MTR300 MOUNTAIN TOP REPEATER

MODELS MBC33/34CKA-SERIES

INSTALLATION MANUAL

68P02900A35

MOTOROLA *Canada Limited*
COMMUNICATIONS DIVISION
3125 Steeles Avenue East, Willowdale, Ontario M2H 2H6

MIP 1259B

MODEL COMPLEMENT
MTR300 VHF

KIT	KIT DESCRIPTION	MBC33CKA1103AT 136-174 MHZ CS 5 WATT	MBC33CKA3103AT 136-174 MHZ PL 5 WATT
VRD1021A	Receiver 136-150.8 MHz CS	*	
VRD1022A	Receiver 150.8-162 MHz CS	*	
VRD1023A	Receiver 162-174 MHz CS	*	
VTD1001A	Transmitter 136-150.8 MHz	*	
VTD1002A	Transmitter 150.8-162 MHz	*	
VTD1003A	Transmitter 162-174 MHz	*	
VRD1051A	Receiver 136-150.8 MHz PL		*
VRD1052A	Receiver 150.8-162 MHz PL		*
VRD1053A	Receiver 162-174 MHz PL		*
VTD1021A	Transmitter 136-150.8 MHz PL		*
VTD1022A	Transmitter 150.8-162 MHz PL		*
VTD1023A	Transmitter 162-174 MHz PL		*
VBN4010A	Packing Kit	1	1
VHN4010A	Housing Kit	1	1
VKN4116A	DC Cable Kit	1	1
VGN4001A	1 Unit Blank Panel	2	2
VGN4002A	2 Unit Blank Panel	2	2
VLN4490A	Mic Clip Panel	1	1
VLN4487A	Tuning Tool Kit	1	1
VLN4488A	Control Module CS	1	
VLN1082A	Control Module PL		1
VLN4489A	Extender Card	1	1
KXN1040SP5	Receiver Channel Element	1	1
KXN1099A	Transmitter Channel Element	1	1
68P02900A35	Manual, Installation	1	1
VLN4443A	Label Kit	1	1
NFN6010A	PL Filter		2

* One Item Supplied Dependent Upon Frequency

MODEL COMPLEMENT
MBC34CKA-SERIES

KIT	KIT DESCRIPTION	MBC34CKA1103AT 403-430 MHZ 440-470 MHZ CS	MBC34CKA3103AT 403-430 MHZ 440-470 MHZ PL
VRE1021A	Receiver 403-430 MHz CS	*	
VRE1022A	Receiver 440-470 MHz CS	*	
VTE1021A	Transmitter 403-430 MHz CS	*	
VTE1022A	Transmitter 440-470 MHz CS	*	
VRE1041A	Receiver 403-430 MHz PL		*
VRE1042A	Receiver 440-470 MHz PL		*
VTE1041A	Transmitter 403-430 MHz PL		*
VTE1042A	Transmitter 440-470 MHz PL		*
KXN1039SP8	Rx Channel Element	1	1
KXN1039SP11	Tx Channel Element	1	1
VBN4010A	Packing Kit	1	1
VHN4010A	Housing Kit	1	1
VKN4116A	DC Cable Kit	1	1
VGN4001A	1 Unit Blank Panel	2	2
VGN4002A	2 Unit Blank Panel	2	2
VLN4490A	Mic Clip Panel	1	1
VLN4487A	Tuning Tool Kit	1	1
VLN4488A	Control Module (CS)	1	
VLN1082A	Control Module (PL)		1
VLN4489A	Extender Card	1	1
68P02900A35	Manual, Installation	1	1
VLN4443A	Label Kit	1	1
NFN6010A	PL Filter		2

* One Item Supplied Dependent Upon Frequency

OPTIONS COMPLEMENT

MTR300

OPTION NO.	DESCRIPTION	ADD	DELETE	COMMENT
MBC11AD	ADD TIME-OUT-TIMER	VLN4491A	VGN4001A	ADD TIME-OUT-TIMER DELETE 1 UNIT PANEL
MBC113AB	ADD MICROPHONE	TMN6071A		ADD MICROPHONE
MBC149DA	ADD METER KIT	VLN4492A	VGN4002A	ADD METER, DELETE 2 UNIT PANEL
MBC187AA	ADD RA BACK-TO-BACK CABLE	VKN4117A		ADD RA CABLE KIT
MBC226AL	ADD SPEAKER KIT	VSN4008A	VGN4002A	ADD SPEAKER, DELETE 2 UNIT PANEL
MBC576AE THRU-AY	ADD SINGLETONE DECODER	VLN4493A VLN4545*	VGN4001A	ADD S.T. DECODER, DELETE 1 UNIT PANEL
MBC593AA	ADD VHF SIMPLEX KIT	VKN4118A (2) VLN4494A VLN1077A		ADD RELAY, CABLES AND HARDWARE
MBC593AB	ADD UHF SIMPLEX KIT	VKN4119A (2) VLN4494A VLN1077A		ADD RELAY, CABLES AND HARDWARE
MBC594AA	ADD ENVIRONMENTAL TEST			ADD SPECIAL TESTING
MBC697AA MBC697AB	ADD FCC LABELS	VLN4438A	VLN4443A	ADD FCC LABELS, DELETE DOC LABELS

* VLN4545 Kit used, depends on frequency.

