

Maintenance Procedure

No. P823

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TASK DESCRIPTION
CHECK OPERATION OF HEATING AND AIR CONDITIONING SYSTEMS
BUILDER'S OR VENDOR'S MAINTENANCE INSTRUCTIONS
LOCOMOTIVE SERVICE MANUAL F-59PH, VAPOR SERVICE MANUAL
SPECIAL TOOLS REQUIRED:
RELATED MAINTENANCE PROCEDURES MODIFICATIONS, POINTERS, ETC.
SAFETY PRECAUTIONS:
CONTRACTOR TO ASSUME RESPONSIBILITY FOR SAFETY RULES AND COMPLIANCE.
PREPARATION:

OVERVIEW

The cab heater assembly provides fresh air circulation plus 3-stage fan speed control. The self-contained unit is located under the cab sub floor and is powered by the 74-volt DC supply from the auxiliary generator. It will not operate off locomotive batteries. It is protected against overload by circuit breakers and the heater is rated at 2.5 kW on low heat through 10 kW on high, in 4 heat settings. On equipped units, a cab temperature controller automatically selects appropriate heat level and fan speed to maintain cab temperature to within approximately 3° F.

The air conditioners are powered from the 575 volt AC supply only, but will operate whether on HEP or on layover. The same electronic controller used for heating provides cab temperature selection and control over air conditioning. It has 2-stage automatic fan speed selection.

PROCEDURE

1 Locomotives with air conditioning

1.1 Place cab heater control breaker (15-amp double pole) located in panel behind operator in the "ON" position. Place the cab heater breaker (175 amp double pole) located on circuit breaker panel in "ON" position. Check that air conditioner and transformer breakers are "ON" and that 575-VAC power is available.

1.2 Ensure that the air outlet dampers are open.

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- 1.3 Verify the functioning of the heating system in all modes using the heater switch (figure 1, item 1)
- 1.4 Move selector switch to "HI" fan position. The fan motor should run at full speed.
- 1.5 Listen for abnormal noises or excessive vibrations at fan/motor assembly, located under cab. Verify that there is a continuous flow of air at cab air outlets.
- 1.6 Verify airflow damper control operation by operating control handles.
- 1.7 Move selector switch to the "HEAT" position verifying that the fan runs on low speed.
- 1.8 Adjust temperature control setting to 2°F above current cab temperature. Verify that fan speed increases to medium and heat output operates on medium (5 kW).
- 1.9 Adjust temperature control setting to more than 3°F degree above current cab temperature. Verify that fan speed increases to high and heat output operates on high (10 kW).
- 1.10 Return temperature selection so that fan speed returns to low. Turn selector switch to "OFF" position.

Note: *The fan may keep running to cool the heater elements. Do not open the cab heater control circuit breaker until the fan has stopped.*

- 1.11 Turn cab selector switch to cool. Verify that air conditioner blower fans operate on low speed.
- 1.12 Reduce cab temperature to more than 1°F below cab temperature. Verify that air conditioner blower fans cycles to high speed and both compressors operate. Ensure that cool air blows from overhead vents. Operate air conditioner until cab temperature decreases and air conditioners cycle off. A/C fans will revert to recycle (low) speed.
- 1.13 Turn cab selector switch to "OFF" position.

2 Locomotives without air conditioning

- 2.1 With main engine running, place cab heater control breaker (15-amp double pole) located on circuit breaker panel behind operator in the "ON" position. Ensure that main cab heater power breaker (175 amp double pole) is in the "ON" position.
- 2.2 Ensure that the air outlet dampers are open.

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- 2.3 Verify the functioning of the heating system in each position using the heater switch (figure 1, item 1)

- 2.3.1 Move heater switch to the "FAN" position. The fan motor should run at full speed.

- 2.3.2 Listen for abnormal noises or excessive vibrations at fan/motor assembly, located under cab.

- ### 2.3.3 Verify that there is a continuous flow of air at cab air outlets.

- #### 2.3.4 Verify airflow damper control operation by operating control handles.

- 2.3.5 Move HEAT selector from low through high positions, verifying that the volume of air and heat increases with each step.

- 2.3.6 At the end of the test, place heater switch in the OFF position.

