## INSTRUCTION MANUALS

Draft copy of the of the front matter of the following instruction manual is enclosed with this submission:

68P81095E55-C ..... Quantar Digital Capable Station
For Conventional, ASTRO
6809 Trunking, and IntelliRepeater Systems
Instruction Manual

Other system and radio / configuration service software manuals are available to support the product and system in operation. They can be provided to the Commission upon request.

## TUNE-UP PROCEDURE

This exhibit contains the tune-up procedure as it will appear in the Configuration Service Software (CSS) manual.

The following adjustments comprise the total transmitter alignment:
1. Reference Oscillator
2. Transmitter Power Output
3. Transmit Deviation Control
4. Reference Modulation Compensation

Note: All adjustments are factory pre-set and do not require alignment under normal operating conditions. In the event alignment is needed, refer servicing to qualified radio maintenance personnel only.

### TEST EQUIPMENT

| Description | Recommended model |
|---|---|
| 1. Service Monitor | Motorola R-2001 or equivalent |
| 2. PC with CSS | |

TRANSMITTER ALIGNMENT PROCEDURE

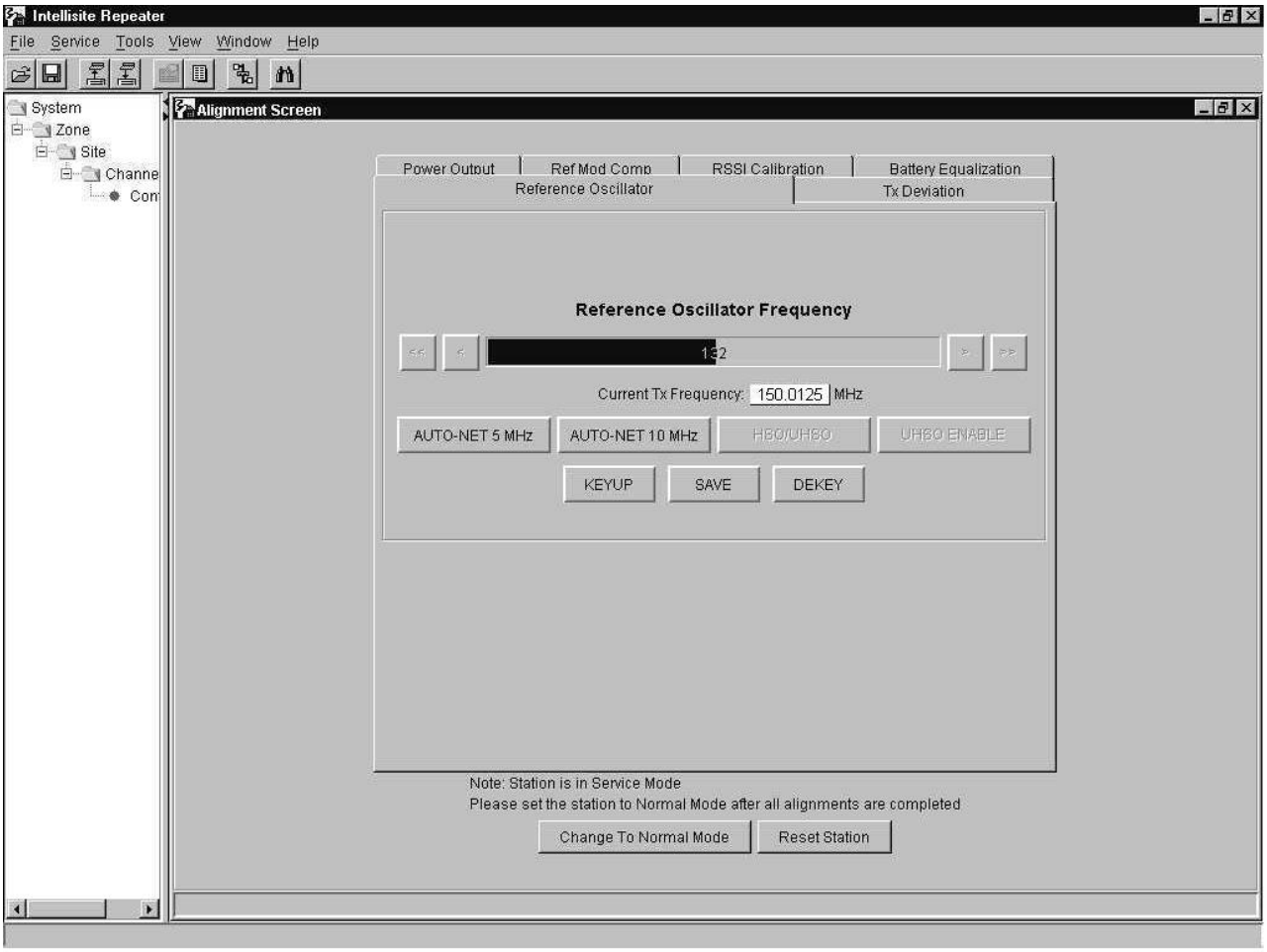
CSS/RSS Port: A 9-pin D connector is provided on the station control module front panel to allow service personnel to connect a PC loaded with the Configuration Service Software (CSS) and perform programming and maintenance tasks via this TIA RS-232 port. The following pages of this exhibit will show the important alignment screens.