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MTR300 MOUNTAIN TOP REPEATER

MODELS MBC33/34CKA-SERIES

(Ref. Drawings 63D06523S, 63C06524S, 31H00481S)

GENERAL

The Motorola Mountain Top Repeater is a compact battery powered radio unit operating in the 136-174MHz, 403-430MHz or 450-470MHz frequency ranges. This unit features low standby current drain and it is designed for unattended operation at remote sites without domestic AC power. The nominal battery voltage required is 10.2 volts, which is typically supplied by battery or solar cell sources.

Moisture proof housings are recommended at all remote installations where the temperature and humidity are uncontrolled and can fluctuate widely.

Any correspondence or communication in relation to this equipment must include complete model and serial numbers.

Complete service manuals for the Mountain Top Repeater are available, in addition to this installation manual.

STANDARD FEATURES

The MTR300 station is a "private-line" or "carrier-squelch" operated radio unit incorporating a receive module, transmit module and a repeater control module in a 19 inch rack mounting chassis. Connection facilities for antenna/duplexer and audio/control are provided by two 50 ohm connectors and two multi-pin connectors at the rear of the chassis.

The Sensitron receiver utilizes Monolithic crystal filters and hybrid technology to eliminate all I-F and discriminator tuning adjustments. Only the RF circuits require tuning.

STANDARD FEATURES (continued)

The transmitter contains a phase-locked-loop circuit to generate the carrier frequency without need for multiplication in the RF amplifiers. This reduces transmitter alignment and adjustments to a few simple steps, i.e., set the power output, warp the channel elements onto frequency and set the deviation.

In both receiver and transmitter modules, all functional circuit stages are in hybrid modules which are plugged into the four layer receive and transmit circuit boards.

The repeater control module contains voltage regulators to protect the receiver from high battery voltages and to maintain stable operating conditions, a squelch "AND" PL gate on PL models, and audio circuitry for repeat operation. Facilities are included for four wire transmit, four wire receive and test microphone operation.

OPTIONAL FEATURES

MBC11 Time-Out Timer

This option consists of a single-unit module that plugs into a dedicated slot in the MTR300 station. It limits all transmissions to one of four pre-set limits (1, 2, 4 or 8 minutes), which are jumper-selectable.

MBC113 Microphone

This option adds a detachable palm-type microphone, which can be hung up for storage on a microphone clip provided on all stations. The microphone, in conjunction with the optional speaker, allows service personnel to communicate to mobile or fixed stations using the MTR300 station.

MBC226 Speaker

This option adds a speaker module to the station to allow service personnel to monitor received signals. A power-off switch with indicator is provided to eliminate unnecessary power drain when not in use.

MBC149 Metering

This option adds a multi-function metering module to the station. It allows monitoring of the main functions and voltages of the MTR300 station. In addition, a test probe is provided to allow use by service personnel, as a general-purpose test voltmeter.

MBC576 Singletone Decoder

This option adds a single-unit Singletone Decoder module to a dedicated slot in the MTR300 station, and by correct jumpering, can be configured; 1) to allow repeater operation only after receipt of correct singletone, 2) to provide a signal via the external interface connector only, 3) to enable transmission only after receipt of correct singletone from the external interface connector only. The decoder is factory-set to operate on one of 19 frequencies from 600 Hz to 3300 Hz with a 150 Hz spacing.

MBC593 Simplex

The simplex option adds an antenna relay to the rear of the MTR300 station, with RF interconnect cables to the transmitter and receiver. A single connector is provided for antenna connections. This option is used where duplex (simultaneous transmit and receive) operation is not required, and eliminates requirements for a duplexer or separate transmit and receive antennas.

MBC187 RA Cable

This option adds an interconnect cable that allows two MTR300 stations to be connected in an RA (back-to-back) configuration. Only one of the two stations used requires this option. The cable, via the standard station interface connectors, cross-connects transmit and receive audio, and COS outputs and PTT inputs. The MTR300 stations used can be simplex or duplex, depending upon system requirements. When either or both stations also require the standard RT (internal) repeat path, the station can be jumpered so that the RA path has audio priority.

Non-Standard Options

When special, non-standard functions are ordered with the MTR300 station, refer to the separately supplied manual for details of station modifications and operation which may supercede the standard description and operation described herein.

INSTALLATION

A) Unpacking

Use care when unpacking and handling this radio repeater unit. Inspect the radio thoroughly as soon as possible after delivery. If any part of the equipment has been damaged in transit, report the extent of damage to the transportation company immediately.

