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Onan Coach Command™

Installation Manual

CCRV



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Table of Contents

SECTION	TITLE	PAGE
	SAFETY PRECAUTIONS	III
1	INTRODUCTION	1-1
	About This Manual	1-1
	Installation Codes and Standards for Safety	1-3
	Required Background	1-3
2	NETWORK HARDWARE AND WIRING	2-1
	Overview	2-1
	Network Configuration	2-1
	Connectors and Color Wire Codes	2-3
	Wiring Guidelines	2-4
3	INSTALLATION OVERVIEW	3-1
	General Information	3-1
	Installation	3-1
4	TOUCH SCREEN DISPLAY INSTALLATION	4-1
	General Information	4-1
	Installation	4-1
5	MASTER NODE INSTALLATION	5-1
6	LOAD CONTROL NODE INSTALLATION	6-1
	General Information	6-1
	Generic Load Control Node Installation	6-1
	Installing Load Control Nodes Used With Dometic Air Conditioners	6-3
	Installing Load Control Nodes Used With Coleman Air Conditioners	6-5
7	GENERATOR INTERFACE NODE INSTALLATION	7-1
	General Information	7-1
	Installation	7-1
8	TANK LEVEL NODE INSTALLATION	8-1
	General Information	8-1
	Installation	8-1
9	TRANSFER SWITCH NODE INSTALLATION	9-1
	General Information	9-1
	Installation	9-1
10	ENGINE INTERFACE (CAN) NODE INSTALLATION	10-1
	Network Topology	10-2

11	SYSTEM CONFIGURATION	11-1
	OEM Menus	11-1
	Accessing the Main Menu	11-1
	Accessing the OEM Setup Menu	11-2
	Electrical Setup Menus	11-4
	Network Electrical Configurations	11-4
	Load Control Setup	11-5
	Screen Configuration Menu	11-6
12	SYSTEM VERIFICATION	12-1
	Technical Information Menus	12-1
	Node Communications Information	12-2
	Verifying Node Communications	12-2
	Coach Engine Information	12-2
	Verifying Coach Engine Link Diagnostics	12-2
	Genset Information	12-3
	Verifying the Genset Node	12-3
	Transfer Switch Information	12-4
	Verifying the Transfer Switch Node	12-4
	Controlled Loads Information	12-9
	Verifying Controlled Loads	12-9
	Touch Screen Display Verification	12-10
	Tank Level Calibrations	12-11
	Calibrating Water Tanks	12-12
	Calibrating the Liquid Propane Gas Tank	12-12
	Tank Level Information	12-13
	Fault Information	12-13
13	TROUBLESHOOTING	13-1
14	GLOSSARY	14-1
APPENDIX A	OEM SUPPLIED EQUIPMENT	A-1
APPENDIX B	CONTROLLED LOAD TIMING	B-1
	Inverter to Shore Power	B-1
	Shore to Inverter Power	B-1
	Inverter to Generator Power	B-1
	Generator to Inverter Power	B-2
	Shore to Generator Power	B-2
	Generator to Shore Power	B-2
	Dometic Air Conditioners	B-2
	Coleman Air Conditioners	B-2
APPENDIX C	WIRE COLORS	C-1
	COACH COMMAND SYSTEM WORKSHEETS	

Safety Precautions

Coach Command gathers information from a variety of components in a recreational vehicle and provides the means to monitor and control power usage. All safety precautions for Coach Command and its connected components must be observed. Refer to the Operator's Manual for the equipment that is being monitored and controlled by Coach Command for important safety precautions.

The following symbols in this manual alert you to potential hazards to the operator, service person, and equipment.

▲ DANGER alerts you to an immediate hazard which will result in severe personal injury or death.

▲ WARNING alerts you to a hazard or unsafe practice which can result in severe personal injury or death.

▲ CAUTION alerts you to a hazard or unsafe practice which can result in personal injury or equipment damage.

Electricity, fuel, exhaust, moving parts, and batteries present hazards which can result in severe personal injury or death.

GENERAL PRECAUTIONS

- Always turn off Auto Genstart capability:
 - When the recreational vehicle is placed in a garage, storage area, or confined space
 - During refueling
 - When the genset is being serviced
 - When servicing appliances
 - For short or long term storage

For information on turning off Auto Genstart capability, see "Activating Automatic Genset Start" in your *Coach Command Operator's Manual*.

- If a carbon monoxide detector is sounding from the recreational vehicle or the garage, storage area, or confined space where the recreational vehicle is located, do not enter until the area has been completely ventilated. Harmful or fatal amounts of carbon monoxide may be present.

- Always make sure the genset is not running and will not automatically start whenever checking fluid levels or servicing the genset. Read and observe all safety precautions in your genset Operator's Manual.
- Keep multi-class ABC fire extinguishers handy. (Class A for fires involving ordinary combustible materials such as wood and cloth; Class B for fires involving combustible and flammable liquid and gaseous fuels; Class C for fires involving live electrical equipment – ref. NFPA No. 10).
- Keep children away from electrical equipment.
- Carefully follow all applicable local, state and federal codes for electrical connections.

ELECTRICAL SHOCK CAN CAUSE SEVERE INJURY OR DEATH

- High voltage presents serious shock hazards that can result in severe personal injury or death. Make sure all service and adjustments are performed by an electrician or authorized service representative.
- Generator output connections must be made by a trained and experienced electrician in accordance with applicable codes.
- The genset must not be connected to the public utility or any other source of electrical power. Connection could lead to electrocution of utility personnel and damage to equipment. An approved switching device must be used to prevent interconnections.
- AC power is present when the genset is running. Do not open the generator output box while the set is running. Read and observe all safety precautions in your genset Operator's Manual.

ENGINE EXHAUST IS DEADLY!

- Learn the symptoms of carbon monoxide poisoning as described below.
- Engine cooling air must not be used for heating the working or living space or compartment.
- Inspect for exhaust leaks at every startup and after every eight hours of running.
- Make sure there is ample fresh air when operating the genset in a confined area.

Exhaust gasses contain carbon monoxide, an odorless, colorless gas. Symptoms of carbon monoxide poisoning include:

- Dizziness
- Muscular twitching
- Weakness and sleepiness
- Throbbing in temples
- Headache
- Inability to think clearly
- Nausea
- Vomiting

IF YOU OR ANYONE ELSE EXPERIENCES ANY OF THESE SYMPTOMS, GET OUT INTO THE FRESH AIR IMMEDIATELY. If symptoms persist, seek medical attention. Shut down the genset and do not operate it until it has been inspected and repaired.

Never sleep in the vehicle with the genset running unless the vehicle is equipped with a working carbon monoxide detector. Primary protection against inhaling carbon monoxide, however, is proper installation of the exhaust system, daily inspection

(every eight hours) for visible and audible exhaust system leaks.

FUEL IS FLAMMABLE AND EXPLOSIVE

Do not smoke or turn electrical switches ON or OFF where fuel fumes are present or in areas sharing ventilation with fuel tanks or equipment. Keep flame, sparks, pilot lights, arc-producing equipment and all other sources of ignition well away.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses and do not smoke while servicing batteries.
- When disconnecting or reconnecting battery cables, always disconnect the negative (-) battery cable first and reconnect it last to reduce arcing.

MOVING PARTS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Keep hands away from moving parts.
- Keep guards in place over fans, belts, pulleys, etc.

1. Introduction

ABOUT THIS MANUAL

This manual covers the Coach Command™ network installation. The Coach Command network (see Figure 1-1) is a power control system for recreational vehicles. This manual is intended for use by trained and experienced network installers.

Section 1 provides an overview of this manual, installation codes, safety standards, and the expected technical background of the installer. **Section 2** provides an overview of the network configuration and provides information on connectors and wiring guidelines.

Section 3 provides an overview of the steps needed to install a Coach Command power management system. **Sections 4** thru **10** provide detailed procedures for installing the Touch Screen display and the various nodes.

Once physical installation is complete, the system must be configured using the Coach Command Original Equipment Manufacturer (OEM) setup menu. **Section 11** provides system configuration procedures and **Section 12** provides system verification procedures.

Section 13 covers troubleshooting issues. A glossary of network terms is included in **Section 14**.

Appendix A includes a list of OEM supplied equipment. **Appendix B** includes timing diagrams. **Appendix C** includes a list of suggested wire colors to use for node connections to controlled loads, the genset, the tanks, the coach battery, and the AC distribution system.

At the back of this manual are three copies of the **Coach Command System Worksheet**. Information on the various network components being installed needs to be written on a worksheet. The worksheet serves as a convenient reference for entering information when configuring the system (Section 11).

Use normal and necessary safety precautions before starting any service procedures. Identify all hazards by referring to the Safety Precautions section and observe all warnings and cautions within the manual. When you are troubleshooting, remember that the Coach Command Network, transfer switch, and power sources (generator, shore power, inverter, and batteries) are all interdependent.

Keep this manual where it will be readily available to the network installer.

WARNING

THE GENSET, TRANSFER SWITCH, AND OTHER EQUIPMENT ASSOCIATED WITH THE COACH COMMAND NETWORK WILL NOT FUNCTION PROPERLY, OR WILL NOT BE SUBJECT TO PROPER MONITORING AND SERVICE UNLESS THE INSTRUCTIONS IN THIS MANUAL ARE FOLLOWED IN DETAIL. IMPROPER FUNCTIONING CAN RESULT IN SEVERE PERSONAL INJURY, DEATH, AND/OR EQUIPMENT DAMAGE. SERVICE PERSONNEL MUST HAVE THE REQUIRED INSTALLATION TOOLS AND BE TRAINED AND EXPERIENCED TO PERFORM NETWORK INSTALLATIONS INCLUDING USE OF INSTALLATION SOFTWARE AND BE ABLE TO PERFORM ELECTRICAL AND MECHANICAL SERVICE. READ THIS ENTIRE MANUAL BEFORE STARTING.

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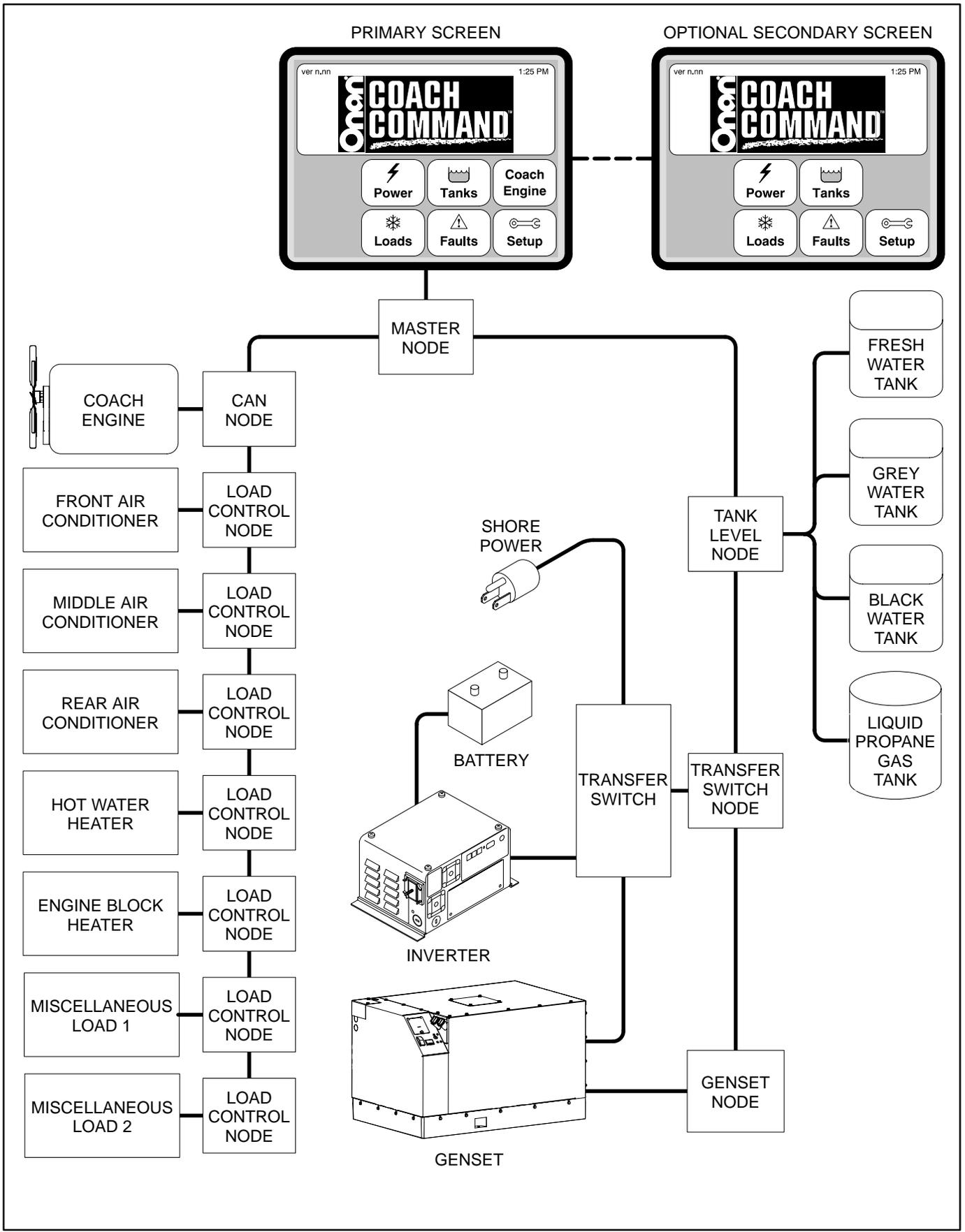


FIGURE 1-1 THE COACH COMMAND NETWORK

INSTALLATION CODES AND STANDARDS FOR SAFETY

The builder of the recreational vehicle bears sole responsibility for the selection of appropriate components, for proper installation, and for obtaining approvals from the authorities (if any) that need to approve the installation. Coach Command is suitable for installation in accordance with:

- ANSI A1192 (NFPA No. 1192)—Standard on Recreational Vehicles
- NFPA No. 70, Article 551—Recreational Vehicles and RV Parks
- CAN/CSA-Z240.6.2 Recreational Vehicles Bulletin 946

Federal, State and local codes, such as the California Administrative Code—Title 25 (RV installation), might also be applicable. Installation codes and recommendations may change over time and vary between countries, states and municipalities. Obtain the standards in Table 1-1 for reference.

TABLE 1-1. REFERENCE CODES AND STANDARDS

Code of Federal Regulations, Title 49: Chapter III, Part 393	Superintendent of Documents P. O. Box 371954 Pittsburgh, PA 15250-7954
NFPA 70, National Electric Code	National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
ANSI A119.2 (NFPA 1192) Standard on Recreational Vehicles	Recreational Vehicle Industry Association 14650 Lee Road Chantilly, VA 22021
California Administrative Code—Title 25, Chapter 3	State of California Documents Section P.O. Box 1015 North Highlands, CA 95660
CAN/CSA-Z240.6.2 Recreational Vehicles Bulletin 946	Canadian Standards Association Housing and Construction Materials Section 178 Rexdale Blvd. Rexdale, Ontario, Canada M9W 1R3

REQUIRED BACKGROUND

To use this manual for Coach Command installation, you need:

- A basic understanding of control networks.
- A basic understanding of electronics and electrical circuits
- Experience and familiarity with gensets, inverters, and transfer switches.

⚠️WARNING *Improper installation can result in severe personal injury, death and equipment damage. The installer must be trained and experienced in the installation of electrical, mechanical, fuel, and exhaust equipment.*

2. Network Hardware and Wiring

OVERVIEW

This section describes the network and the individual nodes used in the Coach Command network. For a definition of the terms used in a Coach Command network, refer to the Glossary.

Once physical installation is complete, the system must be configured using the Coach Command Original Equipment Manufacturer (OEM) setup menu. Network installation and configuration is covered in detail in the following sections.

NETWORK CONFIGURATION

Coach Command consists of a Touch Screen display networked with a series of nodes linking power sources, appliances, and monitoring devices. The network is made up of individual node boards that are connected by twisted pair communications cable for the transmission of network data. Network power is transmitted over a second pair of wires.

The Coach Command power management system includes six types of node boards, linking power sources, appliances, and monitoring devices to the Touch Screen display. The node types are:

- Master Node – Provides a network interface for the Touch Screen display.

- Load Control Nodes – Up to seven nodes provide load control and monitoring for items such as air conditioners, hot water heater, engine block heater, and appliances.
- Generator Node – Starts, stops, and communicates with Onan gensets. This node monitors generator voltage, frequency, RPM, engine temperature, operational hours, and diagnostics.
- Tank Level Node – Provides tank level monitoring for the fresh water, grey water, black water, and liquid propane gas tanks.
- Transfer Switch Node – Contains the network power supply and provides the network with coach voltages, currents, and battery voltage.
- Engine Interface (CAN) Node – Provides monitoring of the coach engine.

Figure 2-1 shows an example of a Coach Command network configuration. Detailed information on installing individual components is covered in **Sections 3** thru **10**. Nodes can be installed in any order on the network.

A Terminating Plug is required in the unused network connector on the first and last node in the network.

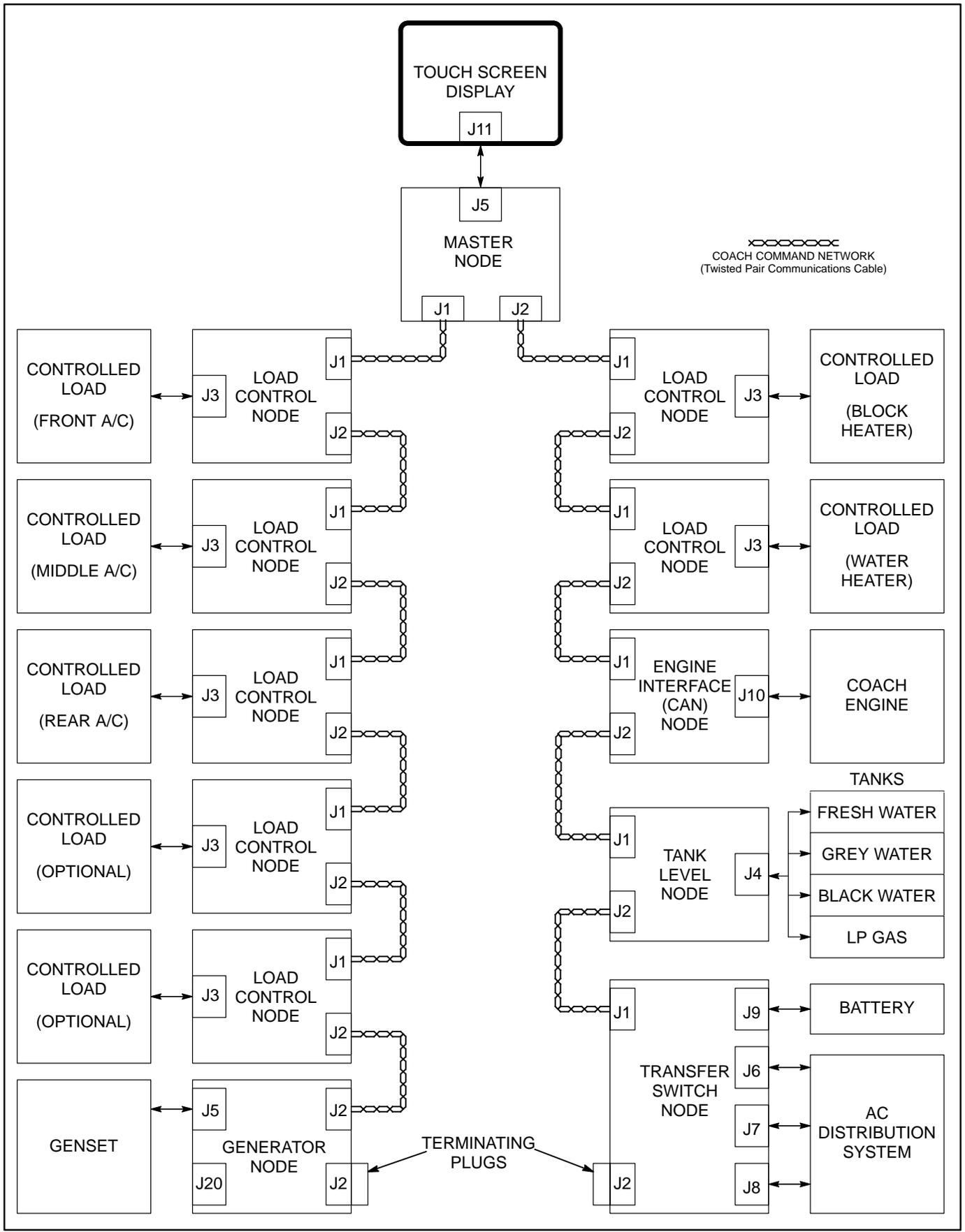


FIGURE 2-1. COACH COMMAND NETWORK CONFIGURATION

CONNECTORS AND COLOR WIRE CODES

All Onan nodes used in the Coach Command network have two 4-pin pluggable terminal blocks for connection to network data and network power wires. Two twisted pairs of communication wire (see Figure 2-2) are used to network the nodes with the Touch Screen display.

⚠ CAUTION Always turn power to Coach Command OFF before connecting or disconnecting any node in the network.

Connector pin numbers and wire color codes for 4-pin pluggable terminal blocks are listed in Table 2-1. Information listed in the table applies to both

connectors (J1 and J2). A complete list of connectors used on Coach Command nodes is listed in Table 2-2.

TABLE 2-1. 4-PIN PLUGGABLE TERMINAL BLOCK

Pin	Wire Color Code	Description
1	Blue	RS485+
2	White/Blue	RS485-
3	Orange	Network Power
4	White/Orange	Network Ground

An example of pluggable connectors and terminal blocks on one of the nodes is shown in Figure 2-3.

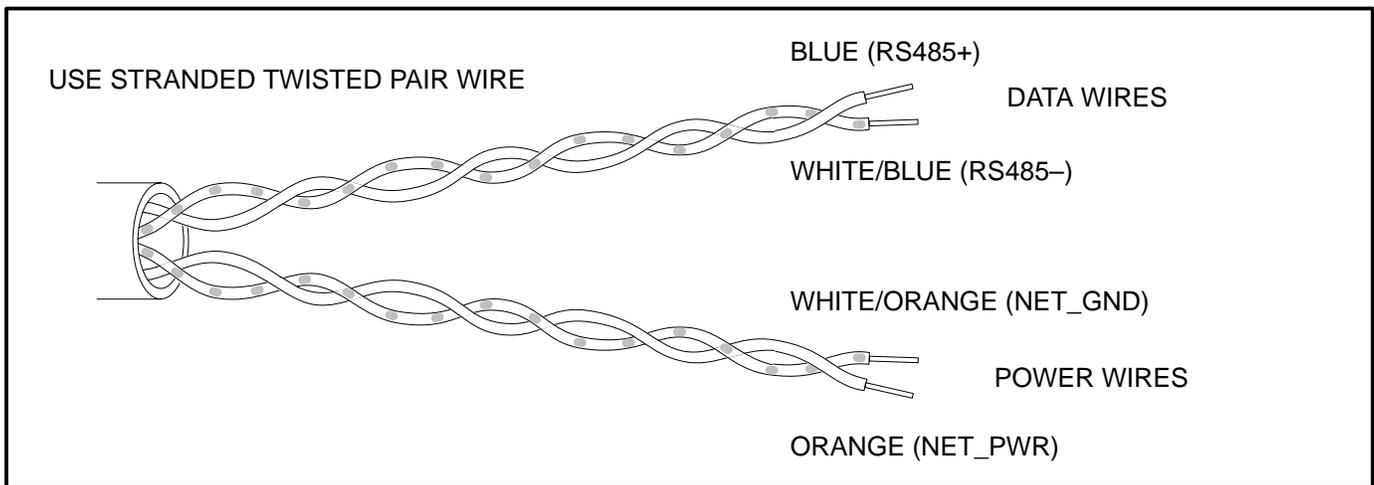


FIGURE 2-2. TWO TWISTED PAIR COMMUNICATIONS CABLE

TABLE 2-2. PLUGGABLE CONNECTORS

	Description	Nodes Used With	Function
J1	4-Pin Connector	All Nodes	Communicates with other nodes
J2	4-Pin Connector	All Nodes	Communicates with other nodes
J3	9-Pin Connector	Load Control Node	Interfaces with appliances
J4	9-Pin Connector	Tank Level Node	Interfaces with fresh, grey, and black water and the LP fuel tank
J5	6-Pin Connector	Master Node	Communicates with the Touch Screen display (J11)
		Generator Node	Communicates with the genset
J6	9-Socket Connector	Transfer Switch Node	Connects to the transfer switch to measure AC voltage
J7	6-Socket Connector	Transfer Switch Node	Interfaces with current transformers to measure current
J8	6-Pin Connector	Transfer Switch Node	Interfaces with current transformers to measure current
J9	4-Socket Connector	Transfer Switch Node	Supplies battery power to the system and the battery sense line
J10	3-Pin Connector	Engine Interface (CAN) Node	Communicates with the coach engine
J20	6-Pin Connector	Generator Node	Connects to the remote genset Start/Stop switch

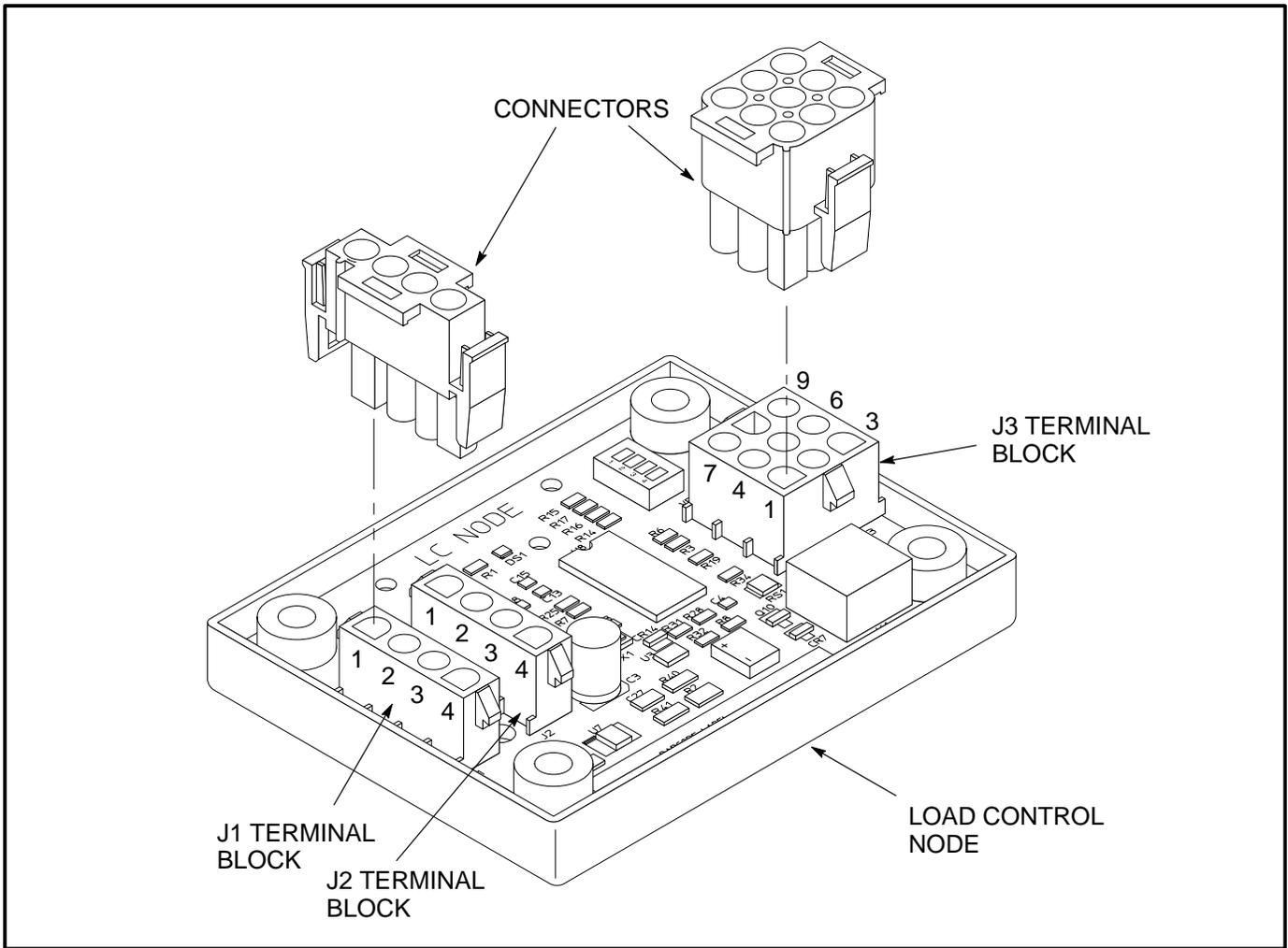


FIGURE 2-3. PLUGGABLE CONNECTORS

WIRING GUIDELINES

Communication over unshielded twisted pair (UTP) could be distorted by external sources of electromagnetic interference (EMI), especially if the conductors are physically degraded in any way. To avoid or minimize this interference, observe the following guidelines.*

⚠ CAUTION *Electromagnetic interference (EMI) can cause communication signal distortion, which can cause network failure and unintended equipment operation. Read and follow these wiring guidelines.*

Observe all local wiring codes. Refer to the NEC (NFPA70) section on *Wiring Methods and Materials* for general wiring methods and procedures.

Separation from sources of EMI: All cabling should be installed in such a way as to comply with

the **minimum** separation of 5 inches (127 mm) from AC power sources

In general, communications wiring should not be located in spaces that are shared with electrical panels, transformers, or other high voltage equipment.

Tension: All cabling should be free from tension at both ends, as well as over the length of each run.

Twisted pairs: All terminations should be made in such a way as to **minimize the extent to which each twisted pair is unraveled at the point of its physical termination.** Allow no more than 0.5 inch (13 mm) of exposed untwisted pairs.

UTP cable bends: UTP cable bends, or radii, should be no less than eight times the cable diameter.

* These guidelines are derived from "The Do's and Don'ts of UTP Cabling" by Mark W. McElroy, in EC&M, June 1994.

3. Installation Overview

This section provides a general overview of the steps required to install Coach Command.

GENERAL INFORMATION

- Node temperature range
 - The operating temperature range is -22° to 140°F (-30° to 60°C).
 - The storage temperature range is -40° to 158°F (-40° to 70°C).
- Mount all components in a **dry** and accessible location.

NOTE: If there are concerns about dampness when installing a node board, use the interface and wire seals listed in Appendix A.

- Choose a mounting location for all components that is **accessible** and **protected** from the elements. Make sure all components can be **easily removed for service**.
- Mounting hardware is to be supplied by the installer (see Appendix A).
- All pin and socket contacts are gold (see Appendix A).

NOTE: Do not mix gold with tin plating. The metal will erode.

- All mating connectors are to be selected and supplied by the installer.

