2010 MK4 Panzer Plate Install Instructions

This is the install procedure for installing the Dieselgeek.com MK4 Panzer Plate Skid Plate Kits. These instructions are for **all** 1999 1/2 through mid-2005 A4 Jetta, **all** 1999 1/2 through mid-2006 MK4 Golf, GTI and 2004 R32, and **all** 1998 through 2009 New Beetles, regardless of engine type, transmission type or body type (sedan, wagon or hatchback). These instructions and the parts list *only* apply to MK4 Panzer Plate kits bought from Dieselgeek.com.

Parts List

1. One aluminum Panzer skid plate
2. Two **identical** black powder-coated steel posts with a two-hole flanged foot.

Figure 1 - Black powder-coated steel posts

2. Nine 30mm long bolts

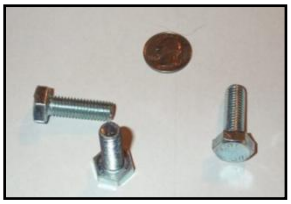

Figure 2 - 30mm long bolts

3. Ten 1 1/4 inch diameter, 3/8" or 10mm 1/8" **THICK** washers for all of the bolts above (one washer acts as a spacer for the rear center skid plate bolt)

Figure 3 - 10mm 1/8" THICK washers

4. Eight OE VW rivnuts with one given free as a spare

Figure 4 - Rivnuts

5. Two 1.5 inch long, #10 Phillips head or hex head sheet metal screws with stainless fender washers for the **front** side skirt holes

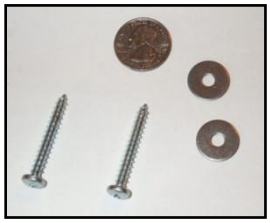

Figure 5 - Sheet metal screws with stainless fender washers

6. Two big headed black Phillips screws for rear plastic side skirt holes

Figure 6 - Big headed black Phillips screws

7. Rivnut Install Kit

Figure 7 - Rivnut Install Kit

8. One 10 inch long, 1/8" thick aluminum rivnut tool

Figure 8 - Rivnut tool

9. Two black 10mm studs

Figure 9 - Black 10mm studs

10. Two 10mm or 3/8" external tooth lock washers

Figure 10 - External tooth lock washers

11. Two 10mm nuts with 17mm flats

Figure 11 - 10mm nuts

Tools Required

1. On all cars except 2.0 gasoline powered vehicles, there is one bolt that is tricky to reach with a standard 10" or 12" extension bar.

Figure 12 - The "tricky" to reach bolt

Therefore, we recommend that you have one of the following special tools on hand to make this one bolt reachable:

- 10 or 12 inch wobble extension (Figure 13). Here is a comparison to a standard extension (Figure 14), which is available at Sears or auto parts stores (Figure 15).

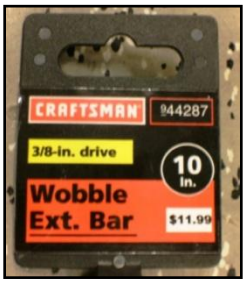

Figure 13 - Wobble extension

Figure 14 - Comparison to a standard extension

Figure 15 - Wobble extension

- 17mm or 11/16 socket and universal joint adapter

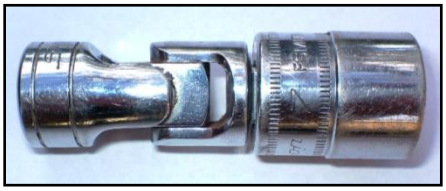

Figure 16 - Socket and universal joint adapter

- 17mm or 11/16 universal joint socket

Figure 17 - Universal joint socket

- 17mm or 11/16 crow's foot socket

Figure 18 - Crow's foot socket

2. Socket wrench (longer handles are better)
3. Safety glasses
4. Torque wrench for more accurate rivnut setting (beam type is better)

Figure 19 - Torque wrench (beam type)

5. Torx T25 screwdriver to remove stock belly pan screws
6. Flat-blade screwdriver
7. Phillips screwdriver
8. Car jack and heavy jack stands and/or car ramps
9. Any automotive grease
10. WD-40 or equivalent lubricant spray
11. A hack saw is useful for modifying your stock side skirts for skid plate use.

