



MICOM•S™ / TRITON 40•S™

HF-SSB Base/Mobile Radio

2-13.2/2-18 MHz
100/125/150 Watts



Instruction Manual

68P81060E20-O



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PERFORMANCE SPECIFICATIONS

TTT-26

GENERAL

Model Number	Description	Power Output	Number of Channels
D80JMA1N19__K	2-18 MHz, <i>Triton 40•S</i>	125 Watts PEP	40 Channels Simplex or Half-Duplex
D80HEA1N19__K	2-13.2 MHz, <i>Triton 40•S</i>	150 Watts PEP	40 Channels Simplex or Half-Duplex
D80JMA1N00__K	2-18 MHz, <i>Micom•S</i>	125 Watts PEP	40 Channels Simplex or Half-Duplex
D70HEA1N00__K	2-13.2 MHz, <i>Micom•S</i>	100 Watts PEP	40 Channels Simplex or Half-Duplex
I-F Frequency	1st 75.0 MHz, 2nd 11.4 MHz		
Primary Voltage	13.8 volts nominal $\pm 20\%$		
Current Drain (Oven Stabilized @25 °C Ambient)	Receive		Transmit
	Standby	Full Audio	Voice Duty 2-Tone PEP
D80HEA1N19__K 150 W PEP	1.25A @13.8 V dc	1.5A @13.8 V dc	15A avg. 23A
D80JMA1N19__K, D80JMA1N00__K 125 W PEP	1.25A @13.8 V dc	1.5A @13.8 V dc	13A avg. 21A
D70HEA1N00__K 100 W PEP	1.25A @13.8 V dc	1.5A @13.8 V dc	6A avg. 13A
Controls	On/Off/Volume, Channel Select and A/B/C/D Switch, Squelch, Clarifier, Dimmer, USB/LSB Select Switch (optional, deletes dimmer), Noise Blanker (optional)		
Memory Maintenance Battery	Lithium Battery, 10 years typical life		
D80JMA1N19__K, D80JMA1N00__K, D80HEA1N19__K	D70HEA1N00__K		
Weight	8.4 kg (18.5 lbs.)	7.5 kg (16.5 lbs.)	
Size	38.4cm (15-1/4")L x 26.4cm (10-3/8")W x 8.9cm (4")H	35.6cm (14")L x 26.4cm (10-3/8")W x 8.9cm (4")H	

TRANSMITTER

Power Output	D80JMA1N19__K D80HEA1N19__K D80JMA1N00__K D70HEA1N00__K	125 Watts PEP 150 Watts PEP 125 Watts PEP 100 Watts PEP
Intermodulation	- 31 dB reference to PEP	
Spurious & Harmonic Emissions	D80JMA1N19__K, D80JMA1N00__K — - 64 dB reference to PEP D70HEA1N00__K — - 63 dB reference to PEP D80HEA1N19__K — - 65 dB reference to PEP	
Carrier Suppression	- 46 dB	
Transmission Modes	A3A, A3J, A3H	
Undesired Sideband Suppression	1 kHz tone, - 55 dB reference to PEP	
Audio Distortion	5% total distortion	
Frequency Stability	± 10 Hz, - 20 °C to + 50 °C ± 20 Hz, - 30 °C to + 60 °C	
Tuning Adjustments	None	

RECEIVER

Sensitivity	10 dB SINAD: 0.5 uV 1/2 rated audio power: 1.0 uV/2.5 watts
Selectivity	(- 6 dB minimum) 350 Hz to 2700 Hz
Spurious	(Ref 10 dB SINAD) at least 70 dB
Intermodulation	- 80 dB
Cross Modulation (100 kHz Separation)	- 100 dB
Desensitization (100 kHz Separation)	- 100 dB
Frequency Stability	± 10 Hz, - 20 °C to + 50 °C ± 20 Hz, - 30 °C to + 60 °C
Audio Output	5 watts with less than 10% total distortion
AGC Characteristics	Audio output varies less than 2 dB for signals between 10 uV and 1 V (100 dB range) Dual slope, fast attack, slow decay AGC threshold 10 uV or less
Squelch	Constant SINAD
Receiver Tuning Adjustments	None
Clarifier Range	± 175 Hz, minimum

SPECIFICATIONS (Cont'd.)