NOTE: Suggested wire colors to use with mating connectors are listed in Appendix C.

- Network installation must be performed by trained network personnel.
- A list of equipment supplied by the installer is shown in Appendix A.

INSTALLATION

The following procedure describes installation of the Coach Command system. Specific details on component installation and system configuration are included in Sections 4 through 12.

1. Mount the Touch Screen display as described in Section 4.
2. Mount the node boards as described in Sections 5 through 10.
3. Route the communication cable from the Touch Screen display to the Master Node and between all additional nodes included in the network (see Sections 5 through 10).

NOTE: Nodes can be installed in any order on the network.

4. Insert a terminating plug in the unused network connector of the first and last node in the network.
5. Route wiring from each node board to the device it monitors/controls (see Sections 5 through 10).
6. Turn on the Coach Command power at the master ON/OFF switch.
7. Access the Original Equipment Manufacturer (OEM) menus through the Touch Screen display (see Section 11).
8. Use the OEM Setup menus to set up the network (see Section 11). Refer to the Coach Command System Worksheet for specific information.
9. Use the Technical Information menus to verify that all nodes are communicating (see Section 12).
10. Use the Technical Information menus to verify coach engine link data, genset node data, transfer switch node data, controlled load data, and that the Touch Screen display keys are functioning correctly (see Section 12).
11. Use the OEM Setup menus to set up tank level information and verify tank level node data (see Section 12).
12. Once system verification is complete, clear any fault information stored in memory (see Section 12).
13. Exit the OEM menus and return to the Coach Command Main Menu.

14. Mount the Coach Command warning labels (Figure 3-1) in the locations indicated below. A sheet of five warning labels (Onan Part Number 098-7867) is included with the Coach Command literature.

- Generator Start/Stop Switch label (Onan Part Number 098-7867-01) – Place on top of the generator housing, near the Start/Stop switch.
- Generator Service Panel label (Onan Part

Number 098-7867-01) – Place on the Onan generator service access panel.

- Inverter/Charger label (Onan Part Number 098-7867-02) – Place on or near the inverter/charger unit(s).
- AC Distribution Panel label (Onan Part Number 098-7867-02) – Place on or near the AC Distribution/Circuit Breaker Panel.
- Transfer Switch label (Onan Part Number 098-7867-02) – Place on or near the coach main Transfer Switch.

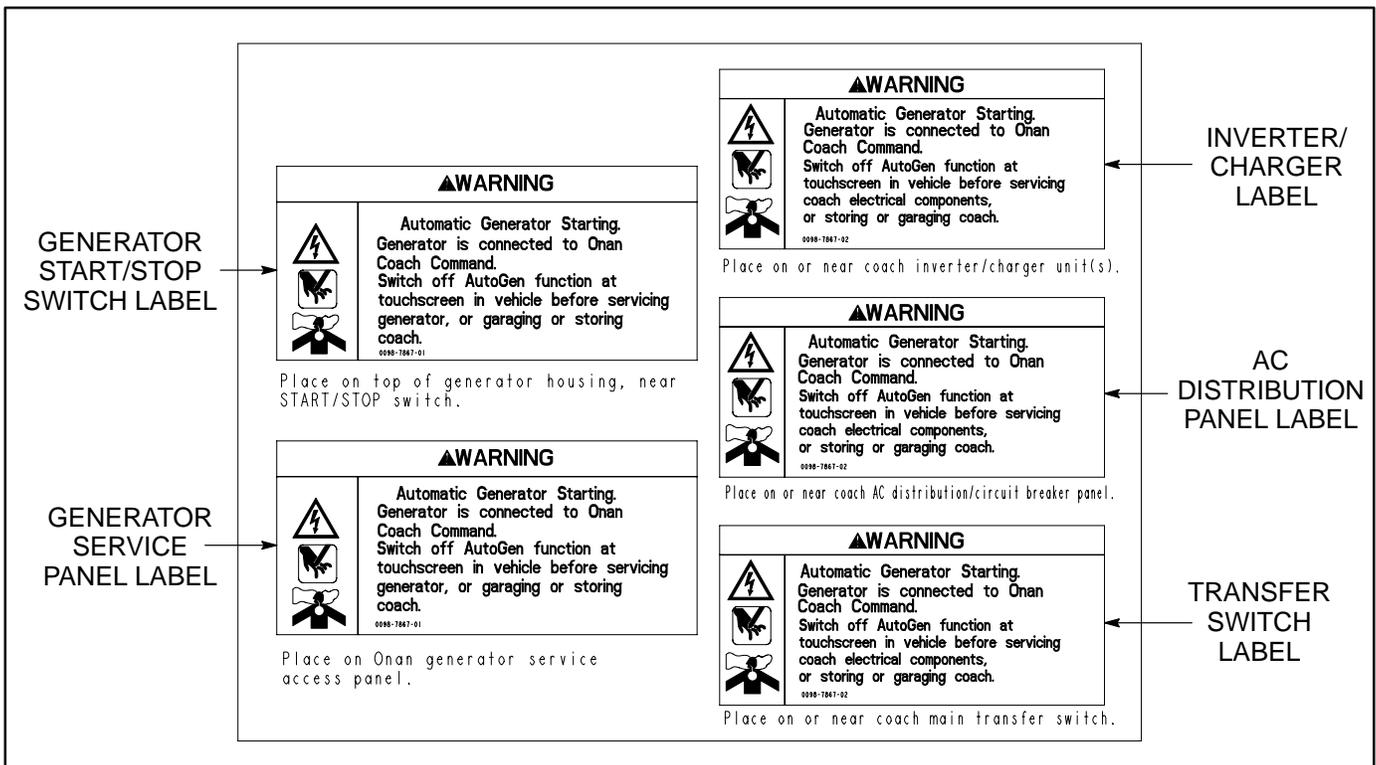


FIGURE 3-1. WARNING LABELS

4. Touch Screen Display Installation

This procedure describes the installation of the Touch Screen Display.

GENERAL INFORMATION

Touch Screen Display temperature ranges:

- The operating temperature range is -4° to 158°F (-20° to 70°C).
- The storage temperature range is -22° to 176°F (-30° to 80°C).

INSTALLATION

1. Choose a location that provides adequate clearance for the communications cable (see Figure 4-1) and is within 3 feet (91 cm) of the Master Node.
2. To make sure that the panel will not bend or warp, select a mounting surface that is flat.
3. Cut a hole for the Touch Screen housing that is 7 inches by 4–9/16 inches (177.8 x 115.9 mm). Make sure you do not damage any other electrical components.
4. Drill mounting holes as shown in Figure 4-1.
5. Use appropriate fasteners to secure the Touch Screen display. Do not overtighten nuts.
6. Verify that the Touch Screen Display lays flat and is not bent or twisted.
7. For wiring instructions, see “Section 5: Master Node Installation.”

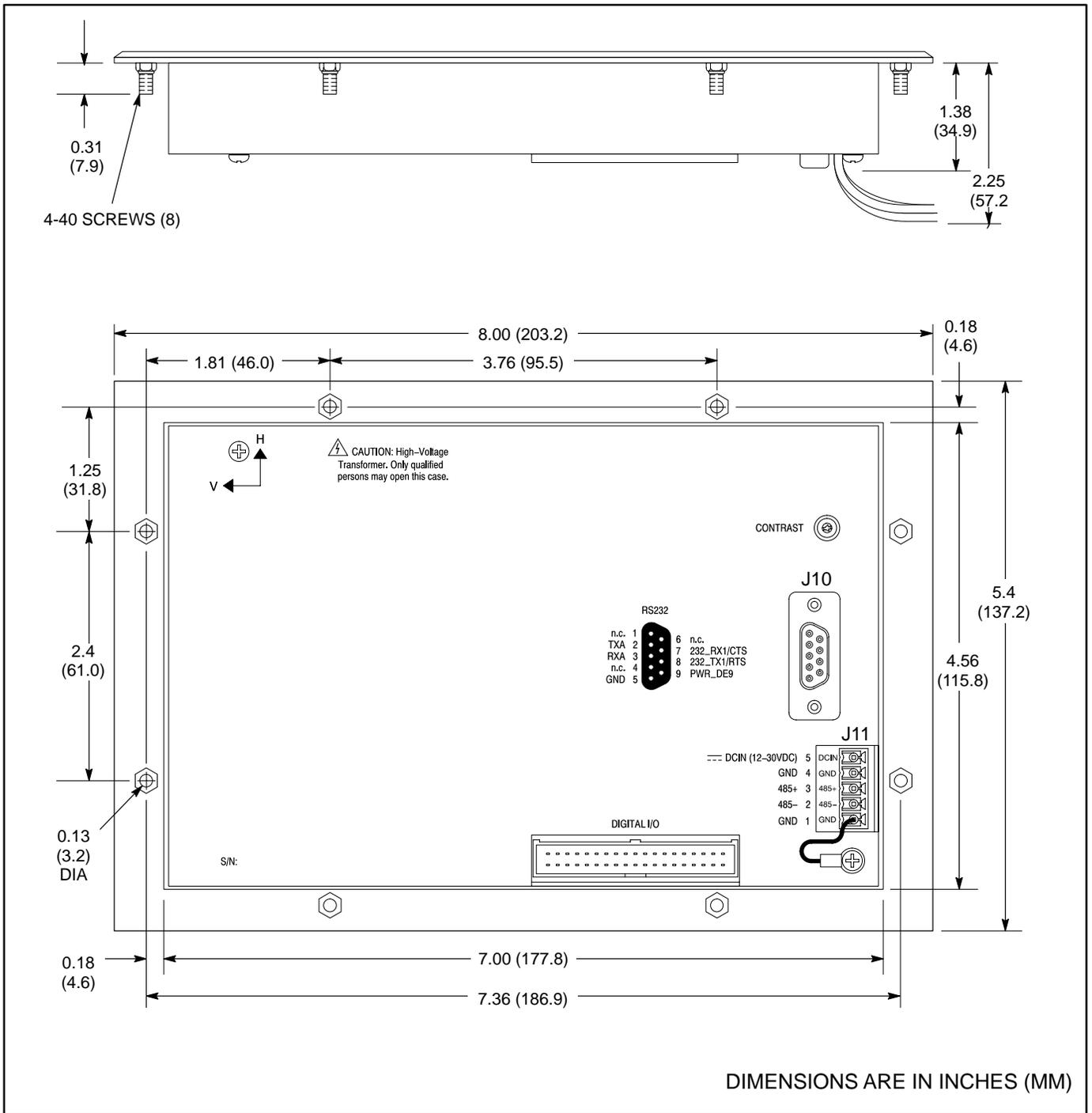


FIGURE 4-1. TOUCH SCREEN DISPLAY

5. Master Node Installation

This procedure describes the installation of the Master Node. The Master Node provides a network interface for the primary Touch Screen display. If a secondary Touch Screen display is installed, it is connected to the primary Touch Screen display.

1. Choose a location that provides adequate clearance for the communications cable (see Figure 5-1).
 - Select a location that is within 3 feet (91 cm) (wire length) of the Touch Screen display.
2. Drill mounting holes as shown in Figure 5-1.
3. Use appropriate fasteners to secure the node. Do not overtighten screws.
4. Refer to the wiring diagram (see Figure 5-2 for installations that include only one Touch Screen display; see Figure 5-3 for installations

that include a primary and secondary Touch Screen display) to route wires from the Touch Screen display to the Master Node, and from the Master Node to the next node on the network.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

- Use the wiring harness supplied to connect the Master Node to the primary Touch Screen display.
- Use the network cable listed in Appendix A to connect the Master Node to the next node on the network.
- Refer to Appendix A to select the appropriate mating connectors to use.
- All mating connectors require pin contacts.

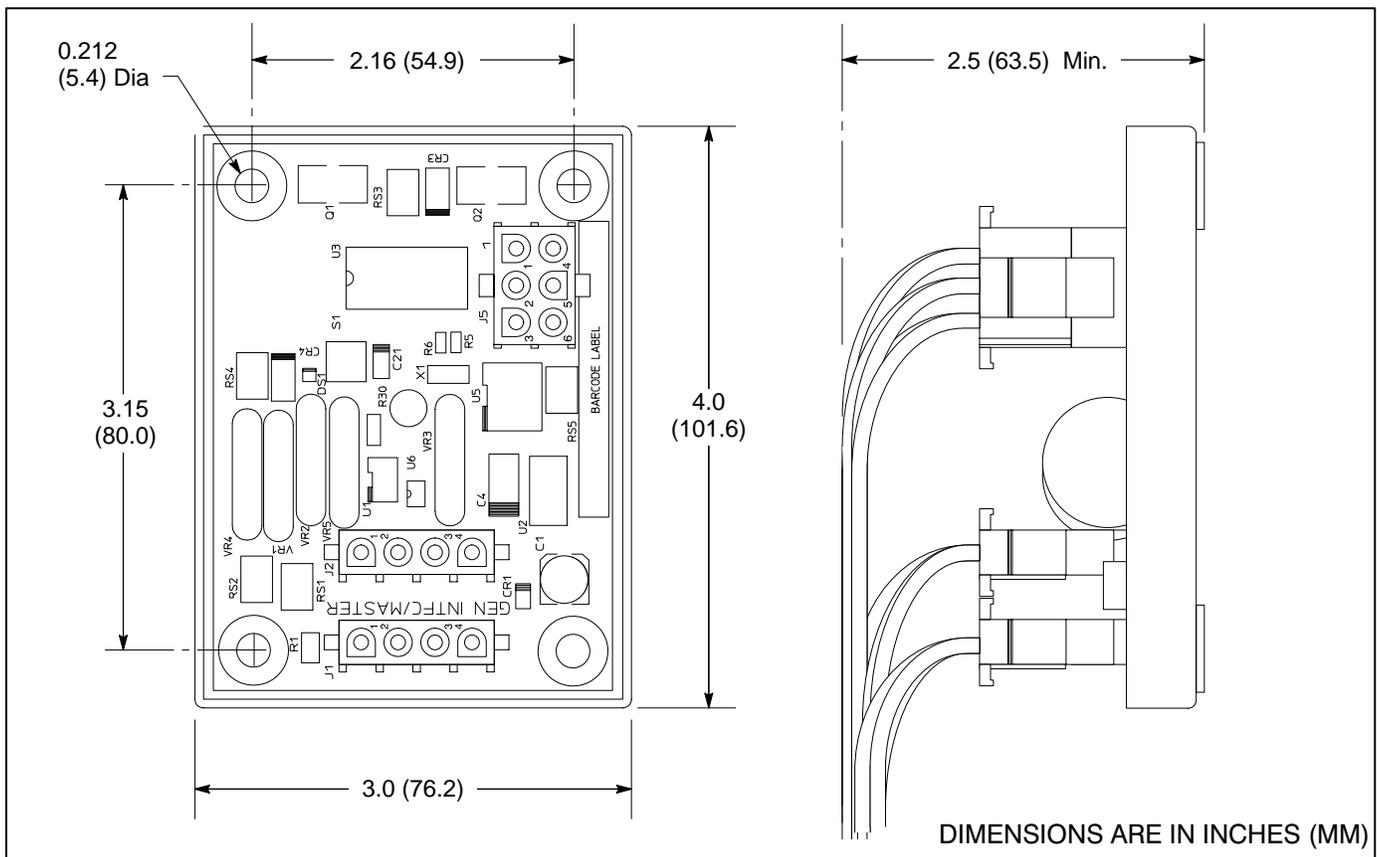


FIGURE 5-1. MASTER NODE

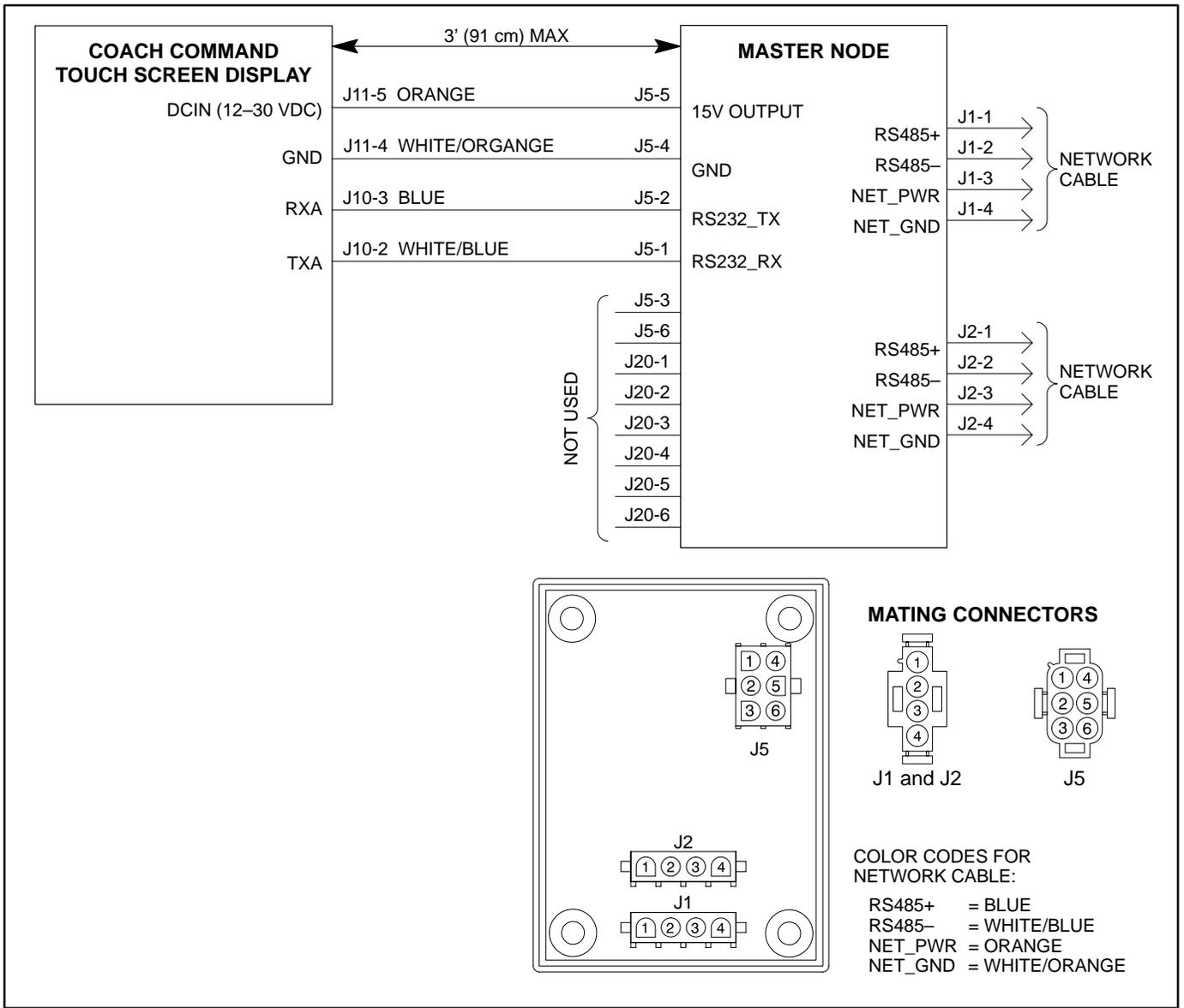


FIGURE 5-2. MASTER NODE WIRING DIAGRAM – INSTALLATIONS WITH ONE TOUCH SCREEN DISPLAY

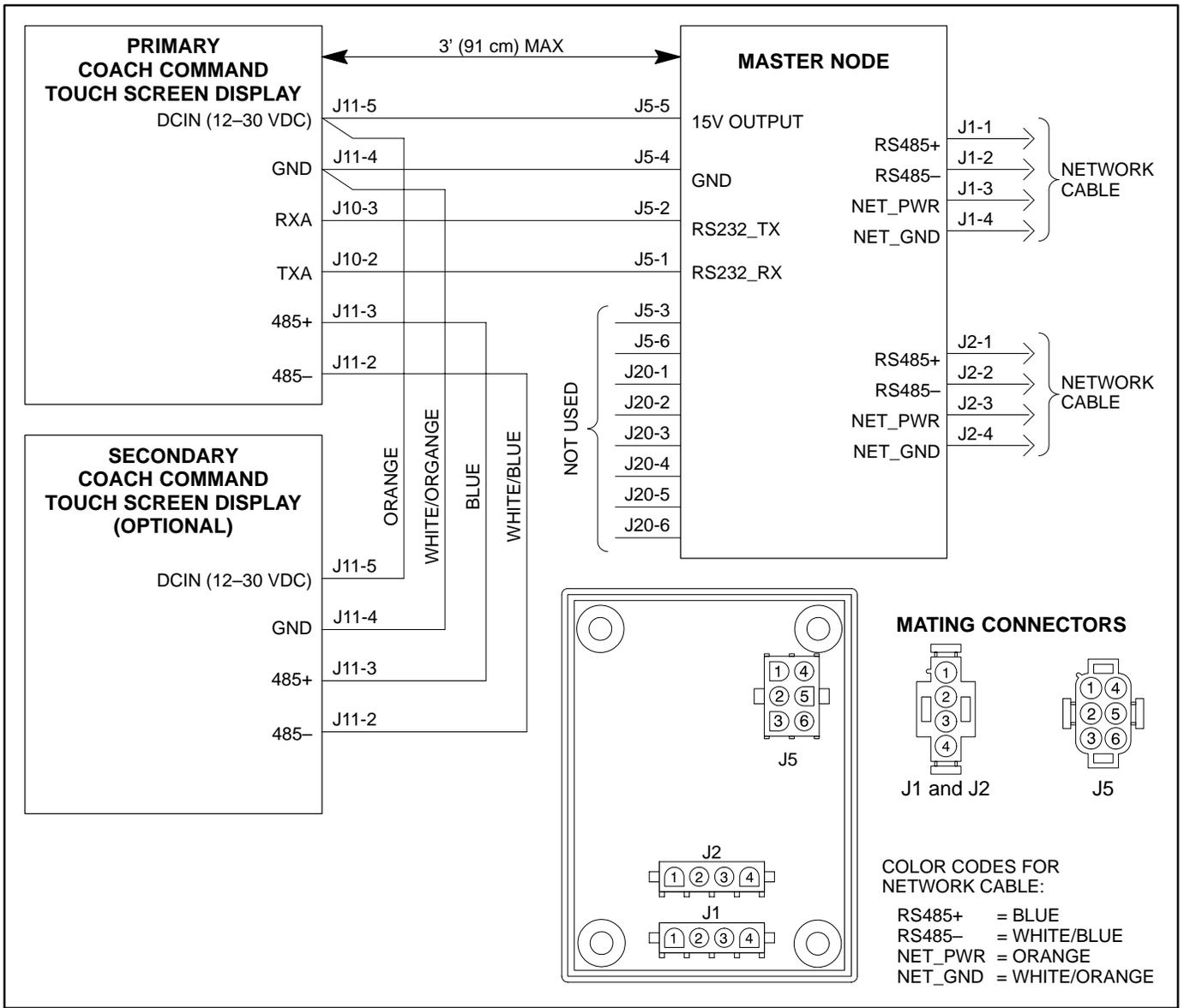


FIGURE 5-3. MASTER NODE WIRING DIAGRAM – INSTALLATIONS WITH AN OPTIONAL SECONDARY TOUCH SCREEN DISPLAY

6. Load Control Node Installation

This procedure describes the installation of Load Control Nodes. Up to seven nodes can be installed to provide load control and monitoring for items such as air conditioners, hot water heater, engine block heater, and appliances.

A separate Load Control Node must be installed for each controlled load.

GENERAL INFORMATION

- Use 18 AWG (minimum) wire for all connections.
- Use one current transformer with each load control node.
- A relay can pass up to 2 amps.

GENERIC LOAD CONTROL NODE INSTALLATION

This subsection describes installing all Load Control Nodes except those used with Dometic or Coleman Air Conditioners. For information on installing Load

Control Nodes used with Dometic Air Conditioners, see page 6-3. For information on installing Load Control Nodes used with Coleman Air Conditioners, see page 6-5.

1. Choose a location that provides adequate clearance for the communications cable (see Figure 6-1). An acceptable location for mounting most Load Control Nodes is near the load it is controlling.
2. Drill mounting holes as shown in Figure 6-1. Make sure you do not drill into other electrical components.
3. Adjust the dip switch setting on each Load Control Node so each controlled load has a unique node address (see the Coach Command System Worksheet at the end of this manual). For reference purposes, write the name of the load on the Worksheet for each address being used.
4. Use appropriate fasteners to secure each node. Do not overtighten screws.

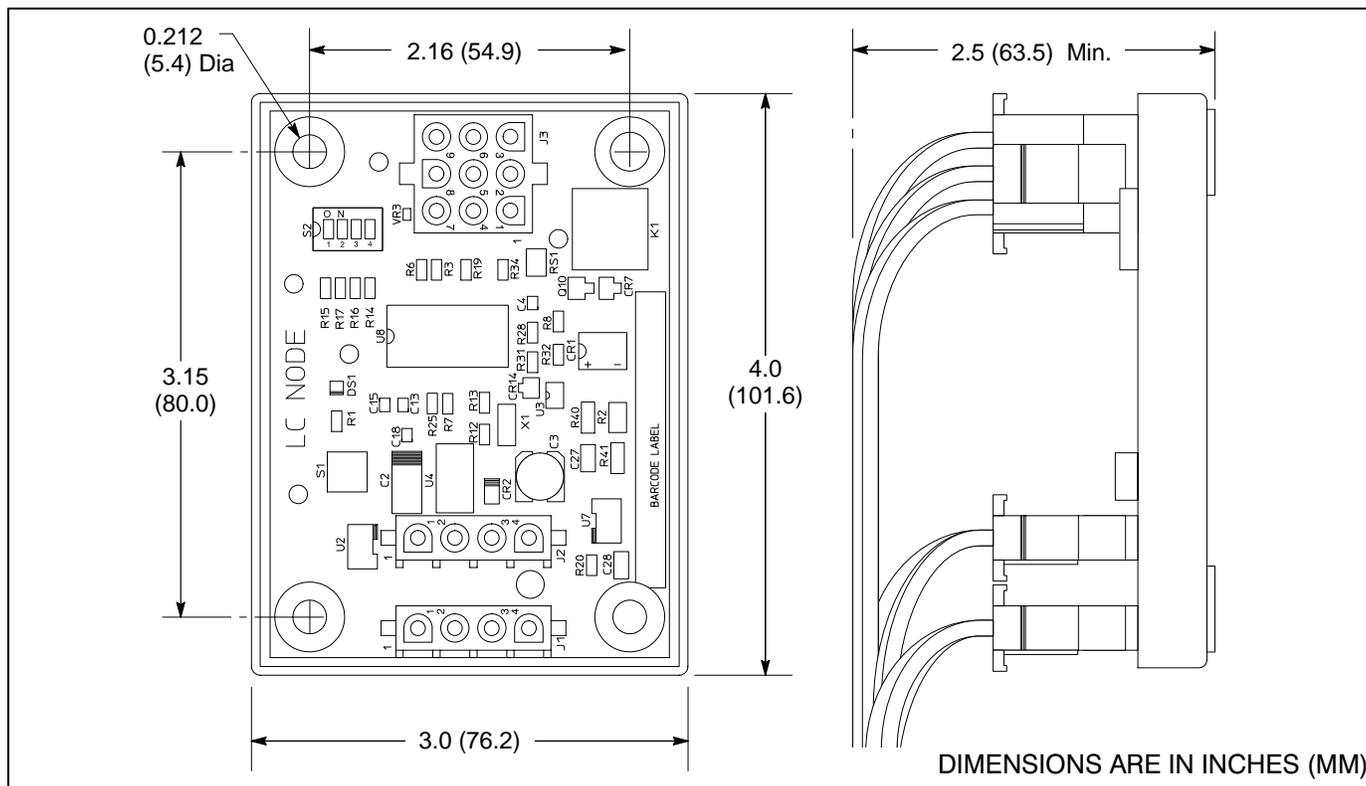


FIGURE 6-1. LOAD CONTROL NODE

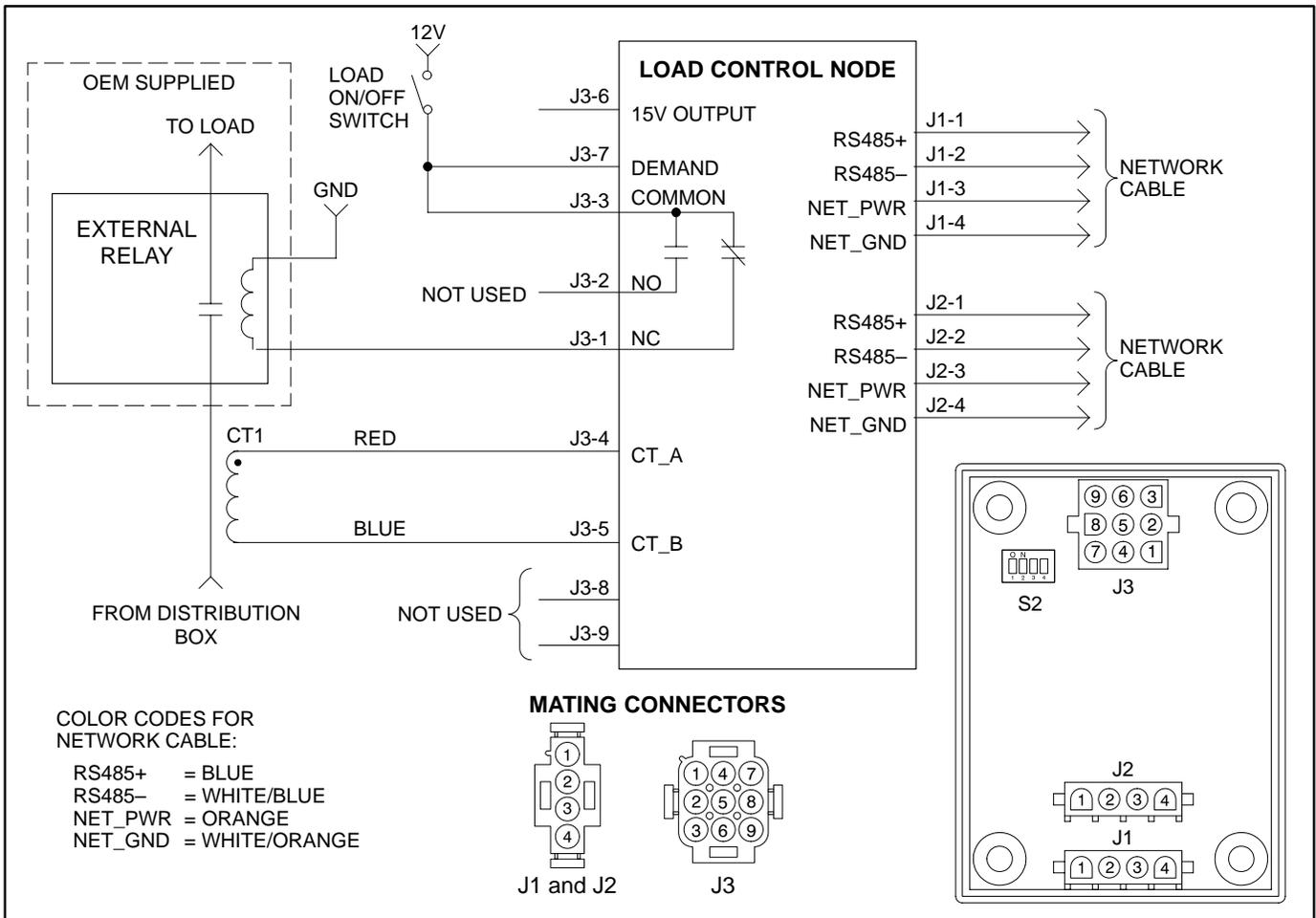


FIGURE 6-2. LOAD CONTROL WIRING DIAGRAM

- Refer to the wiring diagram (Figure 6-2) to route wires from the device to the Load Control Node, and from the Load Control Node to the next node on the network.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.
 - All mating connectors require pin contacts.
- Check to make sure the 12V power source connected to the load ON/OFF switch is fused at 20 amps or less.
 - When connecting a wire from the distribution box to the load's external relay, run the wire through a current transformer (see Figure 6-3).

