DELOREAN INDUSTRIES

EVERY DETAIL MATTERS

Installation Procedure — Modern Fuel Pump System GEN 4

IP-X211111085

Table of Contents

1. Process Overview
2. Kit Component Contents
3. Installation Preparation / Factory Component Removal
4. Fuel Hardline Flushing
5. Binnacle Removal
6. Wiring Component Integrity Inspection
7. Wiring Integration at Gauge Cluster
8. Wiring Integration at Pump Frame Harness
9. Pump and Line Assembly Integration
10. Completed Installation

Congratulations on purchasing a DeLorean Industries Modern Fuel Pump with an Integrated Sender Tank Module System (Gen 4). This stand-alone system replaces the high-failure-rate rubber components inside the fuel tank up to the frame hardline connection points, while also servicing critical components throughout the system. It uses a state-of-the-art, fully programmable sender solution. The premium Delphi pump and related wetted components are compatible with blended ("ethanol") fuels.

Read the instructions in their entirety before attempting this process. If anything is left to question, contact us directly via email. We do not offer phone tech support — we find it crucial to have a written reference to work from.

> **Safety — gasoline is dangerous.** Always keep a Class B fire extinguisher available when servicing fuel-system components. Remove any flammables from the work area. Do not smoke or use an open flame. Gasoline fumes hug the floor, so a well-ventilated work area is **not optional**. Failure to adhere to the above can result in serious, life-changing injuries and death.

The tank must be completely emptied at the start. If the current pump no longer operates, all fuel must still be removed. Use a siphon pump rated for flammable substances to discard the tank contents — never a shop vacuum or other motor not rated for contact with flammables, as most are not sealed and will ignite fumes. The tank holds roughly 13.5 gallons. If the tank is heavily contaminated after draining, it must be completely cleaned or the pump warranty is void. Acetone is the best solvent for hard deposits — review the manufacturer's MSDS for all applicable safety regulations before use.

Process Overview

- Kit component contents
- Installation preparation / factory component removal
- Fuel hardline flushing
- Binnacle removal
- Wiring component integrity inspection
- Wiring integration at gauge cluster
- Wiring integration at pump frame harness
- Fuel sender system test procedure
- Pump and line assembly integration

Kit Component Contents

The Gen 4 system now includes components previously optional as standard, including weather-pack crimping pliers and a fuel filter kit.

Core Components

- X1 211111089 — 1.4 Modern Fuel Pump Assembly with Internal Tank Level Sender
- X1 211106685 — 1.5 Modern Pump Sealing Ring
- X1 Feed / Return Lines with quick-disconnect fittings and clamps
- X1 Brass One-Way Check Valve
- X1 211SP10388 — 52. Modern Pump Assembly V-Band Clamp, stainless
- X1 211105161 — 53. Sender Block-Off Cap, Modern Pump configuration
- X1 53.1 Sender Block-Off Cap O-Ring
- X1 211100523 — 27.1 Fuel Filter
- X2 210106977 — 25. Fuel Filter Outlet Sealing Washer
- X1 210106685 — 31. Fuel Filter Mounting Pad

Electrical Components

- X1 211107002 — 1.7 Fuel Pump Module Sender Controller (Gen 4)
- X1 T0020 Weather Pack Connector Crimp Tool
- X1 2-Pin Weatherpack Termination Kit
- X1 3-Pin Weatherpack Termination Kit
- X1 RPM Relay Test Jumper Wire with fused link
- X1 Low-Fuel Harness Flying Lead with LED bulb

Installation Preparation / Factory Component Removal

- Disconnect the battery (wrap the positive terminal to prevent contact).

