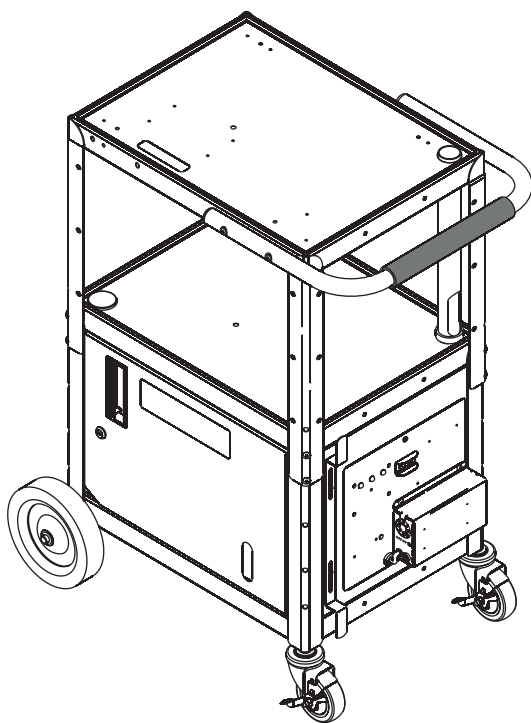


Operating & Maintenance Instructions

**Monarch™
9876™
Mobile Work
Station (MWS™)**



Each product and program carries a respective written warranty, the only warranty on which the customer can rely. Paxar reserves the right to make changes in the product, the programs, and their availability at any time and without notice. Although Paxar has made every effort to provide complete and accurate information in this manual, Paxar shall not be liable for any omissions or inaccuracies. Any update will be incorporated in a later edition of this manual.

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WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CANADIAN D.O.C. WARNING

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

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Avery Dennison Printer Systems Division
170 Monarch Lane
Miamisburg, OH 45342



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GETTING STARTED

1

Use the Monarch® 9876™ Mobile Work Station™ (MWS™) for mobile printing.


Using This Manual

Following is a summary of the contents of this manual.

Chapter	Contents
1 Getting Started	Contains information about the batteries and MWS.
2 About the MWS	Describes how to connect power cords and use additional devices on the MWS.
3 Charging the Batteries	Describes how to charge the batteries.
4 Power Options	Describes battery power and battery safety issues.
5 Printing	Explains how to print supplies from a printer on the MWS.
A Specifications	Technical specifications about the MWS.

Safety Precautions

Following symbols are used in this manual to show importance of using the MWS safely.

WARNING	Failure to follow the guidelines marked with this symbol could result in serious personal injury or death.
CAUTION	Failure to follow the guidelines marked with this symbol could result in minor personal injury or product damage.
	Caution, risk of electrical shock. Also known as the "High Voltage" symbol.

Audience

This manual is designed for the person using the MWS for mobile printing applications.

After you receive the MWS, you should have all the necessary parts, including the batteries and charger. **Check inside ALL packaging material.** Make sure you do not throw away any pieces. Keep the boxes and packaging material in case the MWS ever needs repair.

Ordering Programmer's Manuals

The Packet Reference Manual, which describes how to create format and batch packets for printing labels, how to configure a Monarch® printer online, and how to perform other advanced techniques is available from our Web site.

Calling Service

If these solutions do not work or you have a problem not listed, see your System Administrator or call Service at the number listed on the back of this manual.

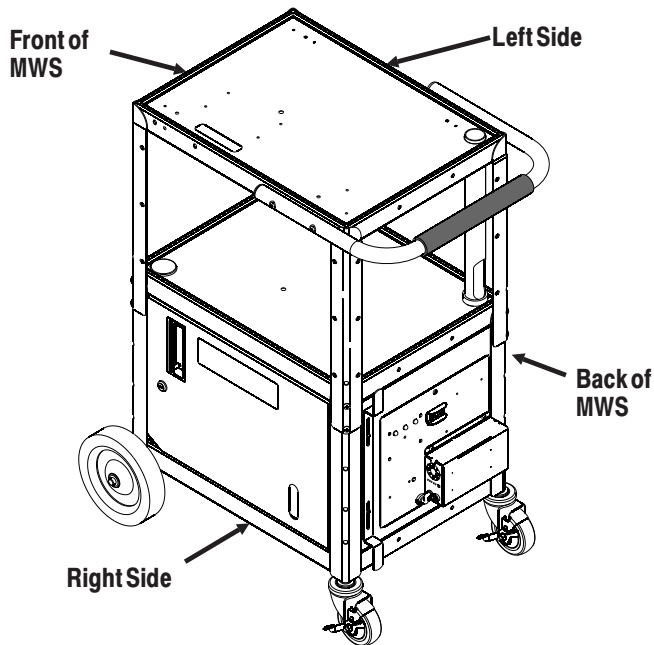
ABOUT THE MWS

The Mobile Work Station ships mostly assembled. This chapter explains the different options and how to assemble any special options, such as the hanging folders.

Tools You May Need

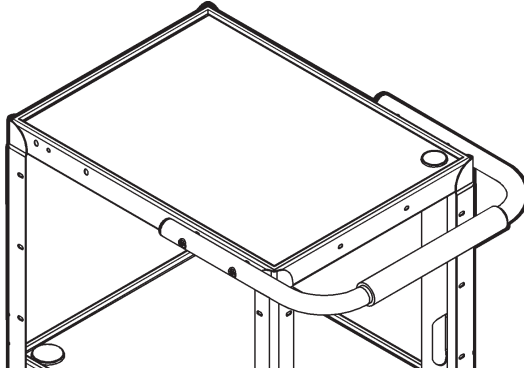
To assemble the options, you may need a flathead (common) screwdriver; a Phillips screwdriver; wrenches: 7/16", 11/32", 1/4" and adjustable; 5/32" Hex key (wrench); a rubber mallet and hammer, and slip-joint or needle-nose pliers.

Check inside ALL packaging material. Make sure you do not throw away any pieces.



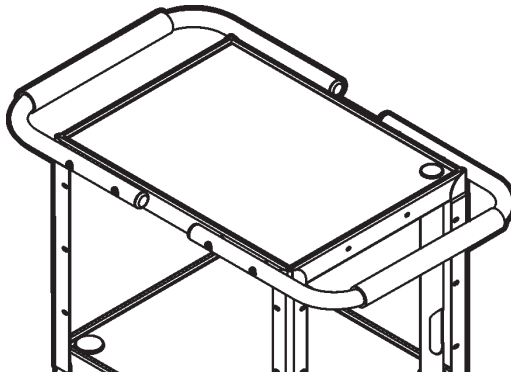
Handle Options

There are different handle configurations and each option is pictured below.



