## Hose or Fitting Replacement

**⚠ WARNING**

**Lower blade when vehicle is parked. Keep 8' clear of blade drop zone. Temperature changes could change hydraulic pressure, causing the blade to drop unexpectedly or damaging hydraulic components. Failure to do this could result in serious personal injury.**

**⚠ CAUTION**

**When servicing the hydraulic system, move the SPEEDWING blade to the straight across position with both wings forward. This position will remove tension on the blade wing springs. Failure to follow this step will result in release of pressurized hydraulic fluid and unexpected blade movement.**

**DO NOT** use thread sealant/tape on hoses or fittings. This could damage product. Follow recommended replacement procedures for fittings and hoses.

1. Move blade to straight position with both wings forward, lower snowplow completely and turn control OFF.

**NOTE: Loosen breather slowly to relieve any pressure in the reservoir.**

2. Carefully note hose routing for proper reassembly.
3. Loosen hoses or fittings slowly to relieve any residual pressure. Wrap the fitting or hose connection with a disposable cloth to absorb residual fluid. When service is complete, dispose of cloth properly.
4. To remove a hose, loosen and unscrew the hose flare nut from the fitting.
5. To remove a fitting, loosen the jam nut and unscrew the fitting from the port.

## Procedure for Installing Hydraulic Fittings and Hoses

**NOTE: Overtightening JIC hose fitting ends will result in a fractured fitting.**

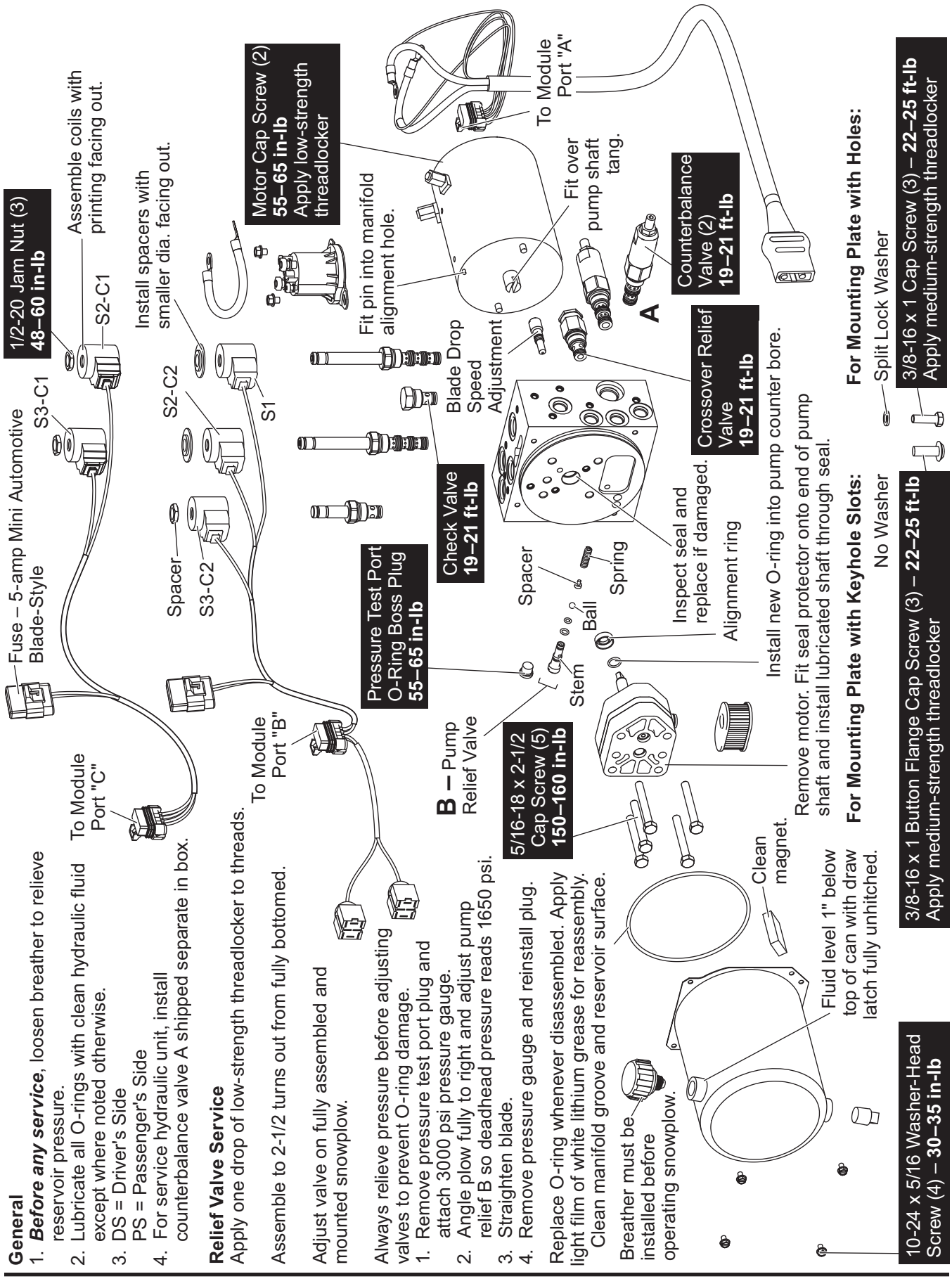
**DO NOT** use any type of sealant or tape on the fittings or hoses. This could damage product. Always use two wrenches to ensure proper tightening of fittings and hoses.

