DINAN

HIGH FLOW AIRFLOW METER

INSTALLATION INSTRUCTIONS

PART NUMBER
D763-1600A
APPLICATION:
2001-06 E46 M3

Parts List:

Hose clamp 64Z	(7) Plastic Rivets	Air Filter
Temp Sensor & Harness	(2) Button Head Screws	(2) Tri-lobe AFM Screws
Airbox	Airbox Lid	Airbox Bracket
Water Valve Bracket	(2) Gasket Seals	AFM Housing
(4) Washers	(5) Nuts	(4) Bolts

Congratulations for being selective enough to use a Dinan Engineering Cold Air Intake. We have spent many hours developing this system to assure that you will receive maximum performance and durability with minimum difficulty in installation.

Please take the time to read these instructions thoroughly before proceeding. When performing the installation, read the entire numbered instruction before working on the car. If you feel that you do not have the requisite skill, please arrange for a qualified repair facility to perform the installation.

Notes:

Evaluate and repair all faults stored in the ECU memories before installing any Dinan software.

All Dinan software must be installed before proceeding with kit installation.

To maintain warranty coverage, this kit must be used with the appropriate Dinan engine software for your vehicle.

Remove the top intake and Headlight igniter

NOTE; If your car is equipped with a strut tower brace we recommend you remove it to ease the installation.

1. First pull the 4 clips that hold the air intake to the car. Do this by pulling the center pin out and pulling up on the clip. Remove it and the soft duct that goes to the airbox. See Figure 1.

Fig: 1

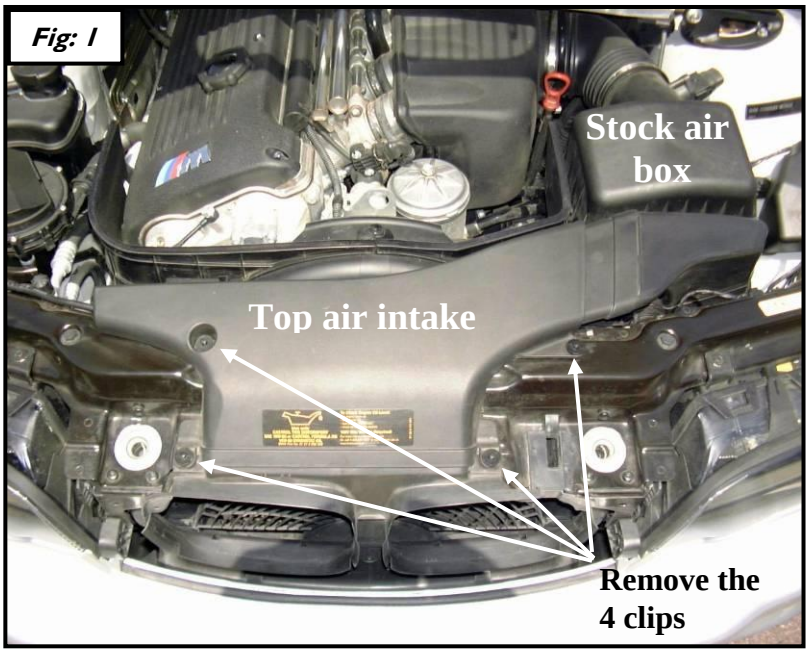


Fig: 2

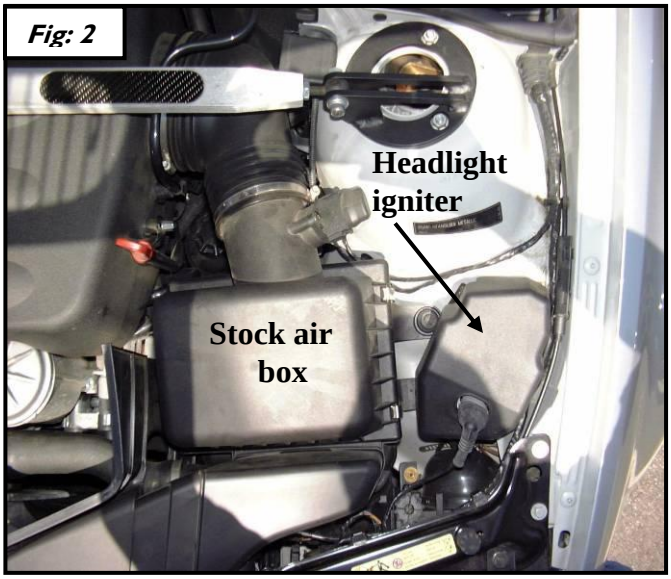
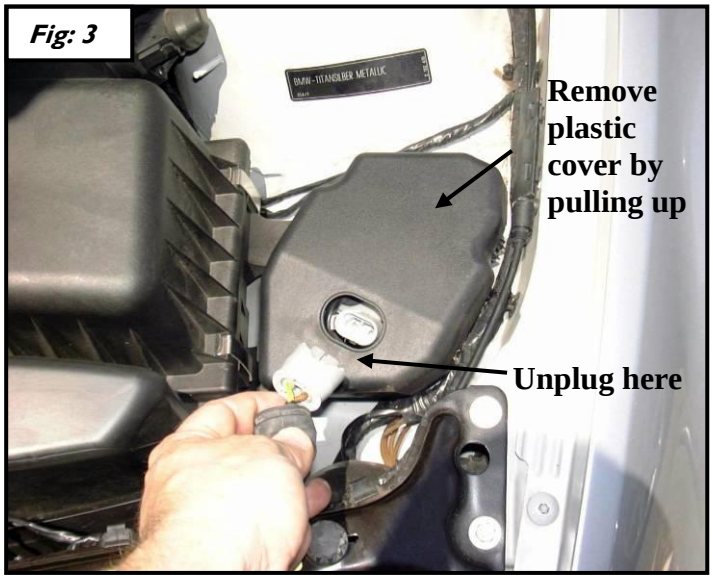
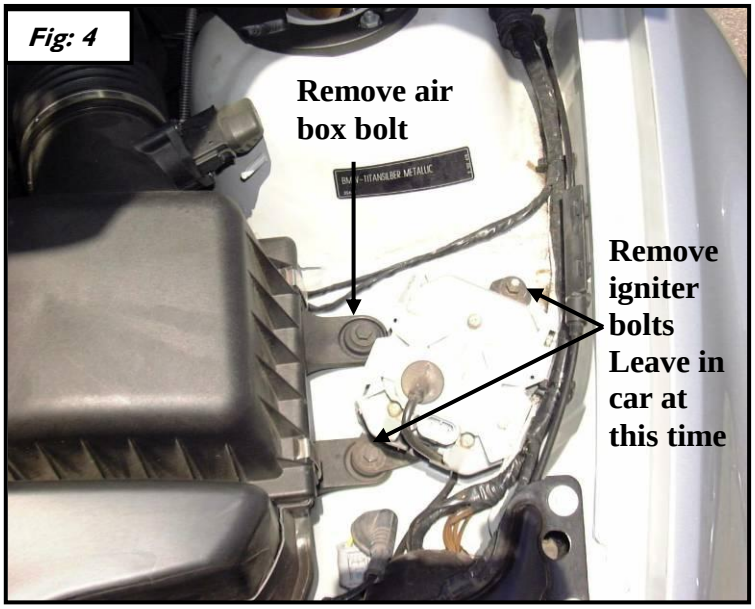


Fig: 3



2. Next unplug the Headlight igniter and remove its cover by pulling up gently. Then unbolt the 2 bolts that hold the igniter down. Leave the igniter in the car for now. You can also remove the air box bolt at this time. See Figures 2, 3, and 4.

Fig: 4



3. The igniter is hard wired into the headlight assembly, so you will have to remove the headlight assembly with the igniter. This will also give you access for remounting the igniter in its new position, and mounting the new intake temp sensor.

4. Protect the top of the bumper under the headlight (tape works well). If your car is equipped with headlight washers, gently pull the washer forward, hold on to the washer body and pull the nozzle assembly off. Let the washer body slide back in to the car gently.

5. Remove the 4 bolts that hold the headlight assembly in. There are 2 on top, one low in back, and one low between the headlight and the radiator. See Figure 6.

6. Unplug the 3 connectors from the back of the headlight assembly, and slide it out the front of the car with the igniter. Be careful not to pull on the igniter wire. Set the headlight and igniter aside for now.

Fig: 5

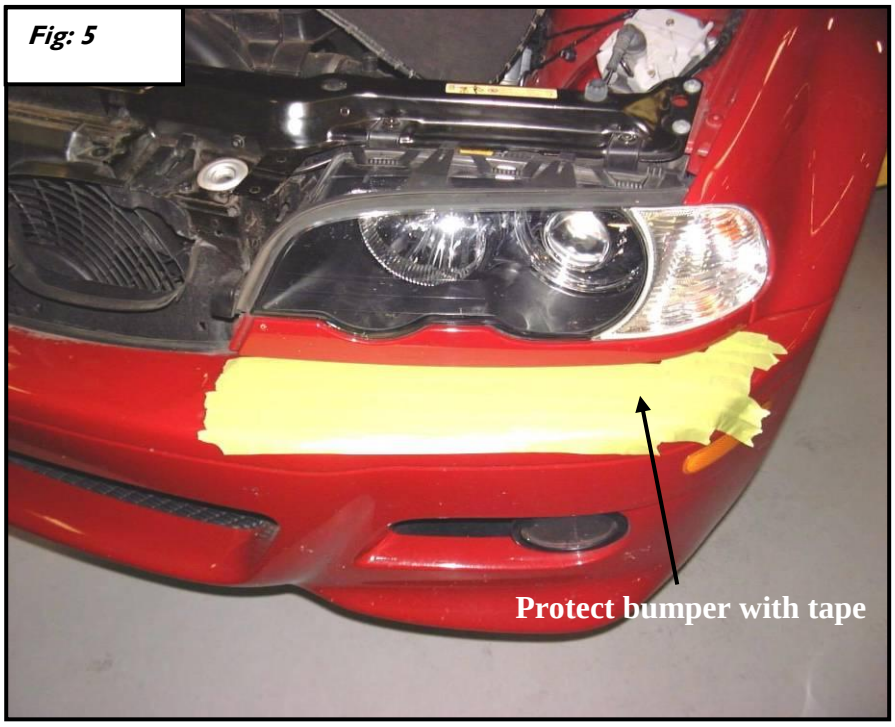
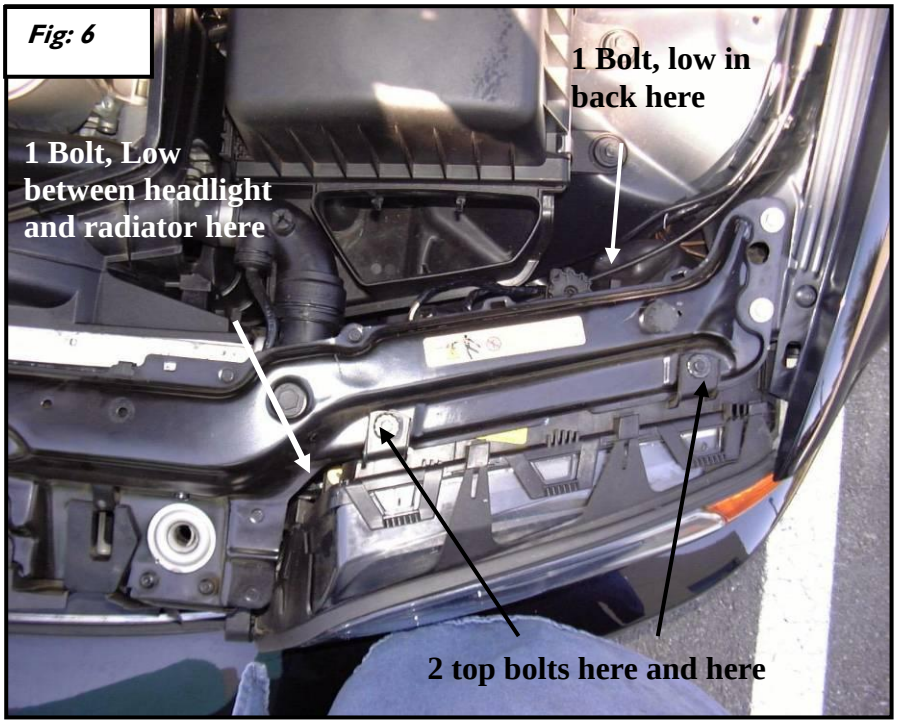