- Remove the trunk contents, spare-tire board cover, and spare tire. Remove the tank access plate assembly. Depending on condition or prior service, the rivet nuts in the fiberglass body may fail or need drilling for removal — a complete kit of stainless inserts and hardware is available from DeLorean Industries.
- Remove the factory pump assembly by loosening the large hose clamp. Pull the assembly up and outward to cut the lower pick-up hose. A spring may have been installed within the lower pick-up hose to prevent a collapse condition.
- Disconnect the factory two-pin Lucas connector (pump power and ground distribution). If brittle or in poor condition, cut the harness directly behind the frame-harness side of the connector.
- Disconnect the factory three-pin Lucas connector (divorced tank sending unit). If brittle, cut the harness directly behind the frame-harness side of the connector.
- Remove the 10 mm nut and washer securing the factory pick-up assembly to the molded stud at the base of the tank. Remove the factory baffle / pickup — the lower plate must be removed and slid off the pick-up handle so the baffle can be squeezed through the tank opening.
- Cut the factory feed / return flexible line sections from the barb connections on the passenger-side frame rail. Remove the factory feed lines from the barb fittings on the stock hardlines without damaging the fittings (damage will cause fuel-line sealing issues).
- Clean the inside of the tank completely.

> **Note — asbestos.** The factory lines are wrapped in an asbestos-based protective weave over the internal plastic lines. Discard the fuel pump assembly, feed/return lines, stock sending unit, and all tank pick-up components accordingly.

> **Note — tank cleaning.** Keep a cell phone within reach. If you insert your arm past the elbow joint there is a high risk of becoming stuck. Vaseline around the elbow joint helps prevent this. If there is any doubt about tank condition, photograph the interior through the large opening and send the images to DeLorean Industries for review.

Fuel Hardline Flushing

- Remove the Fuel Accumulator Feed Hose (part # 210106999). If original, cut it lengthwise with a razor blade to remove it from the barbs — excessive force damages the fitting/line sealing surface. Discard and replace during assembly regardless of condition (generic high-pressure fuel line rated for 225 psi, available at any parts store).
- Remove the fuel filter including the mounting bracket and hardline connection. The top connection, if original, is a 12 mm banjo bolt feeding the fuel distributor. Any original lines in the engine compartment must be replaced for safety. The Gen 4 system includes an updated high-micron filter, a mounting pad for the factory clamp, and an updated ultra-seal elbow for easier future filter changes.
- Flush both feed and return lines to the fuel accumulator assembly. Flush only away from the tank toward the rear of the car, routing a hose from the exit fittings into a bucket to avoid spraying cleaner. Automotive brake-parts cleaner works well; dry the lines completely with clean, filtered shop air afterward.

> **Note — order of operations is critical.** Any deviation from the order of operations will damage the pump assembly. The module is bench-tested and calibrated at an idle system voltage of 13.8 V. After installation, test the voltage at the pump connector to verify agreement with calibration — a deviation of ±1 V offsets the gauge. If pump voltage is below 12.1 V, correct the underlying concern before high-accuracy calibration; below 12 V the pump will not provide the required system pressure at all engine loads.

Binnacle Removal

The Gen 4 system comprehensively updates the instrument-cluster harness and low-fuel output function, avoiding reliance on aged factory components that cause inconsistent gauge operation.

- Remove the left and right driver-side knee-pad assemblies for access (10 mm nuts, four per pad; the column gaiter cover also mounts here).
- Remove the Instrument Housing Reinforcement Bracket Kit (available from DeLorean Industries if not present).
- Remove the four nuts and oversized washers securing the binnacle housing to the GRP body dash mounting points.
- Raise the binnacle vertically to pull the mounting studs through the GRP body mount points. The trip-reset shaft breaks easily under lateral load.
- Disconnect the mechanical GM-style speedometer cable input drive.
- Disconnect the center white electrical connector and the driver-side offset black electrical connector.
- Place the binnacle face-down on a clean towel, propping the face so the reset shaft is not damaged.

Wiring Component Integrity Inspection

The Gen 4 system takes the pump/sender power and ground distribution to the next level through a series of inspections and tests — updating, checking, cleaning, and replacing all connection points that are known electrical-degradation points. Skipping any of these may cause operational issues and also serves as a definitive fault-finding guide for the pump/sender system.