B) Electrical Connections

1) Connect separate antennas or antenna duplexer to the receiver and transmitter antenna connectors at the rear of the repeater chassis (duplex stations) or single antenna to the antenna relay (simplex models). The transmitter and receiver modules are separately labeled at the front of the chassis for identification. The VHF radio is supplied with 'UHF'-type connectors, and the UHF radio is supplied with 'N'-type connectors. On either frequency band, stations with the simplex (MBC593) option are provided with a single 'UHF'-type antenna connector.

2) After the unit is installed in its normal operating position inside the optional moisture proof housing (if used), or in a standard 19" mounting rack, route the cables to the antenna/duplexer and power source. For multi-station sites, additional interconnections can be made at multi pin connector P2 as shown on intercabling diagram 63C06524S.

3) Connect battery A+ and A- to the RED and BLACK wires, respectively, of the battery cable suppplied with the radio equipment.

STATION INSTALLATION (Cont'd)

This MTR300 station has been accurately aligned and thoroughly tested before leaving the factory. Further adjustments are usually not required on site and should be made only if absolutely necessary.

The basic station with no options provides a standard repeater audio path, as well as four wire audio input and output terminations for the transmitter and receiver, respectively. Connections are provided at the rear connectors for the following standard functions:

1) 4 wire, 600 ohm audio output, unbalanced

2) 4 wire, 600 ohm audio input, unbalanced

3) Switched 7.5 volts output

4) P-T-T input

5) C.O.S. output

6) Battery positive and ground (battery negative)

7) 3.2 ohm audio (with speaker option only)

Refer to drawing 63C06524S for pin configuration of P1 & P2, the two external input/output connectors.

The following controls are located on the front panel of the basic station and are accessible for field adjustments (if required):

1) Four wire audio input level
2) Four wire audio output level
3) Repeater audio level
4) Squelch on

STATION INSTALLATION (Cont'd)

When the battery is initially connected to this unit, it will transmit momentarily. This is normal and it indicates that the repeat circuitry is now in a standby condition, ready for receipt of a carrier with the correct "private-line" tone (on PL models). Check the repeater transmitter by switching the transmitter switch to the "ON" position. On PL models, the PL tone should be transmitted and modulated to ±1 kHz. Check repeater operation by applying an On-channel RF carrier (modulated by a correct PL tone to ±1kHz on PL models). With the transmitter switch in the "RPT" position, the transmitter should key up (and transmit the transmit PL tone on PL models). Apply an On-channel RF carrier, modulated by a 1 kHz test tone to ±3 kHz deviation. Check to see that the test tone is re-transmitted at the same deviation.

STATION OPERATION

The standard MTR300 station is provided with two control switches to aid in setup, test and servicing.

Transmitter Control

The transmitter control switch has 3 positions:

"REPEAT": (normal position) transmitter is keyed up under control of the station's control module.

"OFF": Transmitter PTT is disabled.

"ON": Transmitter PTT is held ON through station's control module (and Time-Out Timer, if present).

Receiver Control

The squelch switch on the station control module has two positions on carrier-squelch stations and three positions on 'PL' stations:

"NORM": normal position, both the squelch gate and 'PL' (on PL models) are operative.

"MON": (PL models only) 'PL' decoding is disabled and the receiver reverts to carrier-squelch operation.

"UNSQ": the receiver is unsquelched regardless of the presence or absence of carrier or 'PL'.

STATION OPERATION (Cont'd)

Speaker (Optional)

The speaker is turned on by rotating the volume control knob clockwise, and adjusting the position for the desired audio level. The red indicator on the speaker module will light whenever power is applied to the speaker module. To reduce power consumption when not in use, the control should be returned to the 'OFF' position, and the indicator will extinguish.

Metering (Optional)

The optional metering is fully described in the separate metering module manual. Below are the functions of the metering module, switch-selectable. The meter switch should always be left in the 'OFF' postion for transportation and when not in use.

SWITCH POSITION	FULL SCALE	MEASUREMENT
7.5V REG	20V	Receiver 7.5V Regulator Output
4.6V REG	20V	Receiver 4.6V Regulator Output
RX CURR	-	Not Used
DISCR	-	Discriminator Centre-Zero
20V-PROBE	20V	External Via Test Probe 20V
2V-PROBE	2V	External Via Test Probe 2V
CARRIER	-	Relative Received Signal Strength
BATT	20V	Station Power Source Voltage
7.5V SW	20V	Switched 7.5V Regulator Output
TX CURR	3A	Transmitter Current Drain
PTT	20V	Not Used
F PWR	-	Not Used
R PWR	-	Not Used

FUNCTIONAL OPERATION

Refer to drawing 63D06523S which shows the system block diagram of a typical station. Note that all functional plug in options are shown connected.