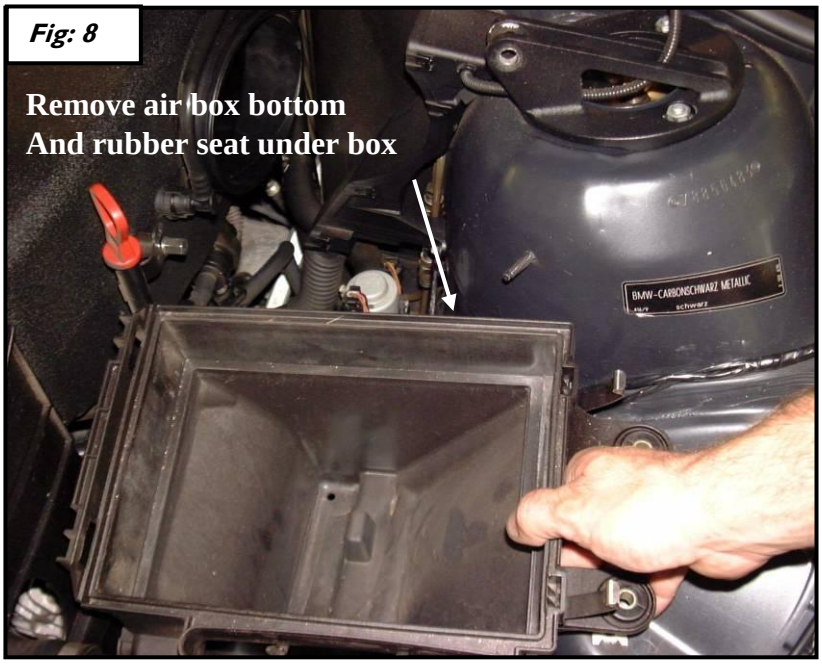
Fig: 6



Remove stock air box AFM assembly

7. Unplug the wiring from the Air mass meter. Loosen the hose clamp on the rubber elbow hose connecting the air box to the motor. Unclip the 2 clips on the side of the airbox. Remove the airbox top complete with the rubber hose. Pull out the stock air filter. You already removed the bolts that hold the bottom half of the air box in the car so simply lift it out. Remove the lower rubber airbox mount by pulling it straight up off the frame rail. See Figures 7 and 8. Unclamp and remove the stock rubber elbow hose, and remove the rubber seal ring that is on the end of the stock air box. You will reuse these.

8. Carefully unbolt the air mass meter, remove it from the box top and put it some place safe. The bolts are Torx Plus Tamper Proof (Matco TP 20). A vise grip Pliers will work in a pinch. Discard stock bolts.

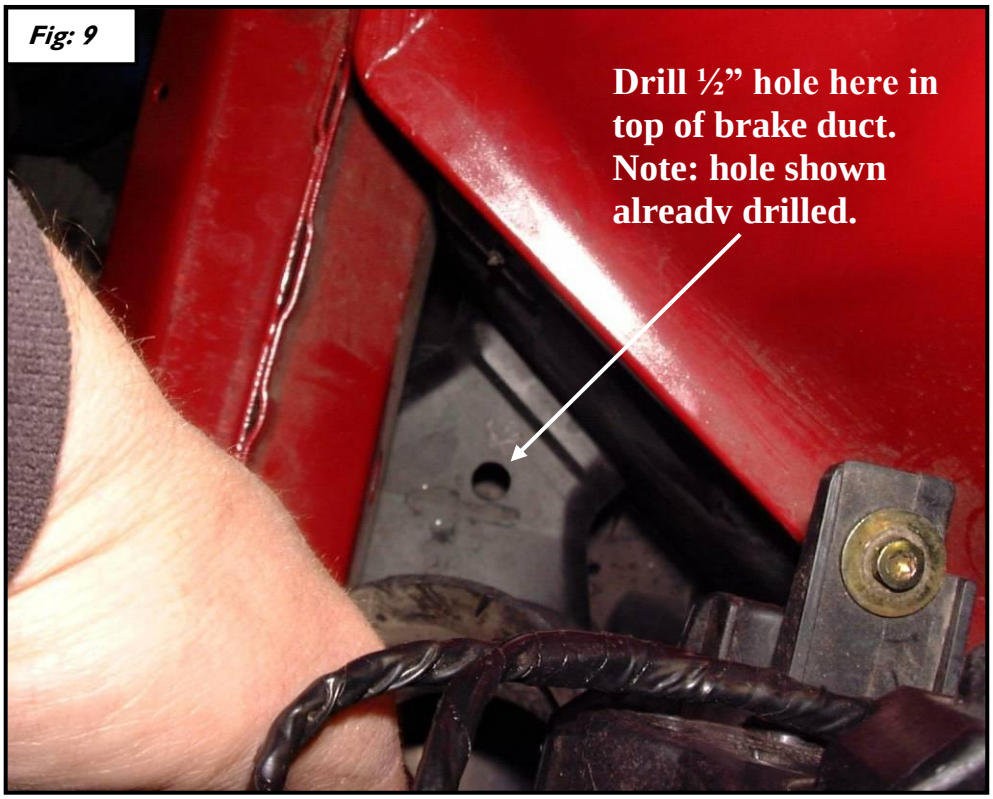


Install new air temp sensor

We utilize an Intake Air Temp Sensor that is mounted in the airstream at the front of the vehicle instead of the one built into the air mass meter. The stock sensor in the air mass meter is highly affected by the heat coming off the radiator and this gives the car inconsistent performance.

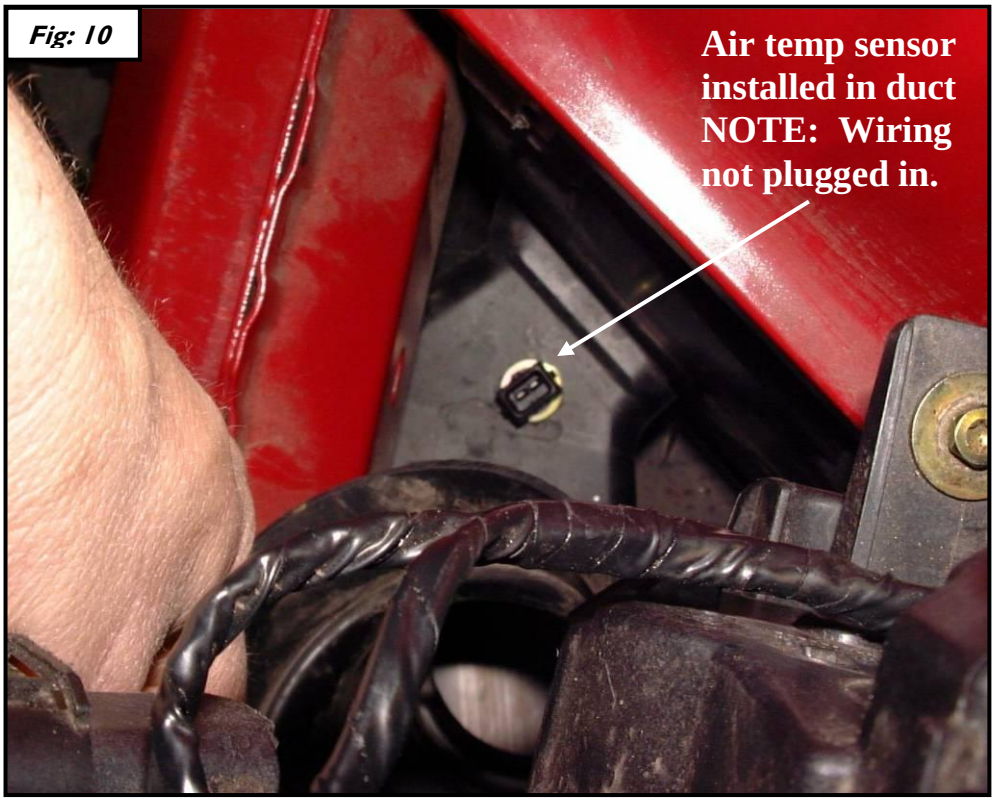
9. Standing in front of the car, looking straight down where the stock air box was, locate the top of the brake duct. It is the square duct running from the opening in the bumper back to the inner fender well, with the lower air box feed tube coming out of the top if it. You will drill one ½" hole in the top, center of the duct right behind the air box feed tube. The air feed tube can be rotated out of the way to make it easier.

Fig: 9



10. Locate the new air temp sensor, Nylok nut and washer and small wiring harness in kit. Install sensor probe side down through hole. Washer goes on topside of hole, reach in through front of brake duct and install and tighten nut on sensor. **Don't over tighten the nut!** See Figure10. Plug wiring harness to new sensor and run wires along the fender with the other stock wiring back to the ECU box.

Fig: 10



11. Run the Sensor Harness up along the underside of the existing wire harness towards the ECU compartment.

12. Remove the top of the ECU compartment.

13. Route the Sensor Harness over the rubber wire grommet in front of the metal shroud for the ECU compartment towards the fender. You can run the Harness through the back grommet where the wires enter the ECU compartment. You can tape the wires to a screwdriver just below the tip, then push it through next to the existing wires. Now remove the tape and pull the wires through. See Figure 11.