- In motor home applications, current transformer wiring is not polarity sensitive.
- To prevent movement, secure the current transformer to the wire with a cable tie.

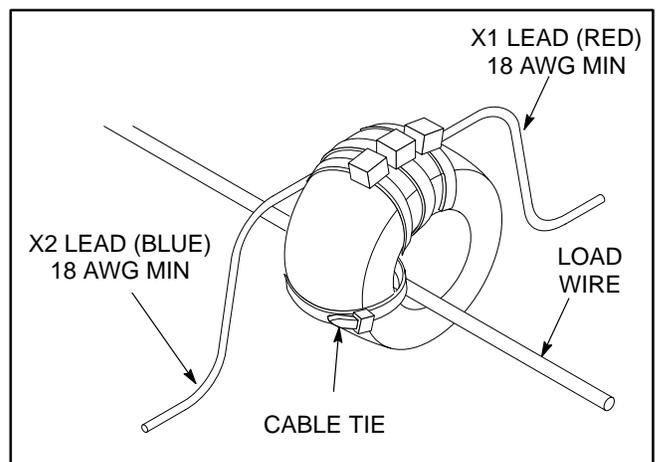


FIGURE 6-3. CURRENT TRANSFORMER INSTALLATION

INSTALLING LOAD CONTROL NODES USED WITH DOMETIC AIR CONDITIONERS

This procedure describes installation of Load Control Nodes used with Dometic Air Conditioners.

1. Choose a location that provides adequate clearance for the communications cable (see Figure 6-1). The suggested location for mounting Dometic air conditioner Load Control Nodes is next to the Dometic Automatic Generator Start (AGS) control box.
2. Drill mounting holes as shown in Figure 6-1.
3. Adjust the dip switch setting on each of the three Load Control Nodes used (see the Coach Command System Worksheet at the end of this manual) so each one has a unique node address. For reference purposes, write the name of the load on the Worksheet for each address being used.
4. Use appropriate fasteners to secure each node. Do not overtighten screws.

5. Use the wiring diagrams to route wires from the device to the node, and from the node to the next node on the network. Figure 6-4 shows the wiring diagrams for the Load Control Nodes used with the front, middle, and rear Dometic air conditioners. Refer to Appendix A for the required wire type used for node connections.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.
 - All mating connectors require pin contacts.
6. In the AGS box:
 - Connect the black and white 120VAC wires together.
 - Set the AGS switch to ON.

INSTALLING LOAD CONTROL NODES USED WITH COLEMAN AIR CONDITIONERS

This procedure describes installation of Load Control Nodes used with a Coleman Air Conditioners.

1. Choose a location that provides adequate clearance for the communications cable (see Figure 6-1). The suggested location for mounting a Coleman air conditioner Load Control Node is next to the RV Products A/C control box.
2. Drill mounting holes as shown in Figure 6-1.
3. Adjust the dip switch setting on the Load Control Node used (see the Coach Command System Worksheet at the end of this manual) so it has a unique node address. For reference purposes, write the name of the load on the Worksheet for the address being used.

4. Use appropriate fasteners to secure each node. Do not overtighten screws.
5. Use the wiring diagram to route wires from the control box to the node, and from the node to the next node on the network. Figure 6-5 shows the wiring diagrams for the Load Control Node used with the Coleman air conditioner. Refer to Appendix A for the required wire type used for node connections.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.
- All mating connectors require pin contacts.

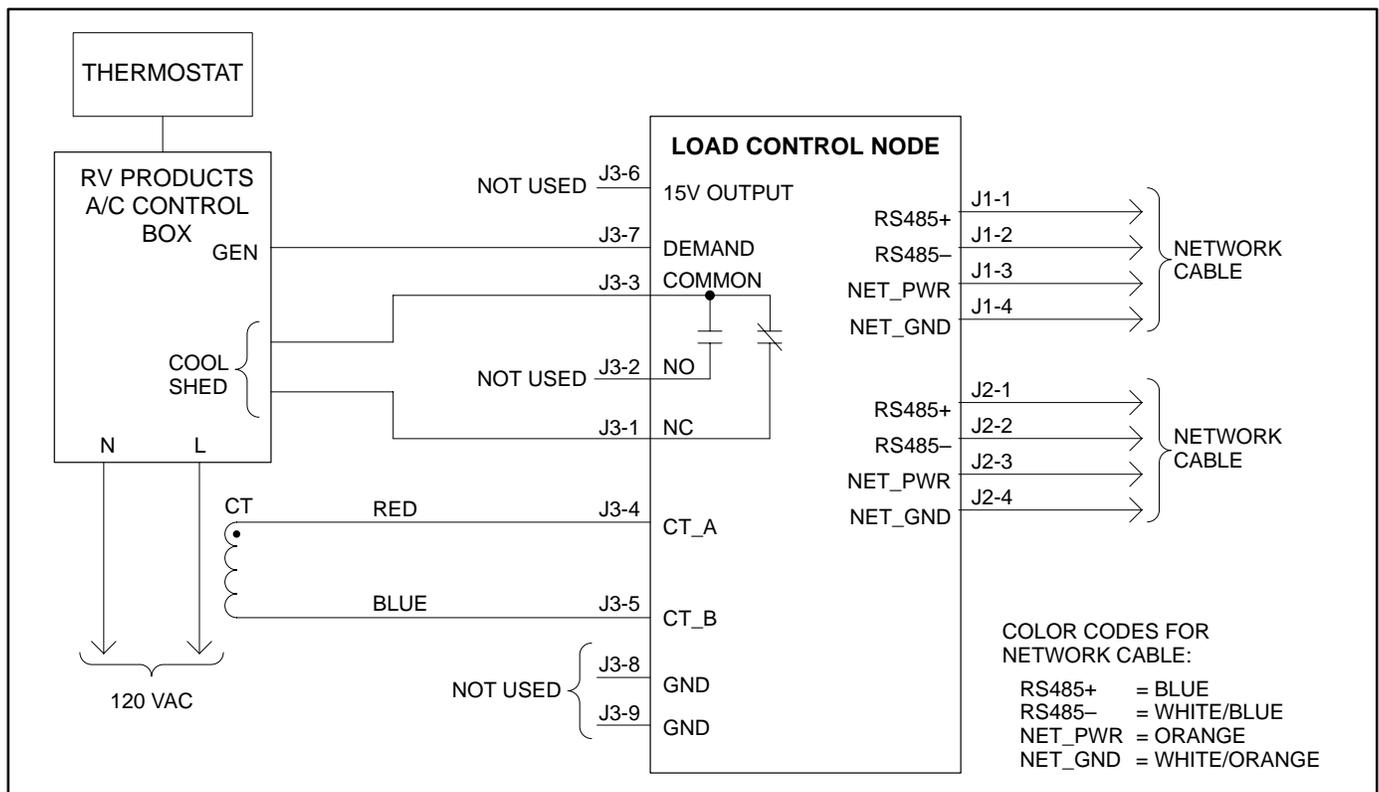


FIGURE 6-5. COLEMAN AIR CONDITIONER WIRING DIAGRAM

7. Generator Interface Node Installation

This procedure describes the installation of a Generator Interface Node. The node is used on Onan Genset Models 7.5/8.0QD and 10.0/12.5QD. This node starts, stops, and communicates with Onan gensets.

GENERAL INFORMATION

- Wires must have an OD between 0.080–0.112 to fit the seals in the Packard weathertight remote connector.
- Use 18 AWG (minimum) wire for all connections.
- Do not mount the node near a heater core assembly.

INSTALLATION

An acceptable location to mount the Generator Interface Node is on the interior side of the front firewall. Mount all components in a **dry** and accessible location.

1. Choose a location that provides adequate clearance for the communications cable (see (see Figure 7-1). Select a location that is within 15 feet (457.2 cm) (wire length) of the genset.
2. Drill mounting holes as shown in Figure 7-1. Make sure you do not drill into other electrical components.
3. Use appropriate fasteners to secure the node. Do not overtighten screws.

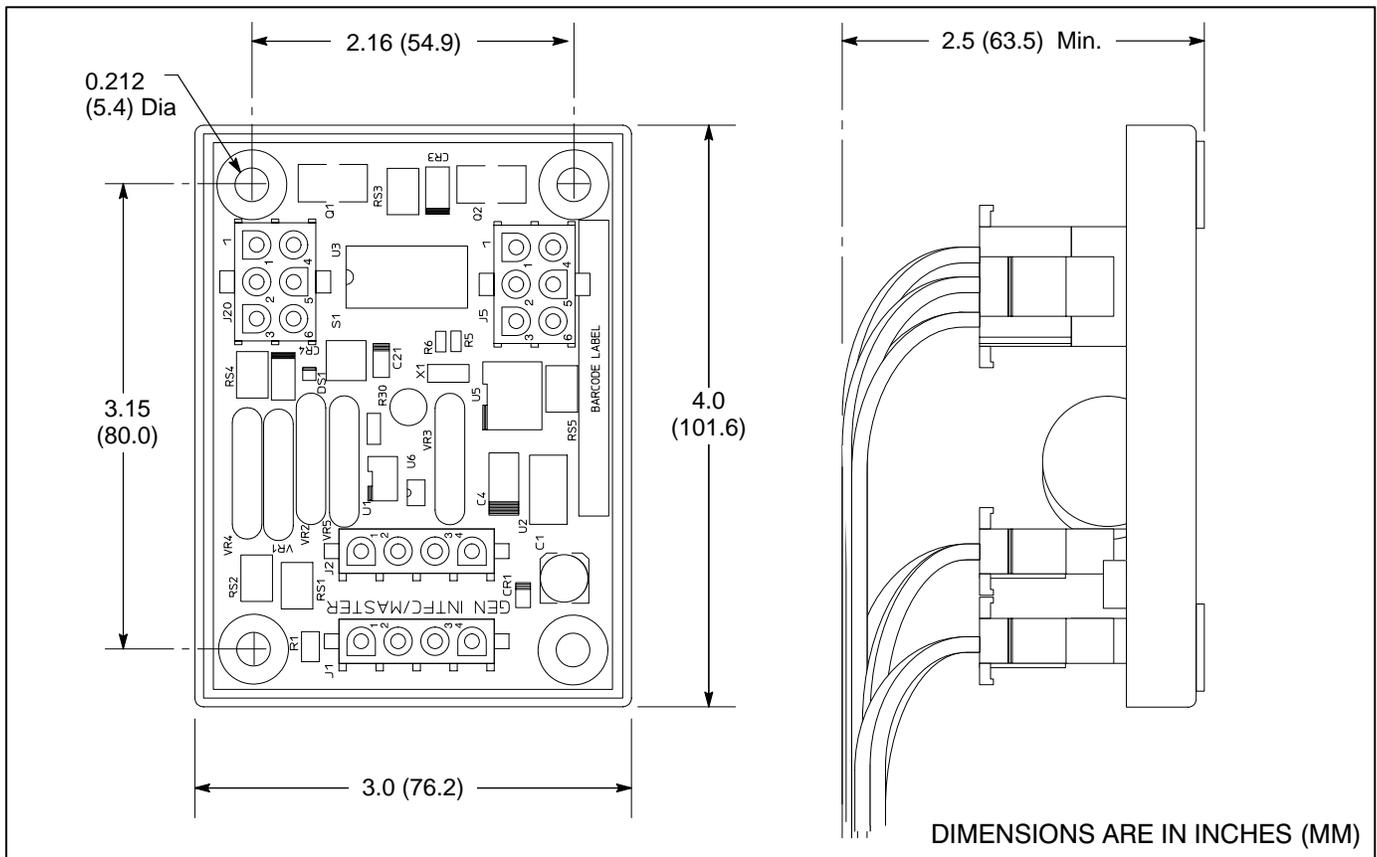


FIGURE 7-1. GENERATOR NODE

- Refer to the wiring diagram (Figure 7-2) to route wires from genset to Genset node, and from the Genset node to next node on the network.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed. Weather-tight integrity of all wires connected to the genset remote harness must be maintained.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.
 - All mating connectors require pin contacts.
- Install the wires to the generator in the 10-pin Packard weathertight connector with seals on each wire.
 - Record the Generator type on the Coach Command System Worksheet at the end of this manual.

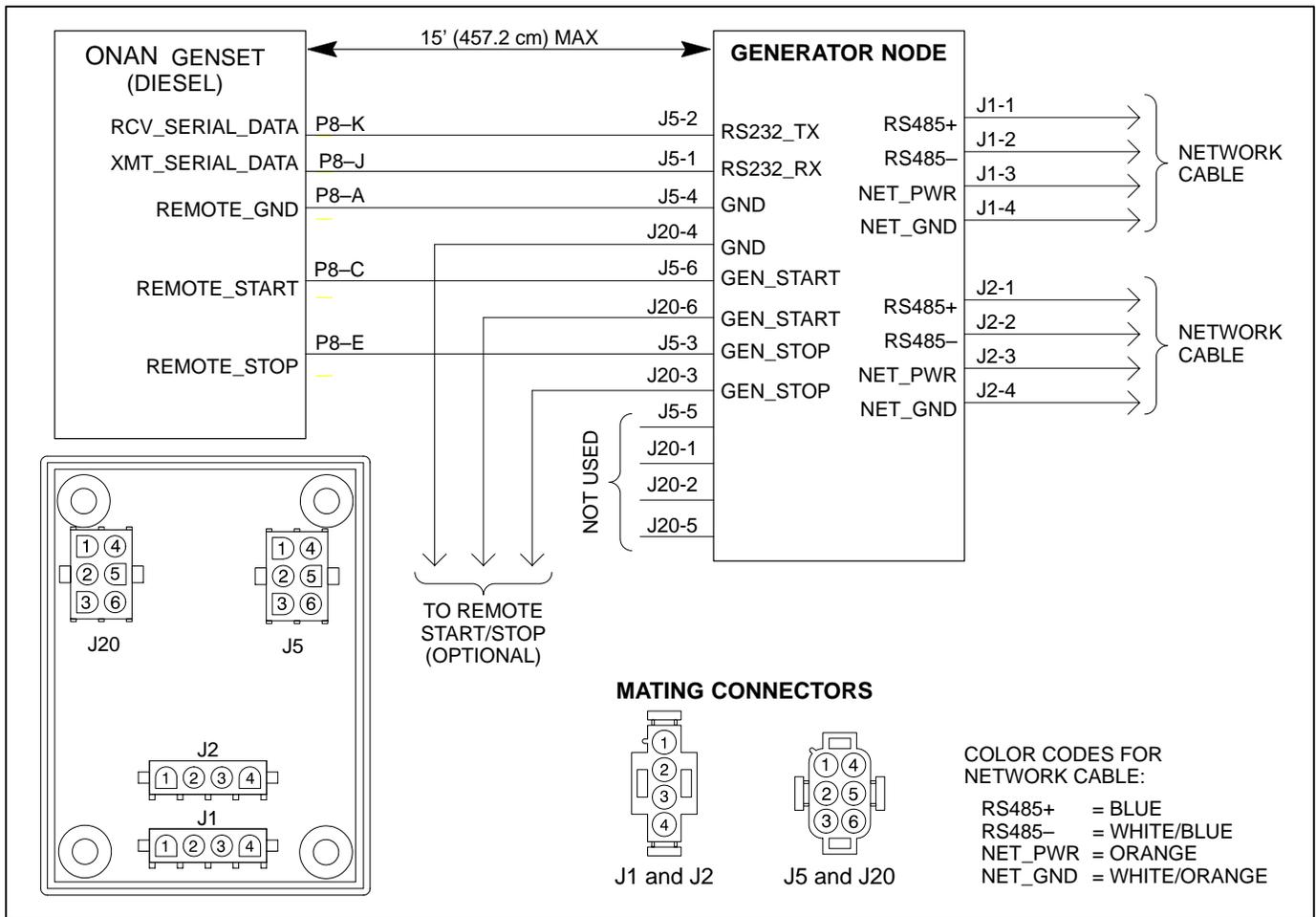


FIGURE 7-2. GENERATOR NODE WIRING DIAGRAM

8. Tank Level Node Installation

This procedure describes the installation of a Tank Level Node. The Tank Level Node provides tank level monitoring for the fresh water, grey water, black water, and liquid propane gas tanks.

GENERAL INFORMATION

- Use 18 AWG (minimum) wire for all connections.

INSTALLATION

1. Choose a location that provides adequate clearance for the communications cable (see Figure 11-1). Mount all components in a **dry** and accessible location.
2. Drill mounting holes as shown in Figure 8-1. Make sure you do not drill into other electrical components.
3. Use appropriate fasteners to secure the node. Do not overtighten screws.
4. Refer to the wiring diagrams (Figure 8-2 for ac-

tive type senders and Figure 8-3 for resistive type senders) to route wires from a tank level sensor to the Tank Level Node.

5. Route wire from the Tank Level Node to next node on the network.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.

- All mating connectors require pin contacts.

6. Record the Sender type on the Coach Command System Worksheet at the end of this manual.

NOTE: Active senders return a voltage value that correlates with the tank level sensor value. Resistive senders return a resistive value from the tank sensor.

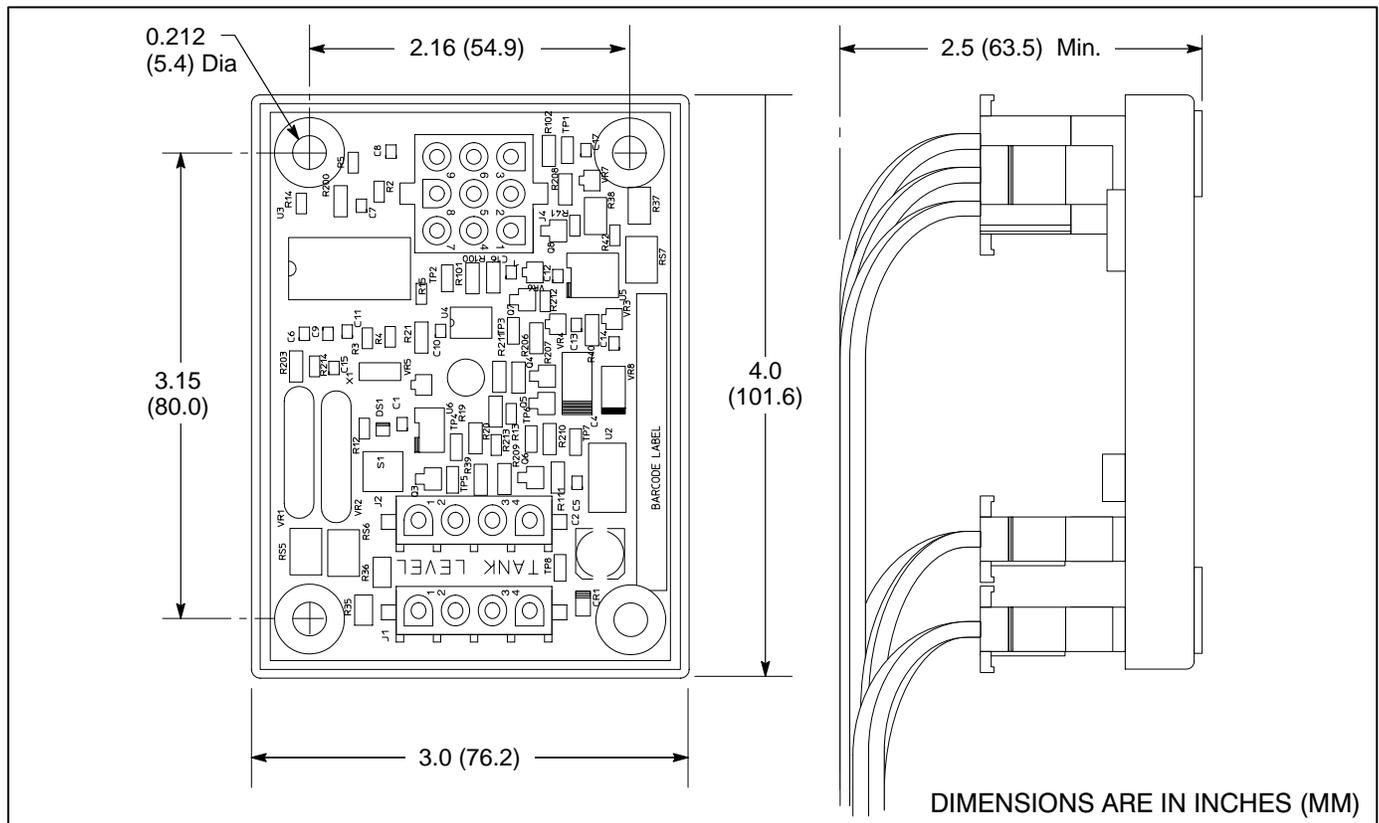


FIGURE 8-1. TANK LEVEL NODE

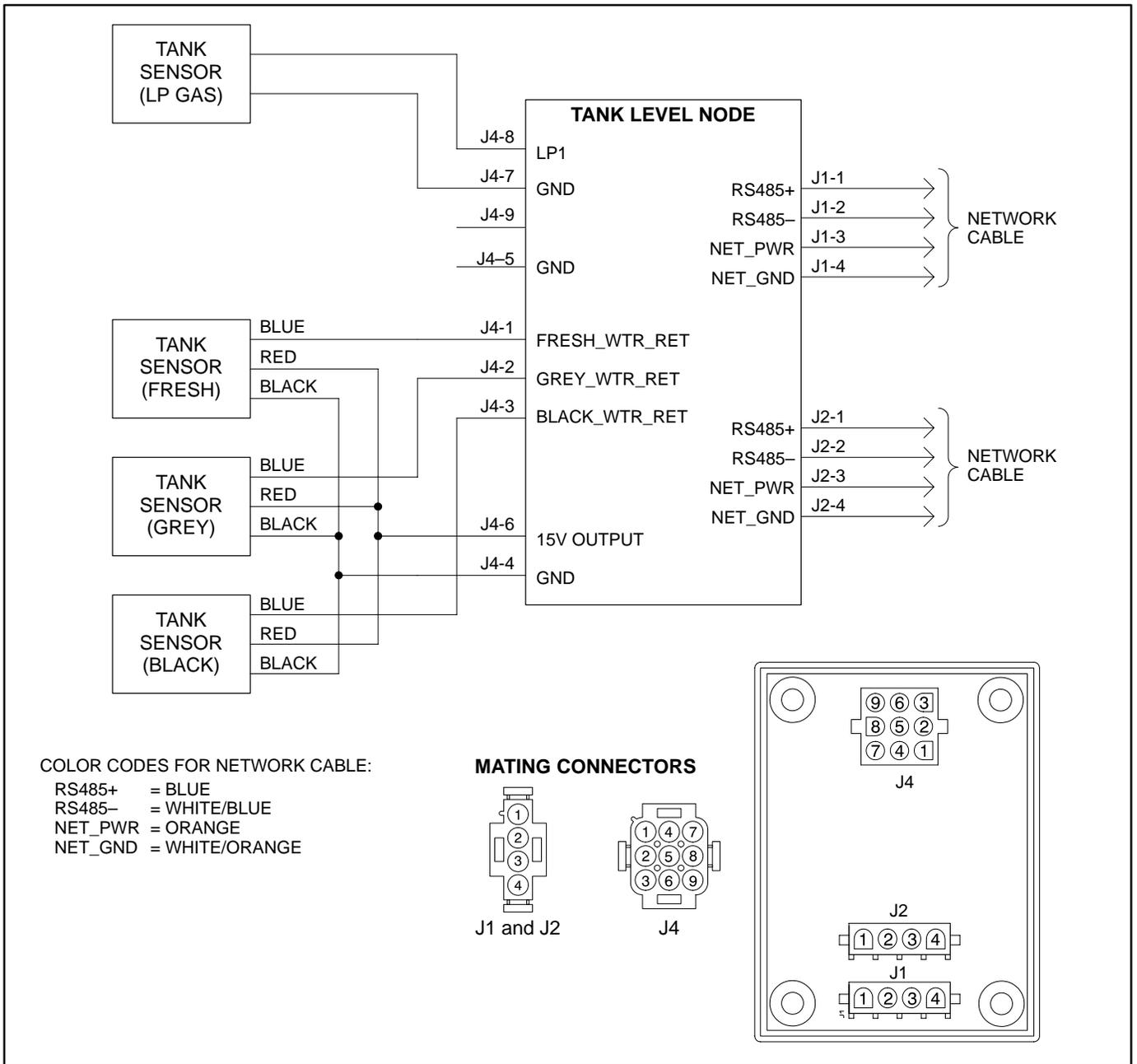


FIGURE 8-2. TANK NODE WIRING DIAGRAM – ACTIVE SENDERS

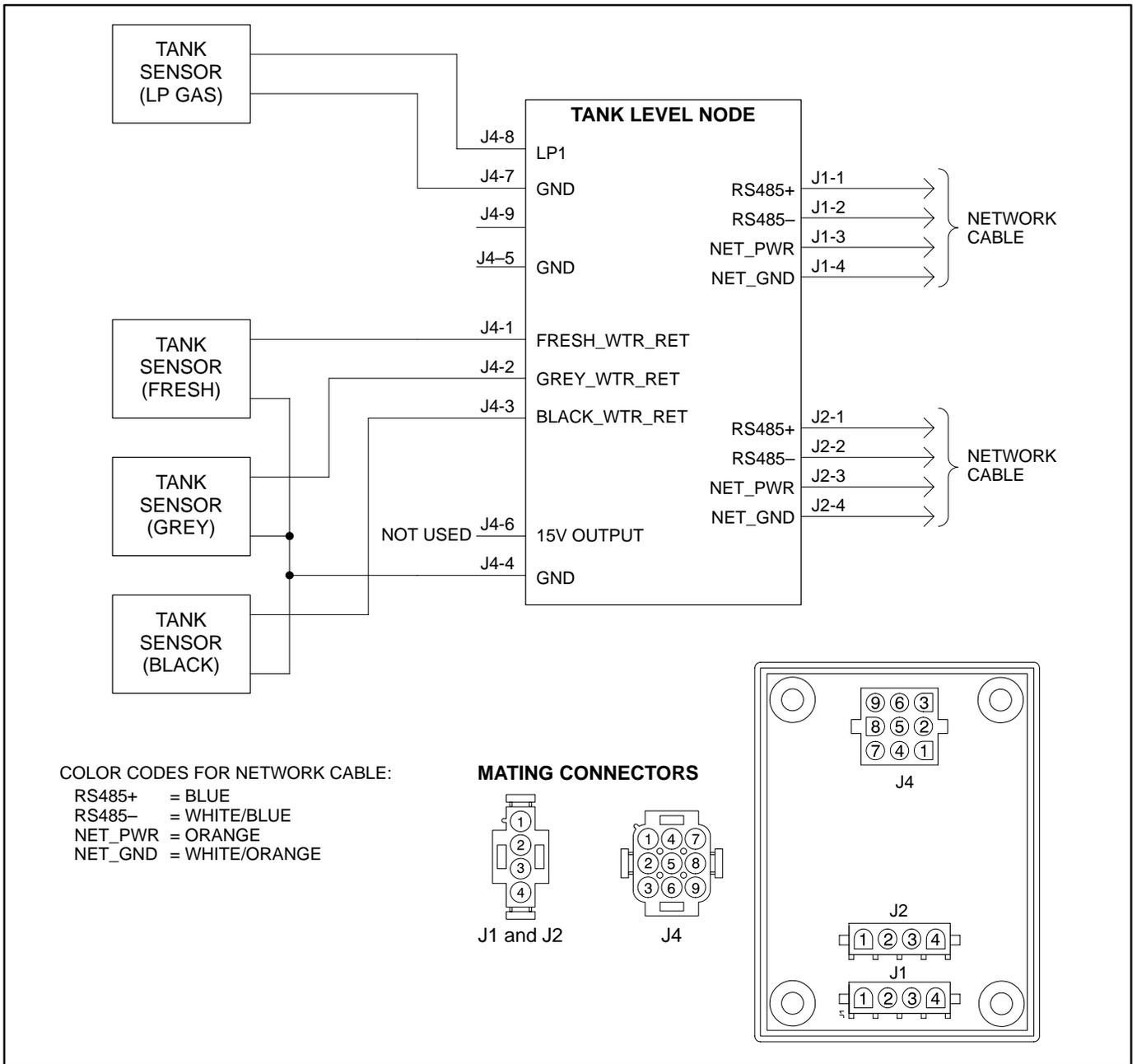


FIGURE 8-3. TANK NODE WIRING DIAGRAM – RESISTIVE SENDERS

9. Transfer Switch Node Installation

This procedure describes the installation of the Transfer Switch Node. The Transfer Switch Node contains the network power supply and provides the network with coach voltages, currents, and battery voltage.

GENERAL INFORMATION

- A battery supply shall be on a 5 amp fuse and controlled by a switch. The 5 amp fuse and fuse holder is included in the Coach Command kit.
- Use 14 gauge wire (minimum) to connect the battery to the Transfer Switch Node (Main B+) battery supply input.
- The battery supply must have less than 0.5V voltage difference from the battery to the node.
- Use 18 gauge wire (minimum) with a 5 amp fuse for the auxiliary battery sense line (Aux B+). Connect the auxiliary battery sense line as close to the batteries as possible for accurate battery monitoring. The 5 amp fuse and fuse holder is included in the Coach Command kit.
- Use 18 AWG wire for current transformers.
- The Transfer Switch Node is to be mounted with the protective box, as supplied with the system.
- The Coach Command ON/OFF switch is to be supplied by the installer.

INSTALLATION

The Transfer Switch Node should be mounted in the box close to the transfer switch.

1. Choose a location that provides adequate clearance for the transfer switch node cover (see Figure 9-1) and the communication cables (see Figure 9-2).
2. Drill mounting holes as shown in Figure 9-1. Make sure you do not drill into other electrical components.
3. Use appropriate fasteners to secure the node. Do not overtighten screws.

