0.125W
R1530	0611077A26	10 5% 0.125W
R1534	0611077A26	10 5% 0.125W
R1560	0611077A98	10k 5% 0.125W
R1561	0611077B01	12k 5% 0.125W
R1570	0600126A31	180 5% 1W
		THERMISTOR:
RT1580	0683600K05	100k
		NON-REFERENCED ITEMS:
	2680092K01	Connector Shield
	2680199J01	Filter Shield
	2280172J01	Polarizing Pin
	3080116K01	Coax Receive
	3080116K02	Coax Transmit
	2980014A03	Coax Terminal Clip, 2 used
	2680222H01	Heatsink
	1484836H01	Transistor Insulator
	0200007003	Nut
	0980257H01	Contract 5 used
	1580151J01	Housing Connector

GLE6165A
Power Amplifier 403-470MHz, 0.1 - 1W

Symbol	Part Number	Description	Value
		CAPACITOR: fixed 5% 50V unless otherwise stated	
C1910	2113740B49	100pF NPO (Chip)	
C1911	2113740B27	12pF NPO (Chip)	
C1912	2113740B27	12pF NPO (Chip)	
C1913	2113740B55	180pF NPO (Chip)	
C1914	2113740B55	180pF NPO (Chip)	
C1916	2113740B23	8.2pF 0.25pF NPO (Chip)	
C1918	2113740B49	100pF NPO (Chip)	
C1919	2111032B15	0.22uF +80-20% Y5V (Chip)	
C1920	2113740B49	100pF NPO (Chip)	
C1921	2113740B40	27pF NPO (Chip)	
C1922	2113740B27	12pF NPO (Chip)	
C1923	2113740B49	100pF NPO (Chip)	
C1924	2113741B21	0.001uF +80-20% Y5V (Chip)	
C1925	2111032B15	0.22uF +80-20% Y5V (Chip)	
C1926	2111032B15	0.22uF +80-20% Y5V (Chip)	
C1929	2113740B49	100pF NPO (Chip)	
C1946	2111032B13	0.1uF +80-20% Y5V (Chip)	
C1947	2113740B49	100pF NPO (Chip)	
C1948	2113741B21	0.001uF +80-20% Y5V (Chip)	
C1951	2113740B23	8.2pF 0.25pF NPO (Chip)	
C1952	2113740B24	9.1pF 0.5pF NPO (Chip)	
C1953	2113740B24	9.1pF 0.5pF NPO (Chip)	
C1954	2113740B22	7.5pF 0.25pF NPO (Chip)	
C1955	2113740B19	5.6pF 0.25pF NPO (Chip)	
C1956	2113740B49	100pF NPO (Chip)	
C1960	2113740B49	100pF NPO (Chip)	
C1961	2113740B27	12pF NPO (Chip)	
C1962	2113740B49	100pF NPO (Chip)	
C1970	2113740B15	3.9pF 0.25pF NPO (Chip)	
C1971	2113740B49	100pF NPO (Chip)	
C1972	2113740B34	24pF NPO (Chip)	
		DIODE:	
CR1940	4880236E07	Silicon	
CR1960	4884616A01	Hot Carrier	
CR1970	4802506B03	PIN	
CR1971	4880010E01	Silicon	
		FILTER:	
FT1901-FT1905	0102712B02	Assy Feedthru bracket	
FT1906	0980038K01	Capacitor Feedthru bracket	
		CONNECTOR:	
J 6	0102712B03	Cable	5-conductor
J 7	0980038K01	Connector	Power
J 8	0902097B01	Receptacle	BNC
JU1900	3010286B04	Jumper	Red
		COIL, RF:	
L1910	2411030E03	Coil RF	Orange
L1911	2411030E01	Coil RF	Brown
L1912	2411030E01	Coil RF	Brown
L1913	2480044F04	Coke RF	1.2uH
L1914	2480036A01	Choke Ferrite	0.5 turn
L1920	2411030E01	Coil RF	Brown
L1921	2480036A01	Choke Ferrite	0.5 turn
L1922	2482723H44	Coil RF	0.039uH blu/yel
L1923	7683960B01	Bead	Ferrite
L1950	2411030B05	Coil RF	2.5 turns Green
L1951	2411030B06	Coil RF	2.5 turns Blue
L1952	2411030B05	Coil RF	2.5 turns Green
L1953	2411030B04	Coil RF	1.5 turns Yel
L1954	2411030B11	Coil RF	6.5 turns Org
L1970	2482723H40	Coil RF	0.29uH Black
L1971	2411030B02	Coil RF	1.5 turns Red
L1972	2482723H40	Coil RF	0.29uH Black
P 1, P 2	2980014A01	Clip	Coax Term
		TRANSISTOR:	
Q1910	4884411L37	M1L37 Alt: M5C08	
Q1920	4880225C09	M5C09	
Q1970	4880214G02	M4G02	
Q1971	4802081B19	M1B19	
Q1972	4880214G02	M4G02	
		RESISTOR:	
R1910	0611024A35	270 5% 0.125W (Chip)	
R1911	0611024A33	220 5% 0.125W (Chip)	
R1912	0611024A21	68 5% 0.125W (Chip)	
R1913	0611024A01	10 5% 0.125W (Chip)	
R1914	0611024A01	10 5% 0.125W (Chip)	
R1920	0611024A01	10 5% 0.125W (Chip)	
R1960	0611024A75	12k 5% 0.125W (Chip)	
R1961	0611024A73	10k 5% 0.125W (Chip)	
R1962	0611024A81	22k 5% 0.125W (Chip)	
R1963	0611024A81	22k 5% 0.125W (Chip)	
R1970	0602369M24	82 5% 2W	

R1971	0611024A47	820 5% 0.125W (Chip)
R1972	0611024A47	820 5% 0.125W (Chip)
R1973	0611024A69	6.8k 5% 0.125W (Chip)
R1974	0611024A31	180 5% 0.125W (Chip)
R1975	0611024A65	4.7k 5% 0.125W (Chip)
R1976	0611024A89	47k 5% 0.125W (Chip)

NON-REFERENCED ITEMS:

0102712B68	Heatsink TO-39	for Q1920
0102712B85	Hardware	PA
0302607B01	Screw M3x8	11 used
0380165J01	Screw Metric	2 used
0780200J01	Bracket	Feedthru
0980257H01	Connector Recep	Crimp-On Lug
1482392E03	Cover	Insulator
1502568M01	Cover	PA Hole
1580151J01	Connector	Housing
2280172J01	Pin	Polarizing
2680092K01	Shield	Ant Connector
2602098N01	Heatsink	
2680197J01	Shield	PA Gnd
2680199J01	Shield	Harmonic Filter
2680222H01	Heatsink	Copper
3080116K01	Assembly	Coax Cable
3080116K02	Assembly	Coax Cable
3080116K03	Assembly	Coax Cable
3080116K04	Assembly	Coax Cable
3280119J01	Gasket	Front Scr
3280266H01	Gasket	
4280276H01	Retainer	Cable
8480266K01	Board	Printed Circuit
9137511C01	Filter	RFI

Q1104	4880214G02	Transistor	M14G02 (GLN6617A)
Q1105	4880214G02	Transistor	M14G02
Q1106	4880214G02	Transistor	M14G02
R1003	0611077B15	Resistor	47k 5% 0.125W
R1004	0611077B47	Resistor	1M 5% 0.125W
R1009	0611077A98	Resistor	10k 5% 0.125W
R1012	0611077A98	Resistor	10k 5% 0.125W
R1014	0611077A98	Resistor	10k 5% 0.125W
R1016	0611077B03	Resistor	15k 5% 0.125W
R1017	0611077A98	Resistor	10k 5% 0.125W
R1019-	(R1019 in GLN6617B only)		
R1021	0611077A64	Resistor	390 5% 0.125W
R1022	0611077B15	Resistor	47k 5% 0.125W
R1025	0611077A82	Resistor	2.2k 5% 0.125W
R1028	0611077B23	Resistor	100k 5% 0.125W
R1030	0611077A98	Resistor	10k 5% 0.125W
R1031	0611077A98	Resistor	10k 5% 0.125W
R1032	0611077A98	Resistor	10k 5% 0.125W
R1033	0611077A74	Resistor	1k 5% 0.125W
R1035	1880080J02	Resistor	1.5k variable
R1037	0611077A98	Resistor	10k 5% 0.125W
R1101	0611077A72	Resistor	820 5% 0.125W
R1102	0611077A72	Resistor	820 5% 0.125W
R1103	0611077A72	Resistor	820 5% 0.125W (GLN6617A only)
R1104	0611077A72	Resistor	820 5% 0.125W (GLN6617A only)
R1105-			
R1108	0611077A66	Resistor	470 5% 0.125W
RT1001	0683600K11	Thermistor	3k 5%
U1001	5197020C01	uP/LED Driver	M20C01
Y1001	4805705G02	Resonator	400kHz
	4280283J01	Retainer	LED

GLN6616A
Control Head Display Board
for Control Heads G1031A, G1032A & G1033A

Symbol	Part Number	Description	Value
DS1004	4802668M01	LED	Green
DS1005	4802668M01	LED	Green
P1002	2880026J01	Connector	Header 10 pin
	8480253H01	PC Board	Display

GLN6617B LCD Control Head Display Board
GLN6960B LCD Control Head Display Board 2A
for Control Heads G1041A, G1042A, G1043A & G1053A

Symbol	Part Number	Description	Value
C1003	2113740B61	Capacitor	330pF 5% 50V
C1004	2113740B61	Capacitor	330pF 5% 50V
C1005	2113741B69	Capacitor	0.1uF X7R 50V
C1006	2113741B69	Capacitor	0.1uF X7R 50V
C1008	2113740B49	Capacitor	100pF 5% 50V
C1020	2113740B74	Capacitor	1200pF 5% 50V
DS1001	4802669M03	LED	Yellow
DS1002	4802669M01	LED	Red
DS1003	4802669M02	LED	Green (GLN6617B)
DS1101-			
DS1104	4802668M01	LED	Green
DS1105-			
DS1108	4802668M01	LED	Green (GLN6617B)
P1002	2880026J01	Connector	Header 10 pin
Q1007	4880214G01	Transistor	M14G01
Q1009	4880214G02	Transistor	M14G02
Q1010	4880214G02	Transistor	M14G02 (GLN6617B only)
Q1012	4880214G02	Transistor	M14G02
Q1101	4880214G02	Transistor	M14G02
Q1102	4880214G02	Transistor	M14G02
Q1103	4880214G02	Transistor	M14G02 (GLN6617A only)

GLN6618B
Control Head Interconnect Board
for Control Heads G1031A, G1032A & G1033A

Symbol	Part Number	Description	Value
C1001	2311048B13	Capacitor	10uF 20% 16V
C1002	2113740B49	Capacitor	100pF 5% 50V
C1003	2311048B06	Capacitor	2.2uF 20% 50V
C1004	2113741B69	Capacitor	0.1uF 5% X7R 50V
C1005	2113741B21	Capacitor	1000pF 10% 50V Chip
C1006	2113741B21	Capacitor	1000pF 10% 50V Chip
CR1001	4883654H01	Diode	Silicon
CR1002	4883654H01	Diode	Silicon
DS1001	4880058K02	LED	Green
DS1002	4880058K02	LED	Green
DS1003	4880058K02	LED	Green
DS1006	4880058K01	LED	Red
DS1007	4880058K03	LED	Yellow
J1001	0980023J01	Receptacle	Microphone
J1002	0980027J01	Receptacle	10 way
J1701	0905604C06	Socket	Speaker
J1702	0905604C06	Socket	Speaker
P1005	2880024J01	Connector	D 15 Pos
Q1001-			
Q1005	4880214G02	Transistor	M4G02 NPN
Q1006	4802081B50	Transistor	M1B50
Q1007	4880214G02	Transistor	M4G02 NPN
Q1008	4802081B50	Transistor	M1B50
Q1009	4880214G02	Transistor	M4G02 NPN
R1001	0611077B15	Resistor	47k 5% 0.125W Chip
R1002	0611077B15	Resistor	47k 5% 0.125W Chip
R1003	0611077A98	Resistor	10k 5% 0.125W Chip
R1004	0611077A82	Resistor	2.2k 5% 0.125W Chip
R1005-			
R1007	0611077A64	Resistor	390 5% 0.125W Chip
R1008	0611077B05	Resistor	18k 5% 0.125W Chip
R1009	0611077A78	Resistor	1.5k 5% 0.125W Chip
R1010	0611077A64	Resistor	390 5% 0.125W Chip
R1011	0611077A82	Resistor	2.2k 5% 0.125W Chip
R1013	0611077A82	Resistor	2.2k 5% 0.125W Chip
R1014	0611077A78	Resistor	1.5k 5% 0.125W Chip
R1015	0611077A78	Resistor	1.5k 5% 0.125W Chip
R1017	0611077A98	Resistor	10k 5% 0.125W Chip

R1018	0611077A98	Resistor	10k 5% 0.125W Chip
R1019	0611077A26	Resistor	10 5% 0.125W Chip
R1020	1880065K01	Resistor	22k variable
R1021	0611077A68	Resistor	560 5% 0.125W Chip
R1022	0611077A54	Resistor	150 5% 0.125W Chip
R1024	0611077A74	Resistor	1k 5% 0.125W Chip
R1025	0611077B15	Resistor	47k 5% 0.125W Chip
U1001	5182884L13	Dual Flipflop	84L13
VR1001	4882256C15	Diode	Zener 5.1V
	3080014K01	Cable	Volume Pot
	4280021J01	Retainer	LED
	4280021J02	Retainer	LED

