INSTALLATION PROCEDURE

Installing a CDS into 2010-2014 Chevy Van

Part Numbers Affected: Various | Date Changes Take Affect: 2014

*****COMPLETELY READ ALL INSTRUCTIONS BEFORE STARTING INSTALLATION!*****

This document is a guide for installing a CDS 4.8 configuration (P/N 700-014-701).

UPON RECEIVING THE CDS

Open the crates and packaging carefully and examine all components. In the event that damage does occur during shipping, it is the responsibility of the customer to immediately notify the carrier and to file a damage claim.

INSTALLATION GUIDELINES

- Quality of the fit and finish of the CDS system depends solely on the installer. While HydraMaster provides all parts and instructions necessary, it is up to installers to use their own craftsmanship to provide a clean, safe and quality installation that the customer will be satisfied with. Please follow sound, standard shop practices.

- In some cases, due to prior vehicle modifications, it may be necessary to modify the vehicle to continue installation.

- **Dry fit all equipment before securing.**

- During installation, make sure that the Recovery Tank lid clears the van's ceiling.

- Always verify clearances before drilling holes through floor or anywhere else on the van.

- All hoses and wires that are installed or re-routed during the installation must be secured away from all rotating parts, sharp edges, and excessively hot areas.

- Torque all nuts and bolts as noted.

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Figure 1 shows some major components that are shipped with the standard CDS 4.8:

1. Yaw Sensor Cooling Assembly
2. Power Pack (Pump, Blower and Frame) Assembly
3. CDS 4.8 Tank Assembly, which includes the instrumentation panel
4. Pass Through Assembly

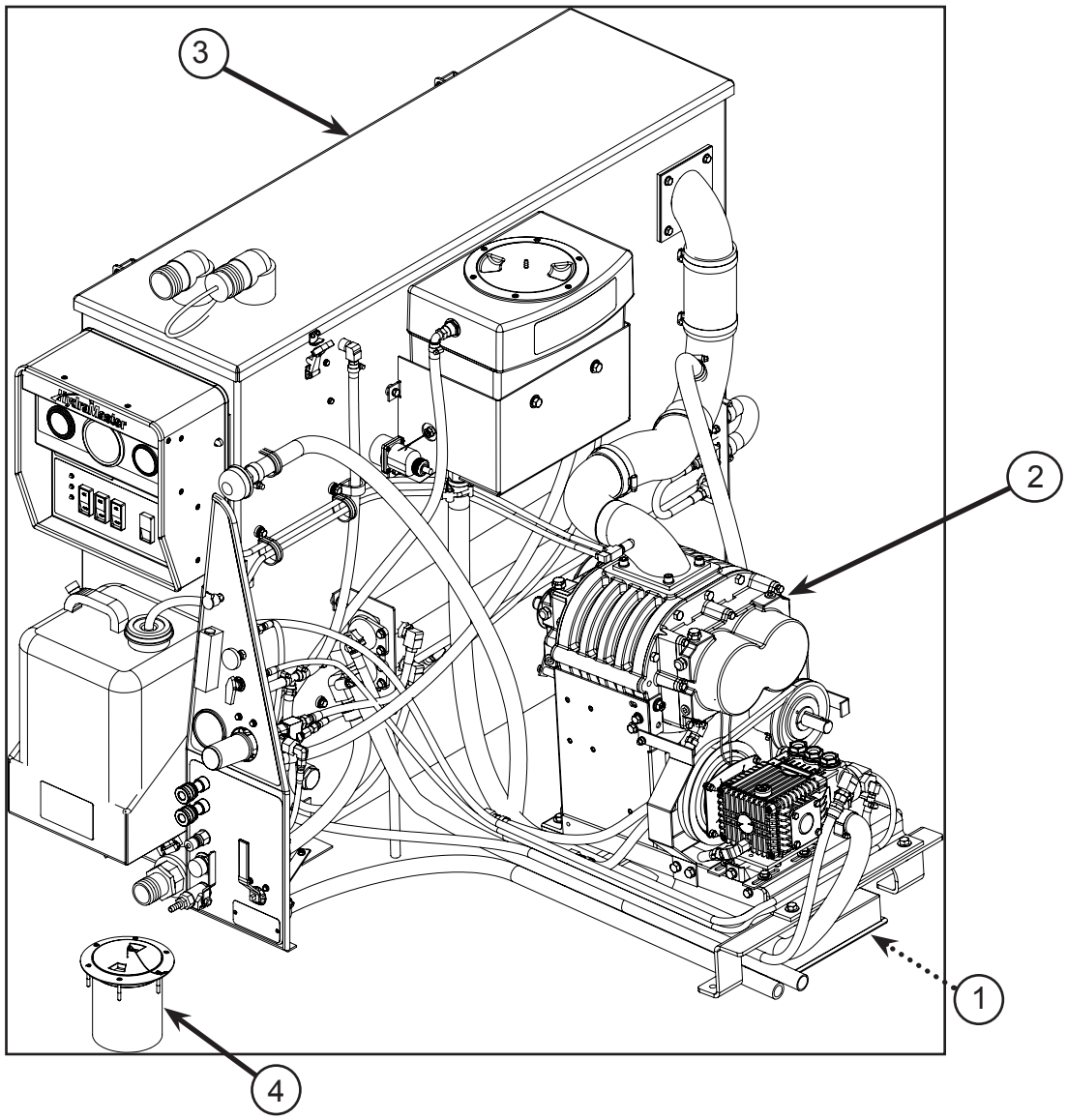


Figure 1. Standard CDS 4.8

NOTICE

This is the suggested order in which assemblies and kits should be installed: **PLEASE INSTALL THE YAW SENSOR COOLING ASSEMBLY FIRST.**

1. Yaw Sensor Cooling Kit
2. Front End Clutch Assembly
3. 3 Speed Throttle Control Kit
4. Power Pack Assembly
5. Optional Dura-Flow APO Assembly
6. Recovery Tank Assembly
7. Non Salsa (Hush Silencer) Assembly
8. Optional Salsa Assembly
9. Finish Kit
10. Rear Door Kits
11. Pass Through Assembly

Refer to Table 1 during installation for hose routings and hose part numbers.

⚠WARNING

To prevent serious personal injury, ensure that the major components of the CDS 4.8 are well secured to the floor of the vehicle with the hardware supplied.

NOTICE

Prior to installing any assembly or drilling holes, dry fit all assemblies first to ensure a proper fit.

NOTICE

After the CDS has been completely installed, follow the set up and calibration procedure starting on page 51 of this document.

Table 1. CDS Standard Hose Routings

Part Number	Description	From	To
000-068-092	Hose, 3/8” X 15” Teflon w/ 3/8” JIC End	Dual Heat Exchanger	By-Pass Valve
000-068-1037	Hose, 3/8” I.D. X 39” Lg., Clr w/Braid	Chemical Jug	Chemical Meter
000-068-1038	Hose, 3/8” I.D. High Temp X 72” Lg.	Chemical Pump	Chemical Meter
000-068-1039	Hose, 3/8” I.D. Rubber X 31” Lg.	By-Pass Valve	Recovery Tank
000-068-196	Hose, 3/8” I.D. X 11” Lg w/ 3/8” MPT and 3/8” JIC End	By-Pass Valve	Dual Heat Exchanger
000-068-203	Hose, 3/16” X 34” Teflon 1/4” F JIC X 1/4” F JIC	Water Box	Hi-PSI Manifold
000-068-385	Hose, 3/4” I.D. X 18 ft - Green Stripe - Cut to Fit	Dual Heat Exchanger	Van Cooling System
000-068-588	Hose, 3/8” X 52” Lg. Throb	Pump	Hi PSI Manifold
000-068-706	Hose, 3/16” X 70” Lg. Teflon w/ Fem JIC Ends	Pump	By-Pass Valve
000-068-734	Hose, 1/2” X 42.5 Lg w/ 3/8” NPT and 3/8” SAE F Ends	Water Box	Water Outlet
000-068-777	Hose, 1” X 65” Lg. Suction	Pump	Water Box
000-068-940	Hose, 3/8” I.D. Rubber X 17” Lg.	Hi-PSI Manifold	Dual Heat Exchanger
000-068-977	Hose, 5/32” I.D. Vacuum X 52” Lg.	Pressure Gauge	Blower Outlet
000-068-978	Hose, 5/32” I.D. Vacuum X 82” Lg.	Lube Port	Blower
000-068-991	Hose, 1/2” I.D. Rubber X 42” Lg.	Water Box	By-Pass Valve

TOOL LIST

Tools and other items you will need include:

3-¼" Hole Saw 4 ½" Hole Saw with jobber length pilot drill bit (minimum of 6" long)	Dex-cool Antifreeze
Wire Strippers/Crimpers/Cutters	Common Metric & Standard Drivers, Nut Drivers; Wrenches/Sockets
Reciprocating Saw	Drill ; Long 3/8" Drill Bit; #16 or #17 Bit; can also use 11/64" Bit; 13/64" Bit
Ratchet	Torque Wrench
Die Grinder	Razor Utility Knife, Box Knife or Hose Cutter
Tape Measure	Clear 100% Silicon Sealant (temperature range –60 to +300 degrees F, cured)
Loctite® 242 or equivalent; Loctite 545	White chalk/marker
Pipe Thread Sealant (temperature range - up to +500 degrees F)	
Personal protective equipment (PPE) such as gloves, safety glasses and shoes, and earplugs or muffs.	

PREPPING VEHICLE FOR INSTALLATION

1. Open hood and disconnect negative battery cable at the battery.

⚠WARNING

Ensure that the negative battery cable is disconnected. If it is not disconnected, personal injury or death could result from electrical shock.

2. Disconnect the wiring plug at the air cleaner, then remove air cleaner and tube assembly down to the throttle body. Use a shop rag to cover the intake of the throttle body.
3. Remove radiator over-flow container.
4. Remove the main engine drive belt. If van is equipped with air conditioning, the compressor is driven by a separate belt and does not need to be removed.

5. Drain the radiator coolant as follows:
   a. One method for recapturing the antifreeze is to insert a hose barb into the water pump hose to drain the coolant. This can be done by cutting a small 'x' in the ¾" water pump hose approximately 2.5" from the water pump housing. It is located on the passenger side of the water pump and thermostat housing (see Figure 2).
   b. Insert a barbed fitting with a hose attached so the coolant can now be drained into a proper container.
   c. Once the coolant has drained, the hose can be cut in half. The ¾" plastic tee can be installed as described later in these instructions.
   d. The other option is to cut the hose in half (at 2.5") and let the antifreeze drain. **HydraMaster does not recommend this especially on A/C equipped vans. Coolant will drain straight on top of the air compressor clutch and wiring, and then on to the cross member and the floor, making the coolant unusable.**

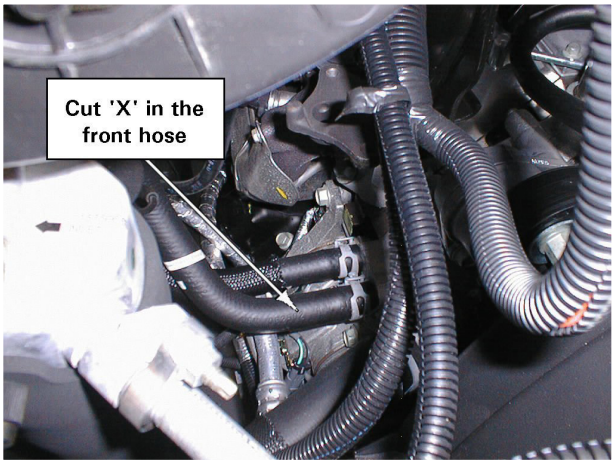


Figure 2. Cut Small 'x' in Water Pump Hose

NOTICE

Use Dex-cool Red GM antifreeze or equivalent.

⚠WARNING

WHEN DISPOSING OF USED ANTIFREEZE COOLANT: Follow local laws and regulation. If required, dispose at facilities licensed to accept household hazardous waste. If permitted, dispose in sanitary sewer systems. Do not discard into storm sewers, septic systems, or onto the ground.

⚠WARNING

ANTIFREEZE IS HARMFUL OR FATAL IF SWALLOWED. Do not drink antifreeze coolant or solution. If swallowed, induce vomiting immediately. Call a physician or local poison control hotline Contains Ethylene Glycol, which caused birth defects in animal studies. Do not store in open or unlabeled containers. KEEP OUT OF REACH OF CHILDREN AND ANIMALS.

6. Remove both driver and passenger seats. Remember to unplug and unfasten the seat belt sensor wires.

7. Remove the dog house engine cowling.
8. Remove the cup holder assembly from the engine cowling.

Figure 3. Plastic Dash Covers

NOTICE

The cup holder assembly will not be reused.

9. Carefully remove the plastic dash covers on the driver and passenger sides (see Figure 3). Remove the two bolts on the underside of each side, then remove the top portion by carefully pulling straight out. The dash cover on the driver side needs to be modified for clearance of the CDS cowling.
10. Remove the engine cowling.

NOTICE

Set cowling aside for now. It will need to be modified later during the installation.

11. Carefully remove the floor mat. DO NOT disconnect any of the underlying wires or cables. Pay special attention to the areas around the air pressure bag sensor, lying directly behind the van electrical fuse box (which was under the driver's seat).
12. Locate the yaw sensor cover in the center of the floor, immediately behind the dog house, and between the seats.
13. Remove the clear plastic cover that is over the top of the yaw sensor (see Figure 4 and Figure 5). This plastic cover will not be re-installed.

Figure 4. Remove the Original Clear Plastic Cover Remove

14. Apply high heat silicone sealant to the bottom flanges of the new yaw sensor cover that is supplied with the kit.
15. Position the new cover over the yaw sensor, making sure that it fits.
16. Clean the cover's wire slot, removing any burrs and nicks that could damage wires. Also, be sure the wires can easily pass through the slot (see Figure 7).

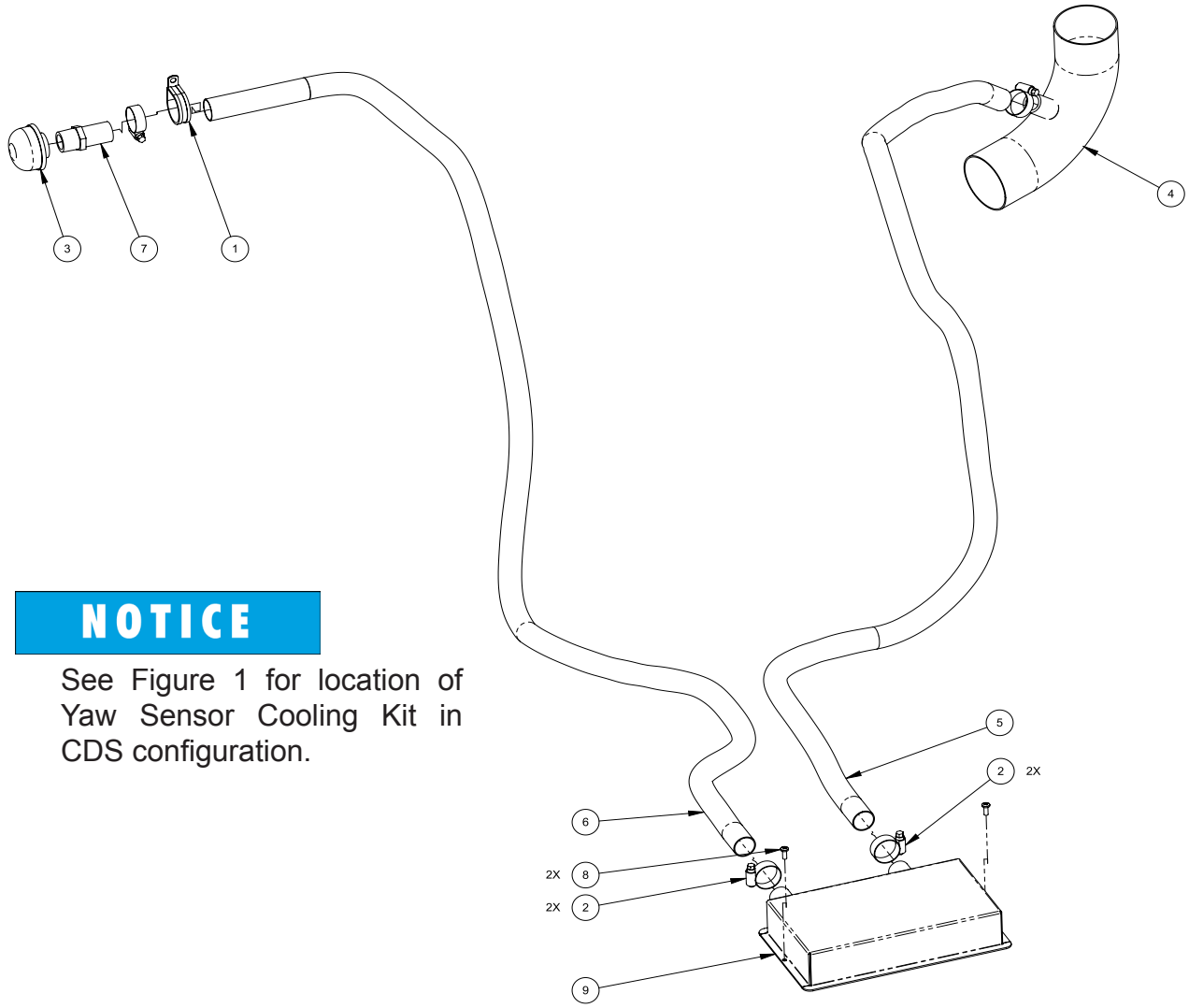
CAUTION

Clean the wire slot with a file, if necessary, to remove the burrs and nicks that can result in damage to wires. This type of damage is not covered in the warranty.

INSTALLING YAW SENSOR COOLING KIT

Parts included in the Yaw Sensor Cooling Kit are listed here and shown in Figure 5.

