Caution: This document contains mixed page sizes (8.5 x 11 or 11 x 17), which may affect printing. Please adjust your printer settings according to the size of each page you wish to print.

Onan Mobile GenSet

Installation Manual

HGJAA, HGJAB, HGJAC

Printed in
U.S.A.

983–0600B
07-06

⚠ WARNING: ⚠

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

⚠ WARNING ⚠

Do not use this genset on a boat
Such use may violate U. S. Coast Guard regulations and can result in severe personal injury or death from fire, electrocution, or carbon monoxide poisoning

Table of Contents

SECTION **PAGE**

SAFETY PRECAUTIONS

Thoroughly read the OPERATOR'S MANUAL before operating the genset. Safe operation and top performance can only be obtained when equipment is properly operated and maintained.

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 that will result in severe personal injury or death.***

⚠WARNING ***alerts you to a hazard or unsafe practice that can result in severe personal injury or death.***

⚠ CAUTION ***alerts you to a hazard or unsafe practice that 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.

GASOLINE AND PROPANE ARE 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 flames, sparks, pilot lights, arc-producing equipment and all other sources of ignition well away.
- Fuel lines must be secured, free of leaks and separated or shielded from electrical wiring.
- Leaks can lead to explosive accumulations of gas. Natural gas rises when released and can accumulate under hoods and inside housings and buildings. LPG sinks when released and can accumulate inside housings and basements and other below-grade spaces. Prevent leaks and the accumulation of gas.

ENGINE EXHAUST IS DEADLY

- Inspect for exhaust leaks at every startup and after every eight hours of running.
- Learn the symptoms of carbon monoxide poisoning in the genset Operator's Manual.
- Never sleep in the vehicle while the genset is running unless the vehicle is equipped with a working carbon monoxide detector.
- Do not operate the genset when the vehicle is parked in a confined space, such as a garage.
- Disable the automatic genset starting feature (AGS) of an inverter-charger or other automatic starting device before storing the vehicle or parking it in a garage or other confined space.
- The exhaust system must be installed in accordance with the genset Installation Manual.
- Engine cooling air must not be used for heating the vehicle.

GENERATOR VOLTAGE IS DEADLY

- Disable the automatic genset starting feature (AGS) of an inverter-charger or other automatic starting device before servicing the genset.
- Generator electrical output connections must be made by a trained and experienced electrician in accordance with applicable codes.
- The genset must not be connected to shore power (utility). Back-feed to shore power can cause electrocution and damage to equipment. An approved switching device must be used to prevent interconnections.
- Use caution when working on live electrical equipment. Remove jewelry, make sure clothing and shoes are dry, stand on a dry wooden platform or rubber insulating mat and use tools with insulated handles.

MOVING PARTS CAN CAUSE SEVERE PERSONAL INJURY OR DEATH

- Disable the automatic genset starting feature (AGS) of an inverter-charger or other automatic starting device before servicing the genset.
- Do not wear loose clothing or jewelry near moving parts such as PTO shafts, fans, belts and pulleys.
- Keep hands away from moving parts.
- Keep guards in place over fans, belts, pulleys, and other moving parts.

BATTERY GAS IS EXPLOSIVE

- Wear safety glasses.
- Do not smoke.
- To reduce arcing when disconnecting or reconnecting battery cables, always disconnect the negative (–) battery cable first and reconnect it last.

GENERAL PRECAUTIONS

- Keep children away from the genset.
- To prevent accidental or remote starting while working on the genset, disconnect the negative (–) battery cable at the battery.
- Keep the genset and its compartment clean. Excess oil and oily rags can catch fire. Dirt and gear stowed in the compartment can restrict cooling air.
- Make sure all fasteners are secure and torqued properly.
- Do not work on the genset when mentally or physically fatigued or after consuming alcohol or drugs.
- You must be trained and experienced to make adjustments while the genset is running—hot, moving or electrically live parts can cause severe personal injury or death.
- Used engine oil has been identified by some U. S. state and federal agencies as causing cancer or reproductive toxicity. Do not ingest, inhale, or contact used oil or its vapors.
- Benzene and lead in some gasolines have been identified by some state and federal agencies as causing cancer or reproductive toxicity. Do not ingest, inhale or contact gasoline or its vapors.
- Keep multi-class ABC fire extinguishers readily at hand. Class A fires involve ordinary combustible materials such as wood and cloth. Class B fires involve combustible and flammable liquids and gaseous fuels. Class C fires involve live electrical equipment. (ref. NFPA No. 10)
- Genset installation and operation must comply with all applicable local, state and federal codes and regulations.

1. Introduction

ABOUT THIS MANUAL

⚠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.***

⚠WARNING ***This genset is not a life support system. It can stop without warning. Children, persons with physical or mental limitations, and pets could suffer personal injury or death. A personal attendant, redundant power or an alarm system must be used if genset operation is critical.***

⚠CAUTION ***Unauthorized modifications or replacement of fuel, exhaust, air intake or speed control system components that affect engine emissions are prohibited by law in the State of California.***

This manual is a guide for the installation of the HGJAA, HGJAB and HGJAC Series of generator sets (gensets). Proper installation is essential for top performance. Read through this manual before starting the installation. Leave this manual with the vehicle.

This manual addresses the following aspects of the installation:

- Location, Mounting and Ventilation
- Exhaust Connections
- Fuel Connections
- Electrical Connections
- Startup

See the Operator's Manual for operation and maintenance instructions.

Note: Manuals are updated from time to time to reflect changes in the equipment and its specifications. For this reason, only the copy of the installation manual supplied with the genset should be used as a guide for the installation.

INSTALLATION CODES AND STANDARDS FOR SAFETY

⚠CAUTION ***The Warranty applies only when this genset is installed in a Recreational Vehicle.***

The installer bears sole responsibility for the selection of the appropriate genset, for its proper installation and for obtaining approvals from the authorities (if any) having jurisdiction over the installation. These sets meet the basic requirements of the Standard for Safety for Engine Generator Sets for Recreational Vehicles, ANSI/RVIA EGS-1. They are suitable for installation in accordance with:

- NFPA No. 1192—Recreational Vehicles
- NFPA No. 70, Article 551—Recreational Vehicles and RV Parks
- NFPA No. 58—Liquefied Petroleum Gas Code
- CSA Electrical Bulletin 946—Requirements for Internal Combustion Engine-Driven Electric Generators for Use in Recreational Vehicles

Federal, State and local codes, such as the California Administrative Code—Title 25 (RV installation), might also be applicable. Installation codes and recommendations can change from time-to-time and are different in different countries, states and municipalities. It is recommended that the standards in Table 1-1 be obtained for reference.

TABLE 1-1. REFERENCE CODES AND STANDARDS

Code of Federal Regulations, Title 49: Chapter III and Chapter V	Superintendent of Documents P. O. Box 371954 Pittsburgh, PA 15250-7954
NFPA No 58, 70, 1192	National Fire Protection Association 470 Atlantic Avenue Boston, MA 02210
ANSI/RVIA-EGS-1	Recreational Vehicle Industry Association 14650 Lee Road Chantily, 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 Recreational Vehicles Bulletin 946	Canadian Standards Association Housing and Construction Materials Section 178 Rexdale Blvd. Rexdale, Ontario, Canada M9W 1R3

OUTLINE DRAWINGS

See the Outline Drawings (Pages A-1 and A-2) for installation details: mounting bolt hole locations, connection points (fuel, battery, exhaust, remote control, AC output), sizes and types of fittings, cooling air openings, weight, and overall dimensions. See your Onan dealer for a large-scale Outline Drawing and full-size floor cutout template.

LIFTING AND HANDLING GENSET

Figure 1-1 illustrates the four lift hook slots for genset lifting. A lifting rig must spread the hook straps such that they do not crush or bend parts such as the control box, air filter and fuel lines while lifting.

See *Specifications* (Page 7-1) for the weight of the genset and make provisions accordingly for safe handling.

⚠ CAUTION ***Avoid tipping the front (service side) down while handling the genset. Engine oil could drain into and soak the air filter to cause hard starting and poor operation.***

The underside of the genset can be damaged by protruding objects — Always rest the genset on a flat surface that has been cleared off — Always extend the lifting arms of a forklift beyond the base of the genset to prevent them from protruding into the underside cover.

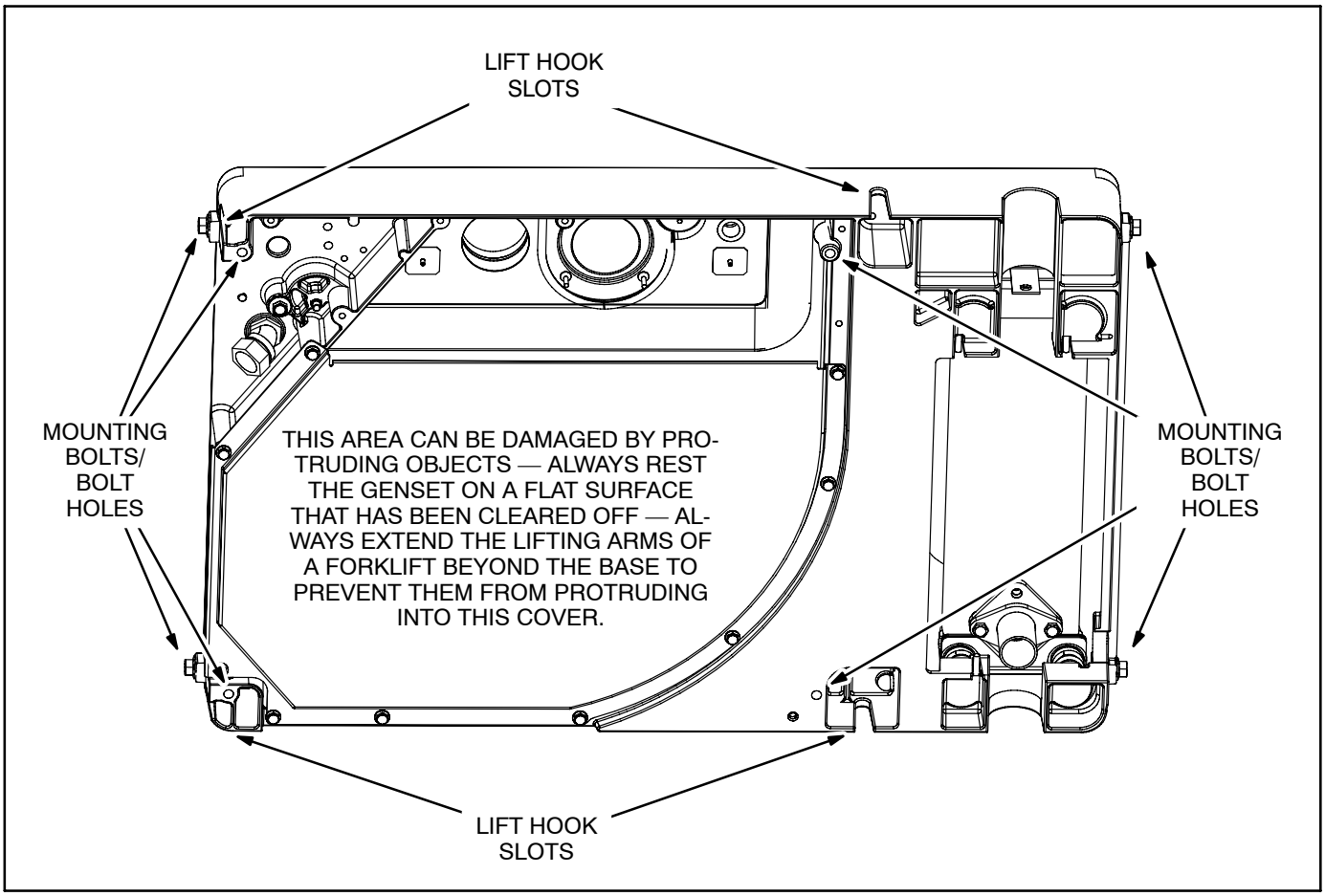


FIGURE 1-1. GENSET LIFT-HOOK SLOTS—MOUNTING BOLT HOLES—AREA THAT CAN BE DAMAGED

2. Location, Mounting and Ventilation

LOCATION

Typical genset locations on a recreational vehicle are illustrated in Figure 2-1. The location must provide:

1. Ready access for starting and stopping the genset and performing all periodic maintenance
2. Separation from sources of flammable vapors, such as batteries and fuel tanks, which the genset can ignite
3. Access for connecting and disconnecting fuel lines, battery cables, remote control wiring and AC wiring
4. Access from below for draining engine oil and changing the oil filter
5. Unobstructed space below the genset for proper cooling air flow (see VENTILATION in this section)
6. Ground clearance of at least 12 inches (305 mm) (see VENTILATION in this section)
7. Space to mount the genset with at least 1/2 inch (12.7 mm) clearance at the top and any side of the genset. These minimum clearances apply to any thermal or acoustic insulation with which a compartment may be lined. See *Specifications* (Page 7-1) for minimum compartment dimensions.
8. For a Model HGJAC genset, which does not have an integral enclosure, protection from rain and road splash.

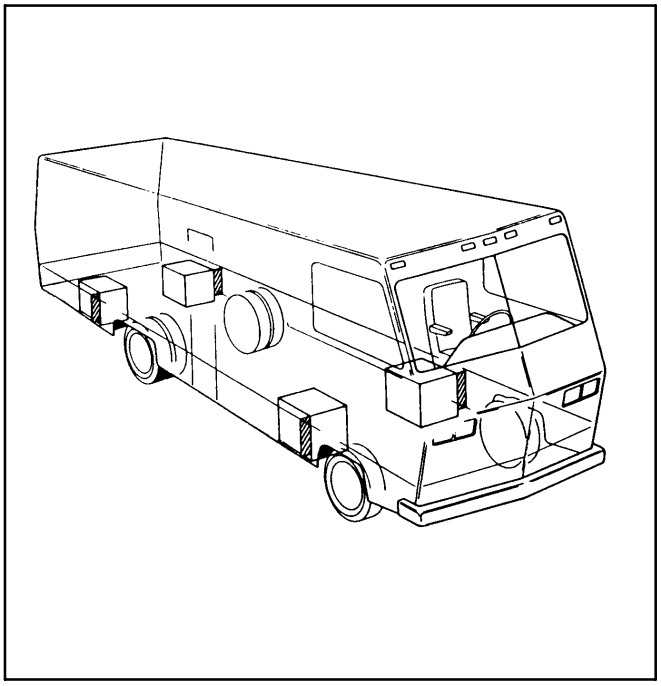


FIGURE 2-1. TYPICAL GENSET LOCATIONS

HEAT, FIRE AND EXHAUST BARRIERS

Insulating Materials

Acoustic/thermal insulation and adhesive must be Classified as "Self-Extinguishing" at not less than 200°F (90°C). Do not line the bottom of a compartment with insulation, which absorbs fuel and oil.

