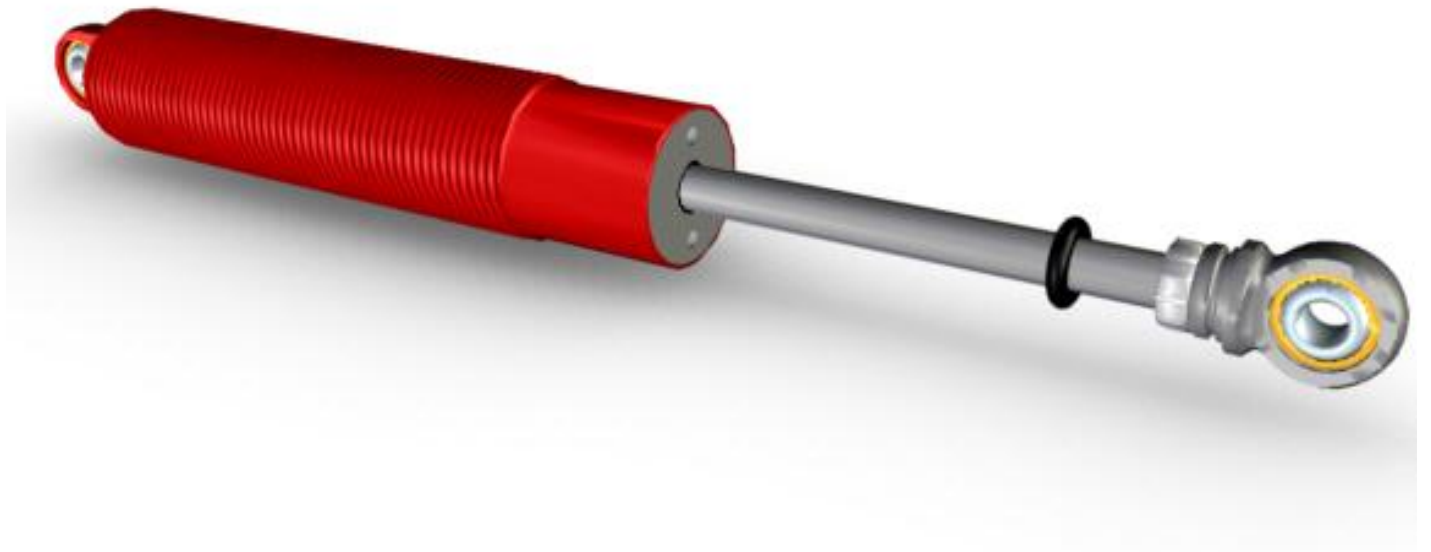


**QA1**<sup>®</sup>



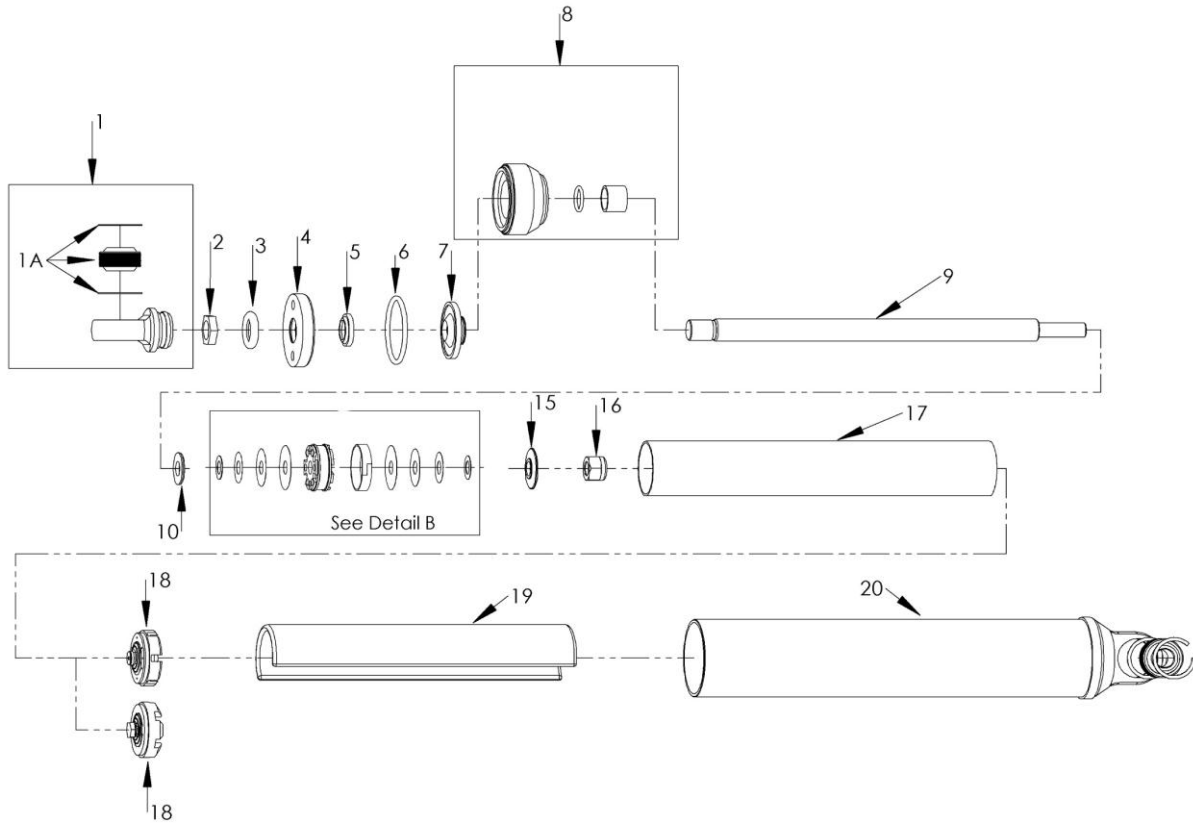
*Parts included in the TK01 Tuning Kit:*