FCC & DOC INFORMATION

Model Series	D80HEA	D80JMA	D70HEA
Transmitter Peak Envelope Power (PEP)	150 Watts	125 Watts	100 Watts
Frequency Range	2-13.2 MHz	2-18 MHz	2-13.2 MHz
Emission Authorized	A3A, A3J, A3H, .3F1	A3A, A3J, A3H, .3F1	A3A, A3J, A3H, .3F1
FCC Applicable Parts of Rules	81, 83, 87, 90	81, 83, 87, 90	81, 83, 87, 90
FCC Type Acceptance Number	ABZ89FC1603	ABZ89FC1603	ABZ89FC1602

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

***OPTION CHART**

Option	Description	Add	Delete
S280	25 Watts Power Output		
S361	30 Watts Power Output		
S367	50 Watts Power Output		
S372	60 Watts Power Output		
S71	Delete Microphone		
S122	Adds LSB Operation	TRN4961 & TRN4968	TRN4964
S86	Adds Programming Board	TRN4963	
S135	Adds Noise Blanker Board & Changes Front Panel	TRN4962 TRN4966	TRN4964
S96	Inverted Front Panel	TRN4965	TRN4964

* The above options are available on the D80JMA1N00_K and D70HEA1N00_K land mobile radios only.

ACCESSORIES

TLN2374 Programming Board	TMN1023 Base Microphone
TRN4047 Mounting Tray	TLN2375 Noise Blanker (<i>Triton 40•S</i> only)
TSN6033 External Speaker	THN6457 White Housing (<i>Triton 40•S</i> only)

Micom•S/Triton 40•S Radios meet, or exceed, all applicable CCIR recommendations.

• , Motorola, Micom•S, Triton 40•S, and Modar are trademarks of Motorola, Inc.

FOREWORD

1. SCOPE OF MANUAL

This manual is intended for use by experienced technicians familiar with similar types of equipment. It contains all service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date are incorporated by Instruction Manual Revisions (SMR). These SMR's are added to the manuals as the engineering changes are incorporated into the equipment.

2. MODEL AND KIT IDENTIFICATION

Motorola equipments are specifically identified by an overall model number on the nameplate. In most cases, assemblies and kits which make up the equipment also have kit model numbers stamped on them. When a production or engineering change is incorporated, the applicable schematic diagrams are updated.

As diagrams are updated, information about the change is incorporated into a revision column. This revision column appears in the manual next to the parts list or, in some cases, on the diagram. It lists the reference number, part number, and description of the parts removed or replaced.

3. SERVICE

Motorola's National Service Organization offers one of the finest nation-wide installation and maintenance programs available to communication equipment users. This organization includes approximately 900 authorized Motorola Service Stations (MSS) located throughout the United States, each manned by one or more trained, FCC licensed technicians.

These MSS's are independently owned and operated and were selected by Motorola to service its customers. Motorola maintenance is available on either a time and material basis or on a periodic fixed-fee type arrangement.

The administrative staff of this organization consists of national, area and district service managers and district representatives, all of whom are Motorola

employees with the objective to improve the service to our customers.

Should you wish to purchase a service contract for your Motorola equipment, contact your Motorola Service Representative, or write to:

National Service Manager
Motorola Communications and Electronics, Inc.
1303 E. Algonquin Road
Schaumburg, Illinois 60196

4. REPLACEMENT PARTS ORDERING

Motorola maintains a number of parts offices strategically-located throughout the United States. These facilities are staffed to process parts orders, identify part numbers, and otherwise assist in the maintenance and repair of Motorola Communications Group products.

Orders for all parts *except* crystals, active filters, code plugs, channel elements, and "Vibrasender"® and "Vibrasponder"® resonant reeds should be sent to the nearest area parts center. Orders for instruction manuals should also be sent to the area parts center.

When ordering replacement parts or equipment information, the complete identification number should be included. This applies to all components, kits, and chassis. If the component part number is not known, the order should include the number of the chassis or kit of which it is a part, and sufficient description of the desired component to identify it.

Orders for crystals, channel elements, active filters, PROMs, code plugs, and reeds should be sent directly to the factory address listed on the following page. Crystal and channel element orders should specify the crystal or channel element type number, crystal and carrier frequency; and the chassis model number in which the part is used.

Orders for active filters, PROMs, code plugs, *Vibrasender* and *Vibrasponder* resonant reeds should specify type number and frequency, should identify the owner/operator of the communications system in which these items are to be used; and should include any serial numbers stamped on the components being replaced.