One Curved Handle

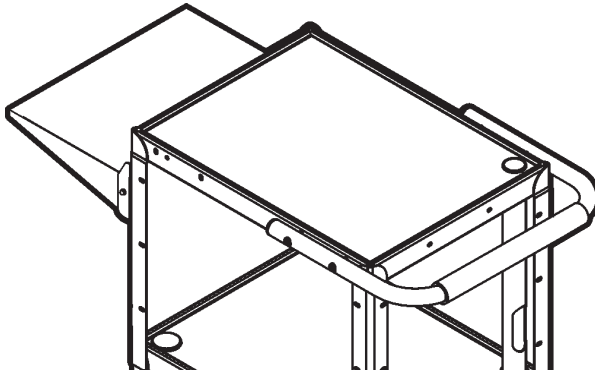
You can have one or two curved handles.



Two Curved Handles

Shelf Options

You can have one or two shelves.



Shelf

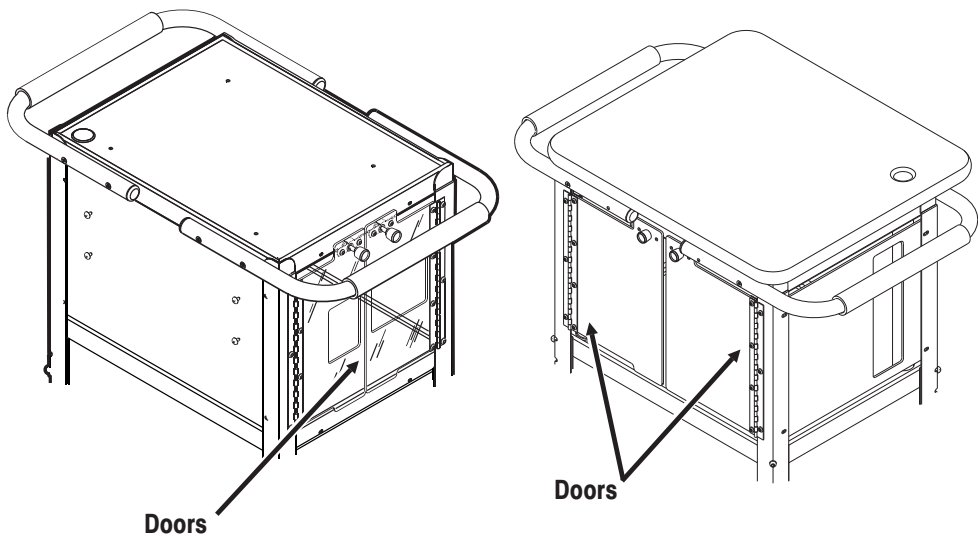
To collapse the shelf, lift the shelf from the sides and allow it to swing down.

To extend the shelf, lift the shelf until the rear lip slides down onto the top of the support brace and locks in place.

About the Doors

The MWS has combinations of doors and solid panels that do not open. The doors should already be attached to the MWS.

Use water or a glass and surface cleaner to clean the doors/panel. **Do not use solvents on these doors/panel.** A solvent will damage the door/panel.



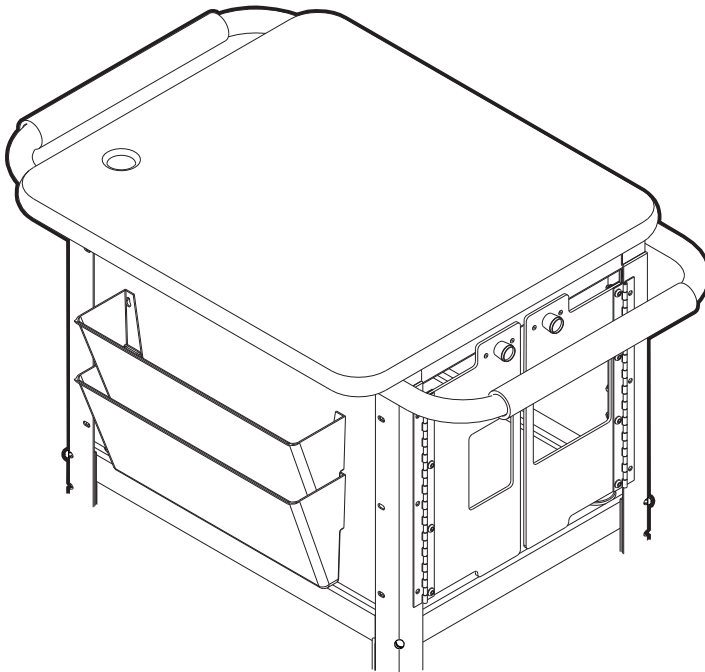
Attaching the Hanging Folders

Follow the steps below to attach the hanging folders to the MWS.

Doors must be installed before you can use the hanging folder option.

You must attach the bottom folder to the MWS first.

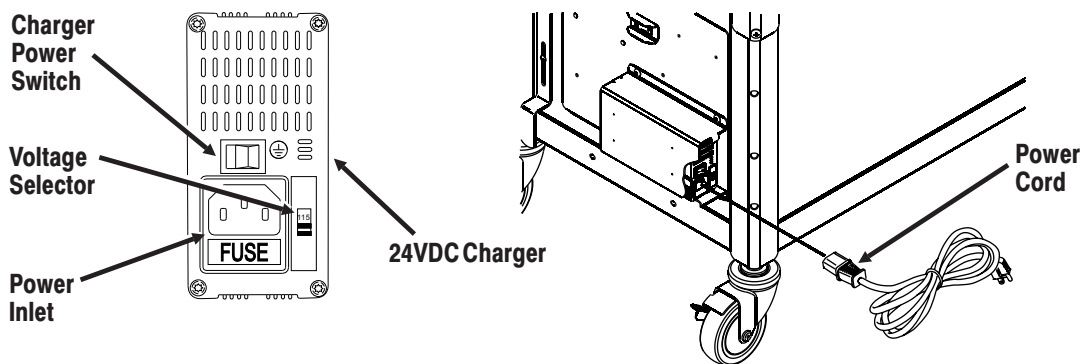
1. Remove the following items from their packaging:
(2) hanging folders (4) Philips screws
2. Locate the holes in the left-side panel. Using a Philips screwdriver, start threading two screws in the two bottom holes.
3. Hang the bottom folder onto the screws. Tighten the screws.
4. Thread two screws in the top two holes.
5. Hang the top folder onto the screws. Tighten the screws.



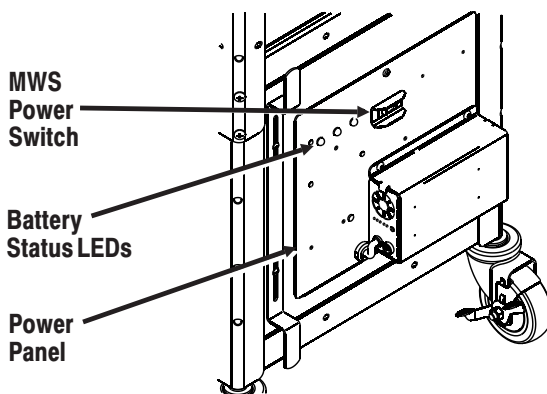
Connecting the Power Cord

Make sure to set the proper voltage on the charger voltage selector switch on the right side of the charger (115V in U.S. or 230V International).