<b>Item Number</b>	<b>Description</b>	<b>Qty</b>
9042-126	Piston band	<b>2</b>
9044-108	O-ring, Gland/Body 42x2.5	<b>4</b>
9044-117	O-ring, Gland/Body 44x3	<b>4</b>
7855-101	Disc Valve .70 x .015, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-102	Disc Valve .90 x .006, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-103	Disc Valve .90 x .008, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-104	Disc Valve .90 x .010, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-105	Disc Valve .90 x .012, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-106	Disc Valve .90 x .015, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-107	Disc Valve 1.1 x .006, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-108	Disc Valve 1.1 x .008, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-109	Disc Valve 1.1 x .010, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-110	Disc Valve 1.1 x .012, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-111	Disc Valve 1.1 x .015, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-178	Disc Valve 1.3 x .004, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-112	Disc Valve 1.3 x .006, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-113	Disc Valve 1.3 x .008, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-114	Disc Valve 1.3 x .010, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-115	Disc Valve 1.3 x .012, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
7855-116	Disc Valve 1.3 x .015, 8 Pcs. / Kit	<b>1 Kit / 8pcs</b>
9057-221	35mm Piston, No Bleed	<b>2</b>
9055-299	No Bleed basevalve (aluminum section only)	<b>1</b>
9055-293	Soft basevalve assembly	<b>1</b>
9055-122	Firm basevalve assembly	<b>1</b>
9011-101	Drill Bit, 0.033"	<b>1</b>
9011-102	Drill Bit, 0.038"	<b>1</b>
9011-103	Drill Bit, 0.040"	<b>1</b>
9011-104	Drill Bit, 0.046"	<b>1</b>
9011-105	Drill Bit, 0.052"	<b>1</b>
9011-106	Drill Bit, 0.055"	<b>1</b>
9011-107	Drill Bit, 0.059"	<b>1</b>
7857-101	Check ball kit	<b>1 Kit / 8pcs</b>
7857-103	Dowel pin kit	<b>1 Kit / 8pcs</b>



