

M/A-COM PRS BASE RADIO EQUIPMENT PROPOSAL

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CRS -0095

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Status icons are indicators, which show the various operating characteristics of the radio. The icons show operating modes and conditions and appear on the third line of the display. 69

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CONVENTIONAL PANTHER™ 405P VHF, UHF

Compact and lightweight, the PANTHER 405P delivers loud and clear audio with the features customers demand. With 16 programmable channels and a full range of audio accessories, the PANTHER 405P provides reliable conventional communications with a range of features to adapt to most applications.

Product Overview

The PANTHER 405P is a reliable, easy-to-use conventional portable, with up to 16 wideband or narrowband channels.

Wideband Operation

The PANTHER 405P operates across the full frequency range of the model with no need for tuning. The portable is available in VHF, from 136 to 174 MHz, and two (2) UHF bandsplits, from 400 to 470 MHz and from 450 to 520 MHz. In addition, VHF models are available to support 7.5 kHz interstitial frequencies to meet spectrum requirements.



Easy to Use

The PANTHER 405P was designed for ease of use. Its ergonomic shape fits comfortably in the user's hand and the On/Off/Volume and Channel controls are conveniently located on the top of the portable. Two (2) programmable keys allow users to access up to four (4) of their most frequently used functions with the press of a button.

Handset Mode

While continuing Push-to-Talk (PTT) operation, the user may operate the radio in Handset Mode. This mode permits users to hold the portable like a telephone for greater privacy without broadcasting the message. When in this mode, the audio volume is attenuated because the speaker is close to the user's ear. The radio's design incorporates dual internal microphones, allowing the user to select the preferred position for speaking and listening to the radio.

Accessory Connector

A versatile UDC allows users to attach a full range of accessories or connect to a PC for programming, testing, and calibration.

Reliable Construction

The PANTHER 405P is a durable radio built to withstand demanding use. The portable meets select applicable MIL-STD-810E and IP54 standards.

Intrinsically Safe

The PANTHER 405P can be ordered with an intrinsically safe option for use in hazardous environments.

Overtime Capacity

Users may choose from three battery capacities to select the battery that best suits their needs. In addition, the portable's Economy Mode helps to conserve battery life.

Signaling Features

Signaling features include European 5-tone sequential encode/decode, Channel Guard (CTCSS) encode/decode, and Digital Channel Guard encode/decode.

These signaling features allow the radio user to hear only those calls intended for that specific user.

In addition, the portable supports Type 99 decode and G-STAR™ encode signaling. Type 99 allows paging of individual radios. G-STAR allows the dispatcher to see the unique ID number associated with each radio. In emergency mode, G-STAR radios transmit the emergency signal as well as the unique ID to the dispatcher.

For More Information

For more information about this or any other M/A-COM product, call in the U.S.A. 1-800-431-2345. From outside the U.S.A., call +1-434-832-6592.

General Specifications

Dimensions (H x W x D):

Minus Knobs and Antenna

With 1100 mAh Battery:

6.06 x 2.60 x 1.80 in.

154 x 66 x 46 mm

Weight:

Radio Without Battery:

8.4 oz (237g)

Radio With 1100 mAh NiCd Battery:

17.5 oz (495g)

Radio With 1500 mAh NiCd Battery:

18.5 oz (525g)

Radio With 2000 mAh NiMH Battery:

19.4 oz (550g)

Input Voltage:

7.5 VDC (Nominal)

6.0-9.0 VDC (Operating Range)

33% (2 min Tx, 4 min Rx)

Current Consumption:

Standby (high economy duty cycle):

40 mA (typical)

Receiver Squelched: 80 mA (typical)

Receiver Rated Audio: 300 mA (typical)

Tx Current to 520 MHz (low/high):

800 mA/1.5A (typical)

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Generic Equipment

Batteries:

1100 mAh NiCd:

Dimensions (H x W x D):

4.65 x 2.44 x 0.80 in.

(118 x 62 x 20.5 mm)

1500 mAh NiCd:

Dimensions (H x W x D):

4.65 x 2.44 x 0.94 in.

(118 x 62 x 23.8 mm)

2000 mAh NiMH:

Dimensions (H x W x D):

4.65 x 2.44 x 0.94 in.

(118 x 62 x 23.8 mm)

Ambient Temperature Range:

-20 to +140°F (-29 to +60°C) NiCd

14 to 122°F (-10 to +50°C) NiMH

Relative Humidity:

95% maximum

Case Color:

Black

Options and Accessories

Speaker microphones, earpiece, single-unit and multi-unit rapid chargers, PC programming software and cable, vehicular chargers, leather case, belt clips, and strap.

Intrinsically Safe Options

Factory Mutual Intrinsically Safe for Class I, Division 1, Groups C, D, T3C. Nonincendive for Class I, Division 2, Groups A, B, C, D, T3C.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment****Transmitter****ALL PERFORMANCE PARAMETERS MEASURED
IN ACCORDANCE WITH TIA/EIA-603
PROCEDURES.**

Frequency Range (MHz):	136-174	400-470 or 450- 520
Rated RF Power (Programmable) (W):	1/2.5/5	1/2.5/4
Narrowband (NB) Channel Spacing (kHz):		12.5/15 25/30
Wideband (WB) Channel Spacing (kHz):		
Maximum Frequency Separation (MHz):		Full Frequency Split
Programmable Channel Increments (kHz):		5.0/6.25/7.5*
Frequency Stability (-30 to +60°C; +25°C (ppm):		±2.5
FM Hum and Noise		
Wideband mode (dB):		38
Narrowband mode (dB):		34
Audio Response:		Per TIA/EIA-603, Par. 5.2.6
Audio Distortion (%):		<5
Spurious and Harmonics (dBm):		<-26
Modulation/Deviation (kHz):		5.0 (WB)/2.5 (NB)

*Programmable in 7.5 kHz increments for narrowband operation, only within the 150-174 MHz band, on Interstitial Frequencies as defined by 47 CFR 90.209

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment****Receiver****ALL PERFORMANCE PARAMETERS MEASURED
IN ACCORDANCE WITH TIA/EIA-603
PROCEDURES.**

Frequency Range (MHz):	136-174	400-470 or 450- 520
Narrowband (NB) Channel Spacing (kHz):		12.5/15 25/30
Wideband (WB) Channel Spacing (kHz):		
Programmable Channel Increments (kHz):		5.0/6.25/7.5*
FM Hum and Noise		
Wideband mode (dB):		38
Narrowband mode (dB):		34
Audio Response:		Per TIA/EIA-603, Par. 5.2.6
Sensitivity (12 dB SINAD)		
Wideband mode (dBm):	<-117.0 (-119 dBm, 0.25 ?V typ)	
Narrowband mode (dBm):	<-117.0 (-119 dBm, 0.25 ?V typ)	
Selectivity		
Wideband mode (dB):		>70
Narrowband mode (dB):		>65
Intermodulation		
Wideband mode (dB):		>70
Narrowband mode (dB):		>70
Spurious and Image Rejection (dB):		>65
Rated Audio Output (W):		0.5 at <5% distortion

*Programmable in 7.5 kHz increments for narrowband operation, only within the 150-174 MHz band, on Interstitial Frequencies as defined by 47 CFR 90.209

Environmental Specifications and Industry Standards

Standard	Parameter	Methods Procedures	&
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Generic Equipment

Procedures

U.S. MIL-STD-810E	Temperature - High and Low	501.3/I and 502.3/II
	Blowing Rain	506.3/I (also 810C 506.1/I)
	Humidity	507.3/III (Cycle 10)
	Salt Fog	509.3/I
	Blowing Dust	510.3/I
	Blowing Sand	510.3/II
	Shock (unpacked)	516.4/IV
	Vibration	514.4/I
IP54	Dust and water	IEC 529 1939
NTIA Standards, January 2000 edition	Spectrum All	TIA/EIA-603

Regulatory Data

Frequency Range (MHz)	RF Output (W)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules
136-174	5/1	CASTEL 0018	Part 15, 90	3636195425 A	RSS-119
400-470	4/1	CASTEL 0015	Part 15, 90	3636196820 A	RSS-119
450-530	4/1	CASTEL 0015	Part 15, 90	NA	NA

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Generic Equipment

CONVENTIONAL PANTHER™ 605M

VHF, UHF



The PANTHER 605M was designed to meet the needs of large communications systems: 100-channel capacity, programmable signaling options, full keypad dialing, and a full range of accessories. The PANTHER 605M can be customized to match system requirements.

Product Overview

Compact and feature-rich, the PANTHER 605M provides loud and clear communications, even in demanding environments.

Wideband Operation

The PANTHER 605M operates across the full frequency range of the model with no need for tuning. The mobile is available in one VHF bandsplit, from 136 to 174 MHz, and two UHF bandsplits, from 400 to 470 MHz and from 450 to 520 MHz.

Interstitial Frequencies

VHF models are available to support 7.5 kHz interstitial frequencies to meet spectrum requirements.

Easy to Use

An alphanumeric LCD, clearly marked and backlit keys, full keypad dialing, and audible tones help to make operation simple.

100 Channels with Priority Scan

Users may program up to 100 channels. Priority scan allows users to monitor multiple channels while designating the critical channel as a scanning priority.

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Alphanumeric Labels

The radio can be programmed with alphanumeric labels for up to 20 frequently called numbers. Users simply enter the alphanumeric label of a preset number instead of dialing that number, allowing quick selection and initiation.

Signaling Features

The PANTHER 605M features a number of signaling options, including European five-tone sequential encode/decode, Channel Guard (CTCSS) encode/decode, and Digital Channel Guard encode/decode.

In addition, Type 99 and G-STAR™ signaling are available. Type 99 provides individual calling. G-STAR displays the unique ID number associated with each radio and in emergency mode transmits the unique ID number and the emergency signal.

Channel Busy Lock-Out

This feature prevents stepped-on messages by prohibiting transmission on a frequency that is already being used.

Unique Mounting

The unique locking clamshell mounting frame provides easy installation and removal. The PANTHER 605M can be readily moved from one vehicle to another using a specialized tool to unlock the transceiver from the mounting frame.

Options and Accessories

The optional hands-free voice-operated transmission (VOX) kit provides the versatility users need to focus on the task at hand. The sound of the radio user's voice activates the transmitter, freeing the user from microphone handling and Push-to-Talk (PTT) operation.

The optional voice inversion scrambler provides call privacy. The scrambler encodes transmissions so that even if they are overheard, the voice sounds garbled.

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Generic Equipment

For More Information

For more information about this or any other M/A-COM Private Radio Systems product, call 1-800-431-2345 in the U.S.A. From outside the U.S.A., call +1-434-832-6592.

General Specifications

Dimensions (H x W x D):

Radio Unit (minus knobs):

1.97 x 5.90 x 7.28 in.

