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Colin Hinson

In the village of Blunham, Bedfordshire, UK.



MT700 SERIES

"Handie-Talkie" Portable
FM Two-Way Radios

440-470 MHz



**RELATED PUBLICATIONS
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Operating Instructions 68PO2925F01
Instruction Manual 68PO2925F02

**Service Manual
68P02925F03-A**

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ALLGEMEINES
GENERAL
GENERALITES

Modellreihe Model Series Serie	MDH 24 EEU, MDH 34 EEU		
Frequenz Frequency Frequence	440—470 MHz		
Stromversorgung Power Supply Alimentation	ein aufladbarer Ni-Cd-Sammler oder eine Quecksilber-Batterie one rechargeable nickel-cadmium battery or one mercury battery une batterie Cd-Ni ou une pile au mercure		
Abmessungen (H × B × T ohne Antenne und Bedienknöpfe) Dimensions (H × W × D without antenna and knobs) Dimensions (H × L × I sans l'antenne et les organes de commande)	"OMNI"	"SLIM-LINE"	
	lang extended longue	kurz short courte	lang extended longue
	193 × 69 × 47 mm 7 62 × 2 73 × 1 85 inches	177 × 69 × 40 mm 6 97 × 2 73 × 1 59 inches	193 × 69 × 40 mm 7 62 × 2 73 × 1 59 inches
Gewicht mit Ni-Cd-Sammler Weight with Ni-Cd battery Poids avec batterie Cd-Ni	723 g	564 g	578 g
Gewicht mit Quecksilber-Batterie Weight with mercury battery Poids avec pile au mercure	766 g	593 g	607 g
Betriebsdauer* (Std.) mit Ni-Cd-Sammler Battery life* (hrs) with Ni-Cd battery Duree de fonc- tionnement* (h) avec batterie Cd-Ni	1 W	4 W	1 W
	8	8	7
	25	25	17
mit Quecksilber- Batterie with mercury battery avec pile au mercure			

*"OMNI" 1 W

10% Empfangen
10% Senden
80% Empfangsbereitschaft

Reception
Transmission
Standby

en reception
en émission
en veille

"SLIM-LINE", OMNI 4 W

5% Empfangen
5% Senden
90% Empfangsbereitschaft

Reception
Transmission
Standby

en reception
en émission
en veille

EMPFÄNGER
RECEIVER
RECEPTEUR

Kanalabstand Channel Spacing Ecart entre canaux	30 kHz, 25 kHz, 20 kHz
Schaltbandbreite Frequency Separation Largeur de bande	1 MHz, bis 5. MHz mit Einschränkungen 1 MHz, to 5 MHz with reduced spec. 1 MHz, 5. MHz avec caract. réduites
Empfindlichkeit Sensitivity Sensibilité für 20 dB Rauschunterdrückung for 20 dB Quietening pour 20 dB suppression de bruit für 12 dB SINAD pour 12 dB SINAD pour 12 dB par methode SINAD Schaltschwelle Rauschsperr Squelch Sensitivity Sensibilité de squelch	0.50 µV 0.35 µV

Trennscharfe Selectivity Selectivité	30 kHz 25 kHz 20 kHz 12.5 kHz	70 dB
Intermodulationsdämpfung Intermodulation Intermodulation		70 dB
Frequenzstabilität Frequency Stability Stabilité en fréquence	−20° C .. +60° C* −10° C .. +60° C	±2.5 KHz (25° C ref) ±2.5 KHz
Nebenwellendämpfung Spurious and Image Rejection Protection contre les reponses parasites		70 dB
NF-Ausgangsleistung Audio Output Power Puissance de sortie BF		500 mW (max.)
Klirrfaktor Audio Distortion Distortion BF		10% max (300 mW CEPT)
unerwünschte Ausstrahlung Conducted Spurious Emissions Rayonnements parasites		2 · 10 ^{−9} W

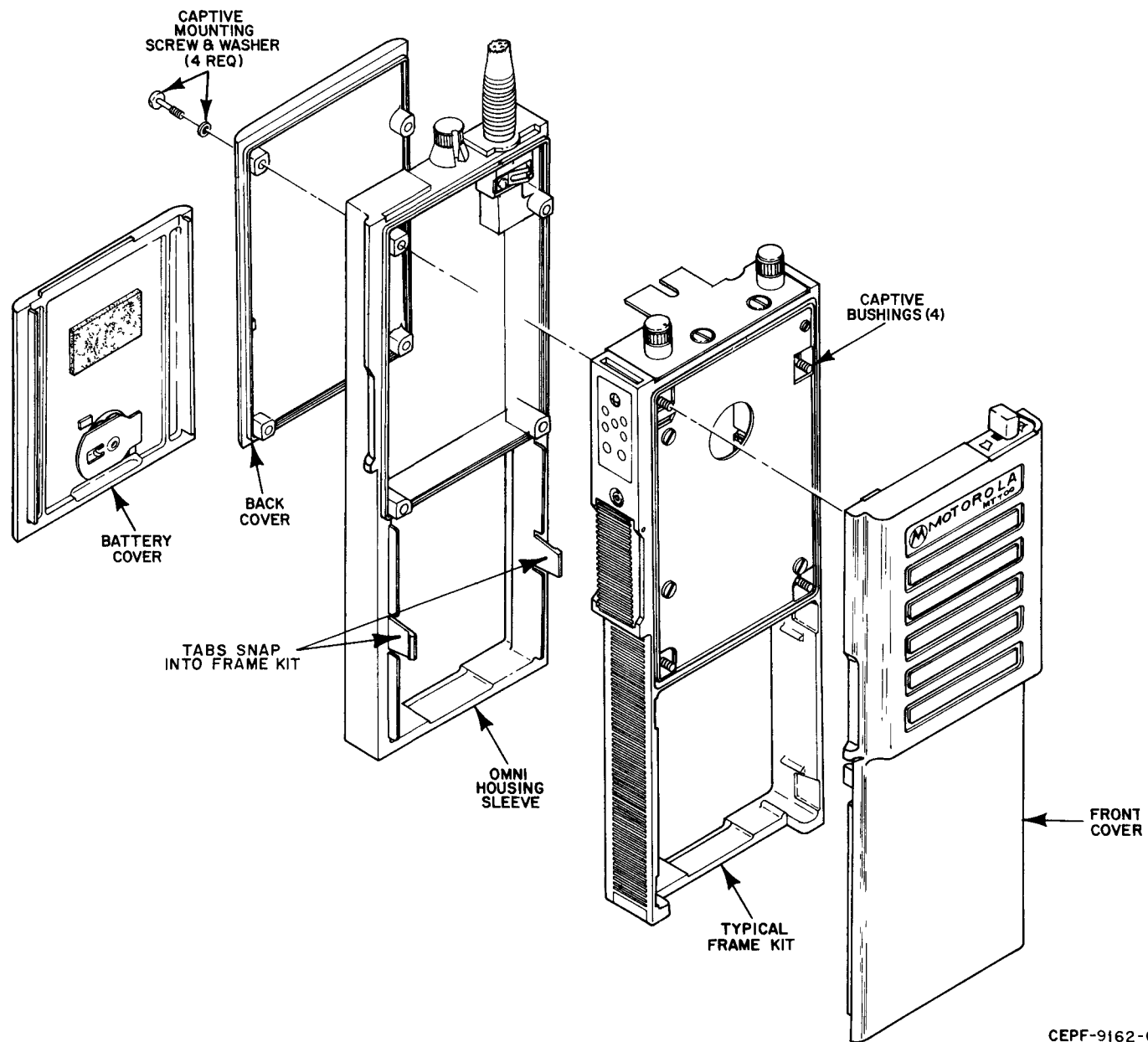
Änderungen der technischen Daten vorbehalten
Specifications subject to change without notice
Toutes modifications reserves

SENDER
TRANSMITTER
EMETTEUR

HF-Ausgangsleistung RF Output Puissance HF mit 15-V-Nickel-Cadmium-Sammler avec batterie Cd-Ni de 15 V mit 12,7 V Quecksilber-Batterie with 12.7 V mercury battery avec pile au mercure de 12,7 V mit 12 V Quecksilber-Batterie with 12 V mercury battery avec pile au mercure de 12 V	"OMNI" "SLIM- LINE"	4 W	1 W
		2 W	0.5 W
			0.4 W
Kanalabstand Channel Spacing Ecart entre canaux	30 kHz, 25 kHz, 20 kHz		
Schaltbandbreite Frequency Separation Largeur de bande	1 MHz, bis 3 MHz mit eingeschränkten technischen Daten 1 MHz full specification, to 3 MHz with reduced specification 1 MHz, jusqu'a 3 MHz avec caracteristiques reduites		
Frequenzstabilität Frequency Stability Stabilité en fréquence	−20° C .. +60° C * −10° C .. +40° C	(25° C ref) ± 2.5 KHz	
Modulationsart Modulation Type de modulation	16 F 3		
Nebenwellen und Harmonische Spurious and Harmonics Frequences adjacentes et harmoniques	0.2 × 10 ^{−6} W		
Gerauscharstand FM Noise Bruit de fond residuel	50 dB		
NF-Frequenzgang Audio Response Réponse en fréquence	6 dB/Oct preemph 300 3000 Hz	+1 −3 dB (300 400 Hz & 2700 3000 Hz), +1 −1.5 dB (400 2700 Hz)	
Klirrfaktor Distortion Distortion BF	weniger als 6% bei 1000 Hz und 60% Nennhub less than 6% at 1000 Hz and 60% of rated max deviation moins de 6% a 1000 Hz et 60% d'excursion nominale		

*Optional

Motorola, Handie-Talkie, and Private-Line are trademarks of Motorola, Inc.



DISASSEMBLY

- 1 Turn the slotted screw head on the battery cover one quarter turn counter-clockwise (ccw) and remove the battery cover
- 2 Remove the battery
- 3 Loosen the four captive screws securing the back cover and remove the back cover.
- 4 Remove the snap-on sleeve (Omni Housing only).
- 5 Loosen the four captive bushings securing the chassis frame to the front cover
- 6 Separate the front cover from the frame
- 7 Unplug the wires connecting the front cover to the chassis frame

POUR OUVRIR L'APPAREIL

- 1 Tourner la vis à tête fendue au dos de l'appareil d'un quart de tour vers la gauche et enlever la cache de batterie
- 2 Enlever la batterie
- 3 Dévisser les 4 vis de fixation et enlever la partie arrière du boîtier
- 4 Enlever la ceinture de maintien (seulement pour les batteries "OMNI")
- 5 Enlever les entre-toises de guidage entre chassis et face avant
- 6 Séparer la face avant du chassis
- 7 Déconnecter la liaison à la face avant

ÖFFNEN DES GERÄTES

- 1 Die Schlitzschraube an der Geräterückseite ¼ Umdrehung nach links drehen und den Batteriedeckel abnehmen
- 2 Batterie herausnehmen
- 3 Die vier Befestigungsschrauben lösen und die Gehäuserückwand abnehmen
- 4 Halteschleife entfernen (nur bei „OMNI“-Batterien)
- 5 Die vier Durchführungshulsen zwischen Chassis und Frontplatte entfernen
- 6 Die Frontplatte vom Chassis abnehmen
- 7 Die Steckverbindungen zur Frontplatte abziehen

DISASSEMBLY PROCEDURE

ALIGNMENT PROCEDURE

V. RECEIVER ALIGNMENT PROCEDURE FOR CHANNEL SPACING < 1.0 MHz

- N.B. For radios with 6 frequency sleeve transmitter must be aligned first, L213, L203 slugs being removed to allow L211 to be adjusted through L213 and L212 to be adjusted through L203.
- A. Initial Control Settings
1. PL switch off.
 2. Squelch, minimum setting (CCW).
 3. Volume ON/OFF switch "ON".
 4. Frequency switch, highest frequency channel.
 5. Power supply, set 15 VDC.
- B. Alignment Procedure
1. Adjust signal generator to highest channel frequency (exact nominal frequency).
 2. Inject unmodulated R.F. signal from the generator into radio via side connector.
 3. Adjust R.F. level until receiver just quiets.
 4. Spray 17.9 MHz into receiver (use test box no. GTF 109A) and listen for audio beat note.
 5. Adjust relevant warp coil for minimum beat note.
 6. Disconnect 17.9 MHz source.
 7. Adjust preselector slugs out 6 mm and L6 one turn out of board.
 8. Set volume to $\frac{1}{4}$ rated audio at the speaker jack.
 9. Set signal generator R.F. output for approximately 20 dB quieting.
 10. Tune L6, Z7, Z6, Z1, Z2, Z4, Z3, Z5 clockwise, in this order for best quieting. At the same time reduce R.F.
 11. Repeat step 10 until no further improvement is obtained.
 12. Repeat steps 1 thru 6 for each customer frequency.

VI. RECEIVER ALIGNMENT PROCEDURE FOR CHANNEL SPACING 1 to 5 MHz

1. Follow the procedure as in V. A. and B. (steps 1 thru 11)
2. Switch radio to lowest channel frequency.
3. Adjust signal generator to lowest channel frequency.
4. Tune Z7, Z6 in this order for best quieting. Repeat until no further improvement is obtainable.
5. Tune Z3 for best quieting.
6. Repeat steps 1 thru 6 in V. B. for each customer frequency.

VII. TRANSMITTER ALIGNMENT PROCEDURE

1. Set power supply to 15.0 V.
2. Select the lowest of the customer frequencies required.
3. Set test set to this customer frequency.
4. Set UHF filter (A2) approximately 6 mm above board, R111 fully clockwise.
5. Key radio and tune Z1 Z2 of A2, in that order, for maximum power from radio.
6. Adjust R111 for specified power output for relevant model.
7. Adjust crystal oscillator warp coil to set frequency for each channel.
8. Set PL deviation.
9. Set system deviation and check on each channel.

FREQUENCY GENERATION FORMULAE

TRANSMITTER: $f_c = f_o \times 24 \text{ MHz}$

RECEIVER: $f_c = (f_o \times 8) + 17.9 \text{ MHz}$
 $f_c = \text{carrier frequency}$
 $f_o = \text{oscillator frequency}$

OSCILLATOR FREQUENCIES

Channel Frequency (MHz)	1st Oscillator Frequency (MHz)	2nd Oscillator (MHz)
440.0 - 445.8	52.7625 - 53.4875	17.865
445.8 - 447.5	53.4875 - 53.7000	17.935
447.5 - 460.0	53.7000 - 55.3625	17.865
460.8 - 461.1	53.3625 - 55.4000	17.935
461.1 - 462.4	55.4000 - 55.5625	17.865
462.4 - 462.7	55.5625 - 55.6000	17.935
462.7 - 464.4	55.6000 - 55.8125	17.865
464.4 - 464.7	55.8125 - 55.8500	17.935
464.7 - 466.9	55.8500 - 56.1250	17.865
466.9 - 467.2	56.1250 - 56.1625	17.935
467.2 - 470.0	56.1625 - 56.5125	17.865

V. Méthode d'Alignement du Récepteur pour Espace Canaux < 1.0 MHz

N.B. Pour les appareils avec 6 canaux il faut d'abord aligner l'émetteur. Les noyaux L213 et L203 sont enlevés pour qu'on puisse ajuster les noyaux L211 et L212.

A. Position Initiale du Réglage

1. Mettre le commutateur P.L. en position ().
2. Tourner le contrôle de squelch () à fond vers la gauche.
3. Ouvrir le récepteur par le contrôle de volume.
4. Positionner le sélecteur de canaux sur la plus grande fréquence.
5. Amener la tension à 15 V.

B. Méthode d'Alignement

1. Régler le générateur sur le canal de fréquence la plus grande.
2. Brancher le générateur au connecteur SK2.
3. Ajuster la tension de sortie jusqu'au bruit du récepteur est supprimé.
4. Injecter un signal à 17.9 MHz dans le récepteur (utiliser la boîte de mesure no. GTF 109A) et écouter le battement de ton.
5. Ajuster la bobine correspondante pour ce canal (de L101 à L106) pour la suppression du battement (le ton n'est alors plus audible).
6. Couper le signal à 17.9 MHz.
7. Visser les noyaux de bobines Z1 - Z7 6 mm au dessus de la platine et visser le noyau de L6 d'un tour au dessus de la platine.
8. Mettre le contrôle de volume à 25% du maximum puissance de sortie B.F.
9. Ajuster la tension de sortie pour 20 dB suppression de bruit (à peu près).
10. Ajuster L6, Z7, Z6, Z1, Z2, Z4, Z3, Z5 à droite dans cet ordre pour la meilleur suppression de bruit. En même temps réduire la tension de sortie du générateur pour retenir 20 dB de suppression de bruit.
11. Répéter numéro 10 jusqu'à maximum amélioration.
12. Répéter numéros 1 à 6 pour chaque fréquence du client.

VI. Méthode d'Alignement du Récepteur pour Espace Canaux 1 à 5 MHz

1. Faire la même chose de V. A. et B. (numéros 1 à 11).
2. Positionner le sélecteur de canaux sur la fréquence la plus petite.
3. Régler le générateur sur la canal de fréquence la plus petite.
4. Ajuster Z7, puis Z6 pour la meilleure suppression de bruit. Répéter deux fois.
5. Ajuster Z3 pour la meilleur suppression de bruit.
6. Répéter numéros 1 à 6 V. B. pour chaque fréquence du client.

