FUNCTIONAL DESCRIPTION

RF-CONTROL CHASSIS

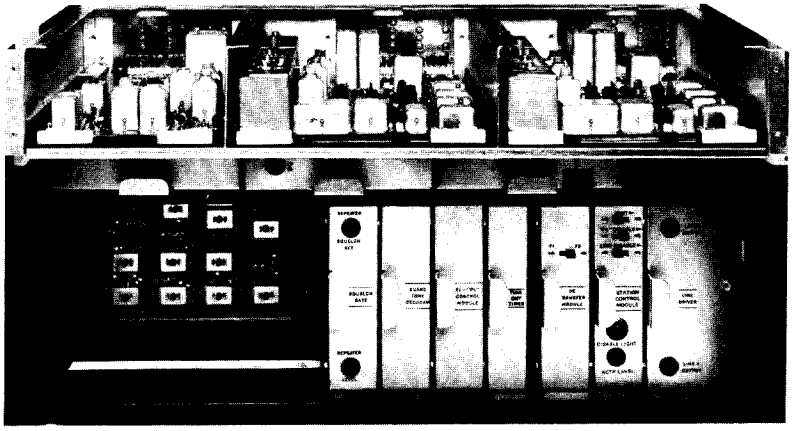
REMOTE CONTROL

AUDIO & SQUELCH

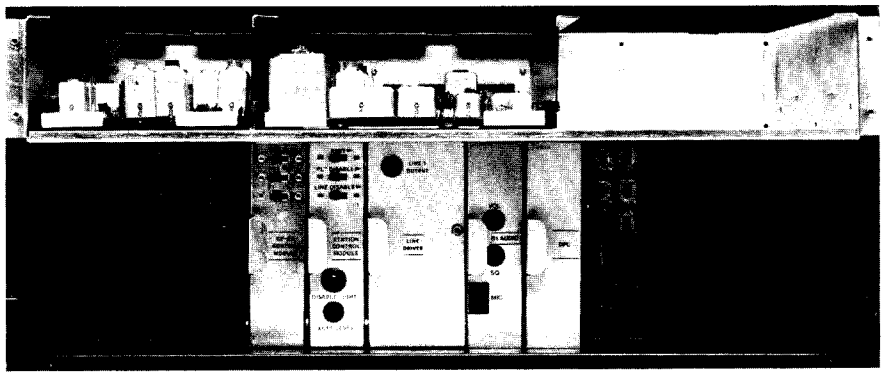
OPTIONAL EQUIPMENT

MOTOROLA INC.
Communications
Sector

RF-CONTROL CHASSIS
B VERSION



TYPICAL FULLY OPTIONABLE RF CONTROL CHASSIS FAEPS-34814-O (F592)



TYPICAL BASIC RF CONTROL CHASSIS FAEPS-34815-O (R592)

1. DESCRIPTION

Five RF-Control Chassis are described in this section (refer to the detail model breakdown chart). The BASIC rf control chassis uses a smaller Backplane Interconnect Board, with a maximum capacity of nine control and audio modules, one exciter, and one receiver. The FULLY OPTIONABLE RF-Control Chassis uses a larger Backplane Interconnect Board, with a maximum capacity of fifteen control and audio modules, one exciter, and two receivers.

The RF-Control Chassis mounts plug-in modules that perform control switching functions and audio processing for station operation. Nylon guide rails in the chassis align the modules with the mating connecting pins on the Backplane Interconnect Board, on the rear of the chassis.

MODEL	DESCRIPTION	TYPE OF STATION
TLN2472B	BASIC	BASIC
TLN2474B	FULLY OPTIONABLE	2-RCVR BASE
TLN2475B	FULLY OPTIONABLE	REPEATER (RT)

MOTOROLA
DETAIL MODEL
BREAKDOWN CHART FOR
MSR 2000
RF-CONTROL CHASSIS
(B VERSION)

CODE:

● = ONE ITEM SUPPLIED

TLN2472B	TLN2474B	TLN2475B	KIT	DESCRIPTION
●			TRN5081A	BASIC BACKPLANE INTERCONNECT BOARD
		●	TRN5083A	DUPLEX BACKPLANE INTERCONNECT BOARD
	●		TRN5084A	2-RCVR BACKPLANE INTERCONNECT BOARD
●			TRN5432A	BASIC HARDWARE KIT
	●		TRN5433A	1-RCVR & 4-FREQ HARDWARE KIT
		●	TRN5435A	DUPLEX HARDWARE KIT

BEPS-41674-0

2. APPLICATION

2.1 TONE OR DC REMOTE CONTROL

The RF-Control Chassis, together with the associated plug-in modules, permits a station to be operated from a remote location and performs various control or operational functions for the station. Tones or dc line currents generated at a remote location(s) are carried over wire line pairs to the station's RF-Control Chassis via the junction box, to implement the desired type of operation. The RF-Control Chassis and its modules convert the tones or dc line currents into switching functions to perform any or all of the operations listed in Tables 1, 2, and 3, depending on the modules used.

Table 1. DC Commands

DC Line Current (mA)	Operation
0	Transmitter standby, receiver operative
-2.5	PL disable (receiver)
-5.5	Mute receiver 2 audio
+5.5	Turn-on transmitter F1 oscillator; Select R1 receiver oscillator
-12.5	Turn-on transmitter F1 oscillator without PL modulation for paging (XMIT PL Inhibit)
+12.5	Turn-on transmitter F2 oscillator; Repeater turn-on; Select R2 receiver oscillator
12.5 (momentary)	Unmute receiver 2 audio

Table 2. Tone Commands

Tone Freq. (Hz)	Operation
2050	Disable receiver PL
1950	Transmit F1, or Select F1
1850	Transmit F2, or Select F2, or Transmit F1 w/o PL
1750	R2 Mute, or Receive F1*
1650	R2 Unmute or Receive F2*
1550	MAX Squelch, or Repeater OFF, or PL ON
1450	MIN Squelch, or Repeater ON, or PL OFF
1350	"Wild Card" ON #1, or Select F3
1250	"Wild Card" ON #2, or Select F4
1150	"Wild Card" ON #3
1050	"Wild Card" ON #4

*C2-R2 Receiver Frequency Selection

Table 3. Guard Tone

Tone Freq. (Hz)	Operation
2175	Function Tone Enable

2.2 PLUG-IN MODULES

All stations are equipped with plug-in exciter and receiver boards, and an R1 audio & squelch module. Coded squelch stations have an additional PL or DPL encoder-decoder module. Two receiver stations have an

additional plug-in receiver board and an R2 audio & squelch module.

