MOTO X CROSS MUSEUM GUIDE

HOW TO REBUILD FOX AIR SHOX

REBUILDING FOX AIR SHOX

The FOX Air Shox was one of the most successful after market products for the serious Motocross racer in the second half of the seventies. Therefore it is not surprising to find the product still in demand for Vintage MX. The shocks can regularly be found for sale on various Vintage MX classified sites. However the shocks you are buying are used- so what is available for restoring or rebuilding the shocks? Surprisingly there are a number of sources which offer rebuild kits and rebuild services for the Air Shox, including the original product manufacturer, FOX Racing Shox. To see just what could be done, we set off to FOX Racing Shox with two sets of used FOX Air Shox to be rebuilt. Follow along as Josef at FOX Racing Shox, rebuilds our shocks.

DETERMINING THE SHOCKS CONDITION

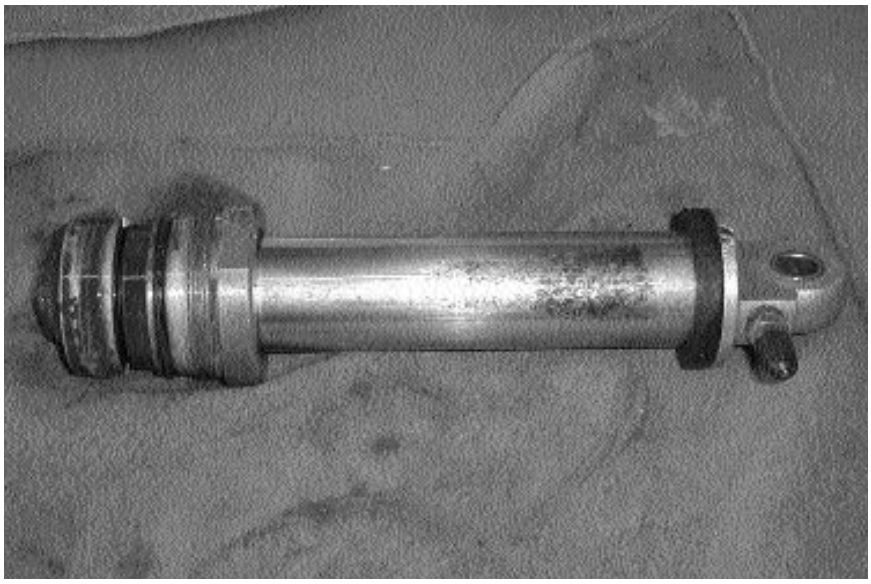
Start by inspecting the condition of the Air Shox. The shock should be cleaned before inspecting. Since we are going to be replacing the seals, etc., we cleaned the shock using a standard solvent parts cleaner. Clean out between the fins using a stiff brush. For normal maintenance, a good soap and water mixture should be used.

FIGURE 1

The FOX Air Shox is not painted, but uses an anodized finish to protect the aluminum body. You should not paint the body, as that will reduce the shocks cooling ability. The body needs to be as clean as possible, as any dirt on the body will decrease the cooling ability of the shock.

Check the shock parts for any physical damage. While scrapes on the main body don't look nice, they will not impair the shocks operation. Inspect the eyelets and lower shaft for physical damage. Figure 2 shows an example of shaft damage. The shaft is pitted and rough. While the shock can still be used, the seals will wear out quickly. Improperly installed shocks were prone to shaft damage from the drive chain. If the shock eyelets, main body or shaft have major physical damage stop here. Replacement parts are not available for these components. The only value the shocks have is as parts.

FIGURE 2



It is possible to fix some types of shaft damage. Pro Action will grind the existing shaft to remove any pitting. The shaft is then chromed plated to the original dimensions and finish. As for the other parts, it may be possible to have a local machine shop build you a new part, but it will not be cheap.

After physically inspecting the external parts of the shocks, its time to check if the high-pressure bladder is okay. Holding the shock with the large-finned end up, carefully depress the upper air valve to release the low-pressure air. It is normal if the air comes out oily, or if oil spurts out the valve. The upper (low-pressure) chamber is an air/oil emulsion. Still holding the shock up right, depress the lower air valve to release the high pressure chamber. If oil comes from the lower air valve, it means the bladder is leaking and needs to be replaced. J.R.'s Machine manufacturers a set of replacement bladders for the FOX Air Shox. See Page 11 for instructions on replacing the high-pressure bladder.

If no bladder is available for your specific size of FOX shock, it is still possible to use the shocks. Both shocks will have to be modified to run without the bladder installed. See the page 13 "No Bladder Available" for more details.

If everything looks good at this stage—then the shocks can be rebuilt. If you want to do the rebuild yourself, you will need to buy a seal rebuild kit, some FOX Racing Shox 5W shock oil, and have access to compressed Nitrogen. If rebuilding the shocks is too big a job for yourself, there are a number of people who have the knowledge and parts required to rebuild the shocks for you. See page 18, "Sources for Air Shox Parts and Service" for details on parts or rebuild services.