Item	Part Number	Description	Qty
1	000-033-053	Clamp, 1-1/2” Cushion Loop	1
2	000-033-029	Clamp, Size #12 Hose	4
3	000-049-020	Filter Screen - Medium	1
4	000-052-034	Fitting, Yaw Sensor Cooling	1
5	000-068-829	Hose, 1” Vacuum - Gray W - 72”	1
6	000-068-828	Hose, 1” Vacuum - Gray W - 84”	1
7	000-052-908	Insert 3/4 X 1 Hose w/o Barb	1
8	000-143-112	Screw,10-24 X 1/2” Self Tapping Pan HD-Phillips	2
9	000-041-312	Weldment, Yaw Sensor Cooling	1



NOTICE

See Figure 1 for location of Yaw Sensor Cooling Kit in CDS configuration.

Figure 5. Yaw Sensor Cooling Kit Assembly

1. With either the #16 or #17 drill bit, drill two holes into the sheet metal floor, using the two holes from the cover as a reference (see Figure 6).
2. Bolt the cover to the floor with the two supplied self-tapping screws.

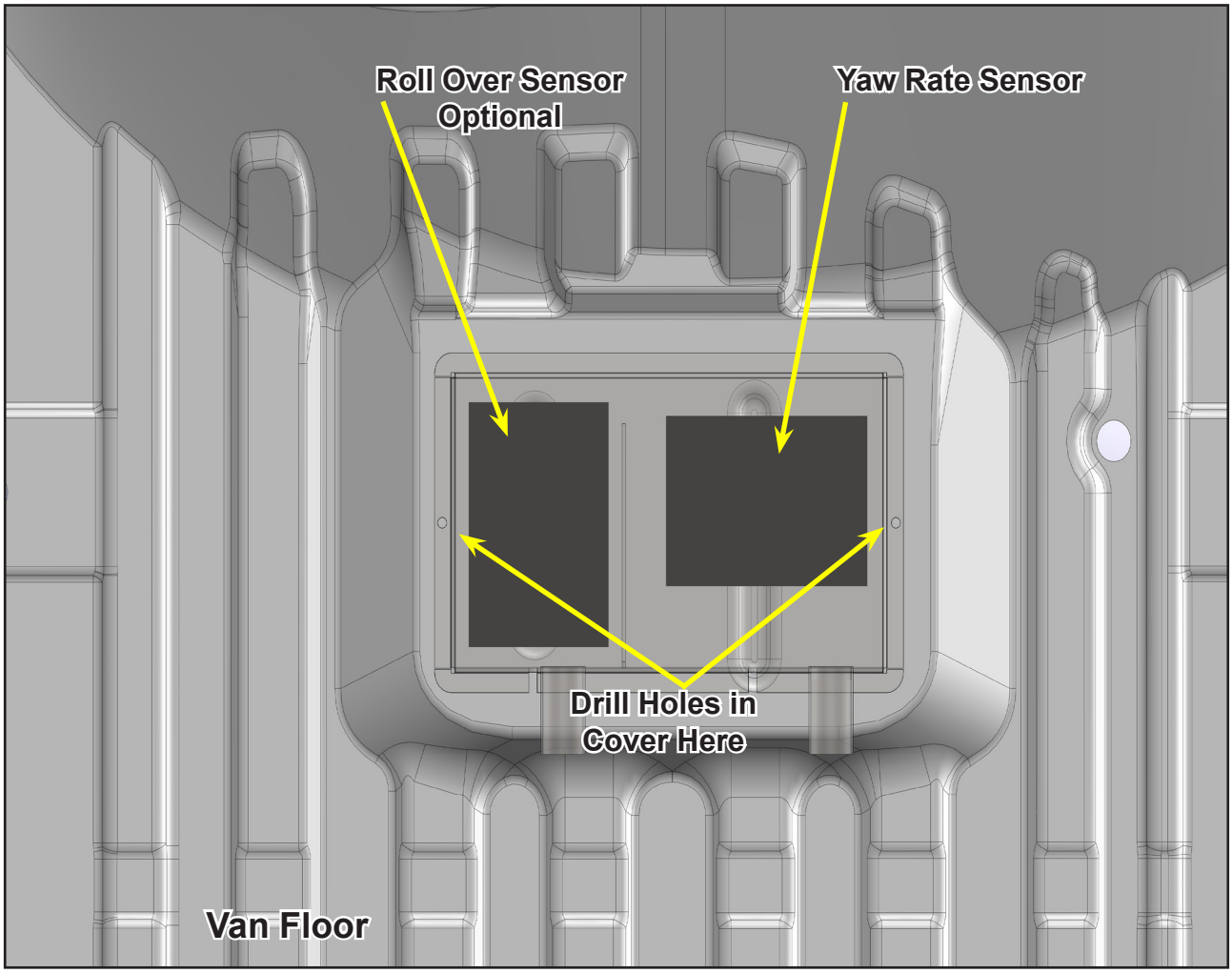


Figure 6. Top Down View of Van Floor - Mount New Cover Over Yaw Sensor

CAUTION

It is important to seal the cover to the van floor to ensure proper air and water protection for the yaw sensor.

3. Wrap the yaw sensor wires with electrical tape where the wires will pass through the cover.
4. Place a generous amount of silicone around the taped wires that pass though the side of the cover surface (see Figure 7).

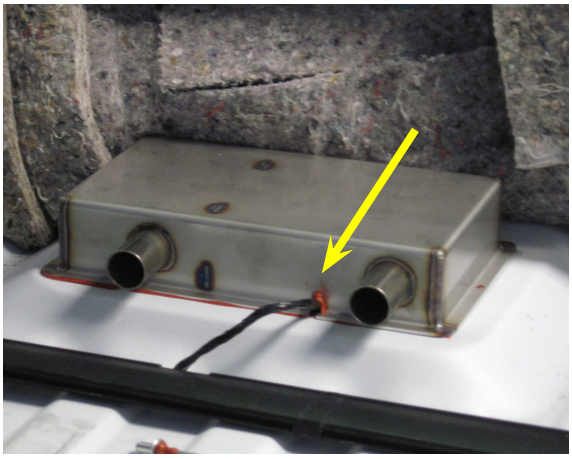


Figure 7. Apply Silicone Around Wires

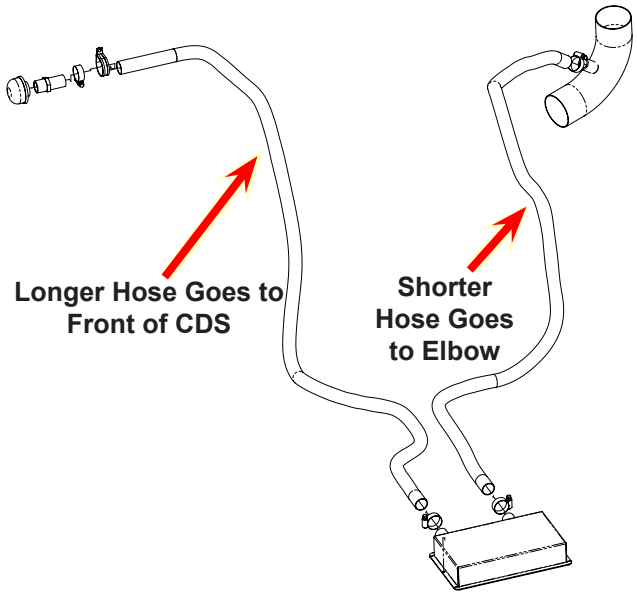


Figure 8. Route and Connect 2 Flex Hoses

CAUTION

Insufficient protection of the wires can result in damage to vehicle electronics.

5. Connect the two 1” flex hoses to the new cover over the yaw sensor. Use the provided hose clamps to secure the hoses (see Figure 8).

NOTICE

The longer hose will run from the passenger side of the cover to the front of the CDS unit, which will be pointing out of the passenger’s side cargo door. The shorter hose will run from the cover (driver’s side) to the Recovery Tank elbow joining the Recovery Tank to the Blower (refer to page 27).

6. Install the hose insert and filter screen onto the end of the longer hose (see Figure 9).

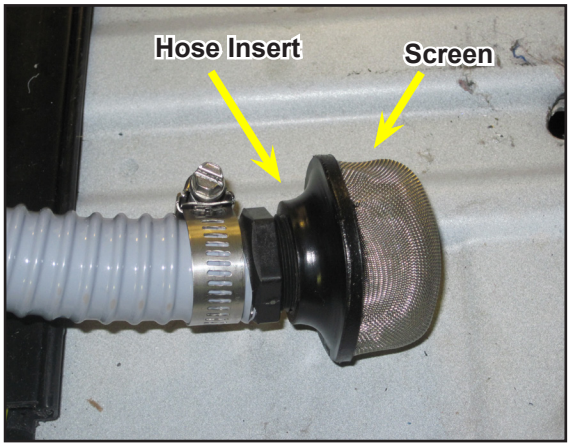


Figure 9. Install Hose Insert and Filter Screen on Longer (Passenger-Side) Hose

7. Cut off the batting in a swath as wide as the cover of the yaw sensor and the entire length, front to back, of the mat (see Figure 10). This will allow the routing of the 1” hose under the Blower for proper cooling of the yaw sensor.

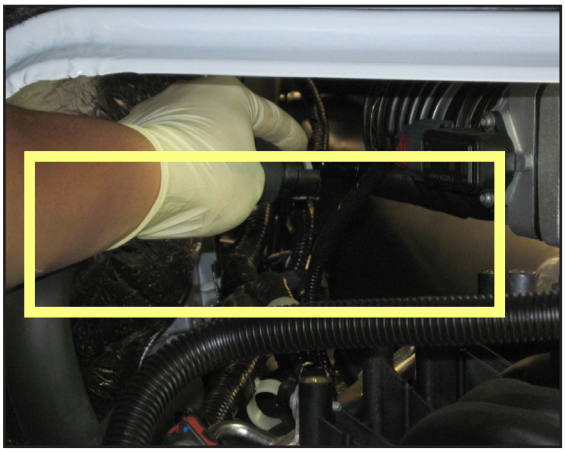


Figure 10. Remove Batting from Floor Mat

CAUTION

When removing the batting, DO NOT cut the van floor mat. This will ruin the water seal value of the mat and put the sensor and all underlying electrical components, including the air bag sensor, in serious risk of failure from a leaking pump or accident.

8. Replace the van floor mat being sure to route the two 1” diameter hoses side-by-side and straight back toward the cargo area of the van (see Figure 11).
9. Continue with the CDS installation.

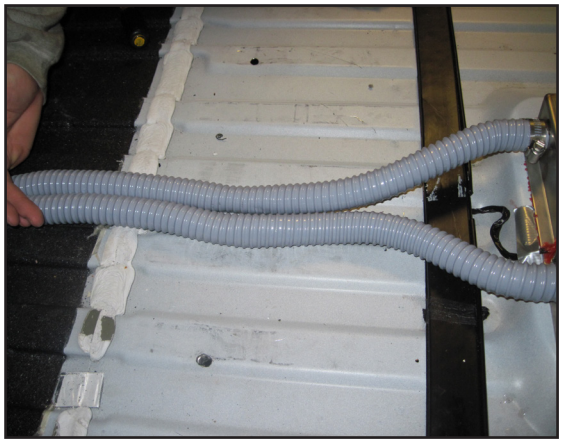


Figure 11. Route Hoses Straight Back Toward Cargo Area

The final assembly will have a 1” diameter hose attached to the Blower elbow and a 1” diameter hose routed toward the front of the CDS side panel (see Figure 5).

Secure the hose away from all rotating pulleys and off the Blower using the nylon tie wraps and clamps as necessary.

NOTICE

The Power Pack frame spacers allow routing of the two 1” hoses under the Power Pack, up to the Recovery Tank and behind the front panel of the CDS.

INSTALLING FRONT END CLUTCH ASSEMBLY

⚠WARNING

Ensure that the negative battery cable is disconnected. If it is not disconnected, personal injury or death could result from electrical shock.

1. Locate the engine alternator.

NOTICE

The alternator will need to be removed and installed on the clutch bracket provided. Moving the alternator over to the right provides room for the clutch and drive shaft assembly. The two small wires (gray and orange) with the wiring plug need to be extended along with the battery lead cable.

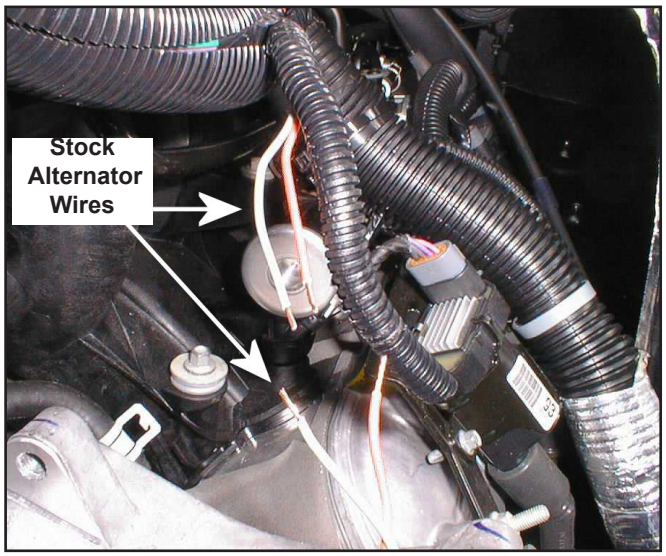


Figure 12. Routing Extended Wires

2. At the rear of the alternator, the wires and cable must be extended. First unplug the wiring connector and then remove the battery cable. Modify the harness and cable as follows:
   a. First remove the tape and plastic split loom back to expose gray and orange wires. Cut the wires approximately 2” from the plug and install the orange and gray extension wires with the pink butt connectors provided in the kit. The extended wires can be routed inside the main Chevy wire harness that runs forward (see Figure 12).
   b. Second remove the 6-gauge red battery cable by pulling the boot back and then loosen the nut to remove the cable.
3. Remove the 2 bolts that mount the alternator.
4. Remove the alternator from the bracket.
5. Assemble the alternator into the clutch housing using the hardware provided. The clutch housing is designed to accommodate either a standard or heavy-duty alternator.

6. Move the 2 brackets to the appropriate set of holes depending on which alternator you are using. The bottom 4 holes are for the standard alternator and the top 4 holes are for the hi amp alternator. The alternator will need to be rotated so that the stud is on the bottom (see Figure 13).
7. Use Loctite 242 on the 4 screws that secure the brackets to the clutch housing.
8. Torque alternator bolts to 30 ft lbs.
9. Attach the new battery cable extension lead provided in this kit to the back of the alternator (see Figure 14). The end with the red boot will attach to the alternator stud (see Figure 13).
10. Before you install the clutch and alternator assembly, secure the engine wiring harness that is located directly behind the stock alternator location so that the harness will clear the drive shaft.
11. Remove the plastic clamp used to secure harness to the intake. This allows the drive shaft knuckle clearance.
12. Cable tie the harness to allow the shaft knuckle to clear the harness.

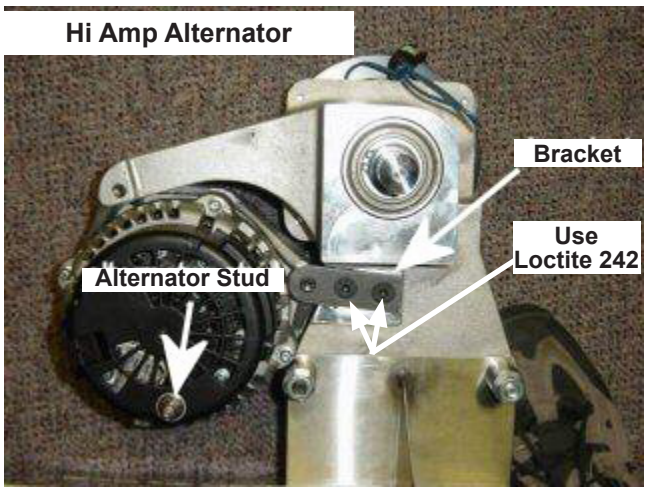


Figure 13. Rotate Alternator

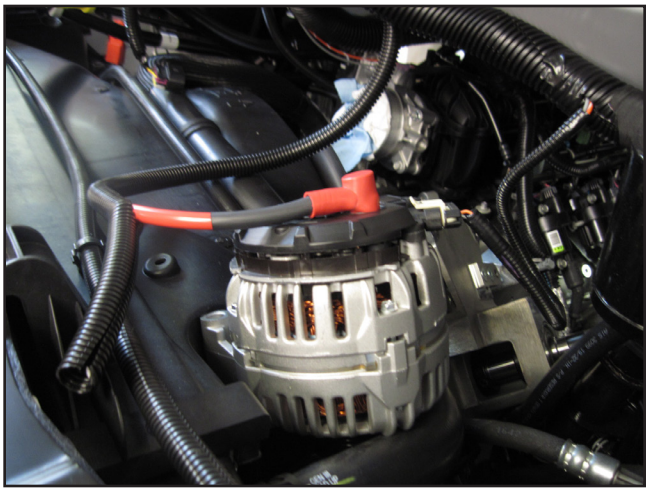


Figure 14. Attach New Battery Cable

CAUTION

Failure to do this may cause serious damage to the equipment.

CAUTION

Do not attach the harness to the fuel rail. Doing so could cause the fuel injectors to leak.

13. Secure the breather, located at the rear of the driver's side valve cover, to the metal tubes just below it with the provided tie wraps.

14. Install the clutch and alternator bracket as one unit. You will need to grind off the corner of the stock bracket in order for the assembly to fit. Use the supplied 10mm x 90mm

Allen head screw on the right side and use the supplied modified bolt on the left side. The modified bolt has the head shaved down to allow clearance for the new drive belt. Tighten the bolts evenly and torque to 30 ft lbs.

a. Large case alternator will need to have a small portion or the bracket additionally ground down for clearance. Alternator and factory alternator bracket should NOT touch after installing HydraMaster clutch housing into alternator bracket.

⚠WARNING

Wear Personal Protective Equipment (PPE) such as safety glasses and earplugs before performing the next step. Failure to do so could result in personal injury.

b. See the following figures to gauge the grinding of alternator bracket.
   1. Remove the top right corner of the bracket as shown in Figure 15.
   2. Mark the corner 1-1/8" in length and 3/8" deep as shown in Figure 16.

c. Use a die grinder with a cut off wheel. Cut 3/8" into the bracket after marked on both ends of measured area. Hog out remaining material as shown in Figure 17.

d. Use a 0.025" feeler gauge to verify the alternator/bracket clearance.

