

## ENGINEERING CHANGE NOTICE

Page 1 of 21. ECN **№ 624888**Proj.  
ECN

2. ECN Category (mark one) <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersede <input type="checkbox"/> Cancel/Void	3. Originator's Name, Organization, MSIN, and Telephone No. <b>BA800</b> <b>DA Clark/RSSA/N1-21/376-3602</b>	4. USQ Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Date <b>September 4, 1996</b>
	6. Project Title/No./Work Order No. <b>LDUA ETN-96-0007</b>	7. Bldg./Sys./Fac. No. <b>N/A</b>	8. Approval Designator <b>N/A</b>
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) <b>WHC-SD-TD-OMM-008, Rev. 0</b>	10. Related ECN No(s). <b>N/A</b>	11. Related PO No. <b>N/A</b>
12a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 12b) <input checked="" type="checkbox"/> No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. <b>N/A</b>	12c. Modification Work Complete <b>N/A</b> Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) <b>N/A</b> Design Authority/Cog. Engineer Signature & Date
13a. Description of Change <b>Replace all pages with attached Revision 1.</b> 13b. Design Baseline Document? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
14a. Justification (mark one) Criteria Change <input checked="" type="checkbox"/> Design Improvement <input type="checkbox"/> Environmental <input type="checkbox"/> Facility Deactivation <input type="checkbox"/> As-Found <input type="checkbox"/> Facilitate Const <input type="checkbox"/> Const. Error/Omission <input type="checkbox"/> Design Error/Omission <input type="checkbox"/>			
14b. Justification Details <b>Additional operating procedure steps are required to cover loss of power to the Operations Control Trailer.</b>			
15. Distribution (include name, MSIN, and no. of copies) <b>RB Conrad N1-21 1 copy</b> <b>DA Clark N1-21 1 copy</b> <b>LDUA System 4100 OMM File N1-21 5 copies</b> <b>Central Files A3-88 1 copy</b>			

**SEP 10 1996** RELEASE STAMP

DATE: **SEP 15**

STA: **15**

**MANFORD**

**RELEASE**

ID: **21**

## Page 2 of 2

624888

[illegible]

Signature		Date	Signature		Date
Design Authority	GR Kiebel <i>GR Kiebel</i>	<i>9/4/96</i>	Design Agent	DA Clark <i>DA Clark</i>	<i>9/4/96</i>
Cog. Eng. DA Clark	<i>DA Clark</i>	<i>9/4/96</i>	PE		
Cog. Mgr. DS Dutt	<i>DS Dutt</i>	<i>9/4/96</i>	QA		
QA			Safety		
Safety			Design		
Environ.			Environ.		
Other			Other		

Signature or a Control Number that tracks the Approval Signature

A-7900-013-3 (05/96) GEF096

## Operation and Maintenance Manual for the LDUA Operations Control Trailer (LDUA System 4100)

D. A. Clark

Westinghouse Hanford Company, Richland, WA 99352

U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 624888

UC: 2060

Org Code: 8A800

Charge Code: H1E02

B&R Code: EW4010000

Total Pages: 25

Key Words: Light Duty Utility Arm (LDUA), Operations Control Trailer (OCT), Operation, Maintenance, Procedure, Manual

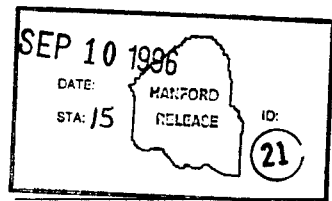
Abstract: The Light Duty Utility Arm (LDUA) Operations Control Trailer (OCT) has completed testing and is ready for operation. This document defines the requirements applicable to the operation and maintenance of the OCT.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

*Karen M. Nolan*  
Release Approval

*9/10/96*  
Date



Release Stamp

Approved for Public Release



## TABLE OF CONTENTS

**OPERATION AND MAINTENANCE MANUAL  
FOR THE LDUA OPERATIONS CONTROL TRAILER (SYSTEM 4100)**

<b>1.0 GENERAL EQUIPMENT INFORMATION</b>	<b>1</b>
1.1 INTRODUCTION	1
1.2 EQUIPMENT DESCRIPTION	1
1.3 REFERENCE DOCUMENTS	3
<b>2.0 SPECIAL REQUIREMENTS</b>	<b>5</b>
2.1 UTILITIES REQUIRED	5
2.2 SPECIAL TOOLS AND EQUIPMENT	5
2.3 CALIBRATION	5
2.4 SAFETY	5
<b>3.0 OPERATION PROCEDURE</b>	<b>7</b>
3.1 PREREQUISITES	7
3.2 EQUIPMENT REQUIRED	7
3.3 PRECAUTIONS	7
3.4 PROCEDURE	8
3.5 PROCEDURE COMPLETION	15
<b>4.0 MAINTENANCE</b>	<b>16</b>
4.1 SCHEDULED MAINTENANCE	16
4.2 CORRECTIVE MAINTENANCE	16
4.3 SPARE PARTS	16
4.4 MAINTENANCE RECORDS	16
<b>5.0 PARTS LIST</b>	<b>17</b>
<b>Figure 1</b>	
OCT Exterior Layout	18
<b>Figure 2</b>	
OCT Interior Layout	19
<b>Figure 3</b>	
OCT Interior Floor Plan	20
<b>Figure 4</b>	
HVAC Filter Location	21
<b>Figure 5</b>	

