

Thank you for purchasing the Track Dog Racing Oil Pressure Sender Kit. The following instructions are for 1995 and newer Miatas that do not have a real oil pressure sender and gauge reading. This new oil pressure sender reads between 0 and 80 PSI. The signal input requires recalibration of the dial indicator, which the installation instructions will show. Installation should take about 2 hours.

The new oil pressure sender requires the gauge pointer to be readjusted, without this adjustment the pointer will go to the full right. The gauge movement does not move a large amount and is dampened so not to be jumpy so placement is important. The reading movement will increase as the RPM increases, but only a small amount before the oil pressure bypass relieves the pressure. The oil pressure bypass valve regulates the oil pressure to about 60 PSI as the RPM level increases. Some engines will show more or less gauge movement depending on the condition of their engine and what high performance modifications have been applied. The different viscosity weights of oil will also change the oil pressure read as well as synthetic verses mineral oil. When the engine is cool the oil pressure will be higher at idle than after it warms up to operating temperature.



Oil pressure failure usually comes from bypass pressure relief valve malfunction, poor oil quality, oil contamination from water or metal components or catastrophic mechanical failure. An engine will destroy itself in a matter of a few minutes. Become familiar with your oil pressure readings so if conditions change you will be prepared to shut off your engine.

Here is a list of item and tools you may require for your installation.

| | |
|----------------------------------|--|
| 3/8" Open-In Wrench | Phillips Screwdriver |
| 1/2" Open-In Wrench | 11/16" Open-In Wrench |
| Electrical Tape | Small Channel Locks or Adjustable Wrench |
| LOCTITE Blue or Silicone Sealant | |

INSTALLING THE OIL PRESSURE SENDER

1. The oil pressure sender will be accessed through the fender well opening as shown in Photo 1-A. Jack the passenger side of the car up and support it with jack stands, remove the tire and set aside. DISCONNECT THE BATTERY BEFORE REMOVING AND INSTALLING THE SENDER.
2. Unplug the wire from the stock oil pressure sender as shown in Photo 1-B. Use small Channel locks to remove or other type of wrench, the size is a 24 mm.
3. The new oil pressure sender comes attached with an adapter. Apply BLUE LOCTITE or Silicone sealant to the thread to prevent oil leakage. Do not use Teflon tape as it can insulate the sender to the point of not having a good ground.



Photo 1-A: Remove the tire for access through the fender well



Photo 1-B: Location of the stock oil pressure sender



Photo 1-C: Use a 1/2" open-end wrench to tighten the new oil pressure sender



Photo 1-D: Attach the sensor wire to the oil pressure sender

4. Install the new oil pressure sender by threading initially by hand and then use a 1/2" open-end wrench to tighten. Factory torque states 9-13 ft. lbs., I call it snug.
5. When complete, reinstall the battery connections.

REMOVING THE GAUGE PANEL '95-97 MODEL

6. Using a Phillips screwdriver remove the screws that hold the top half of the steering column cover as shown in Photo 2-A. Remove the cover and lay off to the side.
7. Remove the two Phillips screws on the dash board bezel, one on each side as shown in Photo 2-C.



Photo 2-A: Remove the screws holding the steering column cover on with a Phillips screwdriver



Photo 2-B: Remove the top half of the steering column



Photo 2-C: Remove Phillips screw in the dashboard bezel



Photo 2-D: Grip the dashboard bezel and pull to release the spring-clips

8. Grip the dashboard bezel on each as shown in Photo 2-D and give it a good pull. Some dashboard bezels detach from the spring-clips easily while others take extra force to release. Lay the dashboard off to the side.
9. Remove the 4 Phillips screws holding the gauge panel to the dashboard as shown in Photo 2-F.
10. Remove the wiring harness plugs from behind the gauge panel by pressing on the release clip.
11. Photo 2-G shows a 2-wire connector that must be removed. The dashboard side of the connector has foam insulation around it on some models that hides the release clip. Press on the foam side until the clip releases.



Photo 2-E: Lay dashboard bezel off to the side



Photo 2-F: Remove the 4 Phillips screws that attach the gauge panel to the dashboard



Photo 2-G: See note above on removing the 2-wire connector

12. Use a flathead screwdriver to press on the speedometer release clip as shown in Photo 2-H and pull the gauge panel from the dashboard.
13. With the gauge panel in your hands, press on the release clips that hold the front clear cover on as shown in Photo 2-I. Apply pressure to the front cover as you are releasing, set aside.



Photo 2-H: Remove the speedometer cable by using a screwdriver to press the release clip



Photo 2-I: Remove the front cover by pressing the release clips around the perimeter

REMOVING THE GAUGE PANEL '99-05 MODEL

14. Using a Phillips screwdriver remove the screws that hold the top half of the steering column cover as shown in Photo 3-A. Remove the cover and lay off to the side.



