# SPAL USA LIMITED WARRANTY STATEMENT

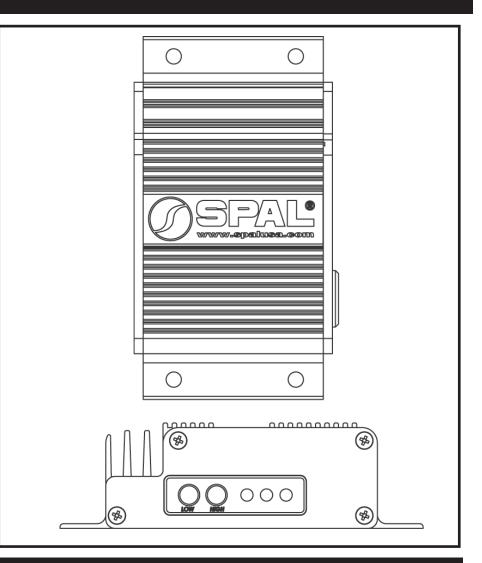
SPAL USA warrants this product to be free from defects in material and workmanship for a period of eighteen (18) months from the date of sale to the original purchaser. SPAL USA will repair this product free of charge if, in the judgment of SPAL USA, it has been proven defective within the warranty period. The product should be returned, at the customer expense, to the location of original purchase. This warranty does not cover any expenses incurred in the removal and/or reinstallation of the product.

This warranty does not apply to any product damaged by improper installation, misuse, abuse, improper line voltage, fire, flood, lightning, or other acts of God, or a product altered or repaired by anyone other than SPAL USA.

This warranty is in lieu of other warranties, expressed or implied, including any implied warranty of merchantability. No person is authorized to assume for SPAL USA any other liability concerning the sale of this product.

IMPORTANT-KEEP YOUR INVOICE WITH THIS WARRANTY STATEMENT!

# FAN-PWM INSTALLATION INSTRUCTIONS



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# Introduction / Overview

The SPAL Electric Fan Controller (FAN-PWM) will Pulse Width Modulate a single SPAL electric fan allowing the unit to vary the fan speed based on engine temperature. A second fan can be added with the use of an additional fan wiring kit (SPAL part number FRH). The second fan will not be PWM controlled; it will be ON/OFF only.

#### Low Setting

When the Low setting is reached the yellow LED will light and the fan will run at 100% for 1/2 second to get the fan rotating. After the initial kick-start, the fan will run at 50%, or 1/2 speed.

## High Setting

When the High setting is reached the red LED will light and the fan will run at 100%, or full speed, until the engine cools to the point that the fan can lower its speed. When the red LED lights, a negative output will also be sent on the grey wire. This is used to trigger a secondary fan relay.

#### Wiring

The SPAL Electric Fan Controller is waterproof and can be mounted inside the vehicle or the engine compartment.

Mount the Fan Controller away from high heat sources such as engine exhaust. A wheel well, the radiator support, or the firewall are good mounting locations.

#### **Single Fan**

Please see Single Fan wiring instructions on pages 5-8.

#### **Dual Fan**

A dual fan set-up requires a Fan Relay Harness (SPAL part number FRH) to power the secondary fan.

Please see Dual Fan wiring instructions on pages 9-12.

#### Factory (OEM) Temperature Sensor

The SPAL Fan Controller can be connected to the factory (OEM) temperature sensor or an aftermarket electric gauge sensor. This eliminates the need for an additional sensor. (The FAN-PWM is designed to use the OEM factory type sensor on fuel-injected vehicles. Some older style sensors will not work.)

-If using the factory OEM style sensor, the SPAL Fan Controller must be programmed. -Please see the programming section on pages 3 and 4.

#### **SPAL Temperature Sensor (FAN-PWM-TS)**

If your vehicle is not equipped with an OEM temperature sensor, you can purchase a SPAL temperature sensor that plugs directly into the Fan Controller.