Getting a Safe Start

First, jack up the car and place the car on ramps or sturdy jack stands. For manual shift cars, set the handbrake and put the car in gear. For automatics, make sure the handbrake is set and make sure the car is in the "Park" position. Use the floor jack as a third "safety" jack stand (Figure 20) in the middle of the subframe. You can also do the install on a vehicle lift if you have access to one. Once the car is safely raised into the air, remove your center factory plastic air deflector/sound deadening plate by removing all of the Torx T25 screws (Figure 21). Next, remove the engine bay side skirts by either simply pulling them downward or by unthreading the flat star speed nuts with a long screwdriver (two per side) by placing a flat bladed screwdriver in one of the star nut's radial slots (Figure 22) and turning the nut counterclockwise. On turbocharged cars and especially the TDI, it may be easier to remove the passenger side skirt after the hose leading into the lower part of the intercooler is removed or the 6mm nut holding the rear of the intercooler hose is removed. Be careful to save all hardware and reattach the hose at the end of the install. The OE T25 Torx screws you remove can be used in place of the Phillips screws we provide with your Panzer kit (Figure 23).

Figure 20 - "Safety" jack stand

Figure 21 - Removing all of the Torx T25 screws

Figure 22 - Unthreading the flat star speed nuts with a long screwdriver

Figure 23 – The T25 Torx screws you remove can be used in place of the Phillips screws shown

The rivnuts (Figure 4 - Rivnuts) are the anchors for the skid plate and provide the super strong and secure attachment points for the skid plate. During this procedure, you will install seven rivnuts into preexisting 13mm holes on the car's subframe (Figure 24, Figure 25, Figure 26) and on the underside of the driver side (Figure 27) and passenger side (Figure 28) frame rails on either side of the engine bay. (The subframe is below and behind the engine and has the steering rack and sway bar mounted on top of it.) It is very highly recommended that you install the first three rivnuts into the rear subframe since access is the best and you can get a feel for installing them without any obstructions**.** The rivnuts are locked into the body by setting them (Figure 29) with the procedure that follows.

