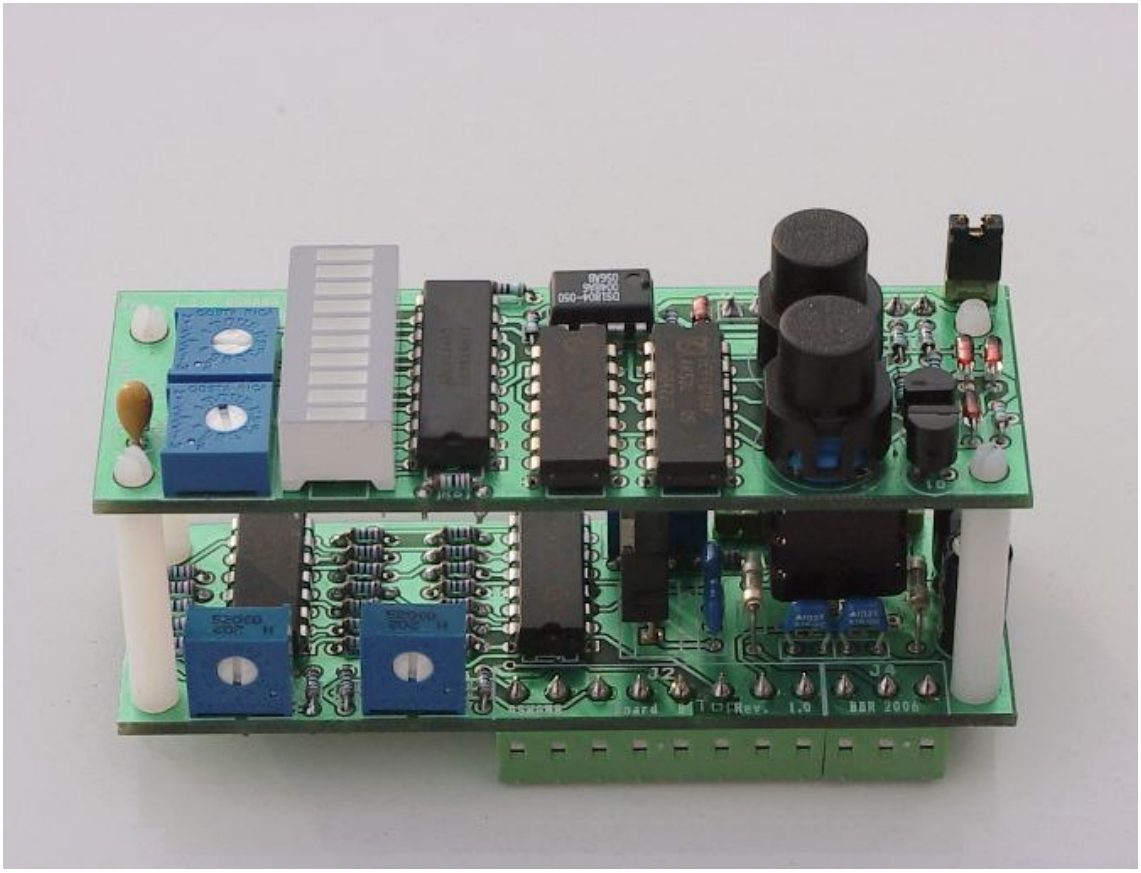
ASHAM8

Air Suspension Height Adjuster Module for

1993-96 Lincoln Mark VIII

Installation and Operation Guide

Pre release



WARNING, DISCLAIMER, CONTEST

THE AIR RIDE SYSTEM OF THE "LINCOLN MARK VIII" VEHICLE WAS NOT DESIGNED TO BE OPERATED LIKE THIS.
YOU WILL BE CAUSING ADDITIONAL WEAR ON ALL COMPONENTS !

1. WARNING

Working on cars can be dangerous. The ASHAM8 manufacturer assumes no liability for any damage, injury or death resulting from following these procedures or advice.
The ASHAM8 system is not a part of Ford Motors Company", it is a add-on !
All modifications are done at your own risk ! ASHAM8 system must be installed by a qualified professional installation facility. System operation is done at the user's risk.
ASHAM8 manufacturer accepts no liability due to damage of property caused by misuse of the system.
ASHAM8 manufacturer accepts no responsibility for the rest of the Air-Ride System.
Attentively follow the instructions provided with the product. Working on the Air Ride System, electrical, or modifying any other component from the "on-board" computer, are not legal and can be hazardous.
The ASHAM8 modifies the car height by operate the push buttons. This system has been developed exclusively for Car-Show with the car stopped and the transmission in position "Park".
Driving your car on the street or any highway with the ASHAM8, is done at your own risk! In the event of disfonctionnement, the manufacturer of ASHAM8 will evaluate the cause of the failure. If it is due to an inaccurate installation, or the abuse the system, a load of repair will be evaluated. The ASHAM8 manufacturer do not assume liability for any damage, fines, punishment, injury or death resulting from following these procedures or advice.
If you do not have the skills or tools to repair your car, please consult a professional.