<b>OCT Power Distribution Component Location .....</b>	<b>22</b>
--	-----------

## **OPERATION AND MAINTENANCE MANUAL FOR THE LDUA OPERATIONS CONTROL TRAILER (SYSTEM 4100)**

### **1.0 GENERAL EQUIPMENT INFORMATION**

This document contains the instructions for operation and maintenance of the Light Duty Utility Arm (LDUA) Operations Control Trailer (OCT), LDUA subsystem number 4100.

#### **1.1 INTRODUCTION**

The OCT (System 4100) consists of a 48-foot long semi-truck trailer. The primary purpose of the OCT is to house and protect the LDUA operating personnel and instrumentation which is to be located outside the tank farm radiation boundary. Sketches of the OCT layout are included as Figures 1 through 3.

#### **1.2 EQUIPMENT DESCRIPTION**

##### **1.2.1 General Description**

The trailer is a commercial Fruehoff shell which was modified by Allied Signal Aerospace under the direction of Sandia National Laboratories (SNL). Principal modifications included addition of a heating and air conditioning (HVAC) system, power distribution system, Local Area Network (LAN) and video distribution systems, instrument racks, and office-type furnishings. The OCT is designed to meet NFPA-70 (National Electric Code) and NFPA-101 (Life Safety Code) requirements.

The OCT layout is intended to provide both LDUA operators and observers with comfortable access to all necessary equipment. The trailer floor and walls are covered with anti-static carpeting to reduce noise. There are two basic work areas, with the instrument racks serving as a separation between the areas. In the trailer front are the computers and video monitors needed for operation of the LDUA system. This area is intentionally designed to be just large enough for the LDUA and Supervisory Data Acquisition System (SDAS) operators, along with a supervisor. The rear of the trailer has an additional computer workstation and video monitors so that observers may watch operations without distracting the operators. All interior lighting is equipped with dimmers, and is broken up into five separate zones so that lighting can be optimized in each work area.

##### **1.2.2 Power Distribution System Description**

Power is supplied to the OCT by a 100 amp, 480 VAC feed from the Power Interface Module (LDUA subsystem 5140). After passing through the main trailer breaker, the power feed goes to two 480V-to-208V/120 VAC encapsulated

isolation transformers mounted under the trailer. One transformer feeds the instrumentation and computer loads; the other transformer feeds the HVAC, lighting, and utility outlets. The main trailer breaker is equipped with over- and under-voltage detection circuits that will trip the breaker if the input voltage exceeds allowable limits. Drawing H-6-14102 shows the power distribution system details.

Instrument power is supplied to all instrument racks, the receptacles under each workstation, and the receptacles provided for future installation of a Ramen spectrometer system. Receptacles powered from utility power are provided on the interior walls for operation of other non-critical equipment. GFCI-equipped receptacles powered from the utility power system are provided in the trailer entryway and on the power distribution panel under the trailer curb side.

All interior wiring is routed through the ceiling and walls. The area above the ceiling is considered a plenum per the National Electric Code, therefore plenum wiring techniques are required to be used for all instrument and electrical wiring installed there.

A 2.4 kVA Uninterruptible Power Supply (UPS) is mounted in rack 4 to provide backup power for systems that cannot tolerate a loss of power.

### **1.2.3 HVAC Description**

The HVAC system consists of two 5-ton condenser units mounted under the trailer, with four fan coil units mounted in the trailer ceiling. Resistance heaters totaling approximately 18KW are provided for heating. The condenser units have airflow-controlled shutters to maximize efficiency, and run at all times with one unit in bypass mode if not needed. The fan-coil units are equipped with condensate pumps to dump excess moisture to the trailer exterior.

The supply side of the air handling system is the space above the suspended ceiling; therefore the area above the ceiling is considered a plenum for National Electric Code purposes. Return air is ducted to the fan coil units from filtered openings above the front and street-side workstations. A filtered 350-scfm fan mounted over the trailer door provides a fresh air inlet to the trailer.

Controls for the HVAC system are mounted in a NEMA-4 enclosure under the trailer curb-side. A standard thermostat mounted on the interior wall of the OCT controls the temperature setting.

