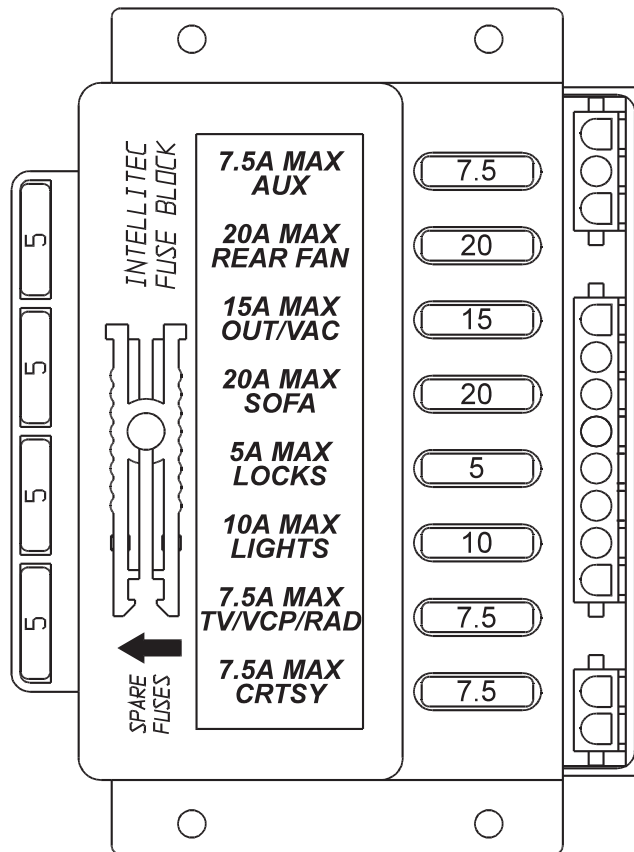


SMART FUSE BLOCK

SERVICE MANUAL



P/N 00-00344-000

NOTE:

The SMART FUSE BLOCK is a centralized power switching, fusing, and distribution center. Power from both the ignition and battery is fed into the block. The power of the battery is available at this box. Inadvertent shorts at this box could result in damage and/or injury. *All servicing of this box should be done only by a qualified Service Technician.*

Tools required: Low current Test Light, Accurate Voltmeter (digital read-out preferred)

Intellitec

131 Eisenhower Lane North
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PRODUCT DESCRIPTION

The **SMART FUSE BLOCK** is intended to be used in conversion vehicles using a simple electrical system. It provides fusing for the converter-added loads as well as time controlled outputs for use with lighting and TV circuits. These timed outputs provide a number of customer pleasing features.

Following are important customer features in this system:

Automatic Interior Light Delay - keeps the interior lights on for 12 seconds after closing the doors or until the ignition switch is turned on.

Automatic Timed OFF Function - allows the use of the interior lights or TV for ten minutes after the ignition is turned off or the doors are opened and closed. After the ten minute time period, the power to the lights and TV, goes off automatically. If the doors are left open, the lights (except GM courtesy lights on "B" pillar) also go out in 10 minutes.

Automatic Low Voltage Shut Down - when the loads are operated, the battery voltage is monitored. If it goes below 12 volts, the loads (except the GM courtesy lights on the "B" pillar) will be shut off in 2 minutes, minimizing the risk of the loads fully discharging the battery.

Installation - This module is designed to work in all brands of vehicles. The module is mounted at the "B" pillar and gets it's power from the OEM harness. Two wires are connected to the OEM dome light wires to provide the signal for the interior light delay. The van harness is plugged into the module. Power for all the converter-added loads is supplied from this module.

Operation - When a door is opened, power is turned on to the Courtesy Lights, TV, and Lights Power outputs. When the doors are closed, the Courtesy Lights output remains on for 12 seconds or until the ignition is turned on. The TV and Lights Power output is on all the time the ignition is on and for ten minutes after the ignition is turned off or a door is opened.

HOW IT WORKS

Fuses

The **SMART FUSE BLOCK** provides fusing and timed switching for the converter-added loads. There are eight fuse on this block to feed loads. These fuses are fed from four sources: Battery, Ignition, Ignition Plus, and Courtesy Light. (See Figure 1)

<u>Fuse</u>	<u>Name</u>	<u>Size</u>	<u>Source</u>
F8	Courtesy Lights	7.5 Amp	Interior Light Delay
F7	TV/VCP/Radio	7.5 Amp	Ignition Plus
F6	Lights	10 Amp	Ignition Plus
F5	Locks	5 Amp	Battery
F4	Sofa	20 Amp	Battery
F3	Outlet/Vacuum	15 Amp	Battery
F2	Rear Fan	20 Amp	Ignition
F1	Auxiliary	7.5 Amp	Ignition

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The Battery fuses are used for circuits that feed intermittent or un-interruptable loads, such as power sofa and 12 volt outlet, which may be used to supply a 12 volt cooler. The Ignition fuses are used for circuits that feed loads that should operate only when the ignition is turned on, such as rear fan. The Ignition Plus fuses feed the lights, radio, and TV, so they can operate any time the ignition is on and up to ten minutes after it is off. The Courtesy Light fuse feeds the courtesy light circuit.