2. GUARANTEES

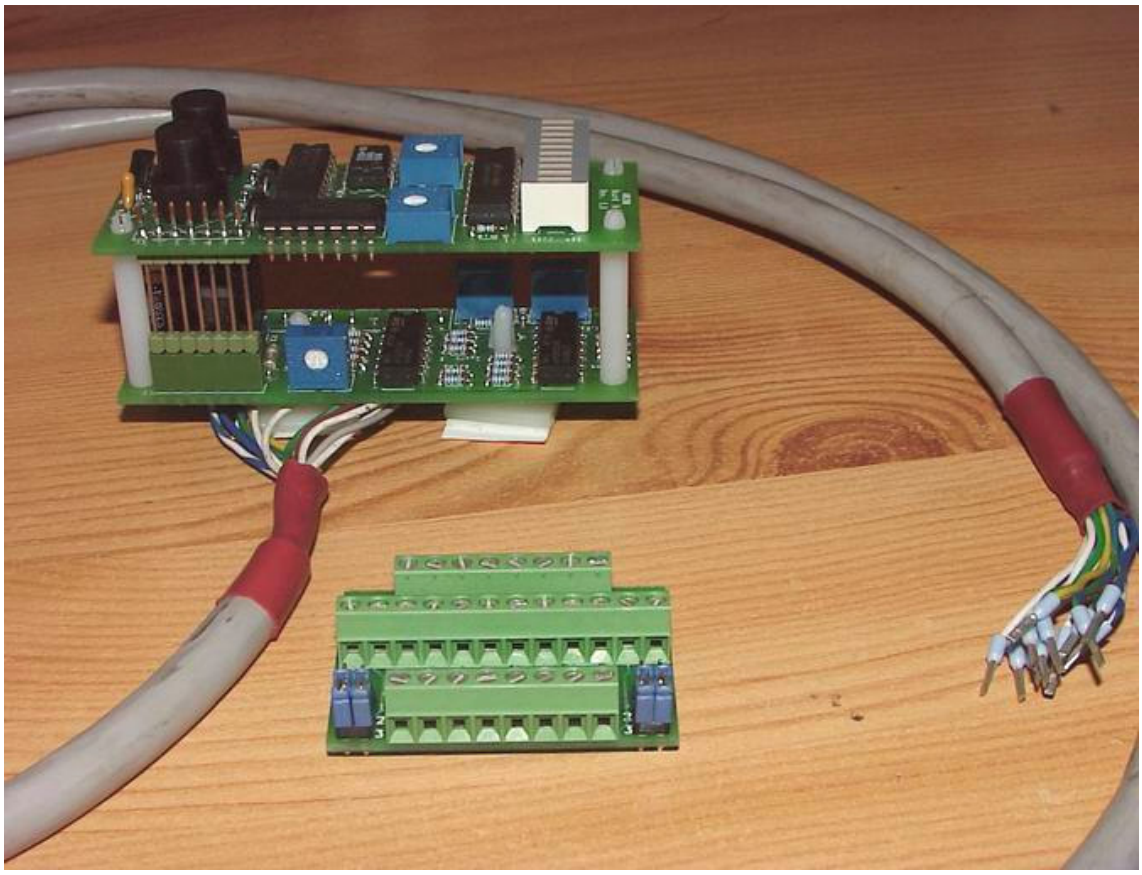
The guarantee periods is 12 months. The guarantee period for each article commencing at the shipment of the goods applies in terms of properties that we specifically guarantee, and with regard to the absence of faults in accordance with the current state of technology.
The client must provide the following data for the handling of any complaints within the guarantee period: article number, description, units, reason for complaint, date on which the article was installed, repair date and complaint date.
Should extraordinary demands be made upon the goods, this guarantee deadline shall decrease to one-half in each instance.
Finishing and installation costs, travel time and travel expenses are the responsibility of the client. No rights to non-payment or discounts exist unless we are unable to correct a fault or replace defective goods.
The guarantee becomes null and void if the delivery object is changed by being installed incorrectly or changed by the installation of parts of foreign origin, if installation and handling instructions are not followed, or if the results are not used according to their purpose.
In addition natural wear and tear and damage due to unprofessional handling are excluded from the guarantee.
When parts are replaced, the guarantee is only granted with respect to replacement parts.
Once payments become due, guarantee claims can only be made after those payments have been made.
If after a fault has been corrected it should prove that no right to a claim had existed, the client must pay for the work that we have done.

3. CONTEST

In the absence of amicable agreement, it is normal that any litigation related to the contract rests within the jurisdiction of the local tribunal.
In this case the legal responsibility lies with the local tribunal situated at the "sale" person legal residence even in case of a call for a guarantee or of plurality of defendants.
Only Hungarian law is applicable. The international convention of Vienna does not apply.

Overview

The ASHAM8 is a very neat gadget, which allows you to adjust the ride height of your car from the drivers' seat! It interfaces with the computer to alter the sensor inputs to make the computer think it is at a different ride height. Installation is physically fairly simple, stresses are that there is limited work room up under the dash to work with the wires, and you MUST be careful to wire the ASHAM8 correctly.



Encountered Issues

1. The suspension computer is actually up pretty far under the dash on the passenger side footwell. It's somewhat hard to get to if you are large and have big hands.

2. In that case the speed of the car greater than 5mph the ASHAM8 does not immediately react to input, it takes the computer a bit to decide to react.

3. The photos in this manual may show differ boards than you get really. It is happen because some of the photos taken about previous version of this boards.

Technical Discussion

As stated, the ASHAM8 works by altering the sensor inputs to the computer so the computer relocates the car to meet the correct height. To do this you need to do 3 things.

