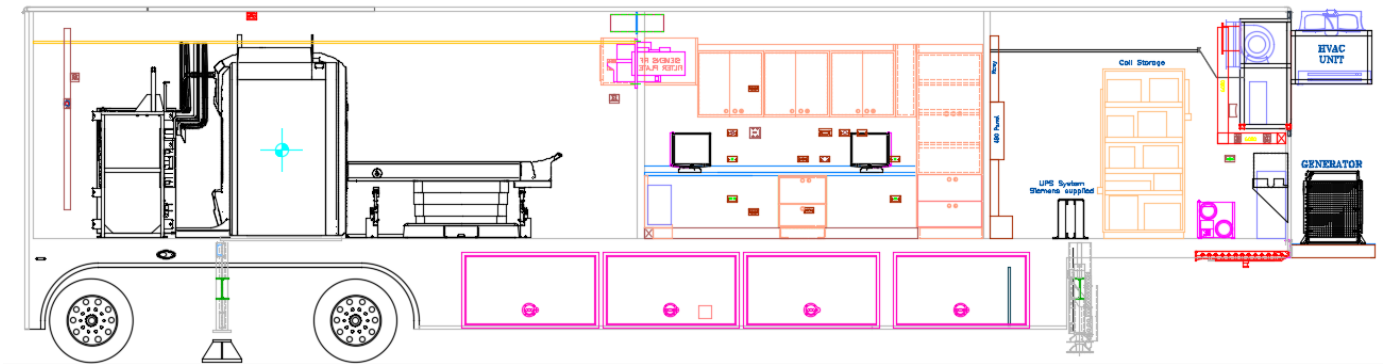


# Operator and Service Manual

## Siemens Aera 1.5T Mobile MRI Systems 48' L x 8'-6" W x 13'-6" H USA Unit



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As part of Advanced Mobility Specialty Vehicles' on-going program to improve its products and service, (and their effectiveness in enhancing safety, reliability, performance, productivity, and the useful service life of the equipment) Advanced Mobility Specialty Vehicles reserves the right to implement product changes and disseminate changes in design and service information without notice or recourse.

The mobile MRI system described in this document has been designed for operation in the USA and Canada.

## List of Revisions & Warnings

### Revisions

Date	Revision Number	Revised By	Description	Engineering Approval	Quality Approval	Siemens Approval
05/01/2018	00	Mike Trnka	Initial Release			
06/06/2019	01	Gabriel Gandara	Updated Lift Information			

### Notice

In accordance with our policy of product development, Advanced Mobility Specialty Vehicles reserves the right to make changes in the equipment, design, specifications, and materials of the product described herein. If there are any inconsistencies between this manual and the mobile unit that inhibit serviceability, please contact Advanced Mobility Specialty Vehicles for assistance.

This manual is one of two (2) information documents provided in the mobile unit. The documentation package consists of:

- Volume I – Site Guide, Service/Operators Manual, and associated drawings
- Volume II – Vendor Information

These volumes should be kept in the mobile unit at all times.


Any problems or questions related to the components or systems covered in this manual may be directed to:

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Attention: Service Department  
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(001) 708.596.2480 (fax)  
<http://www.kytrailer.com/>


## Warnings & Safety Alert Conventions


The following terms define the various precautions and notices used in this manual:

**NOTE:** Whenever information exists that requires additional emphasis beyond the standard textual information, the term “NOTE” is used.

 Whenever information exists that requires special attention to procedures to ensure proper operation of the equipment or to prevent its possible failure, the term “IMPORTANT” is used.


 Whenever potential damage to equipment exists, requiring correct procedures / practices for prevention, the term “CAUTION” is used.

 Whenever potential personal injury or death situations exist, requiring correct procedures / practices for prevention, the term “WARNING” is used.

 Whenever immediate hazards exist that could result in personal injury or death that cannot be eliminated by design safeguards, the term “DANGER” is used.



This safety alert symbol indicates important safety messages in the manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

 Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative. If a malfunction of any safety device is discovered to exist, DO NOT operate the vehicle, but immediately notify appropriate maintenance personnel.

Advanced Mobility Specialty Vehicles shall have no liability with respect to: . . . . . REPAIRS IMPROPERLY PERFORMED OR REPLACEMENTS IMPROPERLY INSTALLED (or) USE OF REPLACEMENT PARTS OR ACCESSORIES NOT CONFORMING TO Advanced Mobility SPECIALTY VEHICLE’S SPECIFICATIONS, WHICH ADVERSELY AFFECT PERFORMANCE OR DURABILITY (or) ALTERATIONS OR MODIFICATIONS NOT RECOMMENDED OR APPROVED IN WRITING BY ADVANCED MOBILITY SPECIALTY VEHICLES (or) FOR EQUIPMENT DAMAGE OR PERSONAL INJURY OR DEATH AS A RESULT OF RENDERING ANY SAFETY DEVICE INOPERABLE.

Certain inherent risks are associated with heavy trailers due to the nature of their use. Personnel working in the area of these trailers are subject to certain hazards that cannot be met by mechanical means but only by the exercise of intelligence, care, and common sense. It is therefore essential for the owner of this equipment to have personnel involved in the use and operation of these trailers who are competent, careful, physically and mentally qualified, and trained in the safe operation of this equipment.

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## Section 1: Introduction



This manual is intended to instruct and assist personnel already qualified in the proper installation of the mobile unit. This manual is not intended to enable persons unfamiliar with the mobile unit to perform the setup and transport procedures.

This manual contains the basic information needed to setup, transport, and service the mobile unit. This mobile unit was designed to operate within certain limitations and specifications. When performing the setup or transport procedures for the mobile unit, follow the proper logical steps that have been outlined in this manual. The drawings in this manual are representative of this product.

In accordance with our program of continued product development, designs and specifications are subject to change without notice.



**Figure 1: The Siemens Aera Mobile MRI System**



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As part of Advanced Mobility Specialty Vehicles' on-going program to improve its products and service, (and their effectiveness in enhancing safety, reliability, performance, productivity, and the useful service life of the equipment) Advanced Mobility Specialty Vehicles reserves the right to implement product changes and disseminate changes in design and service information without notice or recourse.

For questions regarding the Operation or Service of this unit call Advanced Mobility Specialty Vehicles at 800-839-0630.

## Section 2: Safety Guidelines



Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative. If a malfunction of any safety device is discovered to exist, **DO NOT** operate the vehicle, but immediately notify appropriate maintenance personnel.



Use and follow the appropriate Lockout/Tag out procedures as required by OSHA Standard 1910.147 when performing maintenance or servicing any electrical, hydraulic or pneumatic systems. See Appendix E for Lockout/Tag out procedures.



It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



Always make sure that eyes are protected while servicing the unit. Wear safety goggles when prying, drilling, grinding, or working with batteries. Wear safety goggles over regular prescription glasses unless the lenses are made of hardened glass and can serve as safety goggles.



Be certain to disconnect the power before working on any of the electrical systems.



When servicing the unit be certain that a first aid kit and fire extinguisher are within reach at all times.



The maximum capacity of the stairs or platform in any combination is 375 pounds. Exceeding this capacity limit could result in damage to equipment or personal injury.

This safety section contains important safety guidelines that should be followed.

**BEFORE** attempting to service the mobile unit, read this safety section as well as all other safety sections found in applicable manufacturer's manuals in the Vendor Information binder.

Please call Advanced Mobility Specialty Vehicles Customer Service at 800-839-0630 if you need help or advice regarding the Operation or Service of this unit.

## **2.1 Operator's General Safety Precautions**

Your safety and the safety of other persons in the area of this vehicle are the result of your correct operation of this vehicle. Know the location, positions, and functions of all the controls. Know the meaning of the various Warning, Caution, Strobe, and Annunciator lights and their associated audible warning sounds.

Read this manual completely and make sure you understand the contents. Make sure you understand, for example, the characteristics of speed, stability, brakes, and steering, etc. of this vehicle. If you have any questions, contact Advanced Mobility Specialty Vehicles, (800) 839-0630. Always keep a copy of this manual with the vehicle.

The safety information in the manual does not replace any other rules or laws for safety that are used in your area. Know the local rules or laws for safety. Make sure that your vehicle has the correct equipment to operate according to these rules or laws.

- All safety hazards that can possibly arise cannot be foreseen and noted in this manual. You must **ALWAYS** use common sense and apply the general as well as the specific safety precautions.
- Make sure the work area is well ventilated.
- Disconnect the electrical power to prevent the possibility of electrical shock when servicing all electrical equipment.
- Follow all manufacturers' directions and request material data sheets where applicable.
- Always keep tools clean and free of grease.
- Do not stand on chairs inside of the mobile unit under any circumstances.
- Follow all safety precautions found in the documentation package that is included with the mobile unit.

## **2.2 Magnet Safety**

A magnetic shielding system has been installed on each sidewall opposite of the magnet, and on the rear wall of the mobile unit. The magnetic shielding system is extremely effective, and designed to meet or exceed the Mobile MRI site plan requirements of the medical equipment manufacturer. This system is proprietary.

- All personnel with pacemakers, metal implants and neurostimulators should avoid entering the exclusion zone of the magnetic field. The medical equipment manufacturer defines the exclusion zone of the magnetic field.
- Do not bring ferrous materials into the exclusion zone. These items may become projectiles and cause serious injury, and / or property damage.
- Watches can be damaged and credit cards can be erased if brought into the exclusion zone.

## **2.3 Chemical Safety**

When working in the presence of liquid helium, make sure the work area is well ventilated.

- Inhalation of helium or nitrogen can cause rapid suffocation. If any personnel inhale gas, quickly move them to fresh air and seek medical attention at once.
- The gases used in mobile MRI units to cool the magnet can cause severe frostbite. If frostbite occurs, seek medical attention at once.
- Liquid or gas can freeze air inside of vent lines. Check periodically to be certain that the vent screen is open.

## **2.4 Electrical Safety**



Use and follow the appropriate Lockout/Tag out procedures as required by OSHA Standard 1910.147 when performing maintenance or servicing any electrical, hydraulic or pneumatic systems. See Appendix E for Lockout/Tag out procedures.



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the "OFF" position. Failure to do this can result in injury or death to the operator of the mobile unit.



It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



Always inspect the power cable, connectors, and fasteners prior to usage. If during inspection, it is suspected that either internal or external damage has occurred, have a certified electrician inspect and repair the damage before using.



The Power Cable could present a trip hazard that could result in personal injury. Care should be taken to ensure that the cable is routed properly to minimize its potential as a trip hazard.

When working with the electrical system for the mobile unit. Follow the warnings and cautions listed above.



## **2.5 Transportation Safety**



Check the tires before every trip for wear, cuts, breaks, cracks, defects, objects caught or penetrating the tire carcass and for proper inflation. Check tire pressure when the tires are cool and maintain the pressure molded into the sidewall. Do not operate a trailer with tires that have the internal reinforcing wires or belt showing or less than 2/32" tread depth, when measured at a major tread groove. See 49 CFR Sec. 570.9(a). Replacement tires **MUST BE Radial**.

Walk around the unit to make certain that all doors are closed and locked and that the hydraulic platform lift is seated in the retaining cradles.

- Make certain the hydraulic platform lift is seated in the retaining cradles, the transport pins are in place.
- If any of the warning lights are illuminated, do not move the mobile unit.



**If the Transport Warning Light is on, the mobile unit must not be moved. If the mobile unit is moved while this light is on, irreparable damage to the mobile unit, serious injury or death can occur.**

- Before moving the mobile unit, verify that all marker and running lights are working properly. It is the Operator's responsibility to ensure that the marker and running lights functioning properly and that the bulb elements are in working order.

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

Consult with the local DMV to determine if there are any travel restrictions or routes.



Due care must be exercised to avoid severe operating environments that endanger the system equipment. Failure to do so could result in invalidating the Siemens Magnet Technology warranty.



Disobeying posted speed limits, driving dangerously, driving while under the influence of alcohol or drugs, driving without a valid operator's license, or insurance or driving without due care or any illegal action by the driver may result in invalidating the Siemens Magnet Technology warranty.



Due care must be exercised to use the lowest speeds possible when docking and undocking the trailer. Failure to do so could result in invalidating the Siemens Magnet Technology warranty.



The owner/operator must notify Siemens Magnet Technology within one (1) day of any instance that causes the shock logger alarm to sound. Failure to do so could result in invalidating the Siemens Magnet Technology warranty. Contact the local Siemens Medical Systems Representative.

## Section 3: Mobile Unit Overview

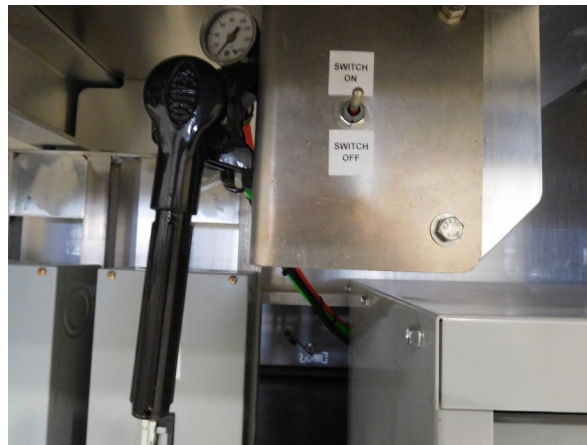
The components of the mobile unit have been divided into alphabetical order. With each component a picture and description will be found to better illustrate the components of the mobile unit. Additional components of the mobile unit can be found within the remaining chapters.

### 3.1 Air Ride Control Valves

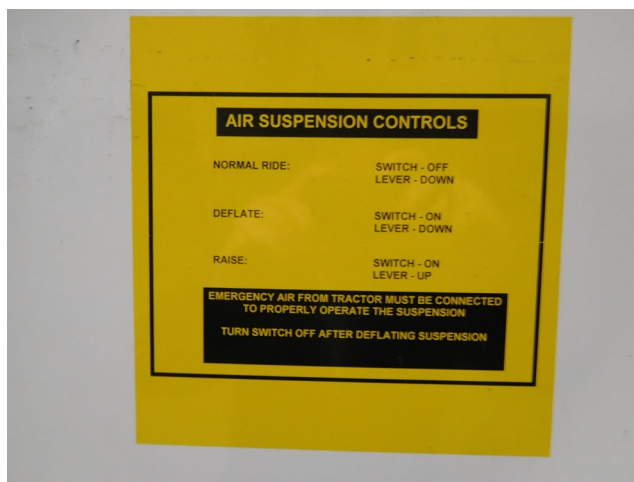


The air ride control valves must be in the normal ride position before the mobile unit can be transported. If the air ride control valves are not in the normal ride position, irreparable damage may occur to the mobile unit.

The air ride control valves adjust the rear air suspension bags. When the mobile unit is being transported, the air ride control valves must be in the normal ride position.



**Figure 2: Air Ride Control Valves**



### **3.2 Canopy (optional)**

This retractable canopy is positioned above the platform lift to provide shelter from the elements. The handle used to deploy the unit is neatly stowed in Equipment Room during transit.

**Figure 3: Canopy**



### 3.3 Control Room Overall

Control Room houses the controls for the technician. The internal environment of the mobile unit can be monitored from Control Room.



**Figure 4: Control Room Overall**



**Figure 5: Advanced Mobility System ID Tag & Job Number**

### **3.4 Cryogen Compressor**

The cryogen compressor is supplied by Siemens. For information regarding the cryogen compressor, please refer to the manuals supplied by Siemens.



**Figure 6: Cryogen Compressor Cabinet**

### **3.5 Exterior Overall**

In these pictures the hydraulic platform lift, the staff entry door, the generator housing, the HVAC unit and the emergency exit / service entry door to Equipment Room can be seen.



Right Side



Left Side

**Figure 7: Exterior Overall**

### **3.6 Equipment Room Overall**

Equipment Room houses the system components that support the medical system, such as the humidifier and water tank, and the main electrical panels.



**Figure 8: Equipment Room Overall**

### **3.7 Exterior Staff Entry Door**

A 44" inch wide, high quality, positive latching, double gasket, insulated main entry door with door closer and tinted glass window is installed on the mobile unit. The door is fitted with hospital grade emergency exit bar and an adjustable privacy blind on the window.



**Figure 9: Exterior Staff Door**



### **3.8 Fuel Compartment**

The fuel compartment stores the fuel tank, fuel gauge, fuel pump, and fuel separator.



**Figure 10: Fuel Compartment**

- Fuel Gauge:** The fuel gauge is push button activated and will give an accurate reading of the available fuel supply.
- Fuel Pump:** The fuel pump pumps the fuel from the fuel tank to the generator.
- Fuel Separator:** The fuel separator removes debris from the fuel supply.
- Fuel Tank:** The fuel tank stores and supplies fuel to the generator. The capacity of the fuel tank is 70 US gallons. Only use diesel fuel.

### **3.9 The Automatic Transfer Switch**

The generator control panel provides the controls to start and stop the generator and to switch from generator power to shore power and back to shore power when required.



**Figure 11: Power Supply Control Panel**

### **3.10 Glad-hand Connections**

The glad hands are the connection point between the tractor and the mobile unit. All connections must be made before moving the mobile unit. Failure to make all connections can result in damage to the mobile unit.



**Figure 12: Glad Hand Connections**

- |  |  |
|--|--|
| Emergency Airline:                           | Provides air to the parking brake and suspension system. |
| Key Lock Box: (Forward left side, not shown) | A combination lock that holds a key to the mobile unit.  |
| Service Airline:                             | Supplies air to the trailer service brakes.              |
| Standard Electrical Service:                 | The main electrical connection for the mobile unit.      |

### **3.11 Hubbell All Weather Phone Cables**

Hubbell all weather phone cables are required for use with the Hubbell all weather phone connections.



**Figure 13: Hubbell All Weather Phone Cables**

### **3.12 Levels**

The levels allow the mobile unit to be leveled both front to back and side to side. It is imperative that the unit be leveled prior to use.



Bubble Levels

**Figure 14: Levels**

### **3.13 Magnet Room**

The Magnet Room is located at the rear of the magnet and is accessible from the rear service entrance door. This room is provided as a service area at the rear of the magnet.