Incorrect voltage selection can result in charger failure. Connect the charger's power cord to the power inlet. Power cords are not included with International models. The charger's power switch is also on the right side.



The battery's status LEDs are located on the left side of the Power Panel. The MWS Power Switch is to the right of the LEDs. See Chapter 3, "Charging the Batteries" for more information.



Do not plug the external power cord into a wall outlet until you are ready to charge the battery. See Chapter 3, "Charging the Batteries" for important battery information.

Connecting a Printer

Contact your Monarch Representative for instructions on attaching a Monarch® printer to the MWS.

Using other Monarch® Printers

Contact your Monarch Representative for instructions on connecting Monarch® 9462™ and Monarch® 9465™ chargers to the MWS. This allows you to keep the chargers close to where you are working on the sales floor. For more information about using your 9462 or 9465 charger, refer to the Operating Instructions provided with the charger.

The following printers are supported with these chargers:

- ◆ Monarch® Sierra Sport2™ (9460™)
- ◆ Monarch® Sierra Sport3™ (9433™)
- ◆ Monarch® Pathfinder® Ultra® Silver (6032™)
- ◆ Monarch® Pathfinder® Ultra® Platinum (6039™)

Additionally, a laptop or handheld computer (terminal) can be powered on the MWS.

Using other Printers

Contact your Monarch Representative to attach non-Monarch printers to the MWS.

CHARGING THE BATTERIES

This chapter describes how to

- ◆ charge the Mobile Work Station's batteries
- ◆ change the fuses.

The battery charger is a fully automatic, maintenance-free charger.

Make sure the voltage selector switch (located on the back of the charger) is set for the proper voltage (115V or 220V).

Dispose of used batteries according to the manufacturer's instructions.

To charge the battery, plug the Mobile Work Station's AC power cord into a grounded outlet. Charge the battery:

- ◆ before using the MWS for the first time (charge it for 7 hours)
- ◆ when the MWS beeps (see "Battery Life" for indications of low battery conditions)
- ◆ when the MWS is not in use.

When the MWS is not in use, always leave the battery charger plugged in and charging. The battery charger is "intelligent;" it monitors the battery condition and does not overcharge the lead acid battery. Battery life is extended by frequent charging.

CAUTION

Only qualified service personnel may install or replace the two 12-volt (55 amp-hours) sealed lead-acid non-venting batteries on the MWS.

If replacing batteries, you must use the same type of battery from the same manufacturer (as the ones provided with the MWS). Make sure the batteries are NRTL-recognized. Also, BOTH batteries MUST be replaced at the same time to maintain capacity match.

Important Charging Information

WARNING

DANGER! RISK OF ELECTRICAL AND FIRE HAZARD.
CERTAIN ACTIONS MAY RESULT IN DEATH, SERIOUS
INJURY, SHOCK, OR BURNS.

- ◆ **Do not** disassemble the battery charger.
- ◆ **Do not** operate the charger if it has been damaged in any way. **Do not** spill liquids into the charger, such as water or soft drink.
- ◆ **Do not** expose the battery charger to rain or snow. Never charge a frozen battery. The colder the battery, the longer it takes to charge.
- ◆ Plug only into a three-prong grounded outlet. **Do not** alter the AC power cord or plug provided. **Do not** operate the battery charger with a damaged cord or plug.
- ◆ **Do not** let the battery remain fully or partly discharged for a long time; keep it charged.
- ◆ If using an extension cord, you must use 18 gauge or heavier for lengths up to 50 feet, or 16 gauge or heavier for lengths up to 100 feet. Use of improper extension cord could cause fire and electric shock. Use an extension cord bearing the UL listing mark and rated for four Amperes or greater current capacity.
- ◆ Pull on the plug rather than the cord when disconnecting the battery charger. Locate the cords where they will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- ◆ The batteries must be charged when the total voltage is less than 21V. The charger will not charge if the total voltage is less than 5V. If the total voltage is less than 5V, you need new batteries.

About the Battery Charger

- ◆ Store the charger in a dry area not subject to prolonged sub-zero temperatures.
- ◆ The battery charger is “intelligent;” it monitors the batteries condition and does not overcharge the batteries. It is recommended to leave the battery charger plugged in and charging when the Station is not in use. Battery life is extended by frequent charging.
- ◆ The charger’s Power On light is on when all the connections are correct.
- ◆ The charger’s Green Full Charge light is on when the battery is finished charging. Leaving the charger plugged in prevents the battery from self-discharging.

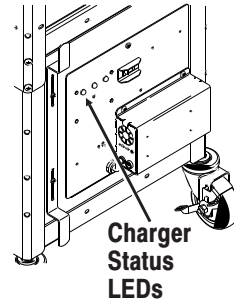
Important Battery Safety Information

- ◆ Never smoke or allow a spark or flame in vicinity of battery.
- ◆ Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery or other electrical part may cause an explosion.
- ◆ Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery produces a short-circuit current high enough to weld a ring to metal, causing a severe burn.

Battery Life

If you leave the battery charger plugged in and constantly charging **when the MWS is not in use**, the battery life is maximized for the application. The charger will not overcharge the batteries.

The MWS has signal lights to indicate the battery status as follows. The following voltages are nominal (not exact) and should be used for reference.



Flashing Red

Warning! The batteries need immediate charging. Voltage is below 22.5V. The station beeps continuously to alert you of this condition. (Early models have red lights instead of orange lights.)

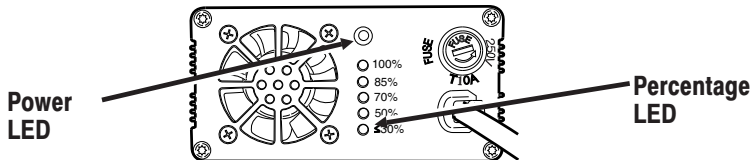
Flashing Yellow

Caution! The batteries are getting low. The voltage is between 22.5V and 23.5V.

Flashing Green

Go! The voltage is above 23.5V. The batteries are charged to approximately 75% or better capacity.

The 24VDC charger has a Power LED and five Percentage LEDs. When the charger is turned off (power LED off), the percentage LED shows battery status. The percentage LED flashes while charging to display battery status. When the batteries are fully charged, the 100 percent LED stays on.



If the CHARGE light does not turn on, make sure the charger is properly connected to the batteries and the charger has AC power. If the READY light does not turn on after 18 hours, the batteries are deeply discharged. Call Technical Support or replace the batteries. **If replacing batteries, you must use the same type of battery from the same manufacturer** (as the ones provided with the MWS). Make sure the batteries are NRTL-recognized. Also, BOTH batteries MUST be replaced at the same time to maintain capacity match.

3-4 Charging the Batteries

Frequency of Charging/Run-Time Guidelines

The following information is approximate and should be used for reference. Many factors effect an individual battery's performance:

- ◆ the presence of auxiliary devices
- ◆ the printing rate (including printhead contrast and number of labels per day)
- ◆ the complexity of your printed formats
- ◆ the environment (temperature and humidity in your facility or DC).