NOTICE

Verify that the van throttle cable is not pinched behind the alternator; the cable should be routed next to the alternator.

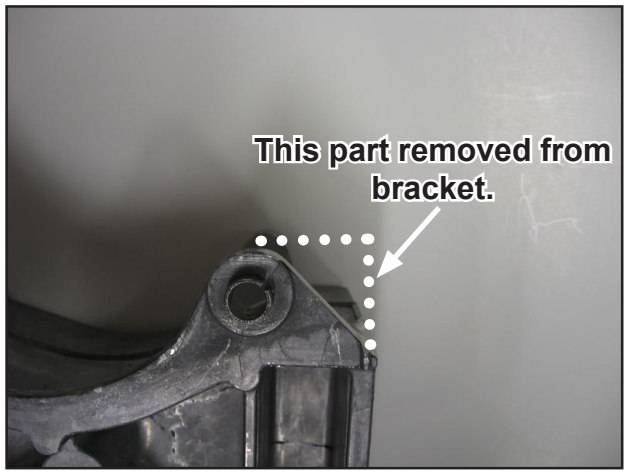


Figure 15. Remove Top Right Corner of Bracket

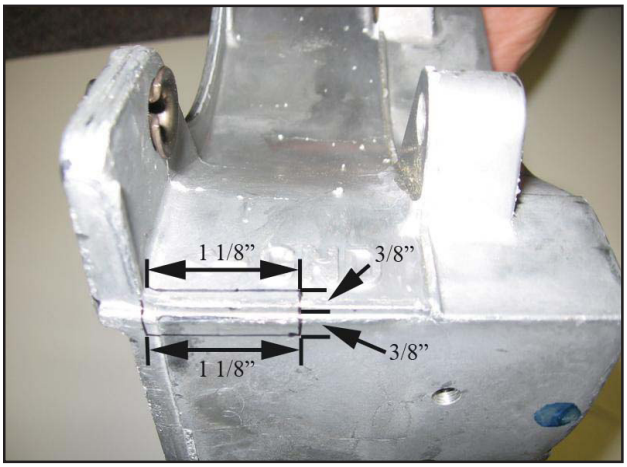


Figure 16. Mark Corner

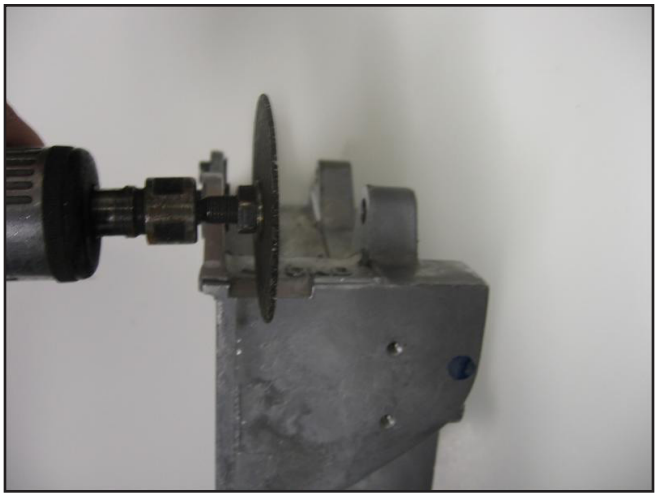


Figure 17. Use Die Grinder to Cut into Bracket

15. Install the new drive belt using the routing diagram in Figure 18.
16. Install the safety ring (fly strap) to the back of the driver side head (see Figure 19). Use the original bolt in back of head and the provided 10mm bolt for mounting. Leave the top of the safety ring off until the drive shaft has been installed.
17. Install the drive shaft onto the back of the clutch. The spline end of the drive shaft will face the Blower Power Pack. Slide the yoke of the drive shaft onto the clutch shaft. The end of the clutch shaft needs to be flush with the inside of the yoke. Torque bolts to 35 ft lbs.
18. Temporarily rest the drive shaft on the safety ring until the Blower Power Pack is installed.
19. Install the top of the safety ring and secure using supplied bolts and nut.

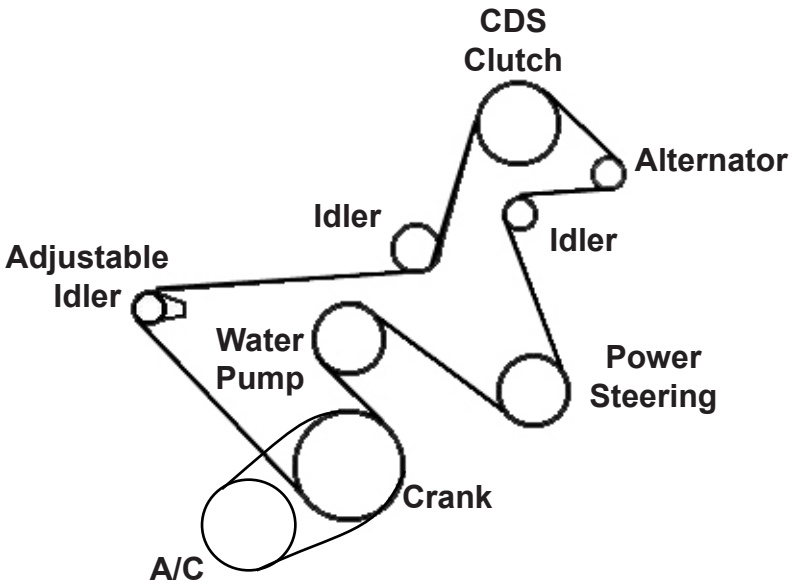


Figure 18. Routing Diagram for New Drive Belt

NOTICE

With the drive shaft attached to the clutch and resting in the center of the safety ring, check all clearances of the wire harness, breather tubes, throttle cable or anything that may rub on the drive shaft. Secure as necessary.

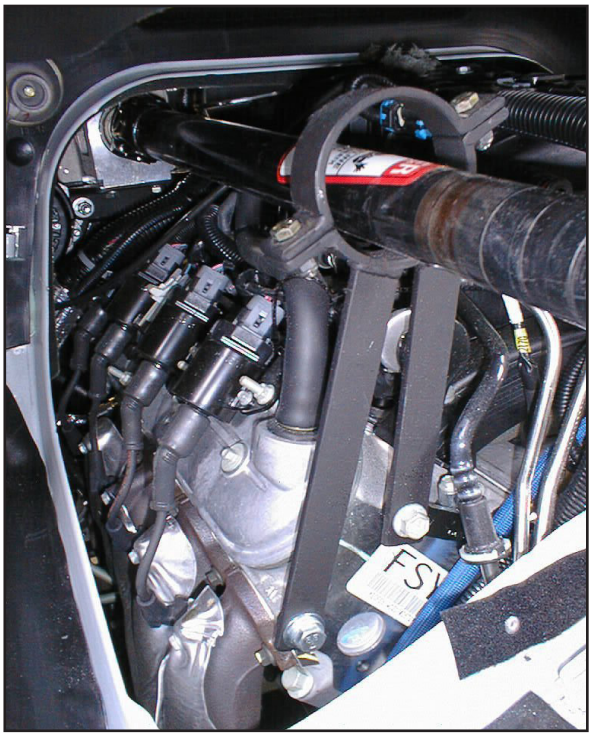


Figure 19. Install Safety Ring

20. Install the coolant hoses as follows:
    a. Locate the 1-3/8” upper radiator hose and cut in half just before the end of the fan shroud. Install the provided aluminum tee and clamps facing the passenger side.
    b. Install the provided ¾” tee into the ¾” lower hose coming off the water pump (the same hose from which the coolant was drained).
    c. Cut the hose in half and install the tee. The tee needs to be pointing up and slightly towards the front of the van (see Figure 20).
    d. Leave the provided ¾” green stripe hose in its full length.

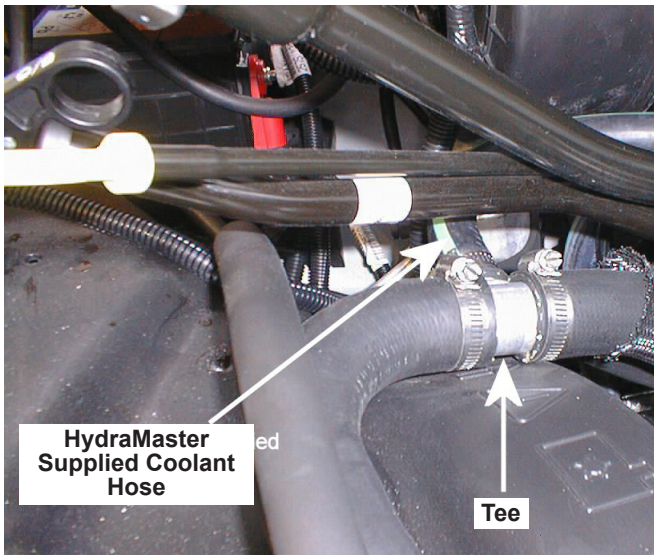


Figure 20. Cut Hose in Half and Install Tee

    e. Feed the two ends, from the passenger compartment, over the passenger valve cover to the front of the van and attach to the tees.
    f. Carefully route the hoses away from any moving parts, sharp edges or hot parts.
    g. Secure the hoses with provided clamps (see Figure 21 on the following page).

CAUTION

Improper installation of the coolant hoses may result in engine damage.

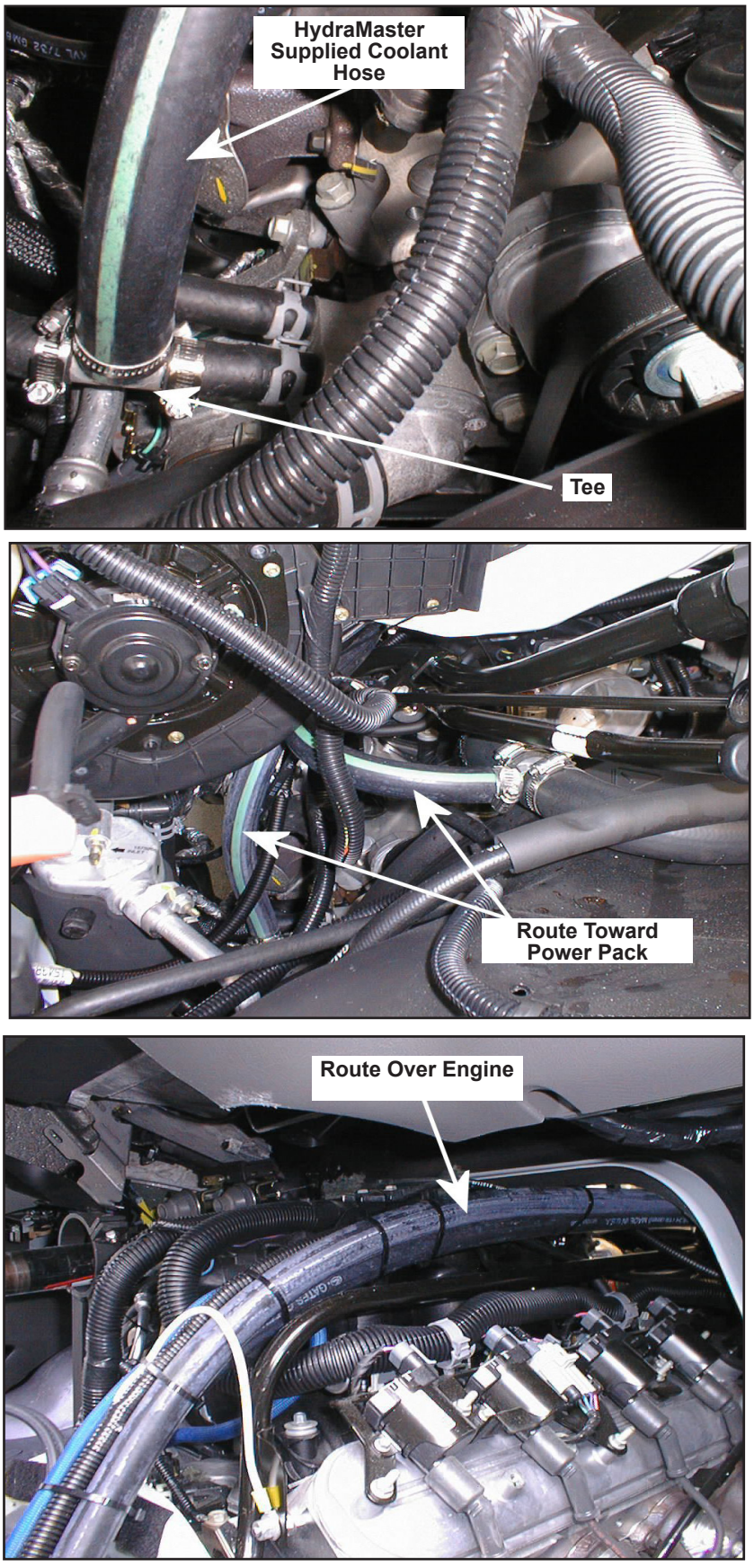


Figure 21. Secure Hoses with Provided Clamps

INSTALLING 3 SPEED THROTTLE CONTROL KIT

Parts in the 3 Speed Throttle Control kit include:

Part No.	Description	Qty
1. Ground Wire		1
000-037-015	Terminal, 5/16” Ring-1	1
000-037-071	Terminal, Fully Insulated	1
000-178-069	Wire,18 GXL White	0.67 ft
2. 000-074-171	Controller, GM Throttle	1
3. 000-143-546	Screw, #8 Washer Hd	1
4. 000-162-001	Tie Wrap, 4” Nylon	3
5. 000-056-023	Fuse, 2 Amp Mini ATM P	2

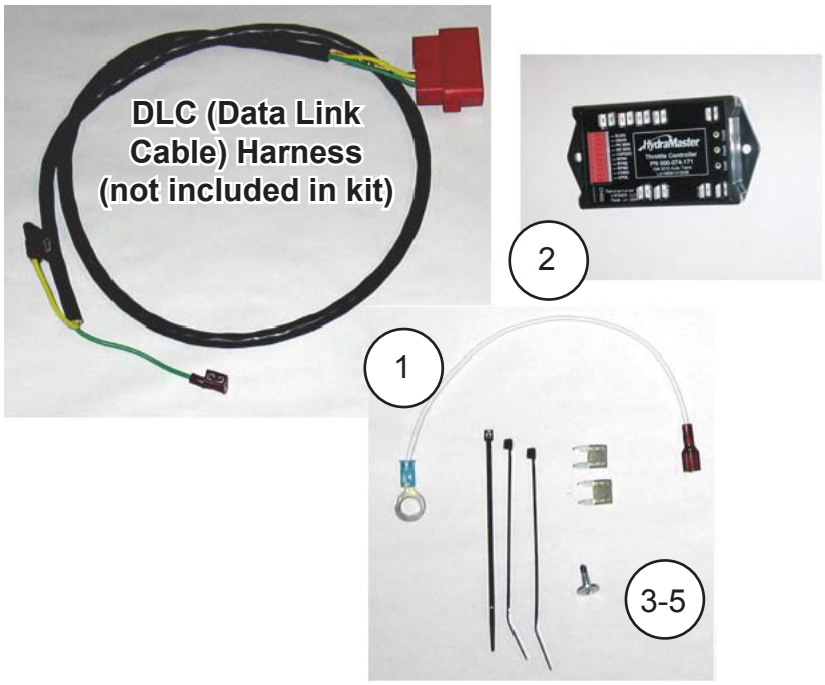


Figure 22. Parts in 3 Speed Throttle Control Kit and DLC Harness

CAUTION

Electronic Throttle controllers need a keyed 12V ignition source and vehicle ground to work correctly. Do not apply constant battery voltage. Doing so may cause equipment damage.

⚠WARNING

Make sure the battery ground cable is disconnected prior to performing any work on vehicle electrical components. If it is not disconnected, personal injury or death could result from electrical shock.

1. Using the provided Velcro, mount the new Throttle Control module under the dash just above the gas pedal (see Figure 23).

2. Connect the Data Link Cable (DLC) harness and the provided wires to the controller as follows (see Figure 23 and Figure 24).