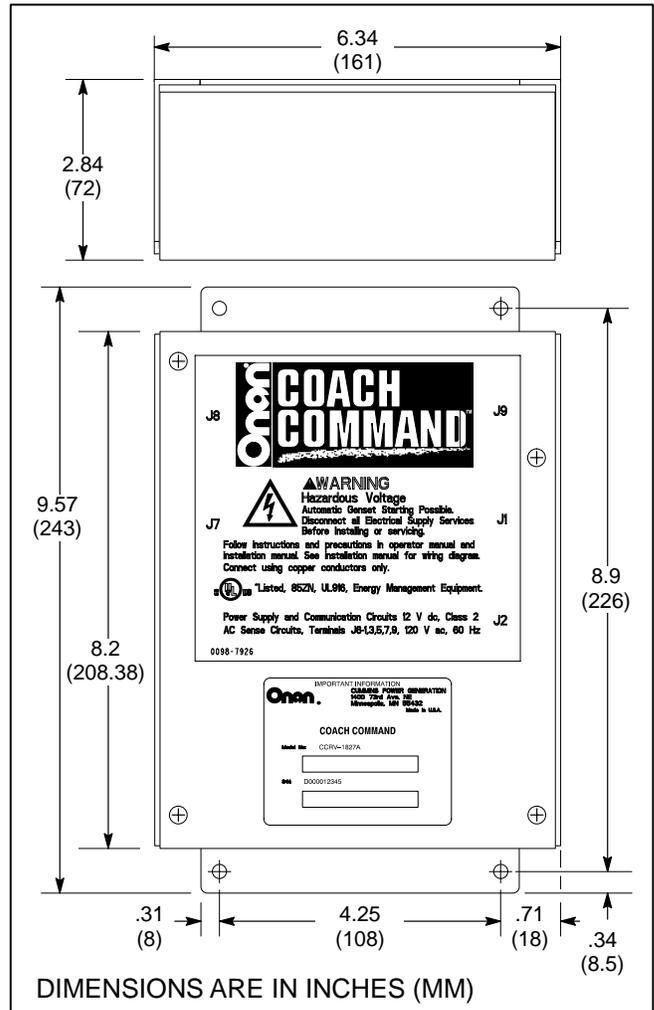


FIGURE 9-1. TRANSFER SWITCH NODE COVER

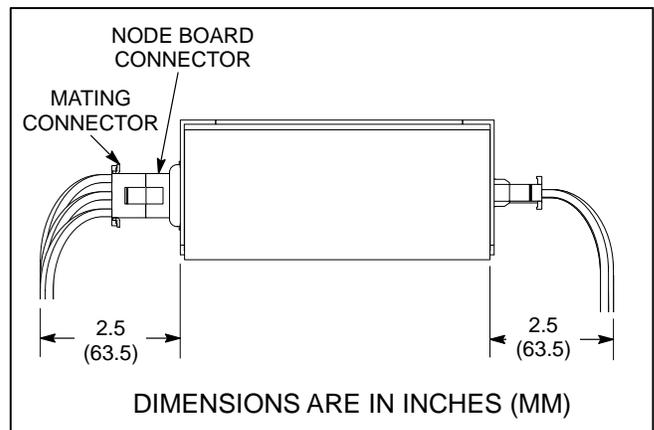


FIGURE 9-2. TRANSFER SWITCH NODE CABLE CONNECTIONS

4. Refer to the wiring diagrams to route wires from the Transfer Switch Node to the device and from the Transfer Switch Node to the next node on the network.
 - Configuration 0: Figure 9-5
 - Configuration 1: Figure 9-6
 - Configuration 2: Figure 9-7
 - Configuration 3: Figure 9-8

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed.

Refer to Appendix A to select the appropriate mating connectors, the network cable, and the voltage sense wiring to use. Table 9-1 shows the six connector types used on the Transfer Switch Node board. Be sure to use the appropriate contact type when assembling mating connectors.

TABLE 9-1. NODE BOARD CONNECTORS

Connection	Mating Terminal
J1 (4-Circuit)	Pin Contacts
J2 (4-Circuit)	Pin Contacts
J6 (9-Circuit)	Socket Contacts
J7 (6-Circuit)	Socket Contacts
J8 (6-Circuit)	Pin Contacts
J9 (4-Circuit)	Socket Contacts

5. When connecting a line from the AC distribution panel to the inverter(s) or from the inverter(s) to the transfer switch, run each line voltage wire through a current transformer (see Figure 9-3). All 120 VAC Shore Power must pass through the Coach Command power management system current sensor.
 - Current transformer polarity does not matter.
 - To prevent movement, secure the current transformer to the wire with a cable tie as shown below.

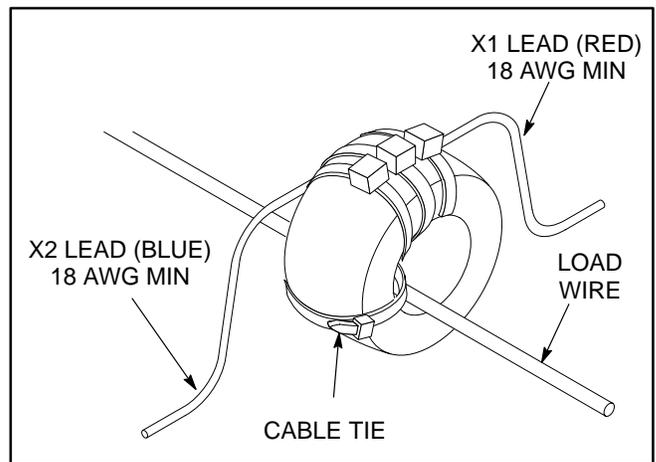


FIGURE 9-3. CURRENT TRANSFORMER INSTALLATION

6. For voltage sense wiring, use wire approved for 120 VAC.
7. Two knock-out openings in the transfer switch node box are available for routing wires or cables to the J6 connector located inside the box (see Figure 9-4).
 - A square opening is located on the bottom right side of the transfer switch node box. Secure the wires for the mating J6 connector with the supplied strain relief bushing. Insert the strain relief bushing into the slot as shown in Figure 9-4.
 - A round opening is located on the left side of the transfer switch node box. A strain relief housing must be supplied to protect the J6 connector wiring from rubbing against the edges of the opening.
8. Refer to the wiring diagrams and mount the 5 amp fuse holder assemblies inside the Transfer Switch for the voltage sense.
9. Record the Configuration type on the Coach Command System Worksheet at the end of this manual.

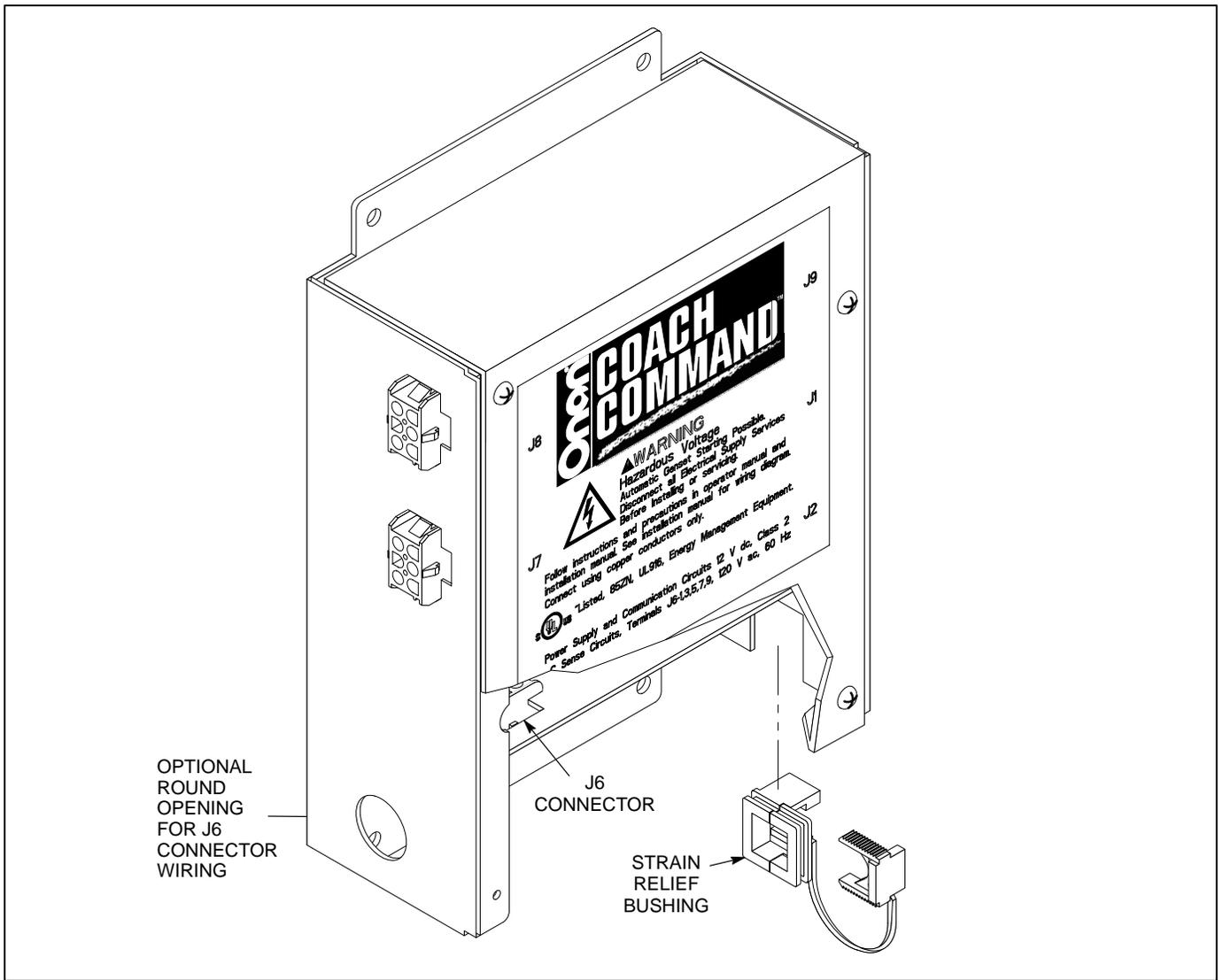


FIGURE 9-4. TRANSFER SWITCH NODE– J6 CONNECTOR WIRING INSTALLATION

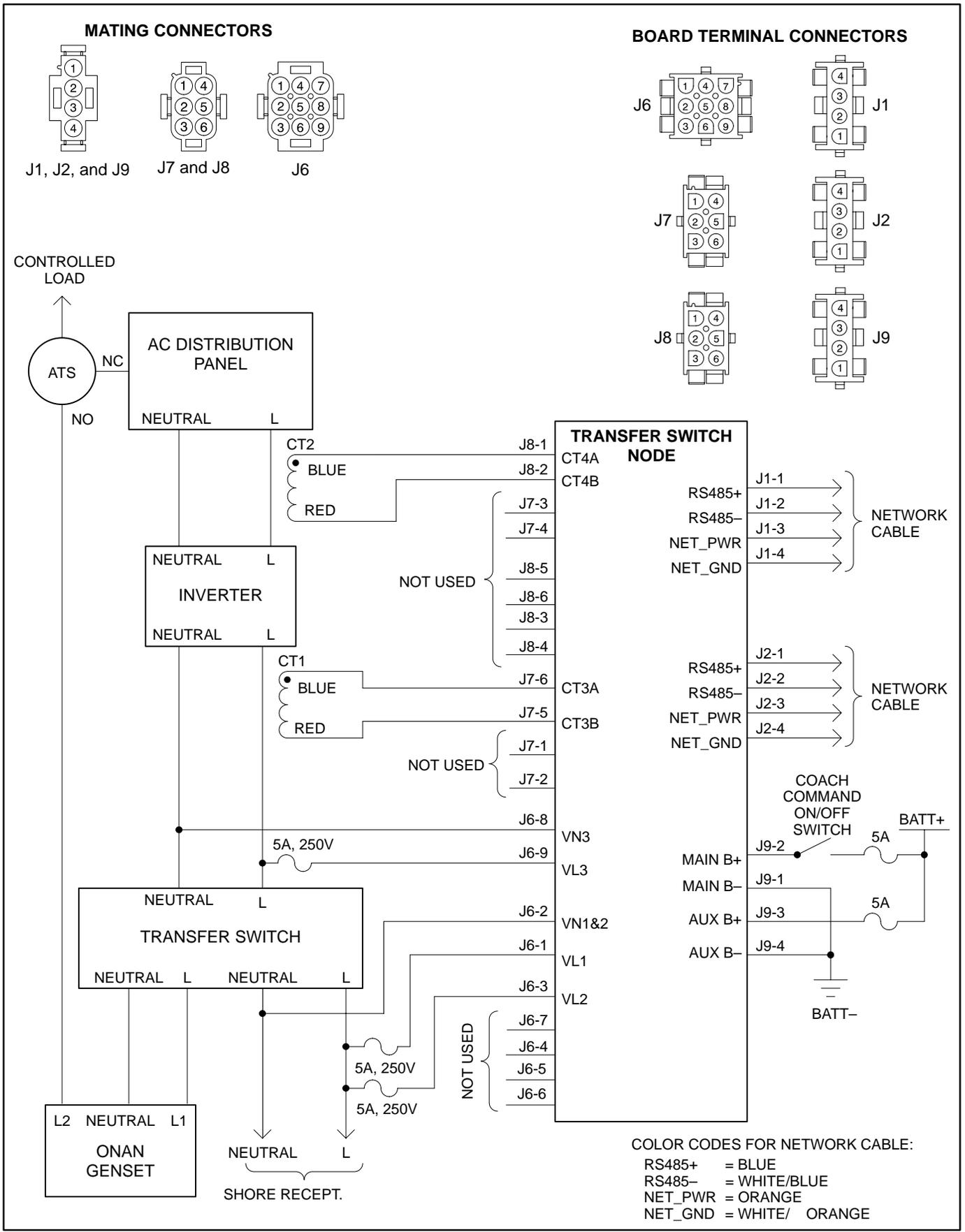


FIGURE 9-5. TRANSFER SWITCH NODE WIRING DIAGRAM – CONFIGURATION 0

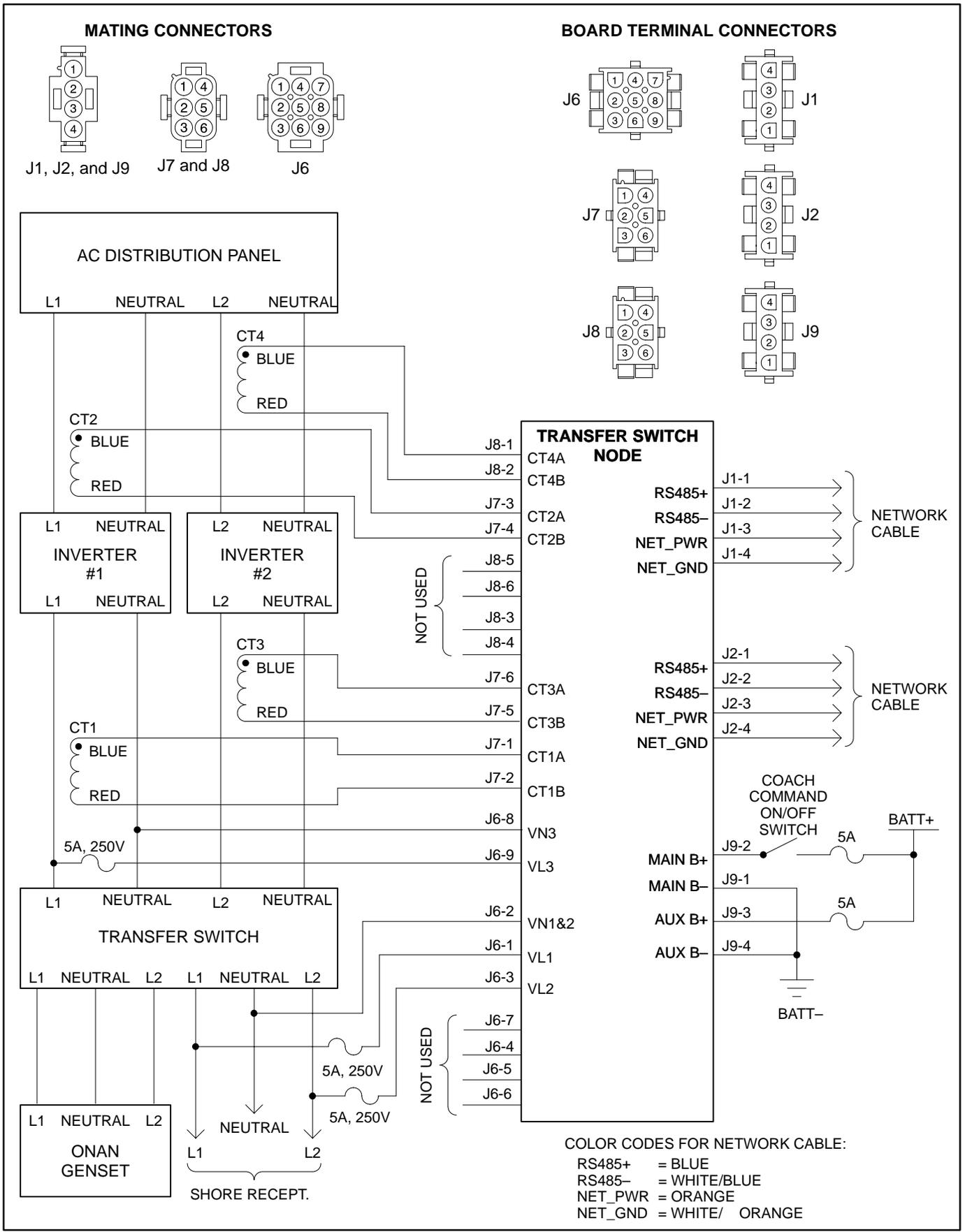


FIGURE 9-6. TRANSFER SWITCH NODE WIRING DIAGRAM – CONFIGURATION 1

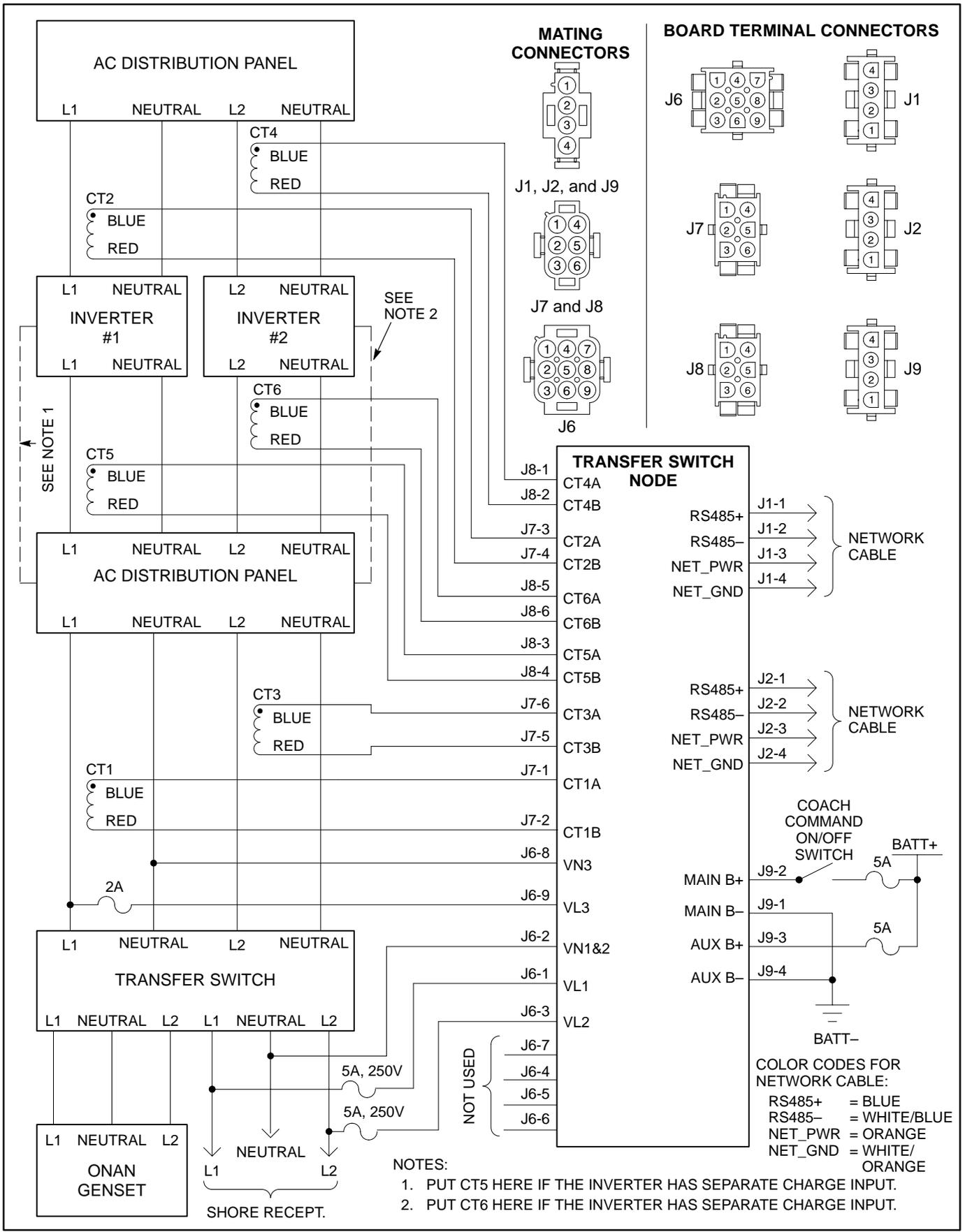


FIGURE 9-7. TRANSFER SWITCH NODE WIRING DIAGRAM – CONFIGURATION 2

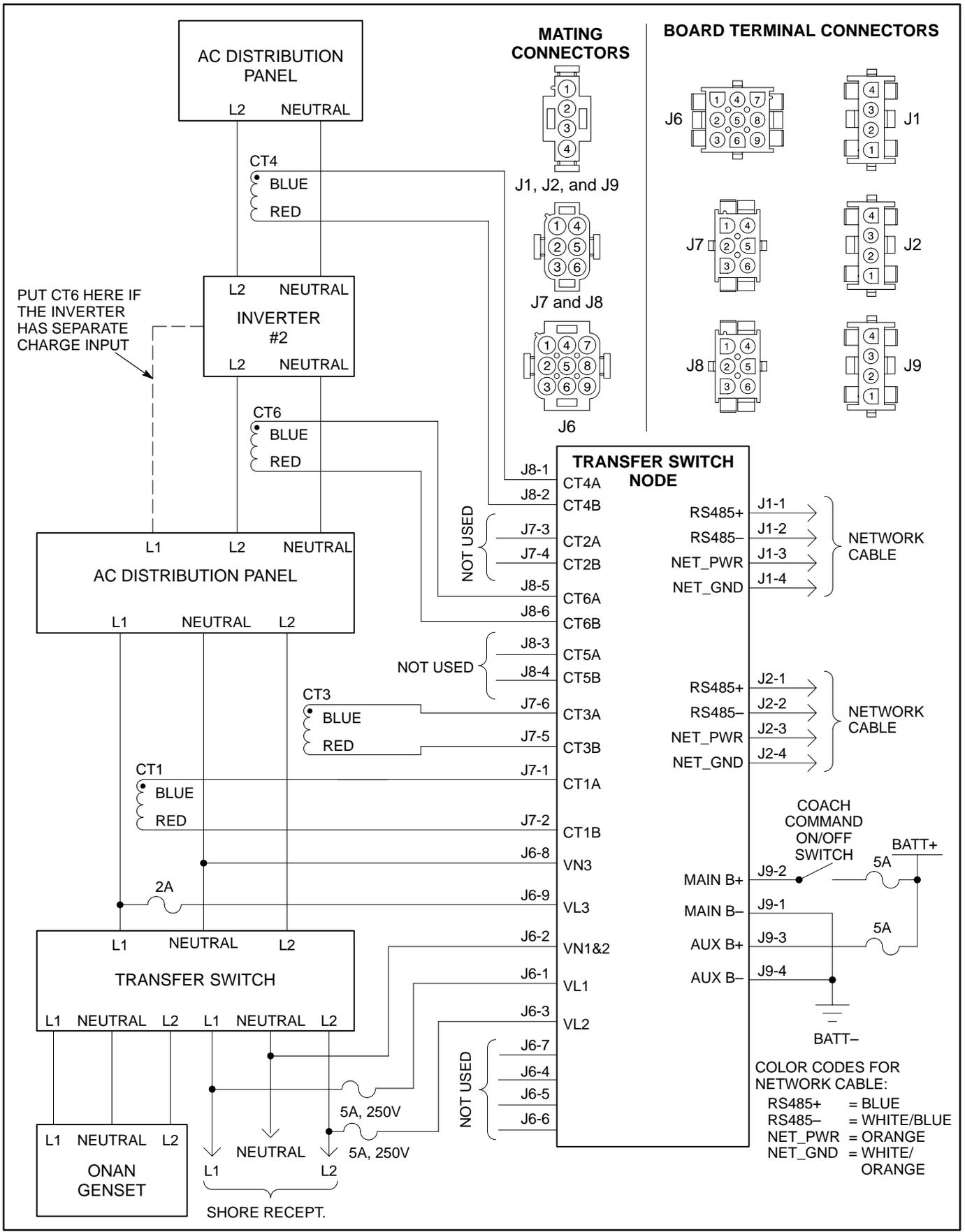


FIGURE 9-8. TRANSFER SWITCH NODE WIRING DIAGRAM – CONFIGURATION 3

10. Engine Interface (CAN) Node Installation

This procedure describes the installation of a Engine Interface Controller Area Network (CAN) Node. The CAN Node provides monitoring of the coach engine.

1. Choose a location that provides adequate clearance for the communications cable (see Figure 10-1).
2. Drill mounting holes as shown in Figure 10-1. Make sure you do not drill into other electrical components.
3. Use appropriate fasteners to secure each node. Do not overtighten screws.
4. Refer to the wiring diagram (Figure 10-2) to route wires from the device to the CAN Node,

and from the CAN Node to the next node on the network.

NOTE: Do not route wires over sharp, abrasive, or hot surfaces. Avoid areas where wires may be chafed. Weather-tight integrity of all wires connected to the J1939 backbone must be maintained.

- Refer to Appendix A to select the appropriate mating connectors and the network cable to use.
 - All mating connectors require pin contacts.
5. Connect the CAN Node (J10 3-pin connector) to the J1939 backbone (see Figure 10-3) of the coach engine (see Appendix A).

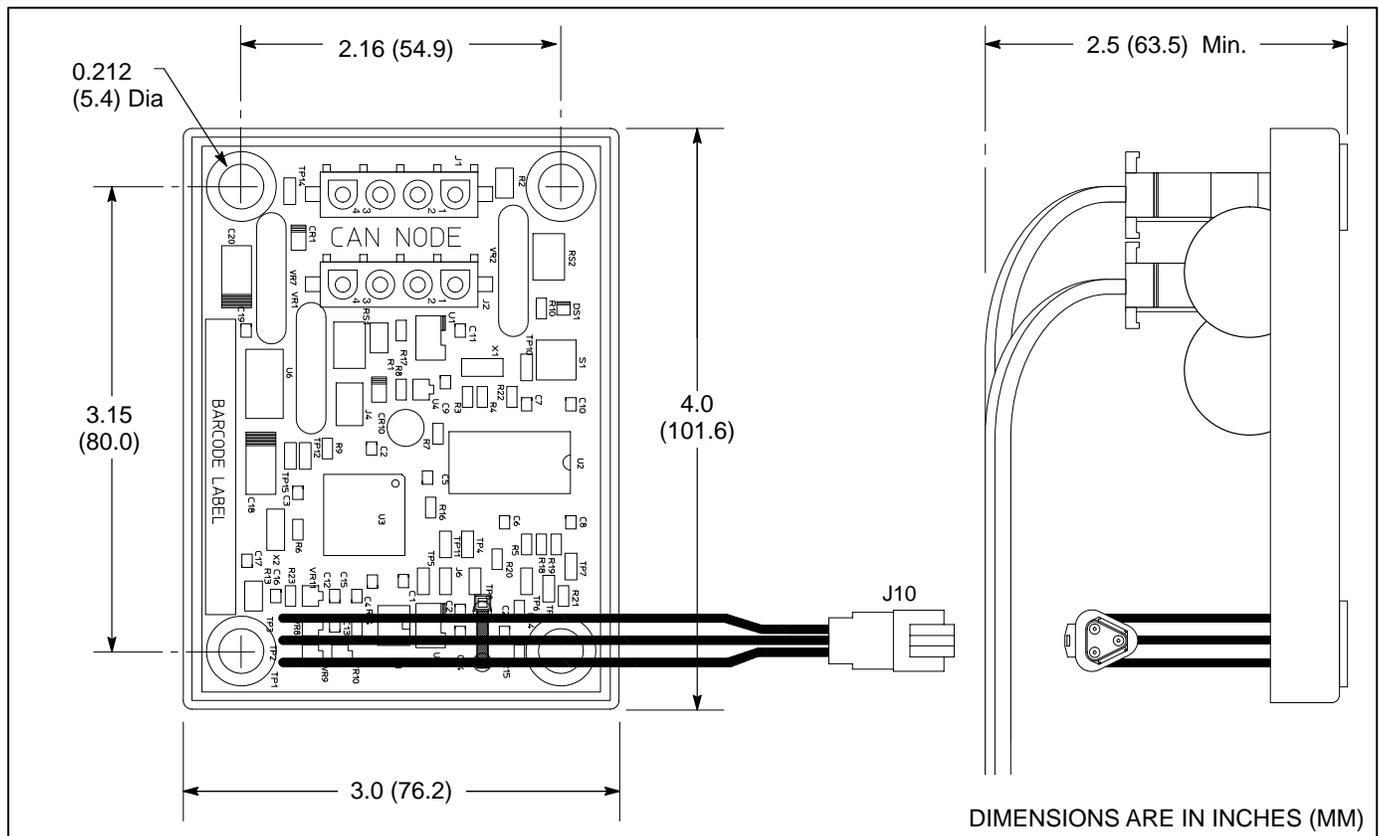


FIGURE 10-1. ENGINE INTERFACE NODE

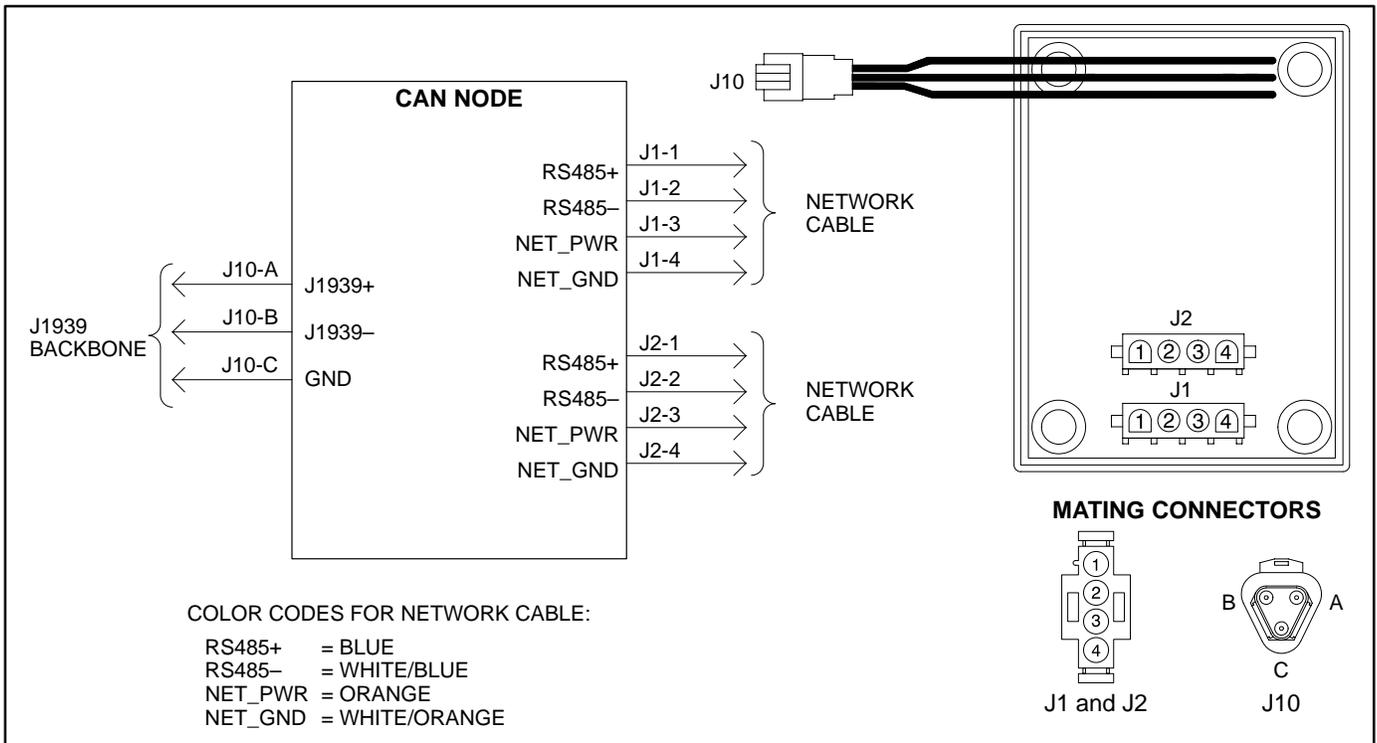


FIGURE 10-2. ENGINE INTERFACE NODE WIRING DIAGRAM

NETWORK TOPOLOGY

The CAN J1939 network uses a multidrop bus topology (see Figure 10-3). This topology requires that there be only two ends to the network. Stubs off the network bus can be no longer than 39 inches (1

m). The maximum bus length of the network is 131 feet (40 m).