(50 x 150 x 185 mm)

Weight (average):

Radio Only: 2.65 lb (1.2 kg)

System Voltage:

13.8 nominal

10.8 to 16V operating range

Ambient Temperature Range:

-22 to +140°F (-30 to +60°C)

Relative Humidity:

95% maximum

Duty Cycle:

33% (2 min Tx, 4 min Rx)

Current Drain:

Standby:

320 mA

Receive:

1.2A (full audio)

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Transmit (25W):

7A

Display:

Alphanumeric LCD with individual function and channel LEDs

Installation:

Hardware includes mounting bracket, mounting hardware kit (mic hanger, fuse kit, and BNC antenna cable connector), power cable, and external speaker.

Construction:

Die-cast aluminum frame, top and bottom covers for main body. Plastic (Noryl SE1) user interface head unit.

Options and Accessories

DTMF microphone, PC programming software and cable, external 4W speaker, accessory cable, hands-free kit, noise suppression kit, scrambler, desktop power supply, and desktop microphone.

Transmitter

All performance parameters measured in accordance with TIA/EIA-603 procedures.

Frequency Range (MHz): 136-174, 400-470, 450-520

Maximum Frequency Separation Full Frequency Split
(MHz):

Narrowband (NB) Channel 12.5/15

Spacing (kHz):

Wideband (WB) Channel Spacing 25/30
(kHz):

Programmable Channel 5.0/6.25

Increments (kHz):

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Rated RF Power (Programmable) (W):	5 to 25
Frequency Stability (-30 to +60°C; +25°C Ref) (ppm):	? 3
FM Hum and Noise	
Wideband mode (dB):	42
Narrowband mode (dB):	36
Audio Response (Hz):	Per TIA/EIA-603, Par. 3.2.6
Audio Distortion (%):	<5
Spurious and Harmonics (dBm):	<-26
Modulation/Deviation (kHz):	5.0 (WB)/2.5 (NB)

Receiver

All performance parameters measured in accordance with TIA/EIA-603 procedures.

Maximum Frequency Range (MHz): 136-174, 400-470, 450-520

Maximum Frequency Separation Full Frequency Split (MHz):

Narrowband (NB) Channel Spacing 12.5/15 (kHz):

Wideband (WB) Channel Spacing 25/30 (kHz):

Programmable Channel Increments 5.0/6.25 (kHz):

FM Hum and Noise

 Wideband mode (dB): 42

 Narrowband mode (dB): 36

Audio Response (Hz): Per TIA/EIA-603, Par. 3.1.10

Sensitivity (12 dB SINAD): <-117.0

Selectivity

 Wideband mode (dB): >70

 Narrowband mode (dB): >65

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Generic Equipment

Intermodulation

Wideband mode (dB): >70

Narrowband mode (dB): >70

Spurious and Image Rejection (dB): >70

Rated Audio Output

Internal/External speaker (W): 4 at <5% distortion

Environmental Specifications and Industry Standards

Standard	Parameter	Methods & Procedures
MIL-STD-810E	Humidity	507.3/III
	Minimum Integrity Vibration	514.4/1, Category 10
	Functional/Basic Shock	516.4/1
NTIA Standards, January 2000 edition	Spectrum All	TIA/EIA-603

Regulatory Data

Frequency Range (MHz)	RF Output (W)	FCC Acceptance Number	Type	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules
136-174	25/5	CASTEL0052		Part 22, 90	3636195746A	RSS-119, RSS-102
400-470	25/5	CASTEL0054		Part 90.210	90,3636195750A	RSS-119, RSS-102
450-520	25/5	CASTEL0055		Part 90.210	90,NA	NA

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DESKTOP STATIONS - JAGUAR 725M

M/A-COM Private Radio Systems, Inc. (M/A-COM) proposes to provide a desktop station that is based on the Jaguar 725M mobiles. The Jaguar 725M Desktop Station is a totally self-contained unit with AC power supply, desktop microphone, and housing containing the speaker and (optional) keypad. Functional capabilities are not compromised when the Jaguar 725M mobile radio is purchased to fit in the Desktop Unit.

Design Features

The Jaguar 725M Desktop Station is used with either the DC and Tone Remote Controller or the DDC-100 Desktop Controllers to access the complete range of features for the Orion radio that it houses.

The DC and Tone Remote Controller

The DC and Tone Remote Controller is a versatile, full-function accessory used for operating and controlling a remotely located base station over telephone lines or a continuously keyed radio frequency link. Its compact size and attractive appearance make it an asset to any shop or office location. Available space is maximized with its built-in speaker, indicators, controls, and handset (or small desk microphone).

Two types of signaling are offered to meet the requirements of different applications.

?? DC Signaling

Models with DC current signaling may be used wherever control lines have DC continuity and up to 4 channels are needed or wherever a remote station requires this type of signaling method.

?? Tone Signaling

Tone signaling is recommended whenever control lines lack DC continuity or when up to 4 channels are required.

?? Parallel Operation

Ten or more DC and Tone Controllers may be used in parallel to effectively control a single-frequency Tone Remote Base Station.

?? Versatile

The user can control specific trunked and conventional channels over standard telephone lines with a full-function Remote Controller. The DC and Tone Remote Controller may

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also be used to communicate with appropriately equipped base stations or other remote controllers in an intercom mode without activating the transmitter. The DC and Tone Remote Controller is designed to easily fit on a desk or shelf but may also be housed in an optional wall mount configuration.

The DDC-100 Desktop Controller

The DDC-100 is designed for users who need to remotely control a Jaguar 725M Desktop Station and access more of its features than is possible with standard DC or Tone remotes. The LED-equipped keypad and LCD of the DDC-100 allow access to most of the Jaguar features such as scan, system/group, up/down, emergency, status, menu, and others. Transparent keycaps with movable labels, when used with PC programming software, allow full customization of the keypad for special applications. Options such as PTT footswitch, headset, and desktop microphone support dispatch operators in a wide variety of environments and applications. The telephone-like ergonomics of the DDC-100 make it ideal for office environments.

?? Exceptional Control

Essential features typically required in desktop radio controllers are included at no additional cost with the DDC-100. A controller can be configured as a supervisor unit to allow it special control over the other controllers on the network. A supervisor unit may enter Takeover Mode, allowing the unit to pre-empt other desktop controllers on the network. Privacy Mode allows a particular desktop remote to mute all other remotes on the network (except the supervisor unit) to allow the operator to converse over the radio without others listening. The Intercom feature allows a dispatch operator to converse with other operators on the network without using the radio. Parallel Status updates on the LCD indicate the radio's current mode, which system, GID, or LID has been selected, and when the radio is in use by another operator.

?? Superior Audio Features

Superior audio features make the DDC-100 easy for operators to use. Automatic Gain Control (AGC) circuitry compensates for the distance between the desktop controllers and the radio so that the volume levels remain at their optimum settings throughout the network. The Voice-Operated Switch (VOX) prevents any annoying line hum present from being heard by the operator. The integrated speaker, microphone, and handset are included as standard equipment with every desktop controller so that each operator may select "speakerphone" operation or private conversation.

?? Flexible Configuration

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Generic Equipment

Up to 25 remotes may be located up to 2,000 feet away from the radio. Flexible network topologies (ring, star, or 'T' configurations) and use of in-building, 3-twisted-pair wiring make installation easy and inexpensive. The DDC-100's small footprint and internally mounted termination panel provide for an uncluttered and space-efficient installation.

MOBILE RADIOS - JAGUAR 725M



Based on the tradition of M/A-COM's popular Orion mobile, the Jaguar 725M was designed to meet the critical communications demands of public safety users. It is feature-rich and mobile built to deliver superior performance, flexibility, and reliability. Some of its key features and capabilities are:

- ?? Rugged construction meeting Mil-STD 810E and TIA/EIA-603 shock and vibration requirements, ideal for public safety users
- ?? Capable of operating in the analog, Project 25 digital conventional, Project 25 Common Air Interface (CAI), EDACS trunking, and mobile data modes
- ?? Utilizes M/A-COM's third generation digital voice technology (IMBE vocoder) that provides unmatched voice quality and voice recognition, even in weak signal areas
- ?? Based on Digital Signal Processor architecture, providing a software-based mobile that is feature rich and easily expandable through software upgrades to meet IRS's specific requirements
- ?? Provides all the public safety features requested in the IRS Specification, such as Unit ID, Emergency, Talk-Around, Over-the-Air Rekeying, Over-the-Air-Programming, Encryption, Voice and Data capability, to name a few

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?? Offers extremely flexible operating features such as Dual Transceivers, Dual Control Heads, a new Hand Held Controller (for covert operations and where space is limited), Motorcycle Kit option, and flexible mounting configurations

The Jaguar 725M Mobile capable of narrow-band and wide-band operation up to 110 watts of output power in VHF, 80W at UHF and 35W at 800 MHz as delineated below in Table C.3-1.

The Jaguar 725M is currently available in 800 MHz. The VHF and UHF Jaguar 700M are currently under development. The VHF version of the Jaguar 725M will be available in October 2002. The UHF version of the Jaguar 725M will be available 1Q CY2003.

The Jaguar 725M offers many options and accessories such as Dual Control Units, Dual Transceivers, Hand Held Controller, Siren and Light Controls, mobile microphone, DTMF microphone, noise canceling microphone, and desk microphone, as well as various mounting accessories to functionally increase operation.

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CONVENTIONAL ORION™ MOBILE



Overview

The Conventional Orion mobile is a switchable radio designed for a variety of users. The Orion offers a host of features and services and is available in both Scan and System models. It can operate in Low Band, VHF, UHF, or 800 MHz. The Orion offers a new standard of excellence for small size, high specifications, and feature-laden performance.

Design Features

The Orion mobile radio is designed to withstand harsh environments. Because of its compact size, the transceiver may be mounted either under the vehicle dash or remotely. Its 2-line, 16-character, alphanumeric display names Systems/Groups/Individuals or Conventional Channels. The Photo Sensor sets the display to accommodate ambient lighting. In addition, the Vacuum Fluorescent Display improves the visibility and readability of the display.

DESKTOP STATIONS - JAGUAR 725M

The Jaguar 725M Desktop Station is a totally self-contained unit with AC power supply, desktop microphone, and housing containing the speaker and (optional) keypad. Functional capabilities are not compromised when the Jaguar 725M mobile radio is purchased to fit in the Desktop Unit.

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Design Features

The Jaguar 725M Desktop Station is used with either the DC and Tone Remote Controller or the DDC-100 Desktop Controllers to access the complete range of features for the Orion radio that it houses.

The DC and Tone Remote Controller

The DC and Tone Remote Controller is a versatile, full-function accessory used for operating and controlling a remotely located base station over telephone lines or a continuously keyed radio frequency link. Its compact size and attractive appearance make it an asset to any shop or office location. Available space is maximized with its built-in speaker, indicators, controls, and handset (or small desk microphone).

