



Hale Products, Inc. Service Bulletins

Bulletin#: SB-093

Revision#: A

Date: 12/18/2006

Product Type Covered: Hale Products

X

Class 1

Product Covered:

ESP Priming System

Problem Statement:

The need and requirements to provide a "lubricated" Priming System, and the use of Propylene Glycol Antifreeze (converting ESP priming system to a lubricated system). Update installation and servicing instructions.

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Date: 12/18/2006

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BODY OF THE BULLETIN

Overview

The **Hale ESP Priming System** has a proven history of reliable fast priming and high vacuum performance when properly maintained and operated in accordance with the instructions found in your Pump Installation, Operation and Service Maintenance Manual. Under NORMAL operating conditions (standard climates) our research has found that no lubricant is required. Holding the primer ON for a few seconds (2 or 3 seconds) after a prime from draft will clean out residue in the primer.

To accommodate customer requests for a lubricated system and when operating in FREEZING climates, the Hale ESP Priming System can be converted to a "lubricated system" by installing separate lubricant and discharge tanks and using a Propylene Glycol / water mixture as the lubricant. Propylene Glycol is a less toxic and more environmentally-friendly coolant and is recommended over Ethylene Glycol based antifreeze. Propylene Glycol (PG) based antifreeze provides comparable system protection to that of conventional ethylene glycol (EG) based coolants (i.e., freeze, and corrosion protection).

Propylene glycol is readily available in automotive supply stores, under the following brand names:

Sierra Antifreeze – use a 50 – 50 mix (www.sierraantifreeze.com)

Camco Mfg., RV & Marine Easy Going Antifreeze – use pure (www.camco.net)

A 50/50 blend of propylene glycol coolant and water has a freezing point of -26° F (-32° C) and is applicable under most operating conditions. If a lower temperature protection is required, it can readily be achieved by increasing the coolant. See Chart 1: "Typical Freeze-up Protection" on the next page.

Coolant	Water	Freezing Point F (C)		Boiling Point F (C)	
50%	50%	-26	(-32)	256	(124)
60%	40%	-54	(-48)	261	(127)
66%	34%	-76	(-60)	262	(128)

Chart 1: “Typical Freeze-Up Protection”

Converting To a Lubricated System

(See Figure 2 “Typical ESP Installation Conversion.”)

To convert a Hale ESP Non-Lubricating Priming System to a Lubricated Priming System, the following parts are required for optimum performance and to conform to most regional environmental regulations:

- Separate lubricant storage tank, Hale p/n: 108-0012-00-0 (4 quart / 3.8 liter capacity).
- Warning label for lubricant tank – “DO NOT USE ETHYLENE GLYCOL”, provided by installer
- Fluid Capacity Placard (required by NFPA) – installed in the operator’s cab and provided by installer.
- Separate discharge tank, with drain valve and tank breather vent, provided by installer.
- Applicable DOT air brake tubing or soft tubing, 5/16” (8 mm), provided by installer.
- 2-1/2” (64 mm) ID rubber drain / discharge hose, provided by installer.
- Tube fittings, 1/8” NPT x 5/16” (8 mm) - tank fitting provided with Hale tank.

