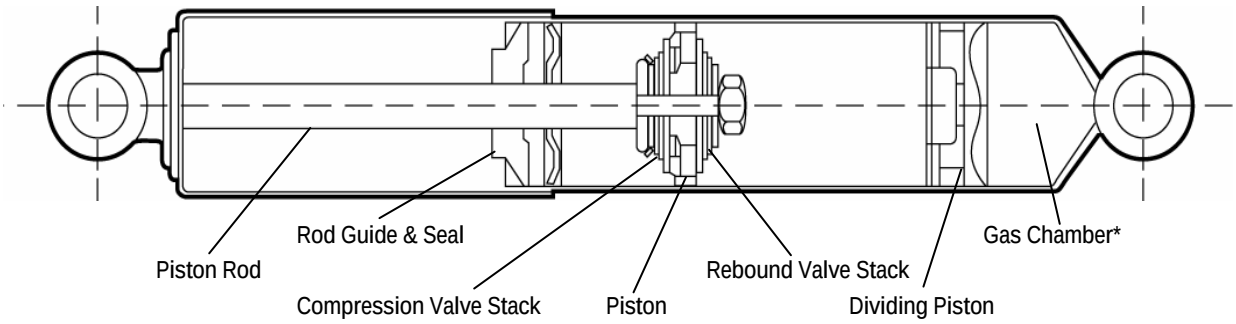
BILSTEIN 7100 Series Guide

Basic Construction



For remote reservoir shocks, the Dividing Piston and Gas Chamber are located in the reservoir

Disassembly Procedure *(Always use safety glasses while servicing shocks)*

1. Release gas pressure from Schrader Valve on shock tube or the remote reservoir end cap.
2. Remove the "press fit" gold wiper cap by inserting a sharp, wedged chisel into gap and tapping lightly.
2. Depress rod guide into tube & remove outer snap ring
3. Utilizing the 46mm Disassembly Tool (part# 193434), and 2 flat head screwdrivers, remove rod guide from shock tube. (Use the Disassembly Tool for leverage, fit the flat head of the screwdrivers into the outer rod guide groove and pop guide up.) ***See illustration #1***
4. Remove inner snap ring
5. Slide out piston rod assembly from the shock tube. Drain oil if needed.

illustration #1

Using the Bilstein 7100 Series disassembly collar (part #193434) as a fulcrum point, pry the rod guide out of tube using two flat-bladed screwdrivers. Note: Do not use excessive force.

Assembly Procedure

1. ***Set dividing piston (see oil fill levels pg.2) and refill shock with Bilstein High Temp Racing Oil (If needed)***
2. Repeat the disassembly procedure in reverse & loctite gold cap. Fill with nitrogen gas to **180 - 220 PSI**.

Replacing 1 Pc. Seal / Rod Guide

1. Follow disassembly procedure. ***Given above***
2. Remove piston and valving assembly. **Important note**: Keep valve discs in order. The damping rate will vary if the valve discs are re-assembled in the wrong order. (Note: typically, discs are assembled in descending order.
3. Remove old 1 pc. seal/rod guide from piston rod.
4. Replace with new 1 pc. Seal / rod guide using installation needle (part #194570). ***See illustration #3***
5. Install piston and valve disc assembly. Use Red Loctite(271) on nylock nut. **Torque to 7 lbs.**
5. Assemble shock absorber following assembly procedure given above.