Both ends of the network data bus must be terminated with a terminator circuit. Proper termination of the network is important for reliable communications.

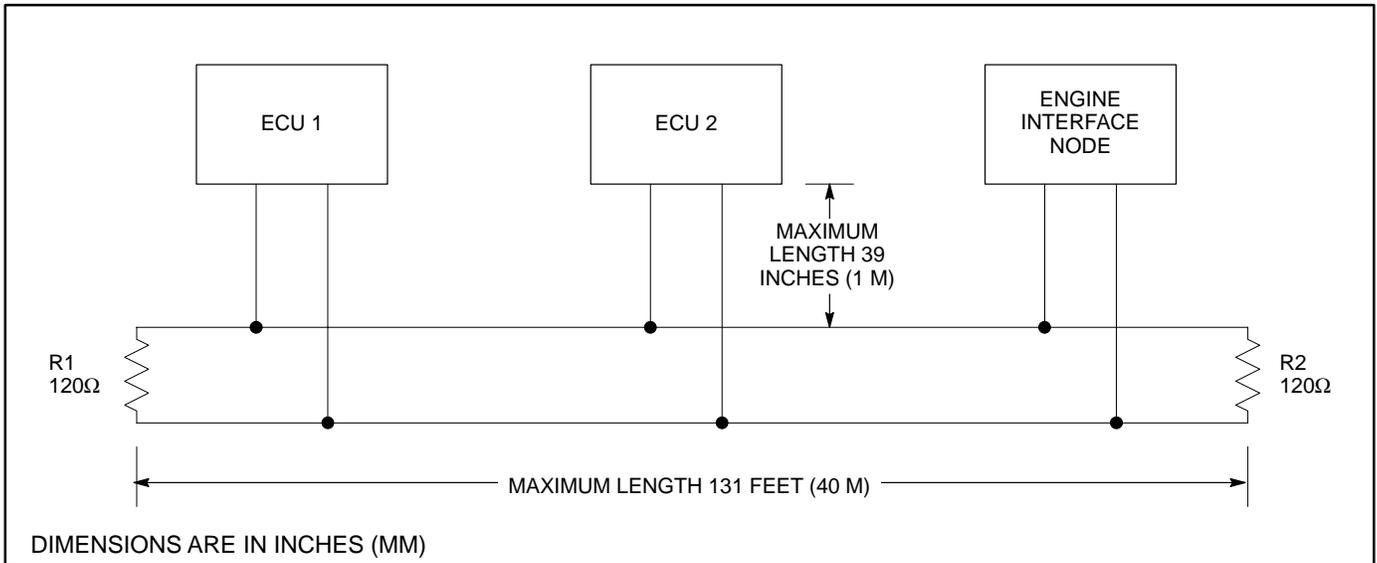


FIGURE 10-3. J1939 BACKBONE

11. System Configuration

This section describes configuring the system once installation is complete.

1. Turn on the Coach Command power at the master ON/OFF switch.
2. Access the Original Equipment Manufacturer (OEM) menus through the Touch Screen display (see “OEM Menus” below).
3. Use the OEM Setup menus to set up network electrical configuration information (see “Electrical Setup Menus” on page 11-4).

Once the system configuration is complete, the next step is to verify the system is working properly. System verification is covered in Chapter 12.

OEM MENUS

A series of digital display menus is used to configure the Coach Command system. This subsection illustrates navigation through the menus and is designed to be a general review of the OEM menus. Setup menus contain parameters with adjustable values.

Displays include electronic buttons that are touch activated. Press the buttons to view menus, select fields, and change parameters. Some menus include a “Back” button (←), used to navigate to the previous screen. When you use a button to change a parameter on one of the menus, each touch of the screen changes the value by one increment.

Accessing the Main Menu



FIGURE 11-1. THE MAIN MENU

System setup and configuration is accomplished through the OEM Setup menus, accessed from the Coach Command’s Main Menu. Figure 11-1 shows the primary Coach Command Main Menu displayed whenever powered up. Verify the correct software version is displayed. (The software version is located in the upper left corner of the Main Menu.)

Accessing the OEM Setup Menu

The OEM Setup menu is the central location used to access menus for configuring electronic components, calibrating tanks, and reviewing technical information.

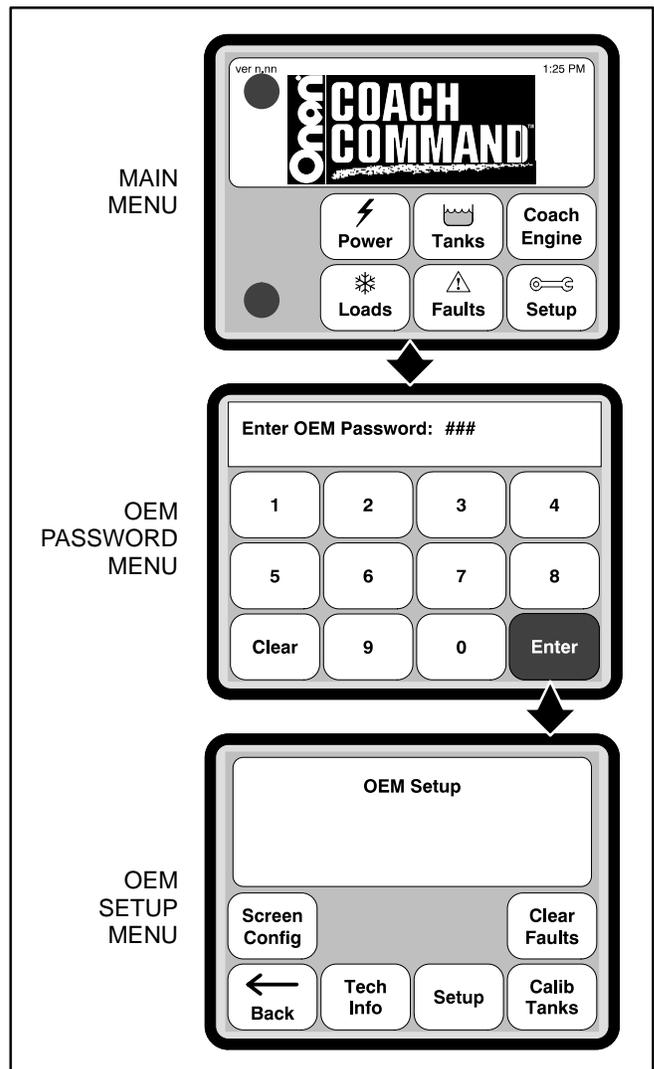


FIGURE 11-2. ACCESSING THE OEM SETUP MENU

To access the OEM Setup menu:

1. From the Main menu, simultaneously press the upper left and lower left corners of the screen (see Figure 11-2) until the OEM Password menu is displayed.
2. Use the numeric buttons to enter the OEM password (574).

NOTE: If a wrong password is entered, press the Clear button and enter the correct password.

3. Press the Enter Button. The OEM Setup menu is displayed.

NOTE: If the wrong password is entered, the Main menu is redisplayed.

Navigation through the OEM menus is shown in Figure 11-3. A brief description of the 23 OEM menus and page references to additional information is included in Table 11-1.

TABLE 11-1. MENU DESCRIPTIONS

Menu #	Menu	Description	Page
1	Main Menu	Provides links to the top-level operator menus and provides an access to the OEM menus	11-1
2	OEM Password Menu	Used to enter a password for accessing OEM menus	11-1
3	OEM Setup Menu	Provides links to the Screen Configuration, Technical Information, Electrical Setup, Faults, and Tank Calibration menus	11-1
4	Screen Configuration Menu	Used to select the screen type: primary or secondary	11-6
5	Tank Level Diagnostics Menu	Displays tank values and the tank level sender type	12-13
6	Genset Menu	Displays the genset type and status information	12-3
7	Controlled Loads Menu	Displays load status and provides controlled load verification	12-9
8	Override Warning Menu	Displays a warning when overriding automatic functions	12-9
9	Manual Override Menu	Used to enable/disable controlled loads	12-9
10	Technical Information Menu	Provides links to the Genset, Tanks, Engine Link, Key Test, Controlled Loads, Transfer Switch, and Node Communications Diagnostics menus	12-1
11	Engine Link Diagnostics Menu	Displays link status, software part number, and software version	12-2
12	Touch Screen Display Menu	Provides verification of the Touch Screen display keys	12-10
13	Node Communications Menu	Displays a list of nodes, node addresses, and software version	12-2
14	Transfer Switch Diagnostics Menu	Displays amperage, voltage, and phase information	12-4
15	Electrical Setup Menu #1	Allows selection of the electrical configuration number, generator type, and inverter type	11-4
16	Electrical Setup Menu #2	Allows selection of minimum battery voltage, minimum AC charge rate, and water tank sender type	11-4
17	Electrical Setup Menu #3	Allows selection of shore transfer delay and generator transfer delay times	11-5
18	Load Control Setup Menu	Provides a list of controlled loads and allows for resetting the network	11-5
19	Load Setup Menu	Used to set up the name and priority for each controlled load address	11-5
20	Fresh Water Tank Calibration Menu	Used to set empty/full tank values	12-11
21	Grey Water Tank Calibration Menu	Used to set empty/full tank values	12-11
22	Black Water Tank Calibration Menu	Used to set empty/full tank values	12-11
23	LP Gas Tank Calibration Menu	Used to set empty/full tank values	12-11

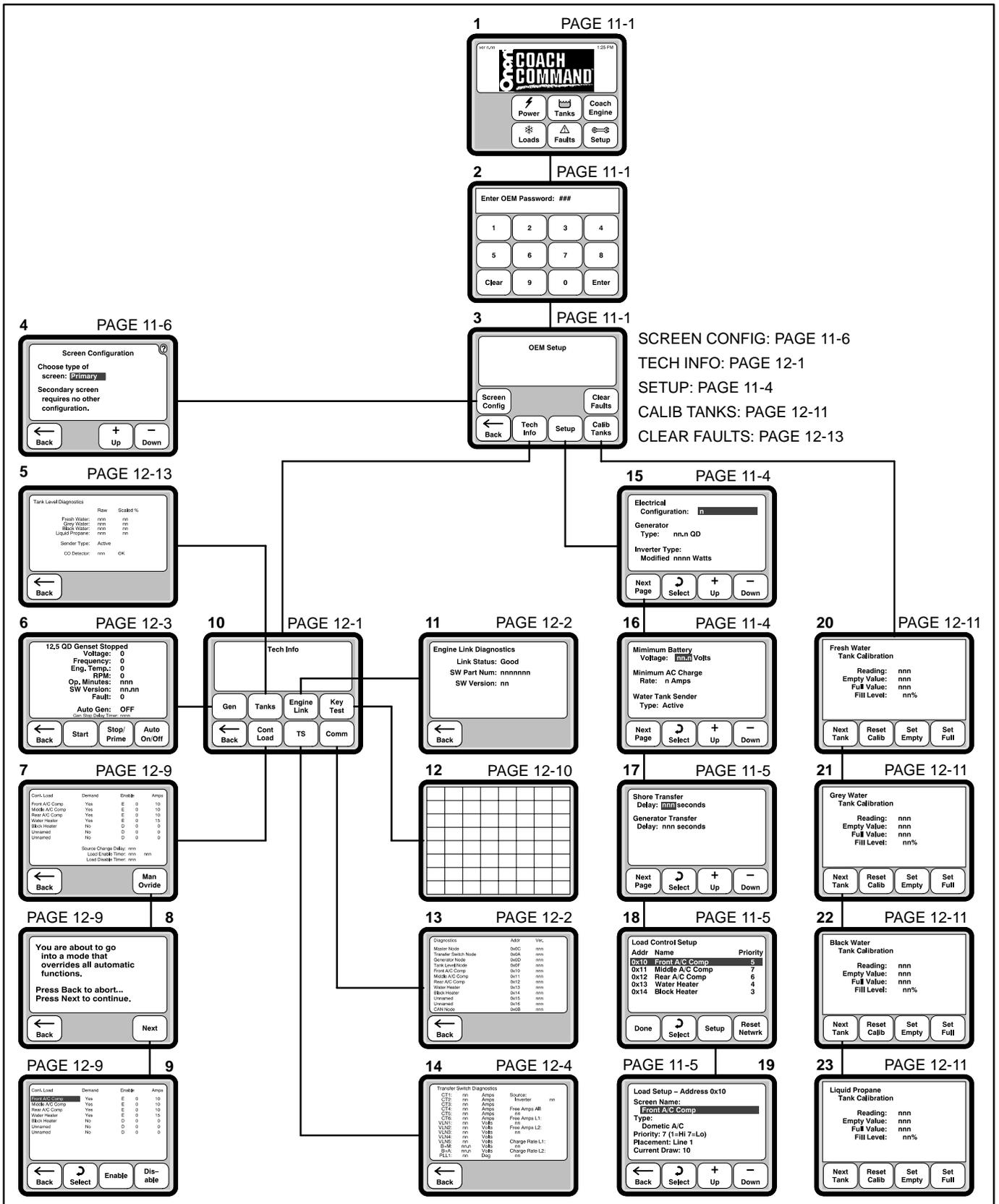


FIGURE 11-3. COACH COMMAND OEM MENUS

ELECTRICAL SETUP MENUS

Network Electrical Configurations

Electrical setup menus are used to enter information on:

- Electrical Configuration number
- Generator Type
- Inverter Type and Rating
- Minimum Battery Voltage
- Minimum AC Charge Rate
- Water Tank Sender Type
- Shore Transfer Delay
- Generator Transfer Delay
- Controlled Loads

To set up network electrical configurations (see Figure 11-4 and refer to the information entered on the Coach Command System Worksheet):

1. Press the Setup button on the OEM Setup menu.
2. Use the Up  or Down  buttons to enter the Electrical Configuration number.
3. Press the Select button  to select the next field.
4. Use the Up or Down buttons to enter the Generator Type (7.5 QD, 8.0 QD, 10.0 QD, or 12.5 QD).
5. Press the Select button to select the next field.
6. Use the Up or Down buttons to select a true sine wave inverter, a modified inverter, or a modified inverter with separate charge input.
7. Press the Select button to select the next field.
8. Use the Up or Down buttons to enter the Inverter Rating (1000–4000 watts, in 500 watt increments).
9. Press the Next Page button.
10. Use the Up or Down buttons to enter the Minimum Battery Voltage (11.0–13.0 volts). The default Minimum Battery Voltage is 11.8 VDC. The minimum battery voltage is the voltage at which the generator will be started to charge the batteries
11. Press the Select button to select the next field.

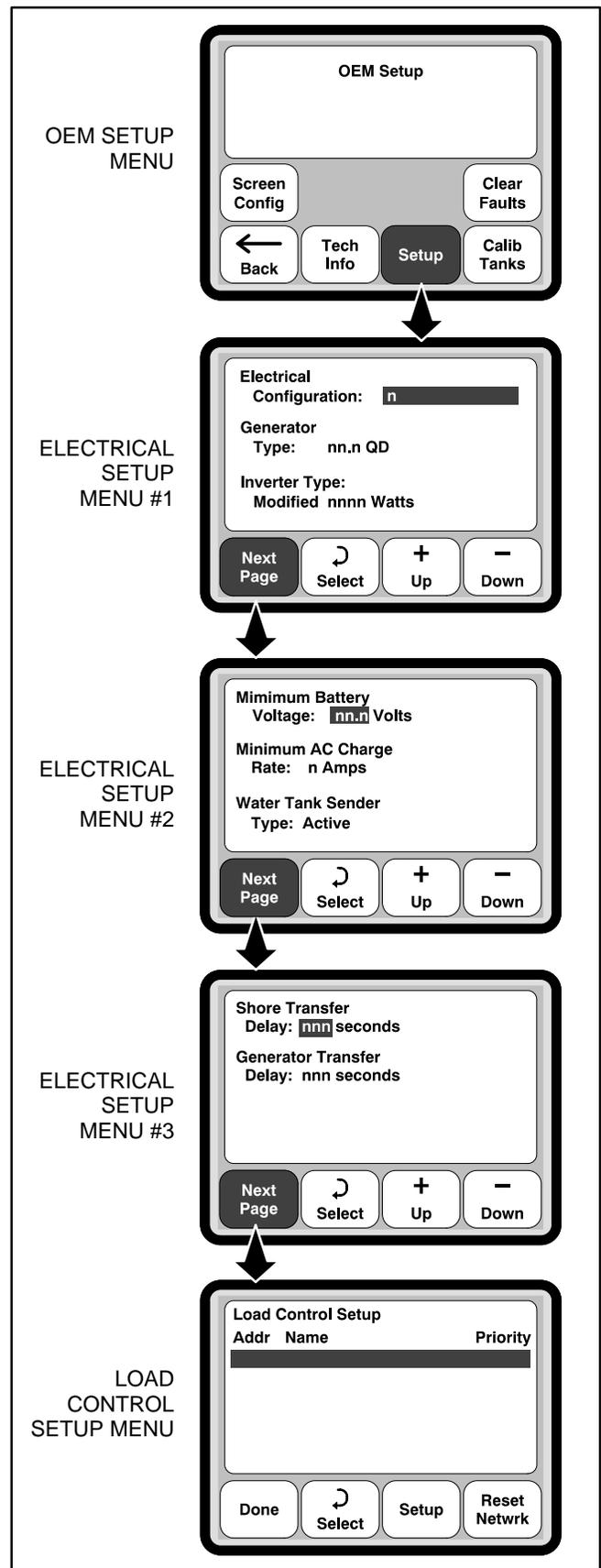


FIGURE 11-4. ELECTRICAL CONFIGURATIONS

12. Use the Up or Down buttons to enter the Minimum AC Charge Rate (2–8 amps). The default Minimum AC Charge Rate is 4 amps. The minimum AC charge rate is the setting where the genset will be automatically shut down if the system is using less than this setting to charge the batteries.
13. Press the Select button to select the next field.
14. Use the Up or Down buttons to select the Water Tank Sender Type (Active or Resistive).
15. Press the Next Page button.
16. Use the Up or Down buttons to set the Shore Transfer Delay (15–300 seconds, in 15 second increments). The default setting is 30 seconds.

NOTE: Shore Transfer Delay sets the amount of delay (in seconds) that it takes for shore power to transfer to the loads.

17. Press the Select button to select the next field.
18. Use the Up or Down buttons to set the Generator Transfer Delay (30–300 seconds, in 15 second increments). The default setting is 60 seconds.

NOTE: Generator Transfer Delay sets the amount of delay (in seconds) that it takes for generator power to transfer to the loads.

19. Press the Next Page button to View the Load Control Setup menu. Addresses are not displayed until after the network is reset.
20. Press the Reset Netwrk button on the Load Control Setup menu to reset the network.

NOTE: You must hold the Reset Netwrk button for two seconds before resetting begins. The message “Resetting network, please wait while the network is installed” is displayed until resetting is complete.

21. Verify that each load is set up properly (see “Load Control Setup” below).

Load Control Setup

The Load Control Setup menu (Figure 11-5) is used to set up the name and priority for each controlled load address.

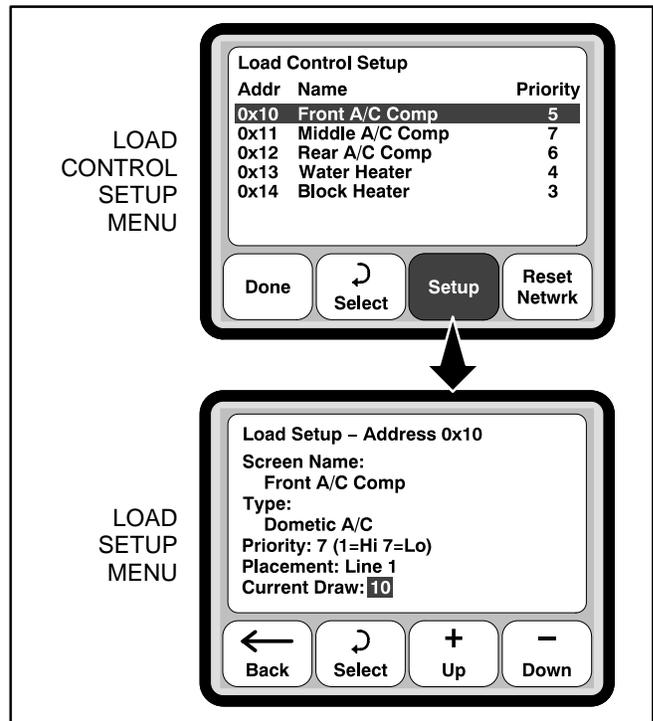


FIGURE 11-5. LOAD CONTROL SETUP

To set up individual load configurations:

1. Press the Setup button on the Load Control Setup menu.
2. Refer to the information entered on the Coach Command System Worksheet for the controlled load name assigned to each address. Use the Up or Down buttons to enter the load's Screen Name. The available names are:
 - Front A/C Comp
 - Middle A/C Comp
 - Rear A/C Comp
 - Water Heater
 - Block Heater
 - Electric Heat
 - Aux Heater
 - Washer/Dryer
 - Load 1
 - Load 2

3. Press the Select button to select the next field.
4. Use the Up or Down buttons to enter the load's Type. The available types are:
 - Dometic A/C
 - Coleman A/C
 - Non-A/C
5. Press the Select button to select the next field.
6. Use the Up or Down buttons to enter a priority value for the load (1–7, 1=high, 7=low).

NOTE: Lowest priority loads are disabled first.

7. Press the Select button to select the next field.
8. Use the Up or Down buttons to enter the load's Placement (Line 1 or Line 2).
9. Press the Select button to select the next field.
10. Use the Up or Down buttons to enter the load's Current Draw (1–20 amps).
11. Press the Back button to return to the Load Control menu.
12. Press the Select button to select the next load you wish to configure.
13. Repeat the steps 2 through 12 for each of the remaining loads.
14. Press the Done button on the Load Control Setup menu. The OEM Setup menu is redisplayed.

SCREEN CONFIGURATION MENU

All Coach Command installations included a screen that displays the primary Main Menu. This Touch Screen display is usually installed in the dash for easy access by the driver. The Primary screen displays all six top-level menus. Coach Command automatically defaults to the Primary screen configuration (see Figure 11-1).

If your Coach Command installation includes an additional screen, its screen configuration must be

changed to display the Secondary screen. A Secondary screen displays all top-level menus except "Coach Engine."

The Screen Configuration menu is used to select either a Primary or Secondary screen.

NOTE: Before you can change the screen configuration to "Secondary," it must first be connected to the Primary screen (see Sections 4 and 5).

To set up the screen configuration (see Figure 11-6):

1. Press the Screen Config button on the OEM Setup menu.
2. Use the Up  or Down  buttons to select a Primary or Secondary screen.

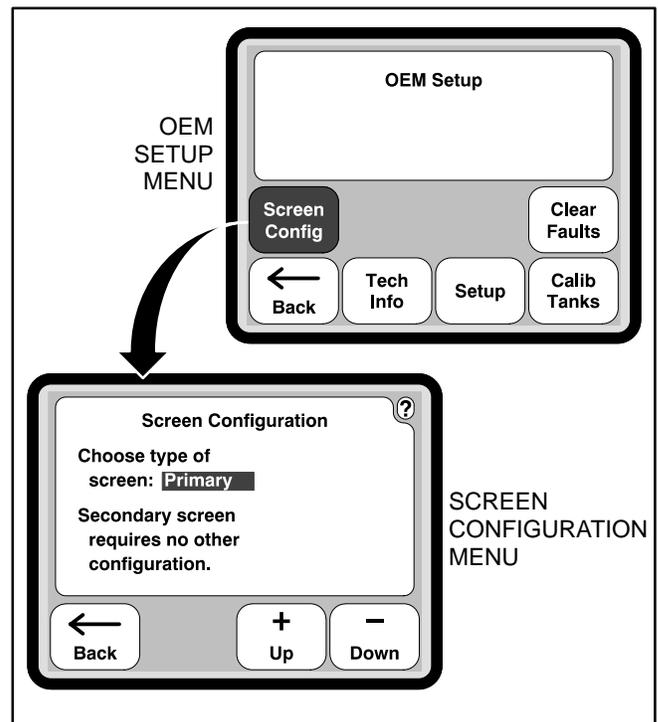


FIGURE 11-6. SCREEN CONFIGURATION MENU

12. System Verification

This section describes verification that the system is working properly once the system configuration is complete.

1. Use the Technical Information menus to verify:
 - All nodes are communicating (see page 12-2)
 - Coach Engine Link Diagnostics (see page 12-2)
 - The Genset node (see page 12-3)
 - The Transfer Switch node (see page 12-4)
 - Controlled loads (see page 12-9)
 - The Touch Screen display keys are functioning correctly (see page 12-10).
2. Use the OEM Setup menus to setup tank level information and verify the Tank Level node (see pages 12-11 and 12-13).
3. Clear out any fault information stored in memory (see page 12-13).

TECHNICAL INFORMATION MENUS

Technical information menus provide a means to review your configuration and assist you in troubleshooting the system. Technical information is available on:

- The Genset (Gen)
- Tank Level Diagnostics (Tank)
- Engine Link Diagnostics (Engine Link)
- The Touch Screen display (Key Test)
- Controlled Loads (Cont Load)
- The Transfer Switch (TS)
- Node Communications (Comm)

To view the Technical Information menu (Figure 12-1), press the Tech Info button on the OEM Setup menu.

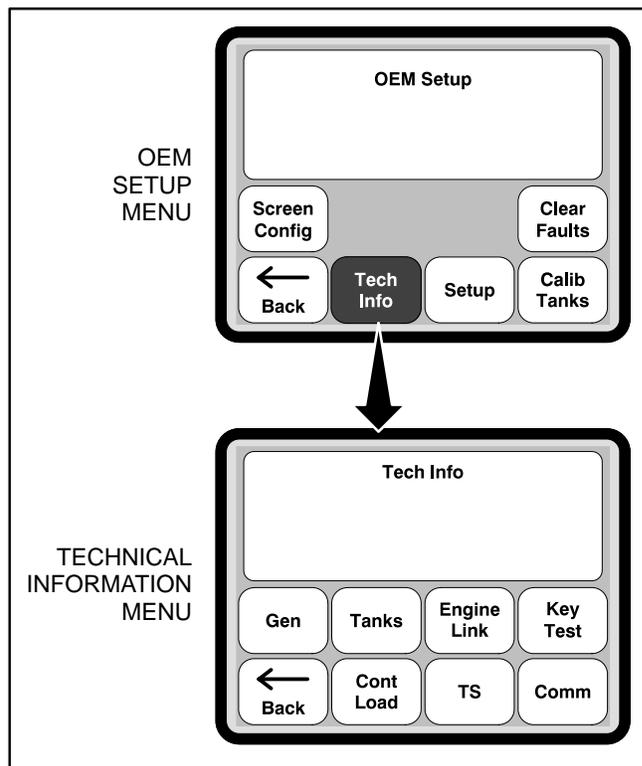


FIGURE 12-1. TECHNICAL INFORMATION MENU

NODE COMMUNICATIONS INFORMATION

The Node Communications menu (Figure 12-2), provides a list of the nodes included in the Coach Command system. The menu also shows the address and software version for each node.

