MOTOROLA

Mobile Workstation 800 Series
Model F5207A, F5217A

Display Box

Owner's Manual

6802976C75-O

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Using this Manual

Before using this manual and products it describes, be sure to read the Safety instructions in Appendix A, the Warranty information in Appendix B and the FCC information in Appendix C.

Who Should Use this Manual

This manual is intended for staff who operate the Mobile Workstation 800 (MW800) and need to configure, upgrade or maintain its display box. This manual assumes the reader is familiar with the MW800 and basic Windows operations. If this is not the case, be sure to read the MW800 User's Guide and documentation that came with your version of Windows.

For documentation of supplied software applications, refer to the help file attached to each application.

Manual Introduction

The MW800 mobile workstation consists of three separate interconnected components: CPU box, Display and Keyboard. This manual only deals with the display box, which is also referred to as either *device* or *Display* in this manual. This manual is organized as follows:

- ***Section 1*** provides an overview.
- ***Section 2*** provides a description of basic operations.
- ***Section 3*** describes various parameters that define Display configuration when you turn on your computer.
- ***Section 4*** explains how to upgrade display firmware.
- ***Section 5*** describes how to get assistance from Motorola.

The *Appendixes* contain:

- ***Appendix A:*** Safety instructions
- ***Appendix B:*** Warranty information
- ***Appendix C:*** FCC information
- ***Appendix D:*** Display factory setup
- ***Appendix E:*** Troubleshooting information
- ***Appendix F:*** Acronyms and Abbreviations

Related Manuals

This manual describes the MW800 display box and provides basic operating instructions. Please, note that although this manual refers to hardware and software

components supplied with this product, it does not provide full component description. For additional information refer to the following documents:

- Mobile Workstation 800 Series, User's Guide - 6802976C65
- Mobile Workstation 800 Series, CPU Owner's Manual - 6802976C60
- Mobile Workstation 800 Series, Installation Manual - 6802967C20

For documentation of software applications supplied with this product, refer to the help file attached to each application. This manual is designed to supplement the on-line help or on-line context-sensitive help installed with every software component. Please review this information to ensure proper use of the product.

Also, if you need to be able to change the configuration of your device, refer to

- Mobile Workstation 800 Series,
  Maintenance Programming Software, User's Manual - 6802976C70

For additional information visit the MW800 home page http://www.motorola.com.

Conventions Used in This Manual

Throughout this publication, you will notice the use of danger and caution marks. These notations are used to emphasize that safety hazards exist, and care must be taken. Do not proceed beyond a **DANGER** or **CAUTION** until the indicated conditions are fully understood and met.

The following conventions are used throughout this manual:

Italics	Used for emphasis and for new terms.
Bold	Used to indicate keyboard keys or application buttons.
Program -> **Motorola** -> **MW800 CPU**-> **CPU Manager**	Used to designate the location and name of a menu function. For example, **Program** -> **Motorola** -> **MW800 CPU**-> **CPU Manager** launch CPU Manager program.
Note:	Indicates an operational procedure, practice, or condition to which you should pay special attention.
CAUTION:	Alerts you of conditions, which can result in loss or corruption of data, or damage to device.
DANGER:	Indicates a potentially hazardous situation, which, if not avoided, may result in injury. It may also be used to alert against unsafe practices and property-damage-only accident hazards.

Section 1: Getting Started

What is the Display Box?

The MW 800 offers three choices of rugged display:

- *12.1' XGA Display with touch screen*
  The 12.1" XGA display, with a resolution of 1024 x 768 pixels. The screen contains 1200 NIT (1200 Cd/m_2) high-brightness backlighting, ensuring glare-free viewing under virtually any lighting conditions.

- *12.1' SVGA Display with touch screen*
  The 12.1" SVGA display, with a resolution of 800 x 600 pixels. The screen contains 350 NIT (350 Cd/m2) standard brightness backlighting.

- *8.4' SVGA Display*
  The 8.4" SVGA display, with a resolution of 800 x 600 pixels. The screen contains 350 NIT (350 Cd/m2) standard brightness backlighting.

All displays are equipped with a touch screen (8-wire active matrix) that can be activated with either a gloved finger or a stylus pen. All displays use TFT screen technology. The screens are made of a tempered glass and are covered by a protective film to prevent the glass from shattering in the event of breakage.

The 12.1" screens use built-in Bluetooth technology (optional) to provide wireless connection to personal peripherals such as headset, mouse, printer etc. Two USB 1.1 ports provide connectivity to external USB devices.

This manual refers to all display options.

Section 2: Basic Operations

This section describes the following operations:

- Power On
- Power Off
- Standby
- Resume
- Volume Adjustment
- Brightness Adjustment
- Emergency key operation
- Function key operation

Power On

This chapter describes methods to power on he display in normal and extreme conditions.

NOTE: Prior to power on the display, be aware, that the main power switch on the rear CPU panel is in the ON position.