5. ADDRESSES

5.1 GENERAL OFFICES

MOTOROLA Communications and Electronics Inc.
Communications & Electronics Parts Dept.
1313 E. Algonquin Rd.,
Schaumburg, Illinois 60196
Phone: 312-576-3900

5.2 U.S. ORDERS

WESTERN AREA PARTS

1170 Chess Drive, Foster City,
San Mateo, California 94404
Phone: 415-349-3111
TWX: 910-375-3877

MIDWEST AREA PARTS

1313 E. Algonquin Road
Schaumburg, Ill. 60196
Phone: 312-576-7322
TWX: 910-693-0869

MID-ATLANTIC AREA PARTS

7230 Parkway Drive
Hanover, Maryland 20176
Phone: 301-796-8600
TWX: 710-862-1941

EAST CENTRAL AREA PARTS

12995 Snow Road,
Parma, Ohio 44130
Phone: 216-267-2210
TWX: 810-421-8845

EASTERN AREA PARTS

85 Harristown Road,
Glen Rock, New Jersey 07452
Phone: 201-447-4000
TWX: 710-988-5602

PACIFIC SOUTHWESTERN AREA PARTS

P.O. Box 85036
San Diego, California 92138
Phone: 714-578-2222
TWX: 910-335-1634

GULF STATES AREA PARTS

8550 Katy Freeway
Suite 128
Houston, Texas 77024
Phone: 713-932-8955

SOUTHWESTERN AREA PARTS

P.O. Box 34290
3320 Belt Line Road,
Dallas, Texas 75234
Phone: 214-241-2151
TWX: 910-860-5505

SOUTHEASTERN AREA PARTS

P.O. Box 368
Decatur, Georgia 30031
Phone: 504-981-9800
TWX: 810-766-0876

5.3 CANADIAN ORDERS

MOTOROLA LTD.

National Parts Department
3125 Steeles Avenue East
Willowdale, Ontario M2H 2H6
Phone: 416-499-1441
TWX: 610-492-2713
Telex: 065-25191

5.4 ALL COUNTRIES EXCEPT U.S. AND CANADA

MOTOROLA, INC. OR MOTOROLA AMERICAS, INC.

International Parts Dept.
1313 E. Algonquin Road
Schaumburg, Illinois 60196 U.S.A.
Phone: 312-576-6492
TWX: 910-693-0869
Telex: 722443 or 722424
Cable: MOTOL PARTS

5.5 FACTORY ADDRESS FOR CRYSTAL, CHANNEL ELEMENT, ACTIVE FILTER, CODE PLUGS, PROMs, AND RESONANT REED ORDERS

ALL MAIL ORDERS

Motorola, Inc.
Component Products Sales & Service
P.O. Box 66191
O'Hare International Airport
Chicago, Ill. 60666

CORRESPONDENCE

Motorola, Inc.
Component Products Sales & Service
2553 N. Edgington Street
Franklin Park, Illinois 60131

MODEL CHART
FOR
MICOM•S (LAND MOBILE)/TRITON 40•S (MARINE)
HF-SSB RADIOS
2-18 MHz
125-WATTS RF POWER

CODE:

● = ONE ITEM SUPPLIED

MODEL NUMBER	DESCRIPTION
D80JMA1N00AK	MICOM•S LAND MOBILE RADIO
D80JMA1N19AK	TRITON 40•S MARINE RADIO

ITEM	DESCRIPTION
● ●	TRA1131A CHASSIS, RADIO
● ●	TRN4954A "A" CIRCUIT BOARD
● ●	TRN4955A "B" CIRCUIT BOARD
● ●	TRN4956A "C" CIRCUIT BOARD
● ●	TLN2373A POWER AMPLIFIER
● ●	TRN4958A POWER AMPLIFIER BOARD
● ●	TRN4959A HARDWARE KIT, HEAT SINK
● ●	TFA6071A HARMONIC FILTER BOARD
● ●	TLN2390A SYNTHESIZER
● ●	TRN4957A "S" CIRCUIT BOARD
● ●	TRN5006A HARDWARE KIT
● ●	TRN4960A CHASSIS WIRE AND HARDWARE KIT
● ●	TRN5010A CHASSIS HARDWARE KIT
● ●	TMN6150A MICROPHONE (TAN)
● ●	TMN6151A MICROPHONE (WHITE)
● ●	TRN6679A HANG-UP CLIP, MICROPHONE
● ●	TKN8061A CABLE, POWER
● ●	THM6456A HOUSING (BRONZE)
● ●	TRN4034A ALIGNMENT TOOLS
● ●	TRN4964A FRONT PANEL (DIMMER) (LAND MOBILE)
● ●	TRN4972A FRONT PANEL (DIMMER) (MARINE)
● ●	TRN4973A FRONT PANEL (INVERTED) (MARINE)
● ●	TRN5008A MOUNTING TRAY

