

HEATED FRONT SCREEN (HFS)

DESCRIPTION

General

The heated front screen (HFS) is operated from a non-latching switch located to the left of the instrument pack. The switch has an indicator light to show when the HFS is operating. The HFS comprises two elements laminated in the screen, each element being controlled by a separate fuse. The HFS will only function with the engine running, due to the high current draw and subsequent load on the battery.

The HFS can also be operated by the air temperature control ECU on vehicles fitted with air conditioning.

OPERATION

Heated Front Screen Supply

Circuit supply

A feed from the battery positive terminal is connected by an R wire to the engine compartment fusebox, where it passes through fusible links 1, 7, 8 and fuse 13. Fusible links 1 and 7 are connected in series.

A feed from fusible link 1 is connected to the contacts of the heated front screen relay in the engine compartment fusebox.

A feed from fusible links 1 and 7 is connected to the contacts of the auxiliary circuits relay in the engine compartment fusebox.

A feed from fuse 13 is connected from the engine compartment fusebox to the Body Control Unit (BCU) on a PN wire.

A feed from fusible link 8 in the engine compartment fusebox is connected on an NW wire to the passenger compartment fusebox and from the fusebox to the ignition switch on an N wire.

Ignition switch supply

When the ignition switch is in position I or II, the feed from fusible link 8 flows through the ignition switch to the passenger compartment fusebox on an LGW wire. The feed continues through fuse 26 in the passenger compartment fusebox and is connected on an LG wire to the coil of the auxiliary circuits relay in the engine compartment fusebox.

DESCRIPTION AND OPERATION

In this condition, the auxiliary circuits relay coil is energised and the contacts close. The relay coil is earthed to earth header C0018 on a B wire from the engine compartment fusebox, via header C0286 LHD/C0288 RHD.

When the ignition switch is in position II, the feed from fusible link 8 flows through the ignition switch to the passenger compartment fusebox on a Y wire. The feed continues through fuse 29 in the passenger compartment fusebox and is connected to the BCU on a GU wire.

Heated Front Screen Operation

When the HFS switch is operated, an earth path is completed from the HFS switch to earth header C0017 LHD/C0018 RHD on a B wire, via header C0760.

The completion of the earth path from the HFS switch, completes an earth path from the BCU to the switch on a KO wire. The earth path completes a circuit within the BCU for an internal electronic switch which receives its feed from fuse 29.

The internal switch closes, completing a circuit which allows the feed from fuse 13 to flow through the internal switch, then to the HFS switch on a PS wire. The feed illuminates the HFS switch indicator light and is earthed from the switch to earth header C0017 LHD/C0018 RHD on a B wire, via header C0760.

The feed from fuse 29 is connected to a second internal switch within the BCU. When the HFS switch is operated, the completed earth path closes the internal switch. This completes the connection from the heated screen relay coil to the BCU on a KN wire. The earth path from the BCU is on a B wire to earth header C0551.

The completed earth path energises the heated screen relay, closing the relay contacts, allowing the feed from fusible link 1 to flow through the relay contacts to fuses 7 and 8.

The feed from fuse 7 is connected to the LH front screen element on a PS wire. The LH front screen element is connected to earth header C0018 LHD/C0017 RHD on a B wire.

The feed from fuse 8 is connected to the RH front screen element on a PK wire. The RH front screen element is connected to earth header C0017 LHD/C0018 RHD on a B wire.

The momentary operation of the non-latching HFS switch, signals internal switches in the BCU to close. Electronics within the BCU holds the switches closed for a pre-determined period or until the HFS switch is pushed a second time.

Air Temperature Control (ATC) ECU operation

On vehicles fitted with air conditioning, the HFS can be operated when 'DEF', 'feet/screen' or 'screen' is selected on the ATC control panel.

When one of the above selections is made, the ATC ECU provides a feed to the HFS switch into the PS wire from the BCU to the switch. This illuminates the HFS switch indicator light.

Simultaneously, the ATC ECU also provides an earth path into the KO wire from the BCU to the HFS switch. This earth path allows the internal electronic switches within the BCU to close, powering the front screen elements as described previously.