Fire and Exhaust Barriers

Barriers to provide vapor and fire resistance must be installed between the genset and the interior of the vehicle if the genset is mounted below the floor. If the genset is mounted in a compartment on the floor of the vehicle, the entire compartment (except the floor) must be lined with vapor and fire resistive materials. All seams and openings in the barriers for wiring, mounting screws and so forth must be sealed. Use approved materials (26 gauge galvanized steel or equivalent). See NFPA 1192 for details.

⚠WARNING ***EXHAUST GAS AND FIRE ARE DEADLY! Construct a suitable vapor and fire barrier of approved materials between the genset and vehicle interior.***

Thermal Insulation for Model HGJAC—Below-Floor Mounted

If the floor is of combustible material, such as plywood, cover the floor above the genset and any side wall around the genset with 1/4 to 1/2 inch (6.4 to 12.7 mm) thick, 4 lb/ft^3 (0.0167 kg/m^3) density fiberglass thermal insulation with aluminum foil facing at least 0.001 inch (0.025 mm) thick. Secure the insulation every 12 inches (304 mm) to the surfaces being protected by means of mechanical fasteners and washers as least 1 inch (25 mm) in diameter.

Thermal Insulation for Model HGJAC—Above-Floor Mounted

If of combustible material, such as plywood, line the compartment and door, *but not the floor*, with 1/4 to 1/2 inch (6.4 to 12.7 mm) thick, 4 lb/ft^3 (0.0167 kg/m^3) density fiberglass thermal insulation with aluminum foil facing at least 0.001 inch (0.025 mm) thick. Secure the insulation every 12 inches (304 mm) to the surfaces being protected by means of mechanical fasteners and washers as least 1 inch (25 mm) in diameter. See *Specifications* (Page 7-1) regarding minimum compartment dimensions.

MOUNTING

Mounting Structure and Hardware

Support the genset on a structure able to resist the dynamic weight of the genset: ±3 g-force vertical and ±1 g-force horizontal. See *Specifications* (Page 7-1) for the weight of the specific model being installed. Secure the genset with four 3/8 inch thread-forming bolts in the ends or bottom of the base (Figure 1-1). Torque the bolts to 31 lb-ft (42 N-m).

⚠WARNING ***The genset support structure must be designed and installed to support and restrain the dynamic weight of the genset. Failure to do so can result in the genset dropping onto the roadway causing property damage, severe personal injury and death.***

Below-Floor Mounting

Below-floor mounting kits are available from Onan. Carefully follow the instructions in the kit. Reinforce a plywood or particle board floor with steel to resist the dynamic weight of the genset. Do not mount the genset within the approach or departure angles of the vehicle or below the axle line (Figure 3-6).

VENTILATION

Unrestricted air flow into and out of the genset for cooling and ventilation is essential for proper genset performance and service life (Figure 2-2). See HOT AIR RECIRCULATION TEST (Page 6-1).

1. See your Onan dealer for a full-size floor template to accurately locate the air inlet and outlet openings when installing the genset on the floor of the vehicle. The template is illustrated on the Outline Drawings (Pages A-1 and A-2)
2. At least 6 inches (152 mm) of unobstructed space below the genset that is open on at least three sides is required for proper cooling air flow.
3. A ground clearance of at least 12 inches (305 mm) is recommended to reduce the amount of dust pulled in by the cooling fan and the likelihood of blocking air flow by parking curbs or logs.
4. Shield the air inlet in the bottom of the genset from direct road splash when the genset is located in line with the road wheels.
5. Do not duct genset cooling air into the vehicle for heating.

⚠WARNING ***EXHAUST GAS IS DEADLY! Do not duct genset cooling air into the vehicle for heating.***

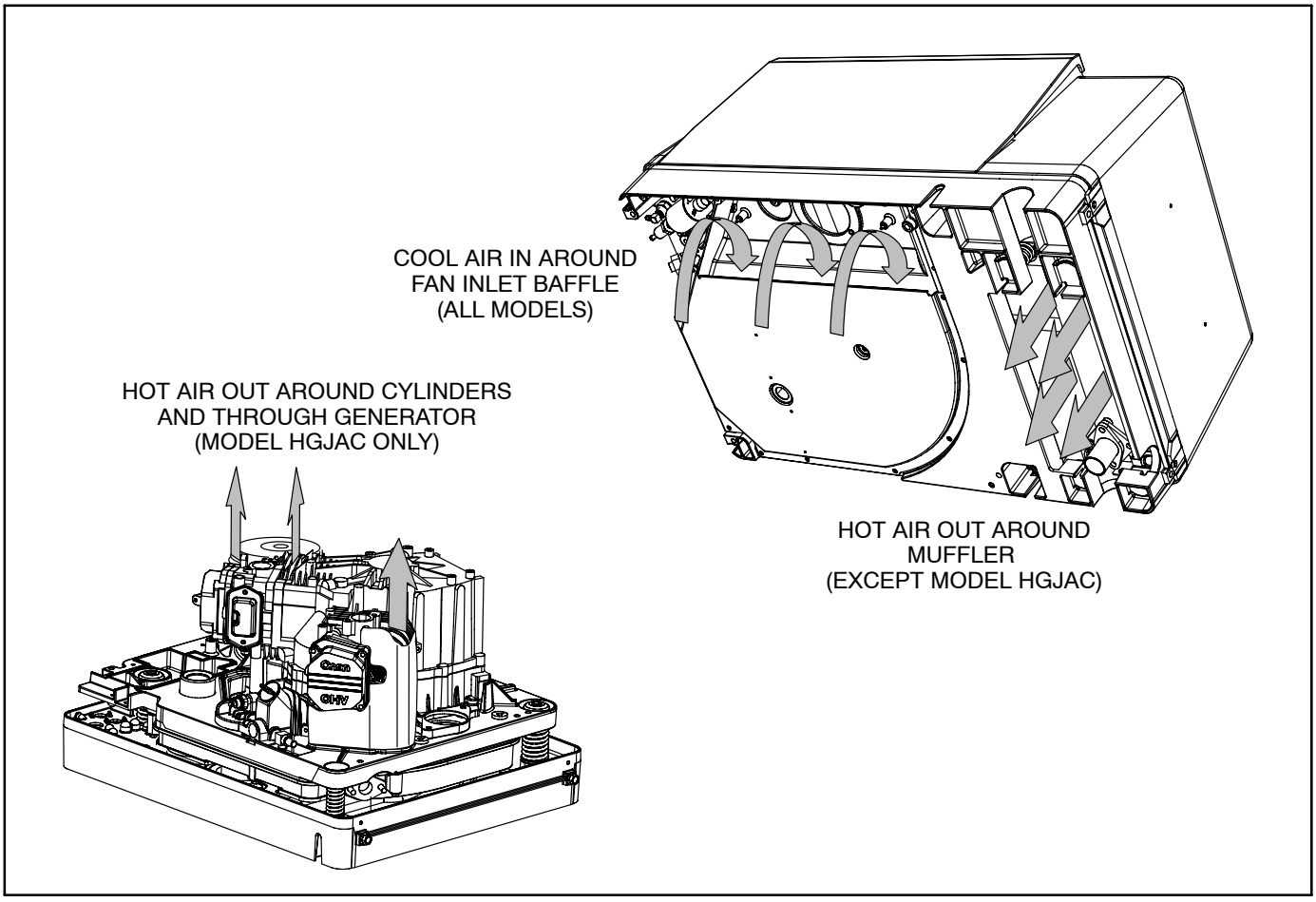


FIGURE 2-2. COOLING AIR FLOW INTO AND OUT OF GENSET

3. Exhaust Connections

The exhaust system must be gas-tight and designed to limit entry of exhaust gases into the vehicle.

⚠WARNING ***EXHAUST GAS IS DEADLY! To keep exhaust gases from entering the vehicle do not terminate the exhaust tailpipe underneath the vehicle or closer than specified to openings into the vehicle (Figure 3-5) or route it such that it is likely to be damaged (Figure 3-6). Use approved materials and parts only.***

⚠CAUTION ***Unauthorized modifications or replacement of fuel, exhaust, air intake or speed control system components that affect engine emissions are prohibited by law in the State of California.***

MUFFLER—MODELS HGJAA / HGJAB

The muffler is mounted inside the genset enclosure. It has a USDA (Forest Service) spark arrestor and meets RVIA EGS-1 construction requirements.

A genset without a properly installed and maintained spark arresting exhaust system can cause a forest fire. It is illegal on federal lands. Liability for damage, injury and warranty expense due to the modification of the exhaust system or to the use of unapproved parts is the responsibility of the person performing the modification or installing the unapproved parts.

The muffler has a short adapter bolted to its outlet flange (Figure 3-1). Clamp the tail pipe to the adapter. See TAIL PIPE in this section regarding materials, clamps, support, routing and termination.

Alternatively, a tail pipe with elbow and flange can be bolted to the muffler flange to run straight out the tunnel in the front or the tunnel in the back of the genset base. See the Outline Drawing (Page A-1) for muffler flange dimensions. *Make sure to use a suitable flange gasket.* Use the hole shown on the drawing for the tail pipe hanger if the tail pipe runs out the front. See TAIL PIPE in this section regarding materials, clamps, support, routing and termination. *Do not route the tail pipe this way when the genset is mounted on a combustible floor.*

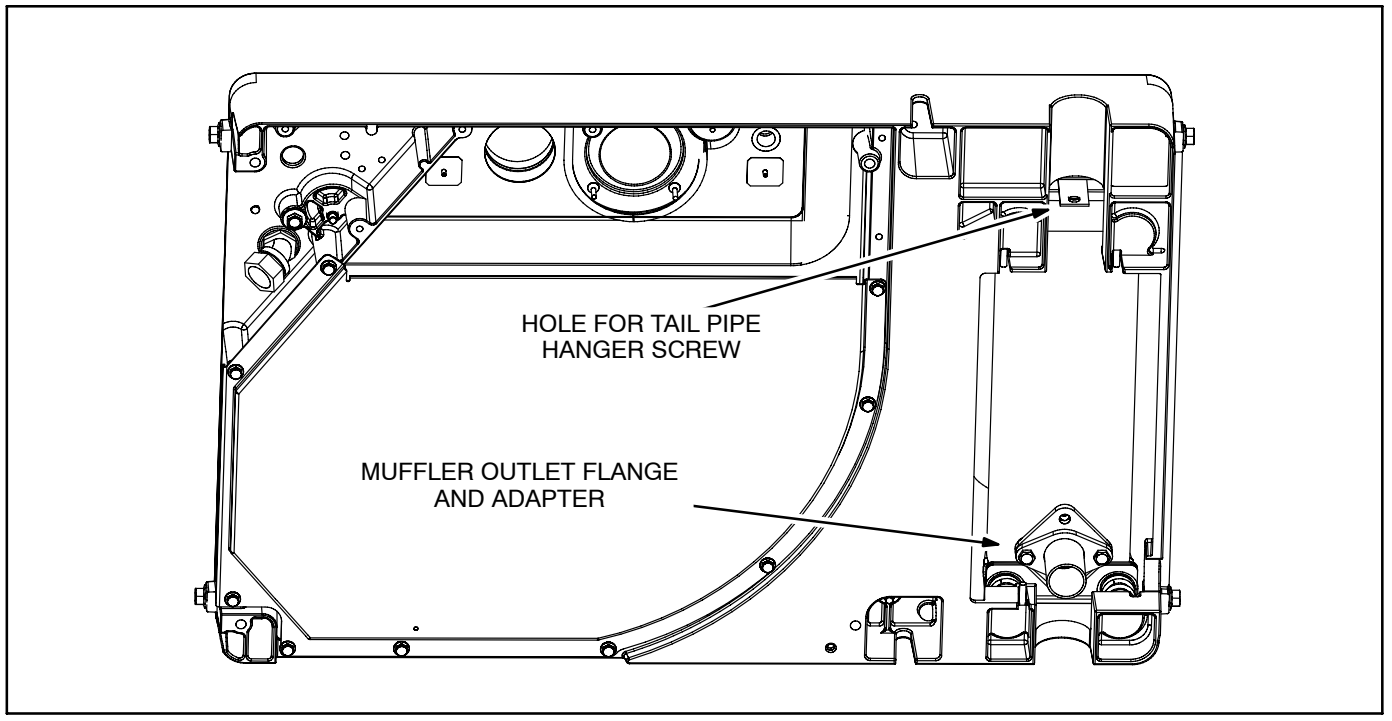


FIGURE 3-1. OUTLET FLANGE AND ADAPTER ON MODELS WITH INTERNALLY MOUNTED MUFFLERS

MUFFLER—MODEL HGJAC

Figure 3-2 illustrates the exhaust outlet flange and a side-mount muffler kit available from Onan.

The muffler must have a USDA (Forest Service) spark arrestor, meet RVIA EGS-1 requirements, be constructed of aluminized steel or material of equivalent corrosion resistance and be of welded or crimped construction. The spark arrestor may be integral to the muffler or an add-on.

A genset without a properly installed and maintained spark arresting exhaust system can cause a forest fire. It is illegal on federal lands. Liability for damage, injury and warranty expense due to the modification of the exhaust system or to the use of unapproved parts is the responsibility of the person performing the modification or installing the unapproved parts.

We recommend that you contact an Onan dealer for spark arresting mufflers that meet RVIA and USDA requirements. Side-mount and bottom-mount muffler kits are available from Onan, with front or back exhaust outlets. The kits include a USDA (Forest Service) spark screen for mounting in the end of the tail pipe.

Follow the instructions in the Onan kit when mounting the muffler. See TAIL PIPE regarding materials, clamps, support, routing and termination. Install the spark screen in accordance with the instructions in the kit.

