SPEC. ASSY INST, REMOTE ADJUSTABLE PRE-LOAD (30-25XX & SA-5057-5XX)

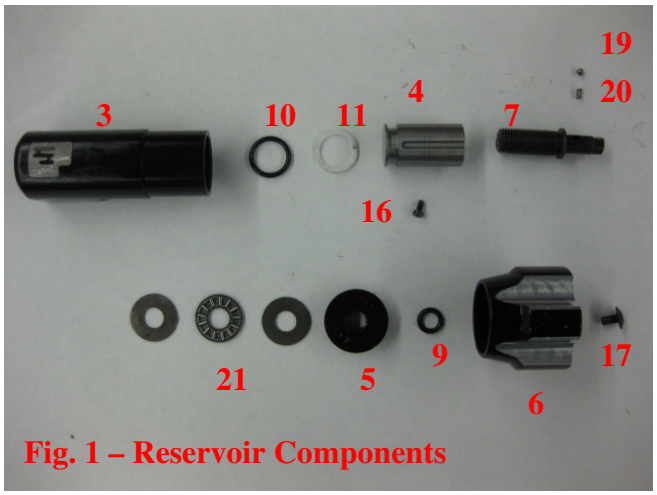

Fig. 1 – Reservoir Components

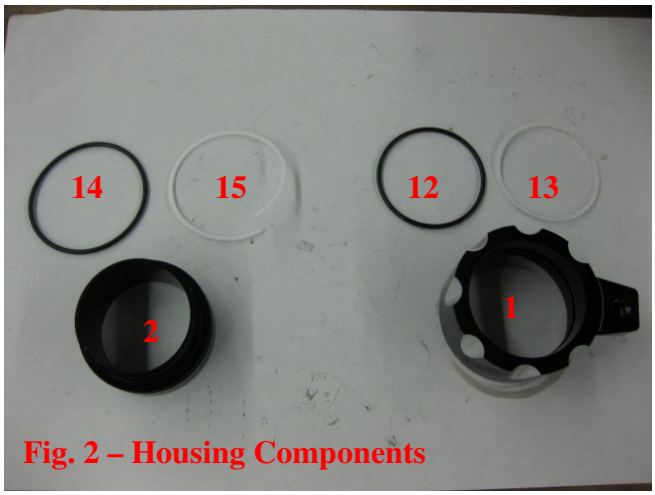

Fig. 2 – Housing Components

30-25XX & SA-5057-5XX B.O.M		
Item #	**Part #**	**Description**
1	5057-000	HOUSING, HYDRAULIC PRE-LOAD ADJ.
2	5057-001	PISTON, HYDRAULIC PRE-LOAD ADJ.
3	5057-002	RESERVOIR, HYDRAULIC PRE-LOAD ADJ.
4	5057-003	PLUNGER, HYDRAULIC PRE-LOAD ADJ.
5	5057-004	END CAP, HYDRAULIC PRE-LOAD ADJ.
6	5057-005	KNOB, ADJUST, HYDRAULIC PRE-LOAD ADJ.
7	2036-058	BOLT, ADJUST, HYDRAULIC PRE-LOAD ADJ.
9	300100-109	O-RING, AS569A-109
10	300100-114	O-RING, AS569A-114
11	2026-023	BACKUP RING, -114 SERIES
12	300100-140	O-RING, AS569A-140
13	2026-024	BACKUP RING, -140 SERIES
14	300100-143	O-RING, AS569A-143
15	2026-025	BACKUP RING, -143 SERIES
16	2036-060	SCREW, SHCS, M3-0.5 X 6MM (LOW HEAD)
17	2036-061	SCREW, BHCS FLANGED, M5-0.8 X 8MM
18	2036-062	SCREW, SHCS, M6 - 1.0 X 8MM
19	2042-013	BALL BEARING, 3.5MM
20	5039-002	SPRING, DETENT, 3.5MM
21	2042-014	THRUST BEARING ASSY.
22	SA-5057-0XX	HYDRAULIC HOSE, SUB-ASSM.
23	5057-0XX	RESERVOIR MOUNT, HYDRAULIC PRE-LOAD ADJ.