### **1.2.4 Instrumentation Racks**

There are five instrument racks located near the trailer front. Each instrument rack is designed to accept standard 19-inch rack-mountable instruments. The vertical mounting bracket spacing is 20-3/4 inches. The maximum depth of each

instrument, including connectors/cables protruding from the rear of the instrument, is 26 inches. All instruments must have nearly flat front faces (no handles or controls protruding beyond 3/4 inches) to prevent interference with the enclosure doors. The instrument bays are open on the sides to simplify cable routing and permit free flow of cooling air.

### **1.2.5 Exterior Instrument Connections**

An instrument interface panel is provided on the curb side of the OCT interior to provide a termination point for field cables. The interface panel provides a convenient location for switching between the exterior use-rated cable needed outside the OCT and the plenum-rated cabling needed to go into the OCT ceiling for routing to the instrument racks. A fiber optic termination box for the fiber optic umbilical cables that carry the majority of instrument and control signals to the LDUA equipment at the tank is mounted inside the interface panel. Additional termination panels are provided for the operations overview camera system and future expansion. Cable access to the exterior is provided via a booted enclosure which can be tightened to restrict access by rodents.

## **1.3 REFERENCE DOCUMENTS**

The following reference documents provide additional information regarding the Operations Control Trailer:

### **1.3.1 Released Drawings**

H-6-1400, LDUA Operations Control Trailer Hanford

H-6-14101, Wiring Diagram, Air Conditioning Control & Power, Hanford

H-6-14102, Electrical Layout, Service Equipment, & Grounding Scheme, Hanford

H-6-14103, Diagram, HVAC Piping Hanford

H-6-14104, Motor Control Center Hanford

H-6-14105, Cable, Trailer Power Supply, 480V/3ø

### **1.3.2 Non-Released Drawings (available from LDUA system file 4300)**

H-6-14106, Operation Control Trailer Instrument Rack Equipment Arrangement

H-6-14107, LDUA Operations Control Trailer LAN & Video Cable Layout

### **1.3.3 Miscellaneous Documents**

WHC-SD-TD-TRP-004, Test Report for the Light Duty Utility Arm Operations Control Trailer (OCT)

WHC-SD-TD-FRD-003, Functions and Requirements for the Light Duty Utility Arm Integrated System

WHC-SD-WM-SEL-034, Preliminary Safety Equipment List for the Light Duty Utility Arm System

NFPA 70-1993, National Electric Code

NFPA 101-1994, Life Safety Code

WHC-CM-1-10, Safety Manual

## **2.0 SPECIAL REQUIREMENTS**

### **2.1 UTILITIES REQUIRED**

- 480 VAC, three-phase, 100 amps (fed from LDUA Power Interface Module, subsystem 5140)

### **2.2 SPECIAL TOOLS AND EQUIPMENT**

Handling: The OCT is designed to be moved by a standard fifth-wheel type tractor. The weight is approximately 22,000 pounds fully loaded. Four independently-adjustable jacks are provided to permit leveling of the trailer.

Operation: No special tools are required for operation of the OCT.

Maintenance: Standard craft hand tools are required for maintenance. Work on energized components requires personnel protective equipment as specified in WHC-CM-1-10, Safety Manual.

### **2.3 CALIBRATION**

There are no components in the OCT requiring routine calibration.

### **2.4 SAFETY**

The OCT operates at voltages of 480 VAC three-phase and 208Y/120 VAC 3-phase. During normal operation, no energized parts are exposed. Special precautions are required only if corrective maintenance is needed.

The OCT has been inspected for NEC and Life Safety Code compliance by the appropriate Hanford site inspectors.

#### **2.4.1 Personnel Precautions**

- Maintenance work shall be done using appropriate precautions specified in WHC-CM-1-10, Safety Manual.

- The LDUA system contains many pieces of remotely-operated equipment. Before beginning maintenance, all personnel working on the system shall be fully briefed regarding the scope of work and LDUA system status.

#### **2.4.2 Equipment Precautions**

To prevent damage to the air conditioner compressors, an interlock in the HVAC control system prevents operation of the HVAC system, trailer interior lighting, and all instrumentation until the compressor heaters have been energized for at least 2 hours. The interlock may be bypassed ***only if*** the HVAC system has been pumped down as part of a normal shutdown performed within the last 96 hours. ***DO NOT*** bypass the interlock if the HVAC system shutdown has occurred due to a loss of power.

### **3.0 OPERATION PROCEDURE**

#### **3.1 PREREQUISITES**

##### **3.1.1 Startup**

- 3.1.1.1 OCT has been parked at desired location and front landing gear lowered.
- 3.1.1.2 OCT stairs are available for use.
- 3.1.1.3 480VAC, 3-phase power supply with appropriate Meltrec connector is available to provide OCT power.