### EXHIBIT DESCRIPTION

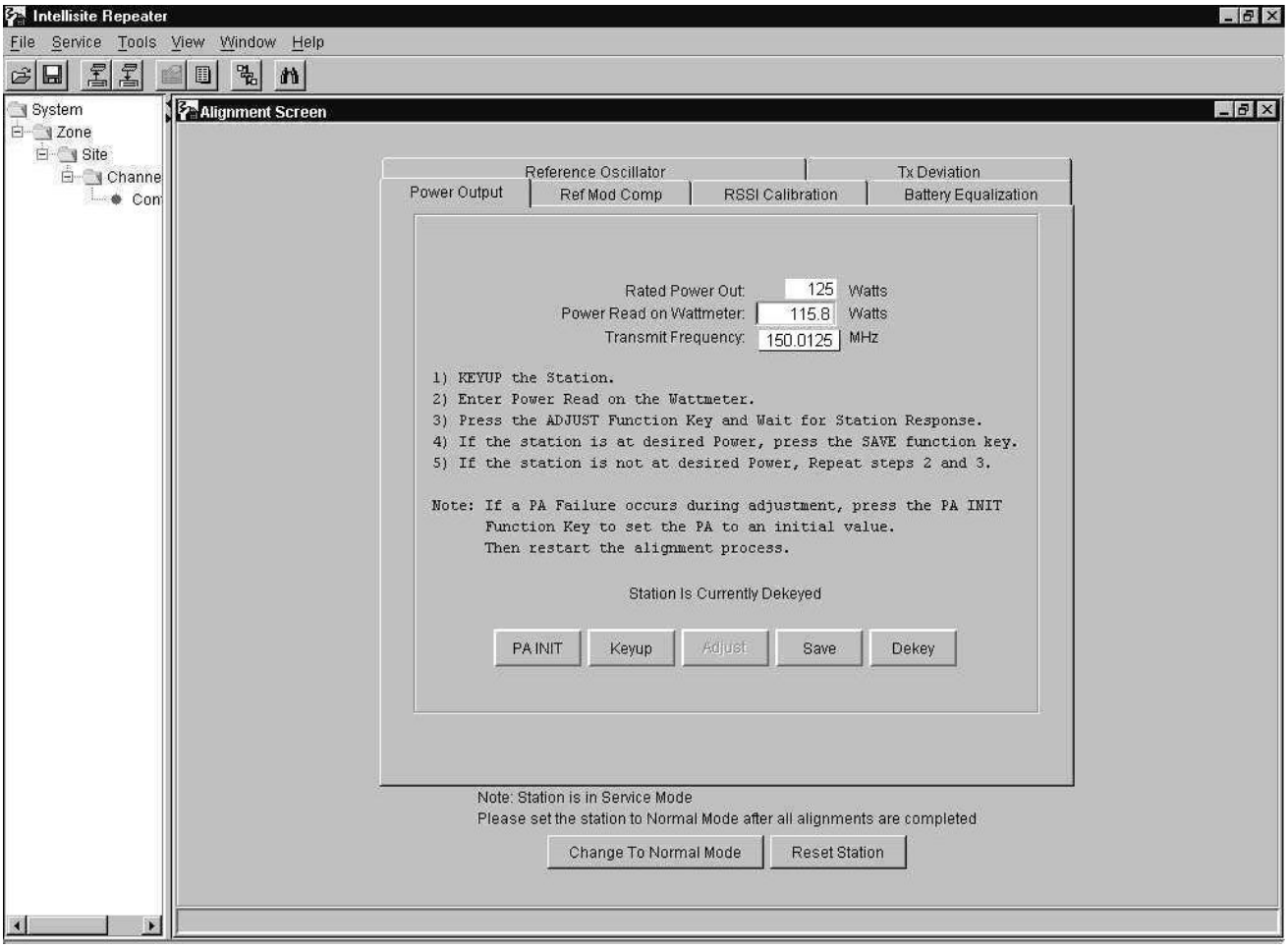
| | |
|---|---|
| 9A | Reference Oscillator Alignment Screen |
| 9B | Transmitter Power Output Alignment Screen |
| 9C | Transmitter Deviation Alignment Screen |
| 9D | Reference Modulation Compensation Alignment Screen |

All adjustments are software controlled and are pre-set at the factory. Certain station operating parameters can be changed via man-machine interface (MMI) commands, within predetermined limits. Examples include transmit / receiver operating frequencies and power level.

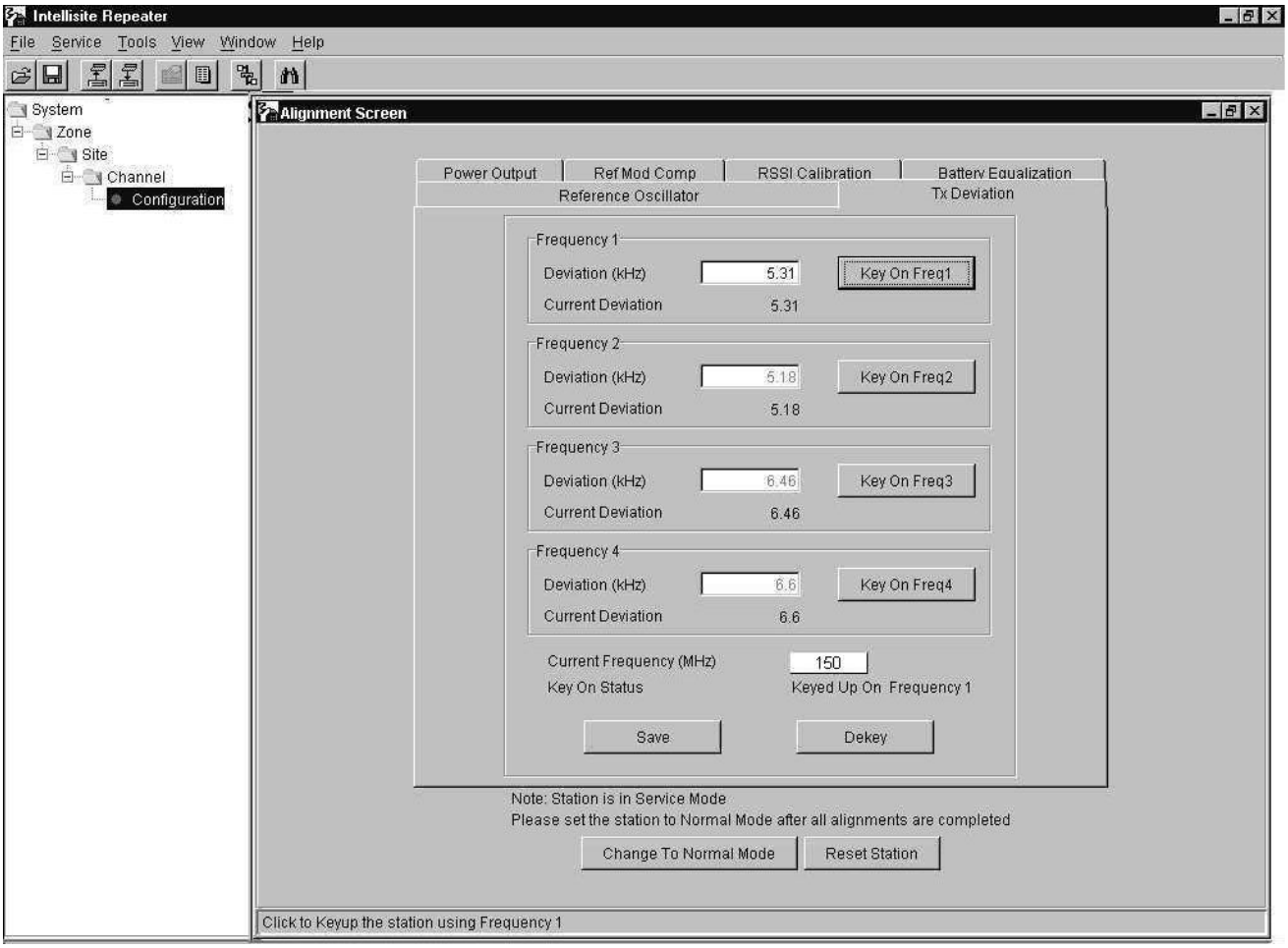
## TUNE-UP PROCEDURE - Reference Oscillator Alignment Screen