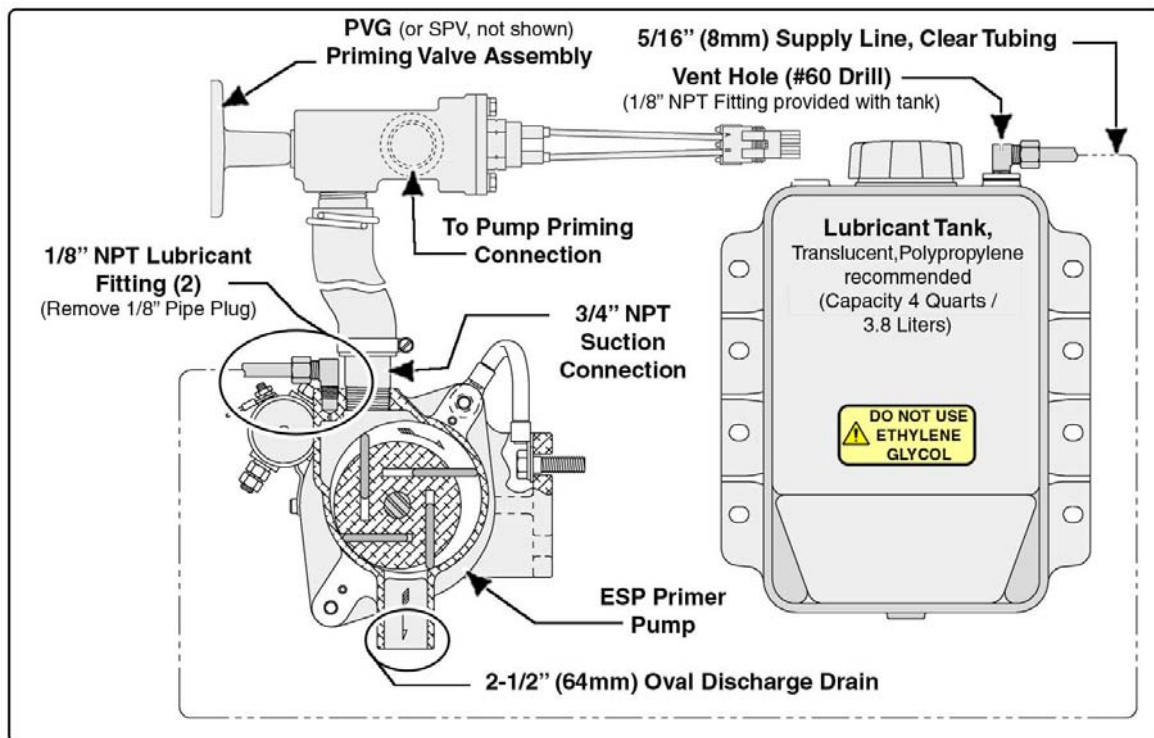


Figure 2: “Typical ESP Installation Conversion”

Installation

See Figure 3: “Typical ESP Lubricated Priming System Layout” on page 4.



- **MAKE SURE THE APPARATUS SYSTEM IS COMPLETELY SHUT-DOWN, FLUSHED WITH CLEAN, FRESH WATER AND FULLY DRAINED BEFORE MODIFYING AN EXISTING PRIMER SYSTEM.**
 - **FOLLOW YOUR DEPARTMENTAL AND/OR ENVIRONMENTAL REGULATIONS AND THE INSTRUCTIONS RECOMMENDED BY THE COOLANT MANUFACTURER AS STATED ON THEIR CONTAINER LABEL. ALWAYS USE CAUTION WHEN HANDLING OR DISPOSING OF PROPYLENE GLYCOL.**
 - **DO NOT USE ETHYLENE GLYCOL.**
1. The tank should be a translucent, polypropylene tank to allow visual inspection of the lubricant level. Order Hale p/n: 101-0012-00-0, which includes the 1/8” NPT x 5/16” (8 mm) tube fitting with vent hole.
 2. The tank should be located within proximity of the primer pump, preferably level with or below the primer pump. Select a location visible to the system operator for checking and refilling.
 3. Remove the 1/8” NPT pipe plug in the top of the primer pump and install one 1/8” NPT x 5/16” (8 mm) tube fitting. (See Figure 3: “Typical ESP Lubricated Priming System Layout” on page 4.) Use appropriate thread sealant.
 4. If the tank is installed above the primer pump, the fitting installed in the top of the lubricant tank must contain one small vent hole (#60 drill) in the top of the fitting to create a vacuum break (break the siphon and stop the flow of lubricant when priming stops).
- Note:** This is included with the Hale Lubrication Tank Assembly, p/n: 108-0012-00-0).
5. Run tubing (5/16” / 8 mm) from the lubricant storage tank to the primer pump fitting and secure the tubing (tubing clamps). (See Figure 3: “Typical ESP Lubricated Priming System Layout” on page 4.)
 6. Connect hose (2-1/2” / 64 mm) from the primer pump discharge to a separate discharge collection container. Clamp hose using appropriate hose clamps.