Item #'s denoted in build instructions as reference. Ex. - Part Description (Item #)

1. Build The Reservoir Internals

a. Grease and install the -114 o-ring (# 10) and the -114 backup ring (# 11) onto the plunger (# 4). *(O-ring **must** be installed in front of the white backup ring as shown in Fig. 3.)*

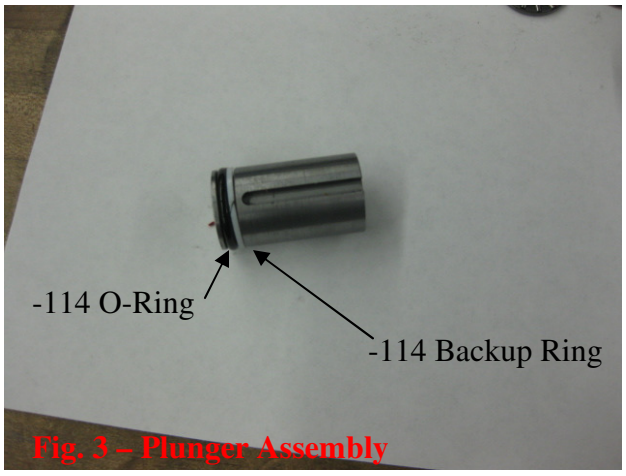

Fig. 3 – Plunger Assembly

b. Grease and install the o-ring (# 9) into the End cap (# 5).
c. Grease and install the bearing assembly (# 21) onto the adjustment bolt (# 7). *(Install in -washer-thrust bearing-washer order, Fig. 4)*
d. Install the detent spring (# 20) and ball bearing (# 19) into the adjustment bolt pocket; slip the end cap onto the adjustment bolt. *(Use a pick or small allen wrench to depress the ball bearing, allowing the end cap to fully seat on the bearing pack. Fig. 5)*

Fig. 4 – Adjustment Components

Fig. 5 – Adjustment Bolt Assembly

2. Build the Housing Assembly

a. Grease and install the -143 o-ring (# 14) and the -143 backup ring (# 15) onto the piston (# 2). *(The white backup ring must always be installed closest to the large outside diameter of the piston, Fig. 6)*

b. Grease and install the -140 o-ring (# 12) and the -140 backup ring (# 13) into the housing (# 1). *(The white backup ring must always be installed closest to the small inside diameter of the housing, Fig. 6)*

c. Place the piston inside the housing. Using the housing slide pump clamp, pump the clamp while pushing on the slide until the piston is fully seated. *(Fig. 7)*

Fig. 6 – Housing Components

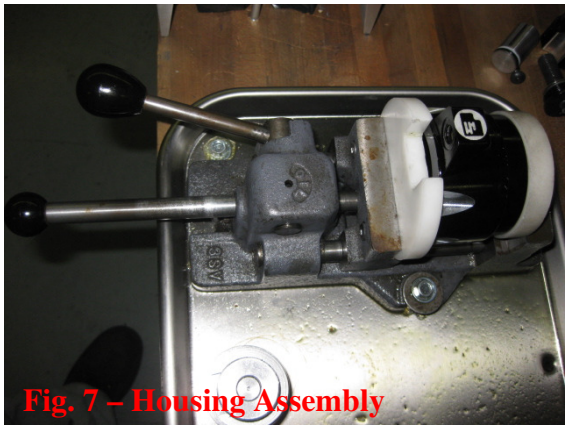

Fig. 7 – Housing Assembly

Oil-Charge & Final Assembly

a. Select the proper hydraulic hose assembly (# 22) designated by sheet two of drawing 30-25XX

b. Use the reservoir clocking arch and the bench vise to orientate the hydraulic line on the reservoir according to sheet three of drawing 30-25XX; Torque the banjo fitting with a 14mm socket to 200 in/lbs (16.5 ft/lbs) *(Fig. 8)*

   i. Temporary fitting orientation may be necessary to allow certain lines to fit the assembly tooling, if so snug banjo bolts and realign/torque after assembly.

c. Place the reservoir housing (# 3) into the slide pump fixture, slide to the washer bottom stop and clamp firmly in place.

d. Use the housing clocking ring to orientate the hydraulic line on the housing according to sheet three of drawing 30-25XX; Snug the banjo fitting with a 14mm wrench.

