ERICSSON

MAINTENANCE MANUAL

25-50 MHz RF ASSEMBLY 19D416478G1-G4, G10-G13 AND MIXER/IF BOARD 19C320094G1-G4

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DESCRIPTION

The RF Assembly uses two tuned helical resonators and four L-C tuned circuits to provide front end selectivity.

The Mixer/IF board (MIF) uses the RF input from the RF Assembly and the mixer injection frequency from the oscillator/multiplier board to generate the IF frequency.

CIRCUIT ANALYSIS

RF ASSEMBLY

ANTENNA INPUT A301A/A301B

An RF signal from the antenna is applied to A301 which provides an AC ground between vehicle ground and receiver A-. Resistor R1 prevents a static charge from building up on the vehicle antenna. The output of A301 is coupled through two high-Q helical resonators (L301, C301 and L302, C302) to the RF amplifier. The coils are tuned to the incoming frequency by C301 and C302. Lamp DS1 protects the RF amplifier stage against an excessive RF input.

RF AMPLIFIER A302

RF Amplifier Q1 is a Field-Effect Transistor (FET). Q1 operates as a grounded gate amplifier, with the RF input applied to the "source" terminal. This method of operating provides a low impedance input to the amplifier. The amplified output is taken from the "drain" terminal and coupled through four L-C tuned circuits (L1-C7, L2-C8, L3-C9 and L4-C10) to the mixer. The four tuned circuits and the two helical resonators provide the receiver front end selectivity.

MIXER-IF

MIXER & CRYSTAL FILTER

The mixer uses a FET (Q501) as the active device. The FET mixer provides a high input impedance, high power gain, and an output relatively free of harmonics (low in intermodulation products).

In the mixer stage, RF from the RF amplifier stage is coupled through tank circuit L501, C502 and C503 to the gate of mixer Q501. The tank circuit provides increased selectivity and impedance matching between the RF Assembly and the gate of mixer Q501. Injection voltage from the multiplier-selectivity stages is inductively coupled through L502 to the source of the mixer. The mixer IF output signal is coupled from the drain of Q501 through a tuned circuit (L504 and C511)* which matches the mixer output to the input of the four-pole monolithic crystal filter. The highly-selective crystal filter (FL501 and FL502) provides the first portion of the receiver IF selectivity. The output of the filter is coupled through impedance matching network Z502 (L520 and C523) to the IF amplifier.

* 19C320094G4 only:

An additional parallel tank circuit (L523, C530 and C531) is added to improve intermodulation performance.

IF AMPLIFIER

IF amplifier Q502 is a dual-gate FET. The filter output is applied to Gate 1 of the amplifier, and the output is taken from the drain. The biasing on Gate 2 and the drain load determines the gain of the stage. The amplifier provides approximately 20 dB of IF gain. The output of Q502 is coupled through a network (L521 and C528) that matches the amplifier output to the crystal filter on the next IF stage. The output of the MIF board is coupled to the next IF stage through feed-through capacitor C305.

Supply voltage for the RF amplifier and MIF board is supplied through feed-through capacitor C306. SERVICE NOTE: Variable capacitor C521 does not require adjustment when performing normal alignment. If the 4-pole monolithic crystal filter is replaced, then adjustment of C521 is necessary for optimum IF response.

ERICSSON GE
Ericsson GE Mobile Communications Inc.
Mountain View Road • Lynchburg, Virginia 24502

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25 - 50 MHz RF ASSEMBLY
19D416478G1 - G4, G10 - G11
ISSUE 1