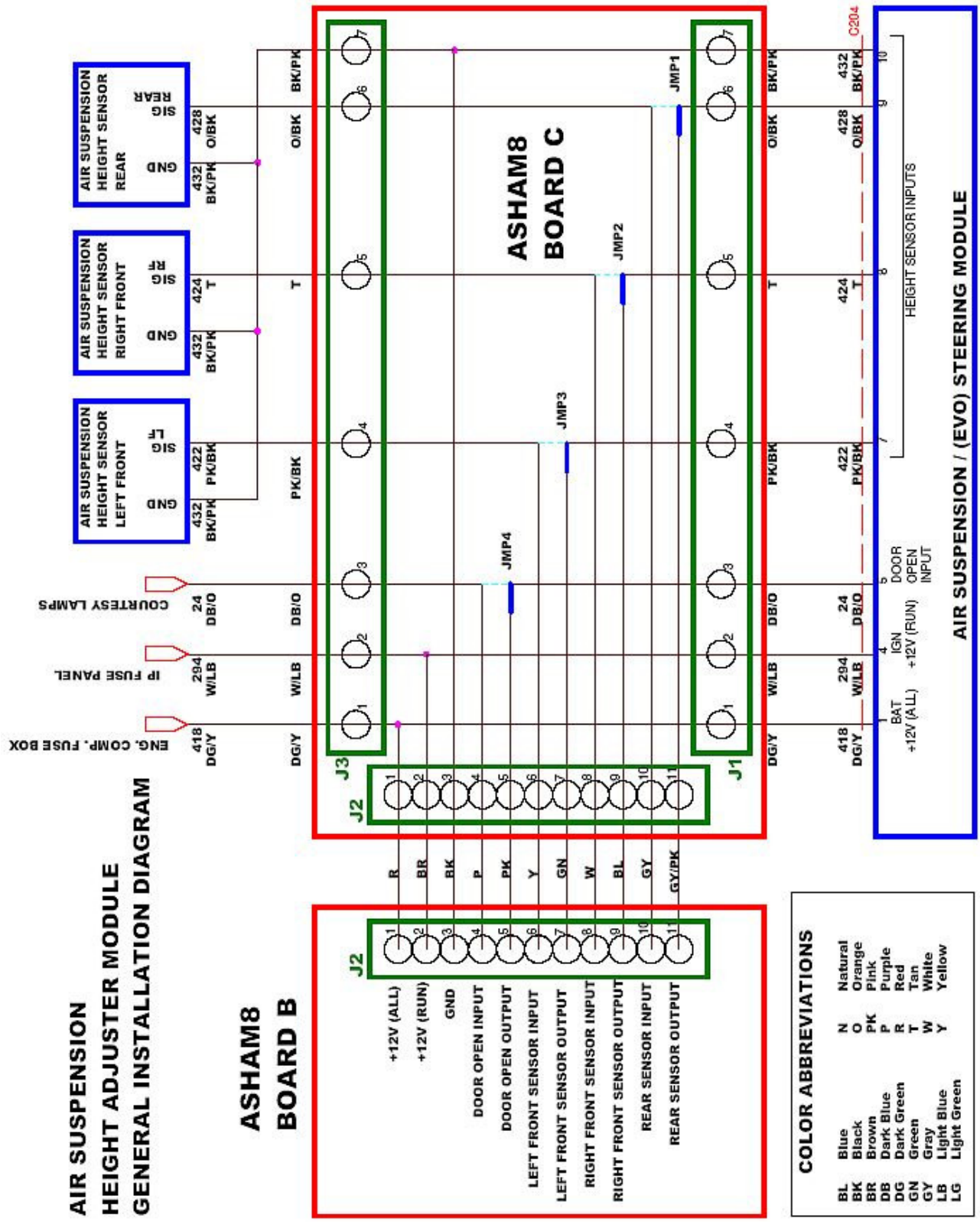
1. Ground the system.

2. Provide the system voltage.

3. Interrupt the Left, Right and Rear ride height sensors. This is done by cutting the wire going from the sensor to the computer, sending the sensor input to the ASHAM8. You then send the output from the ASHAM8 to the computer, by splicing the wires on the connector side that you cut into the ASHAM8.

4. Additionally the ASHAM8 manage the door open signal. That's why because normally the computer don't react immediately when the height sensor signals changed except if you open and close the door. ASHAM8 simulate door open/close event when you change the ride height with the push buttons. This function works only when the car's standing because the computer neglect door open signal if the car's moving.

The drawing below shows the general installation of the ASHAM8 system.



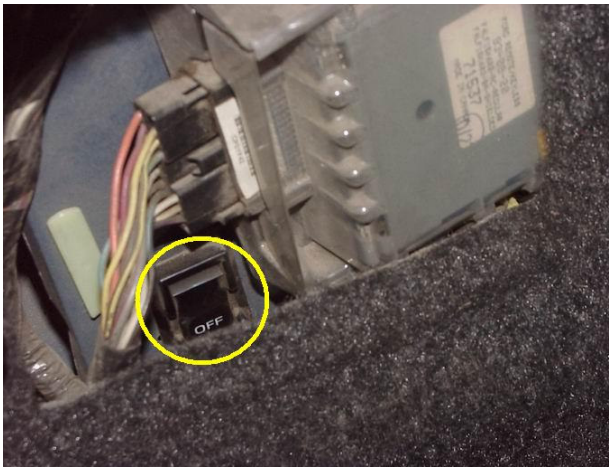
Items Needed

ASHAM8 kit (Three pieces of board, cable, cover)
9mm Socket
7mm Socket
Trim removal tool, or long nose
Pliers
Wire stripper tool
2mm Flat head screwdriver
Bandaging tape

Procedure

Accessing the computer

CAUTION!
BEFORE GETTING STARTED, THE AIR SUSPENSION SYSTEM MUST BE SHUT OFF. THIS CAN BE ACCOMPLISHED BY TURNING OFF THE AIR SUSPENSION SWITCH LOCATED IN THE LUGGAGE COMPARTMENT ON THE LH SIDE AND DISCONNECTING THE BATTERY.

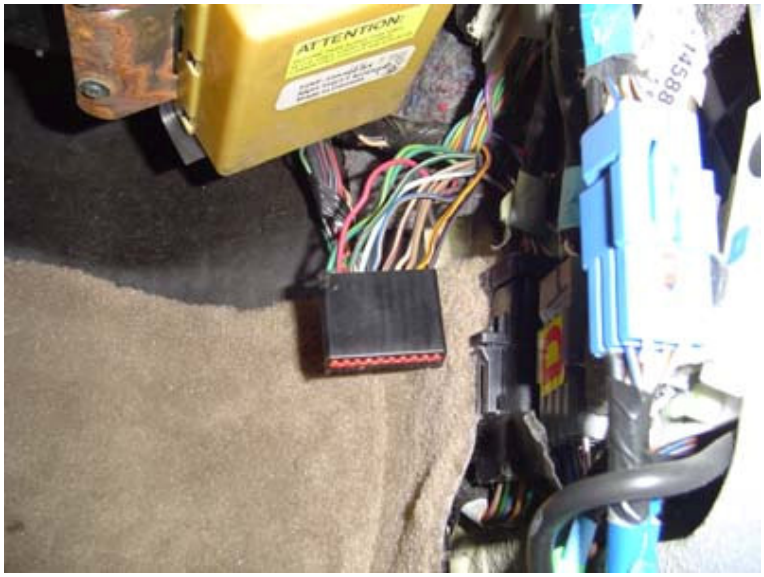


Start by removing the the cover that is over the passenger's feet, the piece of plastic with the light in it. Don't worry, the light comes out just by twisting and pulling. To remove the panel, use a torx screw driver or 7mm socket on the screws where the hinge to the glove box is. You don't need to remove the glove box, so be careful what screws you remove.