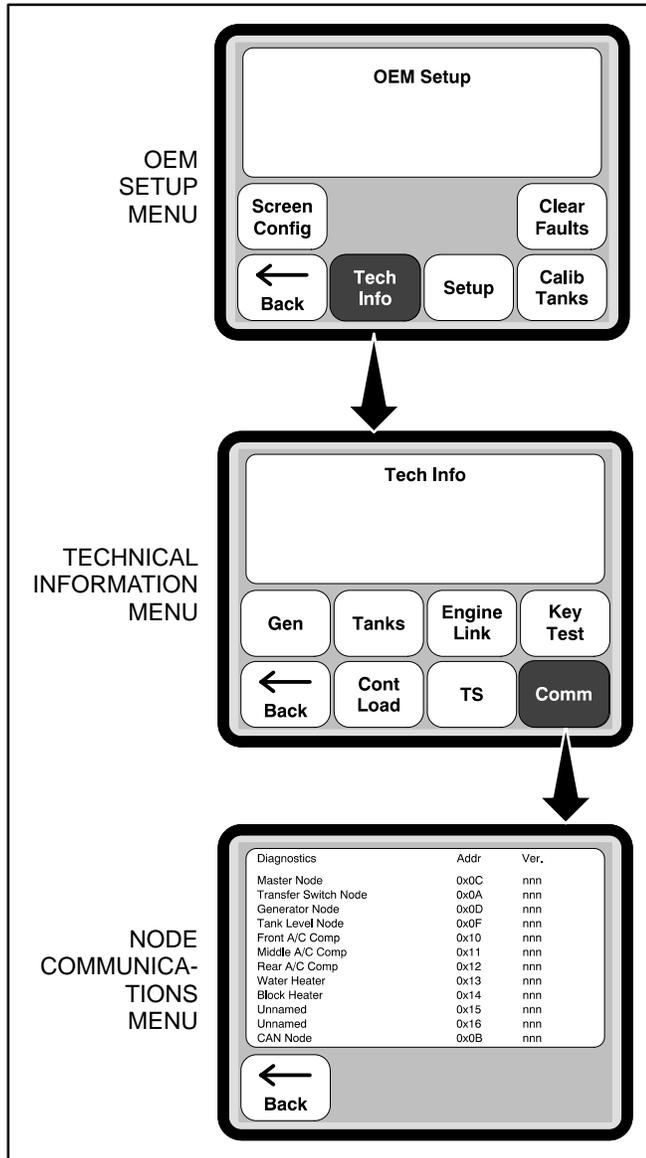


FIGURE 12-2. NODE COMMUNICATIONS INFORMATION

Verifying Node Communications

To verify node communications:

1. Press the Tech Info button on the OEM Setup menu.

2. Press the Comm button on the Technical Information menu. The Node Communications menu is displayed.
3. Verify all nodes on the network are listed and their address is non-zero.

COACH ENGINE INFORMATION

The Engine Link Diagnostics menu (Figure 12-3) shows information on

- Link Status
- Software Part Number
- Software Version

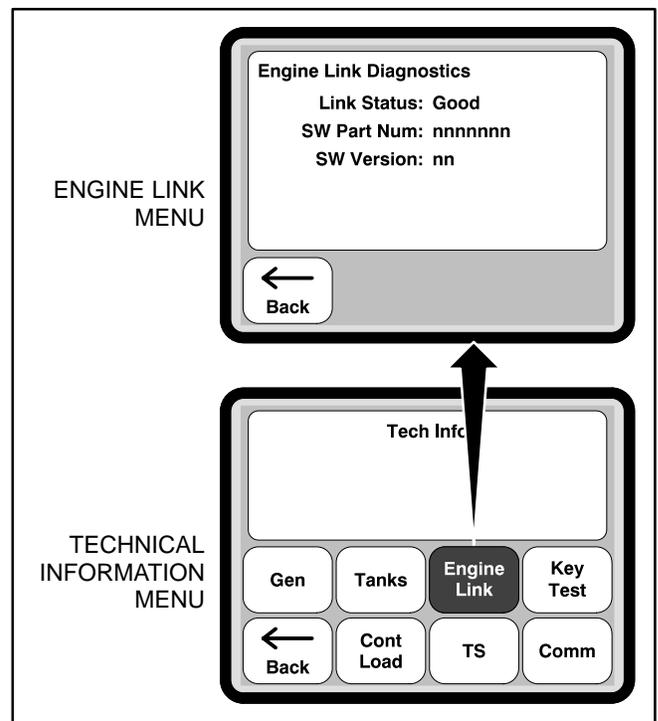


FIGURE 12-3. ENGINE INFORMATION

Verifying Coach Engine Link Diagnostics

To verify coach engine link diagnostics:

1. Press the Engine Link button on the Technical Information menu. The Engine Link Diagnostics menu is displayed.
2. Turn the chassis engine key to turn on the ignition.
3. Verify that "Good" appears in the Link Status field.

GENSET INFORMATION

The Genset menu (Figure 12-4) shows information on the following:

- Voltage
- Frequency
- Engine temperature
- RPM
- Operating minutes
- Software version
- Any fault code that occurred
- Auto Gen ON/OFF. For more information on the Automatic Genset Start feature, see the Coach Command Operator's Manual.
- Genset Stop Delay Timer – If Auto Gen is set to "ON", this field shows a five-minute count-down to when the genset is automatically shut down.

The genset type and status is displayed at the top of the menu. With the Genset information menu, you can start, stop, and prime the genset.

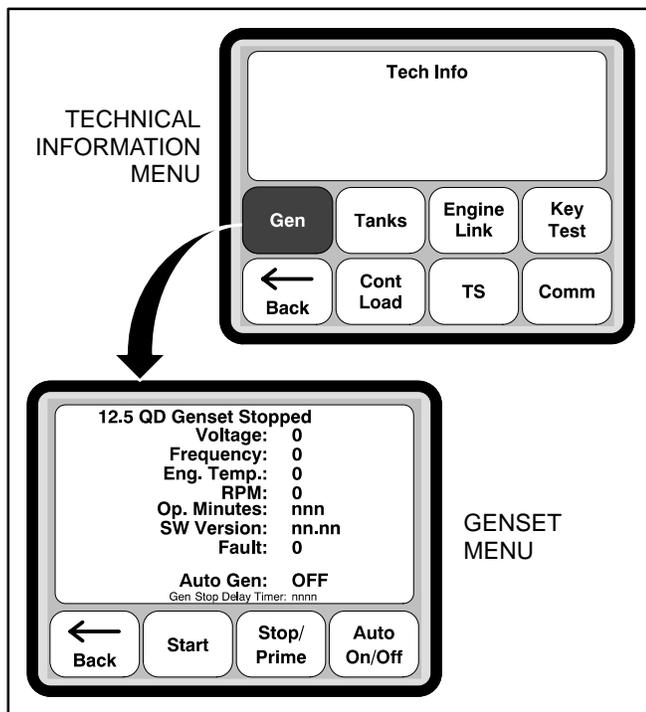


FIGURE 12-4. GENERATOR INFORMATION

Verifying the Genset Node

To verify the genset node:

1. Press the Gen button on the Technical Information menu. The Genset menu is displayed.
2. Press the Start button and verify that the genset cranks and starts.
3. Verify values are displayed in the Voltage, Frequency, Engine Temperature, and RPM fields.
4. Press the Stop button and verify that the genset stops.

TRANSFER SWITCH INFORMATION

The Transfer Switch menu (Figure 12-5) shows information on

- Current transformer (CT) amperage
- Voltage line to neutral (VLN)
- Main (B+M) Battery voltage
- Auxiliary Battery (B+A) voltage
- Phase line to line (PLL)

The power source is also displayed on the Transfer Switch menu. The available power sources are Inverter, Genset, and Shore. Also displayed is the number of free amps and charge rates.

Information displayed is dependent on the configuration selected. An example of each configuration is shown in the following illustrations.

- Configuration 0: Figure 12-6
- Configuration 1: Figure 12-7
- Configuration 2: Figure 12-8
- Configuration 3: Figure 12-9

Verifying the Transfer Switch Node

Transfer Switch Node verification is dependent on the configuration selected. Transfer Switch Node verification procedures are included on the following pages.

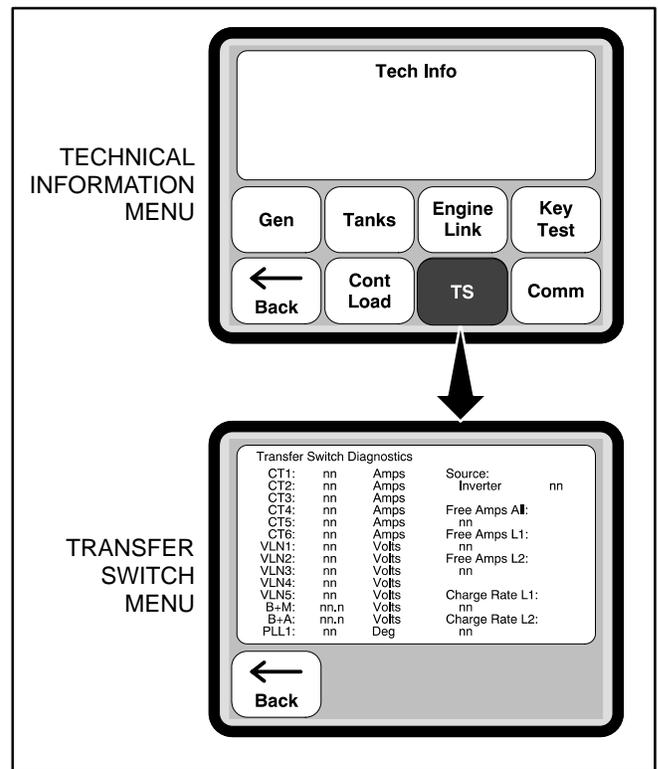


FIGURE 12-5. TRANSFER SWITCH INFORMATION

Configuration 0

To verify the Transfer Switch Node for Configuration 0:

1. Press the TS button on the Technical Information menu. The Transfer Switch menu is displayed.
2. Verify that the B+M value is within .5V of B+A (Main B+).
3. Verify that the B+A field displays the correct battery voltage (Aux B+).
4. Turn on the inverter.
5. Turn on a load.
6. Verify that the CT4 field is displaying the correct current for that load.
7. Turn off the load.
8. Connect the coach to shore power.
9. Verify that the VLN1 value is greater than 100 volts.
10. After the Transfer Switch switches to shore power, verify that the VLN3 value is greater than 100 volts.
11. Turn on a load and verify that the CT3 value increases in current proportionally for that load.

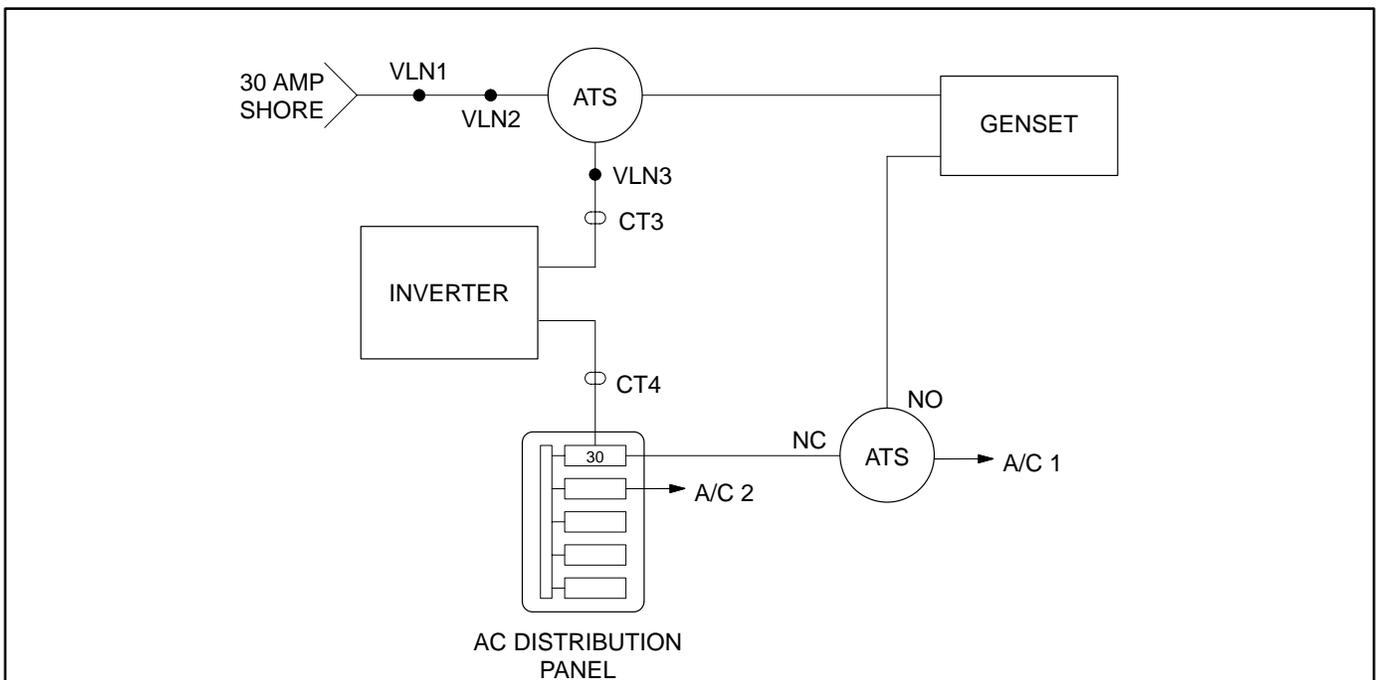


FIGURE 12-6. CONFIGURATION 0

Configuration 1

To verify the Transfer Switch Node for Configuration 1:

1. Press the TS button on the Technical Information menu. The Transfer Switch menu is displayed.
2. Verify that the B+M value is within .5V of B+A (Main B+).
3. Verify that the B+A field displays the correct battery voltage (Aux B+).
4. Turn on the inverter connected to Line 1.
5. Turn on a load connected to Line 1.
6. Verify that the CT2 field is displaying the correct current for that load.
7. Turn on the inverter connected to Line 2.
8. Turn on a load connected to Line 2.
9. Verify that the CT4 field is displaying the correct current for that load.
10. Connect the coach to 50 amp shore power.
11. Verify that the VLN1 value is greater than 100 volts and the PLL1 value is greater than 100 degrees.
12. After the Transfer Switch switches to shore power, verify that the VLN3 value is greater than 100 volts.
13. Turn on a load connected to Line 1 and verify that the CT1 value increases in current proportionally for that load.
14. Turn on a load connected to Line 2 and verify that the CT3 value increases in current proportionally for that load.

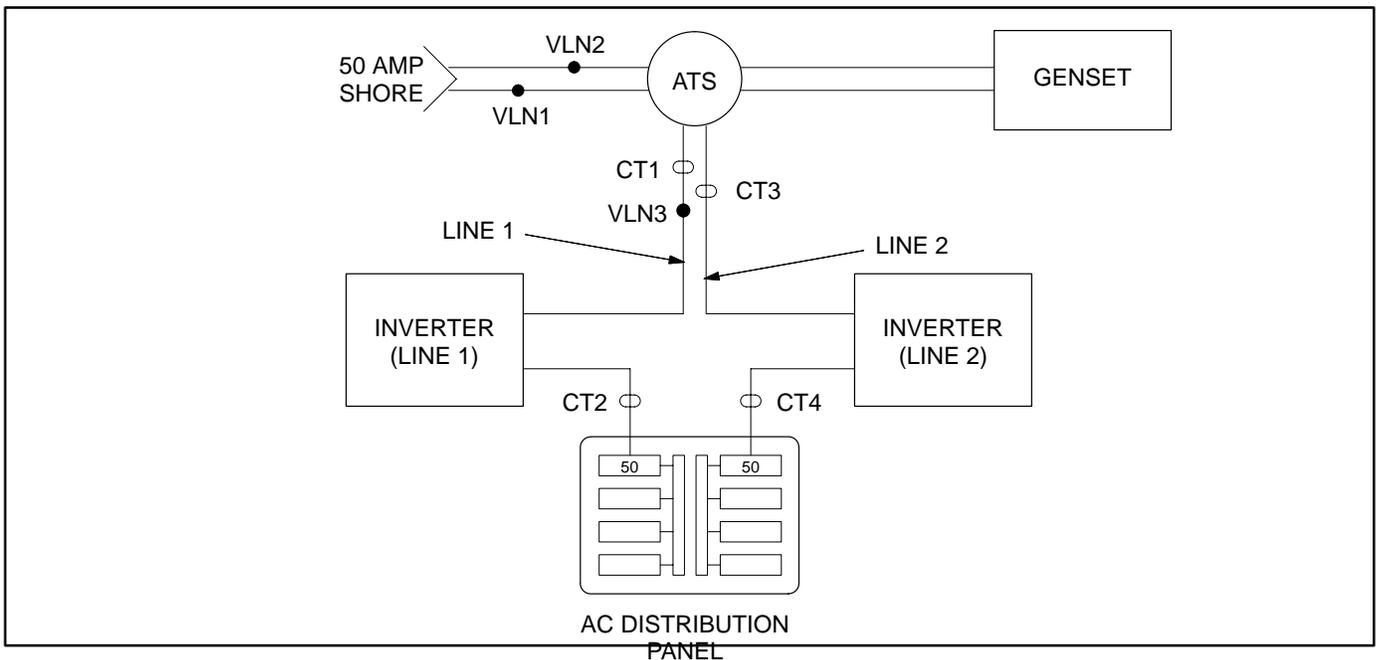


FIGURE 12-7. CONFIGURATION 1

Configuration 2

To verify the Transfer Switch Node for Configuration 2:

1. Press the TS button on the Technical Information menu. The Transfer Switch menu is displayed.
2. Verify that the B+M value is within .5V of B+A (Main B+).
3. Verify that the B+A field displays the correct battery voltage (Aux B+).
4. Turn on the inverter connected to Line 1.
5. Turn on an inverter load connected to Line 1.
6. Verify that the CT2 field is displaying the correct current for that load.
7. Turn on the inverter connected to Line 2.
8. Turn on an inverter load connected to Line 2.
9. Verify that the CT4 field is displaying the correct current for that load.
10. Turn off the inverter loads.
11. Connect the coach to 50 amp shore power.
12. Verify that the VLN1 value is greater than 100 volts and the PLL1 value is greater than 100 degrees.
13. After the Transfer Switch switches to shore power, verify that the VLN3 value is greater than 100 volts.
14. Verify that the CT5 and CT6 fields are displaying the proper charge current for Line 1 and Line 2 respectively.
15. Turn on a load connected to Line 1 and verify that the CT1 value increases in current proportionally for that load.
16. Turn on a load connected to Line 2 and verify that the CT3 value increases in current proportionally for that load.

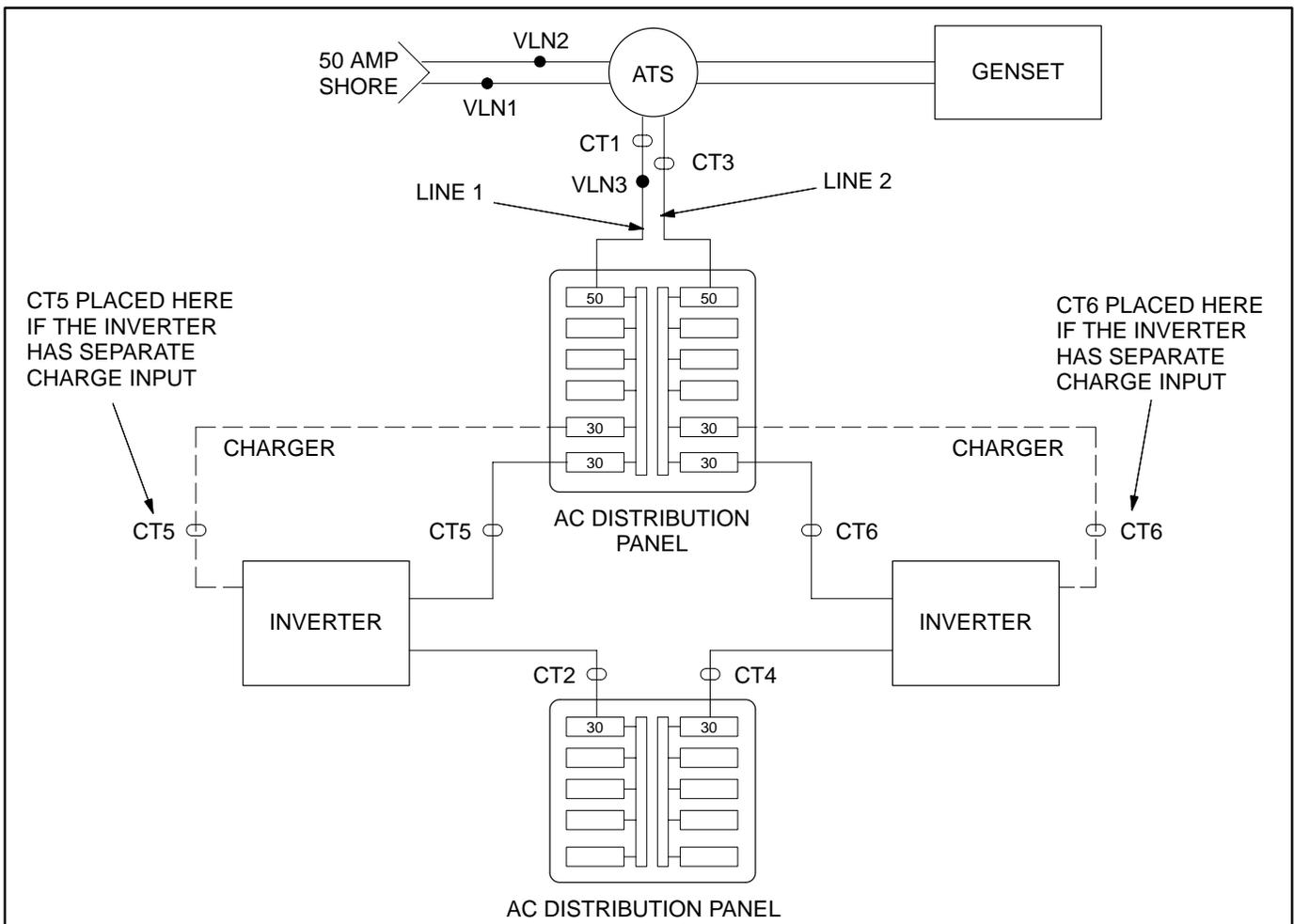


FIGURE 12-8. CONFIGURATION 2

Configuration 3

To verify the Transfer Switch Node for Configuration 3:

1. Press the TS button on the Technical Information menu. The Transfer Switch menu is displayed.
2. Verify that the B+M value is within .5V of B+A (Main B+).
3. Verify that the B+A field displays the correct battery voltage (Aux B+).
4. Turn on the inverter.
5. Turn on an inverter load.
6. Verify that the CT4 field is displaying the correct current for that load.
7. Turn off the inverter loads.
8. Connect the coach to 50 amp shore power.
9. Verify that the VLN1 value is greater than 100 volts.
10. After the Transfer Switch switches to shore power, verify that the VLN3 value is greater than 100 volts.
11. Verify that the CT6 field is displaying the proper charge current.
12. Turn on a load connected to Line 1 and verify that the CT1 value increases in current proportionally for that load.
13. Turn on a load connected to Line 2 and verify that the CT3 value increases in current proportionally for that load.

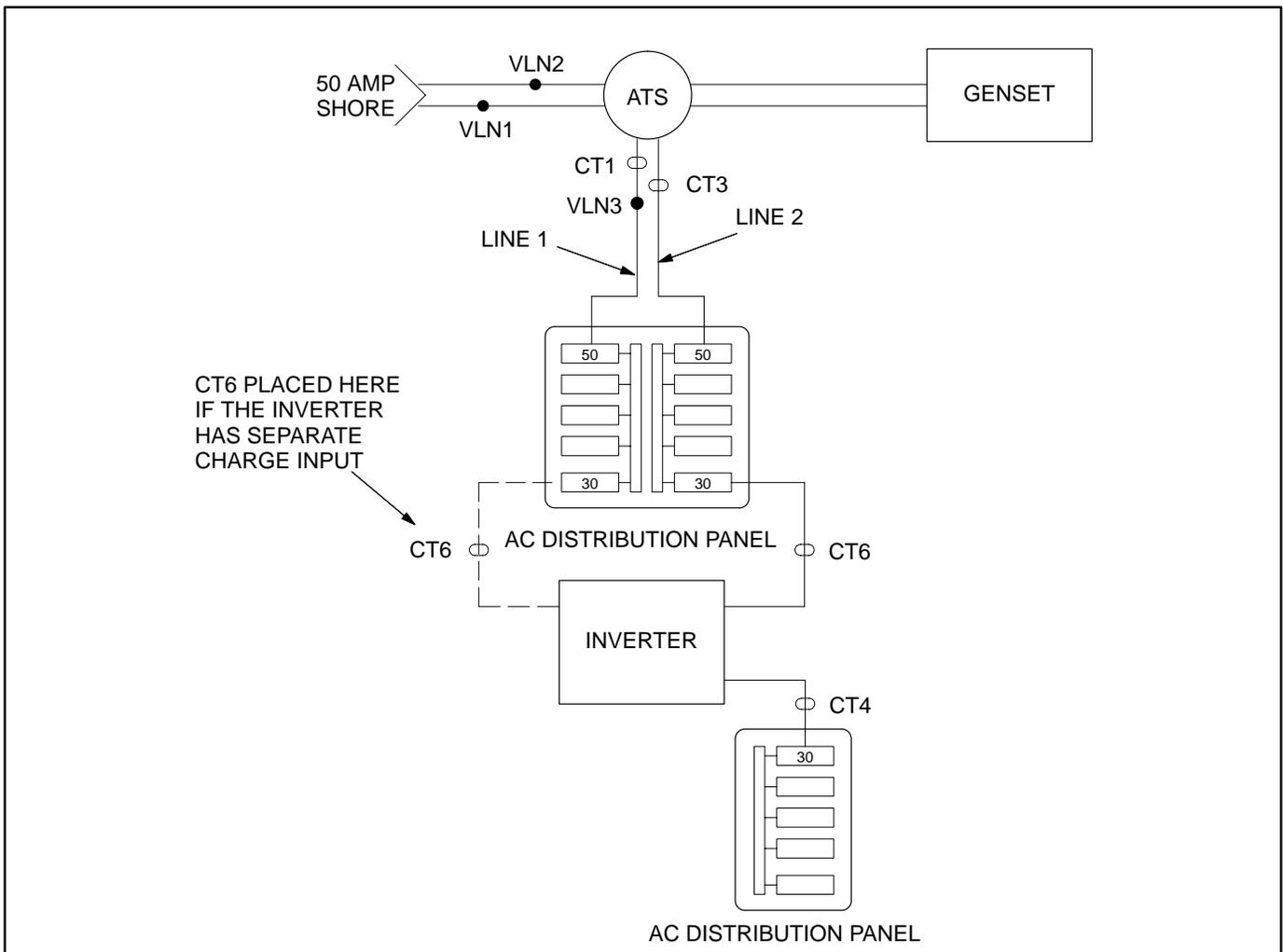


FIGURE 12-9. CONFIGURATION 3

CONTROLLED LOADS INFORMATION

The Controlled Loads menu (Figure 12-10) has separate columns listing the controlled loads, demand (Yes/No), load enabled/disabled (E/D), and load amperage.

The Source Change Delay field is a countdown to when the power source changes.

The Load Enable Timer and Load Disable Timer fields are countdowns to when the next load is enabled or disabled. The Load Enable Timer field has separate values for Line 1 and Line 2.

Verifying Controlled Loads

To verify controlled loads:

1. Press the Cont Load button on the Technical Information menu. The Controlled Loads menu is displayed.
2. Press the Man Ovrde button on the Controlled Load menu. Verify that enough power is available to run loads.
3. Press the Next button on the Manual Override Warning menu. The menu opens with the first load in the list highlighted.
4. Turn on a controlled load and verify that "Yes" is displayed in the Demand column.
5. Enable the load and verify that the correct current draw is shown in the Amp column for the load.

NOTE: There may be a delay of up to two minutes for an air conditioner to turn on. Not all Dometic air conditioners have a demand signal (see Figure 6-4). Dometic air conditioners will not indicate demand when they are disabled.

6. Use the Select button to select the load turned on in step 4.
7. Disable the load by pressing the Disable button. Verify that "D" appears in the Enable column for the load and verify that the load was turned off.
8. Repeat steps 2 through 6 for each controlled load.

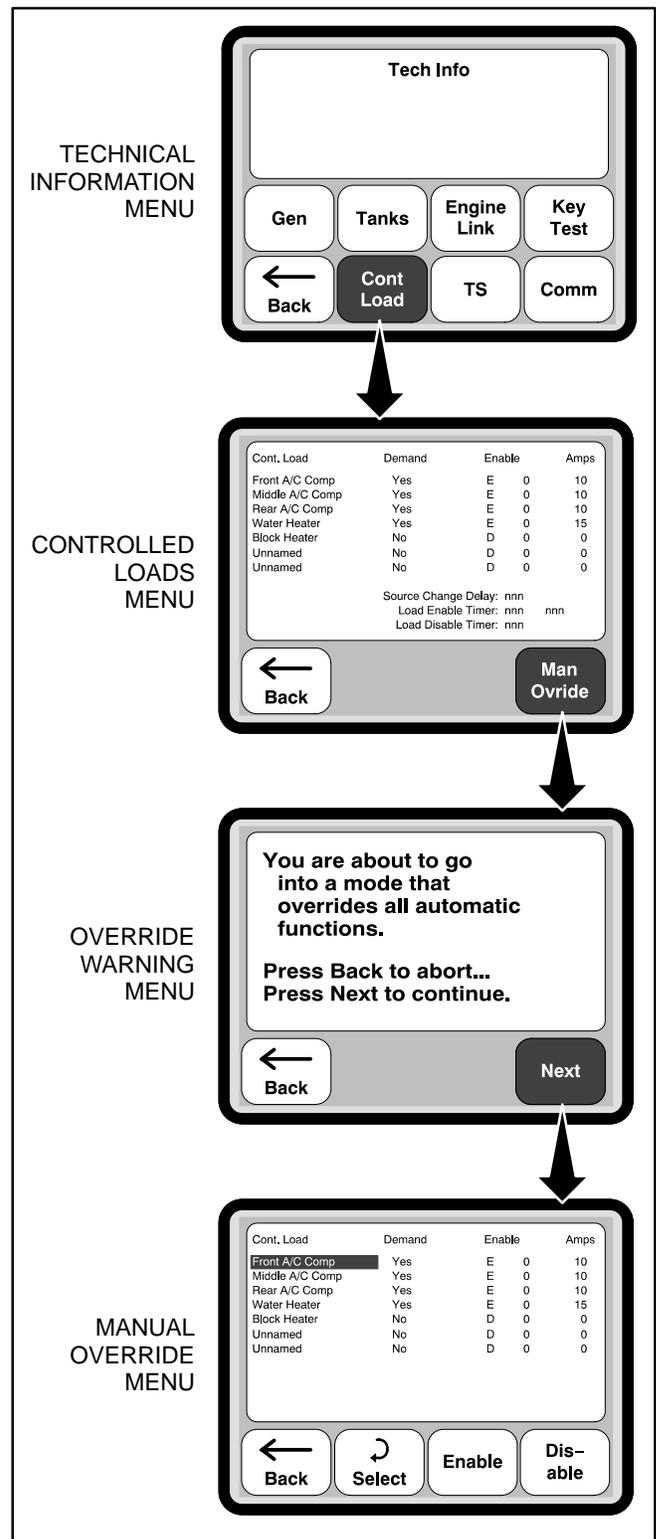


FIGURE 12-10. LOAD INFORMATION

TOUCH SCREEN DISPLAY VERIFICATION

The Key Test button (Figure 12-11) can be used to test if the keys on the Touch Screen display are functioning correctly. To verify the Touch Screen display,

1. Press the Key Test button on the Technical Information menu. The screen displayed is divided into 64 active areas (8x8).
2. Press each area of the screen. You can quickly do this by running your finger across all eight rows. If the screen is functioning correctly, each area turns blue as it is touched. If you are unable to turn all areas blue, replace the display.
3. If the screen test is successful, the message “Key test passed! Reset power to end test” is displayed. Turn off Coach Command power at the master ON/OFF switch.