GLN6619C LCD Control Head Interconnect Board
for Control Heads G1041A, G1042A, G1043A & G1053A

Symbol	Part Number	Description	Value
C1001	2311048B11	Capacitor	10uF 20% 35V
C1002	2311048B13	Capacitor	10uF 20% 16V
C1007	2113740B49	Capacitor	100pF 5% 50V Chip
C1009	2113741B45	Capacitor	0.01uF 10% 50V Chip
C1010	2113741B69	Capacitor	0.1uF +80-20% 50V
C1011	2113740B49	Capacitor	100pF 5% 50V Chip
C1012	2113740B49	Capacitor	100pF 5% 50V Chip
C1013	2113740B57	Capacitor	220pF 5% 50V
C1018	2113740B49	Capacitor	100pF 5% 50V Chip
C1019	2311048B06	Capacitor	2.2uF 20% 50V
J1001	0980023J01	Receptacle	Microphone
J1002	0980027J01	Receptacle	10 way
J1701	0905604C06	Socket	Speaker
J1702	0905604C06	Socket	Speaker
P1005	2880024J01	Connector	D 15 Pos
Q1001	4802081B50	Transistor	M1B50
Q1002	4880214G02	Transistor	M4G02 NPN
Q1003	4880214G02	Transistor	M4G02 NPN
Q1004	4802081B50	Transistor	M1B50
Q1006	4880214G01	Transistor	M4G01 PNP
Q1008	4880214G02	Transistor	M4G02 NPN
Q1013	4880214G02	Transistor	M4G02 NPN
R1001	0611077A48	Resistor	82 5% 0.125W Chip
R1002	0611077A48	Resistor	82 5% 0.125W Chip
R1005	0611077B15	Resistor	47k 5% 0.125W Chip
R1008	0611077A98	Resistor	10k 5% 0.125W Chip
R1010	0611077A68	Resistor	560 5% 0.125W Chip
R1011	0611077A54	Resistor	150 5% 0.125W Chip
R1023	1880065K01	Resistor	22k variable
R1024	0611077A26	Resistor	10 5% 0.125W Chip
R1026	0611077B03	Resistor	15k 5% 0.125W Chip
R1027	0611077B03	Resistor	15k 5% 0.125W Chip
R1036	0611077A98	Resistor	10k 5% 0.125W Chip
R1038	0611077A72	Resistor	820 5% 0.125W Chip
R1039	0611077A74	Resistor	1k 5% 0.125W Chip
R1040	0611077A30	Resistor	15 5% 0.125W Chip
U1002	5180068C02	Volt Regulator	M8C02
VR1001-VR1003	4882256C20	Diode	Zener 27V
	0384723C02	Screw M3x6	2 used

GLN6620A Non-LCD Control Head Hardware
for Control Heads G1031A, G1032A & G1033A

Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	3602063N01	Knob	Volume Control
(4)	1580022J01	Cover	Microphone Connector
(6)	1580237J01	Housing	Front
(7)	3280034J01	Gasket	Potentiometer
(8)	3880230J--	Key	
(9)	3880284J02	Button	Plug
(10)	3280119J02	Gasket	
(11)	6180287J01	Lightpipe	(1 x 4)
(12)	7580236J01	Elastomeric Pad	(1 x 4)
(13)	4280021J02	Retainer	LED
(14)	4280021J01	Retainer	LED
(15)	0380030J01	Screw M3x10	8 used
(16)	2780233J01	Frame	Internal Chassis
(17)	0384723C02	Screw M3x6	4 used
(18)	3280032J01	Gasket	Housing
(19)	1580031J01	Back Cover	Housing
(20)	1580037J01	Back Cover	(Remote Mount)
(21)	3280120J01	Grommet	Speaker
(22)	0300136756	Screw Tpng	4 used
(23)	0380036J01	Screw Trunnion	2 used
(24)	0780035J01	Trunnion	Remote Mount

GLN6621A & GLN6623A
LCD Control Head Hardware
GLN6621A for Control Heads G1041A, G1042A & G1043A
GLN6623A for Control Head G1053A

Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	3602063N01	Knob	Volume Control
(4)	1580022J01	Cover	Microphone Connector
(5)	1502314M02	Housing	Front
(6)	3080039J01	Cord	Cable
(7)	3280034J01	Gasket	Potentiometer
(10)	3880220H--	Key	Refer to page 2-40
(11)	6180287J01	Lightpipe	(1 x 4)
(12)	6180288J01	Lightpipe	(1 x 8)
(13)	6180286J01	Lightpipe	(3 x 4)
(14)	7580217H01	Elastomeric Pad	L-Shape
(15)	7580218H01	Elastomeric Pad.	(3 x 4)
(16)	0702402Y01	Bracket	LCD
(17)	7280045K01	Display	LCD
(18)	6102059N03	Lightpipe	LCD
(19)	4880014J02	LED	Yellow
	4880014J01	LED	Red
	4880014J03	LED	Green
(20)	4280283J01	Retainer	LED
(21)	0380030J01	Screw M3x10	8 used
(22)	0384723C02	Screw M3x6	4 used
(23)	2780233J01	Frame	Internal Chassis
(25)	3280032J01	Gasket	Housing
(26)	1580031J01	Back Cover	Housing
(27)	1580037J01	Back Cover	(Remote Mount)
(28)	3280120J01	Grommet	Speaker
(29)	0300136756	Screw Tpng	4 used
(30)	0780035J01	Trunnion	Remote Mount
(31)	0380036J01	Screw Trunnion	2 used
(32)	3880284J02	Button	Plug
(33)	3280119J02	Gasket	
(34)	2880019J03	Connection	Elastomeric

GLN6624A RF Box Hardware

Symbol	Part Number	Description	Value
(1)	0380029J01	Screw Mntg	2 used
(2)	0402145B05	Washer Distance	
(3)	1580175H01	Cover	Radio Housing
(4)	2780174H01	Frame	Chassis
(5)	0302607B02	Screw M3x6	13 used
(6)	0380269H02	Screw M2.5x8	2 used
(7)	2680156J02	Shield	RF
(8)	2680198J03	RF Spring Contact	
(10)	1180202J01	Adhesive	RF Shield
(11)	1580136J02	Cover	RF Shield
(12)	1580129J02	Cover	Chassis Frame
(13)	2680197J01	Shield	PA Ground
(14)	0302607B02	Screw M3x8	11 used
(15)	3280266H01	Gasket	

(16)	2680176H01	Heatsink	10W Radio
or	2680176H02	Heatsink	25W Radio
(17)	0480171J01	Lockwasher	2 used
(18)	0380165J01	Screw Metric	2 used
(19)	4280276H01	Retainer	Accessory Cable
	6602558M01	Removal Tool	2 required
(20)	0480171J02	Washer Spring	2 required

GLN6627A
Command Board
for EV Models with Select 5

Symbol	Part Number	Description	Value
C401	2113741B45	Capacitor	0.01uF 10% 50V Chip
C402	0811051A07	Capacitor	0.01uF 5% 63V
C403	2313749C40	Capacitor	10uF 20% 25V
C404	2113741B45	Capacitor	0.01uF 10% 50V Chip
C405	2311048B19	Capacitor	47uF 20% 16V
C406	0811051A15	Capacitor	0.22uF 5% 63V
C407	2384538G29	Capacitor	47uF 20% 10V
C409	2113740B73	Capacitor	1000pF 5% 10V
C451	2113741B57	Capacitor	0.033uF 5% 50V
C452	2113740B49	Capacitor	100pF 5% 50V Chip
C453	2113740B49	Capacitor	100pF 5% 50V Chip
C454	2113741B45	Capacitor	0.01uF 10% 50V Chip
C455	0811051A15	Capacitor	0.22uF 5% 63V
C456	2311048B19	Capacitor	47uF 20% 16V
C457	2113740B49	Capacitor	100pF 5% 50V Chip
C458	2113740B78	Capacitor	1800pF 5% 50V Chip
C459	2113740B78	Capacitor	1800pF 5% 50V Chip
C501	0811051A13	Capacitor	0.1uF 5% 63V
C502	0811051A13	Capacitor	0.1uF 5% 63V
C503	2113740B49	Capacitor	100pF 5% 50V Chip
C504	2311048B13	Capacitor	10uF 20% 16V
C505	2113740B49	Capacitor	100pF 5% 50V Chip
C506	2113740B49	Capacitor	100pF 5% 50V Chip
C507	2311048B13	Capacitor	10uF 20% 16V
C508	0811051A15	Capacitor	0.22uF 5% 63V
C509	2311048B13	Capacitor	10uF 20% 16V
C510	2113740B49	Capacitor	100pF 5% 50V Chip
C511	2113740B49	Capacitor	100pF 5% 50V Chip
C512	2113740B61	Capacitor	330pF 5% 50V Chip
C513	2113740B49	Capacitor	100pF 5% 50V Chip
C514	2302308M01	Capacitor	1000uF 20% 16V
C551	2311048B13	Capacitor	10uF 20% 16V
C552	2113740B37	Capacitor	82pF 5% 50V Chip
C553-			
C555	0811051A13	Capacitor	0.1uF 5% 63V
C556	2311048B05	Capacitor	1uF 20% 50V
C557	0811051A09	Capacitor	0.022uF 5% 63V
C558	2113741B29	Capacitor	2200pF 10% 50V Chip
C559	2113740B49	Capacitor	100pF 5% 50V Chip
C560	2113741B45	Capacitor	0.01uF 10% 50V Chip
C561	0811051A12	Capacitor	0.068uF 5% 63V
C562	2311048B13	Capacitor	10uF 20% 16V
C601	2311048B19	Capacitor	47uF 20% 16V
C602	2113740B49	Capacitor	100pF 5% 50V Chip
C603	0811051A10	Capacitor	0.033uF 5% 63V
C604	0811051A17	Capacitor	0.47uF 5% 63V
C605	0811051A06	Capacitor	6800pF 5% 63V
C606	2311048B13	Capacitor	10uF 20% 16V
C607	2311048B05	Capacitor	1uF 20% 50V
C608	0811051A10	Capacitor	0.033uF 5% 63V
C609	0811051A01	Capacitor	1000pF 5% 63V
C610	0811051A03	Capacitor	2200pF 5% 63V
C611	2113740B37	Capacitor	82pF 5% 50V Chip
C701	2113741B45	Capacitor	0.01uF 10% 50V Chip
C702	2113740B25	Capacitor	10pF 0.5pF 50V Chip
C703	2113740B27	Capacitor	12pF 5% 50V Chip
C704	2311048B19	Capacitor	47uF 20% 16V
C705	2311048B05	Capacitor	1uF 20% 50V
C706	2113740B49	Capacitor	100pF 5% 50V Chip
C707	2311048B13	Capacitor	10uF 20% 16V
C708	2113740B49	Capacitor	100pF 5% 50V Chip
C710	2311048B13	Capacitor	10uF 20% 16V
C713	2113740B61	Capacitor	330pF 5% 50V Chip
C714	2113740B61	Capacitor	330pF 5% 50V Chip
C715	2113740B61	Capacitor	330pF 5% 50V Chip
C716	2113741B69	Capacitor	0.1uF 5% 50V Chip
C717-			
C728	2113740B61	Capacitor	330pF 5% 50V Chip
C729	2113741B45	Capacitor	0.01uF 10% 50V Chip
C730	2113740B49	Capacitor	100pF 5% 50V Chip
C801	0811051A06	Capacitor	6800pF 5% 63V
C802	0811044A34	Capacitor	0.018uF 5% 63V
C803	0811051A01	Capacitor	1000pF 5% 63V
C804	2113740B73	Capacitor	1000pF 5% 50V Chip
C805	2113740B55	Capacitor	180pF 5% 50V Chip
C809	0811051A01	Capacitor	1000pF 5% 63V
C810	2111032A56	Capacitor	510pF 10% 50V Chip
C811	0811051A13	Capacitor	0.1uF 5% 63V
C812-			
C814	2113741B45	Capacitor	0.01uF 10% 50V Chip
C901	2113741B56	Capacitor	0.01uF 10% 50V Chip
C902	2311048B05	Capacitor	1uF 20% 50V
CR401-			
CR403	4883654H01	Diode	Silicon
CR451	4883654H01	Diode	Silicon
CR501	4883654H02	Diode	Silicon
CR502	4883654H02	Diode	Silicon
CR551	4883654H01	Diode	Silicon
CR601	4883654H01	Diode	Silicon
CR701	4883654H01	Diode	Silicon
CR702	4883654H01	Diode	Silicon
CR703	4882178A06	Diode	Germanium
CR704	4883654H01	Diode	Silicon
CR705	4883654H01	Diode	Silicon
CR801	4883654H01	Diode	Silicon
CR802	4883654H01	Diode	Silicon
J 4	0980059K01	Conn D Submin	9 way
J 5	0980060K01	Conn D Submin	15 way
JU552	0602369M84	Resistor	Jumper Chip
JU602	0602369M84	Resistor	Jumper Chip
JU701-			
JU704	0602369M84	Resistor	Jumper Chip
JU707	0602369M84	Resistor	Jumper Chip
JU802	0602369M84	Resistor	Jumper Chip
JU803	0602369M84	Resistor	Jumper Chip
L401	2483961B02	Choke green	5 Turns
L601	2402419M61	Coil	10mH
L701	2483961B02	Choke green	5 Turns
L702	2483961B02	Choke green	5 Turns
P 3	2880261H01	Connector	11 way
P 6	2880260H01	Connector	6 way
Q401	4800869619	Transistor	M9619
Q402	4802081B30	Transistor	M1B30
Q403	4800869681	Transistor	M9681
Q404	4802081B31	Transistor	M1B31
Q451	4800869619	Transistor	M9619
Q452	4802081B30	Transistor	M1B30
Q453	4802081B30	Transistor	M1B30
Q501	4802081B31	Transistor	M1B31
Q502	4802081B31	Transistor	M1B31
Q503	4802081B30	Transistor	M1B30
Q504	4802081B30	Transistor	M1B30
Q505	4802081B31	Transistor	M1B31
Q506	4800869619	Transistor	M9619
Q507	4800869618	Transistor	M9618
Q508	4802081B31	Transistor	M1B31
Q551	4802081B31	Transistor	M1B31
Q601	4802081B31	Transistor	M1B31
Q701	4880214G02	Transistor	M14G02
Q702	4800869681	Transistor	M9681
Q703	4880214G01	Transistor	M14G01
Q704-			
Q709	4802081B30	Transistor	M1B30
Q710	4880214G02	Transistor	M14G02
Q711	4880214G01	Transistor	M14G01
Q712	4802081B30	Transistor	M1B30
Q713	4802081B31	Transistor	M1B31
Q714	4800869680	Transistor	M9680
Q715-			
Q718	4802081B30	Transistor	M1B30
Q801	4802081B30	Transistor	M1B30
Q901	4800869577	Transistor	M9577
Q902	4802081B30	Transistor	M1B30
R401	0611077A76	Resistor	1.2k 5% 0.125W Chip
R402	0610621C18	Resistor	1740 1% 0.25W
R403	0610621C28	Resistor	2210 1% 0.25W