In the standby condition (with no carrier and no PL tone being received), unsquelched audio appearing at the receiver discriminator is applied to the squelch gate, pin 4, of the station control module. The higher frequency noise components of this signal are rectified by the squelch gate and maintain the COS output in the 'OFF' state. The COS output controls the switched +7.5 volt regulator through JU3, and the P-T-T input of the transmitter through JU2. On PL models, if, there is no private-line tone, a logic high at pin 10 of the station control module, ensures that the COS output of the squelch gate remains off. If a time-out timer is used, the P-T-T signal is routed through the Time-Out Timer module.

When carrier is received, AND, either the correct PL tone is received, or, the receiver PL is disabled by switching the PL switch to the "PL OFF" position, (PL models) the receiver quiets and the squelch gate PTT output, pin 8 of the station control module switches low. This applies P-T-T keying control to the transmitter, enables the switched 7.5 volt regulator which applies operating voltage to the transmitter, and enables the associated repeat audio circuitry and four wire receive and transmit audio circuitry. The local speaker audio is also enabled at this time. If the speaker option is used, the speaker VOLUME control must be turned clockwise to hear the received signal (indicator LED lit).

The optional decoder is also enabled at this time and can be used for decoding repeater access tones from a calling mobile using tone coding or from external signals at the four wire audio input terminals, depending on the jumper status as noted in the station jumper chart included in this section of the manual.

ADJUSTMENTS

This repeater has been adjusted for optimum performance (prior to shipment from the factory) at the following levels:

1) 4-Wire audio output level = 0 dBm with ± 5 KHz deviation at 1 KHz.

2) 4-Wire audio input level = -3 dBm with ± 3.5 KHz deviation at 1 KHz.

3) Repeat level = ± 3 KHz deviation output at 1 KHz for ± 3 KHz deviation input.

4) Squelch ON = 0.5 uV.

Changes in the above settings can be made if required to optimize system performance.

The tuning procedures for the Transmit and Receive Modules are described their respective manual sections.

A) Four-Wire Audio Output Level

Connect an RF signal generator modulated by a 1 KHz tone at ± 5 KHz deviation to the receiver antenna connector. Switch PL OFF (on PL models) and connect a 50 ohm load to the transmitter antenna connector. Set the generator exactly on frequency. Connect a 600 ohm load between P2-4 (Hi) and P2-3 (Gnd); monitor these points with an AC voltmeter. Adjust the 4-W AUDIO OUTPUT LEVEL on the front panel for the desired level, up to 0 dBm.

B) Four Wire Audio Input Level

Connect an audio signal generator between P2-10 (Hi) and P2-12 (Gnd); set the frequency at 1 kHz and the level to -3 dBm or greater. With the 50 ohm load connected as in (A) to the transmitter, key the transmitter by placing the Transmitter Test switch in the ON position. Monitor the transmission with a deviation monitor or service Monitor and adjust 4-W AUDIO INPUT LEVEL control on the front panel for ±3.5 KHz deviation.

ADJUSTMENTS (Cont'd)

C) Repeat Level

Using the same set up as in (B), apply an on frequency carrier, modulated with a 1 KHz tone at ± 3.0 KHz deviation to the receiver on PL models. Disable the receiver PL by switching to "MON". This will key the transmitter automatically. Monitor the transmission with the deviation monitor and adjust the REPEAT LEVEL control for ±3.0 KHz, plus the PL deviation level on PL models.

D) Squelch

Turn the SQUELCH control fully clockwise. With the same set up as in paragraph (C) above, set the RF generator (unmodulated) for 0.5 uV output level. Set the generator on frequency and adjust the SQUELCH control in the counterclockwise direction until the station just keys up.

Re-Enable receiver PL by switching to "NORM" (PL models).

STATION JUMPERS

1/ Station Motherboard, VHN4010A

JUMPER	IN FOR	OUT FOR
JU9	Special Applications	Always
JU10	No Time-Out Timer	With Time-Out Timer
JU11	Always	Special Applications
JU12	Normally	Control Module PTT Disabled
JU13	Special Applications	Always
JU14	PTT Sets Decoder ON	Normally
JU15	Singletone Decoder Keys Station	Singletone Decoder Provides COS Output Only.
JU16	PTT Direct to T.O.T.	Normally
JU17	PL Receiver	CS Receiver
JU18	CS Receiver	PL Receiver
JU19	MIC PTT Direct to T.O.T.	Normally
JU20	Special Applications	Always
JU21	Singletone Decoder Provides Remote COS Only.	Standard COS Output