Inertia Switch Inspection

Located on the fiberglass firewall to the left of the driver-side footwell (or on the lambda-counter bracket). Check for melted wires and harness damage. This component was subject to a factory recall and has a documented outright-failure rate; symptoms range from stalling after a short run to no-start conditions, and poor mounting location invites accidental activation by kicking. If the switch has no white paint stripe, replace it by default.

Printed Circuit Board Inspection

With the binnacle removed and the rear of the cluster exposed, inspect the printed circuit board. The most common failures are delamination where the board contours the cluster, over-tightened nut/contact points, and connector-pin interface locations on the vertical (white) and horizontal (black) cluster connectors.

Frame Ground Junction (Front)

Located within the main frame harness, securing to the driver-side upper radiator-mount bracket. Remove the M6 fastener and clean the junction. Replace the eyelet if damaged or heavily corroded.

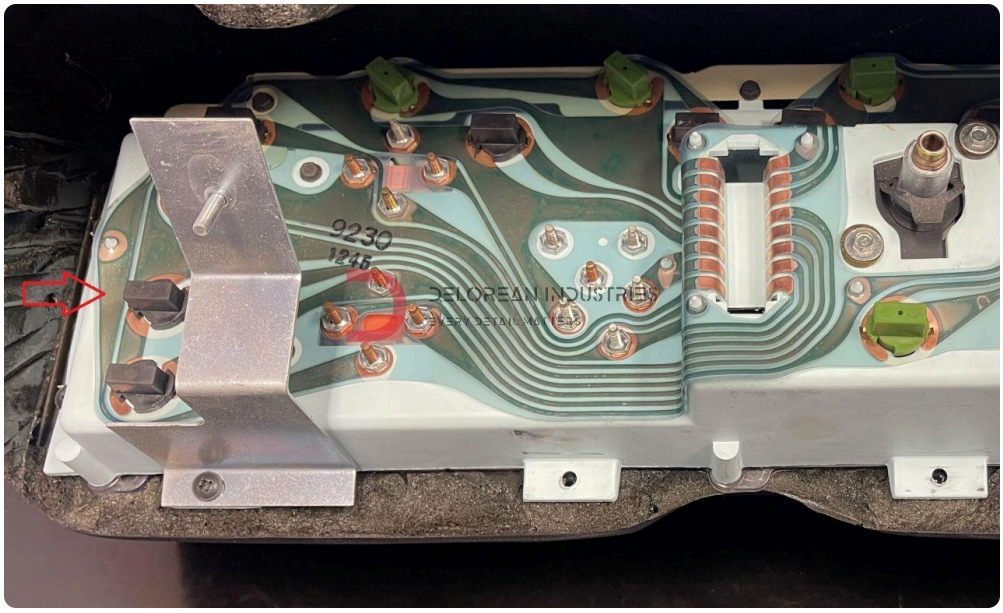
Main Frame Harness

Accessible by removing the washer-bottle assembly; includes a nine-pin junction connection. Age and poor pin condition usually require, at minimum, replacement of the connector and pins — or outright harness replacement. If the harness shows insulation cracking or brittleness (from cooling-system heat cycling), replacement is required.

Wiring Integration at Gauge Cluster

The factory gauge cluster relies on precise voltage and resistance values to calculate the offset for accurate readings across operating conditions. Heavy system degradation makes a precise modern sender configuration difficult — which is why a comprehensive inspection and update of the whole circuit (not just one component) is required.

