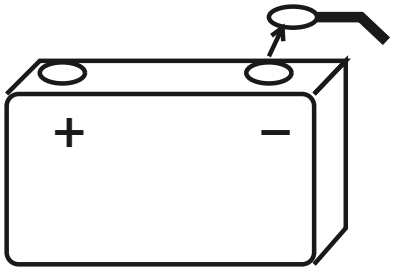
Voltmeter conversion

Step 1 · Disconnect the battery

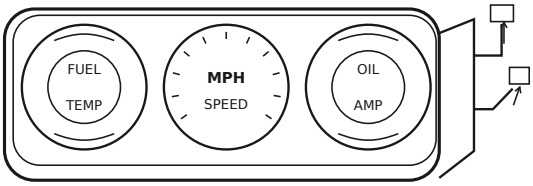


NEGATIVE CABLE OFF

Take the **negative (−) cable** off the battery. Move the cable away from the post. Leave it off until the job is done.

> **TIP: Keep the battery cable off while you drill and wire.**

Step 2 · Remove the cluster

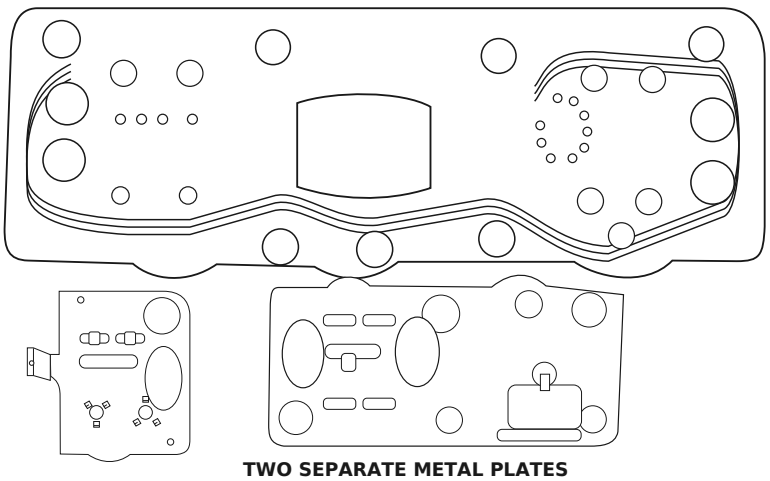


PLUGS + CABLE

Take the cluster out of the dash. Unplug the wire plugs. Unhook the speedometer cable. Mark the plugs so they go back in the same place.

Step 3 · Take the board apart

BARE MOTHERBOARD



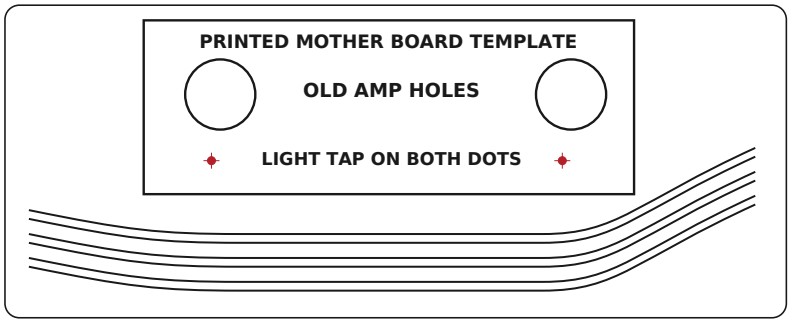
TWO SEPARATE METAL PLATES

Take the motherboard off the back of the cluster. Take off the gauges, bulb holders, screws, and loose parts.

Leave a **bare board** and **two separate metal plates**. Keep the oil gauge and all the hardware. Set the old ammeter aside.

Drill the motherboard

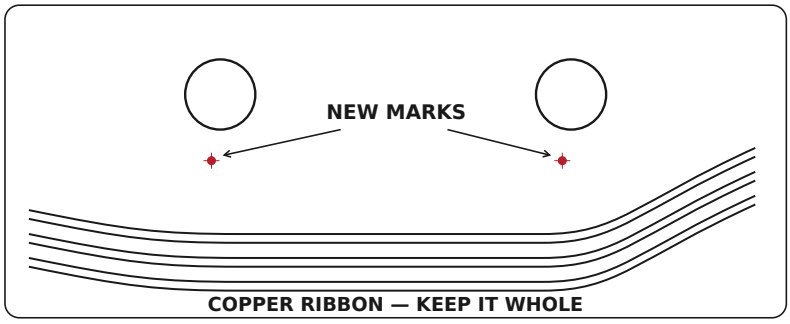
Step 4 · Mark the two new holes



Use the card marked **“Printed mother board template.”** Line up its two holes with the old ammeter holes.