In the information below, "typical conditions" are as follows: one Monarch printer printing standard compliance 4x6 labels (5-10 minutes of actual printing per hour), no auxiliary devices attached to the MWS, and standard environmental conditions (no excessive heat or humidity).

- ◆ When using the 24VDC or Symbol 24VDC MWS under typical conditions, the batteries may last up to 50 to 100 hours before recharging.
- ◆ When using the AC Power Inverter or 24VDC/115VAC MWS under typical conditions, the batteries may last up to 24 hours before recharging.
- ◆ When you notice the batteries need to be charged more frequently, order replacement batteries. **BOTH batteries MUST be replaced at the same time to maintain capacity match.** For example, if you had 60 hours of use between charges and now have 30 hours of use between charges, replace the batteries.

The performance of your batteries varies depending on the number of printers and/or auxiliary devices, such as a scanner or terminal, attached to the MWS. Frequent charging of the batteries is recommended.

Changing Fuses

There are two fuses for the MWS: one connecting the batteries and one from BAT2 to the terminal block. Depending on the power option selected when you ordered the MWS, the size of the fuses varies. See Chapter 4, “Power Options,” for more information.

WARNING

You may observe a spark when you make this connection since current flows to charge capacitors in the power inverter. Do not make this connection in the presence of Flammable fumes. Explosion or fire may result.

CAUTION

The power switch on the front of the MWS must be off while changing fuses. (The status light near the power switch should be OFF.)

-
1. Turn the MWS’ power supply off and unplug the power cord.
 2. Open the cabinet.
 3. Unplug the fuses from the fuse holders.
 4. Insert the proper voltage fuse in each fuse holder. Each fuse is labeled as **20A** or **30A**.

Fuse	Description
F1	20 A ATO (from BAT2 to the terminal block)
F2	20 A ATO (connects the batteries only for the DC power option) 30 A ATO (for the 300W, 24VDC Power Inverter option)

About the Charger’s Fuse

The charger (12V or 24V) inside the MWS also has a fuse: T4A 125V fuse (for 12V chargers) or T6A 125V fuse (for 24V chargers).

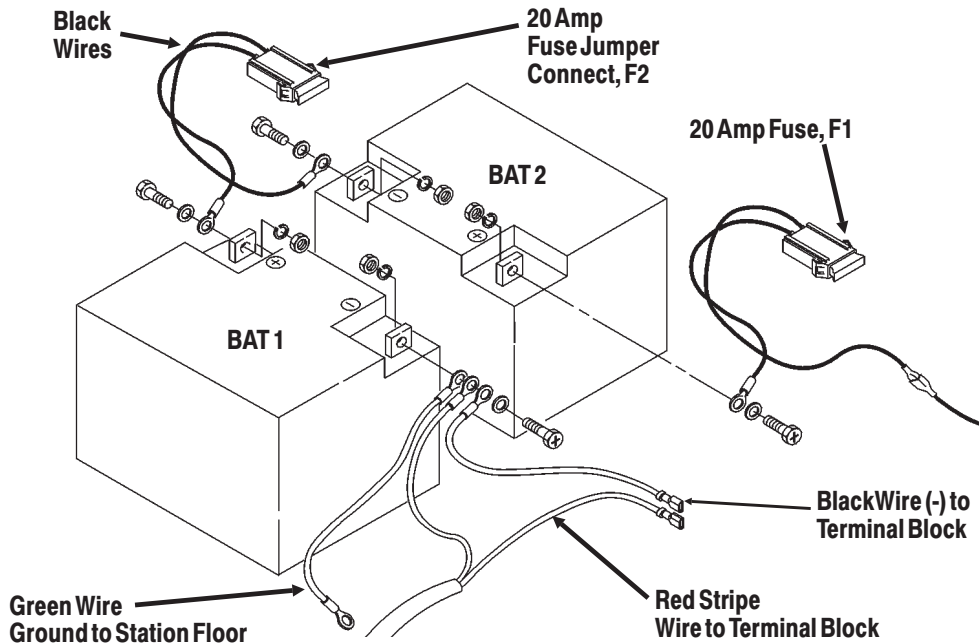
POWER OPTIONS

Your MWS was ordered with one of these power options:

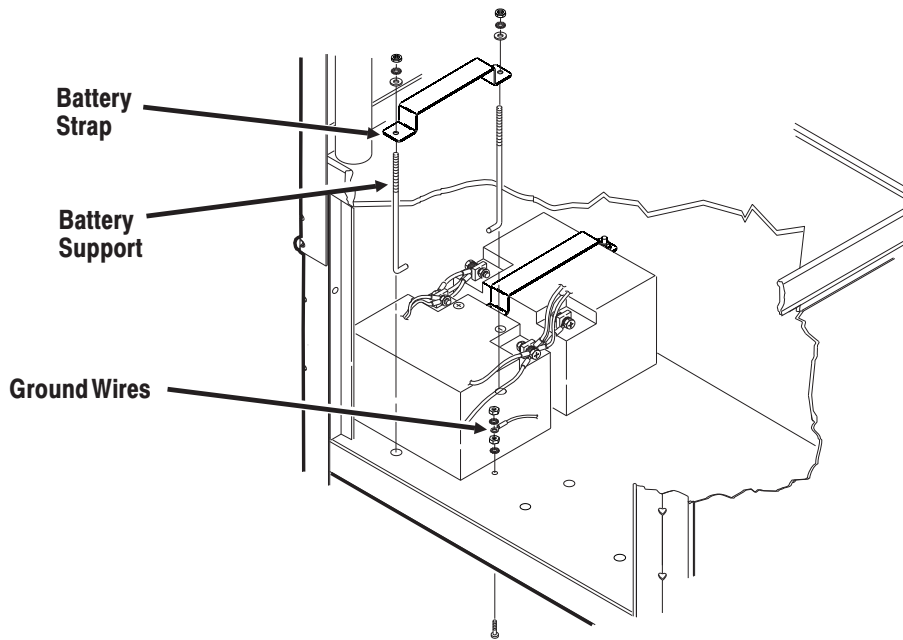
- ◆ Standard 24VDC
- ◆ Symbol 24VDC
- ◆ 24VDC/115VAC (uses the power inverter for AC power. The power inverter is only 115V.)
- ◆ AC/DC Output with the power inverter. The power inverter is only 115V.

Make sure all packaging material is removed from the cabinet before use.

Standard or Symbol 24VDC



Check the wiring for your batteries and charger.



Make sure the ground wire is attached using one M5 screw with two M4 nuts and M4 washers as shown.

Keep the Mobile Work Station's power switch ON when continuously operating the MWS and/or printer(s). If the MWS will be unused for extended periods of time, turn OFF the Mobile Work Station's power switch.

The MWS' power switch controls the power to all printers. If using more than one printer on the MWS, manually turn OFF each printer's power switch.