EPS-33480-0

**MODEL CHART
FOR
MICOM•S LAND MOBILE
HF-SSB RADIO
2-13.2 MHz
100-WATTS RF POWER**

CODE:

● = ONE ITEM SUPPLIED

MODEL NUMBER	DESCRIPTION
D70HEA1N00AK	MICOM•S LAND MOBILE RADIO

ITEM	DESCRIPTION
● TRA1151A	CHASSIS, RADIO
● TRN4954A	"A" CIRCUIT BOARD
● TRN4955A	"B" CIRCUIT BOARD
● TRN4956A	"C" CIRCUIT BOARD
● TLN2208A	POWER AMPLIFIER
● TRN4038A	POWER AMPLIFIER BOARD
● TRN4039A	HARDWARE KIT, HEAT SINK
● TFA6061B	HARMONIC FILTER
● TLN2390A	SYNTHESIZER
● TRN4957A	"S" CIRCUIT BOARD
● TRN5006A	HARDWARE KIT
● TRN4960A	CHASSIS WIRE AND HARDWARE KIT
● TRN5009A	CHASSIS HARDWARE KIT
● TMN6150A	MICROPHONE (TAN)
● TRN6679A	HANG-UP CLIP MICROPHONE
● TKN8061A	CABLE, POWER
● THN6456A	HOUSING (BRONZE)
● TRN4034A	ALIGNMENT TOOLS
● TRN4964A	FRONT PANEL (DIMMER)

EPS-33481-O

GENERAL SAFETY INFORMATION

The United States Department of Labor, through the provisions of the Occupational Safety and Health Act of 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. The following precautions are recommended:

DO NOT operate the transmitter of a mobile radio when someone outside the vehicle is within two feet (0.6 meter) of the antenna.

DO NOT operate the transmitter of a fixed radio (base station, microwave and rural telephone rf equipment) or marine radio when someone is within two feet (0.6 meter) of the antenna.

DO NOT operate the transmitter of any radio unless all RF connectors are secure and any open connectors are properly terminated.

In addition,

DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.

All equipment must be properly grounded according to Motorola installation instructions for safe operation.

All equipment should be serviced only by a qualified technician.

Refer to the appropriate section of the product service manual for additional pertinent safety information.

EPS-28750-O

SAFETY INFORMATION FOR RADIOS INSTALLED IN VEHICLES POWERED BY LIQUEFIED PETROLEUM (LP) GAS

WARNING

It is mandatory that radio installations in vehicles fueled by liquefied petroleum gas conform to the following standard.

National Fire Protection Association standard NFPA 58 applies to radio installations in vehicles fueled by liquefied petroleum (LP) gas with the LP-gas container in the trunk or other sealed-off space within the interior of the vehicles. This standard requires that:

1. Any space containing radio equipment shall be isolated by a seal from the space in which the LP-gas container and its fittings are located.
2. Remote (outside) filling connections shall be used.
3. Venting of the container space to the outside shall be provided.