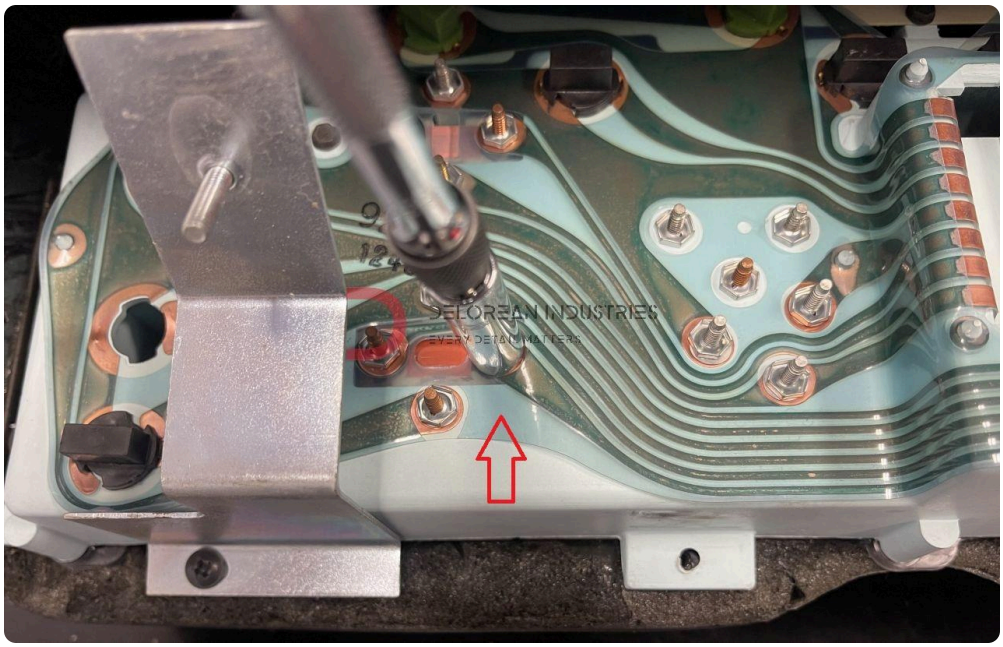
Viewing from the rear of the housing, remove the second bulb housing on the left side of the printed circuit board — the low-fuel indicator output. The housing rotates counter-clockwise to remove.



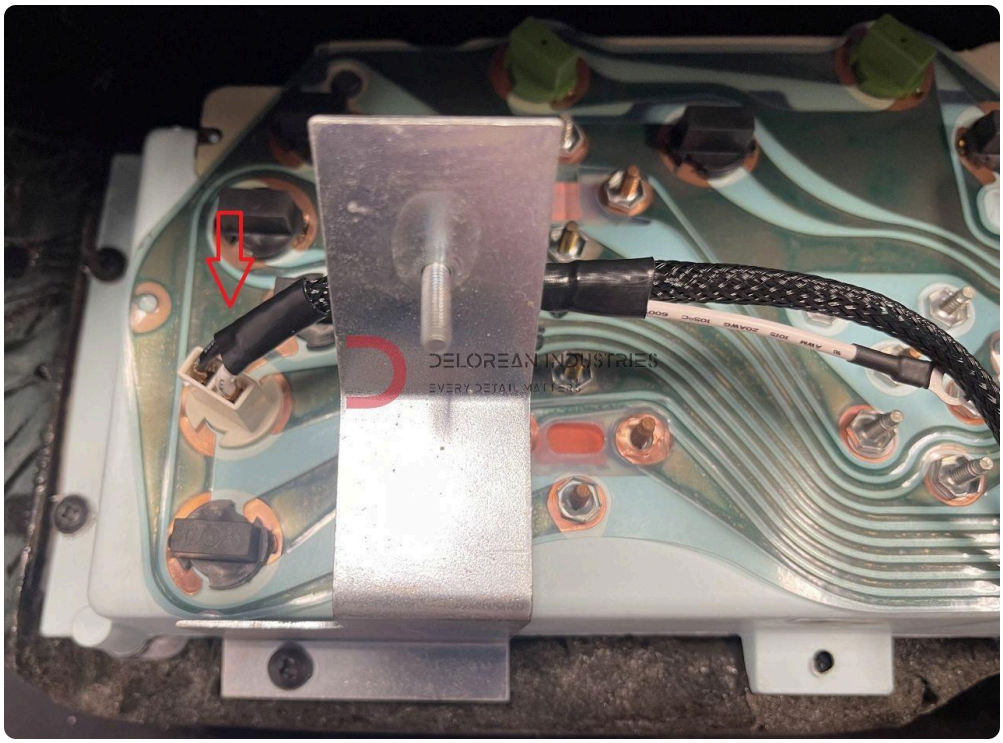
The supplied flying lead with LED bulb socket integrates directly into the factory instrument-cluster assembly.