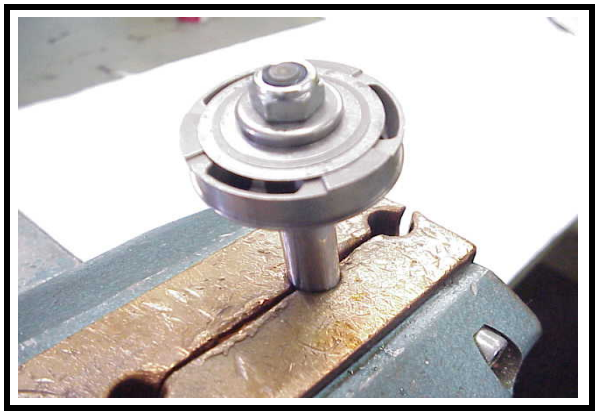


illustration #2

illustration #3

Revalving

1. Disassemble shock. ***Follow instructions on page 1***
2. Clamp the rod end and remove nylock nut from piston rod.
3. Remove valve stack.
4. Assemble new valve stack. *Compression side is toward the shaft. Rebound side is toward the nut. U37 Piston has an oval shaped marking on the rebound side. This mark should be facing toward nut.*
5. Install Nylock nut using **271** "red" Locktite. **Torque to 7 lbs.**

Established Off-Road Valve Stacks

Rebound								
Plate	**150/50**	**170/60**	**180/75**	**275/78**	**255/70**	**360/80**	**345/135**	**360/160**
Washer	21X2	21X2	21X2	21X2	21X2	21X2	21X2	21X2
plate #7								
plate #6		20 x .50	20 x .50	17 x .50	18 x .50	18.5 x .50	19 x .50	18 x .50
plate #5	22 x .50	22 x .50	22 x .50	22 x .50	22 x .50	22 x .50	22 x .45	22 x .50
plate #4	28 x .50	28 x .30	28 x .30	28 x .40	28 x .45	28 x .25	28 x .25	28 x .25
plate #3	32 x .25	32 x .30	32 x .25	32 x .40	32 x .45	32 x .25	32 x .25	32 x .25
plate #2	32.8 x .30	37.4 x .25	37.4 x .30	37.4 x .30	37.4 x .40	37.4 x .35	37.4 x .30	37.4 x .30
Bypass Plate #1	——	18 x .20	18 x .20	18 x .10	18 x .15	——	——	——
Piston	**U37**	**U37**	**U37**	**U37**	**U37**	**U37**	**U37**	**U37**
Bypass Plate #1	18 x .15	18 x .20	18 x .20	18 x .20	18 x .10	18 x .15	——	——
plate #2	37.4 x .20	37.4 x .20	37.4 x .25	37.4 x .25	37.4 x .20	37.4 x .30	37.4 x .30	37.4 x .35
plate #3	32 x .25	32 x .20	32 x .30	32 x .25	32 x .25	32 x .30	32 x .35	32 x .40
plate #4	28 x .20	28 x .25	28 x .35	28 x .35	28 x .30	28 x .40	28 x .40	28 x .40
plate #5	22 x .50	22 x .50	20 x .35	20 x .35	20 x .30	20 x .45	22 x .45	22 x .45
plate #6	19 x .50	19 x .50	19 x .50	19 x .50	18 x .50	15 x .50	13 x .50	13 x .50
plate #7	19 x .50	19 x .50	19 x .50	19 x. 50		15 x .50		
Brake	B46-22	B46-22	B46-22	B46-22	B46-22	B46-22	B46-22	B46-22
Compression								

*Shims listed above are measured in millimeters. (diameter x thickness) To convert to inches, divide by 25.4.

*Custom valve stacks can be ordered upon request. Part #900000

*Shims are designed to control oil flow. Valve stacks consist of 3 basic zones: Low, medium, and high speed. The first 2-3 shims closest to the piston are for low velocity movements. The last 2-3 shims control high velocity movements and the shims in betwee control the medium velocity. A complete list of the available shims is listed on page 5.

Understanding Bilstein Valve Ratings

Damping forces of Bilstein valvings for Off-Road are measured in Newtons at a velocity of 0.52 m/s (approx. 20 inches/sec). The ratings shown correspond to those measurements; rebound force is the first number, followed by compression force (rebound / compression). Conventionally, the ratings are written as one tenth the damping force in Newtons.

EXAMPLE: *Valve rating : 275 / 78*

Rebound force is 2750 Newtons at 0.52

Compression force is 780 Newtons at 0.52

Higher numbers mean higher (firmer) damping forces and vice versa. For example, 360/80 has *more* control (is firmer) than 275/78, while 170/60 has *less* control (is softer) than 275/78.