VII. Alignement de l'Emetteur

1. Amener la tension à 15 V.
2. Choisir la plus petite fréquence du client demandée.
3. Mettre la boîte de mesure à cette fréquence.
4. Visser les noyaux de bobines Z1 et Z2 de A2 6 mm au dessus de la platine, R111 à fond vers la droite.
5. Avec l'émetteur en fonctionnement visser les noyaux Z1 puis Z2 de A2 pour maximum puissance de sortie.
6. Ajuster R111 pour la prescrite puissance de sortie.
7. Ajuster la bobine correspondante pour ce canal de L101 à L106 pour chaque canal.
8. Mettre le réglage de deviation "P.L." puis mettre le réglage de deviation du système.

$$\text{L'Emetteur} \quad f_c = f_o \times 24 \text{ MHz}$$

$$\text{Le Récepteur} \quad f_c = (f_o \times 8) + 17.9 \text{ MHz}$$

f_c = fréquence porteuse

f_o = fréquence de l'oscillateur

FRÉQUENCE DE LA DEUXIÈME OSCILLATOR

Fréquence Porteuse (MHz)	Fréquence de la Première Oscillator (MHz)	Fréquence de la Deuxième Oscillator (MHz)
440.0 - 445.8	52.7625 - 53.4875	17.865
445.8 - 447.5	53.4875 - 53.7000	17.935
447.5 - 460.8	53.7000 - 55.3625	17.865
460.8 - 461.1	53.3625 - 55.4000	17.935
461.1 - 462.4	55.4000 - 55.5625	17.865
462.4 - 462.7	55.5625 - 55.6000	17.935
462.7 - 464.4	55.6000 - 55.8125	17.865
464.4 - 464.7	55.8125 - 55.8500	17.935
464.7 - 466.9	55.8500 - 56.1250	17.865
466.9 - 467.2	56.1250 - 56.1625	17.935
467.2 - 470.0	56.1625 - 56.5125	17.865

ABGLEICH

V. Empfänger- Abgleich

- a) Folgende Vorarbeiten müssen durchgeführt werden:
 - 1- Stromversorgung auf 15V Gleichspannung einstellen.
 - 2- "PL"-Schalter in Stellung OFF bringen.
 - 3- Rauschsperreregler bis zum Linksanschlag drehen.
 - 4- Gerät einschalten.
 - 5- Kanalwahlschalter auf die höchste Kanalfrequenz einstellen.
- b) Abgleichvorgang
 - 1- Mess-Sender auf die höchste Kanalfrequenz einstellen.
 - 2- HF-Signal an der Antennenbuchse einspeisen. (SK2)
 - 3- Die Ausgangsspannung des Mess-Senders so einstellen, daß sich eine Rauschunterdrückung von ca. 10...20dB ergibt.
 - 4- Mit einem ZF-Generator ein 17,9MHz-Signal ($\pm 100\text{MHz}$) in den Empfänger einstrahlen lassen und auf den entstehenden Schwebungston achten.
 - 5- Die entsprechende Oszillator-Spule auf Schwebungsnulldruck abgleichen.
 - 6- ZF-Generator wieder ausschalten.
 - 7- Die Spulenkerne im Eingangsteil ca. 6mm, und L6 eine Umdrehung über die Platine herausdrehen.
 - 8- Lautstärkeregler auf 25% der Nenn-Ausgangsleistung einstellen.
 - 9- Die Ausgangsleistung des Mess-Senders so einstellen, daß sich eine Rauschunterdrückung von ca. 20dB ergibt.
 - 10- L6, L7, Z6, Z1, Z2, Z4, Z3 und Z5 in dieser Reihenfolge im Uhrzeigersinn drehen, um die bestmögliche Rausch-Unterdrückung zu erzielen. Dabei muß ggf. mehrmals die Ausgangsspannung des Mess-Senders verringert werden.
 - 11- Schritt 10 wiederholen, bis die optimale Rauschunterdrückung erreicht worden ist.
 - 12- Schritte 2 bis 6 für jeden Kanal wiederholen.

VI. Empfänger- Abgleich (Schaltbandbreite $\leq 5\text{MHz}$)

- 1- Schritte 1 bis 11, wie in Abschnitten a) und b) beschrieben, durchführen.
- 2- Kanalwahlschalter auf die niedrigste Kanalfrequenz einstellen.
- 3- Mess-Sender auf die niedrigste Kanalfrequenz einstellen.
- 4- Zuerst Z7 und dann Z6 auf bestmögliche Rauschunterdrückung abgleichen. Ggf. Vorgang mehrmals wiederholen.
- 5- Z3 auf bestmögliche Rauschunterdrückung abgleichen.
- 6- Schritte 1 bis 6 aus Abschnitt b) für jeden Kanal wiederholen.

VII. Sender- Abgleich

- 1- Stromversorgung auf 15V Gleichspannung einstellen.
- 2- Kanalwahlschalter auf die niedrigste Kanalfrequenz einstellen.
- 3- Prüf-Empfänger einschalten.
- 4- Die Spulen des "U.H.F. Filter" (A2) 6mm über die Platine herausdrehen. R111 bis zum Anschlag nach rechts drehen.
- 5- Sender tasten und Z1, Z2 von A2 in dieser Reihenfolge auf maximale Sendeleistung abgleichen.
- 6- Mit R111 die Soll-Ausgangsleistung einstellen.
- 7- Die Oszillatorschalter auf genaue Trägerfrequenz abgleichen.
- 8- "PL"-Ton-Hub einstellen.
- 9- System-Hub einstellen.

QUARTZ FORMELEN

Sender: $f_T = f_o \times 24 \text{ MHz}$

Empfänger: $f_T = (f_o \times 8) + 17.9 \text{ MHz}$

$f_T = \text{Träger frequenz}$

$f_o = \text{oszillator frequenz}$

QUARTZ FREQUENZEN

Kanal Frequenz (MHz)	1. Oszillator Frequenz (MHz)	2. Oszillator Frequenz (MHz)
440.0 - 445.8	52.7625 - 53.4875	17.865
445.8 - 447.5	53.4875 - 53.7000	17.935
447.5 - 460.8	53.7000 - 55.3625	17.865
460.8 - 461.1	53.3625 - 55.4000	17.935
461.1 - 462.4	55.4000 - 55.5625	17.865
462.4 - 462.7	55.5625 - 55.6000	17.935
462.7 - 464.4	55.6000 - 55.8125	17.865
464.4 - 464.7	55.8125 - 55.8500	17.935
464.7 - 466.9	55.8500 - 56.1250	17.865
466.9 - 467.2	56.1250 - 56.1625	17.935
467.2 - 470.0	56.1625 - 56.5125	17.865

ELECTRICAL PARTS LIST

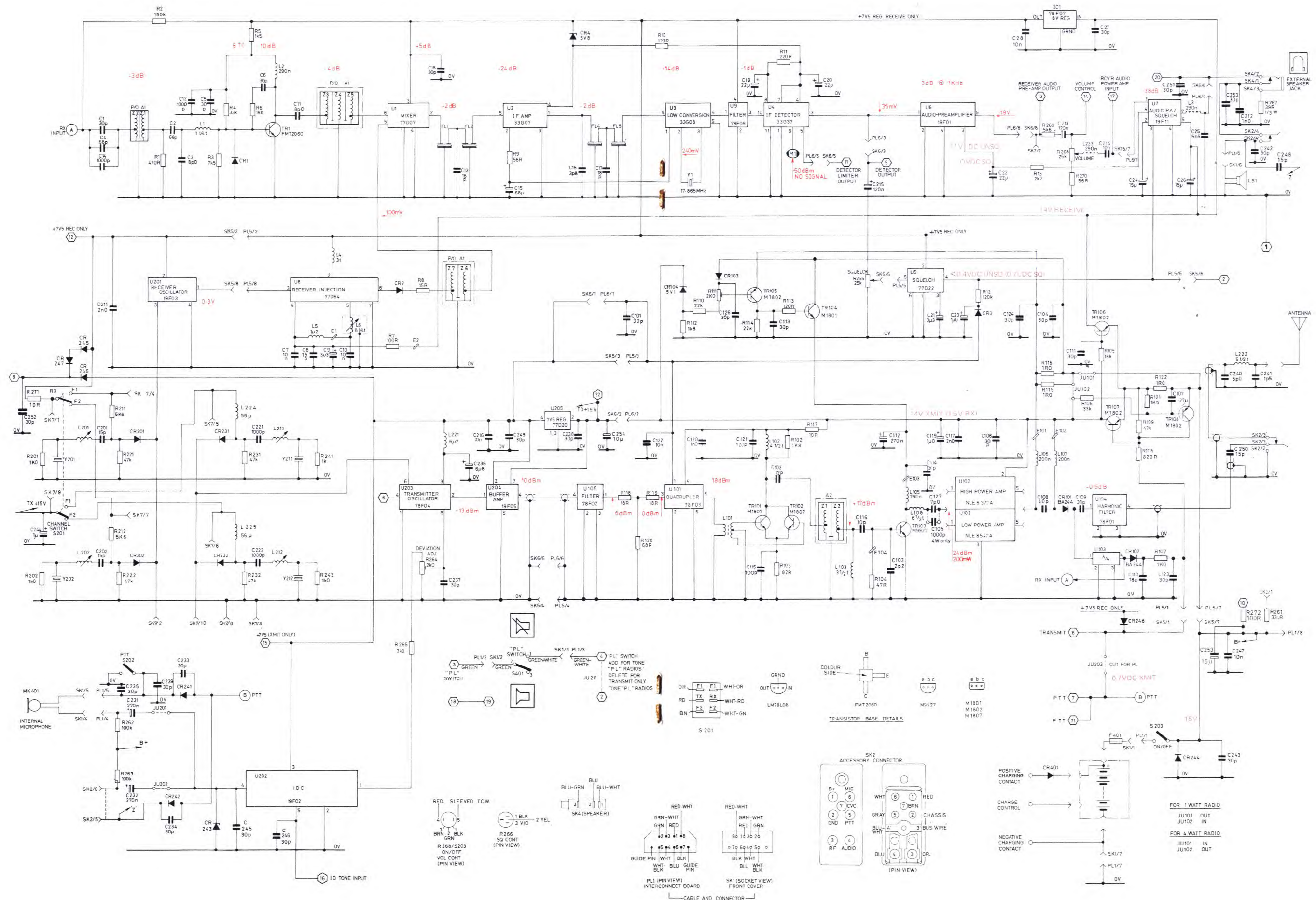
REFERENCE SYMBOL	MOTOROLA PART NUMBER	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART NUMBER	DESCRIPTION
A1	0102852F41	Preselector 440-470 MHz	Y1	4805713B01 or 4805713B02	CRYSTAL (17.865 MHz) " (17.935 MHz)
C1	2182358G95	30pF $\pm$ 10% N750 75 V			
C2	2182358G23	68pF $\pm$ 5% N4700 200 V			
C3	2100861429	8pF $\pm$.5pF N150 75 V			
C4	2182358G23	68pF $\pm$ 5% N4700 200 V	CR1	4882363E03	SILICON DIODE
C5	2182358G95	30pF $\pm$ 10% N750 75 V	CR2	4805275E01	STEP RECOVERY DIODE
C6	"	"	CR3	4882363E03	SILICON DIODE
C7	2184008H16	10nF $\pm$ 5% 50V	CR4	4882256C61	ZENER DIODE 5V8
C8	2100861462	15pF $\pm$ 10% N150 75V			
C9	2382397D28	3.3uF TANT $\pm$ 20% 20V			
C10	2184008H16	10nF $\pm$ 5% 50V	E1	7683960B06	FERRITE BEAD
C11	2100861429	8pF $\pm$ 10% N150	E2	"	" "
C12	2182213E08	1nF $\pm$ 5% 100V			
C13	2182358G66	18pF $\pm$ 5% N150	FL1,2,4,5	4805259F03	XTAL FILTER PACKAGE 8 POLE
C14	2182213E08	1nF $\pm$ 5% 100V	FL1,2,3,4,5	"	" " " 10 POLE
C15	2305612E02	68uF TANT $\pm$ 20% 2V			
C16	2182877B09	3.8pF $\pm$.25pF NPO 75V			
C17	2182358G66	18pF $\pm$ 5% 100V	L1	2484545H01	1 $\frac{1}{4}$ TURNS AIRWOUND
C18	2182358G95	30pF $\pm$ 10% N750 75V	L2	2482723H28	290nH RF CHOKE
C19	2305612E01	22uF TANT $\pm$ 20% 2V	L3	"	" " "
C20	"	" " " "	L4	2405711B05	3 TURNS FERRITE
C21	2382397D28	3.3uF TANT $\pm$ 20% 20V	L5	2482723H27	1u2 RF CHOKE
C22	2382397D16	22uF TANT $\pm$ 20% 15V	L6	2405262E02	8 $\frac{1}{4}$ TURNS (7605374B08 CORE)
C23	2382397D36	1uF TANT $\pm$ 10% 20V			
C24	2382397D04	15uF TANT $\pm$ 20% 15V			
C25	2182213E03	5nF5 -0 +100% -75V			
C26	2382397D17	15uF TANT $\pm$ 20% 20V	TR1	4805235C12	FMT 2060 NPN
C27	2182358G95	30pF $\pm$ 10% N750 75 V			
C28	2184008H01	10nF $\pm$ 10% Y5F 50V	ICI	5102178F07	8V REGULATOR
C29	2182358G66	18pF $\pm$ 5% 100V (Japan only)			
R1	0600185A41	470R $\pm$ 5% 1/8 W	C101	2182358G95	30pF $\pm$ 10% N750 75V
R2	0600185C06	150K $\pm$ 10% "	C102	2100861431	12 pF $\pm$ 10% N150 75V
R3	0600185A70	7K5 $\pm$ 5% "	C103	2182877B07	2.2pF $\pm$.25pF N150 75V
R4	0600185A85	33K $\pm$ 5% "	C104	2182358G95	30pF $\pm$ 10% N750 75 V
R5	0600185A53	1K5 $\pm$ 5% "	C105	2182213E08	1nF $\pm$ 5% Y5D 100 V
R6	0600185A55	1K8 $\pm$ 5% "	C106	2182358G95	30pF $\pm$ 10% N750 75V
R7	0600185B67	100R $\pm$ 10% "	C107	2382397D25	0.27uF $\pm$ 10% 20V TANT
R8	0600185B57	15R $\pm$ 10% "	C108	2105311E11	40pF $\pm$ 10% N150 100V
R9	0600185B64	56R $\pm$ 10% "	C109	2182358G95	30pF $\pm$ 10% N750 75 V
R10	0600185B68	120R $\pm$ 10% "	C110	2182358G66	18pF $\pm$ 5% N150 50V
R11	0600185B71	220R $\pm$ 10% "	C111	2182358G95	30pF $\pm$ 10% N750 75 V
R12	0600185C05	120K $\pm$ 10% "	C112	2382397D25	270nF TANT $\pm$ 10% 20V
R13	0600185B83	2K2 $\pm$ 10% "	C113	2182358G95	30pF $\pm$ 10% N750 75 V
			C114	"	" " " "
			C115	2182213E29	100pF $\pm$ 20% 100V
			C116	2105311E04	10pF $\pm$ 5% N150 25V
			C117	2182213E21	2nF -20 +100% 75V
U1	5105177D07	MIXER			
U2	5184333G07	IF AMP			
U3	5184333G08	LOW CONVERSION	C119	2382397D36	1uF TANT $\pm$ 10% 20V
U4	5184333G37	IF DETECTOR	C120	2182213E08	1nF $\pm$ 5% Y5D 100V
U5	5105177D22	SQUELCH	C121	2105311E09	120pF $\pm$ 10% N750 100V
U6	5105319F01	AUDIO PREAMP	C122	2184008H16	10nF $\pm$ 5% Y5F 50V
U7	5105319F11	AUDIO PA/SQUELCH	C123	2182358G95	30pF $\pm$ 10% N750 75 V
U8	5105177D64	RECEIVER INJECTION	C124	"	" " " "
U9	51R02178F09	IF ACTIVE FILTER			
			C126	2182358G95	30pF $\pm$ 10% N750 75V

ELECTRICAL PARTS LIST

REFERENCE SYMBOL	MOTOROLA PART NUMBER	DESCRIPTION	REFERENCE SYMBOL	MOTOROLA PART NUMBER	DESCRIPTION
R101		NOT FITTED	U101	51R02178F03	QUADRUPLER
R102	0600185B82	1K8 $\pm$ 10% 1/8 W	U102	NLE8542A	1W P.A.
R103	0600185B66	82R $\pm$ 10% 1/8 W	or U103	NLE8372A	4W P.A.
R104	0600185B63	47R $\pm$ 10% 1/8 W	U103	01V02852F23	$\lambda/4$ LINE
R105	0600185B94	18K $\pm$ 10% 1/8 W	U104	51R02178F01	HARMONIC FILTER
R106	0600185A85	33K $\pm$ 5% 1/8 W	U105	51R02178F02	BANDPASS FILTER
R107	0600185B79	1K0 $\pm$ 10% 1/8 W			
R108	0600185B78	820R $\pm$ 10% 1/8 W	PL5	0105958C96	8 WAY PLUG
R109	0600185B99	47K $\pm$ 10% 1/8 W	PL6	"	" " "
R110	0600185B93	15K $\pm$ 10% 1/8 W			
R111	1802216F08	2K POT			
R112	0600185B82	1K8 $\pm$ 10% 1/8 W	R201	0600185B79	1K $\pm$ 10% 1/8 W F1
R113	0600185B68	120R $\pm$ 10% 1/8 W	R202	"	" " " F2
R114	0600185B95	22K $\pm$ 10% 1/8 W	R211	0600185B88	5K6 $\pm$ 10% 1/8 W F1
R115	0602057F64	1R $\pm$ 5% $\frac{1}{3}$ W	R212	"	" " " F2
R116	"	" " " (4W RADIO)	R221	0600185B99	47K $\pm$ 10% 1/8 W F1
R117	0600185B55	10R $\pm$ 10% 1/8 W	R222	"	" " " F2
R118	0600185B58	18R $\pm$ 10% 1/8 W	R231	0600185B99	47K $\pm$ 10% 1/8 W F1
R119	0600185B58	18R $\pm$ 10% 1/8 W	R232	"	" " " F2
R120	0600185B65	68R $\pm$ 10% 1/8 W	R241	0600185B79	1K0 $\pm$ 10% 1/8 W F1
R121	0600185A53	1K5 $\pm$ 5% 1/8 W	R242	"	" " " F2
R122	0602057F64	1R $\pm$ 5% $\frac{1}{3}$ W	R261	0600185B73	330R $\pm$ 10% 1/8 W
			R262	0600185C04	100K $\pm$ 10% 1/8 W
L101	2502157F03	FERRITE TRANSFORMER	R263	"	" " "
L102	2402167F02	AIR COIL	R264	1805501C01	2K0 $\pm$ 10% DEVIATION POT
L103	2402167F06	AIR COIL	R265	0600185B86	3K9 $\pm$ 10% 1/8 W
L104			R266	1805333E01	25K SQUELCH POT
L105	2482723H28	290nH RF CHOKE	R267	0602057F08	39R $\pm$ 5% $\frac{1}{3}$ W
L106	2482723H11	200nH " "	R268	1805370E02	25K VOLUME POT
L107	"	" " "	R269	0600185A67	5K6 $\pm$ 5% 1/8 W
L108	2405027E36	AIR COIL	R270	0600185B64	56R $\pm$ 10% 1/8 W
			R271	0600185B55	10R $\pm$ 10% 1/8 W
A2	5102178F06	HELICAL FILTER			
E101	7683960B05	FERRITE BEAD	C201	210C861462	15pF $\pm$ 10% 150 75V
E102	"	" "	C202	"	"
E103	"	" "	C211	2182213E21	2nF +100%,-20% 75 V
E104	7683960B06	" "	C212	2182213E08	1nF $\pm$ 5% Y5D 100 V
			C213	2382397D12	120nF TANT +10% 20V
			C214	2184008H16	10nF $\pm$ 5% Y5F 50V
			C215	2382397D12	120nF TANT +10% 20V
CR101	4883510F03	BA244 DIODE	C216	2184008H16	10nF $\pm$ 5% Y5F 50V
CR102	"	" "	C221	2182213E08	1nF $\pm$ 5% Y5D 100 V F1
CR103	4883654H01	SILICON DIODE	C222	"	" " " " F2
CR104	4802251F01	ZENER DIODE (5.1V)	C231	2382397D25	270nF TANT $\pm$ 10% 20V
			C232	"	"
			C233	2182358G95	30pF $\pm$ 10% N750 75 V
TR101	4802218F07	ZTX325 NPN	C234	"	" " " "
TR102	"	" NPN	C235	"	" " " "
TR103	4800869927	M9927 NPN	C236	2382397D09	6u8 TANT $\pm$ 20% 10V
TR104	4802218F01	ZTX450 NPN	C237	2182358G95	30pF $\pm$ 10% N750 75 V
TR105	4802218F02	ZTX550 PNP	C238	"	" " " "
TR106	"	" "	C239	"	" " " "
TR107	"	" "	C240	2182877B17	5pF $\pm$ 5% N150 75V
TR108	"	" "			10pF $\pm$ 0.1pF 150 50V