Fig. 8 – Hydraulic Line Installation

Fig. 8A – Hydraulic Line Installation

e. Place a sealing o-ring around the M3 fill port on the reservoir, lower and clamp the vacuum/oil head onto the reservoir housing. *(Be sure the o-ring is making proper contact around the fill port in the reservoir housing.)*
f. Place the plunger installation sleeve onto the end of the reservoir. *(Fig. 9)*
g. Thread the plunger onto the plunger installation tool. *(Threads on counter-clockwise, towards the operator, be sure plunger is fully seated on the tool face.)*
h. With the spacer on the installation tool, insert plunger through the sleeve and into the reservoir until the spacer contacts the sleeve face. *(Fig. 9)*

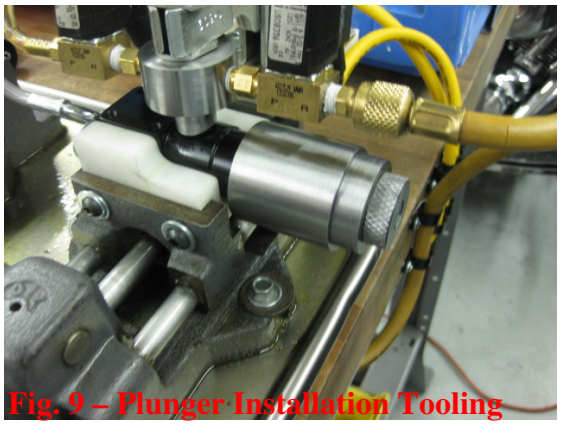

Fig. 9 – Plunger Installation Tooling

Fig. 10 – Switch Box

i. Cycle the vacuum/oil fill machine by pressing the green cycle button in the top right corner of the switch box. *(Fig. 10)*
    i. ***Note**: The oil fill line must be free of all air bubbles; if not, purge the line by pressing the oil purge button in the lower right of the switch box, with the fill clamp disengaged until all air bubbles have been removed. The vacuum purge (lower left button) is to be used during manual assembly of a hydraulic pre-load adjuster unit. (Fig. 10)*
    ii. ***Note:** The black power button may be pressed at any time to immediately stop the fill cycle; this switch will cut the power to the vacuum/oil fill equipment but not to the table electrical socket (Fig. 10). To cut all power the main switch on top of the control box located on the rear of table must be pressed. (red lights indicate that the power is on)*

j. Remove the spacer and unclamp the vacuum/fill head, leave the fill head lightly resting on the reservoir, then push the plunger installation tool into the reservoir using your hand until it stops. *(leave vacuum/fill head lowered as some oil will flow from the reservoir)*
k. Slightly loosen the banjo bolt on the piston/housing end, using the table clamp, depress the plunger installation tool into the reservoir until it contacts the sleeve. Torque the banjo fitting with a 14mm socket to 200 in/lbs (16.5 ft/lbs) assuring that the line orientation remains correct. Alternatively, a rubber mallet may be used to tap the plunger installation tool into place. *(During this process oil will flow slowly out of the housing/line connection until the tooling is fully seated.)*
l. Unclamp and lift off the vacuum/oil fill head. Using the 2mm Allen wrench turn the plunger installation tool counter-clockwise (towards the operator) until the wrench drops in, indicating the plunger pocket is facing upwards.
m. Apply lock-tite to and install/tighten the M3 SHCS (# 16) until snug, bolt should be flush with the reservoir.

n. Remove the plunger installation tool *(threads off clockwise, away from operator)* and the reservoir sleeve.

o. Grease and thread the adjustment bolt into the plunger *(rotates counter-clockwise, towards operator)* until the end cap makes contact with the reservoir housing. *(Do not continue to thread the adjustment bolt in after end cap contact with the reservoir housing is made, this could allow the detent ball to pop out of the end cap pocket)*

p. Using the end cap installation tooling, apply lock-tite to and torque the end cap *(rotates clockwise, away from operator)* to 45in/lbs. *(Fig. 12)*

q. Unclamp the reservoir housing from the slide clamp fixture and install the adjustment knob (# 3), apply lock-tite to and torque the M5 BHCS (# 17) to 45in/lbs. *(Do not operate unit until adjuster knob has been fully installed and retained, failure to do so could cause spring detent to fall out of its' retention pocket. Fig. 13)*