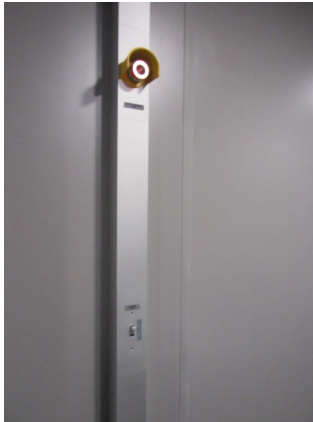


**Figure 15: Magnet Room Helium Rear Door**

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### 3.14 Mobile Unit Controls

Located inside of the mobile unit are the various controls that are used for operating such items as the interior and exterior lights, the hydraulic platform lift, warning lights, emergency stop buttons, fire alarms, and emergency equipment.



Scan Room Lighting



Control Room and Equipment Room Lighting and E-Stop Controls



Roll Door Controls and Platform lift "UP" light



HVAC Monitor & Alarm

**Figure 16 Mobile Unit Controls**

Control Room Lights:

High/LOW light switch for Control Room and Equipment Room LED lights.

ON / OFF light dimmer-switch for the LED lighting.

Exterior Light Switch:

ON / OFF light switch for the exterior lights.

MRI Emergency OFF Button (E-Stop):

The emergency stop button for the MRI system will stop all medical components. This will not stop the HVAC system. This is also commonly referred to as the A-1 Stop Button.

Roll Door Controls:

Controls the movement of the roll door.

Platform lift Warning Light:

Notifies the operator of the hydraulic platform lift position status.

Scan Room Light Switches:

High/Low light switch for Scan Room and Magnet Room.

### **3.15 Phone & Data Line Connections**

The phone and data connections are located in the underbody compartments. The connections are used to connect the mobile unit to the shore facility. The telephone connections utilize a Hubbell all weather connection, while the data lines utilize an RJ-45 connection and CAT-6E cabling.



**Figure 17: Phone & Data Line Connections**

Hubbell All Weather Phone Connections:

The Hubbell all weather phone connections are to be used with the provided Hubbell all weather telephone cable.

Data Connections:

The data connections that are utilized are RJ-45's. The connections utilize CAT-6E cable and can be connected directly to the facility



### **3.16 Scan Room Overall**

Scan Room houses the medical equipment system. Also located in this room are storage compartments for the medical equipment. Placed alongside the storage compartments the magnet quench button can be found. In the Magnet Room the emergency shutdown button can be found.



**Figure 18: Scan Room Overall**

### **3.17 Stabilizing Stands**

The stabilizing stands are placed when the medical system is in use. These decrease vibration, which can affect scan

underneath the rear of the mobile unit stands help to level the mobile unit and quality.



**Figure 19: Stabilizing Stands**

### **3.18 Stair Assembly**

The stairs allow access to the interior of the mobile unit through the staff door. When assembling the stairs, please refer to the following illustrations.



**Figure 20: Stair Assembly (standard)**



The maximum capacity of the stairs or platform in any combination is 375 pounds. Exceeding this capacity limit could result in damage to equipment or personal injury.

### **3.19 Water / Wastewater Connections (Sink Option)**

The fresh water and wastewater connections are located in the front of the trailer under the mobile unit. Please refer to the following illustration.



**Figure 21: Fresh Water and Wastewater Connections**

## Section 4: Safety Systems

This safety section contains important information about the safety systems that have been built into the mobile unit to protect all personnel and equipment. Before attempting to service the mobile unit, read this safety section as well as all other safety sections found in applicable manufacturers' manuals in the VOL II Vendor Information binder.



**Figure 22: Interlocks**

### **4.1 Door Interlock System**

Scan Room and Magnet Room are shielded from radio frequency interference. If doors that lead to these rooms are opened, radio frequencies can interfere with the scan image. A door interlock system has been incorporated into the mobile unit to ensure that proper scanning can take place. This system provides a constant monitoring of the doors that have the interlock system. If one of these doors is opened, the technician will see a notification appear at the console stating that an RF door has been opened. All doors must be closed for scanning to take place. If a door is opened during a scan, scanning operations will be stopped. The door interlock can be found at the following location.

On the exterior door that leads into Magnet Room.

## **4.2 Service Door Equipment Room**

A service door has been installed on the street sidewall of the mobile unit. This door is used for loading equipment in and out of the trailer.



**Figure 23: Service Door**

### **4.3 Emergency Lighting**

In the event that the main AC power fails, a single beam emergency light is provided. This light will automatically illuminate when the main AC power is lost. It is located in the Control Room. The emergency lighting system is wired into a 120V AC electrical system that allows the light's internal circuitry to keep its batteries at 100% charge. The emergency light will illuminate the exit door and last for approximately 90 minutes. Refer to Figure 24: Emergency Lighting.



**Figure 24: Emergency Lighting**

### **4.4 Fire Suppression (manual)**

Two fire extinguishers are supplied with the mobile unit. They are located in Control Room and Equipment Room. Instructions for operation are clearly printed on the canister of the fire extinguisher. The fire extinguisher meets the following standards.

- It is a class A/B/C 1211 hand held unit.
- It has a charged weight of 5 lbs.
- It is U.L. listed.
- It meets D.O.T. requirements.
- It is in accordance with N.F.P.A. Standard No. 10, "Portable Fire Extinguisher"
- It is MR safe



**Figure 25: Fire Extinguisher**

#### **4.5 Fire Detection System (optional)**

The fire alarm control panel is responsible for monitoring the fire alarm system. Located on the interior of the fire control panel is a brief list of instructions that explain how to use the system control buttons to test, reset, and silence the alarm. Please refer to the product manual located in Volume II of the literature provided by Advanced Mobility Specialty Vehicles.

A standard fire detection system is installed in the mobile unit.

The fire detection system works via photoelectric smoke detectors located on the ceiling panels in each room of the mobile unit. In the event of a fire being detected, a horn will sound and a strobe light will flash.

The smoke detector is responsible for detecting smoke for use with both the standard fire alarm system as well as the optional fire suppression system.



**Figure 26: Smoke Detector**



**Figure 27: Fire Alarm Control Panel**

- Reset Button: The reset button resets the system after it has been activated
- Trouble Silence Button: The trouble silence button will silence the horns that are activated after the alarm has been tripped.
- Disable Button: The disable button will shut the alarm system down for maintenance.



#### 4.5.1 System Operation

During normal operation, the control unit remains in a supervisory mode. If one smoke detector goes into alarm, it will trigger the following actions.

- The fire horn will sound continuously.
- A (RED) alarm LED located on the front cover of the fire system control panel will illuminate.
- The strobe light will flash.
- The HVAC units will shutdown.

#### 4.5.2 Pull Station

A pull station is located next to the staff door in the Control Room. When the pull station has been pulled, the steps outlined above will occur.



**Figure 28: Fire Alarm Pull Station**

#### 4.5.3 Power Backup System

Primary 120V AC power to the fire system control panel is supplied from the 480V AC service panel. When the primary power is lost, on-line emergency batteries built into the system will provide 24 hours of supervisory power.

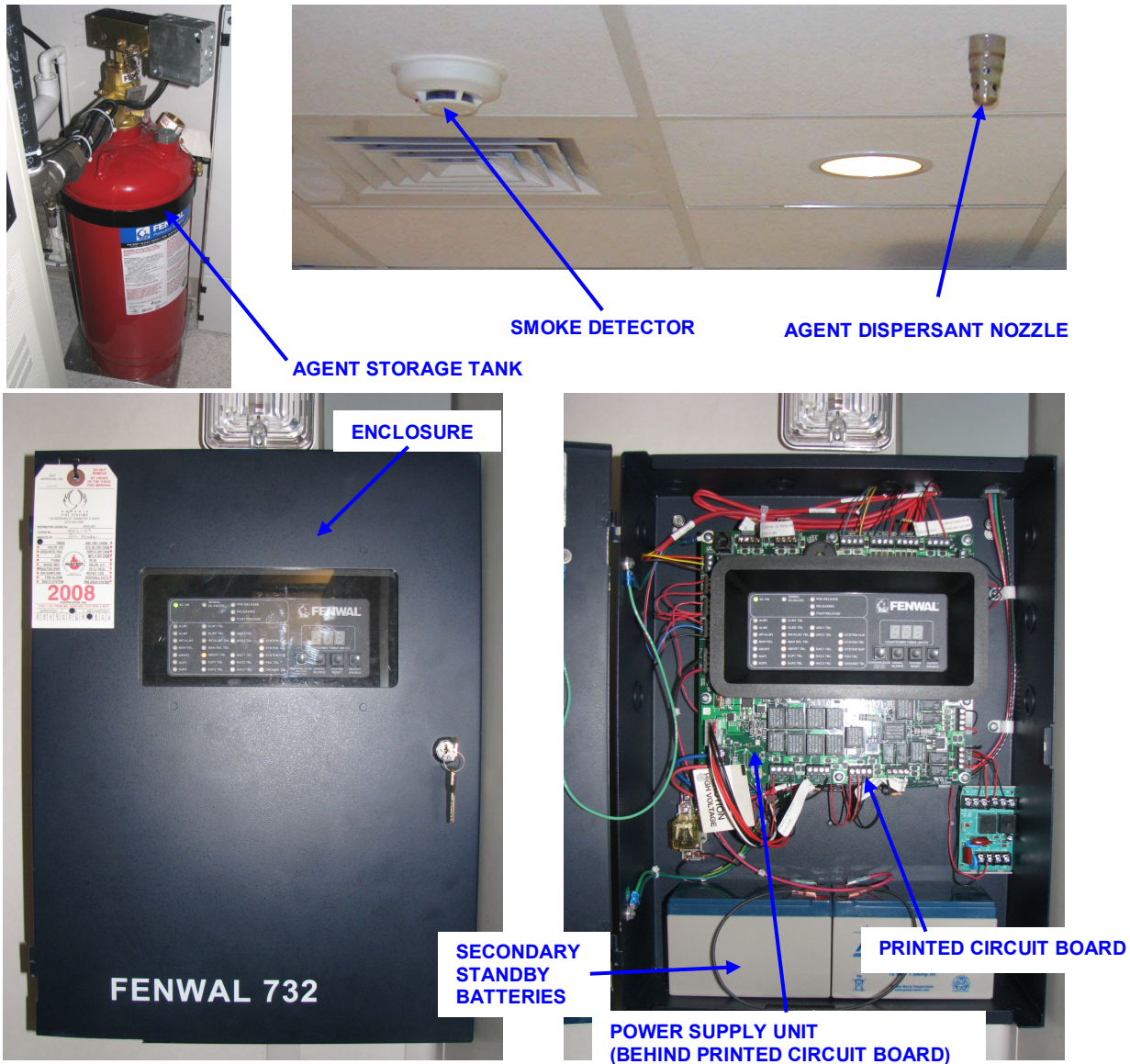
- When primary power is lost, both the green “POWER” LED and the yellow “TROUBLE” LED will flash.
- The “SYSTEM TROUBLE” and “POWER TROUBLE” LED’s will also begin to illuminate.
- The audible alert located inside of the system control panel will begin to BEEP.

The emergency batteries are rechargeable gel celled. They are also float charged to provide quick recovery after primary power is restored.

#### **4.6 NOVEC-1230 Fire Suppression System (Optional)**

An optional fire suppression system is available for the mobile unit. This fire suppression system uses a dispersant to extinguish the fire. The dispersant used is a gas that removes the oxygen from the interior of the mobile unit. Without oxygen, the fire cannot survive. This method provides the means to allow both personnel and property to escape the damage from the fire virtually unharmed. When the fire suppression system has been triggered, it will automatically shut down the medical system, and the HVAC system.

The NOVEC-1230 Fire Suppression System uses the Fenwal 732 Control Panel to monitor and operate the system. The Fenwal 732™ is a versatile, flexible, microprocessor-based conventional fire alarm/suppression control system.



**Figure 29: Fire Suppression Components**

#### **4.6.1 Control Unit Description**

The Fenwal 732 consists of the following: Enclosure with Door, Power Supply Unit, Printed Circuit Board (PCB), and Secondary Standby Batteries.

#### **4.6.2 Enclosure with Door**

The enclosure meets the requirements for NEMA Type 1 and is intended to be used indoors in a relatively dust-free environment. The enclosure has a hinged door that swings open 180° for accessibility. The enclosure can be surface or recessed mounted. A trim ring is available for recessed mounting. The enclosure is constructed of 18 gauge sheet steel. A steel door is held closed by a key lock. All operator interface switches and indicators are located behind the locked cover. The enclosure is large enough to house two 12V DC, 12 AH batteries required for standby operation.

The enclosure and door has two color options — blue for most UL/cUL applications and red for MEA/NYC applications.

#### **4.6.3 Enclosure Door Options**

The standard enclosure door allows the operator to view the operator interface display mounted on the PCB behind a Plexiglas window. The Fenwal 732 is also available with an alternate door that allows an abort and manual release switch to be mounted. The manual release switch incorporates a lift type guard and the abort switch incorporates a safety guard to prevent inadvertent activation.

#### **4.6.4 Power Supply Unit**

The power supply unit mounts behind the circuit board and operates from either 120V AC 50/60 Hz or 240V AC 50/60 Hz. It powers the system and also charges a standby battery set which provides backup in case of loss of power from the AC source.

The battery charger is capable of charging sealed lead-acid 24V DC batteries of capacity up to 68 AH. The charge voltage is 27.4V DC nominal.

The actual battery capacity used for an application is a function of the control units components, devices and configuration.

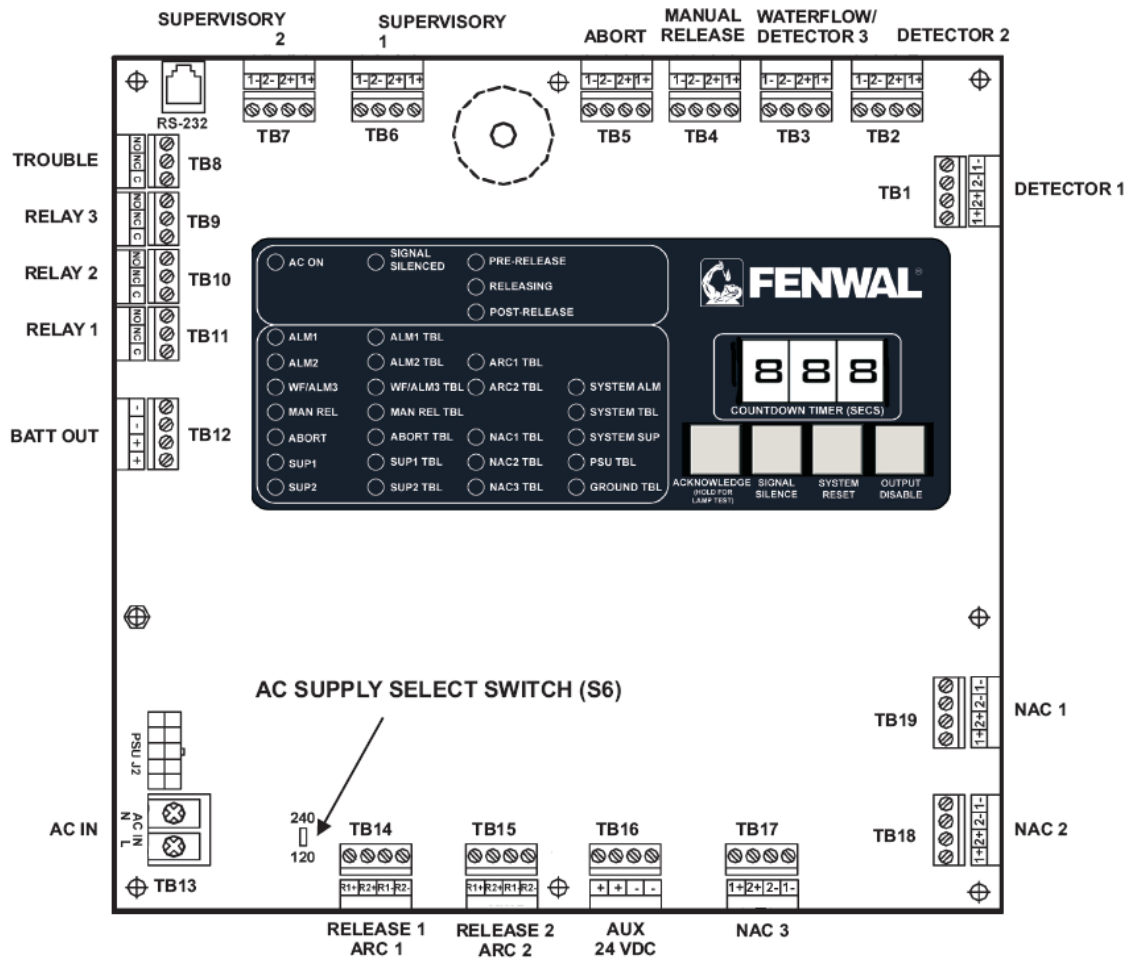
The power supply monitoring circuit provides a trouble signal if any of the following occur:

- Loss of AC input or if AC power falls below 85% of nominal. This causes an immediate changeover to battery operation and a trouble signal after 30 seconds.
- Detection of a ground fault.
- Low charging current.
- High output voltage
- The battery monitoring circuit provides a trouble signal if any of the following occur:
  - The battery is installed backwards.
  - The battery is disconnected.
  - Battery voltage falls below 19.5 V (this condition causes the battery to disconnect and can only be cleared when primary AC main power is restored).

### 4.6.5 Printed Circuit Board

The printed circuit board provides an interface or terminals for the following:

- Power Supply Unit
- Battery
- Initiating Device Circuits (System Inputs)
- System Outputs
- Operator Interface
- Auxiliary Power Output



**Figure 30: Printed Circuit Board (PCB)**

#### 4.6.6 Operator Interface

All alarms, troubles and supervisory signals are received at the control unit and displayed for the operator. The Operator Interface consists of four main components and are visible and/or audible through a transparent window:

- LED Indicators
- Control Switches
- Digital Display
- Buzzer

#### 4.6.7 LED Indicators

The following is a list of control unit indicators and their LED display color.