The original FOX Air Shox manual recommends Belray LT100 shock oil. Belray now recommends the 5W HVI Racing Suspension Fluid as the replacement for the original LT100 specification. FOX Racing Shox now recommends their own special 5W shock oil for demanding race applications. FOX Racing Shox sells the oil in various size containers specifically for people rebuilding or replacing the oil in the Air Shox.

DISASSEMBLING THE SHOCK

Warning: Never attempt disassembly with the shock pressurized!

FIGURE 3

Mount the shock upside down in a vise using the top eyelet. Use a set of jaw covers to protect the soft aluminum of the shock from being damaged by the vise. Using a 2-inch wrench or a very hi-quality, adjustable wrench, loosen the bearing housing from the upper shock body. See Figure 3.

MOTOXMUSEUM TIP **It is possible for the eyelet to start to unthread from the shock body before the bearing housing starts to loosen. If this happens, tighten the eyelet and then carefully apply heat to the shock body around the bearing section. This will help expand the shock body and loosen the threads on the bearing housing.**

Remove the shaft assembly. Clean out the inside of the shock body. Pay careful attention that no small seal particles or other matter remain in the shock body. Leave the shock body in a position to drain any fluids left inside. Cover the opening in the shock body and place it aside for the assembly phase.

MOTOXMUSEUM TIP **Remember that cleanliness is next to Godliness when working on any precision components such as the FOX Air Shox.**

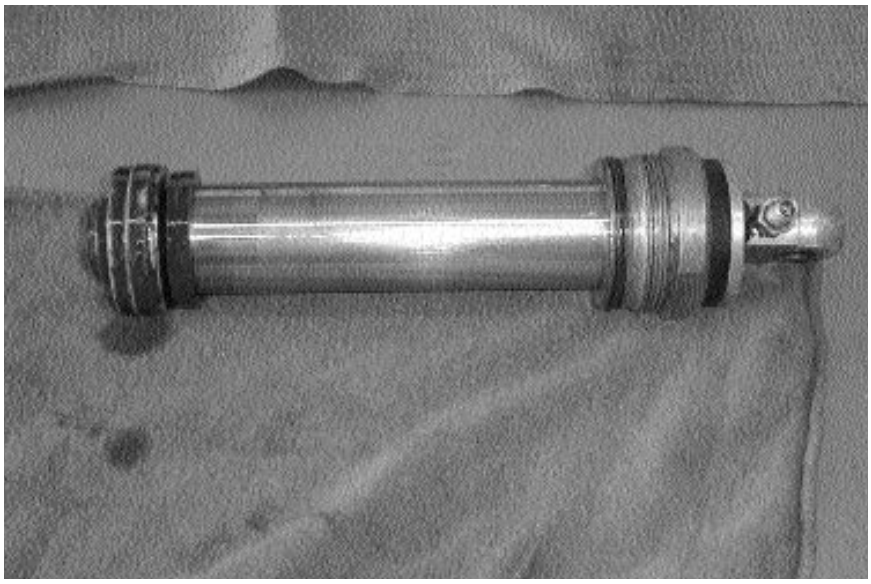
PISTON DISASSEMBLY

Figure 4 shows the shaft assembly after removal from the body. Carefully remove the piston ring from the piston. Be very careful with the piston ring, as there are no replacements available.

Remove the nut holding the piston assembly to the shaft. Use care in holding the shaft still while removing the nut. Any damage to the surface of the shaft will affect the seal life and shock performance. Josef held the shaft still with a set of aluminum blocks clamped securely in the vise.

MOTOXMUSEUM TIP **If the shaft continues to turn, try cleaning the shaft and clamp blocks with contact cleaner. It is also possible to carefully use heat to expand the nut and help make the removal of the nut easier.**

FIGURE 4



Disassemble the piston assembly. Figures 5,6,7 and 8 show the various stages of disassembly. Remove the top out bumper from the shaft. Clean the parts. Figure 9 shows all the parts that make up the piston assembly. Check the shaft for any nicks or small pits. These should be polished out to improve the seal life. Clean all the parts and inspect them for damage.

MOTOXMUSEUM TIP **If the top out bumper is brittle, replace it. Josef uses a US-324 O-ring on each shock as the original top out rubber is no longer available. The US-324 O-ring is .210"cross section and 1.350" inside diameter.**