Oil Fill Levels

Before filling the shock with Bilstein High Temp Racing Oil you must set the dividing piston as given below.

Schrader Valve Shock - Initially set dividing piston 5mm from bottom of shock body.					
Oil Volume (ml):	**5" - 235ml**	**8" - 335ml**	**10" - 400ml**	**12" - 465ml**	**14" - 565ml**

Remote Reservoir Shock - Set dividing piston 100mm from open end of reservoir tube. First fill reservoir from fitting w/ 200 ml. Attach reservoir line to shock body and add the balance of the specified oil volume. example: 8" Shock = 200 ml in reservoir and 435 ml in shock. (1ml = .0338 fluid ounces)					
Oil Volume (ml):	**5" - 275ml**	**8" - 615ml**	**10" - 700ml**	**12" - 840ml**	**14" - 885ml**

Routine Maintenance

Gas Pressure - All 7100 Series shocks must be checked regularly for proper gas pressure. Bilstein recommends using **180 - 220 P.S.I.**. You should experiment with pressure to find what best suites your application. ***Always use safety glasses when adjusting pressure. Use nitrogen only!***

Nickel Plated Finish - To maintain the Nickel Plated finish through its lifetime, keep clean and dry during non-operation. Applying a wax or lubricating oil is required to prevent tarnishing.

FOR MORE INFO CALL THE BILSTEIN OFF-ROAD DEPT. (800) 537-1085

Parts Listings

Part	Description	Price
Rod Guide / Piston Components		
193119	Rod Guide, 1 pc, 46mm	$ 19.95
420110	O-Ring, Dividing Piston, 46mm	$ 1.20
780046	Piston Band, 46mm	$ 5.69
568222	O-Ring, Reservoir End Cap/Rod Guide O.D.., 46mm	$ 0.65
423171	Piston, U37 46mm Linear	$ 9.19
403569	Nylock Nut, 8mm	$ 0.13
420260	Snap Ring (Internal), 46 mm	$ 0.50
419244	Internal Bump Stop	$ 0.75
424920	Wiper, 14mm	$ 2.33
424553	Wiper Cap	$ 7.75
Piston Rods		
428375	Piston Rod, 5" Travel	$ 29.00
428377	Piston Rod, 8" Travel	$ 29.00
428386	Piston Rod 9.6" Travel (for B46-1103)	$ 29.00
422062	Piston Rod, 10" Travel	$ 29.00
428385	Piston Rod, 12" Travel	$ 29.00
420335	Piston Rod, 14" Travel	$ 29.00