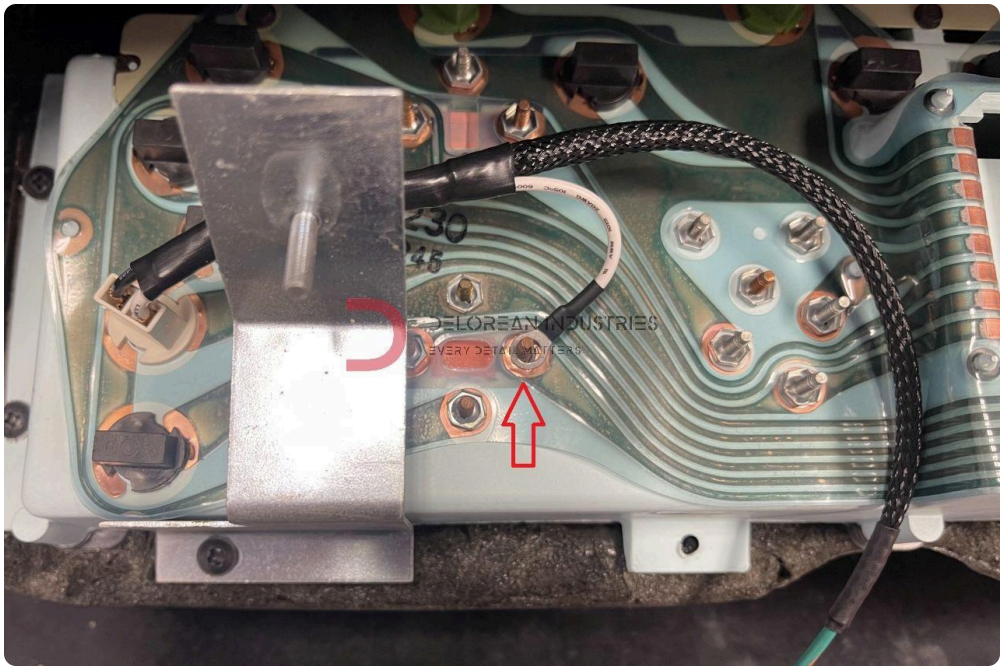
The flying lead is electrically tested for proper bulb orientation (required for an LED). Most cluster bulbs can be replaced with LED equivalents — except the battery light, which will cause a no-charge condition.



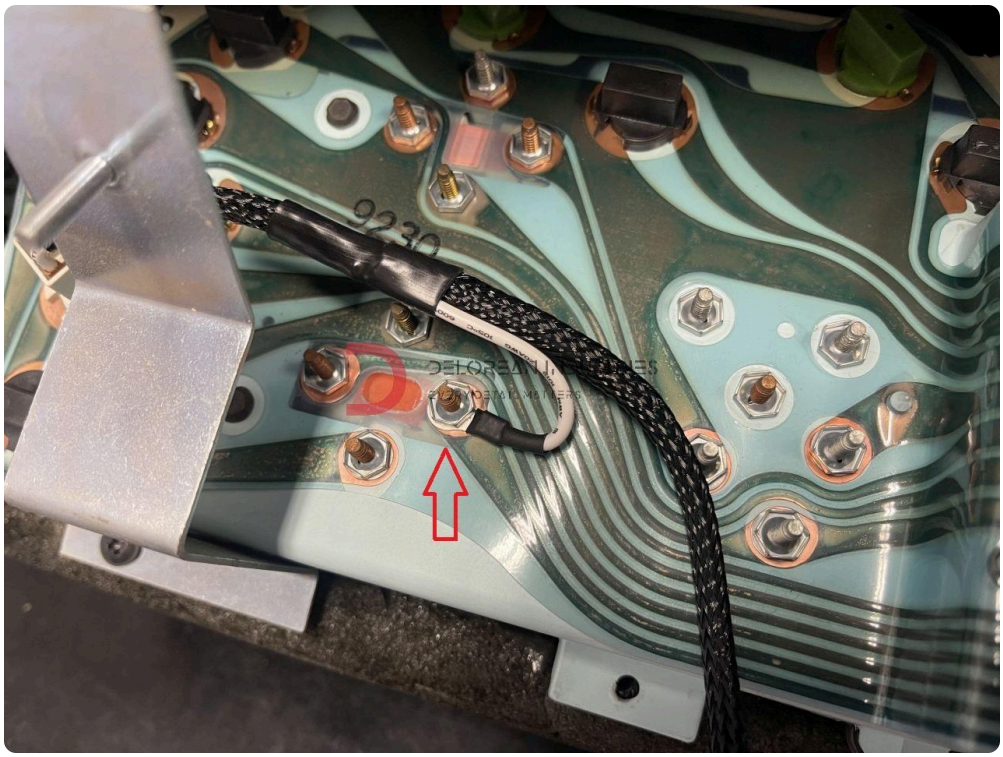
Remove the printed-circuit-board power-lead nut on the fuel-gauge mounting stud.