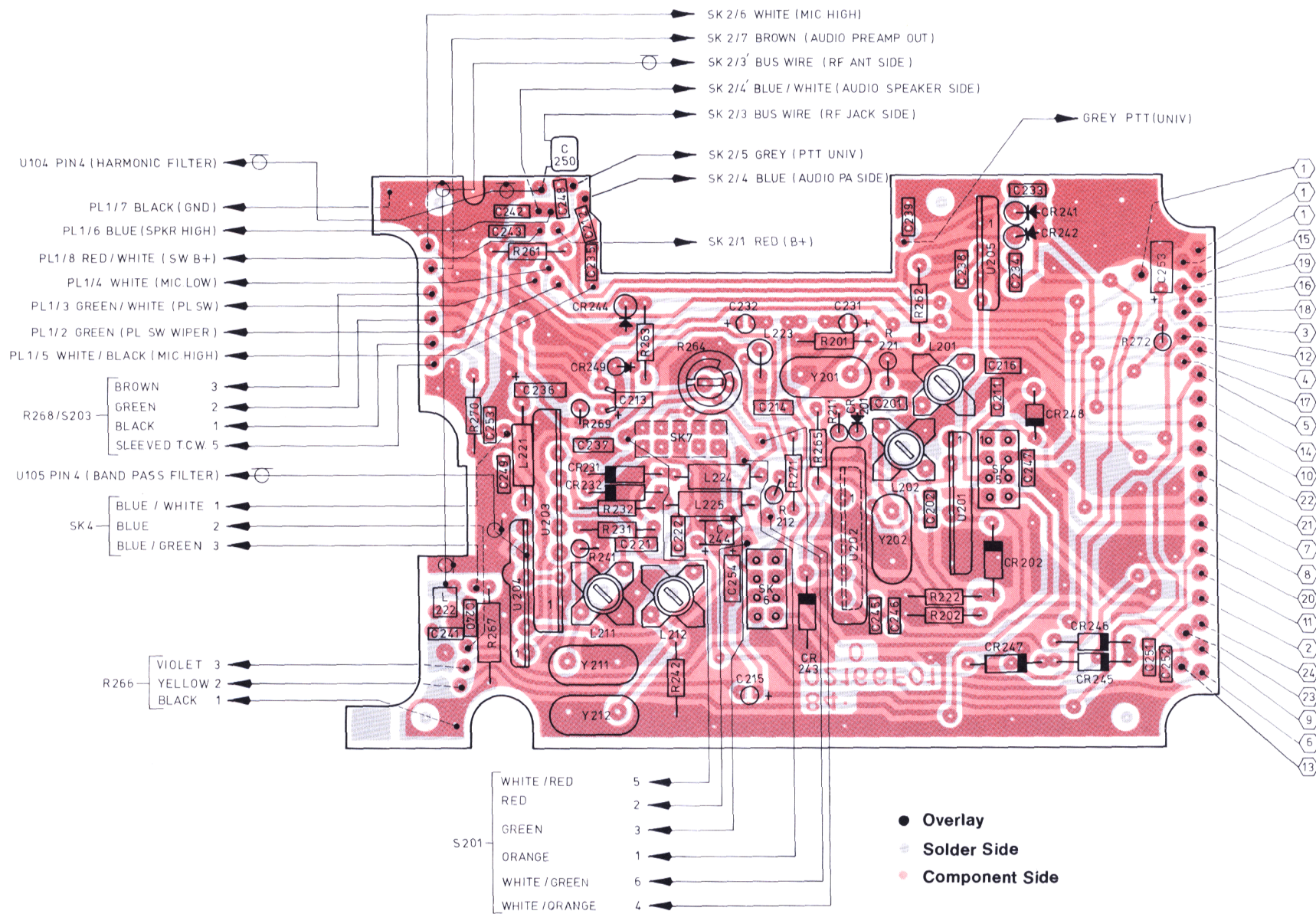
ELECTRICAL PARTS LIST

REFERENCE SYMBOL	MOTOROLA PART NUMBER	DESCRIPTION	NO. OFF	MOTOROLA PART NUMBER	DESCRIPTION
C242	2182358G95	30pF $\pm$ 10% N750 75 V	4 (5-Japan)	1405575F01	XTAL FILTER BOOTS
C243	"	" " " "	4 (5-Japan)	7505295B03	XTAL FILTER PADS
C244	2382397D36	1uF TANT $\pm$ 10% 20V	2 - OFF FOR EACH CHANNEL	0705196A01	CHANNEL XTAL BOOT
C245	2182358G95	30pF $\pm$ 10% N750 75 V		1482590G01	CHANNEL XTAL PAD
C246	"	" " " "			
C247	2184008H01	10nF $\pm$ 10% Y5F 50V			
C248	2100861462	15pF $\pm$ 10% N150 75V	1	2605686B01	COVER SHIELD FOR U4
C249	2182358G95	30pF $\pm$ 10% N750 75V	1	1505894D01	COVER, SHIELD FOR U202
C250	2100861462	15pF $\pm$ 10% N150 75V	2	0300131323	PRESELECTOR SCREW
C251	2182358G95	30pF $\pm$ 10% N750 75V	2	"	HELICAL SCREW
C252	2182358G95	30pF $\pm$ 10% N750 75V	2	0305627D01	MIXER SCREW
L201	2402192F02	RX WARP COIL F1	1	1505165D01	MIXER COVER
L202	"	" " " F2	1	3905806E01	PLATED CONTACT (PA)
L211	2402192F01	TX WARP COIL F1	4	2205060E01	PA PINS
L212	"	" " " F2			
L221	2482723H06	0.2uH RF CHOKER			
L222	2405027E19	5 $\frac{1}{2}$ TURNS			
L223	2482723H28	290nH RF CHOKER			
L224	2402296F01	56uH RF CHOKER F1	1	2684800H03	COIL CAN (L6)
L225	"	" " " F2	1	7505295B03	2nd OSC XTAL PAD
			1		
			1	4302179F01	PRESELECTOR GASKET
CR201	4805118G01	PIN DIODE F1			
CR202	"	" " F2			
CR231	4805118G01	PIN DIODE F1			
CR232	"	" " F2	SK4	0905283B01	SPEAKER JACK
CR241	4883461E26	DIODE	SK5	0105950D32	8 WAY SOCKET
CR242	"	"	SK6	"	" " "
CR243	4883461E12	27v ZENER DIODE	SK7	0102852F45	10 WAY SOCKET (FOR 6 & 10 CHANNEL BOARD OPTION)
CR244	4882466H03	DIODE	LS401	5005334D01	LOUDSPEAKER 2 INCH
CR245	4882363E03	DIODE	S201	4005123G01	2F CHANNEL SWITCH
CR246	"	"		7505506D04	MODULE PAD U2
CR247	4882363E03	"		7505506D03	" " U3
CR248	"	"		7505506D02	" " U4
				7505506D08	" " U5
				7505506D07	" " U6
Y201	EXN6100A	RX CHANNEL CRYSTAL F1		"	" " U7
Y202	"	" " " F2		7505506D04	" " U8
Y211	EXN6101A	TX CHANNEL CRYSTAL F1		7505506D09	" " U9
Y212	"	" " " F2		7505506D07	" " U101
				7505506D09	" " U104
				7505506D06	" " U105
U201	51R05319F03	RX OSC MODULE		7505506D03	" " U201
U202	51R05319F02	1DC MODULE		7505506D06	" " U202
U203	51R02178F04	TX OSC MODULE		7505506D07	" " U203
U204	51R05319F05	BUFFER AMP MODULE		7505506D03	" " U204
U205	51R05177D20	7.5V REGULATOR MODULE			



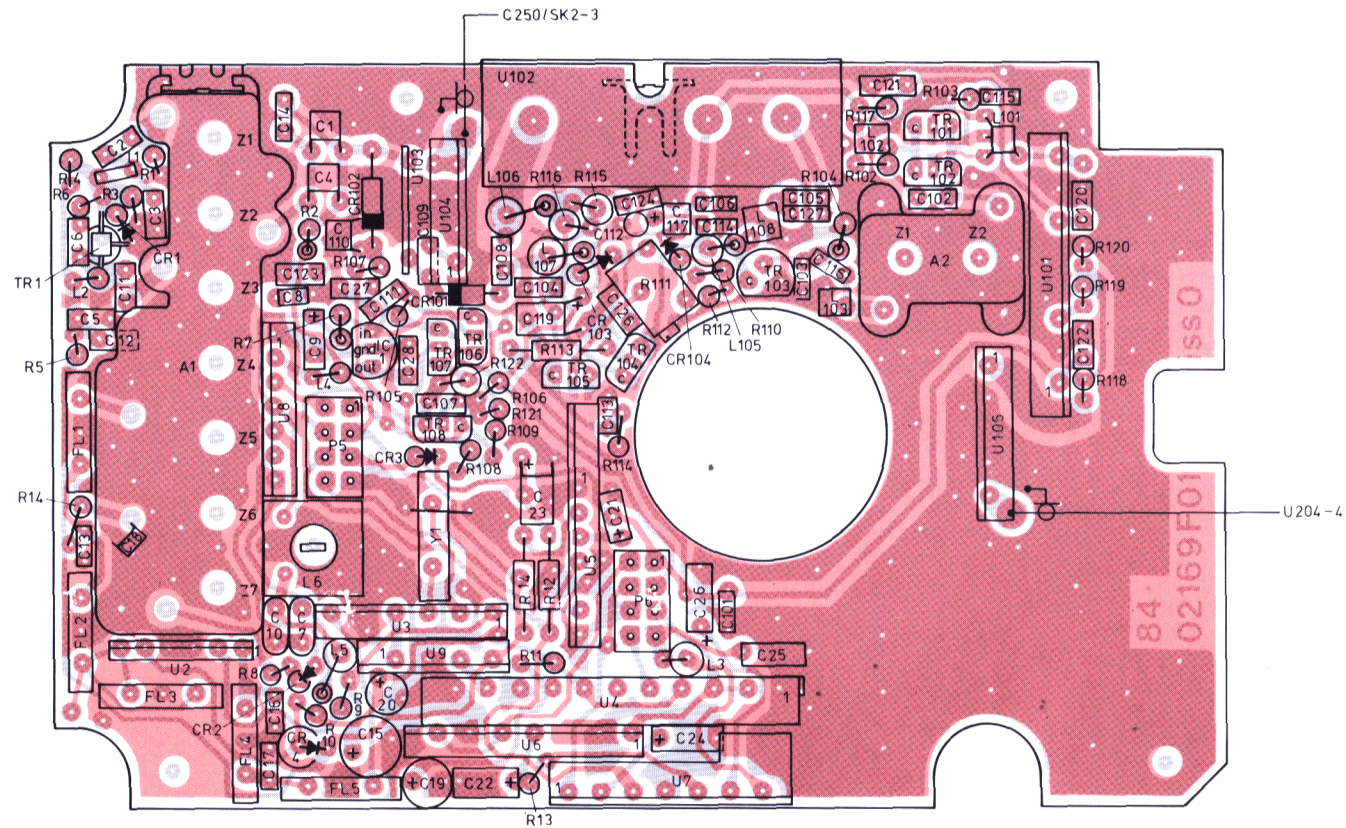
INTERCONNECT P.C.B.

VIEWED FROM SOLDER SIDE



TRANSMITTER RECEIVER P.C.B.

VIEWED FROM SOLDER SIDE



- Overlay
- Solder Side
- Component Side

MECHANICAL PARTS LIST

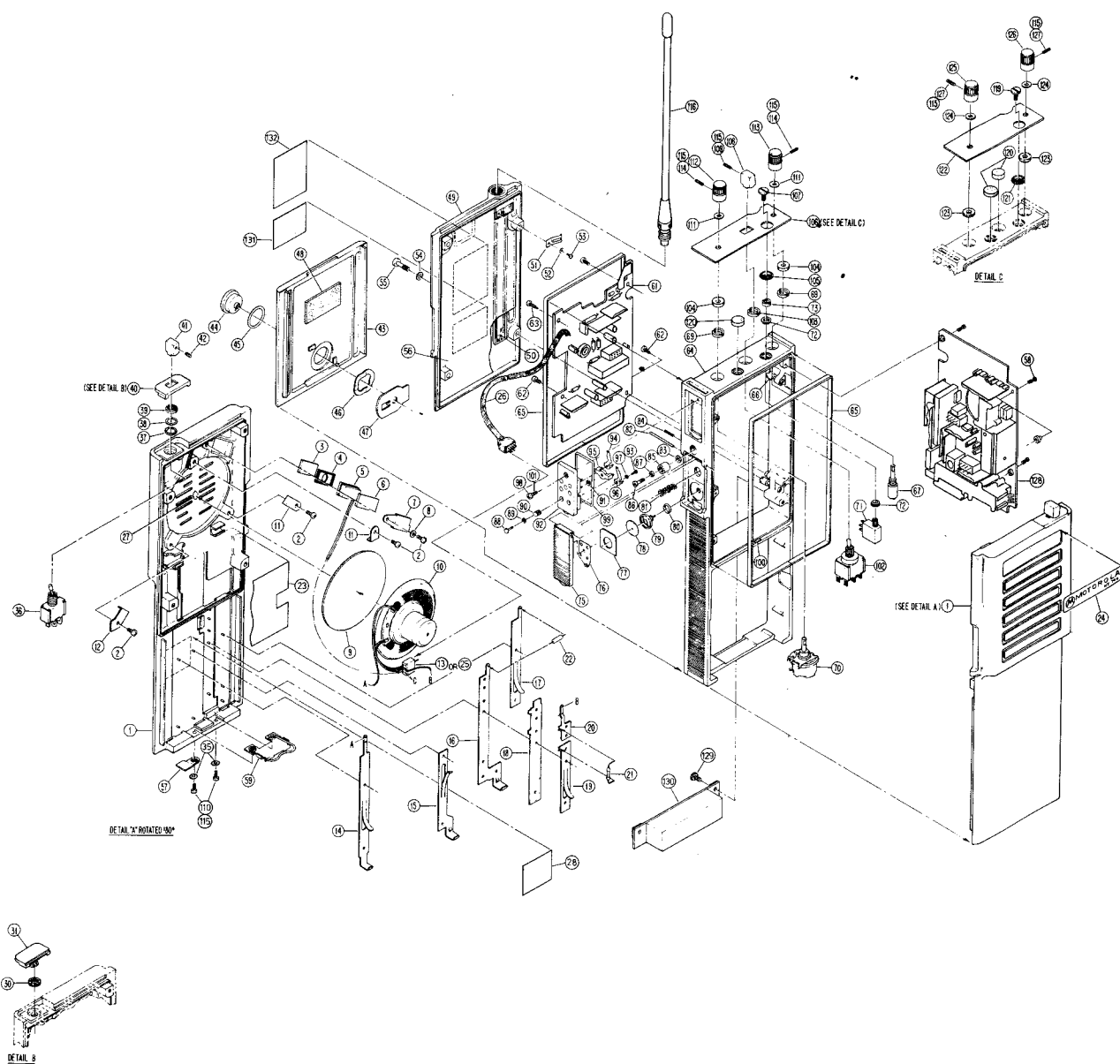
ITEM NO.	NOMENCLATURE	MOTOROLA PART NO.			
1	COVER, Front, Extended, Met	0102288F01	76	SPRING, Actuator (PTT)	4105783D01
2	SCREW, Phillips; 2-56 x 1/8	0300138651	77	GASKET (PTT)	3205378G01
3	CLOTH, Flet, Mic	3505450B01	78	CONTACT, Disc (PTT)	3905196G01
4	PAD, Mic	7505577F01	79	CONTACT, Feed-thru (PTT)	3905195G01
5	CARTRIDGE, Mic (MK401)	See Note	80	SEAL "O" Ring	3205082E02
6	PAD, Clamp	7582745J01	81	SPRING Compression (PTT)	4105267E01
7	BRACKET, Mic	0705672D01	82	PIN, Spring	2205084E01
8	WASHER, Spring	0405314E01	83	WASHER, Insert	0405249E01
9	CLOTH, Felt Grill	3505370C01	84	SCREW, Set	0305246E01
10	SPEAKER (LS401)	See Note	85	INSERT, Threaded	4305781D01
11	CLAMP, Speaker	4205670D01	86	STUD	4605154E01
12	CLAMP, Speaker	4205671D01	87	WASHER, Seal	0405248E01
13	RECEPTACLE, Conn Assy (PL)	0105958C86	88	PIN, Contact	3905455F01
14	STRAP, Contact, Neg	4205573A01	89	GASKET, "O" Ring	3205082E03
15	STRAP, Contact, Sen	4205575A01	90	SPRING, Compression	4105424F01
16	STRAP, Contact, Charge	4205283E01	91	RING, Retaining	4205424E02
17	STRAP, Contact	4205576A01	92	RECEPTACLE	0905677D01
18	INSULATOR, Contact	1405282E01	93	SCREW, Phillips; 0-80 x 1/8	0300139684
19	STRAP, Contact, Pos	4205280E01	94	CONTACT	4105197G03
20	STRAP, Contact, Pos	4205281E01	95	BLOCK	4605072E01
21	FUSE (F401)	See Note	96	CONTACT	4105197G01
22	RECTIFIER, Silicon (CR401)	See Note	97	WASHER	0400134190
23	INSULATOR, Paper	1405547G02	98	SCREW, Phillips; 2-56 x 3/16	0300138661
24	NAMEPLATE	3305869G01	99	SEAL "O" Ring	3205661G01
25	RECEPTICAL Conn Assy	0105858C87	100	ADHESIVE, RTV	1110019A88
26	Conn & Cable Assy	0102852F49	101	SEALANT, Compound (PURP)	1110019A63
27	ADHESIVE, Silicone Rubber	1110020B40	102	SWITCH, Toggle (S201)	See Note
28	LABEL, Patent	1305436E01	103	NUT, Special	0282653D07
29	Not Used		104	PAD, Rubber	7583562H02
30	GASKET, Plug	3205315E01	105	BUSHING, Insulator	4305051E01
31	PLUG, Cover	3805115E01	106	ESCUTCHEON	1302213F04
32	INSULATOR, Speaker	1405311G01	107	SCREW, Jack	0310129A24
33	TAPE, Adhesive	1110033E58	108	KNOB, Switch	3605114E01
34	INSULATOR	1482392E05	109	SCREW, Set	0383174C04
35	WASHER, Latch	0400120581	110	SCREW, Latch	0300139982
36	SWITCH, Toggle (S401)	See Note	111	WASHER, Nylon	0405935F01
37	GASKET, "O" Ring	3205082E01	112	KNOB, Vol	3605927D01
38	WASHER, Special	0405081E01	113	KNOB, Squelch	3605927D03
39	NUT, Mtg	0205050E03	114	SCREW, Set	0383174C02
40	ESCUTCHEON, Switch	1305057E07	115	GLYPTOL	1100008675
41	KNOB, Switch	3605114E01	116	ANTENNA; 403-512 MHz	NAE6050B
42	SCREW, Set	0383174C04	117	Not Used	
43	COVER, Battery	1505697D01	118	Not Used	
44	BUTTON	3805908D01	119	SCREW, Jack	0310129A24
45	WASHER	0405910D01	120	PAD, Rubber	7583562H01
46	WASHER, Spring	0405316E01	121	BUSHING, Insulating	4305051E01
47	LATCH	5505907D01	122	ESCUTCHEON	1302213F03
48	PAD	7505083E01	123	PAD, Rubber	7583562H02
49	COVER, Rear, Met	0102290F01	124	WASHER, Nylon	0405935F01
50	SHIELD, Antenna Tube	2605045E01	125	KNOB, Vol	3605927D01
51	CLIP, Antenna	4205860D01	126	KNOB, Squelch	3605927D03
52	WASHER, Spring	0405314E03	127	SCREW, Set	0383174C02
53	SCREW, Antenna Clip	0305044E01	128	TRANSCIVER Bd Assy	EUE6110A
54	WASHER, Seal	0484345A06	129	OPTION Deck (PL)	NLN4211A
55	SCREW, Captive	0305662D01	130	SCREW, Hex; 2-56 x 3/16	0305493F01
56	INSULATOR Back Cover	1402301F02	131	PLATE, Information	5405870G01
57	INSULATOR, Contact	1405359E01	132	PLATE, Frequency	5405871G01
58	SCREW, Captive	0305864D01			
59	LATCH Assy	NLN4181A			
60	Not Used				
61	INTERCONNECT Bd Assy	0102852F33			
62	SCREW, Phillips; 2-56 x 3/16	0300138661			
63	SCREW, Earthing	0302286F01			
64	FRAME, Extended	0705640D01			
65	GASKET, Frame	3202292F02			
66	BUSHING, Cover Mtg	4305661D01			
67	POT., Cermet (R266)	See Note			
68	Not Used				
69	NUT, Special	0282653D03			
70	POT., Control Sw (R268)	See Note			
71	JACK, Micro (J202) SK4	See Note			
72	BUSHING, Shoulder	4305052E02			
73	NUT, Special	0205050E01			
74	Not Used				
75	LEVER	4505784D01			

NOTE: Refer to Electrical Parts List for part number and description.