FIGURE 5

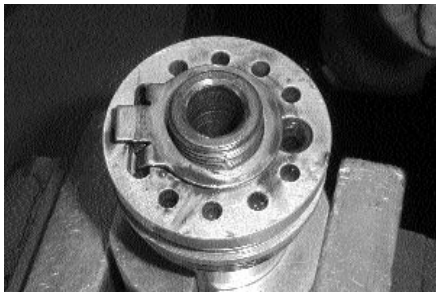


FIGURE 6

FIGURE 7

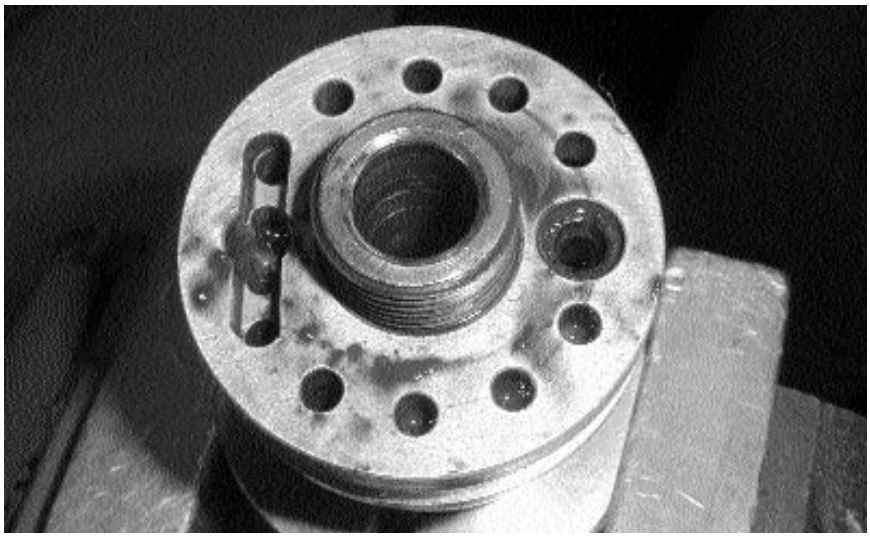


FIGURE 8

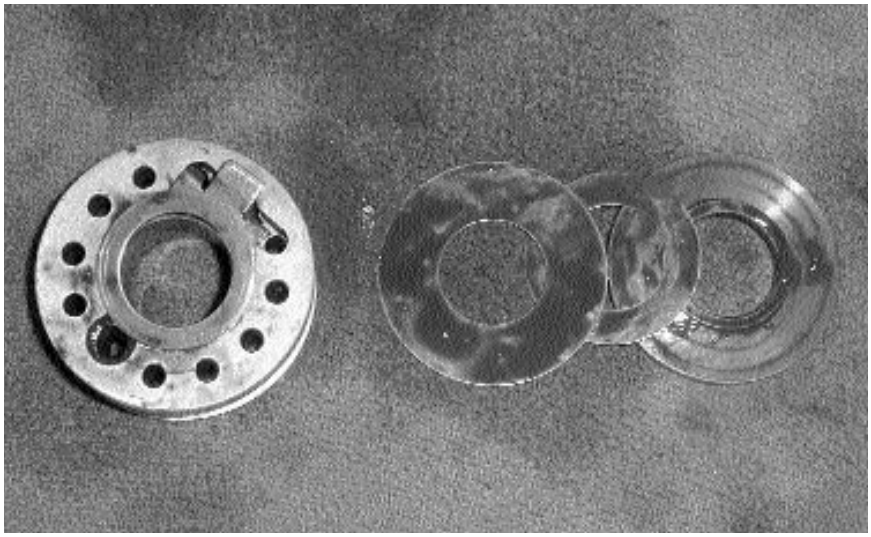
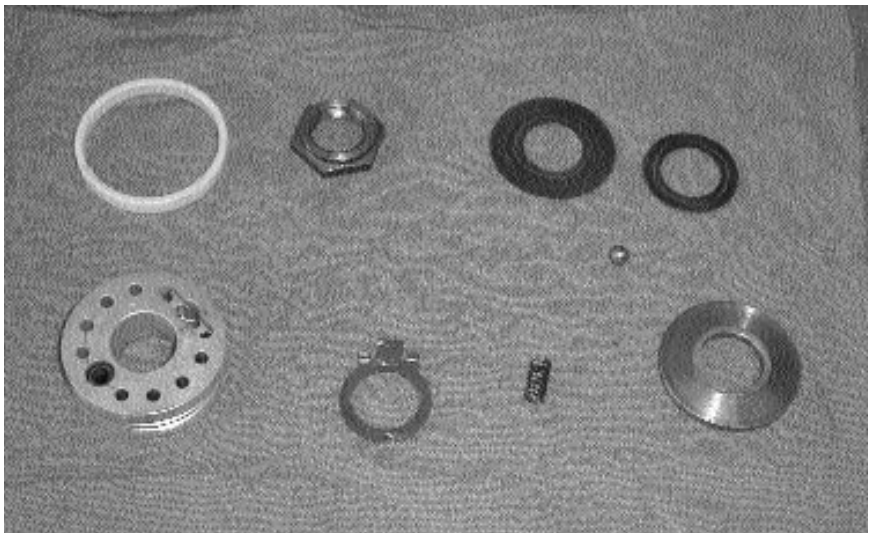


FIGURE 9



SEAL REPLACEMENT

Using a seal removal pick, carefully insert the tool into the wiper seal and pull the seal away from the housing, see Figure 10. A second pick can be inserted behind the seal once it has been pulled away from the housing. The second pick can be used to get a better grip on the seal to help remove the seal without slipping and scratching the bearing housing. If required, the bearing housing can be lightly held in a vise or a helper can insert the second pick while you hold the bearing housing. Remove the seal from the bearing housings. Repeat for the oil seal, see Figure 11. Carefully clean the bearing housing. Use a cotton swab and contact cleaner to make sure all seal parts and residue are removed from the housing.