With those piece out of the way, remove the sill plate and kick panel. The sill plate is just pried up with a screw driver or your fingers, it is held in with spring clips. The kick panel is held in with an interior trim pin, you can remove this with brute force, a door panel removal tool, a series of screw drivers, or a long nose.

The computer, as stated, is WAY THE HECK UP THERE. You can't really even see the computer from crawled under there, just the two connectors. In the picture below, it is behind the large yellow box with some black scribble on it, roughly in the center of the picture

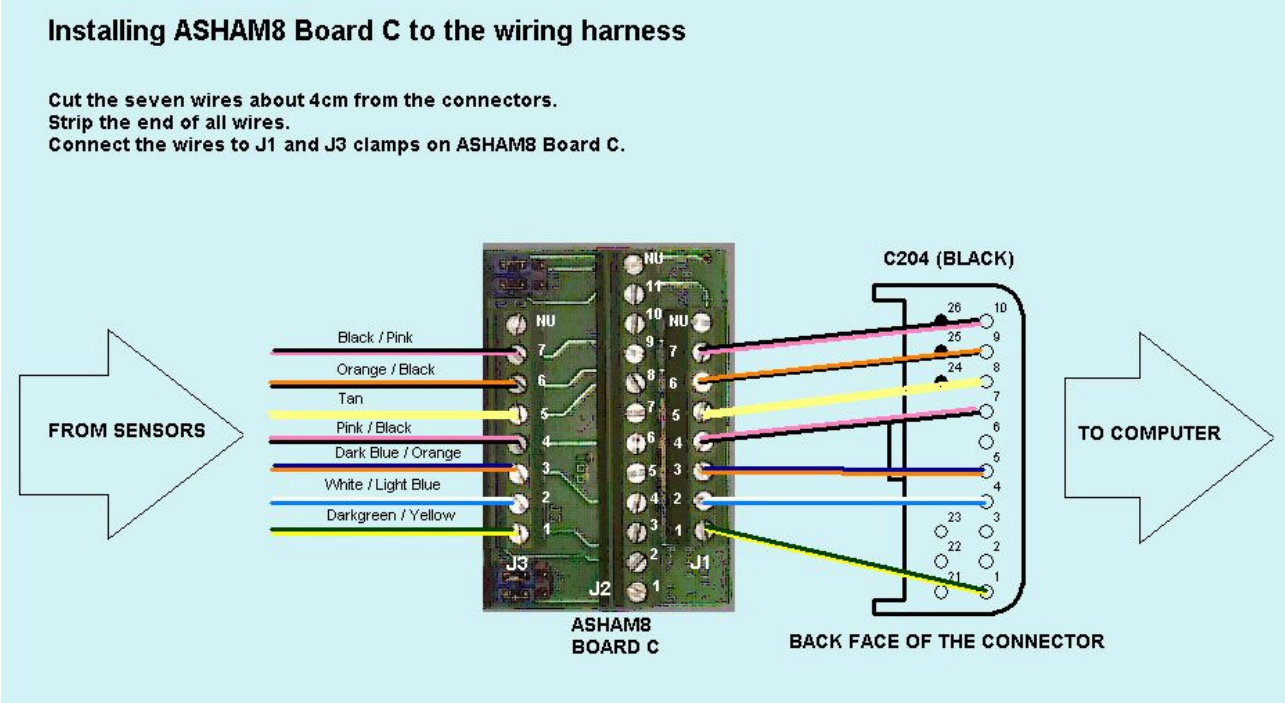
Next unplug the black connector. The way it works is there is a tab on the underside which you depress to pull it out. If you feel about with your hand, you can depress it. You can also depress it with a flat head screw driver.

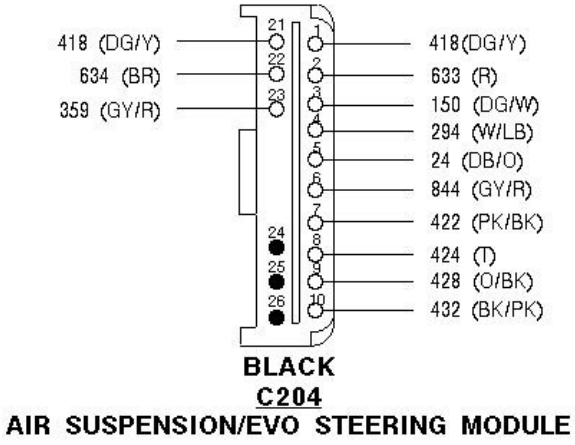


Once you have it out, go ahead and make the wiring changes.

Wiring

As stated, you're going to cut seven wires. Below are the instructions for this task.