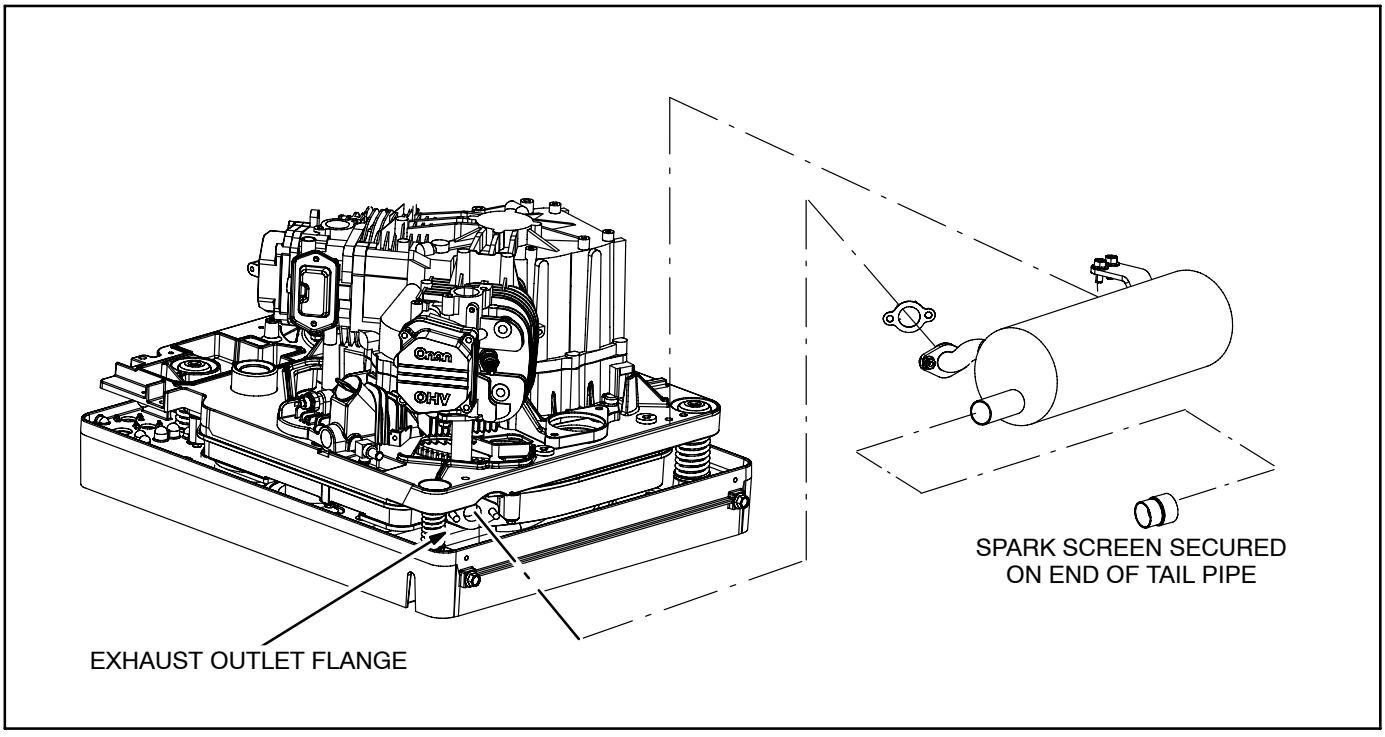


FIGURE 3-2. TYPICAL EXTERNAL MUFFLER KIT INSTALLATION

TAILPIPE

1. Use 1-3/8 inch ID aluminized steel tubing or equivalent for the tailpipe. (Do not use flexible pipe. Flexible pipe is not gas tight or durable.)

2. Use U-bolt muffler clamps to connect sections of tailpipe. It is recommended that the overlapping pipe be slotted as shown in Figure 3-3.

3. Use automotive-type tailpipe hangers every 2 to 3 feet (0.6 to 0.9 m). Attach the hangers to steel framework, not to wood or other combustible material.

4. Do not terminate the tailpipe underneath the vehicle. Extend it a minimum of 1 inch (25 mm) beyond the perimeter of the vehicle (Figure 3-4). Support the end of the tailpipe such that it cannot be pushed inward and up under the skirt of the vehicle.

5. Do not route the tail pipe underneath the oil drain or cooling air inlet.

   ⚠WARNING ***A hot exhaust tail pipe can ignite oil drain spills causing severe personal injury or death. Do not route the exhaust tail pipe underneath the oil drain.***

6. Do not route the tailpipe closer than 3 inches (76 mm) to combustible material (wood, felt, cotton, organic fibers, etc.) unless it is insulated or shielded. The temperature rise (above ambient) on adjacent combustible material must not exceed 117°F (65°C).

7. Do not route the tailpipe near fuel lines or fuel tanks.

8. Do not terminate the tailpipe such that it is closer than 6 inches (153 mm) to any opening into the vehicle interior (door, window, vent). See Figure 3-5.

9. Do not connect the genset to the vehicle engine exhaust system.

   ⚠CAUTION ***Interconnecting the engine exhaust systems will allow exhaust condensates and soot to migrate into the engine that is idle, causing engine damage.***

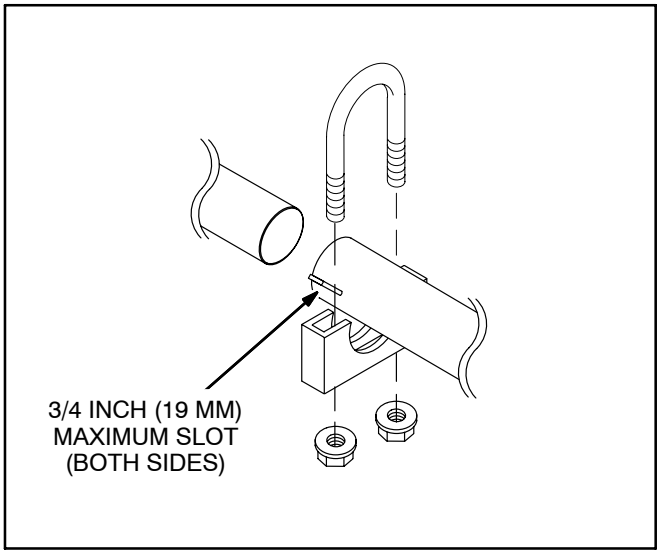


FIGURE 3-3. EXHAUST TAILPIPE CONNECTIONS

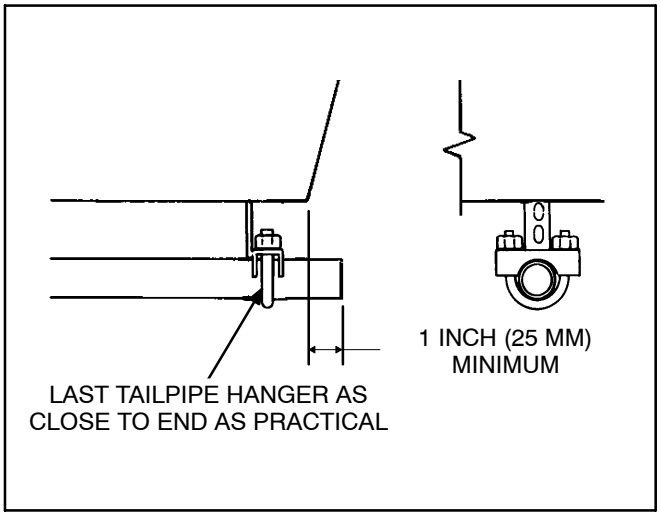


FIGURE 3-4. TERMINATING EXHAUST TAILPIPE

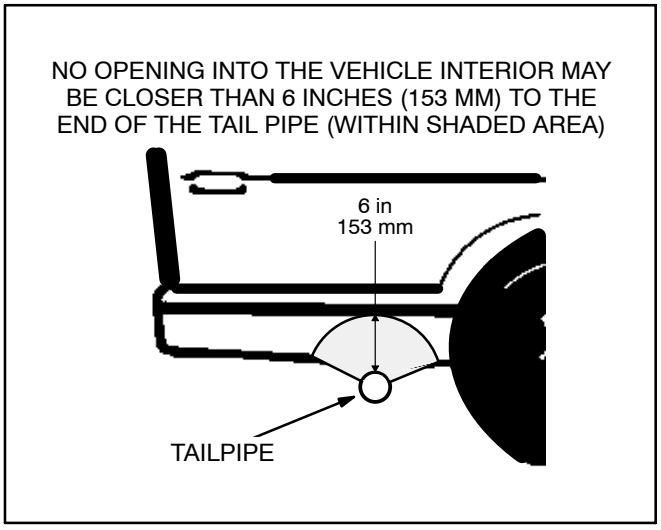


FIGURE 3-5. MINIMUM DISTANCES TO OPENINGS

10. Route the tailpipe such that it is not likely to be struck when the vehicle is moving. Keep it out of the approach and departure angles of the vehicle and above the axle clearance line (Figure 3-6).
11. Make sure a tail pipe deflector will not cause excessive back pressure or interfere with removing a spark arresting screen, if so equipped.

    ⚠CAUTION ***Excessive back pressure can cause loss of performance and engine damage.***

12. Unless the muffler has an integral spark arrestor, install a spark screen (Figure 3-7) or other kind of approved add-on device to comply with regulations for vehicles driven on federal lands.

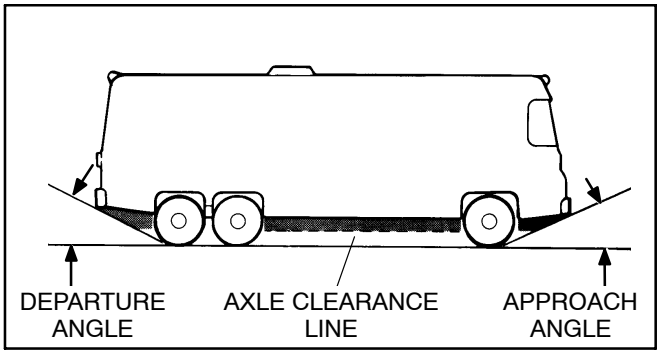


FIGURE 3-6. VEHICLE CLEARANCES

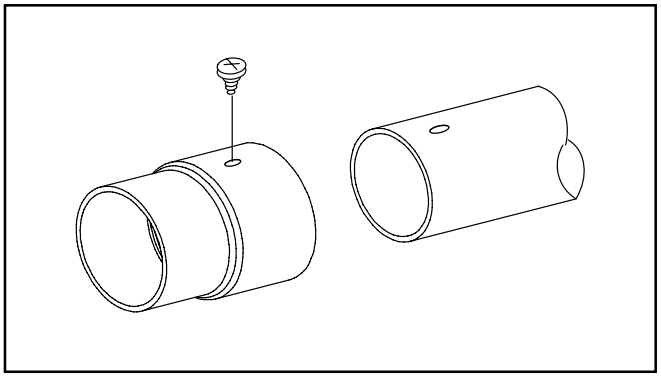


FIGURE 3-7. TYPICAL SPARK ARRESTING SCREEN

4. Fuel Connections

See the Operator's Manual for recommended fuels and *Specifications* (Page 7-1) for fuel consumption.

⚠WARNING ***Gasoline and Propane are flammable and explosive and can cause severe personal injury or death — Do not smoke — Keep flames, sparks, pilot lights, switches, arc-producing equipment and all other ignition sources away from fuel, fuel components and areas sharing ventilation — Keep an ABC fire extinguisher handy.***

⚠CAUTION ***Unauthorized modifications or replacement of fuel, exhaust, air intake or speed control system components that affect engine emissions are prohibited by law in California.***

GASOLINE—MODEL HGJAA

Note: The installer is responsible for meeting all CARB and EPA *evaporative emissions* requirements that may be applicable for the fuel system.

Remote Fuel Pump Kit 147-0870

These gensets have an electronic fuel injection system supplied by a remote electric pump shipped with the genset (Figure 4-1). Follow the installation instructions in the pump kit.

Figure 4-2 illustrates the wiring connector at the genset for the remote pump.

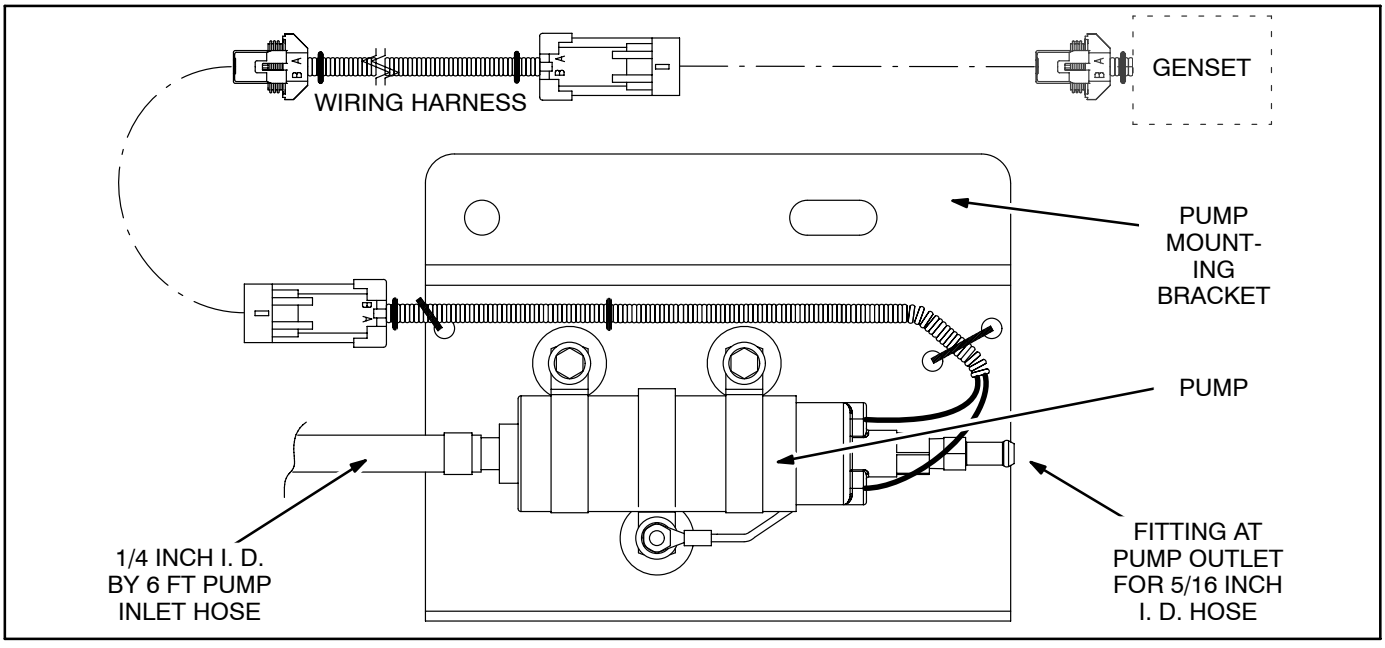


FIGURE 4-1. FUEL PUMP KIT 147-0870

Fuel Tank

Do not change or remove the fuel fill tube, fill limiter vent, vapor canister, vapor lines, filler cap or any other part of the fuel system without the express approval of the vehicle chassis manufacturer. Modifications must conform with applicable sections of the Code of Federal Regulations, Titles 40 and 49, and other standards.

Note: A fuel return line to the supply tank must be provided by the installer.

The genset and propulsion engine fuel supply and return lines must not be interconnected.

The maximum fuel pump lift is 36 inches (914 mm).

Terminate the genset fuel pickup above the vehicle engine pickup in the supply tank to keep the genset from running the vehicle out of fuel.

Fuel Supply Line (Pump to Genset)

Figure 4-3 illustrates the fuel supply and return fittings at the genset.

- ***Tubing:*** Use 5/16 inch O. D. (± 0.003 inch) welded and drawn Type 304L stainless or AISI 1008–1010 low carbon steel tubing of 0.028 inch minimum wall thickness. The tubing must meet requirements for 150 psi operating pressure (Ref. ASTM A 539–99) and have corrosion resistance equal to or better than hot-dipped zinc galvanization.
- ***Hose Beads:*** Use suitable tooling to form tubing ends into SAE J1231 Type 1 or Type 3 double-flare hose beads (Figure 4-4). This is ***required*** for all supply tubing and fittings.
- ***Flexible Hose:*** Use 5/16 in I. D. hose meeting SAE J30R9 standards for working pressure and applicable standards for evaporative emissions.

  ⚠ CAUTION ***When connecting fuel hoses, only use soap-free lubricants such as WD40, which runs through fuel without leaving residues that can clog fuel jets.***

- ***Hose Clamps:*** Use stainless steel stepless ear clamps (Figure 4-4). Onan P/N 0503-1951-13, Oetiker P/N 16700013 or equivalent are ***required***.