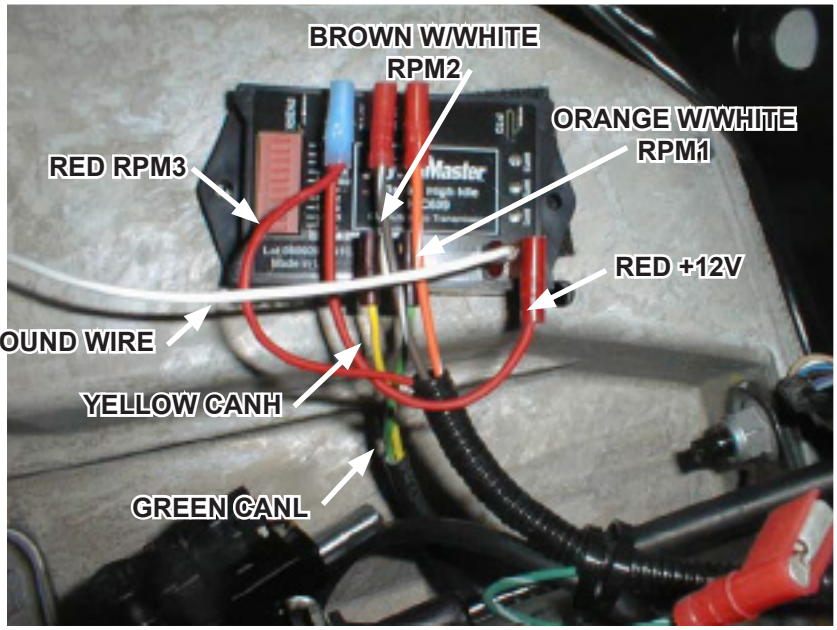


Figure 23. Mount New Throttle Control Module under Dash

Yellow wire to "CANH" terminal
Green wire to "CANL" terminal

Red wire to "12V" terminal
White wire to "GND" terminal
Orange w/ White to RPM 1 (HI = 1,500 RPM)

Brown w/ White to RPM 2 (MID = 1,400 RPM)
Red to RPM 3 (LO = 1,300 RPM)

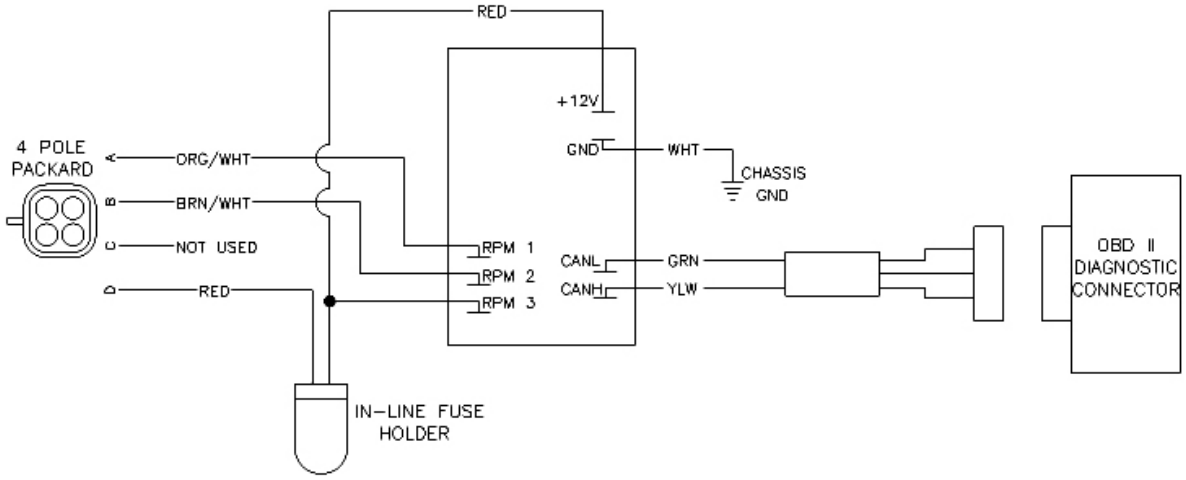


Figure 24. Wiring Diagram for GM 3 Speed Throttle Control

3. Route the DLC harness over the steering column to the Data Link Connector located just above the E-brake pedal. Make sure the harness is routed away from sharp edges and such that it does not come in contact with the driver's feet. Plug the harness in and secure with a wire tie or tape to prevent it from vibrating out over time. See Figure 25.

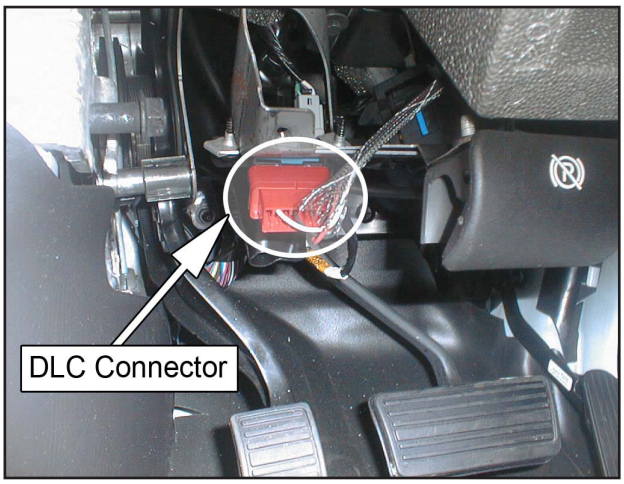


Figure 25. Route DLC Harness over Column to Data Link Connector

4. Connect the provided white wire with terminals to a ground. Refer Figure 26.
5. Check all electrical connections.

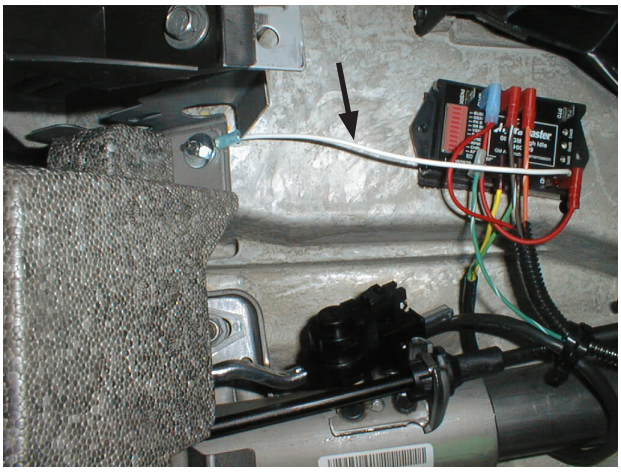


Figure 26. Connect White Wire to Ground

INSTALLING POWER PACK ASSEMBLY

⚠ WARNING

Use extreme caution when loading the Power Pack Assembly into the van. Always seek the assistance of a second person. If you attempt to load the Assembly by yourself, personal injury could result.

The Power Pack Assembly includes the Frame Assembly, the Blower Assembly and the Pump Assembly (see Figure 27).

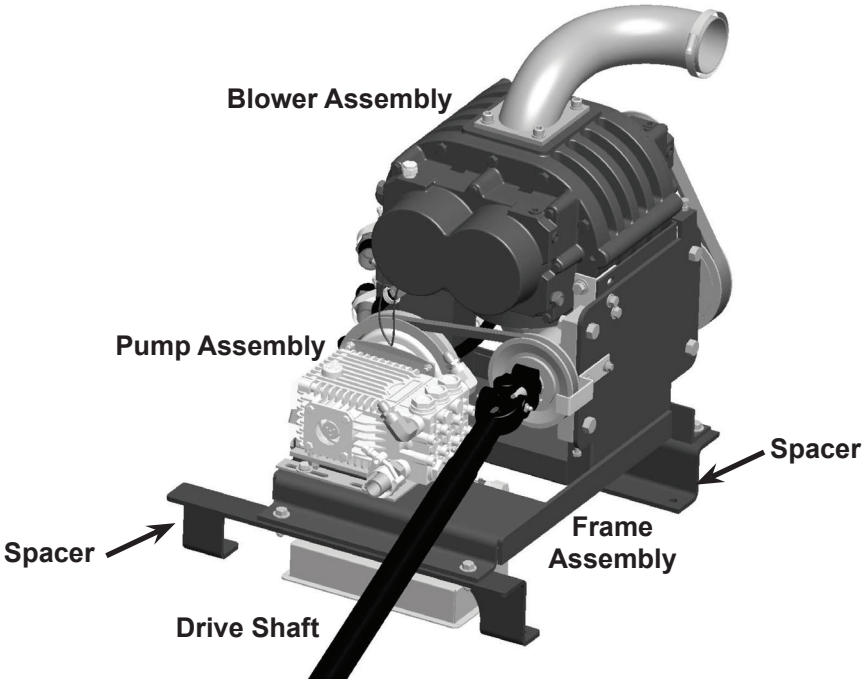


Figure 27. Power Pack with Drive Shaft

NOTICE

Prior to installing any assembly or drilling holes, dry fit the vehicle seats and assemblies to ensure a proper fit.

1. The frame spacers for the Power Pack get bolted down to the van floor and the Power Pack is bolted to the frame spacers. If there is a need to remove the Power Pack in the future, just unbolt it from the frame spacers.
2. Position the Power Pack with frame spacers (with the pump towards front of van) between the driver and passenger seat locations (see Figure 28).

Figure 28. Dry Fit Vehicle Seats and Power Pack

NOTICE

No measurements are given here to locate the Power Pack assembly. Side to side measurements will be determined by the position of the drive shaft against the engine and in the safety ring. Front to back location will be determined by the drive shaft length.

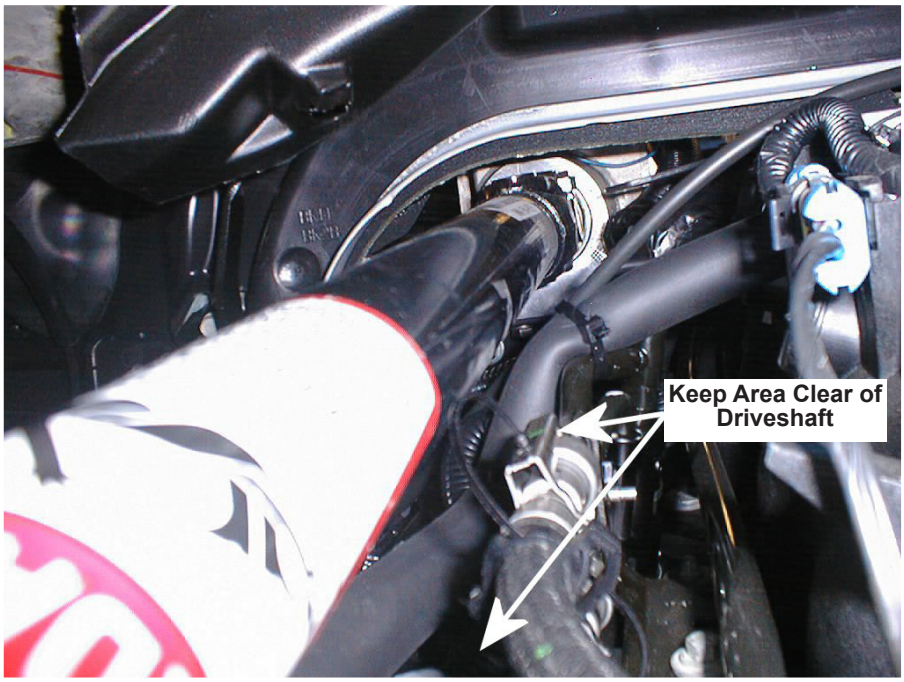


Figure 29. Slide Yoke into Drive Shaft

NOTICE

The drive shaft spline must be completely compressed before positioning the Power Pack. To do so, take the yoke at the end of the drive shaft and push towards the clutch.

3. Slide Power Pack up to the drive shaft. Hold the drive shaft in line with jack shaft.
4. Properly position the Power Pack as follows:
   a. Front to Back: Leave ¼" between the jack shaft and the drive shaft yoke. This will allow for future removal of the drive shaft. Slide yoke onto jack shaft but do not tighten bolt yet. (See Figure 29)
   b. Side-to-Side: Position as far as possible to the passenger side so the drive shaft does not contact the engines wire harness, throttle cable, breather tube or safety ring. Leave ¼" to ½" between any part of the engine and the drive shaft.

5. With the Power Pack set, place the driver seat in and check clearance. The backrest adjustment may be touching the Power Pack but it should not compress the handle. There should be enough room to slide the cowling between the seat and Power Pack.
6. Adjust the Power Pack as necessary.

NOTICE

Verify that the drive shaft yoke will slide off the jack shaft. Slide the yoke back onto the jack shaft and torque the bolt to 35 ft lbs. The exposed spline of the drive shaft should be no longer than 5”.

7. Dry fit tank, seats and Salsa to make sure doors close and tank lids open all the way. Blower placement is the key to a good fit and finish.
8. With the Power Pack in place, drill 3/8” holes through the floor using the Blower frame spacer as a template.
9. Bolt the Power Pack down with the provided hardware.

NOTICE

The Power Pack frame spacers are designed to allow routing of the two 1” hoses under the Power Pack, and routing up to the Recovery Tank and behind the front panel of the CDS.

INSTALLING OPTIONAL DURA-FLOW APO ASSEMBLY

Next, dry fit the optional Automatic Pump Out (APO) onto the Power Pack Assembly.

1. Secure the APO to the Power Pack Assembly using two 1/4-20UNC x 0.75” hex head bolts and two 1/4” washers (see Figure 30).

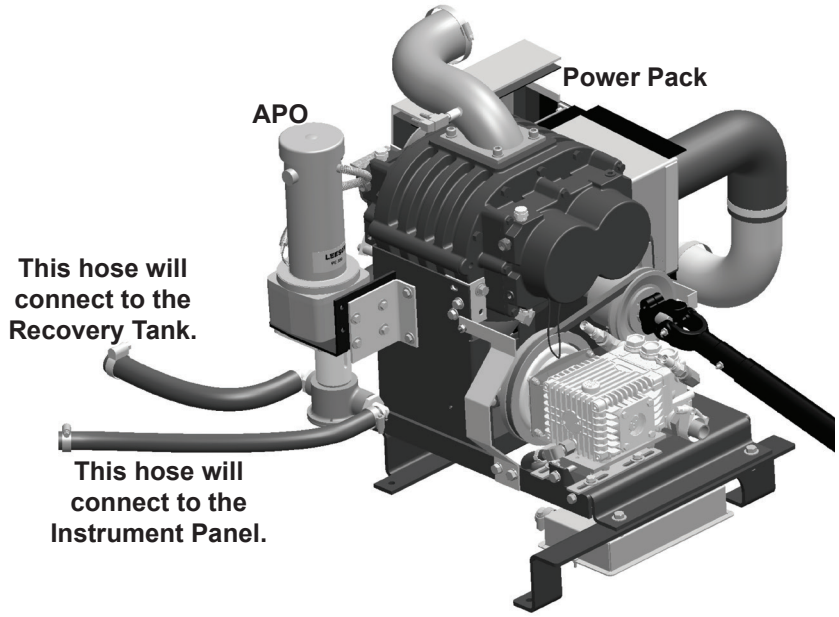


Figure 30. Install APO onto Power Pack

2. Locate the two hoses for the APO (see Figure 30).
3. Later, you will connect one hose to the APO inlet from the connector located near the bottom of the Recovery Tank and then secure the hose on both ends by tightening the hose clamps.
4. You will then attach the other hose from the APO outlet to the bottom of the instrument panel and secure both ends of the hose by tightening the hose clamps.
5. Locate the red wire within the split loom (wiring harness). Connect it to the inline fuse (with the fuse). Connect the fuse to the red APO motor wire (see Figure 31).
6. Route the black APO wire to the ground lug on the Power Pack, under the Pressure Pump.

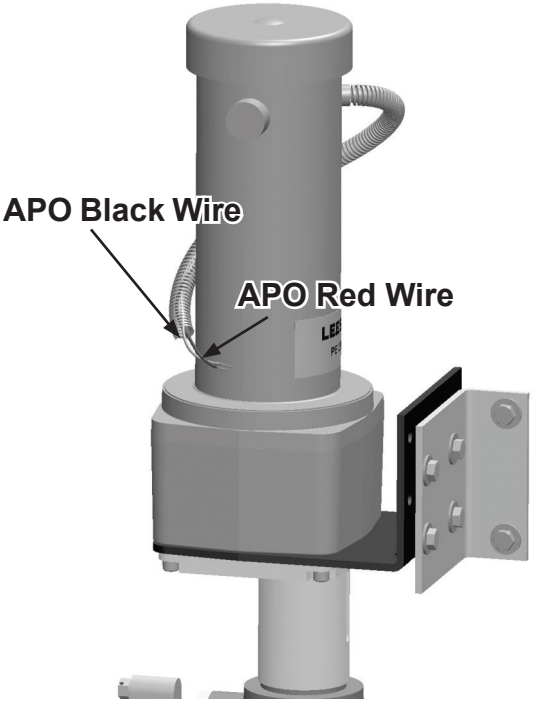


Figure 31. Connect Fuse to Red APO Wire; Route Black APO Wire to Ground Lug on Power Pack

INSTALLING RECOVERY TANK ASSEMBLY

⚠WARNING

Use extreme caution when loading the Recovery Tank into the van. Always seek the assistance of a second person. If you attempt to load the Recovery Tank by yourself, personal injury could result.

1. Remove the Recovery Tank from the pallet and load it into the van. The Recovery Tank placement will be determined by dry fitting. The flex hose allows you to attach the Tank to the Blower without clearance issues.

NOTICE

After dry fitting the Recovery Tank, make sure that the Recovery Tank lid can be fully opened and does not interfere with the van ceiling.

2. Mark the positions of the 4 Recovery Tank bracket holes (see Figure 32).
3. Drill the 4 holes through the van floor.
4. Use the 5 bolts from the kit to secure the Recovery Tank to the floor - 4 on the rear of the Recovery Tank (see Figure 32) and 1 towards the front of the tank (see Figure 33).

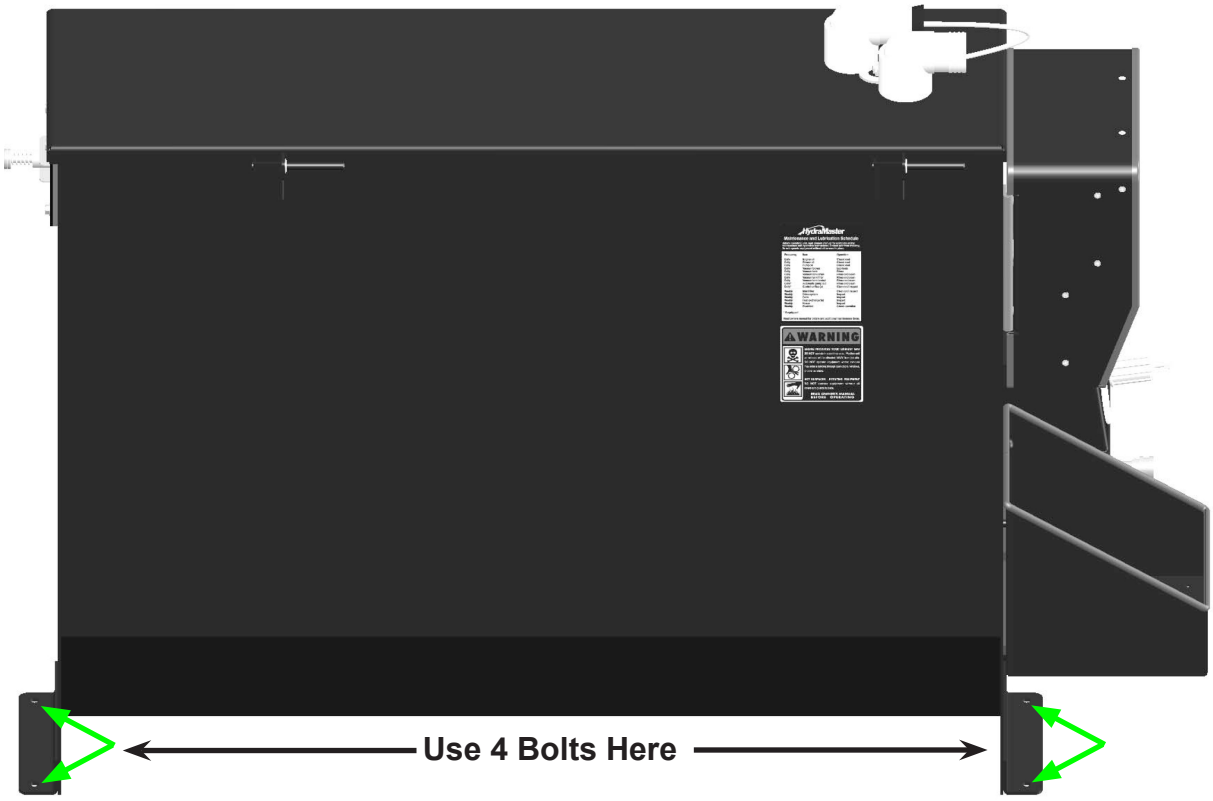


Figure 32. Mark Hole Locations for Recovery Tank - Rear of Tank

5. Connect these hoses and elbow as shown in Figure 34
   1. P/N 000-052-034 Elbow (from Yaw Sensor Cooling Kit)
   2. P/N 000-068-200 Hose
   3. P/N 000-068-884 Hose
6. Route and connect the 1” diameter hose (P/N 000-068-829 - see page 9) from the Yaw Sensor Cover to the Blower elbow (see Figure 8 and Figure 34).
7. Route the longer 1” diameter hose (P/N 000-068-828) from the Yaw Sensor Cover toward the CDS instrument panel (see Figure 8).
8. Secure the hoses away from all rotating pulleys and off the Blower using the nylon tie wraps and clamps as necessary.