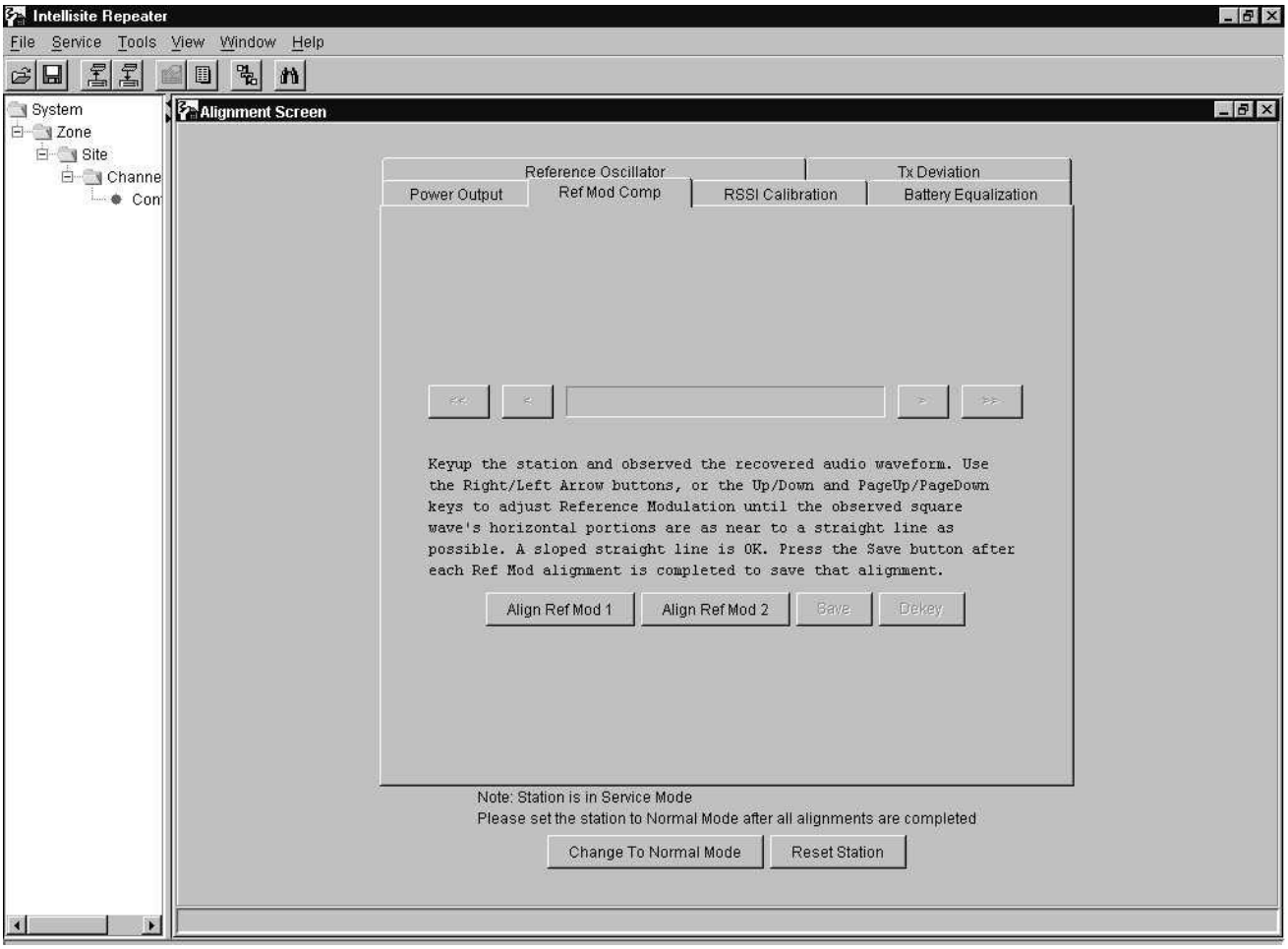
## TUNE-UP PROCEDURE - Transmitter Power Output Alignment Screen



## TUNE-UP PROCEDURE - Transmitter Deviation Alignment Screen



## TUNE-UP PROCEDURE - Reference Modulation Compensation Alignment Screen



MOTOROLA

QUANTAR™

# Digital–Capable Station

**For Conventional, *ASTRO,* 6809 Trunking, and *IntelliRepeater* Systems**

**VHF — 25W & 125W**
**UHF — 25W, 100W, & 110W**
**800 MHz — 20W & 100W**
**900 MHz — 100W**

# PRELIMINARY


## Instruction Manual

68P81095E05–C

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EPS−34440−B

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Motorola radio communications products are warranted to be free from defects in material and workmanship for a period of ONE (1) YEAR, (except for crystals and channel elements which are warranted for a period of ten (10) years) from the date of shipment. Parts, including crystals and channel elements, will be replaced and labor will be provided free of charge for the full warranty period. Thereafter purchaser must pay for the labor involved in repairing the product or replacing the parts at the prevailing rates together with any transportation charges to or from the place where warranty service is provided. This express warranty is extended by Motorola Communications and Electronics, Inc., 1301 E. Algonquin Road, Schaumburg, Illinois 60196, to the original purchaser only, and only to those purchasing for purpose of leasing or solely for commercial, industrial, or governmental use.

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This warranty is void if:

a. the product is used in other than its normal and customary manner;

b. the product has been subject to misuse, accident, neglect or damage;

c. unauthorized alterations or repairs have been made, or unapproved parts used in the equipment.

This warranty extends only to individual products, batteries are excluded. Because each radio system is unique, Motorola disclaims liability for range, coverage, or operation of the system as a whole under this warranty except by a separate written agreement signed by an officer of Motorola.

LICENSED PROGRAMS — Motorola software provided in connection with this order is warranted to be free from reproducible defects for a period of one (1) year. All material and labor to repair any such defects will be provided free of charge for the full warranty period, and SUBJECT TO THE DISCLAIMER IN BOLD FACE TYPE.

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This warranty applies only within the United States.

EPS−48759−O

## FCC INTERFERENCE WARNING

The FCC Requires that manuals pertaining to Class A and Class B computing devices must contain warnings about possible interference with local residential radio and TV reception. This warning reads as follows:

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

MOTOROLA

*Commercial Government and Industrial Solutions Sector*

QUANTAR™

# Digital – Capable Station

**for Conventional, *ASTRO*, 6809 Trunking, and *IntelliRepeater* Systems**

**VHF — 25W & 125W**
**UHF — 25W, 100W, & 110W**
**800 MHz — 20W & 100W**
**900 MHz — 100W**

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***Commercial Government and Industrial Solutions Sector***
1301 E. Algonquin Road, Schaumburg, IL 60196

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## STATION MODULES

### RECEIVER CIRCUITRY



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# MODEL AND OPTION SELECTION PROCEDURE (INCLUDES MODEL/OPTION COMPLEMENTS)

The following equipment ordering scenario is used by the sales representative to equip a *Quantar* station with the proper hardware and firmware for specific system types and customer-defined options and features. The scenario is described here to explain the process and to show the structure and contents of the various options and models.