Two types of signaling are offered to meet the requirements of different applications.

?? DC Signaling

Models with DC current signaling may be used wherever control lines have DC continuity and up to 4 channels are needed or wherever a remote station requires this type of signaling method.

?? Tone Signaling

Tone signaling is recommended whenever control lines lack DC continuity or when up to 4 channels are required.

?? Parallel Operation

Ten or more DC and Tone Controllers may be used in parallel to effectively control a single-frequency Tone Remote Base Station.

?? Versatile

The user can control specific trunked and conventional channels over standard telephone lines with a full-function Remote Controller. The DC and Tone Remote Controller may also be used to communicate with appropriately equipped base stations or other remote controllers in an intercom mode without activating the transmitter. The DC and Tone Remote Controller is designed to easily fit on a desk or shelf but may also be housed in an optional wall mount configuration.

The DDC-100 Desktop Controller

The DDC-100 is designed for users who need to remotely control and Jaguar 725M Desktop Station and access more of its features than is possible with standard DC or Tone remotes. The LED-equipped keypad and LCD of the DDC-100 allow access to most of the Jaguar features such as scan, system/group, up/down, emergency, status, menu, and others. Transparent

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keycaps with movable labels, when used with PC programming software, allow full customization of the keypad for special applications. Options such as PTT footswitch, headset, and desktop microphone support dispatch operators in a wide variety of environments and applications. The telephone-like ergonomics of the DDC-100 make it ideal for office environments.

?? Exceptional Control

Essential features typically required in desktop radio controllers are included at no additional cost with the DDC-100. A controller can be configured as a supervisor unit to allow it special control over the other controllers on the network. A supervisor unit may enter Takeover Mode, allowing the unit to pre-empt other desktop controllers on the network. Privacy Mode allows a particular desktop remote to mute all other remotes on the network (except the supervisor unit) to allow the operator to converse over the radio without others listening. The Intercom feature allows a dispatch operator to converse with other operators on the network without using the radio. Parallel Status updates on the LCD indicate the radio's current mode, which system, GID, or LID has been selected, and when the radio is in use by another operator.

?? Superior Audio Features

Superior audio features make the DDC-100 easy for operators to use. Automatic Gain Control (AGC) circuitry compensates for the distance between the desktop controllers and the radio so that the volume levels remain at their optimum settings throughout the network. The Voice-Operated Switch (VOX) prevents any annoying line hum present from being heard by the operator. The integrated speaker, microphone, and handset are included as standard equipment with every desktop controller so that each operator may select "speakerphone" operation or private conversation.

?? Flexible Configuration

Up to 25 remotes may be located up to 2,000 feet away from the radio. Flexible network topologies (ring, star, or "T" configurations) and use of in-building, 3-twisted-pair wiring make installation easy and inexpensive. The DDC-100's small footprint and internally mounted termination panel provide for an uncluttered and space-efficient installation.

Conventional Orion™ Mobile

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Overview

The Conventional Orion mobile is a switchable radio designed for a variety of users. The Orion offers a host of features and services and is available in both Scan and System models. It can operate in Low Band, VHF, UHF, or 800 MHz. The Orion offers a new standard of excellence for small size, high specifications, and feature-laden performance.

Design Features

The Orion mobile radio is designed to withstand harsh environments. Because of its compact size, the transceiver may be mounted either under the vehicle dash or remotely. Its 2-line, 16-character, alphanumeric display names Systems/Groups/Individuals or Conventional Channels. The Photo Sensor sets the display to accommodate ambient lighting. In addition, the Vacuum Fluorescent Display improves the visibility and readability of the display.

Some of Orion's controls include:

1. Power On/Off/Volume Knob

Applies power to the radio and adjusts the receiver's volume. Minimum volume levels may be programmed into the radio to prevent missed calls. The volume range is from a minimum level of zero (displayed as OFF) up to 31, the loudest level.

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2. System/Group/ Channel Knob

Selects systems or groups/channels. It is a 16-position rotary knob without a stop.

3. Ramp Control

Primary function: Changes the system or group/channel, depending upon programming.

Secondary function: Changes the selection for items within a list. Press ? to scroll in increasing order, or ?? to scroll in decreasing order. To auto-ramp, press and hold the key.

4. SCAN

Toggles scan operation on and off. When the radio is scanning, the SCAN LED is on and all groups or channels in the scan list of the currently selected system are scanned.

5. +/-

Adds or deletes selected groups or channels from the scan list of the currently selected system.

6. MENU SEL

Primary function: Accesses the menu list, a list of additional features.

Secondary function: Activates a selected item with a list. This key is similar to an "enter" key. After the menu list is accessed, select a menu item from the list via RAMP control and activate it with this key. Once activated, MENU continues its secondary function for activating a selected parameter setting.

7. CLEAR

CLEAR exits the current operation and removes all displays associated with it. The radio and display then return to the group receive state.

Operational Features

Orion has a number of operational features that were implemented to best suit users' needs and to satisfy demands. Some of these include:

1. Multiple Configurations

Front or remote mount. Control up to two or more transceivers from a single control unit. Provide dual control of a single radio for a fire truck or ambulance.

2. Flash PROMs

Upgrade radio operating software without opening the case.

3. Field PC Programmable

Reconfigure operation as needs change using an IBM-compatible PC.

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4. Time-out Timer

An adjustable PC programmable timer will inhibit the transmitter when RF transmission exceeds a predetermined length of time.

5. Talkaround

Provides radio-to-radio communication when radios are out of repeater range.

6. Dual Priority Scan

Priority communications are not missed even when the user has selected another channel.

7. G-STAR™ ID/Emergency Encode

Transmit individual ID with push-to-talk. Signal emergency to dispatcher.

8. Type 99 Decode

Contact individuals without broadcasting to entire fleet.

Indicators and Display Messages

During radio operation, various messages are displayed on either line one or line two. Typical messages include control channel status information or messages associated with the radio's operation.

Options and Accessories

Accessories such as public address, siren and light controls, and a unity gain antenna are available for use with the Orion mobile.

Conclusion

THE COMPACT ORION MOBILE EXCELS AGAINST SOME OF THE TOUGHEST MIL-STD REQUIREMENTS AND CAN BE UPGRADED TO AEGIS™ OR AEGIS ENCRYPTED TO OFFER FULL DIGITAL PERFORMANCE.

Orion and Aegis are trademarks of M/A-COM Private Radio Systems, Inc.

All other trademarks are the property of their respective manufacturers.

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Orion™ Desktop Station



Orion digitally trunked mobile radios are designed to meet and exceed the needs of public safety and industrial users for digital trunking and conventional communications. The high quality of these radios is backed by proven field performance and adherence to critical MIL-STD 810C, D, and E specifications and compliance with U.S. Forest Service vibration specifications.

The Orion Desktop Station is a totally self-contained unit with AC power supply, desktop microphone, and housing containing the speaker and (optional) keypad. Functional capabilities are not compromised when the Orion mobile radio is purchased to fit in the Desktop Unit.

Design Features

The Orion Desktop Station is used with either the DC and Tone Remote Controller or the DDC-100 Desktop Controllers to access the complete range of features for the Orion radio that it houses.

The DC and Tone Remote Controller

The DC and Tone Remote Controller is a versatile, full-function accessory used for operating and controlling a remotely located base station over telephone lines or a continuously keyed radio frequency link. Its compact size and attractive appearance make it an asset to any shop or office location. Available space is maximized with its built-in speaker, indicators, controls, and handset (or small desk microphone).

Two types of signaling are offered to meet the requirements of different applications.

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?? DC Signaling

Models with DC current signaling may be used wherever control lines have DC continuity and up to 4 channels are needed or wherever a remote station requires this type of signaling method.

?? Tone Signaling

Tone signaling is recommended whenever control lines lack DC continuity or when up to 4 channels are required.

?? Parallel Operation

Ten or more DC and Tone Controllers may be used in parallel to effectively control a single-frequency Tone Remote Base Station.

?? Versatile

The user can control specific trunked and conventional channels over standard telephone lines with a full-function Remote Controller. The DC and Tone Remote Controller may also be used to communicate with appropriately equipped base stations or other remote controllers in an intercom mode without activating the transmitter. The DC and Tone Remote Controller is designed to easily fit on a desk or shelf but may also be housed in an optional wall mount configuration.

The DDC-100 Desktop Controller

The DDC-100 is designed for users who need to remotely control an Orion Desktop Station and access more of its features than is possible with standard DC or Tone remotes. The LED-equipped keypad and LCD of the DDC-100 allow access to most of the Orion features such as scan, system/group, up/down, emergency, status, menu, and others. Transparent keycaps with movable labels, when used with PC programming software, allow full customization of the keypad for special applications. Options such as PTT footswitch, headset, and desktop microphone support dispatch operators in a wide variety of environments and applications. The telephone-like ergonomics of the DDC-100 make it ideal for office environments.

?? Exceptional Control

Essential features typically required in desktop radio controllers are included at no additional cost with the DDC-100. A controller can be configured as a supervisor unit to allow it special control over the other controllers on the network. A supervisor unit may enter Takeover Mode, allowing the unit to pre-empt other desktop controllers on the network. Privacy Mode allows a particular desktop remote to mute all other remotes on the network (except the supervisor unit) to allow the operator to converse over the radio without others listening. The Intercom feature allows a dispatch operator to converse with

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other operators on the network without using the radio. Parallel Status updates on the LCD indicate the radio's current mode, which system, GID, or LID has been selected, and when the radio is in use by another operator.

?? Superior Audio Features

Superior audio features make the DDC-100 easy for operators to use. Automatic Gain Control (AGC) circuitry compensates for the distance between the desktop controllers and the radio so that the volume levels remain at their optimum settings throughout the network. The Voice-Operated Switch (VOX) prevents any annoying line hum present from being heard by the operator. The integrated speaker, microphone, and handset are included as standard equipment with every desktop controller so that each operator may select "speakerphone" operation or private conversation.

?? Flexible Configuration

Up to 25 remotes may be located up to 2,000 feet away from the radio. Flexible network topologies (ring, star, or "T" configurations) and use of in-building, 3-twisted-pair wiring make installation easy and inexpensive. The DDC-100's small footprint and internally mounted termination panel provide for an uncluttered and space-efficient installation.

Conclusion

The Orion Desktop Station offers full functionality and provides supervisory control in an attractive package.

Orion is a trademark of M/A-COM Private Radio Systems, Inc.