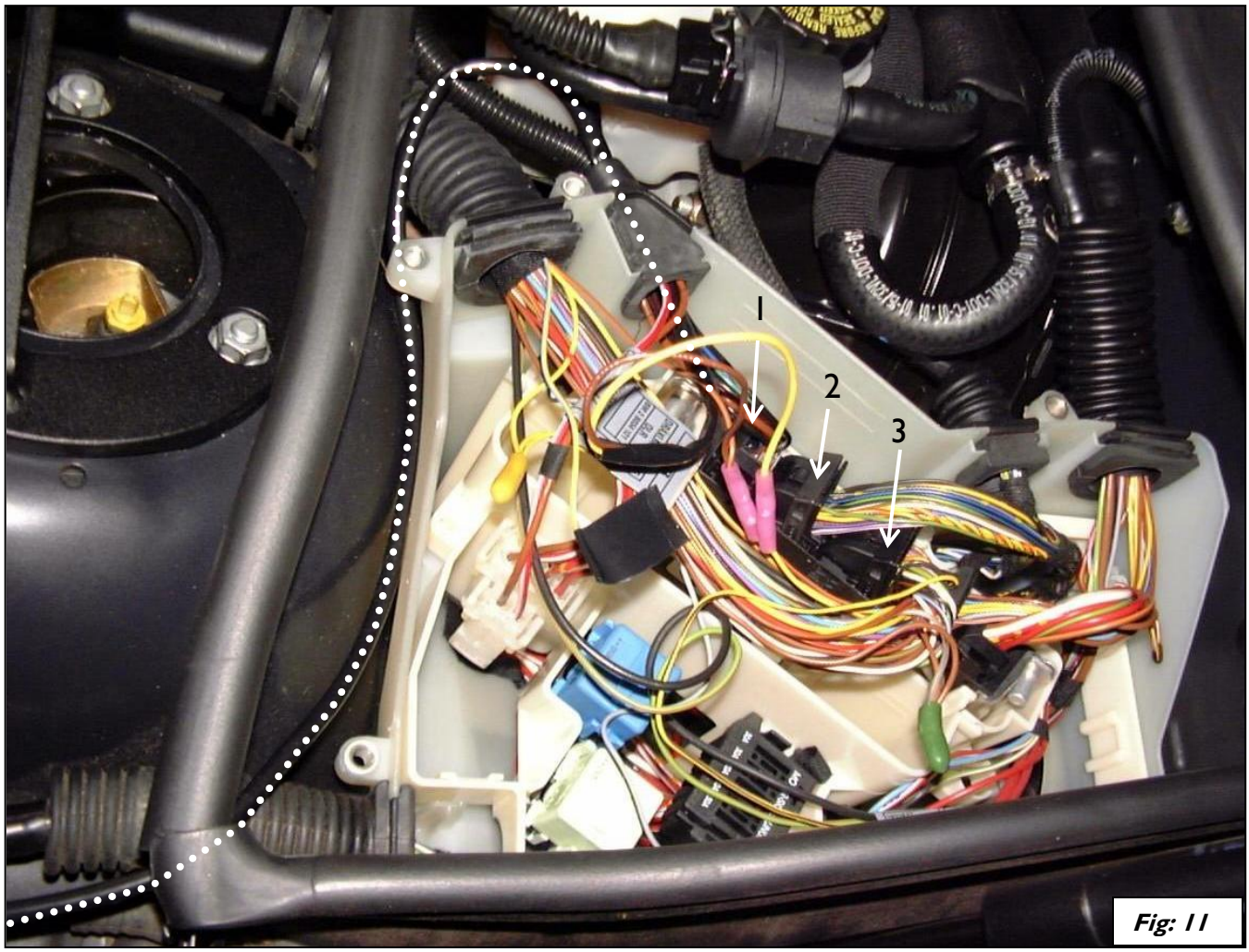


Fig: 11

14. Remove the three connectors from the top of the DME starting from the engine side of DME. The third connector from the end is the largest and it contains the two wires you will use for the Sensor. If you look at the face of the connector you can see tiny numbers at the end of each connector row. Slide the appropriate connector insert out of the connector housing after pushing on the lock tab. The numbers are also written on the insert. Count over using the number on the connector as a starting point until you locate the correct slot and its corresponding wire. Remove some of the bands of tape that hold the wire bundle together to help you isolate the individual wires.

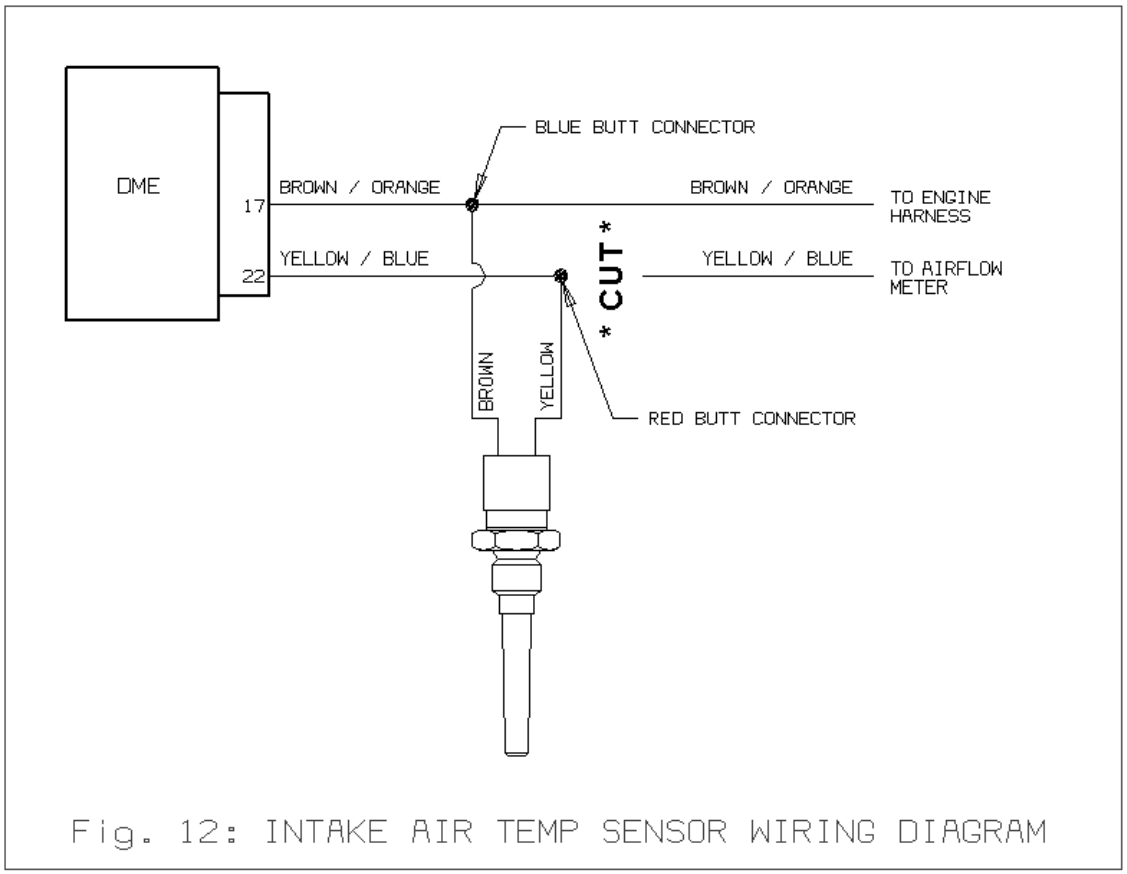


Fig. 12: INTAKE AIR TEMP SENSOR WIRING DIAGRAM

15. See Figure 12 for wiring of the Intake Air Temp Sensor.

16. Cut the **#22 yellow/blue wire** and use a red butt connector to connect the end of the wire going to the DME to the **yellow wire** from Sensor Harness.

17. Wrap the remaining unused end of the yellow/blue wire with electrical tape and tape it to the wire bundle.

18. Use blue butt connector to splice the **brown wire** from Sensor Harness into the **#17 brown/orange wire** as shown above.

19. Reconnect plugs to ECU, secure wires, and replace the ECU cover

Relocate water solenoid

20. The water solenoid is located under where the rubber air intake hose went in to the motor down on the frame rail. You can see it now that you have removed the air box. See Figure13.

21. Simply unplug the 2 wiring plugs and pull it up and out of its bracket. See Figure 14.

Fig: 13

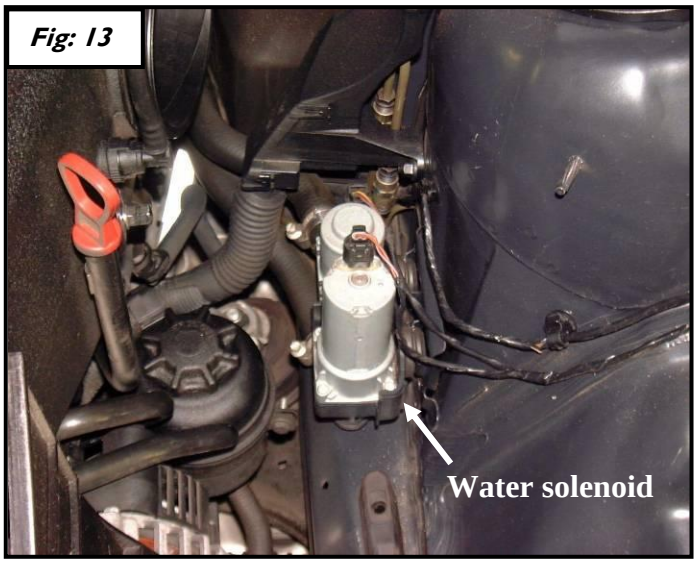
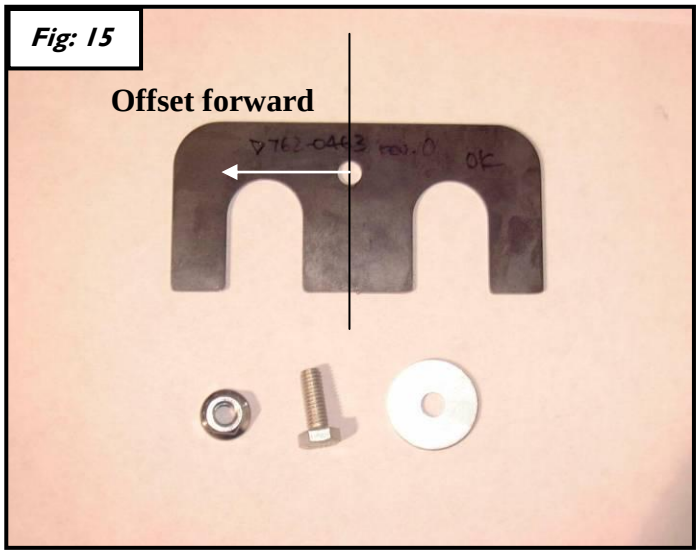


Fig: 14

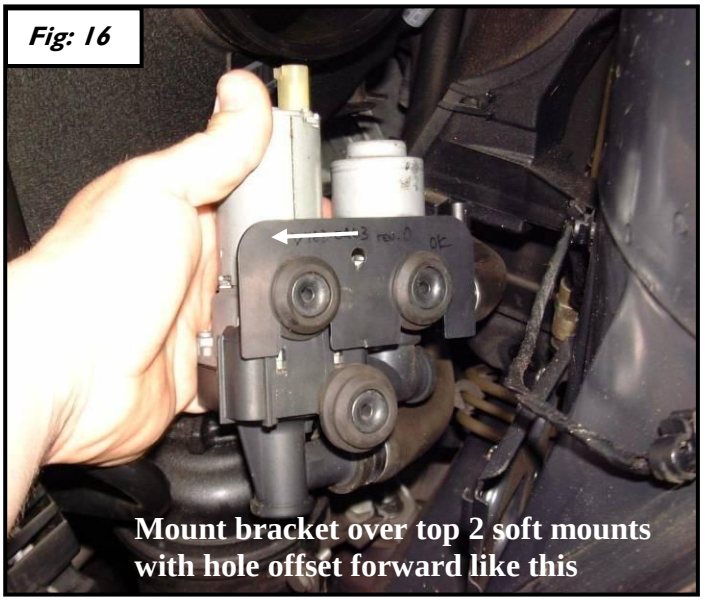
Fig: 15



22. Now find the relocation bracket, 6mm X 16mm bolt, and the 6mm-lock nut and fender washer. See Figure 15. Note that the bolthole on the bracket is slightly offset to one end.