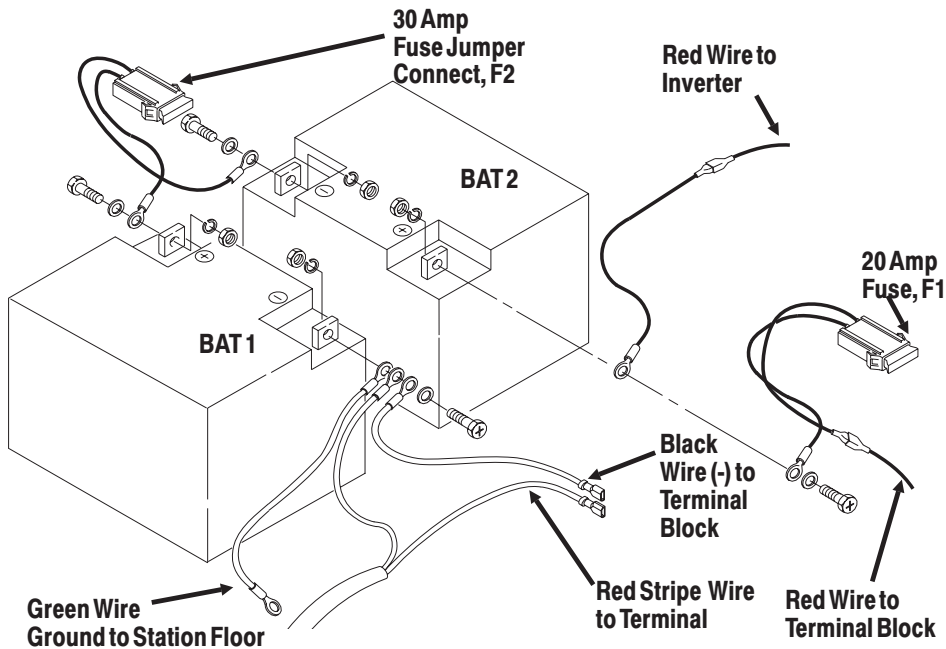
24VDC/115VAC Power Inverter

The AC power inverter is only 115V. The AC power inverter uses battery power, so the batteries may require more frequent charging.

WARNING

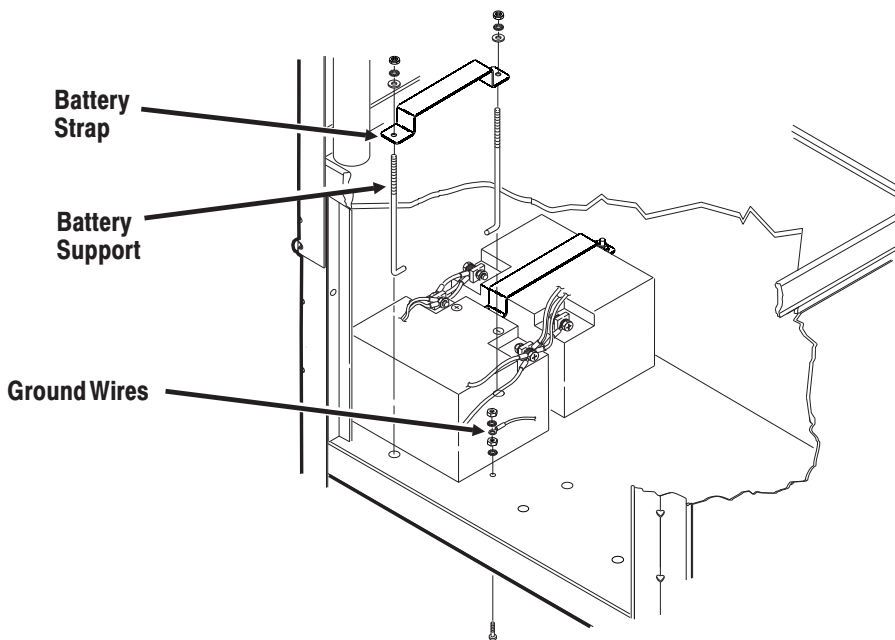
Remove ALL fuses from the cables before connecting ANY cables to the batteries or switch. Make sure all the DC connections are tight (torque to 9-10 ft-lbs, 11.7-13 Nm). Loose connections overheat and could result in a potential hazard.

Check the wiring for your batteries and charger.



Make sure the proper voltage fuse is installed in each fuse holder. Each fuse is labeled as **20A** or **30A**. The batteries are connected with a 30 Amp fuse. BAT2 has a 20 Amp fuse from it to the terminal block.

Make sure the ground wires are attached using one M5 screw with two M4 nuts and M4 washers as shown.



WARNING

This equipment contains components which can produce arcs or sparks. To prevent fire or explosion, do not install near Flammable materials or in locations that require ignition-protected equipment (including gasoline-powered machinery, fuel tanks, joints, or fittings).

AC/DC Output (Power Inverter)

Uses the power inverter for AC power, along with the standard 24VDC for a Paxar/Monarch printer. The power inverter is only 115V. The AC power inverter uses battery power, which may require more frequent charging of the batteries.

About the Inverter

WARNINGS

The inverter is designed to operate from a battery. Performance cannot be guaranteed and damage can result when the inverter is ran without the batteries installed! Even if the MWS is not connected to an outlet, power is still supplied to the inverter from the batteries and charger.

Therefore, **all cables are always "live."**

You may observe a spark when you make this connection since current flows to charge capacitors in the power inverter. Do not make this connection in the presence of Flammable fumes. Explosion or fire may result.

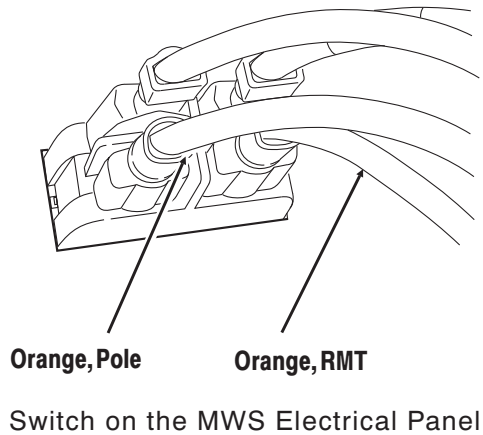
Remove **ALL** fuses from the cables before connecting **ANY** cables to the batteries or switch.

Make sure all the DC connections are tight (torque to 9-10 ft-lbs, 11.7-13 Nm). Loose connections overheat and could result in a potential hazard.

Check the connections between the inverter's cables, the batteries and the inverter's switch as follows:

- heavy-gauge red cable assembly to positive (+) on BAT2
- heavy-gauge black cable to negative (-) on BAT1
- orange cable to pole on switch
- orange cable to Remote (RMT) on switch

None of the inverter's cables are attached the terminal block.



WARNING

You may observe a spark when you make this connection since current flows to charge capacitors in the power inverter.

Do not make this connection in the presence of Flammable fumes. Explosion or fire may result. Operation of the inverter without a proper ground connection may result in an electrical safety hazard.



Do not store anything inside the cabinet other than the batteries and battery charger. The cabinet must remain locked at all times and the key must be stored with qualified service personnel.