All stations are also equipped with the following basic complement of control modules.

DC CONTROL
- DC Transfer Module
- Station Control Module
- Line Driver Module

TONE CONTROL
- Guard Tone Decoder Module
- F1 Tone Control
- F2, or C2-R2, Tone Control Module (2-Frequency Stations)
- Station Control Module
- Line Driver Module

Repeater stations are also equipped with a Squelch Gate Module and Time-Out Timer Module. Repeaters without wire line control may have the modules that are associated with line control operation omitted. All base and repeater stations have additional space provided for optional accessory modules.

3. SERVICE AND MAINTENANCE

3.1 LOCAL STATION OPERATION

WARNING

ALWAYS line disable this station when performing local maintenance duties. Failure to do so may result in personal injury or equipment damage. Selection of frequency by the remote control console momentarily keys this station even though the microphone push-to-talk switch has not been depressed. Upon completion of local testing, return the line disable switch to its normal position.

3.2 REMOVAL AND REPLACEMENT OF MODULES

Modules may be removed by simply pulling outward on the module, and may be replaced by pushing the module back into its position by its panel. The modules are labelled and the mounting positions are marked on the inside of the module housing and on the backplane interconnect board.

CAUTION

ALWAYS be sure of the correct module installation position before plugging a module into the RF-Control Chassis.

Technicians who service many of these stations may wish to carry spares and replace malfunctioning modules for immediate restoration of operation. The module may then be repaired at the shop and used as the next replacement spare.

NOTE

For proper operation, all jumper connections must be identical on modules that are removed and modules that are inserted before swapping can be successfully used as a troubleshooting technique.

3.3 INSTALLATION OF ADDITIONAL MODULES

When new functions (optional modules) are added, refer to the pertinent module section in this manual for proper jumpering information.

3.4 IN-CIRCUIT MODULE SERVICING

The Model TLN5935A Service Board Kit can be used to extend a control or audio module out of the front of the RF-Control Chassis. This provides access for service and maintenance without interrupting the power and signal connections.

If the service board kit is not available, the module can be plugged on to the rear of the backplane interconnect board. (Tilt the RF-Control Chassis forward to obtain access to the rear of the backplane interconnect board.)

CAUTION

Care must be taken to insert the module on to the correct connector by using the legend on the backplane. Match pin 1 of the module connector with pin 1 of the proper backplane connector. An outline of the front panel's position, with respect to the backplane connector is given as part of the backplane legend to assist proper insertion.

3.5 INTERCOM, OR METERING & INTERCOM

The Option C226 Series Service Intercom or Option C149 Series Metering and Intercom are optional accessories for remotely controlled *MSR 2000* base or repeater stations. Both of these accessory items facilitate testing, adjustment, and maintenance of the station. There is a specific version of these options available for any *MSR 2000* base or repeater station.

The speaker and test microphone may be used for two-way intercom between the station and the remote control console without keying the station transmitter. The speaker and microphone also may be used to locally op-

erate the station for "on-the-air" testing and maintenance. The NORMAL-INT switch (S1) selects the desired mode of operation; NORMAL for "on-the-air" testing and INT for intercom operation. The SPKR-OFF switch allows the speaker to be used during testing, or to be disabled when the station is unattended.

The intercom mode is operated by placing the NORMAL-INT switch (S1) in the INT position, the SPKR-OFF switch in the SPKR position, and depressing the microphone PTT button. Microphone audio is then routed, via the line driver, to the remote control console (over the control line). Microphone audio is also routed to the transmitter, however the INT PTT function does not key the transmitter. A message from the remote control console is applied to the speaker through the line driver and R1 audio & squelch modules.

When switch S1 is in the NORMAL position and the microphone PTT switch is activated, mic audio is again routed to the line driver. However, the line driver is inhibited under these conditions, which prevents line noise from being transmitted. Mic audio is applied to the exciter and the transmitter is keyed.

3.6 LOCAL OPERATING INSTRUCTIONS

3.6.1 Intercom

Step 1. Connect a test microphone to the microphone receptacle on the R1 audio & squelch module.

Step 2. Place the SPKR-OFF switch in the SPKR position.

Step 3. Place the NORMAL-INT switch in the INT position.

Step 4. The unit is now ready for intercom operation between the station and remote control point. Close the push-to-talk switch on the microphone and speak into the microphone to send a message. Release the button to listen; replies will be heard in the local speaker. The console operator at the remote point must also switch to an intercom mode to prevent keying the station during replies.

WARNING
Station should ALREADY be line disabled!

Step 5. Return the SPKR-OFF switch to the OFF position and return the NORMAL-INT switch to the INT position before leaving the station unattended.

3.6.2 "On-The-Air" Testing

Step 1. Connect a test microphone to the microphone receptacle on the R1 audio & squelch module.

Step 2. Place the SPKR-OFF switch in the SPKR position.

Step 3. Leave the NORMAL-INT switch in the NORMAL position.

Step 4. The unit is now ready for "on-the-air" testing. If the microphone push-to-talk switch is closed, the station's transmitter will be keyed. Speak into the microphone to transmit a message. Release the push-to-talk switch to listen. Receiver audio will be heard on the local speaker.

Step 5. Return the SPKR-OFF switch to the OFF position before leaving the station unattended.

3.6.3 Monitoring

To monitor audio quality, etc., place the SPKR-OFF switch in the SPKR position. Both receiver audio and line audio from the remote control point will be heard in the local speaker.

4. SPECIAL MODIFICATIONS

To change the Function Tone Decoder frequencies from the standard value, change those parts indicated in Figure 1 and Table 4.