FIGURE 10

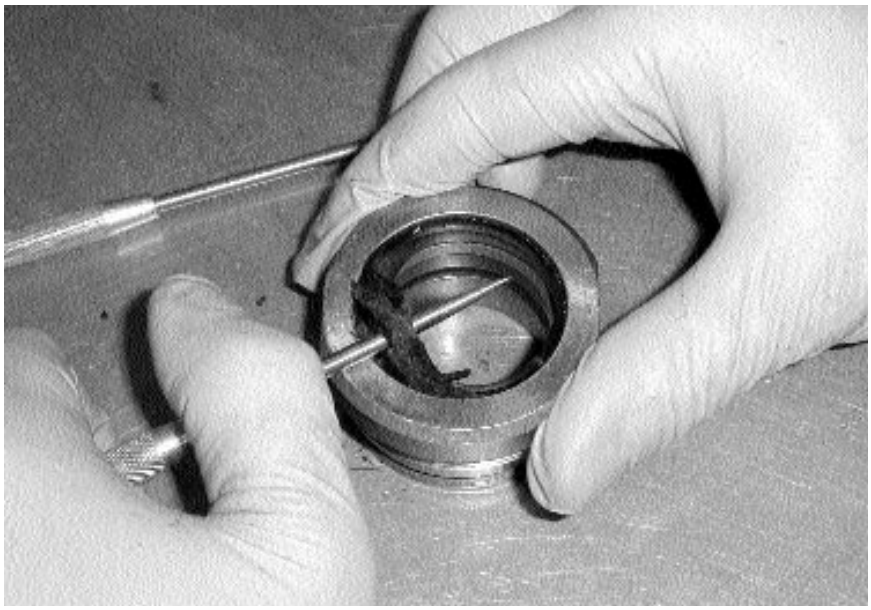


FIGURE 11

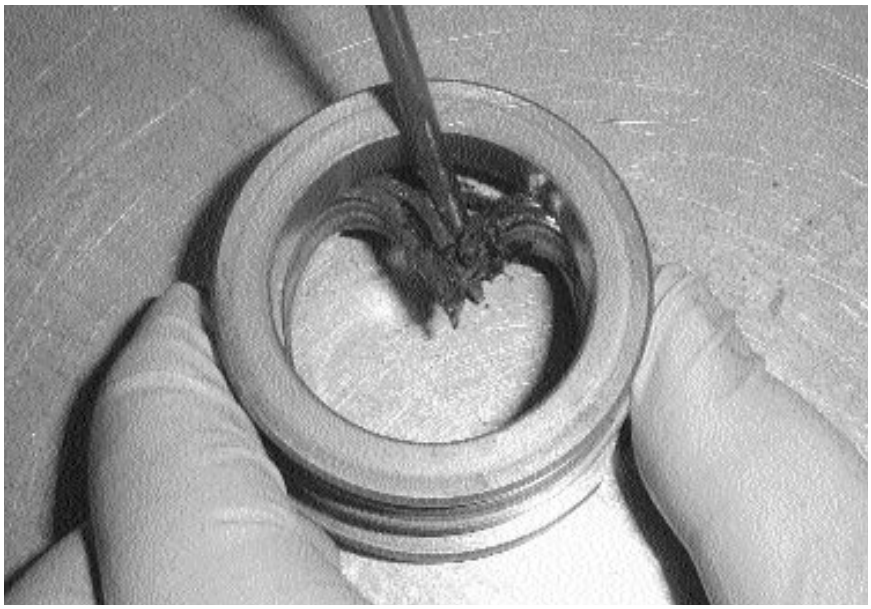


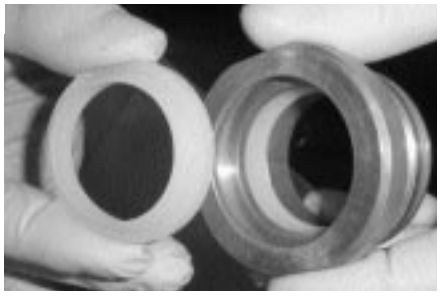
FIGURE 14

Correctly orient the oil seal with the wiper edge towards the screw end of the bearing housing.

FIGURE 15

Lightly secure the bearing housing in the vise and carefully insert the seal into the housing. A small amount of grease can be used to help insert the seal into the housing.

FIGURE 16



Orient the wiper seal with the wiper edge away from the screw end of the bearing housing.

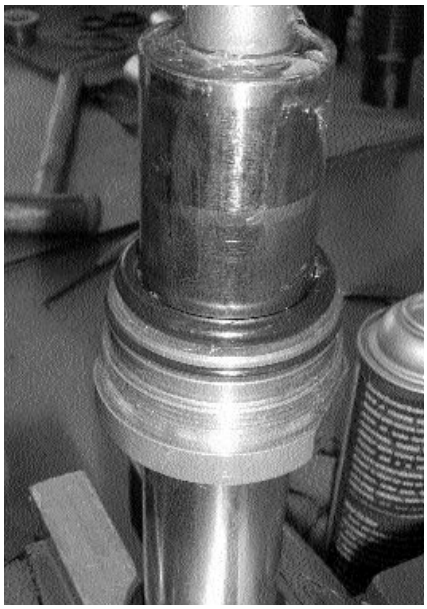
Insert the seal into the housing using the same technique as the oil seal.