SYMBOL	PART NO.	DESCRIPTION
A301A		ANTENNAINPUT BOARD (Used in G1, G2, G3 and G4). 19B219452G1
		---------- CAPACITORS ----------
C1	19A116655P19	Ceramic disc: 1000 pF ± 20%, 1000 VDCW; sim to RMC Type JF Discap. (Used in G1).
C2	19A700005P11	Polyester: 0.047 µF ±10%, 50 VDCW. (Used in G1).
C3 and C4	19A116655P19	Ceramic disc: 1000 pF ± 20%, 1000 VDCW; sim to RMC Type JF Discap. (Used in G1).
		---------- JACKS ----------
J1	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058. (Used in G1).
		---------- RESISTORS ----------
R1	19A700106P79	Composition: 4.7K ohms ±5%, 1/4 w. (Used in G1).
A301B		ANTENNA PLATE ASSEMBLY (Used in G10, G11, G12 & G13). 19A137883G1
		---------- JACKS ----------
J1	7104941P20	Jack, phono: coaxial. (Used in G1).
		---------- RESISTORS ----------
R1	19A700106P79	Composition: 4.7K ohms ±5%, 1/4 w. (Used in G1).
A302		RF PRESELECTOR BOARD 302LL 19C320073G1 (Used in G1 and G10). 302L 19C320073G2 (Used in G2 and G11). 302M 19C320073G3 (Used in G3 and G12). 302H 19C320073G4 (Used in G4 and G13).
		---------- CAPACITORS ----------
C2LL	19A700013P13	Phenolic: 1.00 pF ± 5%, 500 VDCW. (Used in G1).
C2L	5491601P118	Phenolic: 0.75 pF ± 5%, 500 VDCW. (Used in G2).
C2M	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G3).
C2H	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G4).
C3LL	19A700013P13	Phenolic: 1.00 pF ± 5%, 500 VDCW. (Used in G1).
C3L	5491601P118	Phenolic: 0.75 pF ± 5%, 500 VDCW. (Used in G2).
C3M	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G3).
C3H	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G4).
C4LL	19A700013P13	Phenolic: 1.00 pF ± 5%, 500 VDCW. (Used in G1).
C4L	5491601P118	Phenolic: 0.75 pF ± 5%, 500 VDCW. (Used in G2).
C4M	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G3).
C4H	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G4).
C5	19A700005P7	Polyester: 0.01 µF ±10%, 50 VDCW. (Used in G1, G2, G3 and G4).
C8	19A116656P8K8	Ceramic disc: 8 pF ± 10%, 500 VDCW; temp. coef -80 PPM. (Used in G1, G2, G3 and G4).
C7LL	5496219P256	Ceramic disc: 51 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G1).
C7L	5496219P253	Ceramic disc: 39 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G2).
C7M	5496219P250	Ceramic disc: 30 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G3).
C7H	5496219P245	Ceramic disc: 18 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G4).
C8LL	5496219P256	Ceramic disc: 51 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G1).
C8L	5496219P253	Ceramic disc: 39 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G2).
C8M	5496219P250	Ceramic disc: 30 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G3).
C8H	5496219P245	Ceramic disc: 18 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G4).
C9LL	5496219P256	Ceramic disc: 51 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G1).
C9L	5496219P253	Ceramic disc: 39 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G2).
C9M	5496219P250	Ceramic disc: 30 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G3).
C9H	5496219P245	Ceramic disc: 18 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G4).
C10LL	5496219P257	Ceramic disc: 56 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G1).
C10L	5496219P253	Ceramic disc: 39 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G2).
C10M	5496219P250	Ceramic disc: 30 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G3).
C10H	5496219P245	Ceramic disc: 18 pF ± 5%, 500 VDCW, temp. coef -80 PPM. (Used in G4).
		---------- DIODES ----------
CR1	19A700047P4	Silicon, Schottky: 100 Mw. (Used in G1, G2, G3 and G4).
		---------- JACKS ----------
J2	19A116975P1	Contact, electrical. (Used in G1, G2, G3 and G4).
		---------- INDUCTORS ----------
L1 thru L3	19C307170P306	Coil, RF: variable, wire size No. 20 AWG; sim. to Paul Smith Co. Sample No. 092574-DS-3. (Used in G1, G2, G3 and G4).
L4	19C307170P308	Coil, RF: variable, wire size No. 20 AWG; sim. to Paul Smith Co. Sample No. 071774-DG-7. (Used in G1, G2, G3 and G4).
		---------- PLUGS ----------
P1		PART OF W1&W2 (Used in G1, G2, G3 and G4).
		---------- TRANSISTORS ----------
Q2	19A116960P1	N Type, field effect; sim to Type 2N4416. (Used in G1, G2, G3 and G4).
		---------- RESISTORS ----------
R2	19A700106P39	Composition: 100 ohms ± 5%, 1/4 w. (Used in G1, G2, G3 and G4).
R3M	3R152P243J	Composition: 24K ohms ±5%, 1/4 w. (Used in G3).
R3H	3R152P622J	Composition: 6200 ohms ± 5%, 1/4 w. (Used in G4).
		---------- CABLES ----------
W1	5491589P85	Cable, RF: approx 4 inches long. (Used in G1, G2, G3 and G4).

* COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	PART NO.	DESCRIPTION
		---------- CAPACITORS ----------
C301	19B209159P4	Variable, air: 1.80-8.3 pF, 650 v peak; sim. to EF Johnson 189. (Used in G1, G2, G3 and G4).
C302		PART OF L302 (Used in G3, G4, G12 and G13).
C304	19B209488P2	Ceramic: 1000 pF -10+100%, 500 VDCW; sim to Allen Bradley Style FA5D.
C305	19B209488P1	Ceramic: 6.8 pF ±20%, 500 VDCW; sim to Allen Bradley Style FA5D.
C306	19B209488P2	Ceramic: 1000 pF -10+100%, 500 VDCW; sim to Allen Bradley Style FA5D.
		---------- INDUCTORS ----------
L301H	19B219455G3	Coil. Includes: (Used in G4 and G13).
		---------- CAPACITORS ----------
C1	5494481P13	Ceramic disc: 2000 pF ± 20%, 1000 VDCW; sim. to Type JF Discap. (Used in G1).
C2	5494481P11	Ceramic disc: 1000 pF ±20%, 1000 VDCW; sim. to RMC Type JF Discap. (Used in G3).
		---------- INDICATING DEVICES ----------
DS1	19B209067P1	Lamp, glow: 0.7 mA; sim to GE NE2ET. (Used in G1 and G3).
L301LL	19B219455G1	Coil. Includes: (Used in G1 and G10).
L301L	19B219455G1	Coil. Includes: (Used in G2 and G11).
L301M	19B219455G3	Coil. Includes: (Used in G3 and G12).
L302LL	19B219455G2	Coil. Includes: (Used in G1 and G10).
L302L	19B219455G2	Coil. Includes: (Used in G2 and G11).
L302M	19B219455G4	Coil. Includes: (Used in G3 and G12).
L302H	19B219455G4	Coil. Includes: (Used in G4 and G13).
		----------MISCELLANEOUS ----------
	19B219451P1	Cover.
	19B201074P305	Tap screw, Phillips POZIDRIV: No. 6-32 x 5/16.
	19A148393P306	Tap screw, TORZ DRIVE: No. 632 x 3/8.

PRODUCTION CHANGES

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

REV. A - RF FILTER BOARD 19C320073G1 - 4
Above revisions shipped in initial shipment.

REV. B - RF FILTER BOARD 19C320073G2 & 3
To improve receiver sensitivity. Deleted resistors R3L and R3M. Old part numbers were:
R3L - 3R152P303J Composition: 30K ohms 5%,1/4 w.
R3M - 3R152P243J Composition: 24K ohms 5%,1/4 w.