**Table 4-1. LED Indicator and Display Color**

Indicator	Display Color
AC Power On	Green
System Alarm	Red
System Supervisory	Yellow
System Trouble	Yellow
Signal Silenced	Yellow
Agent Pre-Release	Red
Agent Releasing	Red
Agent Post-Release	Red
Input Activated Alarm, Manual Release, and Abort	Red
Other	Yellow
Input Trouble	Yellow
Release Output Trouble	Yellow
NAC Output Trouble	Yellow
Ground Fault	Yellow
Power Supply Fault	Yellow

#### **4.6.8 Control Switches**

There are four Control Switches on the Operator Interface. They are:

**Acknowledge** — Silences the buzzer which sounds when a new supervisory, alarm, or trouble is detected. Holding this control switch for five seconds activates the control unit Lamp Test. This control switch is also used in conjunction with the System Reset control switch to enter the configuration mode.

**Note: Microprocessor and PCB troubles are latching and cannot be silenced or reset. Refer to Troubleshooting Section.**

- **Signal Silence** — Silences the NAC circuits.
- **System Reset** — Disconnects power from all input and output circuits and the auxiliary output for a period of five (5) seconds. This control switch is also used in conjunction with the Acknowledge control switch to enter the configuration mode.
- **Output Disable** — Disables the release of agent, and as selected in the system configuration, the activation of NAC outputs and/or Programmable Relays. This is used when performing maintenance on the system.

#### **4.6.9 Digital Display**

The three digit display is used for the following:

- View and enter field configuration settings
- Display troubleshooting/diagnostic codes
- Display battery voltage and charging current
- Count-down timer for agent release

#### **4.6.10 Buzzer**

The buzzer will sound when an alarm, trouble or supervisory condition is present.

#### **4.6.11 Initiating Device Circuits (System Inputs)**

The Fenwal 732 has the following system inputs:

- Three (3) Detection Inputs
- One (1) Manual Release
- One (1) Abort
- Two (2) Supervisory Inputs

#### **4.6.12 Detection Inputs**

The control unit provides two dedicated initiating/detector input circuits, plus a third that can be used as an independent initiating/detector input. Inputs from these circuits are latching.

Each detector circuit is suitable for Class A or Class B wiring and is capable of operating with up to 25 smoke/electronic heat detectors and a quantity of contact-closure type devices (up to the limitation imposed by wiring resistance).

#### 4.6.13 Manual Release

Operation of a manual release pull station activates the NACs and initiates the release sequence. The configured time delay and agent release output is activated after the site configured time delay. Manual release overrides any other time delay. The circuit is suitable for both Class A or Class B wiring and any quantity of contact closure type manual release stations subject to the limitations imposed by the wiring resistance. The manual release will also override any activated abort switch.

#### 4.6.14 Abort Switch



The abort switch will not stop the dispersant from discharging indefinitely. The abort switch only postpones the discharge, by resetting the 30-second counter. All personnel must be out of the unit before the dispersant is discharged.

An abort switch is located next to the staff door in the Control Room. Lift the red guard and lift and hold the switch to temporarily abort the agent discharge. When this switch has been activated, the 30-second timer will be reset.

The system will stay in the reset mode as long as the reset switch is held in position.

Once the reset switch has been released, the timer will resume the countdown starting at 30 seconds.

If for some reason the dispersant must be shortly postponed from discharging, use the abort switch.



**Figure 31: Abort Switch**

When the abort is activated, the timer is stopped and reset to 30 seconds. The timer will not start as long as the Abort switch is held. The timeout restarts when the Abort switch is released. Successive Abort Switch operations, resets the timer back to a 30 second delay. Selection of this mode does not have an over-ruling effect on any programmed manual or auto-release delays, regardless of whether an abort has actually occurred. In this mode, the auto-release delay is restricted to a maximum of 30 seconds.

#### 4.6.15 Maintenance Switch

**IMPORTANT**

After all service work has been completed on the mobile unit, all smoke must be cleared from the mobile unit before arming the system.

**IMPORTANT**

If the key switch is in the active position and the red LED is illuminated, a trouble condition exists somewhere in the system. Refer to the system control panel for information.

The Maintenance Switch is mounted above the Fenwal 732 Panel in the Equipment Room.

When the maintenance switch is in the active position, the green LED will be illuminated signifying all systems are armed and functioning correctly.

When the maintenance switch is in the inactive position, the red LED will illuminate signifying that the system is unarmed. At this time, maintenance can be performed on the mobile unit as required.



**Figure 32: Maintenance Switch**

#### 4.6.16 Supervisory Inputs

The Supervisory Circuits accept inputs from monitoring devices such as pressure switches on agent cylinders or sprinkler systems.

#### 4.6.17 System Outputs

The Fenwal 732 has the following system outputs:

- Three (3) Notification Appliance Circuits (NACs)
- Two (2) Agent Release Circuits (ARC)
- Three (3) Programmable Relays
- One (1) Dedicated Trouble Relay
- One (1) Auxiliary Power Output



#### **4.6.18 Notification Appliance Circuits (NACs)**

The Fenwal 732 has three dedicated notification appliance circuits (NAC). Any NAC can be configured in system configuration to operate on one or more of First Alarm, Pre-Release, and Releasing conditions. In the case that the control unit is being used in a non-suppression application, the three NACs may be configured to operate on Alarm from DET 1, DET 2, and DET 3. Each circuit is driven independently and is user configurable for either Class A (Style Z) or Class B (Style Y) operation with the following coded patterns:

- 60 beats per minute (BPM)
- 120 beats per minute (BPM)
- Temporal
- Continuous

The three circuits are supervised, power-limited, and are compatible with conventional UL listed, 24V DC notification appliances. They can also be used with the following synchronizable horns and strobes:

- MT series multi-tone horns and horn/strobes
- NS series horn/strobes
- NH series horns
- RSS(P) series strobes

The MT and NS series network appliances provide the option to use silenceable horns and nonsilenceable strobes on the same NAC.

Multiple NAC circuits (connected to audible devices only) programmed with the same master code pattern are synchronized, regardless of any differing starting times that preceded their concurrent operation.

The control unit is designed for user selection of an intelligent synchronization feature. This feature allows the silenceable horn to be shut off while the strobe continues to flash in synchronized fashion.

Each NAC is rated 1.5A at 24V DC and is suitable for polarized 24V DC appliances only.

#### **4.6.19 Agent Release Circuits (ARC)**

The Fenwal 732 has two (2) dedicated, independently controlled Class B ARCs compatible with devices listed.

#### **4.6.20 Trouble Relay**

The trouble relay is "normally energized" with AC Power ON and will de-energize upon receipt of a trouble condition. This change is non-latching and the relay will revert to its normal state upon removal of the trouble state.

#### **4.6.21 System Operation**

During normal operation, the fire suppression system control panel remains in a supervisory mode. In order for the fire suppression system to discharge the dispersant, a number of events must first occur. When these events begin to occur, the fire suppression system control panel enters into what is called a “counting mode”.

- If one smoke detector goes into alarm, the following steps will occur.
- The red LED marked “ALM1” or “ALM2” located on the front cover of the fire suppression system control panel will illuminate.
- The HVAC system will shutdown.
- The roll door will close (if applicable).
- The “PRE-RELEASE” LED will illuminate.
- If no other smoke detector goes into alarm, the fire system control panel will remain in alarm condition until the control panel is manually reset. To reset the control panel, open the front cover, and depress the system reset button.

If a second smoke detector goes into alarm, the following steps will occur in addition to the previously mentioned steps.

- The horn will pulse (on-off-on-off, etc.).
- The strobe light will begin to flash.
- A 30 second time delay will begin.
- After 30 seconds have passed, the dispersant will be discharged. (Total discharge time is normally less than 10 seconds.)
- The LED marked “RELEASING” located on the front cover of the fire suppression system control panel will illuminate.
- The horn will sound continuously indicating that the dispersant is being discharged.
- The LED marked “POST-RELEASE” located on the front cover of the fire suppression system control panel will illuminate.
- The medical system will shutdown.
- The rear service exhaust fan will shutdown.
- The fire remote contacts located in the remote box in the underbody compartment will state.

#### **4.6.22 Pull Station**

A pull station is located next to the staff door in the Control Room. When this pull station is activated, the system discharges immediately.

**4.6.23 Input / Output Matrix**

The following table details the cause and effect actions that may occur during system operation. The effect actions are controlled by the Fenwal 732 Controller.

**Table 4-2. Input / Output Matrix**

Input Output Matrix		EFFECT															
		Suppression Control												Bldg.			
		Trouble	Horn/Strobe (1st Alarm)	Turn off A/C, Shut Roll Door	Horn/Strobe (2nd Alarm)	Drop Trailer Power	Input to Cross Zone	Start Timer - 30 Seconds	Inhibit Automatic Release	Discharge Agent	Discharge Strobes				Trouble	Alarm	Supervisory
CAUSE	A	B	C	D	E	F	G	H	I	J	K	L					
1 Panel Trouble	X														X		
2 Smoke Detector (First)		X	X												X		
3 Smoke Detector (Second)					X	X	X										
4 Manual Pull Station (Suppression)			X	X	X		X		X	X					X		
5 Abort Button	X							X							X		
6 Detection Cross Zoned				X			X										
7 Discharge Timer Start				X													
8 Discharge Timer Complete				X					X								
9 Agent Release										X							

## **4.7 Gauss Lines**



The magnetic field created when the magnet is up to full field attracts objects containing iron, steel, nickel, and cobalt. Such objects must not be brought into the exclusion zone area. Large objects will not be able to be restrained. Persons with implants or prosthetic devices must not enter this area. Pacemakers may be disabled. Data on credit cards and magnetic storage media can be erased. Watches, cameras, and instruments can be damaged.



The exclusion zone is restricted to within 6" of the outside walls of the trailer.

A magnet produces magnetic fields. The measured intensity of these fields, at specified distances from the magnet, are referred to as gauss lines.

Any stationary or moving ferrous objects within the magnetic field have a definite impact on the homogeneity of the magnetic field.

The magnetic field also has a definite impact on any ferrous material that enters it.

Gauss lines for inside of the trailer are as follows: the 5 gauss limit is confined within the scan room, the operator control room is outside the 5 gauss zone.

## **4.8 Hydraulic Platform Lift**

There are multiple safety features for the hydraulic platform lift. For a full list of the safety features, please refer to Section 10: Hydraulic Platform Lift.

## **4.9 Magnet Field Warning Indicator**



The magnetic field created when the magnet is up to full field attracts objects containing ferrous materials (i.e. iron, steel, nickel, cobalt, etc.). Such objects must not be brought into the exclusion zone area. Large objects will not be able to be restrained. Persons with implants or prosthetic devices must not enter this area. Pacemakers may be disabled. Data on credit cards and magnetic storage media can be erased. Watches, cameras, and instruments can be damaged.

Because of certain precautions that are need to be taken when nearing a magnet, a magnet field warning system has been incorporated into the unit. A decal stating Magnet ON has been placed on the frame of the entry door to Scan Room in order to alert all personnel nearing the room. An optional light can be provided. The light is labeled Magnet ON and is located next to the entry door to Scan Room.

## **4.10 Marker Lights**

L.E.D. type marker and side turn signal lights are installed on the trailer body to assist the driver with maneuvering the mobile unit.

## **4.11 Roll Door**

Controls for the roll door are located both inside and outside of the mobile unit. On the exterior of the mobile unit, the controls can be found alongside the controls for the hydraulic platform lift. On the interior, the controls can be found next to the staff door. A green indicator light is located next to the controls and will illuminate when the hydraulic platform lift is in the raised position and the door can be safely opened.

In the event the power supply is lost, the mobile unit has been provided with a manual override (emergency release) for the roll door. Once the disconnect lever is pulled, the roll door can be moved manually either up or down.



**Figure 33: Roll Door Emergency Release**

## 4.12 System Shutdowns

There are different types of shutdowns that can take place on the mobile unit. Of the different types, both manual and automatic shutdowns exist. All shutdowns refer only to the medical system and not the HVAC system unless otherwise noted.



Guarded Magnet Quench Button, Scan Room



Emergency Off Button, Magnet Room



Emergency Off button, Control Room, next to Entry Door



A1 Start/Stop in Equipment Room

**Figure 34: Emergency Shutdown Buttons**

#### **4.12.1 Fire Detection System**

When smoke is detected, the fire detection control panel will trigger the following events.

- The fire horn will sound continuously.
- The strobe light will flash.
- The HVAC units will shut down.

#### **4.12.2 Fire Suppression System (optional)**

If one smoke detector goes into alarm, the following steps will occur.

- The bell will sound continuously.
- The red LED marked "Zone 1" or "Zone 2" located on the front cover of the fire suppression system control panel will illuminate.
- The HVAC system will shutdown.
- The roll door will close (if applicable).
- The "System Alarm" LED will illuminate.

If no other smoke detector goes into alarm, the fire system control panel will remain in alarm condition until the control panel is manually reset. To reset the control panel, open the front cover, and depress the system reset button.

If a second smoke detector goes into alarm, the following steps will occur in addition to the previously mentioned steps.

- Both red LED's marked "Zone 1" and "Zone 2" located on the front cover of the fire suppression system control panel will now be illuminated.
- The horn will pulse (on-off-on-off, etc.).
- The bell will silence.
- The strobe light will begin to flash.
- A 30 second time delay will begin.
- After 30 seconds have passed, the dispersant will be discharged. (Total discharge time is normally less than 10 seconds.)
- The LED marked "RELEASE" located on the front cover of the fire suppression system control panel will illuminate.
- The horn will sound continuously indicating that the dispersant is being discharged.
- The medical system will shutdown.
- The rear service exhaust fan will shutdown.
- The fire remote contacts located in the remote box in the underbody compartment will state.

#### 4.12.3 Guarded Magnet Quench Button (Emergency Rundown Unit)

**This WILL drop the magnet.** Depressing the Quench Button will rapidly deplete the magnetic field. The magnet located inside of Scan Room is cooled by liquid helium. When the magnet quench button is depressed, the helium will be quenched from the magnet. This must only be done when there is an emergency related to the magnetic field.

Once this button has been depressed, the helium will be quenched and the MRI System must be serviced before it can be used again.

The guard must be lifted before the button can be depressed. Once the button has been depressed, the magnet will begin quenching while all the other systems continue to work normally.

#### 4.12.4 Manual Shutdown (Emergency Stop / A1 Stop)



**This WILL NOT drop the magnet.** Depressing the Quench Button, only, will rapidly deplete the magnetic field. Depressing the E-Stops or A1 Stop buttons will not deplete the magnetic field. Manual shutdowns are those that require the operating personnel to depress “Emergency OFF” buttons in the event of an emergency. The “Emergency OFF” buttons are located in Control Room and Magnet Room aboard the mobile unit. When these buttons are depressed, only the medical system will be shutdown. The trailer systems will still be operational.

### 4.13 Warning Lights

Warning lights have been provided to keep the operator and technician aware of the status of the mobile unit at all times. A description of each of the warning lights and their location can be found below. If any of the warning lights are illuminated, please refer to Appendix B: Troubleshooting, for additional information.

#### 4.13.1 Power ON Light

The “Amber” Power ON Light is located on the exterior left side of the mobile unit and will illuminate when the mobile unit is receiving power. The mobile unit must have power at all times.

#### 4.13.2 Transport Warning Light



If the Transport Warning Light is on, the mobile unit must not be moved. If the mobile unit is moved while this light is on, irreparable damage can occur to the mobile unit.

The Transport Warning Light is located on the exterior left side of the mobile unit and will illuminate when the hydraulic platform lift is not in the proper transport position.

#### 4.13.3 Medical Transport Warning Light

The “Amber” Medical Transport Warning Light is located on the exterior left side of the mobile unit and will illuminate when the MRI air bladder is deflated. The light turns off when the air bladder has been inflated.





## Section 5: Mobile Unit Setup Procedure



The Siemens medical system requires the HVAC system to be supplied power at all times when the unit is in the parked position via shore power.



The landing / stabilizing legs and rear suspension are not to be used to raise the mobile unit off the ground. The legs are meant only to level the unit and place it in a parked position. If the legs are used in an attempt to raise the mobile unit from the ground, serious damage may occur to the mobile unit.



A checklist can be found in Appendix A that may be used as a guideline for the following procedure.

### 5.1 Park the Mobile Unit

In order to join the mobile unit to the facility, place the unit on the pad per the site-planning guide.

### 5.2 Lower the Landing / Stabilizing Legs

After the mobile unit has been parked on the pad per the site-planning guide, the landing / stabilizing legs must be lowered to stabilize the mobile unit before it can be used. Refer to [Figure 52: Landing / Stabilizing Leg Assembly](#) for the following procedure.

1. Move and hold the pump switch in the “Pump ON” position.
2. Pull the levers towards you to extend the landing / stabilizing legs to their extended position.
3. Extend the legs far until the front of the unit has been raised high enough to clear the fifth wheel.
4. Release the pump switch. The switch should automatically return to the “Pump OFF” position.

### 5.3 Disconnect the Tractor

After the landing / stabilizing legs have been lowered, the tractor must be removed from the mobile unit.

1. Verify that the mobile unit has been raised high enough to clear the fifth wheel.
2. Leave the air and electrical lines attached and disconnect the tractor from the mobile unit.

## **5.4 Install the Rear Stabilizing Stands**

After the front landing / stabilizing legs have been lowered into position and the tractor has been disconnected from the mobile unit, the rear stabilizing stands can be installed. The rear stabilizing stands must be installed prior to use of the medical system. Refer to [Figure 2: Air Ride Control Valves](#) and [Figure 19: Stabilizing Stands](#) for the following procedure.