##### **3.1.2 Shutdown**

- 3.1.2.1 None

#### **3.2 EQUIPMENT REQUIRED**

- Carpenter's bubble level
- Flat-blade screwdriver, approx. 3/8-inch blade width

#### **3.3 PRECAUTIONS**

- The OCT landing gear has two modes of operation. Pulling the landing gear operating handle away from the OCT enables high-speed, low-torque operation. Pushing the handle toward the OCT enables low-speed, high-torque operation for use when landing gear is in contact with the ground. Each landing gear leg is separately adjusted.
- The HVAC compressor heaters must be energized for a minimum of 2 hours prior to turning on the air conditioning system via switch PP2-32, unless the compressors were "pumped down" by performing a normal shutdown within the last 96 hours.
- If OCT input power has been deenergized, instrument and lighting power will be unavailable for 2 hours following input power restoration due to activation of the HVAC compressor protection circuits, unless the protection circuit has been bypassed per section 3.4.3. Activation of the protection circuits can be verified by checking the red indicator light on relay K100 in the HVAC control center under the OCT curb side. A flashing indicator means the timer is counting, and power will not be available until the indicator glows steady (timing complete). If the

indicator is not energized, power is not available to the HVAC control circuits and troubleshooting is required.

### 3.4 PROCEDURE

#### 3.4.1 Startup

3.4.1.1 Using a standard carpenter's bubble level, adjust the landing gear so that the doors are high enough to clear the stair platforms and the OCT is level. The OCT frame should be used as the reference for leveling.

3.4.1.2 Position the stairs at the doors and unlock the doors.

NOTE: Refer to Figure 5 for breaker and connector locations

3.4.1.3 Verify the OCT supply disconnect switch on the Power Interface Module (PIM - system 5140) is open.

3.4.1.4 Verify the OCT main input breaker is open.

3.4.1.5 Verify the OCT Utility Power and Instrument Power primary disconnect switches are open.

3.4.1.6 Connect one end of the power cord (stored in the OCT belly box) to the Primary Connector receptacle on the OCT.

3.4.1.7 Connect the other end of the OCT power cable to the OCT receptacle on the PIM.

3.4.1.8 Close the OCT disconnect switch on the PIM.

3.4.1.9 Close the OCT main breaker.

#### **Caution**

**Verify the enclosure for the OCT main breaker is closed and the cover screws are fastened before proceeding.**

3.4.1.10 Close the OCT Utility Power and Instrument Power primary disconnect switches.

3.4.1.11 Inside the OCT, verify the service disconnect breaker for Power Panel 2 (PP2) is closed.

3.4.1.12 In PP2, verify HVAC breakers PP2-6 through PP2-17 and PP2-22 through PP2-33 are closed.

**NOTE:** A two-hour delay will be required for the HVAC compressor protection circuit to complete operation before continuing, unless the protection circuit is to be bypassed per section 3.4.3. If the HVAC protection circuit is to be bypassed, skip the remaining steps in this section and proceed to section 3.4.3.

3.4.1.13 After the 2-hour delay is complete, verify the service disconnect breaker for Power Panel 1 (PP1) inside the OCT is closed.

**Caution**

**If the bottled water cooler hot water tank is empty, DO NOT close PP2, breaker 3 in the following step.**

3.4.1.14 Verify all breakers on PP1 and PP2 are closed.

3.4.1.15 Set the HVAC thermostat to the desired temperature setting.

3.4.1.16 Turn on the HVAC by closing the HVAC On/Off switch (on trailer interior wall between PP1 and PP2).

3.4.1.17 Close the AC input breaker on the UPS in rack 4.

3.4.1.18 Close the battery breaker on the UPS in rack 4.

3.4.1.19 Record the date and time of trailer startup in the OCT logbook. Proceed to step 3.5.1

### **3.4.2 Shutdown**

**NOTE:** Refer to Figure 5 for breaker and connector locations

3.4.2.1 Verify all computers and instruments in the OCT have been shutdown per the respective operating procedures.

- 3.4.2.2 If the OCT is to be transported to a new location, verify all computers, video monitors, and loose equipment have been stowed for transport.
- 3.4.2.3 If the OCT is to be transported to a new location, verify all external cables have been disconnected from the instrument cable penetration 4100A30 and the exterior penetration door has been closed.

**Caution**

**DO NOT drain the water cooler until PP2, breaker 3 has been opened.**

- 3.4.2.4 If the OCT is to be transported to a new location, open PP2, breaker 3, then verify the water cooler supply bottle has been removed and the water cooler tank drained.
- 3.4.2.5 Open the battery breaker on the UPS in rack 4.
- 3.4.2.6 Open the AC input breaker on the UPS in rack 4.
- 3.4.2.7 Turn off the HVAC by opening the HVAC On/Off switch (PP2-32).
- 3.4.2.8 Verify the HVAC compressors have been "pumped down" by observing that contactors K1 and K10 in the HVAC control center under the OCT have changed to the OFF position (approx. 2 minutes).