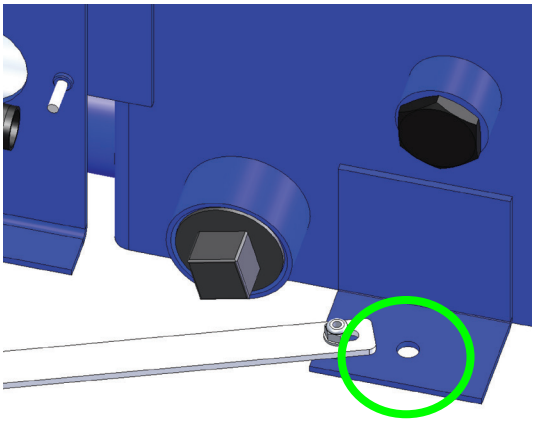
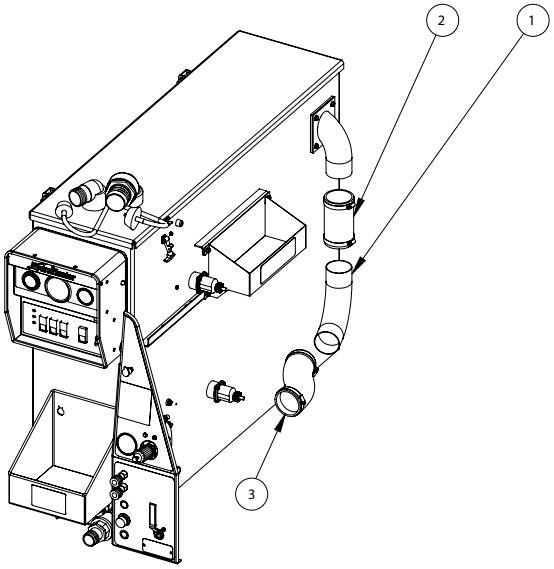


Figure 33. Mark Hole Location for Recovery Tank - Front of Tank



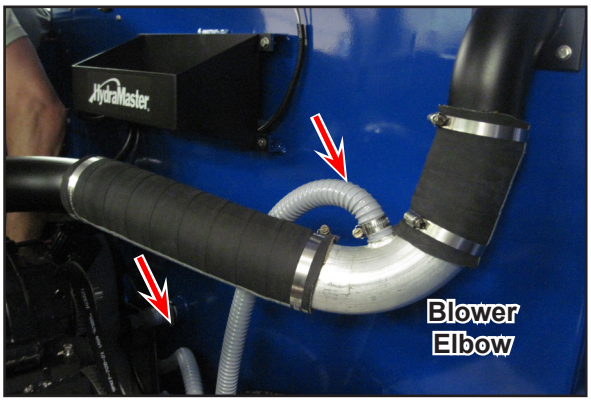


Figure 34. Connect Hoses and Elbow onto Recovery Tank; Attach Smaller Hoses onto Blower Elbow and CDS Instrument Panel

9. Route the coolant hoses from the back of the engine along the passenger side of the Power Pack to the dual heat exchangers mounted on the Recovery Tank.

NOTICE

Proper routing of the coolant is critical for optimum performance.

The inlet hose that comes from the upper radiator hose tee must be connected to the lower barb on the Hi-PSI Manifold (see Figure 35). The outlet hose routes from the upper insert on the Dual Heat Exchanger to the lower tee on the CDS's water pump.

10. Secure hoses using the provided clamps.
11. Route the 1" hose and the high pressure hose from the Blower down and next to the Blower and to the Recovery Tank. Tie Wrap every 8".

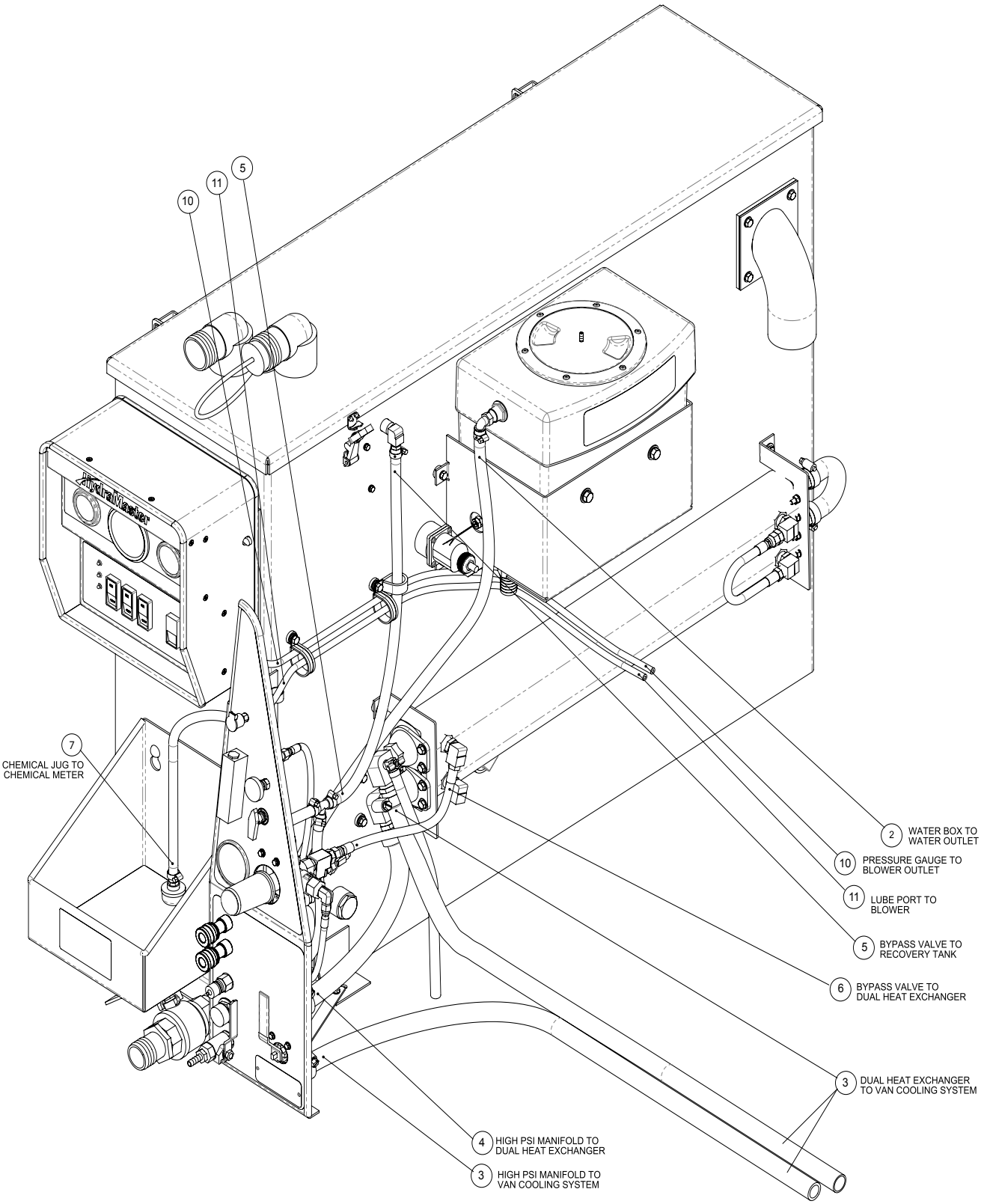


Figure 35. Recovery Tank Hose Routings

Recovery Tank Hose List

Item	Part Number	Description	Qty
1	000-068-991	Hose, 1/2” I.D. Rubber X 42” Lg.	1
2	000-068-734	Hose, 1/2” X 42.5 Lg w/ 3/8” NPT and 3/8” SAE F Ends	1
3	000-068-385	Hose, 3/4” I.D. X 18 ft - Green Stripe - Cut to Fit	1
4	000-068-940	Hose, 3/8” I.D. Rubber X 17” Lg.	1
5	000-068-1039	Hose, 3/8” I.D. Rubber X 31” Lg.	1
6	000-068-196	Hose, 3/8” I.D. X 11” Lg w/ 3/8” MPT and 3/8” JIC End	1
7	000-068-1037	Hose, 3/8” I.D. X 39” Lg., Clr w/Braid	1
8	000-068-092	Hose, 3/8” X 15” Teflon w/ 3/8” JIC End	1
9	000-068-203	Hose, 3/16” X 34” Teflon 1/4” F JIC X 1/4” F JIC	1
10	000-068-977	Hose, 5/32” I.D. Vacuum X 52” Lg.	1
11	000-068-978	Hose, 5/32” I.D. Vacuum X 82” Lg.	1

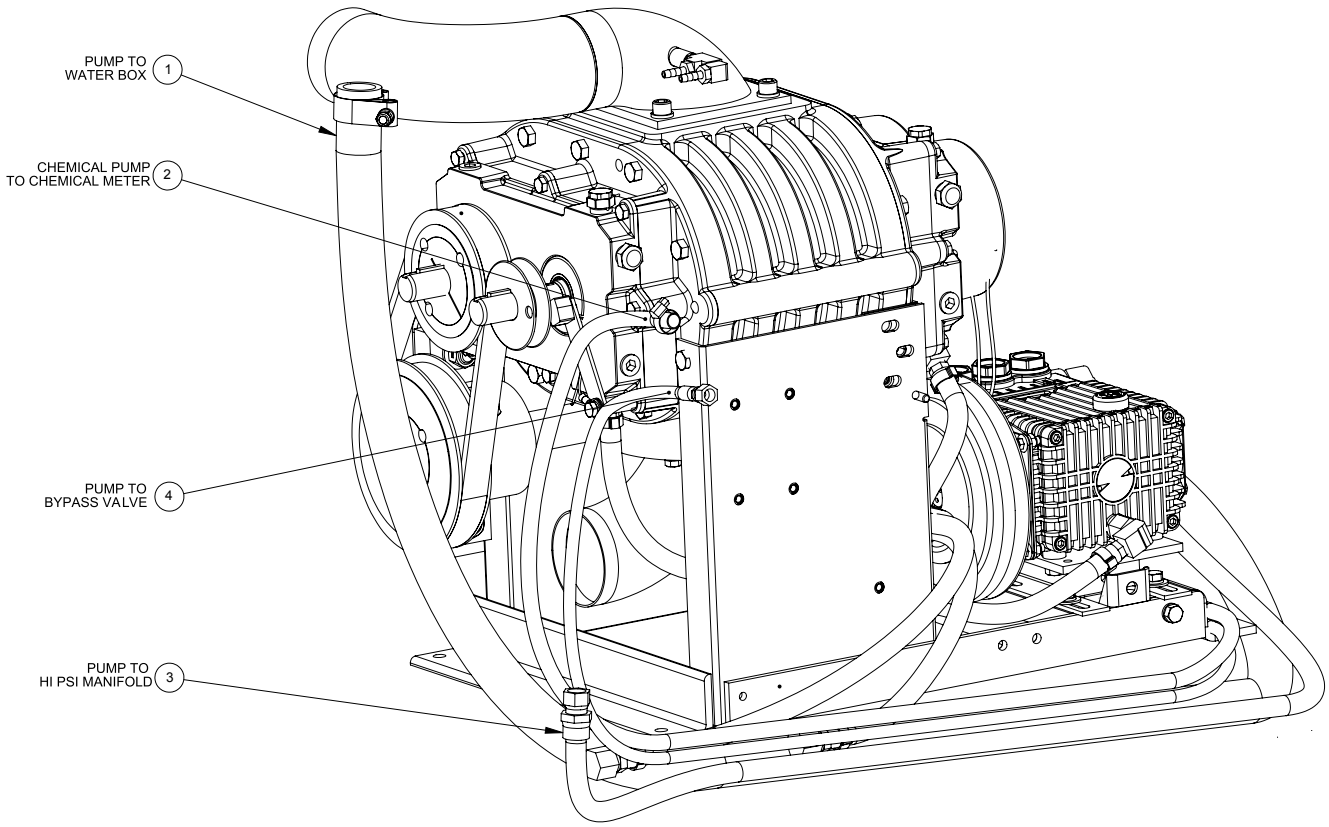


Figure 36. Power Pack Hose Routings

Power Pack Hose List

Item	Part Number	Description	Qty
1	000-068-777	Hose, 1” X 65” Lg. Suction	1
2	000-068-1038	Hose, 3/8” I.D. High Temp X 72” Lg.	1
3	000-068-588	Hose, 3/8” X 52” Lg. Throb	1
4	000-068-706	Hose, 3/16” X 70” Lg. Teflon w/ Fem JIC Ends	1

INSTALLING NON SALSA (HUSH SILENCER) ASSEMBLY

NOTICE

If you purchased a Salsa Assembly, skip this section and refer to the next section on page 35.

NOTICE

Dry fit the Hush Silencer Assembly behind the driver's seat location. Mark the location on the van's floor where the 3" adapter (P/N 000-001-026) will be inserted through the van floor (see Figure 37).

1. Pilot drill a hole. With a circular saw, cut a 3 1/2" diameter hole into the van floor at the marked location, behind the driver's seat position.

CAUTION

Many vans have critical components mounted directly below the van floor. Be careful when cutting through the van floor to avoid damaging components and causing potential equipment failure.

2. Connect one end of the 3" diameter fitting (P/N 000-052-334) to the outlet of the muffler (see Figure 37).
3. Connect the other end of the muffler to the 90 degree elbow fitting (P/N 000-052-322); connect the other end of the elbow fitting to the 7" long hose (P/N 000-068-617) and secure with a hose clamp.
4. Connect the other end of the 7" long hose to the Blower's outlet adapter.

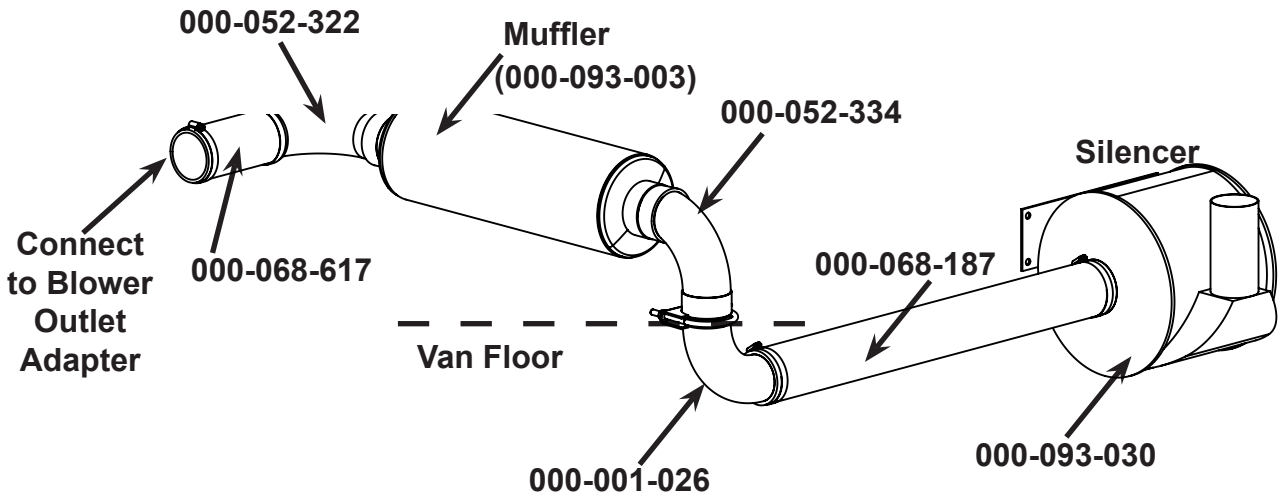


Figure 37. Install Non Salsa Assembly and Silencer

5. From under the van's floor, slip fit the exhaust adapter (P/N 000-001-026) into the other end of the 3" diameter fitting, through the van floor.
6. Secure the fitting to the adapter with a muffler clamp (see Figure 37).
7. Connect the 30" hose assembly (P/N 000-068-187) to the other end of the adapter.
8. Connect the silencer to the hose assembly and secure with a hose clamp.

INSTALLING OPTIONAL SALSA ASSEMBLY

NOTICE

Dry fit the Salsa Heat Exchanger behind the driver's seat location. Mark the location on the van's floor where the 3" diameter rubber hose (P/N 000-052-674) will be inserted (see Figure 38).

1. Pilot drill a hole. With a circular saw, cut a 3 1/2" diameter hole into the van floor at the marked location, behind the driver's seat position.

CAUTION

Many vans have critical components mounted directly below the van floor. Be careful when cutting through the van floor to avoid damaging components and causing potential equipment failure.