This sensor should be located in the engine head or intake manifold for optimal performance.

-When using the SPAL temperature sensor, the Fan Controller is preset from the factory with a Low setting of 160°, and a High setting of 200°.

-If different settings are required, please see the programming section on pages 3 and 4.

If you are using Air Conditioning you can connect the Blue wire to the 12V wire of the air conditioning compressor. When the compressor turns on, the fan(s) will run at 100%. and the green LED will light.

#### **Unused Wires**

Depending on your specific system, you may have extra wires that are not being used. These wires can be coiled and contained in a non-conspicuous location. Or for a cleaner installation the unused wires may be cut. However, if cutting the wires, be sure to cover the ends of the wires with electrical tape or equivalent.

#### **Suggested Fuse Values**

The fusing of the FAN-PWM is dependent upon the size and style of fan used. Please reference the suggested fuse values table on Page 13.

# **Programming Section**

#### LED's:

Red: Indicates high temperature setting has been reached.

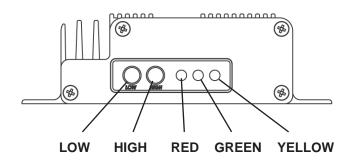
•Fan(s) run at full speed.

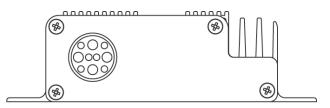
Yellow: Indicates low temperature setting has been reached.

•Fan starts at half-speed and increases until high temperature setting is reached.

Green: Indicates the Air Conditioning has been powered ON.

•Fan(s) run at full speed.





#### WIRE HARNESS CONNECTOR

#### Programming

\*\*The fan must remain unplugged during programming.\*\*

- Unplug fan.
- Start vehicle.
- Allow engine to warm-up to desired "low" temperature.
- Once temperature has been reached, press and hold the "Low" button for 3 seconds to set the "low temperature."
- Yellow LED will light.
- When desired "high temperature" setting is reached, press and hold the "High" button for 3 seconds.
- Red LED will light.
- Programming is complete. Turn off ignition.
- Allow vehicle to cool.
- Plug in your fan.
- Start vehicle and confirm the fan turns on at the correct temperatures.

#### Example

If you want your fan to spin at half-speed at 160 degrees, and spin at full-speed at 200 degrees, you would:

- •Unplug fan.
- •Warm-up vehicle to 160 degrees.
- •Press and hold Low Button for 3 seconds.
- Yellow LED lights
- •Continue to warm-up vehicle to 200 degrees.
- Press and hold High Button for 3 Seconds.
- Red LED lights
- Turn off the vehicle.
- Allow vehicle to cool.
- Plug in your fan.
- Start vehicle and confirm the fan turns on at the correct temperatures.

### Single Fan - SPAL Sensor - with AC:

| PWM Wire  | Connects To:  |   |
|---|---|---|
| Large Gauge<br>Red<br>Black<br>Red<br>Black                 | Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground | OPTIONAL SENSOR (PART#: FAN-<br>PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)  |
| <u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black | Ignition<br>Air Conditioning Input<br>Secondary Fan Output (Not Used)<br>SPAL Temperature Sensor                | TEMPERATURE SENSOR (BLACK)<br>TEMPERATURE SENSOR (BLACK)<br>GOUND<br>GOUND<br>GROUND<br>HIZODO<br>TEMPERATURE SENSOR (BLACK)<br>CONNECT TO GROUND (WHITE) |
| White   | Ground  | AIR CONDITIONING INPUT (BLUE)<br>+12VDC WHEN A/C IS ON<br>GROUND (BLACK)<br>+12 VDC (RED)<br>30 AMP FUSE MAXIMUM  |

| Single Fan - SPAL Se   | ensor - without AC:   |  |
|--|---|--|
| PWM Wire   | Connects To:  |  |
| <u>Large Gauge</u><br>Red<br>Black<br>Red<br>Black                   | Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground       | - OPTIONAL SENSOR (PART#: FAN-<br>PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (GREEN) |
| <u>Small Gauge</u><br>Orange<br>Grey<br>Green/Black<br>White<br>Blue | Ignition<br>Secondary Fan Output (Not Used)<br>SPAL Temperature Sensor<br>Ground<br>Air Conditioning Input (Not Used) | GROUND (BLACK)<br>GROUND (BLACK)<br>H12 VDC (RED)  |