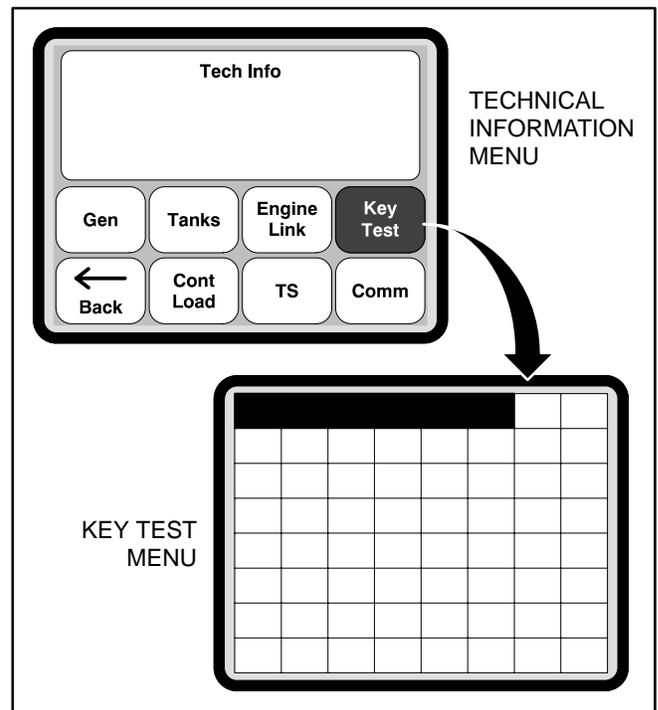


FIGURE 12-11. TOUCH SCREEN DISPLAY VERIFICATION

TANK LEVEL CALIBRATIONS

Tank levels need to be calibrated so Coach Command can display tank levels and notify the user when a tank is close to being empty/full. Until they are calibrated, tank level information is not shown on the Tank Levels menu (see Figure 12-12).

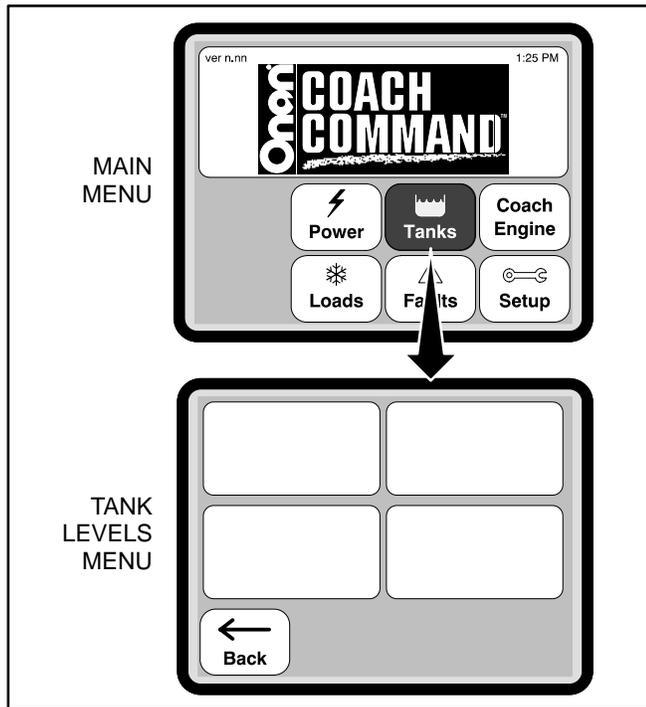


FIGURE 12-12. TANK LEVELS MENU BEFORE CALIBRATION

As each tank is configured, tanks level information is displayed on the Tank Levels menu. The menu shown below indicates the three water tanks have been calibrated but not the LP Gas tank.

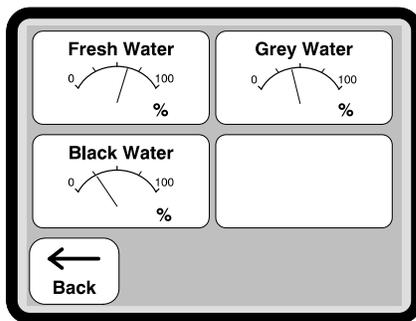


Figure 12-13 shows the series of menus used to calibrate the three water tanks and, if necessary, the LP Gas tank.

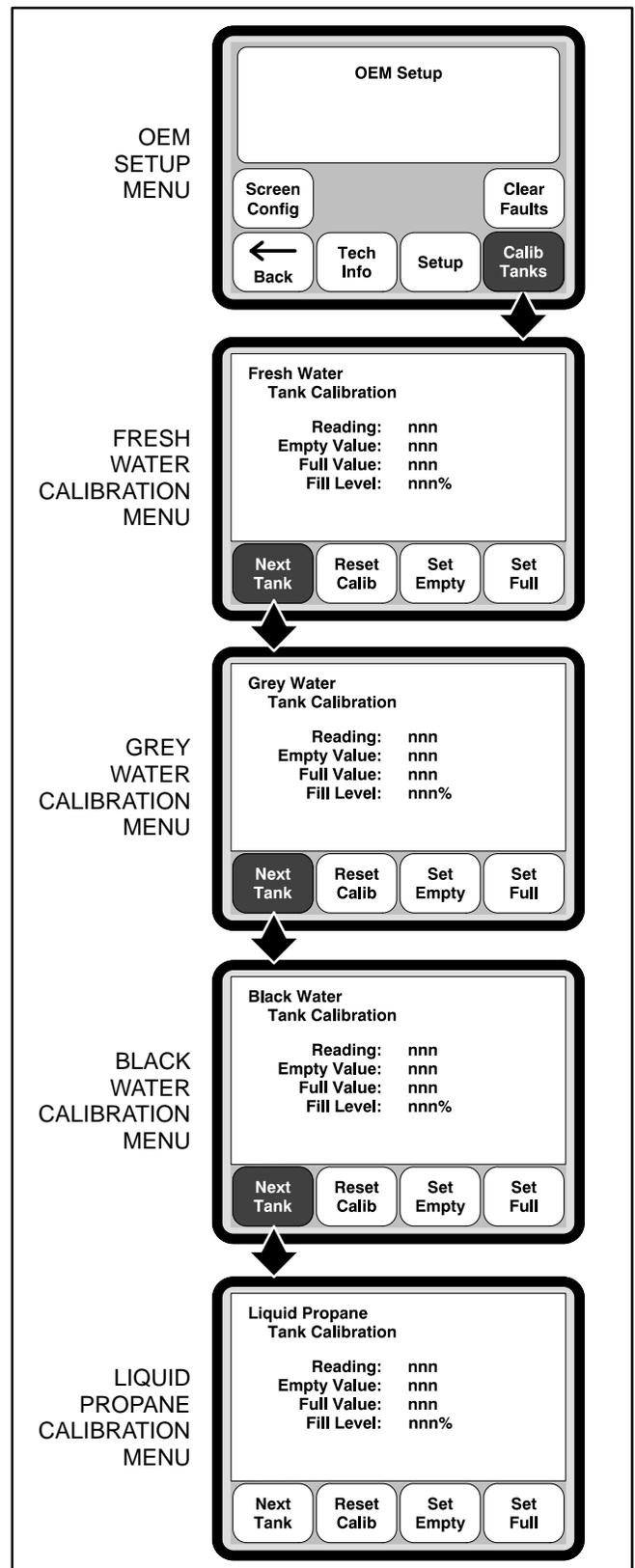


FIGURE 12-13. TANK LEVEL CALIBRATIONS

Calibrating Water Tanks

Coach Command must be calibrated to read the empty and full values of the water tanks. Although the following procedure starts by calibrating the empty values first, you may choose to fill the tanks, calibrate the full values, empty the tanks, and then calibrate the empty values.

To calibrate the three water tanks:

1. Verify that all three water tanks are empty.
2. Press the Calib Tanks button on the OEM Setup menu. The Fresh Water Tank Calibration menu is displayed.
3. Press the Set Empty button.
4. Press the Next Tank button to view the next tank calibration menu.
5. Repeat steps 2 thru 4 for the grey water and black water tanks.
6. Press the Next Tank button on the Liquid Propane Tank Calibration menu. The OEM Setup menu is redisplayed.
7. Fill the three water tanks with water.
8. Press the Calib Tanks button on the OEM Setup menu. The Fresh Water Tank Calibration menu is redisplayed. The tank's full level value is shown in the Reading field.
9. Press the Set Full button. This value should now appear in the Full Value field.

NOTE: If the Reset Calib button is accidentally touched, the message "Invalid Cal." is displayed in the Fill Level field. Empty the tank and recalibrate it.

10. Press the Next Tank button to view the next tank calibration menu.

11. Repeat steps 9 and 10 for the grey water and black water tanks.
12. Press the Next Tank button on the Liquid Propane Tank Calibration menu to return to the OEM Setup menu.

NOTE: If a propane gas tank has not been installed on the recreational vehicle but the Reset Calib button on the Liquid Propane Tank Calibration menu is accidentally touched, press the Set Empty and Set Full buttons so the reading, empty, and full values are all identical and the message "Invalid Cal." is displayed in the Fill Level field.

13. Empty the grey water and black water tanks.

Calibrating the Liquid Propane Gas Tank

If a LP gas tank has been installed in the recreational vehicle, follow this procedure to calibrate the liquid propane gas tank.

1. Press the Calib Tanks button on the OEM Setup menu. The Fresh Water Tank Calibration menu is displayed.
2. Press the Next Tank button until the Liquid Propane Tank Calibration menu is displayed.
3. Press the Reset Calib button. The liquid propane gas tank default calibration values are now displayed in the four fields.
4. Verify the empty reading on the tank is approximately the empty value displayed on the menu.
5. Press the Next Tank button to return to the OEM Setup menu.

TANK LEVEL INFORMATION

The Tank Level Diagnostics menu (Figure 12-14) shows:

- Raw values and scaled percent values for each of the tanks being monitored.
- The tank level sender type used – active or resistive

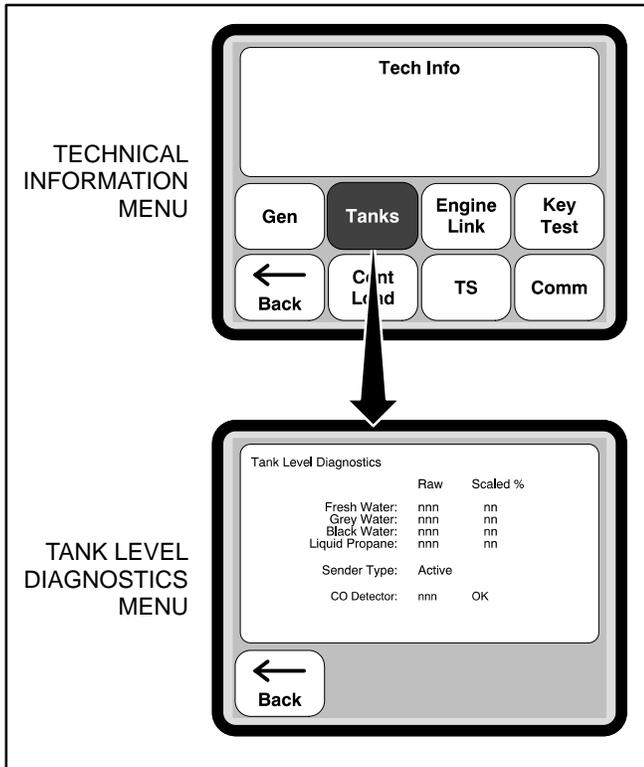


FIGURE 12-14. TANK LEVEL INFORMATION

FAULT INFORMATION

Coach Command maintains a list of the last five faults that occurred. Each fault includes a description along with the date and time that the fault occurred. This information can be viewed from the Fault History menu accessed through the Main menu (Figure 12-15).

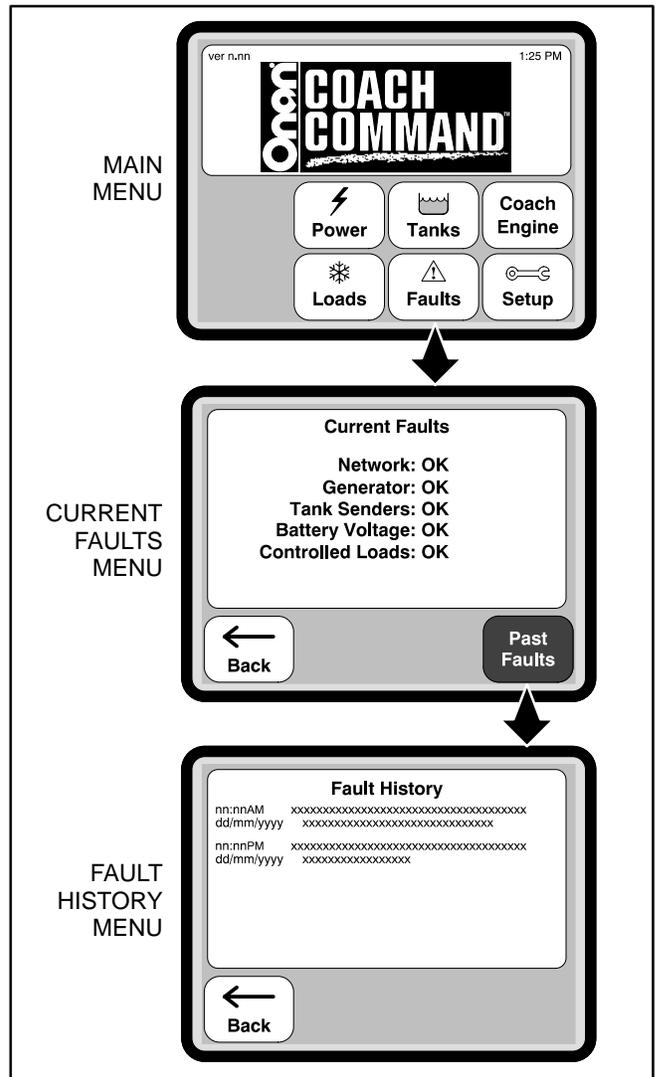


FIGURE 12-15. FAULT INFORMATION

The Clear Faults button on the OEM Setup menu is used to delete the list of faults stored in memory (Figure 12-16). The message “System Faults Cleared” is displayed when the Clear Faults button is pressed.

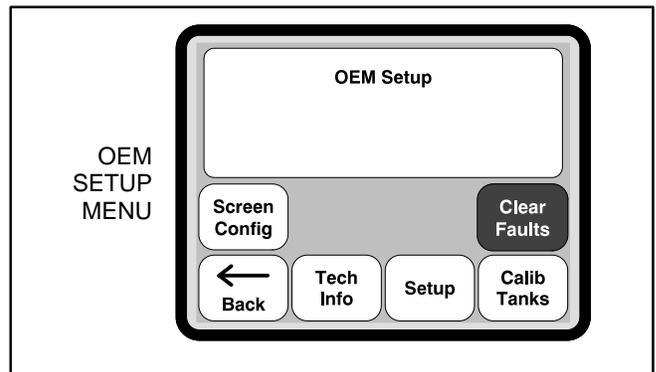


FIGURE 12-16. CLEARING FAULTS

13. Troubleshooting

This section provides troubleshooting information to help diagnose Coach Command network problems.

The Coach Command power management system is used to monitor and control power usage by interfacing with power sources, loads, tank level monitoring devices, and the coach engine. All safety precautions for that equipment must be observed. Refer to the Operator's Manuals for the equipment being monitored and controlled by Coach Command for important safety precautions. Review the Safety Precautions in the front of this manual for important safety information.

Most network problems are related to poor or improper wiring connections. Make a thorough inspection of the network wiring to make sure good

connections are made and the nodes are wired correctly. Refer to specific node sections to review wiring connections. Correct all wiring problems before proceeding with troubleshooting.

Generator faults are also displayed on the Coach Command screen. For more information on generator faults and step-by-step corrective actions, see the *Troubleshooting* section of your Onan genset Operator's Manual

Use Table 13-1 to help diagnose Coach Command network problems. Common problems are listed with their indication. Refer to the corrective action column for the appropriate procedure.

⚠ CAUTION *Always turn power to Coach Command OFF before connecting or disconnecting any node in the network.*

TABLE 13-1. TROUBLESHOOTING

Problem	Indication	Corrective Action
1. Node is not communicating	The node address = 0 (OEM setup → Tech Info → Comm menu)	a. Verify that the network connections at the node are correct. b. Make sure the power switch is turned off. c. Verify network connections by measuring the resistance between RS485+ and RS485- on J1 or J2, Pins 1 and 2. Resistance should be about 60 ohms with a terminator on each end of the network (120 ohms when only one terminator is used). See Figure 2-1 on page 2-2. d. Turn the power switch on. e. Verify that the node has power (J1 and J2: Pin 3 – 15VDC, Pin 4 – ground). f. Replace the node. NOTE: If the Master Node or a Load Control Node with a new address is installed, the system must be reconfigured (see Section 11: "System Configuration")

TABLE 13-1. TROUBLESHOOTING (Continued)

Problem	Indication	Corrective Action
2. Generator node is not communicating with the generator	No genset data is displayed (OEM Setup → Tech Info → Gen menu)	<ul style="list-style-type: none"> a. Press the Stop button at the generator remote Start/Stop switch. b. Verify that the generator node is communicating by checking the OEM setup → Tech Info → Comm menu and verifying the Generator node address is 0x0D. If the node address is 0, the Generator node is not communicating. See “Node is not communicating” (troubleshooting problem 1). c. Check connections at the Generator node. d. Check connections at the genset remote harness. e. Replace the Generator node. f. Replace the Generator control.
3. Genset will not start	When Start is pressed at the Touch Screen display, the genset does not start	<ul style="list-style-type: none"> a. The generator has a preheat feature which can delay the startup by up to 15 seconds. b. Verify that the Generator node is communicating by checking the OEM Setup → Tech Info → Comm menu and verifying the Generator node address is 0x0D. If the node address is 0, the Generator node is not communicating. See “Node is not communicating” (troubleshooting problem 1). c. Verify that the remote connector is plugged in at the genset. d. Verify that the genset starts by using the remote Start/Stop switch at the genset. e. Check the harness from the node to the genset. f. Disconnect J5 and short together J5-6 to J5-4. If the genset starts, replace the Generator node.
4. Genset will not stop	When Stop is pressed at the Touch Screen display, the genset does not stop	<ul style="list-style-type: none"> a. Verify that the Generator node is communicating by checking the OEM Setup → Tech Info → Comm menu and verifying the Generator node address is 0x0D. If the node address is 0, the Generator node is not communicating. See “Node is not communicating” (troubleshooting problem 1). b. Verify that the remote connector is plugged in at the genset. c. Verify that the genset stops by using the remote Start/Stop switch at the genset. g. Check the harness from the node to the genset. d. Disconnect J5 and short together J5-3 to J5-4. If the genset stops, replace the Generator node.

TABLE 13-1. TROUBLESHOOTING (Continued)

Problem	Indication	Corrective Action
5. Transfer Switch node is not reading battery voltage	The battery voltage is incorrect (Power → Invert menu)	<ul style="list-style-type: none"> a. Verify that the Transfer Switch node is communicating by checking the OEM Setup → Tech Info → Comm menu and verifying that the Transfer Switch node address is 0x0A. If the node address is 0, the Transfer Switch node is not communicating. See “Node is not communicating” (troubleshooting problem 1). b. Measure battery voltage across J9-3 and J9-4 on the Transfer Switch node. If the battery voltage is correct, replace the Transfer Switch node. If battery voltage is not present, then check the 5 amp fuse and the wires leading to the batteries.
6. Transfer Switch node is not reading AC voltage	The wrong power source is displayed on the Power menu	<ul style="list-style-type: none"> a. Navigate to the OEM setup → Tech Info → TS menu. With Shore Power connected, verify that VLN1, VLN2, and VLN3 display the correct voltage. If one value is zero, check the 2 amp fuse (Onan Part Number 321–0372–08) inside the Transfer Switch box and replace it, if necessary. b. Measure voltages at the Transfer Switch node. If the voltages are correct at the Transfer Switch node, replace the Transfer Switch node.
7. Controlled load is not indicating demand	A controlled load does not indicate demand (OEM Setup → Tech Info → Cont Load menu)	<ul style="list-style-type: none"> a. Verify that the Load Control node associated with the demand signal is communicating by checking the OEM Setup → Tech Info → Comm menu and verifying that the address is correct. See “Node is not communicating” (troubleshooting problem 1). b. Verify that the load is turned on and that the load is wired to indicate demand. NOTE: Not all Dometic air conditioners have a demand signal. c. Measure the voltage between J3-7 and ground on the Load Control node. If the voltage is greater than 8VDC, then replace the Load Control node. d. Check the wiring to the load.
8. Controlled load cannot be enabled or disabled	The controlled load can run on inverter power and/or will not run at all	<ul style="list-style-type: none"> a. Go to the OEM Setup → Tech Info → Cont Load → Man Ovrde menu and manually enable and disable the load while measuring the resistance across J3-3 and J3-1. J3-3 and J3-1 should be open when the load is disabled and shorted when the load is enabled. b. Go to the OEM Setup → Setup menu and verify the load for proper settings: Screen Name, Type, Priority, Placement, and Current Draw. c. Verify load wiring from the On/Off switch to the relay for the load.

TABLE 13-1. TROUBLESHOOTING (Continued)

Problem	Indication	Corrective Action
<p>9. Tank level is calibrated incorrectly or the tank level sender is returning an improper value</p>	<p>The tank level is not reading a proper value on the Tank menu</p>	<p>a. Test the water tank inputs to the tank level node as follows:</p> <ul style="list-style-type: none"> – Disconnect the tank level node J4 connector. – Set the Water Type Sender Type to “Active” (see step 14 on page 11-5, OEM Setup → Setup → Electrical Setup Menu #2). – Navigate to the OEM Setup → Tech Info → Tanks screen (see page 12-13) and verify that the raw water tank values are all less than 5. – Set the Water Type Sender Type to “Resistive” (see step 14 on page 11-5, OEM Setup → Setup → Electrical Setup Menu #2). – Navigate to the Tech Info → Tanks screen (see page 12-13) and verify that the raw water tank values are greater than 250. – If the node passes this test, then the sensor operation is questionable. Check for good/bad connection between the node and the sender. <p>b. Test the LP tank input to the tank level node as follows:</p> <ul style="list-style-type: none"> – Disconnect the tank level node J4 connector. – Navigate to the OEM Setup → Tech Info → Tanks screen (see page 12-13) and verify that the raw LP tank values are greater than 250. – Ground the LP input by connecting J4–8 to J4–7 and verify that the raw LP value is less than 5. – If the node passes this test, then the sensor operation is questionable. Check for good/bad connection between the node and the sender.
<p>10. After the power switch is turned on, the Touch Screen display does not power up</p>	<p>The Touch Screen display does not power up</p>	<p>a. Make sure the power switch is turned on.</p> <p>b. Check the 5A fuse that is supplying power to the system.</p> <p>c. Check J9-1 and J9-2 for battery voltage.</p> <p>d. Verify network power output by measuring across J1-3 and J1-4.</p> <p>e. Check all of the NET_PWR and NET_GND connections between the Transfer Switch Node and the Touch Screen display.</p> <p>f. Replace the Transfer Switch Node.</p>
<p>11. Failed Touch Screen display</p>	<p>There is no response when a button is pressed</p>	<p>a. Navigate to the Key Test menu (see page 12-10).</p> <p>b. If all squares do not turn dark after pressing them, replace the Touch Screen display.</p>

14. Glossary

Term	Definition
A/C	Air Conditioner
AGS	Automatic Generator Start
ATS	Automatic Transfer Switch
Auto Gen	Automatic Generator Start
Black Water	Waste water from toilets
CAN	Controller Area Network
Controlled Loads	Items (air conditioners, hot water heater, engine block heater, auxiliary heater, electric heater, and washer/dryer) that are linked to Coach Command with load control nodes. Coach Command can monitor and control their power usage.
CT	Current Transformer
Genset	Generator set
Grey Water	Waste water from sinks, the shower, the dish washer, and the clothes washer
Inverter	A device for converting Direct Current (DC) into Alternating Current (AC) by mechanical or electronic means
Load	The amount of power needed to run a device
LP	Liquid Propane
NC	Normally Closed
NO	Normally Open
Non-Controlled Loads	AC outlets and appliances (stove, refrigerator, microwave, etc.) that are not monitored or controlled by Coach Command
Node Board	A circuit board connected to other boards by a communication network
PLL	Phase Line to Line
PN	Part number
RPM	Revolutions Per Minute
Sec	Seconds
Shore Power	An external electrical outlet used as a power source for the appliances in your recreational vehicle
Transfer Switch	The means to connect the load to an available power source

Term	Definition
UTP	Unshielded Twisted Pair
VAC	Volts Alternating Current
VDC	Volts Direct Current
VLN	Voltage Line to Neutral

Appendix A. OEM Supplied Equipment

Part	Manufacturer		Onan Part Number	Description
	Name	Part No.		
Contact – Pin	Amp	350547-2	323-1930	Gold pin for universal MATE-N-LOK connectors
Contact – Socket	Amp	350550-2	323-1931	Gold socket for universal MATE-N-LOK connectors
4-Circuit Connector	Amp	1-480702-0	323-1292	Universal MATE-N-LOK connectors
6-Circuit Connector	Amp	1-480704-0	323-1932	Universal MATE-N-LOK connectors
9-Circuit Connector	Amp	1-480706-0	323-1201	Universal MATE-N-LOK connectors
Network Cable			334-1350	Unshielded 22 AWG UL Level IV or EIAS Cat. 4 stranded twisted pair communications wire
Voltage Sense Cable				Five conductor minimum (some installations require a seven conductor cable), 18AWG, rated for 120VAC (used for voltage sense on the Transfer Switch node)
3-Pin Connector for CAN Node	Deutsch	DT06-3S	323-1493	Plug connector (used to interface to the engine interface node)
Coach Command On/Off Switch				Rated for 12VDC 5 Amp
Seal – Interface (9-circuit)	Amp	794277-1	323-1905	Interface seal for 9-circuit Universal MATE-N-LOK connectors
Seal – Wire (9-circuit)	Amp	794278-1	323-1906	Wire seal for 9-circuit Universal MATE-N-LOK connectors
Seal – Interface (6-circuit)	Amp	794275-1	323-1907	Interface seal for 6-circuit Universal MATE-N-LOK connectors
Seal – Wire (6-circuit)	Amp	794276-1	323-1908	Wire seal for 6-circuit Universal MATE-N-LOK connectors
Seal – Interface (4-circuit)	Amp	794273-1	323-1909	Interface seal for 4-circuit Universal MATE-N-LOK connectors
Seal – Wire (4-circuit)	Amp	794274-1	323-1910	Wire seal for 4-circuit Universal MATE-N-LOK connectors
Plug – Sealing	Amp	770377-1	323-1912	Sealing plug for unused circuits in Universal MATE-N-LOK connectors
				Mating connector for genset (10 wire)

Appendix B. Controlled Load Timing

This appendix covers controlled load timing issues that apply when switching power sources. Timing diagrams are shown in Figures B-4 thru B-8.

NOTE: See page 14-1 for a description of controlled and non-controlled loads.

Whenever switching power sources, controlled loads are temporarily disabled. Coach Command turns off these loads until the new power source is determined to be stable.

When Auto Gen is set to “ON” and the power source switches from inverter to generator power, Dometic and Coleman air conditioners have a time delay.

Shore Transfer Delay is between 15–300 seconds. The default setting is 30 seconds. To adjust the shore transfer delay setting, see step 16 on page 11-5.

Generator Transfer Delay is between 30–300 seconds. The default setting is 60 seconds. (See Section 11: System Configuration. To adjust the generator transfer delay setting, see step 18 on page 11-5.

Inverter to Shore Power

When the power source is set to inverter power, non-controlled loads can function but all controlled loads (except Dometic air conditioners) are disabled (see Figure B-1).

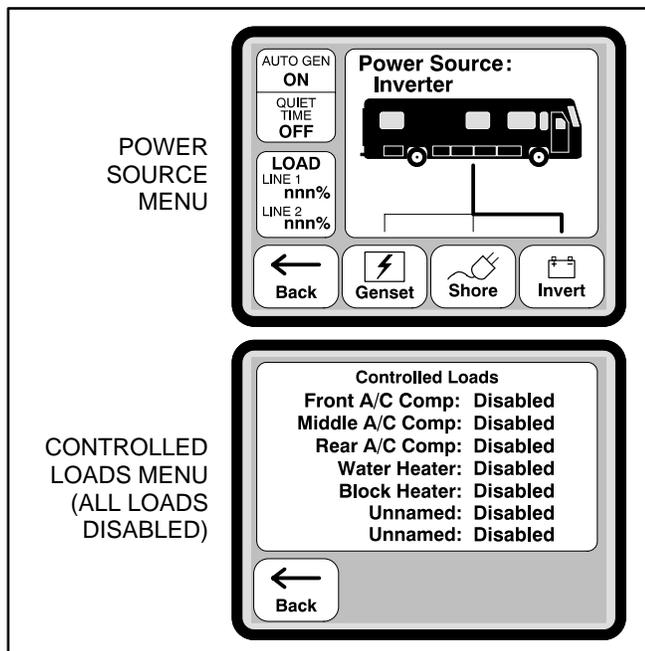


FIGURE B-1. INVERTER POWER

When the shore power connection is made, the Power Source menu continues to show **Power Source: Inverter** for an additional 30 seconds as the switch to shore power is made. The Power Source menu then shows **Power Source: Shore** (see Figure 12-2) and the load with the highest priority is enabled (in Figure B-2, the water heater has the highest priority). The remaining loads are then enabled, based on priority, separated by 10-second increments.