Put the center punch on each red dot. **Tap lightly.** Keep the two marks lined up.

Step 4 · Check the marks, then drill



Take the card off. Check that both marks are **above the copper ribbon**. Do not cut the ribbon.

Start with a **3/32-inch pilot hole**, or a bit close to that size. Drill each mark in the order below. Keep each larger bit clear of the ribbon.

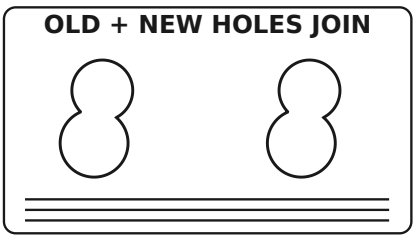
3/32"
PILOT

7/32"

9/32"

11/32"

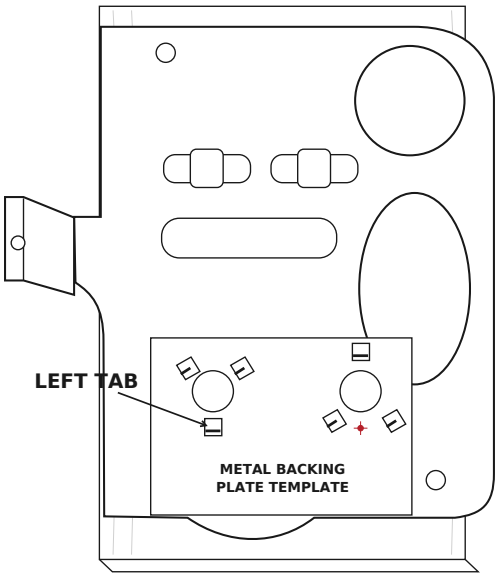
> **TIP: The holes may look a little left of center. That is correct. Do not move them.**



> **TIP: On old boards, the thin bridge between each old and new hole may break. The gauge still works if the copper ribbon stays whole.**

Drill the metal plate

Step 5 · Use the metal template



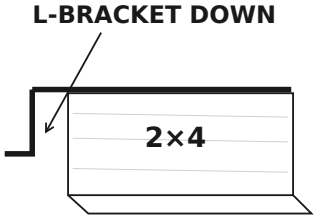
Set the plate on a scrap 2×4. Use the **“Metal Backing Plate Template.”** Put the metal prongs through the card’s holes.

LEFT HOLE: Grind or sand off the small tab below the left round hole. A Dremel works well. Take the card off.

Start with **5/32 inch** (or oval the hole with a bevel grinding tool). Then drill **7/32 inch**.

> **TIP: After 5/32 and 7/32, flip the plate. Put the L-bracket DOWN on the 2×4.**

> **TIP: Clamp the plate to a scrap 2×4. This holds it still and saves your counter top.**

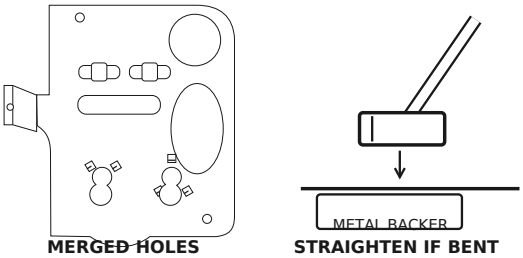


Then drill **9/32 inch**, followed by **11/32 inch**.

RIGHT HOLE: Set the card back in place. Lightly punch the red dot. Take the card off.

Drill **3/32**, then **7/32**, then **9/32**, then **11/32 inch**. The old and new holes will join.

Step 6 · Make the plate smooth



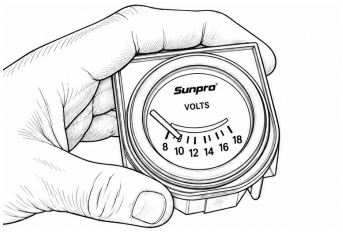
Sand the edges on **both sides** until smooth. Brush off all chips.

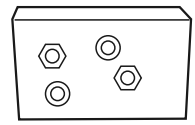
If the plate bent, use a small hammer and a metal backer to make it flat.