Figure 24 – Passenger side subframe

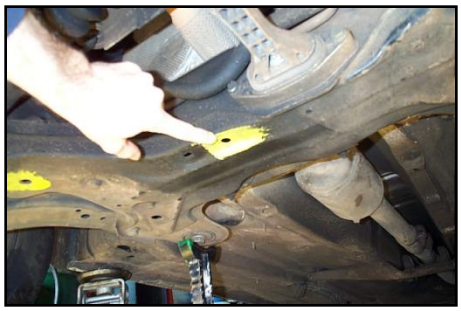

Figure 25 – Center subframe

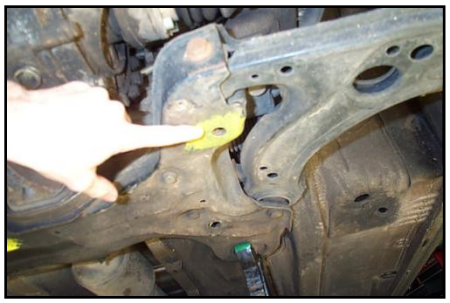

Figure 26 – Driver side subframe

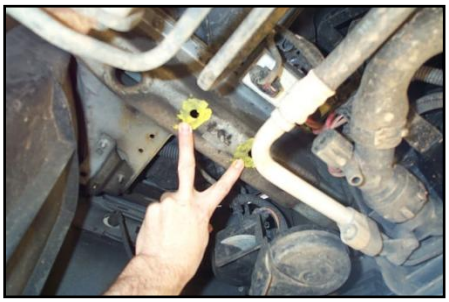

Figure 27 - Driver side frame rails

Figure 28 - Passenger side frame rails

Figure 29 - Rivnuts are locked into the body by setting them

The very first step for installing the rivnuts is to load the rivnut tool with a rivnut. This is done by first greasing all of the threads (Figure 30) of one of the supplied black studs and then threading it into a rivnut using the shorter threaded end (Figure 31). Fully tighten the stud into the rivnut by hand only and then loosen it by 1/8 turn. Next, place one of the external tooth washers (Figure 32) on the stud and slide it down against the head of the rivnut. Next, insert the stud through the centered (Figure 33) hole in the rivnut tool and then place two of the thick washers (Figure 34) on the stud. Make sure there is plenty of grease on the exposed threads (Figure 35) of the stud. Finally, thread one of the 10mm nuts (Figure 36) onto the greased stud. Tighten (Figure 37) the 10mm nut by hand so that it keeps the rivnut from turning. This assembly is a "loaded rivnut" (Figure 38) . All seven rivnuts will be loaded in the same way prior to being installed.

Figure 30 - Greasing all of the threads

Figure 31 - Shorter threaded end

Figure 32 - External tooth washers

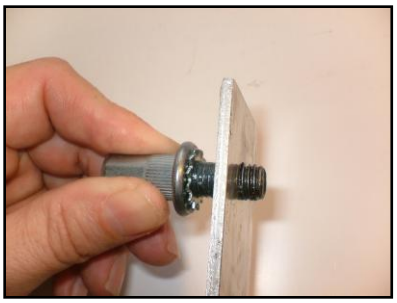

Figure 33 – Centered

Figure 34 - Thick washers

Figure 35 - Exposed threads

Figure 36 - 10mm nuts

Figure 37 - Tighten

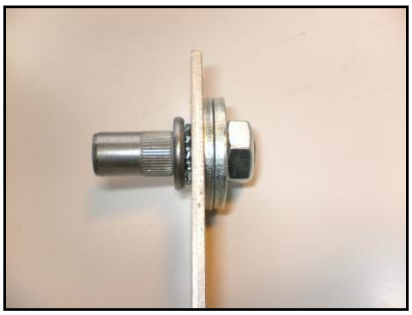

Figure 38 - Loaded rivnut

By using the rivnut tool as a handle, insert the rivnut into one of the rear outer subframe holes until its head is completely flush with the bottom of the subframe. Tighten the 10mm nut (Figure 39) using a 17mm socket or hand wrench while counter holding with the aluminum rivnut tool. As you are tightening the 10mm nut, be sure to maintain a gentle but steady upward pressure on the rivnut to ensure that it is butted up against the subframe. As you are tightening the 10mm nut, the threaded tubular section of the rivnut that is inside the subframe will slowly pull down toward the 10mm nut and mushroom out and expand (Figure 40) inside the subframe to sandwich itself around the subframe hole (Since the mushrooming action takes place inside the subframe you will not be able to see it.). Tighten the 10mm nut until it becomes noticeably harder to turn. At this point, you may either tighten about 1/2 to 3/4 turn beyond this point of greatly increased resistance to fully lock the rivnut in place or finish tightening the rivnut with a torque wrench set to 30 lb. /ft. Once this final tightening has been achieved, loosen and remove the 10mm nut, washer, rivnut tool, external tooth washer and finally the10mm stud from your first expertly installed rivnut. Reload (Figure 41) another rivnut in the same exact way as the first and then repeat the procedure for the remaining *outside* subframe hole. After these first two rivnuts have been successfully installed in the rear outside subframe holes, repeat the process for the last subframe rivnut by reloading the rivnut into the *offset (*Figure 42*) hole of the rivnut tool*. Install this rivnut into the rear center hole (Figure 43) of the subframe.

