



Installation Instructions

This kit contains instructions for the replacement of the accelerator position sensor (APS) and idle validation switch (IVS) on floor-mounted Bendix® ET-2™ electronic treadle pedal assemblies with separate idle validation switches. The integrated sensor and wiring harness contained within the kit replaces both the APS and IVS hardware.

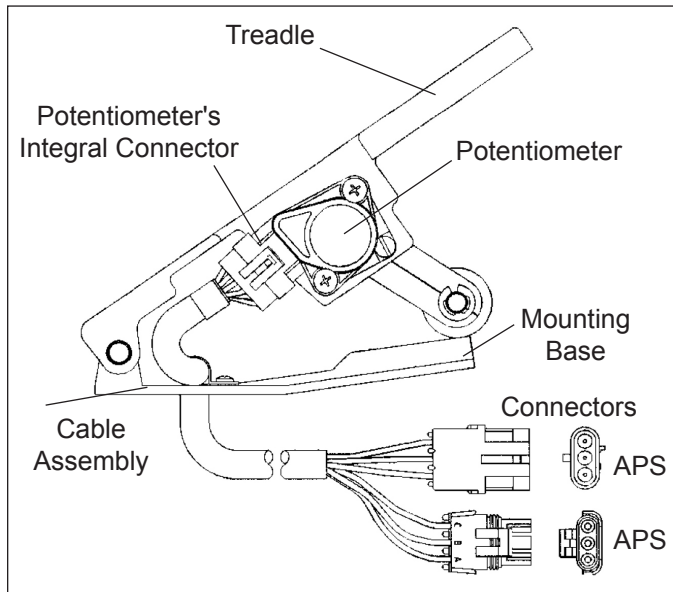


FIGURE 1 — TYPICAL BENDIX® ET-2™ ELECTRONIC TREADLE, SHOWING CONNECTORS

FOLLOW ALL STANDARD INDUSTRY SAFETY GUIDELINES, INCLUDING THOSE ON PAGE TWO OF THIS DOCUMENT.

REMOVAL

1. Park vehicle on a level surface and block the wheels and/or hold the vehicle by means other than the air brakes.
2. Drain air pressure from all vehicle reservoirs.
3. Unplug the cable assembly at the end opposite the potentiometer. Disconnect by lifting the lock tab and pulling the connectors until they disengage.
4. Remove the Bendix® ET-2™ electronic treadle from the vehicle.

DISASSEMBLY

1. Remove the screws that secure the potentiometer to the treadle.
2. Disengage the potentiometer's integral connector from the cable assembly. Lift the lock tab and pull the connector until it disengages.
3. Remove the existing sensor and idle validation switch from the pedal and discard.

CLEANING & INSPECTION

1. Clean all metal parts with mineral spirits or an equivalent solvent. Be sure to thoroughly dry the parts.
2. Inspect reusable parts for severe corrosion, pitting or cracks. Replace as necessary. Superficial corrosion and/or pitting is acceptable.

3. Inspect the cable assembly for loose or frayed wires, physical damage, or any contaminants on the connectors.

ASSEMBLY

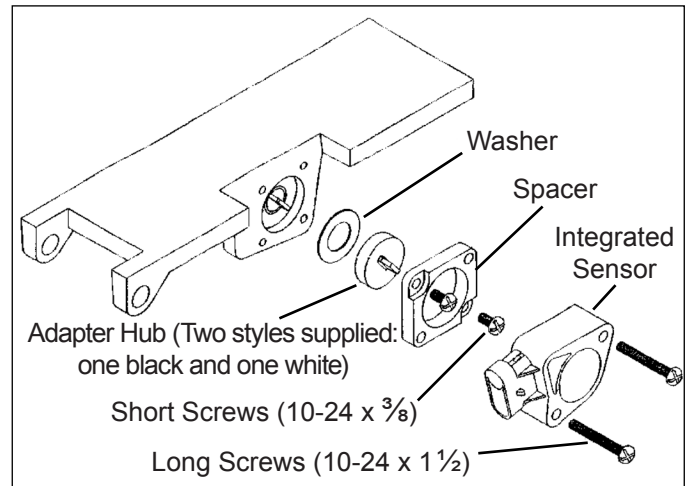


FIGURE 2 — EXPLODED VIEW OF REPLACEMENT KIT

1. Hold the spacer supplied in the kit against the mounting holes on the pedal. If all four screw holes align with existing holes in the pedal, use instructions 1A. If only two screw holes align, follow instructions 1B.