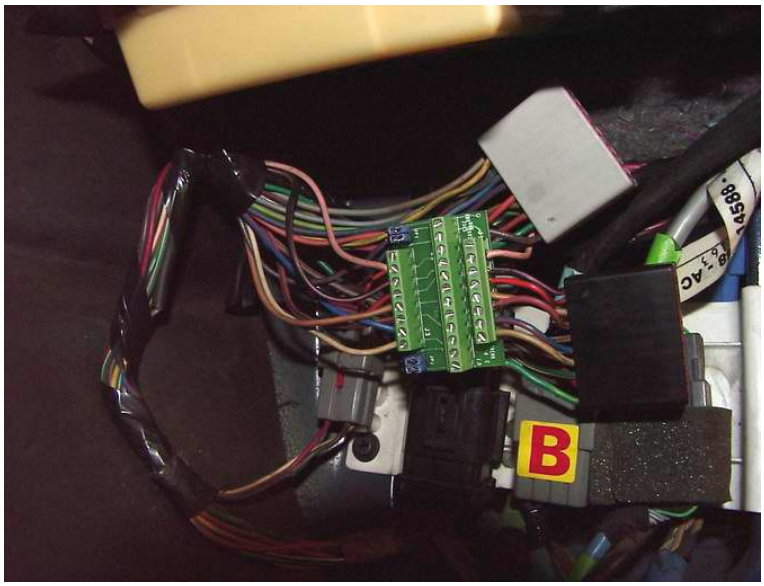


PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
1	418 (DG/Y)	Battery Power
2	633 (R)	Steering Wheel Rotation Rate Input A
3	150 (DG/W)	Vehicle Speed Input (+)
4	294 (W/LB)	Ignition On Input (Hot in Run)
5	24 (DB/O)	Door Open Input
6	844 (GY/R)	Diagnostic Input
7	422 (PK/BK)	LH Front Height Sensor Input
8	424 (T)	RH Front Height Sensor Input
9	428 (O/BK)	Rear Height Sensor Input
10	432 (BK/PK)	Height Sensor Ground
21	418 (DG/Y)	Battery Power
22	634 (BR)	Steering Wheel Rotation Rate Input B
23	359 (GR/R)	Vehicle Speed Input (-)
24	—	Not Used
25	—	Not Used
26	—	Not Used

From Sensor, as noted, would be the wires going into the harness. Be careful as you do this, you don't want to wire it backwards!

Doing the wiring is the hardest part, because it is SO HARD to get to the connector. Feel free to remove other connectors (just remember how to put them back!) as well as other mounting items to get the wires into a more workable area.

Once you have it all installed, it will look like this.

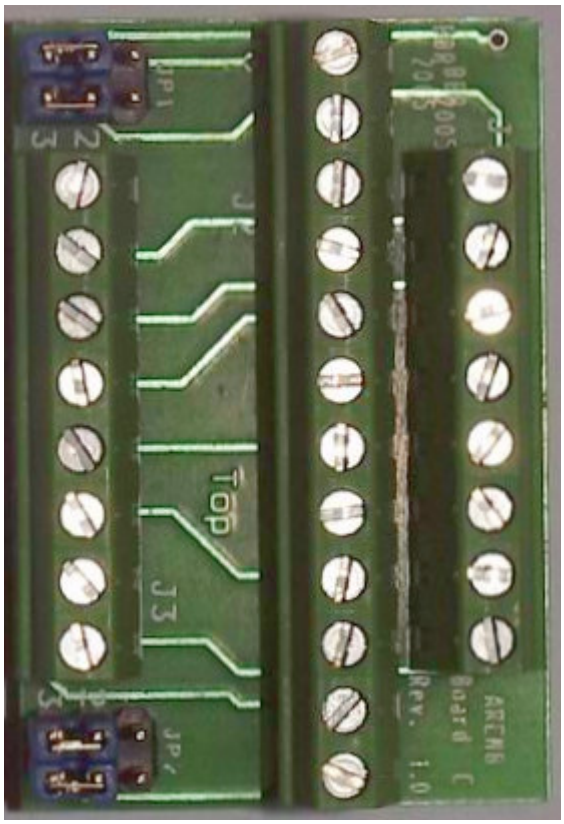


At this point, I suggest you test the connections before proceed to install remaining components.

There are four jumpers on ASHAM8 Board C. With this jumpers you can temporarily connect those wires you cut previously so the air suspension system can operate such as originally.

Reconnect the black connector to the suspension computer.

Place the four jumpers on Board C to the 2-3 position.



Reconnect the battery. Turn on the air ride switch. Start the car. The air suspension system must work than before modification.

If “Check Air Ride System” message appears on the message centre, check all wires and connections. Everything OK? Let’s go on. Turn off air ride switch and disconnect battery again.

Remove instrument panel A/C control opening finish panel by unsnapping at the bottom.

Remove two screws retaining front of gear selector finish panel to instrument panel.