Normal operation

The display box can be turned off either from the CPU box or from the power button located on the right display's side.

- If the display is configured to be powered on USB 5V presence (see section 3, **Power up preferences** setting is USB 5V Presence), the device will be powered on as soon as the when USB 5V appears.

- If the display is configured to be powered on by the power button, (see section 3, **Power up preferences** setting is POWER BUTTON), the device will be powered on when display's or CPU power button is pressed.

You can select any of above options or use their combination.

Extreme Temperature Conditions

The device powers up only when the temperature is within the operating range. When the ambient temperature is beyond the operational range, the display will indicate about operational failure and will not power on.

Discharged Vehicle Battery

If the power source is 13.8VDC (see **Power source** parameter in section 3), the device will normally power up when the voltage level exceeds 10.3VDC.

If the power source is 9VDC (see **Power source** parameter in section 3), the device will normally power up when the voltage level exceeds 9VDC.

Turn Off

This chapter describes methods to power off the display box and the MW800 in normal and extreme conditions.

Normal Operation

The display box can be turned off either from the CPU box or from the power button located on the right display's side.

- If the display is configured to be powered off upon receiving CPU power off request (see section 3, **Power off preferences** setting is CPU REQUEST), the device will automatically shut itself down when the CPU issues power off request.

- If the display is configured to be turned off when USB 5V disappears (see section 3, **Power off preferences** setting is USB 5V Absence), the device will automatically shut itself down as soon as the CPU is powered off.

- If the display is configured to be turned off by the power button, (see section 3, **Power off preferences** setting is POWER BUTTON), the device will be turned off when display's power button is pressed.

You can select any of above options or use their combination.

If powering off by Power Button is selected, the display will turn itself off immediately after pressing of the Power Button, not waiting for the end of the CPU shut down process.

This immediate turning the display off may force the CPU to shut down depending on the **Power off USB command to CPU** parameter (see Section 3). If your intention is to turn off the CPU when display's power button is pressed, setting of this parameter should be ENABLE. If it's not your intention, disable sending of Power Off notification to the CPU - it will prevent the CPU from shutting down.

TIP: If you want to disable CPU shut down when you press the Power button, set the following:

- Power off USB command to CPU = DISABLE.
- Critical turn off = DISABLE.
- Power off on CPU REQUEST = NO.
- Power off from Power Button = NO.

If the system does not respond, you can turn the device off by pressing and holding the display power button for 6 seconds or more. To permit this option, **Critical turn off** parameter (see Section 3) setting should be ENABLE. Be aware, this hardware power off may damage your hard disk.

Extreme Shut Down

Some extreme events might cause the device to power off. These are ambient temperature below the low or above the high operating limit or discharged car battery.

- *Internal temperature is beyond the operational limit.*
  If during operation the internal temperature goes out of the low operational limits, the display eventually powers off.

- *Vehicle battery is discharged.*
  If, during normal operation, the battery voltage drops below 10.5VDC the display will provide Low Battery indication (the power indicator blinks yellow). If the voltage continues to drop, the device automatically powers off at 8.5VDC.

- *Drops in car battery voltage.*
  If battery voltage drops below the 8.8V limit for 20 seconds or more, the device will execute critical shut off and power itself off.

Power Management

This chapter describes how to enter the CPU into low-power mode (standby) and resume normal operating mode.

Standby

The display can enter the CPU into low-power state by pressing the **Standby** button on the right display's side.

One more way to move the CPU into low-power mode is to configure the **Power** button to enter the CPU into a low-power state. For details about this option, refer to the help file attached to Power Options (**Start** -> **Settings** -> **Control Panel** -> **Power Options**).

Resume

The display can resume the CPU using the following methods:

- A contact to the touch panel of the MW800 display

- Pressing the Emergency key of the MW800 display
- Pressing the Function key of the MW800 display
- Power button (if configured)

A contact to the touch panel, pressing the Emergency key or function key can resume the CPU out of standby if its setting specifies the operating system to come out of a low power state when there is USB activity. To enable this feature, **Allow this device to bring the computer out of standby** option **(Power Management tab** in **Properties)** should be selected. For details about this option, refer to the help file attached to the Properties of the device.
Default setting of the operating system allows resume from the touch panel, emergency and function keys.

Pressing of the **Power** button will bring the computer out of standby if its setting specifies the operating system to come out of a low power state when you press the Power button. For details about this option, refer to the help file attached to Power Options (**Start** -> **Settings** -> **Control Panel -> Power Options**).
Default setting of the operating system does not allow resume from the power button.

Volume Adjustment

Two control buttons for volume adjustment (**Volume Up** and **Volume Down**) in conjunction with software Volume Control application allow setting of volume level. Volume window allows color modifications and pops-up on every volume change. If your display unit includes BlueTooth component, this application also allows commutation of audio stream to the BlueTooth device.