R404	0611077A98	Resistor	10k 5% 0.125W Chip
R405	0611077A70	Resistor	680 5% 0.125W Chip
R406	0611077A70	Resistor	680 5% 0.125W Chip
R407	1702280M31	Resistor	330 5% 0.5W
R408	0611077A82	Resistor	2.2k 5% 0.125W Chip
R409	0611077A82	Resistor	2.2k 5% 0.125W Chip
R410	0611077A60	Resistor	270 5% 0.125W Chip
R411	0611077A74	Resistor	1k 5% 0.125W Chip
R412	0611077B11	Resistor	33k 5% 0.125W Chip
R413	0611077B03	Resistor	15k 5% 0.125W Chip
R414	0611077A26	Resistor	10 5% 0.125W Chip
R415	0611077A26	Resistor	10 5% 0.125W Chip
R416	0611077A82	Resistor	2.2k 5% 0.125W Chip
R451	0611077B01	Resistor	12k 5% 0.125W Chip
R452	0611077A90	Resistor	4.7k 5% 0.125W Chip
R453	1805500L08	Resistor	22k variable
R454	0611077A72	Resistor	820 5% 0.125W Chip
R455	1805500L08	Resistor	22k variable
R456	0611077A90	Resistor	4.7k 5% 0.125W Chip
R457	0611077A70	Resistor	680 5% 0.125W Chip
R458	0611077A82	Resistor	2.2k 5% 0.125W Chip
R459	0611077A70	Resistor	680 5% 0.125W Chip
R460	1702280M31	Resistor	330 5% 0.5W
R461	0611077A76	Resistor	1.2k 5% 0.125W Chip
R462	0611077A62	Resistor	330 5% 0.125W Chip
R463	1805500L08	Resistor	22k variable
R464	0611077A74	Resistor	1k 5% 0.125W Chip
R465	0611077A98	Resistor	10k 5% 0.125W Chip
R467	0611077B23	Resistor	100k 5% 0.125W Chip
R501	0611077A86	Resistor	3.3k 5% 0.125W Chip
R502	0611077B07	Resistor	22k 5% 0.125W Chip
R503	0611077B07	Resistor	22k 5% 0.125W Chip
R504	0611077B01	Resistor	12k 5% 0.125W Chip
R505	0611077A86	Resistor	3.3k 5% 0.125W Chip
R506	0611077A78	Resistor	1.5k 5% 0.125W Chip
R507	0611077A66	Resistor	470 5% 0.125W Chip
R508	0611077A98	Resistor	10k 5% 0.125W Chip
R509	0611077A72	Resistor	820 5% 0.125W Chip
R510	0611077A72	Resistor	820 5% 0.125W Chip
R511	0611077B07	Resistor	22k 5% 0.125W Chip
R512	0611077A46	Resistor	68 5% 0.125W Chip
R513	0611077A46	Resistor	68 5% 0.125W Chip
R514	0611077A66	Resistor	470 5% 0.125W Chip
R515	0611077A98	Resistor	10k 5% 0.125W Chip
R516	0611077A98	Resistor	10k 5% 0.125W Chip
R517	1702280M06	Resistor	2.7 5% 0.5W
R518	1702280M06	Resistor	2.7 5% 0.5W
R551	0611077A86	Resistor	3.3k 5% 0.125W Chip
R552	0611077B31	Resistor	220k 5% 0.125W Chip
R554	0611077A80	Resistor	1.8k 5% 0.125W Chip
R555	0611077A60	Resistor	270 5% 0.125W Chip
R556	0611077B25	Resistor	120k 5% 0.125W Chip
R557	0611077B03	Resistor	15k 5% 0.125W Chip
R558	0611077A94	Resistor	6.8k 5% 0.125W Chip
R559	0611077B15	Resistor	47k 5% 0.125W Chip
R560	0611077A86	Resistor	3.3k 5% 0.125W Chip
R561	0611077A96	Resistor	8.2k 5% 0.125W Chip
R562	0611077A98	Resistor	10k 5% 0.125W Chip
R563	0611077A50	Resistor	100 5% 0.125W Chip
R564	0611077A98	Resistor	10k 5% 0.125W Chip
R565	0611077A76	Resistor	1.2k 5% 0.125W Chip
R566	0611077A66	Resistor	470 5% 0.125W Chip
R567	0611077A68	Resistor	560 5% 0.125W Chip
R601	0611077A50	Resistor	100 5% 0.125W Chip
R602	0611077A68	Resistor	560 5% 0.125W Chip
R603	0611077B25	Resistor	120k 5% 0.125W Chip
R604	0611077A98	Resistor	10k 5% 0.125W Chip
R605	0611077A98	Resistor	10k 5% 0.125W Chip
R606	0611077B09	Resistor	27k 5% 0.125W Chip
R607	0611077A90	Resistor	4.7k 5% 0.125W Chip
R608	0611077A98	Resistor	10k 5% 0.125W Chip
R609	0611077B42	Resistor	620k 5% 0.125W Chip
R610	0611077A94	Resistor	6.8k 5% 0.125W Chip
R611	0611077A90	Resistor	4.7k 5% 0.125W Chip
R612	0611077B03	Resistor	15k 5% 0.125W Chip
R613	0611077B03	Resistor	15k 5% 0.125W Chip
R614	0611077B11	Resistor	33k 5% 0.125W Chip
R615	0611077B23	Resistor	100k 5% 0.125W Chip
R616	0611077B23	Resistor	100k 5% 0.125W Chip
R617	0611077A50	Resistor	100 5% 0.125W Chip
R701	0611077A90	Resistor	4.7k 5% 0.125W Chip
R702	0611077B47	Resistor	1M 5% 0.125W Chip
R703	0611077B15	Resistor	47k 5% 0.125W Chip
R704	0611077A98	Resistor	10k 5% 0.125W Chip
R705	0611077A70	Resistor	680 5% 0.125W Chip
R706	0611077A64	Resistor	390 5% 0.125W Chip
R708	0611077A90	Resistor	4.7k 5% 0.125W Chip
R711	0611077B15	Resistor	47k 5% 0.125W Chip
R712	0611077B15	Resistor	47k 5% 0.125W Chip
R713	0611077A98	Resistor	10k 5% 0.125W Chip
R714	0611077B15	Resistor	47k 5% 0.125W Chip
R715	0611077A98	Resistor	10k 5% 0.125W Chip
R716-			
R719	0611077B15	Resistor	47k 5% 0.125W Chip
R720	0611077B23	Resistor	100k 5% 0.125W Chip
R721	0611077B15	Resistor	47k 5% 0.125W Chip
R722-			
R726	0611077A98	Resistor	10k 5% 0.125W Chip
R727	0611077B15	Resistor	47k 5% 0.125W Chip
R728	0611077B15	Resistor	47k 5% 0.125W Chip
R729	0611077A98	Resistor	10k 5% 0.125W Chip
R730	0611077B15	Resistor	47k 5% 0.125W Chip
R731	0611077A90	Resistor	4.7k 5% 0.125W Chip
R732	0611077A98	Resistor	10k 5% 0.125W Chip
R733	0611077A98	Resistor	10k 5% 0.125W Chip
R734	0611077B15	Resistor	47k 5% 0.125W Chip
R735	0611077A98	Resistor	10k 5% 0.125W Chip
R736	0611077A66	Resistor	470 5% 0.125W Chip
R737	0611077A98	Resistor	10k 5% 0.125W Chip
R738	0611077B15	Resistor	47k 5% 0.125W Chip
R739-			
R741	0611077A98	Resistor	10k 5% 0.125W Chip
R742	0611077B15	Resistor	47k 5% 0.125W Chip
R743	0611077A98	Resistor	10k 5% 0.125W Chip
R744	0611077A98	Resistor	10k 5% 0.125W Chip
R745	0611077B15	Resistor	47k 5% 0.125W Chip
R746	0611077A98	Resistor	10k 5% 0.125W Chip
R747-			
R752	0611077A98	Resistor	10k 5% 0.125W Chip
R753	0611077B15	Resistor	47k 5% 0.125W Chip
R754	0611077B15	Resistor	47k 5% 0.125W Chip
R757	0611077B15	Resistor	47k 5% 0.125W Chip
R758	0611077A86	Resistor	3.3k 5% 0.125W Chip
R759	0611077A86	Resistor	3.3k 5% 0.125W Chip
R760	0611077A86	Resistor	3.3k 5% 0.125W Chip
R761	0611077B15	Resistor	47k 5% 0.125W Chip
R762	0611077A98	Resistor	10k 5% 0.125W Chip
R763-			
R769	0611077A90	Resistor	4.7k 5% 0.125W Chip
R801	0611077H18	Resistor	200k 1% 0.125W Chip
R802	0611077G88	Resistor	100k 1% 0.125W Chip
R803	0611077H18	Resistor	200k 1% 0.125W Chip
R804	0611077G88	Resistor	100k 1% 0.125W Chip
R805	0611077H18	Resistor	200k 1% 0.125W Chip
R806	0611077G88	Resistor	100k 1% 0.125W Chip
R807	0611077H18	Resistor	200k 1% 0.125W Chip
R808	0611077H18	Resistor	200k 1% 0.125W Chip
R809	0611077B23	Resistor	100k 1% 0.125W Chip
R810	0611077B23	Resistor	100k 1% 0.125W Chip
R811	0611077H18	Resistor	200k 1% 0.125W Chip
R812	0611077G88	Resistor	100k 1% 0.125W Chip
R813	0611077H18	Resistor	200k 1% 0.125W Chip
R814	0611077G88	Resistor	100k 1% 0.125W Chip
R815	0611077H18	Resistor	200k 1% 0.125W Chip
R816	0611077G88	Resistor	100k 1% 0.125W Chip
R817	0611077H18	Resistor	200k 1% 0.125W Chip
R818	0611077G88	Resistor	100k 1% 0.125W Chip
R819	0611077H18	Resistor	200k 1% 0.125W Chip
R820	0611077H18	Resistor	200k 1% 0.125W Chip
R821	0611077B23	Resistor	100k 1% 0.125W Chip
R825	0611077B20	Resistor	75k 5% 0.125W Chip
R826	0611077B20	Resistor	75k 1% 0.125W Chip
R827	0611077B15	Resistor	47k 5% 0.125W Chip
R828	0611077B23	Resistor	100k 5% 0.125W Chip
R829	0611077A98	Resistor	10k 5% 0.125W Chip
R830	0611077B15	Resistor	47k 5% 0.125W Chip
R831	0611077A98	Resistor	10k 5% 0.125W Chip
R832	0611077B21	Resistor	82k 5% 0.125W Chip
R833	0611077B23	Resistor	100k 5% 0.125W Chip
R834	0611077B11	Resistor	33k 5% 0.125W Chip
R835	0611077B19	Resistor	68k 5% 0.125W Chip
R836	0611077B07	Resistor	22k 5% 0.125W Chip
R837	0611077A76	Resistor	1.2k 5% 0.125W Chip
R838	0611077B13	Resistor	39k 5% 0.125W Chip

R839	0611077A01	Resistor	Jumper Chip
R901	0611077A98	Resistor	10k 5% 0.125W Chip
R902	0611077A98	Resistor	10k 5% 0.125W Chip
R903	0611077B31	Resistor	220k 5% 0.125W Chip
R904	0611077B23	Resistor	100k 5% 0.125W Chip
R905	0611077B23	Resistor	100k 5% 0.125W Chip
R906	0611077B15	Resistor	47k 5% 0.125W Chip
R907	0611077B13	Resistor	39k 5% 0.125W Chip
R908	0611077A98	Resistor	10k 5% 0.125W Chip
U401	5184621K85	Dual Op Amp	MC4558
U402	5180068C06	5V Regulator	L4705CV
U551	5183629M06	Quad Op Amp	M29M06
U601	5183629M06	Quad Op Amp	M29M06
U701	5180290J04	Microprocessor	1.5MHz
U702	5197021B01	UVEPROM	GLN6895A
U703	5197014B06	EEPROM	Specify Model & Serial #
U704	5184320A32	Driver	M20A32
U705	5184704M04	Serial Latch	M27M42
U801	5183629M06	Quad Op Amp	M29M06
VR401	4883461E40	Diode	Zener 5.1V
VR651	4882256C11	Diode	Zener 10V
VR652	4882256C11	Diode	Zener 10V
VR653-			
VR656	4882256C20	Diode	Zener 27V
VR657	4882256C11	Diode	Zener 10V
Y701	4802081B47	Quartz	4.9248MHz
	0102712B01	Assy	Audio/Regulator/Heatsink
	0380269H01	Screw M2.5x6	4 used
	0982808R11	Socket DIL	for U701
	0982808R02	Socket DIL	for U702
	0982808R02	Socket DIL	for U703
	1480066K01	Insulator	Audio/Regulator
	1480067K01	Insulator	Connector
	2680212H01	Heatsink	
	4380091K01	Spacer	
	7505295B01	Pad Crystal Base	for Y701