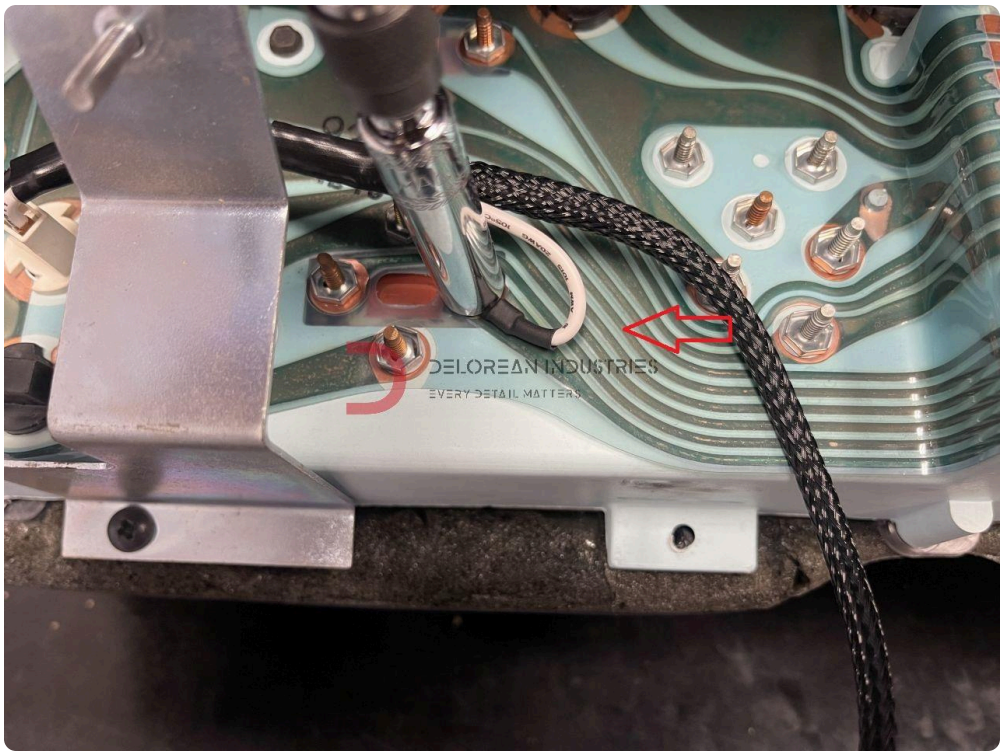
Install the updated harness flying lead with LED bulb socket — it seats with a clockwise motion. When installed, the white terminal lead should sit at the 4 o'clock position (critical for the following harness routing).



Install the ring terminal onto the gauge-mount stud (power for the LED low-fuel function).