2/ Station Control Module, VLN4488A/1082A

JUMPER	IN FOR	OUT FOR
JU1	COS Enables Switched +7.5V	Only PTT Enables Switched +7.5V
JU2	Normally	Disable PTT Output
JU3	Always	Special Applications
JU4	One-Second PTT Dropout Delay	2 Seconds PTT Dropout Delay
JU5	PTT Dropout Delay	No PTT Dropout Delay
JU6	Repeaters	Simplex or No Repeat Audio
JU7	Receive Audio to Decoder	Tx Line Audio to Decoder
JU8	Tx Line Audio to Decoder	Receive Audio to Decoder
JU9	CS Receiver	PL Receiver
JU10	CS Receiver	PL Receiver
JU102	Standard COS Output	No COS Output
CR2	COS Keys Transmitter	Simplex or Decoder Applications
CR9	Line Audio Priority or Simplex	No Audio Priority
CR100	Simplex	Duplex

STATION JUMPERS (Cont'd)

3/ Speaker Module, VSN4008A

JUMPER	IN FOR	OUT FOR
JU1	Muted Audio Input	*Normally
JU2	*Normally, Flat Audio	Muted Audio Input
JU3	*Normally	Disable Local Speaker

* Standard Jumpering

4/ Time-Out Timer VLN4491A

JUMPER	IN FOR	OUT FOR
JU1	1 Minute Time	All Others
JU2	4 or 8 Minute time	All Others
JU3	2 Minute Time	All Others
JU4	8 Minute Time	All Others
JU5	All Others	1 Minute Time
JU6	*Normally	PTT Disable Input
JU7	*A For Switched Ground Reset	-
	-B For Switched High Reset	-
JU8	*A For Switched Ground Reset	-
	-B For Switched High Reset	-

* Standard Jumpering

5/ Singletone Decoder VLN4493A

JUMPER	IN FOR	OUT FOR
R23	*Latching Operation	Momentary Operation
C10	*Latching Operation	Momentary Operation
C11	*Latching Operation	Momentary Operation

* Standard Jumpering

STATION CONFIGURATIONS WITH SINGLETONE DECODER

The following chart provides station jumper information for common station configurations, using Singletone Decoder Option for the Motherboard, VHN4010A and Control Module, VLN4488A/VLN1082A. Jumpers not shown here are jumpered according to the standard jumper tables.

X = IN
O = OUT

CONFIGURATION	MOTHERBOARD VHN4010A					CONTROL MODULE VLN4484A/1082A				
	JU 12	JU 15	JU 16	JU 19	JU 21	JU 1	JU 7	JU 8	JU 102	CR2
No Decoder	X	X	O	O	O	X	X	O	X	
*Singletone enables Repeater Access. Standard COS output.	X	X	O	O	O	X	X	O	X	O
Singletone enables Repeater Access and COS output.	X	X	O	O	X	X	X	O	O	O
Repeater Carrier-operated, Singletone enables RA-link COS output.	X	O	O	O	X	X	X	O	O	
Repeater enabled by Singletone from RA-link. Standard COS output.	O	X	X	X	O	O	O	X	X	O

*Standard Factory Jumpering with Decoder Option.

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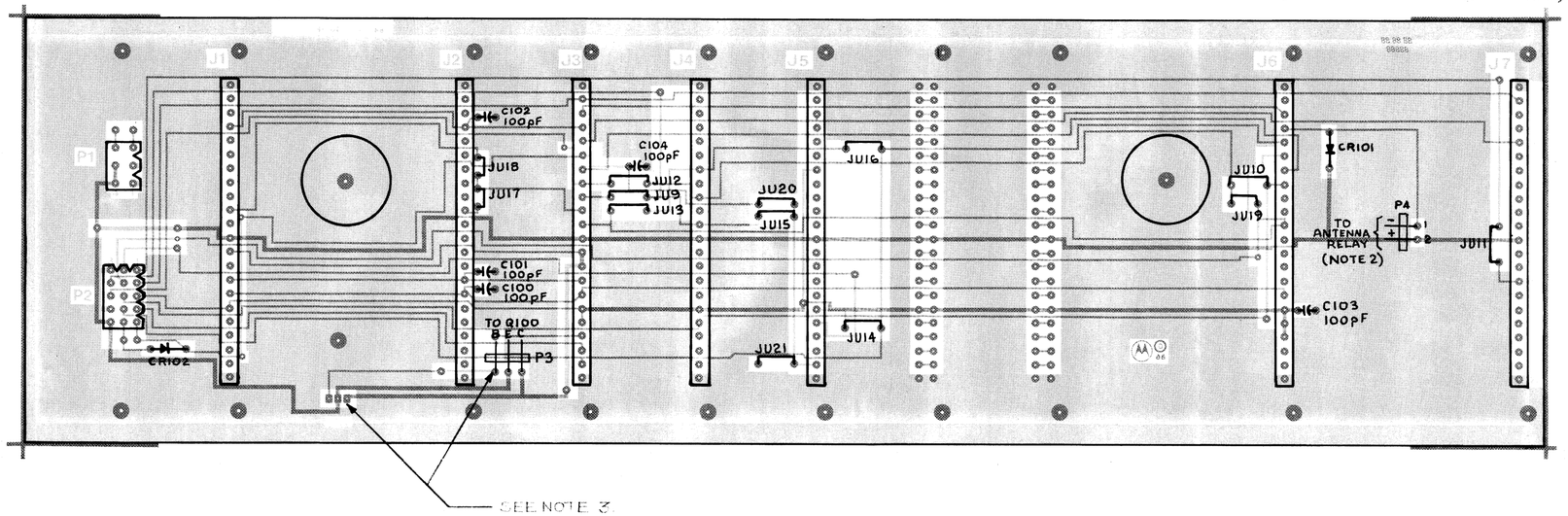
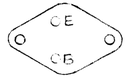
TOLERANCES UNLESS OTHERWISE SPEC.				
	INCHES		MILLIMETRES	
ONE PLACE (0.0)			±0.3	
TWO PLACE (0.00)	±.01		±0.13	
THREE PLACE (0.000)	±.005			
HOLE DIA. VARIATION	±.003		±0.08	
ANGULAR DIM.	±1°		±1°	