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PORTABLE RADIOS - JAGUAR 725P

M/A-COM is offering its latest, top-of-the-line, digital Jaguar 725P portable. The Jaguar 725P was designed to meet the critical communications demands of public safety users. It is feature-rich and portable-built to deliver superior performance, flexibility and reliability. Some of its key features and capabilities are:

- ?? Rugged construction meeting Mil-STD 810E and TIA/EIA-603 shock and vibration requirements, ideal for public safety users.
- ?? Capable of operating in the analog, Project 25 digital conventional, Project 25 Common Air Interface (CAI), EDACS trunking, and mobile data modes.
- ?? Utilizes M/A-COM's third generation digital voice technology (IMBE vocoder) that provides unmatched voice quality and voice recognition, even in weak signal areas.
- ?? Based on Digital Signal Processor architecture, providing a software-based portable that is feature rich and easily expandable through software upgrades.
- ?? Provides all the public safety features, such as Unit ID, Emergency, Talk-Around, Over-the-Air Rekeying, Over-the-Air-Programming, Encryption, Voice and Data capability, to name a few.



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The Jaguar 725P is M/A-COM's premier portable radio for critical communications. With the input of public safety users, the Jaguar 725P was designed to excel in the challenging public safety environment. Over 2,200 firefighters, law enforcement officers, and administrative users were interviewed to determine the most useful mix of features, functions, and physical attributes for the radio. As a result, the Jaguar 725P reflects the preference for durability, ease of use while wearing gloves, and high-volume audio. A durable and rugged high-tier portable, the Jaguar 725P performs well under adverse conditions.

In addition to conventional operations, the Jaguar 725P can be upgraded to trunking operation on our Enhanced Digital Access Communications System (EDACS®) and ProVoice™ (M/A-COM's third generation digital trunked offering). The Jaguar 725P combines trunking terminal features, superior RF specifications, and MIL-STD 810C, D, and E environmental specifications in a compact package. The Jaguar 725P is available in System and Scan models with a variety of options and accessories. The large display and push-to-talk (PTT) button, ergonomic talkgroup and volume knobs, and powerful speaker make the Jaguar 725P the radio that serves the critical communications needs of public safety users.

The Jaguar 725P Portable is capable of narrow-band and wide-band operation up to 5 watts in VHF, UHF and 800 MHz.

General Requirements**Frequency Ranges**

The Jaguar 725P portable radio will support the following frequency ranges:

VHF -- 136-174 MHz

UHF (Low Split) -- 380-430 MHz

UHF (High Split) -- 450-512 MHz

800 MHz 806-824 MHz and 851-870 MHz

Operating Modes (C.2.2)**Analog**

The Jaguar 725P is capable of analog operation in the following modes, employing standard signaling (TIA-603):

?? Analog Conventional, emission designator 16K0F3E

?? Analog Conventional, emissions designator 20K0F3E where applicable

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?? Analog Narrowband emission designator 11K0F3E

Digital

In addition to operation in the above mentioned analog modes, the Jaguar 725P is also capable of analog operation in the digital Narrowband mode in accordance with the TIA/IS 102 series for conventional operation. The Jaguar 725P has, without user intervention, the ability to receive a properly coded analog (11K0F3E/16K0F3E) or digital signal on the same programmed channel.

Special Radio Functions**Encryption**

The Jaguar 725P provides encryption compliant with Federal Information Processing Standard (FIPS) 140-2 and 46-3 (Data Encryption Standard) and has the capability of operation in the TIA/EIA-102 OFB-DES encrypted mode. Up to eight banks of seven encryption keys (56 total) can be defined for the Jaguar 725P.

Furthermore, M/A-COM is currently developing the capability in the Jaguar 725P to allow for implementation of FIPS 197, Advanced Encryption Standard (AES) and the TIA/EIA-102.AAAD Project 25 Block Encryption Standard, when available. This encryption capability will be able to be added to the mobile via a software upgrade. The encryption will be compliant with TIA IS-102.AAAA-A (APCO Project 25 DES Encryption Protocol), IS-102.AAAC (Conformance Test for Project 25 DES Encryption Protocol). It will be meet the requirement to be supportive of two encryption standards.

The traffic encryption key can be changed using a portable key loading device, personal computer (PC) key loader, or Over-The-Air-Rekeying (OTAR). The OTAR capability shall be compliant with TIA/EIA TSB-102.AACA (APCO Project 25 OTAR), TIA/EIA TSB-102.AACB (OTAR Operational Description), and TIA/EIA TSB-102.AACC (Conformance Tests for the Project 25 OTAR).

The Jaguar 725P has the capability of a Clear/Coded Select function switching between unencrypted communications and encrypted communications.

Our keyloading equipment will not be interoperable with existing Motorola KVL-3000 Key Variable Loader for the Unique Key Encryption Key (UKEK), traffic encryption keys, and Common Key Encryption Key (CKEK).

Specifically, the mobile unit will not have the capability of operating with a 12.0 kbps Continuous Variable Slope Differential (CVSD) Cipher FeedBack (CFB)-DES encryption method in accordance with the FIPS documents 140-1 and 46-3.

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Finally, the equipment can be upgraded to trunking based on our EDACS protocol. EDACS supports a 9600 BAUD control channel but it will not be compliant with the APO P25 trunking protocols as currently specified in TIA TSB-102.AABA (APCO Project 25 Trunking Overview), TSB-102.AABB (APCO Project 25 Trunking Control Channel Formats), and IS-102.AABC (Project 25 Trunking Control Channel Messages).

M/A-COM firmly believes that compatibility with the existing and legacy equipment should be achieved on a network level and has included a section on our networking for interoperability solutions in this proposal.

General Requirements

The Jaguar 725P Portable provides a high standard of reliable performance in demanding environments. It is durable enough to perform under the most difficult conditions. The mobile can withstand 40-mph wind driven rain, temperature extremes from -22 to 140°F, 48 hours of exposure to salt fog, blowing dust, humidity, low pressure, and other environmental extremes as specified by MIL-STD 810E. The portable also meets U.S. Forest vibration requirements and TIA/EIA-603 vibration and shock stability requirements.

The construction of this portable, including assembly and wiring, and finishes conforms to commercial practices for high quality equipment.

The Jaguar 725P portable meets or exceeds the applicable sections of MIL-STD-810E "Environmental Test Methods and Engineering Guidelines" as follows (in accordance with TSB-102A, requirements are based on MIL-STD 810 "Environmental Test Methods and Engineering Guide", which are specified in detail in TSB102.CAAB):

Method 500.3	Low Pressure	Procedure II - Operation
Method 501.3	High Temperature	Procedure I - Storage
Method 502.3	Low Temperature	Procedure I - Storage
Method 503.3	Temperature Shock	Procedure I
Method 505.3	Solar Radiation	Procedure I - Cycling for Heat Effects
Method 506.3	Rain	Procedure I - Blowing Rain
		Procedure II - Drip

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Method 507.3	Humidity	Procedure II - Induced
Method 509.3	Salt Fog	Procedure I - Aggravated Screening
Method 510.3	Sand and Dust	Procedure I - Blowing Dust
Method 514.4	Vibration	Procedure I, Category 10 - Minimum Integrity Test (3 axes)
Method 516.4	Shock	Procedure I - Functional Shock Procedure IV – Transit Drop Procedure VI – Bench Handling

All radio equipment shall meet the requirements of TIA/EIA-603 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards" when operated in the analog mode.

Maintenance and Operation

The Jaguar 725P is designed for easy operation as well as maintenance. A full array of technical documentation is provided with our equipment including Operators Manual, and Preventative and Corrective Maintenance Manuals. The Preventative Maintenance Manuals provide the user with all necessary information to perform required.

To facilitate maintenance and upgrades, the Jaguar 725P has field-replaceable hardware modules that allow easy removal and replacement

Alignment/Ease of Service

Preventative Maintenance manual will be provided that will identify alignment or service procedures that need to be performed in order to guarantee the continued proper operation of the unit. Test points and indicators shall be provided for the operator to perform these routine checks and alignments. These test points and indicators shall be readily accessible and marked for ease of use. Measurements are taken using standard test equipment such as HP 8920 and will be accomplished with a minimum number of steps.

Service Manuals

M/A-COM provides service manuals which include maintenance features of the specific radio equipment and shall include schematics, programming instructions and options, test points, power usage and dissipation levels, characteristic waveforms, lists of Lowest Replaceable Units

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(LRU), and other information necessary or useful for the extended care and troubleshooting of the equipment.

On line access will also be available through an Internet access for the duration of the contract. Updates for the above-described documentation will be provided as they become available.

Identification Tag

The Jaguar 725P portable will be provided with an identification tag, which will be permanently affixed on the exterior of the unit for quick, positive identification. This identification tag includes the equipment model number, serial number, and FCC type acceptance number.

If specified by the Government at the time of delivery order placement, the contractor shall affix Government-provided property management bar codes to all subscriber units in an easy to scan location, or in close proximity to the manufacturer's model and serial number label. Bar code labels will be provided to the contractor within fourteen (14) days of order placement.

When requested by the Government, the contractor shall provide the ordering agency with an electronic data file.

Spare Parts Availability

M/A-COM will provide spare parts for the Jaguar 725P portable ordered under this contract for the life expectancy of the unit, starting from the date of delivery until 5 years after production of this unit is ceased. Since M/A-COM is currently introducing this model, M/A-COM believes that our spare parts availability will be supportive of the BRS needs.

Environmental

The Jaguar 725M meets the requirements of TIA/EIA TSB-102.CAAB (Digital C4FM/CQPSK Transceiver Performance Recommendations) for Class A type radios and radio equipment.

Transmit and Receive Equipment - General**Programmability**

User-specific parameters such as channel names, frequencies, individual call lists and system information are programmed in the Jaguar 725P using Windows 9x or Windows NT-based PC programming software. The operating software of the Jaguar 725P resides in flash memory and Jaguar programming suite includes utilities for upgrading the radio operating software.

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Programming Software

The Jaguar 725P programming software allows technicians to program user-specific parameters for all applicable features and functions listed in the Jaguar 725P specification sheet. M/A-COM will provide notification of revisions of to the Jaguar 725P programming software.

Hardware

The Jaguar 725P was designed with maintainability in mind. Field replaceable modules allow for easy removal and replacement.

*Transmitter***Power Levels**

The Jaguar 725P will support the following transmit power levels for low power only. It meets the requirements of TIA TSB-102.CAAB. The level of power output can be incrementally adjustable from the 1-5 watts by the user.

Power Range	Jaguar 725P Portable		
	VHF	UHF	800 MHz
Low	1 - 5W	1-4W	1-3W
Mid	N/A	N/A	
High	N/A	N/A	

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Analog Specifications - The Jaguar 725P transmitter meets or exceeds all applicable specifications in TIA/EIA 603 equipment under the transmitter section of standards.

Digital Specifications - The Jaguar 725P meets or exceeds all applicable specifications listed in TIA/EIA TSB-102.CAAB (Digital C4FM/CQPSK Transceiver Performance Recommendations) under the transmitter section of standards for Class A equipment.

Receiver The Jaguar 725P **exceeds** the standards as defined in section 5.3.5.2, of the NTIA manual, Standards for Fixed and Mobile Analog or Digital FM/PM Narrowband Operations.