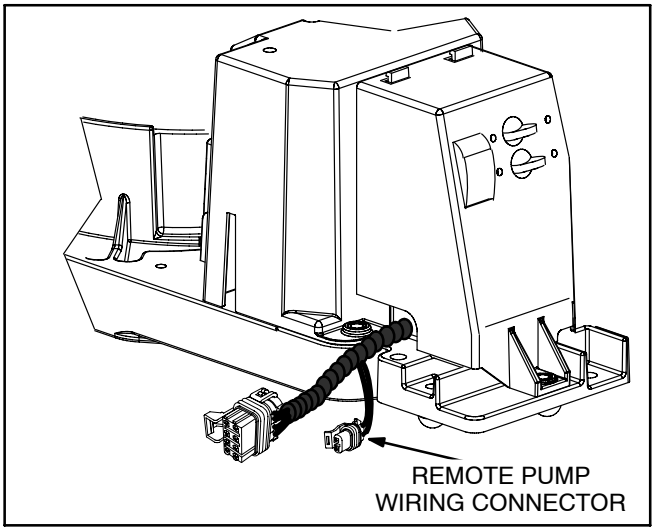


FIGURE 4-2. REMOTE PUMP WIRING CONNECTOR

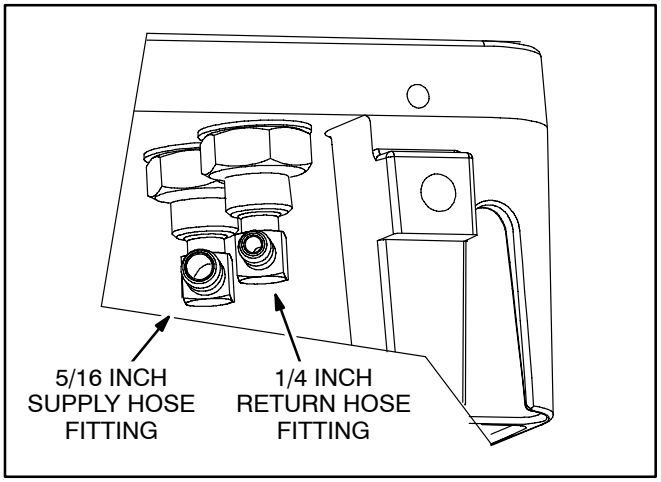


FIGURE 4-3. FUEL FITTINGS—LEFT END OF BASE

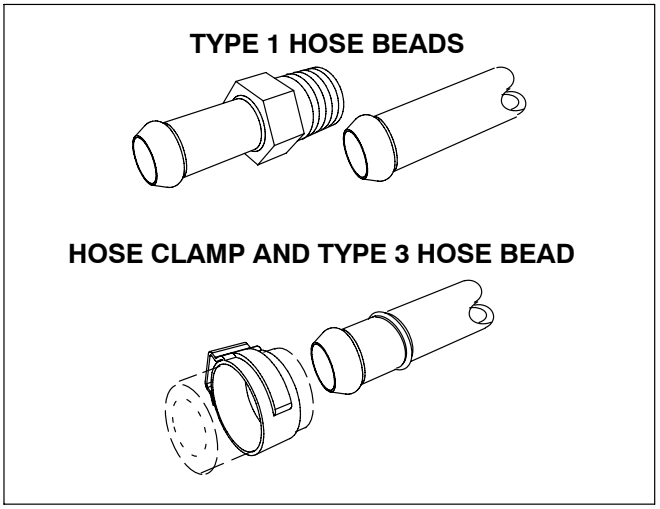


FIGURE 4-4. DOUBLE-FLARE SAE J1231 HOSE BEADS AND STEPLESS EAR CLAMP

Fuel Return Line (Genset to Supply Tank)

- ***Tubing:*** Use 1/4 inch O. D. (± 0.003 inch) welded and drawn Type 304L stainless or AISI 1008–1010 low carbon steel tubing of 0.028 inch minimum wall thickness. The tubing must meet requirements for 150 psi operating pressure (Ref. ASTM A 539–99) and have corrosion resistance equal to or better than hot-dipped zinc galvanization.
- ***Hose Beads:*** Use suitable tooling to form tubing ends into SAE J1231 Type 1 or Type 3 double-flare hose beads (Figure 4-4). This is *recommended* for all return tubing and fittings.
- ***Flexible Hose:*** Use 1/4 in I. D. fuel hose meeting SAE J30R9 standards for working pressure and applicable standards for evaporative emissions.

  ⚠CAUTION ***When connecting fuel hoses, only use soap-free lubricants such as WD40, which runs through fuel without leaving residues that can clog fuel jets.***
- ***Hose Clamps:*** Use stainless steel stepless ear clamps (Figure 4-4). Onan P/N 0503-1951-11, Oetiker P/N 16700011 or equivalent are *recommended*.

Routing Fuel Lines

Route the supply and return lines side-by-side along bulkheads and frame members such that they are protected. *They should be at or above the top of the fuel tank to reduce siphoning if a line breaks or a hose comes off.* The entire length of the fuel lines must be visible for inspection and accessible for replacement.

Support fuel lines to restrain movement and prevent chaffing or contact with sharp edges, electrical wiring and hot exhaust parts.

⚠WARNING ***Electric arcs can ignite gasoline leading to severe personal injury or death. Do not run wiring and fuel lines together.***

GASOLINE—MODELS HGJAB / HGJAC

Note: The installer is responsible for meeting all CARB and EPA *evaporative emissions* requirements that may be applicable for the fuel system.

Fuel Tank

Do not change or remove the fuel fill tube, fill limiter vent, vapor canister, vapor lines, filler cap or any other part of the fuel system without the express approval of the vehicle chassis manufacturer. Modifications must conform with applicable sections of the Code of Federal Regulations, Titles 40 and 49, and other standards.

Onan recommends a separate fuel pickup tube or a separate fuel tank for the genset. The genset must never be connected to the **fuel supply line** of the vehicle engine—either to a high-pressure system (pump in tank), which can overpressurize the genset fuel system, or to a vacuum system (pump on engine), which can cause the genset to starve for fuel. Some vehicle chassis manufacturers allow connections to the **fuel return line** on high pressure fuel systems. Contact the vehicle chassis manufacturer for approval. Fuel line pressure at the point where the genset is connected must not exceed 1-1/2 psi under any condition.

⚠WARNING ***Excessive fuel pressure can flood the genset causing a fire. Genset fuel supply line pressure must not exceed 1-1/2 psi under any condition.***

The maximum fuel pump lift is 36 inches (914 mm).

Terminate the genset fuel pickup above the vehicle engine pickup in the supply tank to keep the genset from running the vehicle out of fuel.

Fuel Lines

Figure 4-5 illustrates the fuel inlet fitting at the genset.

- ***Tubing:*** Use 1/4 inch O. D. (± 0.003 inch) welded and drawn Type 304L stainless or AISI 1008–1010 low carbon steel tubing of 0.028 inch minimum wall thickness. The tubing must meet requirements for 150 psi operating pressure (Ref. ASTM A 539–99) and have corrosion resistance equal to or better than hot-dipped zinc galvanization.
- ***Hose Beads:*** Use suitable tooling to form tubing ends into SAE J1231 Type 1 or Type 3 double-flare hose beads (Figure 4-4). This is *recommended* for all tubing and fittings.
- ***Flexible Hose:*** Use 1/4 in I. D. fuel hose that meets applicable standards for evaporative emissions.

  ⚠CAUTION ***When connecting fuel hoses, only use soap-free lubricants such as WD40, which runs through fuel without leaving residues that can clog fuel jets.***
- ***Hose Clamps:*** Use stainless steel stepless ear clamps (Figure 4-4). Onan P/N 0503-1951-11, Oetiker P/N 16700011 or equivalent are *recommended*.

Routing Fuel Lines

Route the fuel line along bulkheads and frame members such that it is protected, *and at or above the top of the fuel tank to reduce siphoning if a line breaks or a hose comes off.* The entire length of a fuel line must be visible for inspection and accessible for replacement.

Support fuel lines to restrain movement and prevent chaffing or contact with sharp edges, electrical wiring and hot exhaust parts.

⚠WARNING ***Electric arcs can ignite gasoline leading to severe personal injury or death. Do not run wiring and fuel lines together.***

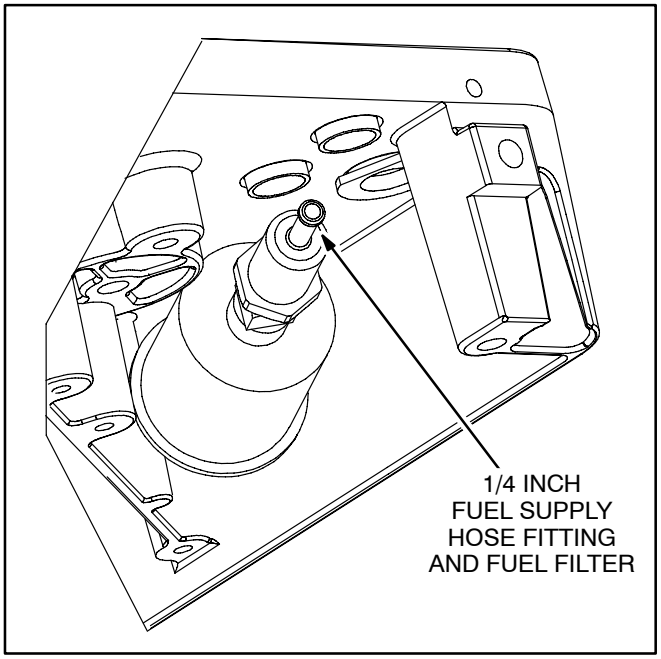


FIGURE 4-5. FUEL FITTING—LEFT END OF BASE

LOW PRESSURE PROPANE SUPPLY (VAPOR WITHDRAWAL)

Use the Standard for the Storage and Handling of Liquified Petroleum Gases (NFPA No. 58) as a guide for the installation of the propane fuel system. Figure 4-6 illustrates the fuel fitting and regulator vent screen.*

⚠WARNING ***Propane is flammable and explosive and can cause asphyxiation. NFPA 58, Section 1.6 requires all persons handling propane to be trained in proper handling and operating procedures.***

The genset must be connected to the *vapor withdrawal* fitting on the propane tank. The tank must have a manual shutoff valve and 2-stage pressure regulator. Adjust the regulator to deliver 9 to 13 inches (229 to 330 mm) Water Column (WC) pressure at the genset.

⚠WARNING ***High propane supply pressure can cause gas leaks which can lead to fire and severe personal injury or death. Propane supply pressure must be adjusted to Specifications by qualified personnel.***

Use approved fuel line materials of 3/8-inch I. D. for runs up to 3 feet (0.9 m) and 1/2-inch I. D. for runs up to 15 feet (4.6 m).

Do not connect the genset fuel supply line to any appliance fuel supply line. The genset can draw fuel away from other appliances and cause a flame out. To prevent the possibility of flameout, the fuel supply system must be designed to deliver sufficient fuel for normal operation of the genset and other appliances at the expected temperature conditions. It may be necessary to use a separate fuel tank for the genset if sufficient fuel cannot be supplied with a single tank system.

⚠WARNING ***The flameout of an unvented propane appliance can lead to explosive accumulations of gas inside the vehicle and the danger of severe personal injury or death. Do not connect the genset fuel supply line to any vehicle appliance supply line.***

Gas lines must be routed away from hot exhaust parts and electrical wiring, be supported and protected to prevent chaffing, kinking and pinching and be accessible throughout for inspection and replacement.

⚠WARNING ***Sparks can ignite propane, leading to severe personal injury or death. Do not run electrical wiring and fuel lines together.***

Upon completing the installation, fill the propane tank and test every joint and fitting in the propane supply system using an approved method, such as soap bubbles.

⚠WARNING ***Testing for gas leaks with a flame can cause a fire or explosion that could lead to severe personal injury or death. Use approved methods only.***

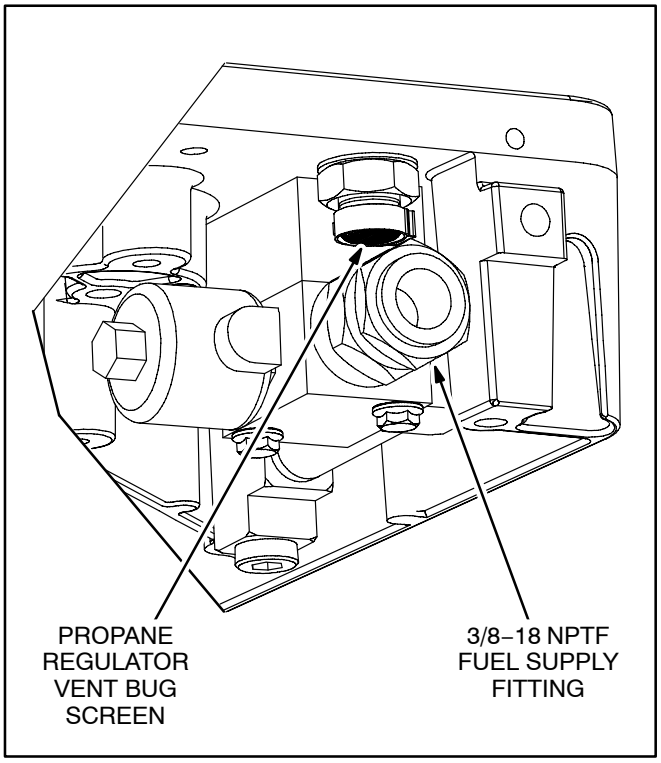


FIGURE 4-6. FUEL FITTING—LEFT END OF BASE

* – The genset fuel regulator is vented to this location to prevent variations in compartment air pressure from affecting fueling and to vent propane outside the genset compartment if the regulator diaphragm develops a leak.

HIGH PRESSURE PROPANE SUPPLY (LIQUID WITHDRAWAL)

The Standard for the Storage and Handling of Liquified Petroleum Gases (NFPA No. 58) should be used as a guide for the installation of the propane fuel system. Figure 4-7 illustrates the genset fuel fitting and Figure 4-8 the fuel handling parts of a typical high pressure propane-fuel supply system.

⚠WARNING ***Propane is flammable and explosive and can cause asphyxiation. NFPA 58, Section 1.6 requires all persons handling propane to be trained in proper handling and operating procedures.***

Connect the genset to the propane supply line with flexible hose that is non-conductive between its end fittings so that the fuel line cannot become an alternative path for cranking currents. The hose must be Listed for **350 psi working pressure** and **LP-Gas** or **Propane**.

Gas lines must be routed away from hot exhaust parts and electrical wiring, be supported and protected to prevent chaffing, kinking and pinching and be accessible throughout for inspection and replacement.

⚠WARNING ***Sparks can ignite propane, leading to severe personal injury or death. Do not run electrical wiring and fuel lines together***

Upon completing the installation, fill the propane tank and test every joint and fitting in the propane supply system using an approved method, such as soap bubbles.