EPS-33497-O

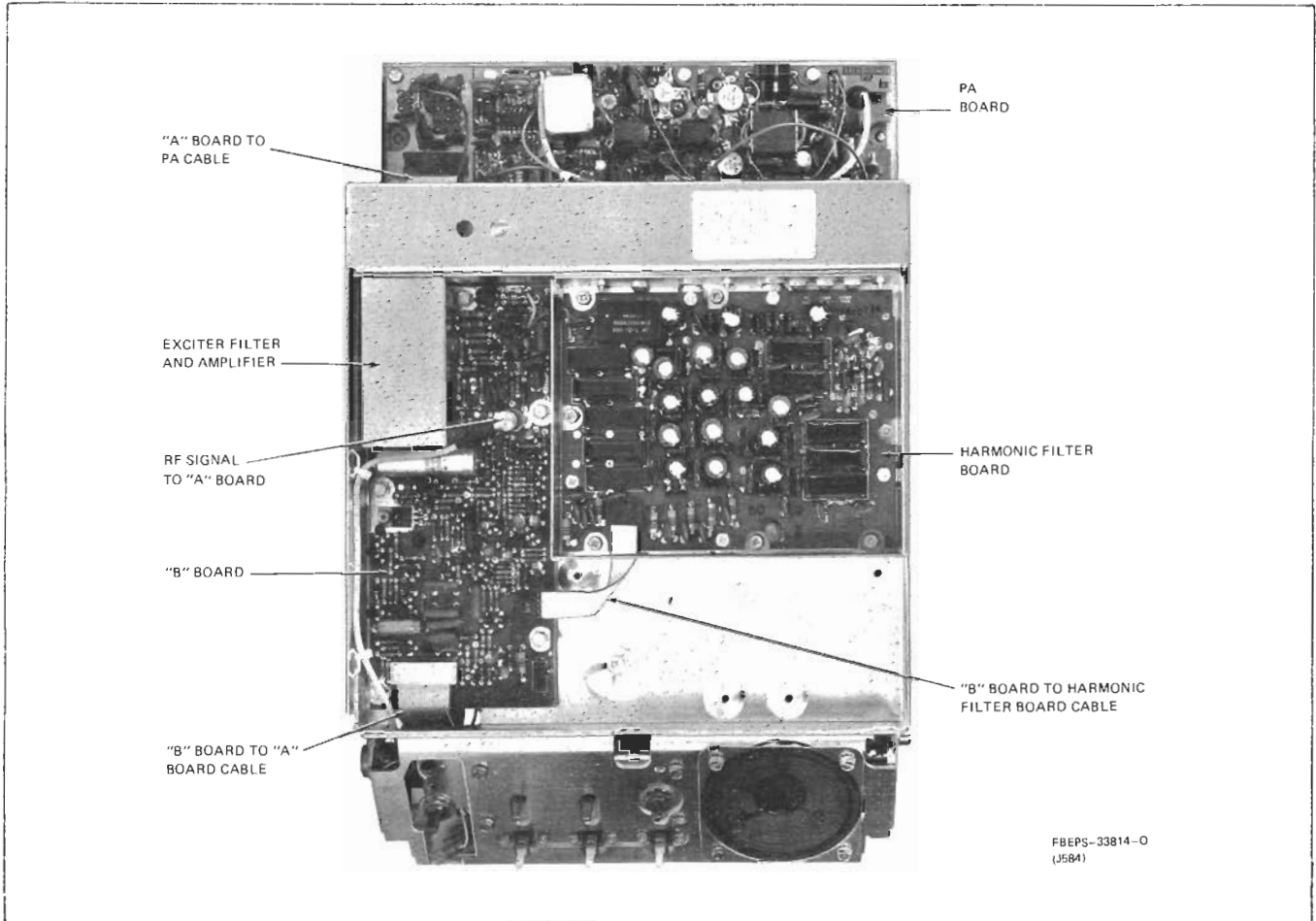


Figure 1. Major Assemblies as Seen From Top of Radio
 (PA Hinged Open)

1. INTRODUCTION

The Motorola *Micom•S/Triton 40•S* is a synthesized solid-state two-way high frequency single sideband radio. The radio features 100 or 125 watts PEP (peak envelope power) transmitter power output for the *Micom•S* models and 125 or 150 watts PEP transmitter power output for the *Triton 40•S* models. Any frequency within the 2-13.2 MHz or 2-18 MHz range can be

programmed on any of the 40 channels which are selected by two front panel switches. Up to 10 channels may be programmed on each position of the **A/B/C/D** switch. The channels may be either simplex or half-duplex (transmit and receive on different frequencies, but not simultaneously). Field programming of any channel can be easily accomplished by using an optional programming board. An extensive line of accessories including several types of antennas and tuners, base station microphone, ac power supplies, mounting tray, and