30 AMP FUSE MAXIMUM

000 m

## Single Fan - OEM Sensor - with AC: PWM Wire Connects To: Large Gauge Red Positive 12 VDC Directly to Battery

| Large Gauge   |   | FAN POSITIVE (RED)  |
|---|---|---|
| Red<br>Black<br>Red<br>Black                                  | Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground                       | FAN GROUND (BLACK)  |
| Small Gauge<br>Orange<br>Blue<br>Grey<br>White<br>Green/Black | Ignition<br>Air Conditioning Input<br>Secondary Fan Output (Not Used)<br>OEM Temperature Sensor<br>SPAL Temperature Senson (Not Used) | IGNITION INPUT (ORANGE)<br>IGNITION INPUT (ORANGE)<br>GROUND<br>AIR CONDITIONING INPUT (BLUE)<br>H 12VDC WHEN A/C IS ON<br>GROUND (BLACK)<br>GROUND (BLACK)<br>GROUND (BLACK)<br>GROUND (BLACK)<br>GROUND (BLACK)<br>GROUND (CONNECT TO FACTORY (OEM)<br>TEMPERATURE SENSOR (WHITE)<br>GROUND (CONNECT TO FACTORY (OEM)<br>TEMPERATURE SENSOR (WHITE)<br>FACTORY (OEM) SENSOR HARNESS   |
|   |   | BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTERY<br>BATTER |

| Single Fan - OEM Se   | nsor - without AC:   | L              |   |
|---|--|----------------|---|
| PWM Wire  | Connects To:   |                |   |
| <u>Large Gauge</u><br>Red<br>Black<br>Red<br>Black            | Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground                                  | FAN POSITIV    | /E (RED)<br>FAN GROUND (BLACK)  |
| Small Gauge<br>Orange<br>Grey<br>White<br>Green/Black<br>Blue | Ignition<br>Secondary Fan Output (Not Used)<br>OEM Temperature Sensor<br>SPAL Temperature Senson (Not Used)<br>Air Conditioning Input (Not Used) | GROUND (BLACK) | DNNECT TO FACTORY (OEM)<br>MPERATURE SENSOR (WHITE)<br>VARIABLE VOLTAGE<br>GROUND<br>FACTORY (OEM) SENSOR HARNESS |

30 AMP FUSE MAXIMUM

FAN POSITIVE (RED)