Photo 3-A: Remove the steering column cover



Photo 3-B: Remove the bezel by pulling to release

15. The dashboard bezel is held on with very strong spring-clips. Starting with one side at a time, grab the bezel with your fingers between the bezel and the gauge panel as shown in Photos 3-B and 3-C and pull with a snap action. Some are difficult to release, but keep trying.
16. The top spring-clips are a little easier than the bottom ones. Pull to release the bezel as shown in Photo 3-D and lay to the side.
17. Remove the 4 Phillips screws holding the gauge panel.
18. Remove the wiring harness plugs from behind the gauge panel by pressing on the release clip.
19. With the gauge panel in your hands, press on the release clips that hold the front clear cover on as shown in Photo 3-F. Apply pressure to the front cover as you are releasing, set aside.



Photo 3-C: Using your fingers, reach between the bezel and the gauge panel and pull to release



Photo 3-D: Pull the bezel top to release from the spring-clips



Photo 3-E: Remove bezel and set aside



Photo 3-F: Remove clear cover by pressing on clips

MODIFYING THE OIL PRESSURE GAUGE

20. Be careful while the clear cover is off as the pointer on the gauges can be easily damaged.
21. Removal of the pointer on the oil pressure gauge is similar on all model years. To protect the gauge surface during removal put electrical tape on the face as shown in Photo 4-A.
22. The oil pressure pointer comes off with pulling pressure. Using two small screwdrivers, apply even pressure to release the pointer as shown in Photo 4-B.
23. As the pointer begins to release you can continue to pull it loose by hand as shown in photo 4-C.



Photo 4-A: Use electrical tape on the face of the gauge panel to protect it



Photo 4-B: Using two small screwdrivers, apply even pressure to release the pointer



Photo 4-C: Pointer removed from the gauge

24. The oil pressure pointer will be installed while the engine is running. Lay the gauge panel back into the dashboard and attach the wiring connections.
25. Turn on the engine on and let warm up to normal operating temperature, if cold this may take a few minutes.
26. The instrument needle is a delicate instrument. Apply very little pressure initially with the pointer until you are sure of the location. The pointer can be place where ever you prefer, but we would suggest putting the pointer at the first marker at idle as shown in Photo 4-D.
27. With the engine warmed up to operating temperature and idling place the pointer gentle on to the instrument needle just enough to hold it in place and evaluate. Remove and replace until it meets your preference.
28. Bring the RPM up to about 4000 RPM and evaluate the movement on the pointer as shown in Photo 4-E. The gauge is dampened so movement is a little slow.
29. Before pressing the pointer down at completion notice the distance between the pointer and the face plate on another gauge. If you press the pointer down to far it could keep the pointer from moving properly. When satisfied with the pointer position press the pointer gentle down.



Photo 4-D: Oil pressure pointer at idle

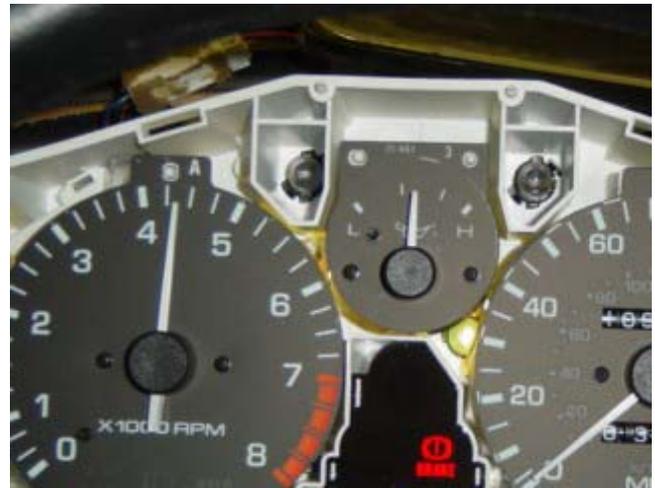


Photo 4-E: Oil pressure pointer at high RPM

REINSTALLING THE GAUGE PANEL

30. Disconnect the wiring harness from the gauge panel and reinstall the clear cover. This may be a good time to clean the dust out of the clear cover. Use Windex or some other cleaner to clean the inside.
31. Snap the clear cover back on to the gauge panel. Take caution to make sure all the clips are in position before applying any pressure. On the '99-05 models in particular the lower clips have a tendency to hang out, if pressure is applied you could crack the clear cover.
32. Install the gauge panel back into the dashboard and attach the wiring harness connections.
33. Attach the bezel by first aligning the spring-clips and then applying even pressure with a snap action. Reinstall the two Phillips screws on the '95-97 models.
34. Attach the steering column cover using the Phillips screws removed earlier.

This completes the installation of the TDR Oil Pressure Sender Kit. As stated at the beginning different engines and different oils will react differently with the indicated oil pressure. Make a note what is right for your application and if your oil pressure changes you will be aware. We hope you will be pleased with our products and will consider us a gain for your next upgrade. If at any time you need assistance please feel free to contact us by phone or email us at support@trackdogracing.com.

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