FIGURE 17

Figure 17 shows the bearing housing with the new seals installed. Lightly pack the seal and bearing lips with a good quality suspension grease. This improves the seal life and greatly reduces the stiction.

SHOCK ASSEMBLY

FIGURE 19



Place a small amount of grease on the top edge of the shaft. Carefully slide the bearing housing onto the shaft. Take care not to nick the seals when installing the bearing housing. Install the top out bumper. Install the new o-ring on the bearing housing.

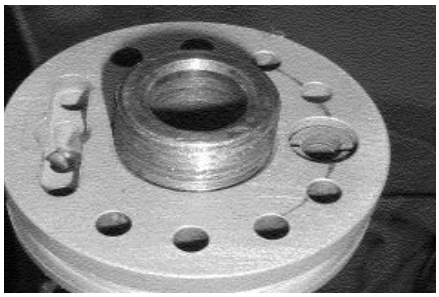
FIGURE 20

Install the top out plate and smaller shim washer on to the piston end of the shaft.

FIGURE 21

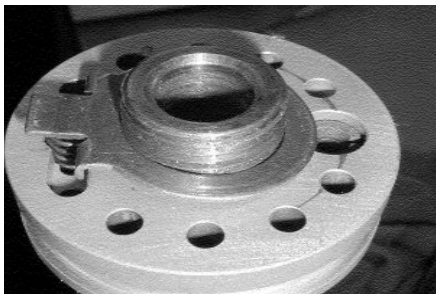
Install the large shim washer.

FIGURE 22



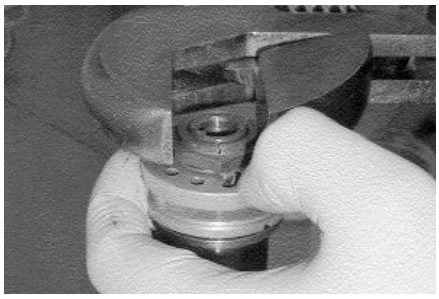
Install the piston. Note the correct orientation of the piston.

FIGURE 23



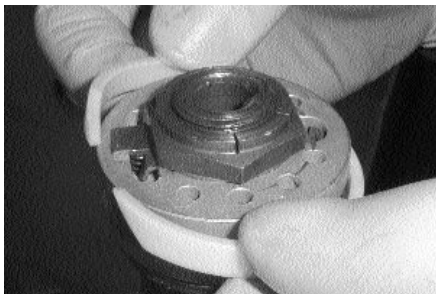
Install the check ball, spring and washer.

FIGURE 24



Install the nut. Carefully hold the washer in place to prevent the wrench from catching and distorting the washer while tightening the nut.

FIGURE 25



Install the piston ring.

FIGURE 26

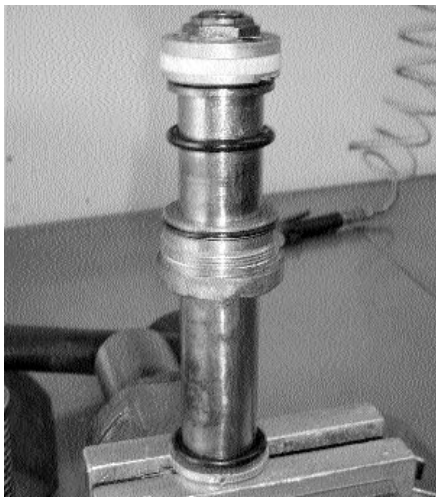
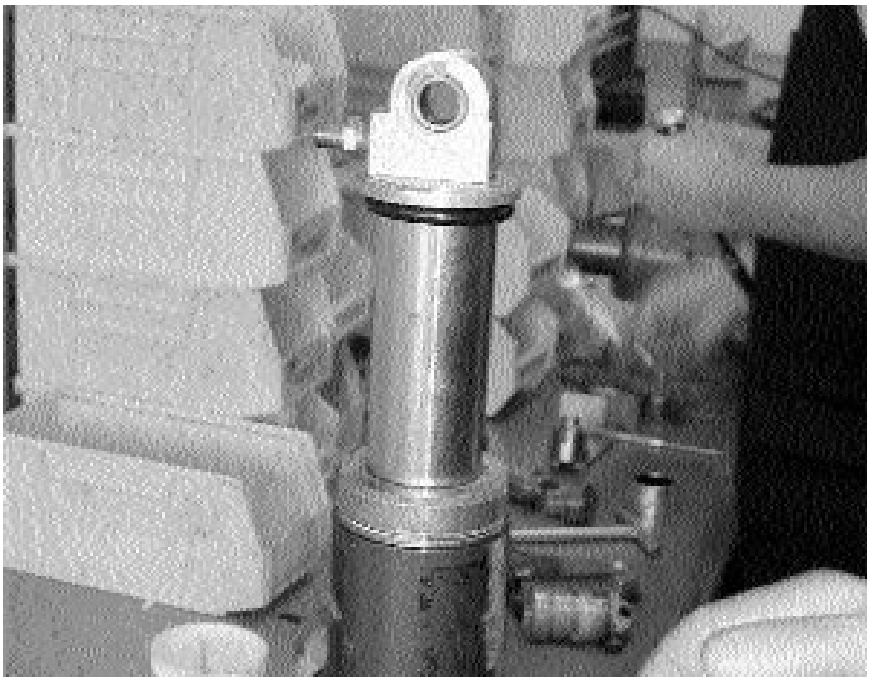