2. Connect the 3" diameter rubber hose (P/N 000-052-674) on the outlet weldment of the Salsa, and route it through the hole in the van floor. Secure the hose to the Salsa outlet with a hose clamp (see Figure 38).
3. From under the van's floor, slip fit the 3" aluminum elbow (P/N 000-052-649) into the rubber hose protruding through the floor. Secure the elbow to the hose with a hose clamp (see Figure 38).
4. Connect the other 3" diameter rubber hose (P/N 000-052-674) to the Salsa inlet; route and connect the hose to the Blower outlet adapter, and secure with hose clamps on both ends.

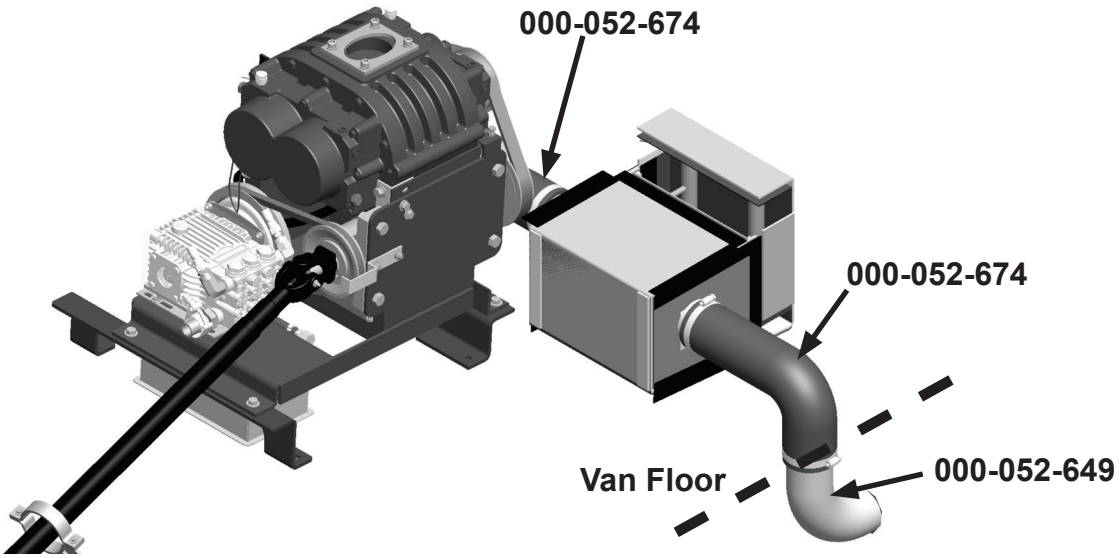


Figure 38. Connect Salsa's Rubber Hoses and Elbow

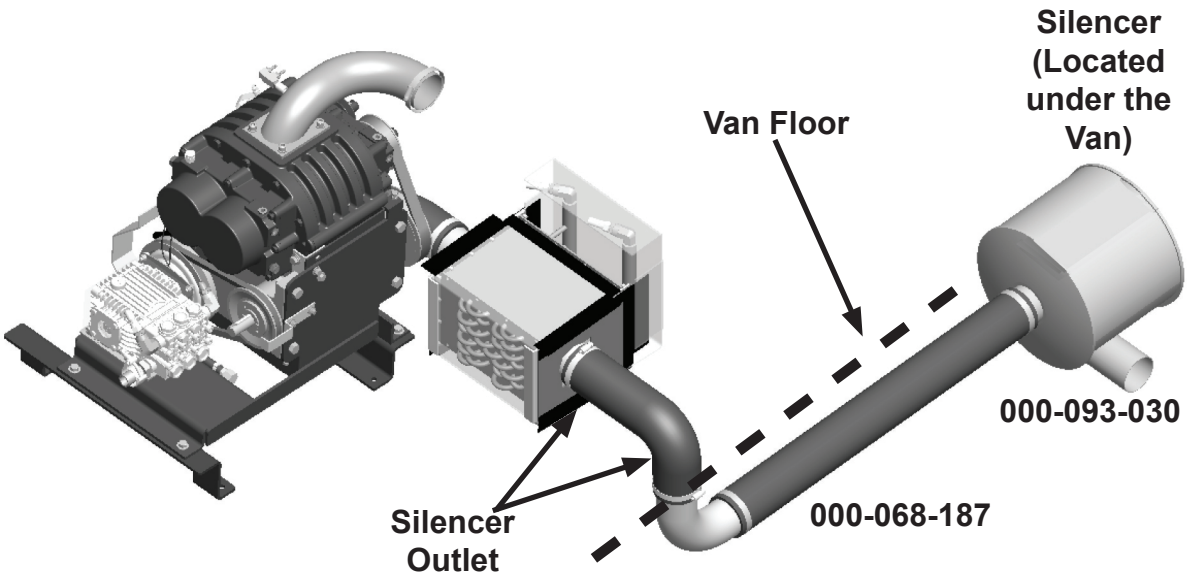


Figure 39. Attach Long End of Elbow to Hose Assembly and

5. Install the 30” hose assembly (P/N 000-068-187) onto the elbow and then install the silencer (P/N 000-093-030) under the van (see Figure 39). Secure with hose clamps. Depending on the van model, the silencer may span the “rib” of the floor or bolt directly to the van floor.
6. Connect two 3/8” Teflon® hoses with JIC ends to the brass elbows on the Salsa (see Figure 40).
7. Route and connect the innermost 3/8” Teflon hose to the bottom elbow of the dual heat exchanger.
8. The other 3/8” hose connected to the outermost brass elbow on the Salsa will be connected to the pressure regulator on the rear of the instrument panel (see Figure 40).

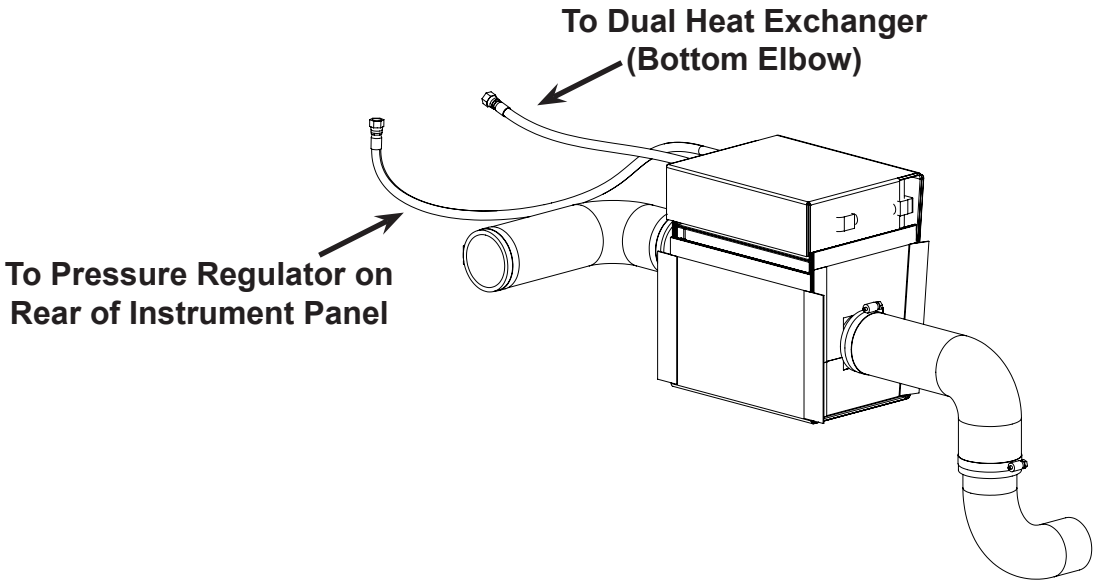


Figure 40. Connect 3/8” Teflon Hoses to Salsa Elbows and Route

INSTALLING FINISH KIT

To extend the alternator main battery charge cable, a 150 Amp terminal post, self-tapping screws and a 4 gauge battery extension cable is provided in the Finish Kit.

1. Mount the terminal block to the firewall. This eliminates the need to cut off the original ring connector or splice the wire (see Figure 41 for mounting).

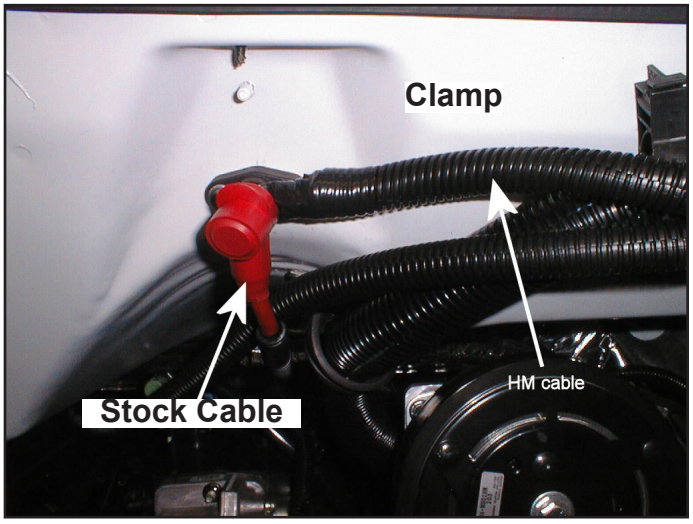


Figure 41. Mount Terminal Block to Firewall

NOTICE

Proper routing of this cable is critical.

2. The extended wire plug for the back of the alternator needs to be plugged in and the exposed wires covered with the provided ¼" split loom.

NOTICE

Verify that the pink butt connectors are properly secured to the wires.

3. Use the provided 1-½ cushion clamp and self-tapping screw to hold the main wire harness away from the CDS clutch (see Figure 42).

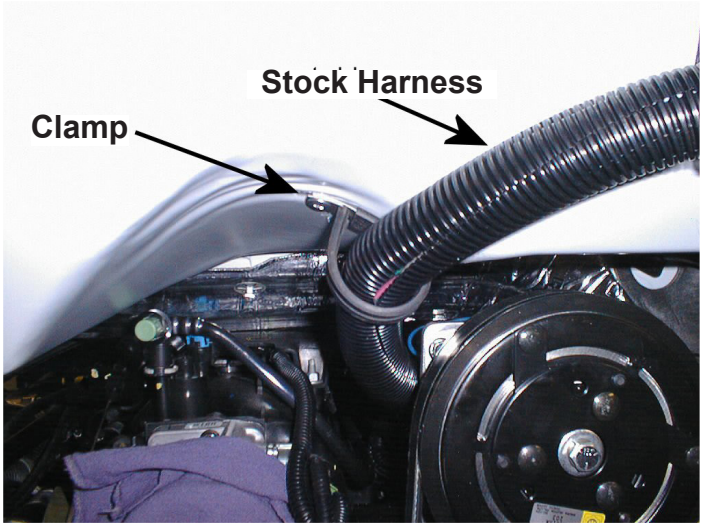


Figure 42. Hold Main Wire Harness Away from CDS Clutch

NOTICE

The doghouse and cowling can be installed at the end of the CDS installation. See page 47 for instructions.

INSTALLING THE WIRE HARNESS

Harness wire colors and functions are:

Red	–	Main power (10 gauge)
White	–	Main ground (10 gauge)
Red	–	for APO if selected (16 gauge)
Green	–	Tachometer pick up on Blower
Black	–	Clutch, CDS
Blue	–	Pump clutch 4.8

1. Route the nonplugged end of the throttle cable from the CDS unit under the Power Pack and toward the steering column (see Figure 43).
2. Locate the fuse panel and remove the top lid from the fuse panel.
3. Secure the fuse holder (containing the 2 Amp fuse) to the lid of the fuse panel with the provided self-tapping screw (refer to Figure 44). Note that the fuse holder is part of the throttle cable (see Figure 43).
4. Route the 3 Speed Throttle Cable under the driver's side floor mat to the controller (refer to Figure 45). Tie wrap or tape to the transmission shift cable, routing it up, under the dash.
5. Locate the 4 pole throttle control plug in the CDS wiring harness and connect the Throttle Control Harness to the plug. Refer to Figure 46.
6. Plug the main harness into the Recovery Tank (behind the side dash panel).
7. Route main harness towards the passenger side of the Power Pack.

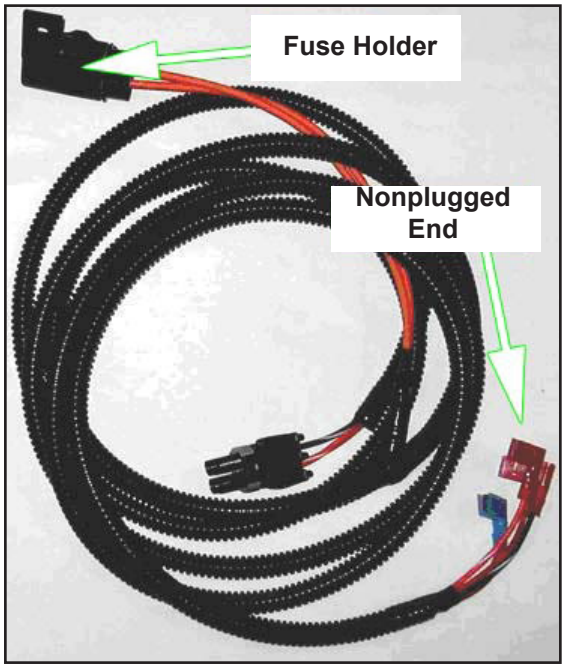


Figure 43. Fuse Holder and Nonplugged End of Throttle Cable

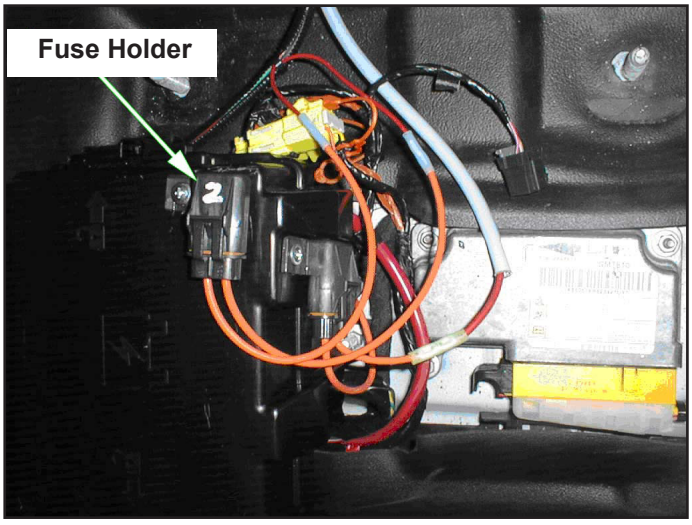


Figure 44. Secure Fuse Holder

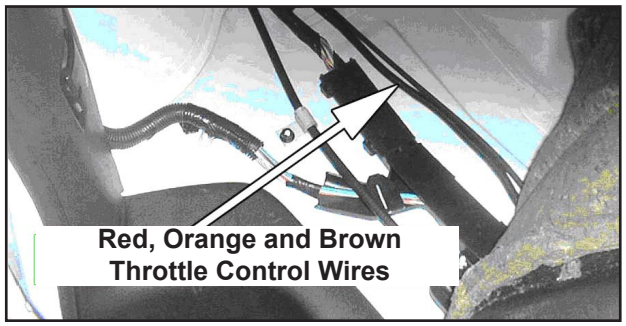


Figure 45. Route Throttle Cable to Controller

8. At the first ”Y” in the harness, route the red wire along the Blower frame spacer to underneath the driver seat.

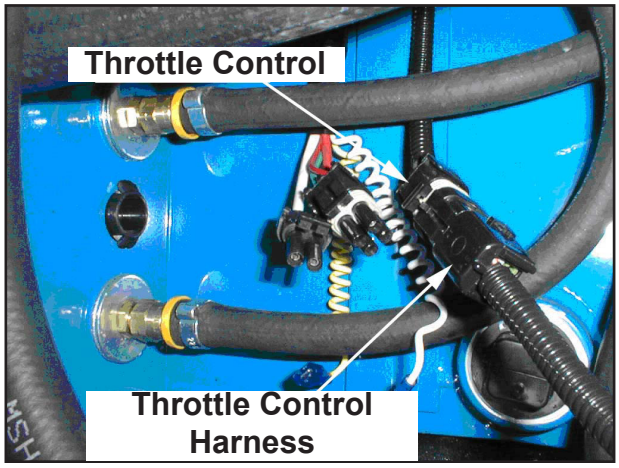


Figure 46. Connect Throttle Control Harness to 4 Pole Plug

NOTICE

The red wire connects to the provided inline fuse. The fuse connects to the power source under the seat. The fuse holder mounts to the top of the fuse box.

NOTICE

When re-installing the driver’s seat, take care not to crush or pinch the wires.

9. Route the rest of the harness along the side of the Power Pack.
   a. The green wire attaches to the tachometer magnetic pickup (white wire, back side of Blower). The tachometer uses a single magnet on pulley.
   b. The white wires exiting the harness connect to the side of the Power Pack and provide a ground.
   c. The blue wire connects to the pump clutch.
10. Continue routing the harness up over the passenger side of the engine, along with the coolant hoses. The single white wire attaches to the back of the engine head. Use the stud that mounts the transmission fill tube.
11. Finally, route the rest of the harness up and over the air cleaner. The black wire attaches to the CDS clutch.

NOTICE

Make sure you keep the black wire away from the rotating clutch.