Inverter LED Status

Display Input Voltage

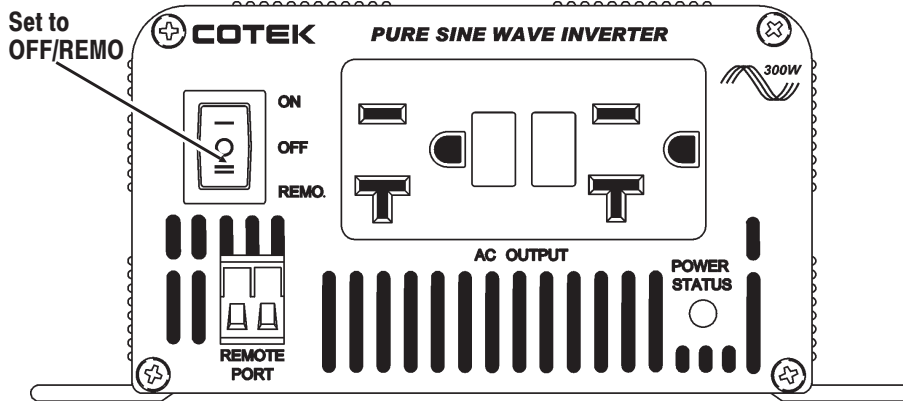
LED Status	DC 24V
GREEN (solid)	AC Power OK
RED Blink (fast) Over-voltage protect	30.6
RED Blink (slow) under-voltage protect	21.0
RED Blink (intermittent) over-temperature protect	—
RED (solid) over-load protect	>400W / 960W

Using the Remote Switch

The Mobile Work Station's On/Off switch should be used as a remote switch to turn the inverter ON or OFF.

To do this:

1. On the inverter's front panel, set the ON/OFF/REMO switch to OFF or REMO.



2. Make sure the switch on the electrical panel is OFF.
3. Make sure the orange wires are connected to the Remote Port (on the inverter) and the RMT Switch on the electrical panel.

Printing

To print supplies from a Monarch printer on the MWS:

1. Turn on the Mobile Work Station's power supply and turn on the printer.



2. Press **Feed/Cut** to calibrate the supply. You are now ready to collect data and print.

To conserve the battery, make sure the Mobile Work Station's power switch is turned OFF when not in use OR when charging the batteries. For optimal (shortest) charging time, turn off the MWS and printer while charging.

- ◆ If you need to finish a batch, you can print while charging, as long as the batteries are not too depleted. However, printing while charging is **not** recommended on a frequent basis.
- ◆ If the printer will be unused for extended periods of time, we recommend leaving the printhead unlatched.
- ◆ If the printer's green power light blinks, you need to recharge the battery. There is a small reserve of battery power to continue printing after the green power light begins blinking.
- ◆ You must recharge the battery when you see error 762 or "Battery Dead" on the display because the printer is in a "lock-up" condition and does not print until the battery is recharged.
- ◆ The printer may slow down if the battery voltage drops below a certain level. The printer continues to print at the reduced speed until the batteries are charged and the printer is turned off and then back on. See "Battery Life" in Chapter 3 for more information about charging the batteries.

About Sleep Mode

If the Monarch printer is inactive for longer than 30 seconds, the printer goes into sleep mode to conserve battery power. While in sleep mode, the display backlight is turned off to conserve battery power. Once the printer "wakes up," the backlight turns on.

To "wake up" the printer, press any button on the control panel. The buttons are active during sleep mode, so if you press **Escape/Clear**, the printer "wakes up" and you enter the offline menu mode. You can also send any data to the printer to wake it up. You do not lose any data sent to the printer during sleep mode.

SPECIFICATIONS



Utility Cart

Height	Approximately 42 inches (1067 mm) depending on selected options
Width	23 inches (584 mm)
Length	28 inches (711 mm)
Weight	Approximately 150 lbs (68 kg) depending on selected options
Operating Limits	40°F to 95°F (5°C to 43°C) with thermal transfer supplies

Storage: 15°F to 120°F (-9°C to 49°C)

Humidity: 5% to 90% non-condensing

Batteries

- ◆ (2) 12-volt, 55 amp-hours, deep cycle batteries
- ◆ Sealed lead-acid, non-venting (safety venting only), no transportation restrictions
- ◆ Shelf Life/Charge Retention:

1 month	97%
3 months	91%
6 months	85%

- ◆ Cycle Use:

100% depth of discharge	approx. 250 cycles
50% depth of discharge	approx. 550 cycles
30% depth of discharge	approx. 1200 cycles

Cycle Life is approximate and many factors effect an individual battery's performance.

Charger

Input 117VAC 60Hz, 320VA (Volt Amps)

Output 24 Volts, 8 Amps DC

- ◆ Electronic reverse polarity and short circuit-shutdown
- ◆ Low voltage start (total battery voltage must be greater than 1V to charge)
- ◆ AC input fuse in AC input connector

Use only NRTL-listed accessories (National Recognized Testing Lab).

Inverter

Input Voltage 21 to 30VDC

No Load Current 0.23A

Frequency 60 Hz

Output Voltage 110VAC +5%

Output Power 300W RMS (continuous)

Surge Power 400W RMS (1 second)

Output Waveform Pure Sine Wave (THD<4%)

Typical Efficiency 75%

Operating Temperature 32°F to 105°F (0°C to 40°C)

WIRING DIAGRAMS

B

This appendix contains wiring diagrams for the various power options:

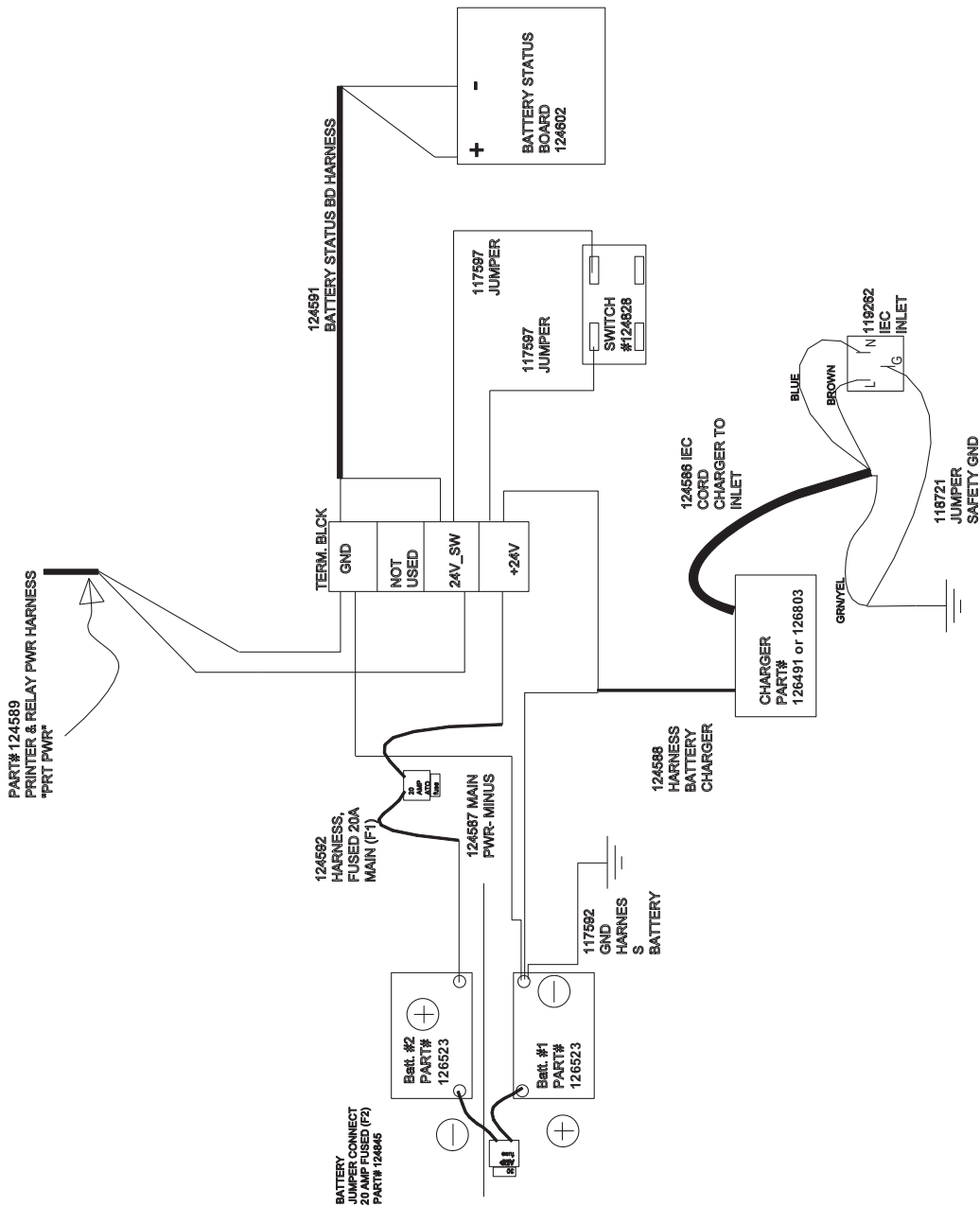
- ◆ Standard 24VDC
- ◆ Symbol 24VDC
- ◆ WM 24VDC (DC/DC Converter)
- ◆ 24VDC/115VAC Power Inverter

WARNING

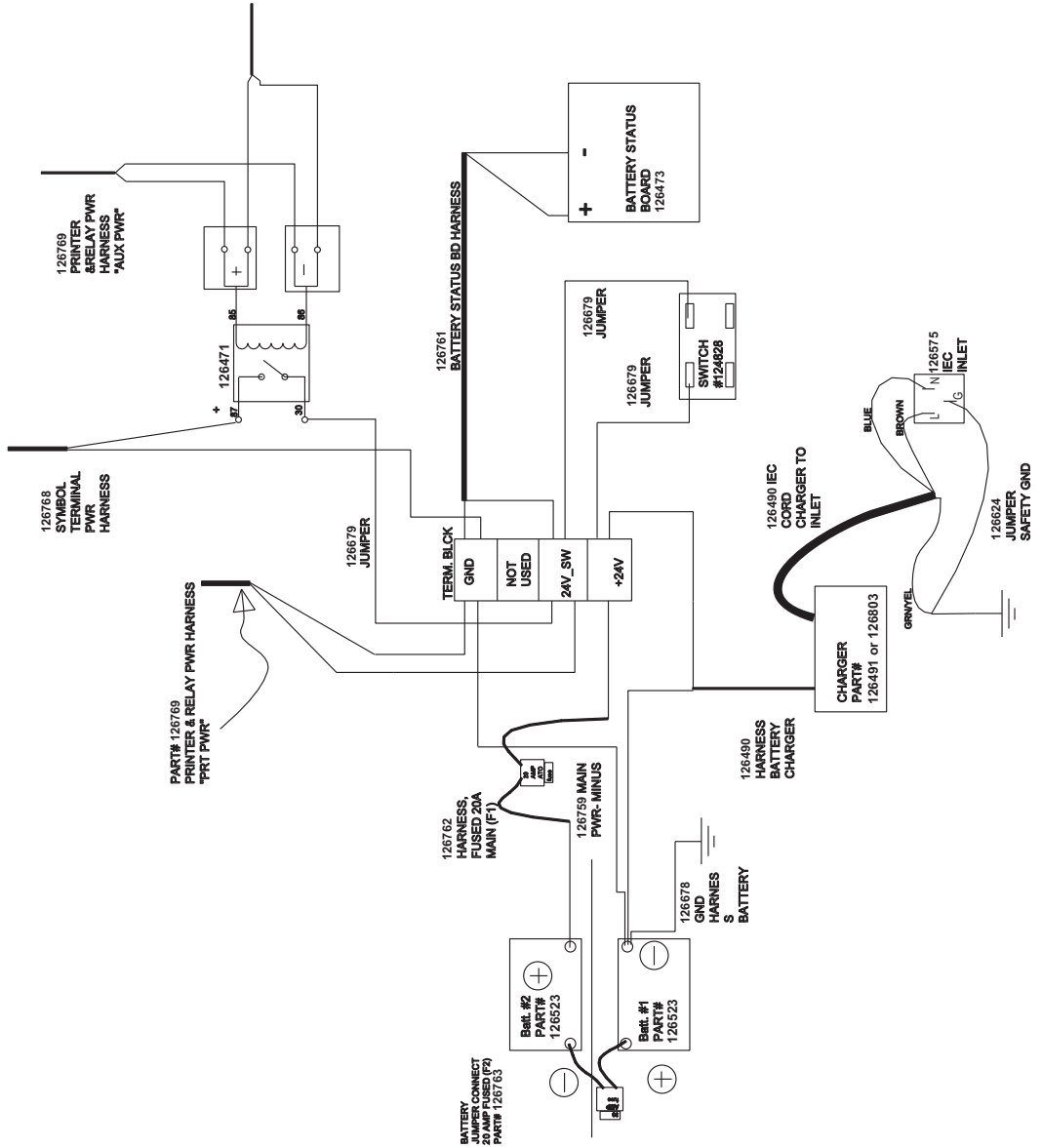
Only qualified service personnel may install or replace the two 12-volt sealed lead acid batteries used to power the printer on the Station.

If a battery needs to be replaced, BOTH batteries MUST be replaced at the same time to maintain capacity match.
One or two power sparks may occur (this is normal) when installing or changing the fuses.