FACTORY (OEM) SENSOR

# Dual Fan - SPAL Sensor - with AC:

| PWM Wire   | Connects To:   |   |
|--|--|---|
| Large Gauge  |  |   |
| Red  | Positive 12 VDC Directly to Battery  |   |
| Black  | Ground Directly to Battery   |   |
| Red  | Primary Fan Positive   |   |
| Black  | Primary Fan Ground   | OPTIONAL SENSOR (PART#: FAN-PWM-TS)   |
|  | -  |   |
| Small Gauge  |  | TEMPERATURE SENSOR (BLACK)  |
| Orange   | Ignition   | FAN GROUND (BLACK)  |
| Blue   | Air Conditioning Input   |   |
| Grey   | Secondary Fan Output   | ~ IGNITION INPUT (ORANGE) I I I I I I I I I I I I I I I I I I I   |
| Green/Black  | SPAL Temperature Sensor  |   |
| White  | Ground   |   |
|  |  | GROUND<br>GROUND<br>HIZDO WHEN ACIS ON<br>HIZDO WHEN ACIS ON<br>HIXDO WHEN  |
| FRH (fan relay harness)  |  |   |
| Yellow   | Positive 12 VDC Directly to Battery  | GROUND (BLACK)  |
| Red  | Secondary Fan Positive   |   |
| Grey   | PWM Secondary Fan Output (grey wire)   | 30 AMP FUSE MAXIMUM   |
| Orange   | Ignition   |   |
| Black (From Fan)   | Chassis Ground   |   |
|  |  |   |
| Dual Fan - SPAL Sensor -   |  | ***FANS MUST BE FUSED SEPERATELY***   |
|  | without AC:  |   |
| PWM Wire   | Connects To:   |   |
| PWM Wire   |  |   |
| PWM Wire<br>Large Gauge  | Connects To:   |   |
| PWM Wire<br>Large Gauge<br>Red   | Connects To:<br>Positive 12 VDC Directly to Battery  |   |
| PWM Wire<br>Large Gauge  | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery  |   |
| PWM Wire<br>Large Gauge<br>Red<br>Black  | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive  |   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Black   | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery  | OPTIONAL SENSOR (PART#: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>IMPERATURE SENSOR (GREEN)   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Small Gauge   | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground  | OPTIONAL SENSOR (PART#: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)  |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Small Gauge<br>Orange   | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition  | OPTIONAL SENSOR (PART#: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (BLACV<br>FAN GROUND (BLACV<br>FAN GROUND (BLACV   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Small Gauge<br>Orange<br>Blue   | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)   | OPTIONAL SENSOR (PARTE: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (BLACK)<br>FAN GOUND (BLACK)<br>FAN GOUND (BLACK)<br>FAN GOUND (BLACK)   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey  | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output   | OPTIONAL SENSOR (PART#: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (BLACK)<br>FAN GROUND (BLACK)<br>FAN GROUND (BLACK)<br>FAN GROUND (BLACK)<br>CONTINUE RED<br>FAN GROUND (BLACK)<br>CONTINUE RED<br>CONTINUE SENSOR (BLACK)<br>CONTINUE RED<br>CONTINUE RED<br>CO |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black   | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor  | OPTIONAL SENSOR (PARTE: FAN-PWM-TS)<br>AVAILABLE SEPERATLY<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (GREEN)<br>TEMPERATURE SENSOR (BLACK)<br>FAN GOUND (BLACK)<br>FAN GOUND (BLACK)<br>FAN GOUND (BLACK)   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black<br>White  | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output   | OPTIONAL SENSOR (PARTI: FAN-PVM-TS)<br>ZVALIABLE SEPERATU?<br>IMPERATURE SENSOR (GREN)<br>IMPERATURE SENS   |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black<br>White<br>FRH (fan relay harness)                         | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor<br>Ground  | OTIONAL SENSOR (PART#: FAN-PWM-TS)<br>XALIABLE SEPERATI!<br>TIMERATURE SENSOR (GREIN)<br>TIMERATURE SENSO  |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Small Gauge<br>Orange<br>Blue<br>Grey<br>Green/Black<br>White<br>FRH (fan relay harness)<br>Yellow                      | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor<br>Ground<br>Positive 12 VDC Directly to Battery   | OTIONAL SENSOR (PARTI: F.AN-PWM-TS)<br>ZIALIABLE SEPERATU?<br>TOMERATURE SENSOR (GREEN<br>TEMPERATURE SEN  |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black<br>White<br><u>FRH (fan relay harness)</u><br>Yellow<br>Red | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor<br>Ground<br>Positive 12 VDC Directly to Battery<br>Secondary Fan Positive   | OPTIONAL SENSOR (PARTI: FAN-PVWA-TS)<br>ZNILABLE SEPERATUS<br>TEMPERATURE SENSOR (GREAT)<br>TEMPERATURE SENSOR  |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br>Small Gauge<br>Orange<br>Blue<br>Grey<br>Green/Black<br>White<br>FRH (fan relay harness)<br>Yellow<br>Red<br>Grey       | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor<br>Ground<br>Positive 12 VDC Directly to Battery<br>Secondary Fan Positive<br>PWM Secondary Fan Output (grey wire) | DTIONAL SENSOR (PARTI: FAN-PWM-TS)<br>ZNILABLE SEPERATU?<br>TEMPERATURE SENSOR (GREEN<br>FMEEDATURE SENSOR (BLACK)<br>FMEEDATURE SENSO  |
| PWM Wire<br>Large Gauge<br>Red<br>Black<br>Red<br>Black<br><u>Small Gauge</u><br>Orange<br>Blue<br>Grey<br>Green/Black<br>White<br><u>FRH (fan relay harness)</u><br>Yellow<br>Red | Connects To:<br>Positive 12 VDC Directly to Battery<br>Ground Directly to Battery<br>Primary Fan Positive<br>Primary Fan Ground<br>Ignition<br>Air Conditioning Input (Not Used)<br>Secondary Fan Output<br>SPAL Temperature Sensor<br>Ground<br>Positive 12 VDC Directly to Battery<br>Secondary Fan Positive   | CPTIONAL SENSOR (PARTE: FAN-PWM-TS)<br>ZNILABLE SEPERATURE<br>TURPERTURE SENSOR (GREN<br>TURPERTURE SENSOR (GREN)<br>TURPERTURE SENSO   |