# 60 Series Parts List

## Smooth Aluminum Large Body



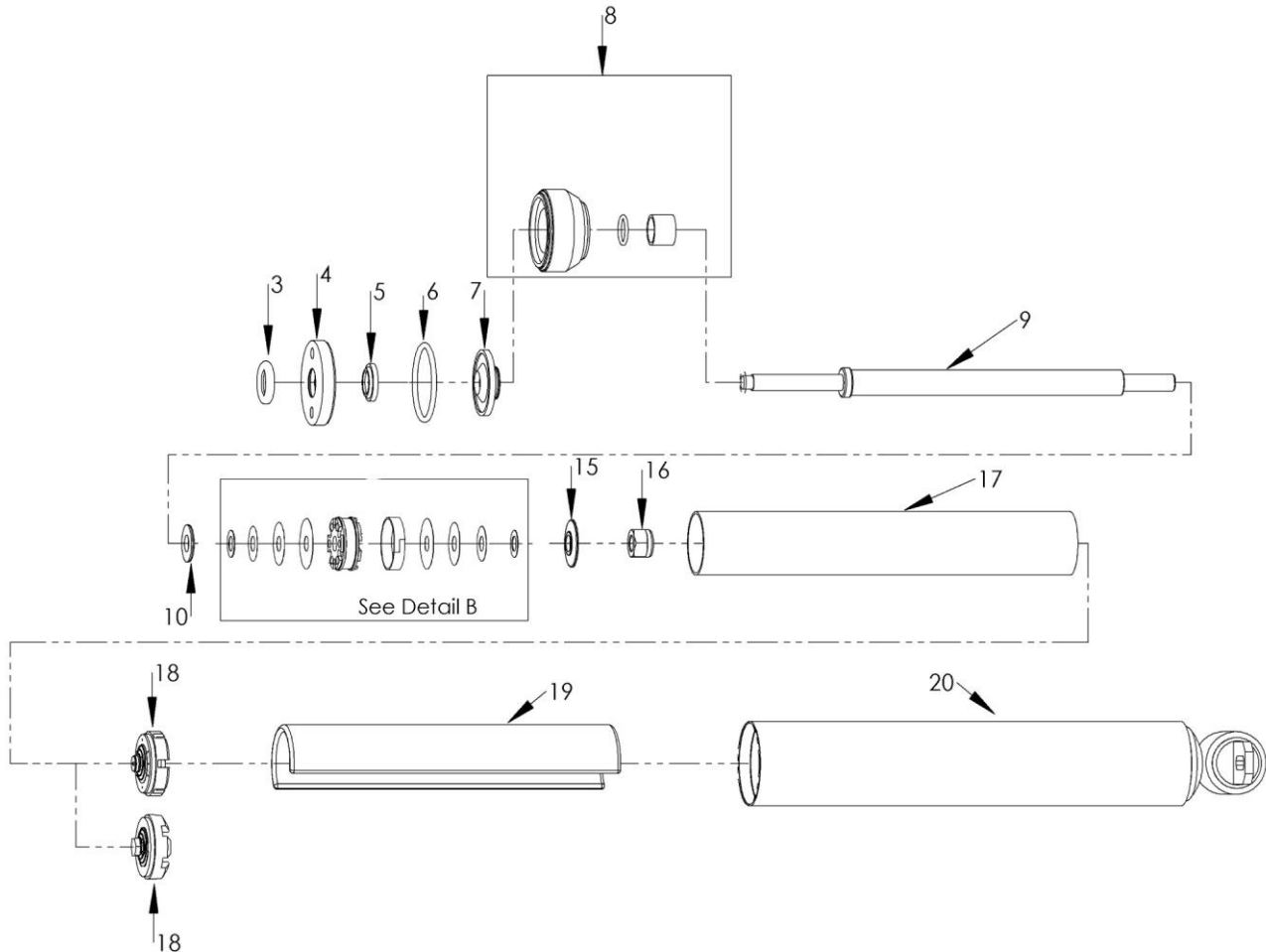
Item	Part No.	DESCRIPTION
1	9036-104	Aluminum loop assembly
1A	SIB8-101PK	Bearing kit (2 Bearings, 4 Snap Rings)
2	9014-113	Jam nut, 9/16"-18
3	9042-121	New-style travel indicator
4	9014-115	Closure nut
5	9046-107	Wiper (blue)
5	9046-101	Wiper (black)
6	9044-108	O-ring, closure nut
7	9042-103	Piston rod seal
8	9054-107	Gland assembly, Large body aluminum
9	9028-122	6" piston rod
9	9028-118	7" piston rod
9	9028-138	8" piston rod
9	9028-114	9" piston rod
13	9057-221	Piston, no bleed
14	9042-126	Piston band

Item	Part No.	DESCRIPTION
15	9005-237	Valve stack plate (2)
15	9005-238	Valve stack plate disc (2)
16	9014-420	Spirallock flange nut
17	9053-123	7" large body compression tube
17	9053-125	9" large body compression tube
18	9055-293	Soft basevalve
18	9055-122	Firm basevalve
19	9052-110	Bag, Gas 6" Large Body
19	9052-111	Bag, Gas 7" Large Body
19	9052-121	Bag, Gas 8" Large Body
19	9052-121	Bag, Gas 9" Large Body
20	9760-115	6" Aluminum smooth body
20	9760-114	7" Aluminum smooth body
20	9760-113	8" Aluminum smooth body
20	9760-112	9" Aluminum smooth body



# 53 Series Parts List

## Stock Mount Steel Large Body



Item	Part No.	DESCRIPTION
3	9042-121	New-style travel indicator
4	9014-115	Closure nut (aluminum)
5	9046-107	Wiper (blue)
6	9044-117	O-ring, closure nut
7	9042-103	Piston rod seal
8	9054-107	Gland assembly, Large Body Steel
9	9028-244	Piston rod 5393x
9	9028-141	Piston rod 5394x
9	9028-115	Piston rod 5395x
9	9028-116	Piston rod 5388x
9	9028-117	Piston rod 5368x, 5358x
13	9057-221	Piston, no bleed
14	9042-126	Piston band
15	9005-237	Valve stack plate (2)
15	9005-238	Valve stack plate disc (2)
16	9014-420	Spirallock flange nut
17	9053-187	Compression tube 5393x
17	9053-133	Compression tube 5394x
17	9053-122	Compression tube 5395x