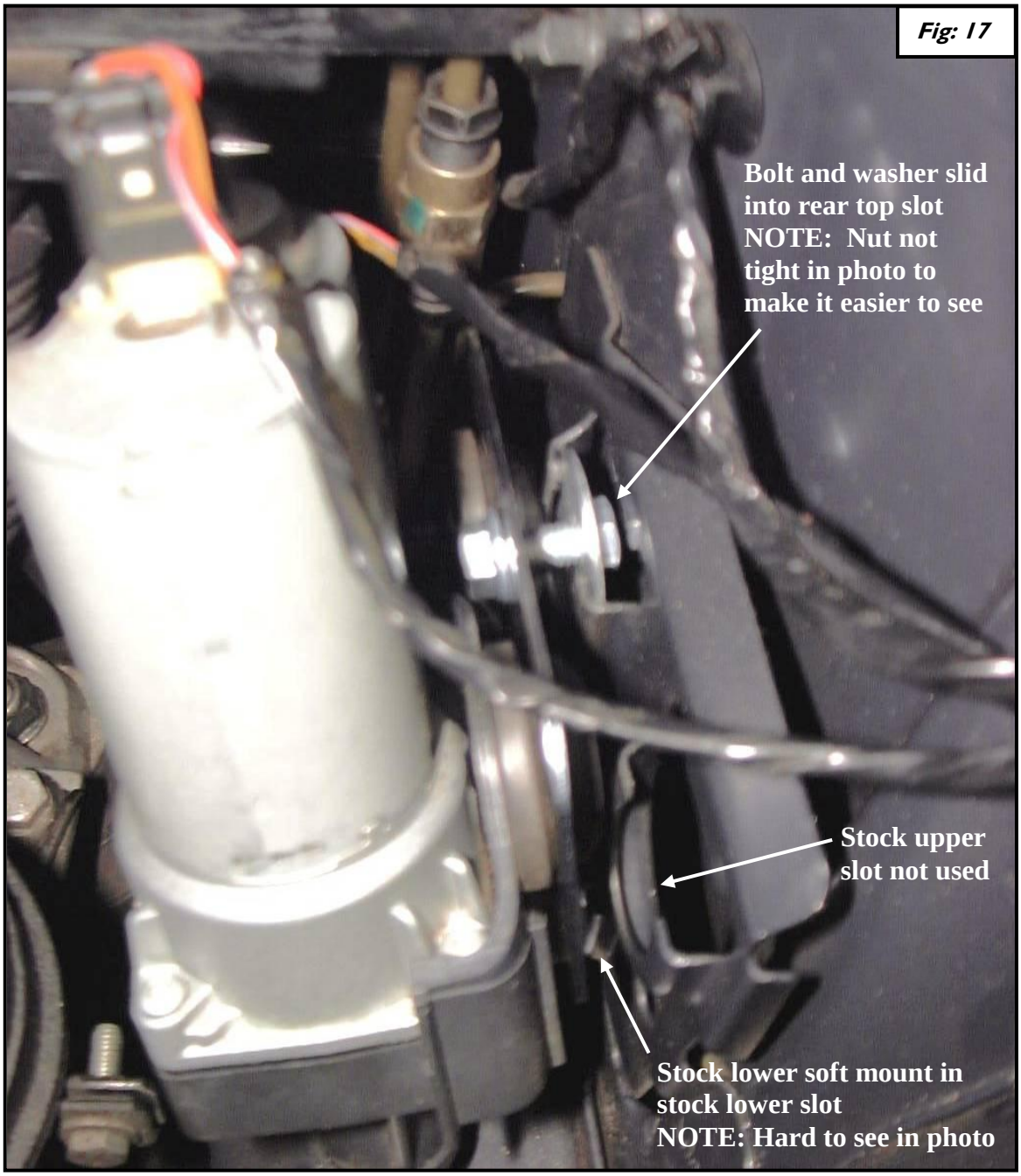
23. Slide the bracket over the top 2 soft mounts on the water solenoid with that end toward the front of the car. See Figure 16.

Fig: 16



24. Slide the fender washer over the bolt and slide the bolt through the hole in the relocation bracket. Start the lock nut on the bolt only about 3 or 4 threads. Plug the 2 wiring plugs back into the solenoid. Now fit the solenoid back in place by putting the stock lower soft mount back in its stock slot. Rotating the solenoid back and slide the fender washer down into the rear, top slot

NOTE: You may need to unclip the wires from the fender well and pull them down to make it fit. Make sure the washer has got both edges of the slot. Push the bracket down to make sure it's tight on the soft mounts and tighten the lock nut. Double check that the wiring is not pulled too tight, and adjust if needed. See Figure 17.



Modify the headlight igniter

25. Remove the 2 small torx bolts and mounting bracket from the back of the igniter. See Figure 18.

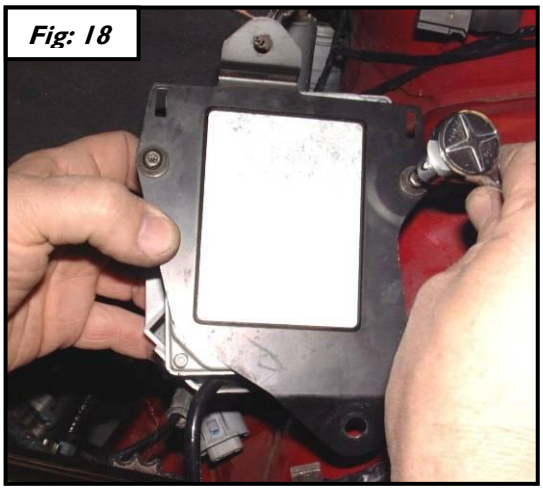


Fig: 18

26. You are going to change the angle of the bolt hole tabs on the bracket slightly. First bend the ear with the step in it a bit father so that the tab is parallel with the rest of the bracket. It is easy to do this in a vice by clamping the ear and gently bending it. See Figures 19 and 20.

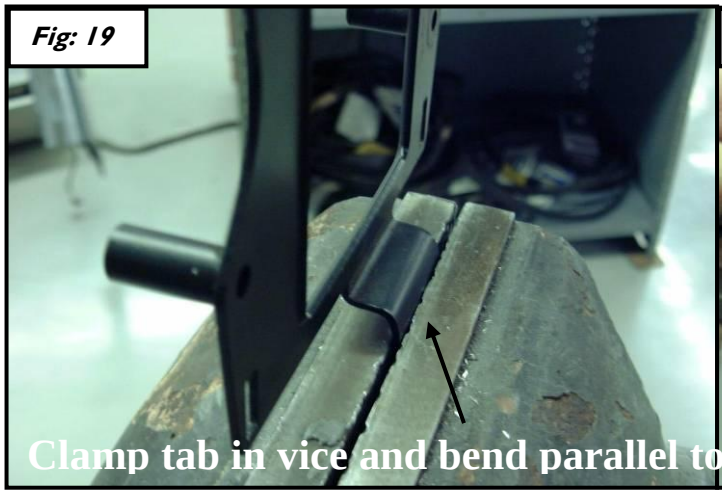


Fig: 19

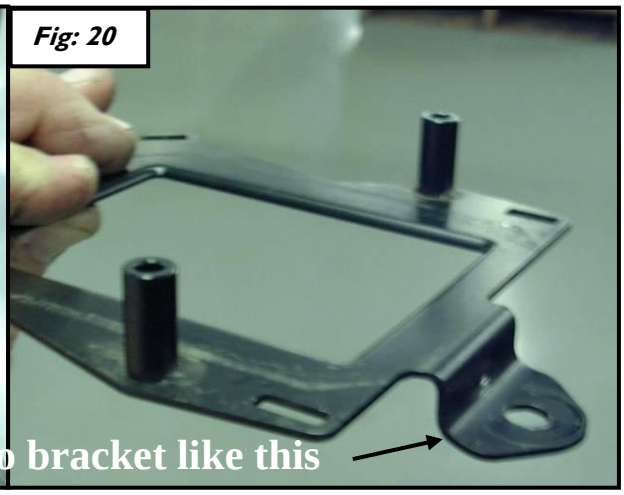


Fig: 20

Clamp tab in vice and bend parallel to bracket like this

27. On the other end of the bracket simply bend the tab flat. See Figures 21 and 22.

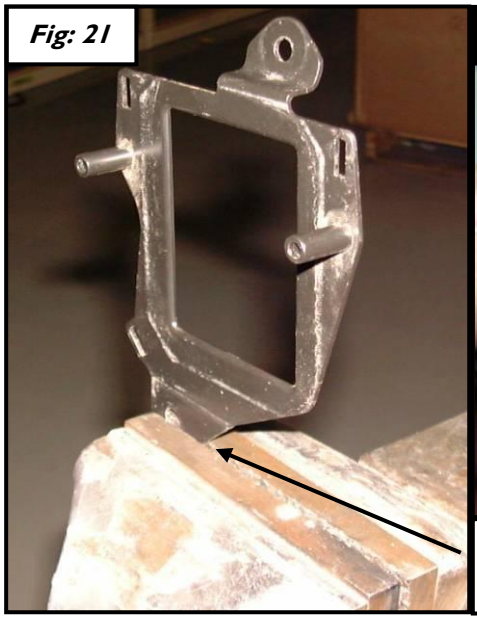


Fig: 21

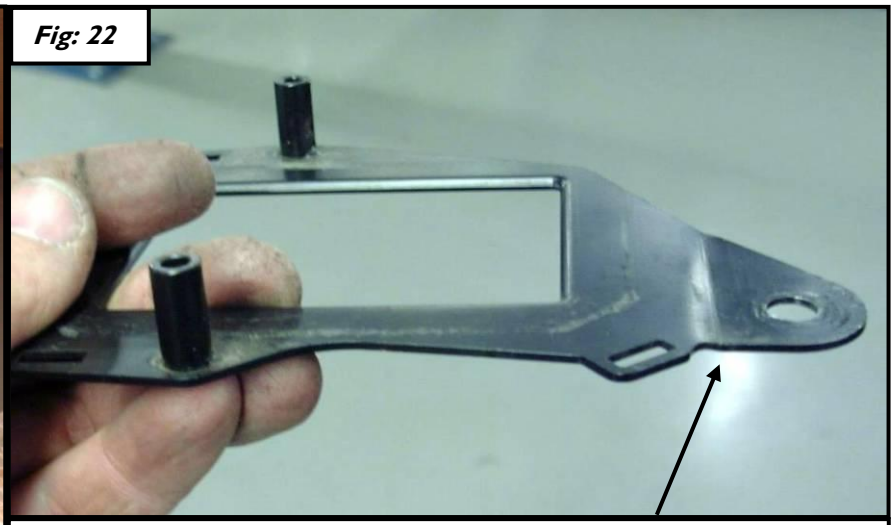


Fig: 22

Clamp tab in vice and bend flat like this.

28. Once you have bent the tabs you can reinstall the bracket back on the igniter.

Relocate igniter and reinstall headlight assembly

29. **NOTE: If the car you are working on has a carbon fiber front bumper impact structure, you will need to make some small modifications to the way that the horns mount. If the car has an aluminum front bumper impact structure, no horn modifications are required and you can skip steps 30 and 31.**

30. On carbon fiber front bumper cars remove the horn assembly by unplugging the two horns, unclipping the wiring from the bracket, and removing the two screws that hold it to the carbon bumper.