| Dual Fan - OEM Senso    | r - with AC:                         |   |
|-------------------------|--------------------------------------|---|
| PWM Wire                | Connects To:                         | [ <del>●] · I · I · ]●] · I · ]●</del>                          |
| Large Gauge             |                                      |   |
| Red                     | Positive 12 VDC Directly to Battery  | - FACTORY (OEM) SENSOR  |
| Black                   | Ground Directly to Battery           |   |
| Red                     | Primary Fan Positive                 |   |
| Black                   | Primary Fan Ground                   |   |
|                         | -                                    |   |
| Small Gauge             |                                      | TEMPERATURE SENSOR (WHITE)                                      |
| Orange                  | Ignition                             |   |
| Blue                    | Air Conditioning Input               | 뚱 IGNTION INPUT (ORAINGE 일을 알 가장                                |
| Grey                    | Secondary Fan Output                 |   |
| White                   | OEM Temperature Sensor               |   |
| Green/Black             | SPAL Temperature Sensor (Not Used)   |   |
|                         |                                      |   |
| FRH (fan relay harness) |                                      | GROUND (BLACK)  |
| Yellow                  | Positive 12 VDC Directly to Battery  |   |
| Red                     | Secondary Fan Positive               | 112 VDC (RED)   |
| Grey                    | PWM Secondary Fan Output (grey wire) | 30 AMP FUSE MAXIMUM   |
| Orange                  | Ignition                             |   |
| Black (from Fan)        | Chassis Ground                       |   |
| Dual Fan - OEM Senso    | r - without AC:                      | ***FANS MUST BE FUSED SEPERATELY***                             |
|                         |                                      |   |
| PWM Wire                | Connects To:                         | [o <mark>i · ] · ]e</mark> [· ]e]                               |
| Large Gauge             |                                      |   |
| Red                     | Positive 12 VDC Directly to Battery  | FACTORY (DEM) SENSOR  |
| Black                   | Ground Directly to Battery           |   |
| Red                     | Primary Fan Positive                 | FACTORY (OEM) SENSOR HARNESS                                    |
| Black                   | Primary Fan Ground                   |   |
|                         |                                      |   |
| Small Gauge             |                                      | FAN GROUND (BLACK) (PART#: FRH)                                 |
| Orange                  | Ignition                             |   |
| Grey                    | Secondary Fan Output                 | IGNITION INPUT (ORANGE) 별 및 · · · · · · · · · · · · · · · · · · |
| White                   | OEM Temperature Sensor               |   |
| Green/Black             | SPAL Temperature Sensor (Not Used)   |   |
| Blue                    | Air Conditioning Input (Not Used     |   |
| FRH (fan relay harness) |                                      | SECONDARY FAN RELAY OUTPUT (GREY)                               |
| Yellow                  | Positive 12 VDC Directly to Battery  |   |
| Red                     | Secondary Fan Positive               | +12 VDC (RED)   |
| Grey                    | PWM Secondary Fan Output (grey wire) | 30 AMP FUSE MAXIMUM   |
| Orange                  | Ignition                             |   |
| Black (from Fan)        | Chassis Ground                       |   |
| DIAUN (II UIII FAII)    | 01103313 0100110                     |   |