REV. C - RF FILTER BOARD 19C320073G3
To prevent oscillation. Added R3M

REV. B - RF FILTER BOARD 19C320073G1 & 4
REV. C - RF FILTER BOARD 19C320073G2
REV. D - RF FILTER BOARD 19C320073G3

To improve receiver sensitivity. Changed capacitors C2, C3, and C4 and coils L1 thru L4. Old part numbers were:

C2M - 5491601P119 Phenolic: 0.82 pF 5%, 500 VDCW.
thru
C4M

L1 - 19B219419G2 coil. Incl 5491798P5 Tuning slug
thru
L3

L4 - 19B219419G1 Coil. Incl: 5417498P5 Tuning slug

REV. D - RF FILTER BOARD 19C320073G2
To prevent oscillation in pre-selector board. Added R3L.

REV. C - RF FILTER BOARD 19C320073G1 & 4
REV. E - RF FILTER BOARD 19C320073G2 & 3

To standardize components. Deleted Q1 and PWB 19C320072. Added Q2 and PWB 19C327760P1. Old part number was:

Q1 - 19A116154P1 N TYPE FET.

REV. F - RF FILTER BOARD 19C320073G2
To improve RF sensitivity. Deleted resistor R3L. Old part number was:
R3L - 3R152P303J Composition: 30K ohms 5%, 1/4 w.

REV. A & B - RF ASSEMBLY 19D416478G1-4

Incorporated in initial shipment.

REV. C - RF ASSEMBLY 19D416478G1

To improve sensitivity in the 25 - 30 MHz range. Changed C1 (part of L301LL).

C1 - 5494481P11 Ceramic disk: 2000 pF 20%, 1000 VDCW.

MIXER IF ASSEMBLY
19C320094G1 - G4
ISSUE 1

SYMBOL	PART NO.	DESCRIPTION
		----------CAPACITORS ----------
C203L	5490006P17	Silver mica: 39 pF ± 5%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G2).
C502LL	5490446P1	Variable, ceramic: approx. 8-50 pF, 350 VDCW, temp. coef -750 PPM; sim. to Erie Style 557-36. (Used in G1).
C502L	5490446P1	Variable, ceramic: approx. 8-50 pF, 350 VDCW, temp. coef -750 PPM; sim. to Erie Style 557-36. (Used in G2).
C503LL	5490006P21	Silver mica: 56 pF ± 5%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G1).
C503M	19A700105P30	Mica: 68 pF ±5%, 500 VDCW. (Used in G3).
C503H	19A700105P28	Mica: 58 pF ±5%, 500 VDCW. (Used in G4).
C504	19A701624P16	Ceramic, disc: 22 pF ±5%, 500 VDCW, temp coef 0 PPM ±30.
C505	5490006P27	Silver mica: 100 pF ± 5%, 500 VDCW, sim. to Electro Motive Type DM-15.
C506LL	19A701624P118	Ceramic: 27 pF ± 5%, 500 VDCW, temp coef N80 ±30 PPM/°C. (Used in G1).
C506L	19A701624P117	Ceramic, disc: 24 pF ±5%, 500 VDCW, temp coef N80 PPM ±30.)l (Used in G2).
C506M	19A701624P112	Ceramic, disc: 15 pF ±5%, 500 VDCW, temp coef N80 PPM ±30. (Used in G3).
C506H	19A701624P110	Ceramic, disc: 12 pF ±5%, 500 VDCW, temp coef N80 PPM ±30. (Used in G4).
C507LL	19A700013P13	Phenolic: 1.00 pF ± 5%, 500 VDCW. (Used in G1).
C507L	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G2).
C507M	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G3).
C507H	19A700013P10	Phenolic: 0.56 pF ± 5%, 500 VDCW. (Used in G4).
C508LL	19A701624P118	Ceramic: 27 pF ± 5%, 500 VDCW, temp coef N80 ±30 PPM/°C. (Used in G1).
C508L	19A701624P117	Ceramic, disc: 24 pF ±5%, 500 VDCW, temp coef N80 PPM ±30.)l (Used in G2).
C508M	19A701624P112	Ceramic, disc: 15 pF ±5%, 500 VDCW, temp coef N80 PPM ±30. (Used in G3).
C508H	19A701624P110	Ceramic, disc: 12 pF ±5%, 500 VDCW, temp coef N80 PPM ±30. (Used in G4).
C509	T644ACP310K	Polyester: .010 µF ±10%, 50 VDCW.
C511LL	5490006P137	Silver mica: 270 pF ± 10%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G1).
C511L	5490006P141	Silver mica: 390 pF ± 10%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G2).
C511M	5490006P137	Silver mica: 270 pF ± 10%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G3).
C511H	5490006P141	Silver mica: 390 pF ± 10%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G4).
C512	5496267P10	Tantalum: 22 µF ± 20%, 15 VDCW; sim to Sprague Type 150D.
C513	T644ACP322K	Polyester: .022 µF ±10%, 50 VDCW.
C520LL	19A700013P9	Phenolic: 0.47 pF ± 5%, 500 VDCW. (Used in G1).
C520L	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G2).
C520M	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G3).
C520H	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G4).
C521	19A700012P2	Variable, ceramic: 2.5 to 20 pF 200 VDCW, temp coef -250 -700 PPM; sim to Panasonic ECX1ZW20X32.
C522LL	19A700013P9	Phenolic: 0.47 pF ± 5%, 500 VDCW. (Used in G1).
C522L	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G2).
C522M	19A700013P12	Phenolic: 0.82 pF ± 5%, 500 VDCW. (Used in G3).
C522H	19A700013P11	Phenolic: 0.68 pF ± 5%, 500 VDCW. (Used in G4).
C523		PART OF Z502
C524 thru C527	T644ACP322K	Polyester: .022 µF ±10%, 50 VDCW.
C528LL	5490006P139	Silver mica: 330 pF ±10%, 500 VDCW; sim to Electro Motive Type DM-15. (Used in G1).
C528L	5490006P40	Silver mica: 360 pF ± 5%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G2).
C528M	5490006P139	Silver mica: 330 pF ±10%, 500 VDCW; sim to Electro Motive Type DM-15. (Used in G3).
C528H	5490006P40	Silver mica: 360 pF ± 5%, 500 VDCW, sim. to Electro Motive Type DM-15. (Used in G4).
C529	19A701602P19	Ceramic: 1000 pF ± 20%, 1000 VDCW; sim to RMC Type JF Discap.
C530	19A700235P29	Ceramic: 220 pF ±5%, 50 VDCW. (Used in G3 and G4).
C531	T644ACP322K	Polyester: .022 µF ±10%, 50 VDCW. (Used in G3 and G4).
		---------- FILTERS ----------
FL501LL	19B219573G5	Crystal: Resonator A - 11,204.000 KHz; Resonator B - 11,196.000 KHz. (Quantity 2). (Used in G1,3).
FL501L	19B219574G3	Crystal: Resonator A - 9400.000 kHz, Resonator B - 9396.024 kHz (Quantity 2). (Used in G2,3).
FL501H	19B219574G5	XTAL (Used in G4).
FL502LL		PART OF FL501LL (Used in G1).
FL502L		PART OF FL501L (Used in G2).
FL502M		PART OF FL501M (Used in G3).
FL502H		PART OF FL501LL (Used in G4).
		---------- JACKS ----------
J501	19A700049P2	Connector, receptacle; 500 VDCW maximum; sim to NTTF-1058.
J502	19A116975P1	Contact, electrical.
J523 and J524	19A116975P1	Contact, electrical.
		---------- INDUCTORS ----------
L501H	19C320141P35	COIL (Used in G4).
L501		PART OF ITEM 2 (Used in G1 and G2).
L501M	19C320141P35	COIL (Used in G3).
L502	19B219419G2	Coil. Includes:
	19B219419P3	COIL (Used in G2).
	19B219419P5	COIL (Used in G4).
	19B209674P25	CORE THO (Used in G2 and G4).

* COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

SYMBOL	PART NO.	DESCRIPTION
	19B209675P31	COIL FORMPOLYPROP (Used in G2 and G4).
L503	19B219419G4	Coil. Includes:
L504	19C320141P30	COIL
L505	7488079P48	Coil, RF: 27 µH 10%, 1.4 ohms DC res. max; sim. to Jeffers 4422-9.
L520LL		PART OF Z502LL (Used in G1).
L520L		PART OF Z502L (Used in G2).
L520M		PART OF Z502M (Used in G3).
L520H		PART OF Z502H (Used in G4).
L521	19C320141P6	COIL
L522LL	19B209420P27	Coil, RF: 15.0 µH ± 5%, 2.80 ohms DC res max; sim to Jeffers 1316-2J. (Used in G1).
L522L	19B209420P28	Coil, RF: 18.0 µH ±5%, 3.00 ohms DC res max; sim to Jeffers 1316-3S. (Used in G2).
L522M	19B209420P27	Coil, RF: 15.0 µH ± 5%, 2.80 ohms DC res max; sim to Jeffers 1316-2J. (Used in G3).
L522H	19B209420P28	Coil, RF: 18.0 µH ±5%, 3.00 ohms DC res max; sim to Jeffers 1316-3S. (Used in G4).
L523H	19A700024P14	Coil, RF: 1.2 µH ± 10%. (Used in G4).
L523M	19A700024P14	Coil, RF: 1.2 µH ± 10%. (Used in G3).
		---------- TRANSISTORS ----------
Q501	19A116154P1	N Type, field effect. (Used in G1 and G2).
Q501H	19A700060P2	N Type, field effect. (Used in G4).
Q501M	19A700060P2	N Type, field effect. (Used in G3).
Q502	19A116818P1	N Channel, field effect.
		---------- RESISTORS ----------
R503M	19A700106P63	Composition: 1K ohms ± 5%, 1/4 w. (Used in G3).
R503	19A700106P67	Composition: 1.5K ohms ± 5%, 1/4 w. (Used in G1 and G2).
R503H	19A700106P63	Composition: 1K ohms ± 5%, 1/4 w. (Used in G4).
R521LL	3R151P561J	Composition: 560 ohms ±5%, 1/8 w. (Used in G1).
R521L	3R151P331J	Composition: 330 ohms ±5%, 1/8 w. (Used in G2).
R521M	3R151P561J	Composition: 560 ohms ±5%, 1/8 w. (Used in G3).
R521H	3R151P331J	Composition: 330 ohms ±5%, 1/8 w. (Used in G4).
R522	19A700106P87	Composition: 10K ohms ± 5%, 1/4 w.
R523	19A700106P77	Composition: 3.9K ohms ± 5%, 1/4 w.
R524	19A700106P47	Composition: 220 ohms ± 5%, 1/4 w.
R525	19A700106P31	Composition: 47 ohms ± 5%, 1/4 w.
		---------- FILTER ----------
Z502LL	19C320141P4	Coil. (Used in G1).
Z502L	19C320141P5	COIL (Used in G2).
Z502M	19C320141P4	Coil. (Used in G3).
Z502H	19C320141P5	COIL (Used in G4).
		---------- MISCELLANEOUS ----------
	419B219470P2	Shield.
	519A701544P8	CAN
	124031594P1	Insulator.
	134035306P23	Washer, fiber.

PRODUCTION CHANGES

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REV. A thru D- MIXER/IF BOARD 19C320094G1 & G2

REV. A thru C- MIXER/IF BOARD 19C320094G3 & G4

Above revisions shipped in initial shipment.