31. Align the horns as shown in Figure 23A, paying attention to the way that the plugs face in relation to the bracket. Note that the horns are different from each other. Make sure they are in the same location and clocked the same as the picture. You may have to swap the horns from side to side on the bracket. Don't reinstall the horns until you have finished relocating the igniter.

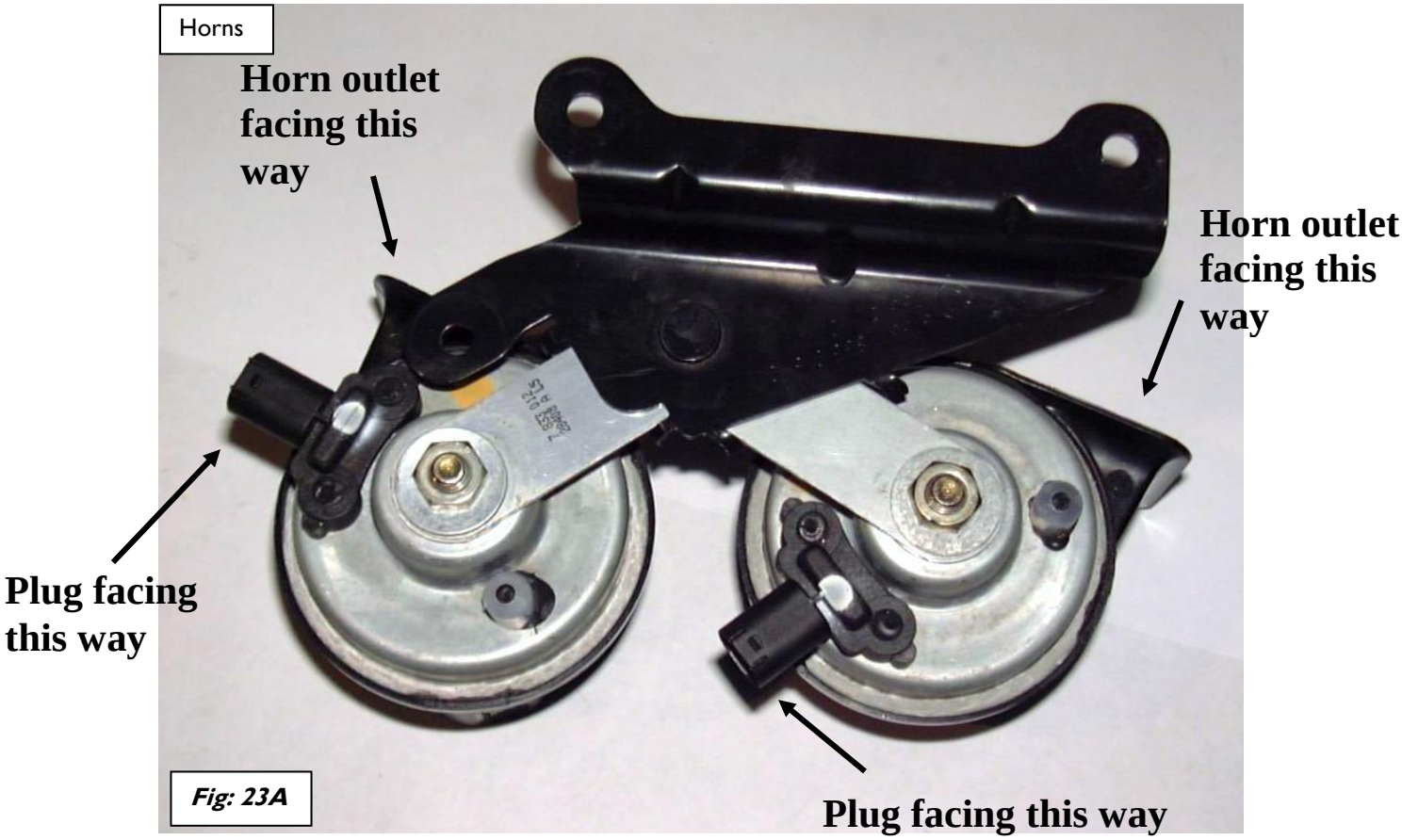


Fig: 23A

32. The igniter will be moved into the space under the headlight. You will need to drill two 5/16 holes in the front of the left front inner fender well. NOTE: To do so, you will need to remove the left front wheel. If you are not using a lift be sure to support the car with suitable jack stands.

33. After removing the left front wheel locate the igniter relocation drill template. It is printed in the back of these instructions. Cut the template out around the outer line. Place the template on the inside of the left front wheel well, in the front of the wheel well. Line up the notch in the top of the template with the notch in the wheel well at the seam where the wheel well pieces bolt together. The template will cover the bolt. The template has two sets of holes marked on it. One set is for cars with aluminum bumpers and the other is for cars with carbon fiber bumpers. Make sure you drill the proper holes for your car. See Figure 23B.

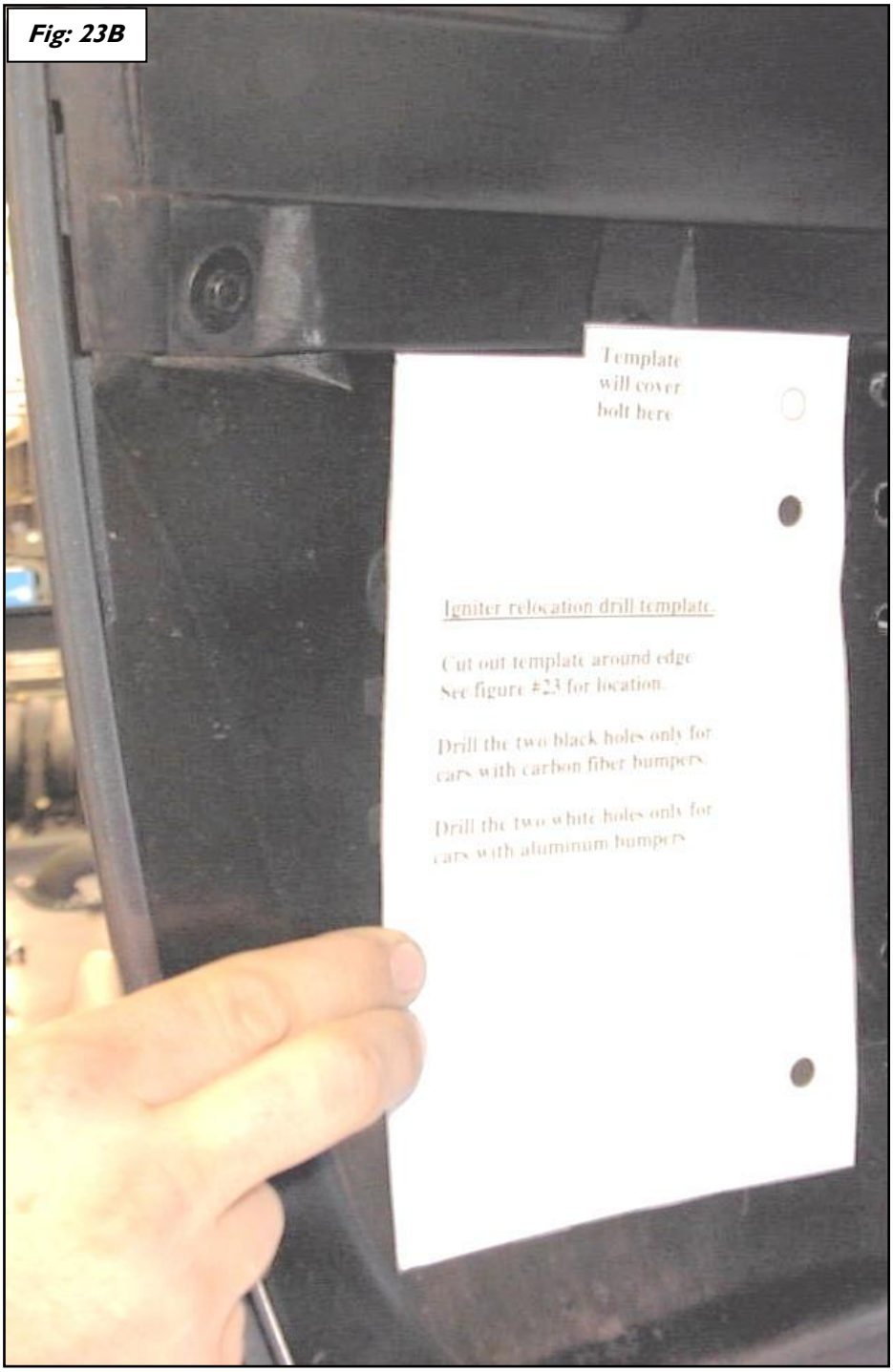
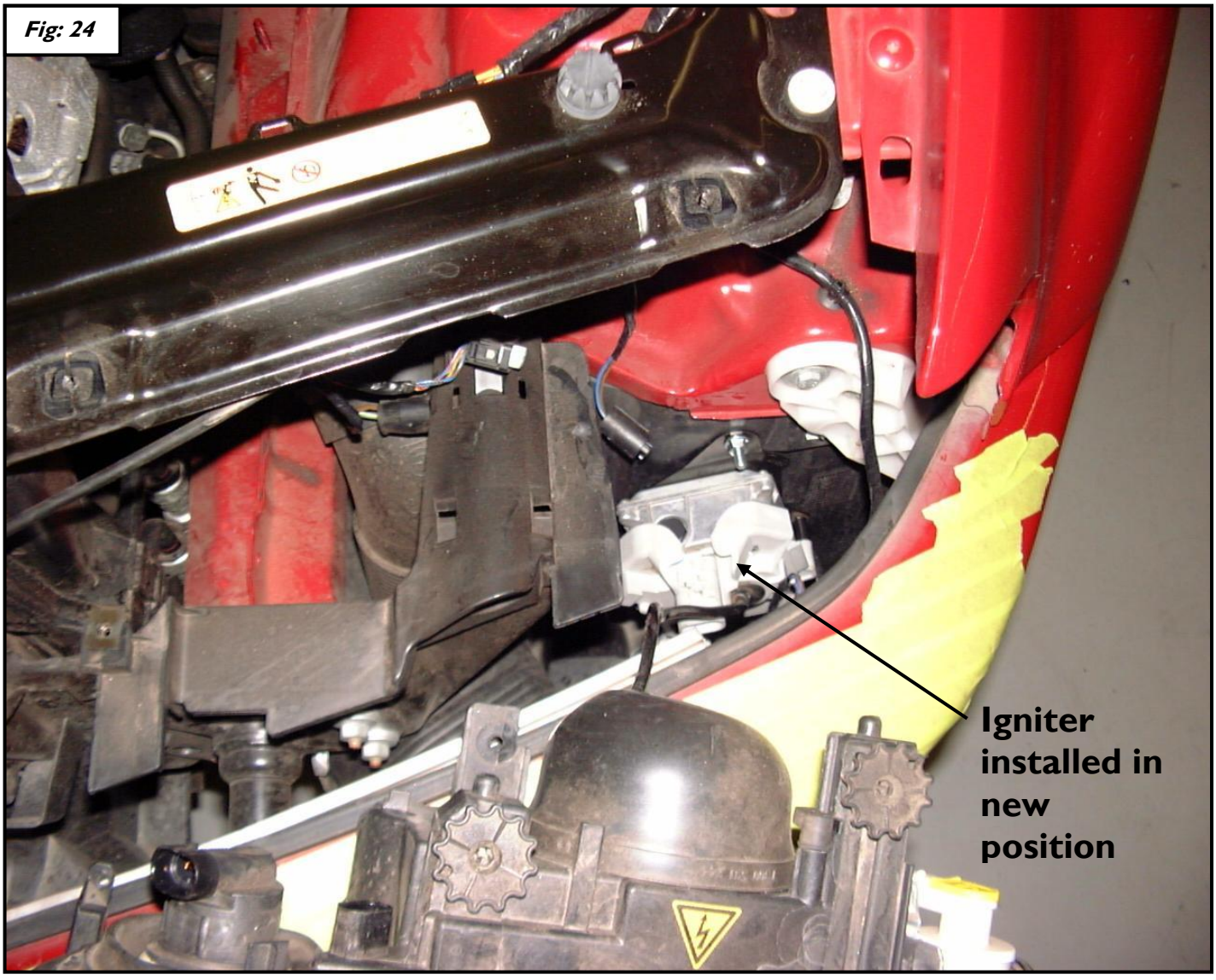