Channel and Group Capacity

The Jaguar 725P will support multiple channel operations in conventional mode. It will also support multiple group operations in trunking mode. The Jaguar 725P is available, optionally, with up to 800 different trunked system/group combinations and with up to 250 conventional channels. Trunked systems/groups can be configured in many different ways to meet specific user needs. The Jaguar 725M is also capable of basic conventional Talkaround operation by simply selecting a pre-programmed conventional system.

PORTABLE RADIOS

General Requirements

Conventional Operation

The Jaguar 725P will support **Simplex Peer-to-Peer Operation** as well as the capability to communicate with other subscriber units via a repeater station in a half-duplex mode of operation **Repeater Access**.

Flash Programming

The Jaguar 725P will be able to be flash programmed to digitally store functional characteristics. Changing personalities is as simple as connecting to a personal computer. This setup offers the flexibility of programming system and radio parameters as requirement change without interchanging parts or opening the radio case.

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Feature and Controls

The Jaguar 725P provides the following features:

Design Features*Ergonomically Designed Controls*

The large push-to-talk (PTT) button, talkgroup knob, and buttons on the front of the portable are designed to provide greater control for users wearing gloves. The volume knob is smaller, making it easier to distinguish from the talkgroup knob and more difficult to accidentally change. The recessed emergency button can be located easily and prevents accidental activation.

Large Speaker

The large 50-mm speaker is particularly useful in high noise environments. Its high volume capabilities overcome background noise.

Personality Programmable

Changing personalities is as simple as connecting to a personal computer. This setup offers the flexibility of programming system and radio parameters as requirement change without interchanging parts or opening the radio case.

Over-the-air programming for trunked radios is available with ProFile™.

Multifunctional Display

The large 3-line alphanumeric liquid crystal display (LCD) supports system and group information, status icons, and menu operation. A backlight illuminates the display and the keypad for low-light environments.

Control Functions

The portable features two rotary control knobs and an emergency button mounted on the top of the radio. Push-to-talk, option, and clear/monitor buttons are mounted on the side. The front-mounted keypad has 6 buttons on the Scan model and 15 buttons on the System model.



Jaguar 725P System and Scan

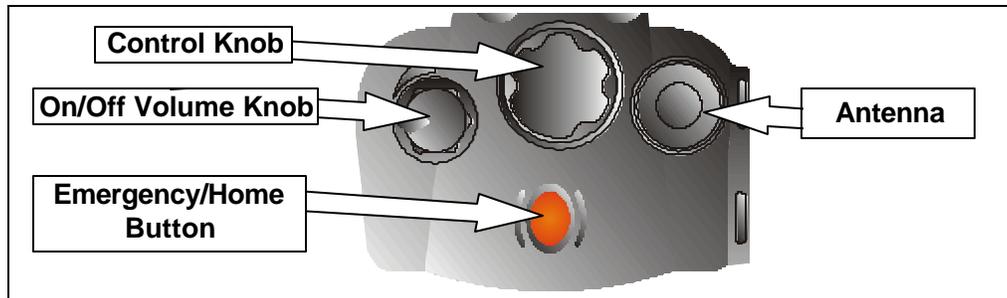


Figure 1 – Top View of Controls

1. ON/OFF/Volume Knob

Turns the radio on and off and adjusts audio listening level. Minimum volume levels may be programmed into the radio to prevent missed calls due to a low volume setting. The volume range is from a minimum programmed level of zero (shown as **OFF** in the display) up to 31, which is the loudest level.

2. Control Knob

Selects systems or groups/channels (depending on programming). This is a 16-position rotary knob.

3. Emergency/Home Button

The Emergency/Home button is used to automatically select a pre-programmed Group/System by pressing and holding for a programmed duration. It can also be used to declare an emergency by pressing and holding for a programmed duration.



Figure 2 – Front Panel of Scan Model

Key	Function
??	<p><u>Primary Function:</u> Allows user to select either system, groups, or channels, depending on personality programming. The buttons act as STEP UP or STEP DOWN. Pressing one of these buttons displays the next or previous stored system, group, or channel.</p> <p><u>Secondary Function:</u> Changes the selection for an item within a list.</p>
?	<p><u>Primary Function:</u> Accesses the pre-stored menu. The menu can include high/low power setting, keypad lock, LCD contrast, LCD and keypad backlighting as well as many other menu items.</p> <p><u>Secondary Function:</u> Activates a selected item within a list. After a menu list is accessed, scroll through the list using the ? or ? keys and then activate specific items with the ? key. This is similar to an “Enter” key.</p>
? (Scan only)	<p>Adds/Deletes selected groups or channels from the <i>SCAN</i> list of the currently selected system.</p>

Key	Function
? (Scan only)	Turns the <i>SCAN</i> operation On and Off.
? (Scan only)	Activates one of a number of programmable software options, selected during the PC programming. Programmable options include high/low transmitter power, Talkaround, status/message as well as many other programmable options.

NOTE: All keys can be programmed or mapped to any option key or macro.



Figure 3 – Front Panel of System Model

Key	Function
? ?	<u>Same as Scan Model</u>
?	<u>Same as Scan Model</u>
? -? ? ? ? ?	These keys are used to place telephone interconnect and individual (unit-to-unit) calls. The keys operate like a normal telephone keypad.

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Key	Function
?	Used to select a specific system. If the rotary knob is used to select the system and more than 16 systems are programmed in the radio, the ? key is used to select additional banks (groupings) of systems.
?	Used to select a specific group.
?	Used to turn the <i>SCAN</i> operation on and off.
?	Used to place telephone interconnect calls.
?	Used to initiate individual calls.
?	Adds groups or channels from the currently selected system to the <i>SCAN</i> list.
?	Deletes selected groups or channels of the currently selected system from the <i>SCAN</i> list.

NOTE: All keys can be programmed or mapped to any option key or macro.

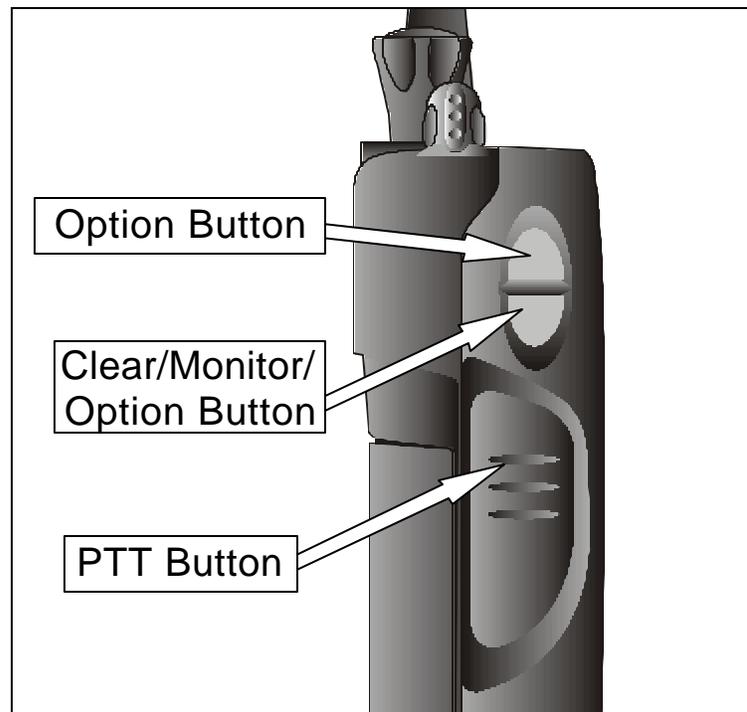


Figure 4 – Side View of Jaguar 700P

1. PTT Button

The weather-sealed Push-To-Talk (PTT) button must be pressed before voice transmission begins. In trunked mode, the ID is transmitted automatically upon depression of the PTT button.

2. Clear/Monitor Button

In the trunked mode, the weather-sealed Clear/Monitor button is used to:

1. Exit the current operation, removing all displays associated with it, and return the radio to the selected talkgroup.
2. Disconnect individual and telephone interconnect calls.

In the conventional mode, the Clear/Monitor button is used to:

1. Unsquench the receiver and allow channel monitoring prior to transmission.

- 2. Remove Channel Guard Decoding from a channel.

NOTE: In addition, this button can be programmed or mapped to any option key or macro.

3. Option Button

The weather-sealed option button activates one of a number of programmable software options selected during PC programming. Programmable options include high/low power setting, keypad lock, LCD contrast, and LCD and keypad backlighting, among others.

Indicators and Display Messages

The radio display is made up of 3 lines (see Figure 5). Lines 1 and 2 contain eight alphanumeric character blocks and are used primarily to display system and group names. Line 1 also displays radio status messages. Line 3 is used primarily to display radio status icons. All three lines are used to display menu options when in the menu mode. If programmed, the display backlighting will illuminate upon power up or when radio controls are operated.

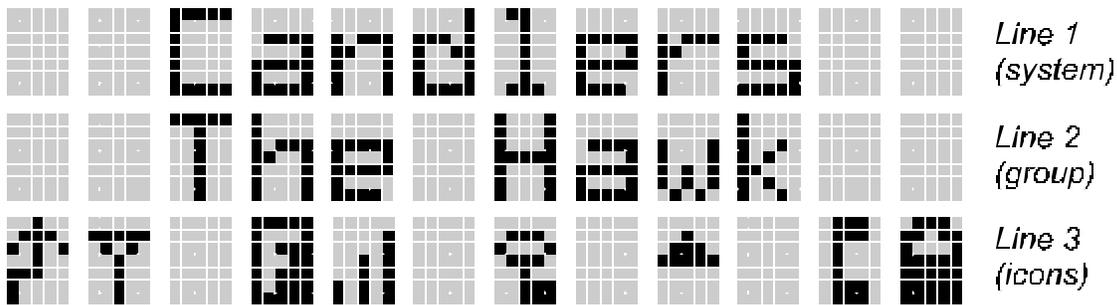
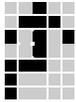


Figure 5 – Display

Radio Status Icons

Status icons are indicators, which show the various operating characteristics of the radio. The icons show operating modes and conditions and appear on the third line of the display as follows:



ON - indicates the radio is transmitting.



In trunked mode:

ON - indicates the radio is transmitting or receiving a call on the working channel.

FLASHING - indicates a call has been queued.

In conventional mode:

ON - indicates a call is being received.



Indicates EDACS is in the Failsoft™ mode (if enabled through programming).



ON - indicator for conventional channel is enabled with Channel Guard.

FLASHING - indicates Channel Guard is temporarily disabled.



ON - indicates the selected group or channel is selected to transmit at low power.

OFF - indicates the selected group or channel is selected to transmit at high power.



ON - indicates the group or channel is enabled to receive encrypted messages.

FLASHING - indicates an encrypted transmission is being received.