**Use the following procedure to install SAE O-ring fittings in valve block and rams:**

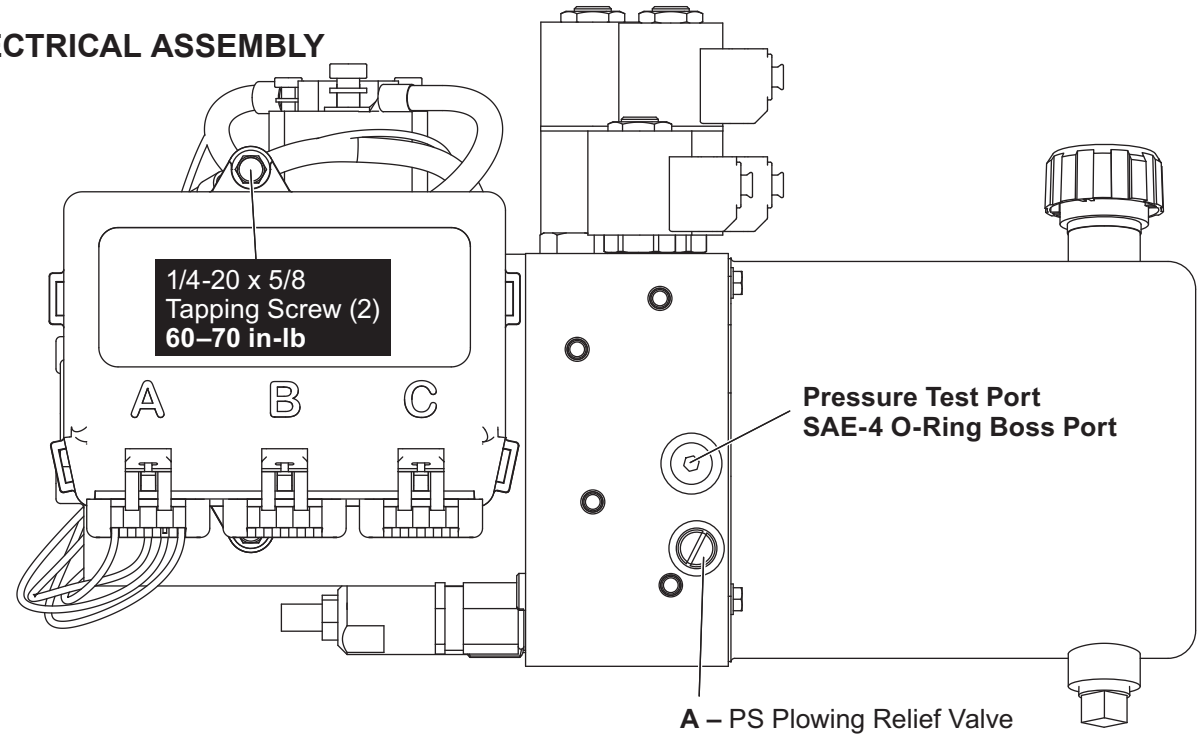
1. Turn jam nut on fitting as far back as possible.
2. Lubricate O-ring with clean hydraulic fluid.
3. Screw fitting into port by hand until the washer contacts the port face and shoulder of the jam nut threads.
4. Unscrew fitting to proper position no more than one full turn.
5. Using two wrenches, hold fitting body in position and tighten jam nut until the washer again contacts port face, then tighten an additional 1/8–1/4 turn to lock fitting in place. Final torque on the jam nut should be approximately 20 ft-lb.