REV. D- MIXER/IF BOARD 19C320094G4

To improve receiver sensitivity, adjacent channel selectivity and intermodulation. Added C530, C531, L501H, L523H, Q501H and R503H. Deleted C502H and L501, Q501 and R503. changed C503H and FL501. Old part numbers were:

C502H - Same as C502M.

L501, Q501, AND R503 - Same as G1 - G3.

C503H - 5490008P8 Silver mica: 15 pF 5%, 500 VDCW.

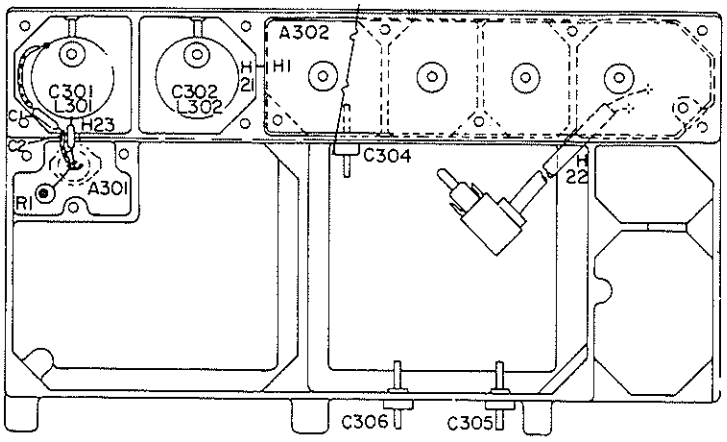
FL501H - 19B219574G3 Crystal (same as FL501L).

REV. D- MIXER/IF BOARD 19C320094G3

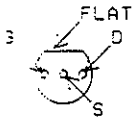
To improve receiver operation, including SINAD, adjacent channel selectivity and IM. Changed C503M, C520M, and C522M. Added C530, C531, L501M, L523M, Q501M, and AR503M. Deleted C502M, L501, Q501 and R503.

C503M IS: 19A700105P30 - Mica: 68 pF 5%, 500VDCW.
C520M IS: 19A700013P12 - Phenolic: 0.82pF 5%, VDCW.
C522M IS: 19A700013P12 - Phenolic: 0.82pF 5%, VDCW.
C530 is: 19A700235P29 - Ceramic 220 pF 5%, 50 VDCW.
C531 is: T644ACP322K - Polyester: 0.22 uF 10%, 50 VDCW.
L501M is 19C320141P35 - Coil.
L523M is 19A700024P14 - Coil, RF: 1.2 uH 10%.
Q501 is 19A700060P2 - N Type, field effect.
R503 is 19A700106P63 - Composition: 1K ohms 5%, 1/4 w.

RF ASSEMBLY BOTTOM VIEW



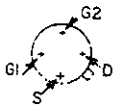
LEAD IDENTIFICATION FOR Q1



VIEW FROM LEAD END

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

LEAD IDENTIFICATION FOR Q502



CASE END

CENTER CONDUCTOR IN H4 FOR GROUPS 1 THRU 4

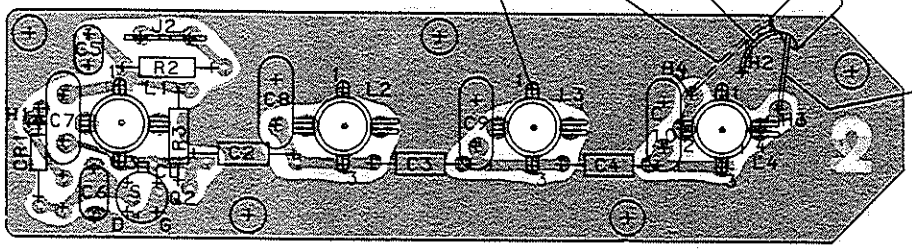
RAISED TAB ON COIL FORM INDICATES PIN 1 ON L1 - L4

TWISTED SHIELD

P1

W1

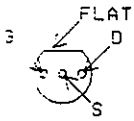
A302 RF PRE-SELECTOR



CENTER CONDUCTOR IN H3 FOR GROUPS 8 & 9

(19C327759, Rev. 1)
(19B219444, Sh. 1, Rev. 2)
(19B219444, Sh. 2, Rev. 2)

LEAD IDENTIFICATION FOR Q1



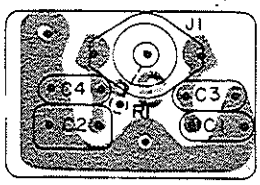
VIEW FROM LEAD END

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

(19D423628, Rev. 7)

A301A ANT INPUT

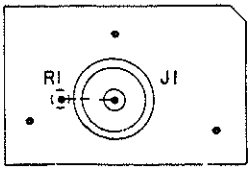
(FLOATING GROUND)

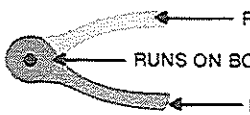


(19B219449, Sh. 1, Rev. 3)
(19B219449, Sh. 2, Rev. 3)

