



# Installation Instructions

## DGK45F\FU Block Heater



1000000299

### Kit Contents:

- (1) 120v-1000 Watt Block Heater and Mounting Hardware



### Fittings:

- (1) 1/4 NPT M/M 6" Nipple
- (1) 1/4 NPT M/M 4" Nipple
- (1) 1/4 FPT 90°
- (1) 1/4 FPT Tee
- (1) 3/8M x 1/4F NPT Bushing
- (2) 5/8 x 1/4 NPT Male Hose Barb
- (2) 1/4 NPT M/F Ball Valve



### Hoses, Split Wrap and Hose Clamps

- (1) 1/2"x 6" Black Heat Shrink Tubing
- (2) 18-22 ga Heat Shrink Butt Connectors
- (1) 1/8"x7/16" Grommit
- Cable Ties



### **Tools & Materials Required:**

- (2) 1/4" Pipe Plugs
- (1) 5/16" Vacuum Cap or equivalent
- (1) 5/8" Vacuum Cap or equivalent
- 11/16" Open-End wrench
- 17 mm Deep Well Socket - 1/2 Drive
- 10"-12" - 1/2 in Drive Extension
- 8" - 1/2" Drive Extension
- M8 Long Hex Key - 1/2 Drive
- 1/2" Ratchet Wrench
- 3/8" Socket - 1/4 Drive
- 8"- 1/4" Drive Extension
- 1/4" Ratchet Wrench
- 7/16" closed end wrench or ratchet wrench
- #2 Phillips screwdriver
- Needle Nose Pliers
- Long Reach Bent Nose Needle Nose Pliers
- White Teflon Tape
- (2) 8" Adjustable Crescent Wrench

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## **NOTES**

## INSTALLATION INSTRUCTIONS

- Step 1: Verify Kit Contents
- Step 2: Read through installation instructions before beginning the procedure.
- Step 3: Release the Right Enclosure rear door latch, then open both right enclosure doors. (Figure 1)



Figure 1

- Step 4: Remove nut and washer securing NEGATIVE battery cable to NEGATIVE terminal using a 13mm wrench. (Figure 2)



Figure 2

- Step 5: Position the negative battery cable out of the way, then reinstall washer and nut to battery terminal. (Figure 3)



Figure 3

- **Step 4: Prepare the treads of all the block heater piping components by applying teflon tape as hown. (Figure 4)**



Figure 4

- **Step 5: Attach supplied hoses to the block heater. The longer of the two gets attached to the bottom. Secure hoses to block heater using two of the supplied hose clamps. DO NOT OVERTIGHTEN. (Figure 5)**



Figure 5

- **Step 6: Place the split-loom hose protectos over the heater hoses. (Figure 6)**



Figure 6

- **Step 7: Place the block heater assembly into position, onto the left side Top Enclosure mouting bracket block heater perch as shown. Route the upper hose as indicated. (Figure 7)**



Figure 7

- **Step 8: Route the lower hose from the block heater, down under the engine and up near the fuel filter as shown. (Figure 8)**



Figure 8

- **Step 9: Attach and secure the block heater to the Top Enclosure mounting bracket perch with two (2) of the supplied bolts and whiz-lock nuts, using a 3/8" socket, ratchet and 7/16" wrench. (Figure 9)**



Figure 9

- **Step 10: Pre-assemble the block heater piping intended to be attached to the engine water pump housing. The pipe adapter is attached to one end of the 6 inch threaded pipe, while one of the ball valves is attached to the other end as shown in Figure 10. After assembling, rotate the valve handle to close the valve, then remove the handle.**



Figure 10

- **Step 11:** Place an absorbent pad or equivalent over the radiator hose coming out the side of the water pump housing.
- **Step 12:** Loosen the pipe plug on the side of the water pump housing using a M8 Long Hex Key, a long drive extension and ratchet. (Figure 11)



Figure 11

- **Step 13:** With the pre-assembled block heater piping at hand along with a 11/16" open end wrench, proceed to remove the pipe plug from the water pump housing. Immediately upon removal of the pipe plug, insert and begin threading the block heater piping into the water pump housing. **DO NOT OVER TIGHTEN** (Figure 12)



Figure 12

- **Step 14:** Orient the ball valve as shown using a 17mm open end wrench. (Figure 13) If the ball valve is not properly oriented, full opening and closing of the valve will not be possible

