ENGINE INSTALLATION

INSTALLATION

While Earl's hose and hose ends make a pretty fool-proof combination, there are a few general rules to follow to make sure that you end up with a sanitary and trouble-free installation:

1. Make sure that there is adequate clearance between the hose ends and anything that they might be able to contact. While the hose is flexible, the hose ends are not!
2. Do not allow the hose to contact a sharp corner, nut, bolt, rivet stem or anything else that might cause damage. At any point where a hose passes through a panel, install a grommet for chafe protection.
3. Do not allow the hose to rub against anything—even if the surface on which it rubs is flat. The stainless steel braid is a very efficient low speed file and will abrade through anything that it moves against. In order to prevent chafing and to keep your hoses where you meant for them too be support the hoses every 18" or so with either a cushion clamp or a tiwrap.
4. Do not force the hose into too tight a bend. Follow the minimum bend radius chart. Do not kink the hose, either by too tight a bend, by misalignment between the hose end and the part or adapter on short assemblies or by getting the whole assembly into a helix on long assemblies. Align the hose end with the adapters so that the hose is not placing strain on the hose end or on the adapter. The SWIVEL-SEAL design reduces these problems, but only care in installation will eliminate them. We manufacture enough hose end and adapter configurations to allow a sanitary and sound solution to just about any installation problem.
5. Keep the hoses as far away from extreme heat sources (like turbochargers and exhaust systems) as possible. If you must run close to such things, use an air gap insulating panel and/or fire resistant Flame Guard sheathing. Do not run fuel lines in proximity to hot fluid lines (or hot anything else) or you will end up with either hot fuel and low power or vapor lock. Do not run hot fluid lines near cool fluid lines or near to the driver.
6. Do not over-tighten the hose ends onto the adapter fittings or parts. The seal is achieved by the design of the mating surfaces—not by muscle. It helps a lot to use the wrenches made for the job.

MAINTENANCE

Virtually no maintenance is required. Basically, maintaining Earl's high performance plumbing hose ends is a question of preventing abuse.

1. Inspect the plumbing installation frequently for signs of chafing, abrasion, kinking, crushing or seepage.
2. Take care not to crush, stretch, kink or otherwise damage the hose assemblies when changing engines etc.
3. Keep both hoses and fittings CLEAN.
   (a) Before removing any hose end from its adapter or port, wash the assembly down with solvent—or even gasoline—and blow it clean and dry so that no grit can find it's way into the threads or the sealing surfaces.
   (b) As soon as the hose end has been removed, install a CLEAN protective plug into the hose end and a CLEAN cap onto the adapter. This will keep dirt out of the lines and the fittings and will keep the fluid off the floor, the machine and the mechanic.
   (c) Always inspect both hose ends and adapters for dirt before reassembly.
   (d) Correctly assembled Earl's hose ends will not leak if they, and the adapters are undamaged, clean and properly tightened. The only way to be certain that every hose end is properly tightened is to form the habit of NEVER leaving the adapter, a hose end (or anything else) loose, finger tight or partially tightened. Even when you know that you are going to take the thing right off again, correctly tighten it—every time.

LEAKS

If it leaks, it has probably been assembled incorrectly or the sealing surfaces on the adapter and the nipple have been damaged—or just possibly someone has attempted to assemble an AN 37° seat hose end into a 45° SAE cone. Damage to the cone or the seat can be caused by a multitude of sins—dirt and over-tightening being the most common.

RE-USE

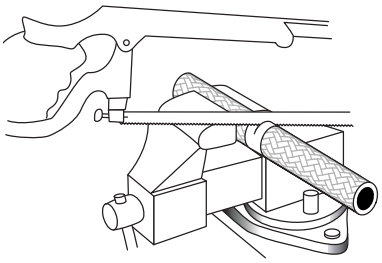
All of Earl's removable hose ends are completely reusable as is the hose and as are most of the competing brands. As usual, Earl's have an edge. When disassembling a nipple and cutter type hose end, it is very common for the inner tube of the liner, which is captured between the nipple and cutter, to be torn off and to remain in place. If this happens, the rubber must be removed before the hose end can be reused—and it is a bear to get out. With SWIVEL-SEAL the chances of this happening are greatly diminished because the cutter can rotate with respect to the nipple so that the rubber is faced with only one moving surface. The procedure is as follows: Place the socket in a vise, and with a wrench on the nipple and another on the cutter, hold the nipple and turn the cutter until the socket is disengaged. Then pull the hose off the nipple. All parts of the SWIVEL-SEAL are ready for reuse as soon as they have been cleaned and relubricated.

