



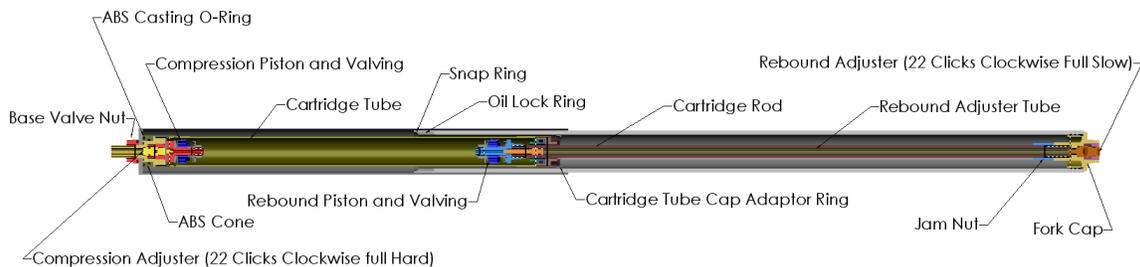
## Revalving and Optional MidValve Installation Procedure



**ADVANTAGE  
PROGRAM**

Making suspension better for everyone

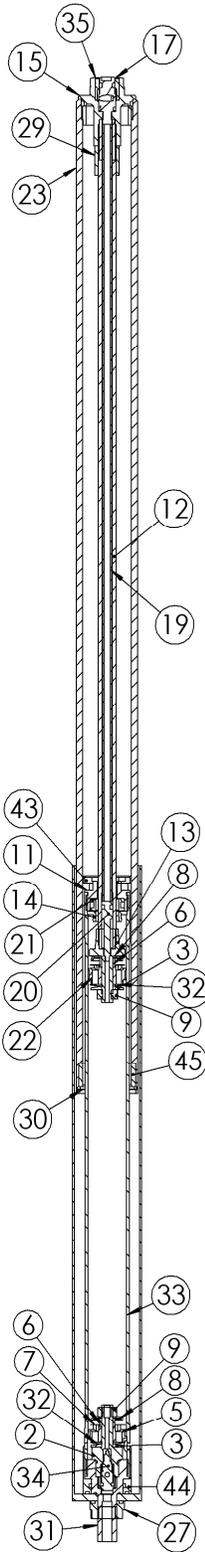
**Models Included:  
20 mm Cartridge Kit**



**Please do not attempt this procedure without proper experience and knowledge of fork cartridges.**

### **Special tools required:**

- 10 mm shaft clamps
- 3/8 inch shaft clamps
- 23.5 mm shaft clamps
- Cartridge cap removal tool (4 pronged torque shaft)



Materials List  
32 mm Boxxer Cartridge Kit

ITEM NO.	QTY.	Description
2	1	comp arbor bolt
3	1	valve stop
5	1	20 comp piston
6	1	check spool
7	1	check valve
8	1	check valve cup
9	1	6 mm nut
11	1	cart tube end cap
12	1	cart rod
13	1	rebound stem
14	1	20 mm top out washer
15	1	fork cap boxxer
17	1	rebound adjuster
19	1	rebound adjuster rod
20	1	rebound needle
21	1	du bushing holder
22	1	20 rebound piston
23	1	Boxxer slider tube
27	1	Nut adapter
29	1	cart rod jam nut
30	1	31 mm snap ring
31	1	Comp bolt adapter 10mm
32	1	comp shims
33	1	cart tube
34	1	high low adj needle-1
35	1	adjuster detent THD
36	1	check valve cup
37	1	check spool
38	1	check valve
39	1	comp shims
40	1	valve stop
41	1	6 mm nut
42	1	boxxer casting dim
43	1	Cart tube end cap adaptor ring boxxer
44	1	abscone boxxer
45	1	Boxxer abs insert



## Removing the Cartridge kit from the fork:



Loosen fork cap, if needed reinstall in lower crown and tighten pinch bolts to prevent tube from spinning when removing the fork cap



Unscrew on the fork cap



Loosen the jam nut from the fork cap



Loosen the base bolt nut and remove



Dump any remaining oil into a collection tank and remove the cartridge kit from the fork, cycle the rod to remove any remaining oil.



Check to see if the ABS cone can be removed easily by checking to see how easy it spins, if hard to spin then go to next step.



Remove the ABS cone from cartridge bottom, if hard to remove then take care not to damage the cone, use a long plastic pipe, slide it over the cartridge tube and gently tap it off the end.



