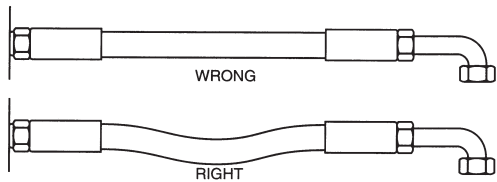


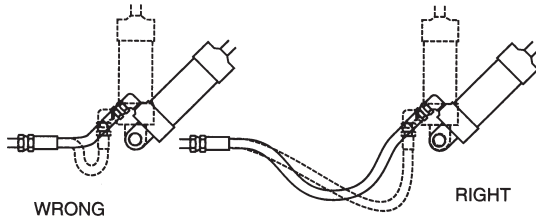
Hose Assembly Routing Tips

Proper hose installation is essential for satisfactory performance. If hose length is excessive, the appearance of the installation will be unsatisfactory and unnecessary cost of equipment will be involved. If hose assemblies are too short to permit adequate flexing and changes in length due to expansion or contraction, hose service life will be reduced.

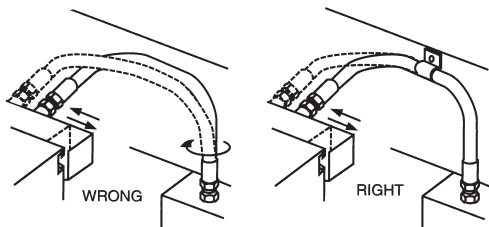
The following diagrams show proper hose installations which provide maximum performance and cost savings. Consider these examples in determining length of a specific assembly.



When hose installation is straight, allow enough slack in hose line to provide for length changes which will occur when pressure is applied.



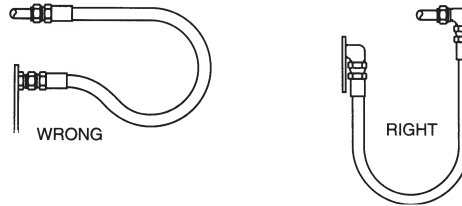
Adequate hose length is necessary to distribute movement on flexing applications and to avoid abrasion.



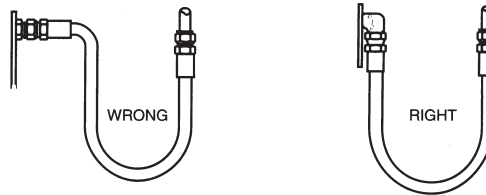
Avoid twisting of hose lines bent in two planes by clamping hose at change of plane.



Reduce number of pipe thread joints by using hydraulic adapters instead of pipe fittings.



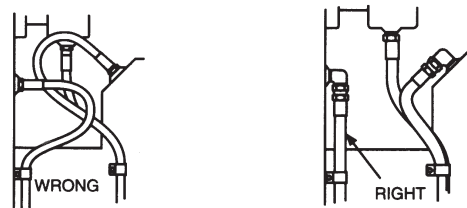
When radius is below the required minimum, use an angle adapter to avoid sharp bends.



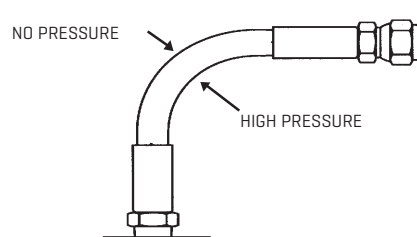
Use proper angle adapters to avoid tight bend in hose.



Prevent twisting and distortion by bending hose in same plane as the motion of the port to which hose is connected.

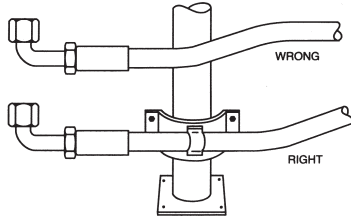


Route hose directly by using 45° and/or 90° adapter and fittings. Avoid excessive hose length to improve appearance.

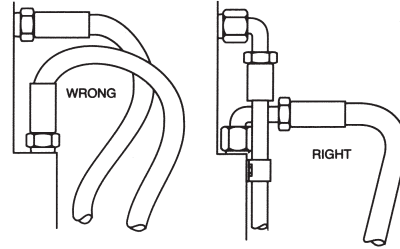


Note: To allow for length changes when hose is pressurized, do not clamp at bends so that curves will absorb changes. Do not clamp high and low pressure lines together.

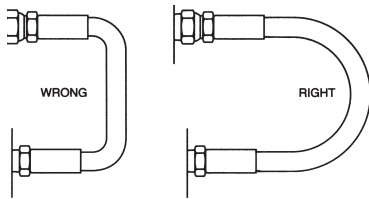
Hose Assembly Routing Tips – Continued



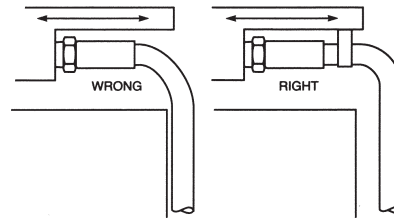
High ambient temperatures shorten hose life, so make sure hose is kept away from hot parts. If this is not possible, insulate hose.



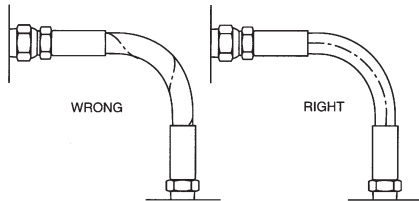
Elbows and adapters should be used to relieve strain on the assembly, and to provide neater installations which will be more accessible for inspection and maintenance.



To avoid hose collapse and flow restriction, keep hose bend radius as large as possible. Refer to hose specification tables for minimum bend radius.



Run hose in the installation so that it avoids rubbing and abrasion. Often, clamps are required to support long hose runs or to keep hose away from moving parts. Use clamps of the correct size. A clamp too large allows hose to move inside the clamp and causes abrasion.



When installing hose, make sure it is not twisted. Pressure applied to a twisted hose can result in hose failure or loosening of connections.

Hydraulic Flareless Assembly Procedure (per SAE J514 6.1.3 and 6.1.4)

1. Bottom the tube in the coupling, and tighten the nut until the ferrule just grips the tube. With a little experience, the technician can determine this point by feel. If the couplings are bench assembled, the gripping action can be determined by rotating the tube by hand as the nut is drawn down. When the tube can no longer be turned by hand, the ferrule has started to grip the tube.
2. After the ferrule grips the tube, tighten the nut one full turn. This may vary slightly with different tubing materials, but for general practice, it is a good rule for the technician to follow.

GATES FIELD ATTACHABLE COUPLING INSTALLATION

1. Cut the hose end square with fine-tooth hacksaw or cut-off saw, the cut must be within 5° of perpendicular.

2. At a minimum be sure to blow out the hose to remove any rubber or metal dust, if higher levels of cleanliness are required utilize the MegaClean system or see the "Hose Assembly Cleanliness" tech note.

3. Be sure to thoroughly oil the stem and the inside of the hose. This is critical to ensure that



the ferrule and stem are easily placed onto the hose, without removing tube or cover material.

4. Secure the ferrule in a vise or adjustable wrench, then using a counter-clockwise motion, thread the hose into the socket until it bottoms out on the inside shoulder of the socket. Once fully inserted, using a clockwise motion, turn the hose back one half turn.



5. With the hose and ferrule secured, thread the stem into the hose and socket in a clockwise motion until the stem hex contacts the ferrule. For production environments, a Gates field attachable coupling machine will speed up this installation.



6. Finally clean the assembly to ensure that the desired cleanliness levels are achieved. Follow the same procedure as in step 2.