# Suggested Fuse Values

| ITEM#  | DESCRIPTION  | A   | В  | С  | AIRFLOW (CFM)  | RECOMMENDED FUSE VALUE AT 13 VOLTS           |
|--|--|---|--|--|--|--|
| 30103018<br>30103009   | 4" Fan-Pull<br>4" Fan-Push   | 4.29<br>4.29  | 4'<br>2.38<br>2.38   | 4.29<br>4.29   | 147<br>124.6   | 4<br>4                                       |
| 30103011<br>30103013   | 5.2" Fan-Pull<br>5.2" Fan-Push   | 5.51<br>5.51  | 2.36<br>2.36   | 5.51<br>5.51   | 312<br>312   | 5<br>5                                       |
| 30100291   | 5.6" Fan-Pull  | 5.91  | 5.6<br><sup>3.86</sup>   | 5.91   | 295  | 5  |
| 30100402<br>30100403   | 6.5" Fan-Pull<br>6.5" Fan-Push   | 7.24<br>7.24  | 2.05<br>2.05   | 7.03<br>7.03   | 330<br>330   | 15<br>15                                     |
| 30100358<br>30100393   | 7.5" Fan-Pull<br>7.5" Fan-Push   | 8.27<br>8.27  | 2.05<br>2.05   | 7.95<br>7.95   | 440<br>440   | 15<br>15                                     |
| 30102061<br>30102053<br>30100392<br>30100381   | 9" High Performance Fan-Pull<br>9" High Performance Fan-Push<br>9" Fan-Pull<br>9" Fan-Push   | 9.72<br>9.72<br>9.72<br>9.72  | 9'<br>3.7<br>3.7<br>2.05<br>2.05                                   | 9.37<br>9.37<br>9.72<br>9.72   | 740<br>740<br>590<br>590                                     | 25<br>25<br>15<br>15                         |
| 30102057<br>30102058<br>30100360<br>30100374   | 10" High Performance Fan-Pull<br>10" High Performance Fan-Push<br>10" Fan-Pull<br>10" Fan-Push   | 10.9<br>10.9<br>11.2<br>11.2  | 10<br>3.7<br>3.7<br>2.05<br>2.05<br>11                             | 10.6<br>10.6<br>10.59<br>10.59   | 1070<br>1070<br>650<br>650                                   | 20<br>20<br>10<br>10                         |
| 30102052<br>30102054<br>30102040<br>30101500<br>30101502<br>30100364<br>30100365                                     | 11" Dual High Performance Fan-Pull<br>11" High Performance Fan-Pull<br>11" High Performance Fan-Push<br>11" Medium Profile Fan-Pull<br>11" Medium Profile Fan-Push<br>11" Fan-Pull<br>11" Fan-Push   | 16.26<br>12.36<br>12.36<br>12.2<br>12.2<br>12.2<br>12.2<br>12.2               | 4.25<br>3.7<br>2.48<br>2.48<br>2.05<br>2.05                        | 23.46<br>11.93<br>11.93<br>11.57<br>11.57<br>11.57<br>11.57<br>11.57                   | 2780<br>1390<br>1390<br>970<br>970<br>810<br>810             | 30 / Per Motor<br>30<br>15<br>15<br>10<br>10 |