A301B ANT INPUT

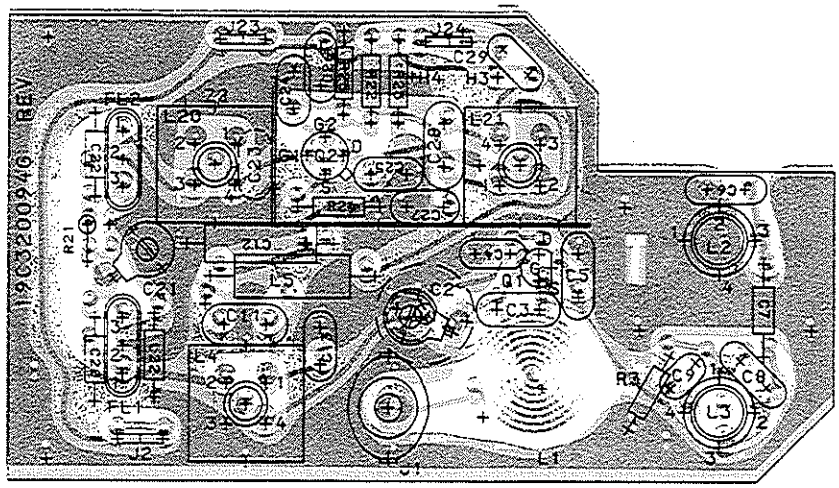
(NON FLOATING GROUND)





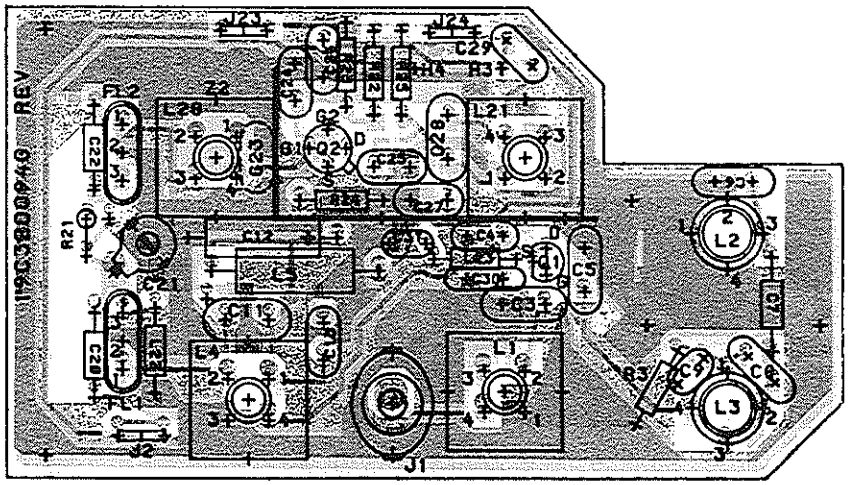
25 - 50 MHz RF ASSEMBLY
19D416478

MIXER/IF BOARD
19C320094G1-G3



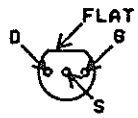
(19C321092, Sh. 2, Rev. 1)
(19C321092, Sh. 3, Rev. 1)

MIXER/IF BOARD
19C320094G4



(19C320094, Sh. 2, Rev. 0)
(19C337567, Component Side, Rev. 1)
(19C337567, Solder Side, Rev. 1)

LEAD IDENTIFICATION
FOR Q1 (G4 ONLY)