SCALE	ALL DIMENSIONS IN MILLIMETRES INCHES DO NOT SCALE DRAWING.

METERING KIT (OPTIONAL) RECEIVER MODULE CONTROL MODULE T.O.T. (OPTIONAL) SINGLETONE DECODER (OPTIONAL) TRANSMITTER MODULE SPEAKER (OPTIONAL)



NOTES:
1. REAR VIEW SHOWN.
2. ANTENNA RELAY USED WITH SIMPLEX OPTION ONLY.
3. Q100 MOUNTED ON REAR COVER.



NPN PIN VIEW
CASE: COLLECTOR

ISSUE	REVISION	DATE	APP'D
H	CAPACITOR FAILED	APR 7/87	[illegible]

MAINTAIN TOT ROVER MOTHER BOARD COMPONENT LAYOUT

F.D.F. MTR 3[illegible]

REF.DWGS. [illegible]C04188S
84E80013[illegible]

COMMUNICATIONS DIVISION
MOTOROLA CANADA LTD.
WILLOWDALE CANADA

DWN.	CKD.	DWG.NO.
J. PEIOL	[illegible]	31H00481F SHT. 1 OF 2

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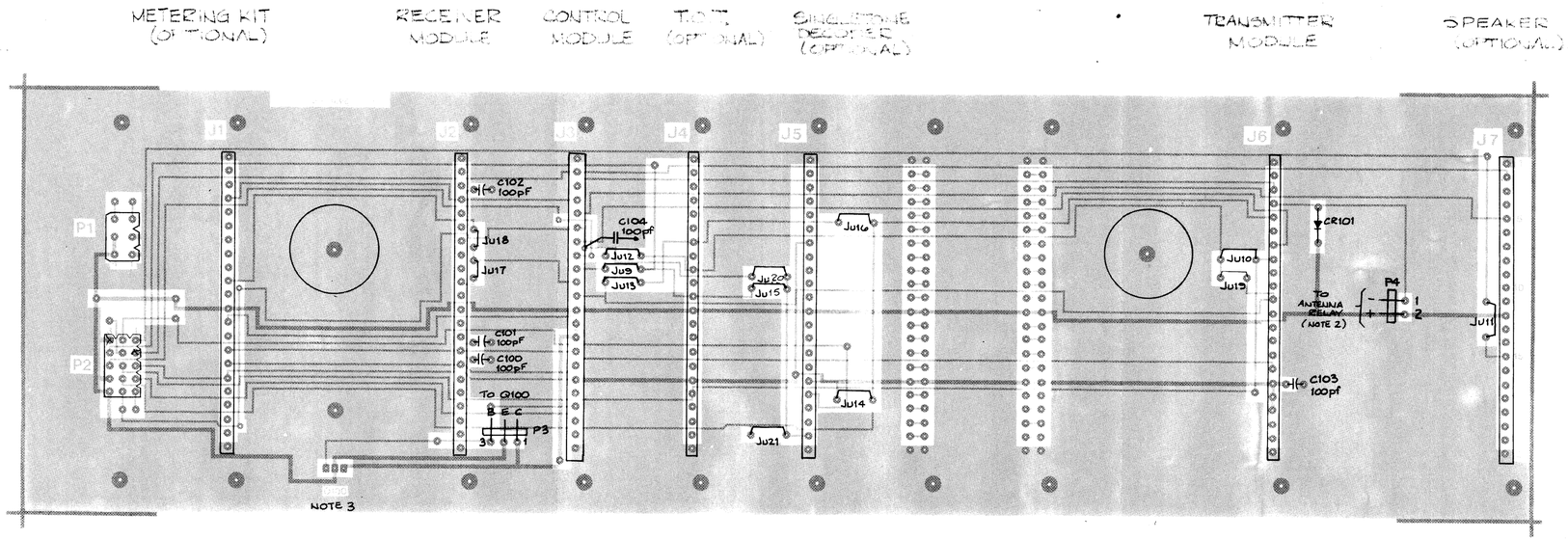
TOLERANCES UNLESS OTHERWISE SPEC.			
	INCHES		MILLIMETRES
ONE PLACE (0.0)			±0.3
TWO PLACE (0.00)	±.01		±0.13
THREE PLACE (0.000)	±.005		
HOLE DIA. VARIATION	±.003		±0.08
ANGULAR DIM.	±1°		±1°

SCALE — ALL DIMENSIONS IN MILLIMETRES/INCHES DO NOT SCALE DRAWING.