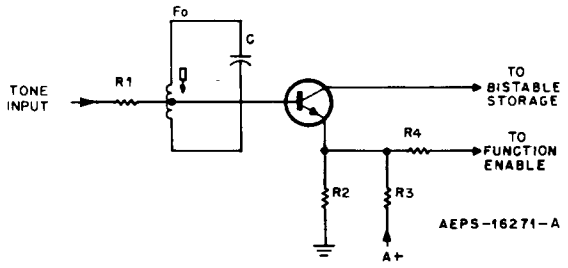


Figure 1. Typical Function Tone Detector

Table 4. Function Tone Modification Table

To Change Function Tone Tank Freq. To	R1 ±5% (Ohms)	R2 ±5% (Ohms)	R3 ±1% (Ohms)	R4 ±1% (Ohms)	C1 ±2% (uF)	Capacitor Part No.
2050 Hz	27k, 33k*	1.5k	2.7k**	221	.0056	8-84326A13
1950 Hz	22k, 27k*	1k	2.2k**	221	.0062	8-84326A14
1850 Hz	18k, 22k*	1.5k	2.7k**	221	.0069	8-84326A15
1750 Hz	22k	1k	2.43k	221	.0077	8-84326A16
1650 Hz	18k	1k	2.21k	221	.00865	8-84326A17
1550 Hz	15k	1k	2.21k	221	.0098	8-84326A18
1450 Hz	12k	1k	2.21k	221	.0112	8-84326A19
1350 Hz	10k	1k	2.21k	221	.0129	8-84326A20
1250 Hz	9.1k	1k	2.43k	221	.015	8-84326A21
1150 Hz	8.2k	1k	2.43k	221	.0178	8-84326A22
1050 Hz	6.8k	1k	2.43k	221	.0213	8-84326A23

* Values for "Wild Card" only.
** ±5% is allowable.

Example: Changing "Wild Card" frequency to 1850 Hz

Freq.	R1	R2	R3	R4	C1
1850 Hz	22k ±5%	1.5k ±2%	2.7k ±5%	221 ±1%	.0069 uF ±2%

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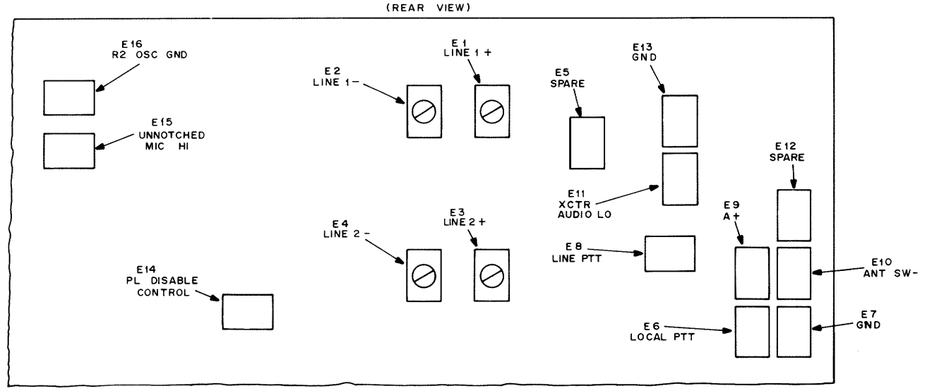
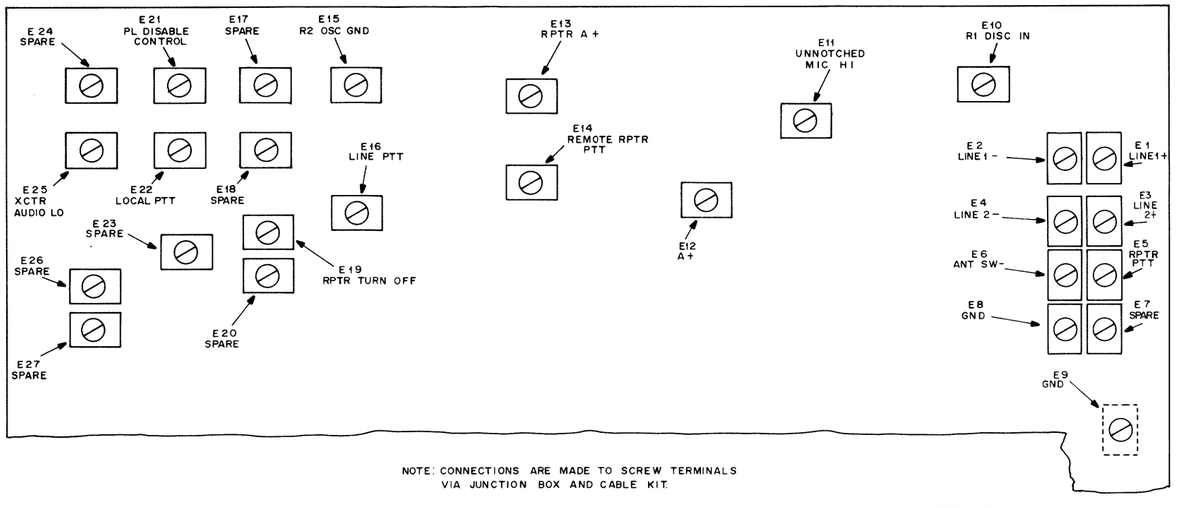
BASIC BACKPLANE INTERCONNECT BOARD
EXTERNAL CONNECTION DETAIL



NOTE: CONNECTIONS ARE MADE TO SCREW TERMINALS
VIA JUNCTION BOX AND CABLE KIT

CEPS-34770-O

FULLY OPTIONABLE BACKPLANE INTERCONNECT BOARD
EXTERNAL CONNECTION DETAIL



NOTE: CONNECTIONS ARE MADE TO SCREW TERMINALS
VIA JUNCTION BOX AND CABLE KIT

CEPS-34771-O

parts list

legend

reference symbol suffix	application
No Suffix	All Models
A	TRN5081A
C	TRN5083A
D	TRN5084A

This parts list covers 3 models of the Backplane Interconnect Board. Where differences exist, a letter code is added to the reference symbol to indicate the applicable unit.