**Caution**

**Do not continue until HVAC compressor "pump down" has been completed per step 3.4.2.8.**

- 3.4.2.9 Open the OCT Utility Power and Instrument Power primary disconnect switches.
- 3.4.2.10 Open the OCT main breaker.
- 3.4.2.11 Open the OCT disconnect switch on the PIM.

- 3.4.2.12 Disconnect the OCT power cable at the OCT receptacle on the PIM.
- 3.4.2.13 Disconnect the power cable at the Primary Connector receptacle on the OCT.
- 3.4.2.14 If the OCT is to be transported to a new location, stow the power cable in the OCT belly box.
- 3.4.2.15 If the OCT is to be transported to a new location, verify all doors are tightly shut and remove the stairs.
- 3.4.2.16 If the OCT is to be transported to a new location, retract the rear landing gear to the fully stowed position.
- 3.4.2.17 Record the date and time of OCT shutdown in the OCT logbook. Proceed to step 3.5.2

### 3.4.3 Bypass of the HVAC compressor protection circuit

#### Caution

**Incorrect use of the HVAC Loss of Power Timer switch can result in damage to the HVAC system. Use of the switch is to be minimized and performed ONLY as described below.**

- 3.4.3.1 The HVAC Loss of Power Timer switch may be placed in the BYPASS position ONLY if the HVAC system has been properly "pumped down" by performing a normal shutdown per section 3.4.2 above within the last 96 hours. **DO NOT** bypass the interlock if the HVAC system shutdown has occurred due to a loss of power.
- 3.4.3.2 Place the HVAC Loss of Power Timer switch (located in the HVAC controller cabinet under the OCT curb side) in the BYPASS position. Record the time that the switch was placed in the BYPASS position in the OCT log and place the "Bypass Installed" sign on the outside of the HVAC control enclosure.
- 3.4.3.3 Inside the OCT, verify the service disconnect breaker for Power Panel 1 (PP1) is closed.

**Caution**

**If the bottled water cooler hot water tank is empty, DO NOT close PP2, breaker 3 in the following step.**

- 3.4.3.4 Verify all breakers on PP1 and PP2 are closed.
- 3.4.3.5 Set the HVAC thermostat to the desired temperature setting.
- 3.4.3.6 Turn on the HVAC by closing the HVAC On/Off switch (on trailer interior wall between PP1 and PP2).
- 3.4.3.7 Close the AC input breaker on the UPS in rack 4.
- 3.4.3.8 Close the battery breaker on the UPS in rack 4.

**CAUTION**

**Normal operation of the OCT may now proceed, but the HVAC compressors are not protected from damage caused by restarting after a loss of power. Clearing of the bypass per the following steps must be performed as soon as the 2-hour time limit has been met.**

- 3.4.3.9 After two hours from the time recorded in step 3.4.3.2 above, verify the red indicator light on relay K100 in the HVAC control center under the OCT curb side is glowing steadily, then return the HVAC Loss of Power Timer switch to the NORMAL position and remove the key.
- 3.4.3.10 Record the date and time of trailer startup in the OCT logbook and remove the "Bypass Installed" sign from the outside of the HVAC control enclosure. The power distribution system is now restored to normal. Proceed to step 3.5.1

#### **3.4.4 RECOVERY FROM OCT LOSS OF POWER**

- 3.4.4.1 Ensure the OCT Main Breaker located in the Main Breaker Enclosure on the curb side exterior of the OCT is reset (do not close at this time).

- 3.4.4.2 Ensure the OCT Utility Power and Instrument Power primary disconnect switches on the curb side exterior of the OCT are open.

NOTE: There will be no interior lighting in the OCT; a flashlight will be required to see the breaker panels.

- 3.4.4.3 Ensure the Service Disconnect breakers in PP-1 and PP-2 inside the OCT are open.

NOTE: If the loss of OCT power was due to a loss of the power source, ensure that power from the source has been restored before continuing.

NOTE: The following steps should only be performed if restoration of OCT power within 2 hours is imperative (for example, if the LDUA console is required for placing the LDUA in a safe configuration). Otherwise, restore power per section 3.4.1 (use of the HVAC protection bypass is NOT permitted).

