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PAGE 1 OF 7 Page Rev. Date: **01-30-18**
P/N: 300377

JK ATLAS CONTROL MODULE

(ATLAS UNITS BUILT BEFORE 7/2014)

KIT CONSISTS OF:

| No. | Qty | Part No. | Description |
|-----|-----|--------------|-----------------------------|
| 1. | 1 | 42R800 | CONTROL MODULE KIT |
| | | KIT INCLUDES | |
| | 2 | | 8-32 SOCKET HEAD CAP SCREWS |
| | 2 | | 8-32 NYLON LOCK NUTS |
| | 5 | | 1/4"x1" HEAT SHRINK |
| | 1 | | 3 WIRE DELPHI CONNECTOR |
| | 1 | | 2 WIRE DELPHI CONNECTOR |
| | 10 | | CABLE TIE - BLACK 4" |
| 2. | 1 | 300378-4WD | 4WD PIGTAIL |
| 3.. | 1 | 300378-LR | LOW RANGE PIGTAIL |
| 4. | 2 | 300378 | LOW RANGE SWITCH |

NOTE:

This kit can be used with Jeep
TJ's (Rubicon models)

Introduction:

The Jeep control module is the only way of keeping all the stock functions operational when upgrading to an Atlas transfer case. This Module lights the dash in both high and low range as well as the settings on the ESP when in 4WD. The lockers and swaybar disconnect on the Rubicon models. This kit is designed for the Atlas 2 speed but can be used on a 4 speed by adding a toggle switch into the system. The toggle would be wired in-line with the low range switch on the Atlas main case. Install the toggle into the console area. When shifting the planetary only into low range, you will need to switch the toggle to use the Jeep features that are activated with low range.

**** Note****

2012 and Up Jeep Autos:

2012 and newer Jeeps equipped with an automatic transmission will also require a Transmission Control Module flash to operate correctly with the new Atlas transfer case. Jeep coded the stock transfer case ratio of either the 2.72:1 or the 4.0:1 into this module, and any different ratio in the transfer case will put the vehicle into a limp mode. A Jeep programmer like the A.E.V. Procal or Zautomotive Tazer with the transfer case ratio option is needed. Unfortunately, the Atlas 4 speed is not an option in these newer Jeeps with the automatic.

The exact ratios for the Atlas are required for reprogramming the module. We round up or down to the decimal on our ratios; however, the Jeep computer module will accept the three places right of the decimal. The ratios are as follows: 2.0:1 is exactly 2.11:1, 3.0:1 is 3.030:1, 3.8:1 is 3.824:1, 4.3:1 is 4.286:1, and 5.0:1 is 5.048:1.

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Preparing the Wiring:

1. Unplug the Jeep two wire connector from the transfer case position switch (stock switch shown below)
2. Cut the Jeep connector off the wiring harness (the plug that connected to this switch) .
3. Make sure that there is a piece of 1/4" heat shrink over **both** wires.
4. Solder the two wire Delphi connector (shown below) to the vehicle wiring harness. See the color codes below for vehicle specific wiring.
5. Heat shrink the soldered connections made in the previous step.



Control Module pigtail: Blue wire,

(03-04 TJ Black/Light Blue) (05-06 TJ Dark Blue/Dark Green) (JK Dark Blue/Yellow) (JL & JT Brown/White stripe)

Control Module pigtail: Green wire,

(03-06 TJ Brown/White) (JK Yellow/ Green stripe) (JL & JT Yellow/Blue stripe)

Installation:

Run the red (power) and black (ground) wires along the frame on the passenger side up to the fuse box. Make sure to safely zip-tie the wiring away from the exhaust, any pinch points or other hot objects.



ATR 2-leg micro fuse; main fuse at specified circuit rating up to 30A max. Additional circuit up to 10A max.

Jeep JK: The Fuse attaches in the fuse box in the empty fuse slot labeled M14 - TTOW BUX on Jeeps up to 2011 and on 2012-18 JK's use slot M9. Refer to the under side of the fuse box lid for the proper location. (see photo's on page 3 and 4)

Jeep JL/JT: The Fuse attaches in the fuse box in the empty fuse slot labeled F58 - passenger side heated seat. Refer to the under side of the fuse box lid for the proper location. The Jeep JL switched to a micro fuse and our kit is shipped with a mini fuse tap. A micro fuse tap will be needed from a auto parts store.