Remove Cartridge rod jam nut



Remove rebound adjuster rod



Place compression bolt adaptor in 10 mm shaft clamps



Slip the cartridge cap removal tool over the cartridge rod



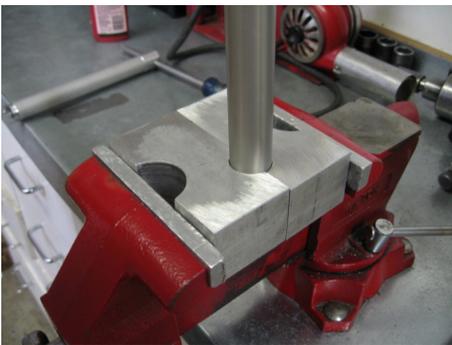
Apply torque to loosen the compression bolt adaptor



Retighten the compression bolt adaptor by hand, this will give the shaft clamps something to clamp against so the tube will not be crushed



Using 23.5 mm shaft clamps, insert the lower cartridge tube



Tighten the shaft clamps, if shaft clamps are not available a .25 inch rod can be inserted in the tube compression release holes and be used to resist the torque applied by the cap removal tool



Loosen the cartridge cap, if it will not break free with medium torque then apply some heat to the out side of the cartridge tube in the area of the threads with a small propane torch.



Remove the cartridge tube cap



Remove the compression bolt adaptor assembly



Inspect the assembly for damage or debris, if so then further inspect the fork for the cause.



Insert the compression bolt assembly into the 10 mm shaft clamps



Tighten the jaws enough to prevent the assembly from spinning when the torque is applied



Remove the retaining nut with a 10 mm wrench



Carefully disassemble the compression base valve



Remove check valve plate parts



Remove compression piston valve



Remove compression valving shims and set aside for revalving



Remove cartridge rod assembly from cartridge tube



Loosen rebound piston nut while holding cartridge rod in 3/8 inch shaft clamps

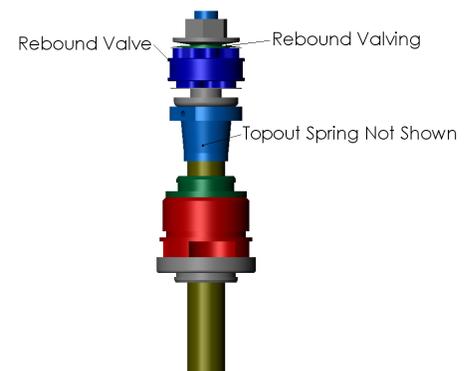
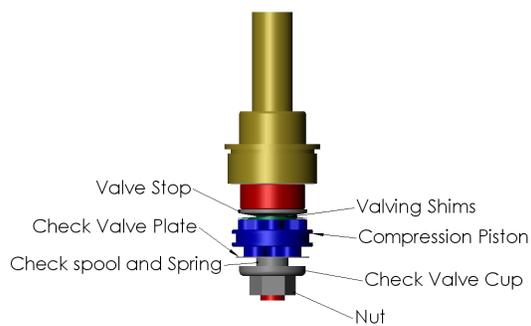


Remove nut and rebound piston



Remove the shim stack and set aside for revalving

## Revalving the Cartridge Kit:



You can purchase revalving kits from Avalanche or [RacingSuspensionProducts.com](http://RacingSuspensionProducts.com) sells individual shims. All shims are 6 mm inside diameter and need to be of damper quality steel available for MX suspension systems. Below are suggested starting shim configurations for different types of riding, any combination of each chart can also be used to help fine tune your damper preference. These are for guidance only and vary depending on set-up info.

**Dual Crown 165 lbs, expert, coil spring**

Standard **DH** Valving:

Compression	Rebound
17x.10	17x.10
15x.10	12x.10
16x.10	10x.10
15x.10	16x.10
14x.10	15x.10
13x.10	14x.10
12x.10	12x.10
11x.10	10x.10
10x.10	8x.20
8x.20	

Optional **Urban** Stiffer Compression/Slower Rebound Valving:

Compression	Rebound
17x.10	17x.10
16x.10	13x.10
15x.10	10x.10
14x.10	17x.10
13x.10	16x.10
12x.15	14x.10
11x.15	12x.10
10x.15	10x.10
8x.20	8x.20

Optional **Freeride** Slightly firmer High Speed Compression/Slower Rebound Valving:

Compression	Rebound
17x.10(2)	17x.10
15x.10	12x.10
16x.10	10x.10
14x.10	17x.10
13x.10	16x.10
12x.10	14x.10
11x.15	12x.10
10x.15	10x.10
8x.20	8x.20