⚠WARNING ***Testing for gas leaks with a flame can cause a fire or explosion that could lead to severe personal injury or death. Use approved methods only.***

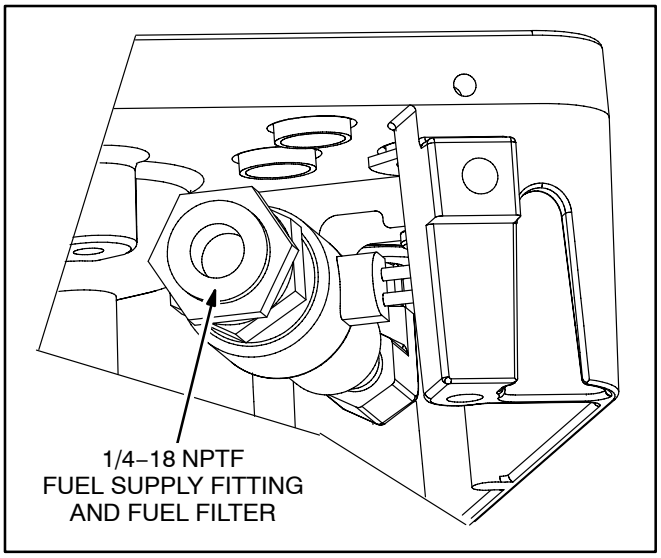


FIGURE 4-7. FUEL FITTING—LEFT END OF BASE

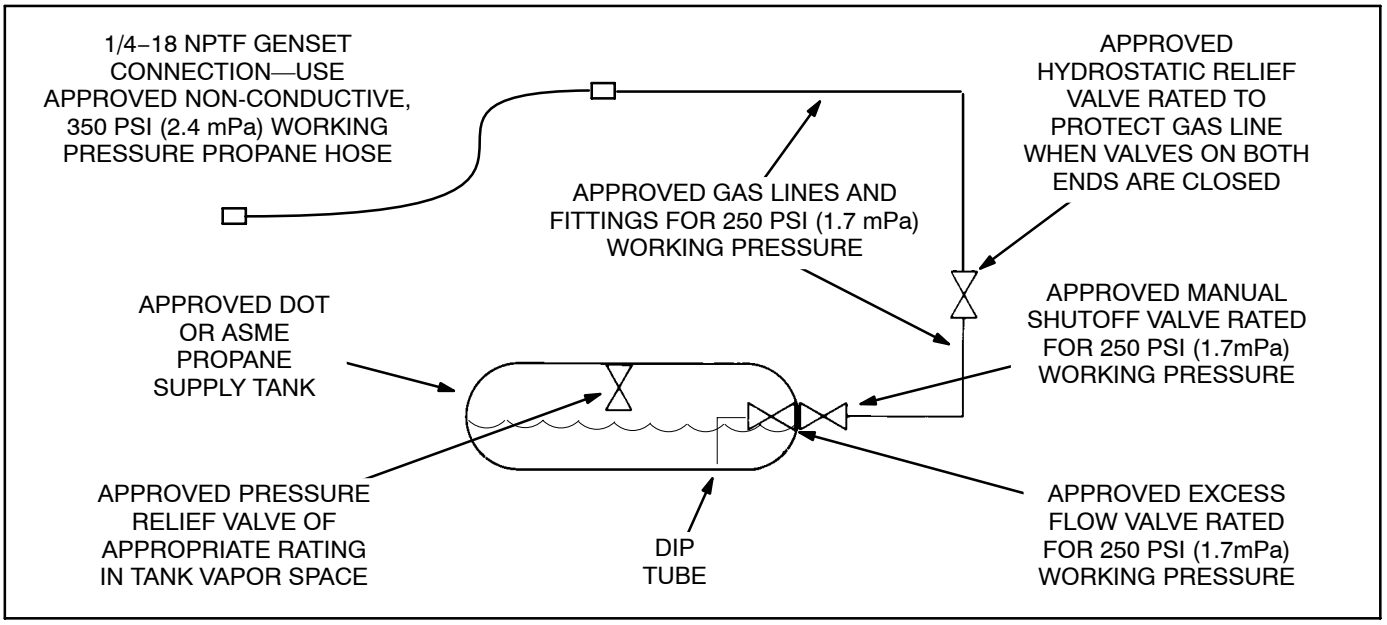


FIGURE 4-8. TYPICAL HIGH PRESSURE PROPANE SUPPLY SYSTEM (LIQUID WITHDRAWAL)

5. Electrical Connections

To prevent accidental starting of the genset during installation, do not connect the battery cables at the battery until so instructed in STARTUP (Page 6-2).

⚠WARNING ***Accidental starting of the genset can cause severe personal injury or death. Do not connect the starting battery until so instructed in STARTUP.***

AC POWER OUTPUT CONNECTIONS

The genset is equipped with circuit breakers and 120 inch (3 m) long, 12 AWG leads for AC power output, which exit through a rain-tight 1/2 inch trade size conduit connector (Figure 5-1). *If these leads are replaced, their ampacity must be equal to or greater than the ampere rating marked on the genset circuit breakers. (Unless 125° C rated wiring is available, heavier gauge wiring may be required to obtain the required ampacity).* For typical connections see Figure 5-2 and for internal genset wiring see Page A-3 or A-4.

Wiring Methods

Follow the National Electrical Code, especially noting the following:

1. Have a qualified electrician supervise and inspect the installation of all AC wiring.
2. Install vibration-proof switches and controls that won't open and close circuits when the vehicle is in motion.
3. Provide ground fault circuit interrupters (GFCIs)for all convenience power receptacles.
4. Route AC wiring, remote control wiring and fuel lines separately.
5. Seal all conduit openings into the vehicle interior to keep out exhaust gas. Apply silicone rubber or equivalent sealant inside and outside each conduit connector. (Flexible conduit is not vapor-tight and will allow exhaust gas to enter along the wires if not sealed.)

   ⚠WARNING ***EXHAUST GAS IS DEADLY! Seal all wiring openings into the vehicle interior to keep out exhaust gas.***

6. Bond the genset and all connected AC and DC equipment and controls to a common grounding point in accordance with applicable codes.

   ⚠WARNING ***Faulty grounding can lead to fire and electrocution, resulting in severe personal injury or death. Grounding must be in accordance with applicable codes.***

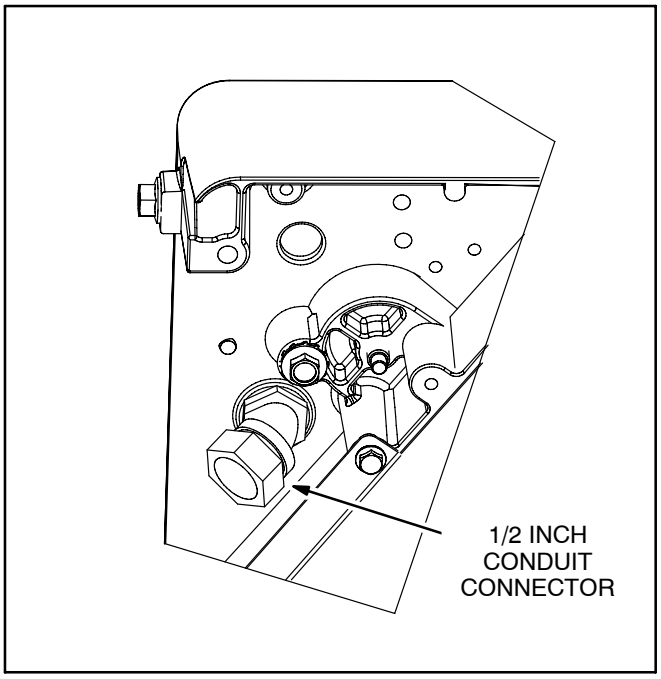
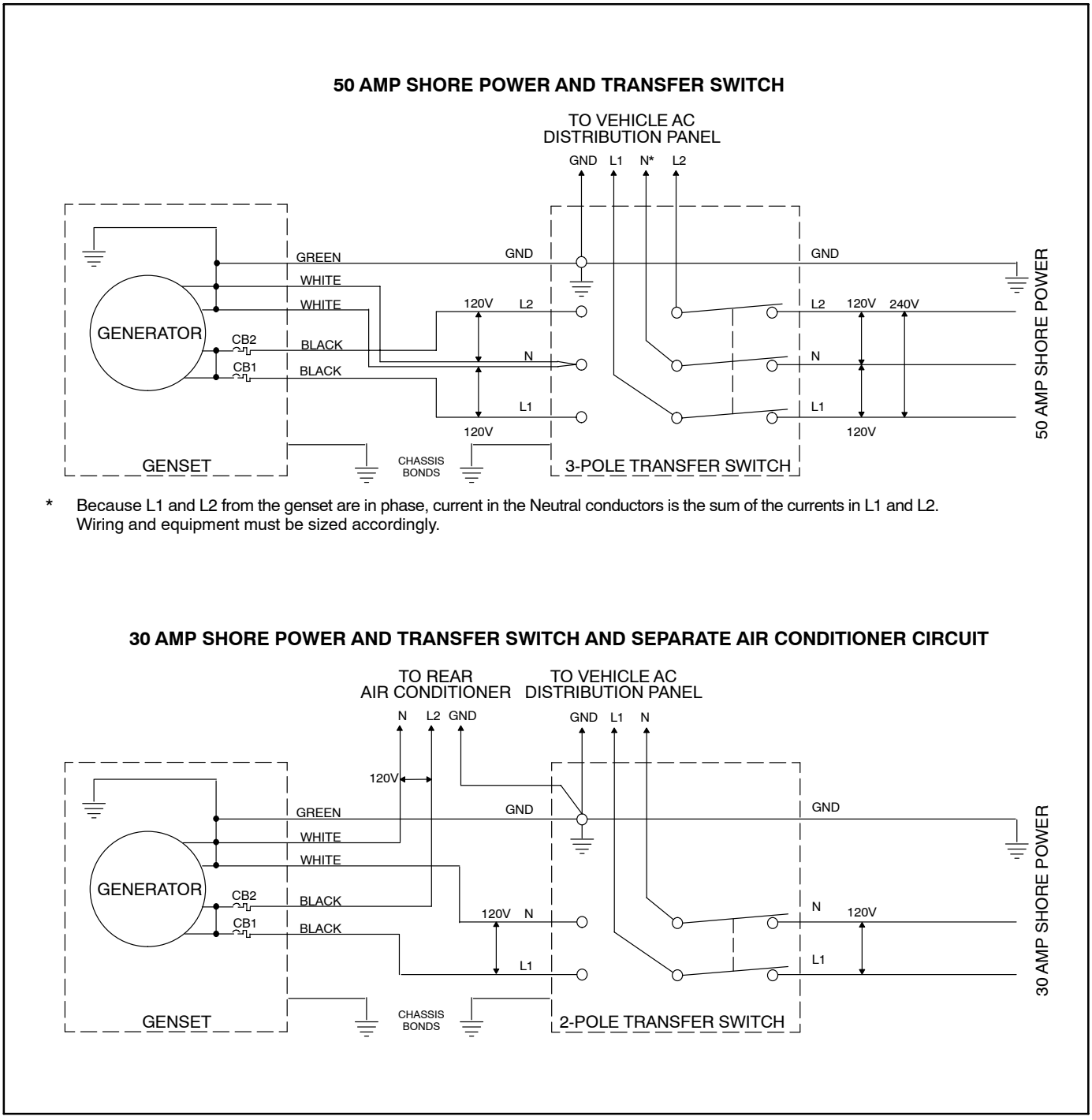


FIGURE 5-1. OUTPUT CONDUIT CONNECTOR—BOTTOM, LEFT END OF BASE

Connecting Shore Power

A vehicle with provisions for connecting shore power (utility) must have an approved device to keep the genset and utility from being interconnected. See Figure 5-2 for typical connections.

⚠WARNING ***Backfeed to shore power (utility) can cause electrocution or damage to equipment. Use an approved device to prevent the genset from being interconnected with shore power.***



* Because L1 and L2 from the genset are in phase, current in the Neutral conductors is the sum of the currents in L1 and L2. Wiring and equipment must be sized accordingly.

FIGURE 5-2. TYPICAL CONNECTIONS WITH TRANSFER SWITCH AND UTILITY

REMOTE CONTROL CONNECTIONS

The genset has an 8-pin connector for remote control connections (Figure 5-3). Wiring harnesses in several lengths are available separately for connections between the genset and a remote control panel. For internal genset control wiring see Page A-3 or A-4.

The 2-pin connector on Model HJGAA gensets is for the remote fuel pump. See Fuel Pump Kit (Page 4-1).

Onan offers a variety of three remote control panels, as follows:

- Remote start/stop switch with status indicator light only (Figure 5-4).
- Remote start/stop switch with status indicator light and hour meter (Figure 5-5).
- Remote start/stop switch with status indicator light and DC voltmeter (Figure 5-6).

To make connections to a remote control panel:

1. Push the genset remote control connector through the entrance hole in the side of the genset housing and snap it together with the remote wiring harness connector mate.
2. Refer to Figure 5-7 to fabricate the remote control panel and/or wiring harness when not using the accessories available from Onan. Mark the remote control end of each lead to identify the connector pin number at the genset. Use insulated 18 AWG copper conductors for distances up to 30 feet (9 meters) and heavier gauge conductors for greater distances. Protect the wiring with full-length flexible sheathing.
3. Route control leads separately from AC power leads to reduce the possibility of erratic operation due to false induced signals.
4. Seal the opening where the leads enter the vehicle interior with silicone rubber or equivalent sealant to keep out exhaust gas.