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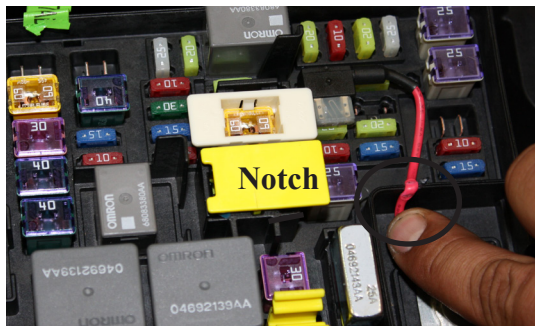


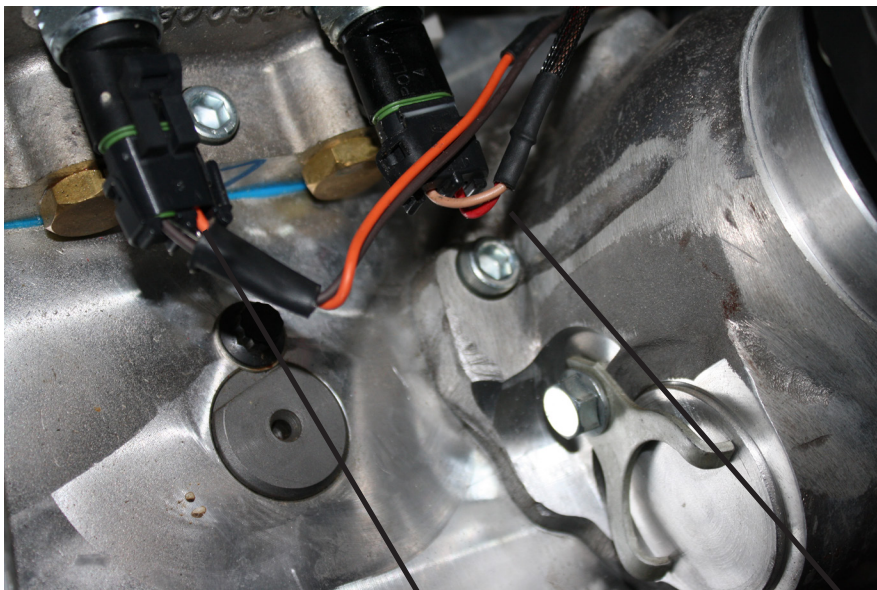
Figure 3: JK Power Connection



Figure 3: JL Power Connection

A notch will need to be cut into the fuse box for the wire to run out, which can also be seen in *Figure 3*. The ground can be run along the side of the fuse block to the ground terminal on the passenger fender next to the fuse box.

The shifter block on the Atlas in this photo was redesigned in 2012 and the switches now screw into the bottom of the shifter block, earlier versions of the Atlas used the switches coming from the sides of the shifter block. The installation of this kit remains the same.



THE SWITCH CLOSEST TO THE
FRAME IS THE 4WD SWITCH

THE SWITCH CLOSEST TO
THE REAR OUTPUT IS THE
LOW RANGE SWITCH

Install the range switches into the bottom of the Atlas. When installing use a bit of RTV silicone on the threads.

Connect the 4WD pigtail to the range switch that controls the front drive shaft, this is the switch that is closest to the Jeep frame rail.

Next connect the low range pigtail to the range switch closest to the Atlas tailhousing (rear output shaft).

These pigtails now have the same color code wires as the controller and they can now be connected to the controller.

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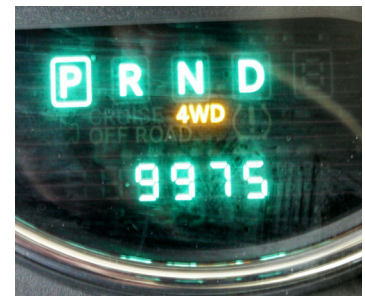
2012 -18 Jeep JK's use
power from fuse slot M9.

Plug the 3 wire Delphi plug into the power supply you ran earlier. Note the purple wire will not be used.

Lastly, Plug the controller to the new plug that was installed onto the factory wire harness. The Delphi connector with the blue and green wire and the controller should be the same colors.

If everything is wired correct no lights will appear on the dash when the transfer case is in 2WD high range.

In 4WD high range you will have just the 4WD light illuminated on the dash



When the rear axle shifter is moved to neutral or low range the 4WD and ESC off light (picture of jeep with skid lines under it) will illuminate on the dash.

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DIAGNOSTICS AID

To properly understand how to trouble shoot you will need to know how things work. The factory low range switch is a variable resistance switch.

Note: Since the Atlas only offers open/closed switches for 4WD and Low Range, the control module is needed. The function of the control module is to provide the correct resistance to the Jeep computer for the different shift positions.

2WD High Range:

When the transfer case is in 2WD High Range the switch reads about 1100 Ohm's of resistance

4WD High Range: When the transfer case is in 4WD High Range the switch reads about resistance= 670 Ohm's of resistance

4WD Low Range: When the transfer case is in 4WD Low Range the switch reads about resistance = 62 Ohm's of resistance.