- 3.4.4.4 Caution tag HVAC On/Off switch, PP2-32, in the OFF position. The tag must indicate that the switch is not to be turned on until the HVAC Loss of Power Timer switch is restored to the NORMAL position.
- 3.4.4.5 Close the OCT Main Breaker located in the Main Breaker Enclosure on the curb side exterior of the OCT.
- 3.4.4.6 Ensure the OCT Main Breaker Enclosure door is closed.
- 3.4.4.7 Close the OCT Utility Power and Instrument Power primary disconnect switches on the curb side exterior of the OCT.
- 3.4.4.8 Obtain the key for the HVAC Loss of Power Timer switch and place the switch in the BYPASS position.
- 3.4.4.9 Post the "BYPASS" sign on the HVAC control cabinet exterior.

- 3.4.4.10 Ensure the Service Disconnect breakers in PP-1 and PP-2 inside the OCT are closed.

**Caution**

**If the bottled water cooler hot water tank is empty, DO NOT close PP2, breaker 3 in the following step.**

- 3.4.4.11 Ensure all PP-1 and PP-2 breakers are closed with the exception of PP2-3 if the Caution above applies.
- 3.4.4.12 Record the time all PP-1 and PP-2 breakers were closed in the OCT logbook.
- 3.4.4.13 Ensure the AC Input Breaker on the UPS in rack 4 is closed.
- 3.4.4.14 Ensure the Battery Breaker on the UPS in rack 4 is closed.

**NOTE:** All OCT equipment EXCEPT the HVAC will now be operational. In order to minimize heating of the trailer interior, all lights should be kept as dim as practical, and unnecessary equipment should be turned off.

- 3.4.4.15 When two hours have elapsed after logging the closure of PP-1 and PP-2 breakers in step 3.4.4.12 above, continue with the following steps:
- 3.4.4.16 Ensure relay K100 (in the HVAC control cabinet under the OCT curb side) red indicator light is steadily illuminated.
- 3.4.4.17 Place the HVAC Loss of Power Timer switch in the NORMAL position. and remove the key.
- 3.4.4.18 Remove the "BYPASS" sign and store in the HVAC control cabinet under the OCT curb side.
- 3.4.4.19 Record the date and time the bypass was restored to normal in the OCT logbook.
- 3.4.4.20 Restore the HVAC to normal by clearing the CAUTION tag on the HVAC On/Off switch, PP2-32 and closing the switch.

3.4.4.21 Ensure any equipment that may have been turned off to reduce heating has been restored to normal operation.

3.4.4.22 Proceed to step 3.5.1.

### **3.5 PROCEDURE COMPLETION**

#### **3.5.1 Setup**

The OCT is set up with power applied to primary systems and HVAC operating at the end of section 3.4.1, 3.4.3 or 3.4.4 above.

#### **3.5.2 Shutdown**

The OCT is shutdown with power removed and ready for transport at the end of section 3.4.2 above.

## **4.0 MAINTENANCE**

### **4.1 SCHEDULED MAINTENANCE**

- Before each deployment, inspect the power cable for damage. Repair/replace damaged parts as necessary.
- At approximately 6-month intervals, replace the HVAC filters located above the workstations (4 filters required). See Figure 4 for filter locations.
- At approximately 6-month intervals, clean the fresh air inlet filter. The filter may be washed in plain water or water with a mild detergent. Rinse and dry thoroughly before reinstallation. See Figure 4 for filter location.
- As required by WHC-CM-1-10, Safety Manual, the GFCI's for the utility outlets in the entry and on the external power distribution panel shall be tested monthly, or before each use.

### **4.2 CORRECTIVE MAINTENANCE**

Adherence to the scheduled maintenance requirements of section 4.1 will minimize the need for corrective maintenance. The drawings and vendor information contained in the LDUA file for system 4100 provide all information necessary to perform unscheduled corrective maintenance.

### **4.3 SPARE PARTS**

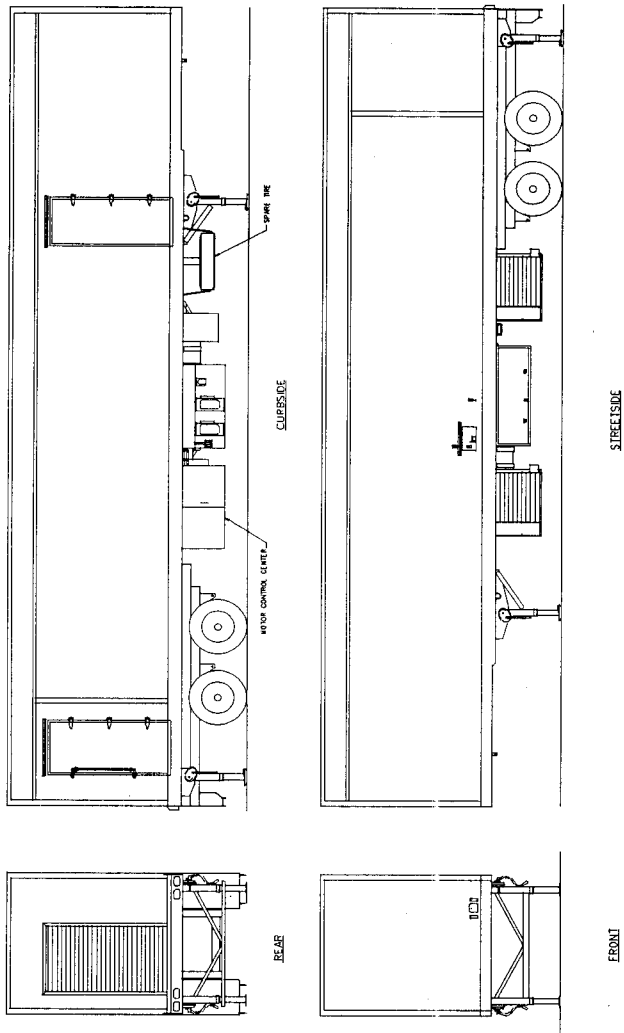
- Replaceable HVAC filters, 30" x 10" x 1", minimum quantity 4.