Brightness Adjustment

Two control buttons for brightness adjustment (**Brightness Up** and **Brightness Down**) allow setting of brightness level. The display allows limiting relative brightness level, which cannot be exceeded by this display. See the **Maximum Brightness** parameter in section 3.

Emergency key operation

The display is equipped with the large bright-red emergency button. When the emergency button is pressed, the display provides high-priority data event to the CPU box operating system. That intends for a customer software emergency applications that may hook and process this event.

Function key operation

The display has a number of function keys (12.1' – eight, 8.4' – six) across the bottom of the display that can be assigned different functions under mobile application software control that can be configured for other Windows applications. The Extrakey application, which is a part of the MW800 software, allows the function key to operate like the standard keyboard hotkey, launch any application (like Notepad or Calculator) or blank the display. ExtraKey application's desktop toolbar is situated on one of the edges of the screen (default - the bottom edge).

You can customize the Extrakey using Configuration window, which can be run either from the Control Panel, or by left-clicking the ExtraKey tray icon and choosing **Configuration** in the pop-up menu.

Each display function key can be mapped either to hot key (such as Ctrl + X, F1 etc.), to file (as a shortcut), or to the display switch:

Figure 1. ExtraKey Configuration

How to set a shortcut to the hot key

- Choose **Hot Key** in the **Map to** drop-list.
- Move cursor to **Press new hotkey** field and right-click once to activate it.
- Press key you want on the keyboard. Field **Name** defines how the Extrakey Bar button will be named (this is optional).

How to set a shortcut to the application

- Choose **File** in the **Map to** drop-list.
- Enter full path to file you want to open or click the button to browse. Field **Name** defines how the Extrakey Bar button will be named (this is optional).

How to set a shortcut to the display switch

- Choose **Display switch** in the **Map to** drop-list.
- Field **Name** defines how the Extrakey Bar button will be named (this is optional).

The ExtraKey Application on-line help provides context-sensitive information. Please, take the time to read this information in order to operate the device correctly.

Touch screen Calibration

Sometimes there is a need to calibrate the touch panel attached to the display monitor, i.e. to adjust the pushed position of the panel and its display position of the monitor. Even if the touch panel has same dimensions as the display monitor, there may be minor variations in between corresponding data points because of resistance variance of each panel.

When you use touch panel module for the first time, or, when there is discrepancy between the pushed and displayed positions, then calibration is required. This needs to be done only once, and then, calibration data is stored. The CPU will automatically calculate the touched position on display monitor.

This adjustment may be executed with the MW800 Display Calibration Tool.

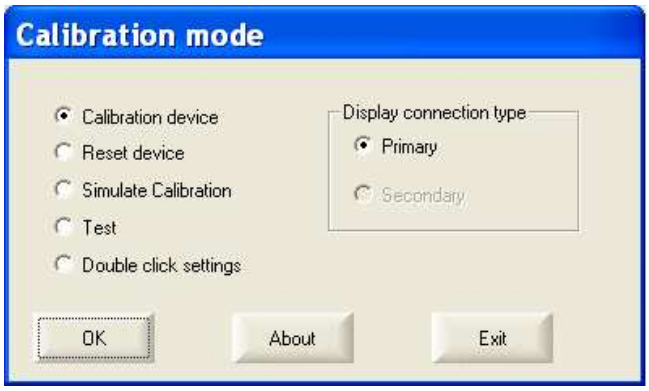

Figure 2. Calibration Window

This utility performs the following:

- **Calibrate Device** Calibrates the touch screen and saves calibration data
- **Reset Device** Nullifies calibration parameters in the MW800 display codeplug
- **Simulate Calibration** Simulates calibration of the touch screen without saving calibration
- **Test** Briefly tests of the touch screen after calibration
- **Double-Click Setting** Calibrates the double-click on the touch screen

Section 3: Display Configuration

The device has a protected memory area to store the configuration parameters accessed when you turn it on. That binary-format data contains basic information about display capabilities including general settings, power-up, power-off modes, etc.
This section describes various configuration parameters that can be selected and modified as required

Display Configuration Parameters

Display configuration provides the following capabilities:

Power source
Provides capability to select a power source: either 13.8VDC or 9VDC car batteries. Factory setting is 13.8VDC.
NOTE: if 9VDC battery is selected, power loss compensation during engine cranking will be not supported.

Power off USB command to CPU
Normally, when you turn the display off, or the display discovers a hardware problem, the Display sends Power Off notification to the CPU in order to turn the CPU off. This parameter provides enables or disables this feature. Factory setting is ENABLE.

Critical turn off
Normally, if the system does not respond, you can turn the device off by pressing and holding the power button for 6 seconds or more. This parameter enables or disables this feature. Factory setting is ENABLE.
CAUTION: Be aware, critical turn off forces immediate CPU shut down and may damage your hard disk.