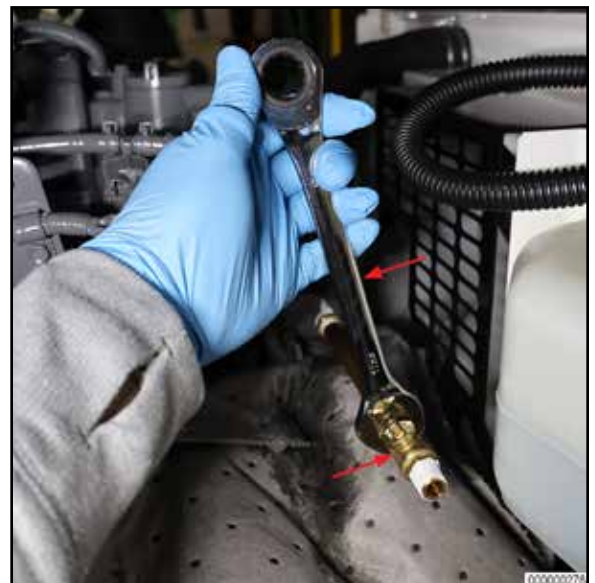


Figure 13

- **Step 15:** Install one (1) 90° elbow, then one (1) barbed hose fitting, oriented as shown. (Figure 14)



Figure 14

- **Step 16:** Attach upper block heater hose to the barbed hose fitting and secure with one (1) hose clamp. (Figure 15)



Figure 15

- **Step 17:** Reattach Ball Valve Lever and secure using previously remove nut. (Figure 16)



Figure 16

- **Step 21:** Split the plastic loom covering the engine block drain hose, pulling it back approximately 6 inches. (Figure 17)



Figure 17

- **Step 22:** Place an absorbant pad or equivalent beneath the block drain hose, then remove hose clamp from engine block drain hose.(Figure 18)
- **Step 23:** Have a 5/16" vacuum cap ready for the next step to reduce spillage of coolant.



Figure 14

Figure 18

- **Step 24:** Using long reach bent needle nose pliers, carefully remove the engine block drain hose from the fitting. Immediately cap off the fitting using the 5/16" vacuum cap. (Figure 19)



Figure 19

- **Step 24:** Assemble the remaining pipe parts as shown. (Figure 20) After attaching the ball valve to the 4 inch pipe, rotate the valve handle to close the valve, then remove the handle. Install two (2) 1/4" pipe plugs into the remaining Tee fitting holes.



Figure 20

- **Step 25:** Remove the block drain hose fitting from the engine block using a 1/2" drive - 17 mm deep well socket, with a 10" or 12" drive extension and 1/2" ratchet. (Figure 21)



Figure 21

- **Step 26:** Immediately upon removal of the block drain fitting, install the 4" pipe with tee fitting where the block drain fitting was removed. (Figure 22) Snug the pipe into the block by using a crescent wrench on the tee fitting.



Figure 22

- **Step 27:** Wrap new teflon tape onto threads of block drain fitting previously removed in step 25.
- **Step 28:** Remove the Pipe Plug from the end of the Tee Fitting and quickly replace it with the Block Drain Fitting. Secure the block drain fitting to the tee fitting to prevent leaks. (Figure 23)



Figure 23

- **Step 29: Attach block heater hose to barb fitting and secure with hose clamp. Reposition split loom over hose. (Figure 24)**



Figure 24

- **Step 30: Remove the remaining pipe plug from the tee fitting and install the remaining ball valve and hose barb assembly. Orient the ball valve assembly as shown. (Figure 25)**



Figure 25

- **Step 30: Attach Block Heater Hose to Hose Barb, secure with hose clamp, then reattach Ball Valve Lever and secure using previously remove nut. (Figure 26)**
- **Step 31: Reinstall ball valve handles on both ball valves.**



Figure 26

- **Step 32: Route block heater power cord along existing cable harness and secure in place using cable ties. (Figure 27) Remove excess tails when complete.**



Figure 27

- **Step 33: Connecting Block Heater power plug to receptical from Shore Power. Wrap block heater power cord plug and shore power receptacle with electrical tape to prevent them from separating. Then secure in place using a cable tie. (Figure 28) Remove excess tail when complete.**



Figure 28

- **Step 34: Remove bolt and lockwasher from NEGATIVE battery terminal, reposition and reattach NEGATIVE battery cable to NEGATIVE battery terminal, using a 13mm wrench or equivalent, secure the battery cable using the previously removed lockwasher and bolt. DO NOT OVERTIGHTEN bolt - Snug only. (Figure 29)**
- **Step 35: Top off the radiator reservoir to replace any fluid lost during installation using a 50\50 mix of "green" coolant.**
- **Step 36: Close both Right Side Enclosure doors, making sure they latch completely.**



Figure 29

**The Block Heater Installation is now complete**