

## Hydraulic Cylinder Application History / Quick Facts

### Conventional Rapid-Tach (1981 – 1994)

Three identical hydraulic cylinders are used on the Conventional Rapid-Tach Snowplow to perform the raise/lower and angling functions. All are a typical single acting design, HYD1603 Hydraulic Cylinder.

The conventional system utilizes a single lift cylinder with a lift arm and lift chain for raising the plow.

**Lift:** 1 HYD01603 Hydraulic Cylinder + Lift Arm (not included)  
**Angle (V or Stb):** 2 HYD01603 Lift Cylinder

Note: On plows built between 1981 and 1988 a different length lift cylinder was used. Those plows will require a new lift arm LFA1400 and HYD1603 Hydraulic Cylinder.

### Rapid-Tach II (1994-1998)

The Rapid-Tach II mount utilizes two lift cylinders for raising the snowplow. This lift cylinder was specially designed for the Rapid-Tach II System and differs from our conventional lift cylinder design. The Rapid-Tach II system does not use the lift arm or lift chain, instead the plow is raised with the lift cylinders retract and the T-Frame pivots about the coupler. Although the cylinder is double acting in construction, it is only used in one direction (to pull) since only the rod side of the cylinder contains fluid.

The two angle cylinders for the Rapid-Tach II V-Plow are identical to the conventional style angle cylinders.

**Lift:** 2 HYD01680 RTII Lift Cylinder  
**Angle V:** 2 HYD01603 Hydraulic Cylinder  
**Angle (Stb):** 2 HYD01703 Hydraulic Cylinder (Red)

### RT3 SmartHitch & SmartHitch 2(1998-Present)

The RT3 mounting system uses a single lift cylinder to raise the snowplow. The cylinder is identical in construction to the RTII Lift cylinder however the tube diameter and stroke are larger giving it the same lifting capacity as two RTII lift cylinders. The RT3 lift cylinder has a double acting design but is only used to push on SmartHitch™ Plows while attaching to the truck. Non-SmartHitch plows have a breather plug in the tube end of the cylinder to allow air exchange. This is removed when installing the SmartHitch™ option.

The two angle cylinders for the RT3 V-plow with serial # less than 90530 differ from other angle cylinders in that the port is rotated 90 degrees and the shank is larger. The packing and rod of the HYD07014 cylinder are identical to the HYD01603 cylinder. The HYD09731 cylinders use Nitrobar plating instead of chrome and double lip polyurethane seals instead of conventional Vee packing.

**Lift:** '98 - present 1 HYD07013 Lift Cylinder V-Blade & Straight Blade  
**Angle (V):** '98 – '05 2 HYD01603 Angle Cylinder V-Blade Plow  
**Angle (V):** '06 – present 2 HYD09731 Angle Cylinder V-Blade & Straight Blade Plow  
**Angle (Stb):** '98 – '03 2 HYD07014 Angle Cylinder Straight Blade Plow  
**Angle (Stb):** '04 – '05 2 HYD08830 Angle Cylinder Straight Blade Plow  
**Angle (Stb):** '06 – present 2 HYD09731 Angle Cylinder V-Blade & Straight Blade Plow  
**Angle Locking (V):** '98 – '05 2 HYD07034 – Optional Equipment for V-Blade Only  
**Angle Locking (V):** '06 – present 2 HYD09733 – Optional Equipment for V-Blade Only

### **10' RT3 SmartHitch™ and SmartHitch 2(1999 – Present)**

The 10' version of RT3 SmartHitch™ uses larger hydraulic cylinders to accommodate the higher plowing forces of the larger blade. The lift cylinder is ¼" larger in diameter (2-1/4"ID) and 2" longer in stroke (12").

The angle cylinders on the 10' plow use a 2" rod. This larger area allows the 10' plow to use the same relief valve setting as other RT3's (2800psi) and provides additional force to drive the larger wings.

**Lift: 1 HYD07649 Lift Cylinder 10' Plow**  
**Angle (V): 2 HYD07610 Angle Cylinder 10' V-Blade Plow w/Serial Numbers before 56236**  
**Angle (V): 2 HYD07683 Angle Cylinder 10' V-Blade Plow w/Serial Numbers above 56236**  
**Angle (Stb): 2 HYD07610 Angle Cylinder 10' Straight Blade Plow w/Serial Numbers before B4500**  
**Angle (Stb): 2 HYD07683 Angle Cylinder 10' Straight Blade Plow w/Serial Numbers above B4500**

### **GENERAL CYLINDER INFORMATION**

- Corrosion resistance - cylinders can be periodically greased in season.
- Dow Corning Metal Protective Coating (aerosol cans) is recommended - 30W engine oil can also be used
- At season end all cylinders should be greased and collapsed
- Rule of thumb on tightening end cap - 1/4 turn past finger tight, 1/8" turns thereafter
- Cracked, split or ruptured cylinders are often an indication of:
  - ♦ Incorrect Relief Valve Setting
  - ♦ Abuse, High Speed Plowing, Hitting Obstacles
- Spanner Wrench to service Lift Cylinders (HYD1680 & HYD7013) is available from:  
McMaster-Carr Supply Co.  
P.O. Box 440  
New Brunswick, NJ 08903-0440  
(908) 329-3200  
Part number - 5481A3