TRN5081A Basic Backplane Interconnect Board Kit
TRN5083A Duplex Backplane Interconnect Board Kit
TRN5084A 2-Receiver Backplane Interconnect Board Kit PL-9796-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		assembly:
A901 (C)	1-80731D91	duplex filter; includes: ref. items C901 thru 916, L901 thru 916, J102
		capacitor, fixed: ±10%; 100 V; unless otherwise stated
C1 thru 16 (A, D)	21-11015B13	.001 uF
C17 thru 29	21-11015B13	.001 uF
C30 thru 33 (C, D)	21-11015B05	220 pF
C34 thru 37 (D)	21-11015B05	220 pF
C38 thru 50 (D)	21-11015B13	.001 uF
C901 thru 916 (C)	21-82900N01	feedthru, 470 pF ±20%; 500 V
		diode: (see note)
CR1	48-83654H01	silicon
		contact:
E1 thru 4	—	consists of:
	29-83362G01	TERMINAL, screw
	3-84482M01	SCREW, machine
E5 thru 26 (C, D)	—	consists of:
	—	consists of:
		coil, rf:
L901 thru 916 (C)	24-83961B01	choke, 3 turns
		connector, receptacle:
J1	—	consists of:
	28-84247N01	MALE; 16-contact
J2, 3, 4	9-84207B01	female; 7-contact
J5	—	consists of:
	28-83496F20	MALE; 6-contact
	28-83496F25	MALE; 8-contact
J6 (D)	9-84207B01	female; 7-contact
J102	28-83496F22	male; 10-contact; 2 used
J202	28-83496F22	male; 10-contact; 2 used
J302 (D)	28-83496F22	male; 10-contact; 2 used
		resistor, fixed:
R1	17-83122D09	22 ±5%; 3 W
R2	6-126A23	82 ±5%; 1 W
		voltage regulator: (see note)
VR1	48-83461E34	Zener, 5.6 V
		non-referenced items
	1-80755D01	DUPLEX FILTER BOARD (p/o ref. item A901) includes ref. items L901 thru 916 (TRN5083A)
	1-80755D02	DUPLEX FEEDTHRU ASSEMBLY (p/o ref. item A901) includes ref. item C901 thru 916 (TRN5083A)
	3-134184	SCREW, tapping: 4-40 x 5/16"; 6 used (TRN5083A)
	3-84482M01	SCREW, machine; 6-32 x 5/16";16 used (TRN5081A); 27 used (TRN5082A, 5083A, 5084A)
	28-83496F23	CONNECTOR, male; 12-contact; (PCB Edge Connectors)18 used (TRN5081A); 30 used (TRN5082A, 5083A, 5084A)
	43-84229N01	SPACER, threaded; 3 used
	26-82896N01	SHIELD, coil

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

TRN5081B Basic Backplane Interconnect Board PL-9676-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: ±10%; 100 V: unless otherwise stated
C1 thru 29	21-11015B13	.001 uF
		diode: (see note)
CR1	48-83654H01	silicon
		contact, assembly:
E1 thru 4	1-80756D87	consists of:
	29-83362G01	TERMINAL, screw: 6-32"; 4 used
	3-84482M01	SCREW machine: 6-32 x 5/16"; 4 used
		connector, receptacle:
J1	28-84247N01	male; 16-contact
J2, 3, 4	9-84207B01	female; 7-contact
J5	—	consists of:
	28-83496F20	MALE; 6-contact
	28-83496F25	MALE; 8-contact
J102, 202	28-83828P01	male; 20-contact (PCB edge connector)
		resistor, fixed:
R2	6-126A23	82 ±5%; 1 W
		mechanical parts
	3-134184	SCREW, tapping: 4-40 x 5/16"; 4 used
	28-83828P02	CONNECTOR, male; 24-contact (edge connector); 9 used

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

TRN5433A 1-Receiver Hardware Kit PL-9797-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	3-134185	SCREW, tapping: 6-32 x 1/4"; 4 used
	3-134186	SCREW, tapping: 6-32 x 5/16"
	3-135506	SCREW, tapping: 6-32 x 1/4"; 23 used
	27-82850N01	CHASSIS, control
	27-82876N01	CHASSIS, card cage
	39-82857N01	CONTACT, ground; 4 used
	42-82888N01	CLIP, detent; 2 used
	45-83914G01	GUIDE, card; 10 used
	46-82856N01	GUIDE, circuit board; 4 used
	46-82877N01	GUIDE, circuit board mounting; 2 used (TRN5433A, 5435A); 6 used (TRN5434A)
	54-83570K01	LABEL, chassis

TRN5432A Basic Hardware Kit PL-9798-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	3-134185	SCREW, tapping: 6-32 x 1/4"; 6 used
	3-135506	SCREW, tapping: 6-32 x 1/4"; 15 used
	27-82850N02	CHASSIS, control
	27-82885N01	CHASSIS, card cage
	39-82857N01	CONTAC, ground; 4 used
	42-82888N01	CLIP, detent; 2 used
	45-83914G01	GUIDE, card; 12 used
	46-82856N01	GUIDE, circuit board; 4 used
	54-83570K09	LABEL, chassis

External Connection Details and Parts Lists
Motorola No. ***PEPS-42062-O***
(Sheet 1 of 5)
11/1/85- UP

RF-CONTROL CHASSIS (B VERSION)