Figure 26 shows the complete rebuild shaft assembly.

FIGURE 27



Fill the shock body with the correct amount of shock oil. Josef used the FOX Racing Shox's own special shock oil. See page 21, "Important Data" for a table showing the amount of oil required for the various shock lengths.

Carefully insert the shaft assembly into the body. Thread the bearing housing into the shock body by hand. Tighten the bearing housing to the shock body using a 2-inch wrench or a hi-quality adjustable wrench.

PRESSURIZING THE SHOCKS

The FOX Air Shox can be filled with air or Nitrogen. While Nitrogen requires a special pressurized cylinder and regulator it does offer several advantages over air. Nitrogen is an inert gas and does not contain contaminants that will cause the shock oil to oxidize or cause the break down of the shocks rubber components. This will result in a consistent shock performance and longer shock life. Nitrogen also changes density less than air when it is heated up. This results in less spring rate increase over the course of a long race.

MUSEUM TIP

If the expense of Nitrogen is outside your budget, FOX Racing Shox makes a super air pump designed for their current bicycle air shox. The pump includes a zero loss air valve connection, built-in air gauge up to 300 psi, and a bleeder valve to adjust the pressure. Definitely the tool to use if you go with air in your shocks. See page 16 for more information.

Fully extend the shocks. Orient the shocks the same way they will be installed on the bike, large end of the shock at the top. Set the high pressure first. This is the lower air valve. Then set the low pressure. It is easier to over pressurize the shocks slightly and then adjust them to the required setting. See page 19, "Recommended FOX Air Shox Settings" for the recommended pressure settings.

REPLACING THE HIGH PRESSURE BLADDER

Replacing the high pressure bladder is not part of the standard shock maintenance or rebuild. The bladder only needs to be replaced if it leaks oil when the bladder is depressurized. FOX Racing Shox no longer makes bladders for the Air Shox. However J.R.'s Machine, in Texas, has made copies of the bladder for the FOX Air Shox. We used J.R.'s long bladders for replacement when we rebuilt our 17½" Air Shox. Follow along, as Jeff at FOX Racing Shox, replaces the bladders.

It is possible to test the bladders once the shock has been disassembled. Put a small amount of pressure in the bladder via the air valve on the shaft. Immerse the shaft in water and look for any leaks. A leak will appear as a steady stream of air bubbles from one specific spot in the shaft. If no air bubbles are found then the bladder is okay.

Clamp the shaft tightly in a vise. Be careful not to damage the shaft with the vise. Jeff uses a pair of aluminum blocks to hold and protect the shaft, see Figure 28. The shock has been completely rebuilt on the example used. The shaft assembly does not need to be disassembled in order to replace the bladder.

The Aluminum blocks, used to hold the shock shaft from turning, has a 1-3/8" bore.