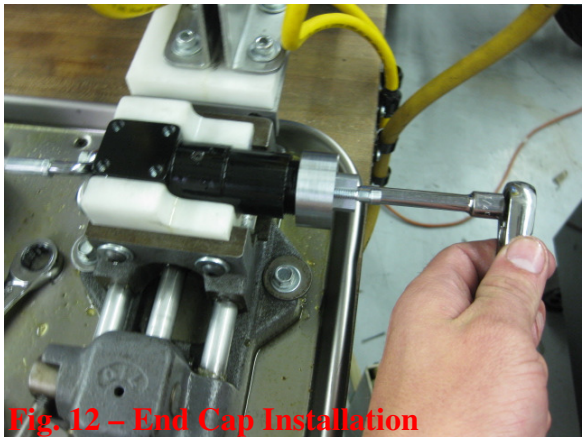

Fig. 12 – End Cap Installation

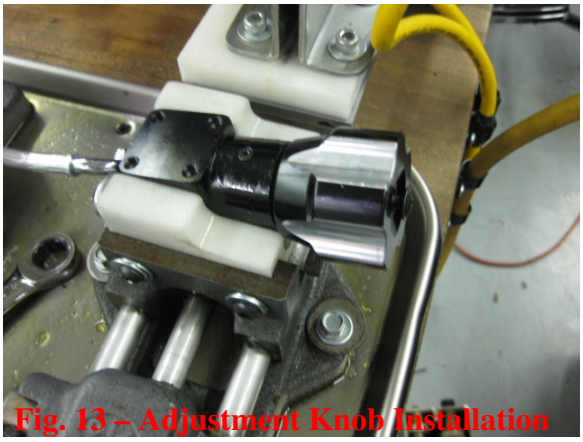

Fig. 13 – Adjustment Knob Installation

r. Using the hydraulic fitting clocking fixture check the hydraulic line orientations, if adjustments are necessary carefully loosen banjo bolt and reposition the fitting. *(Only loosen the banjo bolts if the adjuster is fully backed off and there is no compressive forces on the housing/plunger assembly)*

s. Torque the banjo bolts to 200in/lbs.

4. Test Assembled Unit

a. Turn the adjuster out until it stops, using the slide pump clamp compress the piston/housing assembly fully.
   i. The piston face should be flush with the housing face; If not, slowly loosen the hydraulic banjo and compress the housing/piston assembly using the pump slide clamp until the piston face reaches the housing face.

b. Starting with the housing/piston fully clamped and the adjustment knob fully turned counter-clockwise, towards operator, turn the adjustment knob clockwise until reasonable force opposes further rotation.
   i. If the knob turns more than 1.5 turns from fully seated the unit was bleed incorrectly, disassemble unit and repeat steps 3 & 4. Continue if less.

c. Unclamp the slide pump on the housing/piston assembly and fully extend the adjuster by rotating the adjustment knob clockwise until it stops. *(About 20 full turns)*
   i. Re-clamp the housing/piston assembly; using calipers measure the housing to piston face. Distance must be between 8.7mm and 10.3mm. If not, unit was assembled incorrectly, disassemble and repeat steps 3 & 4.

d. Clean the entire adjuster assembly and check for any physical damage.

5. **Install & Package**
    a. If adjuster is sold as single unit
        i. Wrap with bubble wrap and place in shock box.
        ii. Include all necessary mating and mounting components**.** Refer to sheet three of drawing 30-25XX (instructions, spring spacer, mounting bracket, reservoir mounting bolts, instructions any additional mounting bolts, spring if necessary, ext…)
    b. If adjuster is sold on a 465
        i. Use only the appropriate 465 and spring combination
        ii. Install only the adjustment lock nut onto the damper body with the flange facing away from the adjuster, install the adjuster housing with the hydraulic line output facing the body end of the damper
        iii. Use the orientation tooling to correctly orient the adjuster on the shock, and set the factory preload settings for the spring height and adjuster height. Refer to sheet three of drawing 30-25XX.
        iv. Install the spring and spring retainer.
        v. Use the spring press to install retaining clip, verify spring length matches sheet three of drawing 30-25XX.
        vi. Wrap in bubble wrap and place in box chose the correct inserts dictated by the shock ends, hydraulic line output direction and the overall length.
        vii. Include all necessary mating and mounting components**.** Refer to sheet three of drawing 30-25XX and the B.O.M of the shock being assembled.