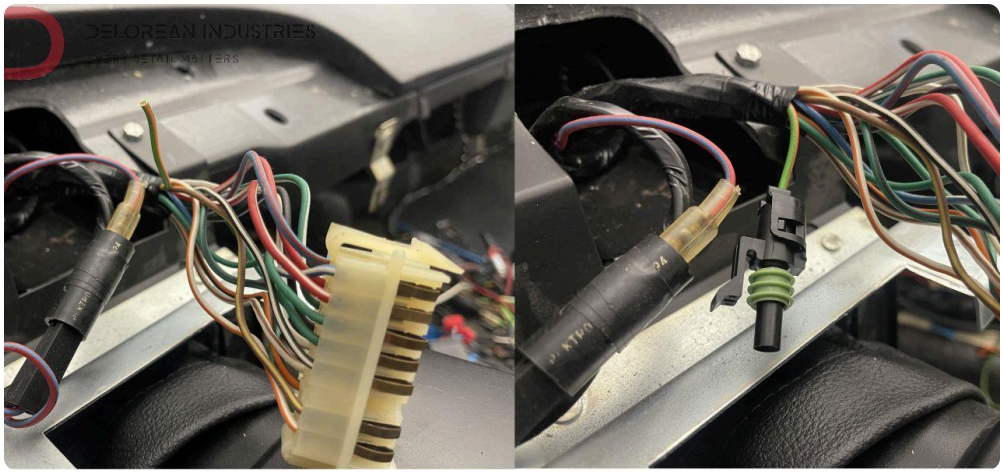
Install the printed-circuit-board power-lead nut to secure the ring terminal — finger tight, to allow orientation in later steps.



Tighten the power-lead nut. The lead orientation should follow the underlying PCB feature path — critical for harness management when reinstalling the binnacle.



Final binnacle update, ready for installation in the vehicle.



Remove the green-with-orange-tracer wire from the white cluster connector; cut it three inches back and install the supplied one-pin Weatherpack terminal/connector. This plugs into the flying lead to provide the low-fuel gauge-module output and routes along the white vertical connector path.

Wiring Integration at Pump Frame Harness

> **Required.** The supplied connector and wiring ends create a water-tight seal. Cut the factory harness on the car side of the failure-prone two-pin Lucas connector — leaving the unsealed Lucas connector in the system causes performance issues and is a high failure point for pump voltage. Use the supplied water-tight crimp connectors for the connections below.

Two-Pin Connector

- Gray/red harness wire → factory purple/white wire (pump power).
- Black wire → factory purple-and-black wire (ground).

Three-Pin Connector

- Black wire → factory black wire on the sender 3-wire harness.
- Green/black → green/black wire on the sender harness.
- Green/orange (low-fuel light) → factory green/orange wire on the sender harness.

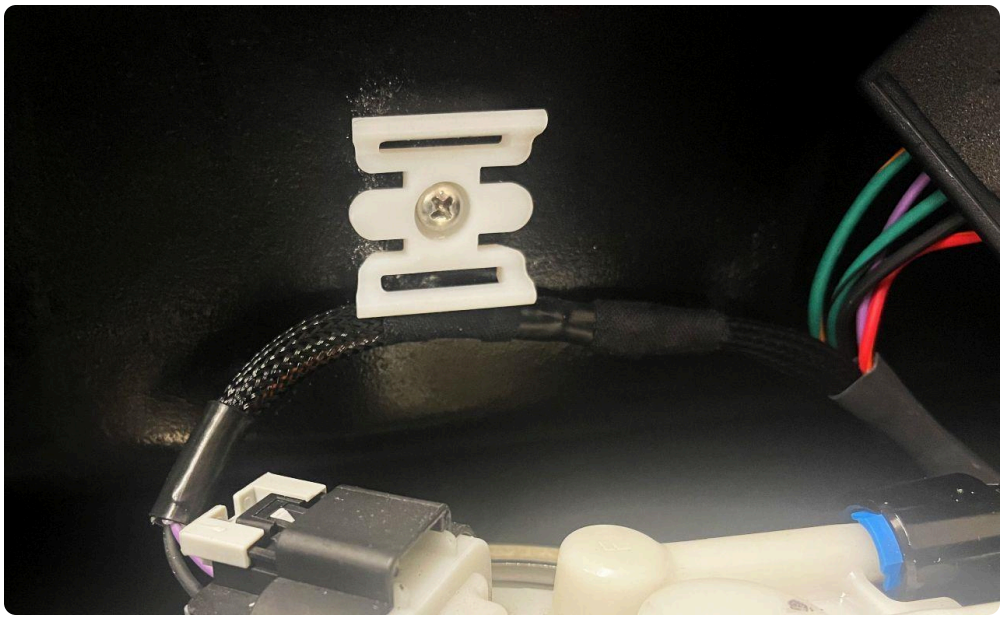
> **Note — harness condition.** If the factory harness is damaged, brittle, cracking, or modified, replacement is required (same protocol as the initial harness-inspection phase). DeLorean Industries produces a corrected replacement harness, prorated with pump purchase.