1. Open the left side rear underbody compartment door to gain access to the air ride controls.
2. To raise the unit, turn the switch “ON” and place the lever in the “UP” position.
3. Raise the mobile unit high enough to insert the stabilizing stands. Move the switch to the “OFF” position.
4. Install the stands under the stand supports.
5. After the stands have been installed, turn the switch “ON” and place the lever in the “DOWN” position to deflate the air bags.
6. Completely lower the mobile unit until the supports are resting on the stabilizing stands.
7. Verify that the unit is level by checking the levels.

## **5.5 Re-level the Mobile unit**

After the preceding steps have been completed, the mobile unit may no longer be level. Re-level the unit if necessary using the levels that have been provided. Refer to [Figure 14: Levels](#) if needed. Set the trailer brakes.

## **5.6 Disconnect the Tractor Air and Electrical Lines**



**Failure to completely exhaust the suspension before uncoupling the air lines may result in damage to the suspension of the mobile unit.**

After the mobile unit has been re-leveled, the tractor air and electrical lines can safely be removed. Refer to [Figure 12: Glad Hand Connections](#).

## **5.7 Lower the Auxiliary Support Legs**

After the preceding steps have taken place, the auxiliary support legs can now be lowered. Refer to [Figure 52: Landing / Stabilizing Leg Assembly](#) for the following procedure.

1. Remove the pin that is currently holding the safety leg in the transport position.
2. Lower the auxiliary support leg to within ½” of the sand shoe and insert the pin into the highest available hole to lock the leg in position.

## **5.8 Install the Stair Assembly**

There are two different options for the stair assembly. The first option is to attach the stairs directly to the mobile unit while the second option is to utilize the supplied platform as well. Although not specifically required, both options can be set up easier with two people. The instructions are covered below. Please refer to [Figure 20: Stair Assembly \(standard\)](#) and follow the appropriate set of instructions for your unit.



The maximum capacity of the stairs or platform in any combination is 375 pounds. Exceeding this capacity limit could result in damage to equipment or personal injury.

### **5.8.1 Standard Stair Assembly**

1. Remove the stair assembly from the underbody compartments.
2. Close the door to the underbody compartment.
3. Install the clip of the stair assembly into the channel located underneath the staff door.
4. Adjust the height of the stair legs as necessary to in order to level and secure the stairs.
5. Install the handrail into its operating position and secure in place with the hardware provided.

### **5.8.2 Stair Assembly with the Platform (optional)**

1. Remove the stair assembly from the underbody compartments.
2. Having one person on each side of the platform, lift the platform and place the clip of the platform in the channel located beneath the staff entry door.
3. While one person holds the platform in place, the other person should insert the adjustable legs into position to support the platform.
4. Adjust the legs as necessary in order to ensure the platform is both level and secure.
5. After the platform has been supported, the slip of the stair assembly can be safely placed into the channel located on the platform.
6. Insert the adjustable legs for the stair assembly at the base of the stairs.
7. Adjust the legs as necessary in order to ensure the stair assembly is both level and secure.
8. Place the handrails in their operating positions and secure them with the hardware provided.
9. Close the door to the underbody compartment.

## **5.9 Hydraulic Platform Lift Deployment**

### **5.10 Connect to Shore Power**

After the stair assembly has been installed, the hydraulic platform lift can be deployed for use. Please refer to Section 10: Hydraulic Platform Lift for the following procedure.

1. Open the underbody compartment doors.
2. Remove the handrails and lift pendant, and place them to the side for now.
3. Close the underbody compartment door.
4. Located next to the roll door, are the controls for the hydraulic platform lift. Insert the connector from the lift control pendant into the receptacle that is located on this control panel. **Note:** *For operator safety, this control pendant only has Up/Down capabilities. For deploying and stowing the platform the hard wired pendant must be used. It is located behind the compartment door rearward of the platform lift.*
5. Clear the platform sliding path by moving the storage safety latch manually. Hold the safety latch down manually with one hand and press the **Down** button on the control with the other hand until the platform locking ears clear the safety latch. Release the safety latch back to its original place.
6. Open the platform by pressing and holding the **Shift** and **Down** buttons simultaneously. **NEVER STAND DIRECTLY UNDER THE PLATFORM!** Press and hold the down button to lower the platform complete to the ground.
7. Once the platform has been lowered, install the handrails and secure them with the hardware provided.



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the “OFF” position. Failure to do this can result in injury or death to the operator of the mobile unit.



It is the operator’s responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



Always inspect the power cable, connectors, and fasteners prior to usage. If during inspection, it is suspected that either internal or external damage has occurred, have a certified electrician inspect and repair the damage before using.

**NOTE: The unit must first be switched to shore power before the medical system can be used.** Refer to [Figure 38: Shore Power Connection](#), for the following procedure.

1. Verify that the shore power disconnect is in the “OFF” position.
2. Open the underbody compartment door and remove the power cable from the underbody compartments of the mobile unit.
3. Insert the trailer connector into the shore power receptacle and spin the lock ring clockwise to secure the connection.
4. Move the shore power disconnect to the “ON” position.

5. Close the underbody compartment door; making sure that the access flap for the power cable has been released.

### **5.11 Automatic Transfer Switch (ATS) Panel (underbody)**



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



The ATS will automatically transfer to Shore Power when connected to a viable power supply and shut down the generator unit. In the event of a Shore Power fault, the ATS will automatically start the generator unit and transfer power to the generator.

The Automatic Transfer Switch is the 480V AC electrical panel that controls all incoming power to the mobile unit. From this location, the appropriate power supply is chosen and shore power monitored.



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.

The Phase Power Monitor checks the incoming shore power to ensure that it has the correct phase rotation (ABC) and that all three phases are present. If all three phases are present and in the correct rotation, the 480 VAC Light, on the monitor, will illuminate.

If any phase is not present or if the phase rotation is not correct, the 480 VAC Fault Light will illuminate, a piezo-electric horn will sound and a flashing strobe light on the front of the unit illuminates. Disconnect shore power immediately and investigate to determine the cause of the fault.

### **5.12 Connect the Phone and Data Lines**

1. The phone and data lines can be found in the underbody storage compartments. Both the phone and data lines can now be connected from the outlets located in the underbody compartments to the receptacles located at the shore site.
2. The phone lines make use of Hubbell all weather connections. The data lines make use of CAT-6E cable and RJ-45 connections. Refer to Figure 17: Phone & Data Line Connections.

### **5.13 Connect the Water / Waste Hoses**

#### **5.13.1 Humidifier Water Fill**

1. The mobile unit contains a water storage tank for the humidifier. This tank is located in the equipment room and must always contain water to insure the specified humidity level remains constant. There are two options for filling the tank. Refer to Figure 21: Fresh Water and Wastewater Connections.
2. A 3/4" G.H.T. male threaded hose connection is located on the left front side of the mobile unit.

3. A fill port is located on the water tank itself for manual fill capability.
4. Remove the cap that covers the connection.
5. Attach the supplied water hose to this connection.
6. Attach the other end of the hose to facility provided faucet.
7. Turn on the water at the faucet.
8. This will fill the water tank for the mobile unit.
9. In the event that the water tank is overfilled, an overflow drain has been provided that exits outside of the mobile unit.

### **5.13.2 Fresh Water Supply Requirements (Sink Option)**

The mobile unit will be supplied with a  $\frac{3}{4}$ " diameter, 20'-0" long hose terminated with a  $\frac{3}{4}$ " G.H.T. male threaded hose connector located on the left side of the mobile unit. Refer to Figure 21: Fresh Water and Wastewater Connections. The facility must provide a  $\frac{3}{4}$ " female connector and a water supply that meets the following specifications:

- A flow rate of 5 gallons per minute.
- 45-60 PSI.
- A maximum temperature of 70°F.

### **5.13.3 Waste Water Connections (sink option)**

1. A 1½" IPS male connection is required to sink wastewater.
2. Any pipes and drains within 20'-0" of the magnet isocenter should be of non-ferrous materials such as PVC, copper, or brass. All plumbing must comply with all applicable codes.
3. The mobile unit is supplied with a 20'-0" long 1" diameter hose that is terminated with a 1" male threaded connector for sanitary wastewater drainage located on the left side of the mobile unit. Refer to Figure 22: Fresh Water and Wastewater Connections. The facility must provide means of sanitary wastewater drainage from the system, which complies with all local applicable codes.

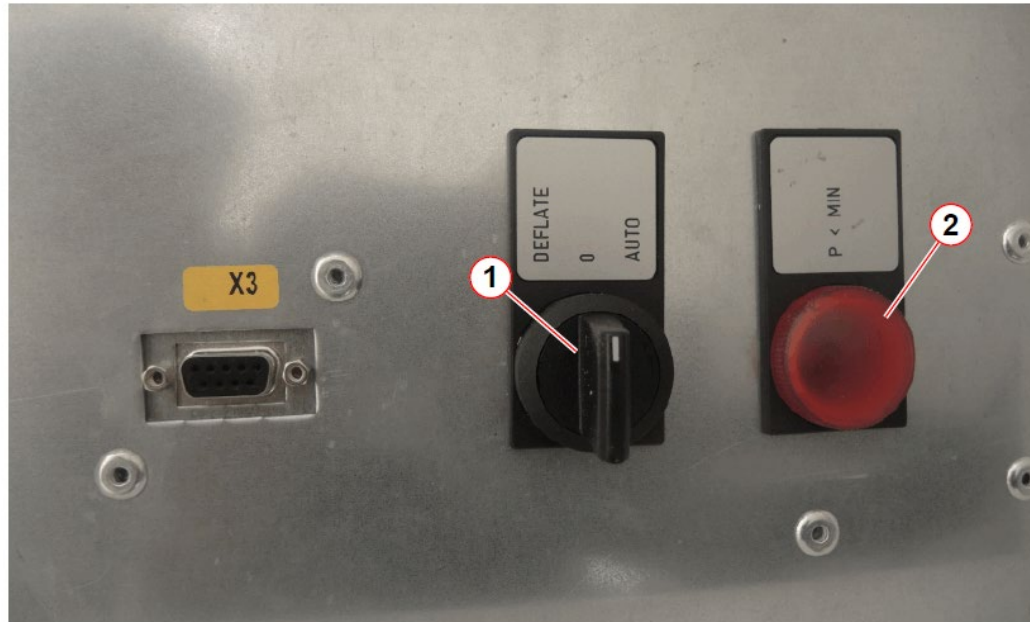
## **5.14 Remove Restraining Hardware**

There are two types of restraints that need may need to be removed prior to using the medical system. They are as follows.

- The first type deals with the restraints that are used by the medical equipment manufacturer. Follow all instructions provided by the medical equipment manufacturer when adding or removing restraints from the medical equipment. These instructions can be found in the system manuals provided by the medical equipment manufacturer.
- The second type deals with the restraints that are used by the mobile unit manufacturer. Various items may be secured while the unit is being transported. These items may consist of chairs, monitors, door, cabinets, cameras, and printers. Remove all restraining equipment prior to usage of the medical system.

## **5.15 Prepare the Medical System per OEM Instructions**

The medical system can now be prepared for use. Unlock the Scan Room door and follow the OEM instructions in order to prepare the system. Make sure the air bladder pump, located under the control room countertop, is turned to the "0" position and that the red light is illuminated before operating the medical system.



- (1) Function selector
- (2) Low-pressure indicator

### **5.16 Canopy Deployment (if applicable)**

If the canopy option has been installed on the mobile unit, it can now be deployed. Please follow the instructions below and refer to [Figure 3: Canopy](#).

1. Remove the handle from Equipment Room.
2. Insert the hook of the handle into the hole of the canopy crank mechanism.
3. Turn the handle in order to deploy the canopy.
4. After the canopy has been deployed, return the handle to its storage position inside of Equipment Room.

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## Section 6: Mobile Unit Transport Procedure



The Seimens medical system requires the HVAC system to be supplied power at all times when the unit is in the parked position via shore power.



The landing / stabilizing legs and rear suspension are not to be used to raise the mobile unit off the ground. The legs are meant only to level the unit and place it in a parked position. If the legs are used in an attempt to raise the mobile unit from the ground, serious damage may occur to the mobile unit.



Before transporting the mobile unit, check to verify all warning lights as well as all exterior marker lights are working correctly.



A checklist can be found in Appendix A that may be used as a guideline for the following procedure.

### 6.1 Canopy Retraction (if applicable)

If the canopy option has been installed on the mobile unit, the canopy can now be retracted. Please follow the instructions below and refer to [Figure 3: Canopy](#).

1. Remove the handle from Equipment Room.
2. Insert the hook of the handle into the hole of the canopy crank mechanism.
3. Turn the handle in order to retract the canopy.
4. After the canopy has been retracted, return the handle to its storage position inside of Equipment Room.

### 6.2 Return the Hydraulic Platform Lift to the Transport Position

Please refer to [Section 10: Hydraulic Platform Lift](#), and follow the procedure outlined below.

1. Lower the hydraulic platform lift to the ground.
2. Remove the restraining hardware and handrails and temporarily place them to the side.
3. Press the **Up** button to raise the platform approximately 12" from the ground.
4. Press and hold the **Shift** and **Up** buttons simultaneously until the platform is parallel to the columns.
5. Press the **Up** button to raise the platform until the platform locking ears are positioned in the locking plate and the storage safety lock is engaged.
6. Remove the remote control pendant from the socket and lock the access door to the hydraulic platform lift controls. **Note:** *For operator safety, this control pendant only has Up/Down capabilities. For deploying and stowing the platform the hard wired pendant must be used. It is located behind the compartment door rearward of the platform lift.*
7. Open the underbody compartment door and store the remote control pendant and handrail assembly in the underbody storage compartment.

### **6.3 Secure All Equipment**

Two types of restraints need to be supplied before transporting the mobile unit. They are as follows:

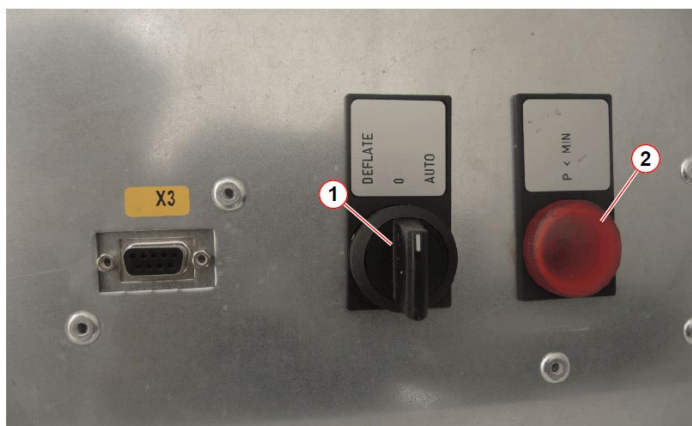
- The first type deals with the restraints that are used by the medical equipment manufacturer. Follow all instructions provided by the medical equipment manufacturer when applying restraints to the medical system. These instructions can be found in the system manuals provided by the medical equipment manufacturer.
- The second type deals with the restraints that are used by the mobile unit manufacturer. Various items must be secured prior to transporting the mobile unit. Such items may consist of chairs, monitors, doors, cabinets, cameras, and printers. Use the supplied restraining hardware to secure these items before transporting the mobile unit.

Prior to closing and locking the Scan Room door for transport, confirm the following:

1. The patient table is lowered onto the patient table bracket support points.
2. The patient table is strapped to the support brackets using the attached ratchet straps. See Siemens Aera documentation for current procedure.



The Siemens Aera Mobile system is equipped with an air bladder system that must be inflated every time before transport. The air bladder control unit is located in the control room underneath the countertop. Before transport, turn the switch on the air bladder control unit to “AUTO”. When the pump has reached the correct pressure the red indicator light will turn off.



(1) Function selector  
(2) Low-pressure indicator

## **6.4 Automatic Transfer Switch (ATS) Panel (underbody)**



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



The ATS will automatically transfer to Shore Power when connected to a viable power supply and shut down the generator unit. In the event of a Shore Power fault, the ATS will automatically start the generator unit and transfer power to the generator.

The Automatic Transfer Switch is the 480V AC electrical panel that controls all incoming power to the mobile unit. From this location, the appropriate power supply is chosen and shore power monitored.

## **6.5 Remove and Store the Stair Assembly**

Before removing the stair assembly, check the interior of the unit one last time to verify that all equipment is secure and ready for transport.

There are two different options for the stair assembly. The first option is to attach the stairs directly to the mobile unit while the second option is to utilize the supplied platform as well. Although not specifically required, both options can be taken down easier with two people. The instructions are covered below.



The maximum capacity of the stairs or platform in any combination is 375 pounds. Exceeding this capacity limit could result in damage to equipment or personal injury.

### **6.5.1 Standard Stair System**

1. Close and lock the staff door with the key that is provided.
2. Open the door to the underbody storage compartment.
3. Loosen the hardware holding the handrails in place. Remove the handrails from the stair assembly.
4. Lift the clip of the stair assembly up and away from the channel that is located underneath the staff door.
5. Place the stair assembly on the ground.
6. Using the sole of your shoe, step on the spring loaded release to retract the adjustable legs on each side of the stair assembly.
7. Place the stair assembly and handrail inside of the underbody storage compartment and close the compartment door.

### **6.5.2 Stair Assembly with the Platform (Optional)**

1. Close and lock the staff door with the key that is provided.
2. Open the door to the underbody compartment.
3. Release the handrails from their operating positions by loosening the hardware provided. Place the handrails to the side.
4. After the handrails have been removed, the stair assembly can be safely removed from the channel located on the platform.
5. Place the stair assembly to the side.
6. Remove the adjustable legs that were used with the stair assembly.
7. While one person holds the platform in place, another person should remove the adjustable legs that were used to support the platform. Place the adjustable legs to the side.
8. Lift the clip of the platform from the channel located beneath the staff entry door.
9. Place the platform inside of the underbody compartments.
10. Place the stair assembly into the underbody compartments.
11. Place the handrails into the underbody compartments.
12. Close the underbody compartment door.

## **6.6 Remove the Shore Power Connection**



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the “OFF” position. Failure to do this can result in injury or death to the operator of the mobile unit.

Please refer to [Figure 38: Shore Power Connection](#), for the following procedure.