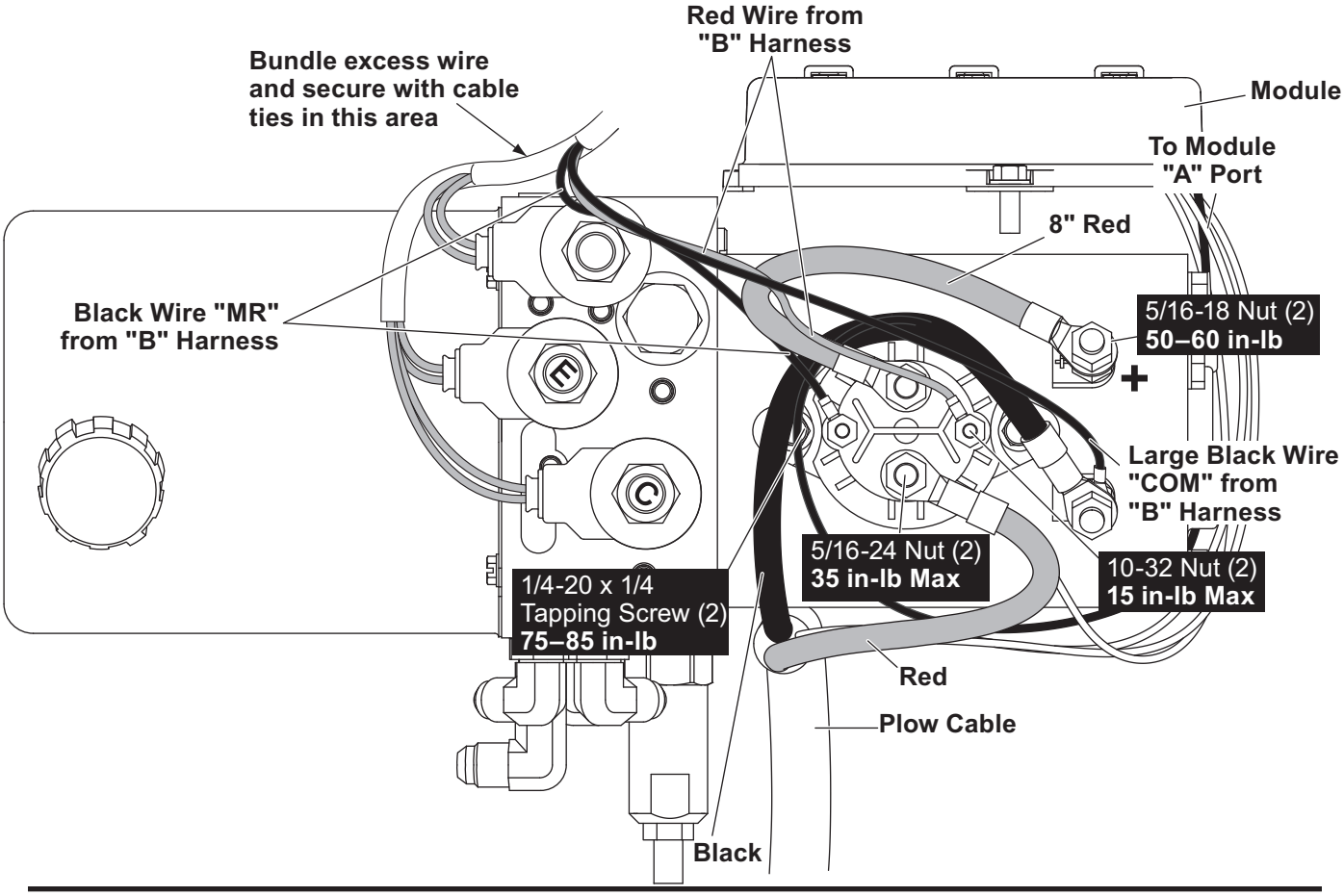
**Use the following procedure to install hydraulic hoses:**