On 03-11 Rubicon models: The computer needs to see low range for the lockers and sway bar disconnect to function. Also needed on all JK's to turn off the ESC.

2012-Up JK & JL Automatics: The Jeep needs to see the low range position for proper shifting of the transmission in low range.

For example: on the NAG1 (A580) automatic transmission. It does not have an output shaft speed sensor for shift timing. The Jeep computer depends on the wheel speed sensors and a series of math equations to calculate transmission output shaft speed to know when to shift.

In high range the computer takes wheel speed X ring and pinion ratio= transmission output shaft speed.

When the transfer case is shifted into low range the computer needs to know the transfer case is in low with the correct ratio.

The transmission output shaft speed is calculated by taking wheel speed X ring and pinion ratio X low range ratio of the transfer case = transmission output shaft speed.

This is why you need to have a programmer like the A.E.V. Procal or Zautomotive Tazer.

If the low range switch is not working properly or the computer does not have the correct low range ratio programed, the transmission will go into limp mode when the Jeep is shifted into low range. When the Jeep goes into limp mode the transmission locks in 3rd gear and the engine will not rev above about 2800 RPM.

Two different things can cause limp mode, it is important to confirm if the control module is working correctly or if the new low range ratio was input correctly into the Jeep computer.

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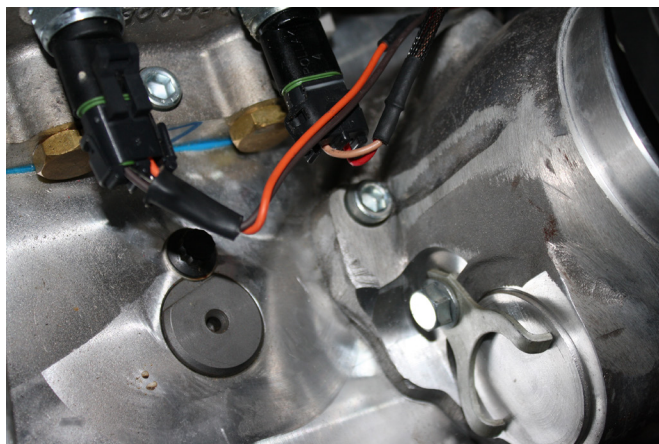
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If neither the 4WD or Low Range/ESC lights do no work

- Confirm the factory plug for the transfer case shift position was removed and replaced with the new Delphi connector (blue/green wires). Confirm wires are soldered and the Delphi plug is connected to the control module.
- On Atlas transfer cases built before 8/2014 the plastic washers was left under switches
- Harness extensions are plugged in
- Confirm both switches are functioning
- Low range switch is open in 2WD high closed in neutral or Rear Low Range
- 4WD switch is open when front axle is in neutral and closed in 4 Hi or Front Low

If the 4WD light works but the Low Range/ESC off feature is not. This can happen for a few reasons.

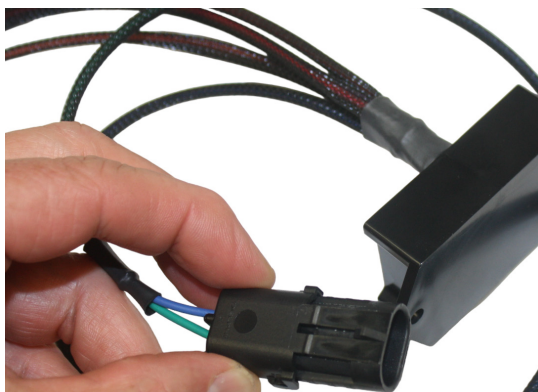
- Loss of power or ground to the control module
- Confirm power and ground on the red and black with the key on at the 3 wire Delphi plug extension that plugs into the control module
- Low range switch or harness extension not connected correctly
- Defective low range switch at transfer case
- On Atlas transfer cases built before 8/2014 the plastic washer was left under switch
- Low range/4WD harnesses plugged in wrong switch



**4WD AND LOW RANGE SWITCHES PROPERLY
PLUGGED IN ATLAS**

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CHECKING AND TESTING THE OPERATION OF THE CONTROL MODULE. USE A MULTI METER ON THE OHMS SETTING AT THE 2 WIRE DELPHI PLUG (GREEN/BLUE WIRE)

TURN THE KEY ON WITH THE TRANSFER CASE IN REAR HIGH & FRONT NEUTRAL (2WD HIGH RANGE)
APROX 1100 OHMS

KEY STILL ON, BOTH FRONT AND REAR AXLES IN HIGH
RANGE (4WD HIGH) APROX 670 OHMS

KEY STILL ON, REAR SHIFTER IN NEUTRAL OR LOW
FRONT SHIFTER DOES NOT MATTER ON POSITION
APROX 62 OHM'S



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