INSTRUCTION MANUAL

with

ILLUSTRATED PARTS LIST

for

“GLOW-PLUG”

COLD WEATHER STARTING AID KIT

Part Number 181259

Used on

PERKINS DIESEL ENGINE

MODEL NO.: 4.236

Hobart Brothers Company
Ground Power Division
Troy, Ohio 45373
U.S.A.
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1. General

**WARNING**

This glow-plug starting kit must not be used in tandem with an ether start kit. Nor must any spray-cans of ether or any other external ether-starting means be used with the glow-plug starting kit. An explosion and serious injury could result.

This manual covers an optional cold weather starting aid, manufactured by **Hobart Brothers Company, Ground Power Division, Troy, Ohio 45373, U.S.A.**

This cold weather starting aid kit is identified by Hobart Part number 181259 and is intended for use only on Hobart generator sets equipped with Perkins Model 4.236 diesel engines.

2. Description

The cold weather starting aid herein described is called a “glow-plug” starting aid. In a glow-plug cold weather starting system, raw fuel is taken from the system behind the fuel filter and put through a spray nozzle into the intake manifold where it is burned using an electric ignition to produce an open flame.

3. Installation

a. General

The glow-plug starting aid, if ordered as an option, will be installed at the factory. If ordered for addition to a previously purchased generator set in one of the Hobart Series equipped with a Perkins model 4.236 diesel engine, this starting aid must be installed and operated precisely according to instructions given herein.

Figure 1 below shows the glow-plug that is used in this particular starting aid system.
b. Installing the Thermostart Switch (See Figure 2)

This switch, provided in the kit, will control operation of the glow-plug starting system. Remove the thermostart pushbutton switch from kit and install it securely in the lower left corner of the control panel, in the hole provided, near the ENGINE START PUSHBUTTON. If the hole has a plastic hole plug in it, (spec. numbers 7003, 7003A, and 7003B) remove the hole plug and mount the pushbutton in its place. If a plastic label covers the front of the control panel, (spec. 7003C), use a small knife or razor knife to cut the plastic label around the hole, then mount the pushbutton.

Install the rubber switch boot, and the switch and secure.

c. Installing the Glow-Plug Assembly

(1) Assemble the nut, olive, and heater to the plain end of the pipe assembly.

(2) Route the glow-plug assembly around the engine such that (a) the glow-plug is near the front of the intake manifold on the right side of the engine, and (b) the fuel inlet end of the assembly is near the secondary fuel filter located at the top left rear of the engine. Make certain when routing the assembly that the tube of the assembly doesn’t buckle and become closed or restricted to fuel flow through it.

(3) There are four openings near the top of this fuel filter, each opening having an arrow indicating direction of fuel flow to/from the filter. Locate the opening arrow marked “4” (the opening nearest the rear of the engine, and the outermost of the two rear openings on the fuel filter).

(4) Install the inlet end of the assembly securely into the fuel filter opening marked “4”.

(5) On the right side of the engine, the intake manifold has an opening especially for glow-plug installation. Remove the metal plug that is used to close this hole, and install the glow-plug securely into the intake manifold, such that a wire connection can be properly and securely made to the single electrical terminal on the glow-plug.

(6) Attach the tube of the glow-plug assembly securely to the engine, using hex-head bolts through the two clamps on the tube. The bolts needed are provided on the engine for this purpose; one bolt is at the rear of the engine, and another is on the intake manifold near the position where the glow-plug enters the manifold.

d. Wiring the Glow-Plug Assembly

After installing the glow-plug on the engine, refer to the Schematic & Connection Diagrams in chapter 5 or 6 of the generator set Operation and Maintenance manual. On each of these diagrams, locate the thermostart pushbutton switch (S412) and the glow-plug (R411). Then open and lower the engine-generator control panel door and keep the connection diagram nearby such that it can be viewed or referred to while wiring the glow-plug circuit.