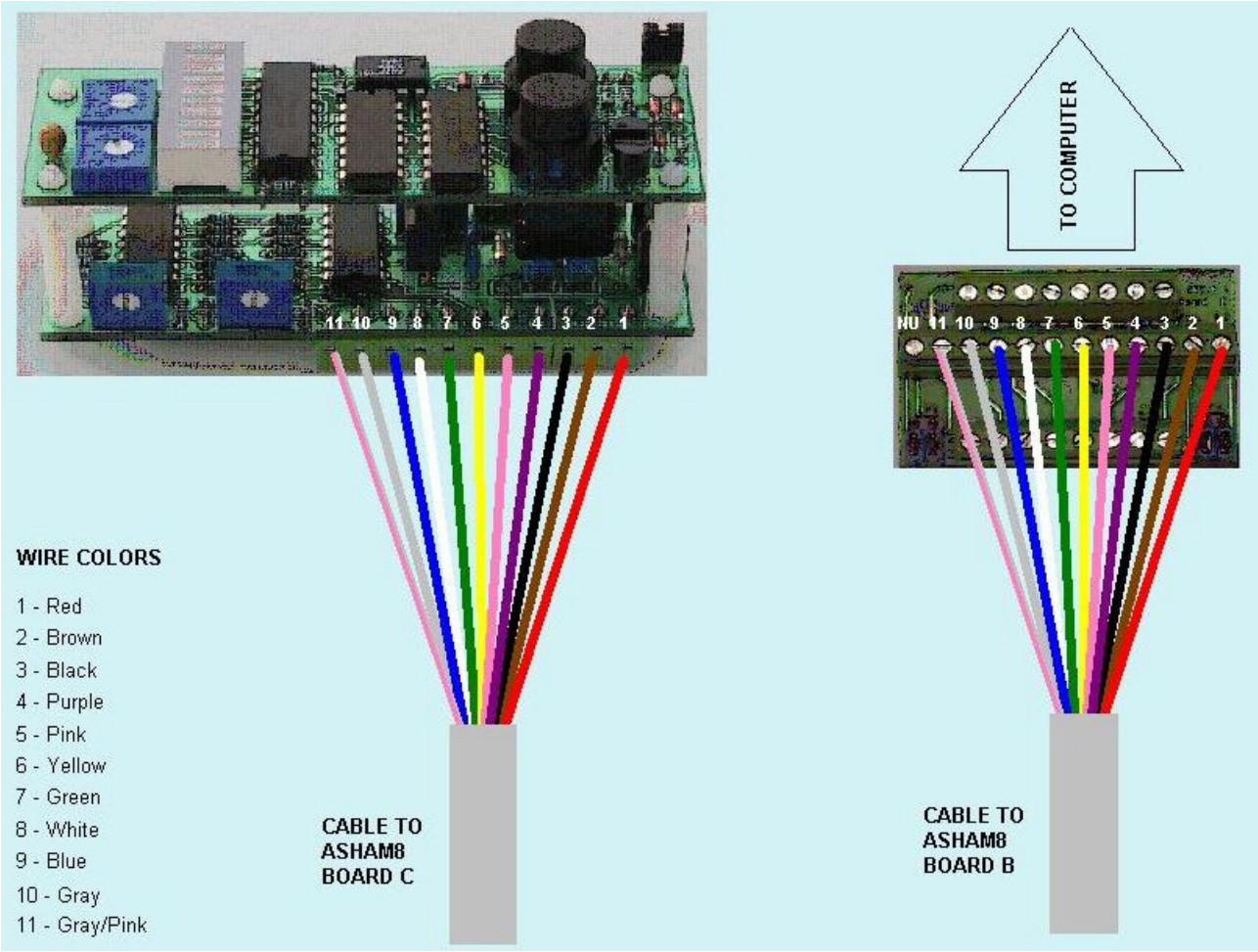
Move gear selector lever to position “1”. Unsnap RH rear corner of gear selector finish panel and then disengage three attaching clips from LH rear corner. Pull gear selector finish panel away from instrument panel and turn into a position which provides to line through on gear selector lever.

Remove four Torx® head screws retaining A/C control assembly. Pull control assembly away from instrument panel into a position which provides access to rear connections.

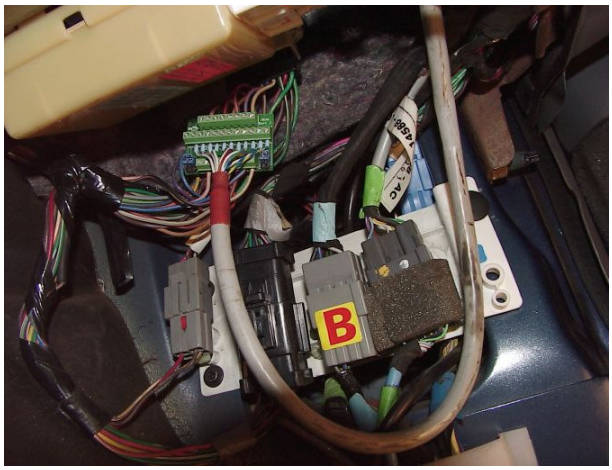
Pass the gray cable through the console beside the A/C controller and pull it out behind the instrument panel. Remove the ash receptacle from the console. Then, lay the cable beside the gear selector housing as shown the picture.

Next you need to lead the cable to the ASHAM8 Board C. Look for a way under the glow box to Board C. Use wire fastener tape to fixate the cable.

Connect the cable to J2 connector on Board C and Board B as shown below.



Once you have it all installed, it will look like this.



Go ahead and put the trim panels back in place. Start with the black panel that goes above the feet. Now do the kick panel. Work it carefully to get the bottom tab in place, as well as the trim button on the pillar side. Now push the sill plate into place. You're done with the install!

ASHAM8 Operation

Things you have to know:

1. You need to turn on the ignition to adjust or see the height. If ignition off the height adjust don't work and all the LEDs are unilluminated.

2. If you change the height from the lowest position to the highest, the computer might Error, because only a limited time (about 45 sec) available to running the compressor. If the height change requires more time, the computer displays "Check air ride system" message. In this case you turn off the ignition.

3. It will not react immediately to your input, it takes a few moments - to as many as 30 seconds - for the computer to react to your input if the car is moving.