Optional Soft **All Mountain** Much Softer Compression/ Much Faster Rebound Valving:

Compression	Rebound
17x.10	17x.10
13x.10	11x.10
16x.10	9x.10
14x.10	16x.10
12x.10	14x.10
10x.10	10x.10
8x.20	9x.10
	8x.20

**Single Crown 165 lbs, expert, air spring**

Standard **DH** Valving:

Compression	Rebound
17x.10	17x.10(2)
15x.10	12x.10
16x.10	10x.10
14x.10	16x.10
13x.10	14x.10
12x.10	13x.10
11x.10	12x.10
10x.10	10x.10
8x.20	8x.20

Optional **Urban** Stiffer Compression/Slower Rebound Valving:

Compression	Rebound
17x.10(2)	17x.10(2)
16x.10	13x.10
15x.10	10x.10
14x.10	17x.10
13x.10	16x.10
12x.15	14x.10
11x.15	12x.10
10x.15	10x.10
8x.20	8x.20

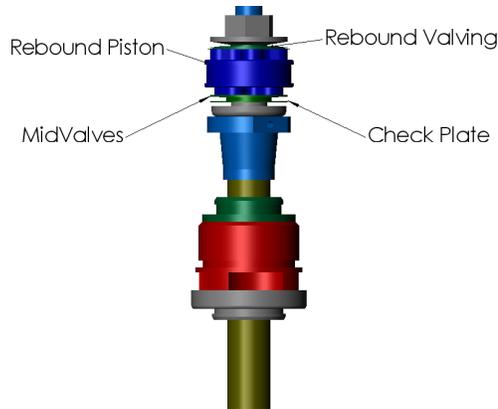
Optional **Freeride/Enduro** Slightly firmer High Speed Compression/Slower Rebound Valving:

Compression	Rebound
17x.10	17x.10(2)
15x.10	13x.10
16x.10	10x.10
15x.10	16x.10
14x.10	15x.10
13x.10	14x.10
12x.10	13x.10
11x.15	12x.10
10x.15	10x.10
8x.20	8x.20

Optional Soft **All Mountain** Much Softer Compression/ Much Faster Rebound Valving:

Compression	Rebound
17x.10	17x.10(2)
14x.10	12x.10
16x.10	9x.10
14x.10	16x.10
12x.10	14x.10
10x.10	12x.10
8x.20	10x.10
	9x.10
	8x.20

## Setting up your optional Midvalve



This optional kit consists of MidValve shims stacked in front of the rebound check plate. This allows the check plate to limit the flow on very low speed fork movements by reducing the gap or "Float" that the check plate can open, and as the speed increases the amount the MidValve shims bend open will prevent fork dive from heavy braking, jump faces or rolling bumps. Because the check plate is stacked with shims, at higher fork speeds the MidValve and check plate will open completely allowing the MidValve to flow more oil without any harshness. This MidValve can be tailored to your type of riding by changing the shim configuration to increase the gap or "Float" and or change the stiffness of the stack to determine at what speed the MidValve transitions to a check valve.

### MidValve Setup Chart

	<b>Least dive firmer midstroke</b>	<b>Med Dive firmer midstroke</b>	<b>Standard dive standard midstroke</b>	<b>Standard dive lighter midstroke</b>	<b>More dive lighter midstroke</b>
<b>Float</b>	.10 mm	.20 mm	.25 mm	.30 mm	.40 mm
	17x.10	17x.10	17x.10	17x.10	17x.10
	17x.10	17x.10	17x.10	17x.10	17x.10
	17x.10	17x.10	17x.10	17x.10	17x.10
	17x.10	17x.10	17x.10	17x.10	14x.10
	17x.10	15x.10	15x.10	15x.10	12x.10
	15x.10	13x.10	13x.10	13x.10	10x.10
	13x.10	11x.10	11x.10	11x.10	10x.15
	11x.10	10x.15	10x.10	10x.10	10x.15
	10x.10	6(10x.20)	6(10x.20)	10x.15	5(10x.20)
	6(10x.20)			5(10x.20)	

## Reassembling with a optional MidValve



Install the check spring, spool and check valve cup



Install the midvalve shim stack with the thicker check plate shim installed

first



Install the rebound piston and rebound valving, the recessed side toward the check spool, shims from larger to smaller.