Power up preferences
Selects desired source to turn on the display. The following options are available:

- **Power Up on USB 5V Presence** — Turn on the display on the front edge of USB 5V signal. Factory setting is YES.
- **Power Up by Power Button** — Turn on the display on pressing of the Power Button on CPU or Display units. Factory setting is YES.

Power off preferences
Selects desired method to turn the display off. The following options are available:

- **Power off on USB 5V Absence** — Turn the display off as soon as the CPU unit is powered off. Factory setting is NO.
- **Power off on CPU REQUEST** — Turn the display off when CPU power-off request is received. Factory setting is YES.
- **Power off by Power Button** — Turn the display off as soon as the display Power Button is pressed. Factory setting is YES.

Idle Time-out when CPU is not powered
This parameter provides several options to power on the display while the CPU is off. The following options are available:

- **NEVER** — Does not power on if the CPU is off.
- **10 sec** — Power on and wait up to 10 seconds for the CPU trigger (USB 5V presence). If 10-second time-out is expired and the CPU trigger did not occur, the display will power itself off.
- **FOREVER** — Power on and wait for the CPU power up without any time limitation.

Factory setting is 10 seconds.

Bluetooth Device on Power Up
Indicates presence of the Bluetooth hardware. This field is set when BT hardware exists and supports audio; otherwise it is reset. Factory setting is ON.

Brightness Threshold
Shows relative brightness threshold for LCD temperature control. This is factory setting.

Brightness Slope
Shows the slope of brightness decreasing for the LCD temperature control. This is factory setting.

Maximum Brightness
Defines relative brightness level, which cannot be exceeded by this display. The parameter can be changed in the range from 0 to 63; factory setting is 63.

Number of Displays
Defines connection of one or two displays to the CPU. Factory setting is ONE.

Display Port
When one display is connected to the CPU, this parameter defines what CPU port the display is connected to. Factory setting is DISPLAY 1.

BT MAC Address
Shows unique Bluetooth media access control address. This is read-only field.

Board Number
Shows internal identification of display main-board. This is read-only field.

Serial Number
Shows display serial number. This is read-only field.

NOTE: Understand that the Display configuration should be compatible with the CPU and vice versa.

Refer to *Appendix H* for factory setting of the display configuration parameters.

Display Configuration Change

This chapter describes software tool and the most common method to change the display configuration.

Maintenance Programming Software

The Maintenance Programming Software enables modification of the configuration that starts when you turn the display on. Use the MPS context-sensitive on-line help information for assisting in configuring the device.

How to Modify Configuration Parameters

To modify the configuration parameters perform the following:

- Double-click on the MPS icon; main MPS window appears on the screen.

Figure 3. Main MPS Window

- Click on Codeplug Editor

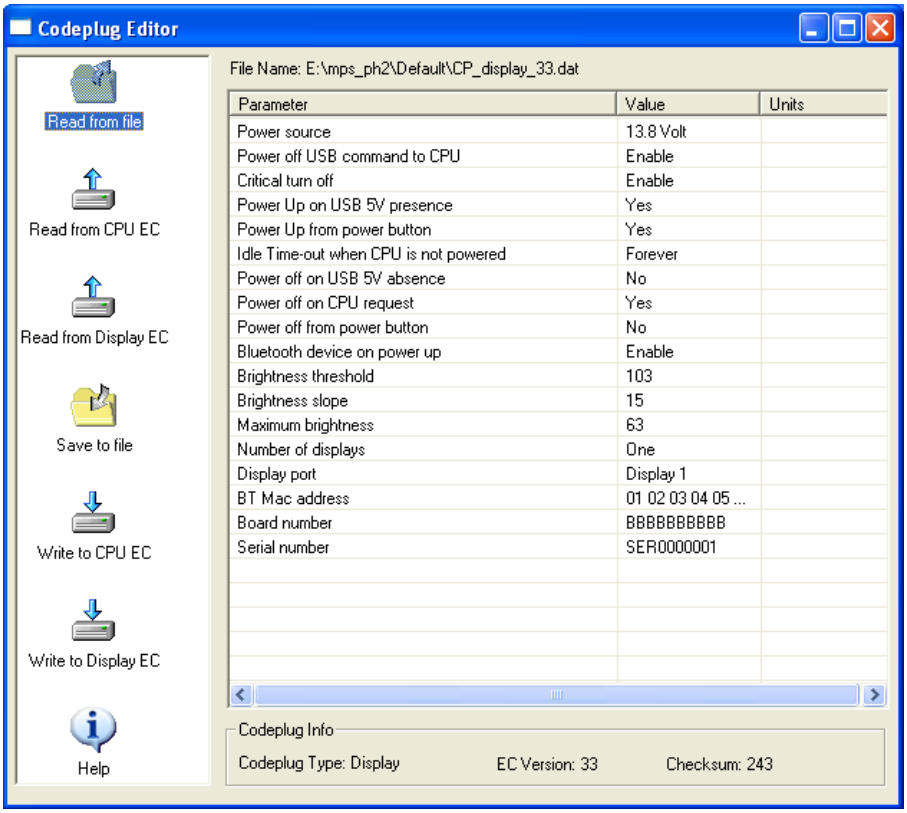

Figure 4. Codeplug Editor

To modify configuration parameters use the MPS tool as the following:

- Click on **Read from Display** to read the codeplug parameters. If your device is successfully read, you will see CPU parameters.
- Click on **Save to file** to backup the original codeplug data.
- Modify a parameter per your selection.
- Click on **Write to Display** to program the device.
- If the device is successfully programmed, the following message appears.