Torque Specifications

*M10 Banjo Bolts – 200 in-lbs
*M5 Knob Retaining Bolt – 45 in-lbs
*M6 Reservoir Bracket Bolt – 85 in-lbs
*Reservoir End Cap – 45 in-lbs
*M3 Plunger Retaining Bolt – 15 in-lbs

General Information

*****Product Overview-**

The adjuster has 9.75mm of spring pre-load adjustment
Clockwise = more spring pre-load
0.46mm per full knob turn (close enough to call it 0.5mm)
Two detent clicks per one full knob turn
About 21 full turns of adjustment range

***** Line orientation adjustment procedure-**

1- **COMPLETELY** retract the adjuster **FIRST!,** (you must do this to prevent fluid from escaping under pressure)
2- **SLIGHTLY** crack the banjo fitting loose, (just enough to be able to move the line to the desired orientation)
3- Adjust the line orientation as necessary
4- Re-tighten and torque the banjo fitting

***** Manual oil fill/bleed procedure-**

1- Remove the hydraulic adjuster from the shock
2- Manually collapse the housing/piston assembly, retract the pre-load if necessary
3- Remove the banjo bolt and line from the remote reservoir end
4- Fully retract the pre-load on the reservoir (turn adjuster fully counter-clockwise)
5- While holding with the banjo bolt threads facing upwards fill the reservoir with hydraulic or shock oil (easier if lightly clamped in a bench-top vise)
6- Re-install the banjo fitting and snug the banjo bolt
7- Turn adjustment knob fully clockwise advancing the pre-load, do this with the housing/piston assembly below the level of the reservoir. (Piston should start the extend from housing)
8- Repeat steps 3-7 until the piston extends 10.0mm from the housing body, **When removing the banjo fitting be sure to quickly point the line upwards to keep oil from draining out of the line (further extension over 10mm will cause the housing/piston seals to no longer function and oil to escape)
9- Place the housing/piston assembly in a bench-top vise with the hydraulic fitting at the highest point & retract the pre-load fully counter-clockwise, place the reservoir below the level of the housing/piston assembly. (allows the remaining air in the system to bubble to the top at the housing/piston banjo)
10- Collapse the housing/piston assembly using the vise until slight resistance is felt. (The piston should be slightly extended from the housing)
11- **Slightly** crack the housing/piston banjo bolt and using the vise **slowly** collapse the piston fully into the housing (this will purge any air and extra oil from the hydraulic system, WEAR SAFETY GLASSES as some oil & air will purge from the line!!)
12- Re-Torque both hydraulic banjo bolts
13- Remove the housing/piston from the vise and fully advance the pre-load, full piston extension should be about 9.5mm (if more repeat steps 9-12, if less start manual oil fill/bleed procedure over)
14- With the pre-load fully advanced place the housing/piston back into the bench-vise and collapse until medium resistance is felt, re-measure the piston extended length (using the manual procedure pressured squish should be no more than 1.5mm from the free extension length; if squish is greater than 1.5mm, repeat the manual oil fill/bleed procedure to remove the air from the system)

***** General Notes-**

1- Each kit contains 2 zip ties for retaining the hydraulic line from contacting any moving components
2- Removing the SHCS M3 Bolt from the reservoir body will cause the adjuster to no longer function; this is not an end user oil fill/bleed port. (no oil will escape, nor can oil be inserted here)
3- Do not operate the adjuster without the knob securely mounted. (under certain conditions the adjustment bolt could screw into the reservoir and cause the detent ball to drop out of retention)
4- Do not loosen the hydraulic Banjo bolts with the adjuster extended. (high pressure oil discharge will result)
5- Never adjust the pre-load adjustment collar and/or hydraulic adjuster past the point of spring solid at full collapsed. (Refer to spring information sheet)
6- Refrain if possible from operating the adjuster while not installed on a shock. (the hydraulic adjuster unit is designed to work properly while under spring pressure, operating outside of these intended conditions could cause pre-mature wear to internal components)