MECHANICAL PARTS LIST

ITEM NO.	NOMENCLATURE	MOTOROLA PART NO.			
1	COVER, Front, Extended, Met	0102288F01	76	SPRING, Actuator (PTT)	4105783D01
2	SCREW, Phillips; 2-56 x 1/8	0300138651	77	GASKET (PTT)	3205378G01
3	CLOTH, Flet, Mic	3505450B01	78	CONTACT, Disc (PTT)	3905196G01
4	PAD, Mic	7505577F01	79	CONTACT, Feed-thru (PTT)	3905195G01
5	CARTRIDGE, Mic (MK401)	See Note	80	SEAL "O" Ring	3205082E02
6	PAD, Clamp	7582745J01	81	SPRING Compression (PTT)	4105267E01
7	BRACKET, Mic	0705672D01	82	PIN, Spring	2205084E01
8	WASHER, Spring	0405314E01	83	WASHER, Insert	0405249E01
9	CLOTH, Felt Grill	3505370C01	84	SCREW, Set	0305246E01
10	SPEAKER (LS401)	See Note	85	INSERT, Threaded	4305781D01
11	CLAMP, Speaker	4205670D01	86	STUD	4605154E01
12	CLAMP, Speaker	4205671D01	87	WASHER, Seal	0405248E01
13	RECEPTACLE, Conn Assy (PL)	0105958C86	88	PIN, Contact	3905455F01
14	STRAP, Contact, Neg	4205573A01	89	GASKET, "O" Ring	3205082E03
15	STRAP, Contact, Sen	4205575A01	90	SPRING, Compression	4105424F01
16	STRAP, Contact, Charge	4205283E01	91	RING, Retaining	4205463E02
17	STRAP, Contact	4205576A01	92	RECEPTACLE	0905677D01
18	INSULATOR, Contact	1405282E01	93	SCREW, Phillips; 0-80 x 1/8	0300139684
19	STRAP, Contact, Pos	4205280E01	94	CONTACT	4105197G03
20	STRAP, Contact, Pos	4205281E01	95	BLOCK	4605072E01
21	FUSE (F401)	See Note	96	CONTACT	4105197G01
22	RECTIFIER, Silicon (CR401)	See Note	97	WASHER	0400134190
23	INSULATOR, Paper	1405547G02	98	SCREW, Phillips; 2-56 x 3/16	0300138661
24	NAMEPLATE	3305869G01	99	SEAL "O" Ring	3205661G01
25	RECEPTICAL Conn Assy	0105858C87	100	ADHESIVE, RTV	1110019A88
26	Conn & Cable Assy	0102852F49	101	SEALANT, Compound (PURP)	1110019A63
27	ADHESIVE, Silicone Rubber	1110020B40	102	SWITCH, Toggle (S201)	See Note
28	LABEL, Patent	1305436E01	103	NUT, Special	0282653D07
29	Not Used		104	PAD, Rubber	7583562H02
30	GASKET, Plug	3205315E01	105	BUSHING, Insulator	4305051E01
31	PLUG, Cover	3805115E01	106	ESCUTCHEON	1302213F04
32	INSULATOR, Speaker	1405311G01	107	SCREW, Jack	0310129A24
33	TAPE, Adhesive	1110033E58	108	KNOB, Switch	3605114E01
34	INSULATOR	1482392E05	109	SCREW, Set	0383174C04
35	WASHER, Latch	0400120581	110	SCREW, Latch	0300139982
36	SWITCH, Toggle (S401)	See Note	111	WASHER, Nylon	0405935F01
37	GASKET, "O" Ring	3205082E01	112	KNOB, Vol	3605927D01
38	WASHER, Special	0405081E01	113	KNOB, Squelch	3605927D03
39	NUT, Mtg	0205050E03	114	SCREW, Set	0383174C02
40	ESCUTCHEON, Switch	1305057E07	115	GLYPOL	1100008675
41	KNOB, Switch	3605114E01	116	ANTENNA; 403-512 MHZ	NAE6050B
42	SCREW, Set	0383174C04	117	Not Used	
43	COVER, Battery	1505697D01	118	Not Used	
44	BUTTON	3805908D01	119	SCREW, Jack	0310129A24
45	WASHER	0405910D01	120	PAD, Rubber	7583562H01
46	WASHER, Spring	0405316E01	121	BUSHING, Insulating	4305051E01
47	LATCH	5505907D01	122	ESCUTCHEON	1302213F03
48	PAD	7505083E01	123	PAD, Rubber	7583562H02
49	COVER, Rear, Met	0102290F01	124	WASHER, Nylon	0405935F01
50	SHIELD, Antenna Tube	2605045E01	125	KNOB, Vol	3605927D01
51	CLIP, Antenna	4205860D01	126	KNOB, Squelch	3605927D03
52	WASHER, Spring	0405314E03	127	SCREW, Set	0383174C02
53	SCREW, Antenna Clip	0305044E01	128	TRANSCEIVER Bd Assy	EUE6110A
54	WASHER, Seal	0484345A06	129	OPTION Deck (PL)	NLN4211A
55	SCREW, Captive	0305662D01	130	SCREW, Hex; 2-56 x 3/16	0305493F01
56	INSULATOR Back Cover	1402301F02	131	PLATE, Information	5405870G01
57	INSULATOR, Contact	1405359E01	132	PLATE, Frequency	5405871G01
58	SCREW, Captive	0305864D01			
59	LATCH Assy	NLN4181A			
60	Not Used				
61	INTERCONNECT Bd Assy	0102852F33			
62	SCREW, Phillips; 2-56 x 3/16	0300138661			
63	SCREW, Earthing	0302286F01			
64	FRAME, Extended	0705640D01			
65	GASKET, Frame	3202292F02			
66	BUSHING, Cover Mtg	4305661D01			
67	POT., Cermet (R266)	See Note			
68	Not Used				
69	NUT, Special	0282653D03			
70	POT., Control Sw (R268)	See Note			
71	JACK, Micro (J202) SK4	See Note			
72	BUSHING, Shoulder	4305052E02			
73	NUT, Special	0205050E01			
74	Not Used				
75	LEVER	4505784D01			

NOTE: Refer to Electrical Parts List for part number and description.

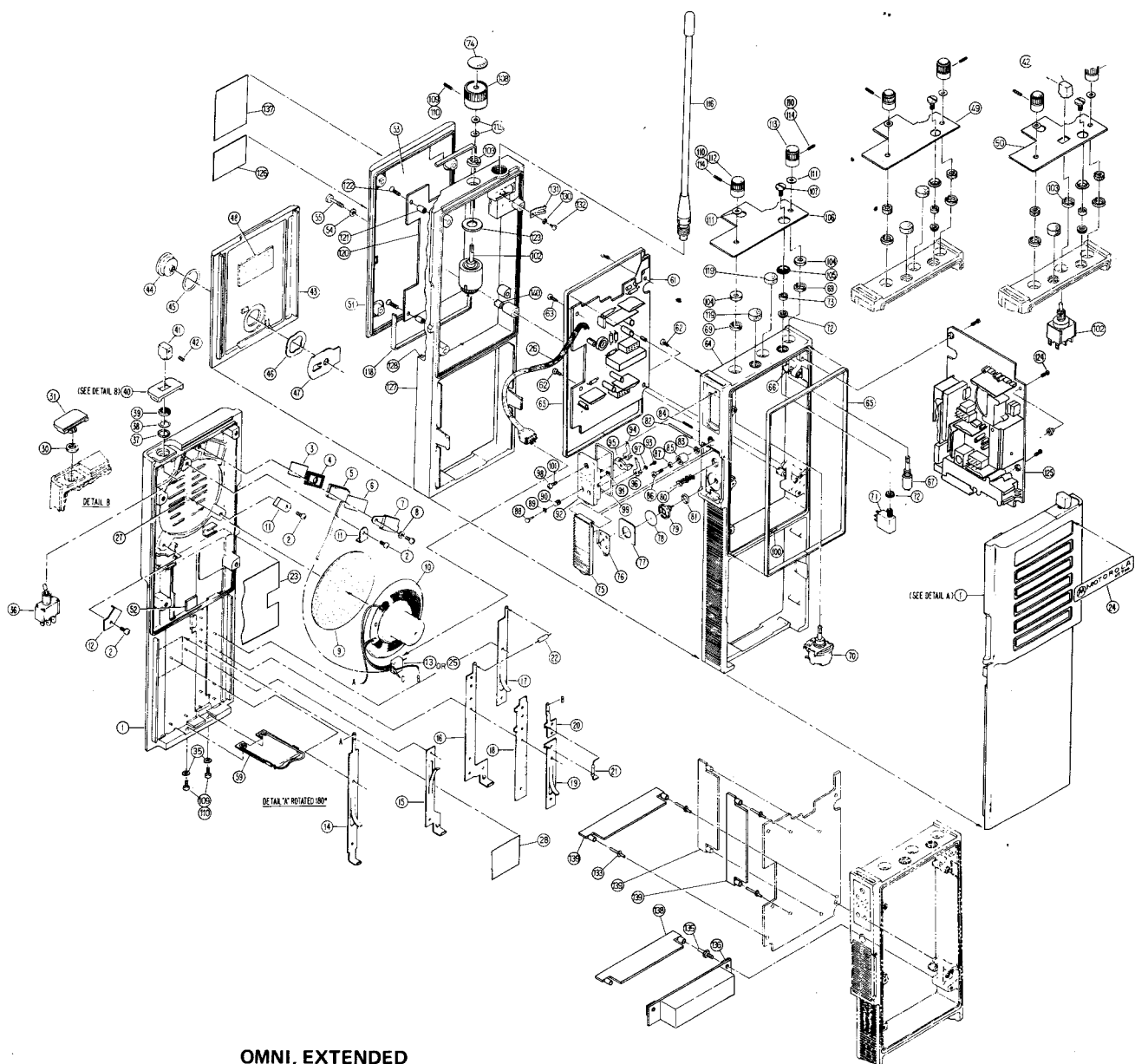


SLIM-LINE, EXTENDED

MECHANICAL PARTS LIST

ITEM NO.	NOMENCLATURE	MOTOROLA PART NO.			
1	COVER, Front, Extended, Met	0102289F01	76	SPRING, Actuator (PTT)	4105783D01
2	SCREW, Phillips; 2-56 x 1/8	0300138651	77	GASKET (PTT)	3205378G01
3	CLOTH, Felt, Mic	3505450B01	78	CONTACT, Disc (PTT)	3905196G01
4	PAD, Mic	7505577F01	79	CONTACT, Feed-thru (PTT)	3905195G01
5	CARTRIDGE, Mic (MK401)	See Note 1	80	SPRING, Compression (PTT)	4105246E01
6	PAD, Clamp	7582745J01	81	SEAL "O" Ring	3205082E02
7	BRACKET, Mic	0705672D01	82	PIN, Spring	2205084E01
8	WASHER, Spring	0405314E01	83	WASHER, Insert	0405249E01
9	CLOTH, Felt Grill	3505370C01	84	SCREW, Set	0305246E01
10	SPEAKER (LS401)	See Note 1	85	INSERT, Threaded	4305781D01
11	CLAMP, Speaker	4205670D01	86	STUD	4605154E01
12	CLAMP, Speaker	4205671D01	87	WASHER, Stud	0405248E01
13	RECEPTACLE, Conn Assy (PL)	0105958C86	88	PIN, Contact	3905456F01
14	STRAP, Contact, Neg	4205573A01	89	GASKET, "O" Ring	3205082E03
15	STRAP, Contact, Sen	4205575A01	90	SPRING, Compression	4105424F01
16	STRAP, Contact, Charge	4205283E01	91	RING, Retaining	4205463E02
17	STRAP, Contact	4205576A01	92	RECEPTACLE	0905677D01
18	INSULATOR, Contact	1405282E01	93	SCREW, Phillips; 0-80 x 1/8	0300139684
19	STRAP, Contact, Pos	4205269G01	94	CONTACT	4105197G03
20	STRAP, Contact, Pos	4205270G01	95	BLOCK	4605076E01
21	FUSE (F401)	See Note 1	96	CONTACT	4105197G01
22	RECTIFIER, Silicon (CR401)	See Note 1	97	WASHER	0400134190
23	INSULATOR, Paper	1405547G02	98	SCREW, Phillips; 2-56 x 3/16	0300138661
24	NAMEPLATE	3305869G01	99	SEAL "O" Ring	3205661G01
25	RECEPTICAL Conn Assy	0105958C87	100	ADHESIVE, RTV	1110019A88
26	CONN & Cable Assy	0102852F49	101	SEALANT, Compound	1110019A63
27	ADHESIVE, Silicone Rubber	1110020B40	102	SWITCH, Rotary (S301)	See Note
28	LABEL, Patent	1305436E01	103	NUT, Special	0282653D05
29	Not Used		104	PAD, Rubber	7583562H02
30	GASKET, Plug	3205315E01	105	BUSHING, Insulator	4305051E01
31	PLUG, Cover	3805115E01	106	ESCUTCHEON, 6-Freq	1302222F06
32	INSULATOR, Speaker	1405311G01	107	SCREW, Jack	0305129E01
33	TAPE, Adhesive	1110033E58	108	KNOB, Control	3605926D01
34	INSULATOR	1482392E05	109	SCREW, Latch	0383174C02
35	WASHER, Latch	0400120581	110	GLYPOL	1100008675
36	SWITCH, Toggle, SPDT (S401)	See Note 1	111	WASHER, Nylon	0405935F01
37	GASKET, "O" Ring	3205082E01	112	KNOB, Volume	3605927D01
38	WASHER, Special	0405081E01	113	KNOB, Squelch	3605927D03
39	NUT, Mtg	0205050E03	114	SCREW, Set	0383174C02
40	ESCUTCHEON, Switch	1305057E07	115	WASHER, Teflon	0482418D97
41	KNOB, Switch	3605114E01	116	ANTENNA 403-512 MHz	NAE6050B
42	SCREW, Set	0383174C04	117	Not Used	
43	COVER, Battery	1505697D01	118	GASKET, Frame	3202292F02
44	BUTTON	3805908D01	119	PAD	7583562H01
45	WASHER	0405910D01	120	ASSEMBLY, Multifrequency	See Note 2
46	WASHER, Spring	0405316E01	121	SPACER	4302133F02
47	LATCH	5505907D01	122	SCREW, CSK 2-56 UNC	0310936B08
48	PAD	7505083E01	123	WASHER	0402122F04
49	ESCUTCHEON	1302222F04	124	SCREW, Captive	0305864D01
50	ESCUTCHEON	1302222F05	125	TRANSCEIVER Bd. Assy	EUE6110A
51	COVER, Rear, Met	0102290F01	126	PLATE, Information	5405870G01
52	Not Used		127	HOUSING, Sleeve, Extended	1505447H01
53	INSULATOR Back Cover	1402301F01	128	ADHESIVE, RTV	1110019A76
54	WASHER, Seal	0484345A06	129	Not Used	
55	SCREW, Captive	0305662D01	130	WASHER, Spring	0405314E03
56	Not Used		131	CLIP, Antenna	4205860D01
57	Not Used		132	SCREW, Special	0305044E01
58	Not Used		133	POST, Guide	2902323F01
59	LATCH Assy	NLN4182A	134	Not Used	
60	Not Used		135	SCREW, Guide	4605800E01
61	INTERCONNECT Bd Assy	0102852F33	136	OPTION ("PL")	NLN4211A
62	SCREW, Phillips; 2-56 x 3/16	0300138661	137	PLATE, Frequency	5405871G01
63	SCREW, Earthing	0302286F01	138	OPTION (Time-Out Timer)	NLN5311A
64	FRAME, Long	0705640D01	139	ALT. OPTION POS'NS	
65	GASKET, Frame	3202292F02	140	SCREW, Captive	4305237H01
66	BUSHING, Cover Mtg	4305661D01			
67	POT, Cermet (R266)	See Note 1			
68	Not Used				
69	NUT, Special	0282653D03			
70	POT, Control Sw (R268)	See Note 1			
71	JACK, Micro (J202) SK4	See Note 1			
72	BUSHING, Shoulder	4305052E02			
73	NUT, Special	0205050E01			
74	6F DECAL	3202303F01			
75	LEVER	4505784D01			

- NOTE: 1. Refer to Electrical Parts List for part number and description.
2. For part number see relevant Manual Supplement.