GLN6628B
Command Board
for EZ Models with Select 5

Symbol	Part Number	Description	Value
C401	2113741B45	Capacitor	0.01uF 5% 50V X7R
C402	0811051A07	Capacitor	0.01uF 5% 63V
C403	2313749C40	Capacitor	10uF 20% 25V
C404	2137141B451	Capacitor	0.01uF 5% 50V X7R
C405	2311048B19	Capacitor	47uF 20% 16V
C406	0811051A15	Capacitor	0.22uF 5% 63V
C407	2384538G29	Capacitor	47uF 20% 10V
C408	2311048B17	Capacitor	33uF 20% 25V
C409	2113741B69	Capacitor	0.1uF 5% 50V X7R
C416	2113740B73	Capacitor	1000pF 5% 50V NPO
C451	2113741B57	Capacitor	0.033uF 5% 50V X7R
C452	2113740B49	Capacitor	100pF 5% 50V NPO
C453	2113740B49	Capacitor	100pF 5% 50V NPO
C454	2113741B45	Capacitor	0.01uF 5% 50V X7R
C455	0811051A15	Capacitor	0.22uF 5% 63V
C456	2311048B19	Capacitor	47uF 20% 16V
C457	2113740B49	Capacitor	100pF 5% 50V NPO
C458	2113740B78	Capacitor	1800pF 5% 50V NPO
C459	2113740B78	Capacitor	1800pF 5% 50V NPO
C501	0811051A13	Capacitor	0.1uF 5% 63V
C502	0811051A13	Capacitor	0.1uF 5% 63V
C503	2113740B49	Capacitor	100pF 5% 50V NPO
C504	2311048B13	Capacitor	10uF 20% 16V
C505	2113740B49	Capacitor	100pF 5% 50V NPO
C506	2113740B49	Capacitor	100pF 5% 50V NPO
C507	2311048B13	Capacitor	10uF 20% 16V
C508	0811051A15	Capacitor	0.22uF 5% 63V
C509	2311048B13	Capacitor	10uF 20% 16V
C510	2113740B49	Capacitor	100pF 5% 50V NPO
C511	2113740B49	Capacitor	100pF 5% 50V NPO
C512	2113740B61	Capacitor	330pF 5% 50V NPO
C513	2113740B49	Capacitor	100pF 5% 50V NPO
C514	2302308M01	Capacitor	1000uF 20% 16V
C551	2311048B13	Capacitor	10uF 20% 16V
C552	2113740B37	Capacitor	82pF 5% 50V NPO
C553	0811051A13	Capacitor	0.1uF 5% 63V
C554	0811051A13	Capacitor	0.1uF 5% 63V
C555	0811051A13	Capacitor	0.1uF 5% 63V
C556	2311048B05	Capacitor	1uF 20% 50V
C557	0811051A09	Capacitor	0.022uF 5% 63V
C558	2113741B29	Capacitor	0.0022uF 5% 50V
C559	2113740B49	Capacitor	100pF 5% 50V NPO
C560	2113741B45	Capacitor	0.01uF 5% 50V X7R
C561	0811051A12	Capacitor	0.068uF 5% 63V
C562	2311048B13	Capacitor	10uF 20% 16V
C601	2311048B19	Capacitor	47uF 20% 16V
C603	0811051A10	Capacitor	0.033uF 5% 63V
C604	0811051A17	Capacitor	0.47uF 5% 63V
C605	0811051A06	Capacitor	0.0068uF 5% 63V
C606	2311048B13	Capacitor	10uF 20% 16V
C607	2311048B05	Capacitor	1uF 20% 50V
C608	0811051A10	Capacitor	0.033uF 5% 63V
C609	0811051A01	Capacitor	0.001uF 5% 63V
C610	0811051A03	Capacitor	0.0022uF 5% 63V
C611	2113740B37	Capacitor	82pF 5% 50V NPO
C701	2113741B45	Capacitor	0.01uF 5% 50V X7R
C702	2113740B25	Capacitor	10pF 0.5% 50V NPO
C703	2113740B27	Capacitor	12pF 5% 50V NPO
C704	2113741B29	Capacitor	0.0022uF 5% 50V
C705	2113741B29	Capacitor	0.0022uF 5% 50V
C706	2311048B19	Capacitor	47uF 20% 16V
C707	2311048B05	Capacitor	1uF 20% 50V
C708	2113740B49	Capacitor	100pF 5% 50V NPO
C709	2113740B49	Capacitor	100pF 5% 50V NPO
C710	2311048B13	Capacitor	10uF 20% 16V
C711	2113740B49	Capacitor	100pF 5% 50V NPO
C712	2311013D55	Capacitor	4.7uF 20% 20V
C713-			
C715	2113740B61	Capacitor	330pF 5% 50V Chip
C716	2113741B69	Capacitor	0.1uF 5% 50V Chip
C717-			
C730	2113740B61	Capacitor	330pF 5% 50V NPO
C731	2113740B49	Capacitor	100pF 5% 50V NPO
C732	2113741B45	Capacitor	0.01uF 5% 50V X7R
C733	2113740B29	Capacitor	15pF 5% 50V NPO
C734	2113740B61	Capacitor	330pF 5% 50V NPO
C801	0811051A06	Capacitor	0.0068uF 5% 63V
C802	0811044A34	Capacitor	0.018uF 5% 63V
C803	0811051A01	Capacitor	0.001uF 5% 63V
C804	2113740B73	Capacitor	1000pF 5% 50V NPO
C805	2113740B55	Capacitor	180pF 5% 50V NPO
C809	0811051A01	Capacitor	0.001uF 5% 63V
C810	2113740B66	Capacitor	510pF 5% 50V NPO
C811	0811051A13	Capacitor	0.1uF 5% 63V
C812	2113741B45	Capacitor	0.01uF 5% 50V X7R
C813	2113741B45	Capacitor	0.01uF 5% 50V X7R
C814	2113741B45	Capacitor	0.01uF 5% 50V X7R
C901	2113741B45	Capacitor	0.01uF 5% 50V X7R
C902	2311048B05	Capacitor	1uF 20% 50V
C903	2113740B73	Capacitor	1000pF 5% 50V NPO
C904	2113741B45	Capacitor	0.01uF 5% 50V X7R
CR401	4883654H02	Diode	Silicon
CR402	4883654H01	Diode	Silicon
CR403	4883654H01	Diode	Silicon
CR405	4802225M01	Diode	Silicon
CR451	4883654H01	Diode	Silicon
CR501	4883654H01	Diode	Silicon
CR502	4883654H01	Diode	Silicon
CR551	4883654H01	Diode	Silicon
CR601	4883654H01	Diode	Silicon
CR702	4883654H01	Diode	Silicon
CR703	4811034G15	Diode	Germanium
CR704	4883654H01	Diode	Silicon
CR705	4883654H01	Diode	Silicon
CR801	4883654H01	Diode	Silicon
CR802	4883654H01	Diode	Silicon
CR901	4883654H01	Diode	Silicon
J 4	0980060K01	Conn D Submin	15 way
J 5	0980059K01	Conn D Submin	9 way
JU551	0602369M84	Jumper	
JU552	0602369M84	Jumper	
JU601	0602369M84	Jumper	
JU602	0602369M84	Jumper	
JU701	0602369M84	Jumper	
JU702	0602369M84	Jumper	

JU703	0602369M84	Jumper	
JU704	0602369M84	Jumper	
JU708	0602369M84	Jumper	
JU711	0602369M84	Jumper	
JU801	0602369M84	Jumper	
JU803	0602369M84	Jumper	
JU804	0602369M84	Jumper	
JU805	0602369M84	Jumper	
L401	2483961B02	Choke green	5 turns
L601	2402419M61	Coil	10mH
L701	2483961B02	Choke green	5 turns
L702	2483961B02	Choke green	5 turns
L703	2411047C63	Choke	39uH
P 3	2880261H01	Connector	11 contacts
P 6	2880260H01	Connector	6 way
Q401	4800869619	Transistor	M9619
Q402	4802081B30	Transistor	M1B30
Q403	4802081B44	Transistor	M1B44
Q404	4802081B31	Transistor	M1B31
Q451	4800869619	Transistor	M9619
Q452	4802081B30	Transistor	M1B30
Q453	4802081B30	Transistor	M1B30
Q501	4802081B31	Transistor	M1B31
Q502	4802081B31	Transistor	M1B31
Q503	4802081B30	Transistor	M1B30
Q504	4802081B30	Transistor	M1B30
Q505	4802081B31	Transistor	M1B31
Q506	4800869619	Transistor	M9619
Q507	4800869618	Transistor	M9618
Q508	4802081B31	Transistor	M1B31
Q551	4802081B31	Transistor	M1B31
Q601	4802081B31	Transistor	M1B31
Q701	4802081B30	Transistor	M1B30
Q702	4802081B30	Transistor	M1B30
Q703	4811043B09	Transistor	M3B09
Q704	4802081B30	Transistor	M1B30
Q705	4802081B44	Transistor	M1B44
Q706-			
Q713	4802081B30	Transistor	M1B30
Q714	4802081B31	Transistor	M1B31
Q715	4802081B30	Transistor	M1B30
Q716	4802081B31	Transistor	M1B31
Q717	4811043B09	Transistor	M3B09
Q718	4802081B30	Transistor	M1B30
Q720-			
Q722	4802081B30	Transistor	M1B30
Q723	4880214G02	Transistor	M4G02
Q801	4802081B30	Transistor	M1B30
Q901	4880182D22	Thyristor	M2D22
Q902	4802081B30	Transistor	M1B30
R401	0611077A76	Resistor	1200 5% 0.125W
R402	0610621C18	Resistor	1740 1% 0.25W
R403	0610621C28	Resistor	2210 1% 0.25W
R404	0611077A98	Resistor	10k 5% 0.125W
R405	0611077A70	Resistor	680 5% 0.125W
R406	0611077A70	Resistor	680 5% 0.125W
R407	1702280M31	Resistor	330 5% 0.5W
R408	0611077A82	Resistor	2200 5% 0.125W
R409	0611077A82	Resistor	2200 5% 0.125W
R410	0611077A60	Resistor	270 5% 0.125W
R411	0611077A74	Resistor	1000 5% 0.125W
R412	0611077B11	Resistor	33k 5% 0.125W
R413	0611077B03	Resistor	15k 5% 0.125W
R414	0611077A26	Resistor	10 5% 0.125W
R415	0611077A26	Resistor	10 5% 0.125W
R416	0611077A98	Resistor	10k 5% 0.125W
R451	0611077B01	Resistor	12k 5% 0.125W
R452	0611077A90	Resistor	4700 5% 0.125W
R453	1805500L08	Resistor	22k variable
R454	0611077A72	Resistor	820 5% 0.125W
R455	1805500L08	Resistor	22k variable
R456	0611077A90	Resistor	4700 5% 0.125W
R457	0611077A70	Resistor	680 5% 0.125W
R458	0611077A82	Resistor	2200 5% 0.125W
R459	0611077A70	Resistor	680 5% 0.125W
R460	1702280M31	Resistor	330 5% 0.5W
R461	0611077A76	Resistor	1200 5% 0.125W
R462	0611077A62	Resistor	330 5% 0.125W
R463	1805500L08	Resistor	22k variable
R464	0611077A74	Resistor	1000 5% 0.125W
R465	0611077A98	Resistor	10k 5% 0.125W
R467	0611077B23	Resistor	100k 5% 0.125W
R501	0611077A84	Resistor	2700 5% 0.125W
R502	0611077B07	Resistor	22k 5% 0.125W
R503	0611077B07	Resistor	22k 5% 0.125W
R504	0611077A98	Resistor	10k 5% 0.125W
R505	0611077A86	Resistor	3300 5% 0.125W
R506	0611077A78	Resistor	1500 5% 0.125W
R507	0611077A66	Resistor	470 5% 0.125W
R508	0611077A98	Resistor	10k 5% 0.125W
R509	0611077A72	Resistor	820 5% 0.125W
R510	0611077A72	Resistor	820 5% 0.125W
R511	0611077B07	Resistor	22k 5% 0.125W
R512	0611077A46	Resistor	68 5% 0.125W
R513	0611077A46	Resistor	68 5% 0.125W
R514	0611077A66	Resistor	470 5% 0.125W
R515	0611077A98	Resistor	10k 5% 0.125W
R516	0611077A98	Resistor	10k 5% 0.125W
R517	1702280M06	Resistor	2.7 5% 0.5W
R518	1702280M06	Resistor	2.7 5% 0.5W
R551	0611077A86	Resistor	3300 5% 0.125W
R552	0611077B31	Resistor	220k 5% 0.125W
R554	0611077A80	Resistor	1800 5% 0.125W
R555	0611077A60	Resistor	270 5% 0.125W
R556	0611077B25	Resistor	120k 5% 0.125W
R557	0611077B03	Resistor	15k 5% 0.125W
R558	0611077A96	Resistor	8200 5% 0.125W
R559	0611077B15	Resistor	47k 5% 0.125W
R560	0611077A86	Resistor	3300 5% 0.125W
R561	0611077A96	Resistor	8200 5% 0.125W
R562	0611077A98	Resistor	10k 5% 0.125W
R563	0611077A50	Resistor	100 5% 0.125W
R564	0611077A98	Resistor	10k 5% 0.125W
R565	0611077A76	Resistor	1200 5% 0.125W
R566	0611077A66	Resistor	470 5% 0.125W
R567	0611077A68	Resistor	560 5% 0.125W
R601	0611077A50	Resistor	100 5% 0.125W
R602	0611077A68	Resistor	560 5% 0.125W
R603	0611077B25	Resistor	120k 5% 0.125W
R604	0611077A98	Resistor	10k 5% 0.125W
R605	0611077A98	Resistor	10k 5% 0.125W
R606	0611077B09	Resistor	27k 5% 0.125W
R607	0611077A90	Resistor	4700 5% 0.125W
R608	0611077A98	Resistor	10k 5% 0.125W
R609	0611077B42	Resistor	620k 5% 0.125W
R610	0611077A94	Resistor	6800 5% 0.125W
R611	0611077A90	Resistor	4700 5% 0.125W
R612	0611077B03	Resistor	15k 5% 0.125W
R613	0611077B03	Resistor	15k 5% 0.125W
R614	0611077B11	Resistor	33k 5% 0.125W
R615	0611077B23	Resistor	100k 5% 0.125W
R616	0611077B23	Resistor	100k 5% 0.125W
R617	0611077A50	Resistor	100 5% 0.125W
R701	0611077A90	Resistor	4700 5% 0.125W
R702	0611077B15	Resistor	47k 5% 0.125W
R703	0611077B47	Resistor	1M 5% 0.125W
R704	0611077A84	Resistor	2700 5% 0.125W
R705	0611077B15	Resistor	47k 5% 0.125W
R706	0611077A98	Resistor	10k 5% 0.125W
R707	0611077A98	Resistor	10k 5% 0.125W
R708	0611077A98	Resistor	10k 5% 0.125W
R709	0611077A98	Resistor	10k 5% 0.125W
R710	0611077B15	Resistor	47k 5% 0.125W
R711	0611077B15	Resistor	47k 5% 0.125W
R712	0611077A98	Resistor	10k 5% 0.125W
R713	0611077A98	Resistor	10k 5% 0.125W
R714	0611077B15	Resistor	47k 5% 0.125W
R715	0611077A84	Resistor	2700 5% 0.125W
R716	0611077B15	Resistor	47k 5% 0.125W
R717	0611077B15	Resistor	47k 5% 0.125W
R718	0611077B15	Resistor	47k 5% 0.125W
R719	0611077B15	Resistor	47k 5% 0.125W
R720	0611077B15	Resistor	47k 5% 0.125W
R721	0611077A98	Resistor	10k 5% 0.125W
R722	0611077B15	Resistor	47k 5% 0.125W
R723	0611077A98	Resistor	10k 5% 0.125W
R724	0611077B15	Resistor	47k 5% 0.125W
R725	0611077A98	Resistor	10k 5% 0.125W
R726	0611077B15	Resistor	47k 5% 0.125W
R727	0611077B15	Resistor	47k 5% 0.125W
R728	0611077B23	Resistor	100k 5% 0.125W
R729	0611077B15	Resistor	47k 5% 0.125W
R730	0611077A98	Resistor	10k 5% 0.125W
R731	0611077A98	Resistor	10k 5% 0.125W