DESCRIPTION–MODULE	REEDS POSITION (PP/EPS-34542-O)	GROUND: LINE DRIVER GROUND; VR1 ANODE; ALERT TONE GND; SPKR	A+; ANT. RELAY PROTECT CKT. (CR1 ANODE & R2)	ANT. SW – 1; LINE DRIVER DISABLE NO. 1	KEY INHIBIT	XCTR; SPKR LEVEL	KEYED A ; RCVR UN SQ INDICATOR	KEYED A+	PTT CONTROL	LOCAL PTT	XMIT OSC GND; CHAN ELEM GND	EXCITER AUDIO LO	DELAYED KEYED A+	LINE PTT	UNNOTCHED MIC HI	LINE +; XFMR +	LINE –; XFMR –	LINE DISABLE	PL DISABLE CONTROL	PL DISABLE	R1 DISC INPUT	R1 DISC OUT; DISC
F2 TONE CONTROL (3–VERSIONS)	1	1, 16	12						20		2											3
GUARD TONE DECODER (1–VERSION)	2	1, 17	12								2	23	6	16 *				7				
F1 TONE CONTROL (2–VERSIONS)	3	1, 4	12					8	23		2	17	10	19	18				21 *			
DC TRANSFER (4–VERSIONS)	4	1	12						6		15		17	10 *		3	4	18	2 *			
STATION CONTROL (1–VERSION)	5	1, 24	12	2 *	3	4	7 *	8 *	10 *	5 *		11	13	14	16 *			19	20	23 *	21	22 *
LINE DRIVER (2–VERSIONS)	6	1	12	9		24 *	4 *									16 *	21 *					
R1 AUDIO & SQUELCH (2–VERSIONS)	7	1, 9, 14, 23, 24	12				21			4		19			15 *					2	8 *	
CODED SQUELCH (4–VERSIONS)	8	1, 16, 18	12				3	13				20	7 *								17	
TIME–OUT TIMER (1–VERSION)	9	1	12		4 *					5				6								
EXCITER	J102	1, 8, 10, 13	20				7				8 *	11 *										
RECEIVER 1	J202	1, 4, 6, 8, 10, 13, 18	9										16									
RF–CONTROL CHASSIS CONNECTOR	J1	2, 6, 8, 12	3, 4, 5	16			14															
CONTROL METERING CONNECTOR	J2	2, 3, 4, 6								5					7							
EXCITER METERING CONNECTOR	J3	4, 5, 6, 7																				
RECEIVER 1 METERING CONNECTOR	J4	4, 6, 7																				
FACTORY TEST CONNECTOR	J5	14	6							7		4			11				13			
EXTERNAL SCREW TERMINALS	E	7, 13	9	10						6		11		8	15				14			
JUMPER WIRES (BOTH ENDS)	JU	5						2							1							

DESCRIPTION–MODULE	REEDS POSITION	F1 OSC GND; F1 CHAN ELEM	F2 OSC GND; F2 CHAN ELEM	9.4 V DC	DC LINE DISABLE; LOC XMTR DEFEAT	R2 MUTE; PAGE (XMIT PL INHIBIT)	R1 OSC GND	R2 OSC GND	LINE DRIVER INPUT (NOTCHED RCVR AND/OR INTERCOM AUDIO)	R1 INPUT; LINE DRIVER OUTPUT (UNNOTCHED RCVR AND/OR INTERCOM FED)	LOCAL SPKR	TONE CONTROL IN	R1 AUDIO INPUT	R1 SQ CONT/L01 R1 SQ INDICATE	KEYED A-- ENABLE	SW 9.6 V DC	LOCAL F1	FUNCTION TONE HI	DECODER BIAS SW; LINE DRIVER R2 AUDIO OUTPUT	FUNCTION ENABLE	EXCITER AUDIO HI	PL INDICATOR; SW A+	XMIT PL INHIBIT, LINE DRIVER DISABLE NO.2	PL TONE–DPL CODE
F2 TONE CONTROL (3–VERSIONS)	1	6	4 *			7 *	15 *	17 *							5 *	8	10 *	11 *		13 *			14 *	
GUARD TONE DECODER (1–VERSION)	2	3			13 *						9							11 *	15 *					
F1 TONE CONTROL (2–VERSIONS)	3	3 *		11	16				7 *	6					5 *	9	13	14	15	20 *	22 *			
DC TRANSFER (4–VERSIONS)	4	14 *	16 *	5	19	20 *	21 *	22 *							7 *									
STATION CONTROL (1–VERSION)	5														9									
LINE DRIVER (2–VERSIONS)	6					17			3	6 *	23 *	10 *	13	18					11				5	
R1 AUDIO & SQUELCH (2–VERSIONS)	7			11						15 *	18		17 *	20								3		
CODED SQUELCH (4–VERSIONS)	8			10																		5 *	14	21 *
TIME–OUT TIMER (1–VERSION)	9																							
EXCITER	J102	5	4	9				14													12			
RECEIVER 1	J202			7			15																	
RF–CONTROL CHASSIS CONNECTOR	J1			1 *																				
CONTROL METERING CONNECTOR	J2																							
EXCITER METERING CONNECTOR	J3																							
RECEIVER 1 METERING CONNECTOR	J4																							
FACTORY TEST CONNECTOR	J5																						2	
EXTERNAL SCREW TERMINALS	E							16																
JUMPER WIRES (BOTH ENDS)	JU	4				3				6					4						1, 7		3	

DESCRIPTION–MODULE	REEDS POSITION	SPKR +	CONTROL LINE 1+	CONTROL LINE 1–	CONTROL LINE 2+	CONTROL LINE 2–	RCVR 1 DETECTED AUDIO	CONTROL VOLTAGE (POWER)	XMIT SW 9.3 V	RCVR 1 M1	RCVR1 M2	RCVR 1 M3	XMTR M1	XMTR M2	XMTR M3	LOW BAND RCVR 1; METERING	LOW BAND RCVR 1 EXTENDER ON–OFF	RCVR 1 AUDIO PL FILTER INPUT	RCVR 1 AUDIO PL FILTER OUTPUT	BATTERY ALERT TONE	ANT. SW + (CR1 CATHODE & R2)	SPARE	PLUG KEY	INTERCOM PTT
F2 TONE CONTROL (3–VERSIONS)	1																							
GUARD TONE DECODER (1–VERSION)	2																							
F1 TONE CONTROL (2–VERSIONS)	3																							
DC TRANSFER (4–VERSIONS)	4																							
STATION CONTROL (1–VERSION)	5																							
LINE DRIVER (2–VERSIONS)	6		19 *	20	8	7																		
R1 AUDIO & SQUELCH (2–VERSIONS)	7	22 *					7											10 *	13					5
CODED SQUELCH (4–VERSIONS)	8																	15	19 *					
TIME–OUT TIMER (1–VERSION)	9																							
EXCITER	J102							16 *	14 *				17 *	18 *	19 *									
RECEIVER 1	J202						5 *			2 *	3 *	17 *				20 *	19							
RF–CONTROL CHASSIS CONNECTOR	J1							9	10											7 *	15 *	[illegible]		
CONTROL METERING CONNECTOR	J2																							
EXCITER METERING CONNECTOR	J3												1	2	3									
RECEIVER 1 METERING CONNECTOR	J4									1	2	3				5								
FACTORY TEST CONNECTOR	J5	15 *	10 *	12	5	1	8															3	9	
EXTERNAL SCREW TERMINALS	E		1 *	2 *	3 *	4 *																5, 12		
JUMPER WIRES (BOTH ENDS)	JU																5 *			6				