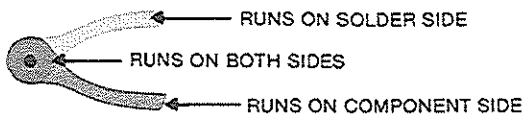


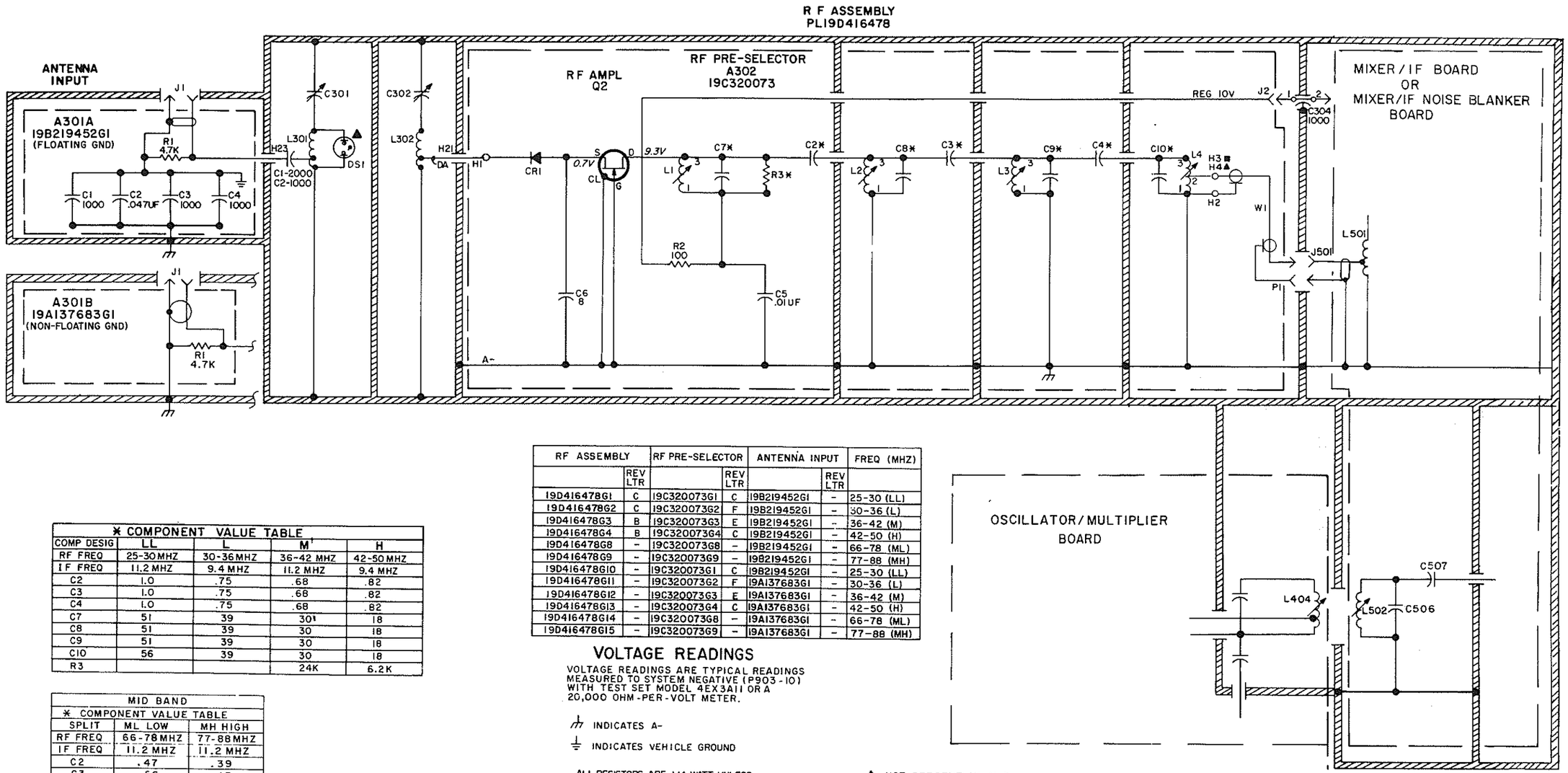
VIEW FROM LEAD END

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

10. PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATIONS PREFIX WITH 500 SERIES. EXAMPLE: C3- C503, R3- R503, ETC...

CAUTION
OBSERVE PRECAUTIONS FOR HANDLING
ELECTROSTATIC SENSITIVE DEVICES





RF ASSEMBLY	REV LTR	RF PRE-SELECTOR	REV LTR	ANTENNA INPUT	REV LTR	FREQ (MHZ)
19D416478G1	C	19C320073G1	C	19B219452G1	-	25-30 (LL)
19D416478G2	C	19C320073G2	F	19B219452G1	-	30-36 (L)
19D416478G3	B	19C320073G3	E	19B219452G1	-	36-42 (M)
19D416478G4	B	19C320073G4	C	19B219452G1	-	42-50 (H)
19D416478G8	-	19C320073G8	-	19B219452G1	-	66-78 (ML)
19D416478G9	-	19C320073G9	-	19B219452G1	-	77-88 (MH)
19D416478G10	-	19C320073G1	C	19B219452G1	-	25-30 (LL)
19D416478G11	-	19C320073G2	F	19A137683G1	-	30-36 (L)
19D416478G12	-	19C320073G3	E	19A137683G1	-	36-42 (M)
19D416478G13	-	19C320073G4	C	19A137683G1	-	42-50 (H)
19D416478G14	-	19C320073G8	-	19A137683G1	-	66-78 (ML)
19D416478G15	-	19C320073G9	-	19A137683G1	-	77-88 (MH)

* COMPONENT VALUE TABLE				
COMP DESIG	LL	L	M	H
RF FREQ	25-30 MHZ	30-36 MHZ	36-42 MHZ	42-50 MHZ
IF FREQ	11.2 MHZ	9.4 MHZ	11.2 MHZ	9.4 MHZ
C2	1.0	.75	.68	.82
C3	1.0	.75	.68	.82
C4	1.0	.75	.68	.82
C7	51	39	30	18
C8	51	39	30	18
C9	51	39	30	18
C10	56	39	30	18
R3			24K	6.2K

MID BAND * COMPONENT VALUE TABLE		
SPLIT	ML LOW	MH HIGH
RF FREQ	66-78 MHZ	77-88 MHZ
IF FREQ	11.2 MHZ	11.2 MHZ
C2	.47	.39
C3	.56	.47
C4	1.0	.82
C7	15	10
C8	18	13
C9	18	13
C10	18	13
R3	6.8K	6.8K

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MEASURED TO SYSTEM NEGATIVE (P903-10) WITH TEST SET MODEL 4EX3A11 OR A 20,000 OHM-PER-VOLT METER.