CAUTION: Incorrect configuration can make the device unworkable. Please, make sure to acquire the appropriate codeplug. Always make a backup copy in case you have made a mistake during the update.

Note: For details refer to Maintenance Programming Software User's Manual.

Section 4: Software/Firmware Upgrade

Use the MW800 Support CD-ROM part No. FVN5413A kit when you need to install or update unique software and firmware components.

Description/Tutorial

Insert MW800 Support CD into CD drive. The Main Menu screen automatically appears as shown next:

Figure 5. Support Kit, Main Menu

To perform the desired action, click on the particular option and follow the on-screen instructions to continue and complete the process.

Display Firmware Update

Update of the MW800 display firmware (both **12.1'** and **8.4'** as well) can be done ONLY from external desktop or notebook with Windows 2000 or XP operating system and one free RS-232 serial port. It needs connection of special equipment (Connection Box) and installation of Display Utilities Package on the external computer.

Firmware update requires the following equipment:

- Power supply (13.8VDC ± 20%, 5A)

- Power supply cable HKN4192B
- Connection box FLN3218
- Serial cable 308756V14.
- Cable adaptor

Perform the following steps:

- Turn off the Main Power Switch (on the rear of the CPU box) when connecting the cables.
- Connect the power supply to the display.
- Attach the connection box to free RS-232 port on your computer via Serial Port cable (RS-232 9-pin Female to Male straight Serial Port cable 308756V14).
- Detach the display from the CPU box and attach Display-to-CPU cable to the Connection box.
- Put the MW800 display into the 'Monitor' mode as the following: press the OSD button, then Power On button and wait until the blue LED on the MW800 display panel is on.

Automatic Firmware Update

Insert the Support Kit into the CD-ROM drive and click on the **Firmware Updates** and then **12'1' Display** (or **8.4' Display)** button. The MW800 Support kit automatically replaces the display firmware.

Manual Firmware Update

For manual CPU firmware update launch the MPS and then the EC Loader tool. This tool provides ability to program a S-Record file to EC memory flash. The EC Loader allows downloading the firmware into the device only if the firmware is compatible with the type of embedded CPU controller. In a case of incompatibility the loader reports an error and prevents users from mistakes like trying to download improper file.

Set programming and connection settings as shown next:

- Select serial port for communication with embedded controller.
- Select **External** connection type.
- Select **Display** firmware target.
- Select a file to be downloaded into embedded controller.
- Select **Overwrite Codeplug** if you want to replace the configuration parameters in your device with factory default. Otherwise, keep it unselected.

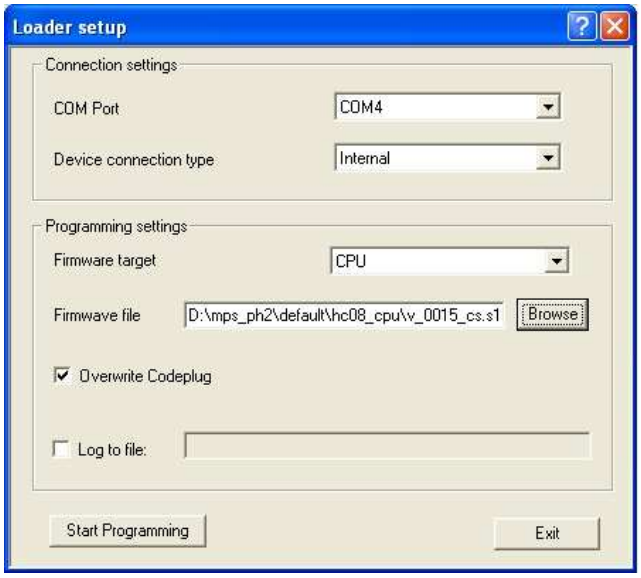

Figure 6. EC Loader Setup

- Click on **Start Programming** button to begin programming. EC Programming dialog appears; the progress bar will show programming status.