⚠WARNING ***EXHAUST GAS IS DEADLY! Seal all wiring openings into the vehicle interior to keep out exhaust gas.***

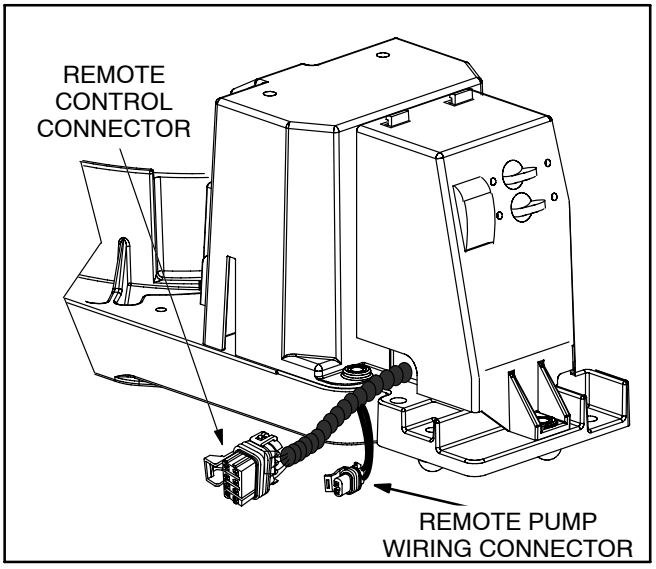


FIGURE 5-3. REMOTE CONNECTORS

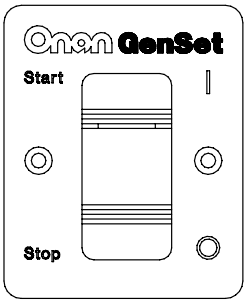


FIGURE 5-4. REMOTE SWITCH

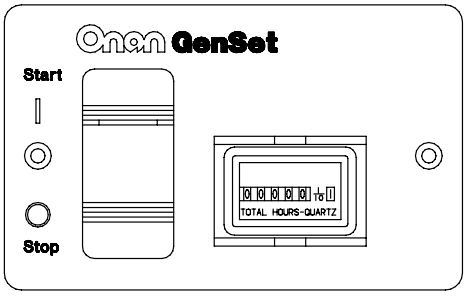


FIGURE 5-5. REMOTE SWITCH / HOUR METER

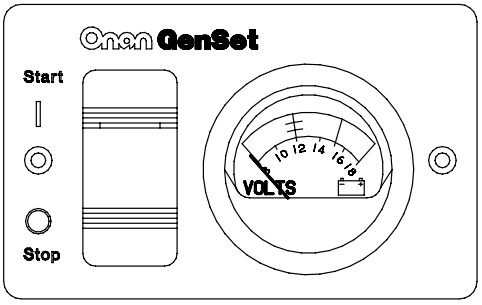


FIGURE 5-6. REMOTE SWITCH / DC VOLTMETER

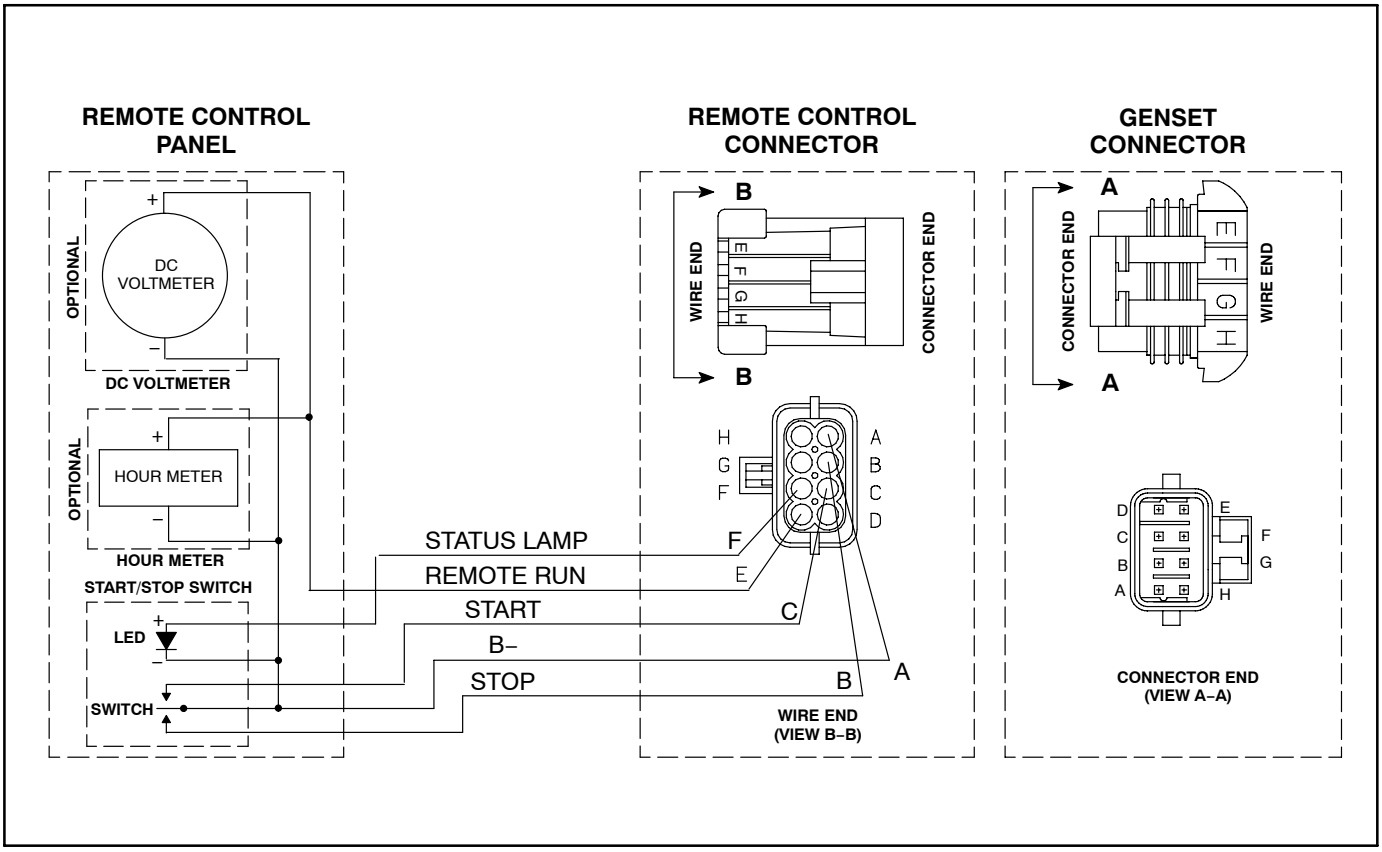


FIGURE 5-7. SCHEMATIC OF TYPICAL REMOTE CONTROL CONNECTIONS

BATTERY CONNECTIONS

To prevent accidental starting of the genset during installation, do not connect the battery cables at the battery until so instructed in STARTUP (Page 6-2).

⚠WARNING ***Accidental starting of the genset can cause severe personal injury or death. Do not connect the starting battery until so instructed in STARTUP.***

The genset has a 12 VDC, negative-ground engine control and cranking system. See *Specifications* (Page 7-1) for the requirements for cranking batteries.

Battery Compartment

Batteries must be mounted in a compartment separate from that of the genset and away from spark-producing equipment. A compartment must have openings of at least 1.7 square inches (11 square centimeters) at the top and bottom for ventilation of battery gasses. It should be located such that spills and leaks will not drip acid on fuel lines, wiring and other equipment that could be damaged.

⚠WARNING ***Arcing can ignite the explosive hydrogen gas given off by the battery, causing severe personal injury. The battery compartment must be ventilated and must isolate the battery from spark-producing equipment.***

Battery Cables

Size battery cables according to Table 5-1. The current path between the genset and the negative (–) battery terminal must also be able to carry full cranking current without causing excessive voltage drop. It is highly recommended that a full-length cable be used to connect the genset to the negative (–) battery terminal (Figure 5-8). Note also that codes may require a bonding conductor between the genset and vehicle frame and between the battery and vehicle frame.

If the vehicle frame is used as the path between the negative (–) battery terminal and the genset (Figure 5-9), all frame members in the path of battery cranking currents must have substantial crossections. The electrical resistance of riveted or bolted frame joints must also be carefully considered, especially if the joints will be exposed to corrosive conditions. A cable sized according to Table 5-1 must be used to connect the frame to the designated negative (–) terminal on the genset (Figure 5-9). ***The genset mounting bolts are not considered adequate means for bonding the genset to the vehicle frame, either for the purpose of carrying cranking currents or for complying with requirements for genset/system grounding.***

TABLE 5-1. BATTERY CABLE SIZES FOR TEMPERATURES DOWN TO –20° F (–29° C)

TOTAL CABLE LENGTH* FEET (METERS)	CABLE SIZE AWG
0 to 10 (0 to 3)	2**
11 to 15 (3 to 4.5)	0
16 to 20 (4.5 to 6)	000

* – Add the negative battery cable lengths with the positive battery cable lengths for the total.

** – A total length of up to 20 feet (6 meters) may be used in warmer climates or when battery capacity totals at least 1000 CCA (Cold Cranking Amps).

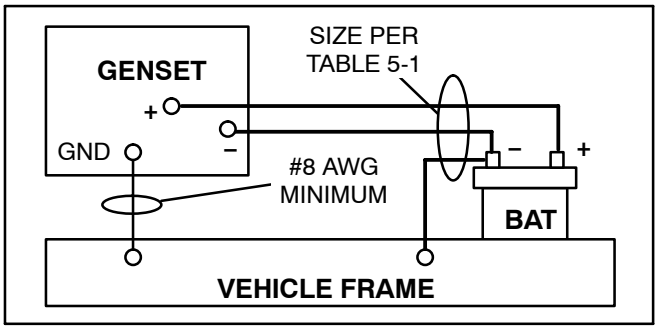


FIGURE 5-8. FULL-LENGTH CABLE FROM BATTERY NEGATIVE (–) TERMINAL

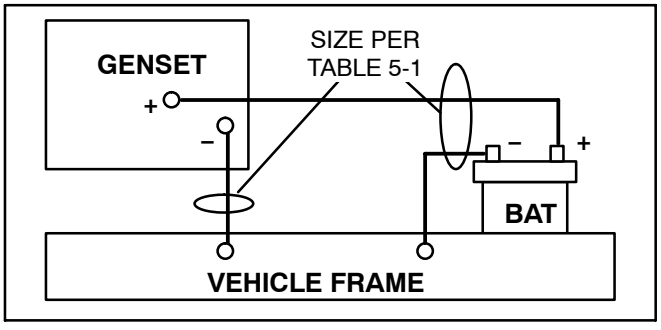


FIGURE 5-9. VEHICLE FRAME AS PATH FROM BATTERY NEGATIVE (–) TERMINAL

Route battery cables away from fuel lines and hot engine exhaust components. Battery cables should be accessible for inspection and replacement, protected from damage and secured to prevent chafing due to vibration.

⚠WARNING ***Routing battery cables with fuel lines can lead to fire and severe personal injury or death. Keep battery cables away from fuel lines.***

Battery Cable Connections at Genset

Terminate the battery cables with ring terminals sized for 5/16 inch screws and connect them to the genset as shown in Figures 5-10 and 5-11. Secure the insulating boot on the positive (+) terminal and tie it to the battery cable with the tie-wrap in the bag with the manuals.

Torque the positive (+) cable terminal to 4.5 lb-ft (6 N-m).

Torque the negative (–) cable screw to 8 lb-ft (11 N-m).

Genset (Equipment) Grounding Screw

When required (see Figure 5-8) connect the genset grounding screw (Figure 5-10) to the vehicle frame with a No. 8 AWG or larger stranded cable having a ring terminal sized for a 3/8 inch screw.

Torque the grounding screw to 8 lb-ft (11 N-m).

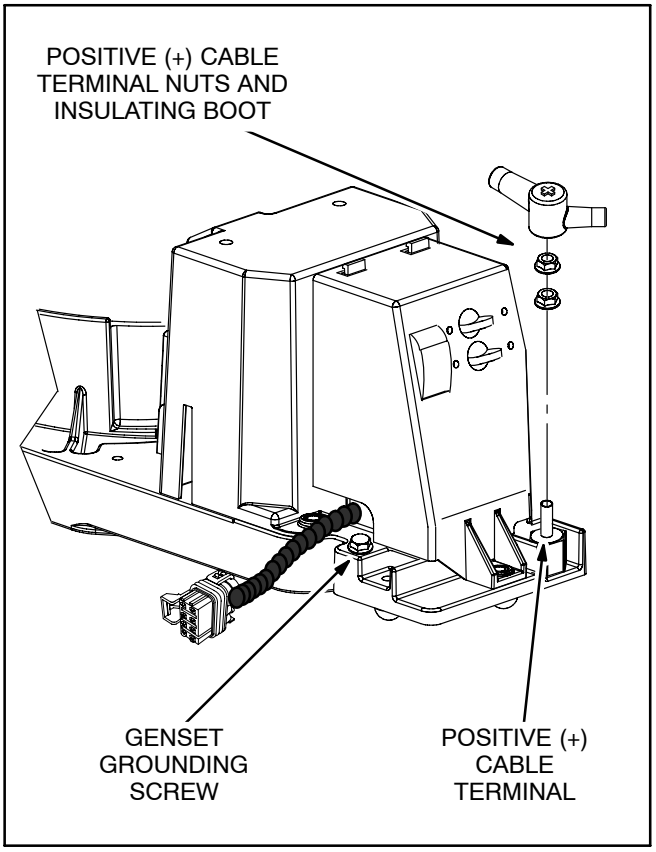


FIGURE 5-10. POSITIVE (+) CABLE TERMINAL & GENSET GROUNDING SCREW

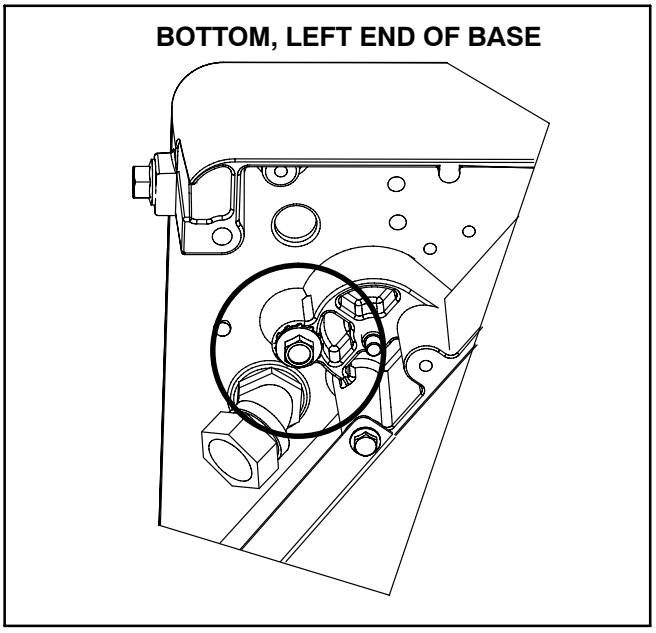


FIGURE 5-11. NEGATIVE (–) CABLE SCREW

6. Installation Review and Startup

HOT AIR RECIRCULATION TEST

A representative installation of the genset must be tested to determine that the genset will not overheat due to recirculation of hot air back into the genset.

Test Method

1. Complete a representative installation.
2. Set up a load bank to run the genset at rated full-load.
3. Conduct the test at a location where the ambient air temperature will remain between 60° F and 100° F (16° C and 38° C).

   ⚠WARNING ***EXHAUST GAS IS DEADLY! Do not operate the genset when the vehicle is parked indoors or where exhaust can accumulate.***

4. Measure temperatures with thermocouples not heavier than No. 24 AWG (0.21 mm^2).
   A. Measure genset inlet air temperature with one thermocouple tied in the middle of the inlet air grille (Figure 6-1).
   B. Measure ambient air temperature with a shielded thermocouple within 4 feet (1.2 meters) of the genset and at approximately the same height. Make sure the thermocouple will not be affected by warm air discharged from the genset or by sunlight. Use 2 inch diameter white PVC piping at least 6 inches long as a thermocouple shield.
5. Close all compartment doors and run the genset at full-load for at least an hour. Record temperatures at 15 minute intervals until they stabilize. Temperature is considered stable when there is no change in three consecutive readings. Table 6-1 illustrates how the data can be arranged for recording and analysis.