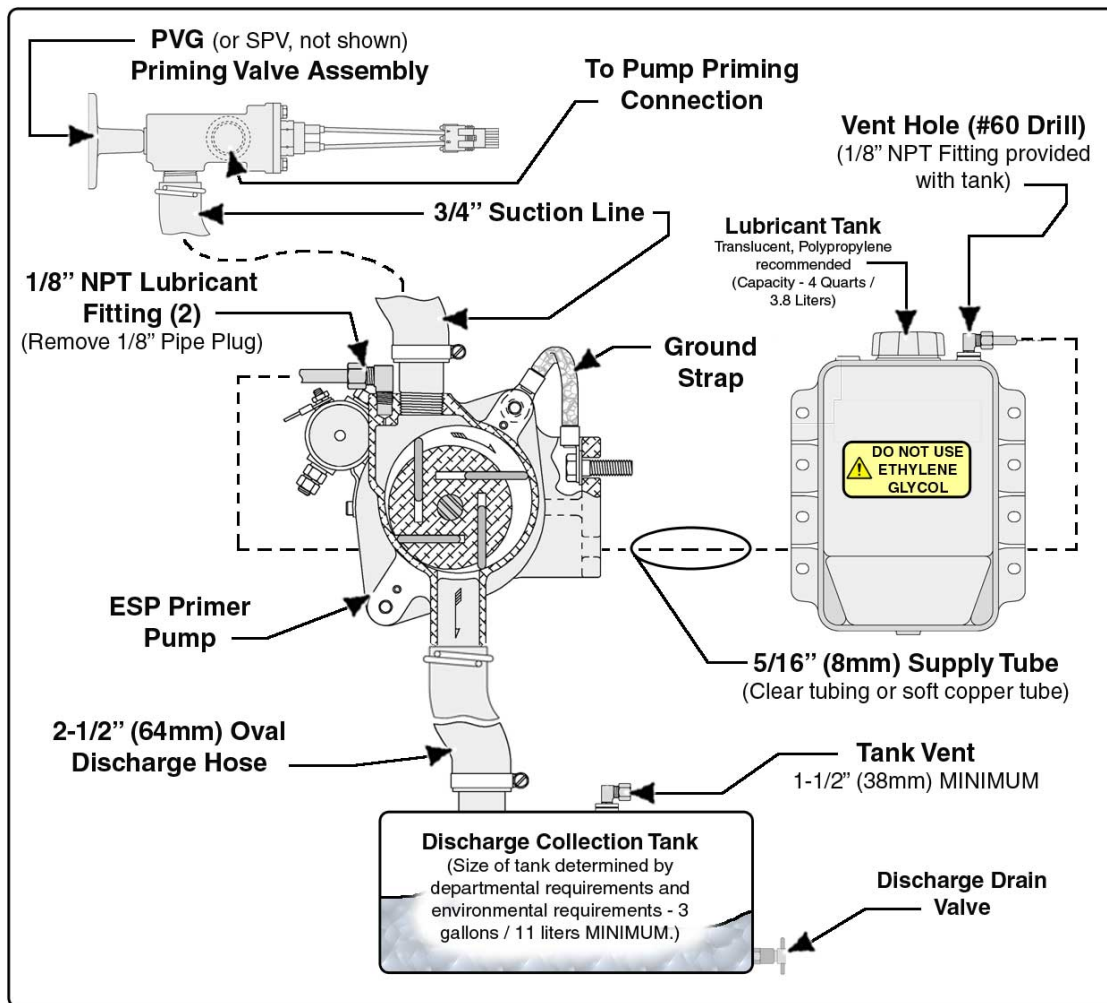


Figure 3: “Typical ESP Lubricated Priming System Layout”

7. It is recommended to install a separate discharge collection container (tank), minimum 3 gallons (11 liters), to collect all discharged fluid during priming in accordance with your departmental and/or local environmental regulations. (See Figure 3: “Typical ESP Lubricated Priming System Layout.”)
8. Install a drain valve in the discharge tank to enable easy fluid drainage and disposal, in accordance with your departmental and/or local environmental regulations.
9. Also install a breather vent fitting in the top of the tank, approximately 1-1/2” (38 mm) minimum.



WARNINGS !



DO NOT ALLOW COOLANT TO DISCHARGE TO THE GROUND. REVIEW YOUR DEPARTMENTAL AND/OR LOCAL ENVIRONMENTAL REGULATIONS REGARDING THE USE OF AND DISPOSAL OF PROPYLENE GLYCOL COOLANTS.



WARNINGS - continued !



ALWAYS FOLLOW THE MANUFACTURER'S RECOMMENDED INSTRUCTIONS ON THE LABEL AFIXED TO THE CONTAINER.

Notes:

- ☐ DO NOT use water only in the lubricant tank in FREEZING climates.
 - ☐ The propylene glycol must be the type that includes corrosion inhibitors. An example would be propylene glycol antifreeze recommended for the RV or Marine type cooling systems.
- 10.** Make sure the vent hole in the lubricant tank fitting and discharge tank breather vent are clean (not clogged or blocked).
 - 11.** Fill the tank with an approved propylene glycol coolant (approximately 4 quarts / 3.8 liters).



DO NOT USE ETHYLENE GLYCOL.



- 12.** Make sure the drain valve in the discharge collection tank is CLOSED to prevent accidental discharge to the ground.
- 13.** Install the Fluid Capacity Placard, required by NFPA, inside the operator's cab. The placard must state "**DO NOT USE ETHYLENE GLYCOL**" in the lubricant system and should include the lubricant WARNINGS listed in this document.



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