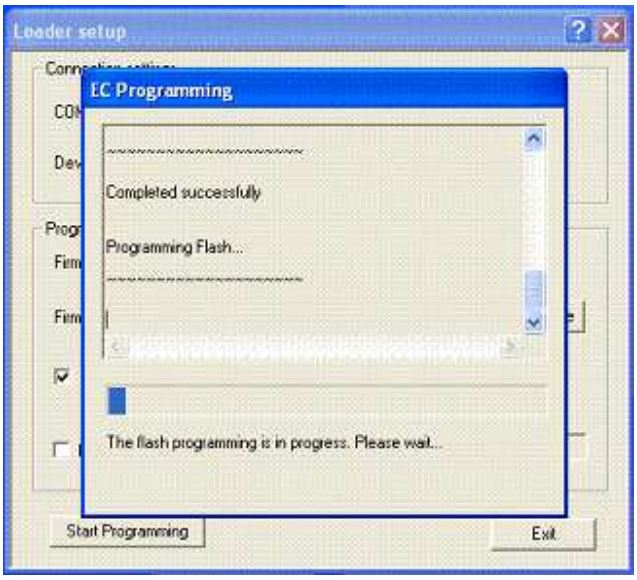

Figure 7. EC Loader Programming

- Wait for completion of programming process. When completed **EC Flash Programming has passed successfully** will appear.

Figure 8. Successful Programming

Display Utilities Update

Automatic Display Utilities Update

Insert the Support Kit into the CD-ROM drive and click on the **Applications** and then **Display Utilities** button. The MW800 Support kit provides automatic upgrading of the Display utilities.

Manual Display Utilities Update

You can manually update the Display Utilities in your device as the following:

- Remove the current version of MW800 Display utilities.
  Go to **Control Panel** -> **Add and Remove Programs**, select **MW800 Display Utilities** and click **Change/Remove** button.
- Install the new version of MW800 Display utilities.
  Double click on the icon of new version of MW800 Display Utilities and follow to on-screen instructions.

Section 5: Getting Assistance from Motorola

For your convenience, Motorola Web site provides up-to-date information about MW800 products.

The address for MW800 home page is http://mw800.motorola.com.

This site includes general information about the device; here you can find answers to most of your questions or problems on operating your device. Also, you could:

- Obtain updates from Motorola
- Update embedded firmware for your computer
- Get the latest device drivers

Appendix A: Safety Instructions

DANGER:
Reduce the risk of fire or electric shock by following basic safety instructions:

- Do not use your device during electrical storms.
- Do not connect or disconnect cables while you device is turned on.
- Protect your device from liquids. Keep your device away from water.
- Do not use any power cord where input or output pins show signs of corrosion or overheating.
- Be sure that all power cord connections are securely plugged into receptions.
- Never wrap a power cord.
- Always route a power cord and communication cables so they will not be damaged.

DANGER:
To avoid shock hazard, disconnect power cord and all communication cables when you open the covers of your device.

DANGER:
Electric current from power and communication cables is hazardous. To prevent shock hazard follow the installation recommended in the Installation Manual.

DANGER:
An improperly grounded device is hazardous. To prevent shock hazard follow the installation recommended in the Installation Manual.

CAUTION:
The device dissipates some heat during normal operation. When the device is operating, do not leave it in contact with any part of your body for an extended period of time – it could cause a sense of discomfort.

CAUTION:
The device generates heat when on. Never block or cover ventilations slots and fans.

CAUTION:
The device is sensitive to uncontrolled shut down. Never turn off the device by turning off the power supply or by disconnection of the power cable.

CAUTION:
Hard drive performance and lifetime could be shortened if the device is not used for long period of time. Do not leave the device unused for more than 3 months.

CAUTION:

If you have added or upgraded a memory card or Mini PCI card or any other component, do not use your device until you have closed the covers. Never use the device when cover(s) is open.

CAUTION:
CMOS battery can degrade when your device is not used for long period of time. Leaving a battery unused in a discharged state could shorten a lifetime of the battery.

CAUTION:
The device automatically shuts down then the internal temperature exceeds the upper limit of the valid range. Never turn the device on until it cools down.

CAUTION:
Avoid inserting of any card into computer slots at an angle – it could damage connectors in the device.

CAUTION: Normally, if the system does not respond, you can turn the device off by pressing and holding the power button for 6 seconds or more. Be aware, this hardware power off may damage the hard disk.

CAUTION: Do not insert or remove card when the MW800 is in Suspend mode. Before you insert or remove a card, make sure that you exit all software applications that access the card.

CAUTION: When replacing a device, verify that it is hot swappable. Otherwise, turn off your device prior to replacement.

CAUTION: Wrong configuration can make your device unworkable. Please, make sure to acquire the appropriate codeplug. Always make a backup copy in case you have made a mistake during the update.

Appendix B: Warranty Information

EPS – 34440- B

This warranty applies within the fifty (50) United States, the District of Columbia and Canada.

LIMITED WARRANTY
MOTOROLA COMMUNICATION PRODUCTS

If the affected product is being purchased pursuant to a written Communications System Agreement signed by Motorola, the warranty contained in that written agreement will apply. Otherwise, the following warranty applies.