Pump and Line Assembly Integration

- Before installing the pump, bend the free-floating static wire (driver-side, internal to the tank) as far toward the driver side as possible to prevent interference with the integrated sender wire and float. Install the pump assembly in the tank. The black seal seats on the upper tank-ring edge and must be slid over the pump first. The pump's lower housing has a purpose-built flat spot for clearance around the factory-baffle stud — proper orientation is crucial for fitment.

> **Caution — float arm.** The float wire ships detached to prevent shipping damage. Install it by inserting the metal wire into the center hole of the pump sender sensor. Do NOT apply pressure to the electrical contact area of the level-sensor wiper arm — this damages the sending-unit contacts. Fully seat the float arm so it cannot come loose in the tank, and confirm it travels freely to its maximum and minimum without binding.

- Tighten the supplied clamp while pushing down on the unit. When installed, the stainless clamp captures the top of the pump assembly and contacts below the bead ridge on the tank.
- Install the blanking cap and O-ring on the factory sending-unit port by screwing the 6-TPI cap (O-ring preinstalled) onto the factory tank. On very early cars this may not seat or seal easily — contact us for O-ring options if so.
- Install the M14-AN fitting line adapters using 17 mm tube nuts and the factory hardline crush sleeves. Take care not to break the fuel hardlines from the plastic clips at the top of the frame (causes NVH concerns).
- Install the AN-to-barb fitting adapters for the high-pressure fuel lines. The factory barb fittings are not designed for direct hose connection and must be replaced with the supplied fittings, or fuel leaks and unsafe conditions will result.
- The lines ship assembled "loose" — tighten all connections. The return line is the one piece without the check valve; the lines cannot be interchanged at the pump (different quick-disconnect sizes). Return is to the front of the car, feed to the rear.
- Connect the AN line fittings to the frame hardline adapters. The connection closest to the inside of the car is the feed; the one closer to the outside is the return. Mixing these produces a no-start condition.
- Test the system for leaks before running the car by jumping the RPM relay in the fuse compartment: with the supplied jumper, connect the brown wire to the purple/white wire (same jumper procedure as the sending-gauge test).



The fuel-pump sender module mounts directly above the pump assembly. The rivnut mounting insert requires an install tool and drill bit; secure the module with the supplied industrial Velcro strap.

Completed Installation

Once the above steps are complete, install the tank closing cover. Because of GRP body variation and ballooned, aged fuel-cell plastics, tanks sit at different heights. If the tank plate does not fit due to pump interference: remove all 14 fuel-tank closing-plate bolts beneath the car, push down on the tank assembly, install the closing plate, then tighten the 14 bolts. This relaxes a ballooned tank so the plate installs without excess tension on the rivet nuts.

Related Parts

Modern Fuel Pump System w/ Integrated Sender (Premium Gen 4)

Instrument Housing Reinforcement Bracket Kit (Stainless)

Front Frame Harness