12. Cover all the exposed wires with the provided ¼” split loom for a clean, finished look.

INSTALLING REAR DOOR KITS

NOTICE

This section references three kits which you will need to complete the back door assembly:

Furniture Pad/Snap Block Kit (P/N 000-163-015)
Back Door Shelf Kit (P/N 000-163-050)
Panel Set (P/N 000-100-021)

Table 2. Parts in P/N 000-163-015 Furniture Pad/Snap Block Set Kit

Item	Part No.	Description	Qty
1	000-163-024	Holder, Furniture Pad - Coated	1
2	000-081-173	Label	1
3	000-094-004	Nut, #10-24UNC Hex	8
4	000-143-132	Screw, #10-24UNC X 0.75" Lg. Hex Head	4
5	000-174-001	Washer, #10 Flat	12
6	000-174-014	Washer, #10 Lock	8

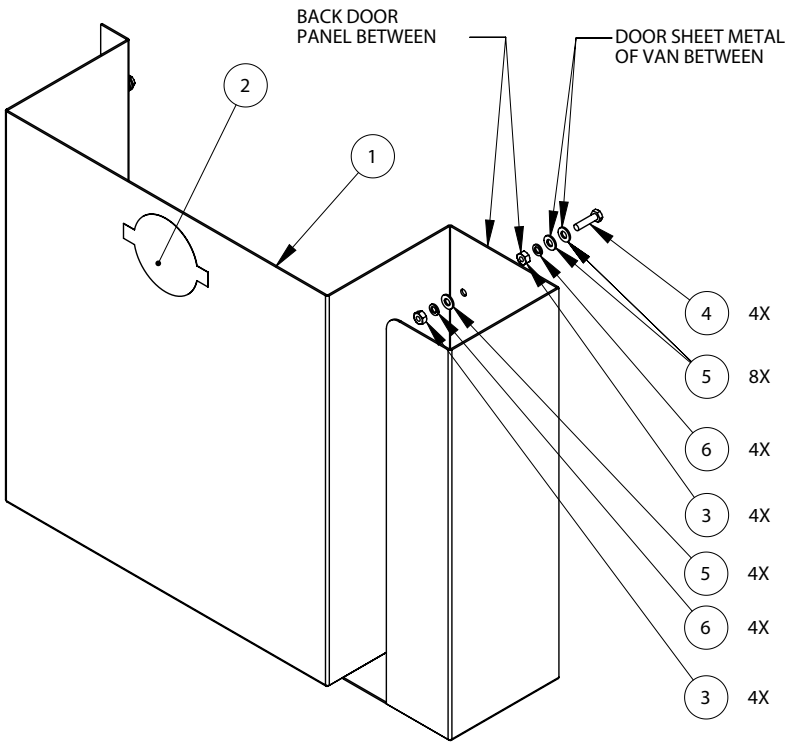


Table 3. Parts in P/N 000-163-050 Back Door Shelf Kit

Item	Part No.	Description	Qty
1	000-081-173	Label	1
2	000-094-004	Nut, #10-24UNC Hex	12
3	000-143-132	Screw, #10-24UNC X 0.75" Lg. Hex Head	6
4	000-163-049	Shelf, Back Door	1
5	000-131-003	Trimlok, 1/8" X 3/4"	2
6	000-174-001	Washer, #10 Flat	18
7	000-174-014	Washer, #10 Lock	12

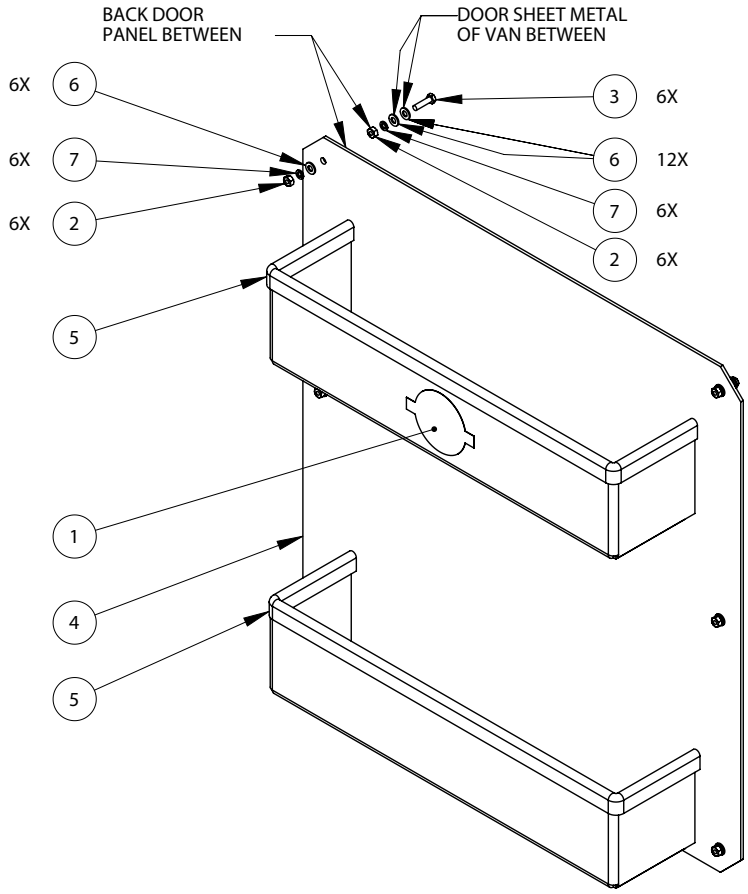
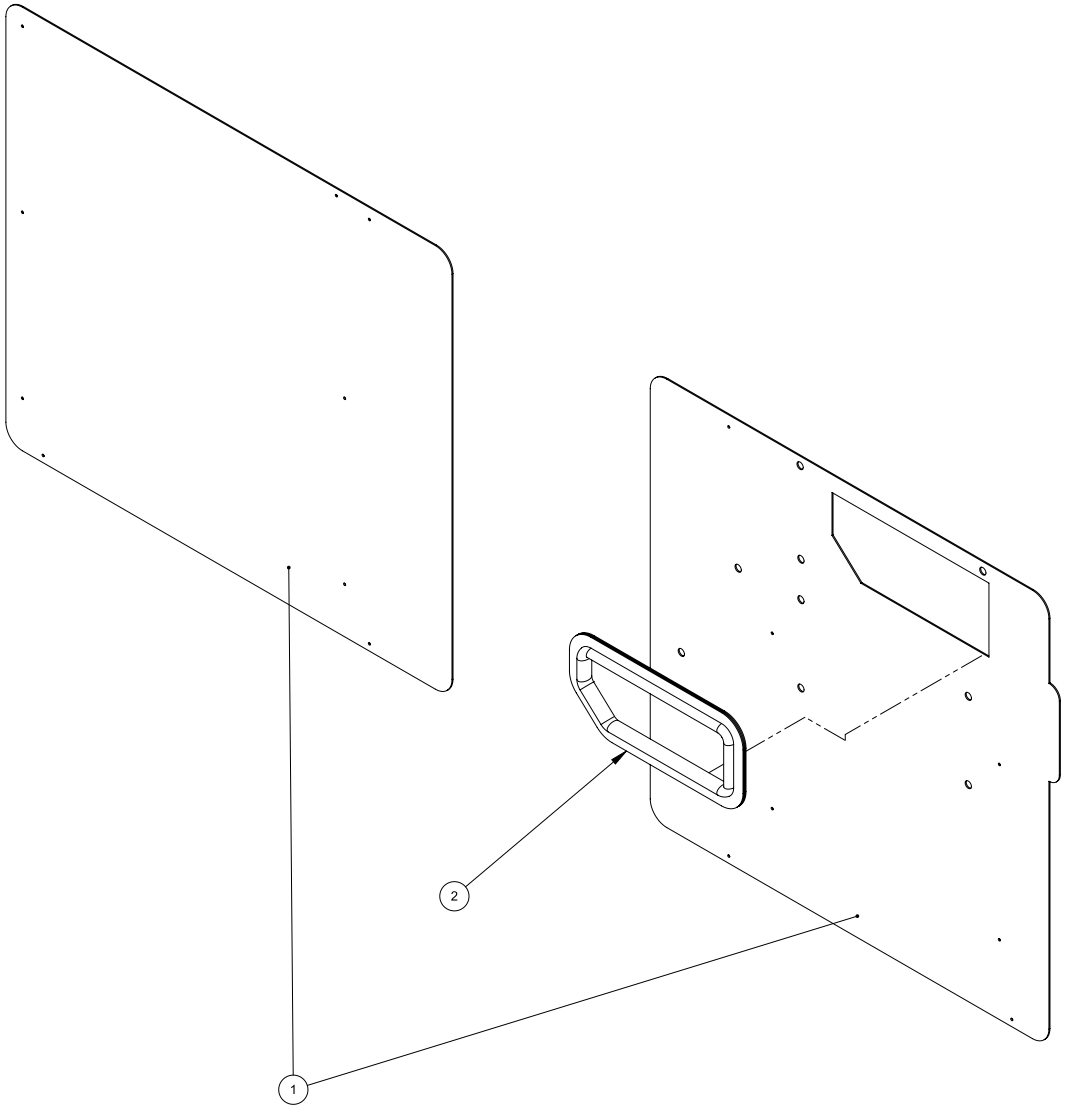


Table 4. Parts in P/N 000-100-021 Panel Set Kit

Item	Part No.	Description	Qty
1	000-100-020	Set, Panel (2 Pieces)	1
2	000-131-060	Trimlok Seal, 3/4"	3 ft



1. Dry fit the Panels, Back Door Shelf and the Furniture Pad/Snap Block onto the van's back doors, and mark where the holes should be drilled (see Figure 47).
2. Using the drill with the 13/64" bit, carefully drill holes into the sheet metal and through the two Panels, if necessary.

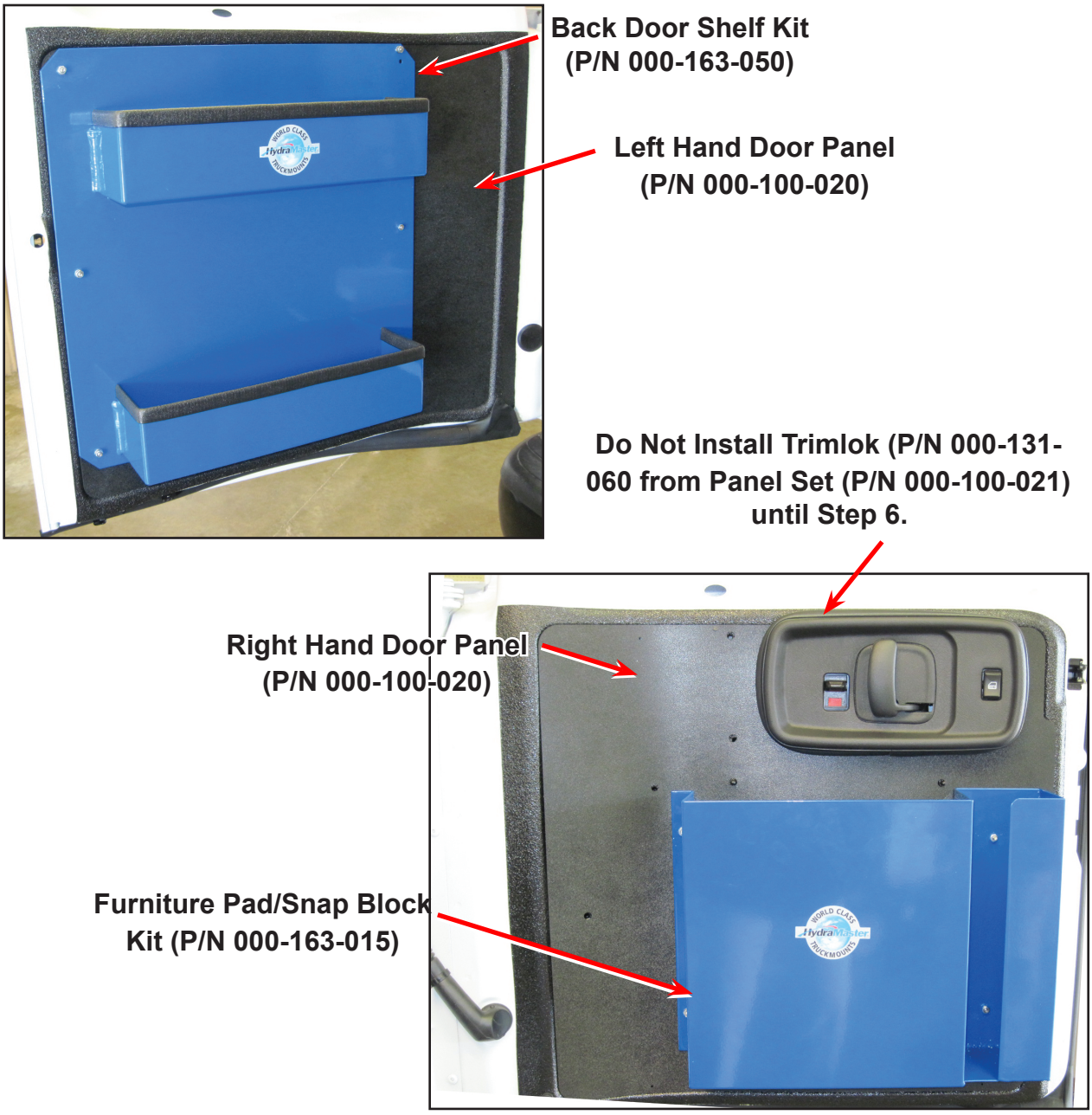


Figure 47. Location of Shelf and Furniture Pad/Snap Block on Back Doors

3. Position the two Panels (P/N 000-100-020) onto the rear doors. Do not install the Trimlok (P/N 000-131-060) on the right hand door until parts from the other two kits have been installed.
4. Install the Left Hand Door Panel and the Back Door Shelf Kit (P/N 000-163-050) onto the left hand door, using the fastening hardware included in the kit (see Figure 48).

NOTICE

Mount the fastening hardware onto the 10-24 X 3/4" screw in the order shown in Figure 48 and install as shown in Figure 47.

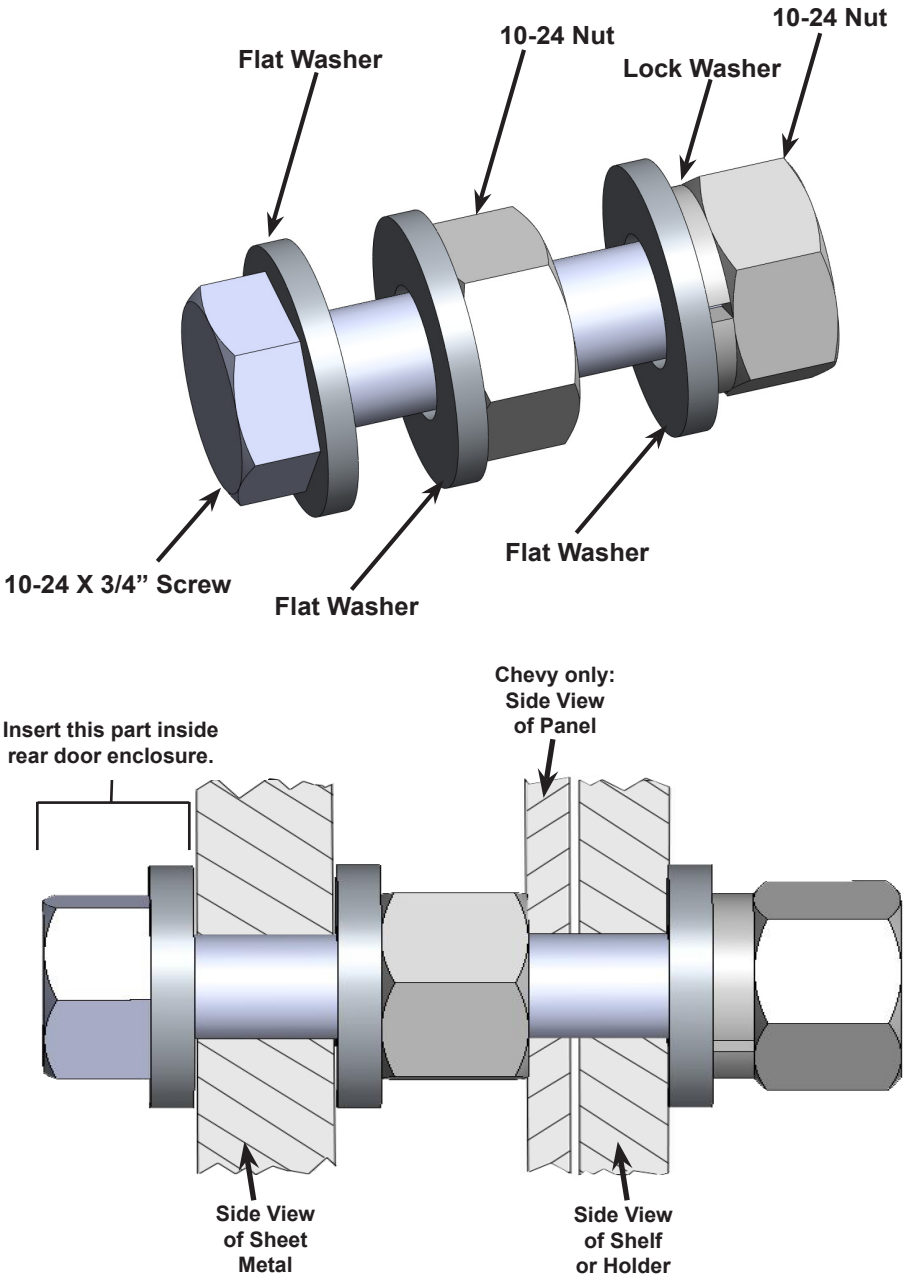


Figure 48. Install Fastening Hardware in This Order, Starting from Left

5. Install the Right Hand Door Panel and the Furniture Pad/Snap Block Kit (P/N 000-163-015) onto the right hand door, using the fastening hardware shown in Figure 48.

NOTICE

Make sure the hardware fastens through the Back Door Shelf, the Furniture Pad and the Panels as shown in Figure 47.

6. Install the Trimlok (P/N 000-131-060 from Panel Set P/N 000-100-021) around the door handle on the right hand door (see Figure 49).

Figure 49. Install Trimlok (P/N 000-131-060) Around Door Handle

INSTALLING PASS THROUGH ASSEMBLY

Dry fit the Pass Through Assembly (from P/N 000-078-381) on the van's step to help locate the Pass Through hole.

1. Remove the van's step liner to prepare for the cutting process.
2. Position the Pass Through Assembly on the step to help locate the hole. The recommended location for the Pass Through is just to the left side of the CDS unit. Make sure to leave enough room so that the backside of the step does not interfere with the Pass Through.
3. Trace an outline around the Pass Through (see Figure 50).
4. Locate the center of the cutout and drill a 1/4" pilot hole through the multiple layers of material. This hole will help guide the hole saw.
5. Using the 4-½" hole saw, cut through the multiple layers of the step. The number of layers of material will vary depending on the make and model of the van.
6. Re-install the step liner.
7. Using the 4-½" hole saw, drill through the step liner from underneath the van.
8. Apply silicone sealant around the Pass Through and place the Pass Through in the hole.
9. Align the Pass Through in the hole and secure it using the 6 supplied self-tapping screws (see Figure 51).
10. Thread on the cover.