BATTERY & IGNITION

The Battery and Ignition circuits are not controlled by the **SMART FUSE BLOCK**. Power to these outputs is brought into the fuse block from the OEM wiring and is fused on the block in a normal fashion.

IGNITION PLUS

The Ignition Plus output is switched by a relay in the block, that is operated by a timer. This timer is reset by an opening of a door or ignition. The ignition holds the timer in reset, so this output will be on all the time the ignition is on. This output will remain on for ten minutes after the ignition is turned off. (See Figure 2)

The timer has two speeds which are dependent on the incoming battery voltage. If the battery is higher than 12.1 volts, the clock runs at its normal speed. If the battery drops below 12.1 volts, the clock speeds up approximately 5 times so the timer will shut off in about 2 minutes instead of the normal 10 minutes.

COURTESY LIGHTS

The Courtesy Light power is switched by a relay in the block, which is operated by a timer. This timer keeps the lights on while the doors are opened and for up to 12 seconds after they closed. If the ignition is turned on during this 12 seconds, the Courtesy Lights go out immediately.

The timer receives its input from the OEM dome light circuit. This circuit is brought into the module via a two pin plug, J3. When the door is opened, 12 volts appears between these two pins. (The circuitry will accept either polarity of voltage at this plug.) When 12 volts is sensed by the **SMART FUSE BLOCK**, it turns on the Courtesy Light output. When the doors are *ALL* closed, the Courtesy Light timer begins to run, holding the lights on for 12 seconds. If the ignition is turned on, the lights will go out immediately. This relay feeds power through fuse F8, to J2, pin 1.

The power for this circuit is fed from the Ignition Plus circuit, so that if the doors are left open, the Courtesy Lights (Except the two GM courtesy lights on the "B" pillars.) will go off in ten minutes. To get the Courtesy Light output to come on again after this happens, the Ignition Plus circuit will have to be reset. This can be done by closing *ALL* the doors and reopening one, or the ignition can be turned on.

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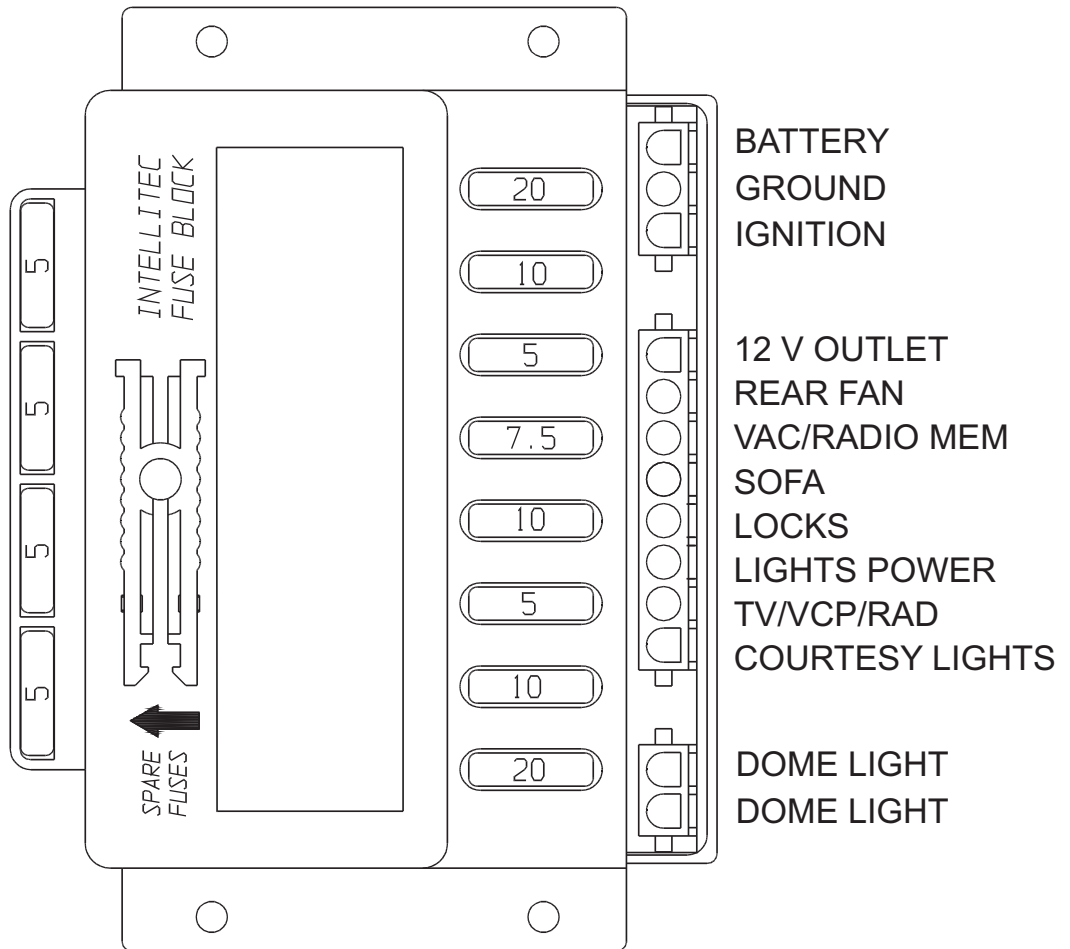