I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:

Motorola Inc. or, if applicable, Motorola Canada Limited ("Motorola") warrants the Motorola manufactured radio communications product, including original equipment crystal devices and channel elements ("Product"), against material defects in material and workmanship under normal use and service for a period of One (1) Year from the date of shipment. Motorola, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it with the same or equivalent Product (using new or reconditioned Product), or refund the purchase price of the Product during the warranty period provided purchaser notifies Motorola according to the terms of this warranty. Repaired or replaced Product is warranted for the balance of the original applicable warranty period. All replaced parts of the Product shall become the property of Motorola.

This express limited warranty is extended by Motorola to the original end user purchaser purchasing the Product for purposes of leasing or for commercial, industrial, or governmental use only, and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by Motorola. Motorola assumes no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of Motorola.

Unless made in a separate written agreement between Motorola and the original end user purchaser, Motorola does not warrant the installation, maintenance or service of the Product. Motorola cannot be responsible in any way for any ancillary equipment not furnished by Motorola, which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system, which may use the Product, is unique, Motorola disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

II. GENERAL PROVISIONS:

This warranty sets forth the full extent of Motorola's responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at Motorola's option, is the exclusive remedy. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. MOTOROLA DISCLAIMS ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR

DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

III. HOW TO GET WARRANTY SERVICE:

Purchaser must notify Motorola's representative or call Motorola's Customer Response Center at 1-800-247-2346 within the applicable warranty period for information regarding warranty service.

IV. WHAT THIS WARRANTY DOES NOT COVER:

A) Defects or damage resulting from use of the Product in other than its normal and customary manner.

B) Defects or damage from misuse, accident, water, or neglect.

C) Defects or damage from improper testing, operation, maintenance, installation, alteration, modification, or adjustment.

D) Breakage or damage to antennas unless caused directly by defects in material workmanship.

E) A Product subjected to unauthorized Product modifications, disassemblies or repairs (including, without limitation, the addition to the Product of non-Motorola supplied equipment) which adversely affect performance of the Product or interfere with Motorola's normal warranty inspection and testing of the Product to verify any warranty claim.

F) Product, which has had the serial number removed or made illegible.

G) Batteries (they carry their own separate limited warranty).

H) Freight costs to the repair depot.

I) A Product, which, due to illegal or unauthorized alteration of the software/firmware in the Product, does not function in accordance with Motorola's published specifications or with the FCC type acceptance labeling in effect for the Product at the time the Product was initially distributed from Motorola.

J) Scratches or other cosmetic damage to Product surfaces that do not affect the operation of the Product.

K) That the software in the Product will meet the purchaser's requirements or that the operation of the software will be uninterrupted or error-free.

L) Normal and customary wear and tear.

M) Non-Motorola manufactured equipment unless bearing a Motorola Part Number in the form of an alphanumeric number (i.e., TDE6030B).

V. GOVERNING LAW

In the case of a Product sold in the United States and Canada, this Warranty is governed by the laws of the State of Illinois and the Province of Ontario, respectively.

VI. PATENT AND SOFTWARE PROVISIONS:

Motorola will defend, at its own expense, any suit brought against the end user purchaser to the extent that it is based on a claim that the Product or its parts infringe a United

States patent, and Motorola will pay those costs and damages finally awarded against the end user purchaser in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:
A) that Motorola will be notified promptly in writing by such purchaser of any notice of such claim;
B) that Motorola will have sole control of the defense of such suit and all negotiations for its settlement or compromise; and
C) should the Product or its parts become, or in Motorola's opinion be likely to become, the subject of a claim of infringement of a United States patent, that such purchaser will permit Motorola, at its option and expense, either to procure for such purchaser the right to continue using the Product or its parts or to replace or modify the same so that it becomes non-infringing or to grant such purchaser a credit for the Product or its parts as depreciated and accept its return. The depreciation will be an equal amount per year over the lifetime of the Product or its parts as established by Motorola. Motorola will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or its parts furnished hereunder with software, apparatus or devices not furnished by Motorola, nor will Motorola have any liability for the use of ancillary equipment or software not furnished by Motorola which is attached to or used in connection with the Product. The foregoing states the entire liability of Motorola with respect to infringement of patents by the Product or any of its parts thereof.
Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted Motorola software such as the exclusive rights to reproduce in copies and distribute copies of such Motorola software. Motorola software may be used only in the Product in which the software was originally embodied and such software in such Product may not be replaced, copied, distributed, modified in any way, or used to produce any derivative thereof. No other use including, without limitation, alteration, modification, reproduction, distribution, or reverse engineering of such Motorola software or exercise of rights in such Motorola software is permitted. No license is granted by implication, estoppel or otherwise under Motorola patent rights or copyrights.

Appendix C: FCC Information

CAUTION: Changes or modifications made in the CPU box or Display, not expressly approved by Motorola, will void the user's authority to operate the equipment

EPS – 48759 – O **FCC INTERFERENCE WARNING**

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

NOTE: This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 90 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

For detailed product safety and RF exposure for mobile stations with two-way radios installed in vehicles, refer to Electromagnetic Emission (EME) safety leaflet, Motorola publication number 68P02967C16.