R732	0611077A98	Resistor	10k 5% 0.125W
R733	0611077A98	Resistor	10k 5% 0.125W
R734	0611077B15	Resistor	47k 5% 0.125W
R735	0611077B15	Resistor	47k 5% 0.125W
R736	0611077A98	Resistor	10k 5% 0.125W
R737	0611077B15	Resistor	47k 5% 0.125W
R738	0611077B15	Resistor	47k 5% 0.125W
R739	0611077A98	Resistor	10k 5% 0.125W
R740	0611077B15	Resistor	47k 5% 0.125W
R741	0611077A90	Resistor	4700 5% 0.125W
R742	0611077A98	Resistor	10k 5% 0.125W
R743	0611077A98	Resistor	10k 5% 0.125W
R744	0611077B15	Resistor	47k 5% 0.125W
R745	0611077A82	Resistor	2200 5% 0.125W
R746	0611077A86	Resistor	3300 5% 0.125W
R747	0611077A98	Resistor	10k 5% 0.125W
R748	0611077A98	Resistor	10k 5% 0.125W
R749	0611077A98	Resistor	10k 5% 0.125W
R751	0611077A98	Resistor	10k 5% 0.125W
R752	0611077A98	Resistor	10k 5% 0.125W
R753	0611077A98	Resistor	10k 5% 0.125W
R754	0611077A98	Resistor	10k 5% 0.125W
R755	0611077A66	Resistor	470 5% 0.125W
R756	0611077A98	Resistor	10k 5% 0.125W
R757	0611077B15	Resistor	47k 5% 0.125W
R758	0611077A98	Resistor	10k 5% 0.125W
R759	0611077A98	Resistor	10k 5% 0.125W
R760	0611077B15	Resistor	47k 5% 0.125W
R761	0611077A98	Resistor	10k 5% 0.125W
R762	0611077A98	Resistor	10k 5% 0.125W
R763	0611077B15	Resistor	47k 5% 0.125W
R764	0611077A98	Resistor	10k 5% 0.125W
R765	0611077B15	Resistor	47k 5% 0.125W
R766	0611077A98	Resistor	10k 5% 0.125W
R767	0611077A82	Resistor	2200 5% 0.125W
R768	0611077A98	Resistor	10k 5% 0.125W
R769	0611077B15	Resistor	47k 5% 0.125W
R770	0611077A86	Resistor	3300 5% 0.125W
R771	0611077B15	Resistor	47k 5% 0.125W
R772	0611077A98	Resistor	10k 5% 0.125W
R773	0611077B15	Resistor	47k 5% 0.125W
R774	0611077A90	Resistor	4700 5% 0.125W
R775	0611077A90	Resistor	4700 5% 0.125W
R776	0611077A90	Resistor	4700 5% 0.125W
R777	0611077A90	Resistor	4700 5% 0.125W
R779	0611077A98	Resistor	10k 5% 0.125W
R801	0611077H18	Resistor	200k 1% 0.125W
R802	0611077G88	Resistor	100k 1% 0.125W
R803	0611077H18	Resistor	200k 1% 0.125W
R804	0611077G88	Resistor	100k 1% 0.125W
R805	0611077H18	Resistor	200k 1% 0.125W
R806	0611077G88	Resistor	100k 1% 0.125W
R807	0611077H18	Resistor	200k 1% 0.125W
R808	0611077H18	Resistor	200k 1% 0.125W
R809	0611077B23	Resistor	100k 5% 0.125W
R810	0611077B23	Resistor	100k 5% 0.125W
R811	0611077H18	Resistor	200k 1% 0.125W
R812	0611077G88	Resistor	100k 1% 0.125W
R813	0611077H18	Resistor	200k 1% 0.125W
R814	0611077G88	Resistor	100k 1% 0.125W
R815	0611077H18	Resistor	200k 1% 0.125W
R816	0611077G88	Resistor	100k 1% 0.125W
R817	0611077H18	Resistor	200k 1% 0.125W
R818	0611077G88	Resistor	100k 1% 0.125W
R819	0611077H18	Resistor	200k 1% 0.125W
R820	0611077H18	Resistor	200k 1% 0.125W
R821	0611077B23	Resistor	100k 5% 0.125W
R822	0611077B18	Resistor	62k 5% 0.125W
R823	0611077B18	Resistor	62k 5% 0.125W
R824	0611077B18	Resistor	62k 5% 0.125W
R825	0611077B20	Resistor	75k 5% 0.125W
R826	0611077B20	Resistor	75k 5% 0.125W
R827	0611077B15	Resistor	47k 5% 0.125W
R828	0611077B23	Resistor	100k 5% 0.125W
R829	0611077A98	Resistor	10k 5% 0.125W
R830	0611077B15	Resistor	47k 5% 0.125W
R831	0611077A98	Resistor	10k 5% 0.125W
R832	0611077B21	Resistor	82k 5% 0.125W
R833	0611077B23	Resistor	100k 5% 0.125W
R834	0611077B11	Resistor	33k 5% 0.125W
R835	0611077B19	Resistor	68k 5% 0.125W
R837	0611077A76	Resistor	1200 5% 0.125W
R838	0611077B13	Resistor	39k 5% 0.125W
R901	0611077A98	Resistor	10k 5% 0.125W
R902	0611077A98	Resistor	10k 5% 0.125W
R903	0611077B31	Resistor	220k 5% 0.125W
R904	0611077B09	Resistor	27k 5% 0.125W
R905	0611077B23	Resistor	100k 5% 0.125W
R906	0611077B15	Resistor	47k 5% 0.125W
R907	0611077B13	Resistor	39k 5% 0.125W
R908	0611077B09	Resistor	27k 5% 0.125W
U401	5184621K85	Dual Op Amp	MC4558
U402	5102080B59	5V Regulator	LM2925T
U551	5183629M06	Quad Op Amp	M29M06
U601	5183629M06	Quad Op Amp	M29M06
U701	5102455M22	uP with Firmware	EZA Select 5
U704	5184320A32	Driver	M20A32
U705	5184704M04	Serial Latch	M27M42
U801	5183629M06	Quad Op Amp	M29M06
VR401	4883461E40	Diode	Zener 5.1V
VR651	4882256C11	Diode	Zener 10V
VR652	4882256C11	Diode	Zener 10V
VR653	4884805A25	Diode	Zener 27V
VR654	4884805A25	Diode	Zener 27V
VR655	4884805A25	Diode	Zener 27V
VR656	4884805A25	Diode	Zener 27V
VR657	4882256C11	Diode	Zener 10V
Y701	4802081B47	Crystal Quarz	4.9248 MHz
	0584899A01	Rivet	2 used
	0982808R11	Socket	DIL for U701
	0982808R02	Socket	DIL for U703
	0982808R02	Socket	DIL for U702
	1480067K01	Insulator Connector	for J4
	7505295B01	Pad Crystal Base	for Y701
	8402693M02	Board	Printed Circuit
	2680212H01	Heatsink	

GLN6870A
Handset

Symbol	Part Number	Description	Value
C501	2184719A07	Capacitor	0.01uF +80-20% 25V
C502	2184719A07	Capacitor	0.01uF +80-20% 25V
C503	2302057B04	Capacitor	15uF 20% 20V
C504	2182372C01	Capacitor	0.1uF 20% 25V
C505	2302057B02	Capacitor	1uF 20% 35V
C506	2182372C01	Capacitor	0.1uF 20% 25V
C507	2184713A86	Capacitor	240pF 5% N750
D501	4882256C11	Diode	Zener 10V
DP501	5802380B01	Cartridge	Handset
E501	5802380B01	Cartridge	Handset (as DP501)
L501	7684780A01	Ferrite Bead	on lead Q501
P601	1580274H01	Housing	Connector, and:
P601	2880262H01	Assy	Plug & Cable, and:
P601	2980273H01	Term Crimp	7 used
Q501	4802081B11	Transistor	M1B11
R501	0684764A19	Resistor	330 5% 0.25W
R502	1802099B01	Resistor	2k var 20% 0.1W
R503	0684764A33	Resistor	4.7k 5% 0.25W
R504	0684764A31	Resistor	3.3k 5% 0.25W
R505	0684764A16	Resistor	180 5% 0.25W
S501	4008250B34	PTT Switch	incl. Bracket
S502	4008081B01	Hookswitch	
S503	4008483B44	Spkr Switch	Not a standard item
TB501	2908250B33	Terminal Bd	12 Screw Contacts
TB502	0102378B01	P/O Support	Handset
	0102377B01	Handset	Funk 75
	0384728C01	Screw Tpng	B4.2x13, 2 used
	0384728C04	Screw Tpng	B.4x25, 2 used
	0384869D01	Screw Plas	4-20x8.5, 2 used
	0402389B01	Washer Spring	Handset, 4 used
	0508089B01	Lug Spade	9 used
	3002037B01	Cable Multicond	5.2 m
	3608483B45	Knob for S503	No std item
	4280271H01	Strain Relief	for P601
	4282143C01	Clamp	Cable
	4284859A02	Strain Relief	
	8402225B01	PC Board	

GLN6984A
Command Board
for EZ Models with Carrier Squelch or "Private-Line"