1. Open the underbody compartment door where the power cable is to be stored.
2. Move the shore power disconnect into the “OFF” position.
3. Unthread the lock ring that is securing the connection.
4. Remove the connector from the receptacle.
5. Return the power cable to the underbody storage compartment.
6. Before closing the compartment door, verify that the power cable access door is closed and latched.

## **6.7 Disconnect the Water / Waste Hoses**

The water connection can be found on the left side exterior of the mobile unit above the kick and below the air conditioner. Be sure to fill the fresh water tank prior to disconnecting the fresh water supply. The fresh water tank must be filled on a daily basis.

1. Verify that the fresh water tank is full.
2. Turn off the water supply at the facility provided faucet.
3. Disconnect the hose from the faucet.
4. Remove the hose from the connection on the mobile unit.
5. Cover the connection on the mobile unit with the cap provided.
6. Coil the hose and store in the underbody compartment.
7. With the wastewater hose still connected, drain the wastewater tank.
8. After the tank has drained, close the valve located in the sink cabinet.
9. Coil the wastewater hose and store in the underbody compartment.

## **6.8 Disconnect Phone and Data Lines**

Please refer to [Figure 17: Phone & Data Line Connections](#), for the following procedure.

1. Disconnect any phone and data lines that are currently attached to shore receptacles.
2. Open the compartment door and disconnect any phone and data lines that are connected in the underbody storage compartment.
3. Store the phone and data lines in the underbody storage compartment and close the compartment door.

## **6.9 Raise the Auxiliary Support Legs**

Please refer to [Section 12: Landing / Stabilizing Legs](#), for the following procedure.

1. Remove the pins holding the auxiliary support legs in the locked positions.
2. Lift the auxiliary support legs high enough for the pin to be inserted into the lowest available hole, thereby holding the leg as high as possible.
3. Make sure this has been done for both auxiliary support legs. Failure to do this can damage the stabilizing legs when they are retracted.

## **6.10 Connect the Tractor Air and Electrical Lines**

In order to remove the rear stabilizing stands, the air and electrical lines must first be connected from the tractor to the mobile unit. Please refer to [Figure 12: Glad Hand Connections](#) and follow the steps outlined below.

1. Back up the tractor to the mobile unit, but do not back under it at this time.
2. Attach the air and electrical lines from the tractor to the mobile unit. Do not set the trailer brakes.

## **6.11 Remove the Rear Stabilizing Stands**

1. Open the underbody compartment door that stores the rear stabilizing stands.
2. Open the left rear underbody compartment where the control panel that contains the switch and lever that controls the air suspension air bags is found.
3. Move this switch to the "ON" position and the lever to the "UP" position.
4. The rear air suspension system will automatically inflate and the mobile unit will rise to enable removing the stabilizing stands.
5. Remove the rear stabilizing stands. Place the stands in the rear underbody storage compartments.
6. Move the switch to the "OFF" position and the lever to the "DOWN" position inflate the bags for normal ride.
7. Close the underbody storage compartment doors.

## **6.12 Connect the Tractor to the Mobile Unit**

Before connecting the tractor to the mobile unit, be certain that enough clearance has been left for the fifth wheel. If the fifth wheel cannot fit underneath the mobile unit, the front end must be raised. Please refer to [Section 12: Landing / Stabilizing Legs](#), for the following procedure.

1. Move and hold the pump switch in the “ON” position.
2. Pull the levers towards you to extend the legs. This will lift the front end of the mobile unit.
3. Extend the legs high enough to clear the fifth wheel only.
4. Release the pump switch. The pump switch should automatically return to the “Pump OFF” position.
5. Check to verify that enough room has been made for fifth wheel clearance and proceed with caution to connect the tractor to the mobile unit.
6. Verify that the fifth wheel is locked into position.

## **6.13 Raise the Landing / Stabilizing Legs**

After the tractor has successfully connected to the mobile unit, the stabilizing legs can be raised. Refer to [Figure 52: Landing / Stabilizing Leg Assembly](#) for the following procedure.

1. Move and hold the pump switch in the “ON” position.
2. Push the levers away from you to retract the legs. This will lower the front end of the mobile unit.
3. Retract the legs to their transport positions.
4. Release the pump switch. The pump switch should automatically return to the “Pump OFF” position.

## **6.14 Verify that the Mobile Unit is ready for Transport**

Before the mobile unit can be transported, a final check of all components is necessary. Please refer to the following when checking the mobile unit.

1. Have the chairs, monitors, doors, cabinets, cameras, and printers been secured? Is the Scan Room door closed and locked? Make sure that all of these items have been secured with the supplied hardware prior to transporting the mobile unit.
2. Has the patient table been secured for transport?
3. Is the air bladder inflated?
4. Are all exterior doors closed and locked? If not, make sure that all exterior doors are closed and locked.
5. Is the hydraulic platform lift in the transport position, fully seated in its retaining cradle? If not, make sure that the hydraulic platform lift is in the transport position, fully seated in the cradle, the transport pins are inserted, and all micro switches are actuated and the Lift Transport Restraining Cable is in place and securely connected.
6. Are all running & marker lights working correctly? If not, replace any LED lights that are not working before transporting the mobile unit.
7. Are any warning lights illuminated? If so, check to find the cause of the warning. Do not move the mobile unit if any warning lights are illuminated or strobe lights are flashing. If further assistance is needed, refer to the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives or call Advanced Mobility Specialty Vehicles for further assistance.
8. Is the fuel tank full? Check the fuel gauge, located in the underbody compartment, and fill the fuel tank if necessary.
9. Verify that the air suspension system is fully inflated and at the proper ride height. The lowest point of the trailer sidewall should be approximately 15" above ground level.



## Section 7: Electrical System



Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative. If a malfunction of any safety device is discovered to exist, DO NOT operate the vehicle, and immediately notify appropriate maintenance personnel.



Use and follow the appropriate Lockout/Tagout procedures as required by OSHA Standard 1910.147 when performing maintenance or servicing any electrical, hydraulic or pneumatic systems. See Appendix E for Lockout/Tagout procedures.



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the "OFF" position. Failure to do this can result in injury or death to the operator of the mobile unit.



It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



The Power Cable could present a trip hazard that could result in personal injury. Care should be taken to ensure that the cable is routed properly to minimize its potential as a trip hazard.



Snubbers have been added to various electrical sub-systems in order to eliminate scanner image problems.

The entire electrical system is installed in conformance with the National Electric Code.

The system is completely installed in the factory. Service access is gained through the underbody compartments of the mobile unit with thin wall conduit and/or wire-mold sized to accept the required service entrance conductors used throughout the mobile unit.

All required tags, labels and rating nameplates are permanently installed in their proper locations before the mobile unit leaves the factory.

There are three panels used in the electrical system.

- One 480V AC electrical panel that is located in the Equipment Room of the mobile unit. This panel is responsible for the distribution of all incoming power.
- One 120 / 208V AC electrical panel that is located in Equipment Room of the mobile unit. This panel is responsible for the components aboard the mobile unit.
- One A1 Panel used for distribution of power to the medical system.

## **7.1 120/208V AC Electrical Panel**

The 120/208V AC electrical panel is responsible for the power supplies to the equipment aboard the mobile unit. If a problem exists with the equipment, or the power supply to them, a circuit breaker will trip in order to prevent damage. On the inside of the panel access door, a listing of all the circuit breakers can be found.



**Figure 35: 120/208V AC Electrical Panel**

## 7.2 480V AC Electrical Panel



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.

The 480V AC electrical panel is responsible for all incoming exterior power supplied to the mobile unit. If a problem exists with the equipment, a circuit breaker will trip in order to prevent damage. On the inside of the panel access door, a listing of all the circuit breakers can be found.



**Figure 36: 480V AC Electrical Panel**

## 7.3 A1 Electrical Panel



Used for distribution and control of power to the medical system.

## 7.4 Facility Power Connection

Although the shore power connection is not an actual physical feature of the mobile unit, it is an integral part of the daily operations.

Circuit Breaker	
Manufacturer:	Facility provided
Ampere Rating:	150 A disconnect

Receptacle	
Manufacturer:	Russellstoll
Model:	DF 2504 FRAB0
Ampere Rating:	200 A

An optional facility receptacle is Crouse Hinds # AR2041.

NOTE: The optional Crouse Hinds facility receptacle IS NOT compatible with the Russellstoll plug and vice versa.



**Figure 38: Shore Power Connection**

Advanced Mobility Specialty Vehicles Connector:	The plug that is provided by Advanced Mobility Specialty Vehicles for connection to the shore power receptacle.
Connector Lock Ring:	Secures the connections.
Power Cable:	The cable that runs between the shore power connections and the 480V AC electrical panel.
Shore Power Disconnect:	The shore power disconnect terminates the power to the receptacle. This must be in the "OFF" position when connecting to the receptacle.
Shore Power Receptacle Outlet:	The receptacle outlet that the shore facility has installed for use with the Advanced Mobility Specialty Vehicles connector and power cable.
Shore Power Unit:	The complete shore power assembly.

### **7.5 Power Cable**

Descriptions:	Specifications
Service Amps:	150 A
Plug:	Russellstoll; DS 2504 MP000/DF2032, 600V AC, 200 A
5 Wire:	5 pole
Cord:	P-116 MSHA, 200 A, a #1/0 4 conductor type W, 600V – 2000V, 90° C, 45'-0" long

An optional power plug to mate with the Crouse Hinds receptacle is Crouse Hinds # AP20457.

NOTE: The Russellstoll plug IS NOT compatible with the optional Crouse Hinds facility receptacle and vice versa.



**Figure 39: Power Cable**



The Power Cable could present a trip hazard that could result in personal injury. Care should be taken to ensure that the cable is routed properly to minimize its potential as a trip hazard.

## 7.6 Special Grounding Note

The unit must have an earth driven ground rod within five (5) feet of the hospitable power receptacle. A grounding cable of a minimum #1/0 AWG must be connected between the grounding rod and the grounding pin of the hospital power receptacle. If required by local codes, another cable to be kept as short as possible may also be connected between the ground stud on the Incoming Power Distribution Panel and an earth driven ground rod.



[Figure 40: Power Supply Control Panel Ground Connection](#)

## Section 8: Generator



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



Always make sure that eyes are protected while servicing the unit. Wear safety goggles when prying, drilling, grinding, or working with batteries. Wear safety goggles over regular prescription glasses unless the lenses are made of hardened glass and can serve as safety goggles.



Be certain to disconnect the power before working on any of the electrical systems.



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the "OFF" position. Failure to do this can result in injury or death to the operator of the mobile unit.



It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



When switching from generator power to shore power the red "480V AC FAULT" may illuminate and flicker. If the red "480V AC FAULT" stays illuminated, reconnect to generator power and call a certified electrician before attempting to reconnect to shore power.



When turning the power selector switch from one position to another, the selector must be paused for a minimum of five seconds between selections. Failure to do so can result in damage to the equipment.



Always inspect the power cable, connectors, and fasteners prior to usage. If during inspection, it is suspected that either internal or external damage has occurred, have a certified electrician inspect and repair the damage before using.



The medical system requires the HVAC system to be supplied power at all times. Generator power is used while the mobile unit is being transported, and shore power must be used while the mobile unit is in the parked position.



When servicing the unit be certain that a first aid kit and fire extinguisher are within reach at all times.

The mobile unit is equipped with a generator that is mounted on the front of the unit in its own housing compartment. The generator supplies power to the unit during transport. The generator cannot be used for performing medical procedures aboard the mobile unit. The power selector switch is located on the power supply control panel. The control panel can be found in the lower compartment.

NOTE: If shore power is unavailable, medical procedures cannot take place.

For Service information, refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual.



**Figure 41: Generator**

- 120V AC Power Outlet:** An additional outlet has been provided for the operator of the mobile unit to be used if needed.
- Air Filter:** The air filter is responsible for removing all contaminants from the generators air supply.
- Battery:** The battery is used to start the generator.
- Fuel Filter:** The fuel filter is responsible for removing all contaminants from the fuel supply.
- Fuel Pump:** Supplies the generator with fuel from the fuel tank.
- Generator Motor:** The actual motor of the generator.
- Microcomputer:** The microcomputer provides the operator with information that is needed for service purposes.
- Oil Filter:** The oil filter is responsible for removing all contaminants form the oil supply.



## **8.1 Automatic Transfer Switch (ATS) Panel (underbody)**



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



The ATS will automatically transfer to Shore Power when connected to a viable power supply and shut down the generator unit. In the event of a Shore Power fault, the ATS will automatically start the generator unit and transfer power to the generator.

The Automatic Transfer Switch is the 480V AC electrical panel that controls all incoming power to the mobile unit. From this location, the appropriate power supply is chosen and shore power monitored.

## **8.2 480V AC FAULT Indicator Light**

This indicator light is located on the power supply control panel. The control panel can be found in the interior of the mobile unit inside of a cabinet. The “480V AC FAULT” indicator light will illuminate if the incoming power source is experiencing any of the following problems:

- The power to the mobile unit is out of phase.
- The power to the mobile unit is subject to low voltage.
- The power of the mobile unit has one or more phase leg problems.
- If the “480V AC FAULT” indicator light illuminates, please refer to [Appendix B: Troubleshooting](#).

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## Section 9: HVAC System



The HVAC system is critical to the operation and life of the medical system. The medical system operates within strict specifications regarding temperature and humidity. All aspects of the HVAC system such as damper settings, venting, component set points, and sensor placement are adjusted for optimum operation. Under no circumstances should these settings be altered.



The Siemens medical system requires the HVAC system to be supplied power at all times when the unit is in the parked position via shore power.



**Figure 42: A/C Unit**

Located in the illustration above, the following can be seen.

Combination A/C and Chiller Unit      This A/C unit maintains the environments in Scan Room, Magnet Room, Control Room and Equipment Room. The Chiller supplies chilled liquid to the magnet shield cooler compressor.

## **9.1 Air Conditioning & Chiller**

A common unit supplies air conditioning and chilled liquid. Discharging conditioned air into the equipment room at a steady temperature provides air conditioning. This air is then drawn from the equipment room and distributed to the balance of the mobile unit by two ceiling mounted blowers. The right side blower supplies air to the equipment room and the left side blower supplies air to the control room, scan room, and behind the magnet. If necessary, the air is heated by an in-duct heater prior to discharge. Sensing bulbs located in the return-air stream control the heaters, and a sensor in the equipment room controls the A/C unit.

Chilled liquid is supplied to the magnet shield cooler compressor and the heat exchanger through a common circuit. The reservoir tank and pump are located inside the A/C-Chiller unit, on the right side. The level can be checked and adjusted through the service door in the interior cover panel. The coolant mixture varies depending on the air conditioning system installed. Refer to the Northern Air Service information provided in the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual.



**Figure 43: A/C / Chiller Control Panel**

The A/C-Chiller's main control panel is located on the front wall of the equipment room. This panel is used to control the operation, temperature settings and display fault lights. Refer to the manufacturer's manual for information on fault lights.

The factory settings provide the proper environment for the MR system, and should not be adjusted.

A remote digital display and alarm panel is located in the control room at the operator's workstation. This panel provides a digital display of the operating condition of the HVAC System and has an audible warning signal for notification of an A/C-Chiller fault. The switch on the panel can be used to silence the audible alarm. In the event of a fault, the digital display panel provides specific fault information.



**Figure 44: HVAC Monitor and Alarm Panel**

In order to ensure proper operation of the HVAC system at all times, refer to [Section 14: General Maintenance](#) and [Section 15: Specific Maintenance](#).

## **9.2 System Specifications and Descriptions**

The HVAC system utilizes forced air.

The HVAC utilizes electricity as the source of power.

Heat producing appliances must be approved by Underwriters Laboratories, Inc. (U.L) and installed in accordance with the terms on their listings.

Air conditioning and heating registers are installed in accordance with the approved plans.

All warning and identification labels as required are installed at the factory.

All aspects of the HVAC system such as damper settings, venting, component set points, and sensor placement are adjusted for optimum operation. Under no circumstances should these settings be altered.

The air conditioning ductwork is lined with a sound absorbent material for reduced noise and operator and patient comfort.

## **9.3 Exterior HVAC Specifications**

The HVAC system is designed to work within certain limitations. The ambient exterior temperatures must be within the range of -25°F to 120°F.

## 9.4 HVAC Humidifier System



All settings for the humidity system are preset at the factory. Under no circumstances should factory presets be altered.



Proper humidity levels must be maintained to protect sensitive electronic equipment.

The humidifier is responsible for maintaining the humidity levels within the mobile unit. The settings for the humidifier are set to meet the medical system manufacturer's specifications. Under no circumstances should the settings of the humidifier be altered. In order for the humidifier to function properly, the water tank level must be maintained at all times.



**Figure 45: Humidifier Water Tank**

- |                      |   |
|----------------------|---|
| Exterior Fill:       | The exterior fill connection must be used to allow the mobile unit water supply tank to be filled.  |
| Humidifier:          | The humidifier is integral to the HVAC system and provides the required humidity to the mobile unit per the medical manufacturer's requirements.                                      |
| Humidity Controller: | The internal humidity of the mobile unit is controlled as part of the HVAC system. The setting is preset at the factory to comply with the medical system manufacturers requirements. |
| Humidity Sensor:     | Maintains an accurate reading of the humidity levels inside of the mobile unit.   |
| Overflow Drains:     | If by chance the water tank is over filled, overflow drains are provided. The drains lead through the floor to the exterior of the mobile unit.                                       |
| Water Supply Tank:   | The water tank stores water for the humidifier.   |

## **9.5 System Operation**

The humidifier system is capable of producing up to 12 pounds of steam per hour, at 15 amps. A sensor continually monitors the interior of the mobile unit for relative humidity. This sensor is located in the HVAC return duct and is programmed to keep the relative humidity at 40%. If the humidity drops below the set point, the humidifier is signaled to emit more steam. The humidifier creates steam when electrodes in the steam cylinder of the humidifier vaporize the supplied water.

The steam then travels through a hose to a distribution pipe located in the return air duct of the HVAC system. Since the steam is injected into the return duct of the HVAC system, both A/C units are supplied with humidified air for distribution throughout the interior of the mobile unit. An air pressure switch is located in the HVAC discharge duct that is interlocked to the humidifier.