OMNI, EXTENDED

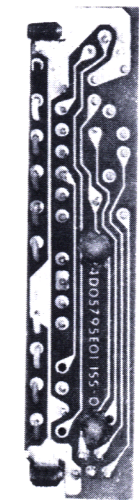
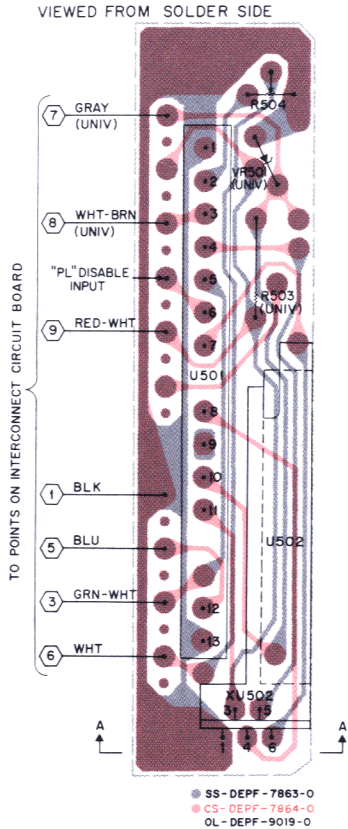
Tone PL Decks

NLN4211A Extended Frame
NLN4645A Sleeve Mounting

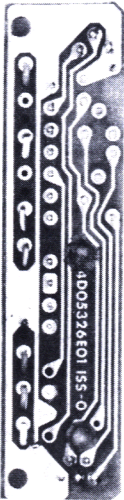
PLF-1477-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R503 R504	0600185B87 1805501C04	RESISTOR, Fixed: $\frac{1}{2}$ 4.7 k $\pm 10\%$; 1/8 W Pot., 50 k
U501 U502	5105177D23 NFN6010A	INTEGRATED CIRCUIT See Note PL Processor and Low-Pass Filter PL Tone Filter (not part of Tone PL Decks)
VR501	4883461E26	DIODE: See Note 23 V Zener
NONREFERENCED ITEMS		
	0105950D70	ASSEMBLY, Adapter; contains circuit board and bracket (NLN4645A only)
	0105959C02	ASSEMBLY, Adapter; contains circuit board and bracket (NLN4211A only)
	0905287C05	SOCKET, Berg; circuit board
	0905604C06	SOCKET, Spring
	2284292H01	PIN, Relay
	3005373E01	CABLE, Circuit Board (NLN4645A only)
	4205796E01	CLIP (NLN4645A only)
	8405335E01	CIRCUIT BOARD

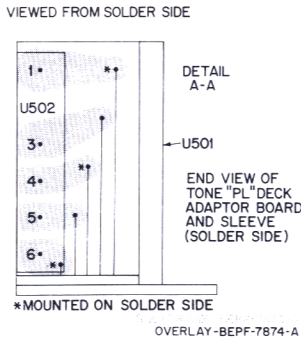
NOTE: For optimum performance, order replacement diodes and integrated circuits by Motorola part number only.

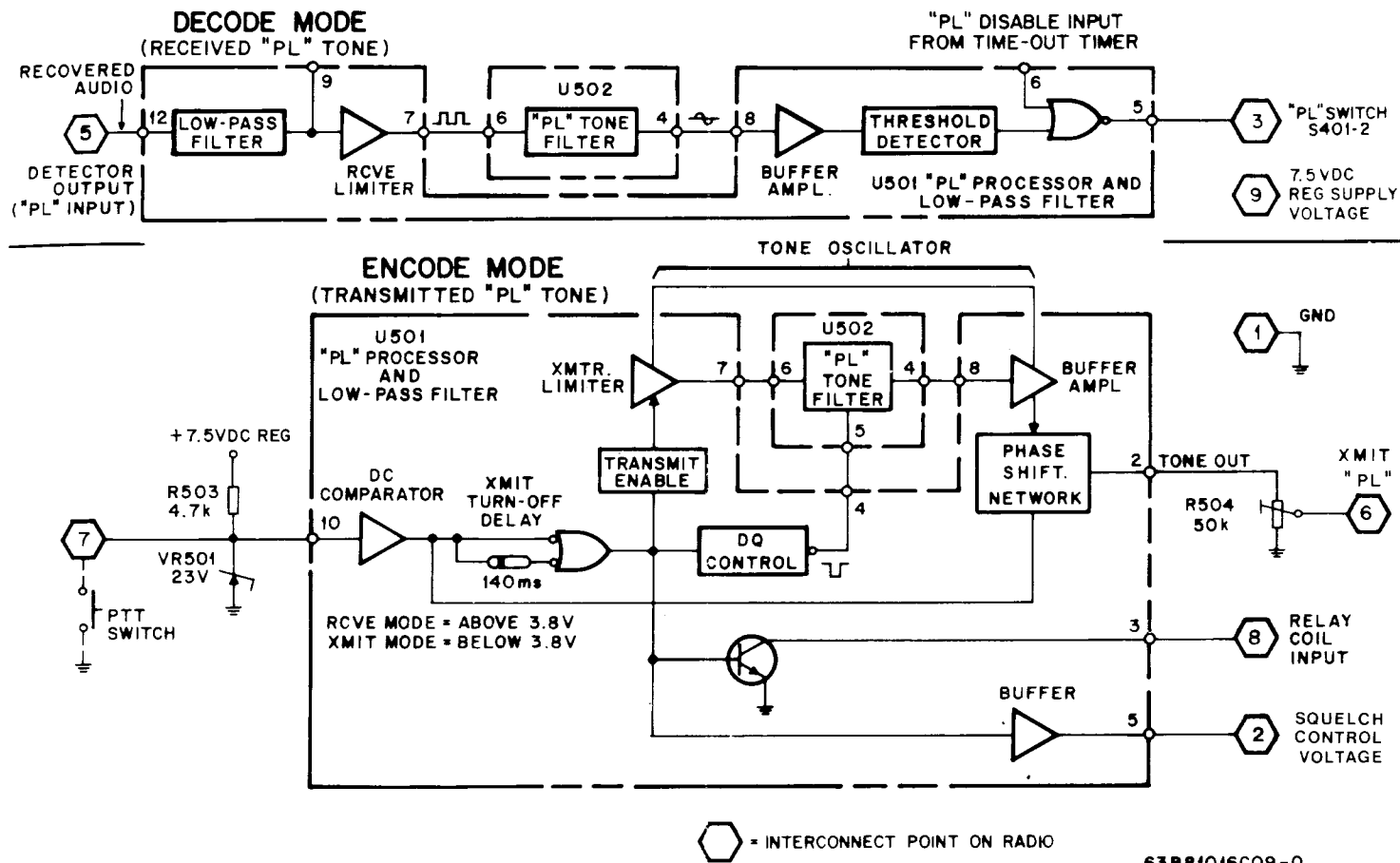


SLEEVE MOUNTING



EXTENDED FRAME MOUNTING





63B81016C09-0

TEST MEASUREMENTS

PIN NO.	ENCODE		DECODE	
	DC VOLTS	AC VOLTS	DC VOLTS	AC VOLTS
PL Processor and Low Pass Filter U501				
2	---	250 mV (3)	---	---
3	<1.5	---	15	---
5	---	---	4 (open) > 0.6 (closed) (1)	---
7	7.4	100 mV rms (<-15 dBm)	7.2 (2)	350 mV rms (>-15 dBm)
8	1.7	80 mV rms (3)	1.7	160 mV rms (3)
9	---	---	---	280 mV rms (typical)
10	<3.8	---	>3.8	---
11	7.5	---	7.5	---
PL Tone Filter U502				
3	7.5	---	7.5	---
4	1.7	---	1.7	---
5	>6	---	>6	---
6	7.4	---	7.2 (2)	---

Test measurements are nominal. DC voltages are with 15 VDC power supply, and AC voltages are with radio fully quieted and 500 Hz deviation on generator (proper PL tone).

Numbers in () refer to the following notes:

- (1) PL switch on (⚡)
- (2) No modulation; radio fully quieted
- (3) Depends upon PL Tone Filter U502

EPF-7866-A

"PL" SQUELCH SENSITIVITY CHECK

("PL" MODELS ONLY)

1. SET THE SQUELCH CONTROL (R201) TO THE UNSQUELCHED POSITION WITH THE "PL" SWITCH OFF (⚡).
2. TURN THE "PL" SWITCH ON (⚡), AND APPLY AN ON-FREQUENCY CARRIER SIGNAL FROM THE SIGNAL GENERATOR. MODULATE THE SIGNAL GENERATOR WITH THE PROPER "PL" TONE, AT ± 0.5 kHz DEVIATION FOR 25 kHz SPACING, ± 0.4 kHz FOR 20 kHz SPACING, OR ± 0.25 kHz FOR 12.5 kHz SPACING.
3. THE SQUELCH CIRCUIT SHOULD "OPEN" WHEN THE SIGNAL GENERATOR OUTPUT IS INCREASED ABOVE 0.18 μ V.

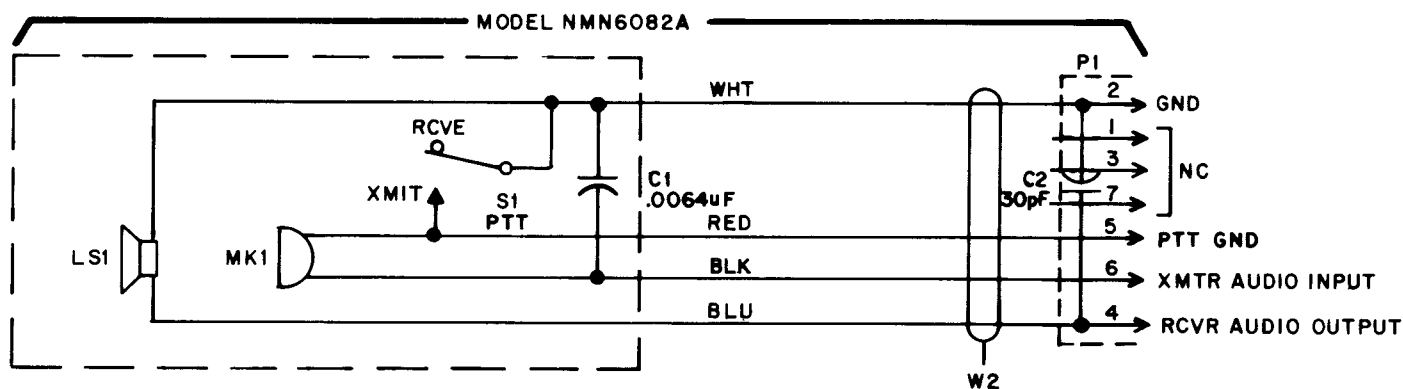
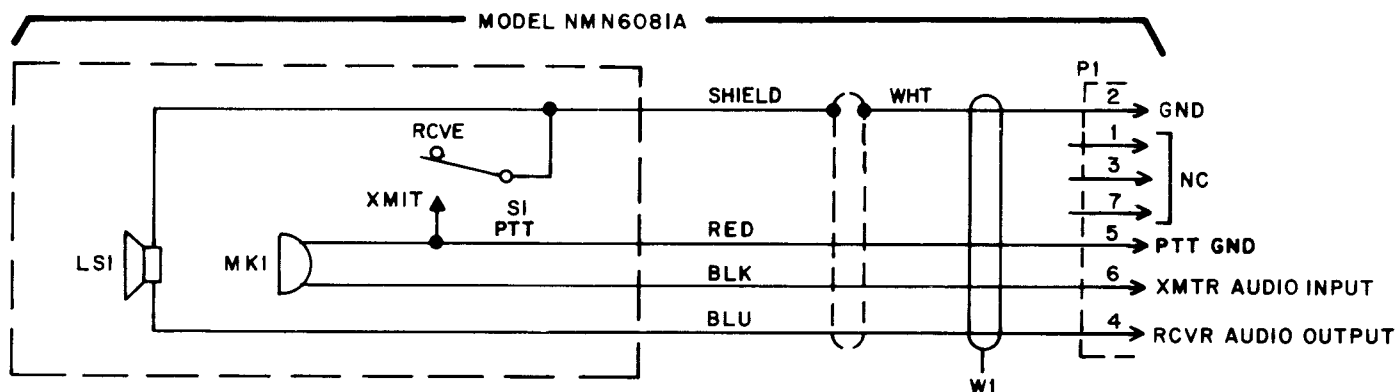
EPF-9016-A

TONE "PRIVATE-LINE" DECK

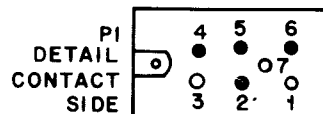
Speaker-Microphone Kits
 NMN6081A Straight Cord
 NMN6082A Coiled Cord

PLF-1238-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1	2184008H05	<u>CAPACITOR, Fixed:</u> .0064 μ F $\pm$ 10%; 50 V (NMN6082A only)
C2	2182358G95	30 pF $\pm$ 10%; 75 V; N750
LS1	5005334D01	<u>SPEAKER, Dynamic:</u> 39 Ω , 2-inch diameter
MK1	5982575J02	<u>MICROPHONE:</u> Minature; Res: 700 Ω , Imped: 5000 Ω $\pm$ 30%
P1	2805646F02	<u>PLUG:</u> Connector, 7-contact
S1	4082159D02	<u>SWITCH:</u> Micro; PTT, SPDT
W1	3084048H02	<u>CORD:</u> Straight, 48"
W2	3084123H02	Coiled



MODELS	SUFFIX
NMN6081A	1
NMN6082A	1



63B81102C46-B

EXTERNAL SPEAKER-MICROPHONES

MOTOROLA LTD COMMUNICATIONS DIVISION
SERVICE MANUAL AMENDMENT

APPLICABLE TO SERVICE MANUAL NO. 68P02925F03 - A



68P02925F28 - A

FOREWORD

THE INFORMATION CONTAINED HERE IS SUPPLEMENTARY TO THE MT 700 UHF SERIES RADIOS SERVICE MANUAL AND THE TWO SHOULD BE USED TOGETHER. HOWEVER, THE INFORMATION PRESENTED HERE OVERRULES ANY INFORMATION IN THE SERVICE MANUAL THAT IS CONTRADICTORY.

RADIO FREQUENCY ENERGY

SAFETY INFORMATION

The United States Department of Labor, through the provisions of the Occupational Safety and Health Act 1970 (OSHA), has established an electromagnetic energy safety standard which applies to the use of this equipment. Proper use of this radio will result in exposure below the OSHA limit.

DO NOT hold the radio such that the antenna is very close to, or touching, exposed parts of the body, especially the face or eyes, while transmitting. The radio will perform best if the microphone is two or three inches away from the lips and the radio is vertical.

DO NOT hold the transmit (PTT) switch on when not actually desiring to transmit.

DO NOT allow children to play with any radio equipment containing a transmitter.

DO NOT operate a portable transmitter near unshielded electrical blasting caps or in an explosive atmosphere unless it is a type especially qualified for such use.

HOCHFREQUENZENERGIE

SICHERHEITSINFORMATIONEN

Aufgrund der Bestimmungen des Occupational Safety and Health Act (Gesetz über Sicherheit und Gesundheit bei der Arbeit - OSHA) von 1970 hat das United States Department of Labour (US-Arbeitsministerium) einen Sicherheitsstandard für die elektromagnetische Energie festgelegt, der auch für die Verwendung der im folgenden beschriebenen Ausrüstungen Gültigkeit findet. Die richtige Verwendung dieses Funkgeräts führt zu einer elektromagnetischen Belastung, die unter der im OSHA festgelegten Grenze liegt.

Das Funkgerät darf nicht so gehalten werden, daß während des Sendens irgendwelche exponierten Körperteile, insbesondere das Gesicht oder die Augen, in unmittelbarer Nähe der Antenne befinden oder diese berühren. Das Funkgerät arbeitet dann am besten, wenn sich das Mikrophon im Abstand von 5-7 cm von den Lippen befindet und das Funkgerät senkrecht steht.

Der Sendeschalter (PTT) darf nicht in eingeschalteter Stellung gehalten werden, wenn nicht tatsächlich gesendet werden soll.

Kindern darf nicht erlaubt werden, mit Funkausrüstungen zu spielen, die einen Sender enthalten.

Ein tragbarer Sender darf weder in der Nähe ungeschützter elektrischer Zündkapseln, noch in einer explosiven Atmosphäre bedient werden, es sei denn, daß der Sendertyp zu solcher Verwendung besonders geeignet ist.

ENERGIE DE RADIOFREQUENCE

INFORMATIONS SUR LA SECURITE

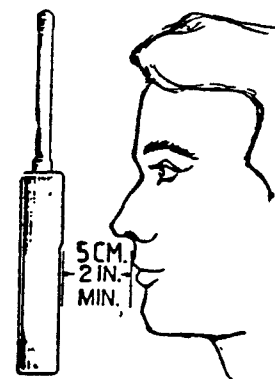
Le Ministère du Travail des Etats-Unis a établi, par les dispositions de l'Acte sur la santé et la sécurité au travail de 1970 (Occupational Safety and Health Act, OSHA) une norme de sécurité sur l'énergie électromagnétique qui s'applique à l'utilisation de ce matériel. L'utilisation correcte de cette radio aura pour résultat une exposition inférieure à la limite déterminée par cet acte.

NE PAS tenir la radio avec l'antenne très proche des parties exposées du corps ou en contact avec celles-ci, surtout le visage et les yeux, durant la transmission. La performance de la radio sera meilleure si le microphone est éloigné des lèvres de 5 cm à 7 cm et si la radio est verticale.

NE PAS maintenir le commutateur de transmission (PTT) en position de fonctionnement si vous ne désirez pas transmettre effectivement.

NE PAS laisser les enfants jouer avec tout matériel radio contenant un transmetteur.

NE PAS utiliser un transmetteur portable près de détonateurs électriques non blindés dans une atmosphère explosive à moins qu'il ne s'agisse d'un modèle spécialement conçu à cette fin.



CAUTION

In the interests of reliability, only fresh, uncontaminated cleaning fluids should be used on the radio. The fluids should not be allowed to come in contact with the plastic case parts as permanent damage may result. Some solvents do not show immediate effects, the damage appearing some time after contact. It is therefore recommended that a damp cloth be used for cleaning the case.

When using solvents to clean the printed circuit boards after servicing, considerable care should be exercised to avoid ingress of fluid into the helical resonators (A1, A2) as the radio's performance may be severely degraded by contamination of these parts.

ATTENTION

Dans l'intérêt de la fiabilité, seuls de fluides de nettoyage propres et non-contaminés doivent être utilisés sur la radio. Il ne faut pas laisser les fluides entrer en contact avec les pièces du boîtier en plastique, ceci pouvant provoquer un endommagement permanent. Certains solvants ne montrent pas des effets immédiats, l'endommagement apparaît un certain temps après le contact. Il est donc recommandé d'utiliser un chiffon humide pour nettoyer le boîtier.

Lors de l'emploi de solvants pour nettoyer les plaquettes de circuits imprimés après entretien, il faut prendre grand soin d'éviter l'entrée du fluide dans les cavités hélicoïdales (A1, A2), la performance de la radio pouvant être gravement affectée par la contamination de ces pièces.

WARNUNG

Im Interesse der Zuverlässigkeit sollten für das Funkgerät nur frische, unverschmutzte Reinigungsflüssigkeiten verwendet werden. Die Flüssigkeiten sollten nicht mit den aus Kunststoff bestehenden Gehäuseteilen in Berührung kommen dürfen, da sich sonst ein permanenter Schaden ergeben könnte. Manche Lösungsmittel weisen nicht sofort eine Wirkung auf, da der Schaden erst einige Zeit nach der Berührung in Erscheinung tritt. Es wird daher empfohlen, daß zur Reinigung des Gehäuses ein feuchtes Tuch verwendet wird.