Symbol	Part Number	Description	Value
C401	2113741B45	Capacitor	0.01uF 5% 50V X7R
C402	0811051A07	Capacitor	0.01uF 5% 63V
C403	2311048B19	Capacitor	47uF 20% 16V
C404	2113741B45	Capacitor	0.01uF 5% 50V X7R
C405	2311048B19	Capacitor	47uF 20% 16V
C406	0811051A15	Capacitor	0.22uF 5% 63V
C407	2384538G29	Capacitor	47uF 20% 10V
C408	2311048B17	Capacitor	33uF 20% 25V
C409	2111032A33	Capacitor	0.1uF 10% 50V X7R
C416	2113740B73	Capacitor	1000pF 5% 50V NPO
C451	2113741B57	Capacitor	0.033uF 5% 50V X7R
C452	2113740B49	Capacitor	100pF 5% 50V NPO
C453	2113740B49	Capacitor	100pF 5% 50V NPO
C454	2113741B45	Capacitor	0.01uF 5% 50V X7R
C455	0811051A15	Capacitor	0.22uF 5% 63V
C456	2311048B19	Capacitor	47uF 20% 16V
C457	2113740B49	Capacitor	100pF 5% 50V NPO
C458	2113740B78	Capacitor	1800pF 5% 50V NPO
C459	2113740B78	Capacitor	1800pF 5% 50V NPO
C501	0811051A13	Capacitor	0.1uF 5% 63V
C502	0811051A13	Capacitor	0.1uF 5% 63V
C503	2113740B49	Capacitor	100pF 5% 50V NPO
C504	2311048B13	Capacitor	10uF 20% 16V
C505	2113740B49	Capacitor	100pF 5% 50V NPO
C506	2113740B49	Capacitor	100pF 5% 50V NPO
C507	2311048B13	Capacitor	10uF 20% 16V
C508	0811051A15	Capacitor	0.22uF 5% 63V
C509	2311048B13	Capacitor	10uF 20% 16V
C510	2113740B49	Capacitor	100pF 5% 50V NPO
C511	2113740B49	Capacitor	100pF 5% 50V NPO
C512	2113740B61	Capacitor	330pF 5% 50V NPO
C513	2113740B49	Capacitor	100pF 5% 50V NPO
C514	2302308M01	Capacitor	1000uF 20% 16V
C551	2311048B13	Capacitor	10uF 20% 16V
C552	2113740B37	Capacitor	82pF 5% 50V NPO
C553-			
C555	0811051A13	Capacitor	0.1uF 5% 63V
C556	2311048B05	Capacitor	1uF 20% 50V
C557	0811051A09	Capacitor	0.022uF 5% 63V
C558	2113741B29	Capacitor	0.0022uF 5% 50V
C559	2113740B49	Capacitor	100pF 5% 50V NPO
C560	2113741B45	Capacitor	0.01uF 5% 50V X7R
C561	0811051A12	Capacitor	0.068uF 5% 63V
C562	2311048B13	Capacitor	10uF 20% 16V
C601	2311048B19	Capacitor	47uF 20% 16V
C604	0811051A17	Capacitor	0.47uF 5% 63V
C605	0811051A06	Capacitor	0.0068uF 5% 63V
C606	2311048B13	Capacitor	10uF 20% 16V
C607	2311048B05	Capacitor	1uF 20% 50V
C608	0811051A10	Capacitor	0.033uF 5% 63V
C609	0811051A01	Capacitor	0.001uF 5% 63V
C610	0811051A03	Capacitor	0.0022uF 5% 63V
C611	2113740B37	Capacitor	82pF 5% 50V NPO
C701	2113741B45	Capacitor	0.01uF 5% 50V X7R
C702	2113740B25	Capacitor	10pF 0.5% 50V NPO
C703	2113740B27	Capacitor	12pF 5% 50V NPO
C704	2113741B29	Capacitor	0.0022uF 5% 50V
C705	2113741B29	Capacitor	0.0022uF 5% 50V
C706	2311048B19	Capacitor	47uF 20% 16V
C707	2311048B05	Capacitor	1uF 20% 50V
C708	2113740B49	Capacitor	100pF 5% 50V NPO
C709	2113740B49	Capacitor	100pF 5% 50V NPO
C710	2311048B13	Capacitor	10uF 20% 16V
C711	2113740B49	Capacitor	100pF 5% 50V NPO
C712	2311013D55	Capacitor	4.7pF 20% 20V
C713-			
C715	2113740B61	Capacitor	330pF 5% 50V Chip
C716	2113741B69	Capacitor	0.1uF 5% 50V Chip
C717-			
C730	2113740B61	Capacitor	330pF 5% 50V NPO
C731	2113740B49	Capacitor	100pF 5% 50V NPO
C732	2113741B45	Capacitor	0.01uF 5% 50V X7R
C733	2113740B29	Capacitor	15pF 5% 50V NPO
C734	2113740B61	Capacitor	330pF 5% 50V NPO
C801	0811051A06	Capacitor	0.0068uF 5% 63V
C802	0811044A34	Capacitor	0.018uF 5% 63V
C803	0811051A01	Capacitor	0.001uF 5% 63V
C806	0811051A10	Capacitor	0.033uF 5% 63V
C807	0811051A12	Capacitor	0.068uF 5% 63V
C808	0811051A04	Capacitor	0.0033uF 5% 63V
C809	0811051A13	Capacitor	0.1uF 5% 63V
C810	2113740B74	Capacitor	1200pF 5% 50V NPO
C811	0811051A13	Capacitor	0.1uF 5% 63V
C812	2113741B45	Capacitor	0.01uF 5% 50V X7R
C813	2113741B45	Capacitor	0.01uF 5% 50V X7R
C901	2113741B45	Capacitor	0.01uF 5% 50V X7R
C902	2311048B05	Capacitor	1uF 20% 50V
C903	2113740B73	Capacitor	1000pF 5% 50V NPO
C904	2113741B45	Capacitor	0.01uF 5% 50V X7R
CR401	4883654H02	Diode	Silicon
CR402	4883654H01	Diode	Silicon
CR403	4883654H01	Diode	Silicon
CR405	4802225M01	Diode	Silicon
CR451	4883654H01	Diode	Silicon
CR501	4883654H02	Diode	Silicon
CR502	4883654H02	Diode	Silicon
CR551	4883654H01	Diode	Silicon
CR601	4883654H01	Diode	Silicon
CR702	4883654H01	Diode	Silicon
CR703	4811034G15	Diode	Germanium
CR705	4883654H01	Diode	Silicon
CR801	4883654H01	Diode	Silicon
CR802	4883654H01	Diode	Silicon
CR901	4883654H01	Diode	Silicon
J 4	0980060K01	Conn D Submin	15 way
J 5	0980059K01	Conn D Submin	9 way
JU551	0602455B99	Jumper	
JU552	0602455B99	Jumper	
JU601	0602455B99	Jumper	
JU602	0602455B99	Jumper	
JU701-			
JU708	0602455B99	Jumper	
JU711	0602455B99	Jumper	
JU802-			
JU804	0602455B99	Jumper	
L401	2483961B02	Choke green	5 turns
L601	2402461M61	Coil	10mH
L701	2483961B02	Choke green	5 turns
L702	2483961B02	Choke green	5 turns
L703	2411047C63	Choke	39uH
P 3	2880261H01	Connector	11 Contacts
P 6	2880260H01	Connector	6 ways
Q401	4800869619	Transistor	M9619
Q402	4802081B30	Transistor	M1B30
Q403	4802081B44	Transistor	M1B44
Q404	4802081B31	Transistor	M1B31
Q451	4800869619	Transistor	M9619
Q452	4802081B30	Transistor	M1B30
Q453	4802081B30	Transistor	M1B30
Q501	4802081B31	Transistor	M1B31
Q502	4802081B31	Transistor	M1B31
Q503	4802081B30	Transistor	M1B30
Q504	4802081B30	Transistor	M1B30
Q505	4802081B31	Transistor	M1B31
Q506	4800869619	Transistor	M9619
Q507	4800869618	Transistor	M9618
Q508	4802081B31	Transistor	M1B31
Q551	4802081B31	Transistor	M1B31
Q601	4802081B31	Transistor	M1B31
Q701	4802081B30	Transistor	M1B30
Q702	4802081B30	Transistor	M1B30
Q703	4811043B09	Transistor	M3B09
Q705	4802081B44	Transistor	M1B44
Q707-			
Q713	4802081B30	Transistor	M1B30
Q714	4802081B31	Transistor	M1B31
Q715	4802081B30	Transistor	M1B30
Q718	4802081B30	Transistor	M1B30
Q720-			
Q722	4802081B30	Transistor	M1B30
Q723	4880214G02	Transistor	M4G02
Q801	4802081B30	Transistor	M1B30
Q901	4880182D22	Thyristor	M2D22
Q902	4802081B30	Transistor	M1B30
R401	0611077A76	Resistor	1200 5% 0.125W
R402	0610621C18	Resistor	1740 1% 0.25W
R403	0610621C28	Resistor	2210 1% 0.25W

R404	0611077A98	Resistor	10k 5% 0.125W
R405	0611077A70	Resistor	680 5% 0.125W
R406	0611077A70	Resistor	680 5% 0.125W
R407	1702280M31	Resistor	330 5% 0.5W
R408	0611077A82	Resistor	2200 5% 0.125W
R409	0611077A82	Resistor	2200 5% 0.125W
R410	0611077A60	Resistor	270 5% 0.125W
R411	0611077A74	Resistor	1000 5% 0.125W
R412	0611077B11	Resistor	33k 5% 0.125W
R413	0611077B03	Resistor	15k 5% 0.125W
R414	0611077A26	Resistor	10 5% 0.125W
R415	0611077A26	Resistor	10 5% 0.125W
R416	0611077A98	Resistor	10k 5% 0.125W
R451	0611077B01	Resistor	12k 5% 0.125W
R452	0611077A90	Resistor	4700 5% 0.125W
R453	1805500L08	Resistor	22k variable
R454	0611077A72	Resistor	820 5% 0.125W
R455	1805500L08	Resistor	22k variable
R456	0611077A90	Resistor	4700 5% 0.125W
R457	0611077A70	Resistor	680 5% 0.125W
R458	0611077A82	Resistor	2200 5% 0.125W
R459	0611077A70	Resistor	680 5% 0.125W
R460	1702280M31	Resistor	330 5% 0.5W
R461	0611077A76	Resistor	1200 5% 0.125W
R462	0611077A62	Resistor	330 5% 0.125W
R463	1805500L08	Resistor	22k variable
R464	0611077A74	Resistor	1000 5% 0.125W
R465	0611077A98	Resistor	10k 5% 0.125W
R467	0611077B23	Resistor	100k 5% 0.125W
R501	0611077A84	Resistor	2700 5% 0.125W
R502	0611077B07	Resistor	22k 5% 0.125W
R503	0611077B07	Resistor	22k 5% 0.125W
R504	0611077A98	Resistor	10k 5% 0.125W
R505	0611077A86	Resistor	3300 5% 0.125W
R506	0611077A78	Resistor	1500 5% 0.125W
R507	0611077A66	Resistor	470 5% 0.125W
R508	0611077A98	Resistor	10k 5% 0.125W
R509	0611077A72	Resistor	820 5% 0.125W
R510	0611077A72	Resistor	820 5% 0.125W
R511	0611077B07	Resistor	22k 5% 0.125W
R512	0611077A46	Resistor	68 5% 0.125W
R513	0611077A46	Resistor	68 5% 0.125W
R514	0611077A66	Resistor	470 5% 0.125W
R515	0611077A98	Resistor	10k 5% 0.125W
R516	0611077A98	Resistor	10k 5% 0.125W
R517	1702280M06	Resistor	2.7 5% 0.5W
R518	1702280M06	Resistor	2.7 5% 0.5W
R551	0611077A86	Resistor	3300 5% 0.125W
R552	0611077B31	Resistor	220k 5% 0.125W
R554	0611077A80	Resistor	1800 5% 0.125W
R555	0611077A60	Resistor	270 5% 0.125W
R556	0611077B25	Resistor	120k 5% 0.125W
R557	0611077B03	Resistor	15k 5% 0.125W
R558	0611077A96	Resistor	8200 5% 0.125W
R559	0611077B15	Resistor	47k 5% 0.125W
R560	0611077A86	Resistor	3300 5% 0.125W
R561	0611077A96	Resistor	8200 5% 0.125W
R562	0611077A98	Resistor	10k 5% 0.125W
R563	0611077A50	Resistor	100 5% 0.125W
R564	0611077A98	Resistor	10k 5% 0.125W
R565	0611077A76	Resistor	1200 5% 0.125W
R566	0611077A66	Resistor	470 5% 0.125W
R567	0611077A68	Resistor	560 5% 0.125W
R601	0611077A50	Resistor	100 5% 0.125W
R602	0611077A68	Resistor	560 5% 0.125W
R604	0611077A98	Resistor	10k 5% 0.125W
R605	0611077A98	Resistor	10k 5% 0.125W
R606	0611077B09	Resistor	27k 5% 0.125W
R607	0611077A90	Resistor	4700 5% 0.125W
R608	0611077A98	Resistor	10k 5% 0.125W
R609	0611077B42	Resistor	620k 5% 0.125W
R610	0611077A94	Resistor	6800 5% 0.125W
R611	0611077A90	Resistor	4700 5% 0.125W
R612	0611077B03	Resistor	15k 5% 0.125W
R613	0611077B03	Resistor	15k 5% 0.125W
R614	0611077B11	Resistor	33k 5% 0.125W
R615	0611077B23	Resistor	100k 5% 0.125W
R616	0611077B23	Resistor	100k 5% 0.125W
R617	0611077A50	Resistor	100 5% 0.125W
R701	0611077A90	Resistor	4700 5% 0.125W
R702	0611077B15	Resistor	47k 5% 0.125W
R703	0611077B47	Resistor	1M 5% 0.125W
R704	0611077A84	Resistor	2700 5% 0.125W
R705	0611077B15	Resistor	47k 5% 0.125W
R706-			
R708	0611077A98	Resistor	10k 5% 0.125W
R711	0611077B15	Resistor	47k 5% 0.125W
R712	0611077A98	Resistor	10k 5% 0.125W
R713	0611077A98	Resistor	10k 5% 0.125W
R714	0611077B15	Resistor	47k 5% 0.125W
R715	0611077A84	Resistor	2700 5% 0.125W
R719	0611077B15	Resistor	47k 5% 0.125W
R720	0611077B15	Resistor	47k 5% 0.125W
R721	0611077A98	Resistor	10k 5% 0.125W
R722	0611077B15	Resistor	47k 5% 0.125W
R723	0611077A98	Resistor	10k 5% 0.125W
R724	0611077B15	Resistor	47k 5% 0.125W
R725	0611077A98	Resistor	10k 5% 0.125W
R726	0611077B15	Resistor	47k 5% 0.125W
R727	0611077B15	Resistor	47k 5% 0.125W
R728	0611077B23	Resistor	100k 5% 0.125W
R729	0611077B15	Resistor	47k 5% 0.125W
R730-			
R733	0611077A98	Resistor	10k 5% 0.125W
R734	0611077B15	Resistor	47k 5% 0.125W
R735	0611077B15	Resistor	47k 5% 0.125W
R736	0611077A98	Resistor	10k 5% 0.125W
R737	0611077B15	Resistor	47k 5% 0.125W
R738	0611077B15	Resistor	47k 5% 0.125W
R739	0611077A98	Resistor	10k 5% 0.125W
R740	0611077B15	Resistor	47k 5% 0.125W
R741	0611077A90	Resistor	4700 5% 0.125W
R742	0611077A98	Resistor	10k 5% 0.125W
R743	0611077A98	Resistor	10k 5% 0.125W
R744	0611077B15	Resistor	47k 5% 0.125W
R745	0611077A82	Resistor	2200 5% 0.125W
R746	0611077A86	Resistor	3300 5% 0.125W
R747-			
R749	0611077A98	Resistor	10k 5% 0.125W
R751-			
R753	0611077A98	Resistor	10k 5% 0.125W
R757	0611077B15	Resistor	47k 5% 0.125W
R758	0611077A98	Resistor	10k 5% 0.125W
R759	0611077A98	Resistor	10k 5% 0.125W
R760	0611077B15	Resistor	47k 5% 0.125W
R761	0611077A98	Resistor	10k 5% 0.125W
R762	0611077A98	Resistor	10k 5% 0.125W
R763	0611077B15	Resistor	47k 5% 0.125W
R764	0611077A98	Resistor	10k 5% 0.125W
R765	0611077B15	Resistor	47k 5% 0.125W
R766	0611077A98	Resistor	10k 5% 0.125W
R767	0611077A82	Resistor	2200 5% 0.125W
R768	0611077A98	Resistor	10k 5% 0.125W
R769	0611077B15	Resistor	47k 5% 0.125W
R770	0611077A86	Resistor	3300 5% 0.125W
R771	0611077B15	Resistor	47k 5% 0.125W
R772	0611077A98	Resistor	10k 5% 0.125W
R774-			
R777	0611077A90	Resistor	4700 5% 0.125W
R778	0611077A98	Resistor	10k 5% 0.125W
R779	0611077A98	Resistor	10k 5% 0.125W
R801	0611077H18	Resistor	200k 1% 0.125W
R802	0611077G88	Resistor	100k 1% 0.125W
R803	0611077H18	Resistor	200k 1% 0.125W
R804	0611077G88	Resistor	100k 1% 0.125W
R805	0611077H18	Resistor	200k 1% 0.125W
R806	0611077G88	Resistor	100k 1% 0.125W
R807	0611077H18	Resistor	200k 1% 0.125W
R808	0611077H18	Resistor	200k 1% 0.125W
R809-			
R811	0611077B23	Resistor	100k 5% 0.125W
R821	0611077B23	Resistor	100k 5% 0.125W
R822-			
R826	0611077B18	Resistor	62k 5% 0.125W
R827	0611077B15	Resistor	47k 5% 0.125W
R828	0611077B23	Resistor	100k 5% 0.125W
R829	0611077A98	Resistor	10k 5% 0.125W
R830	0611077B15	Resistor	47k 5% 0.125W
R831	0611077A98	Resistor	10k 5% 0.125W
R833	0611077B23	Resistor	100k 5% 0.125W
R834	0611077B11	Resistor	33k 5% 0.125W
R837	0611077A01	Resistor	Jumper
R901	0611077A98	Resistor	10k 5% 0.125W
R902	0611077A98	Resistor	10k 5% 0.125W