| 30102029<br>30102030<br>30102038<br>30102025<br>30101504<br>30101505<br>30100375<br>30100384                         | 12" High Performance Fan-Pull Curved Blade<br>12" High Performance Fan-Push Curved Blade<br>12" High Performance Fan-Pull<br>12" Heigh Performance Fan-Push<br>12" Medium Profile Fan-Push<br>12" Fan-Pull<br>12" Fan-Push   | 13.23<br>13.23<br>13.03<br>13.03<br>13.23<br>13.23<br>13.23<br>13.23<br>13.23 | 12<br>3.39<br>3.39<br>3.7<br>3.7<br>2.48<br>2.48<br>2.05<br>2.05   | 12.64<br>12.64<br>13.03<br>13.03<br>12.64<br>12.64<br>12.64<br>12.64                   | 1360<br>1360<br>1630<br>1230<br>1230<br>870<br>870           | 30<br>30<br>30<br>20<br>20<br>10<br>10       |
| 30102044<br>30102045<br>30101507<br>30101508<br>30100398<br>30100399   | 13" High Performance Fan-Pull Curved Blade<br>13" High Performance Fan-Push Curved Blade<br>13" Medium Profile Fan-Pull<br>13" Medium Profile Fan-Push<br>13" Fan-Pull<br>13" Fan-Push   | 14.17<br>14.17<br>14.17<br>14.17<br>14.17<br>14.17<br>14.17                   | 13<br>3.39<br>3.39<br>2.48<br>2.48<br>2.05<br>2.05<br>2.05         | 13.62<br>13.62<br>13.62<br>13.62<br>13.62<br>13.62                                     | 1710<br>1710<br>1250<br>1250<br>920<br>920                   | 30<br>30<br>20<br>10<br>10                   |
| 30102041<br>30102055<br>30102042<br>30102056<br>30101509<br>30101510<br>30100385<br>30100382                         | 14" High Performance Fan-Pull Straight Blade<br>14" High Performance Fan-Push Straight Blade<br>14" High Performance Fan-Pull Curved Blade<br>14" High Performance Fan-Push<br>14" Medium Profile Fan-Push<br>14" fan-Pull<br>14" Fan-Pull<br>14" Fan-Push   | 15.04<br>15.04<br>15.04<br>15.04<br>15.04<br>15.04<br>15.04<br>15.04          | 3.39<br>3.39<br>3.39<br>3.39<br>2.48<br>2.48<br>2.05<br>2.05       | 14.45<br>14.45<br>14.45<br>14.45<br>14.48<br>14.48<br>14.48<br>14.48                   | 1720<br>1720<br>1720<br>1720<br>1280<br>1280<br>960<br>960   | 30<br>30<br>30<br>20<br>20<br>10<br>10       |
| 30102113<br>30102036<br>30102047<br>30102049<br>30102048<br>30101516<br>30101517<br>30100400<br>30100401<br>30130074 | 16"Extreme Performance Pull Fan<br>16"High Performance Fan-Pull Straight Blade<br>16"High Performance Fan-Pull Straight Blade<br>16"High Performance Fan-Pulsh Curved Blade<br>16"Heigh Performance Fan-Push Curved Blade<br>16"Medium Profile Fan-Push<br>16"Medium Profile Fan-Push<br>16"Fan-Push<br>16"Fan-Push<br>16"Fan-Push | 16.3<br>16.3<br>16.3<br>16.3<br>16.3<br>16.3<br>16.3<br>16.3                  | 16<br>3.65<br>3.39<br>3.39<br>3.39<br>2.48<br>2.48<br>2.05<br>2.05 | 15.75<br>15.75<br>15.75<br>15.75<br>15.75<br>15.75<br>15.75<br>15.75<br>15.75<br>15.75 | 3000<br>2360<br>2070<br>1920<br>1610<br>1610<br>1300<br>1300 | 30<br>30<br>30<br>30<br>20<br>20<br>10<br>10 |