FIGURE 28

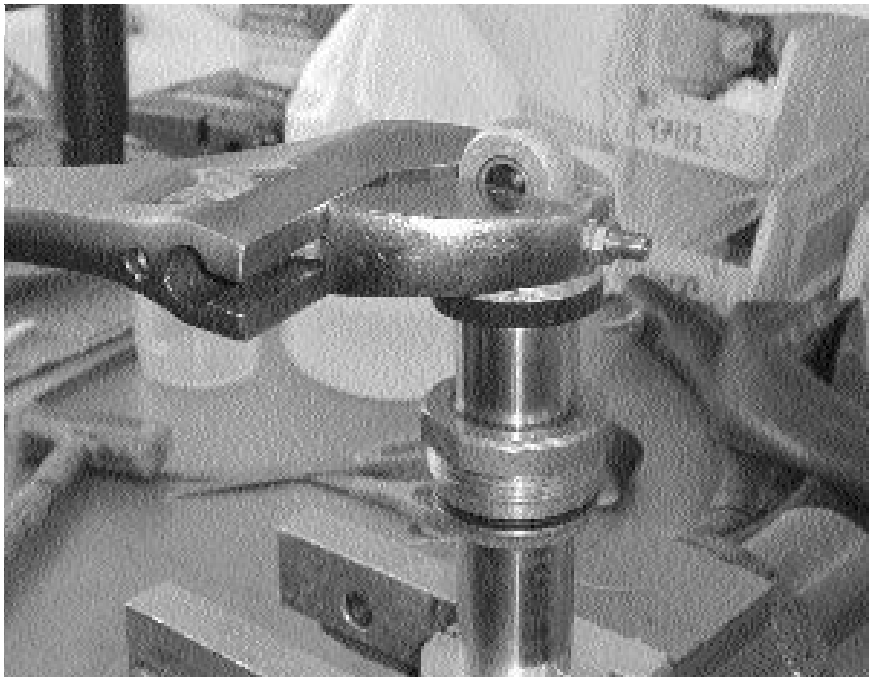


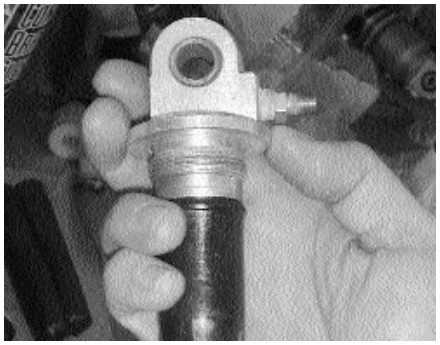
FIGURE 29

Lift up on the eyelet to remove the eyelet and bladder as one assembly. Remove the bladder from the eyelet by pulling the top lip off the bladder of the eyelet.

FIGURE 30

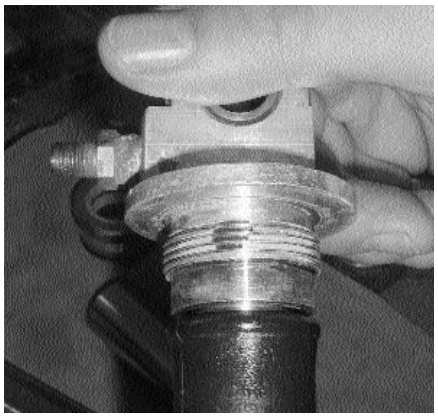
Figure 30 shows the replacement bladders vs. the original bladders. The old bladders have expanded from age and use. The replacement bladders are the correct size.

FIGURE 31



Install the new bladder by fitting the open end up over the lip on the eyelet.

FIGURE 31



Place one SMALL drop of Red Loctite on the eyelet. No more or No less!

Carefully slide the bladder into the shaft. Tighten the eyelet to the shaft. Finish rebuilding the shock by adding the shock oil and installing the shaft assembly into the body. Refer to the page 10 in this guide for specific instructions.

NO BLADDER AVAILABLE, HERE IS WHAT YOU DO

The Air Shox can be rebuilt and used even if the bladder is damaged and no replacement is available. The result is a single spring rate shock compared to the Air Shox's original dual spring rate design. The following is the recommended modifications when no replacement bladder is available.

Remove the bladder following the shock disassembly steps and bladder replacement instructions detailed earlier in this article. Carefully cut the top off the bladder as shown in Figure 32. This removes the main part of the bladder but leaves the portion required to seal the lower eyelet to the shaft. Reassemble the shock, following the same instructions for replacing the bladder.

MOTOXMUSEUM TIP **You will have to determine the bladder's displacement volume before you cut it. This can be measured by putting some water into a graduated measuring device. Record the volume of water in the device. Then inserting the bladder, open end up, until it fills up. Record the volume of water in the device. The difference in the fliud volume is the displacement volume of the bladder.The displacement volume is the amount of oil that will have to be added to the shocks standard oil quantity to adjust for the removal of the bladder.**

When pressurizing the modified Air Shox, you must only use the upper- or low-pressure air valve to pressurize the shock. The initial air pressure should be set at the midpoint between the two air pressures calculated for the original shock application. For example, if the shock was previously set at 85 Psi for the low pressure and 120 Psi for the high pressure, then the modified shock you should use is 102 Psi. Further tuning will be required to optimize the settings. It may also be necessary to modify the amount of oil in the shock to obtain the full travel and performance from the shock.

MOTOXMUSEUM TIP **An alternative recommendation for the air pressure setting is the original single chamber air pressure values. See page 20 for the recommended air pressure settings.**

FIGURE 32

TUNING THE FOX AIR SHOX

One of the greatest features of the FOX Air Shox was the ease in which it could be adjusted, or "tuned" to suit the rider's preference. There is no such thing as the perfect spring rate or damping characteristics for each application or rider. It is really a case of what the rider wants and the bike demands. The following instructions are based upon information supplied in the original FOX manuals.

If you are not an expert class rider, like the author, it will help to use a video camera to analyze the performance of the suspension. There is a good section on how to do this, and suspension tuning techniques in the latest version of Eric Gorr's book; "Motocross & Off-Road Performance Handbook" The book is available from Eric's web site: www.eric-gorr.com

The FOX Air Shox allows for changes in the high and low-pressures values, damping characteristics and oil quantity when tuning the shocks. The single most important variable is the pressure settings.

TUNING THE AIR PRESSURES

The FOX Factory advises starting out with the original recommended low and high pressure settings. Then start to experiment from there, getting the feel of how the bike changes as the air pressures are adjusted.

Remember that in order to understand what a change in any shock setting is, it is important to only change one variable at a time. By changing only one variable and documenting the result, it is possible to collect enough data to determine the changes required for a new track or rider.