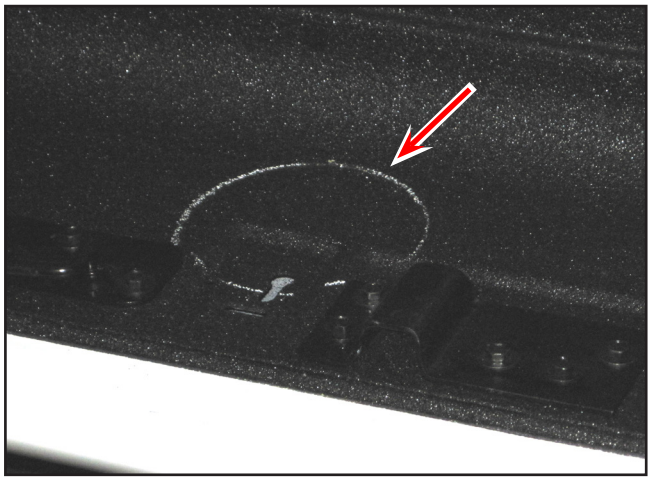


Figure 50. Trace an Outline Around Pass Through

Figure 51. Secure with 6 Self-Tapping Screws

FINISHING INSTALLATION

After the CDS 4.8 has been completely installed, confirm that:

1. **Van key switch is in OFF position.**
2. **CDS key switch is in OFF position.**
3. **All wires are secured to the Throttle Controller.**
4. **All hoses are connected and secured (see Table 1 for hose connection information.)**
5. **CDS is installed and ready for testing.**
6. **All chassis conditions are met.**
7. **Both vacuum ports on the Recovery Tank are open.**
8. **The AC/heater switch is in the OFF position.**

Modify Cowling

1. Re-attach battery cables.
2. Secure the coolant hoses and wire harness into a clean bundle using provided tie wraps.
3. Cut the doghouse according to Figure 52 and Figure 53.

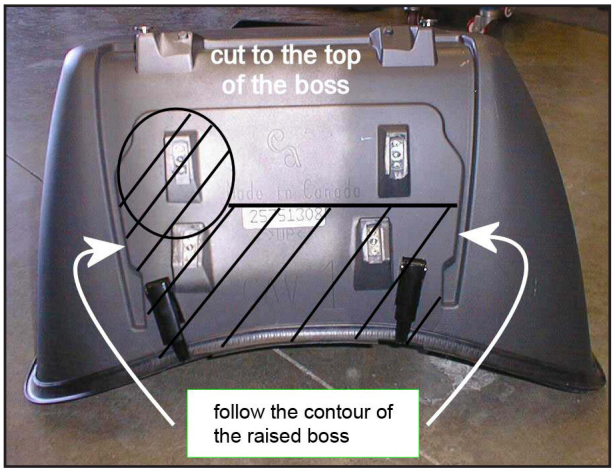


Figure 52. Cut to Top of Boss and Follow Contour

Figure 53. Fit Over Pump and Hoses

NOTICE

Only one large cut needs to be made in the doghouse. The piece that is cut out can be discarded. Clean the edges of the cut.

4. Re-install the doghouse into the van.

NOTICE

It will be a tight fit over the high pressure pump and hoses.

5. Install the doghouse seal as follows:
   a. Locate the Velcro strip on the back of the seal. Using rivets, install the strip to the metal lip of the van floor. This will help create a tight seal all the way around.
   b. Open the Velcro strips of the seal, and slide over the drive shaft and hose bundle. Position the seal as is shown in Figure 54. Close Velcro strips around shaft and hose bundle.
   c. With the seal square on the doghouse, drill 7/32" holes between the stitching around the perimeter of the seal and install the provided rivets.

Figure 54. Position Seal as Shown

6. Modify the driver's side dash cover, closest to the doghouse (see Figure 55).
7. Modify the passenger's side dash cover, closest to the doghouse as necessary.
8. Re-install the passenger dash cover.
9. Reconnect the positive battery cable.
10. Re-install air cleaner assembly and antifreeze overflow container.

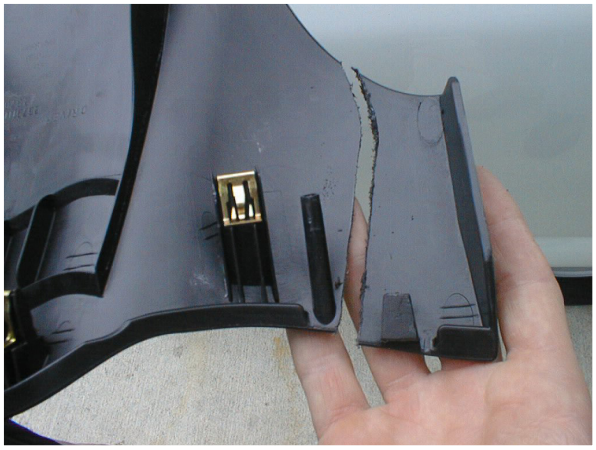


Figure 55. Modify Driver's Side Dash Cover

NOTICE

Use Dex-cool Red GM antifreeze or equivalent.

11. Route petcock hose (mounted on heat exchanger) to a small drain pan and open to allow air to vent.
12. Fill the radiator with coolant. (GM recommends that you fill the antifreeze a small amount at a time):
    a. Fill the radiator until it is full and no bubbles appear, and then close the petcock.
    b. Start the vehicle and run for approximately 2 - 3 minutes. Monitor the engine temperature gauge the entire time.

NOTICE

The motor will heat up rapidly.

CAUTION

If the gauge starts to read more than 210 - 215 degrees F, turn the engine off. Failure do so may result in engine damage.

13. Allow the engine to sit until the antifreeze starts to bleed down.
14. Repeat this procedure until all the air is bled out of the petcock and the engine is operating at the normal temperatures.

NOTICE

Step 14 could take up to 2-3 hours to complete.

15. Close petcock and recheck that the engine is still operating at normal temperatures.

16. Place the cowling over the Power Pack.

NOTICE

It is best to do this before starting the CDS to avoid grease from flinging off the drive shaft.

17. Start the van and check for antifreeze leaks at the installed tees and heat exchangers.
18. CDS clutch burnishing: Engage and disengage the clutch several times to ensure it is functioning properly. If full torque will be required immediately, the clutch should be properly burnished.
19. Energize the clutch three times a minute with no load for 50 cycles.
20. Install the warning label on the driver's side sun visor as shown in Figure 56.

Figure 56. Location of Warning Label on Sun Visor

SETUP AND CALIBRATION OF RPM

With the van's engine running and warmed up, turn the CDS key switch to the ON position.

NOTICE

The RPM on the CDS dash panel must not exceed 1,700 RPM. If it does, turn the key switch off immediately.

Adjustment of the RPM is done through the Throttle Controller using a 1/16" (1.6mm) or smaller flat blade screwdriver. To do this, locate the adjustable trim potentiometers (pots) RPM1, RPM2 and RPM3 on the controller (see Figure 57). Use a screwdriver to turn the trim pot clockwise to increase engine RPM. Each full turn is approximately 300 RPM.

Using the tachometer on the front of the CDS unit, make the following RPM adjustments:

On the Dash Switch, Adjust:	On the Controller, Adjust:
HI	RPM 1 = 1,500 RPM
MID	RPM 2 = 1,400 RPM
LO	RPM 3 = 1,300 RPM

Apply load and confirm each RPM. There may be a 50 -100 RPM fluctuation in RPM between load and no load conditions. Set vacuum relief to 14" Hg on the vacuum gauge.

NOTICE

After applying a load, RPM's may need to be re-adjusted. Adjust only with no vacuum load.

Operation Features

The Throttle Controller must meet certain "Chassis Ready" conditions to elevate the engine RPM, which are as follows:

1. Parking Brake is set
2. Gear shift is in "Park"
3. Foot is off Service Brake (brake pedal)
4. Foot is off Accelerator Pedal
5. Vehicle is stationary (no speed)
6. Engine is started and idling
7. The A/C / Heater switch is in off position

NOTICE

The Throttle Controller must be initialized anytime the DLC harness is disconnected from the Data Link Connector. To initialize the system switch ignition key to OFF position, plug in DLC harness, switch the ignition on, and then start the engine. This allows the Throttle Controller to read the PCM engine computer.

Make sure the operator of the CDS understands that the AC / Heat switch needs to be in the OFF position before activating the CDS unit.

Troubleshooting

On the Throttle Controller, there are LED lights with corresponding labels to provide status and problem detection information (see Figure 57).

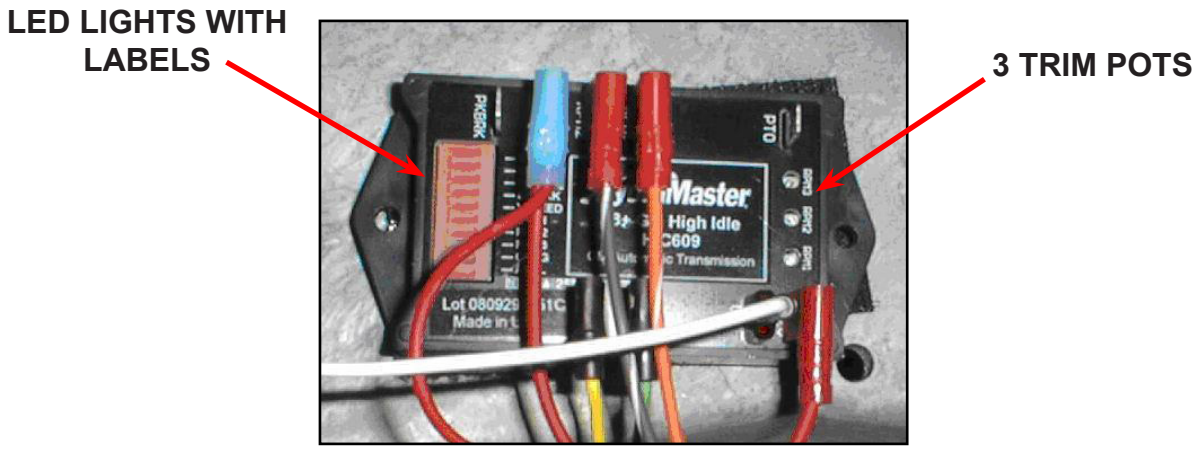


Figure 57. Location of Controller's LED Lights with Labels and RPM Trim Potentiometers

See the Table 5 on page 53 for function codes.

Table 5. Throttle Controller Codes

LED	STATUS	INDICATION
BUSS	On Solid	Unit ON and functioning (harness connected to data link)
BUSS	Flashing	Unit ON, but a problem was detected
GEAR	On Solid	Transmission in PARK
GEAR	Flashing	Transmission NOT in Park
PK BRK	On Solid	Parking Brake Set
PK BRK	Flashing	Parking Brake is NOT set
SR BRK	On Solid	Service Brake is set (not being used)
SR BRK	Flashing	Service Brake is NOT set
VSPEED	On Solid	Vehicle is stationary
VSPEED	Flashing	Vehicle is moving
RPM1	On Solid	RPM1 mode selected, engine at fast idle
RPM1	Flashing	RPM1 mode selected, engine not at fast idle
RPM2	On Solid	RPM2 mode selected, engine at fast idle
RPM2	Flashing	RPM2 mode selected, engine not at fast idle
RPM3	On Solid	RPM3 mode selected, engine at fast idle
RPM3	Flashing	RPM3 mode selected, engine not at fast idle

NOTICE

The PCM engine computer will cause the engine speed to momentarily drop back to normal idle speed every time the air conditioner pump cycles on or off.

BEFORE OPERATING THE CDS ON THE JOB SITE

1. Locate the unit and equipment in a well-ventilated area.

⚠WARNING

The CDS unit generates toxic fumes. Position the vehicle so that the fumes will be directed away from the job site. Do not park where exhaust fumes can enter a building through open doors, windows, air conditioning units or kitchen fans.

2. Check the fuel tank to be certain there is adequate fuel to complete the job.
3. Position the wheel chocks on one of the front tires.
4. If using a water supply hose which has not been used recently or if using a customer's hose, first connect the hose to the faucet and flush out any debris which may be in the hose. Afterwards connect the hose to the unit.
5. Check the chemical jug to see if you have enough concentrated chemical to finish the job. If not, mix and fill a 5 gallon chemical jug.
6. Connect all required hoses.
7. When connecting the pressure hose to the pressure outlet connections at the front of the unit, go to the farthest area to be cleaned and connect to the cleaning tool. This ensures that you have the proper length of hose required to perform the cleaning.
8. Connect all required hoses.
9. When connecting the pressure hose to the pressure outlet connections at the front of the unit, go to the farthest area to be cleaned and connect to the cleaning tool. This ensures that you have the proper length of hose required to perform the cleaning.

CDS START UP AT THE JOB SITE

1. Make sure the vehicle's gear select lever is in the Park position and the emergency brake is set
2. Start the vehicle's engine.
3. Turn key on the CDS dash.
4. Select the cleaning speed appropriate for the cleaning job.

NOTICE

Starting in the low position is recommended due to the lower stress on the clutch during start up.

5. Turn on the PUMP CLUTCH switch. Adjust cleaning pressure to desired level.
6. Turn on the PUMP IN switch (if equipped).
7. Turn the heat control valve to 'MAX' only if you will be using water. Do not activate the heat exchanger during flood extraction work.
8. Turn the CHEMICAL SYSTEM valve to the 'PRIME' position to purge any air from the system.

NOTICE

The prime hose is plumbed into the Recovery Tank. Leaving the valve in the 'PRIME' position will cause excessive chemical usage.

   a. When the chemical begins to flow through the flowmeter, with the flow indicator reading maximum flow and the PRIME line pulsing, turn the CHEMICAL SYSTEM valve to 'ON'. Cap off vacuum if necessary.
   b. While spraying the solution from the cleaning tool, adjust the chemical flow by turning the CHEMICAL METERING CONTROL to the desired level.

9. Optional: Turn the APO switch 'ON' if using the Automatic Pump-Out feature.

NOTICE

The pump will not engage until the water level rises inside the Recovery Tank.

10. Now proceed with the cleaning operation.

NOTICE

The machine will automatically shut down when the Recovery Tank reaches its full capacity due to the float switch located inside the tank. When this occurs, turn the CDS key switch off and empty the Recovery Tank. Then, turn the unit back on and continue to clean.

CDS FLOOD RESTORATION WORK

When using equipment for flood damage, adjust the high pressure pump to zero. This will reduce the engine power load and save on fuel consumption.

CDS SHUT DOWN

1. Flush clear water through the chemical system for 10 seconds.
2. Open the water box drain and actuate the tool/wand valve to run fresh water through the water box, heat exchangers and cleaning tools.

NOTICE

If freeze guarding is necessary, perform the freeze guard procedure at this time. Draining the water box to ½ full or less is recommended to reduce spillage inside the vehicle.

NOTICE

Rinse the system with vinegar on a weekly basis. Rinse the entire system with descaler each month.

3. Lay vacuum hoses out in order for all moisture to be removed from the hoses. This prevents spillage of any dirty solution in your vehicle when storing the hoses.
4. Disconnect the hoses and put them away.
5. If you are using an outside water source, turn the water supply faucet off. Bleed pressure out of the supply hose by loosening the hose at the water supply. Unhook the water supply hose and store it in the vehicle
6. Allow the unit to run for a few minutes with the vacuum hose disconnected in order to remove all moisture from the vacuum pump.
7. Plug the vacuum inlets. Spray a Hydramaster-recommended lubricant (P/N 000-087-006) into the lube port for about 5 to 10 seconds while the unit is running. This will lubricate the vacuum pump and prevent it from rusting. (The lube port is located on the front panel above the pressure gauge).
8. Remove the inlet plugs, then turn the ignition ‘OFF’ before draining the Recovery Tank.
9. Turn the heat control valve to the ‘OFF’ position. This will help avoid engine overheat problems due to reduced coolant flow through the radiator.

10. Drain the Recovery Tank.

NOTICE

If your CDS is equipped with an APO, first connect a garden hose to the outlet on the front of the machine.

If your CDS is equipped without an APO, drain the Recovery Tank through the tank drain valve (located under the chemical jug tray).

NOTICE

Do not dump waste in any area which might violate local, state or federal law. If you have the optional APO system, drain the Recovery Tank into a sanitary drain system.

11. When the Recovery Tank is drained, lift the Recovery Tank lid and remove the filter basket.
12. Clean out any accumulated debris.
13. Rinse and re-install.
14. Check the corrugated Blower filter.
15. Clean out any accumulated debris.
16. Rinse and re-install.

NOTICE

When re-installing the Blower filter, ensure that it is fully seated against its mount so that debris cannot pass under it and into the Blower.

FREEZE GUARDING

When operating the CDS 4.8 during the colder months of the year, ensure that you properly freeze guard the system. No part of the CDS 4.8 System is covered by warranty if machine damage occurs because of freezing.

CAUTION

BE SURE YOUR MACHINE IS PROTECTED! Freezing will cause component damage.

The following precautions are recommended prior to and during cleaning jobs:

1. Run the machine before leaving for the first job to ensure nothing has frozen the night before, including hoses and tool/wand.
2. Insulate the solution hose from the cold ground by running it through an extra 1½" vacuum hose.
3. Leave vehicle doors closed until you begin cleaning; afterwards, open slightly.

NOTICE

In colder climates, insulating the vehicle walls and floor boards will help protect the unit.

4. Do not procrastinate during the cleaning operation or the hot water solution line will also freeze on the ground. The solution line should be insulated in extremely cold climates.
5. Whenever possible, store the van in a heated garage at night or over the weekend. If not possible, place a 1,500 Watt electric heater inside the vehicle, aimed directly at the machine.

⚠ WARNING

Never use a propane heater. It causes excessive moisture on the vehicle ceiling and the possibility of it malfunctioning is therefore higher, which may cause bodily injury. If the machine and vehicle are left outside with a heater, drain water from the machine cleaning tools and hoses because they can be freeze-damaged also