NOTES
1. REAR VIEW SHOWN.
2. ANTENNA RELAY USED WITH SIMPLEX OPTION ONLY.
3. Q100 MOUNTED ON REAR COVER.

Q100 PIN VIEW
CASE: COLLECTOR

ISSUE	REVISION	DATE	APP'D
H	SHT. #1 REVISED	APR. 7/87	
F	REVISED AND REDRAWN	10 OCT 84	[illegible]

MTR300
MOTHERBOARD WIRING
(EARLIER VERSION)

F.D.F. MTR 300

REF. DWGS. 34E001305
63C041885

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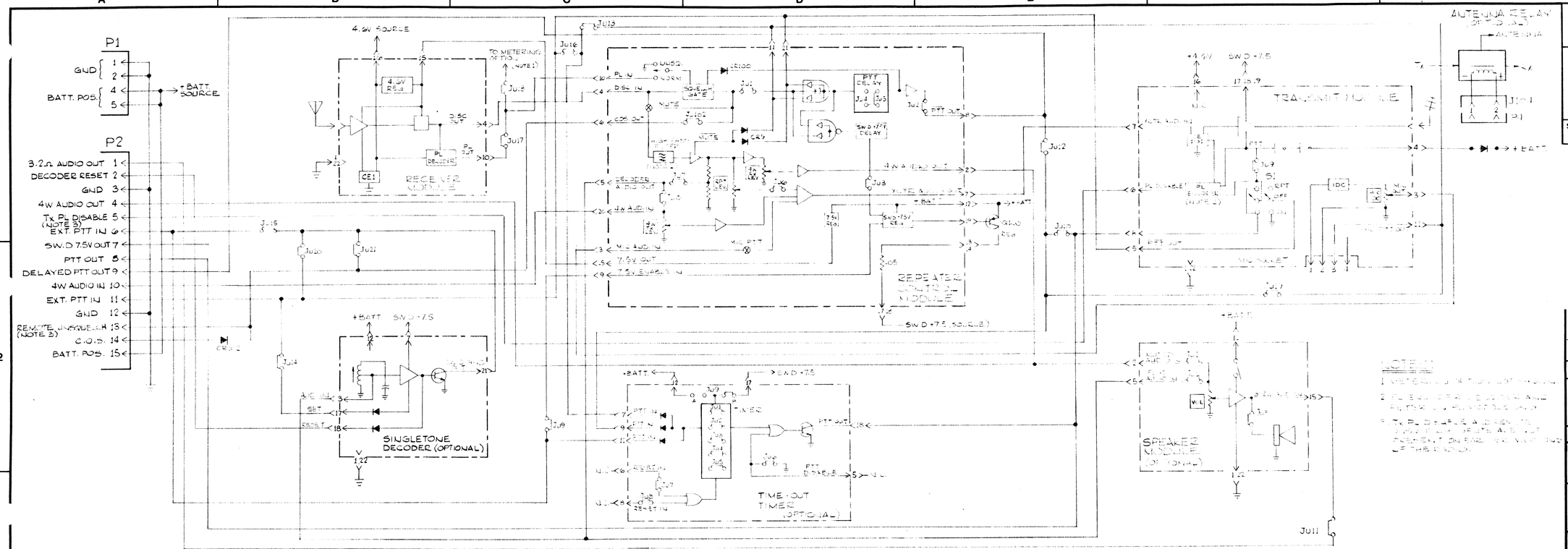
WILLOWDALE CANADA

DWN.	CKD.	DWG. NO. SHT. 2 OF 2
F. DUPUIS	[illegible]	31H004815

21



NOTES:
1. [illegible]
2. [illegible]
3. TX PL DISABLE & REMOTE UNSQUELCH ARE ACTIVE LOW INPUTS. [illegible]
4. [illegible]

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TOLERANCES UNLESS OTHERWISE SPEC.		INCHES	MILLIMETRES
ONE PLACE	(0.0)	: 01	: 0.3
TWO PLACE	(0.00)	: 005	: 0.13
THREE PLACE	(0.000)	: 003	: 0.08
HOLE DIA VARIATION		: 1°	: 1°
ANGULAR DIM			

SCALE — ALL DIMENSIONS IN MILLIMETRES INCHES DO NOT SCALE DRAWING.