Figure 39 - Tighten the 10mm nut

Figure 40 – The rivnut will mushroom out and expand

Figure 41 - Reload

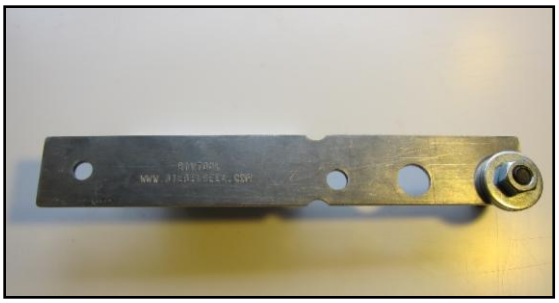

Figure 42 - Offset

Figure 43 - Rear center hole

Installing the four remaining rivnuts into the underside of the left and right frame rails is pretty much the same as installing them into the subframe but the newly designed Rivtool and stud system makes it even easier than ever. You will use the end of the rivnut tool with the offset hole to install the remaining four rivnuts. Also, you will be loading two rivnuts at a time on the rivnut tool to install them into each of the frame rails. First, thread the short end of the two black studs into two rivnuts and place star washers against the heads of the rivnuts as before. Insert the studs through the rivnut tool on the side opposite of the stamped letters (Figure 44). Place washers on the studs and make sure there is sufficient grease on the threads of the two studs. Next, thread the two nuts onto the studs but leave the nuts slightly loose so that the rivnuts can move. This will make it easier to align the rivnuts with the two holes in the subframe. Next, reach up with the loaded rivnut tool and insert the two rivnuts into the two holes on the underside of the passenger side frame rail. The "tail" of the rivnut tool will go toward the rear of the car (Figure 45). **Helpful hint:** A star washer from your plastic side panels (if you have them) can be used to hold the rivnut tool firmly up against the frame rail as shown in the previous picture. Tighten the star washer with your fingers by rotating it clockwise. The star washer will help keep the rivnuts firmly against the frame rail when you tighten the nuts (Figure 46). Tighten both of the 10mm nuts with a ratchet, 12 inch extension bar and 17mm socket until you reach the point of greatly increased resistance. Finish the process by tightening 1/2 to 3/4 turn past the point of greatly increased resistance or by using a torque wrench set to 30 ft.-lbs. After both nuts have been torqued, remove the big round star washer if you used one by unthreading it from the stud. Remove all of the other parts including the black 10mm studs and please be careful to retain the external tooth lock washers as they will be reused on the driver side of the car. Repeat this process on the other side of the car in the driver side frame rail (Figure 47 - New Beetle shown, Golf/Jetta similar). On New Beetles there may be a power steering-related bracket very near the rivnut holes so you will need to insert the rivnuts into the holes first before threading in the two studs. Also, you might need to flip the Rivtool over on the driver side to get the needed clearance for the power steering bracket.

Figure 44 - Insert the studs through the rivnut tool on the side opposite of the stamped letters

Figure 45 - The "tail" of the rivnut tool will go toward the rear of the car .

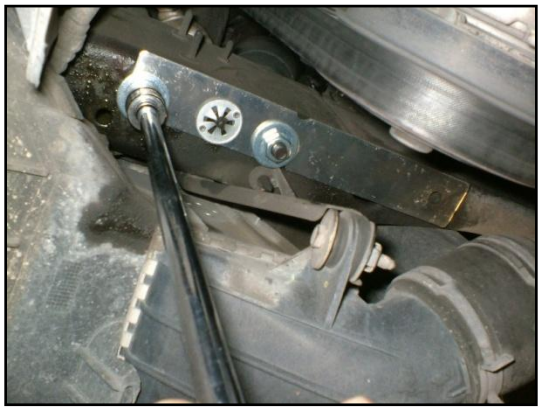

Figure 46 - The star washer will help keep the rivnuts firmly against the frame rail when you tighten the nuts

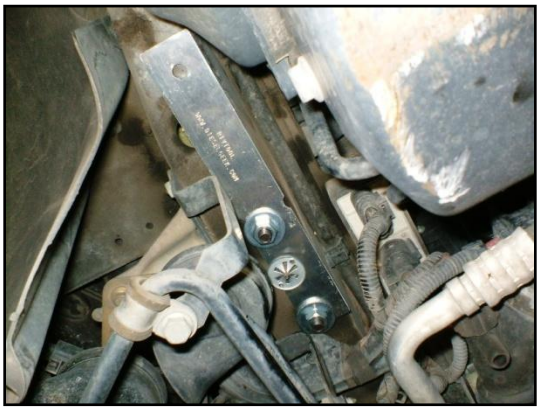

Figure 47 - Repeat this process on the other side of the car in the driver side frame rail