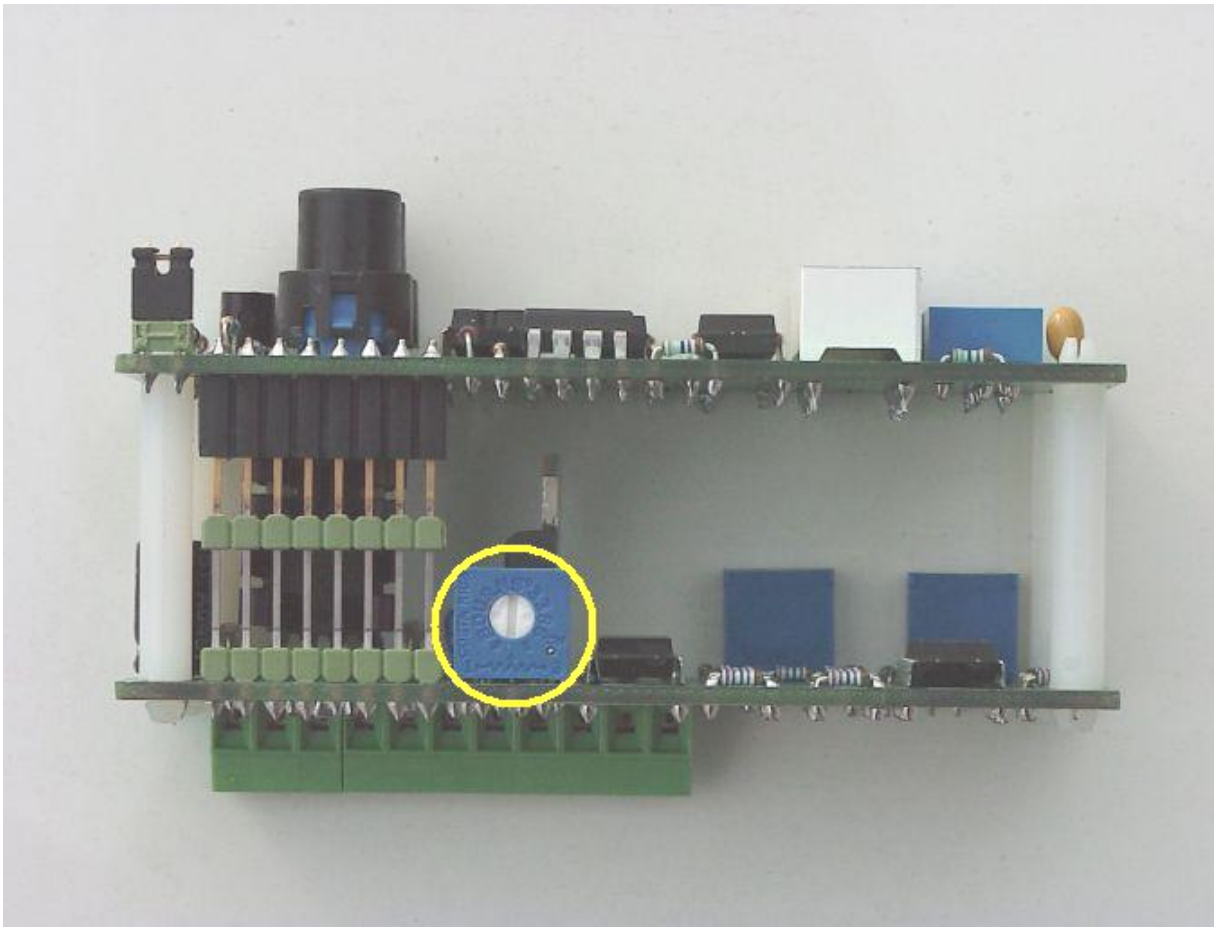
Basic operation

There are two push buttons and a 10 LED bar graph display on the ASHAM8 module. You can simply adjust the height with operating this push buttons. You can see on the display the commanded height. In the lowest position only one LED illuminates. In the highest position all the ten LEDs illuminate. In the factory height only five LEDs illuminate. When you push any button for a short time you may can't see any change on the display in some cases. It is because the resolution of the height adjust is 100 positions, but it has only 10 LED to display the actual height.

Fine tuning the rear height

If the rear is abnormally out of sync with the front you can adjust the rear slightly with the fine tune trimmer pot located on Board B. If you turn this pot clockwise the rear is raise and if you turn counter clockwise the rear is fall. Turn this pot left or right about 30 degree steps accordance with your wish and wait for the computer to adjust. I recommend that you go for a short ride and after that you check the height again.

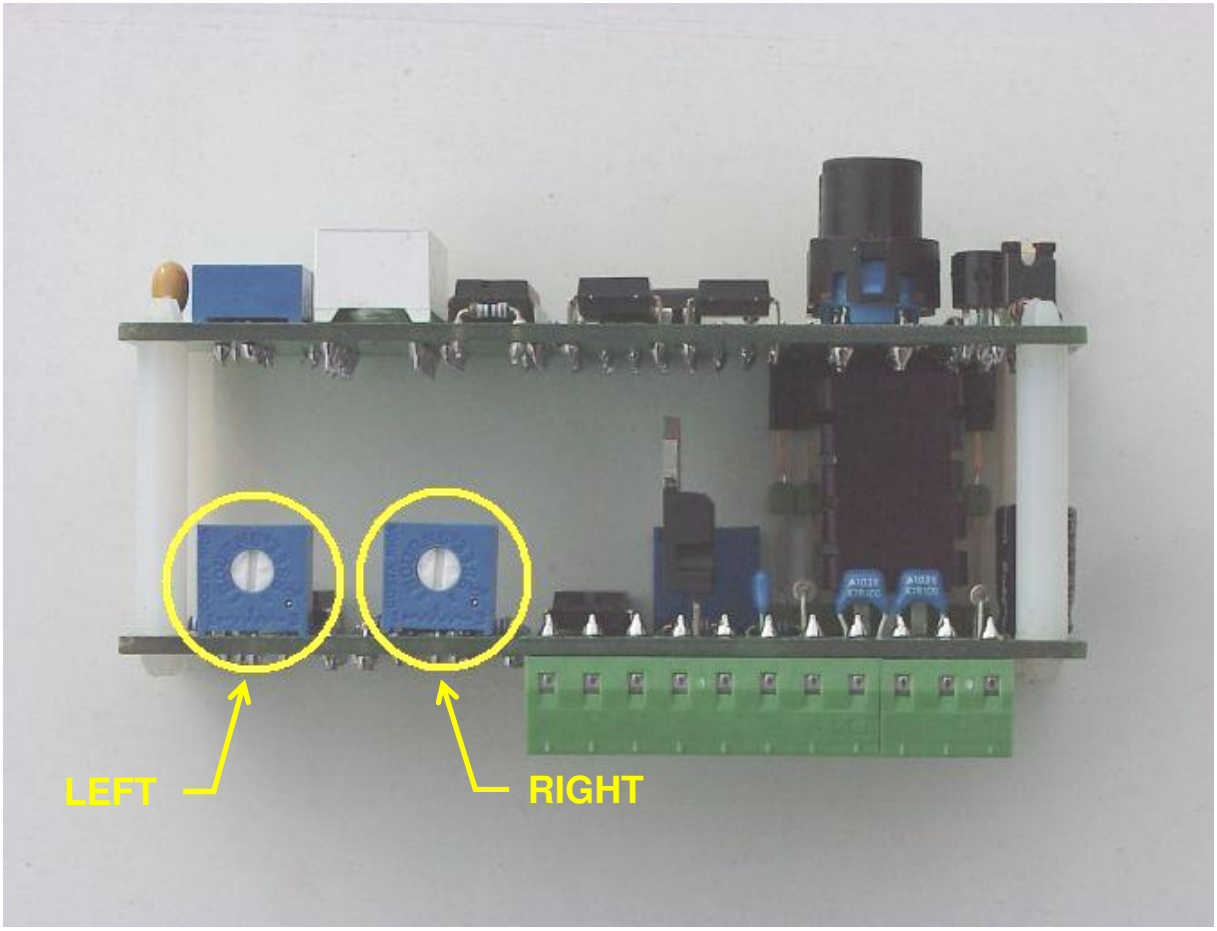
You can see on the following picture the REAR fine tuning trimmer pot.