HOSE ASSEMBLY

SWIVEL-SEAL™ HOSE ENDS WITH PERFORM-O-FLEX™,PRO-LITE 350™ OR AUTO-FLEX™ HOSE

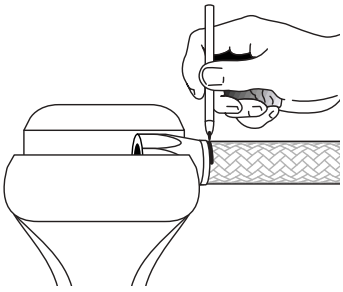
Pressure Test All Hose Assemblies Before Installation!

1



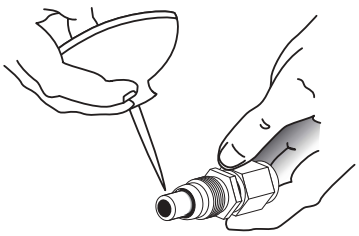
1. Cut the hose to the required length.
a. Measure distance between ports or adapter fittings along the path that the hose run will follow —allowing for bend radius, hose end length and offset to obtain length and hose required.
b. Cut the hose square with a radiac wheel or a sharp 32 teeth per inch hacksaw blade. It is necessary to wrap it tightly with electrical or masking tape before cutting and to cut through the tape. This helps to prevent the stainless wire braid from fraying.
c. Trim any frayed ends of the braid with a sharp pair of metal snips or diagonal cutters and remove the tape.

2



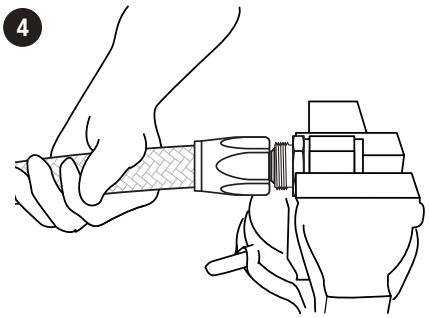
2. Place the socket in a vise and insert the end of the hose into the socket until the hose butts against the bottom of the threads provided for the cutter. Gently pull the hose back until there is a 1/16" to 1/8" gap between the end of the hose and the bottom of the threads —mark hose at bottom of socket with a felt pen so that you can detect any tendency of the hose to be pushed out as you complete the assembly.

3



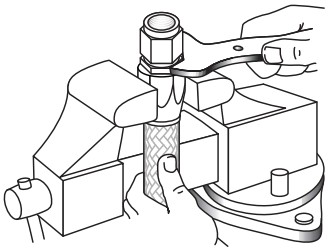
3. Lubricate the inside of the hose, the cutter threads and the socket threads with Earl's assembly lube or engine oil. Place the nipple in a vise.

4



4. Holding the hose and not the socket, push the hose and the socket onto the nipple until the socket threads can be started on the cutter. Holding the hose and not the socket, start the threads and go as far as you can by hand. Depending on the size of the hose, some force may be necessary in this part of the operation.

5



5. To complete the assembly it doesn't matter whether the nipple or the socket is held in the vise. Holding one or the other in the vise and using a suitable wrench on the other, tighten the socket onto the cutter threads until the socket is with in .060" of bottoming on the nipple. Do not use an adjustable or over-size wrench or you will damage either the nipple or the socket.

6. Check the mark that you made on the hose in Step 2. If the hose has backed more than about 1/16" out of the socket as you assembled it, curse and return to Step 3.

7. Clean the hose and the hose ends with CLEAN solvent.

8. ***Pressure test the assembly before letting it out of your sight. Further check the assembly by running the system at full pressure while you observe the hose, hose ends, and adapters for leaks.***