Item	Part No.	DESCRIPTION
17	9053-124	Compression tube 5368x
17	9053-124	Compression tube 5358x
17	9053-124	Compression tube 5388x
18	9055-293	Soft basevalve
18	9055-122	Firm basevalve
19	9052-106	Gas bag 4" Large Body 5393x/5394x
19	9052-109	Gas bag 5" Large Body 5395x
19	9052-121	Gas bag 8" Large Body 5368x
19	9052-121	Gas bag 8" Large Body 5358x
19	9052-121	Gas bag 8" Large Body 5388x
20	9750-127	5393x body (body only)
20	9750-120	5394x body (body only)
20	9750-121	5395x body (body only)
20	9750-123	5368x, 5388x, 5358x body (body only)







**IMPORTANT:** Before rebuilding or revalving your QA1 62/60/51/53/50/FC shock absorbers, your work area must be clean. Shock absorber performance is greatly affected by any contamination (i.e. dirt, dust, rag lint, etc.).

**TOOLS NEEDED FOR REBUILDING AND TUNING (REVALVING):**

- Vise with soft jaws (aluminum or plastic)
- Closure nut wrench (available from QA1 / part #7791-104)
- Torque wrench with 15mm or 17mm socket (depending on age of shock)
- Pick set
- QA1 shock oil (part #SF04)
- QA1 rebuild kit and/or tuning kit (62/60/51/53 series rebuild kit part #RK01; 50/FC series rebuild kit part #RK02; revalving/tuning kit part #TK01)
- QA1 large body tool kit (optional; part #7891-106)
- Soft faced mallet
- Clean rags

**DISASSEMBLY:**

1. Check shock mount bearings for excessive play and replace as needed.
2. Clamp shock body eyelet in a vise with the shaft pointing up.
3. Fully extend the shock rod from the body.
4. Using a closure nut wrench, unscrew the shock closure nut. 62/60/51/53/50/FC series shocks are not pressurized.
5. Use a pick tool to remove the closure nut o-ring.
6. Remove the shock rod assembly, gland, and compression (inner) tube by pulling up on the shock rod.
7. Remove the gas bag from the shock and set it aside in area where it will not collect debris.
8. Over a drain pan, gently tap the gland and shaft assembly away from the compression tube with a QA1 separator tool or equivalent.
9. Pour the oil from the shock body and compression tube. Watch for any debris in the used oil and properly dispose of the oil if debris is present.
10. Clean the parts with mild solvent as necessary and set aside.
11. Clamp the piston rod eyelet (or stud top) in a vise with the piston pointing up.
12. Cover the gland with a rag, blow compressed air into the gland side-bleed hole to pop the piston rod seal out of the gland.
13. Remove the 15/17mm nut to access the piston valving. Remove the piston and the valving.
14. If not revalving, the rebound stack, piston, and compression stack need to be kept in their original order for re-assembly.
15. Remove the gland assembly, and the piston rod seal from the rod.