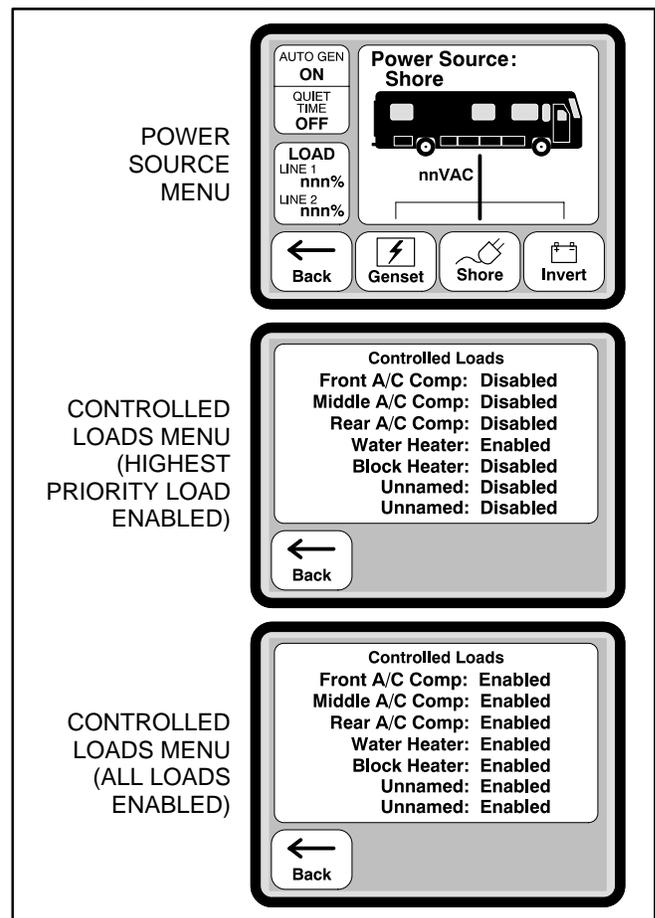


FIGURE B-2. SWITCHING TO SHORE POWER

Shore to Inverter Power

When shore power is disconnected, all controlled loads (except Dometic air conditioners) are disabled and the Power Source menu shows **Power Source: Inverter** (see Figure B-1).

Inverter to Generator Power

When the power source is set to inverter power, non-controlled loads can function but all controlled loads (except Dometic air conditioners) are disabled (see Figure B-1).

When the generator is started, the Power Source menu continues to show **Power Source: Inverter** for an additional 60 seconds as the switch to generator power is made. The Power Source menu then shows **Power Source: Genset** (see Figure B-3) and the controlled load with the highest priority is enabled (in Figure B-3, the water heater has the highest priority). The remaining loads are then enabled, based on priority, separated by 10-second increments.

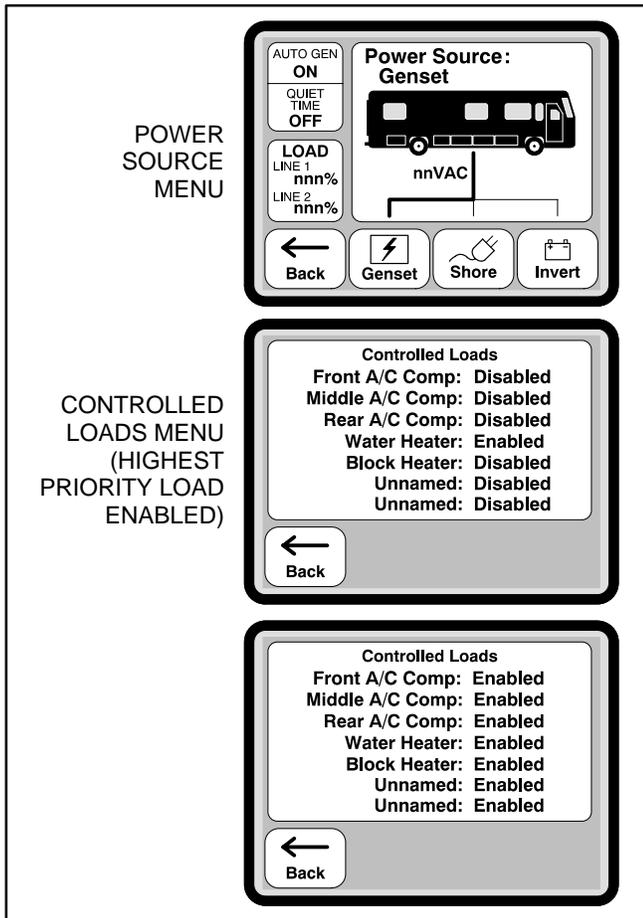


FIGURE B-3. SWITCHING TO GENSET POWER

Generator to Inverter Power

When the generator is turned off, all controlled loads (except Dometic air conditioners) are disabled and the Power Source menu shows **Power Source: Inverter** (see Figure B-1).

Shore to Generator Power

When shore power is disconnected, all controlled loads (except Dometic air conditioners) are disabled and the Power Source menu shows **Power Source: Inverter** (see Figure B-1).

When the generator is started, the Power Source menu continues to show **Power Source: Inverter** for an additional 60 seconds as the switch to generator

power is made. The Power Source menu then shows **Power Source: Genset** (see Figure B-3) and the controlled load with the highest priority is enabled (in Figure B-3, the water heater has the highest priority). The remaining loads are then enabled, based on priority, separated by 10-second increments.

Generator to Shore Power

When generator power is turned off, all controlled loads are disabled (except Dometic air conditioners) and the Power Source menu shows **Power Source: Inverter** (see Figure B-1).

When the shore power connection is made, the Power Source menu continues to show **Power Source: Inverter** for an additional 30 seconds as the switch to shore power is made. The Power Source menu then shows **Power Source: Shore** (see Figure B-2) and the load with the highest priority is enabled (in Figure B-2, the water heater has the highest priority). The remaining loads are then enabled, based on priority, separated by 10-second increments.

Dometic Air Conditioners

Unlike other controlled loads, the Dometic air conditioner can be enabled when the power source is set to inverter power.

If Coach Command detects a demand signal from the air conditioner while the power source is set to inverter power and Auto Gen is set to “ON,” the generator automatically starts. When the generator starts, the air conditioner is disabled and the Power Source menu continues to show **Power Source: Inverter** for 60 seconds. When the switch to generator power is complete, the Power Source menu then shows **Power Source: Genset** and the air conditioner is enabled. After the air conditioner is enabled, a time delay is included in the A/C controls, resulting in an additional 1–3 minutes before the thermostat A/C compressor starts.

Coleman Air Conditioners

If Coach Command detects a demand signal from a Coleman air conditioner while the power source is set to inverter power and Auto Gen is set to “ON,” the generator automatically starts. When the generator starts, the Power Source menu continues to show **Power Source: Inverter** for an additional 60 seconds as the switch to generator power is made. The Power Source menu then shows **Power Source: Genset**, the air conditioner is enabled, and the thermostat A/C compressor starts. If a demand signal is no longer detected, the thermostat A/C compressor is turned off. There is a time delay of 120 seconds before the air conditioner can be restarted.

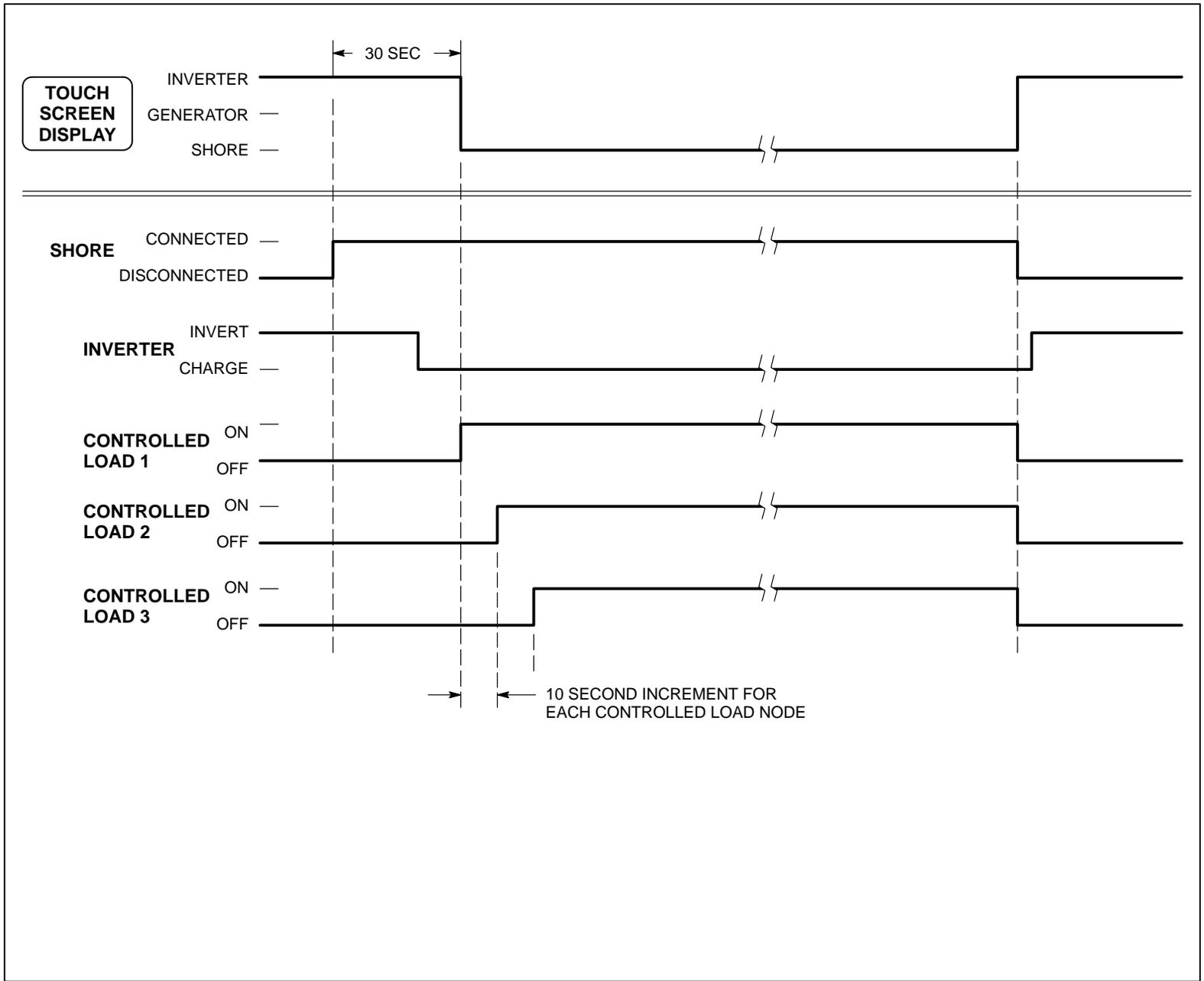


FIGURE B-4. INVERTER TO SHORE TO INVERTER POWER

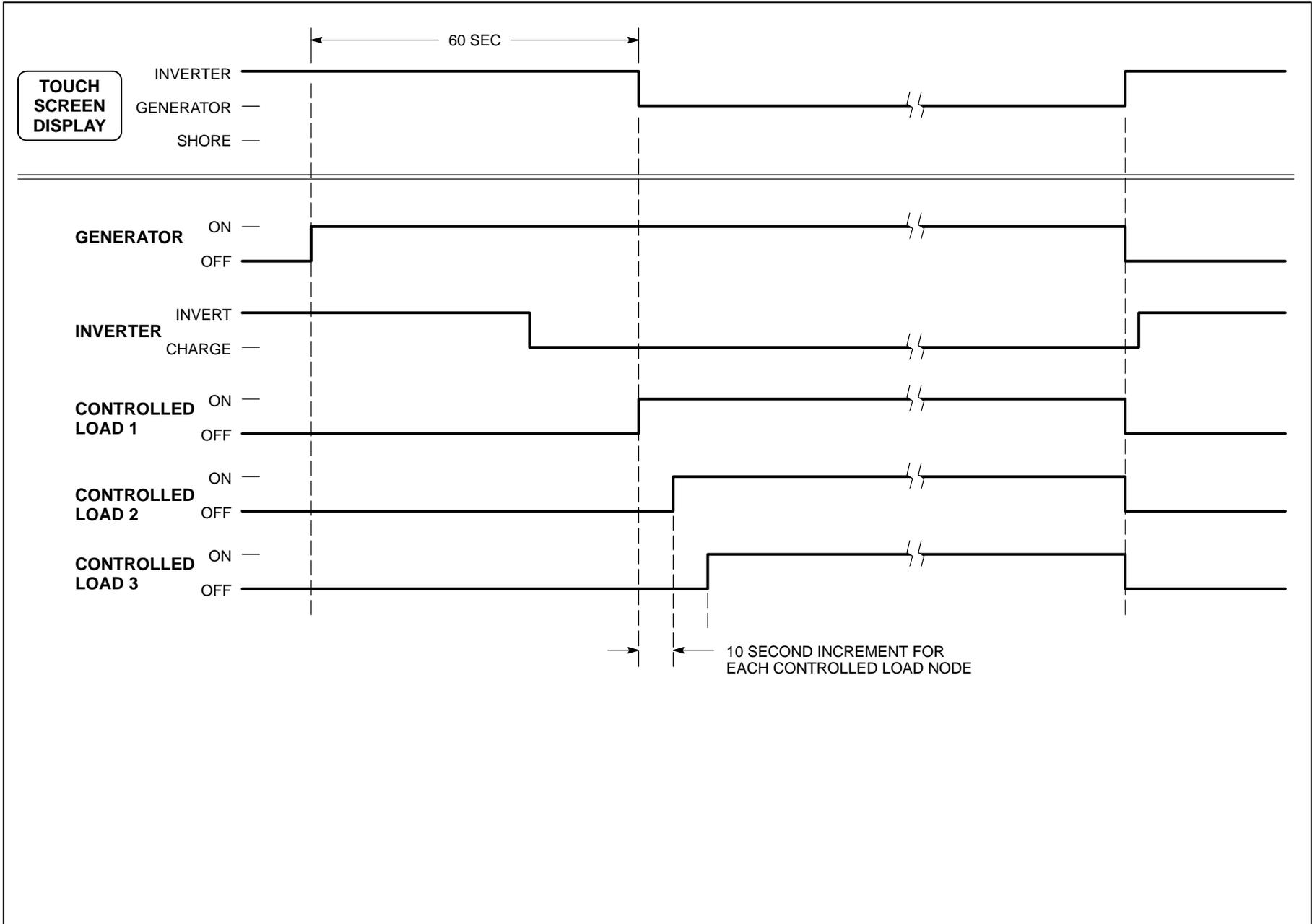


FIGURE B-5. INVERTER TO GENERATOR TO INVERTER POWER

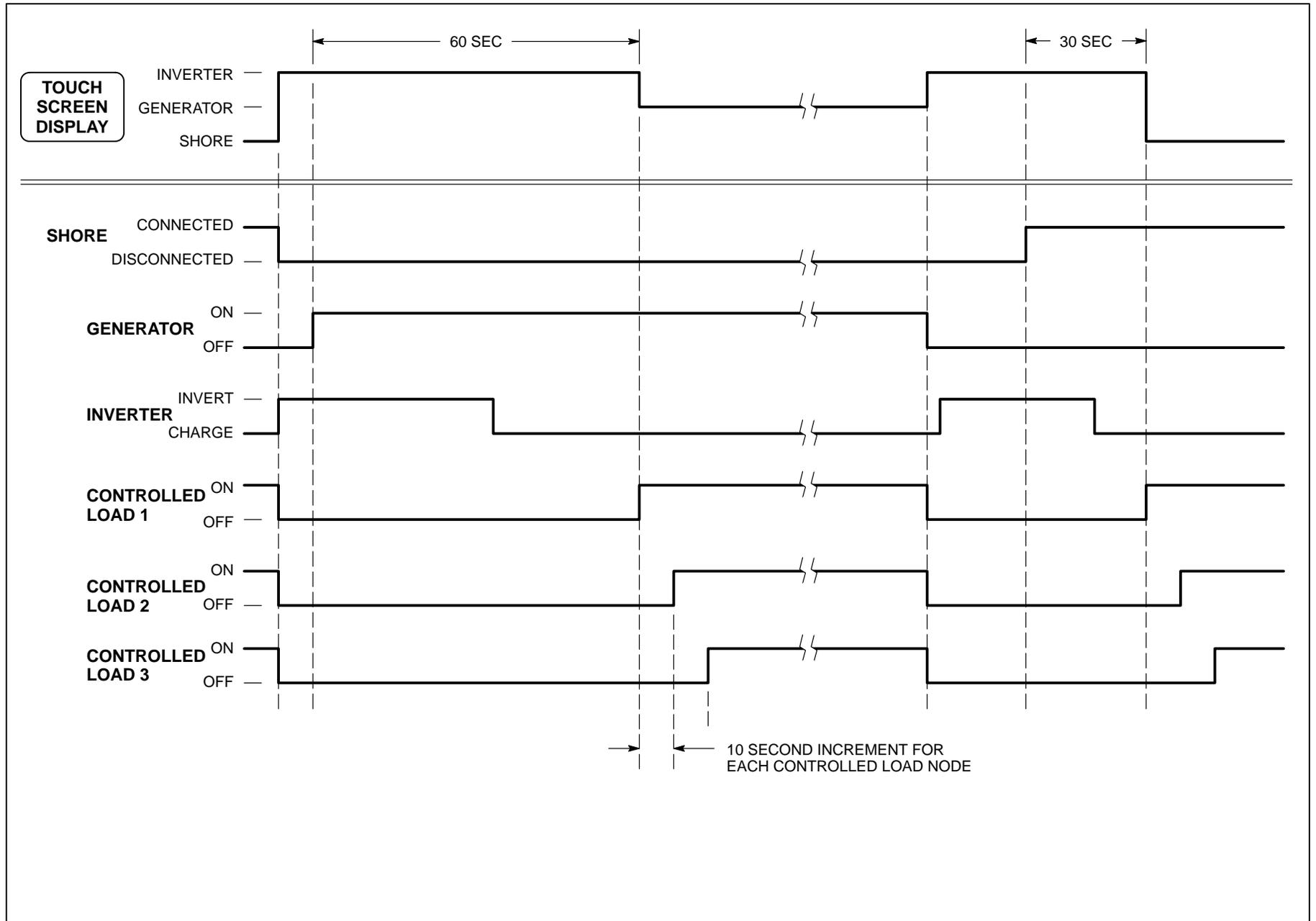


FIGURE B-6. SHORE TO GENERATOR TO SHORE POWER

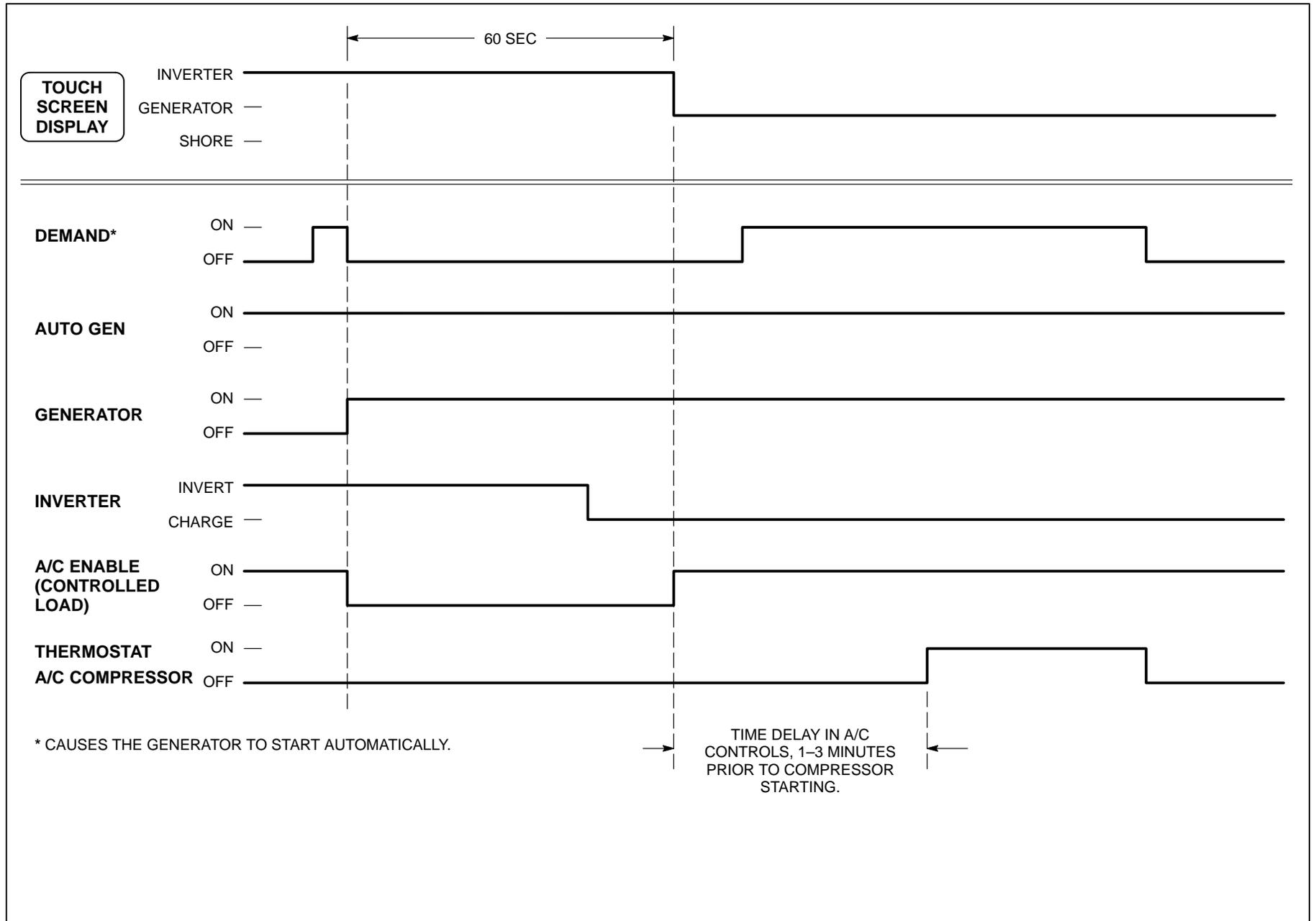


FIGURE B-7. DOMETIC AIR CONDITIONER

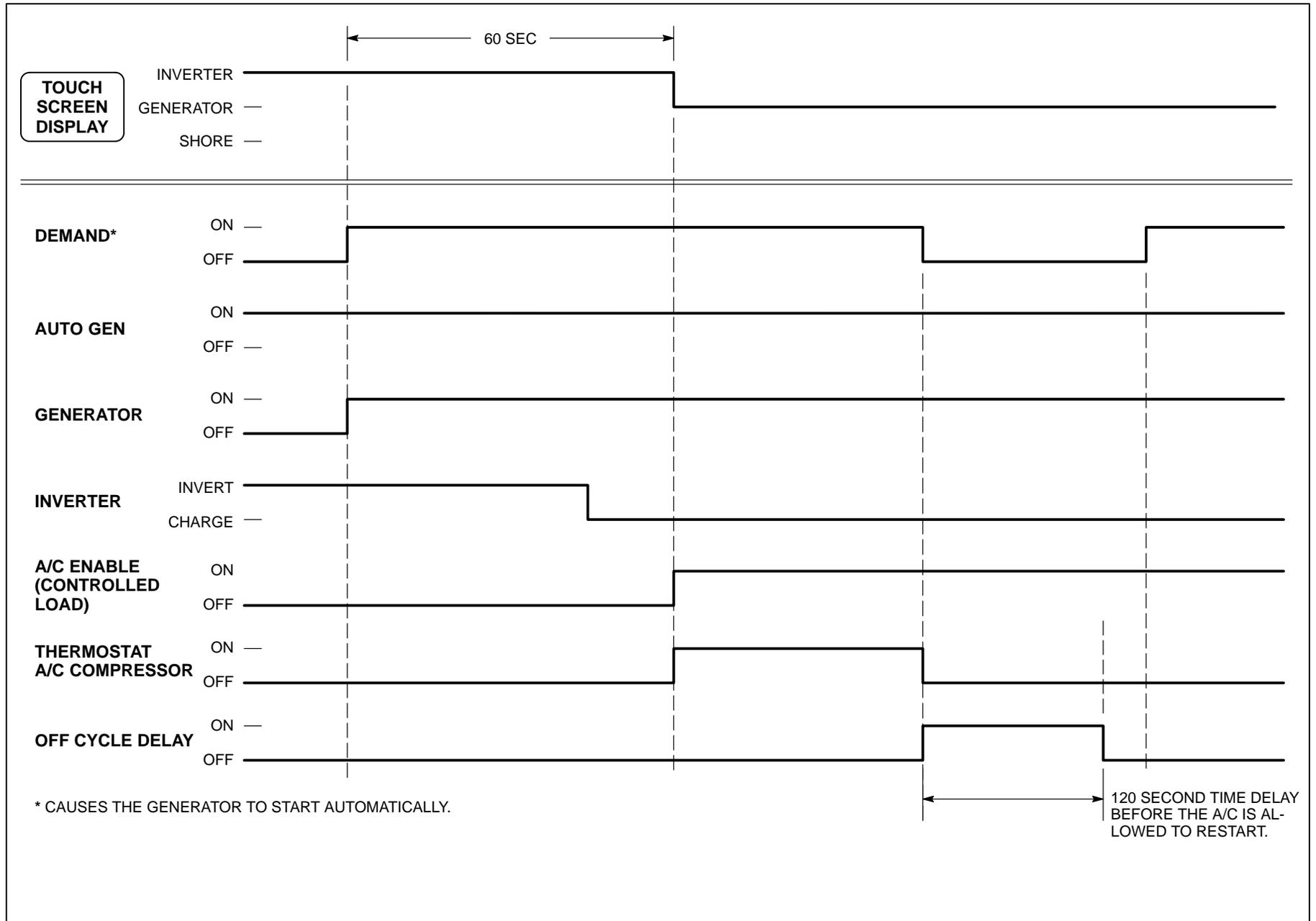


FIGURE B-8. COLEMAN AIR CONDITIONER

Appendix C. Wire Colors

Table C-1 lists suggested wire colors to use for node connections to controlled loads, the genset, the tanks, the coach battery, and the AC distribution system. The table shows the wire color to be used for each pin location in the following mating connectors.

Node	Connector(s)
Load Control Node	J3
Generator Interface Node	J5, J20
Tank Level Node	J4
Transfer Switch Node	J6, J7, J8, J9

TABLE C-1. WIRE COLORS

Pin	Color
1	Black
2	Red
3	White
4	Green
5	Orange
6	Blue
7	Brown
8	Yellow
9	Violet

Coach Command System Worksheet

Record the following information and keep a copy of this worksheet with the coach for for future reference.

Electrical Configuration Number:

0

1

2

3

Generator Type:

7.5 QD

8.0 QD

10.0 QD

12.5 QD

Inverter

Type: Modified Sine Modified with Charge Input

Rating: _____ Watts

Minimum Battery Voltage: _____
(Default = 11.8 VDC)

Minimum AC Charge Rate: _____
(Default = 4 Amps)

Tank Level Sender Type:

Active

Resistive

LOAD CONTROL NODE DIP SWITCH SETTINGS

Dip Switch Setting	Node Address		Name	Type	Priority	Placement	Current Draw
	Decimal	Hex					
ON OFF 	16	0x10	Front A/C Comp	Dometic/ Coleman	5	Line 1	15
ON OFF 	17	0x11	Middle A/C Comp	Dometic/ Coleman	7	Line 2	15
ON OFF 	18	0x12	Rear A/C Comp	Dometic/ Coleman	6	Line 2	15
ON OFF 	19	0x13	Water Heater	non-A/C	4	Line 1	12
ON OFF 	20	0x14	Block Heater	non-A/C	3	Line 1	12
ON OFF 	21	0x15					
ON OFF 	22	0x16					
ON OFF 	23	0x17					
ON OFF 	24	0x18					
ON OFF 	25	0x19					
ON OFF 	26	0x1A					
ON OFF 	27	0x1B					
ON OFF 	28	0x1C					
ON OFF 	29	0x1D					
ON OFF 	30	0x1E					
ON OFF 	31	0x1F					

This table includes recommended Coach Command settings. Based upon individual coach requirements, these settings can be changed.

Coach Command System Worksheet

Record the following information and keep a copy of this worksheet with the coach for for future reference.

Electrical Configuration Number:

0

1

2

3

Generator Type:

7.5 QD

8.0 QD

10.0 QD

12.5 QD

Inverter

Type: Modified Sine Modified with Charge Input

Rating: _____ Watts

Minimum Battery Voltage: _____
(Default = 11.8 VDC)

Minimum AC Charge Rate: _____
(Default = 4 Amps)

Tank Level Sender Type:

Active

Resistive

LOAD CONTROL NODE DIP SWITCH SETTINGS

Dip Switch Setting	Node Address		Name	Type	Priority	Placement	Current Draw
	Decimal	Hex					
ON OFF 	16	0x10	Front A/C Comp	Dometic/ Coleman	5	Line 1	15
ON OFF 	17	0x11	Middle A/C Comp	Dometic/ Coleman	7	Line 2	15
ON OFF 	18	0x12	Rear A/C Comp	Dometic/ Coleman	6	Line 2	15
ON OFF 	19	0x13	Water Heater	non-A/C	4	Line 1	12
ON OFF 	20	0x14	Block Heater	non-A/C	3	Line 1	12
ON OFF 	21	0x15					
ON OFF 	22	0x16					
ON OFF 	23	0x17					
ON OFF 	24	0x18					
ON OFF 	25	0x19					
ON OFF 	26	0x1A					
ON OFF 	27	0x1B					
ON OFF 	28	0x1C					
ON OFF 	29	0x1D					
ON OFF 	30	0x1E					
ON OFF 	31	0x1F					

This table includes recommended Coach Command settings. Based upon individual coach requirements, these settings can be changed.

Coach Command System Worksheet

Record the following information and keep a copy of this worksheet with the coach for for future reference.

Electrical Configuration Number:

0

1

2

3

Generator Type:

7.5 QD

8.0 QD

10.0 QD

12.5 QD

Inverter

Type: Modified Sine Modified with Charge Input

Rating: _____ Watts

Minimum Battery Voltage: _____
(Default = 11.8 VDC)

Minimum AC Charge Rate: _____
(Default = 4 Amps)

Tank Level Sender Type:

Active

Resistive

LOAD CONTROL NODE DIP SWITCH SETTINGS

Dip Switch Setting	Node Address		Name	Type	Priority	Placement	Current Draw
	Decimal	Hex					
ON OFF 	16	0x10	Front A/C Comp	Dometic/ Coleman	5	Line 1	15
ON OFF 	17	0x11	Middle A/C Comp	Dometic/ Coleman	7	Line 2	15
ON OFF 	18	0x12	Rear A/C Comp	Dometic/ Coleman	6	Line 2	15
ON OFF 	19	0x13	Water Heater	non-A/C	4	Line 1	12
ON OFF 	20	0x14	Block Heater	non-A/C	3	Line 1	12
ON OFF 	21	0x15					
ON OFF 	22	0x16					
ON OFF 	23	0x17					
ON OFF 	24	0x18					
ON OFF 	25	0x19					
ON OFF 	26	0x1A					
ON OFF 	27	0x1B					
ON OFF 	28	0x1C					
ON OFF 	29	0x1D					
ON OFF 	30	0x1E					
ON OFF 	31	0x1F					

This table includes recommended Coach Command settings. Based upon individual coach requirements, these settings can be changed.

Onan

Cummins Power Generation
1400 73rd Avenue N.E.
Minneapolis, MN 55432
763-574-5000
Fax: 763-528-7229

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