ON - indicates the SCAN mode is enabled (rotates clockwise).

OFF - indicates SCAN is temporarily disabled (no status icon is present).



ON - indicates selected group or channel is in SCAN list.



ON - indicates selected group or channel is priority-two scan.



ON - indicates selected group or channel is priority-one scan.

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ON – indicates the radio is in the special call select/entry mode (Individual or Telephone Interconnect).



Indicates battery voltage is getting low and radio will no longer transmit.

Messages

During radio operation, various radio status messages can be displayed. The messages are described below.

<u>Message</u>	<u>Name</u>	<u>Description</u>
QUEUED	Call Queued	Trunked mode only. Indicates the system has placed the call in a request queue.
SYS BUSY	System Busy	Trunked mode only. Indicates the system is busy, no channels are currently available, the queue is full, or an individual call is being attempted to a radio that is currently transmitting.
DENIED	Call Denied	Trunked mode only. Indicates the radio or talkgroup is not authorized to operate on the selected system and/or talkgroup.
CC SCAN	Control Channel Scan	Trunked mode only. Indicates the control channel is lost and the radio has entered the Control Channel Scan mode to search for the control channel. (Usually out-of-range indication.)
WA SCAN	Wide Area Scan	Trunked mode only. Indicates the radio has entered the Wide Area Scan mode to search for a new system (if enabled through programming).
TALKARND	Talkaround	Conventional mode only. Indicates the radio is operating on conventional channels in Talkaround mode (no repeater).
SYSC ON	System Feature On	ScanTrunked mode only. Indicates the System Scan features are enabled.

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<u>Message</u>	<u>Name</u>	<u>Description</u>
SYSC OFF	System Feature Off	ScanTrunked mode only. Indicates the System Scan features are disabled.
LOW BATT	Low Battery	Battery voltage has dropped to the point that the radio is no longer able to transmit. If the user attempts to transmit, the Low Battery message appears while the PTT is depressed. The radio emits a periodic booping sound.
RXEMER	Receive Emergency	Trunked mode only. Indicates an emergency call is being received. This message will be flashing on line two.
TXEMER	Transmit Emergency	Trunked mode only. Indicates an emergency call has been transmitted on this radio. This message will be flashing on line two.
VOL=31	Volume Level	Indicates the current volume level. The volume level display ranges from OFF (silent) to 31 (loudest).
WHC	Who Has Called (trunked mode only)	ON – indicates an individual call has been received, but not responded to. The indicator turns OFF if the individual call mode is entered, the system is changed, or the radio is turned off and back on.
UNKNOWN	Unknown ID	Trunked mode only. Indicates an individual call is being received by an unknown radio ID.

Error Messages

If either of the following error messages is displayed, the radio was either programmed incorrectly or needs servicing:

DSP ERR **DSP ERR** or **DIG VERR**
ERR=XXXX
 (Power Up only)

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Accessory Support

?? Variety of Speaker Microphones

?? Earpiece

?? Extra High Capacity Batteries (Nickel Metal Hydride and Nickel Cadmium)

?? Intrinsically Safe Accessories

?? ½ wave high gain antenna

?? New quick release ¼ turn fastener for UDC accessories

?? Desk Chargers

Two desk chargers are available for charging the batteries. Both are powered by 120V/60Hz or 230V/50Hz.

1. Single-Unit Rapid Rate Charger: Recharges a single battery in approximately 1 hour.
2. Multi-Unit Rapid Rate Charger: Recharges up to six batteries in approximately 1 hour.

All battery chargers include a red charging indicator light and feature a controlled charge rate to avoid battery damage.

?? Vehicular Charger

?? PC Programming Software and Cables

?? Carrying Case (leather and nylon, blaze orange available)

?? Swivel Mount

?? Surveillance Kit

External Interface Support

A Universal Device Connector (UDC) on the side of the Jaguar 725P portable provides the capability of interfacing with an external key load device and a personal computer for encrypting and programming.

Power Source

The Jaguar 725P is powered by a detachable battery pack with rechargeable cells.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Additional Capabilities or Features

DTMF Keypad

The Jaguar 725P supports DTMF operation, which allows users to make telephone calls using this functionality.

Display

The Jaguar 725P has a 3-line, liquid crystal display, **which** provides denotes Systems/Groups/Individuals or Conventional Channels. The display is backlit for nighttime use.

Scanning

The Jaguar 725P can be provided with Priority Scan which will allow a user to select a priority channel or talk-group (in accordance with TSB-102A). The Jaguar 725P has the capability of scanning from a list of programmed frequencies or groups or user selected frequencies or groups. The scan shall be selectable priority, which means that the transmitter channel or talk-group selected by the user is the priority.

Surveillance Mode

Backlighting and alert tones levels can either be programmed to low/off levels for surveillance modes, or can be adjusted from the front panel of the radio.

Power Source

Refillable alkaline battery packs are future option for the Jaguar 725P.

Radio Programming Equipment and Cables

M/A-COM offers a full line of programming accessories for the Jaguar 725P, including cables and software.

External Data Port

The Jaguar 725P external option cable provides a RS-232 compliant data port for interfacing mobile data terminals. The data rate is limited to 9.6 kbps.

Batteries Rechargeable

The Jaguar 725P includes either a NiCd battery with a battery life of 9 hours at 5% Tx/ 5% Rx and 90% standby, or a NiMh battery with a battery life of 11 hours at 5% Tx/ 5% Rx and 90% standby. The battery life meets or exceeds the requirements of TIA TSB 102.A. The NiMh battery is resistant to the memory effect and will retain up to 95% of its rated charge depending on the number of cycles and storage.

Batteries Disposable

M/A-COM is developing the capability to provide disposable batteries with our Jaguar 725P.

Re-Loadable Battery Pack

M/A-COM is developing the capability to provide a re-loadable battery pack (housing unit) that will accept disposable COTS batteries.

Single Unit Charger

M/A-COM provides a single unit rapid one -hour charger which is capable charging both a single NiCD or NiMH battery. It is powered by 110/240 VAC, 50/60 Hz power. The single unit charger provides an indicator LED for the status of the battery, such as standby, charging, fault and charged indicators.

Single Unit Tri-Chemistry Charger

As described above, our single unit charger supports charging either our NiCD or NiMH battery in a single unit. M/A-COM currently does not plan to introduce LiOH batteries for the Jaguar 725P.

Multi-Unit Charger

M/A-COM provides a 6 unit rapid charger for both our NiMH and NiCD batteries for the Jaguar 725P. It provides the same functionality as the single unit charger described above.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Multi-Unit Tri-Chemistry Charger

M/A-COM provides a 6 unit rapid charger for both our NiMH and NiCD batteries for the Jaguar 725P. M/A-COM currently does not plan to introduce LiOH batteries for the Jaguar 725P.

Multi-Unit Battery Reconditioner

M/A-COM proposes to provide a CADEX battery conditioner to allow for the conditioning of the memorized batteries. A technical specification is included in the Tab.

Carry Case

M/A-COM provides leather carry case and swivel mount and belt loop.

Belt Clips

As an option, M/A-COM can provide a Jaguar 725P spring-loaded belt clip suitable for 1" belts.

Two-Piece Surveillance Kit**Three-Piece Surveillance Kit****Wireless Earpiece and Microphone Kit****Handheld Speaker/Microphone**

M/A-COM provides a wide array of accessories including the above described units.

Antenna for Portable Radios

M/A-COM provides a helical, non-adjustable, unity gain, antenna that is covered with injection-molded rubber. Antennas, which are optimized for each frequency band, specified.

Portable Radio Vehicular Adapter

M/A-COM can provide, as an option, a vehicular adapter for the Jaguar 725P. The vehicular adapter provides charging and control functionality for the radio (including an optional mobile control unit). The vehicular adapter provides 10W external speaker audio and external R/F

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Generic Equipment

antenna ports for a mobile antenna. M/A-COM does not market an external R/F or audio power amplifier.

Global Positioning Satellite Functionality

The Jaguar 725P can interface with GPS units in order to provide GPS functionality.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

PORTABLE BASE STATION - JAGUAR SUITCASE REPEATER

M/A-COM proposes to provide a portable base station based on using the Jaguar 725M mobiles as described in the previous section.



The Jaguar Suitcase Transportable Repeater operates as a Stand-Alone Conventional repeater. This reliable rugged package is designed for easy transport, set up, and use just about anywhere. It allows one to be on the air to establish and maintain vital emergency communications in literally minutes with no assembly and minimal setup time.

This suitcase repeater will consist of the following items housed in a Zero Type Suitcase, and will include a dual antenna system for optimum below-decks coverage:

- ?? Qty. (2) Jaguar Mobiles & (1) Control Unit – one mobile will be the receive unit, the other the transmit unit.
- ?? A single control unit will control both the Transmit and Receive Jaguar mobiles.
- ?? VHF, UHF, and 800 MHz Compact Duplexer
- ?? 110-240 VAC 50-60Hz Power Source
- ?? 2 Magnetic Mount Antennas with two 50 ft. long pre-configured cables. Other antennas can be provided.

Up to 128 frequency sets can be programmed into the unit. Frequency sets are easily selectable by using the group select knob. A user defined alphanumeric name is given to each set, and is displayed on the control head for easy selection.

Frequency set selection is restricted due to the duplexer. Both Tx and Rx frequencies must be within +/-300kHz of the duplexer original frequencies. To operate beyond these constraints, the duplexer must be retuned or changed out.

Operational Features and Specifications

1. Features

- ?? Conventional repeater housed in a portable carrying case, which allows quick and easy set up. You can be on the air in just a matter of minutes.
- ?? Clear Voice Operation or Encrypted (DES) operation. AES planned.
- ?? Programmable with multiple frequency pairs (+/- 300kHz).
- ?? Operation from 12 VDC battery or from 120/240 VAC 50-60Hz.
- ?? High Power / Low Power Switch
- ?? Operate in sheltered environment.

2. Options

- ?? Local Microphone and Speaker for talk-around simplex.

Specifications

- ?? Available in VHF, UHF and 800 MHz as specified for the Jaguar mobile.
- ?? Transmitter RF Power at the antenna output connector:
 - 18 watts High power / 9 watts Low power (Repeat Operation)
 - 18 watts High power / 9 watts Low power (Talk Around)
- ?? Internal RF Duplexer
- ?? Portable Carrying Case
 - Material – Aluminum
 - Dimension (") – 17.0 (W) x 21.0 (L) x 7.5 (H)
 - Weight – Approximately 35 Lbs. (without 50 ft. cables)
 - Power Supply – Internal
 - Input – 120/240 VAC
 - Output – 12.5 Amps at 13.8 VDC

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PORTABLE PROGRAMMER/ENCRYPTION

KEYLOADING DEVICE

M/A-COM proposes to provide a portable programmer that will allow for the programming/encryption of the Jaguar 725P Portable.