Note: *The fan may keep running to cool the heater elements. Do not open the cab heater control circuit breaker until the fan has stopped.*

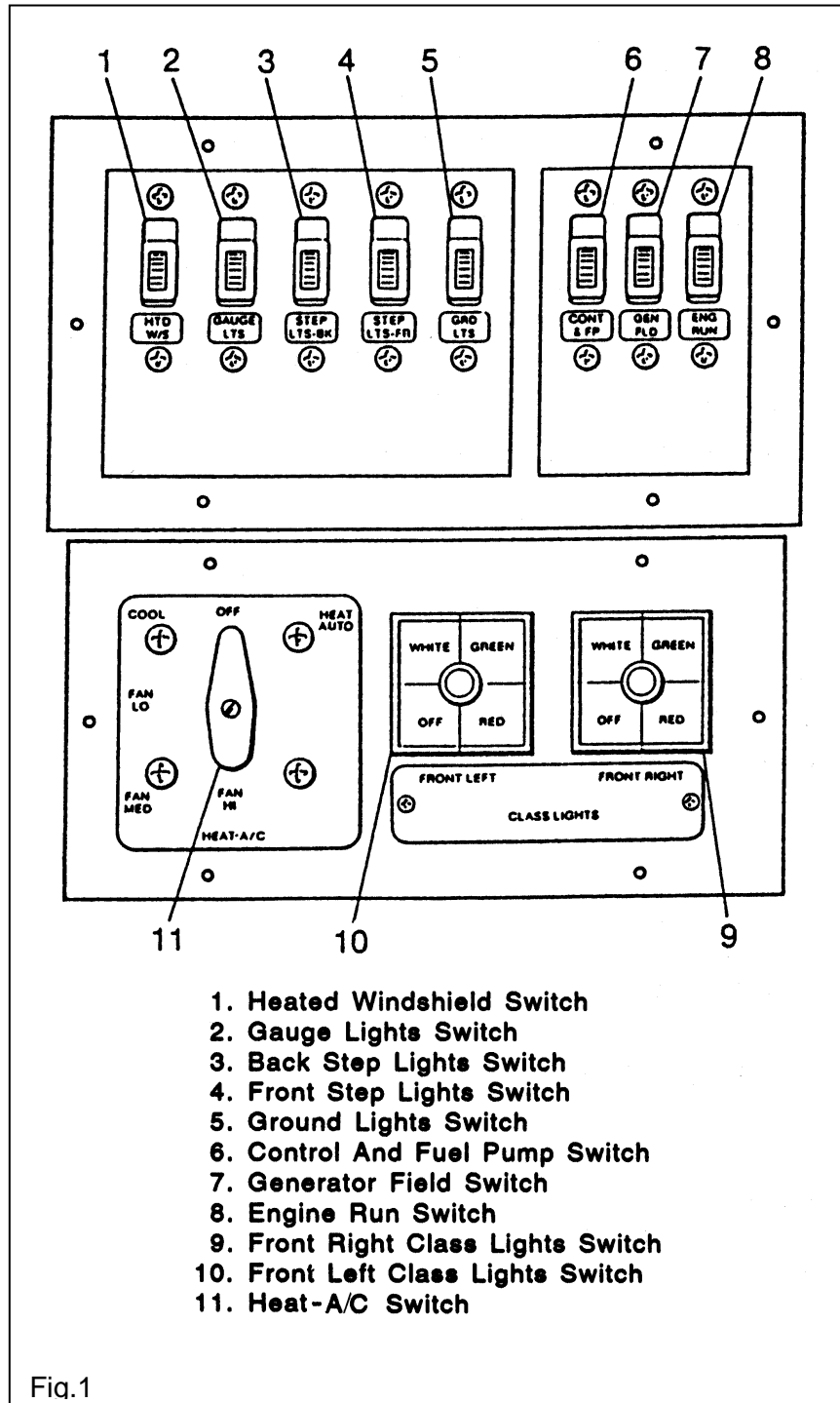
- 2.3.7 The heater elements are protected against high heat damage by a thermostat that will trip the cab heater power circuit breaker. In the event that the protective device activates to shut off the heater, the circuit breaker must be manually reset once the heater cools down.

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1. Heated Windshield Switch
2. Gauge Lights Switch
3. Back Step Lights Switch
4. Front Step Lights Switch
5. Ground Lights Switch
6. Control And Fuel Pump Switch
7. Generator Field Switch
8. Engine Run Switch
9. Front Right Class Lights Switch
10. Front Left Class Lights Switch
11. Heat-A/C Switch

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