If for any reason the airflow is disrupted, the humidifier will shut down. When the sensor detects that relative humidity has been reached, a signal is sent to the humidifier to stop it from creating more steam.

If the humidity inside of the mobile unit becomes too high or too low, the "Humidity Warning" light will illuminate on the system panel. If this happens, please refer to [Appendix B: Troubleshooting](#) of this manual.

## **9.6 Water Supply**

Water is supplied to the humidifier by means of an onboard water supply tank. The water supply tank can be filled from the outside of the mobile unit. Plumbing connections at the humidifier are as follows:

- A 3/4" G.H.T. male threaded hose connection is located on the front left hand side of the mobile unit.
- One 0.5" outer diameter PVC drain line from the steam cylinder for automatic drain cycles. The drain penetrates the floor of the mobile unit in order to empty to the exterior.
- One 0.5" outer diameter PVC drain line from the humidifier cabinet. The drain penetrates the floor of the mobile unit in order to empty to the exterior.
- One 0.5" outer diameter PVC overflow drain from the water supply tank. The drain penetrates the floor of the mobile unit in order to empty to the exterior.



**Figure 46: Humidifier External Water Connection**

## **9.7 Humidity Settings**



All settings for the humidity system are preset at the factory. Under no circumstances should factory presets be altered.

- The humidity low set point is 30% RH (relative humidity).
- The humidity high set point is 60% RH (relative humidity).

## **9.8 Electrical Connections**

Electrical connections at the humidifier are located on a terminal rail behind the cover of the humidifier.

The distribution panel supplies the required 480V AC power via a 15 amp, 3-phase breaker.

A humidistat is connected to the humidifier via a controlling transformer cable. The connection at the humidifier is on the #1 and #2 terminations on control terminal block.

## **9.9 Instructions**

The HVAC system along with the humidifier is set to the required settings per the medical equipment manufacturers' specifications before leaving the factory. Under no circumstances should the settings be altered from their factory specifications.

For additional information, refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual.



## **9.10 Interior HVAC Specifications**

A single air conditioning unit is mounted high on the front wall of the trailer. The size of the unit is dependent upon the system level. Refer to the Northern Air Service information provided in the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual.

The condensing coils are directed up to prevent damage during transport. All internal components are commercial grade, and are vibration isolated from the system housing. The system housing is mounted as an integral part of the front wall to prevent water leakage.

Discharge temperature in the scan and control rooms is controlled to reduce temperature fluctuations.

The HVAC filters are located in the Equipment Room in the overhead ductwork and can be accessed as shown below.



HVAC Vents Discharge



HVAC Filter Access

**Figure 47: HVAC Components**

## **9.11 Underbody Compartment Heater**

The compartment heaters are located in the lower compartments. The other is in the front compartment both are accessed from the passenger side. These heaters each provide 1.5KW of heat.

The compartment heaters will activate when the temperature drops below 40°F and will deactivate when the temperature rises above approximately 45°F.

An optional cold weather kit is also available. This kit is designed for mobile units that endure cold weather climates. It includes an additional compartment heater installed in the fuel compartment, and additional foam insulation sprayed on the underbody of the mobile unit.



**Figure 48: Heater**

## Section 10: Hydraulic Platform Lift

The mobile unit contains a hydraulic platform lift that is used to move personnel and equipment from the ground level to the floor level of the mobile unit. The hydraulic platform lift has a maximum capacity of 2000 and a maximum height of 53”.

In the illustrations below, the hydraulic platform lift can be seen in various stages.

These pictures are meant to represent the hydraulic platform lift in different stages and not to accurately reflect the current design of the mobile unit.



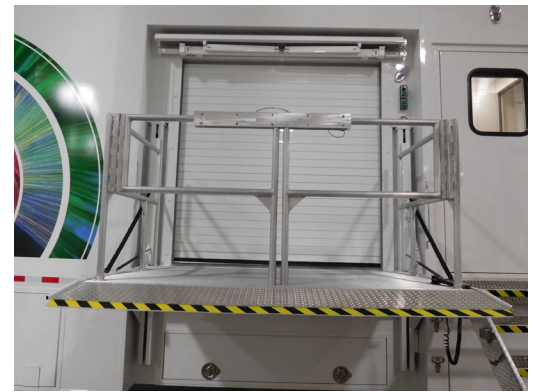
Transport Position



Lowered



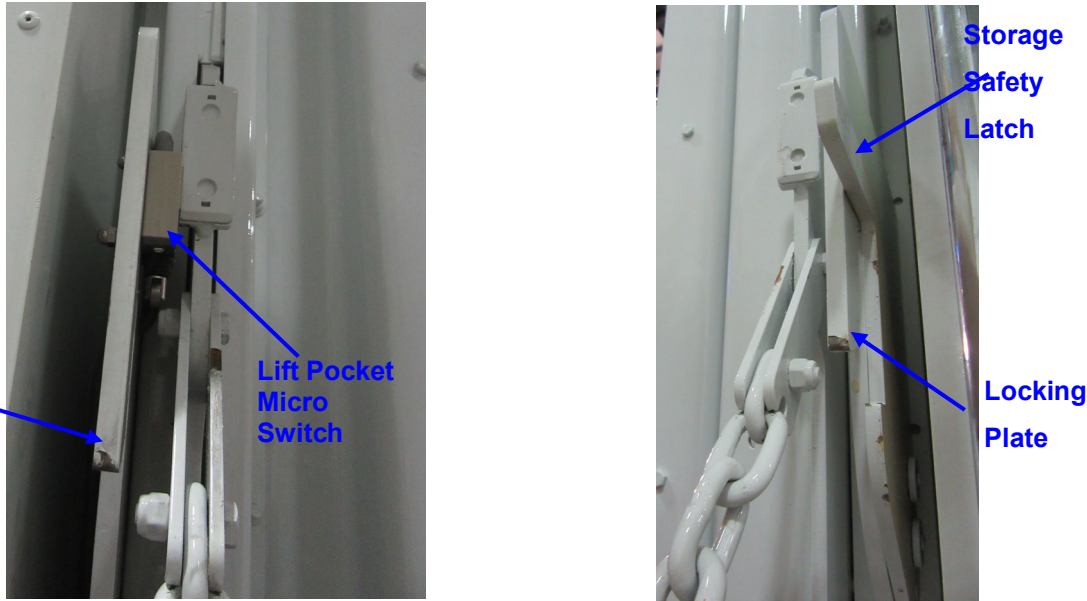
Handrails Installed



Raised

**Figure 49: Hydraulic Platform Lift**

In the following illustrations, the lift pocket micro switch can be seen. The micro switches are connected in series to a Control Relay (CR#). If CR# is not energized the transport warning light will illuminate and a strobe light will flash if emergency air is connected to the trailer. These devices are used to notify the operator of the hydraulic platform lift status during transport. CR# also removes power from the lift hydraulic system when all three micro switches are actuated.



**Figure 50: Locking Plates**

## **10.1 Safety Features**

The hydraulic platform lift has several built in safety features that are designed to provide worry free operation and transportation.

### **10.1.1 Lift Controls**

The hydraulic platform lift controls are located on the exterior of the mobile unit next to the roll door. The lift controls, including the remote control pendants, operate with open contacts. This means that in order for the hydraulic platform lift to be moved upwards or downwards, the control must be held in the desired position.

### **10.1.2 Handrails**

The hydraulic platform lift is supplied with handrails designed to provide an additional margin of safety for personnel being raised or lowered by the lift. The handrails must be installed and properly latched in place prior to raising or lowering personnel on the lift.



**It is the Operator's responsibility to ensure that the handrails are properly installed and latched in place prior to raising or lowering personnel on the lift. Failure to do so could result in serious personal injury or death.**

### **10.1.3 Lift Up Indicator Light**

On the control panel located inside of the mobile unit, a separate set of controls can be found to operate the roll door. On this panel is a small green indicator light. When the lift is in the raised position the indicator light will illuminate.



It is the Operator's responsibility to ensure that the roll door is not opened unless the lift is in the raised position. Failure to do so could result in serious personal injury or death.

The roll door should not be opened unless this light is on. This light is designed to prevent the operator or other personnel from inadvertently stepping out of the roll door when the hydraulic platform lift is not raised.

#### **10.1.4 Remote Control Pendant**

Two remote control pendants are included for use with the hydraulic platform lift. One pendant plugs into a jack located between the staff entry door and the hydraulic platform lift roll door behind the lift control panel. The other is hard wired and is located behind the lower compartment door rearward of the lift. The pendants have expandable cords that allow the operator to be on or near the hydraulic platform lift while it is in operation. The remote control pendants work off the 12V DC power system. **Note:** *For operator safety, the removable control pendant only has Up/Down capabilities. For deploying and stowing the platform the hard wired pendant must be used.*

#### **10.1.5 Transport Warning Light**



If the Transport Warning Light is on, the mobile unit must not be moved. If the mobile unit is moved while this light is on, irreparable damage to the mobile unit, serious injury or death can occur.

The Transport Warning Light is located on the exterior left side of the mobile unit and will illuminate when the hydraulic platform lift is not in the proper transport position or if the Generator Vibration Isolation Mounts are unlatched. It is the Operator's responsibility to ensure that the Transport Warning Light is functioning properly and that the bulb element is in working order.

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

### 10.1.6 Transport Warning Strobe Light



If the Transport Warning Strobe Light is flashing the mobile unit must not be moved. If the mobile unit is moved while this light is flashing, irreparable damage to the mobile unit, serious personal injury or death can occur.

The Transport Warning Strobe Light is located on the exterior left side of the mobile unit and will illuminate when the hydraulic platform lift is not in the proper transport position. It is the Operator's responsibility to ensure that the Transport Warning Light is functioning properly and that the bulb element is in working order.

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

### 10.1.7 Lift Transport Restraining Cable

The lift Transport Restraining Cable, when installed and connected securely, is designed to provide a stop gap measure to prevent the lift from falling to the horizontal position should the lift be improperly stowed.

## 10.2 Hydraulic System

An internal hydraulic cylinder controls the movement of the hydraulic platform lift. The cylinder is located in the compartment below the roll door.

### 10.2.1 Operation

When the "UP" function has been selected for the hydraulic platform lift, the pump is activated and fluid is moved from the reservoir through the valve block to the hydraulic cylinder. This causes the lift to move upward. When the "DOWN" function has been selected for the hydraulic platform lift, the pump is not activated, but the fluid is moved from the hydraulic cylinder through the valve block to the reservoir. This causes the hydraulic platform lift to descend.

### **10.3 Hydraulic Platform Lift Operation**

The hydraulic platform lift can be operated with the remote control pendant or the exterior lift controls. The lift can be raised or lowered with these controls. In order to deploy the hydraulic platform lift when setting up the mobile unit, or to place the hydraulic platform lift in its storage position for transporting the mobile unit, refer to the steps outlined below. This same information can also be found under the setup and transport procedures for the mobile unit.

#### **10.3.1 Deploying the Hydraulic Platform Lift for use with the Mobile Unit**

After the stair assembly has been installed, the hydraulic platform lift can be deployed for use.

1. Open the underbody compartment doors.
2. Remove the handrails and lift pendant, and place them to the side for now.
3. Close the underbody compartment door.
4. Located next to the roll door, are the controls for the hydraulic platform lift. Insert the connector from the lift control pendant into the receptacle that is located on this control panel. **Note:** *For operator safety, this control pendant only has Up/Down capabilities. For deploying and stowing the platform the hard wired pendant must be used. It is located behind the compartment door rearward of the platform lift.*
5. Clear the platform sliding path by moving the storage safety latch manually. Hold the safety latch down manually with one hand and press the **Down** button on the control with the other hand until the platform locking ears clear the safety latch. Release the safety latch back to its original place.
6. Open the platform by pressing and holding the **Shift** and **Down** buttons simultaneously. **NEVER STAND DIRECTLY UNDER THE PLATFORM!** Press and hold the down button to lower the platform complete to the ground.
7. Once the platform has been lowered, install the handrails and secure them with the hardware provided.

#### **10.3.2 Storing the Hydraulic Platform Lift for Transport of the Mobile Unit**

1. Lower the hydraulic platform lift to the ground.
2. Remove the restraining hardware and handrails and temporarily place them to the side.
3. Raise the lift to above the saddle height and fold the lift upwards to a vertical position. gas shocks are located on top of the hydraulic platform lift that will enable one person to move the lift into the transport position.
4. Lower the lift so that it rests securely in the retaining cradles. Make sure that the micro switch is actuated.
5. Insert the transport pins into their transport positions. Make sure that the micro switches are actuated.
6. Remove the remote control pendant from the socket and lock the access door to the hydraulic platform lift controls.
7. Open the underbody compartment door and store the remote control pendant and handrail assembly in the underbody storage compartment.





## Section 11: Intrusion Alarm (optional)

An optional intrusion alarm is available for the mobile unit. This alarm is designed to divert would be intruders from theft, vandalism, or unauthorized entrance of the mobile unit.



**Figure 51: Intrusion Alarm Keypad**

### 11.1 Operation

The alarm is operated via a keypad located by the staff door. When entering the mobile unit, the operator keys in a code to deactivate the alarm. When leaving the mobile unit, the operator keys in a code to activate the alarm. If either the staff entry door or the compartment doors are opened while the alarm is activated, a siren will sound.

For additional information, please refer to the OEM supplied literature. The literature can be found in the Advanced Mobility Specialty Vehicles VOL II Vendor Information binders that have been included with the mobile unit.

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## Section 12: Landing / Stabilizing Legs



Under no circumstances should the stabilizing legs and the rear air suspension be used to lift the mobile unit from the ground. If any attempt is made to raise the unit from the ground using the only the stabilizing legs and the rear air suspension, serious damage can occur to the suspension system of the mobile unit.

Both the stabilizing legs and the auxiliary support legs can be found at the front of the unit. The stabilizing legs installed on this mobile unit are only for the purpose of parking and stabilizing the mobile unit. For additional information, please refer to the OEM supplied literature. The literature can be found in the product information binders that have been included with the mobile unit.



**Figure 52: Landing / Stabilizing Leg Assembly**

Stabilizing Leg Controls:	The leg controls.
Stabilizing Leg:	Allows the mobile unit to be parked without the tractor being attached to the unit.
Lever: Front Right	Controls the Front right side leg.
Lever: Front Left	Controls the Front left side leg.
Pump ON / OFF Switch	The switch must be held in the ON position when extending or retracting the legs.
Auxiliary Support Legs:	The auxiliary support legs provide a fixed leg for use as a backup in case the stabilizing legs fail.
Sand Shoe:	Helps prevent the stabilizing legs from sinking due to weight.

## **12.1 Stabilizing Stands**

The stabilizing stands are inserted beneath the rear supports of the mobile unit, and allow the mobile unit to be stabilized for all medical procedures. The stands are stored in the rearmost underbody compartments. When in use, the stands must be centered underneath the rear supports of the mobile unit. See [Figure 19: Stabilizing Stands](#).

## **12.2 Rear Air Suspension System Controls**



If the rear air suspension is not functioning properly the mobile unit must not be moved. If the mobile unit is moved, irreparable damage can occur to the medical system and the mobile unit itself.

**RAISE:** (to install Stands)

When the switch is in the “ON” position and the lever is in the “UP” position, the rear air suspension will inflate and raise the rear of the unit. This must be done to insert the stabilizing stands.

**DEFLATE:** (For Set up only)

When the switch is in the “ON” position, and the lever is in the “DOWN” position, the rear air suspension will deflate and the mobile unit will lower. Prior to placing the selector in this position, the rear stabilizing stands must be inserted.

**NORMAL RIDE:** (For Transport)

When the switch is in the “OFF” position, and the lever is in the “DOWN” position, the rear suspension will inflate and the mobile unit will automatically rise to transport height. Failure to turn the selector to the “OFF” position with the lever in the “DOWN” position, prior to transporting the mobile unit, can cause irreparable damage to both the mobile unit and medical system.



**Figure 53: Air Bag Controls**

## Section 13: Lighting System

The lighting provided for the mobile unit can be divided into either interior lighting, or exterior lighting. Listed below are descriptions of the provided lighting.

### 13.1 Emergency Lighting

In the event that the main AC power fails, an emergency light is provided. This light will automatically illuminate when the main AC power is lost. It is located in the Control Room. The emergency lighting system is wired into a 120V AC electrical system that allows the light's internal circuitry to keep its batteries at 100% charge. The emergency light will illuminate the exit door and last for approximately 90 minutes.



[Figure 54: Emergency Dual Beam Lighting](#)

## **13.2 Exterior Lighting**

**IMPORTANT** All warning lights are located on the driver's side of the mobile unit.

The exterior lighting system can be divided as follows. For additional information of the warning lights, please refer to Appendix B: Troubleshooting.

### **13.2.1 Underbody Compartment Lighting**

Located inside of the underbody compartments there are wall mounted halogen lights connected to timers. The timers allow the lights to be set for up to 30 minutes before automatically turning off. There is one light provided on each side of the underbody.



**Figure 55: Compartment Light**

In addition, since the fuel compartment is sealed off from the others, a push button dome light can be included in this compartment.

### **13.2.2 Service Lighting Optional**



**Figure 56: Drop Light**

A cord-o-matic drop light with a 50'-0" cable is optional with the mobile unit. The droplight aboard the mobile unit can be found in Equipment Room. The light is generally used during service applications when additional light is required. The light is plugged into a nearby miscellaneous 120V AC outlet.

### **13.2.3 Staff Door Lighting**

An exterior light is located in between the roll door and staff door above the hydraulic platform lift controls and above the staff door. This provides for additional illumination of the hydraulic platform lift and the stairs when the facility provided lighting is insufficient. The switch for this light is located inside of the mobile unit on the raceway next to the staff door.



**Figure 57: Staff Door Lighting**

### 13.2.4 Scene Lighting

Three exterior lights located on the unit above the roll door, on the rear left side and right side for backing up the trailer.