EEPS 34519 A

HOW TO READ CHART

1. This chart shows all interconnections made by the plating on both sides of the interconnect board and by wire jumpers.
2. All pin numbers in each vertical column are electrically common (interconnected by circuit board plating).
3. To trace interconnections from any starting point to all other common points proceed as follows:

   Step 1. Find the module position or connector in the left hand column of the chart.

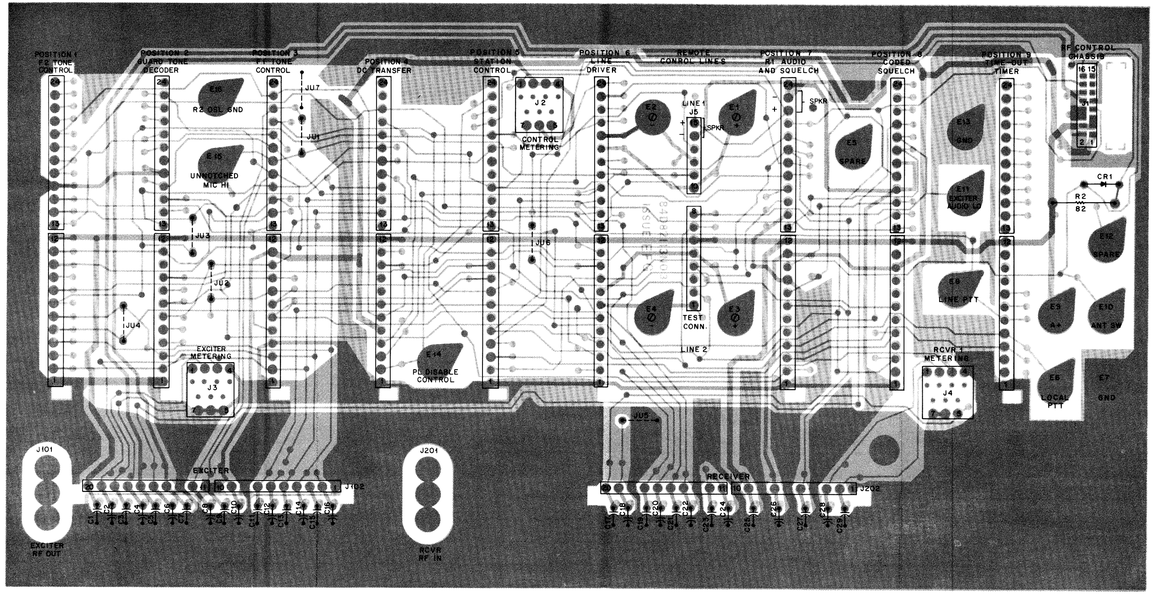
   Step 2. Find the desired pin number. All pins of specific module or connector are listed in the low that extends to the right.

   Step 3. oNote the function of the desired pin. The function is listed at the top of the column in which the pin number appears. All othr pins lsted in the same column have the same function. Trace back to the left hand column to find the module or connector number. (See Example).
4. (*) indicates function source

EXAMPLE:
Station control module (module position 5), pin 10 has a function of PTT Control, which is interconnected to DC Transfer module position 4 (pin 6), F1 Tone Decoder module position 3 (pin 23), and F2 Tone Decoder module positon 1 (pin 20).

Basic Interconnect Chart
Motorola No. PEPS-42062-O
(Sheet 2 of 5)
11/1/85- UP

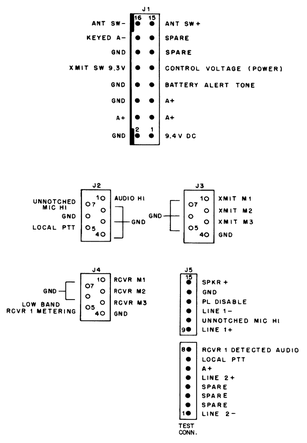
BASIC BACKPLANE INTERCONNECT BOARD



SHOWN FROM SOLDER SIDE

SOLDER SIDE = BD-DEPS-41759-O
COMPONENT SIDE = BD-DEPS-41761-O
OL-EEPS-41758-O

CONNECTOR PIN DESIGNATIONS



Jumper Table

Type of Station	Jumper						
	JU1	JU2	JU3	JU4	JU5	JU6	JU7
Remote Base-DC Controlled	IN	A	B	OUT	C	D	OUT
Remote Base-Tone Controlled	OUT	A	B	OUT	C	D	OUT