1. Screw flare nut onto fitting flare and hand tighten.
2. Align hose so there are no twists or sharp bends and so it will not be pinched or pulled by moving parts.
3. Using two wrenches, hold the hose in position and tighten flare nut 1/8–1/4 turn beyond hand tight. Final torque on the flare nut should be approximately 20 ft-lb.


General
1. Before any service, loosen breather to relieve reservoir pressure.
2. Lubricate all O-rings with clean hydraulic fluid except where noted otherwise.
3. DS = Driver's Side
PS = Passenger's Side
4. For service hydraulic unit, install counterbalance valve A shipped separate in box.
Relief Valve Service
Apply one drop of low-strength threadlocker to threads.
Assemble to 2-1/2 turns out from fully bottomed.
Adjust valve on fully assembled and mounted snowplow.
Always relieve pressure before adjusting valves to prevent O-ring damage.
1. Remove pressure test port plug and attach 3000 psi pressure gauge.
2. Angle plow fully to right and adjust pump relief B so deadhead pressure reads 1650 psi.
3. Straighten blade.
4. Remove pressure gauge and reinstall plug.
Replace O-ring whenever disassembled. Apply light film of white lithium grease for reassembly. Clean manifold groove and reservoir surface.
Breather must be installed before operating snowplow.
Fluid level 1" below top of can with draw latch fully unhitched.
10-24 x 5/16 Washer-Head Screw (4) – 30–35 in-lb
Clean magnet.
5/16-18 x 2-1/2 Cap Screw (5) 150–160 in-lb
B – Pump Relief Valve
Pressure Test Port O-Ring Boss Plug 55–65 in-lb
Check Valve 19–21 ft-lb
Stem
Ball
Spacer
Spring
Remove motor. Fit seal protector onto end of pump shaft and install lubricated shaft through seal.
Install new O-ring into pump counter bore.
Inspect seal and replace if damaged.
Alignment ring
Crossover Relief Valve 19–21 ft-lb
Blade Drop Speed Adjustment
Counterbalance Valve (2) 19–21 ft-lb
A
Fit over pump shaft tang.
Motor Cap Screw (2) 55–65 in-lb Apply low-strength threadlocker
Fit pin into manifold alignment hole.
To Module Port "A"
To Module Port "B"
To Module Port "C"
Fuse – 5-amp Mini Automotive Blade-Style
S3-C1
S2-C1
S2-C2
S1
S3-C2
Spacer
Install spacers with smaller dia. facing out.
Assemble coils with printing facing out.
1/2-20 Jam Nut (3) 48–60 in-lb
For Mounting Plate with Keyhole Slots:
No Washer
Split Lock Washer
3/8-16 x 1 Button Flange Cap Screw (3) – 22–25 ft-lb
Apply medium-strength threadlocker
For Mounting Plate with Holes:
3/8-16 x 1 Cap Screw (3) – 22–25 ft-lb
Apply medium-strength threadlocker