**1** The sales model is T5365A (as translated from C99ED/001C).

***NOTE:*** *The Sales Model includes only a TRN7795A Base Station Nameplate. Equipping the station with the proper modules is accomplished by ordering additional options, as described in the following steps.*

**2** A System Family Option must be selected as follows:

| System Type | Family Option | VHF | UHF | 800 MHZ | 900 MHZ |
|---|---|---|---|---|---|
| Conventional Analog | X597 | ✓ | ✓ | ✓ | ✓ |
| Conventional *ASTRO* VSELP | X599 | ✓ | ✓ | ✓ | |
| Conventional *ASTRO* CAI | X806 | ✓ | ✓ | ✓ | |
| 6809 Trunking Analog | X997 | ✓ | ✓ | ✓ | ✓ |
| 6809 Trunking *ASTRO* VSELP | X992 | ✓ | ✓ | ✓ | |
| 6809 Trunking *ASTRO* CAI | X900 | ✓ | ✓ | ✓ | |
| SMARTZONE 6809 Trunking *ASTRO* VSELP | X989 | ✓ | ✓ | ✓ | |
| SMARTZONE 6809 Trunking *ASTRO* CAI | X897 | ✓ | ✓ | ✓ | |
| SMARTZONE *IntelliRepeater* Trunking | X999 | ✓ | ✓ | ✓ | ✓ |
| SMARTZONE *IntelliRepeater ASTRO* VSELP | X990 | ✓ | ✓ | ✓ | |
| SMARTZONE *IntelliRepeater ASTRO* CAI | X898 | ✓ | ✓ | ✓ | |

***(Continued)***

**3** The following tables show the available power and band options.

## VHF

| Frequency Range \ Output Power | 25W | 125W |
|---|---|---|
| **VHF High Band Range 1 (132–154 MHz)** | Option X330AA | Option X530AA |
| **VHF High Band Range 2 (150–174 MHz)** | | Option X530AB |

***NOTE:*** *Customer–specified frequencies which are in the 150–154 MHz range are automatically assigned to Range 2 by Order Processing* ***unless*** *one of the following options is ordered:*

***X325 (125W only)*** *— Specifies Range 1 Exciter (overrides automatic assignment to Range 2) where the transmit frequency is between 150 and 154 MHz.*
***X326*** *— Specifies Range 1 Receiver (overrides automatic assignment to Range 2) where the receive frequency is between 150 and 154 MHz.*

*These options are typically used to ensure that the transmit and receive frequencies are in the required customer range; this is required for use with a duplexer module.*

## UHF

| Frequency Range \ Output Power | 25W | 100W | 110W |
|---|---|---|---|
| **UHF Range 0 (380–433 MHz)** | Not Available | Not Available | Option X640AK |
| **UHF Range 1 (403–433 MHz)** | Option X240AA | Not Available | Option X640AA |
| **UHF Range 2 (438–470 MHz)** | Option X240AB | Not Available | Option X640AB |
| **UHF Range 3 (470–494 MHz)** | Not Available | Not Available | Option X640AC |
| **UHF Range 4 (494–520 MHz)** | Not Available | Option X640AD | Not Available |

## 800/900 MHz

| Frequency Range \ Output Power | 20W | 100W |
|---|---|---|
| 800 MHz | Option X250AA | Option X750AA |
| 900 MHz | Not Available | Option X660AA |

***(Continued)***

**4** If no other options are selected, Motorola's Order Processing appends the appropriate standard options (based on power and frequency band) to complete the station equipment list. The tables below show the completed equipment lists for the available options.
If additional options are desired, they must be added to the initial order form. Step 5 lists the available options and the impact each has on the standard equipment configuration.

## VHF

**OPTION X330AA SELECTED IN STEP 3 (VHF Range 1; 25W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| Option from Initial Sales Order | **X330AA** | **VHF High Band Ranges 1 & 2; 25W Transmitter** |
| | TLD3110B | 25 W Power Amplifier Module (VHF R1 & R2) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| Options/Kits Internally Added by Motorola Order Processing | **X131AA** | **Exciter Module (VHF High-Band Range 1)** |
| | CLD1270A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X333AA** | **Receiver Module (VHF High-Band Range 1)** |
| | CLD1250A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AB** | **Power Supply Assembly** |
| | CPN1049B | 265W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AA** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

**OPTION X330AA SELECTED IN STEP 3 (VHF Range 2; 25W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| Option from Initial Sales Order | **X330AA** | **VHF High Band Ranges 1 & 2; 25W Transmitter** |
| | TLD3110B | 25 W Power Amplifier Module (VHF R1 & R2) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| Options/Kits Internally Added by Motorola Order Processing | **X131AB** | **Exciter Module (VHF High-Band Range 2)** |
| | CLD1280A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X333AB** | **Receiver Module (VHF High-Band Range 2)** |
| | CLD1260A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AB** | **Power Supply Assembly** |
| | CPN1049B | 265W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AA** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# VHF

### OPTION X530AA SELECTED IN STEP 3 (VHF Range 1; 125W Transmitter)

| Source | Option/ Kit | Description |
|---|---|---|
| Option from Initial Sales Order | **X530AA** | **VHF High Band Range 1; 125W Transmitter** |
| | TLD3101F | 125 W Power Amplifier Module (VHF R1) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| Options/Kits Internally Added by Motorola Order Processing | **X131AA** | **Exciter Module (VHF High-Band Range 1)** |
| | CLD1270A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X333AA** | **Receiver Module (VHF High-Band Range 1)** |
| | CLD1250A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AA** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

### OPTION X530AB SELECTED IN STEP 3 (VHF Range 2; 125W Transmitter)

| Source | Option/ Kit | Description |
|---|---|---|
| Option from Initial Sales Order | **X530AB** | **VHF High Band Range 2; 125W Transmitter** |
| | TLD3102F | 125 W Power Amplifier Module (VHF R2) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| Options/Kits Internally Added by Motorola Order Processing | **X131AB** | **Exciter Module (VHF High-Band Range 2)** |
| | CLD1280A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X333AB** | **Receiver Module (VHF High-Band Range 2)** |
| | CLD1260A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AA** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# UHF

**OPTION X640AK SELECTED IN STEP 3**
**(*Quantar* UHF; Range 0, 110W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X640AK** | ***Quantar* UHF R0; 110W Transmitter** |
| | CTX1146A | 110 W Power Amplifier Module (UHF R0) |
| | TKN8699A | PA-to-Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AV** | **Exciter Module (UHF, R0)** |
| | CLX1000A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334BB** | **Receiver Module (UHF, R0)** |
| | CRX1027A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7884A | Receiver Module Front Panel w/Tuning Screw Cover |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047E | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AB** | **Station Control Module (SCM); Standard EPIC II** |
| | CLN6961D | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | TGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955B | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040B | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# UHF

**OPTION X240AA SELECTED IN STEP 3**
**(*Quantar* UHF; Range 1, 25W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X240AA** | ***Quantar* UHF R1; 25W Transmitter** |
| | TLE2731A | 25 W Power Amplifier Module (UHF R1) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AA** | **Exciter Module (UHF, R1)** |
| | CLE1230A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AA** | **Receiver Module (UHF, R1)** |
| | CLE1190A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AB** | **Power Supply Assembly** |
| | CPN1049B | 265W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

**OPTION X640AA SELECTED IN STEP 3**
**(*Quantar* UHF; Range 1, 110W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X640AA** | ***Quantar* UHF R1; 110W Transmitter** |
| | TTE2061A | 110 W Power Amplifier Module (UHF R1) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AA** | **Exciter Module (UHF, R1)** |
| | CLE1230A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AA** | **Receiver Module (UHF, R1)** |
| | CLE1190A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# UHF

**OPTION X240AB SELECTED IN STEP 3**
**(*Quantar* UHF; Range 2, 25W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X240AB** | ***Quantar* UHF R2; 25W Transmitter** |
| | TLE2732A | 25 W Power Amplifier Module (UHF R2) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AB** | **Exciter Module (UHF, R2)** |
| | CLE1240A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AB** | **Receiver Module (UHF, R2)** |
| | CLE1200A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AB** | **Power Supply Assembly** |
| | CPN1049B | 265W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12”) |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12” Cabinet** |
| | THN6700A | 12” x 20” Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12” Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