- 1A. Where all four mounting holes align:** Discard the white adapter hub supplied. Place the washer and (black) adapter hub in the spacer. Make sure that the slot in the adapter hub fits over the tang on the pedal, and using the holes as shown in Figure 2, mount the spacer on the side of the pedal using the short mounting screws. Tighten to 20-25 in-lbs.

Align the tang on the adapter hub with the slot in the new sensor, and place the sensor onto the pedal. Rotate the sensor so that the mounting holes are aligned with the mounting holes on the pedal. Secure the sensor with the long screws. Tighten to 20-25 in-lbs.

- 1B. Where only two mounting holes align:** Discard the short screws and black adapter hub supplied. Place the washer and (white) adapter hub on the pedal, making sure that the slot in the adapter hub fits over the tang on the pedal.

Holding the sensor and spacer together — with the sensor mounting hole aligned with those of the spacer's — place the sensor and spacer together over the adapter hub, making sure that the tang of the adapter hub goes into the sensor slot. Rotate the sensor so that

the sensor, spacer and pedal mounting holes are aligned. Secure with long screws and tighten to 25 in-lbs. maximum.

Perform the OPERATIONAL TEST before installing the pedal assembly back on the vehicle.

OPERATIONAL TEST

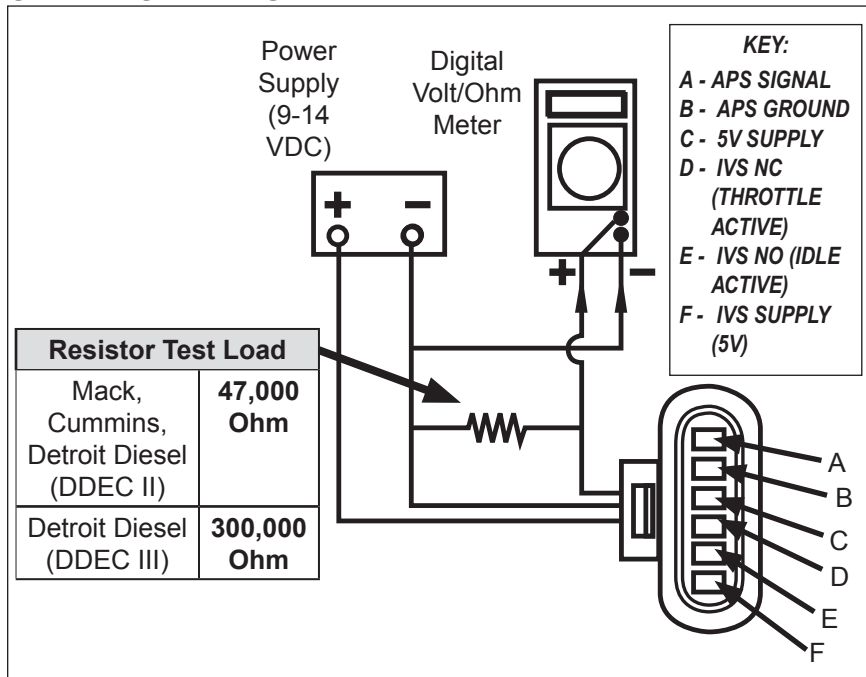


FIGURE 3 — OPERATIONAL TEST

1. Check end-to-end electrical continuity at the cable assembly terminals. NOTE: Cable assembly connector pin out may vary from engine to engine.
2. Secure the pedal assembly to a smooth, flat surface in such a way that does not twist the unit.
3. Connect the potentiometer to a volt meter and power supply as shown in Figure 3. The power supply can be a 12 VDC battery in good condition, with known voltage output.
4. Verify the closed throttle (idle) output voltage, as a percent of supply voltage, is within the limits listed below.

	Cummins	Detroit Diesel (DDEC II)	Detroit Diesel (DDEC III) & Mack
Closed Throttle (Idle)	6-20%	6-14%	10-20%
Open Throttle (Full)	66-80%	83-94%	70-85%

(For example: Testing a Detroit Diesel Potentiometer: Battery = 10 VDC. Full throttle = 9 VDC $9/10 \times 100 = 90\%$).

5. Make several full applications and record idle position voltage each time. Verify that idle position voltage does not vary by more than .4% (.04 volts). If the Bendix® ET-2™ electronic treadle fails to operate within its specified ranges, service the unit or replace it with a new ET-2 unit, available at your nearest Bendix parts outlet.

Installation on the vehicle

1. Install the pedal assembly on the vehicle and reconnect the cable assembly.
2. Make sure that the treadle moves smoothly and evenly, and make sure the treadle has its full range of motion before placing the vehicle back into service.

GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.