Fig: 23B

34. Now you will reinstall the headlight assembly and igniter. Gently set the headlight assembly on the bumper (be sure you still have the bumper protected). Unclip the igniter wiring from the headlight; slide the igniter down in to the space between the headlight and the wheel well with the bracket toward the wheel well. The bent tab goes down and the flat tab faces up. Locate the two 6mm x 16 bolts, the two 6mm locknuts and two fender washers. Slide the fender washers onto the bolts. Slide the first bolt through the lower of the 2 holes from the fender well side. Then fit the lower bracket tab over the bolt and start the nut. Do the same with the top bolt. Tighten both of the lock nuts. Figure 24 shows igniter installed in new position.

Fig: 24



35. Reroute the wiring for the igniter and plug it in. NOTE: You will need to unclip the wiring from the car and separate the igniter wiring from the headlight wiring to make it reach. Do this by carefully cutting the tape back that holds them together. Be sure to re-tape any wiring that is exposed. Once the igniter is plugged back in, you can reinstall the headlight assembly. **NOTE: On carbon fiber bumper cars reinstall the horn assembly after you install the igniter, and before you reinstall the headlight assembly.** Plug in the 3 plugs for the headlights, but do not reclip the headlight wires to the car, and remove the clips. You may want to check headlight adjustment. See Figure 25.

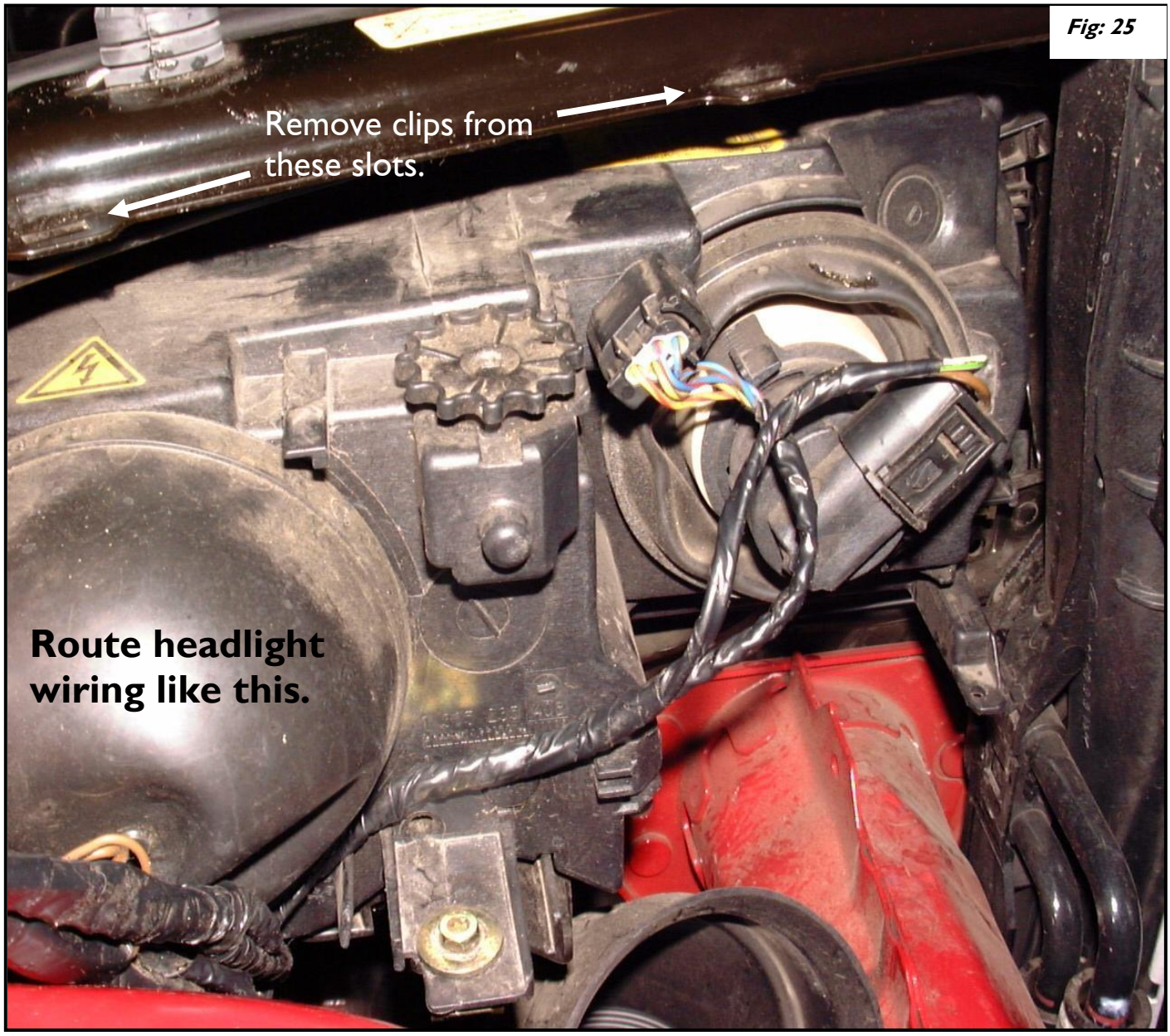


Fig: 25

Install new air box, filter and air mass meter.

36. Locate the lower half of the air box, the two rubber seals, the air box bracket, the two 6mm black Allen head bolts, one 6mm bolt, three washers and two 6mm lock nuts. The lower half of the box is the one with the large hole for the new air mass meter. See Figure 26.

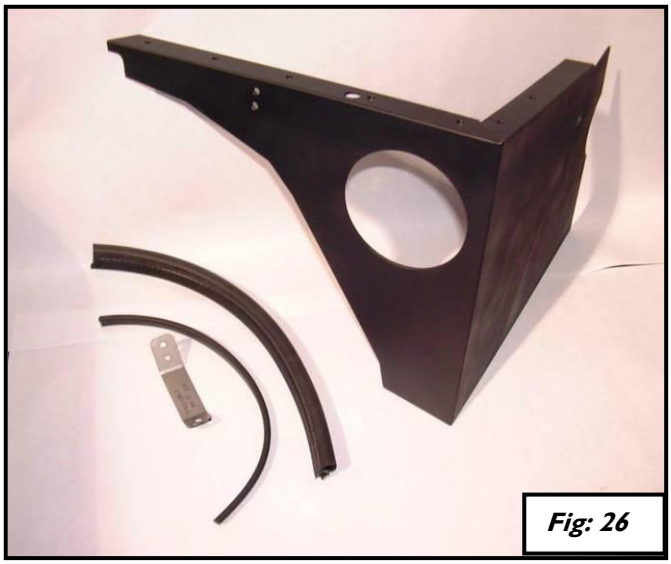


Fig: 26

37. Install the rubber seals as shown in the photo. The larger softer seal goes along the lower edge of the backside of the box. The smaller "U" shaped seal goes around the large hole for the air mass meter. See Figure 27.

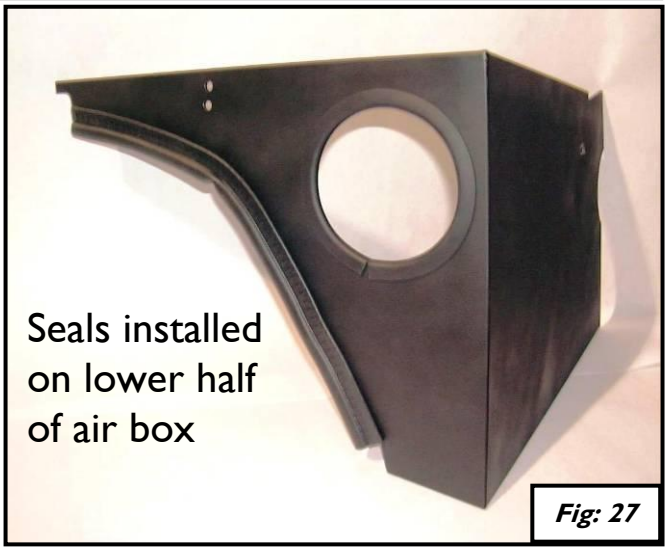
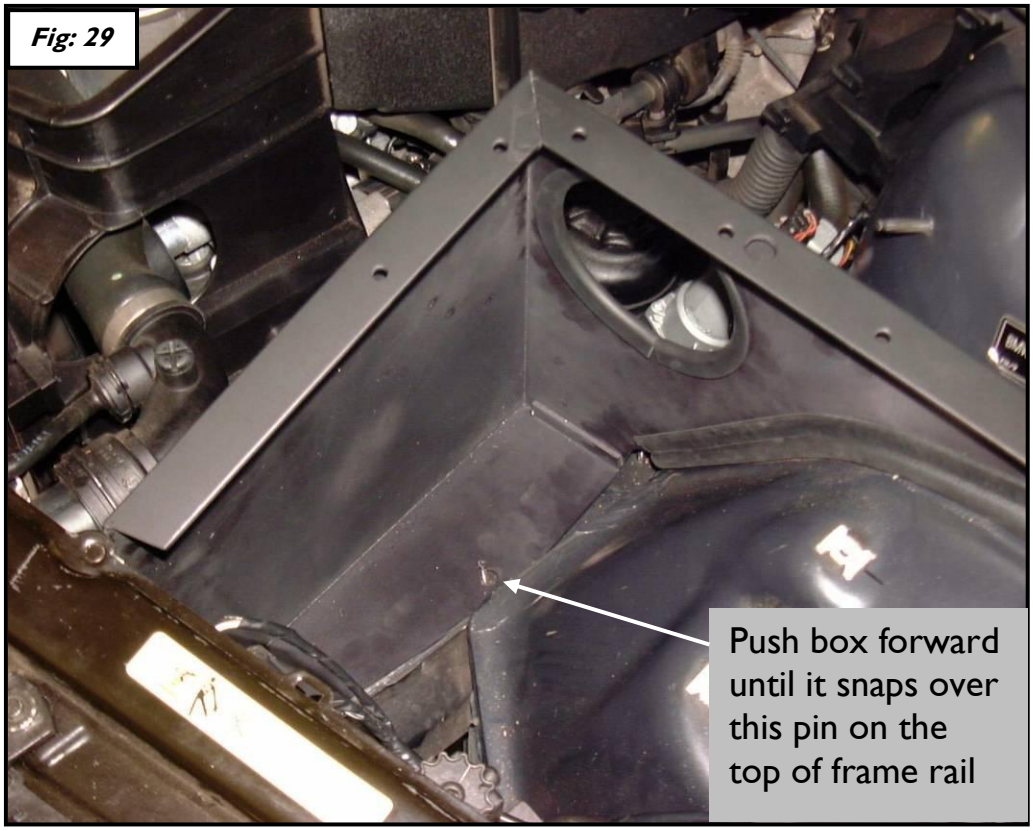


Fig: 27

38. Fit the air box in the car as shown. By pointing the front down, and slipping it under the front of the car and rocking the back down. The back is the side with the large hole for the air mass meter. See Figure 28.