Right side LED Lighting



Rear Backup Lights



### **13.2.5 Marker & Running Lights**

When the mobile unit is in transit, federal law requires specific illumination characteristics. The mobile unit meets and exceeds these standards as outlined in Motor Vehicle Safety Standards Guide, Federal Safety Standard No. 108-4.

All lights are 12V DC, and are powered by the tractor. All wiring is run through the underbody wire harnesses. The top marker lights are wired through a 0.5" loom pipe that is run through the sidewalls of the mobile unit. The wires terminate at the glad-hands which are located in the front of the mobile unit for tractor hookup. Two electrical connections are supplied on the glad-hands, one six terminal connection and one seven terminal connection.

### **13.3 Interior Lighting**

The interior lighting system can be divided as follows.

#### **13.3.1 Equipment Room**

The light controls for the lighting in Equipment Room are located just inside the Staff Entry door to that leads into Control Room. Recessed light fixtures are located in the ceiling panels and have been strategically placed for effective illumination of the equipment both during operation and while being service.



**Figure 589: Equipment Room Lighting**

### 13.3.2 Control Room

The lighting systems in the Control Room are as follows.

Three switches are used located next to the staff door. 1) Control Room LED lighting High/Low, Equipment Room LED Lights, and Exterior Entry LED lighting.



**Figure 60: Control Room Lighting**

### 13.3.3 Scan Room

There are three different switches for lighting for Magnet Room. The switches are as follows.

Three switches located near the work countertop on driver's side wall.

The top switch controls the LED light behind the Magnet. The switch in the middle controls the Scan Room lights this switch has high/low beam capabilities. The optional dimmable rocker switch on the bottom controls the sky light.



**Figure 61: Scan Room Lighting**

### 13.3.4 Magnet Room



Magnet Room Lighting

There are two LED light fixtures located in Magnet Room. This light is for illuminating the rear of the magnet. The switch located at the entrance of the Scan Room on raceway.

**Figure 62: Scan Room / Magnet Room Lighting and Switches**

## **13.4 Warning Lights**



**Figure 63: Warning Lights**

Warning lights have been installed on the exterior left side of the mobile unit in order to provide the operator and technician of the status of the mobile unit at all times during transit or while in the parked position. A description of each of the warning lights and their location can be found below. If any of the warning lights are illuminated, please refer to Appendix B: Troubleshooting for additional information.

### **13.4.1 Power Warning Light**



The Siemens medical system requires the HVAC system to be supplied power at all times when the unit is in the parked position via shore power.

The Power Warning Light is located on the exterior left side of the mobile unit and will illuminate when the mobile unit is receiving power. When it is not illuminated, it signifies to the operator that power is not applied to the system. A qualified electrician should be called immediately to look at the electrical system. Refer to Appendix B: Troubleshooting for more information.

### **13.4.2 Transport Warning Light**



If the Transport Warning Light is on, the mobile unit must not be moved. If the mobile unit is moved while this light is on, irreparable damage to the mobile unit, serious injury or death can occur.

The Transport Warning Light is located on the exterior left side of the mobile unit and will illuminate when the hydraulic platform lift is not in the proper transport position. It is the Operator's responsibility to ensure that the Transport Warning Light is functioning properly and that the bulb element is in working order. Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

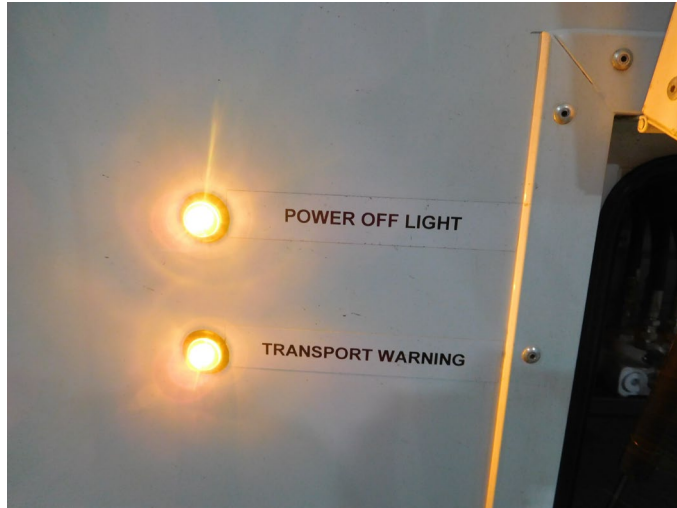
### **13.4.3 Medical Transport Warning Light**



If the Medical Transport Warning Light is on the mobile unit must not be moved. If the mobile unit is moved while this light is on, damage to the medical system can occur.

The Medical Transport Warning Light is located on the exterior left side of the mobile unit and will illuminate when the air bladder system has been deflated. The light should be off before transporting the mobile unit. It is the Operator's responsibility to ensure that the Transport Warning Light is functioning properly and that the bulb element is in working order.

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.



**Figure 594: Lift Transport Warning**

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## Section 14: General Maintenance



Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative. If a malfunction of any safety device is discovered to exist, **DO NOT** operate the vehicle, but immediately notify appropriate maintenance personnel.



Use and follow the appropriate Lockout/Tagout procedures as required by OSHA Standard 1910.147 when performing maintenance or servicing any electrical, hydraulic or pneumatic systems. See Appendix E for Lockout/Tagout procedures.



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



Always make sure that eyes are protected while servicing the unit. Wear safety goggles when prying, drilling, grinding, or working with batteries. Wear safety goggles over regular prescription glasses unless the lenses are made of hardened glass and can serve as safety goggles.



Be certain to disconnect the power before working on any of the electrical systems.



When servicing the unit be certain that a first aid kit and fire extinguisher are within reach at all times.

### 14.1 Daily Maintenance

1. Water tanks should be checked for proper water levels.
2. Fuel tank should be checked for proper fuel levels.
3. During cold weather, verify that all underbody heaters are operational.
4. Keep the air intake grills on the computer cabinets for the medical system free and clear of obstructions.
5. Keep the A/C grills clean and free of debris.
6. Check and verify that no warning lights are illuminated.
7. Inspect the quench vent outlet, on the rear of the trailer, for any obstructions or blockages.

## **14.2 Weekly Maintenance**

1. Clean RF door trim with a mild cleaning solvent and wipe with a clean cloth.
2. Lubricate the hydraulic platform lift side rails and pivot points with an ample amount of ZEP 2000, AMST Part Number 6100811.
3. Check the primary and downstream blower A/C filters. Clean and replace if necessary. A/C must be "OFF" to check and replace filters. Refer to Figure 47: HVAC Components for location.
4. Check the oil and water levels in the generator and refill if necessary.
5. Check the electrolyte levels in the DC batteries and fill if necessary using only distilled water.
6. Check all running lights, marker lights, brake lights, and turn signals.
7. Check tire pressure and verify that all wheels are at the pressure specified by the tire manufacturer.
8. Check the fluid level in the hydraulic reservoir using the site glass. Add fluid if necessary. Use only AWF all weather fluid Automatic Transmission Fluid.

## **14.3 Monthly Maintenance**

1. Lubricate the side rails of the roll door with Mobil – Mobilith AW2 heavy-duty multipurpose industrial grease.
2. Lubricate all RF interlock switches.
3. Put a few drops of 20W oil, or similar graphite oil, on the swivel pin of all door hinges. Only use dry graphite on key openings of all door locks.
4. Check the operation of the smoke detectors and vacuum internally.
5. Check the fire extinguisher gauges for safe charges.
6. Inspect the power cables for any damage.
7. Check the cable tie downs.
8. Check for cut, damaged, or loose wire connections.
9. Check and verify that all connector bolts are tight and secure.
10. A qualified A/C technician must check the A/C condensers every month. Refer to the Air Conditioning Owner's Manual for more information.
11. Lubricate the front landing / stabilizing legs.
12. Check the refrigerant level in the water chiller unit.
13. Have a qualified technician check wheel lug nuts with torque wrench and verify that all inner and outer wheels, both the front and rear, are tightened to 450-500 foot pounds. This must be done after every 500 miles of driving. In accordance with torque procedure, lugs and nuts must be installed dry. Do not use any type of lubricant.



#### **14.4 Quarterly Maintenance**

1. Have a qualified technician check wheel lug nuts with torque wrench and verify that all inner and outer wheels, both the front and rear, are tightened to 450-500 foot pounds. This must be done after every 500 miles of driving. In accordance with torque procedure, lugs and nuts must be installed dry. Do not use any type of lubricant.

A copy of your vehicles completed quarterly Preventive Maintenance Checklist may be required for warranty reimbursement. See Appendix G: Quarterly Maintenance Checklist .

Advanced Mobility Specialty Vehicle's Service department has certified technicians, genuine parts and the information technology needed for your assistance. Please call AMST service for your servicing needs.

Thank you for choosing Advanced Mobility Specialty Vehicles. If you have any questions call us toll free at 1-800-839-0630. We'll be happy to assist you!!

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## Section 15: Specific Maintenance



Electrical, mechanical, pneumatic, and hydraulic safety devices have been installed on this vehicle to help protect against personal injury and / or damage to equipment. Under no circumstances should any attempt be made to disconnect or in any way render any of these devices inoperative. If a malfunction of any safety device is discovered to exist, **DO NOT** operate the vehicle, but immediately notify appropriate maintenance personnel.



Use and follow the appropriate Lockout/Tagout procedures as required by OSHA Standard 1910.147 when performing maintenance or servicing any electrical, hydraulic or pneumatic systems. See Appendix E for Lockout/Tagout procedures.



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



Always make sure that eyes are protected while servicing the unit. Wear safety goggles when prying, drilling, grinding, or working with batteries. Wear safety goggles over regular prescription glasses unless the lenses are made of hardened glass and can serve as safety goggles.



Be certain to disconnect the power before working on any of the electrical systems.



The HVAC system is critical to the operation and life of the equipment. The medical equipment operates within strict limits regarding temperature and humidity. All aspects of the HVAC system such as baffling, venting, component set points, and sensor placement are adjusted for optimum operation. Under no circumstances should any aspect of the HVAC system be altered from factory specifications.



During seasons of low humidity, the humidifier will need to be filled more often.



Image quality can be impaired with improper door closer adjustment.



A power washer should never be used to clean the A/C units. Serious damage to the A/C coils may occur.



When servicing the unit be certain that a first aid kit and fire extinguisher are within reach at all times.

### 15.1 Door Closer Adjustments

The door closer must be adjusted so that the door does not slam shut. Refer to the door closer component sheet in the VOL II Vendor Information manual for proper adjustment. Adjust door closer as required to insure proper non-slamming door action.

## **15.2 Electrical System**

1. Inspect the power cables for any damage.
2. Check the cable tie downs.
3. Check for cut, damaged, or loose wire connections.
4. Check and verify that all connector bolts are tight and secure.

## **15.3 Cryogen Compressor**

The cryogen compressor is supplied by Siemens. For information regarding the cryogen compressor, please refer to the manuals supplied by Siemens.

## **15.4 Generator**

For generator maintenance, please refer to the three (3) CDs in the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

## **15.5 Humidity System**



During seasons of low humidity, the humidifier will need to be filled more often.

The fresh water tank supplies the humidifier with water. The water level must be maintained at all times. Follow the steps outlined below and please refer to [Figure 45: Humidifier Water Tank](#), and [Figure 46: Humidifier External Water Connection](#) if necessary.

1. Check the water tank to determine the water level.
2. Open the overflow valve.
3. Attach one end of a hose to the exterior water tank fill valve and the other end to the shore supply.
4. Turn on the water source to begin filling the tank.
5. After the water tank is full, turn off the water source.
6. Detach the hose at both ends and place in the underbody storage compartments.
7. Turn off the overflow control valve.

## **15.6 HVAC System**



The HVAC system is critical to the operation and life of the equipment. The medical equipment operates within strict limits regarding temperature and humidity. All aspects of the HVAC system such as baffling, venting, component set points, and sensor placement are adjusted for optimum operation. Under no circumstances should any aspect of the HVAC system be altered from factory specifications.

1. The HVAC system is designed specifically to maintain only the internal environment of the mobile unit. The HVAC system is not designed to handle areas outside of the mobile unit such as adjoining corridors or hallways.
2. It is important to be sure that the doors, partitions, and baffling are in the intended positions before running the medical system.
3. Do not attempt to store boxes, or any other items near computer system air inlets or in the aisles. Such actions will disrupt the intended airflow requirements.
4. A qualified A/C technician must check the A/C condensers every month. Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

## **15.7 Hydraulic Platform Lift**

Lubricate the hydraulic platform lift side rails and pivot points with an ample amount of ZEP 2000, AMST Part Number 6100811.

## **15.8 RF Shielding**

When the mobile unit leaves the factory, the RF room is certified at 85 db or better. Weekly checks are required to verify the integrity of the RF room. During the weekly check be sure to clean the RF door trim with a mild cleaning solvent and wipe with a clean cloth.



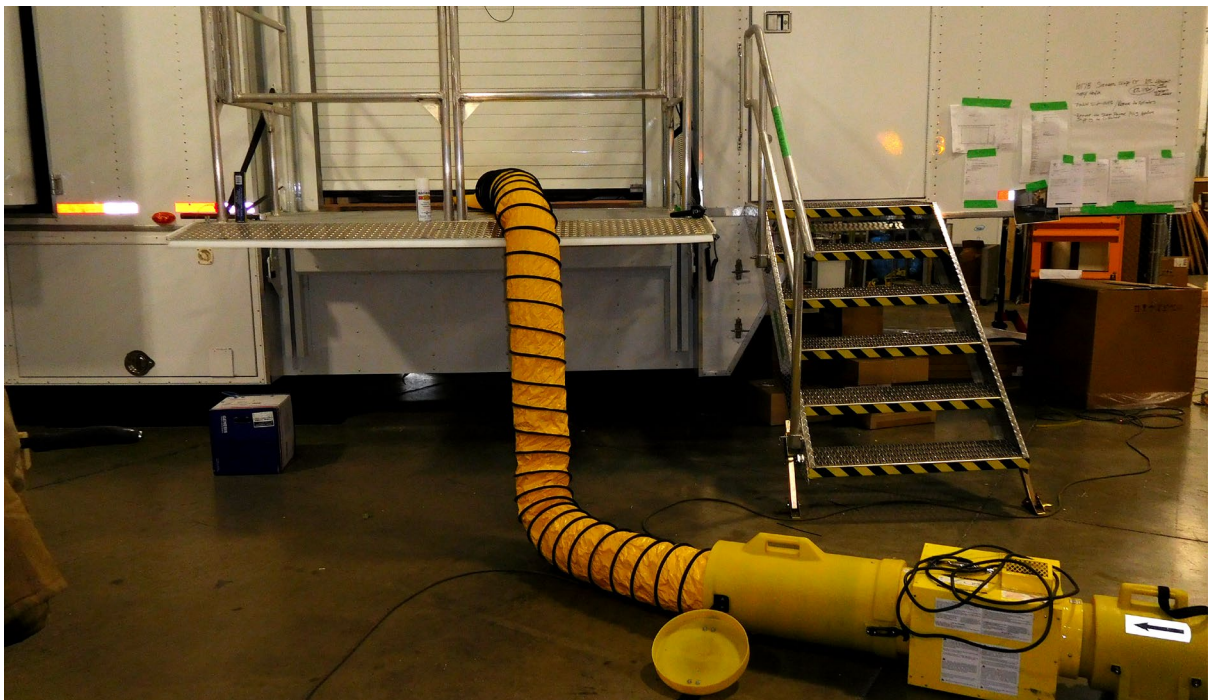
Close up of RF door trim

**Figure 605: RF Shielding**

## Section 16: Optional Accessories

### 16.1 Cold Weather Option

The cold weather option is an exterior heating element for the trailer. It is a four-part system consisting of the following: blower-exhauster-heater kit, manhole entry device, generator, and propane tank. Each component of this option will be stored in the lower compartment of the trailer. For all maintenance requirements of the cold weather option, refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manuals, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local representatives, or contact Advanced Mobility Specialty Vehicles for service.



**Figure 66: Cold Weather Option**

## Appendix A: Mobile Unit Checklist



It is the operator's responsibility to verify that the shore power receptacle is of the same type and voltage as the connection that is supplied by Advanced Mobility Specialty Vehicles. Failure to do this can result in injury or death to the operator of the mobile unit as well as irreparable damage to the mobile unit.



Before connecting or disconnecting from shore power, it is imperative that the shore power connections be moved to the "OFF" position. Failure to do this can result in injury or death to the operator of the mobile unit.



The Power Cable could present a trip hazard that could result in personal injury. Care should be taken to ensure that the cable is routed properly to minimize its potential as a trip hazard.



Make sure that all electrical parts are serviced only by a certified electrician or qualified personnel. Dangerous voltages are present which could result in injury or death.



Always make sure that eyes are protected while servicing the unit. Wear safety goggles when prying, drilling, grinding, or working with batteries. Wear safety goggles over regular prescription glasses unless the lenses are made of hardened glass and can serve as safety goggles.



Be certain to disconnect the power before working on any of the electrical systems.



The Siemens medical system requires the HVAC system to be supplied power at all times. During transit of the mobile unit via the generator and when the unit is in the parked position via shore power.



Always inspect the power cable, connectors, and fasteners prior to usage. If during inspection, it is suspected that either internal or external damage has occurred, have a certified electrician inspect and repair the damage before using.



When switching from generator power to shore power the yellow "480V AC Warning Light" may illuminate and flicker. If the yellow "480V AC Warning Light" stays illuminated, reconnect to generator power and call a certified electrician before attempting to reconnect to shore power.



The landing / stabilizing legs and rear suspension are not to be used to raise the mobile unit off the ground. The legs are meant only to level the unit and place it in a parked position. If the legs are used in an attempt to raise the mobile unit from the ground, serious damage may occur to the mobile unit.



Failure to completely exhaust the suspension before uncoupling the airlines may result in damage to the suspension of the mobile unit.