### **4.4 MAINTENANCE RECORDS**

A log shall be kept of all filter maintenance and tests of the GFCI's for the OCT utility outlets. The location of the log shall be determined by the TWRS operations and/or maintenance organization.

## **5.0 PARTS LIST**

Refer to the OCT drawings for a complete list of Operations Control Trailer parts.  
Vendor information on these parts may be found in the LDUA file for system 4100.



**Figure 1**  
**OCT Exterior Layout**

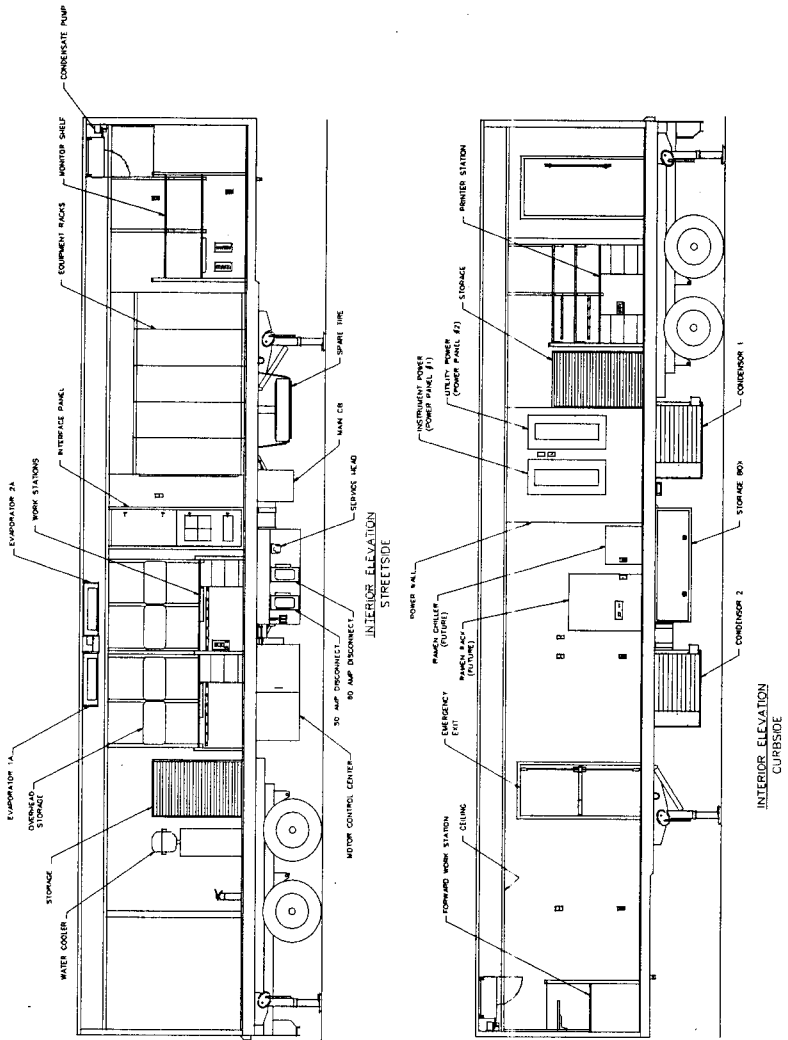
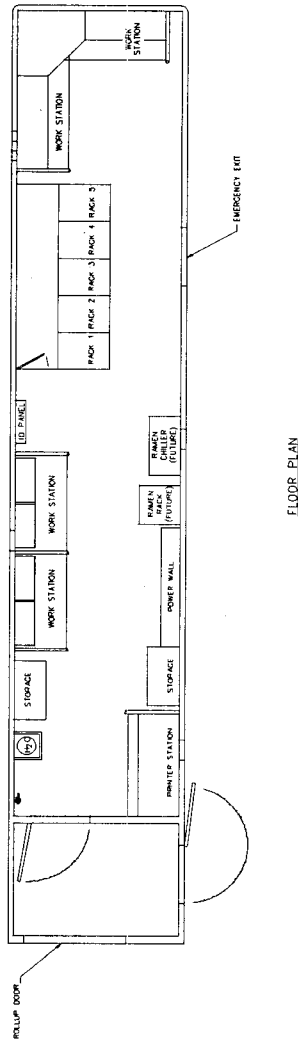
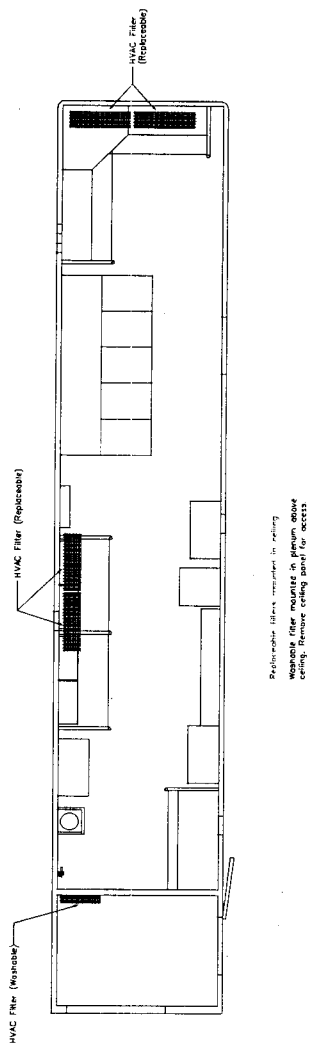