**OPTION X640AB SELECTED IN STEP 3**
**(*Quantar* UHF; Range 2, 110W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X640AB** | ***Quantar* UHF R2; 110W Transmitter** |
| | TTE2062A | 110 W Power Amplifier Module (UHF R2) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AB** | **Exciter Module (UHF, R2)** |
| | CLE1240A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AB** | **Receiver Module (UHF, R2)** |
| | CLE1200A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12”) |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12” Cabinet** |
| | THN6700A | 12” x 20” Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12” Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# UHF

**OPTION X640AC SELECTED IN STEP 3**
**(*Quantar* UHF; Range 3, 110W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X640AC** | ***Quantar* UHF R3; 110W Transmitter** |
| | TTE2063A | 110 W Power Amplifier Module (UHF R3) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AC** | **Exciter Module (UHF, R3)** |
| | CLE1250A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AC** | **Receiver Module (UHF, R3)** |
| | CLE1210A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

**OPTION X640AD SELECTED IN STEP 3**
**(*Quantar* UHF; Range 4, 100W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X640AD** | ***Quantar* UHF R4; 100W Transmitter** |
| | TTE2064A | 100 W Power Amplifier Module (UHF R4) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X132AD** | **Exciter Module (UHF, R4)** |
| | CLE1260A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X334AD** | **Receiver Module (UHF, R4)** |
| | CLE1220A | Receiver Module (Board, Preselector, Hardware) |
| | CLN7334A | Receiver Module Front Panel |
| | TRN7799A | VHF/UHF Tuning Kit |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AD** | **Blank Panels** |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AJ** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# 800 MHz

**OPTION X250AA SELECTED IN STEP 3**
**(800 MHz *Quantar*; 20W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X250AA** | ***Quantar* 800 MHz; 20W Transmitter** |
| | TLF1940A | 20 W Power Amplifier Module (800 MHz) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X133AA** | **Exciter Module (800 MHz)** |
| | CLF1510A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X335AA** | **Receiver Module (800 MHz)** |
| | CLF1530A | Receiver Module (Board, Front Panel, Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AB** | **Power Supply Assembly** |
| | CPN1049B | 265W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AL** | **Blank Panels** |
| | TRN7695A | Single Slot Wide Blank Panel |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AH** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

**OPTION X750AA SELECTED IN STEP 3**
**(800 MHz *Quantar*; 100W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X750AA** | ***Quantar* 800 MHz; 100W Transmitter** |
| | TLF1930C | 100 W Power Amplifier Module (800 MHz) |
| | TKN8699A | PA−to−Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X133AA** | **Exciter Module (800 MHz)** |
| | CLF1510A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X335AA** | **Receiver Module (800 MHz)** |
| | CLF1530A | Receiver Module (Board, Front Panel, Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4−wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini−UHF to N−type coax cable |
| | TKN9126A | Transmitter N−type to N−type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AL** | **Blank Panels** |
| | TRN7695A | Single Slot Wide Blank Panel |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AH** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

# 900 MHz

**OPTION X660AA SELECTED IN STEP 3**
**(900 MHz; 100W Transmitter)**

| Source | Option/ Kit | Description |
|---|---|---|
| **Option from Initial Sales Order** | **X660AA** | ***Quantar* 900 MHz; 100W Transmitter** |
| | TLF1800B | 100 W Power Amplifier Module (900 MHz) |
| | TKN8699A | PA–to–Exciter RF Cable |
| | TRN7480A | Station Interconnect Board (Backplane) |
| | TRN7708A | PA Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| **Options/Kits Internally Added by Motorola Order Processing** | **X134AA** | **Exciter Module (900 MHz)** |
| | CLF1520A | Exciter Module (Board and Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X336AA** | **Receiver Module (900 MHz)** |
| | CLF1540A | Receiver Module (Board, Front Panel, Hardware) |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X43AA** | **Power Supply Assembly** |
| | CPN1047A | 625W Power Supply (AC input; w/o battery chrg) |
| | CLN7261A | Ferrite RFI Suppressor |
| | CPN6086A | Front Panel, Dummy Charger Connector |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X621AY** | **Station Control Module (SCM); Standard EPIC III** |
| | CLN1614A | Station Control Module |
| | TRN7476A | SCM Internal Speaker |
| | TKN8751A | Internal Speaker Cable |
| | **X222AB** | **Front Panel (Station Control Module)** |
| | CGN6157A | Station Control Module Front Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X216AA** | **Wireline Interface Module (WIM) (4–wire)** |
| | CLN6955A | Wireline Interface Board |
| | TKN8731A | WIM Cable |
| | CLN6816A | RFI Suppressor |
| | **C831AA** | **Card Cage** |
| | TRN7479A | Card Cage Assembly (12") |
| | **X142AA** | **Duplex Interface Assembly** |
| | TRN7494A | Duplex Interface (includes ant. connector bracket) |
| | **X249AW** | **RF Cabling** |
| | TKN8753A | Receiver mini–UHF to N–type coax cable |
| | TKN9126A | Transmitter N–type to N–type coax cable |
| | **X187AA** | **Domestic Power Cable** |
| | TRN7663A | AC Line Cord |
| | **X163AL** | **Blank Panels** |
| | TRN7695A | Single Slot Wide Blank Panel |
| | TRN7696A | Dual Slot Wide Blank Panel |
| | CHN6100A | Anti-Vibration/EFI Screws (2) |
| | **X842AB** | **Ethernet Termination Kit** |
| | CLN6885A | Ethernet Termination Hardware |
| | **X430AA** | **12" Cabinet** |
| | THN6700A | 12" x 20" Cabinet |
| | TTN5040A | Grommet |
| | **X362AA** | **Packing** |
| | TBN6625A | Packing for 12" Cabinet |
| | **X436AD** | **Instruction Manual** |
| | 68P81095E05 | *Quantar* Station Functional Manual |

***(Continued)***

**5** The following lists available options that may be selected in addition to the standard model and options (described in Steps 1 thru 4).