ISSUE	REVISION	DATE	APP'D
C	REDRAWN AS PER ECO M-[illegible]	OCT 86	

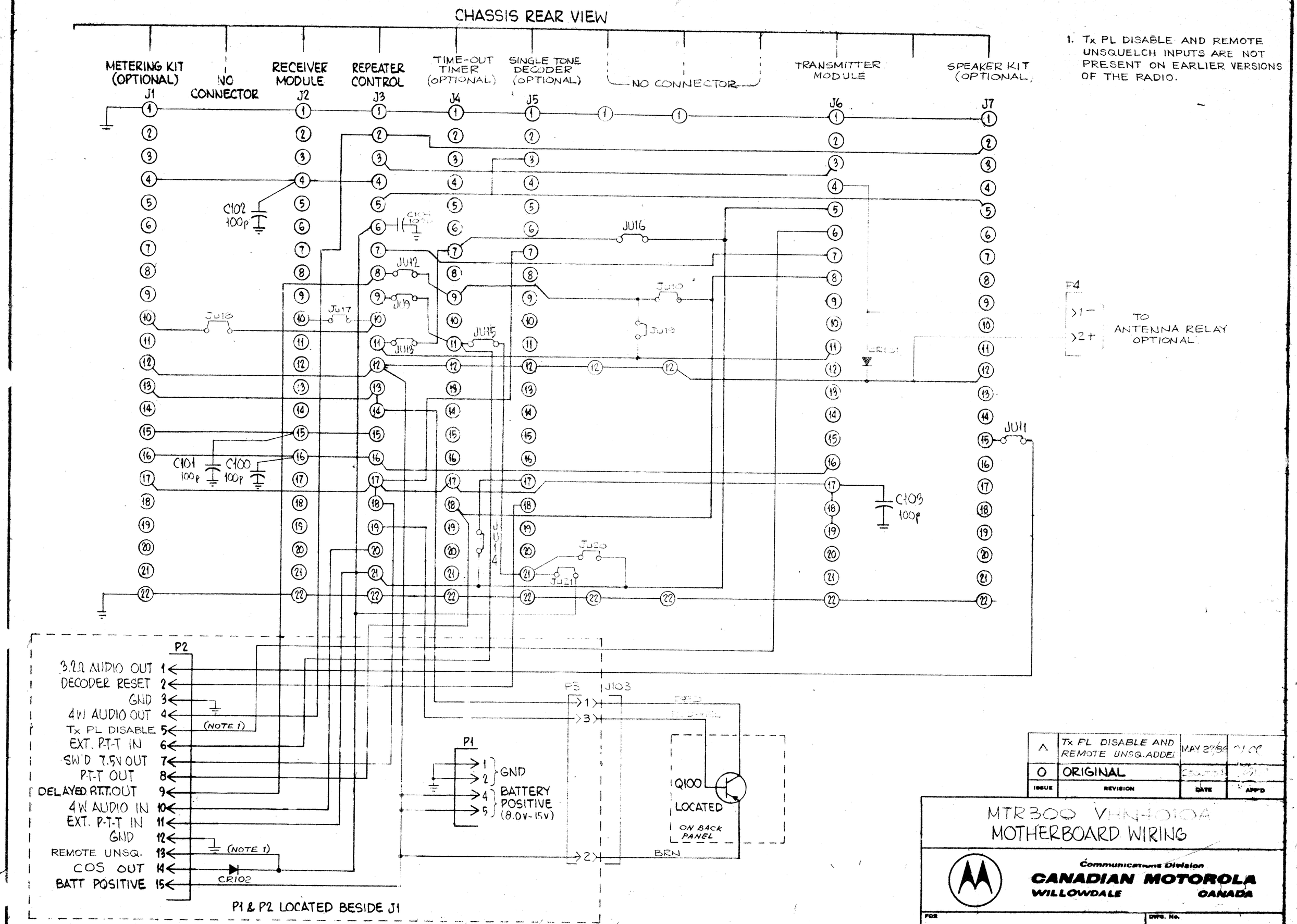
FUNCTIONAL BLOCK DIAGRAM MULTI-MODE REPEATER

F.D.F. 6-[illegible]

REF.DWGS. CP1025/4 MOTHERBOARD

COMMUNICATIONS DIVISION
MOTOROLA CANADA LTD.
WILLOWDALE CANADA

DWN.	CKD.	DWG.NO.
F.D.F.		68H06525B



1. Tx PL DISABLE AND REMOTE UNSQUELCH INPUTS ARE NOT PRESENT ON EARLIER VERSIONS OF THE RADIO.

ISSUE	REVISION	DATE	APP'D
A	Tx PL DISABLE AND REMOTE UNSQ. ADDED	MAY 27/86	[illegible]
0	ORIGINAL	[illegible]	[illegible]

MTR300 VHN4010A
MOTHERBOARD WIRING

Communications Division
CANADIAN MOTOROLA
WILLOWDALE CANADA

FOR

DWN. FD | CKD. | APP'D [illegible] | DWG. No. 63C06524S