Wenn nach Ausführung der Wartungsarbeiten Lösungsmittel zur Reinigung der Leiterplatten verwendet werden, sollte man erhebliche Sorgfalt walten lassen, um zu verhindern, daß Flüssigkeit in die schraubenförmigen Resonatoren (A1, A2) eindringt, da die Funktion des Funkgeräts durch Verschmutzung dieser Teile erheblich verschlechtert werden kann.

RECEIVER ALIGNMENT TEST

(see page 4 of Service Manual)

In order to ascertain if a receiver is correctly tuned to frequency the following procedure is recommended.

1. Set signal generator to the receiver nominal frequency with 1KHz modulating tone at $\pm 3.0\text{KHz}$ deviation for 25KHz channel spacing ($\pm 2.4\text{KHz}$ for 20KHz; $\pm 1.5\text{KHz}$ for 12.5KHz). Adjust the R.F. level to give 12 dB SINAD.
2. Carefully adjust the generator frequency to either side of the nominal frequency to find the point of maximum sensitivity, (largest dB's of SINAD). Note the generator frequency.
3. Providing the difference between the frequency noted in 2 and the nominal frequency is less than the limits shown below, the receiver is correctly tuned.

	25KHz CH SPACING	12½KHz CH SPACING
LIMIT	$\pm 1\text{KHz}$	$\pm 500\text{Hz}$

NOTE: The radio must be at a temperature of 25°C for this measurement to be valid. Any deviation from this temperature must be allowed for in the frequency limit as detailed on page 4.

FREQUENCY ADJUSTMENT CONSIDERATIONS FOR MT700 U.H.F. TWO-WAY PORTABLE RADIOS.

The frequency stability of U.H.F. equipment is affected by temperature variations. This is a normal phenomenon, and is not detrimental to the functional performance of the radio; however it is imperative that the transmitter frequency (f_c) of the U.H.F. radios be adjusted or measured under controlled room temperature conditions for optimum performance.

For example:

If the radio frequency (f_c) is adjusted to 450.000 MHz at +25°C (ideal temperature) and subsequently tested at +30°C, the frequency of an accurately adjusted radio will be 449.9995 MHz. Inversely, the same radio will be 450.0005 at +20°C. The frequency stability of a typical U.H.F. radio, with the carrier frequency adjusted at +25°C, is illustrated in the curve shown on the right.

If the radio transmitter is to track the temperature curve, it is important to make initial frequency settings accurately, and with consideration for ambient temperature. To aid in the frequency adjustment, the frequency vs temperature curve is also presented in tabular form over the range of +20°C to +30°C. The table should be used as a frequency error correction chart if the radio is at a temperature other than +25°C.

Note: This does not apply to MX model radios since they are specially compensated and typically vary less than 100 Hz over the range of +20 to +30°C.

Considering these factors, it is recommended that for frequency readings within +/- 1000 Hz of carrier, no attempt to correct should be made. Also, when completing Product Performance Cards, and answering the question "Did your unit perform properly?", take these possible variations into consideration.

ADDITIONAL FACTORS AFFECTING TRANSMITTER FREQUENCY

Transmitter frequency is affected by the temperature rise caused by extended keying of the transmitter (several minutes), such as is likely when making adjustments to multi-frequency radios. The frequency will be lower due to this temperature rise. Final adjustment should be made after the radio has returned to ambient temperature.

Variations in supply voltage has only a very small effect on radio frequency.

TEST EQUIPMENT ACCURACY

The stability of most commonly used frequency counters and service monitors is at best +/- 0.2 ppm, and more typically +/- 0.8 ppm. Therefore for a counter used to measure a 450 MHz carrier frequency, an error of 360 Hz can be introduced into the measurement. Considering this fact, two different instruments could give readings differing by 720 Hz.

Proper regard must be given to counter warm-up times and fully calibrated instruments must be used at all times.

SUMMARY

Practical field experience indicates that a variation of up to +/- 750 Hz can be expected even if crystal ambient temperature can be measured within 20°C, supply voltage within 15 volts +/- 2%, measurement instrument accuracy within 100 Hz, and instrument reading accuracy within the same tolerance. Further, considering correlation differences between instruments, it can be expected that bench measurements in the field will indicate variations of as much as +/- 1000 Hz from the assigned centre frequency (or more under adverse conditions).

CONSIDERATIONS SUR L'AJUSTEMENT DE FREQUENCE POUR MT700 RADIOS PORTABLES DEUX VOIES UHF.

La stabilité de fréquence du matériel UHF est affectée par des variations de température. Ceci est un phénomène normal, non préjudiciable à la performance fonctionnelle de la radio; il est cependant essentiel que la fréquence du transmetteur des radios UHF soit ajustée ou mesurée dans des conditions de température de pièces contrôlées pour obtenir une performance optimale.

Par exemple:

Si la fréquence radio (f_c) est ajustée à 450.000 MHz à +25°C (température idéale), puis testée à +30°C, la fréquence d'une radio ajustée avec précision sera de 449.9995 MHz. Inversement, cette même radio sera à 450.0005 MHz à +20°C. La stabilité de fréquence d'une radio UHF typique, avec la fréquence porteuse ajustée à +25°C, est illustrée par la courbe donnée à droite.

Pour que le transmetteur radio s'aligne sur la courbe de température, il est important d'effectuer avec précision les réglages initiaux de température, en tenant compte de la température ambiante. Pour aider à l'ajustement de fréquence, la courbe de fréquence en regard de la température est également présentée sous forme de tableau sur la gamme de +20°C à +30°C. Le tableau doit être utilisé comme tableau de correction d'erreur de fréquence si la radio est à une température autre que +25°C.

Considérant ces facteurs, il est recommandé de ne faire aucune tentative de correction pour lectures de fréquence dans les limites de +/- 1000 Hz de porteur. Prendre également ces variations possibles en considération complétant les cartes de performance des matériels et en répondant à la question "La performance de votre matériel a-t-elle été satisfaisante?"

AUTRES FACTEURS AFFECTANT LA FREQUENCE DU TRANSMETTEUR

La fréquence du transmetteur est affectée par l'élévation de la température provoquée par la manipulation prolongée du transmetteur (plusieurs minutes), susceptible de se produire lors des ajustements des radios multifréquences. La fréquence sera plus basse par suite de cette élévation de température. Un ajustement définitif devrait être effectué lorsque la radio est revenue à la température ambiante. Les variations de la tension d'alimentation n'affectent que très peu la fréquence radio.

PRECISION DU MATERIEL DE TEST

La stabilité des dispositifs de contrôle de service et des compteurs de fréquence le plus souvent utilisé est au mieux de +/- 0.2 ppm et plus fréquemment de +/- 0.8 ppm. Par conséquent, pour un compteur utilisé pour mesurer une fréquence porteuse de 450 MHz une erreur de 360 Hz peut être introduite dans la mesure. De ce fait, deux instruments différents pourraient donner des lectures qui diffèrent de 720 Hz.

Une attention appropriée doit être accordée aux délais de réchauffage de compteur et des instruments totalement étalonnés doivent être toujours utilisés.

RESUME

L'expérience pratique sur le terrain indique qu'une variation pouvant atteindre +/- 750 Hz peut être prévue, même si la température ambiante du cristal peut être mesurée dans une limite de 20°C, la tension d'alimentation dans une limite de 15 volts +/- 2%, la précision des instruments de mesure dans une limite de 100 Hz et la précision de lecture des instruments à l'intérieur de cette même tolérance. De plus, en tenant compte des différences de corrélation entre les instruments, on peut prévoir que les mesures de banc sur le terrain indiqueront des variations pouvant atteindre +/- 1000 Hz par rapport à la fréquence nominale assignée (ou davantage dans des conditions défavorables).

ERWÄGUNGEN ZUR FREQUENZESTELLUNG BEI TRAGBAREN MT700 UH-ZWEIWEIG-FUNKGERÄTEN

Die Frequenzstabilität von UHF-Einrichtungen wird durch Temperaturschwankungen beeinflusst. Dies ist eine normale Erscheinung und wirkt sich nicht negativ auf die Funktion des Funkgeräts aus; für eine optimale Leistung ist es jedoch unbedingt erforderlich, daß die Senderfrequenz der UHF-Funkgeräte unter Bedingungen einer geregelten Raumtemperatur eingestellt bzw. gemessen werden.

Falls beispielsweise die Funkgerätfrequenz (f) auf 450.000 MHz bei +25°C (das ist die ideale Temperatur) eingestellt wird und später bei +30°C geprüft wird, so wird die Frequenz eines genau richtig eingestellten Funkgeräts 449.9995 MHz betragen. Umgekehrt wird die Frequenz desselben Funkgeräts bei +20°C 450.000 MHz betragen. Die Frequenzstabilität eines typischen UHF-Funkgeräts, dessen Trägerfrequenz auf +25°C eingestellt ist, wird in der auf der rechten Seite gezeigten Kurve veranschaulicht.

Falls der Funksender der Temperaturkurve nachsteuern soll, so ist es wichtig, die anfänglichen Frequenzeinstellungen präzise und unter Berücksichtigung der Umgebungstemperatur vorzunehmen. Als Hilfe bei der Frequenzeinstellung wird die Frequenz-Temperatur-Kurve über den Bereich von +20°C bis +30°C auch in Tabellenform dargestellt. Diese Tabelle sollte als Frequenzfehler-Berichtigungstabelle verwendet werden, falls die Temperatur des Funkgeräts nicht +25°C beträgt.

Unter Berücksichtigung dieser Faktoren wird empfohlen, daß bei Frequenzmessungen, die sich um nicht mehr als +/- 1000 Hz von der Trägerfrequenz unterscheiden, kein Berichtigungsversuch unternommen werden sollte. Bei der Ausfüllung von Product Performance Cards (Karten zur Bewertung der Leistung des Produkts) und bei der Beantwortung der Frage: "Hat Ihr Gerät richtig funktioniert?" sollten diese möglichen Abweichungen berücksichtigt werden.

WEITERE FREQUENZEN, DIE SICH AUF DIE SENDECERATFREQUENZ AUSWIRKEN

Die Sendergerätfrequenz wird durch den Temperaturanstieg beeinflusst, der durch das längere (mehrere Minuten dauernde) Eintasten auf dem Sendergerät bewirkt wird; wenn auf Mehrfrequenz-Funkgeräten Einstellungen vorgenommen werden, ist so ein lang dauerndes Eintasten wahrscheinlich. Die Frequenz wird sich infolge dieses Temperaturanstiegs verringern. Nachdem die Temperatur des Funkgeräts der Umgebungstemperatur wieder gleichgekommen ist, sollte die endgültige Einstellung vorgenommen werden.

Schwankungen in der Netzspannung wirken sich nur sehr geringfügig auf die Funkfrequenz aus.

PRÄZISION DER PRÜFEINRICHTUNGEN

Die Stabilität der meisten im üblichen Gebrauch befindlichen Frequenzmesser und Leistungsüberwachungsgeräte beträgt bestenfalls +/- 0.2 pro Million, und im typischen Fall +/- 0.8 pro Million. Bei einem zur Messung einer Trägerfrequenz von 450 MHz verwendeten Frequenzmesser kann daher ein Fehler von 360 Hz in die Messung hineinkommen. Angesichts dieser Tatsache könnten zwei verschiedene Meßgeräte Meßwerte zeigen, die um 720 Hz auseinanderlagen.

Die Aufwärmzeiten der Frequenzmesser müssen richtig berücksichtigt werden und es sind jederzeit vollgezeichnete Geräte zu verwenden.

ZUSAMMENFASSUNG

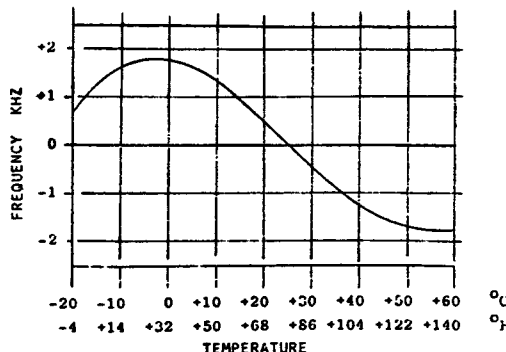
Praktische Vor-Ort-Erfahrungen weisen darauf hin, daß eine Abweichung von bis zu +/- 750 Hz zu erwarten ist, selbst wenn die Umgebungstemperatur der Kristalle mit einer Toleranz bis zu 20°C, die Speisespannung mit einer Toleranz bis zu 15 Volt +/- 2%, die Genauigkeit der Meßgeräte mit einer Toleranz bis zu 100 Hz und die Anzeigegenauigkeit der Geräte mit derselben Toleranz gemessen werden kann. Unter Berücksichtigung der Korrelationsunterschiede zwischen den Geräten kann ferner erwartet werden, daß die vor Ort mit Tischmeßanlagen vorgenommenen Messungen Abweichungen von bereits +/- 1000 Hz gegenüber der zugewiesenen Trägerfrequenz aufweisen werden (unter ungünstigen Bedingungen kann die Abweichung noch höher liegen).

TRANSMITTER FREQUENCY CORRECTION TABLE

TEMPERATURE	FREQUENCY
20°C 68°F	f_c +500 Hz
21°C 70°F	f_c +400 Hz
22°C 72°F	f_c +300 Hz
23°C 73°F	f_c +200 Hz
24°C 75°F	f_c +100 Hz
25°C 77°F	f_c ± 0 Hz
26°C 79°F	f_c -100 Hz
27°C 81°F	f_c -200 Hz
28°C 82°F	f_c -300 Hz
29°C 84°F	f_c -400 Hz
30°C 86°F	f_c -500 Hz

f_c = CARRIER FREQUENCY

TYPICAL TRANSMITTER FREQUENCY VS. TEMPERATURE



ELECTRICAL PARTS LIST

440—470MHz and U.K. DOWNBAND (TX 420—432MHz, RX440—470MHz)

REF. SYMBOL	MOTOROLA PART No.	DESCRIPTION	REF. SYMBOL	MOTOROLA PART No.	DESCRIPTION
R1	0660075C41	470R +/-5% 1/8W	C1	2102381F01	30PF +/-10% N750 75V
R2	0660075D02	150K +/-5% 1/8W	C2	2182358G23	68PF +/-5% N4700 200V
R3	0660075C70	7K5 +/-5% 1/8W	C3	2100861429	8PF +/-0.5PF N150 75V
R4	0660075C81	22K +/-5% 1/8W	C4	2182358G23	68PF +/-5% N4700 200V
R5	0660075C53	1K5 +/-5% 1/8W	C5	2102381F01	30PF +/-10% N750 75V
R6	0660075C49	1K +/-5% 1/8W	C6	2102381F01	30PF +/-10% N750 75V
R7	0600185B67	100R +/-10% 1/8W	C7	2184008H16	10NF +/-5% Y5F 50V
R8	0600185B57	15R +/-10% 1/8W	C8	2105311E15	17PF +/-10% N150 75V (12.5KHz only)
R9	0600185B64	56R +/-10% 1/8W	C9	2382397D15	10UF +/-20% TANT 20V
R10	0600185B68	120R +/-10% 1/8W	C10	2184008H16	10NF +/-5% Y5F 50V
R11	0600185B71	220R +/-10% 1/8W	C11	2100861429	8PF +/-10% N150 75V
R12	0660075A99	120K +/-5% 1/8W	C12	2182213E08	1NF +/-5% Y5D 100V
R13	0660075C57	2K2 +/-5% 1/8W	C13	2182358G66	18PF +/-5% N150 50V 2100861462 15PF +/-5% (12.5KHz only)
R14	0660075A47	820R +/-5% 1/8W	C14	2182213E08	1NF +/-5% Y5D 100V*
R102	0660075C55	1K8 +/-5% 1/8W	C15	2305612E02	68UF +/-20% TANT 2V
R103	0600105B66	82R +/-10% 1/8W	C16	2182877B09	3.8PF +/-0.25PF NP0 75V (25 KHz only)
R104	0600185B63	47R +/-10% 1/8W	C17	2182358G66	18PF +/-5% N150 50V 2100861462 15PF +/-5% (12.5KHz only)
R105	0660075C75	12K +/-5% 1/8W	C18	2102381F01	30PF +/-10% N750 75V
R106	0660075C85	33K +/-5% 1/8W	C19	2305612E01	22UF +/-20% TANT 2V
R107	0660075C49	1K +/-5% 1/8W	C20	2305612E01	22UF +/-20% TANT 2V
R108	0660075C47	820R +/-5% 1/8W	C21	2382397D28	3.3UF +/-20% TANT 20V
R109	0660075C89	47K +/-5% 1/8W	C22	2382397D16	22UF +/-20% TANT 15V
R110	0660075C77	15K +/-5% 1/8W	C23	2382397D36	1UF +/-10% TANT 20V
R111	1802216F08	2K POT (POWER SET)	C24	2382397D04	15UF +/-20% TANT 15V
R112	0660075C55	1K8 +/-5% 1/8W	C25	2182213E03	5.5NF -0+100% CER 75V
R113	0600185B68	120R +/-10% 1/8W	C26	2382397D17	15UF +/-20% TANT 20V
R114	0660075A81	22K +/-5% 1/8W	C27	2102381F01	30PF +/-10% N750 75V
R115	0602057F64	1R +/-5% 1/3W	C28	2184008H16	10NF +/-10% Y5F 50V
R116	0602057F64	1R +/-5% 1/3W	C101	2102381F01	30PF +/-10% N750 75V
R117	0600185B55	10R +/-10% 1/8W	C102	2100861431	12PF +/-10% N150 75V
R118	0600185B58	18R +/-10% 1/8W	C103	2182877B07	2.2PF +/-0.25PF N150 75V
R119	0600185B58	18R +/-10% 1/8W	C104	2102381F01	30PF +/-10% N750 75V
R120	0600185B65	68R +/-10% 1/8W	C105	2182213E08	1NF +/-5% Y5D 100V
R121	0660075C53	1K5 +/-5% 1/8W	C106	2102381F01	30PF +/-10% N750 75V
R122	0602057F64	1R +/-5% 1/3W	C107	2382397D25	270NF +/-10% TANT 20V
R123	0600185B64	56R +/-10% 1/8W (12.5KHz only)	C108	2105311E11	40PF +/-10% N150 100V
R201	0660075A49	1K +/-5% 1/8W (F1)	C109	2102381F01	30PF +/-10% N750 75V
R202	0660075A49	1K +/-5% 1/8W (F2)	C110	2102381F01	30PF +/-10% N750 75V 2182877B61 22PF +/-3% N150 50V***
R211	0660075A63	3K9 +/-5% 1/8W (F1)	C111	2102381F01	30PF +/-10% N750 75V
R212	0660075A63	3K9 +/-5% 1/8W (F2)	C112	2382397D25	270NF +/-10% TANT 20V
R221	0660075C89	47K +/-5% 1/8W (F1)	C113	2102381F01	30PF +/-10% N750 75V
R222	0660075A89	47K +/-5% 1/8W (F2)	C114	2102381F01	30PF +/-10% N750 75V
R231	0660075A89	47K +/-5% 1/8W (F1)*	C115	2182213E29	100PF +/-20% 100V
R232	0660075A89	47K +/-5% 1/8W (F2)*	C116	2105311E04	10PF +/-5% N150 25V 2182358G66 18PF +/-5% N150 25V***
R241	0660075C49	1K +/-5% 1/8W (F1)	C117	2182213E21	2NF -20+100% 75V
R242	0660075A49	1K +/-5% 1/8W (F2)	C119	2382397D36	1UF +/-10% TANT 20V
R261	0660075A37	330R +/-5% 1/8W	C120	2182213E08	1NF +/-5% Y5D 100V
R262	0660075A97	100K +/-5% 1/8W	C121	2102381F02	120PF +/-10% N750 100V
R263	0660075A97	100K +/-5% 1/8W	C122	2184008H16	10NF +/-5% Y5F 50V
R264	1805501C01	2K POT (DEVIATION SET)	C123	2102381F01	30PF +/-10% N750 75V
R265	0660075A63	3K9 +/-5% 1/8W	C124	2102381F01	30PF +/-10% N750 75V
R266	1805333E01	25K POT (SQUELCH CONTROL)	C126	2102381F01	30PF +/-10% N750 75V
R267	0602057F08	39R +/-5% 1/3W	C127	2182877B17	5PF +/-0.25PF N150 75V 2105311E02 15PF +/-5% N150 25V***
R268	1805370E04	25K POT (VOLUME CONTROL)	C201	2102381F03	15PF +/-10% N150 75V
	0102852F34	25K POT - WITH LEADS	C202	2102381F03	15PF +/-10% N150 75V
R269	0660075C67	5K6 +/-5% 1/8W	C211	2182213E21	2NF +100-20% 75V
	0600185B55	10R +/-10% 1/8W (12.5KHz only)			
R270	0600185B64	56R +/-10% 1/8W			
R271	0600185B55	10R +/-10% 1/8W*			
R272	0600185B67	100R +/-10% 1/8W			
R273	0660075C45	680R +/-5% 1/8W**			