DESCRIPTION

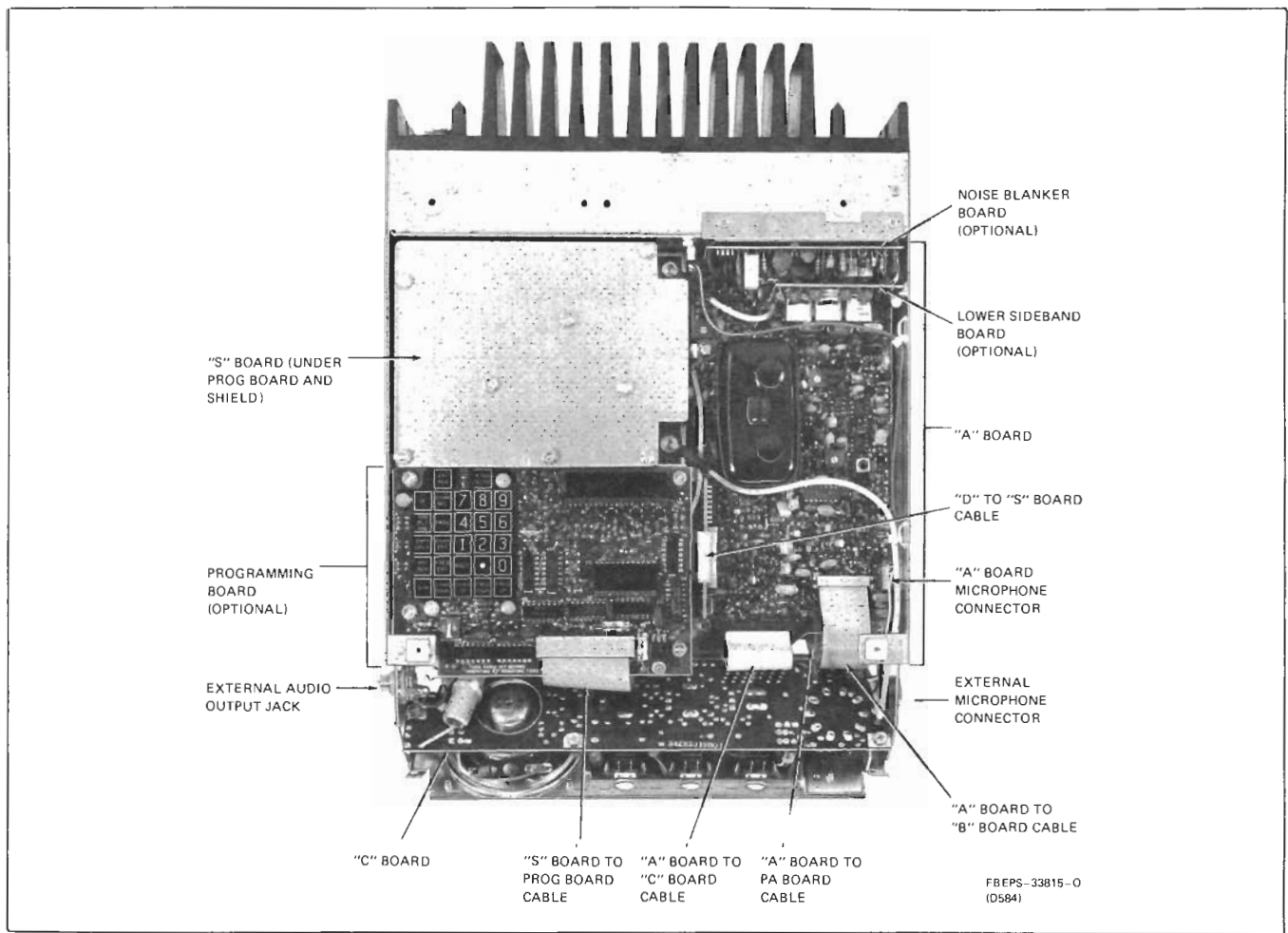


Figure 2. Major Assemblies as Seen From Bottom of Radio

overhead mounting panel are available to meet specific application requirements.

2. PHYSICAL DESCRIPTION

The radio set transmitter, receiver, and control unit, are assembled in a fully enclosed housing. The unit includes an integral speaker and a sloping front panel that places the operating controls within easy reach. The radio may be mounted in any position with the accessory mounting tray.

The radio set is functionally separated into six printed circuit boards. Interconnections between the

boards are made with multi-conductor ribbon cables and coaxial cables with connectors to facilitate easy board removal and repair. Refer to Figures 1 and 2 for locations of major assemblies.

The *Micom•S/Triton 40•S* radio is designed for 12 V dc negative ground operation and may be connected directly to a 12 V battery. The radio is supplied with four rubber feet on the bottom of the housing and can be installed on a flat surface or permanently mounted with the accessory tray. The radio may also be used as a base station. In this application, the ac power supply and base station microphone accessories may be desired.

2. OPERATIONAL CHECKS

After installation, carefully check all operating functions of the radio. Frequency and power output

checks should be performed before the transmitter is placed in service. Refer to the Alignment section for procedures. In addition, the antenna must be properly tuned. Refer to the manual supplied with the antenna and tuner (if used) for tuning procedures.