Part	Description	Price
428378	Challenger Rod Front	$ 29.00
420335	Challenge Rod Rear	$ 29.00
Rod End Components		
193287	Rod End (Standard)	$ 9.50
458515	Rod End (1" Extended)	$ 40.49
194476	Uniball, 1/2"	$ 13.27
194453	Heim Spacer, 1/2"	$ 1.07
423437	Heim Spacer, 1/2" to 12mm Reducer	$ 3.42
193440	Heim Clip	$ 0.43
Shock Bodies		
198177	Shock Body, 5" Schrader	$ 63.00
198178	Shock Body, 5" Reservoir	$ 63.95
198179	Shock Body, 8" Schrader	$ 63.95
198180	Shock Body, 8" Reservoir	$ 63.95
198181	Shock Body, 10" Schrader	$ 63.95
198182	Shock Body, 10" Reservoir	$ 63.95
198183	Shock Body, 12" Schrader	$ 63.95
198184	Shock body, 12" Reservoir	$ 63.95
198185	Shock Body, 14" Schrader	$ 63.95
198186	Shock Body, 14" Reservoir	$ 69.95
198194	Shock Body, B46-1085 w/ Schrader Fitting	$ 31.65
198195CPC	Shock Body, B46-1085 w/ Reservoir Fitting	$ 46.95
Reservoir Assembly		
198154	Reservoir Tube, 46mm	$ 64.95
194016	Reservoir Endcap, 46mm Complete	$ 21.36
183022	Dividing Piston, Complete, High Impact Plastic	Inquire
407074	Dividing Piston, Complete, Steel	$ 2.50
194918	Hose, -6 (per ft.)	$ 6.70
194912	Fitting, Straight	$ 6.30
194913	Fitting, 45 Degree	$ 13.25
194914	Fitting, 90 Degree	$ 14.35
420110	O-Ring Dividing Piston	$ 1.20
Coil Hardware, B46-1103		
426425	Spring Hat, 2.5" ID Coil	$ 14.00
420436	Spring Seat, 2.5" ID Coil	$ 13.00
411695	Lock Ring	$ 11.00
Misc. Parts		
191001	Schrader Valve	$ 2.85
421360	Stem Bushing, B46-1085	$ 1.95
421862	Shaft Bump, B46-1103	$ 9.00
1949237	Reservoir Buffer	$ 2.13
191064	Reservoir Clamp	$ 1.25
194207	Bung, -6 Weld On	$ 9.60
422188	Shaft Bump, B46-1085	$ 1.25
Rebuild Components / Oil		
193434	Disassembly Tool, 46mm Rod Guide	$ 22.79
194570	Rod Guide Installation Needle, 14mm Piston Rod	$ 22.37
193000	MST-3000 Gas Filling Tool	$ 112.79
193020	Oil Beaker	$ 15.30
194131	Oil, 1 Gallon	$ 21.80

Valve Plates

Part	Description (Valve Plate: Width/Diameter, mm)	Price
415410	13/.50	$ 1.00
415414	15/.50	$ 1.00
415500	18/.10	$ 1.00
415520	18/.15	$ 1.00
415540	18/.20	$ 1.00
415560	18/.25	$ 1.00
415420	18.50/.50	$ 1.00
415421	19/.50	$ 1.00
415740	20/.20	$ 1.00
415760	20/.25	$ 1.00
415780	20/.30	$ 1.00
415800	20/.35	$ 1.00
415820	20/.40	$ 1.00
415840	20/.45	$ 1.00
415860	20/.50	$ 1.00
415960	22/.20	$ 1.00
415980	22/.25	$ 1.00
416500	22/.30	$ 1.00
416520	22/.35	$ 1.00
416540	22/.40	$ 1.00
416560	22/.45	$ 1.00
416580	22/.50	$ 1.00
416620	24/.20	$ 1.00
416690	24/.25	$ 1.00
416630	24/.30	$ 1.00
416670	24/.35	$ 1.00
416650	24/.40	$ 1.00
416640	24/.50	$ 1.00
416680	24/.60	$ 1.00
417620	28/.20	$ 1.00
417630	28/.25	$ 1.00
417640	28/.30	$ 1.00
417650	28/.35	$ 1.00
417660	28/.40	$ 1.00
417670	28/.45	$ 1.00
417680	28/.50	$ 1.00
417700	28/.60	$ 1.00
417900	30/.20	$ 1.00
417920	30/.25	$ 1.00
417940	30/.30	$ 1.00
417960	30/.35	$ 1.00
417980	30/.40	$ 1.00
418500	30/.45	$ 1.00
418520	30/.50	$ 1.00
419620	32/.20	$ 1.00
419640	32/.25	$ 1.00
419660	32/.30	$ 1.00
419680	32/.35	$ 1.00
419700	32/.40	$ 1.00
419720	32/.45	$ 1.00

Part	Description (Valve Plate: Width/Diameter, mm)	Price
419740	32/.50	$ 1.00
429900	37.4/.20	$ 1.00
429990	37.4/.25	$ 1.00
429910	37.4/.30	$ 1.00
429960	37.4/.35	$ 1.00
429560	37.4/.40	$ 1.00
429980	37.4/.45	$ 1.00
427700	37.4/.50	$ 1.00