TABLE 6-1. TEMPERATURE DATA

THERMOCOUPLE LOCATION	TEMPERATURE C° (F°) Time Of Reading				
AMBIENT AIR					
INLET AIR					

Test Requirement

The rise in inlet air temperature over ambient air temperature must not exceed 25° F (14° C). A rise in inlet air temperature indicates hot air recirculation. If the rise exceeds the requirement, steps must be taken to reduce recirculation to an acceptable level. Review VENTILATION (Page 2-3).

⚠CAUTION ***High ambient operating temperatures could reduce maximum genset power output if the air temperature rise measured in this test is on the high end of the acceptable range.***

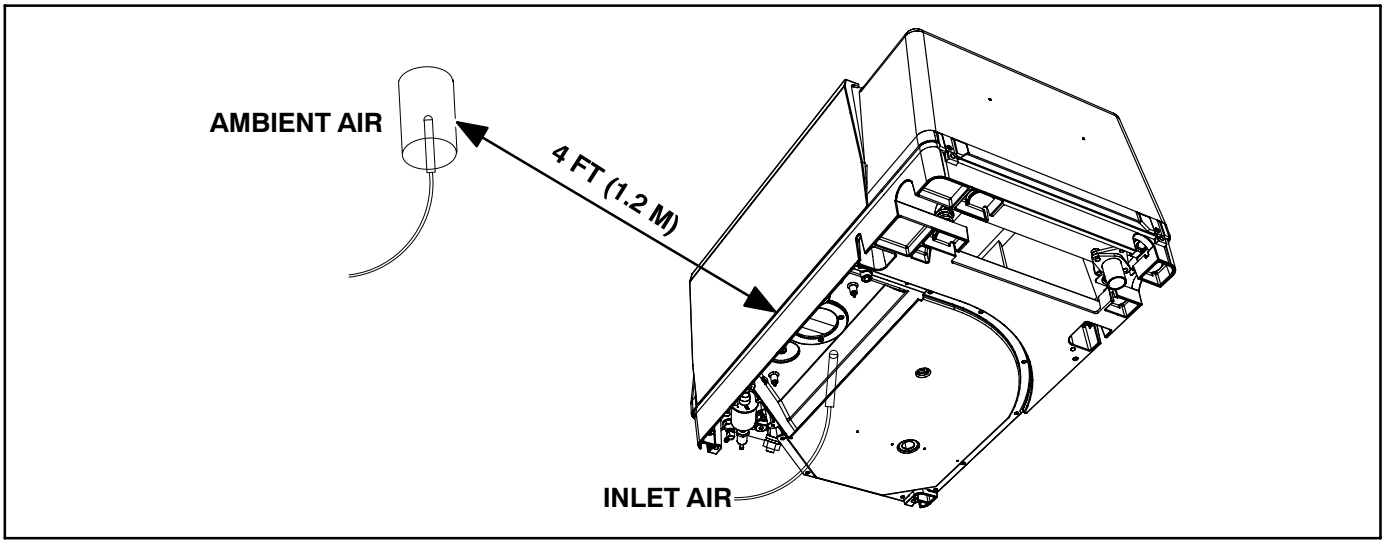


FIGURE 6-1. THERMOCOUPLE LOCATIONS FOR HOT AIR RECIRCULATION TEST

INSTALLATION REVIEW

Before starting the genset inspect the installation and check (√) each of the following questions if it can be answered "YES". If an item cannot be checked, provision must be made to satisfy the requirement.

- ☐ Is the control panel on the genset easily accessible for starting and stopping the genset and resetting the circuit breaker?
- ☐ Is there easy access for checking and adding engine oil, replacing the spark plugs and changing the air filter?
- ☐ Is the genset securely bolted in place?
- ☐ Are all specified clearances provided?
- ☐ Are the air inlet and outlet openings free of obstructions?
- ☐ Is there access for draining engine oil?
- ☐ Are all tail pipe connections tight and all hangers and support straps secure?
- ☐ Does the tail pipe terminate at least 1 inch (25 mm) beyond the perimeter of the vehicle and at least 6 inches (153 mm) away from any opening into the vehicle?
- ☐ Is the genset located outside the vehicle interior or separated by approved vapor- and fire-resistive materials?
- ☐ Are all openings into the vehicle, such as for AC wiring, sealed to keep out engine exhaust? Are AC conduit connectors sealed inside and outside?
- ☐ Have all AC connections been inspected and approved?
- ☐ Has a properly sized battery been installed in a ventilated compartment isolated from the genset?
- ☐ Have properly sized battery cables been installed and secured at sufficient intervals to prevent chaffing and contact with sharp edges, fuel lines and hot exhaust parts?
- ☐ Are all fuel connections tight?
- ☐ Have the fuel lines been secured at sufficiently close intervals to prevent chaffing and contact with sharp edges, electrical wiring and hot exhaust parts?
- ☐ ***Fuel Injected Models*** – Has the fuel pump been installed in accordance with the instructions in the kit? *Has a fuel return line been provided?*
- ☐ Has the HOT AIR RECIRCULATION TEST been conducted on a representative installation with acceptable results?

STARTUP

⚠WARNING ***EXHAUST GAS IS DEADLY! Do not operate the genset when the vehicle is parked indoors or where exhaust can accumulate.***

When all the items on the Installation Review check list have been checked, connect the battery cables to the battery, positive (+) cable first.

⚠WARNING ***Batteries give off explosive gases that can cause severe personal injury — Do not smoke — Keep flames, sparks, pilot lights, switches, arc-producing equipment and all other ignition sources away.***

Read the Operator's Manual and perform the maintenance and pre-start checks instructed. *Check the oil level and fill as necessary.*

Recheck all fuel connections for tightness. On gasoline models check for leaks by priming the fuel system in accordance with the genset Operator's Manual. Fix all leaks before starting the genset.

⚠WARNING ***Gasoline is flammable and explosive and can cause severe personal injury or death. Stop priming immediately if you smell gasoline or see fuel leaking. Clean up spilled fuel and ventilate the area before starting the genset or vehicle.***

Start and operate the genset, following all the instructions and safety precautions in the Operator's Manual. Check for fuel and exhaust leaks and unusual noises while the genset is running under full and intermediate loads. Do not place the genset in service until all fuel and exhaust leaks have been fixed and operation is satisfactory.

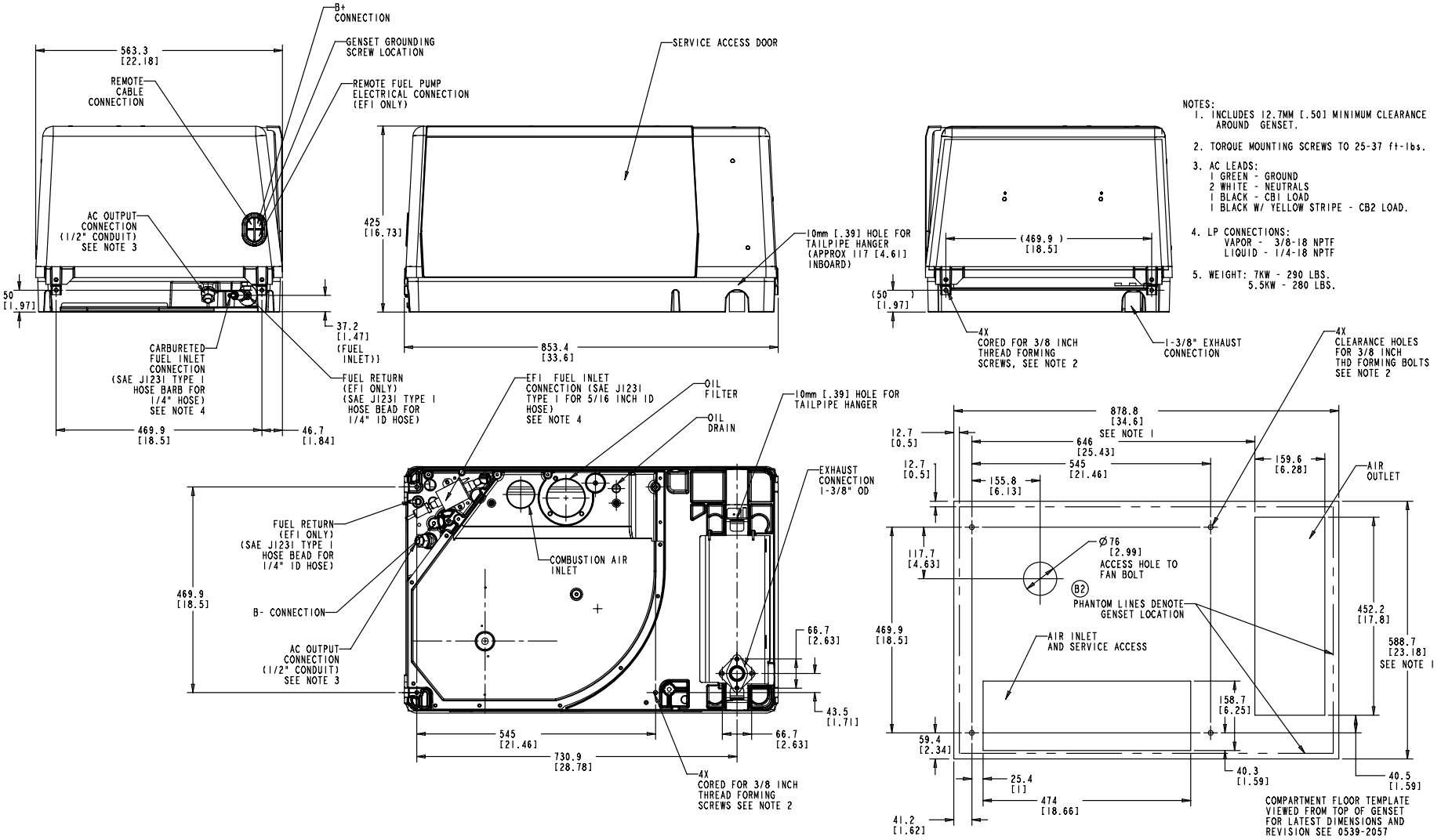
7. Specifications

	GASOLINE MODELS					
	7.0 HGJAA	**7.0 HGJAB**	**7.0 HGJAC**	**5.5 HGJAA**	**5.5 HGJAB**	**5.5 HGJAC**
GENERATOR: 2-Pole Revolving Field, 2-Bearing, Self-Excited, 1-Phase, Vertical Shaft, Capped Digital Voltage Regulation						
Power	7000 watts			5500 watts		
Frequency	60 Hertz			60 Hertz		
Voltage	120 volts			120 volts		
Current	58.3 amp			45.8 amp		
Speed	3600 rpm			3600 rpm		
FUEL CONSUMPTION:						
No load	0.43 gph (1.6 l/h)	0.43 gph (1.6 l/h)	0.43 gph (1.6 l/h)	0.34 gph (1.3 l/h)	0.35 gph (1.3 l/h)	0.35 gph (1.3 l/h)
Half load	0.70 gph (2.7 l/h)	0.73 gph (2.8 l/h)	0.73 gph (2.8 l/h)	0.58 gph (2.2 l/h)	0.60 gph (2.3 l/h)	0.60 gph (2.3 l/h)
Full load	1.13 gph (4.3 l/h)	1.22 gph (4.6 l/h)	1.22 gph (4.6 l/h)	0.89 gph (3.4 l/h)	0.95 gph (3.6 l/h)	0.95 gph (3.6 l/h)
ENGINE: Air-Cooled, 4-Cycle Spark-Ignited, OHV, 90° V Twin Cyl, Vertical Shaft						
Fueling Method	SFI[1]	Carburetor	Carburetor	SFI[1]	Carburetor	Carburetor
Governor	Digital	Mechanical	Mechanical	Digital	Mechanical	Mechanical
Speed	2880 rpm			2400 rpm		
Bore	3.15 in (80 mm)			3.15 in (80 mm)		
Stroke	2.56 in (65 mm)			2.56 in (65 mm)		
Displacement	39.8 in^3 (653 cc)			39.8 in^3 (653 cc)		
Comp. Ratio	8.0 : 1			8.0 : 1		
Oil Capacity	2.0 quart (1.8 l)			2.0 quart (1.8 l)		
Valve Lash (Cold)	0.004 in (0.10 mm), Intake & Exhaust			0.004 in (0.10 mm), Intake & Exhaust		
Spark Plug	18–25 lbs-ft (23–32 N-m)			18–25 lbs-ft (23–32 N-m)		
Ignition Timing	20° BTDC, non-adjustable magneto			20° BTDC, non-adjustable magneto		
Magneto Air Gap	0.012 in (0.3 mm)			0.012 in (0.3 mm)		
Spark Plug Gap	0.025 in (6-7 mm)			0.025 in (6-7 mm)		
DC SYSTEM:						
Battery Voltage	12 volts			12 volts		
Min. Battery CCA	450 @ 0° F (–18° C)			450 @ 0° F (–18° C)		
INSTALLATION:						
Exhaust O. D.	1-1/4 in			1-1/4 in		
Max. Exhaust Back Pressure	–	–	35 in (889 mm) WC	–	–	35 in (889 mm) WC
Fuel Supply Connection	5/16 in. SAE J1231 Type 1	1/4 in. SAE J1231 Type 1	1/4 in. SAE J1231 Type 1	5/16 in. SAE J1231 Type 1	1/4 in. SAE J1231 Type 1	1/4 in. SAE J1231 Type 1
Fuel Return Connection	1/4 in. SAE J1231 Type 1	–	–	1/4 in. SAE J1231 Type 1	–	–
Noise dB(A)[2]	66	67	75	66	67	75
Weight	290 lb (132 Kg)	290 lb (132 Kg)	239 lb (107 Kg)	279 lb (127 Kg)	279 lb (127 Kg)	228 lb (104 Kg)
Compartment (H x D x W)[3]	HGJAA/HGJAB: 17.2 in x 23.2 in x 34.6 in (438 mm x 589 mm x 879 mm) HGJAC: 16.5 in x 22.8 in x 27.9 in (420 mm x 579 mm x 709 mm)					

1. Sequential Multiport Fuel Injection
2. Measurements @ 10 ft (3 m) in a typical RV installation, under an 4 kW load.
3. With 1/2 in. clearances. See the Installation Manual for additional considerations when sizing the genset compartment.