> **TIP: Paint if you like. Keep screw and ground contact spots bare.**

Open the SunPro gauge

Step 7 · Open the box

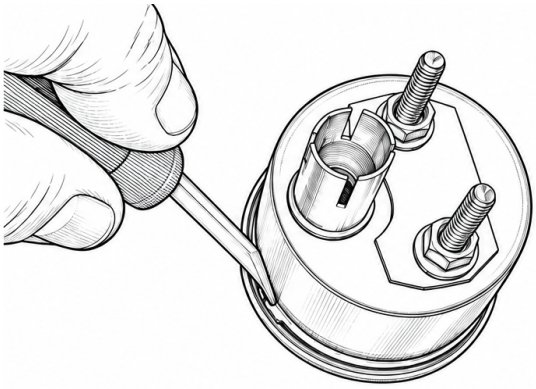




Open the SunPro box. Set its paper instructions aside. **Save the hardware bag.** Before you open the metal case, mark which gauge post is **+** and which is **−**.

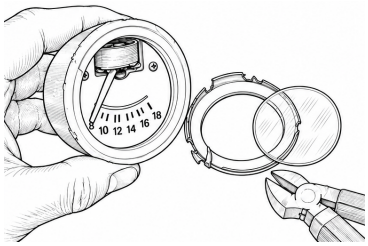
> **WARNING: Do not hit, smack, or shake this gauge.**

Step 8 · Pry up the front rim



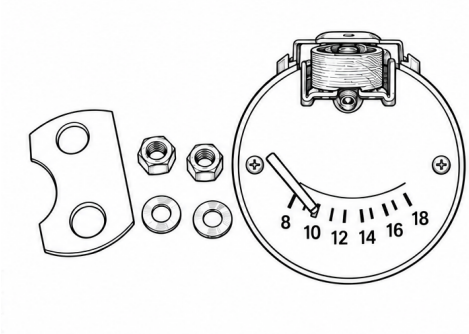
Lay the gauge face down on a soft cloth on a flat surface. Work around the outside rim. Pry the black metal faceplate away from the case a little at a time.

> **WARNING: Keep BOTH nuts on until the black faceplate is off. The nuts hold the gauge in place.**



Use small side cutters to make small relief cuts around the outer lip. Keep the tool away from the needle, face, and coil.

Step 9 · Lift the gauge out



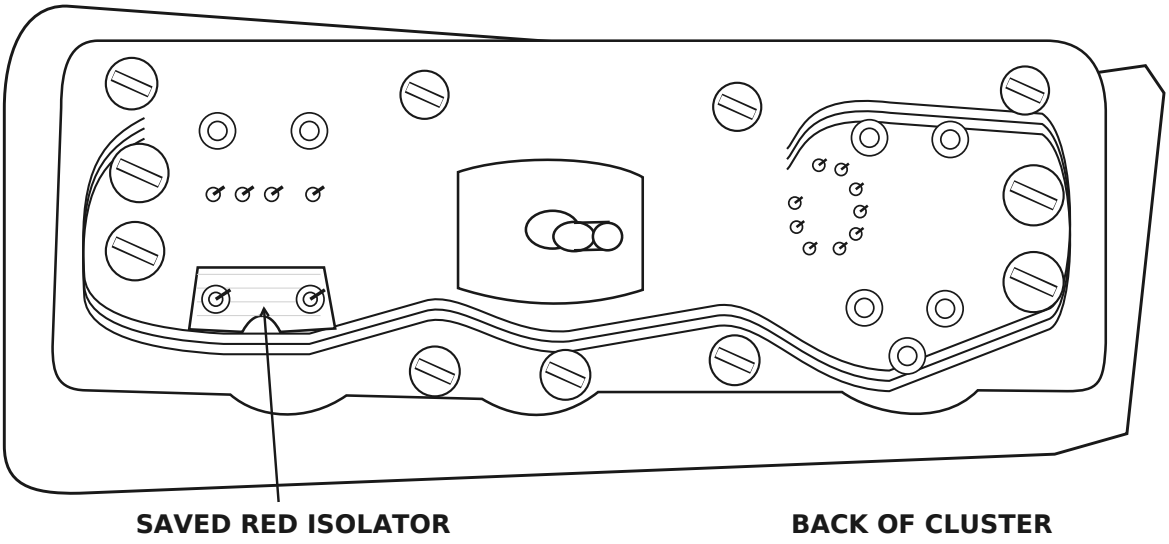
Once the black faceplate is off, take off the two nuts. Lift the gauge out of the case. Keep the nuts and washers.