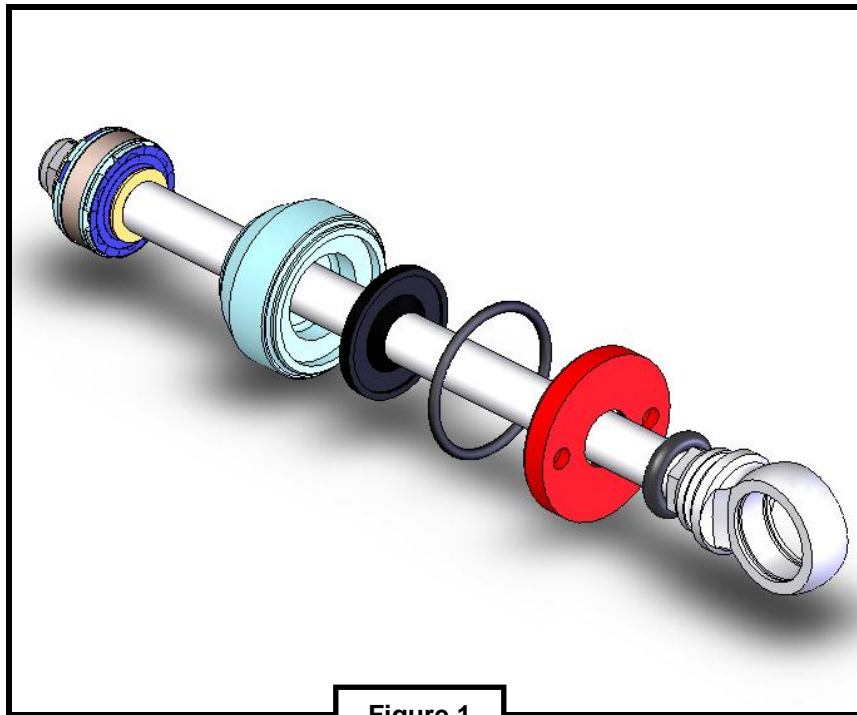


Figure 1

#### **ASSEMBLY:**

1. Inspect the bushing for wear, and replace the gland assembly if the bushing is loose on the shaft.
2. Reassemble the shaft with the travel indicator, closure nut with piston rod wiper installed, gland o-ring, piston rod seal, and gland assembly (see Figure 1).
3. If revalving, go to the revalving page and read the revalving instruction section now.
4. Place the valve stack plate washer onto the piston rod. Then, place the small valve plate disc on top of the washer.
5. With shaft still in the vise, assemble the compression valving, piston, and rebound valving. The compression valve stack is on the bottom of piston and the rebound valve stack on top. **IMPORTANT: The piston must be positioned with the rebound side facing up (see Detail B).**
6. Place the second small valve plate disc on top of the rebound stack. Then, place the second valve stack plate washer on top of the disc.
7. Torque the 15/17mm lock nut to 20 ft/lbs (240 in/lbs). Check the lock nut for any loose burrs and remove as necessary. Set the piston rod assembly aside. Place the shock body in the vise, holding it by the lower mount.
8. Pour ~1/4 cup of oil into the shock body.
9. Gently insert the compression tube and gas bag into the shock body, base valve first. Verify that the base valve has seated into base of the shock body properly.
10. **IMPORTANT: Do not tear the gas bag or pinch it under the base valve. Also be sure to keep the top of the gas bag below the top of the compression tube.**
11. Fill the shock body and compression tube with shock oil to just above (1/8") the top of the compression tube.
12. Move the compression tube around in a circular motion to free any trapped air bubbles.
13. Insert the piston rod assembly, with the piston band, into the compression tube.
14. With the piston assembly submerged approximately 1", tap the shock rod eyelet with a soft mallet. This opens the compression valve stack to release any air trapped inside the piston.

15. Use your thumb/fingers to hold the compression tube down with one hand and raise the shock shaft until the piston is at the top of the compression tube with the other.
16. Hold the shock shaft at the top of the compression tube and slide the gland into the shock body. Oil should come up through the gland bleed hole. **NOTE:** Remember we are attempting to build a shock without any air trapped inside.
17. Keep the shock fully extended and slide the rod seal into the gland. Push the closure nut o-ring into the outer groove of the gland.
18. Install and tighten the closure nut.
19. Invert the shock and wipe off any oil over-flow.
20. Stroke the shock and check for smooth operation. Rough or jerky movement indicates that air is trapped inside - repeat the steps above.
21. If the piston rod "springs back" from full compression, the shock is over-filled with oil. Fully extend the piston rod, loosen the closure nut fully, compress the piston rod until oil overflows, and re-tighten the closure nut.

# REVALVE INSTRUCTIONS

Shock absorbers create dampening by flowing oil through restrictive paths - the more restricted the flow, the higher the dampening force. Nearly all shocks use a combination of “bleed passages” and “blow-off valves” to control the oil flow in both compression and rebound separately.

Bleed is typically controlled by the size of a small hole(s) or slit(s). The oil can flow easily at low shaft velocities, but as velocity increases, the resistance rises progressively. QA1 shocks use single and dual bleed hole(s) in the piston, which range from 0.033” to 0.059”. Smaller or larger bleed holes may be used to raise or lower low-speed dampening. Unless you have access to a shock dyno it is best to stay with the standard bleed.

Blow-off is typically controlled by either a spring pushing on a valve, or a set of disk valves covering a set of larger holes. Once the shaft reaches a certain velocity, the valves will open – allowing a linear or digressive dampening curve. QA1 shocks utilize three sets of disk valves, two for compression and one for rebound. One rebound valve stack and one compression valve stack are on either side of the piston; the other compression valve stack is in the base valve. On the **62/60/51/53/50/FC series** there are two base valves used, one for compression valving 5 and below, and one for 6 and above. The following information will help you tune your QA1 large body shocks:

**LOW SPEED (0~1 in/sec):** The piston bleed hole size has the main effect. Larger bleed holes will lower the low-speed dampening and will delay the blow-off to occur at a higher velocity. Smaller bleed holes will raise the low-speed dampening – blow-off will tend to occur at lower velocities.

**MEDIUM SPEED (1~10 in/sec):** Valve stack begins to open. The disk closest to the piston (1.30” OD) will have the main effect. Valve stack thicknesses determine the blow-off velocity and the slope of the dampening curve. Bleed can affect the blow-off velocity, but the slope of the graph remains the same. The blow-off can be more or less distinct depending on the amount of bleed.

**HIGH SPEED (>10 in/sec):** The shape of the valve stack has main effect. Thickness, outside diameters, and number of disks determine the shape of the dampening curve. The smallest disk (0.700” OD) acts as the pivot disk. The pivot disk has a large affect on the higher speed portion of the dampening curve as it controls the diameter where the rest of the disks start to bend. Removing the 0.700” pivot disk will create a more digressive valve curve.