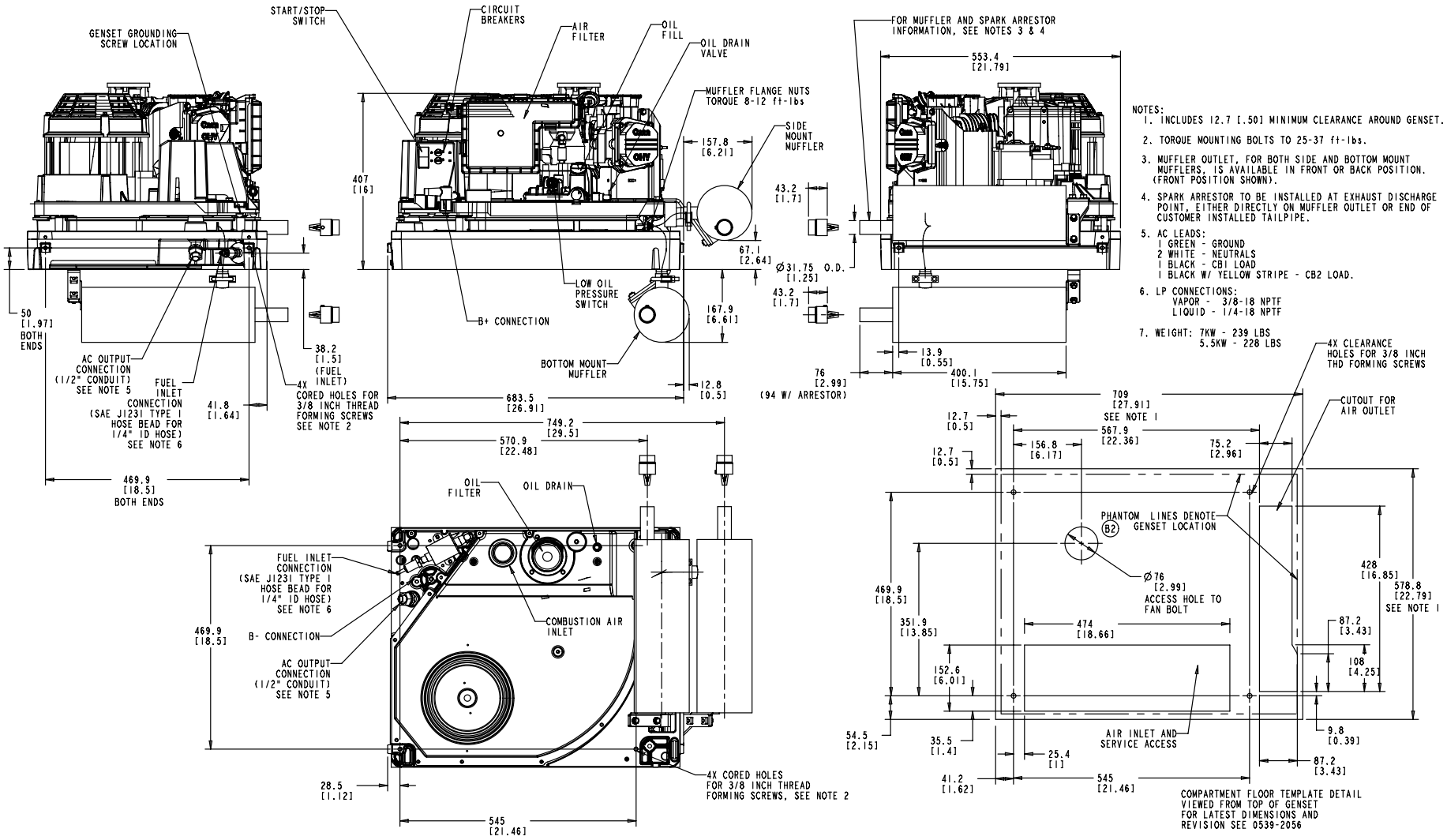
	LPG MODELS					
	6.5 HGJAA	**6.5 HGJAB**	**6.5 HGJAC**	**5.5 HGJAA**	**5.5 HGJAB**	**5.5 HGJAC**
GENERATOR: 2-Pole Revolving Field, 2-Bearing, Self-Excited, 1-Phase, Vertical Shaft, Capped Digital Voltage Regulation						
Power	6500 watts			5500 watts		
Frequency	60 Hertz			60 Hertz		
Voltage	120 volts			120 volts		
Current	54.2 amp			45.8 amp		
Speed	3600 rpm			3600 rpm		
FUEL CONSUMPTION:						
No load	2.2 lbs/h (1.0 kg/h)	2.2 lbs/h (1.0 kg/h)	2.2 lbs/h (1.0 kg/h)	1.8 lbs/h (0.8 kg/h)	1.8 lbs/h (0.8 kg/h)	1.8 lbs/h (0.8 kg/h)
Half load	3.9 lbs/h (1.8 kg/h)	3.9 lbs/h (1.8 kg/h)	3.9 lbs/h (1.8 kg/h)	3.3 lbs/h (1.5 kg/h)	3.3 lbs/h (1.5 kg/h)	3.3 lbs/h (1.5 kg/h)
Full load	5.3 lbs/h (2.4 kg/h)	5.3 lbs/h (2.4 kg/h)	5.3 lbs/h (2.4 kg/h)	4.6 lbs/h (2.1 kg/h)	4.6 lbs/h (2.1 kg/h)	4.6 lbs/h (2.1 kg/h)
ENGINE: Air-Cooled, 4-Cycle Spark-Ignited, OHV, 90° V Twin Cyl, Vertical Shaft						
Fueling Method	Air/Fuel Mixer			Air/Fuel Mixer		
Governor	Mechanical			Mechanical		
Speed	2880 rpm			2400 rpm		
Bore	3.15 in (80 mm)			3.15 in (80 mm)		
Stroke	2.56 in (65 mm)			2.56 in (65 mm)		
Displacement	39.8 in^3 (653 cc)			39.8 in^3 (653 cc)		
Comp. Ratio	8.0 : 1			8.0 : 1		
Oil Capacity	2.0 quart (1.8 l)			2.0 quart (1.8 l)		
Valve Lash (Cold)	0.004 in (0.10 mm), Intake & Exhaust			0.004 in (0.10 mm), Intake & Exhaust		
Spark Plug	18–25 lbs-ft (23–32 N-m)			18–25 lbs-ft (23–32 N-m)		
Ignition Timing	20° BTDC, non-adjustable magneto			20° BTDC, non-adjustable magneto		
Magneto Air Gap	0.012 in (0.3 mm)			0.012 in (0.3 mm)		
Spark Plug Gap	0.025 in (6-7 mm)			0.025 in (6-7 mm)		
DC SYSTEM:						
Battery Voltage	12 volts			12 volts		
Min. Battery CCA	450 @ 0° F (–18° C)			450 @ 0° F (–18° C)		
INSTALLATION:						
Exhaust O. D.	1-1/4 in			1-1/4 in		
Max. Exhaust Back Pressure	–	–	35 in (889 mm) WC	–	–	35 in (889 mm) WC
LPG Vapor: Connection Pressure	3/8–18 NPTF 9-13 in (228-330 mm) WC			3/8–18 NPTF 9-13 in (228-330 mm) WC		
LPG Liquid: Connection Pressure	1/4–18 NPTF Tank Pressure			1/4–18 NPTF Tank Pressure		
Noise dB(A)[1]	66	67	75	66	67	75
Weight	290 lb (132 Kg)	290 lb (132 Kg)	239 lb (107 Kg)	279 lb (127 Kg)	279 lb (127 Kg)	228 lb (104 Kg)
Compartment (H x D x W)[2]	HGJAA/HGJAB: 17.2 in x 23.2 in x 34.6 in (438 mm x 589 mm x 879 mm) HGJAC: 16.5 in x 22.8 in x 27.9 in (420 mm x 579 mm x 709 mm)					

1. Measurements @ 10 ft (3 m) in a typical RV installation, under an 4 kW load.
2. With 1/2 in. clearances. See the Installation Manual for additional considerations when sizing the genset compartment.



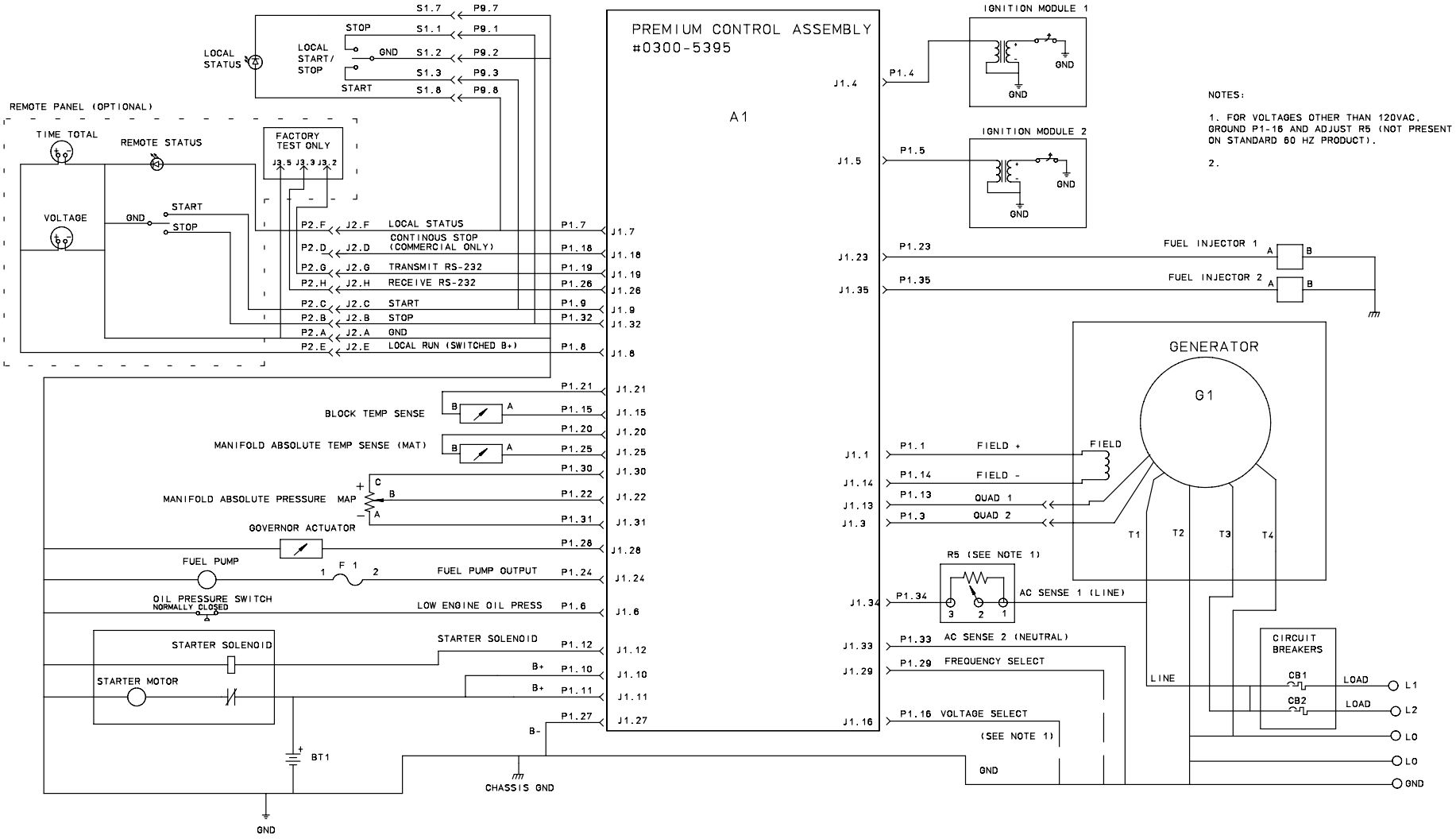
500-3234

OUTLINE DRAWING—HGJAA / HGJAB



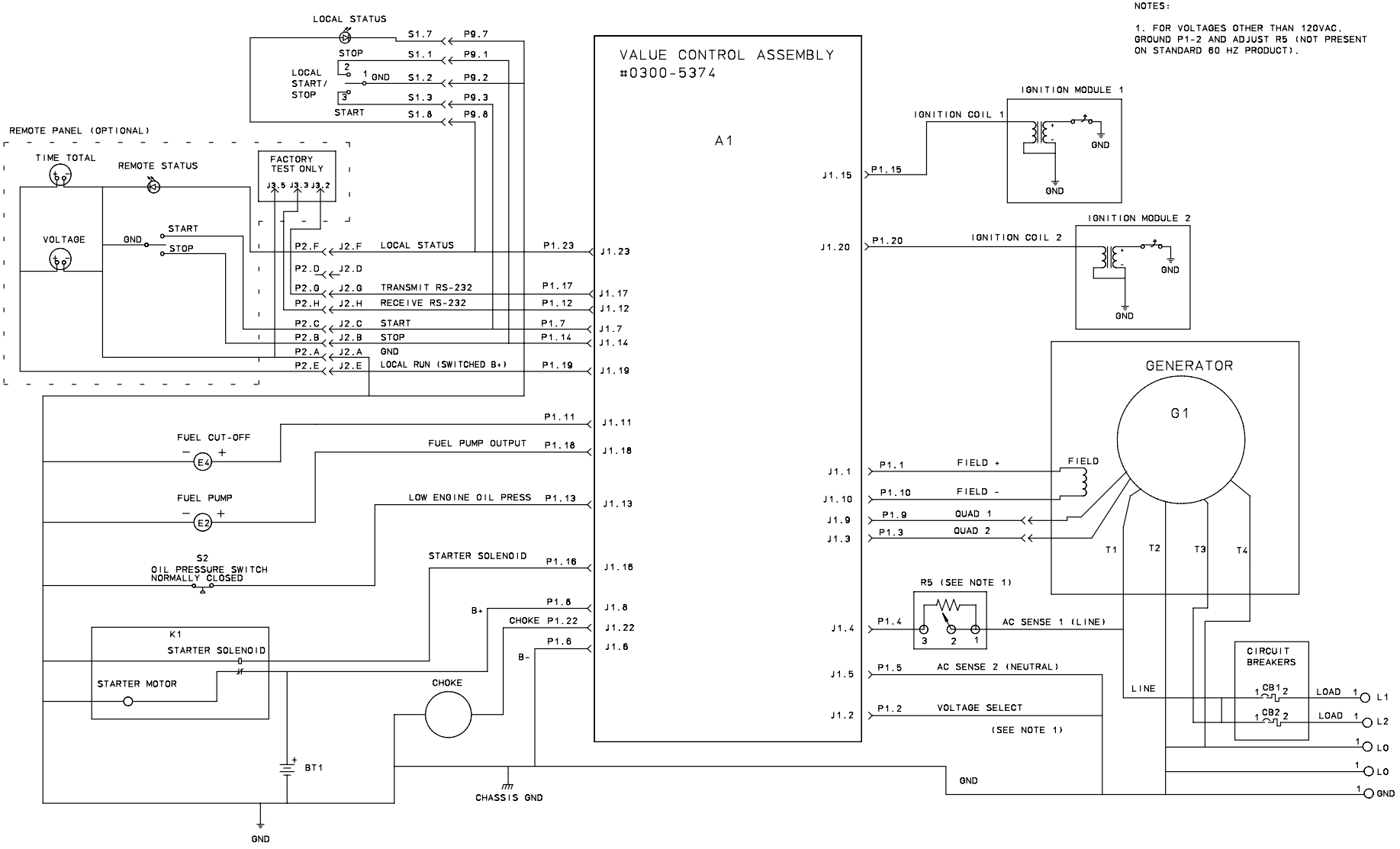
500-3235

OUTLINE DRAWING—HGJAC



611-1272

WIRING DIAGRAM—HGJAA



611-1271

WIRING DIAGRAM—HGJAB / HGJAC

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