R903	0611077B31	Resistor	220k 5% 0.125W
R904	0611077B09	Resistor	27k 5% 0.125W
R905	0611077B23	Resistor	100k 5% 0.125W
R906	0611077B15	Resistor	47k 5% 0.125W
R907	0611077B13	Resistor	39k 5% 0.125W
R908	0611077B09	Resistor	27k 5% 0.125W
U401	5184621K85	Dual Op Amp	MC4558
U402	5102080B59	5V Regulator	LM2925T
U551	5183629M06	Quad Op Amp	M29M06
U601	5183629M06	Quad Op Amp	M29M06
U701	5102655B01	uP with Firmware	EZA Select 5
U704	5184320A32	Driver	M20A32
U705	5184704M04	Serial Latch	M27M42
U801	5183629M06	Quad Op Amp	M29M06
VR401	4883461E40	Diode	Zener 5.1V
VR651	4882256C11	Diode	Zener 10V
VR652	4882256C11	Diode	Zener 10V
VR653-VR656	4884805A25	Diode	Zener 27V
VR657	4882256C11	Diode	Zener 10V
Y701	4802081B47	Crystal Quarz	4.9248MHz
	0584899A01	Rivet	2 used
	0902808R11	Socket	DIL for U701
	0902808R02	Socket	DIL for U702
	0902808R02	Socket	DIL for U703
	1480067K01	Insulator	Connector for J4
	1481392E02	Insulator	Cover
	7505295B01	Pad Crystal	Base for Y701
	8402693M02	Board	Printed Circuit
	2680212H01	Heatsink	

GMN6121A
Mobile Microphone, Carrier Squelch

Symbol	Part Number	Description	Value
C1301	2184713A94	Capacitor	27pF 5% N470
C1302	2111039B13	Capacitor	1000pF 10% Y5P 50V
C1303	2184713A62	Capacitor	220pF 5% N750
C1304	2311048B13	Capacitor	10uF 20% 16V
C1305	0811051A17	Capacitor	0.47uF 5% 63V
C1306	2184713A62	Capacitor	220pF 5% N750
C1307	2111039B13	Capacitor	1000pF 10% Y5P 50V
C1308	0811051A14	Capacitor	0.15uF 5% 63V
CR1301	4880007E02	Diode	Zener 12V 5% 0.4W
MK1301	5080258E04	Cartridge	Microphone
Q1301	4802081B30	Transistor	M1B30
Q1302	4802081B30	Transistor	M1B30
R1301	1880087E05	Resistor	2k variable
R1302	0684764A24	Resistor	820 5% 0.25W
R1303	0684764A25	Resistor	1k 5% 0.25W
R1304	0684764A37	Resistor	10k 5% 0.25W
R1305	0684764A49	Resistor	100k 5% 0.25W
R1306	0684764A04	Resistor	18 5% 0.25W
S1301	4080065E02	Switch	PTT
	0100851094	Bracket	Microphone Mounting
	0384728C01	Screw B4.2x13	2 used
	0480093E01	Washer	Flat
	1484360C01	Insulator	Switch
	1580137D03	Housing	Rear
	4680086E03	Hangup Stud	Microphone
	4880281G01	Weight	Microphone
(1)	1580137D05	Housing	Front
(2)	3880144D03	Button	PTT
(3)	3080039J01	Cord	Cable
(4)	0580221K01	Grommet	Switch
(5)	4080252E03	Contact	Monitor Switch
(6)	4080252E04	Button	Monitor Switch
(7)	3280253E01	Plate Gasket	Monitor Switch
(8)	3280058H03	Gasket	Housing
(10)	0102713B19	Assy	Rear Housing
(11)	0380076E04	Screw Metric	3 used
(12)	4180096E02	Plunger	Spring
(13)	4580113D02	Actuator	Plunger
(14)	3580089D01	Felt	Baffle
(15)	0580148D01	Grommet	Cartridge
(16)	3910184A10	Plug	Contact

GMN6122A
Mobile Microphone, Private-Line & Select 5

Symbol	Part Number	Description	Value
C1301	2184713A94	Capacitor	27pF 5% N470
C1302	2111039B13	Capacitor	1000pF 10% Y5P 50V
C1303	2184713A62	Capacitor	220pF 5% N750
C1304	2311048B13	Capacitor	10uF 20% 16V
C1305	0811051A17	Capacitor	0.47uF 5% 63V
C1306	2184713A62	Capacitor	220pF 5% N750
C1307	2111039B13	Capacitor	1000pF 10% Y5P 50V
C1308	0811051A14	Capacitor	0.15uF 5% 63V
CR1301	4880007E02	Diode	Zener 12V 5% 0.4W
MK1301	5080258E04	Cartridge	Microphone
Q1301	4802081B30	Transistor	M1B30
Q1302	4802081B30	Transistor	M1B30
R1301	1880087E05	Resistor	2k variable
R1302	0684764A24	Resistor	820 5% 0.25W
R1303	0684764A25	Resistor	1k 5% 0.25W
R1304	0684764A37	Resistor	10k 5% 0.25W
R1305	0684764A49	Resistor	100k 5% 0.25W
R1306	0684764A04	Resistor	18 5% 0.25W
S1301	4080065E02	Switch	PTT
S1302	4080252E01	Switch	and:
S1302	4080252E02	Switch	
	0100851094	Bracket	Microphone Mounting
	0384728C01	Screw B4.2x13	2 used
	0480093E01	Washer	Flat
	1484360C01	Insulator	Switch
	1580137D03	Housing	Rear
	4680086E05	Hangup Stud	Microphone
	4880281G01	Weight	Microphone
(1)	1580137D05	Housing	Front
(2)	3880144D05	Button	PTT
(3)	3080039J01	Cord	Cable
(4)	0580221K01	Grommet	Switch
(5)	4080252E03	Contact	Monitor Switch
(6)	4080252E04	Button	Monitor Switch
(7)	3280253E01	Plate Gasket	Monitor Switch
(8)	3280058H03	Gasket	Housing
(10)	0102712B71	Assy	Rear Housing
(11)	0380076E04	Screw Metric	3 used
(12)	4180096E02	Plunger	Spring
(13)	4580113D02	Actuator	Plunger
(14)	3580089D01	Felt	Baffle
(15)	0580148D01	Grommet	Cartridge
(16)	3910184A10	Plug	Contact

GMN6123A
Base Microphone, Carrier Squelch

Symbol	Part Number	Description	Value
C1	0884700C06	Capacitor	0.033uF 10% 250V
C2	2182187B44	Capacitor	1000pF 10% 100V
C3	2302057B04	Capacitor	15uF 20% 25V
C4	0884700C06	Capacitor	0.033uF 10% 250V
C5	2182187B44	Capacitor	1000pF 20% 25V
C6	2184717A02	Capacitor	470pF 20% 500V
MK1	5082825M02	Cartridge	Microphone
Q1	4802081B10	Transistor	M1B10
Q2	4802081B10	Transistor	M1B10
R1	1802099B02	Resistor	25k var 20% 0.1W
R2	0684764A25	Resistor	1k 5% 0.25W
R3	0684764A53	Resistor	220k 5% 0.25W
R4	0684764A37	Resistor	10k 5% 0.25W
R5	0684764A35	Resistor	6.8k 5% 0.25W
R6	0684764A31	Resistor	3.3k 5% 0.25W
R7	0684764A54	Resistor	270k 5% 0.25W
R8	0684764A13	Resistor	100 5% 0.25W
S1	4002026B01	Switch	Momentary
S2	4002026B01	Switch	Momentary
	0210101A57	Spring Nut	2 used
	0300138809	Screw 4-40x5/16	4 used
	0300140047	Screw 4-20x5/8	4 used
	0302274B01	Screw M3x6	3 used
	0411058B10	Washer	Teflon
	1582976M04	Front Cover	Shadow Bronze
	1582978M04	Rear Cover	Shadow Bronze

	1584191E01	Housing	Microphone
	1584191E02	Housing	Microphone
	3002037B01	Cable	Multiconductor
	3782633B13	Grommet	
	3884184E08	Release Button	
	3884192E06	Release Button	
	4282143C05	Clamp	Cable
	4283725E01	Clamp	Retainer
	4784193E01	Button Mntg	Pivot Shaft
	4784194E01	Shaft	Extension
	6482977M01	Base Plate	
	7584722E01	Pad	Base Plate