Be sure the shims install correctly and none are jammed or missing, then install the tapered valve stop with the taper facing the shims



Install the washer and retaining nut with red loctite



Tighten the retaining nut with a 10 mm wrench and torque to 6 in-lbs

## Reassembling Your Damper



Install the tapered valve stop(up), the compression shims, compression piston with the recess facing up towards the spool, the spool, the check plate, ccheck spring cone facing down, the check valve cup facing down and start the 6 mm retaining nut with some red loctite.



Tighten the retaining nut with a 10 mm wrench to 6 in-lbs



Install the cartridge rod assembly into the cartridge tube, make sure the top out assembly is in place



Apply a drop of red loctite to the threads



Install the compression bolt assembly with a little grease on the compression piston o-ring and the threads



Install the compression bolt assembly in the 10 mm shaft clamps



Lightly torque the cartridge tube cap, tube and compression bolt as one, do not over tighten as it will deform the cartridge tube.



Install the ABS cone, apply a little grease to the inside o-ring to ease assembly



Grease the oil and dust seals with your favorite slippery grease



Insert the slider tube



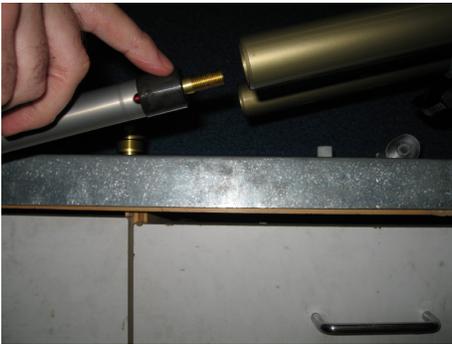
Prepare the cartridge kit as shown, remove the fork cap



Use RTV to help secure the -018 o-ring to the bottom of the ABS cone



Inset the o-ring into the bottom groove



Insert the cartridge assembly into the slider/lower leg, take care to not knock off the base o-ring



Guide the cartridge assembly thru the entire slider tube



Line the 10 mm adaptor bolt to the lower hole



Push it thru until the ABS cone bottoms on the lower leg



Prepare the 10 mm adaptor nut with RTV to help secure the -014 o-ring



Thread the nut with the o-ring facing the lower leg



Tighten the nut to 10-15 in-lbs



Measure out 150 cc (standard amount) of cartridge fork oil 85/150



Pour oil into upper leg being careful not to spill any



Cycle rod to remove any air bubbles and insert the rebound adjust rod



Screw on the fork cap



Make sure the fork cap bottoms on the cartridge rod before the jam nut



Bring the jam nut up to the fork cap and tighten with a slight squeeze on the two wrenches, approximately 10 in-lbs, be careful not to over tighten as these parts can easily be damaged



Screw on the fork cap



Tighten fork cap hand tight

The fork can now be reassembled with the crowns and installed on your frame as described by your owners manuals.

Adjustments and internal settings are described in more detail in the following pages. The fork cap adjuster is the low speed rebound and the standard setting is 12 clicks out (counterclockwise) from full hard. The 10 mm adaptor bolt contains the low speed compression adjuster and the standard setting is 12 clicks out (counterclockwise) from full hard. It can be turn by inserting a small (3.75 mm wide max) flat blade screwdriver up into the lower leg adaptor bolt.

### **Set-up Options:**

#### **Oil Type:**

Recommended oil:

[Golden Spectro 85/150 Cartridge Fork Fluid 5wt or equivalent](#)

Pro Honda HP Fork Oil 5wt

Pro Circuit Fork Fluid PC-01

Yamalube 01 Suspension Oil / KYB 01

Bel-Ray Fork Fluid 5wt

There are many others that we have not tested but as long as they say for Cartridge Forks and or 85/150 rating they will work fine, all 5 wt fork oils are not the same so beware of lesser quality oils that may foam up easily

#### **Wet/already assembled: Check supplied set-up chart before using these heights below**

Standard height from top fully compressed: 125 mm dual crown, 35 mm single crown

Optional Stiffer height from top fully compressed: 120 mm dual crown, 30 mm single crown

Optional Softer height from top fully compressed: 130 mm dual crown, 40 mm single crown

#### **Compression and Rebound Settings:**

*These are rough starting points, adjustments will vary from rider to rider*

#### **Standard:**

Compression 12 clicks out from full clockwise

Rebound 12 clicks out from full clockwise

**Downhill roots/rocky conditions:**

Compression 17 clicks out from full clockwise

Rebound 15 clicks out from full clockwise

**All Mountain smooth/drops conditions:**

Compression 8 clicks out from full clockwise

Rebound 10 clicks out from full clockwise

**Urban large drops to flat conditions:**

Compression 5 clicks out from full clockwise

Rebound 8 clicks out from full clockwise

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