⫽ INDICATES A-

⏚ INDICATES VEHICLE GROUND

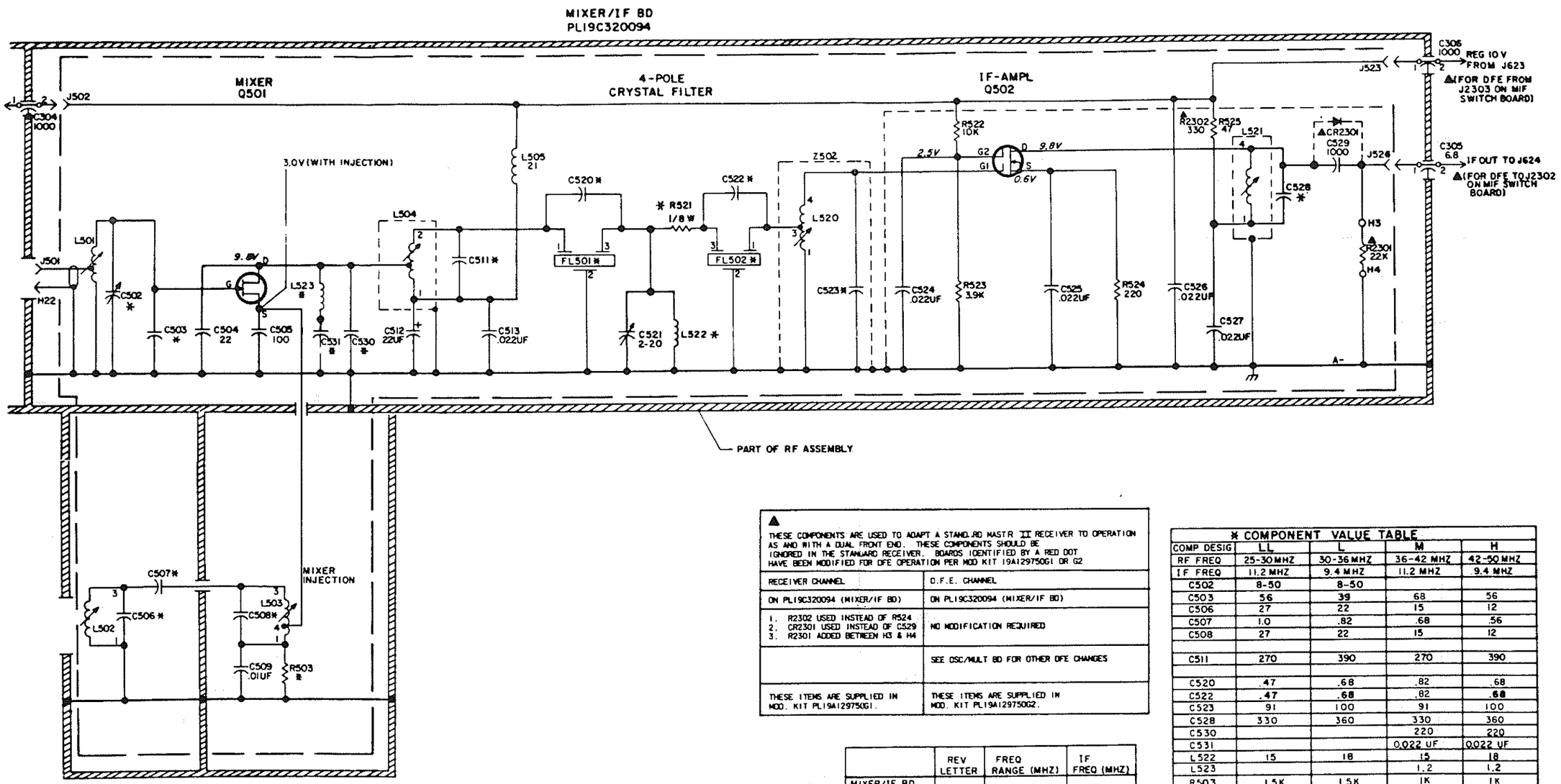
ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF= MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH= MILLIHENRYS OR H=HENRYS.

CPD 3104

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

▲ NOT PRESENT IN M.B.
■ NOT PRESENT IN L.B.

25 - 50 MHz RF ASSEMBLY
19D416478
(19D423475, Rev. 10)



▲ THESE COMPONENTS ARE USED TO ADAPT A STAND-RD MASTR II RECEIVER TO OPERATION AS AND WITH A DUAL FRONT END. THESE COMPONENTS SHOULD BE IGNORED IN THE STANDARD RECEIVER. BOARDS IDENTIFIED BY A RED DOT HAVE BEEN MODIFIED FOR DFE OPERATION PER MOD KIT 19A129750G1 OR G2

RECEIVER CHANNEL	D.F.E. CHANNEL
ON PLI9C320094 (MIXER/IF BD)	ON PLI9C320094 (MIXER/IF BD)
1. R2302 USED INSTEAD OF R524 2. CR2301 USED INSTEAD OF C529 3. R2301 ADDED BETWEEN H3 & H4	NO MODIFICATION REQUIRED
	SEE DSC/MULT BD FOR OTHER DFE CHANGES
THESE ITEMS ARE SUPPLIED IN MOD. KIT PLI9A129750G1.	THESE ITEMS ARE SUPPLIED IN MOD. KIT PLI9A129750G2.

* COMPONENT VALUE TABLE

COMP DESIG	LL	L	M	H
RF FREQ	25-30 MHZ	30-36 MHZ	36-42 MHZ	42-50 MHZ
IF FREQ	11.2 MHZ	9.4 MHZ	11.2 MHZ	9.4 MHZ
C502	8-50	8-50		
C503	56	39	68	56
C506	27	22	15	12
C507	1.0	.82	.68	.56
C508	27	22	15	12
C511	270	390	270	390
C520	.47	.68	.82	.68
C522	.47	.68	.82	.68
C523	91	100	91	100
C528	330	360	330	360
C530			220	220
C531			0.022 UF	0.022 UF
L522	15	18	15	18
L523			1.2	1.2
R503	1.5K	1.5K	1K	1K
R521	560	330	560	330
FL501	FL501LL	FL501L	FL501M	FL501H
FL502	FL502LL	FL502L	FL502M	FL502H

	REV LETTER	FREQ RANGE (MHZ)	IF FREQ (MHZ)
MIXER/IF BD			
19C320094G1	D	25-30 (LL)	11.2
19C320094G2	D	30-36 (L)	9.4
19C320094G3	D	36-42 (M)	11.2
19C320094G4	D	42-50 (H)	9.4

VOLTAGE READINGS

VOLTAGE READINGS ARE TYPICAL READINGS MEASURED TO SYSTEM NEGATIVE (P903-10) WITH TEST SET MODEL 4EX3A11 OR A 20,000 OHM-PER-VOLT METER.

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS. INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

CPD 3186

⏚ INDICATES A-

⏚ INDICATES VEHICLE GROUND

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

MIXER/IF BOARD
19C320094G1 - G4
(19D423476, Rev 4)

ADDENDUM NO. 1 TO LBI-4989L (PC67)

This addendum corrects and incorporates Revision Letter changes.

REV. E MIXER/IF BOARD 19C320094G1-G4

Transistor Q502 (19A116818P1) is obsolete. Replaced with 19A116818P4 and added C532 (19A702236P19) 5.6 pF from Q502-S to ground.

ERICSSON

Ericsson GE Mobile Communications Inc.
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