## AVAILABLE HARDWARE OPTIONS FOR *QUANTAR* STATION

| Option Category | Option and Complement |
|---|---|
| **Power Supply** | **AC Input Supplies**<br>**X30AA 625W Power Supply with Battery Charger**<br>CPN1048C 625W Power Supply Assembly w/ Battery Charger<br>TKN8732A Battery Charger Cable Kit<br>TKN8786A Battery Temperature Sensor<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>CHN6100A Anti-Vibration/EFI Screws (2)<br>CLN7261A AC Line Cord Ferrite RFI Suppressor<br>CLN7419A Power Supply Front Panel w/Screws<br><br>**X30AB 265W Power Supply with Battery Charger**<br>CPN1050E 265W Power Supply Assembly w/ Battery Charger<br>TKN8732A Battery Charger Cable Kit<br>TKN8786A Battery Temperature Sensor<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>CHN6100A Anti-Vibration/EFI Screws (2)<br>CLN7261A AC Line Cord Ferrite RFI Suppressor<br>CPN6086A Power Supply Front Panel w/Screws<br><br>**DC Input Supplies**<br>**X121AA 210W Power Supply (12/24V DC Input)**<br>TRN7802A 210W Power Supply Assembly (12/24 V DC Input)<br>TKN8732A Battery Charger Cable Kit<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>CHN6100A Anti-Vibration/EFI Screws (2)<br><br>**X112AA 600W Power Supply (24V DC Input)**<br>TRN7801A 600W Power Supply Assembly (24 V DC Input)<br>TKN8732A Battery Charger Cable Kit<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>CHN6100A Anti-Vibration/EFI Screws (2)<br><br>**X113AA 210W Power Supply (48/60 V DC Input)**<br>TRN7803A 210W Power Supply Assembly (48/60 V DC Input)<br>TKN8732A Battery Charger Cable Kit<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>CHN6100A Anti-Vibration/EFI Screws (2)<br><br>**X113AB 600W Power Supply (48/60 V DC Input)**<br>CPN1031B 600W Power Supply Assembly (48/60 V DC Input)<br>TKN8732A Battery Charger Cable Kit<br>TRN5155A 10' Extension Cable w/connectors and fuse block<br>TTN4068A Power Supply Front Panel and Screws<br>CHN6100A Anti-Vibration/EFI Screws (2) |
| **Wireline Interface Module** | **X84AA Omit Standard Wireline Interface Module (WIM)**<br><br>**X144AA Add 8–Wire Wireline Interface Module (WIM)**<br>CLN6956A 8–Wire Wireline Interface Board (WIB)<br>TKN8731A WIM Cable Kit<br>CLN6816A RFI Suppressor |
| **Antenna Relay** | **X371AA Add Antenna Relay**<br>TRN7664A Antenna Relay, Cables, and Mounting Hardware |
| **Duplexer** | **X182BV Add Duplexer Module (UHF R0)**<br>0185417U10 Duplexer (UHF R0; 380–412 MHz)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AC Add Duplexer Module (UHF R1)**<br>0185417U04 Duplexer (UHF R1)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AD Add Duplexer Module (UHF R2)**<br>0185417U05 Duplexer (UHF R2)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AE Add Duplexer Module (UHF R3)**<br>0185417U06 Duplexer (UHF R3)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AF Add Duplexer Module (UHF R4)**<br>0185417U07 Duplexer (UHF R4)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AA Add Duplexer Module (132–146 MHz)**<br>0185417U01 Duplexer (132–146 MHz)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AB Add Duplexer Module (144–160MHz)**<br>0185417U02 Duplexer (144–160 MHz)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AJ Add Duplexer Module (158–174 MHz)**<br>0185417U03 Duplexer (158–174 MHz)<br>TTN5008A Duplexer Mtg Hdwr<br><br>**X182AG Add Duplexer Module (800 MHz)**<br>TDF6980A Duplexer (800 MHz)<br>TTN5008A Duplexer Hardware (4 screws)<br><br>**X182AH Add Duplexer Module (900 MHz)**<br>TDF6542A Duplexer (900 MHz)<br>TTN5008A Duplexer Hardware (4 screws) |
| **Modem** | **X437AA Add *ASTRO* Modem**<br>TRN7668A *ASTRO* Modem Card |

| Option Category | Option and Complement |
|---|---|
| **Circulator** | **CA00187AA Add Triple Circulator (UHF, R0)**<br>TLE9120B Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TLE9140A Low Pass Filter<br>TRN7796A Fan, Peripheral Tray<br><br>**X676AN Add Triple Circulator (UHF, R1 and R2)**<br>TLE9120A Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TLE9140A Low Pass Filter<br>TRN7796A Fan, Peripheral Tray<br><br>**X676AP Add Triple Circulator (UHF, R3 and R4)**<br>TLE9130A Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TLE9140A Low Pass Filter<br>TRN7796A Fan, Peripheral Tray<br><br>**X676AA Add Triple Circulator (132−146 MHz)**<br>TYD4001A Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TYD4010A Low Pass Filter<br>TRN7796A Cooling Fan<br><br>**X676AB Add Triple Circulator (144−160 MHz)**<br>Same as X676AA except substitute TYD4002A Dual Circulator<br><br>**X676AC Add Triple Circulator (158−174 MHz)**<br>Same as X676AA except substitute TYD4003A Dual Circulator<br><br>**X676AQ Add Triple Circulator (800 MHz)**<br>TLF7320A Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TLF7340A Low Pass Filter<br>TRN7796A Fan, Peripheral Tray<br><br>**X676AR Add Triple Circulator (900 MHz)**<br>TLF7330A Dual Circulator<br>TLN3391A 50 Ohm Load with Heat Sink<br>TLF7340A Low Pass Filter<br>TRN7796A Fan, Peripheral Tray |
| **UHSO** | **X873AA Add Internal Ultra High Stability Oscillator**<br>CLN7012A BNC Terminator<br>CHN6100A Anti-Vibration/EFI Screws (2)<br>CLN1477A UHSO Module<br>TTN5070C UHSO Board<br>TTN5071A UHSO Housing and Front Panel<br>TTN5072A UHSO 5 PPB Ovenized Element |
| **Peripheral Tray** | **X696AA Add Peripheral Tray**<br>TRN7751A *Quantar* Peripheral Shelf |
| **Miscellaneous** | HSN1000 External Speaker<br>TRN7738A External Speaker Hardware (bracket and cable)<br><br>HMN1001A Microphone<br><br>*Note that the external speaker and microphone are not options and must be ordered as line items on the STIC−1 order form.* |

# FOREWORD

## Product Maintenance Philosophy

Due to the high percentage of surface-mount components and multi−layer circuit boards, the maintenance philosophy for this product is one of Field Replaceable Unit (FRU) substitution. The station is comprised of self-contained modules (FRUs) which, when determined to be faulty, may be quickly and easily replaced with a known good module to bring the equipment back to normal operation. The faulty module must then be shipped to the Motorola System Support Center for further troubleshooting and repair to the component level.

## Scope of Manual

This manual is intended for use by experienced technicians familiar with similar types of equipment. In keeping with the maintenance philosophy of Field Replaceable Units (FRU), this manual contains functional information sufficient to give service personnel an operational understanding of all FRU modules, allowing faulty FRU modules to be identified and replaced with known good FRU replacements.

The information in this manual is current as of the printing date. Changes which occur after the printing date are incorporated by Instruction Manual Revisions (SMR). These SMRs are added to the manuals as the engineering changes are incorporated into the equipment.

## Service and Replacement Modules

*Motorola System Support Center*
*2214 Galvin Drive*
*Elgin, IL 60123*

*1−800−221−7144*
*Int'l 1−847−576−7300*
*FAX 1−847−576−2172*

For complete information on ordering FRU replacement modules, or instructions on how to return faulty modules for repair, contact the System Support Center (see sidebar).