The rear stabilizing stands must be removed prior to the connecting the tractor to the mobile unit. Failure to do this can result in equipment damage



The air ride control valve must be in the normal ride position before the mobile unit can be transported. If the air ride control valves are not in the normal ride position, irreparable damage may occur to the mobile unit.





Before transporting the mobile unit, check to verify all warning lights as well as all exterior marker lights are working correctly.



When servicing the unit be certain that a first aid kit and fire extinguisher are within reach at all times.

### **Mobile Unit Setup Checklist**

1. Park the mobile unit on the pad per the site-planning guide.
2. **DO NOT** set the trailer brakes.
3. Lower the front landing / stabilizing legs. Set the trailer parking brake.
4. Disconnect the tractor while leaving the air and electrical lines engaged.
5. Release the trailer parking brake. Raise the rear of the mobile unit and install the rear stabilizing stands. Exhaust the rear suspension.
6. Re-level the mobile unit as needed. Use the front landing / stabilizing legs as well as the rear suspension as necessary. Set the trailer parking brake.
7. Disconnect the tractor air and electrical lines.
8. Lower the auxiliary support legs and insert the pins.
9. Install the stair assembly.
10. Remove the Lift Transport Restraining Cable and Transport Pins.
11. Deploy the hydraulic platform lift.
12. Verify that the shore power disconnect is in the “OFF” position and connect to the power cable to the shore power receptacle. Place the shore power disconnect in the “ON” position.
13. Move the power selector switch to the “Line” position and verify that the incoming power supply is good.
14. Move the Generator Stop / Start selector switch to the “Stop” position.
15. Connect the phone and data lines.
16. Connect the water supply and the waster water connections.
17. Remove all restraining hardware.
18. Prepare the medical system per OEM instructions.
19. Check for any warning lights.
20. Deploy the Roll Door Canopy, if equipped.

## **Mobile Unit Transport Checklist**

1. Retract the Canopy, if equipped.
2. Return the hydraulic platform lift to the transport position.
3. Insert the Transport Pins and connect the optional Lift Transport Restraining Cable securely in place.
4. Secure all medical equipment per OEM requirements. Make sure patient table is lowered onto support bracket and secured with straps. Air bladder pump needs to be switched to "AUTO" before transporting the unit.
5. Secure all equipment; this includes all moveable objects such as chairs, monitors, doors, cabinets, cameras, and printers. Close and lock the Scan Room door.
6. Move the Generator Stop / Start selector switch to the "Start" position. Allow the generator to run for approximately five (5) minutes.
7. Move the power selector switch to the "Generator" position.
8. Lock the Staff Entry door and remove and store the stair assembly.
9. Move the shore power disconnect to the "OFF" position and disconnect the power cable.
10. Disconnect the water supply and the wastewater connections.
11. Disconnect phone and data lines.
12. Raise the auxiliary support legs.
13. Connect the tractor air and electrical lines.
14. Raise the rear of the unit and remove the rear stabilizing stands and store them in the underbody compartment. **Return the air ride control switch and valve to the normal ride positions.**
15. Lower the landing / stabilizing legs enough to couple the tractor to the unit.
16. Connect the tractor to the mobile unit.
17. Raise the landing / stabilizing legs.
18. Verify that the mobile unit is ready for transport.
19. Are all exterior doors closed and locked?
20. Is the hydraulic platform lift in the transport position, fully seated in its retaining cradle?
21. Are all running & marker lights working correctly?
22. Are any warning lights flashing?
23. Is the fuel tank full?
24. Is the optional fire suppression system unarmed?
25. Verify that the air suspension system is fully inflated and at the proper ride height. The lowest point of the trailer sidewall should be approximately 15" above ground level.



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## Appendix B: Troubleshooting

If any of the following troubleshooting guides do not correct the problem, or if the problem worsens, please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

### Hydraulic Platform Lift is inoperable....

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

### AC Power Indicator Light is off

If the AC Power Indicator Light is "OFF" then the mobile unit is not receiving AC power. The mobile unit must have power at all times. If the mobile unit is on site, shore power must be connected.

If the mobile unit is being transported, then the vehicle must be stopped and the following items checked. Please refer to the product manual located in Volume II of the literature provided by Advanced Mobility Specialty Vehicles. Also located in the volume is a list of local service representatives. For any additional information, please contact Advanced Mobility Specialty Vehicles.

#### **Generator power is connected when the A/C power Off light is out:**

- |    |                                     |
|----|-------------------------------------|
| 1. | Verify that the fuel tank has fuel. |
|----|-------------------------------------|

### Transport Warning Light is on...



If the Transport Warning Light is on, the mobile unit must not be moved. If the mobile unit is moved while this light is on, irreparable damage to the mobile unit, serious injury or death can occur.

If the Transport Warning Light is illuminated, some part of the mobile unit is not ready for transport. Before the mobile unit can be transported, this light must be off. Please refer to the following table:

Problem:	Solution:
The hydraulic platform lift is not in the proper transport position.	1. Make sure that the hydraulic platform lift is seated in the cradles.
	2. Make certain that the transport pins have been inserted.
	3. If Emergency Air from the tractor is connected to the trailer, the Transport Warning Strobe light will also be activated. Ensure that #s 1 & 2 above have been accomplished.
Generator Vibration Isolation Mounts are not latched	1. Make sure that the Generator Vibration Isolation Mounts are latched.

### Suspension Transport Indicator Light is illuminated...



If the Suspension Transport Indicator Light is on, the mobile unit must not be moved. If the mobile unit is moved without the rear air suspension functioning properly, irreparable damage can occur to the mobile unit.

If the Suspension Transport Indicator Light is on, the rear air bags / suspension of the mobile unit are not ready for transport. This light must be off to move the mobile unit. Check the rear air bag suspension control switch. The switch must be in the "OFF" / normal ride position. This is the normal ride position. If the switch is in this position the unit will automatically adjust the rear suspension to the transport position.

If the switch is in the correct position and the light still appears a problem exists within the rear suspension. Please refer to the product manual located in Volume II of the literature provided by Advanced Mobility Specialty Vehicles. Also located in the volume is a list of local service representatives. For any additional information, please contact Advanced Mobility Specialty Vehicles.

### Humidity is out of specifications...

The humidity settings for the mobile unit are 30% RH to 60% RH (relative humidity). If the mobile unit is experiencing humidity levels outside of this range, either too low or too high, please refer to the following table.

<b>Problem</b>		<b>Check for:</b>	<b>Solution:</b>
The humidity inside of the mobile unit is too high.	1.	Check for exterior doors that have been left open during humid conditions.	The HVAC system can only support the environment of the mobile unit. Unless opened for use, all exterior doors should remain closed all of the time.
	2.	Check for blocked or dirty air vents and/or air conditioner filters.	Clean the air vents and/or change the air conditioner filters. After this has been done, check for any changes to the humidity levels.
	3.	Check to see if the humidifier is constantly running.	Verify that the humidifier is set between 30% and 60% RH (relative humidity). If the humidifier is still running constantly, contact Advanced Mobility Specialty Vehicles for service.
	4.	Check to see if the "ALARM" LED is illuminated.	If further information is needed, please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

Problem		Check for:	Solution:
The humidity inside of the mobile unit is too low.	1.	Check for open exterior doors left open during arid weather conditions.	The HVAC system can only support the environment of the mobile unit. Unless opened for use, all exterior doors should remain closed all of the time.
	2.	Check for blocked or dirty air vents and/or air conditioner filters.	Clean the air vents and/or change the air conditioner filters. After this has been done, check for any changes to the humidity levels.
	3.	Check to see if the A/C disconnect is in the "OFF" position.	Turn the A/C disconnect to the "ON" position.
	4.	Check the water levels of the water tank.	Fill the water tank to the specified limit.
	5.	Check to see if the humidifier disconnect is in the "ON" position.	Move the humidity disconnect to the "ON" position and verify that the humidifier is set between 30% and 60% RH (relative humidity). If the humidifier is running and the humidity level does not change, a problem exists within the humidity system. Please refer to the Advanced Mobility Specialty Vehicles TVOL II Vendor Information Tbinder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.

**Temperature is out of specifications...**

If the temperature is out of specifications, either too high or too low, refer to the following table.

<b>Problem:</b>		<b>Check for:</b>	<b>Solution:</b>
The temperature inside of the mobile unit is too warm.	1.	Check for exterior doors left open during warm weather conditions.	The HVAC system can only support the environment of the mobile unit. Unless opened for use, all exterior doors should remain closed all of the time.
	2.	Check for blocked or dirty air vents and/or air conditioner filters.	Clean the air vents and/or change the air conditioner filters. After this has been done, verify that cold air is blowing.
	3.	Check to see if the A/C disconnect is in the "OFF" position.	Turn the A/C disconnect to the "ON" position.
<b>Problem:</b>		<b>Check for:</b>	<b>Solution:</b>
The temperature inside of the mobile unit is too cold.	1.	Check for open exterior doors left open during cold weather conditions.	The HVAC system can only support the environment of the mobile unit. Unless opened for use, all exterior doors should remain closed all of the time.
	2.	Check for blocked or dirty air vents and/or air conditioner filters.	Clean the air vents and/or change the air conditioner filters. After this has been done, verify that warm air is blowing.
	3.	Check to see if the A/C disconnect is in the "OFF" position.	Turn the A/C disconnect to the "ON" position.

## Appendix C: HVAC Set Points



The HVAC system is critical to the operation and life of the equipment. The medical equipment operates within strict limits regarding temperature and humidity. All aspects of the HVAC system such as baffling, venting, component set points, and sensor placement are adjusted for optimum operation. Under no circumstances should any aspect of the HVAC system be altered from factory specifications.



Be certain that the HVAC system is operational at all times.

The factory settings provide the proper environment for the MR system, and should not be adjusted.

Please refer to the Advanced Mobility Specialty Vehicles VOL II Vendor Information binder for the product manual, the Advanced Mobility Specialty Vehicles VOL I Service/Operation Manual binder for a list of local service representatives, or contact Advanced Mobility Specialty Vehicles for service.





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## **Appendix D: A-1 Circuit Malfunction Checklist**

### **Category 1**

Visual Checks – Check for the most common occurrences.

1. Has the Start button been depressed?
2. Is the mobile unit on shore power?

### **Category 2**

Component Checks (some tools are required).

1. Check the emergency off button in Control Room. N.C.?
2. Check the emergency off button in Scan Room. N.C.?
3. Check the functionality of each emergency off button. Are they working correctly?

For further troubleshooting, please contact Advanced Mobility Specialty Vehicles for assistance.



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# Appendix E: Lockout/Tagout Procedures

## Specific Energy Control Procedures

**Machine or Equipment for this Procedure:**

**Specialty Vehicle Trailer: Siemens Aera MRI System**

**Control of Hazardous Energy:**

<b>Type of Hazardous Energy</b>		<b>When is it Necessary to Lock Out</b>
Electrical	480V AC	When servicing main electrical power line
Electrical	120V AC room circuits	When servicing or performing installation inside specific sections of the trailer
Electrical	12V DC	When servicing the following: Platform lift, Hydraulic System, Lighting
Electrical	12V DC From Battery	When servicing the following: Platform lift, Hydraulic System, Lighting

**Affected Personnel to notify when the Advanced Mobility Specialty Vehicles Trailer is to be Locked Out:**

<b>Name/Department:</b>	<b>Location:</b>
Production employees	In the vicinity of the trailer

**Shut down specifications for the Advanced Mobility Specialty Vehicle Trailers:**

<b>Energy Type and Rating:</b>	<b>Type of Energy Isolating Device:</b>	<b>Location of Energy Isolating Device:</b>	<b>Lockout Device Used:</b>
Main power feed Electrical 480V AC	Circuit Breaker or Plug	Normally located above the Facility Power Shore.	Lock and tag with or without lockout hasp
Light or outlet circuits Electrical 120V AC	Wall switch or circuit breaker	Distribution panel for circuit breaker, wall switch for room circuits.	Lock and tag with a Universal Wall Switch Lockout, Universal Circuit Breaker Lockout
Roll Door Electrical 120V AC	Circuit Breaker, Service Switch	CB in 120/208 V AC Panel, Switch in overhead panel above door	Lock and tag with a Universal Switch Lockout, Universal Circuit Breaker Lockout
Power to lift panels Electrical 12V DC	Remove Battery Cables	Driver's side underbody compartment, On battery.	Lock and tag with a Circuit Breaker Lockout attachment device
Electrical 12V DC From Battery	Remove Battery Cables	Driver's side underbody compartment, On battery.	Lock and tag with a Plug Lockout attachment device
Medical System MRI	Circuit Breaker	A-1 Panel in equipment area.	Lock and tag with or without lockout hasp
Air Conditioning System 480 V AC	40A Circuit Breaker	CB in 480V AC Distribution Panel and Chiller are a single unit.	Lock and tag with or without lockout hasp
Air Conditioning System Blowers 120V AC	15A Circuit Breaker	CB in 120/208V AC Distribution Panel.	Lock and tag with or without lockout hasp
Heating System	15A Circuit Breaker	CB in 480V AC Distribution Panel	Lock and tag with or without lockout hasp

**Methods to dissipate energy:**

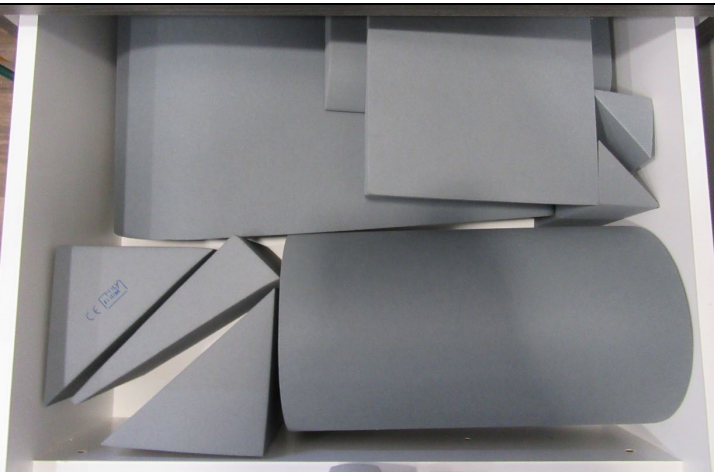
N/A

**Method of Verifying the Isolation of the Machine or Equipment:**

Voltmeter

## Appendix F: Coil Storage

When not in use, the coils and positioning pads must be properly stored as shown in the following photographs.



**Figure 67: Coil Storage**



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## Appendix G: Quarterly Maintenance Checklist

### PREVENTIVE MAINTENANCE CHECKLIST

Company Performing Preventive Maintenance:

Service Technician:

Trailer ID # :	Date	Date	Date	Date	
HVAC	3M	6M	9M	12M	Comments
Inspect/change filters					
Inspect Thermostats					
Verify heat strip operation					
Inspect/clean evaporator coil					
Clean/inspect condenser coils					
Inspect electrical contactors					
Verify refrigerant pressures					
Inspect refrigeration piping abrasion					
Lubricate fan motors if applicable					
Inspect covers/fasteners					
Verify compressor amp draw					
Verify condensate pans/drains					
Verify Condenser motor operation					





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Chiller	3M	6M	9M	12M	Comments
Inspect electrical contactors					
Verify refrigerant pressures					
Inspect refrigeration piping abrasion					
Inspect pump seal					
Lubricate motors					
Clean/replace aluminum filters					
Inspect covers/fasteners					
Verify operating/alarm controls					
Verify CW supply temp 45-75 F					
Inspect/replace glycol filter					
Clean/ inspect condensing coils					
Verify/adjust glycol level					
Verify Condenser motor operation					

Trailer	3M	6M	9M	12M	Comments
Test/inspect lift gate					
Inspect rails/ pins					
Inspect lift fittings/pivot points					
Clean / lubricate slide rails					
Verify lift switches and remote					
Load test van battery (lift)					
Verify hydraulic fluid level					
Verify van battery charger					
Verify roll door controls					
Inspect roll door mounting bolts					
Inspect roll door clutch/hardware					
Inspect roll door side track rails					
Inspect roll door key way					
Inspect awning					
Inspect bay door shocks/hardware					
Verify bay light operation					
Inspect clean and RF door gasket. Verify RF door operation					

Verify RF door lock and the handle operate correctly					
Check RF door for binding and loose hardware.					
Check door hinges/stops/latches for proper operation					
Inspect Slide outs for operation					
Inspect Slide out compressor					
Empty compressor drain and verify Y-strainer is cleaned out					
Check Fire system Last Inspection Date _____					
Inspect stair mounts					
Inspect interior flooring					
Verify bay heater operation					
Inspect cabinet latches and hinges					
Verify phone/communication lines					
Inspect landing gear					
Inspect locking pins					
Inspect air drive or air/hydraulic					
Inspect air tanks					
Verify hub fluid levels					
Inspect undercarriage/frame					
Inspect airbags/airlines/fittings					
Inspect shocks/bushings					
Inspect Tires / Rotate as needed					
Note hub meter mileage _____					



a **Kentucky Trailer** company

**AMST**

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Generator	3M	6M	9M	12M	Comments
Clean fuel/water separator & replace filter					
Lamp test on control panel					
Inspect fuel lines & injectors					
Change oil/filters- 250 hrs					
Check crankcase breather					
Check hoses/belts					
Verify radiator coolant level					
Verify coolant freeze point & pH					
Verify block heater operation					
Inspect housing mounting bolts					
Inspect muffler/brackets					
Verify battery charging voltage					
Load test battery/clean terminals					
Verify voltage & hertz output					
Record hours run since last P.M. (_____) Recorded Generator Hours					

Electrical	3M	6M	9M	12M	Comments
Inspect breakers and panels					
Inspect lighting and bulbs					
Inspect power cord and plug					
Inspect 110volt outlets					

Humidifier	3M	6M	9M	12M	Comments
Inspect/replace steam tank					
Verify humid control set point					
Inspect/fill water reservoir					
Clean fill and drain valves					
Verify 12 volt pump					

Misc.	3M	6M	9M	12M	Comments
Attach and/or fill out Quarterly Service Record for all major components					

Comment :


Signature of Technician:

\_\_\_\_\_

Date:

\_\_\_\_\_



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