FIGURE 1

SMART FUSE BLOCK

SERVICE MANUAL

TROUBLE SHOOTING

BATTERY AND IGNITION CIRCUITS

The OEM Battery and Ignition circuits are fused in the block. If the rear fan, 12 volt outlet, vacuum, or sofa fail to operate, check the fuses, F1 7.5 Amp, F2 20 Amp, F3 15 Amp, F4 20 Amp, using a test light. If any of these have failed, replace them with the same sized fuse. If these are all good, check the OEM power feeds coming into J1-1 and J1-3.

IGNITION PLUS

The Ignition Plus relay should operate each time the ignition is turned on. To check this, turn the ignition on while listening to the relay in the **SMART FUSE BLOCK**. Power for this circuit comes from the OEM battery and ignition circuits. Check for the presence of these voltages before going further.

Problem

Lights, radio, or TV don't come on. Pins 1,2, and 3 don't come on.

Possible Cause/Solution

Fuses F6 10 Amp or F7 7.5 Amp open. Check and replace fuse.

Faulty OEM ignition feed. Check for power coming from the OEM ignition feed at J1-3

Faulty Ground to module. Check Ground at J1-2

Replace module.

COURTESY LIGHTS

The Courtesy Lights output should be on all the time the doors are opened *AND* the ignition is turned on. To check this output, open the door and turn the ignition on. Power for this circuit comes from the OEM battery and ignition circuits. Check for the presence of these voltages before going further.

Problem

Courtesy Lights won't come on when the doors are open.

Possible Cause/Solution

Courtesy Light fuse open. Replace fuse (F8 7.5 Amp)

Door pin switches not working. Unplug J3, check for 12 volts between pins of harness when the door is open, 0 volts when *ALL* the doors are closed.

Replace module.

Courtesy Lights won't go off for ten minutes after *ALL* the doors are closed.

Door pin switch stuck or shorted. Unplug J3, lights should go off in 12 seconds.

Replace module.

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FUSES

The fuses used are standard, plastic "ATO", blade (automotive) type.

There are 8 positions for the fuses in the module. These are fed directly from the battery, through the ignition, Ignition Plus relay, and the Courtesy Light relay.

The 8 fuses and their sizes are as listed:

<u>Ignition Switched</u>	<u>Fuse Number</u>	<u>Fuse Size</u>	<u>Connector Pin-Out</u>
12 Volt Outlet	F1	7.5 Amp	J2 - 8
Rear Fan	F2	20 Amp	J2 - 7
<u>Constant Battery</u>			
Vacuum/Rear Radio Memory	F3	15 Amp	J2 - 6
Power Sofa	F4	20 Amp	J2 - 5
Locks	F5	5 Amp	J2 - 4
<u>Ignition Plus Output</u>			
Lights	F6	10 Amp	J2 - 3
TV/VCP	F7	7.5 Amp	J2 - 2
<u>Courtesy Light Output</u>			
Courtesy Lights	F8	7.5 Amp	J2 - 1

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PLUGS - PINS & FUNCTIONS

J1 - 3 pin in-line Mate-N-Lock Mating housing AMP 1-480700-0

<u>Pin</u>	<u>Function</u>	<u>Fuse</u>
1	Ignition Power Input	
2	Ground	
3	Battery Power Input	

J2 - 8 pin in-line Mate-N-Lock Mating housing AMP 640586-1

<u>Pin</u>	<u>Function</u>	<u>Fuse</u>
1	Courtesy Lights Output	F8
2	TV/VCP Output	F7
3	Lights Power	F6
4	Locks	F5
5	Power Sofa	F4
6	Vacuum/Radio Memory	F3
7	Rear Fan	F1

J3 - 2 pin Mate-N-Lock Mating Housing AMP 1-480698-0

<u>Pin</u>	<u>Function</u>
1	From OEM Dome Light
2	From OEM Dome Light

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