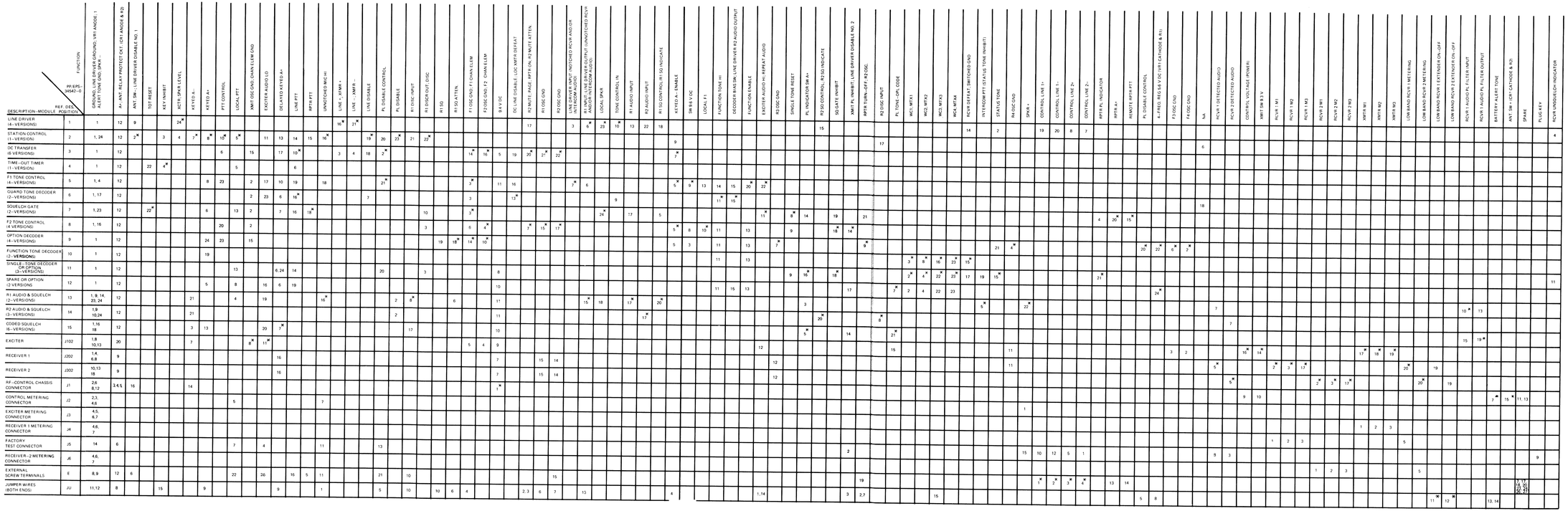
A. Out for *Private-Line* Squelch, In for Carrier Squelch
B. Normally Out, In for Paging Option
C. Normally Out, In for Low Band Receiver
D. Normally Out, In for Battery Alert Tone

Interconnect Board Position Usage Table

Position	Use	Module	Description
1	F2 Tone Control (3 Versions)	TLN2444A TLN2449A TRN5325A	C2-R2 Paging F2-Control
2	Guard Tone Decoder	TLN2443A	Standard
3	F1 Tone Control (2 Versions)	TRN5320A TRN5322A	F1-PL F1-CS
4	DC Transfer (4 Versions)	TRN5239A TRN5240A TRN5254A TRN5255A	Paging F1-PL F1-CS C2-R2
5	Station Control	TRN5321	Station Control
6	Line Driver (2 Versions)	TRN5235A TRN5236A	4-Wire 2-Wire
7	R1 Audio and Squelch (2 Versions)	TRN5068A TRN5069A	Without Intercom With Intercom
8	Coded Squelch (4 Versions)	TRN5074A TRN5075A TRN5077A TRN5078A	Simplex TA RA, PL Simplex TA RB, PL Simplex TA RA, DPL Simplex TA RB, DPL
9	Time-Out Timer	TRN5295A	Time-Out Timer

Basic Backplane Interconnect Circuit Bard Detail
Motorola No. PEPS-42062-O
(Sheet 3 of 5)
11/1/85-UP

RF-CONTROL CHASSIS (B VERSION)



HOW TO READ CHART

1. This chart shows all interconnections made by the plating on both sides of the interconnect board and by wire jumpers.
2. All pin numbers in each vertical column are electrically common (interconnected by circuit board plating).
3. To trace interconnections from any starting point to all other common points proceed as follows:

   Step 1. Find the module position or connector in the left hand column of the chart.

   Step 2. Find the desired pin number. All pins of specific module or connector are listed in the low that extends to the right.

   Step 3. oNote the function of the desired pin. The function is listed at the top of the column in which the pin number appears. All othr pins listed in the same column have the same function. Trace back to the left hand column to find the module or connector number. (See Example).

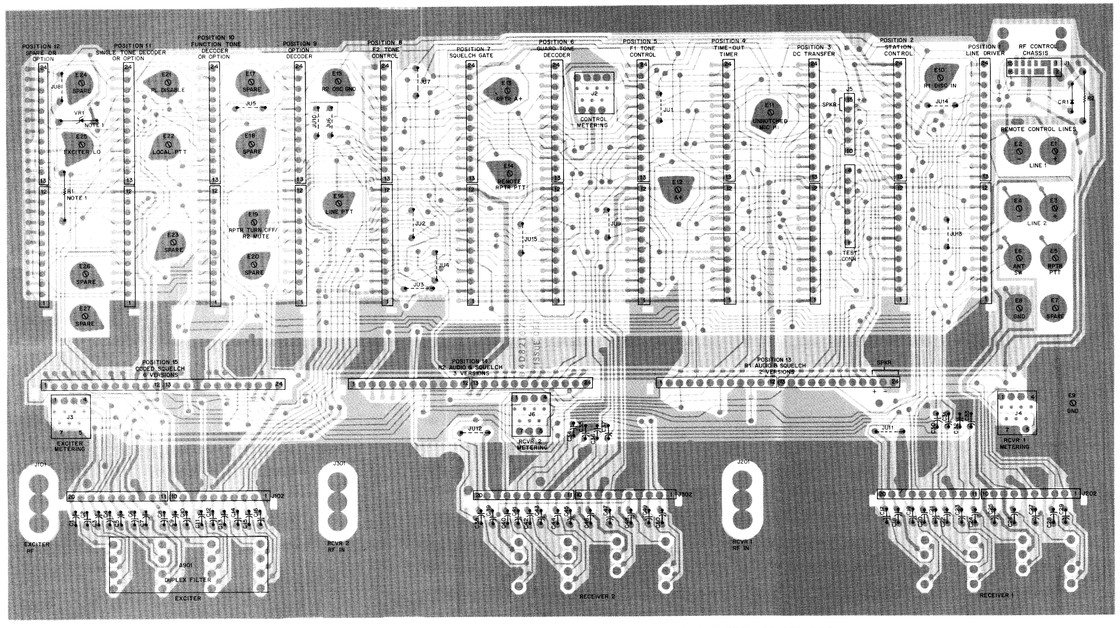
4. (*) indicates function source.
5. NA = Not Assigned (Plating exists between points but not used.)