## ELECTRICAL ASSEMBLY



## TORQUE CHART

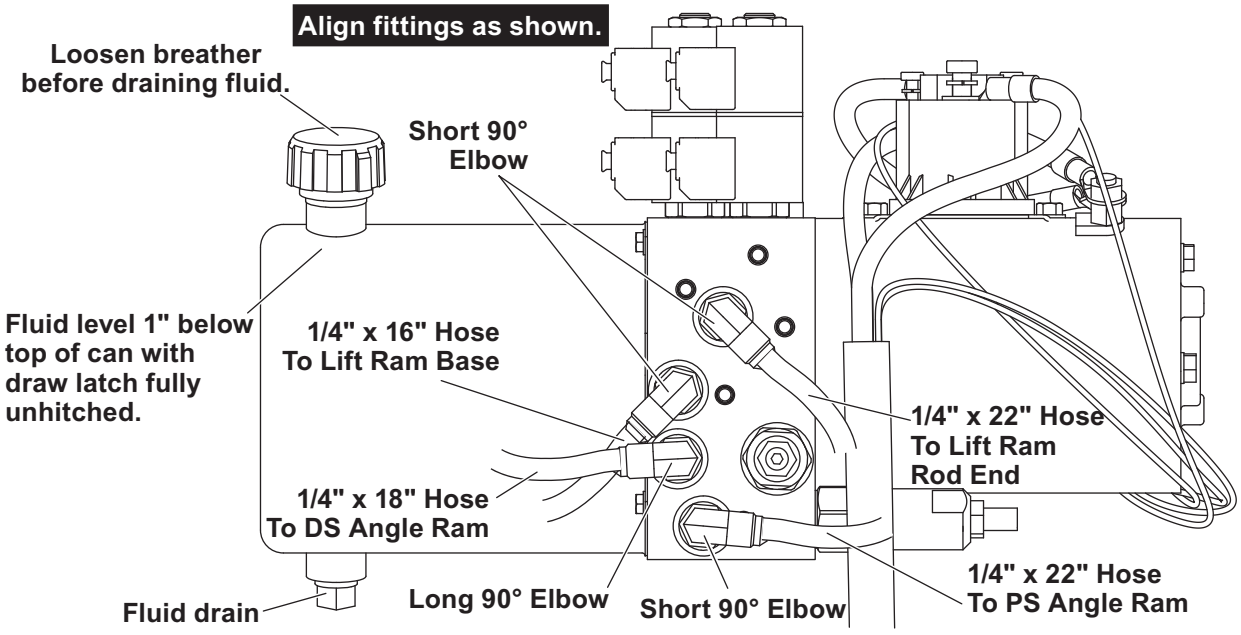
| SPEEDWING Hydraulic Unit Torque Chart | | |
|---|---|---|
| **Location** | **Fastener Size** | **Torque** |
| Pump Cap Screws | 5/16-18 x 2-1/2 | 150–160 in-lb |
| Motor Terminals (+ and –) | 5/16-18 Nut | 50–60 in-lb |
| Motor to Manifold Cap Screws | 1/4-20 x 6-1/4 | 55–65 in-lb* |
| Reservoir Screws | #10-24 x 5/16 | 30–35 in-lb* |
| Solenoid Valves | 7/8 Hex Head | 19–21 ft-lb |
| Coil Nuts | 3/4 Hex Head Jam Nut | 48–60 in-lb |
| SAE O-Ring Plugs | 1/8 or 5/32 Internal Hex | 55–65 in-lb |
| Hydraulic Unit Mount Bolts | 3/8-16 x 1 | 22–25 ft-lb** |
| Check Valves | 7/8 Hex Head | 19–21 ft-lb |
| Motor Relay Small Terminals | 10-32 Nut | 15 in-lb max |
| Motor Relay Large Terminals | 5/16-24 Nut | 35 in-lb max |
| Motor Relay Mount Screws | 1/4-20 x 1/4 | 55–65 in-lb |
| Plow Module Mount Screws | 1/4-20 x 5/8 | 60–70 in-lb |
| Crossover Relief Valve | 7/8 Hex Head | 19–21 ft-lb |
| Counterbalance Valve | 7/8 Hex Head | 19–21 ft-lb |

*** Torque with low-strength threadlocker**

**** Torque with medium-strength threadlocker**

## HYDRAULIC FLUID (DRAIN AND FILL), FITTINGS AND HOSES

**NOTE: Before removing hoses and fittings, carefully note hose routing for proper reassembly. For complete hydraulic fluid level/change instructions, see the Maintenance Section of your Owner's Manual.**



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