Three wires are included in the glow-plug kit, part number 181259. For convenience of installation, these wires have the appropriate terminals already attached.

(1) As shown on the connection diagram, the 5-inch orange wire (no. 203 on the connection diagram) must be connected between the THERMOSTART SWITCH (S412) and the engine START-RUN-STOP SWITCH (S404). Make these connections to the appropriate terminals on these respective switches exactly according to the diagram.

(2) Connect the 15-inch brown wire (no. 204 on the connection diagram) between the thermostart switch (S412) and the appropriate terminal on the terminal strip at the lower edge of the engine control panel.

(3) Insert the 93-inch brown wire (no. 205 on the connection diagram) into a piece of protective loom or tubing of approximately the same length, and route it between the before mentioned terminal strip and the single terminal on the glow-plug. Connect this wire at these two points.

(4) Use plastic ties to secure all of these newly-installed wires to other nearby wiring in the generator set. Make certain, when routing and tying the wire that goes to the glow-plug, that it cannot come into contact with the hot exhaust manifold.
e. Operation of the Glow-Plug System (See Figure 2)

The glow-plug cold weather starting system is intended only for use when attempting to start the generator set's engine at below freezing temperatures. It is not to be used for starting the engine under any other conditions. To operate the glow-plug system, proceed as follows:

(1) Press the THERMOSTART SWITCH and hold it in for 20 seconds.

(2) While still pressing the THERMOSTART SWITCH, hold the START-RUN-STOP switch in the START position, and press the ENGINE START pushbutton. Release THERMOSTART SWITCH and ENGINE START pushbutton as soon as engine starts. Hold START-RUN-STOP switch in the START position until oil pressure builds up.

(3) If the engine doesn’t start within 15 seconds, release ENGINE START PUSHBUTTON while still pressing the THERMOSTART SWITCH FOR 10 seconds more. Then make another attempt to start the engine by pressing and holding the ENGINE START PUSHBUTTON while holding the START-RUN-STOP switch in the START position.
4. Customer Service

If you have any questions concerning your Hobart Brothers Ground Power equipment, immediately contact our service department by mail, telephone, or FAX.

Write: Hobart Brothers Company
      Ground Power Division
      Service Department
      Troy, Ohio 45373
      U.S.A.

Telephone: (937) 332-5060 for Service Assistance
           (937) 332-5050 for Parts Assistance

FAX: (937) 332-5121
5. Parts list

   a. Manufacturer’s Codes

   Explanation of Manufacturer’s (Vendor) Code List

   The following list is a compilation of vendor codes with names and addresses for suppliers of purchased parts listed in this publication. The codes are in accordance with the Federal Supply Codes for Manufacturer’s Cataloging Handbook H4-1, (CAGE CODES) and are arranged in numerical order. Vendor codes are inserted in the nomenclature column of the parts list directly following the item name and description. In case a manufacturer does not have a code, the full name of the manufacturer will be listed in the nomenclature column.

<table>
<thead>
<tr>
<th>Code</th>
<th>Vendor’s Name &amp; Address</th>
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<tbody>
<tr>
<td>K5436</td>
<td>Perkins Engines Co.</td>
</tr>
<tr>
<td></td>
<td>P.O. BOX 19 Eastfield</td>
</tr>
<tr>
<td></td>
<td>Peterborough</td>
</tr>
<tr>
<td></td>
<td>United Kingdom   PE1 5NA</td>
</tr>
<tr>
<td>13445</td>
<td>Cole-Hersee Co.</td>
</tr>
<tr>
<td></td>
<td>20 Old Colony Ave.</td>
</tr>
<tr>
<td></td>
<td>Boston, MA 02127</td>
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Glow-Plug Kit
Figure 3
### NOMENCLATURE UNITS

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<tr>
<th>FIGURE &amp; AIRLINE</th>
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<td>* 3-9</td>
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<td>. CHART, WIRE</td>
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* NOT ILLUSTRATED