Fine tuning the front left and front right height

In some cases may be a little difference between the front left and front right height. You can adjust the both sides independently with the fine tune trimmer pots located on Board B. If you turn this pots clockwise the matching side raise and if you turn counter clockwise the matching side fall. Turn this pot left or right about 30 degree steps accordance with your wish and wait for the computer to adjust. I recommend that you go for a short ride and after that you check the height again.

You can see on the following picture the FRONT LEFT and FRONT RIGHT fine tuning trimmer pots.

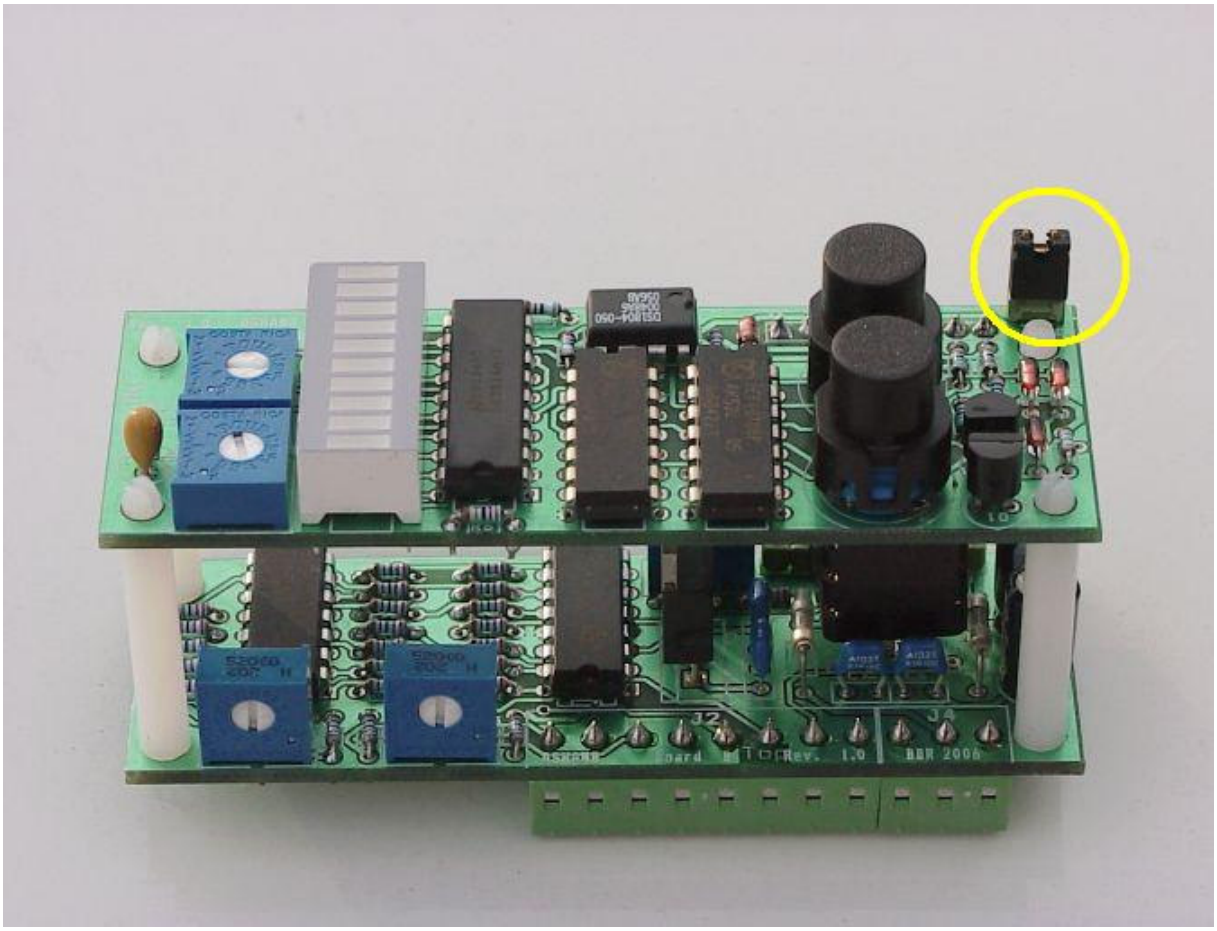


Enable/disable park drop function

The ASHAM8 module provides a function called NO PARK DROP. Normally when you turn off the ignition and close the doors the computer drop the car to the so called parking position. If you don't need it you can disable this by ASHAM8 module's NO PARK DROP function. There is a jumper on the Board A. You need close it to enable NO PARK DROP function. In this case the computer leave the actual height after ignition off.

Open the jumper if you like the original park drop function.

You can see on the following picture the ENABLE/DISABLE PARK DROP jumper.



Notes:

Please feel free to e-mail me if you have any question, suggestion, observation about this manual or the ASHAM8 module bbr@freemail.hu or join the www.markviii.org message board topic "***NEW*** Air Suspension Height Adjuster Module!!!!!!".

I used some pictures and text from the http://www.norcalmarks.com/module8/ installation instructions to my document.