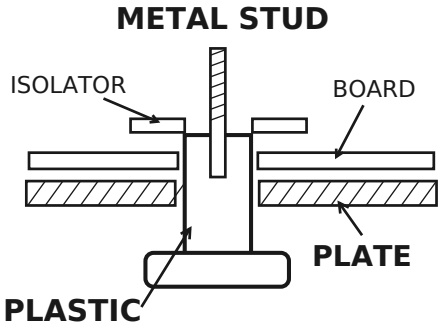
> **TIP: Save the red isolator. You will use it again.**

Fit the gauge and join wires

Step 10 · Put the board back together

Put the metal plates, oil gauge, and other parts back on the board. Fit the voltmeter where the ammeter was. Reuse the **red isolator** on the back, as shown. Use the saved hardware. Fit the **OIL / VOLT** label before closing the cluster.

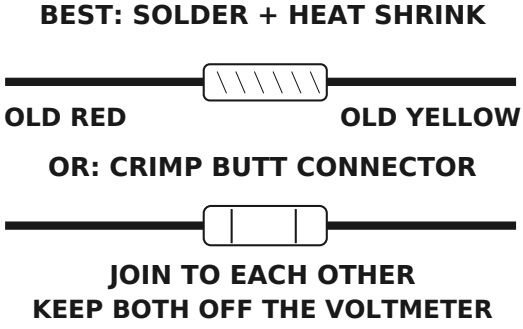




> **WARNING: Plastic must go ALL THE WAY through the metal plate. Only plastic may touch the edge of the hole.**

A metal post, ring, washer, or nut touching the plate will cause a short and can blow a fuse. Enlarge and smooth the hole if needed.

Step 11 · Join the old red and yellow wires



Best: Slide heat shrink on first. Solder the two heavy wires together. Slide the tube over the joint, then heat it tight.

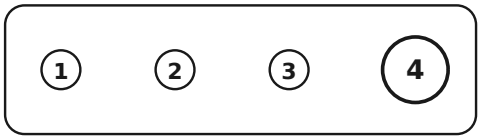
Or: Use the butt connector if it fits both heavy wires. Crimp with a crimp tool. Tug both wires. Leave no bare metal.

Wire the meter and test

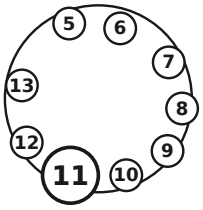
Step 12 · Use the two blue T-taps

Tap the Jeep's **red ignition wire** at the round plug (**pin 11**). Tap the **black ground wire** at the wide plug (**pin 4**). The red ignition wire has 12 volts with the key ON.

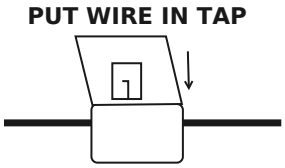
CLUSTER PINS — VIEWED FROM THE BACK

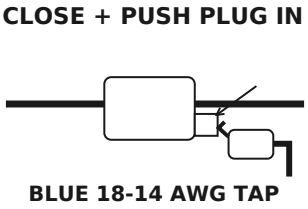


BLACK GROUND · PIN 4
WIDE PLUG



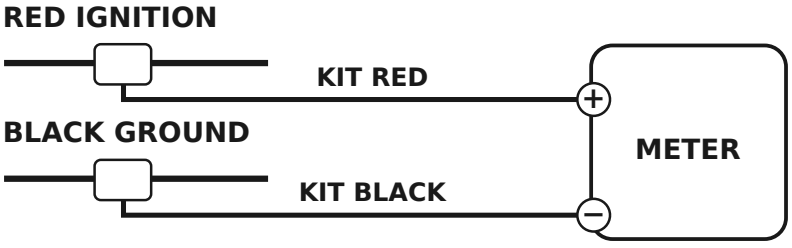
RED IGNITION · PIN 11
ROUND PLUG





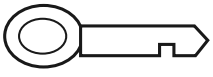
Put each wire in a tap. **Do not cut the Jeep wire.** Squeeze the tap shut with pliers. Push the kit's spade plug in all the way.

> **TIP: The Blue Taps Fit 18-14 AWG wire.**



Kit RED → gauge +
Kit BLACK → gauge −
Put each kit ring on its marked post. Fit the hardware snugly.

Step 13 · Put the cluster back and test



KEY ON

Plug in the wire plugs and speedometer cable. Fasten the cluster. Reconnect the negative battery cable.
Key ON, engine off: about 12 volts.
Engine running: usually 13–15 volts.

> **WARNING: If a fuse blows or a wire gets hot, unhook the battery. Do not use a larger fuse.**