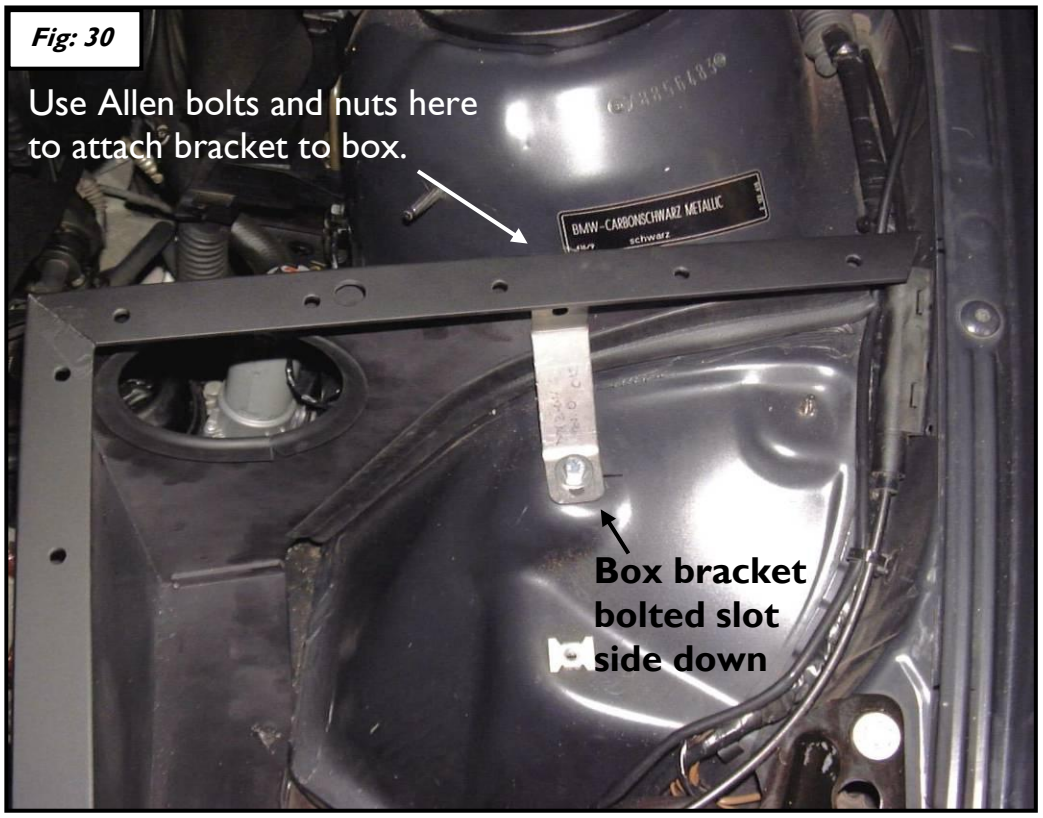
Fig: 28

39. Once you rock it down push forward on it until the hole in the bottom of the box snaps over the pin sticking up from the frame rail. See Figure 29.



40. Bolt bracket in as shown with the single slot going down and bolting to the original upper air box bolthole. The slot is for adjusting the box later when you fit the box top. Use the 6mm x 16mm standard bolt and regular washer here.

Use the two 6mm black Allen bolts and lock nuts to bolt the top of the bracket to the box. See Figure 30.

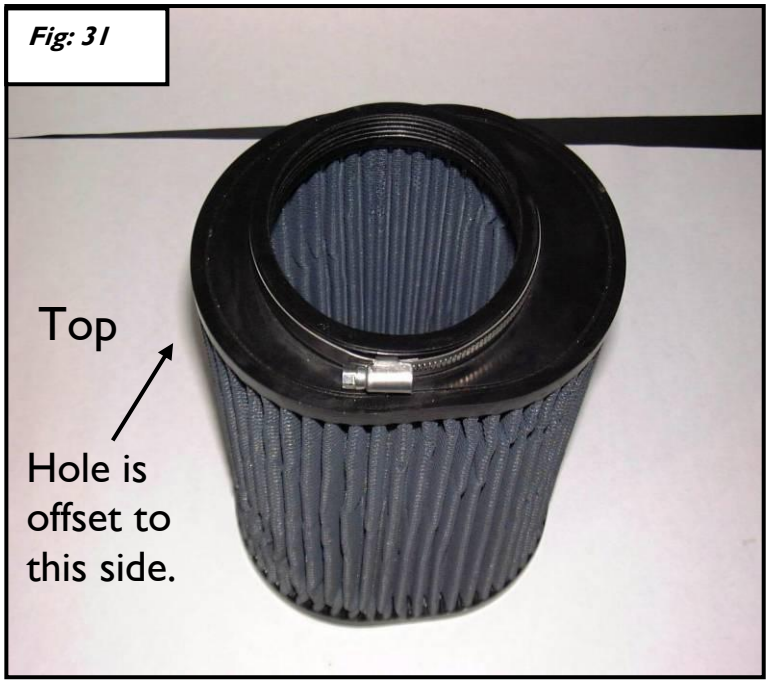


Install air filter and airflow meter

41. Locate the new Air mass meter body and oval Air filter.

    Notice that the hole in the filter is off set to one side of the oval. The side of the oval that the hole is closest to will be the top of the filter. See Figure 31.

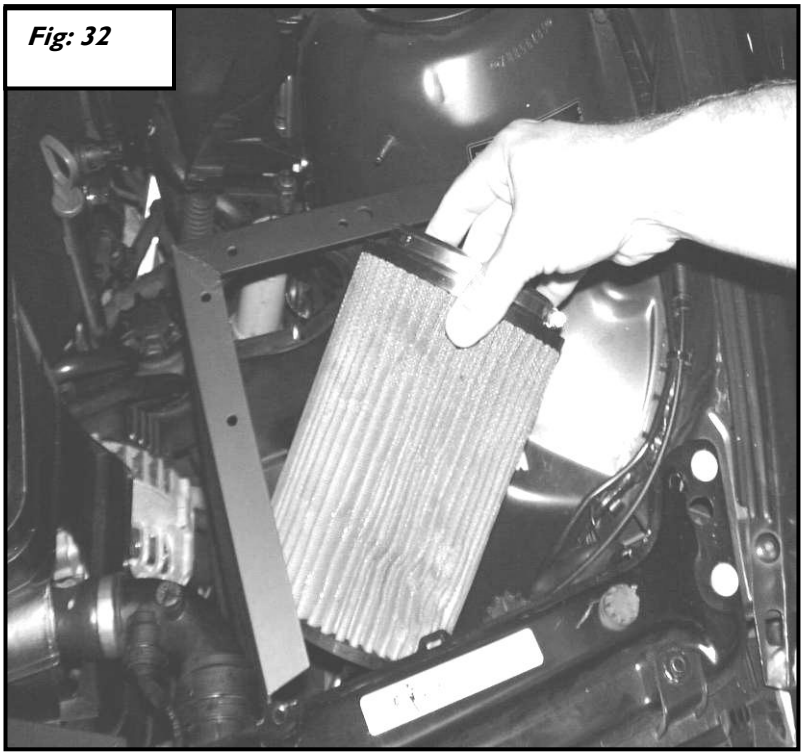
Fig: 31



42. Install the filter in the box by placing the closed end of the filter in first, at an angle gently up against the headlight and rocking the open end down into the box. It should go in easily. Remember the side that the hole is closest to is the top.

    NOTE: If you put the air filter in upside down the air box lid will not fit. See Figure 32.

Fig: 32



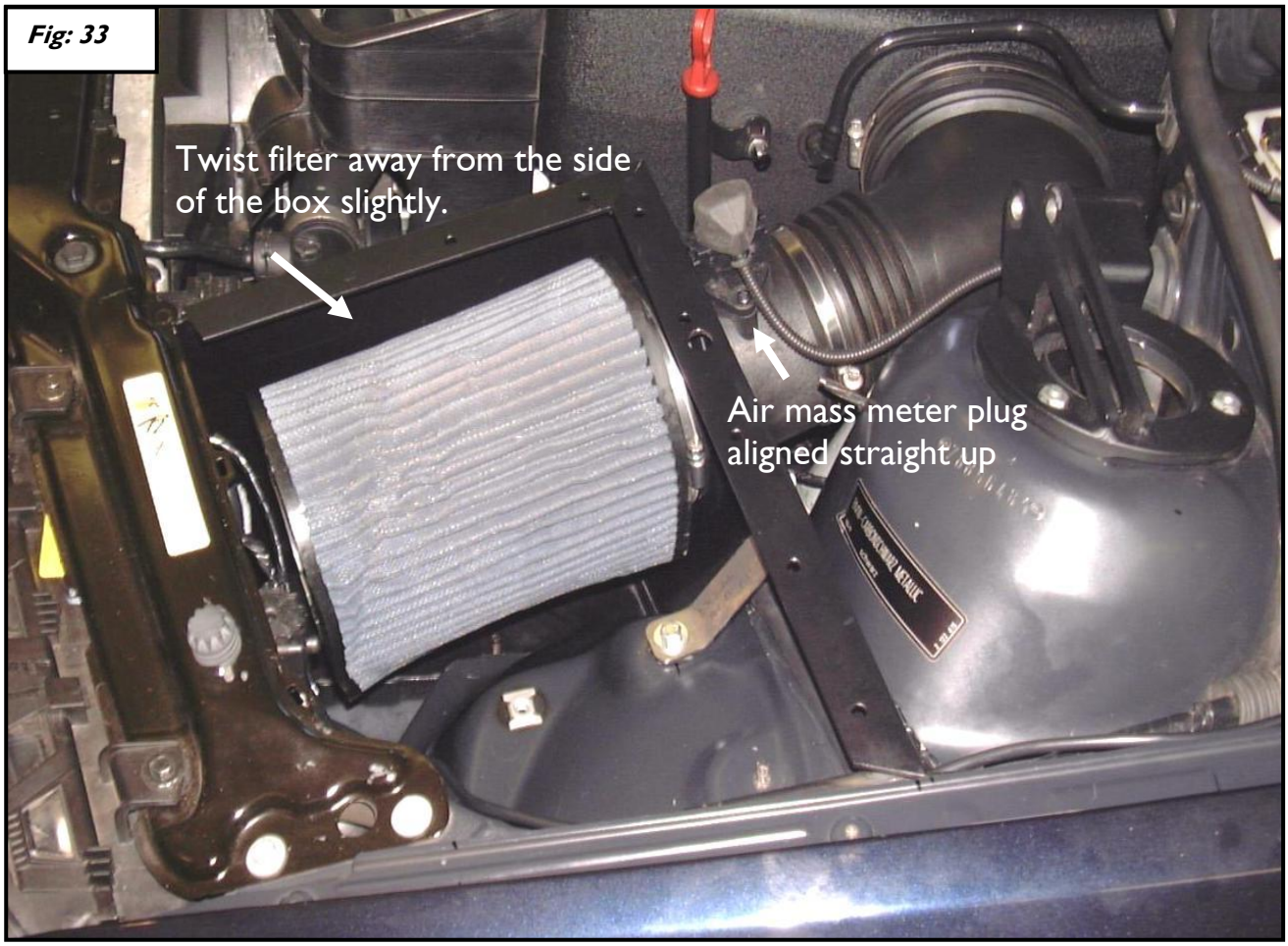
43. Bolt the air mass meter guts that you put in a safe place earlier into the new air mass meter body. Use the button-head screws provided. DO NOT USE THE STOCK SCREWS.