After all four of the rivnuts are installed and torqued into the frame rails, you should spray the female threaded hole (Figure 48) of both of the front mounting posts with WD-40 or equivalent spray as they are degreased during the coating process and have very sticky threads if left dry. Next, lightly grease the threads of four of the 10mm bolts and place the large fender washers onto them. You then attach the front mounting posts to the underside of the frame rails using the greased 10mm bolts and thick washers. Leave the mounting post bolts slightly loose. The posts should be oriented with their legs angled slightly *forward* in the car (the post is not welded perpendicular (Figure 49) to the base plate). The skid plate will not fit otherwise. **The four mounting post bolts should not be tight at this time** as the slack will be used to align the plate when is mounted. You will tighten all of the bolts fully only after the plate and side panels have been mounted.

Figure 48 - Spray the female threaded hole of both of the front mounting posts with WD-40 or equivalent spray

Figure 49 - The post is not welded perpendicular to the base plate

Once all seven of the rivnuts have been installed, the vertical plastic engine bay side panels or side skirts should be installed.

If you bought our "Full Metal Jacket" aluminum side shields you should now switch to the FMJ install manual instead.

You may use your existing plastic side splash guards with the Panzer Plate if the bottom screw mounting points are still intact. The side skirts are needed keep water and dirt out of the engine bay reduce engine noise and protect the engine drive belts. The required modifications to allow use of your existing plastic side skirts are easy to do by simply cutting them with a **hack saw or Dremel tool as described below**.

Modification of Original Equipment Engine Bay Side Panels

To modify your existing side skirts, there are a total of five cuts required per side skirt. The first four cuts will remove the yellow shaded area in this picture (Figure 50). Cut A should be the first cut made with a hack saw. It is 2 inches beyond and parallel to the last gusset (marked with D in the picture). Cut B should be the second cut made with a hack saw. To make cut B, simply cut right down the 90 degree crease in the skirt to the point 2 inches beyond the last gusset which is also the end point of cut A. The last two cuts C and D are simply to finish removing the gussets. It is not necessary to cut them very close to the side of the side skirt. The finished product of the first four cuts looks like the photo (Figure 51). The final cut is simply removing the tail section (Figure 52). Repeat the five cuts for the other side skirt.

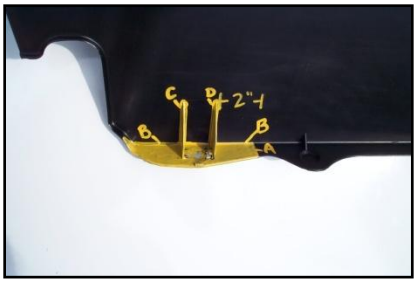

Figure 50 - The first four cuts will remove the yellow shaded area.

Figure 51 - The finished product of the first four cuts

Figure 52 - The final cut is simply removing the tail section

Install the side skirts by sliding the front rounded edge into the slot in the radiator support (Figure 53) and then pushing their star nuts onto the threaded stud (Figure 54) on the bottom side of the frame rail. You can tighten the star nuts further by placing a flat bladed screwdriver in one of the star nut's radial slots (Figure 55) and turning the nut clockwise. On turbocharged cars and especially the TDI, it can be slightly tricky to install the side skirt on the passenger side of the car with the lower intercooler hose rear mount still attached to the frame rail (with a 6mm nut). Removing the hose mount does make it a little easier to install the side skirt but it is not absolutely necessary to do so. Personally, I have never removed the intercooler hose or mount during a skid plate install. Your needs may differ and that is fine.