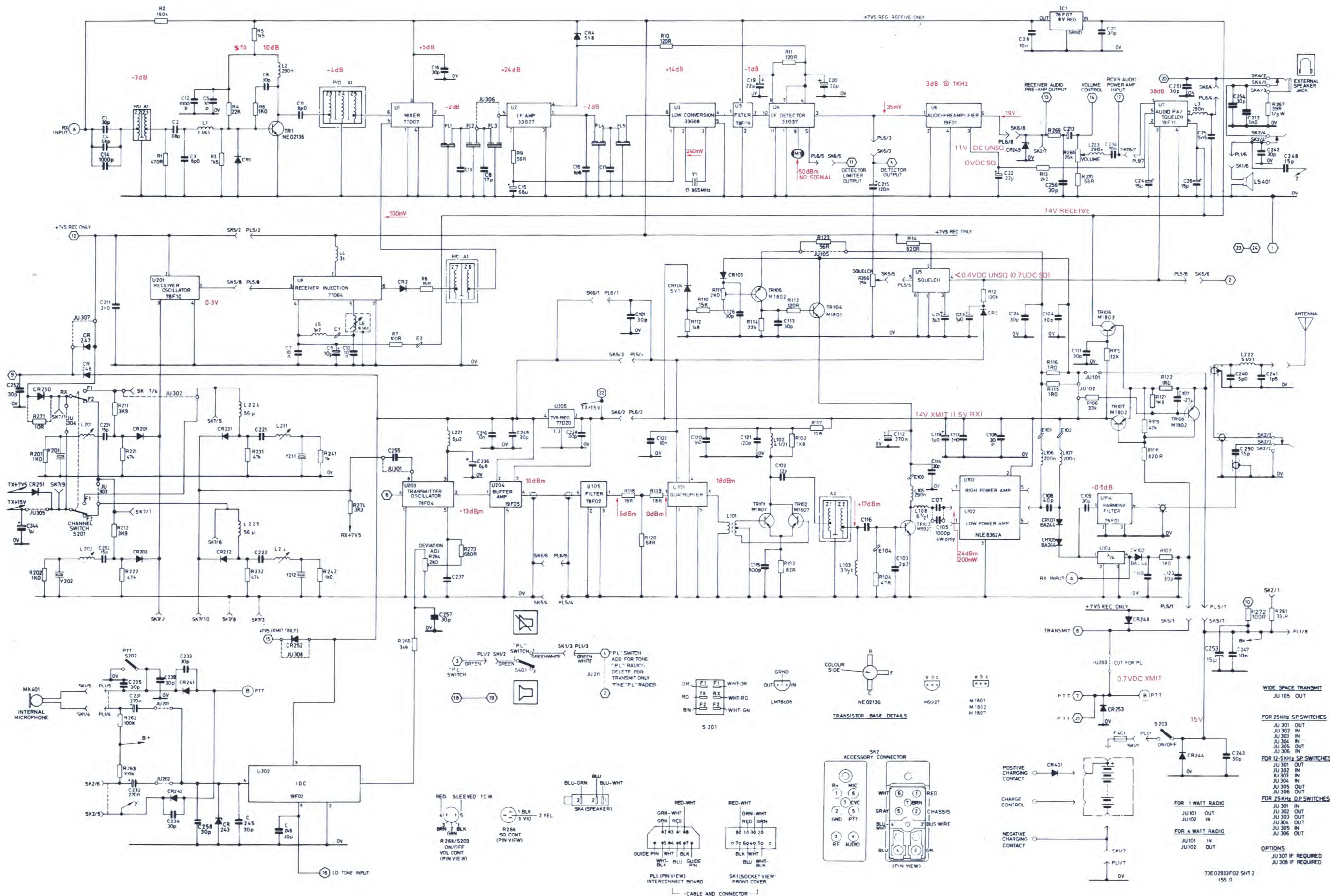
SYMBOL	PART NO.	DESCRIPTION		SYMBOL	PART NO.	DESCRIPTION
C213	2382397D12	120N	+/-10%	TANT	5102178F01	HARMONIC FILTER
	2302456F02	33NF	+/-20%	(12.5KHz only)	5102178F02	BANDPASS FILTER
C214	2184008H16	10NF	+/-5%	Y5F 50V	U201	5102178F10 RX OSCILLATOR
C215	2382397D12	120NF	+/-10%	TANT 20V	U202	5105319F02 IDC MODULE
C216	2184008H16	10NF	+/-5%	Y5F 50V	U203	5102178F04 TX OSCILLATOR
C221	2182213E08	1NF	+/-5%	Y5D 100V*	U204	5105319F05 BUFFER AMPLIFIER
	2105271F02	340PF	+/-10%	NP0 100V	U205	5105177D20 7.5V REGULATOR
C222	2182213E08	1NF	+/-5%	Y5D 100V*	CR1	4882363E03 SILICON DIODE
	2105271F02	340PF	+/-10%	NP0 100V	CR2	4805275E01 STEP RECOVERY DIODE
C231	2382397D25	270NF	+/-10%	TANT 20V	CR3	4882363E03 SILICON DIODE
C232	2382397D25	270NF	+/-10%	TANT 20V	CR4	4882256C61 5V8 ZENER DIODE
C233	2102381F01	30PF	+/-10%	N750 75V	CR101	4883510F03 DIODE BA244
C234	2102381F01	30PF	+/-10%	N750 75V	CR102	4883510F03 DIODE BA244
C235	2102381F01	30PF	+/-10%	N750 75V	CR103	4883654H01 SILICON DIODE
C236	2382397D09	6.8UF	+/-20%	TANT 10V	CR104	4802251F01 5V1 ZENER DIODE
C237	2102381F01	30PF	+/-10%	N750 75V	CR105	4883510F03 DIODE BA244
	2184008H13	50NF	+/-10%	(12.5KHz only)	CR201	4805118G01 PIN DIODE (F1)
C238	2102381F01	30PF	+/-10%	N750 75V	CR202	4805118G01 PIN DIODE (F2)
C239	2102381F01	30PF	+/-10%	N750 75V	CR231	4805118G01 PIN DIODE (F1)
C240	2182877B17	5PF	+/-5%	N150 75V	CR232	4805118G01 PIN DIODE (F2)
C241	2182358G86	1.5PF	+/-0.1PF	N150 50V	CR241	4883461E26 DIODE
C242	2102381F01	30PF	+/-10%	N750 75V	CR242	4883461E26 DIODE
C243	2102381F01	30PF	+/-10%	N750 75V	CR243	4802258F12 27V ZENER DIODE
C244	2382397D36	1UF	+/-10%	TANT 20V	CR244	4882466H03 DIODE
C245	2102381F01	30PF	+/-10%	N750 75V	CR246	4882363E03 DIODE
C246	2102381F01	30PF	+/-10%	N750 75V	CR247	4882363E03 DIODE
C247	2184008H16	10NF	+/-10%	Y5F 50V	CR248	4882363E03 DIODE
C248	2102381F03	15PF	+/-10%	N150 75V	CR249	4882363E03 DIODE
C249	2102381F01	30PF	+/-10%	N750 75V	CR250	4805118G01 PIN DIODE (12.5KHz only)
C250	2102374F03	15PF	+/-10%	N150 75V	CR251	4805118G01 PIN DIODE (12.5KHz only)
C251	2102381F01	30PF	+/-10%	N750 75V	CR252	4882363E03 DIODE (12.5KHz only)
C252	2102381F01	30PF	+/-10%	N750 75V	CR253	4882363E03 DIODE (12.5KHz only)
C253	2382397D17	15UF	+/-20%	TANT 20V	CR401	4882466H13 DIODE
C254	2102381F01	30PF	+/-10%	N750 75V	Y1	4805713B03 CRYSTAL OSCILLATOR (17.865MHz)
C255	2105271F02	340PF	+/-10%	NP0 100V**		4805713B04 CRYSTAL OSCILLATOR (17.935MHz)
	2182213E08	1NF	+/-5%	Y5D 100V*	Y201-202	EXN6100A RX CHANNEL CRYSTAL
C256	2102381F01	30PF	+/-10%	N750 75V		EXN6109A RX CHANNEL CRYSTAL (12.5KHz only)
		(12.5KHz only)			Y211-212	EXN6101A TX CHANNEL CRYSTAL
C257	2102381F01	30PF	+/-10%	N750 75V		EXN6108A TX CHANNEL CRYSTAL (12.5KHz only)
		(12.5KHz only)			FL1-2-(3)-4-5	4805259F03 8 POLE XTAL FILTER SET
C258	2102381F01	30PF	+/-10%	N750 75V		4805471G03 10 POLE XTAL FILTER SET (12.5KHz only)
A1	0105957D38	PRESELECTOR 440 – 470 MHz		L1	2484545H01	1.25 TURNS AIRWOUND
A2	5102178F06	HELICAL FILTER		L2	2482723H28	290NH RF CHOKE
IC1	5102178F07	8V REGULATOR		L3	2482723H28	290NH RF CHOKE
TR1	4802218F10	NE02136 NPN		L4	2405711B05	3 TURNS FERRITE
TR101	4802218F07	M1807 NPN		L5	2482723H27	1.2UH RF CHOKE
TR102	4802218F07	M1807 NPN		L6	2405262E02	8.25 TURNS
TR103	4800869927	M9927 NPN			7605374B08	CORE
TR104	4802218F01	M1801 NPN		L101	0102359F01	FERRITE TRANSFORMER ASSEMBLY
TR105	4802218F02	M1802 PNP		L102	2402167F02	AIR COIL
TR106	4802218F02	M1802 PNP		L103	2402167F06	AIR COIL
TR107	4802218F02	M1802 PNP		L105	2482723H28	290NH RF CHOKE
TR108	4802218F02	M1802 PNP		L106	2482723H11	200NH RF CHOKE
U1	5105177D07	UHF MIXER		L107	2482723H11	200NH RF CHOKE
U2	5184333G07	IF AMPLIFIER		L108	2405027E36	AIR COIL
U3	5184333G08	LOW CONVERSION MIXER		L201	2402192F02	RX WARP COIL (F1)
U4	5184333G37	IF DETECTOR		L202	2402192F02	RX WARP COIL (F2)
U5	5105177D22	SQUELCH		L211	2402192F01	TX WARP COIL (F1)
	5105319F12	SQUELCH (12.5KHz only)		L212	2402192F01	TX WARP COIL (F2)
U6	5105319F01	AUDIO PRE-AMP		L221	2482723H06	6.2UH RF CHOKE
U7	5105319F11	AUDIO PA/SQUELCH		L222	2405027E19	5.5 TURNS
U8	5105177D64	RECEIVER INJECTION		L223	2482723H28	290NH RF CHOKE
U9	5102178F09	IF ACTIVE FILTER		L224	2402296F01	56UH RF CHOKE (F1)
U101	5102178F03	QUADRUPLER		L225	2402296F01	56UH RF CHOKE (F2)
	5102178F11	QUADRUPLER***				
U102	NLE8362A	1W RF PA				
	NLE8372A	4W RF PA				
	NLE8371A	4W RF PA***				

REF. SYMBOL	MOTOROLA PART No.	DESCRIPTION
E2	7683960B06	FERRITE BEAD
E101	7683960B05	FERRITE BEAD
E102	7683960B05	FERRITE BEAD
E103	7683960B05	FERRITE BEAD
E104	7683960B06	FERRITE BEAD
F401	6505214E01	FUSE 2A
MK401	5982575J02	MICROPHONE
SK2	0102852F39	CONNECTOR ASSY.
SK4	0905657G01	SPEAKER JACK SOCKET
SK5	0105950D32	8-WAY SOCKET
SK6	0105950D32	8-WAY SOCKET
PL1	0105950G70	CONNECTOR ASSY.
PL5	0105958C96	8-WAY PLUG
PL6	0105958C96	8-WAY PLUG
SK7	0102852F45	10-WAY SOCKET (FOR 6 & 10 CHANNEL OPTION BOARDS)
LS401	5005334D01	LOUDSPEAKER 2" 39 OHMS
S201	4005123G01	2F CHANNEL SWITCH (S.P.D.T.)
	4005120E01	2F CHANNEL SWITCH (D.P.D.T.)*
S401	4005061E01	'PL' SWITCH
—	2605685B01	COVER SHIELD — U4
—	1505894D01	COVER SHIELD — U202
—	2684800H03	COIL CAN — L6
—	7505506D04	MODULE PAD — U2
—	7505506D03	MODULE PAD — U3
—	7505506D02	MODULE PAD — U4
—	7505506D08	MODULE PAD — U5
—	7505506D07	MODULE PAD — U6
—	7505506D07	MODULE PAD — U7
—	7505506D04	MODULE PAD — U8
—	7505506D09	MODULE PAD — U9
—	7505506D07	MODULE PAD — U101
—	7505506D09	MODULE PAD — U104
—	7505506D06	MODULE PAD — U105
—	7505506D03	MODULE PAD — U201
—	7505506D06	MODULE PAD — U202
—	7505506D07	MODULE PAD — U203
—	7505506D03	MODULE PAD — U204
—	7505295B03	XTAL FILTER PAD — 4 OFF FOR 25 KHz 5 OFF FOR 12.5 KHz
—	1405575F01	XTAL FILTER BOOT — 4 OFF FOR 25 KHz 5 OFF FOR 12.5 KHz
—	7584257H01	2ND OSC. XTAL PAD
—	3782378B13	2ND OSC. XTAL BOOT
—	1405575F01	2ND OSC. XTAL BOOT*
—	1482590G01	CHANNEL XTAL PAD — 2 OFF PER CHANNEL
—	0705196A01	CHANNEL CRYSTAL BOOT — 2 OFF PER CHANNEL
—	4302179F01	PRESELECTOR GASKET
—	0300131323	PRESELECTOR SCREW — 2 OFF
—	1505165D01	MIXER COVER
—	0305627D01	MIXER SCREW — 2 OFF
—	0300131323	HELICAL SCREW — 2 OFF
—	3905806E01	PA PLATED CONTACT
—	2205060E01	PA PIN — 4 OFF

* ONLY USED ON EARLY MODELS D.P.D.T. CHANNEL SWITCH

** NOT USED ON EARLY MODELS (P.C. BOARDS 8402452F01 & 8402453F01)

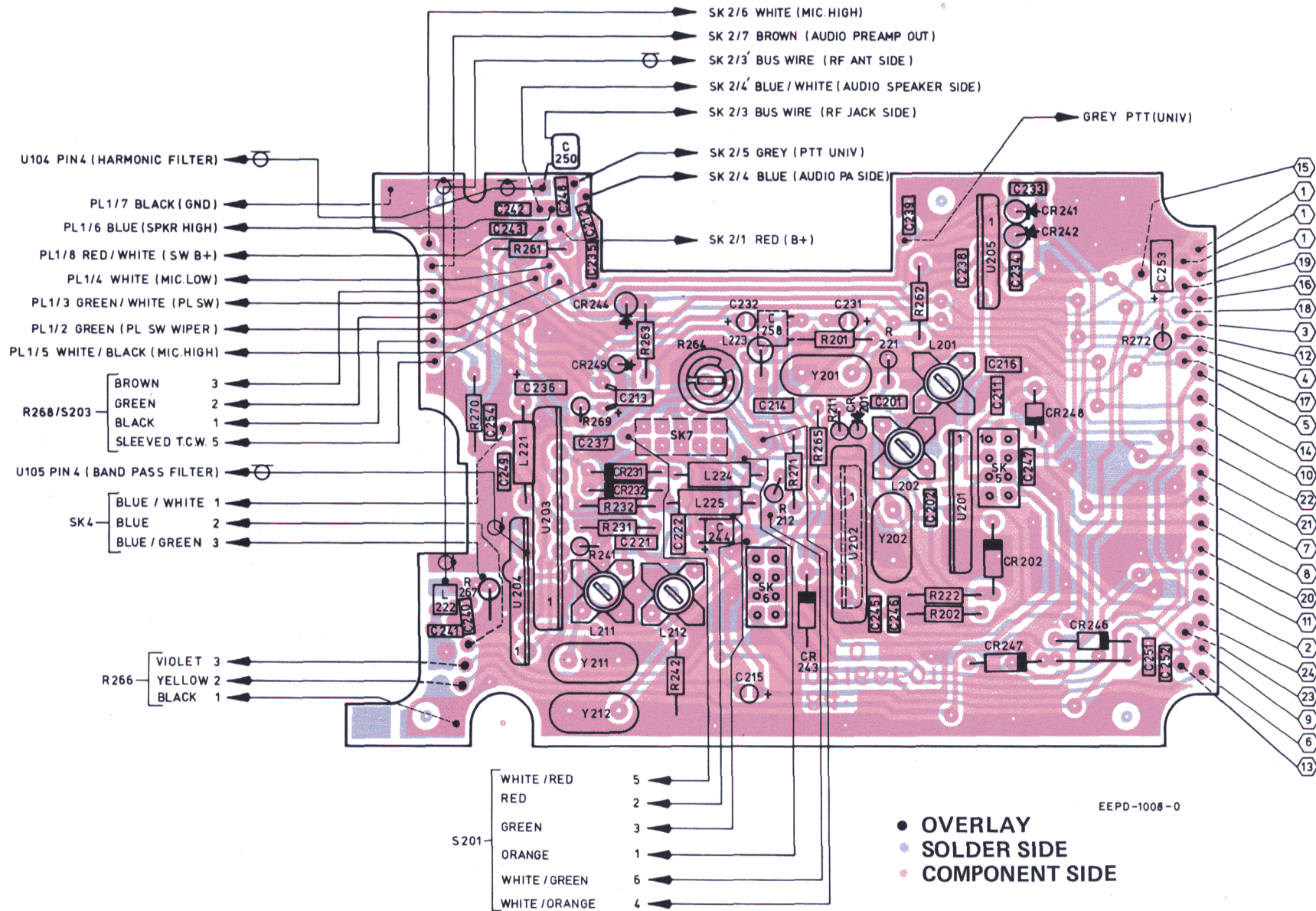
*** FOR TX 420 — 432 MHz, 1 & 4W.