Install the meter into the airbox by sliding the longer end of the Meter through the hole and into the air filter. Do not tighten the filter clamp yet. Snap the stock rubber seal ring into the grove on the end of the new air mass meter then fit the stock rubber elbow hose over the new air mass meter and onto the motor. Don't tighten these clamps yet either. Gently twist the filter inward onto the air mass meter until it just touches the rear of the box, then twist the top slightly away from the side of the air box. Align the filter hose clamp screw with the big hole in the air box flange. Now align the air mass meter so the plug is straight up and tighten all of the hose clamps. **Note – overtightening the hose clamps may damage parts! Use caution!**

Plug in air mass meter. See Figure 33.

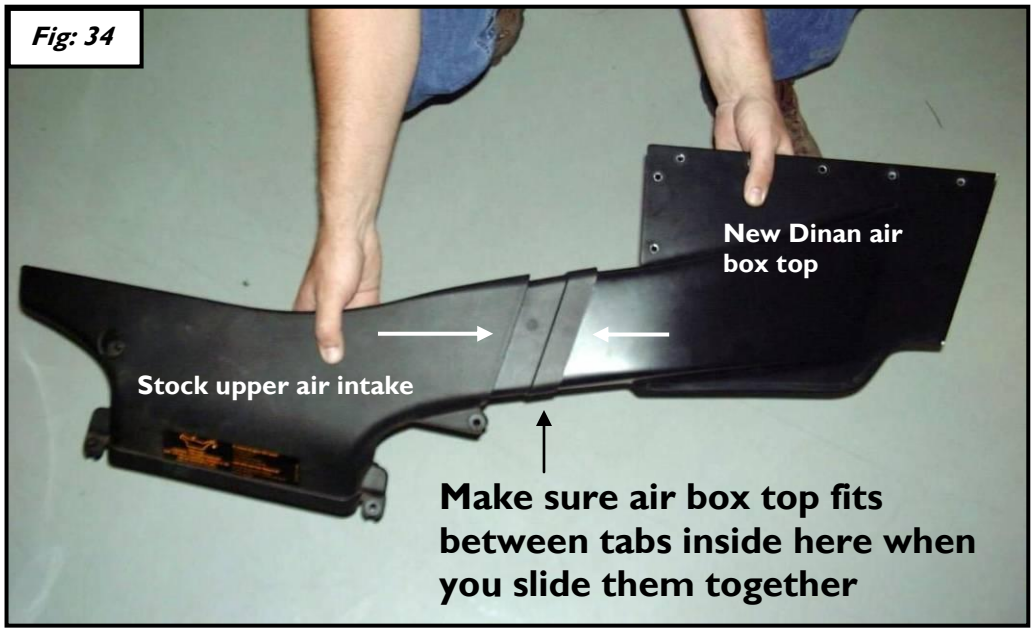
NOTE: The alignment of the sensor with the airstream is critical – the air mass meter plug must be pointed straight up! Running problems could result if care is not taken.

Fig: 33

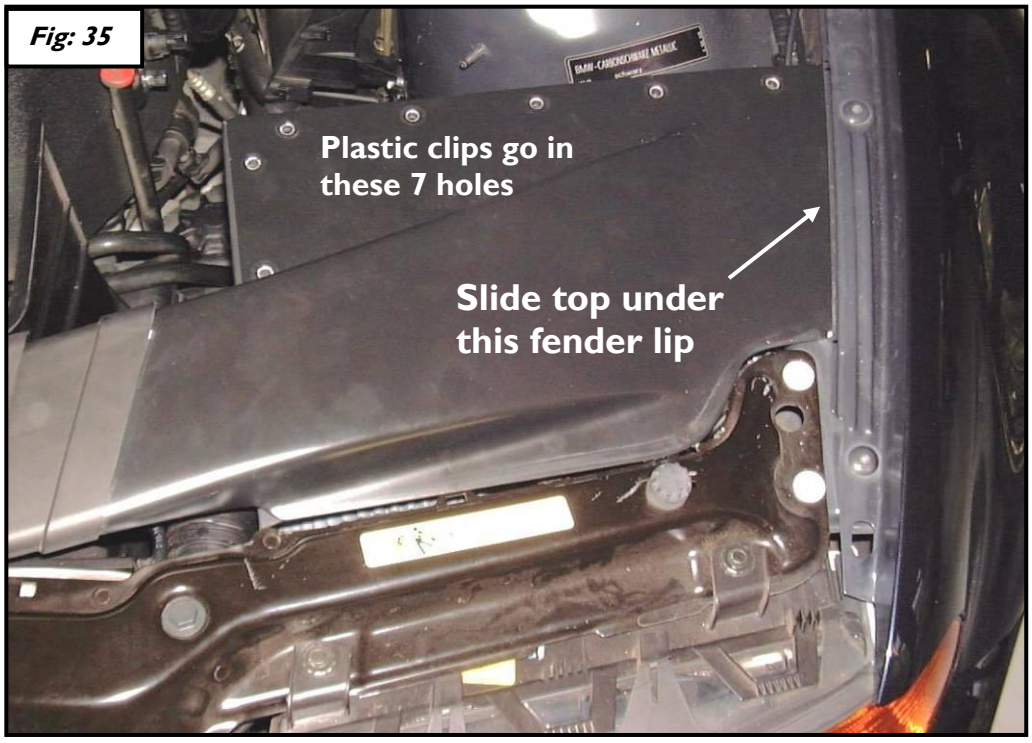


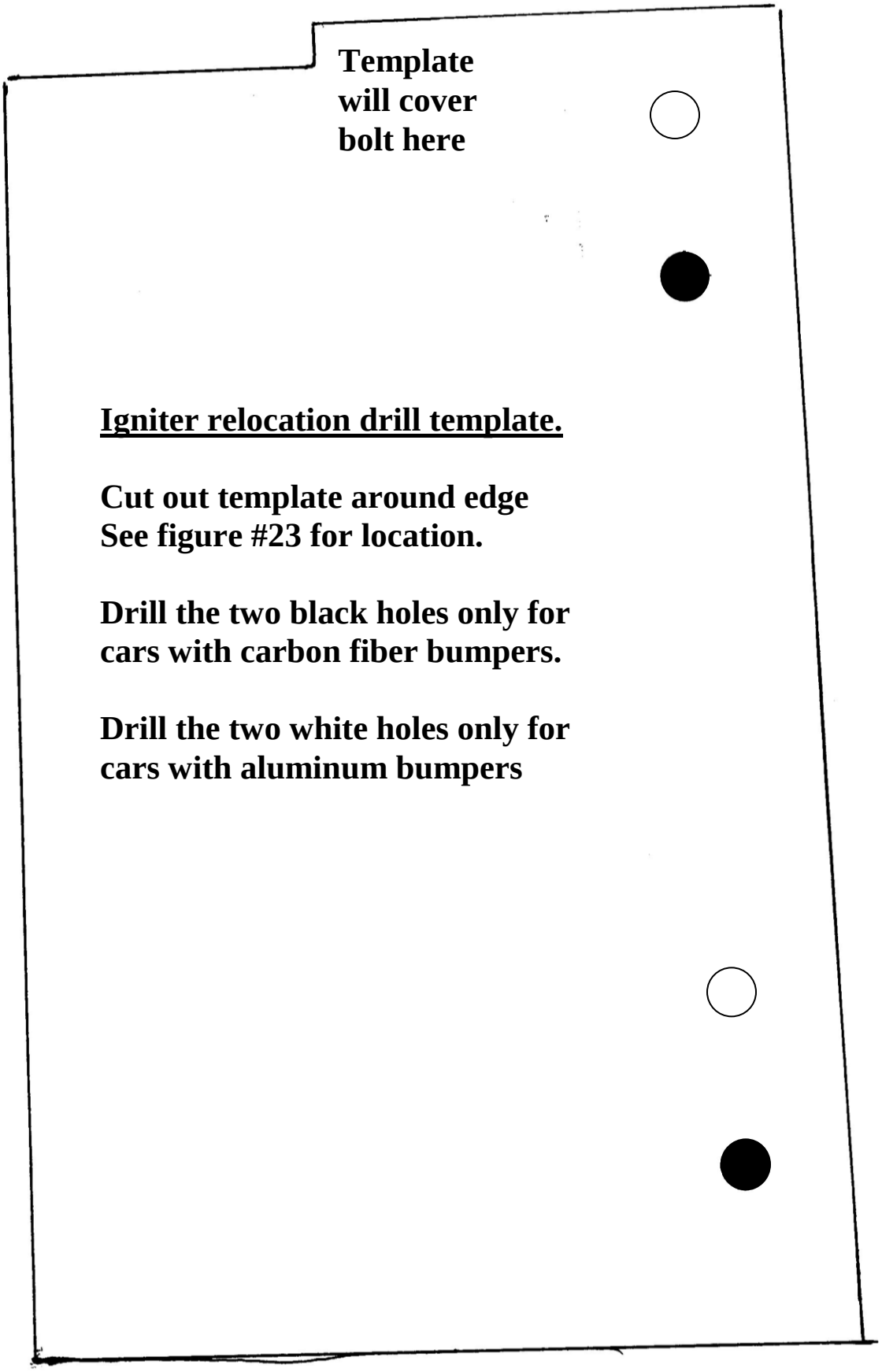
Fit the air box top and reinstall the upper air intake

44. Locate the new upper air box top and stock upper air intake. Slip them together, making sure that the new top fits between the small tabs in the outlet of the upper air intake. See Figure 34.



45. Place the air box top and upper air intake on the air box. Slide the box top over until it slips under the fender lip and the 7 holes line up in the lower box. Locate the supplied plastic clips with the locking pins in the top of them. Pull the pins out of the clips and push them through the box top holes into the 7 holes in the lower box. Push them down tight and push the pins back in. This will lock the clips into place and the lid on the box. Now simply reinstall the 4 stock clips in through the upper air intake. They work the same way. See Figure 35.





Igniter relocation drill template.

Cut out template around edge
See figure #23 for location.

Drill the two black holes only for cars with carbon fiber bumpers.

Drill the two white holes only for cars with aluminum bumpers