FCC Compliance Notice

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

NOTE: This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 90 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

This device complies with Part 90 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

For detailed product safety and RF exposure for mobile workstations, with two-way radios, installed in vehicles, refer to Electromagnetic Emission (EME) safety leaflet, Motorola publication number 68P02967C16.

Appendix D: Display Factory Setup

Power source	- 13.8V
Power off USB command to CPU	- ENABLE.
Critical turn off	- ENABLE
Power Up on USB 5V Presence	- YES
Power Up from Power Button	- YES
Power off on USB 5V Absence	- NO
Power off on CPU REQUEST	- YES
Power Off from Power Button	- YES
Idle Time-out when CPU is not powered	- 10 seconds
Bluetooth Device on Power Up	- ON
Brightness Threshold	- Factory setting
Brightness Slope	- Factory setting
Maximum Brightness	- 63
Number of Displays	- ONE
Display Port	- DISPLAY 1
BT MAC Address	- Factory setting
Board Number	- Factory setting
Serial Number	- Factory setting

Appendix E: Troubleshooting

You can solve many problems without outside assistance by following the troubleshooting procedures that MW800 provides in the online help or in the documents that are provided with the device, operating system and software applications. Most software applications come with description containing troubleshooting procedures and explanation of error information. If you suspect a software issue, refer the information for the operating system or application programs.

NOTE: This manual does not cover operating system issues. For operation system directions, refer to Microsoft Windows XP Professional or Windows 2000 documentation.

This chapter contains helpful hints to follow when you encounter any problem. If a problem persists after you follow the instructions in this chapter, contact your system administrator for help.

The following table describes error messages that warn you about conditions that might prevent the normal operation mode.

Table 1. Error Messages About Abnormal Conditions

Message	Do the following
Vehicle Battery is Low. The system will shutdown in 3 minutes.	The car battery voltage is below of the low operational limit. Please save your work before shutting down
MW800 CPU temperature is high. The system will shutdown in 3 minutes.	The internal temperature is higher than the valid limit. Please save your work before shutting down. Never turn on the device until it cools down to normal operating temperature.
Warning condition is over	Cancel Warning
MW800 CPU temperature is low. The system will shutdown in 3 minutes.	The internal temperature is below of the valid limit. Please save your work before shutting down. Never turn on the device until it heats up to normal operating temperature.
PC Card error was detected. Please remove the PC Card device and than press OK.	Card Bus over-current is discovered. Please remove the PC Card device and than press OK
MW800 hard drive heater may be malfunctioned.	Heater over-current is discovered. Please, contact your system administrator.
Over current is detected in device connected to Firewire port.	The MW800 cannot work with this Firewire device. Please, disconnect the device.
MW800 CPU Fan Failure.	This is Fan alarm. Please, contact your system administrator.

The MW800 display provides the following indication about a failure condition.

Table 2. Failure Indications

Indication	What's the problem
Power LED is off	Check the plug and the power cord.
Power LED is steady yellow	Vehicle battery is low (9.4 to 10.3 VDC) during workstation power up.
Temperature LED blinks red	Display temperature is extremely high during power on
Temperature LED blinks yellow	Display temperature is extremely low during operation.
Communication LED is steady blue	CPU box to display USB power problem, or display in programming mode. Check the plugs and CPU cable.
Communication LED is steady yellow	CPU box fails to communicate with display. Check the plugs and CPU cable.
Communication LED is steady purple	CPU box to display USB power and communication problem. Check the plugs and CPU cable.
Link LED is yellow & green	NO valid input signal from CPU box. Check the plugs and CPU cable.

The following table describes CPU failures without a user notification.

Table 3. Failures Without Notification

Problem	Do the following
Cannot turn the device off, the system does not respond	Turn off the device by pressing and holding the power button for 6 seconds or more. Use either CPU or display power buttons. If the device is still not responding, turn off and on the main power switch on the rear side of the CPU unit.

Appendix F: Acronyms and Abbreviations

The following acronyms and abbreviations are used in this document:

CD	**C**ompact **D**isk
COM	**Com**munication
CPU	**C**entral **P**rocessor **U**nit
EME	**E**lectromagnetic **E**mission
FAQ	**F**requently **A**sked **Q**uestions
FCC	**F**ederal **C**ommunications **C**ommission
LCD	**L**iquid **C**rystal **D**isplay
MPS	**M**aintenance **P**rogramming **S**oftware
MW	**M**obile **W**orkstation
NIT	**N**ear **I**nfrared **T**ransmission
OSD	**O**n-**S**creen **D**isplay
SVGA	**S**uper **V**ideo **G**raphics **A**rray
TFT	**T**hin **F**ilm **T**ransistor
USB	**U**niversal **S**erial **B**us
VDC	**V**olts **D**irect **C**urrent
XGA	e**X**tended **V**ideo Graphics **A**rray