Use the graphs at the end of this manual to aid in selecting the proper valving for your application. Once you have decided which valve code you would like to revalve to, use the valving build charts to determine the components needed for the revalving. Use the following guidelines:

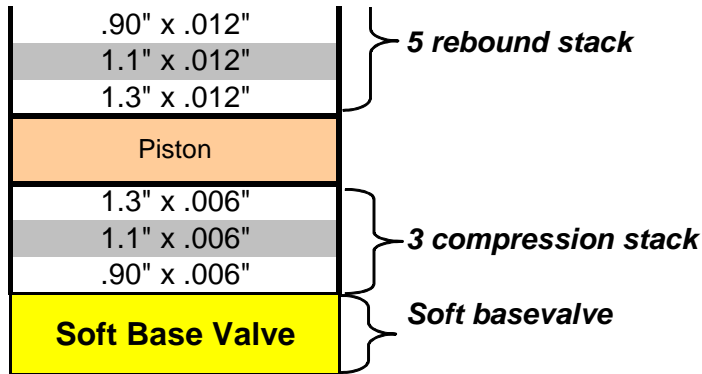
1. **For 62/60/51/53/50/FC series shocks:**

- a. Using the build chart, determine the base valve that corresponds to your desired compression valve code.
  - b. Install the base valve.
  - c. Using the build chart, determine the disks needed for your desired compression valve code.
  
  - d. Drill bleed hole(s). The piston bleed required is determined by the specific valve code chosen for the shock. Use the tables to find the bleed size needed for compression and rebound.
    - a. **Straight valve shocks:** If the chosen shock is a straight valve (e.g. 4 compression / 4 rebound), only one bleed hole will be used. This bleed hole can be drilled on either the compression side or the rebound side of the piston, but only one hole will be drilled.
    - b. **Split valve shocks:** If the chosen shock is a split valve (e.g. 3 compression / 5 rebound), both bleed circuits **may** be used. The QA1 shock is capable of separating the compression bleed from the rebound bleed to maximize the performance of a split valve shock. When building a split valve shock refer to **Detail B** (page 16). After identifying the rebound and compression sides of the piston, carefully drill the proper size bleed holes on the appropriate sides. In order to keep the circuits independent of each other, a cross hole must be drilled through each bleed circuit (Refer to Detail B). A check ball (Item 12) needs to be installed into each bleed circuit followed by a dowel pin (Item 11) in each cross hole. Turn the piston over and complete the process on the other side. The cross pins are held in the piston by the piston band (Item 14). You may also choose to use only one bleed in split valve shock. If you choose this option, drill the piston bleed to match the higher valving of the shock (smaller of the two bleed holes). The hole can be drilled on either the compression side or the rebound side of the piston (at the factory, we drill from the rebound side).  
**Note:** Using check balls and pins will require regular maintenance on the piston. Be sure to regularly check the diameter of the bleed holes as they may decrease while the check balls seat into the piston.
4. Using the build chart, determine the disks needed for your desired compression valve code.
  5. Using the build chart, determine the disks needed for your desired rebound valve code.
  6. Install the rebound disks onto the piston rod starting with the largest diameter disk and ending with the smallest.

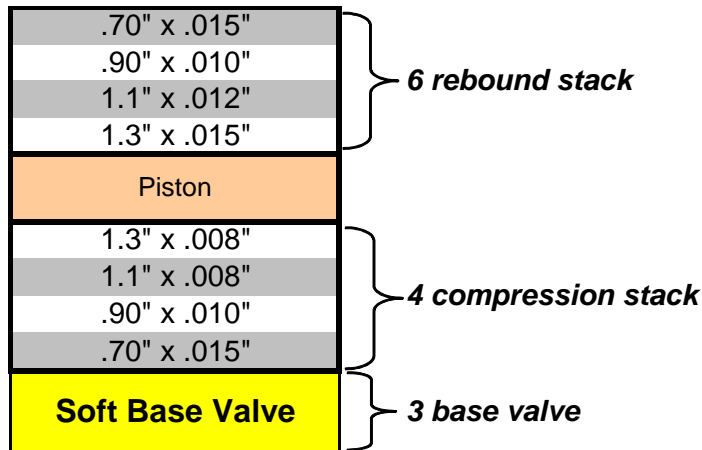
**Examples:**

**Example 1:** You want to build a 62 series 3-5 (3 compression / 5 rebound) valved shock. Follow these steps:

1. Using the build chart, you would use the compression stack from the 3 column and the rebound stack from the 5 column.
2. You can choose to use the dual bleed for any split valve shocks. In this case, the 3 compression uses a 0.059" bleed and the 5 rebound uses a 0.052" bleed. If you choose to use just one bleed, use the rebound 0.052" bleed.
3. Since the compression valve is less than a 6, use the soft base valve. (9055-293)
4. Therefore, the components used in a 62 series 3-5 valved shock will be as follows:

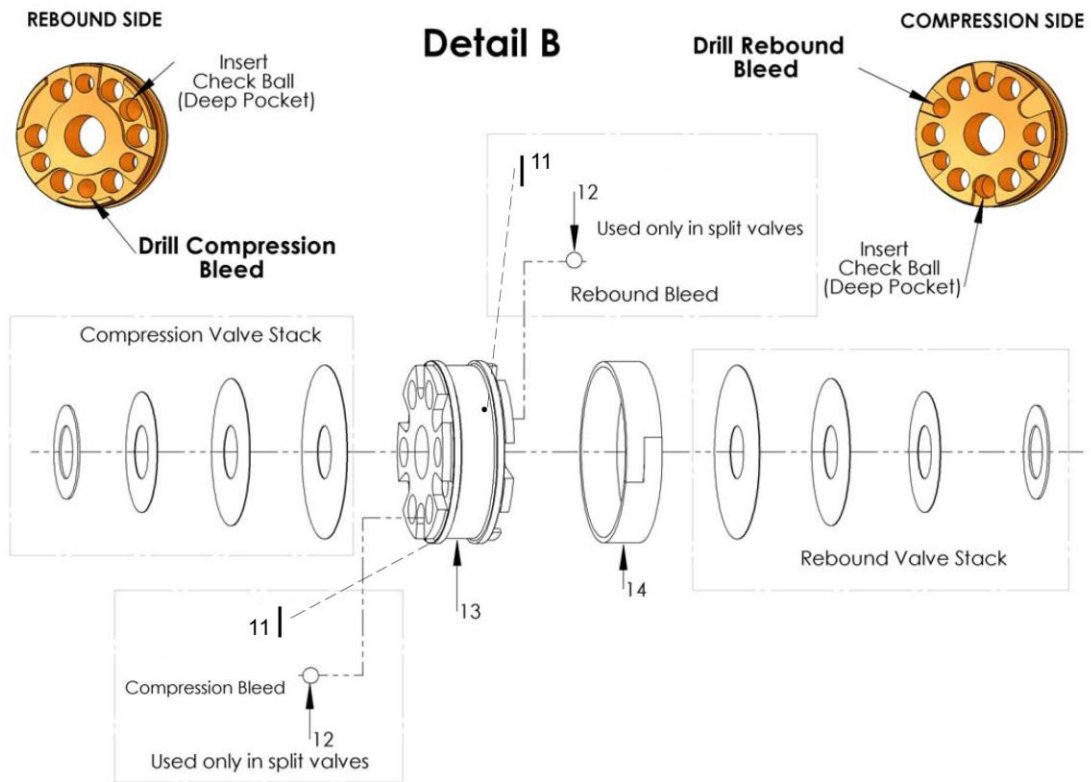


**Example 2:** By following the same steps, a 62 series 4-6 (4 compression / 6 rebound) valved shock would be as follows:

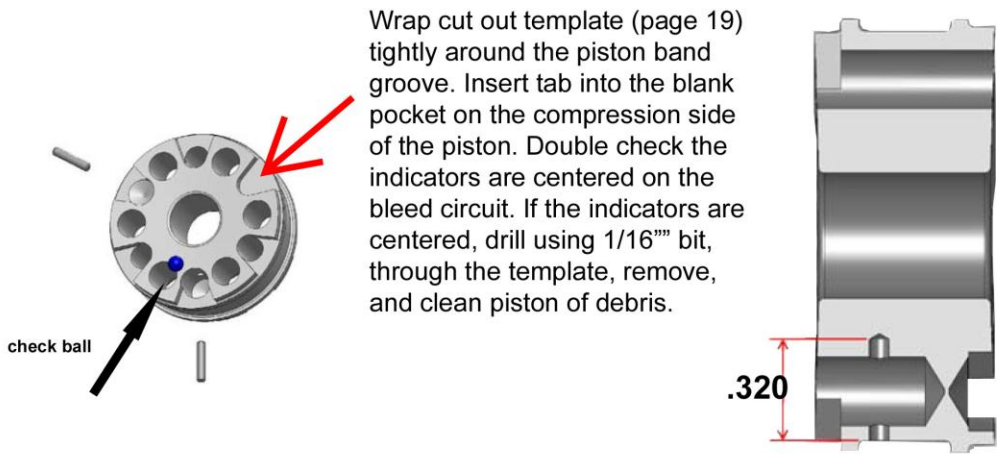


**It is important to remember the following:**

- The base valve is determined by the compression valve code
- The piston compression stack goes on first
- The piston is installed rebound side up
- The piston rebound stack goes on last (closest to nut)