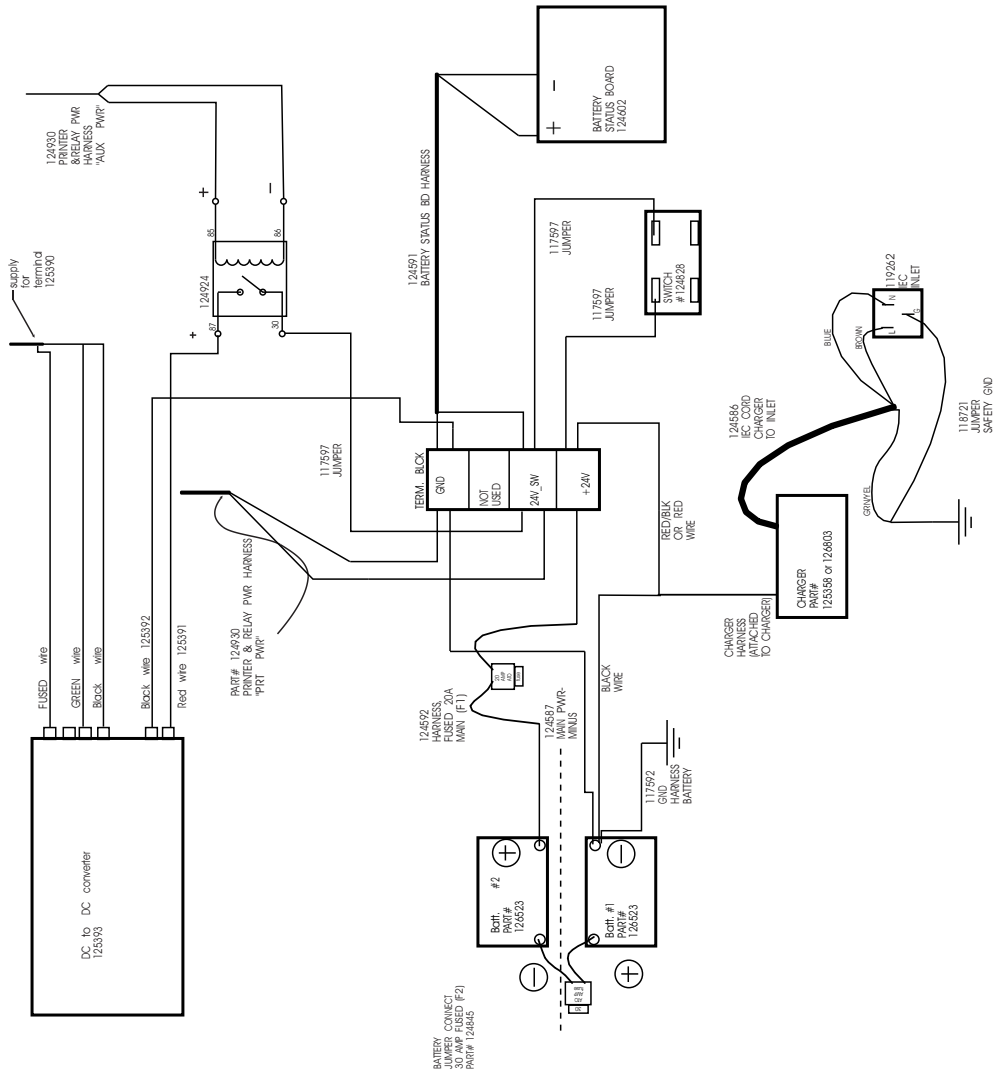
Standard 24VDC



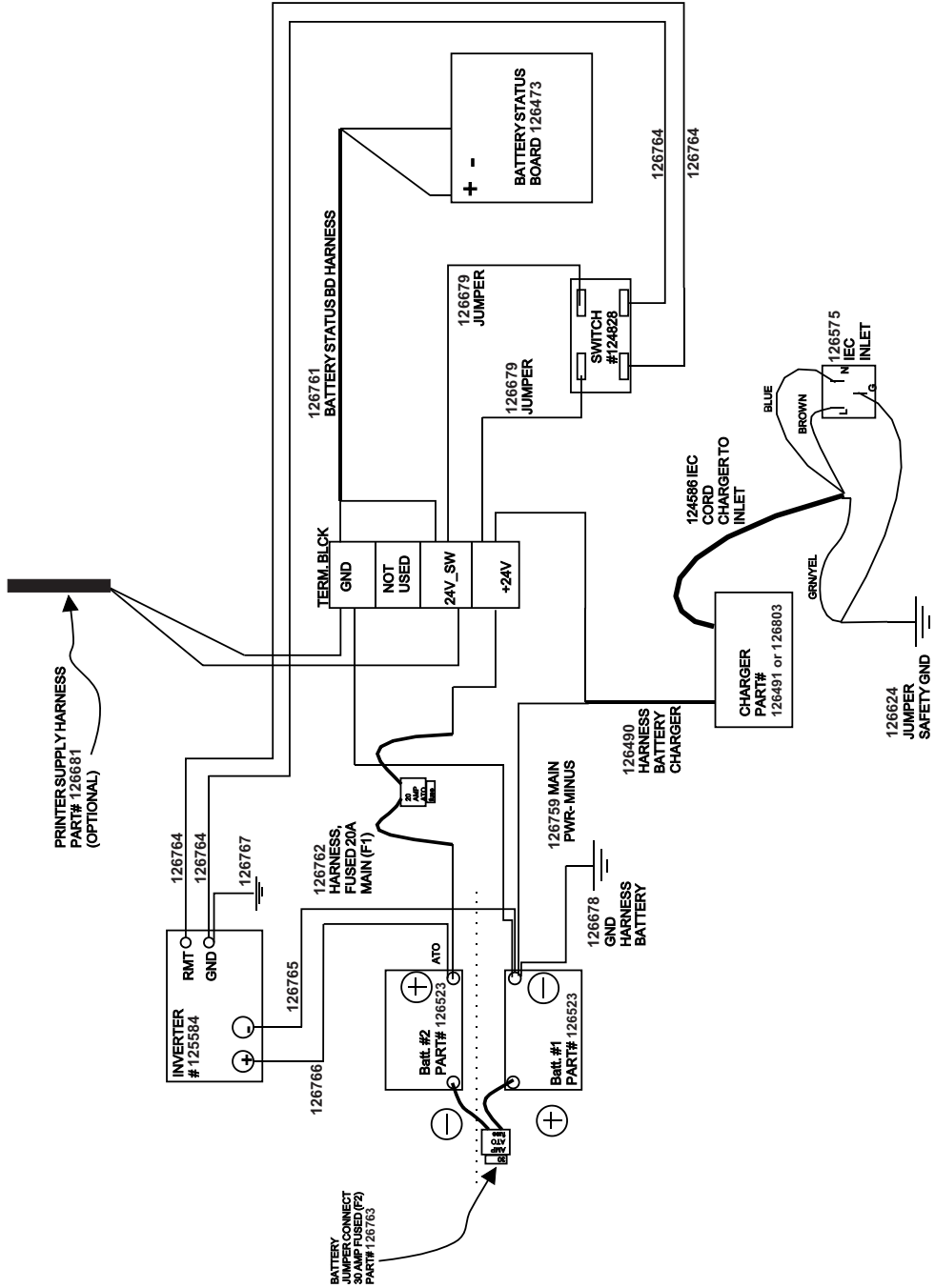
Symbol 24VDC



WM 24VDC (DC/DC Converter)



24VDC/115VAC Power Inverter



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