The following FRU replacement modules are available:

| | |
|---|---|
| Receiver Module (VHF Range 1) | TLN3250A |
| Receiver Module (VHF Range 2) | TLN3251A |
| Receiver Module (UHF, Range 0) | DLN1215A |
| Receiver Module (UHF, Range 1) | TLN3313A |
| Receiver Module (UHF, Range 2) | TLN3314A |
| Receiver Module (UHF, Range 3) | TLN3373A |
| Receiver Module (UHF, Range 4) | TLN3374A |
| Receiver Module (800 MHz) | TLN3315A |
| Receiver Module (900 MHz) | TLN3316A |
| Exciter Module (VHF Range 1) | TLN3252A |
| Exciter Module (VHF Range 2) | TLN3253A |
| Exciter Module (UHF, Range 0) | DLN1214A |
| Exciter Module (UHF, Range 1) | TLN3305A |
| Exciter Module (UHF, Range 2) | TLN3306A |
| Exciter Module (UHF, Range 3) | TLN3375A |
| Exciter Module (UHF, Range 4) | TLN3376A |
| Exciter Module (800 MHz) | TLN3307A |
| Exciter Module (900 MHz) | TLN3308A |
| Power Amplifier Module (VHF 25W, R1 & R2) | TLN3255A |
| Power Amplifier Module (VHF 125W, R1) | TLN3379A |
| Power Amplifier Module (VHF 125W, R2) | TLN3254A |
| Power Amplifier Module (UHF R0; 110W) | DLN1216A |
| Power Amplifier Module (UHF R1; 25W) | TLN3443A |
| Power Amplifier Module (UHF R2; 110W) | TLN3446A |
| Power Amplifier Module (UHF R4; 100W) | TLN3450A |
| Power Amplifier Module (800 MHz 20W) | TLN3441A |
| Power Amplifier Module (800 MHz 100W) | TLN3442A |
| Power Amplifier Module (900 MHz 100W) | TLN3299A |
| Station Control Module (Conventional/6809) | CLN1293A |
| Station Control Module (Conventional/6809 *EPIC III*) | CLN1621A |
| Station Control Module (*IntelliRepeater*) | CLN1294A |
| 4−Wire Wireline Interface Module | CLN1295A |
| 8−Wire Wireline Interface Module | CLN1296A |
| Power Supply Module (625W AC) | TLN3259A |
| Power Supply Module (625W AC w/charger) | TLN3260A |
| Power Supply Module (265W AC) | TLN3261A |
| Power Supply Module (265W AC w/charger) | TLN3262A |
| Power Supply Module (210W 12/24 V DC) | TLN3264A |
| Power Supply Module (210W 48/60 V DC) | TLN3378A |
| Power Supply Module (600W 24 V DC) | TLN3263A |
| Power Supply Module (600W 48/60 V DC) | TLN3377A |
| ASTRO Modem Card | TLN3265A |

# GENERAL SAFETY INFORMATION

The following general safety precautions must be observed during all phases of operation, service, and repair of the equipment described in this manual. The safety precautions listed below represent warnings of certain dangers of which we are aware. You should follow these warnings and all other safety precautions necessary for the safe operation of the equipment in your operating environment.

## General Safety Precautions

- Read and follow all warning notices and instructions marked on the product or included in this manual before installing, servicing or operating the equipment. Retain these safety instructions for future reference. Also, all applicable safety procedures, such as Occupational, Safety, and Health Administration (OSHA) requirements, National Electrical Code (NEC) requirements, local code requirements, safe working practices, and good judgement must be used by personnel.
- Refer to appropriate section of the product service manual for additional pertinent safety information.
- Because of danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modifications of equipment.
- Identify maintenance actions that require two people to perform the repair. Two people are required when:
  - A repair has the risk of injury that would require one person to perform first aid or call for emergency support. An example would be work around high voltage sources. A second person may be required to remove power and call for emergency aid if an accident occurs to the first person.
    **Note** *Use the National Institute of Occupational Safety and Health (NIOSH) lifting equation to determine whether a one or two person lift is required when a system component must be removed and replaced in its rack.*
- If troubleshooting the equipment while power is applied, be aware of the live circuits.
- DO NOT operate the transmitter of any radio unless all RF connectors are secure and all connectors are properly terminated.
- All equipment must be properly grounded in accordance with Motorola Standards and Guideline for Communications Sites “R56” 68P81089E50 and specified installation instructions for safe operation.
- Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect if from overheating, these slots and openings must not be blocked or covered.
- Only a qualified technician familiar with similar electronic equipment should service equipment.
- Some equipment components can become extremely hot during operation. Turn off all power to the equipment and wait until sufficiently cool before touching.

## Human Exposure Compliance

This equipment is designed to generate and radiate radio frequency (RF) energy by means of an external antenna. When terminated into a non–radiating RF load, the base station equipment is certified to comply with Federal Communications Commission (FCC) regulations pertaining to human exposure to RF radiation in accordance with the FCC Rules Part 1 section 1.1310 as published in title 47 code of federal regulations and procedures established in TIA/EIA TSB92, Report On EME Evaluation for RF Cabinet Emissions Under FCC MPE Guidelines. Compliance to FCC regulations of the final installation should be assessed and take into account site specific characteristics

such as type and location of antennas, as well as site accessibility of occupational personnel (controlled environment) and the general public (uncontrolled environment). This equipment should only be installed and maintained by trained technicians. Licensees of the FCC using this equipment are responsible for insuring that its installation and operation comply with FCC regulations Part 1 section 1.1310 as published in title 47 code of federal regulations.

Whether a given installation meets FCC limits for human exposure to radio frequency radiation may depend not only on this equipment but also on whether the "environments" being assessed are being affected by radio frequency fields from other equipment, the effects of which may add to the level of exposure. Accordingly, the overall exposure may be affected by radio frequency generating facilities that exist at the time the licensee's equipment is being installed or even by equipment installed later. Therefore, the effects of any such facilities must be considered in site selection and in determining whether a particular installation meets the FCC requirements.

FCC OET Bulletin 65 provides materials to assist in making determinations if a given facility is compliant with the human exposure to RF radiation limits. Determining the compliance of transmitter sites of various complexities may be accomplished by means of computational methods. For more complex sites direct measurement of the power density may be more expedient. Additional information on the topic of electromagnetic exposure is contained in the Motorola Standards and Guideline for Communications Sites publication. Persons responsible for installation of this equipment are urged to consult the listed reference material to assist in determining whether a given installation complies with the applicable limits.

In general the following guidelines should be observed when working in or around radio transmitter sites:

- All personnel should have electromagnetic energy awareness training
- All personnel entering the site must be authorized
- Obey all posted signs
- Assume all antennas are active
- Before working on antennas, notify owners and disable appropriate transmitters
- Maintain minimum 3 feet clearance from all antennas
- Do not stop in front of antennas
- Use personal RF monitors while working near antennas
- Never operate transmitters without shields during normal operation
- Do not operate base station antennas in equipment rooms

For installations outside of the U.S., consult with the applicable governing body and standards for RF energy human exposure requirements and take the necessary steps for compliance with local regulations.

## References

TIA/EIA TSB92 "Report On EME Evaluation for RF Cabinet Emissions Under FCC MPE Guidelines," Global Engineering Documents: http://global.ihs.com/

FCC OET Bulletin 65 "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields": http://www.fcc.gov/oet/rfsafety/.

Motorola Standards and Guideline for Communications Sites, Motorola manual 68P81089E50.

IEEE Recommended Practice for the Measure of Potentially Hazardous Electromagnetic Fields – RF and Microwave, IEEE Std C95.3–1991, Publication Sales, 445 Hoes Lane, P.O. Box 1331, Piscattaway, NJ 08855–1331

IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, IEEE C95.1–1991, Publication Sales, 445 Hoes Lane, P.O. Box 1331, Piscattaway, NJ 08855–1331.