SPECIFICATIONS

Portable Programmer:

Height: 5 inches
Width: 18 inches
Depth: 14 inches
Weight 12.5 pounds
Input power No external power required.

The battery of the radio being programmed supplies the radio programmer power. The keyloader has 4 AA batteries that power the keyloader. The batteries in the keyloader should last for 12 months under normal usage.



OTAR capability is planned but not currently available.

M/A-COM also provides a standard (V-4030) Cryptographic Keyloader device that transfers encryption keys into the terminal equipment. This is also battery powered

PORTABLE RADIOS - P7100

M/A-COM Private Radio Systems, Inc. (M/A-COM) is pleased to provide our latest, top-of-the-line, digital P7100 portable. The Jaguar 7100 portable was designed to meet the critical communications demands of public safety users. It is feature-rich portable-built to deliver superior performance, flexibility, and reliability. Some of its key features and capabilities are:

- ?? Rugged construction meeting Mil-STD 810E and TIA/EIA-603 shock and vibration requirements, ideal for public safety users.
- ?? Capable of operating in the analog, Project 25 digital conventional, Project 25 Common Air Interface (CAI), EDACS trunking, and mobile data modes.
- ?? Utilizes M/A-COM's third generation digital voice technology (IMBE vocoder) that provides unmatched voice quality and voice recognition, even in weak signal areas.
- ?? Based on Digital Signal Processor architecture, providing a software-based portable that is feature rich and easily expandable through software upgrades to meet IRS's specific requirements.



CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

?? Provides all the public safety features requested in the IRS Specification, such as Unit ID, Emergency, Talk-Around, Over-the-Air Rekeying, Over-the-Air-Programming, Encryption, Voice and Data capability, to name a few.

?? Offers a number of accessories compliant with the IRS requirements.

The P7100 is M/A-COM's premier portable radio for critical communications. With the input of public safety users, the P7100 was designed to excel in the challenging public safety environment. Over 2,200 firefighters, law enforcement officers, and administrative users were interviewed to determine the most useful mix of features, functions, and physical attributes for the radio. As a result, the P7100 reflects the preference for durability, ease of use while wearing gloves, and high-volume audio. A durable and rugged high-tier portable, the Jaguar [71725P] performs well under adverse conditions.

In addition to conventional operations, the P7100 can be upgraded to trunking operation on our Enhanced Digital Access Communications System (EDACS®) and ProVoice™ (M/A-COM's third generation digital trunked offering). The P7100 combines trunking terminal features, superior RF specifications, and MIL-STD 810C, D, and E environmental specifications in a compact package. The P7100 is available in System and Scan models with a variety of options and accessories. The large display and push-to-talk (PTT) button, ergonomic talkgroup and volume knobs, and powerful speaker make the P7100 the radio that serves the critical communications needs of public safety users.

The P7100 Portable is capable of narrow-band and wide-band operation up to 5 watts in VHF, UHF and 800 MHz.

Frequency Ranges

The P7100 portable radio will support the following frequency ranges:

VHF -- 136-174 MHz

UHF (Low Split) -- 380-430 MHz

UHF (High Split) -- 450-512 MHz

The VHF model will be available to ship in November 02.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Operating Modes

Analog

The P7100 is capable of analog operation in the following modes, employing standard signaling (TIA-603):

Analog Conventional, emission designator 16K0F3E

Analog Conventional, emissions designator 20K0F3E where applicable

Analog Narrowband emission designator 11K0F3E

Digital

In addition to operation in the above mentioned analog modes, the P7100 is also capable of analog operation in the digital Narrowband mode in accordance with the TIA/IS 102 series for conventional operation. The P7100 has, without user intervention, the ability to receive a properly coded analog (11K0F3E/16K0F3E) or digital signal on the same programmed channel.

Special Radio Functions

Encryption

The P7100 provides encryption compliant with Federal Information Processing Standard (FIPS) 140-2 and 46-3 (Data Encryption Standard) and has the capability of operation in the TIA/EIA-102 OFB-DES encrypted mode. Up to eight banks of seven encryption keys (56 total) can be defined for the P7100.

Furthermore, M/A-COM is currently developing the capability in the P7100 to allow for implementation of FIPS 197, Advanced Encryption Standard (AES) and the TIA/EIA-102.AAAD Project 25 Block Encryption Standard, when available. This encryption capability will be able to be added to the mobile via a software upgrade. The encryption will be compliant with TIA IS-102.AAAA-A (APCO Project 25 DES Encryption Protocol), IS-102.AAAC (Conformance Test for Project 25 DES Encryption Protocol). It will meet the requirement to be supportive of two encryption standards.

The traffic encryption key can be changed using a portable key loading device, personal computer (PC) key loader, or Over-The-Air-Rekeying (OTAR). The OTAR capability shall be compliant with TIA/EIA TSB-102.AACA (APCO Project 25 OTAR), TIA/EIA TSB-102.AACB (OTAR Operational Description), and TIA/EIA TSB-102.AACC (Conformance Tests for the Project 25 OTAR).

CECOM Contract # DAAB07-01-D-H805**CRS -0095*****Generic Equipment***

The P7100 has the capability of a Clear/Coded Select function switching between unencrypted communications and encrypted communications.

Finally, the equipment can be upgraded to trunking based on our EDACS protocol. EDACS supports a 9600 BAUD control channel but it will not be compliant with the APCO P25 trunking protocols as currently specified in TIA TSB-102.AABA (APCO Project 25 Trunking Overview), TSB-102.AABB (APCO Project 25 Trunking Control Channel Formats), and IS-102.AABC (Project 25 Trunking Control Channel Messages).

M/A-COM firmly believes that compatibility with the existing and legacy equipment should be achieved on a network level.

General Requirements

The P7100 Portable provides a high standard of reliable performance in demanding environments. It is durable enough to perform under the most difficult conditions. The mobile can withstand 40-mph wind driven rain, temperature extremes from -22 to 140°F, 48 hours of exposure to salt fog, blowing dust, humidity, low pressure, and other environmental extremes as specified by MIL-STD 810E. The portable also meets U.S. Forest vibration requirements and TIA/EIA-603 vibration and shock stability requirements.

The construction of this portable, including assembly and wiring, and finishes conforms to commercial practices for high quality equipment.

The P7100 portable meets or exceeds the applicable sections of MIL-STD-810E "Environmental Test Methods and Engineering Guidelines" as follows (in accordance with TSB-102A, requirements are based on MIL-STD 810 "Environmental Test Methods and Engineering Guide", which are specified in detail in TSB102.CAAB):

Method 500.3	Low Pressure	Procedure II - Operation
Method 501.3	High Temperature	Procedure I - Storage
Method 502.3	Low Temperature	Procedure I - Storage
Method 503.3	Temperature Shock	Procedure I
Method 505.3	Solar Radiation	Procedure I - Cycling for Heat Effects
Method 506.3	Rain	Procedure I - Blowing Rain Procedure II - Drip
Method 507.3	Humidity	Procedure II - Induced
Method 509.3	Salt Fog	Procedure I - Aggravated Screening

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Method 510.3	Sand and Dust	Procedure I - Blowing Dust
Method 514.4	Vibration	Procedure I, Category 10 - Minimum Integrity Test (3 axes)
Method 516.4	Shock	Procedure I - Functional Shock Procedure IV – Transit Drop Procedure VI – Bench Handling

All radio equipment shall meet the requirements of TIA/EIA-603 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards" when operated in the analog mode.

Maintenance and Operation

The P7100 is designed for easy operation as well as maintenance. A full array of technical documentation is provided with our equipment including Operators Manual, and Preventative and Corrective Maintenance Manuals.

Transmit and Receive Equipment - General**Programmability**

User-specific parameters such as channel names; frequencies, individual call lists and system information are programmed in the P7100 using Windows 9x or Windows NT-based PC programming software. The operating software of the P7100 resides in flash memory and Jaguar programming suite includes utilities for upgrading the radio operating software.

Programming Software

The P7100 programming software allows technicians to program user-specific parameters for all applicable features and functions listed in the P7100 specification sheet. M/A-COM will provide IRS with notification of revisions of to the P7100 programming software.

Hardware

The P7100 was designed with maintainability in mind. Field replaceable modules allow for easy removal and replacement.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

*Transmitter***Power Levels**

The P7100 will support the following transmit power levels for low power only. It meets the requirements of TIA TSB-102.CAAB paragraph 3.2. The level of power output can be incrementally adjustable from the 1-5 watts by the user.

Power Range	VHF	UHF
	Low	1 - 5W

Analog Specifications - The P7100 transmitter meets or exceeds all applicable specifications in TIA/EIA 603 equipment under the transmitter section of standards.

Digital Specifications - The P7100 meets or exceeds all applicable specifications listed in TIA/EIA TSB-102.CAAB (Digital C4FM/CQPSK Transceiver Performance Recommendations) under the transmitter section of standards for Class an equipment.

Receiver The P7100 **exceeds** the standards as defined in section 5.3.5.2, of the NTIA manual, Standards for Fixed and Mobile Analog or Digital FM/PM Narrowband Operations.

Channel and Group Capacity

The P7100 will support multiple channel operations in conventional mode. It will also support multiple group operations in trunking mode. The P7100 is available, optionally, with up to 800 different trunked system/group combinations and with up to 250 conventional channels. Trunked systems/groups can be configured in many different ways to meet specific user needs. The Jaguar 725M is also capable of basic conventional Talkaround operation by simply selecting a pre-programmed conventional system.

PORTABLE RADIOS

Conventional Operation

The P7100 will support **Simplex Peer-to-Peer Operation** as well as the capability to communicate with other subscriber units via a repeater station in a half-duplex mode of operation **Repeater Access**.

Flash Programming

The P7100 will be able to be flash programmed to digitally store functional characteristics. Changing personalities is as simple as connecting to a personal computer. This setup offers the flexibility of programming system and radio parameters as requirement change without interchanging parts or opening the radio case.

Feature and Controls

The P7100 provides the following features:

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Design Features

Ergonomically Designed Controls

The large push-to-talk (PTT) button, talkgroup knob, and buttons on the front of the portable are designed to provide greater control for users wearing gloves. The volume knob is smaller, making it easier to distinguish from the talkgroup knob and more difficult to accidentally change. The recessed emergency button can be located easily and prevents accidental activation.

Large Speaker

The large 50-mm speaker is particularly useful in high noise environments. Its high volume capabilities overcome background noise.

Personality Programmable

Changing personalities is as simple as connecting to a personal computer. This setup offers the flexibility of programming system and radio parameters as requirement change without interchanging parts or opening the radio case.

Over-the-air programming for trunked radios is available with ProFile™.

Multifunctional Display

The large 3-line alphanumeric liquid crystal display (LCD) supports system and group information, status icons, and menu operation. A backlight illuminates the display and the keypad for low-light environments.