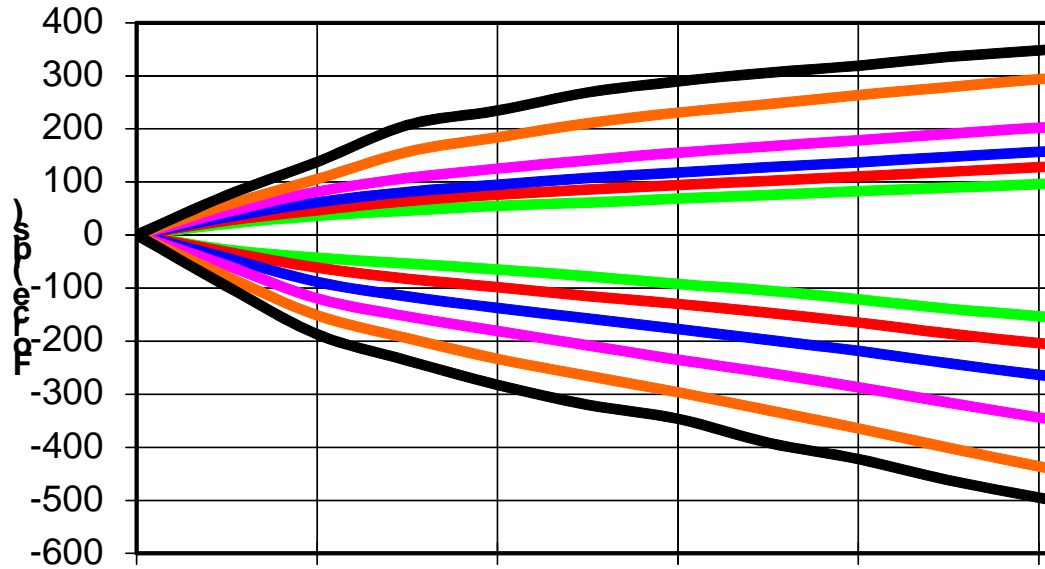


**NOTE: THE COMPRESSION BLEED IS DRILLED FROM THE REBOUND SIDE  
THE REBOUND BLEED IS DRILLED FROM THE COMPRESSION SIDE**



\* Using check balls and pins will require regular maintenance \*

# 62/60/51/50/FC SERIES LARGE BODY SHOCKS 3 - 8 VALVE



FC/50/51/53/60/62 SERIES TUNING GUIDE															
REVISED 5/17/14															
VALVE CODE															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	
Base Valve	Soft: #9055-293						Firm: #9055-122								
Compression	-	-	-	-	-	-	-	-	-	-	-	-	-	.70" x .015"	
	-	-	-	-	-	-	-	-	-	-	-	-	.70" x .015"	.90" x .015"	
	-	-	-	.70" x .015"	.70" x .015"	-	.70" x .015"	.70" x .015"	.70" x .015"	.90" x .012"	.90" x .015"	.90" x .015"	.90" x .015"	1.1" x .015"	1.1" x .015"
	-	-	.90" x .006"	.90" x .006"	.90" x .010"	.90" x .010"	.90" x .012"	.90" x .010"	.90" x .012"	.90" x .012"	.90" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"
	-	1.1" x .006"	1.1" x .006"	1.1" x .006"	1.1" x .008"	1.1" x .008"	1.1" x .012"	1.1" x .010"	1.1" x .012"	1.1" x .012"	1.1" x .015"	1.1" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"
	1.3" x .006"	1.3" x .006"	1.3" x .006"	1.3" x .006"	1.3" x .008"	1.3" x .008"	1.3" x .012"	1.3" x .010"	1.3" x .012"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"
Piston	Bleed $\phi$ .059"	Bleed $\phi$ .059"	Bleed $\phi$ .059"	Bleed $\phi$ .059"	Bleed $\phi$ .055"	Bleed $\phi$ .062"	Bleed $\phi$ .046"	Bleed $\phi$ .040"	Bleed $\phi$ .035"	Bleed $\phi$ .033"	No Bleed	No Bleed	No Bleed	No Bleed	
Rebound	1.3" x .006"	1.3" x .006"	1.3" x .006"	1.3" x .008"	1.3" x .010"	1.3" x .012"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	
	-	1.1" x .006"	1.1" x .006"	1.1" x .008"	1.1" x .012"	1.1" x .012"	1.1" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"	1.3" x .015"	1.3" x .015"	1.3" x .015"	
	-	.90" x .006"	.90" x .008"	.90" x .008"	.90" x .010"	.90" x .012"	.90" x .010"	.90" x .015"	.90" x .015"	.90" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"	1.1" x .015"	
	-	-	-	.70" x .015"	.70" x .015"	.70" x .015"	.70" x .015"	.70" x .015"	.90" x .015"	.90" x .015"	.90" x .015"	.90" x .015"	.90" x .015"	1.1" x .015"	1.1" x .015"
	Use 2 VPs	-	-	-	-	-	-	-	-	.70" x .015"	.70" x .015"	.70" x .015"	.70" x .015"	.90" x .015"	.90" x .015"
	-	-	-	-	-	-	-	-	-	-	-	-	-	.70" x .015"	.90" x .015"