# PERFORMANCE SPECIFICATIONS

## *General*

| | | | | |
|---|---|---|---|---|
| TX Sub−Band Range | **VHF**<br>132−154 MHz (R1)<br><br>150−174 MHz (R2) | **UHF**<br>380−433 MHz (R0)<br>403−433 MHz (R1)<br>438−470 MHz (R2)<br>470−494 MHz (R3)<br>494−520 MHz (R4) | **800**<br>851−870 MHz | **900**<br>935−941 MHz |
| RX Sub−Band Range | **VHF**<br>132−154 MHz (R1)<br><br>150−174 MHz (R2) | **UHF**<br>380−433 MHz (R0)<br>403−433 MHz (R1)<br>438−470 MHz (R2)<br>470−494 MHz (R3)<br>494−520 MHz (R4) | **800**<br>806−825 MHz | **900**<br>896−902 MHz |
| Number of Channels | 16 | | | |
| Channel Spacing | **VHF:** 30, 25, 12.5 kHz | **UHF/800:** 12.5, 25 kHz | **900:** 12.5 kHz | |
| Frequency Generation | Synthesized | | | |
| Power Supply Type | Switching | | | |
| Power Supply Input Voltage | 90−280 V ac | | | |
| Power Supply Input Frequency | 47−63 Hz | | | |
| Battery Revert | 12V (25W radios)<br>24V (100W, 110W, and 125W radios) | | | |
| T/R Separation (without duplexer option) | **VHF/UHF:** Any spacing within same sub-band | **800:** 45 MHz | **900:** 39 MHz | |
| T/R Separation (with duplexer option) | **VHF/UHF:** $\geq$ 1.5 MHz | **800:** 45 MHz | **900:** 39 MHz | |
| Temperature Range (ambient) | —30° C to +60° C | | | |

# PERFORMANCE SPECIFICATIONS (Cont'd)

## *Receiver*

| | | | | |
|---|---|---|---|---|
| I–F Frequencies | **VHF**<br>21.45 MHz (1st)<br>450 kHz (2nd) | **UHF**<br>73.35 MHz (1st)<br>450 kHz (2nd) | **800**<br>73.35 MHz (1st)<br>450 kHz (2nd) | **900**<br>73.35 MHz (1st)<br>450 kHz (2nd) |
| Preselector Bandwidth | **VHF/UHF:** 4 MHz | **800:** 19 MHz | **900:** 6 MHz | |
| Sensitivity (12 dB SINAD) | **VHF:** 0.25 μV | **UHF:** 0.35 μV | **800/900:** 0.30 μV | |
| Sensitivity (20 dB Quieting) | **VHF:** 0.35 μV | **UHF:** 0.5 μV | **800/900:** 0.42 μV | |
| Adjacent Channel Rejection | **VHF**<br>90 dB (25/30 kHz)<br>80 dB (23.5 kHz) | **UHF**<br>75 dB (12.5 kHz)<br>85 dB (25 kHz) | **800**<br>70 dB (12.5 kHz)<br>80 db (25 kHz) | **900**<br>70dB |
| Intermodulation Rejection | **VHF**<br>85 dB (25/30 kHz)<br>80 dB (30 kHz) | **UHF**<br>85 dB | **800**<br>85 dB | **900**<br>70 dB |
| Spurious and Image Rejection | 100 dB | | | |
| Wireline Output | –20 dBm to 0 dBm @ 60% Rated System Deviation, 1 kHz | | | |
| Audio Response (Analog Mode) | +1, –3 dB from 6 dB per octave de–emphasis; 300–3000 Hz referenced to 1000 Hz at line input | | | |
| Audio Distortion | Less than 3% @ 1000 Hz | | | |
| FM Hum and Noise (300 to 3000 kHz bandwidth) | **VHF**<br>50 dB (25/30 kHz)<br>45 dB (12.5 kHz) | **UHF**<br>45 dB (12.5 kHz)<br>50 dB (25 kHz) | **800**<br>45 dB (12.5 kHz)<br>50 dB (25 kHz) | **900**<br>45 db |
| Frequency Stability | **VHF/UHF/800:** 1 ppm | **900:** 0.1 ppm | | |
| RF Input Impedance | 50 Ω | | | |
| FCC Designation (FCC Rule Part 15) | **VHF:** ABZ89FR3776<br>**900:** ABZ89FR5768 | **UHF:** ABZ89FR4796 | **800:** ABZ89FR5757 | |

# PERFORMANCE SPECIFICATIONS (Cont'd)

## *Transmitter*

| | | | | |
|---|---|---|---|---|
| Power Output | **VHF**<br>6–25W<br>25–125W | **UHF**<br>5–25W<br>25–110W | **800**<br>5–20W<br>20–100W | **900**<br>25–100W |
| Electronic Bandwidth | Full sub–band | | | |
| Intermodulation Attenuation | **VHF:** 20 dB (single circulator; standard on all PAs)<br>65 dB (triple circulator – requires triple circulator option)<br>**UHF:** 50 dB (single circulator; standard on all PAs)<br>**800:** 50 dB (single circulator; standard on all PAs)<br>**900:** 20 dB (single circulator; standard on all PAs)<br>70 dB (triple circulator – requires triple circulator option) | | | |
| Spurious and Harmonic Emissions Attenuation | 90 dB | | | |
| Deviation | **VHF, UHF, and 800**<br>±5 kHz (25 kHz)<br>±2.5 kHz (12.5 kHz) | | **900**<br>±2.5 kHz | |
| Audio Sensitivity | –35 dBm to 0 dBm (variable) | | | |
| Audio Response (Analog Mode) | +1, –3 dB from 6 dB per octave pre–emphasis; 300–3000 Hz referenced to 1000 Hz at line input | | | |
| Audio Distortion | Less than 2% @ 1000 Hz @ 60% rated system deviation | | | |
| FM Hum and Noise (300 to 3000 Hz bandwidth) | 45 dB nominal (12.5 kHz)<br>50 dB nominal (25/30 kHz) | | | |
| Frequency Stability | **VHF, UHF, 800:** 1 ppm | | **900:** 0.1ppm | |
| RF Output Impedance | 50 Ω | | | |
| FCC Designation | **VHF**<br>25W: ABZ89FC3774 (FCC Rule Parts 22, 74, 80, 90)<br>125W: ABZ89FC3773 (Parts 22,74,80,90); ABZ89FC3773-D (Part 90) | | | |
| | **UHF**<br>25W/R1–2: ABZ89FC4797 (FCC Rule Parts 22, 74, 90)<br>110W/R0-1: ABZ89FC4798-D (Part 90); ABZ89FC4798-A (Part 90)<br>110W/R1–3: ABZ89FC4798 (FCC Rule Parts 22, 90)<br>100W/R4: ABZ89FC4798 (FCC Rule Part 74) | | | |
| | **800**<br>20W: ABZ89FC5775 (FCC Rule Parts 22, 90)<br>100W: ABZ89FC5776 (Parts 22,90); ABZ89FC5776-D (Part 90) | | | |
| FCC Designation | **900**<br>100W: ABZ89FC5767 (FCC Rule Part 90) | | | |

*Measurement Methods per TIA/EIA–603*
*Specifications subject to change without notice*