GMN6124A
Base Microphone, Private Line & Select 5

Symbol	Part Number	Description	Value
C1	0884700C06	Capacitor	0.033uF 10% 250V
C2	2182187B44	Capacitor	1000pF 10% 100V
C3	2302057B04	Capacitor	15uF 20% 25V
C4	0884700C06	Capacitor	0.033uF 10% 250V
C5	2182137B44	Capacitor	1000pF 20% 25V
C6	2184717A02	Capacitor	470pF 20% 500V
MK1	5082825M02	Cartridge	Microphone
Q1	4802081B10	Transistor	M1B10
Q2	4802081B10	Transistor	M1B10
R1	1802099B02	Resistor	25k var 20% 0.1W
R2	0684764A25	Resistor	1k 5% 0.25W
R3	0684764A53	Resistor	220k 5% 0.25W
R4	0684764A37	Resistor	10k 5% 0.25W
R5	0684764A35	Resistor	6.8k 5% 0.25W
R6	0684764A31	Resistor	3.3k 5% 0.25W
R7	0684764A54	Resistor	270k 5% 0.25W
R8	0684764A13	Resistor	100 5% 0.25W
S1	4084711B02	Switch	Momentary
S2	4084711B02	Switch	Momentary
	0210101A57	Spring Nut	2 used
	0300138809	Screw 4-40x5/16	4 used
	0300140047	Screw 4-20x5/8	4 used
	0302274B01	Screw M3x6	3 used
	0411058B10	Washer	Teflon
	1582976M04	Front Cover	Shadow Bronze
	1582978M04	Rear Cover	Shadow Bronze
	1584191E01	Housing	Microphone
	1584191E02	Housing	Microphone
	2282591C05	Rollpin	
	3002037B01	Cable	Multiconductor
	3782633B13	Grommet	
	3884192E06	Release Button	
	3884192E07	Release Button	
	4282143C05	Clamp	Cable
	4283725E01	Clamp	Retainer
	4784193E01	Button Mntg	Pivot Shaft
	4784194E01	Shaft	Extension
	4784723E01	Shaft	Coupling
	6482977M01	Base Plate	
	7584722E01	Pad	Base Plate

GRN6114A
Trunnion, Dash Mount

Symbol	Part Number	Description	Value
	0300136756	Screw Tpng	4 used
	0380270H02	Screw T-Knob	2 used
	0780213H01	Bracket	Trunnion

GRN6118A
Base Speaker Tray

Symbol	Part Number	Description	Value
(1)	3580009K01	Cloth	Grill
(2)	5080085D01	Speaker	
(3)	7510606A06	Foot, Rubber	4 used
(4)	0300136581	Screw Tpng	5 used
(5)	1782177B53	Resistor	2 10% 5W
(6)	1580155J01	Housing	Speaker
(7)	0102712B64	Cable	Accessory
(8)	3880000K01	Clip Fastener	5 used
(9)	4282018H18	Retainer	Cable
(10)	1580154J02	Cover	Speaker Housing
	1580274H01	Cover Conn	P/O 0102712B64
	2880262H01	Plug	P/O 0102712B64
	2980262H01	Terminal (2)	P/O 0102712B64
	3002424M01	Cable	P/O 0102712B64

GSN6035B Speaker

Symbol	Part Number	Description	Value
	0102712B67	Cable	Speaker
	0300132436	Screw	4 used
	0300136756	Screw Tpng	3 used
	0384244C03	Wingscrew Blk	2 used
	0780200E01	Bracket	Trunnion
	1384151C05	Grill	Speaker
	1580089K01	Cover	Rear
	1580274H01	Cover Conn	P/O 0102712B67
	2880262H01	Plug	P/O 0102712B67
	2980273H02	Terminal	P/O 0102712B67
	3280193K01	Gasket	Spkr Mounting
	3580194K01	Cloth	Grill
	4282018H05	Retainer	Cable
	5084561B03	Speaker 5"	2 Ohm

GPN1003B, GPN1004B, GPN1005B & GPN1006B
Standalone Power Supplies
Includes GLN6779C & GLN6780C Regulator Boards

Symbol	Part Number	Description	
		CAPACITOR, fixed: pF 5% 50V unless otherwise stated	
C1A			
C1B	2384818A02	10000uF +50-10% 40V	GPN1004/06B
C2	2311019B46	100uF 20% 25V	
C3	2311048B05	1uF 20% 50V	
C4	2360561B21	220uF 20% 25V	
C5	2102288M11	0.022uF 10% X7R	
C6	2102288M04	3300pF 10% X7R	
C7	2102288M04	3300pF 10% X7R	
C8	2311048B05	1uF 20% 50V	
C9	2360561B25	1000uF 20% 25V	
C10	2102288M13	0.047uF 10% X7R	
C11	2102288M14	0.1uF 10% 100V	
C18	0811051A13	0.1uF Poly	GPN1008/10
C20	0802015B07	0.1uF 10% 250V	
C22	2102023N09	470pF 20%	GPN1005/06
C23	2102023N09	470pF 20%	GPN1005/06
C24	2102023N09	470pF 20% 400VAC	
C25	2102023N09	470pF 20% 400VAC	
C26	2102281M10	180pF 5% 100V	
C27	2102281M10	180pF 5% 100V	
C101	2311019B46	100uF 20% 25V	GPN1005/06B
C102	2360561B21	220uF 20% 25V	
C103	2102281M08	120pF 5% NP0	GPN1005/06B
C104	2102281M08	120pF 5% NP0	GPN1005/06B
C105	2102288M13	0.047uF 10%	GPN1005/06B
C106	2102281M08	120pF 5% NP0	GPN1005/06B
C107	2102281M08	120pF 5% NP0	GPN1005/06B
C108	2102281M10	180pF 5% 100V	GPN1005/06B
CRA	4802081B06	Bridge Type	GPN1003/05B
CRB	4802081B20	Bridge Type	GPN1004/06B
		DIODE: (SEE NOTE)	
CR1-			
CR7	4883654H01	Silicon	
CR101	4883654H01	Silicon	GPN1005/06B
CR102	4883654H01	Silicon	GPN1005/06B
CR103	4883654H01	Silicon	GPN1005/06B
CR104	4883654H01	Silicon	GPN1005/06B
CR105-			
CR106	4882466H13	Silicon	GPN1005/06B
CR107	4808085B01	MR751	GPN1005/06B
CR108	4808085B01	MR751	GPN1005/06B
CR109	4808085B01	MR751	GPN1005/06B

		LED:	
DS1	4880058K02	Green	
DS101	4880058K01	Red	GPN1005/06B
		FUSE:	
F1	6584711C11	T3.1A(110/120V)	GPN1003/05B
F1	6584711C10	T1.6A (220/240V)	GPN1003/05B
F1	6584711C21	T5A (110/120V)	GPN1004/06B
F1	6584711C11	T3.15A (220/240V)	GPN1004/06B
F101	6584711C19	TO.63A	
F102	6584711C20	Fuse T12.5A	
		CONNECTOR:	
J1	1510183A53	Housing Connector 6 Contact and:	
J1	2982336A01	Terminal Female 4 used	
J2	1583498F04	Housing Connector and:	
J2	2983499F01	Terminal Female 4 used	
J3	0102716B39	Plug Jumper	GPN1004/06B
J6	0102716B40	Conn. DC Output	
J7	0102716B41	Block Terminal	GPN1005/06B
J10	2910231A10	Terminal	GPN1005/06B
J12	2910231A10	Terminal	GPN1005/06B
J11	2910231A10	Terminal	GPN1003/05B
		JUMPER:	
JU2	0611009D23		
JU101-JU102	0611009D23		
		RELAY:	
K101	8002111M02	12V 50mA	GPN1005/06B
		PLUG:	
P1	2882984N13	6 Pin	
P2	2883441F04	4 Pin	
P10	2802138M03	Receptacle AC	
		TRANSISTOR: (SEE NOTE)	
Q1	4800869649	M9649	
Q2	4800869706	M9706	
Q3	4800869648	M9648	
Q4	4800869807	M9807	
Q5	4800869639	M9639	GPN1004/06B
Q6	4800869639	M9639	GPN1004/06B
Q5	4802081B29	M1B29	GPN1003/05B
Q6	4802081B29	M1B29	GPN1003/05B
Q7	4800869570	M9570	
Q102	4802081B30	M1B30	GPN1005/06B
Q103	4802081B30	M1B30	GPN1005/06B
Q109	4800869648	M9648	GPN1005/06B
		RESISTOR:	
R1	0602369M23	68 5% 0.6W	
R2	0602369M49	10k 5% 0.6W	
R3	0602369M27	150 5% 0.6W	
R4	0602369M24	82 5% 0.6W	
R5	0602366M38	360 1% 0.39W	
R6	0611049H79	698 1% 0.25W	
R7	0602369M36	820 5% 0.6W	
R8	1802099B11	1k 20% variable	
R9	0602369M38	1.2k 5% 0.6W	
R10	1702667B09	200 5% 2.5W	
R11	0602369M19	33 5% 0.6W	
R12	0602369M37	1k 5% 0.6W	
R13	0602369M49	10k 5% 0.6W	
R14	0611049J08	1370 1% 0.25W	
R15	0602366M25	100 1% 0.39W	
R16	0602366M37	330 1% 0.39W	
R17	1784820A05	0.1 5% 7W	GPN1004/06B
R18	1784820A05	0.1 5% 7W	GPN1004/06B
R17	1784820A06	0.2 5% 5W	GPN1003/05B
R18	1784820A06	0.2 5% 5W	GPN1003/05B
R19	0602369M42	2.7k 5% 0.6W	
R101	0602369M52	18k 5% 0.6W	GPN1005/06B
R102	0602369M53	22k 5% 0.6W	GPN1005/06B
R103	0602369M49	10k 5% 0.6W	GPN1005/06B
R104	0602369M61	100k 5% 0.6W	GPN1005/06B
R105	0602369M45	4.7k 5% 0.6W	GPN1005/06B
R106	0602369M42	2.7k 5% 0.6W	GPN1005/06B
R107	0602369M53	22k 5% 0.6W	GPN1005/06B
R108	0602369M53	22k 5% 0.6W	GPN1005/06B
R109	0602369M49	10k 5% 0.6W	GPN1005/06B
R110	0602369M41	2.2k 5% 0.6W	GPN1005/06B
R111	1802099B01	2k variable	GPN1005/06B
R112	0602369M37	1k 5% 0.6W	GPN1005/06B
R113	0602369M54	27k 5% 0.6W	GPN1005/06B
R114	0602369M57	47k 5% 0.6W	GPN1005/06B
R115	0602366M77	15k 1% 0.39W	GPN1005/06B
R116	0611049K36	28.7k 1% 0.25W	"
R117	0602369M63	150k 5% 0.6W	GPN1005/06B
R118	0602369M49	10k 5% 0.6W	GPN1005/06B
R119	1702667B06	3.9 5% 2.5W	GPN1005/06B
R120	0602369M42	2.7k 5% 0.6W	GPN1005/06B
R121	0602369M52	18k 5% 0.6W	GPN1005/06B
R121	0602369M46	5.6k 5% 0.6W	GPN1005/06B
R123	0602369M51	15k 5% 0.6W	GPN1005/06B
R124	0602369M49	10k 5% 0.6W	GPN1005/06B
R125	0602369M49	10k 5% 0.6W	GPN1005/06B
R126	0602369M45	4.7k 5% 0.6W	GPN1005/06B
R127	0602369M42	2.7k 5% 0.6W	GPN1005/06B
		SWITCH:	
S1	0102716B38	Thermal	GPN1003/05B
		TRANSFORMER:	
T1	2502210B01	Power	GPN1003/05B
T1	2582169R01	Power	GPN1004/06B
		INTEGRATED CIRCUIT:	
U1	5183222M76	Voltage Regulator	
U101	5183222M10	Comparator	GPN1005/06B
U102	5184621K96	5V Regulator	GPN1005/06B
		ZENER DIODE:	
VR1	4882256C47	Zener 6.8V 1%	
VR101	4882256C47	Zener 6.8V 1%	GPN1005/06B
		NON-REFERENCED ITEMS:	
	0380165J07	Screw M4x10	(4)
	0380165J09	Screw M4x5	(4) GPN1004/06B
	0380269H05	Screw M4x12	(2)
	0380269H06	Screw M3x16	(2) GPN1005/06B
	0380269H07	Screw M4x20	for D1
	0380269H08	Screw M3x8	(7)
	0380030J01	Screw M3x8	(2)
	0380165J10	Screw M4x55	(4) GPN1003/05B
	0384893D06	Dista Bolt	(2)
	0384723C37	Screw M3x6	(4)
	0484718C06	Lockwasher	(6)
	0484718C04	Lockwasher	(6)
	0384723C16	Screw M3x25	(4)
	0384723C29	Screw M3x4	
	0384893D08	Standoff Xfmr	(4)
	0484717C01	Washer M4	(4)
	0484718C02	Lockwasher	(8)
	0500131314	Eyelet	
	0502157B07	Rivet	Pop
	0502447Y01	Rivet	Plastic
	0703438A02	Bracket	PCB
	0902088M01	Socket Transistor	(2)
	0902263B01	Fuseholder	(2)
	1382148R03	Panel front	GPN1003/04B
	1382148R04	Panel front	GPN1005/06B
	1402091M01	Insulator	
	1402161M01	Insulator TO-3	(2)
	1402309M01	Cap Ins'g TO-3	(2)
	1402662B01	Insulator	Transformer
	1484277D25	Housing	Connector
	1503433A01	Cover Batt Con'r	GPN1005/06B
	1582149R01	Cover	Power Supply
	1582413R01	Cover	Housing
	1583498F04	Housing 5 Pos	GPN1005/06B
	2682150R01	Heatsink	
	2782118R01	Chassis	
	2802002M16	Plug 2-Pin	GPN1003/05B
	3100122068	Strip	Terminal
	3302373M39	Label	
	4202211B01	Bracket	Capacitor
	4280276H01	Retainer	Cable
	4384798F01	Insert	Polarizing Key
	4384815A03	Bushing Threaded	GPN1005/06B
	4684203E01	Guide Card	(2)
	7505413D01	Feet Bumper	(4)
	8482361R05	Board	Printed Circuit
	8402024N01	Filter Board	Printed Circuit
	1402639M02	Insulator	GPN1004/06B
	1402639M03	Insulator	GPN1003/05B
	2900005248	Lug	(2) GPN1005/06B
	GKN6181A	Line Cord	110/120V
	GKN6136A	Line Cord	220V
	GKN6153A	Line Cord	240V

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