Figure 53 - Sliding the front rounded edge into the slot in the radiator support

Figure 54 - Pushing their star nuts onto the threaded stud on the bottom side of the frame rail

Figure 55 - Tighten the star nuts further by placing a flat bladed screwdriver in one of the star nut's radial slots

Adding an Optional Oil Drain Hole

Note: Follow this section if you did not select the "Open oil drain window" option during checkout and you want to use the drain hole.

All Panzer Plates are manufactured with a trapezoidal keystone shaped cutout for draining your oil through the bottom of the car (Figure 56). This cutout is meant for **four cylinder cars only** and is marked as such on the skid plate. Cars with the VR6, 1.8T gas turbo engine or the 2.0 liter gas engine will still need to remove the skid plate to remove the oil filter. TDI owners who have elected or will elect to remove the keystone cutout will not need to remove the skid plate to change the oil since the filter housing is at the top of the engine bay. Please note that the oil drain window is sized for the draining of lukewarm engine oil, not hot engine oil. A rule of thumb is that if the oil pan is warm enough that you can keep your fingers on it for five seconds then it is o.k. to drain it.

Figure 56 - Trapezoidal keystone shaped cutout for draining your oil through the bottom of the car.

If you have a four cylinder car and wish to remove the keystone cutout (Figure 57) you will need to obtain a loose hack saw blade (Figure 58 - shown wrapped with paper towels) or an inexpensive $5.00 Home Depot, Lowes, Ace Hardware, etc. keyhole saw (Figure 59) to remove the keystone cutout picture shows (Figure 60). Cutting the two connecting webs (Figure 61) of aluminum takes a couple of minutes apiece. The trapezoidal hole left in the plate will work perfectly to drain the oil without removing the skid plate, assuming the oil is lukewarm. Just put a 19mm or three quarter inch box end wrench or socket on the drain plug to loosen the drain plug (Figure 62).

Figure 57 - Keystone cutout

Figure 58 - Loose hack saw blade

Figure 59 - Keyhole saw

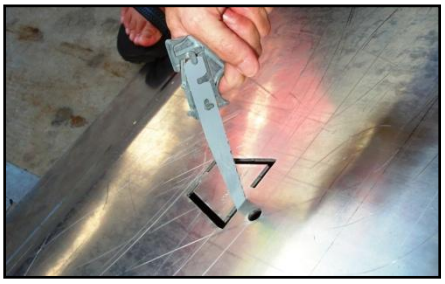

Figure 60 - Remove the keystone cutout

Figure 61 - Cutting the two connecting webs of aluminum

Figure 62 - Use a 19mm or three quarter inch wrench or socket on the drain plug to loosen the plug

Installing the Plate

Before you lift the plate into place, lightly grease the threads of the five remaining bolts. Place washers onto these remaining five bolts and make sure they are within reach under the engine bay. Thread a lightly greased bolt in and out of the mounting posts to make sure the threads are well lubricated prior to installing the skid plate. To install the plate, center the plate on your chest and lift the skid plate up into place and while supporting the center of the skid plate. Loosely thread two of the 10mm bolts into opposite corners to hold up the skid plate. These two bolts will hold up the skid plate while you are installing the three remaining 10mm bolts. Next, slip the last extra washer (Figure 63) between the skid plate and the rear center bolt hole. After the spacer washer is in place, thread a bolt through this skid plate hole and into the center rear rivnut. Finish threading the remaining three bolts. After all of the bolts have been threaded a few turns each to make sure they are threaded correctly, finish tightening them with a 17mm socket and torque them to 30 ft.-lbs. The passenger rear of the skid plate will distort slightly as you tighten the passenger rear bolt. This is o.k.! Next, finish tightening all four of the mounting post bolts to 30 ft.-lbs using your 12 inch long extension and 17mm socket. Once all nine of the 10mm skid plate bolts are fully tightened, attach the side skirts to the skid plate with the four Phillips screws provided with the kit. The long Phillips screws and small fender washers are for the front side skirt holes. Use the short black Phillips screws for the rear side skirt holes.

Figure 63 - Slip the last extra washer between the skid plate and the rear center bolt hole

- End of Instructions -