**NOTE:- FOR COMPONENTS WITHOUT VALUES
SEE ELECTRICAL PARTS LIST.**

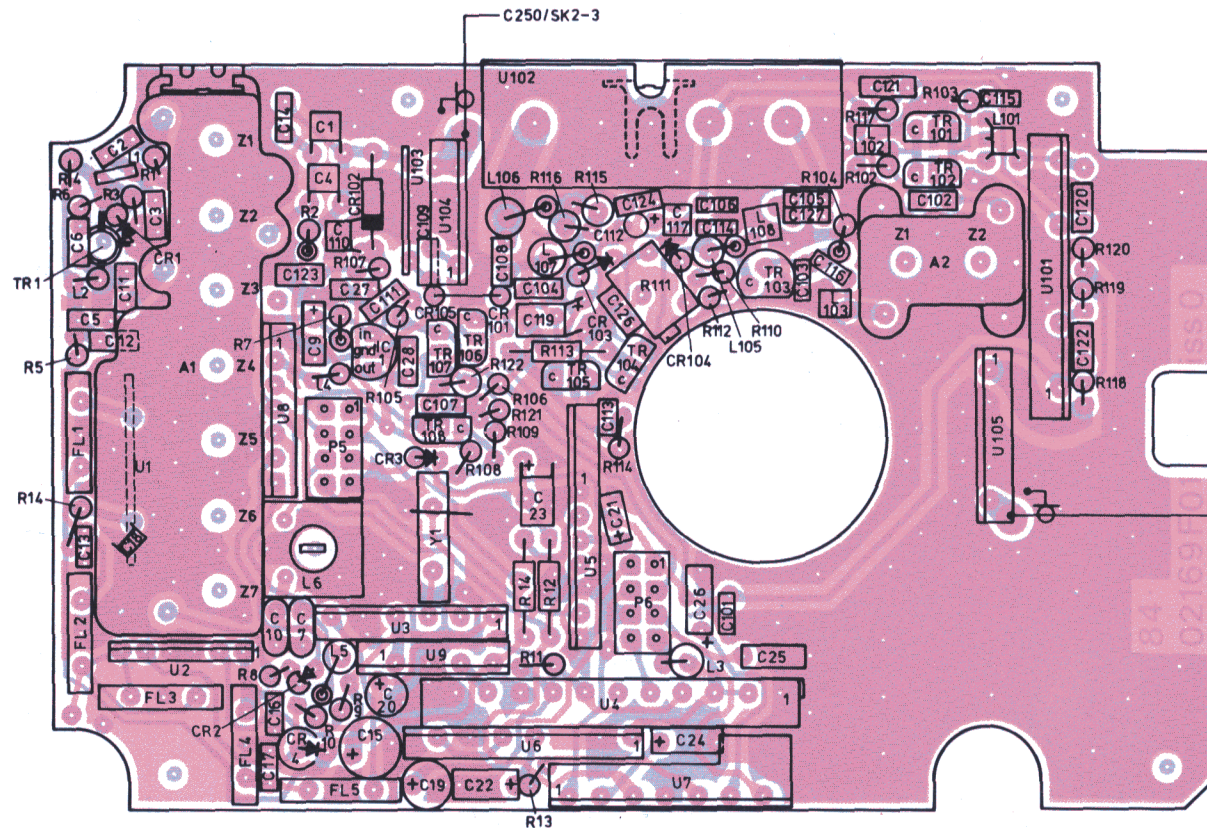
INTERCONNECT P.C.B. (8402166F01)

VIEWED FROM SOLDER SIDE



TRANSMITTER/RECEIVER P.C.B.
(8402169F01)

VIED FROM SOLDER SIDE

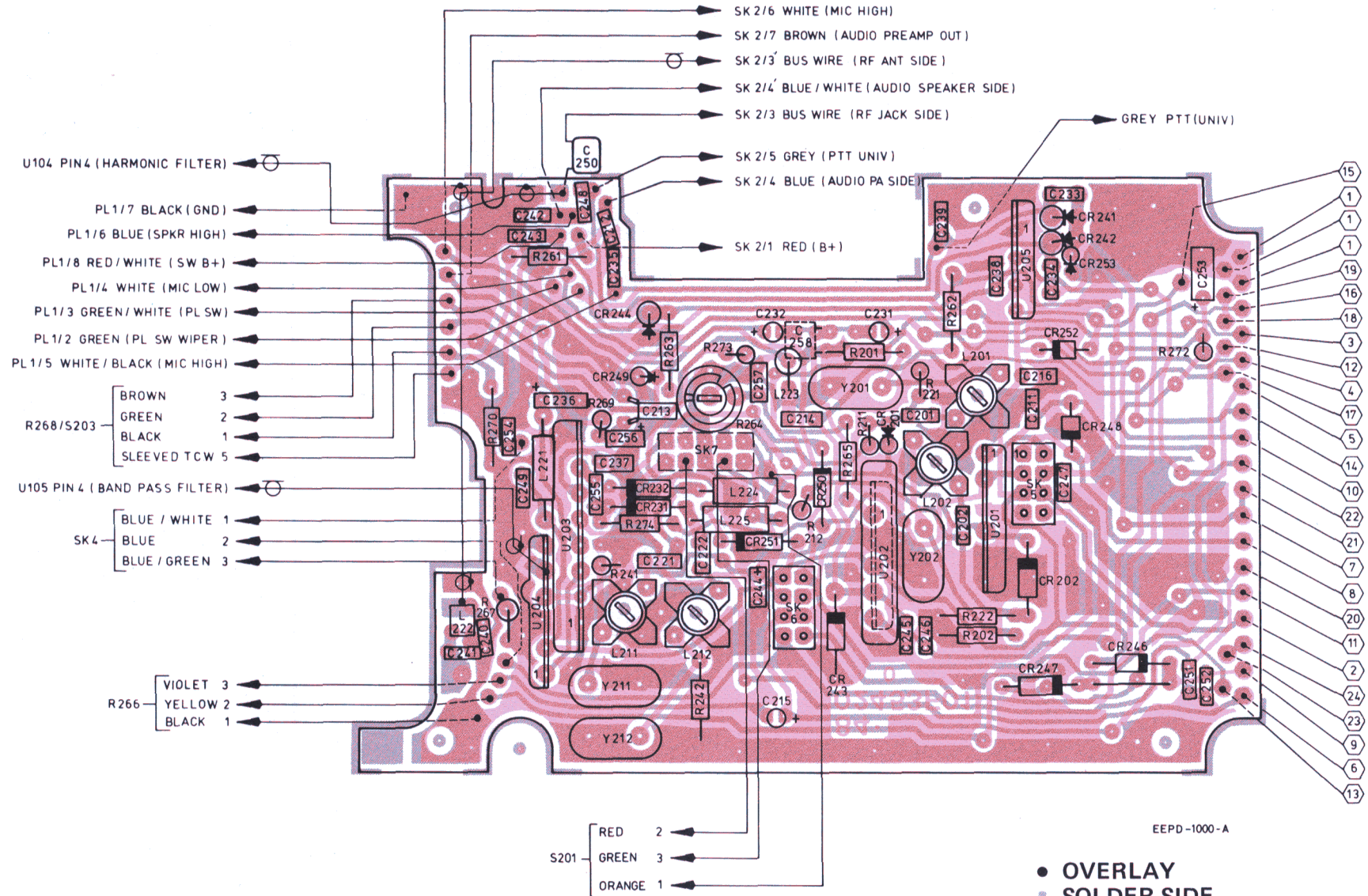


EEP-1019-0

- OVERLAY
- SOLDER SIDE
- COMPONENT SIDE

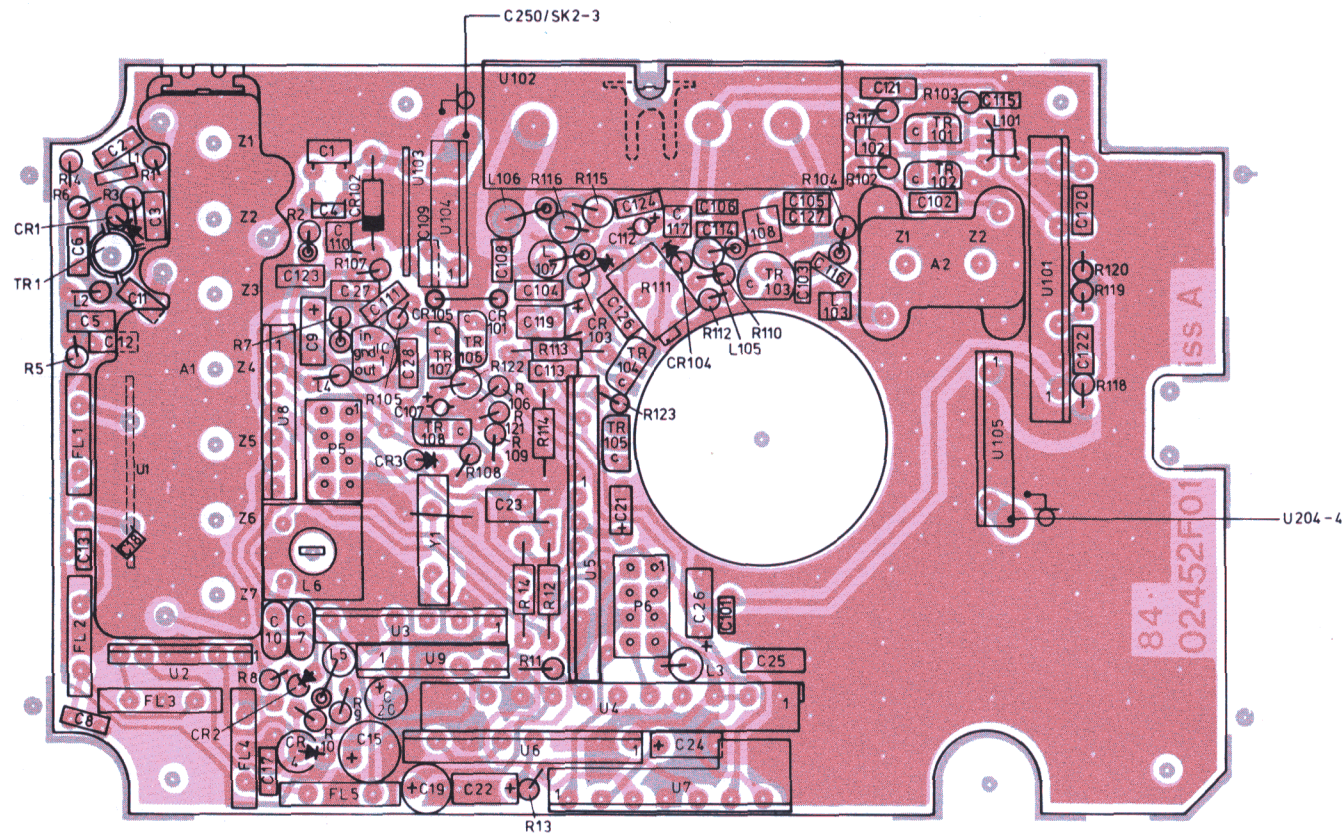
INTERCONNECT P.C.B.
(8402453F01)

VIEWED FROM SOLDER SIDE



TRANSMITTER/RECEIVER P.C.B.
(8402452F01)

VIED FROM SOLDER SIDE



EEPD-1002-0

- OVERLAY
- SOLDER SIDE
- COMPONENT SIDE

MECHANICAL PARTS LIST

ITEM NO.	NOMENCLATURE	MOTOROLA PART No.	ITEM NO.	NOMENCLATURE	MOTOROLA PART No.
1	COVER, Front, Long (PART OF ITEM 142)	1505324G01	76	SPRING, Actuator (PART OF ITEM 144)	4105783D03
2	SCREW, Phillips; 2-56 x 1/8	0300138651	77	GASKET (PTT)	3205378G01
3	CLOTH, Felt, Mic	3505450B01	78	CONTACT, Disc (PTT)	3905196G01
4	PAD, Mic	3205395J01	79	CONTACT, Feed-thru (PTT)	3905195G01
5	CARTRIDGE, Mic (MK401)	5982575J02	80	SPRING, Compression (PTT)	4105267E01
6	PAD, Clamp	7582745J01	81	SEAL "O" Ring	3205082E02
7	BRACKET, Mic	0705672D01	82	PIN, Spring	2205084E01
8	WASHER, Spring	0405314E01	83	WASHER, Insert	0405249E01
9	CLOTH, Felt Grill	3505370C01	84	SCREW, Set	0305246E01
10	SPEAKER (LS401)	5005334D01	85	INSERT, Threaded	4305781D01
11	CLAMP, Speaker	4205670D01	86	STUD	4605154E01
12	CLAMP, Speaker	4205671D01	87	WASHER, Stud	0405248E01
13	RECEPTACLE, Conn Assy	0105956C63	88	PIN, Contact	3905456F01
14	STRAP, Contact, Neg	4205573A01	89	GASKET, "O" Ring	3205082E03
15	STRAP, Contact, Sen	4205575A01	90	SPRING, Compression	4105424F03
16	STRAP, Contact, Charge	4205283E01	91	RING, Retaining	4205463E02
17	STRAP, Contact	4205576A01	92	RECEPTACLE	0905677D02
18	INSULATOR, Contact	1405282E01	93	SCREW, Phillips; 0-80 x 1/8	0300139684
19	STRAP, Contact, Pos	4205269G01	94	CONTACT	4105197G03
20	STRAP, Contact, Pos	4205270G01	95	BLOCK	4605072E01
21	FUSE (F401)	6505214E01	96	CONTACT	4105197G01
22	RECTIFIER, Silicon (CR401)	4882466H13	97	WASHER	0400134190
23	INSULATOR, Paper	1405547G02	98	LATCH ASSY	NLN4181A
24	NAMEPLATE	3305869G01	99	SEAL "O" Ring	3205661G01
25	RECEPTACLE, Conn Assy	0105958C87	100	SWITCH, Rotary	4005119E01
26	CONN & Cable Assy	0105950G70	101	KNOB	3605254K05
27	ADHESIVE, Silicone Rubber	1110020B40	102	SWITCH, Rotary	4002348F01
28	LABEL, Patent	1305436E01	103	NUT, Special	0282653D05
29	COVER, Front, Short (PART OF ITEM 143)	1505323G01	104	PAD, Rubber	7583562H02
30	GASKET, Plug	3205315E01	105	BUSHING, Insulator	4305051E01
31	PLUG, Cover	3805115E01	106	ESCUTCHEON, 6-Freq	1302222F06
32	INSULATOR, Front Cover	1402447F01	107	SCREW, Jack	0310129A24
33	INSULATOR, Paper	1405547G01	108	KNOB, Control	3605649H01
34	COVER, Rear, Short	0105951E47	109	SCREW, Latch	0300139982
35	WASHER, Latch	0400120581	110	GLYPTOL	1100008675
36	SWITCH, Toggle, SPDT (S401)	4005061E01	111	WASHER, Nylon	0405935F01
37	GASKET, "O" Ring	3205082E01	112	KNOB, Volume	3605254K01
38	WASHER, Special	0405081E01	113	KNOB, Squelch	3605254K03
39	NUT, Mtg	0205050E03	114	SCREW, Set	0383174C02
40	ESCUTCHEON, Switch	1305057E07	115	WASHER, Teflon	0410058B19
41	KNOB, Switch	3605114E01	116	ANTENNA 403-512 MHz	NAE6050B
42	SCREW, Set	0383174C04	117	SWITCH, Toggle (S201)	4005123G01
43	COVER, Battery	1505697D01	118	GASKET, Frame	3205744J01
44	BUTTON	3805908D01	119	PAD	7583562H01
45	WASHER	0405910D01	120	MULTIFREQUENCY Bd. Assy	SEE NOTE
46	WASHER, Spring	0405316E01	121	ESCUTCHEON	1302213F04
47	LATCH	5505907D01	122	ESCUTCHEON	1302213F03
48	PAD	7505083E01	123	WASHER	3205385G01
49	ESCUTCHEON	1302222F04	124	SCREW, Captive	0305864D01
50	ESCUTCHEON	1302222F05	125	TRANSCEIVER Bd. Assy	SEE NOTE
51	COVER, Rear, Omni	1505943D01	126	PLATE, Information	5405870G01
52	PAD, Sponge	7505083E06	127	HOUSING, Sleeve, Extended	1502377F01
53	INSULATOR Back Cover	1402301F01	128	SCREW	0305493F01
54	WASHER, Seal	0484345A06	129	SCREW	0302376F01
55	SCREW, Captive	0305662D01	130	WASHER, Spring	0405314E03
56	COVER, Rear, Long	0105951E48	131	CLIP, Antenna	4205860D01
57			132	SCREW, Special	0305044E01
58	INSULATOR, Back Cover	1402301F02	133	POST, Guide	2902323F01
59	LATCH Assy	NLN4182A	134	NUT, Special	0282653D07
60	INSULATOR, Contact	1405359E01	135	SCREW, Guide	4605800E01
61	INTERCONNECT Bd Assy	SEE NOTE	136	OPTION POSITION	—
62	SCREW, Phillips; 2-56 x 3/16	0300138661	137	PLATE, Frequency	5405871G01
63	FRAME, Short	0705547D01	138	OPTION	—
64	FRAME, Long	0705640D01	139	ALT. OPTION POS'NS	—
65	GASKET, Frame	3205520G01	140	SCREW, Captive	4305237H01
66	BUSHING, Cover Mtg	4305661D01	141	COVER, Battery Assy	NLN4180A
67	POT, Cermet (R266)	1805333E01	142	COVER, Front, Long Assy	0105959D79
68	ESCUTCHEON	1302213F06	143	COVER, Front, Short Assy	0105959D78
69	NUT, Special	0282653D03	144	LEVER & Spring Assy	0105951D70
70	POT, Control Sw (R268)	1805370E04			
71	JACK, Micro (J202) SK4	0705786J01			
72	BUSHING, Shoulder	4305052E02			
73	NUT, Special	0205050E01			
74	DECAL	SEE NOTE			
75	LEVER (PART OF ITEM 144)	4505784D01			

