

Hydraulic hose strain relief

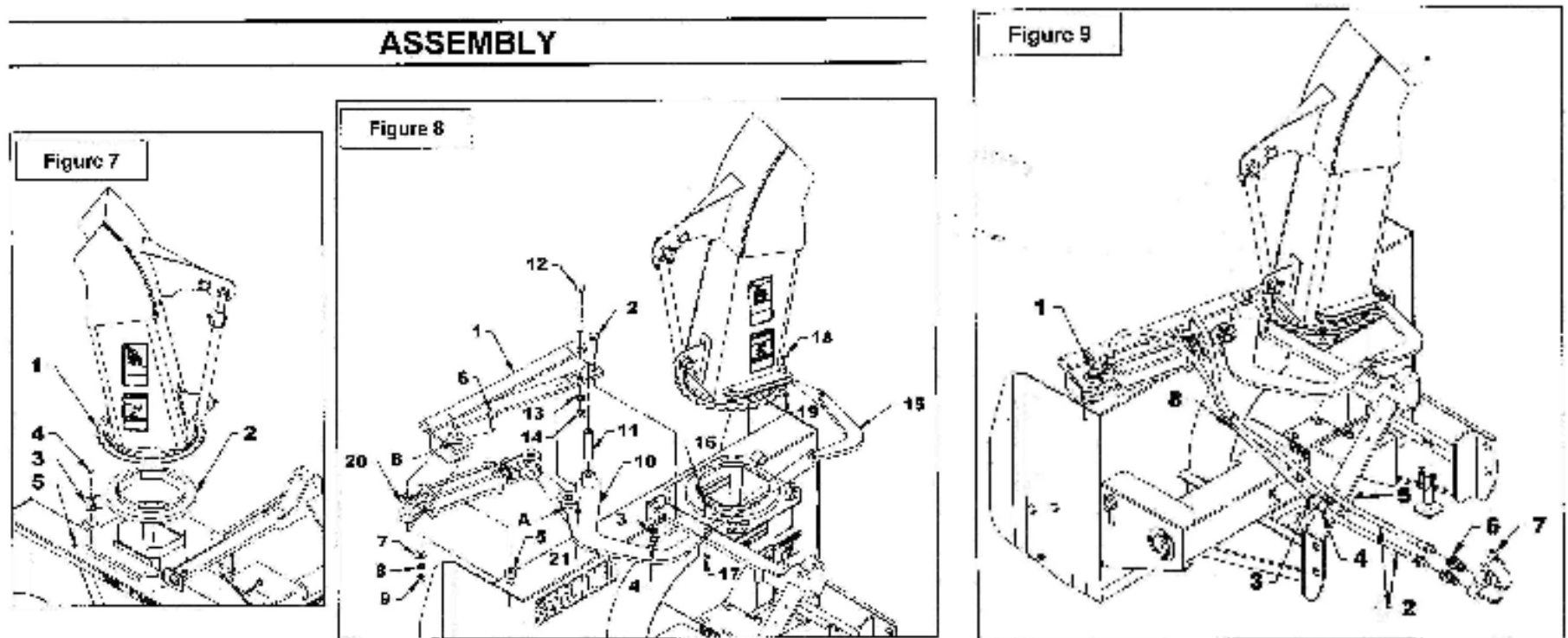
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Just because its in the owner's manual does not mean its right....

- I bought a new snowblower and it was delivered with the hydraulic hoses attached just the way the manual said they should be....



Trust your instincts and training...

- A hydraulic hose easily bends but will not twist
 - It is like a flexible drive shaft: compliant in bending, stiff in torsion
- I thought “there is no torsional strain relief for the small angular motion of the cylinder in this 4-bar linkage”
 - Sure enough, a hose-fitting connection failed after 4 hours of use



Solution: Rotary fittings/hose bending

- A hose needs to be secured near the cylinder so cylinder angular motion is accommodated by hose bending (flexing) so no dynamic loads are placed on the hose-fitting
 - The fitting is crimped on the hose and it is not meant to resist dynamic moment loads
- OR swivel fittings can be used which essentially eliminate moment loads
 - Static swivel fittings allow the hose to be more easily connected and allow the hose to be pointed in the right direction, and then hose bending accommodates dynamic angular motion
 - Dynamic swivel fittings allow the hose to be easily connected and motion of the swivel accommodates dynamic angular motion



Proper strain relief is critical to preventing owner stress!

- The dynamic swivel fittings used are overkill: a lower-cost dynamic swivel or even a static swivel (to enable hoses to be attached parallel to the cylinder) would be fine
 - The dynamic swivels were the same price (they were rebuilt units)