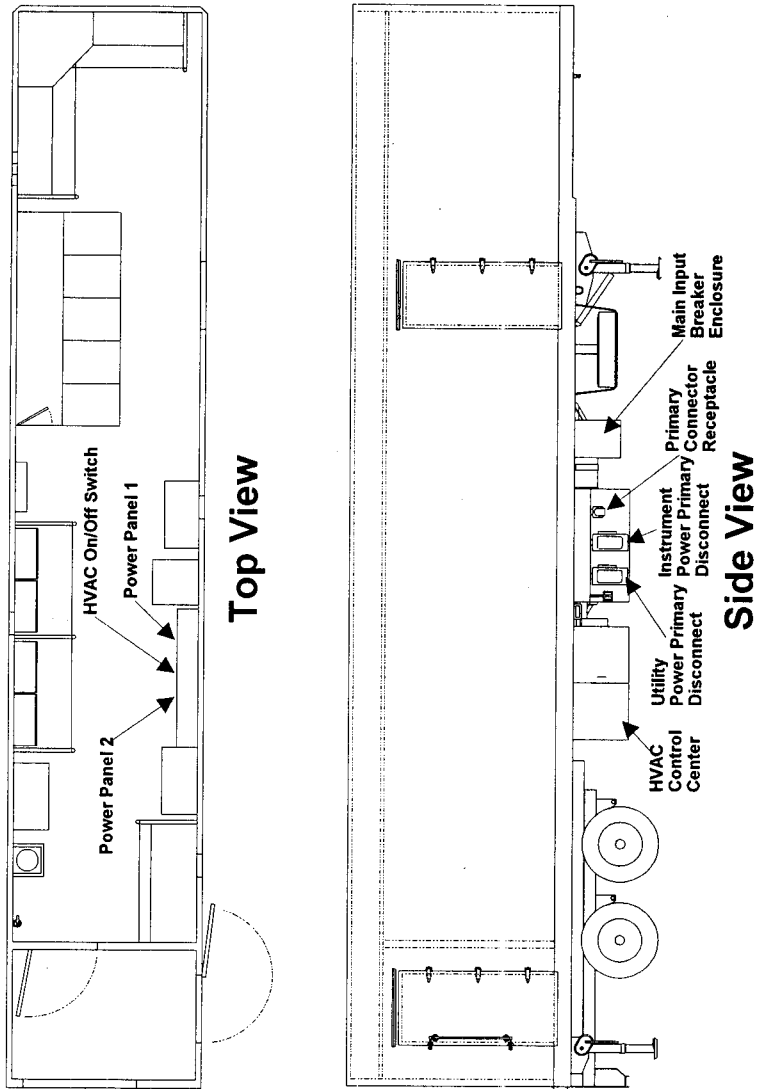
Figure 2  
OCT Interior Layout



**Figure 3**  
**OCT Interior Floor Plan**



**Figure 4**  
**HVAC Filter Location**



**Figure 5**  
**OCT Power Distribution Component Location**