EXAMPLE:
Station control module (module position 2), pin 10 has a function of PTT Control, which is interconnected to DC Transfer module position 3 (pin 6), F1 Tone Decoder module position 5 (pin 23), F2 Tone Decoder module position 8 (pin 20), and OPTION Decoder position 9 (pin 23).

Fully Optionable Interconnect Chart
Motorola No. PEPS-42062-O
(Sheet 4 of 5)
11/1/85-UP

EEPS-34523-A

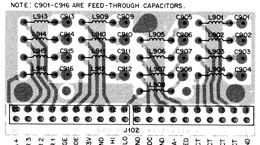
FULLY OPTIONABLE BACKPLANE INTERCONNECT BOARD



SOLDER SIDE - BD-EEPS-40483-O
COMPONENT SIDE - BD-EEPS-40484-O
OL-EEPS-40485-O

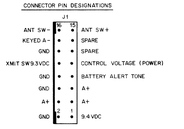
SHOWN FROM SOLDER SIDE

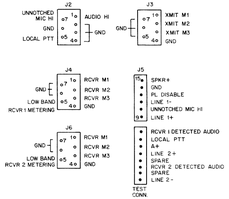
NOTE: C901-C916 ARE FEED-THROUGH CAPACITORS.



SHOWN FROM SOLDER SIDE

CONNECTOR PIN DESIGNATIONS





Jumper Table

Type of Station	J1	JU2	JU3	JU4	JU5	JU6	JU7	JU8	JU9	JU10	JU11	JU12	JU13	JU14	JU15
Base-DC Control	N	OUT	IN	OUT	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT
Base-Tone Control	C	OUT	OUT	OUT	C	C	C	OUT	D	E	F	G	H	H	OUT
RT RPTR-Non Wireline	N	OUT	OUT	IN	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT
RT RPTR-DC Control	N	A	B	OUT	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT
RT RPTR-Tone Control	C	OUT	OUT												
RA RPTR	N	OUT	OUT	IN	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT
RA Base-DC Control	N	OUT	OUT	IN	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT
RA Base-Tone Control	C	OUT	OUT	OUT	IN	OUT	OUT	OUT	D	E	F	G	H	H	OUT

A. JU2 Normally OUT, IN when TLN5257A RPTR Control Module Used.
B. JU3 Normally IN, OUT when Option C143 (Remote RPTR Control) Used.
C. Normally, JU5 IN and JU6 and 7 OUT, JU5 OUT and JU6 and JU7 IN for 4-Freq. Receive and Transmit Operation.
D. JU9 IN for Carrier Squelch and DPL, OUT for PL.
E. JU10 Normally OUT; IN when Option C13 (Remote Squelch Control) Used.
F. JU11 Normally OUT; IN for Low Band RCVR 1.
G. JU12 Normally OUT; IN for Low Band RCVR 2.
H. JU13 and JU14 Normally OUT, except as follows:
   1. If a normal base station with battery alert tone is used, JU13 is IN and JU14 is OUT.
   2. If a RPTR station with battery alert tone is used, JU14 is IN and JU13 is OUT.

NOTES:

1. Diode VR1 and resistor R1 are part of TRN5084A fully optionable Backplane Interconnect Board, used only with 4-freq. stations.
2. Unique control modules employed for either *Spectra* †AC, Multi-PL, or RA Base Options Functional Operation.

Interconnect Board Position Usage Table

Position	Use	Module	Description
1	Line Driver (4-Versions) Note 2	TRN5235A TRN5236A TRN5237A TRN5294A	4 Wire-2 RCVR 2 Wire-1 RCVR 2 Wire-2 RCVR 4 Wire-*Spectra*-†AC
2	Station Control	TRN5321A	Station Control
3	DC Transfer (6-Versions)	TRN5239A TRN5240A TRN5254A TRN5255A TRN5256A TRN5257A	Paging F1-PL F1-CS C2-R2 F2-R2 Mute RPTR Set Up
4	Time-Out Timer	TRN5295A	Time-Out Timer
5	F1 Tone Control (4-Versions)	TRN5320A TRN5322A TRN5327A TRN5328A	F1-PL F1-CS F1-CS, 4-Freq. F1-PL, 4-Freq.
6	Guard Tone Decoder (2-Versions) Note 2	TLN2443A TLN2450A	
7	Squelch Gate (2-Versions) Note 2	TRN5324A TRN5331A	Standard *Spectra*-†AC
8	F2 Tone Control (4-Versions)	TLN2444A TLN2449A TRN5325A TRN5326A	C2-R2 Paging F2-Control F2-R2 Mute
9	Option Decoder (4-Versions)	TLN2445A TLN2446A TLN2447A TRN5296A	Squelch Control RPTR Control PL Control 4-Freq. Control
10	Function Tone Decoder (2-Versions) Note 2	TLN2448A TRN5330A	"Wild Card" Control Multi-PL Matrix Control
11	Single Tone Decoder or Option (3-Versions) Note 2	TLN2442A TLN5293A TRN5329A	Single Tone Decoder *Spectra*-†AC Encoder Multi-PL Decoder
12	Spare or Option (2-Versions) Note 2	Spare TRN5292A	Spare Multi-PL Encoder
13	RCVR 1 Audio & Squelch (2-Versions)	TRN5068A TRN5069A	Without Intercom With Intercom
14	RCVR 2 Audio & Squelch (3-Versions)	TRN5070A TRN5071A TRN5072A	R2-PL R2-CS R2-DPL
15	Coded Squelch (6-Versions)	TRN5073A TRN5074A TRN5075A TRN5076A TRN5077A TRN5078A	Duplex TARB, PL Simplex TARA, PL Simplex TARB, PL Duplex TARB, DPL Simplex TARA, DPL Simplex TARB, DPL

Fully Optional Backplane Interconnect and Duplex Filter Circuit Board Detail
Motorola No. PEPS-42062-O
(Sheet 5 of 5)
11/1/85- UP