Control Functions

The portable features two rotary control knobs and an emergency button mounted on the top of the radio. Push-to-talk, option, and clear/monitor buttons are mounted on the side. The front-mounted keypad has 6 buttons on the Scan model and 15 buttons on the System model.



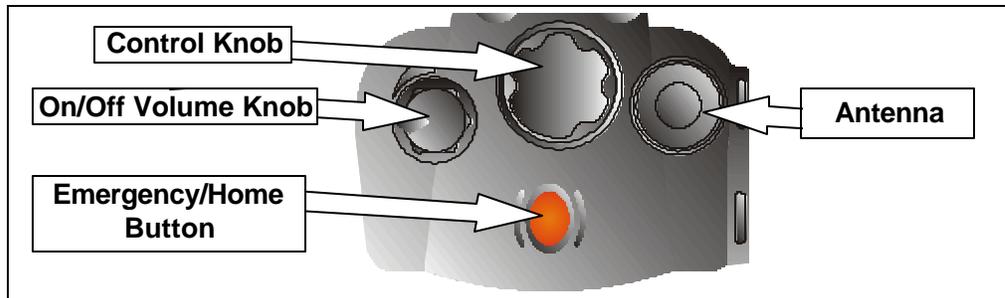


Figure 1 – Top View of Controls

1. ON/OFF/Volume Knob

Turns the radio on and off and adjusts audio listening level. Minimum volume levels may be programmed into the radio to prevent missed calls due to a low volume setting. The volume range is from a minimum programmed level of zero (shown as **OFF** in the display) up to 31, which is the loudest level

2. Control Knob

Selects systems or groups/channels (depending on programming). This is a 16-position rotary knob.

3. Emergency/Home Button

The Emergency/Home button is used to automatically select a pre-programmed Group/System by pressing and holding for a programmed duration. It can also be used to declare an emergency by pressing and holding for a programmed duration.

NOTE: All keys can be programmed or mapped to any option key or macro.

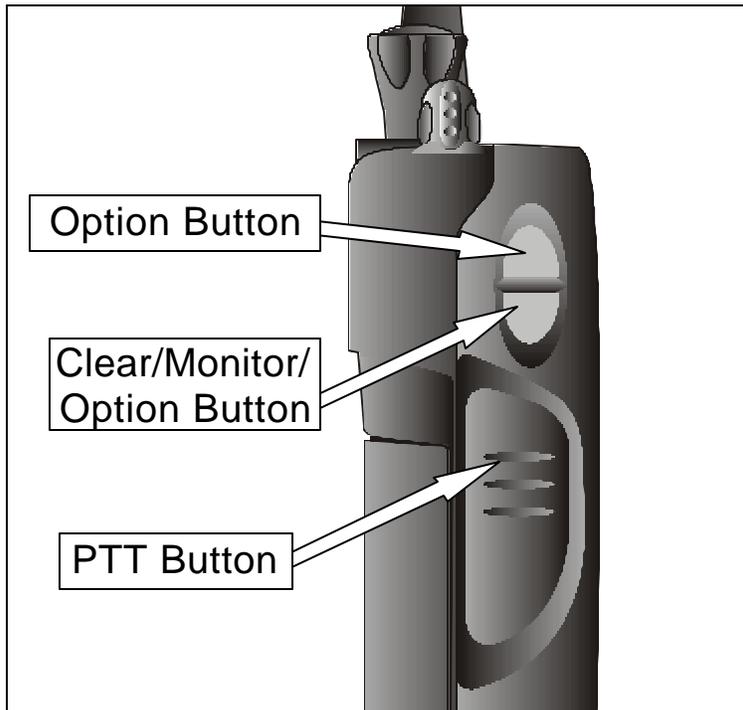


Figure 2 – Side View of Jaguar 700P

4. PTT Button

The weather-sealed Push-To-Talk (PTT) button must be pressed before voice transmission begins. In trunked mode, the ID is transmitted automatically upon depression of the PTT button.

5. Clear/Monitor Button

In the trunked mode, the weather-sealed Clear/Monitor button is used to:

3. Exit the current operation, removing all displays associated with it, and return the radio to the selected talkgroup.
4. Disconnect individual and telephone interconnect calls.

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In the conventional mode, the Clear/Monitor button is used to:

3. Unsquelch the receiver and allow channel monitoring prior to transmission.
4. Remove Channel Guard Decoding from a channel.

NOTE: In addition, this button can be programmed or mapped to any option key or macro.

6. Option Button

The weather-sealed option button activates one of a number of programmable software options selected during PC programming. Programmable options include high/low power setting, keypad lock, LCD contrast, and LCD and keypad backlighting, among others.

Indicators and Display Messages

The radio display is made up of 3 lines (see Figure 3). Lines 1 and 2 contain eight alphanumeric character blocks and are used primarily to display system and group names. Line 1 also displays radio status messages. Line 3 is used primarily to display radio status icons. All three lines are used to display menu options when in the menu mode. If programmed, the display backlighting will illuminate upon power up or when radio controls are operated.

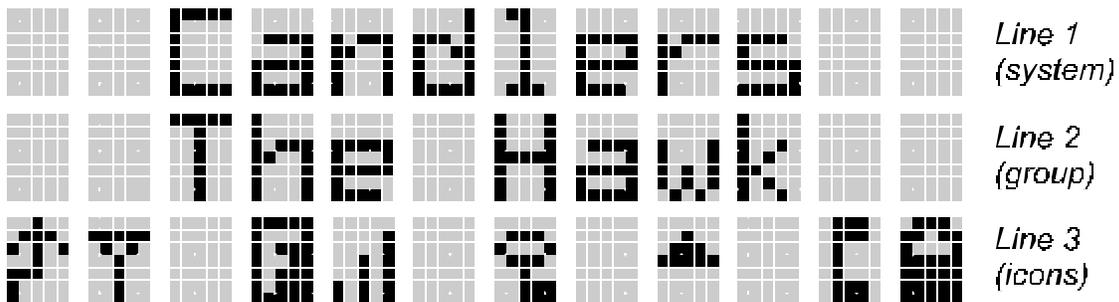


Figure 3 – Display

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Radio Status Icons

Status icons are indicators, which show the various operating characteristics of the radio. The icons show operating modes and conditions and appear on the third line of the display.

Error Messages

If either of the following error messages is displayed, the radio was either programmed incorrectly or needs servicing:

DSP ERR DSP ERR or DIG V ERR
ERR=XXXX
 (Power Up only)

Accessory Support Variety of Speaker Microphones

?? Earpiece

?? Wtra High Capacity Batteries (Nickel Metal Hydride and Nickel Cadmium)

?? Intrinsically Safe Accessories

?? ½ wave high gain antenna

?? New quick release ¼ turn fastener for UDC accessories

?? Desk Chargers

Two desk chargers are available for charging the batteries. Both are powered by 120V/60Hz or 230V/50Hz.

3. Single-Unit Rapid Rate Charger: Recharges a single battery in approximately 1 hour.

4. Multi-Unit Rapid Rate Charger: Recharges up to six batteries in approximately 1 hour.

All battery chargers include a red charging indicator light and feature a controlled charge rate to avoid battery damage.

?? Vehicular Charger

?? PC Programming Software and Cables

?? Carrying Case (leather and nylon, blaze orange available)

?? Swivel Mount

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

?? Surveillance Kit

External Interface Support

A Universal Device Connector (UDC) on the side of the P7100 portable provides the capability of interfacing with an external key load device and a personal computer for encrypting and programming.

Power Source

The P7100 is powered by a detachable battery pack with rechargeable cells.

Additional Capabilities or Features**DTMF Keypad**

The P7100 supports DTMF operation, which allows users to make telephone calls using this functionality.

Display

The P7100 has a 3-line; liquid crystal display, **which** provides denotes Systems/Groups/Individuals or Conventional Channels. The display is backlit for nighttime use.

Scanning

The P7100 can be provided with Priority Scan which will allow a user to select a priority channel or talk-group (in accordance with TSB-102A). The P7100 has the capability of scanning from a list of programmed frequencies or groups or user selected frequencies or groups. The scan shall be selectable priority, which means that the transmitter channel or talk-group selected by the user is the priority.

CECOM Contract # DAAB07-01-D-H805**CRS -0095****Generic Equipment**

Surveillance Mode

Backlighting and alert tones levels can either be programmed to low/off levels for surveillance modes, or can be adjusted from the front panel of the radio.

Radio Programming Equipment and Cables

M/A-COM offers a full line of programming accessories for the P7100, including cables and software.

External Data Port

The P7100 external option cable provides a RS-232 compliant data port for interfacing mobile data terminals. The data rate is limited to 9.6 kbps.

Batteries Rechargeable

The P7100 includes either a NiCd battery with a battery life of 9 hours at 5% Tx/ 5% Rx and 90% standby, or a NiMh battery with a battery life of 11 hours at 5% Tx/ 5% Rx and 90% standby. The battery life meets or exceeds the requirements of TIA TSB 102.A. The NiMh battery is resistant to the memory effect and will retain up to 95% of its rated charge depending on the number of cycles and storage.

Single Unit Charger

M/A-COM provides a single unit rapid one -hour charger which is capable charging both a single NiCD or NiMH battery. It is powered by 110/240 VAC, 50/60 Hz power. The single unit charger provides an indicator LED for the status of the battery, such as standby, charging, fault and charged indicators.

CECOM Contract # DAAB07-01-D-H805

CRS -0095

Generic Equipment

Multi-Unit Charger

M/A-COM provides a 6 unit rapid charger for both our NiMH and NiCD batteries for the P7100. It provides the same functionality as the single unit charger described above.

Multi-Unit Battery Reconditioner

M/A-COM proposes to provide a CADEX battery conditioner to allow for the conditioning of the memorized batteries. A technical specification is included in the Tab.

Carry Case -

M/A-COM provides leather carry case and swivel mount and belt loop.

Belt Clips -

M/A-COM can provide a P7100 spring-loaded belt clip suitable for 1" belts.

Headsets

M/A COM provides an array of headsets and similar accessories including the following:

Two-Piece Surveillance Kit

Three-Piece Surveillance Kit

Wireless Earpiece and Microphone Kit

Handheld Speaker/Microphone

Antenna for Portable Radios

M/A-COM provides a helical, non-adjustable, unity gain, antenna that is covered with injection-molded rubber. Antennas, which are optimized for each frequency band, specified.

Portable Radio Vehicular Adapter

M/A-COM can provide a vehicular adapter for the P7100. The vehicular adapter provides charging and control functionality for the radio (including an optional mobile control unit). The vehicular adapter provides 10W external speaker audio and external R/F antenna ports for a mobile antenna. M/A-COM does not market an external R/F or audio power amplifier.

Global Positioning Satellite Functionality

The P7100 can interface with GPS units in order to provide GPS functionality.

