



**CLOSED LOOP KIT**  
for *PRO-JECTION 1D & 2D*  
Part number 534-54

**INSTALLATION INSTRUCTIONS**

The following items are included in this installation kit:

- 43-106 Oxygen Sensor
- 534-49 Weld Ring
- 534-56 Wiring Harness

**NOTE:** These instructions must be read and fully understood before beginning installation. Failure to follow these instructions may result in poor vehicle performance, vehicle or system damage, personal injury, or death. If these instructions are not fully understood, installation should not be attempted.

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## **INTRODUCTION:**

The digital **ECU** used with the **PRO-JECTION 1D** and **2D** Fuel Injection Systems is designed to utilize a heated, three-wire oxygen sensor to operate the **PRO-JECTION** system in a closed loop mode. When operating in a closed loop mode, the **ECU** utilizes a reference voltage from the oxygen sensor to determine whether the engine is running too rich or too lean. The **ECU** then automatically adjusts the fuel delivery to maintain a stoichiometric fuel mixture (14.7:1 Air/Fuel Ratio).

The **PRO-JECTION** system will operate in closed loop mode during normal driving conditions. During hard acceleration or throttle openings greater than 3/4 of wide-open throttle, the **PRO-JECTION** system will revert to an open loop mode. Therefore, it is very important that the **PRO-JECTION** system be properly tuned in an open loop mode before connecting the closed loop system.

**DANGER!** NEVER WORK UNDER A VEHICLE SUPPORTED ONLY BY A JACK. ALWAYS SUPPORT THE VEHICLE WITH JACK STANDS THAT ARE IN GOOD OPERATING CONDITION. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE AND/OR SERIOUS INJURY OR DEATH.

**WARNING!** Use only Unleaded fuel when operating an oxygen sensor. Use of Leaded fuels WILL DESTROY the oxygen sensor and will result in incorrect exhaust gas oxygen-content readings.

**WARNING!** The use of some RTV Silicone sealants will damage the oxygen sensor. Ensure that the RTV Silicone sealant that you use is compatible with oxygen sensor vehicles. To determine compatibility, check the packaging of your RTV Silicone or contact the sealant manufacturer.

**WARNING!** Disconnect the digital electronic control unit (ECU) from the wiring harness before welding on your vehicle's exhaust system. Failure too so may result in damage to the ECU.

**NOTE:** Federal Law prohibits the disconnection of **AIR** pumps. The use of an oxygen sensor in conjunction with an **AIR** pump may result in an extremely rich fuel mixture, causing possible damage to your engine.

**NOTE:** The closed loop system should only be connected to the **ECU AFTER** the **PRO-JECTION** system has been properly tuned in an open loop mode (oxygen sensor disconnected). Utilizing the oxygen sensor without first tuning the **PRO-JECTION** system in an open loop mode may result in engine fuel requirements that are outside the range of adjustment of the closed loop system.

## PARTS IDENTIFICATION:



OXYGEN SENSOR



WELD RING



WIRING HARNESS

## TOOLS / MATERIALS REQUIRED FOR INSTALLATION:

- 7/8" Drill Bit
- Drill Motor
- Welding Equipment with Proper Protective Gear
- 7/8" Open End Wrench
- Dielectric Grease
- Anti-Seize Compound

## WELD RING INSTALLATION:

**NOTE:** Someone with experience in welding exhaust systems should install the oxygen sensor weld ring. Any competent exhaust shop will be able to accomplish this task at minimum cost.

1. Disconnect the **PROJECTION** wiring harness from the rear of the **ECU** by depressing the small latch on top of the harness connector and gently pulling the connector out of its socket on the **ECU**.

2. Determine a location in the exhaust system in which to mount the oxygen sensor. This location must be as close to the engine as possible. Good mounting locations are the header collector, the drop pipe, or in the “Y” pipe on a single exhaust system.

**WARNING!** The oxygen sensor must be mounted in a location that will prevent the sensor from being damaged by road hazards or moving parts on your vehicle. Failure to do so will cause damage to the oxygen sensor, resulting in the failure of the closed loop system.

**NOTE:** If your vehicle is equipped with catalytic converters, the oxygen sensor **MUST** be located between the engine and the catalytic converters.

3. Drill a 7/8” hole into the exhaust pipe in the location where the oxygen sensor will be mounted.

**WARNING!** Ensure that no metal shavings enter the exhaust that may cause damage to either your catalytic converters or mufflers. To remove any metal shavings, insert a small magnet into the hole and use the magnet to collect the metal shavings.

4. Insert the weld ring into the hole and carefully weld the ring in place by placing a bead all the way around the outer edge of the weld ring to ensure a leak proof connection. Ensure that you do not damage the threads inside the weld ring.

**NOTE:** If you damage the threads inside the weld ring, use an 18 mm tap to re-thread the weld ring.

## **OXYGEN SENSOR INSTALLATION**

1. Although the oxygen sensor is supplied with a small amount of anti-seize compound applied to the oxygen sensor threads, Holley recommends that the threads be thoroughly coated with additional anti-seize compound. When applying anti-seize, ensure that the stainless steel sensor head remains clean. Insert the oxygen sensor into the weld ring and tighten it securely with a 7/8" open-end wrench. **DO NOT OVERTIGHTEN THE OXYGEN SENSOR.**

## **WIRING HARNESS INSTALLATION**

1. Connect the wiring harness to the oxygen sensor by pressing the two three-position connectors together until the locking latch on the oxygen sensor connector snaps into place.
2. Route the wiring harness, away from any direct sources of heat and moving parts, from the oxygen sensor to the rear of the ECU. Secure the wiring harness with wire ties or wire clamps.
3. Reconnect the primary wiring harness, previously disconnected, to the ECU. Plug the small, black connector on the oxygen sensor wiring harness into the 6-position connector on the rear of the ECU.

**NOTE:** The **ECU** only utilizes three of the six positions in the small connector on the rear of the unit. The other three positions are for **FACTORY USE ONLY** and no connections should be made to these three connector positions.

## **REPLACEMENT PARTS**

A replacement Oxygen Sensor is available from Holley under Part #43-106 and a replacement Weld Ring is available under Part #534-49. Both parts are available from your Authorized Holley Parts Dealer.

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