LOW PRESSURE GUIDELINES

The low-pressure setting, controls the spring rate for the first 1½ inches of shock travel. Remember this amount of shock travel translates into more when the shock is mounted on the bike. Change the low pressure, 5 Psi at a time.

- A pressure too low, will result in a uneven ride over a rough section of the track normally ridden with the gas full on. What's happening is—the bike is squatting too much under acceleration and not enough travel is left to absorb the remaining bumps.
- A pressure too high, will result in a ride that is overly stiff. This can usually be felt over small bumps and in parts of the racetrack where the bike is not being accelerated.

HIGH PRESSURE GUIDELINES

The high-pressure setting only effects performance on sections of the race track where the shock is using most of the travel to absorb bumps. This includes fast bumpy sections and landings off jumps. Change the high pressure in steps of 10 Psi.

- A pressure too low will result in hard landings off jumps, as the shock is bottoming out. This can be verified by moving the bumper

up the shaft, riding through the section and verify the shock is traveling the full stroke and bottoming out.

- A pressure too high will result in a rough ride and a shock that is possibly not delivering the full travel available. Ensure that you are using all the shock travel by moving the bumper up the shaft. Ride the track and verify the bumper is pushed back to the bottom of the shock.

It is also possible to adjust the spring characteristics of the shock by varying the amount of oil in the shock. If the shock performance is optimal except for a couple of specific sections, consider adjusting the amount of oil in the shock.

TUNING THE SHOCK DAMPING

The Air Shox damping is controlled by an opening in a jet and a pop-off valve. The jet is responsible for slow speed damping and the pop-off valve is used for high speed damping. Originally you could change the size of the hole in the jet and the strength of the pop-off spring to modify the damping. Today the pop-off springs are no longer available. Therefore only the low speed damping characteristic can be changed.

To modify the low speed damping you will need to drill out the original jet or purchase a new jet from an automotive store. The jet used is a standard Holly carburetor main jet. It is recommended that you do not modify the original jet, but purchase a new jet to modify. See page 21, "Important Data" for a table showing the original jet hole size and the minimum and maximum recommended holes sizes.

Although the pop-off springs are no longer available, the same pop off spring rate was not used on every size of shock. Therefore, it may be possible to use a set of pop-off springs from a different size shock as the source for a different pop-off spring. See page 21, "Important Data" for a table showing the relative strength of the various springs used. As well the table shows the recommended softer and harder spring numbers for each size of shock. You may also want to try a different viscosity of shock oil to adjust the high speed damping and then change the jet hole size to obtain the required low speed damping.

TUNING THE SHOCK OIL QUANTITY

The correct quantity of oil in the shock is important for optimal performance of the shock. Too much oil will result in you not getting the full travel from the shock, while too little oil will result in the shock bottoming out hard.

The best method to determine if the oil quantity is okay is to set the air pressure in the shocks to the recommended settings or settings that have worked fine in the past. (i.e.: before replacing the bladders.) Move the bumper up the shock shaft. Test the bike for several laps around the racetrack.

BUMPER NOT RETURNED TO THE BOTTOM OF THE SHOCK.
You are not getting the full travel of the shock. Remove some oil and retest.

BUMPER RETURNED BUT THE SHOCKS WERE BOTTOMING OUT HARD. You are running out of damping fluid before you run out of shock travel. Add some oil and retest.

The FOX Factory recommends removing 5cc of oil for every ¼ inch that you are short of travel. You should also add oil in 5cc steps to cure the sever bottoming out problem. There should never be a requirement to add a large amount of oil (Greater than 20cc with shorter bladders).

ADDING SHOCK OIL

Depressurize the low-pressure chamber. This is the air valve at the large, finned end of the shock. This can be done with the shocks on or off the bike. Remove the air core from the air valve. Fill up a small eyedropper or medicine dispenser with the amount of oil to be added. Add the oil to the shock by squirting it through the vale opening. Re-install the valve core and set the low-pressure setting to the previous value.

It is always a good idea to test that the air valve after changing the pressure to make sure the valve is sealed. This can be done by putting a small amount of saliva on the air valve and checking to see no bubbles are formed.

REMOVING SHOCK OIL

Remove the shocks from the bike. Depressurize the low-pressure chamber. This is the air valve at the large, finned end of the shock. Hold the shock upside down and push in the air valve to drain some of the shock oil. Drain the oil into a small graduated cylinder or suitable measuring device. Be careful to make sure that all the oil goes into the measuring device. Reinstall the shocks on the bike and set the low -pressure setting to the previous value.

ACCURATELY SETTING THE SHOCK AIR PRESSURE

All your tuning of the shock air pressures can be difficult if you can't measure and adjust the air pressures accurately. A normal air pressure gauge will not do the job. At a minimum, you need a t-handle type schrader valve connector or zero loss air valve connector. The connection to the air valve should not allow any air pressure release when you are trying to measure or adjust the pressure.

If you are using air in you shocks, we recommend the FOX Racing Shox air pump. The small volume of the pump makes it easy to make small adjustments in the pressure. The pump has a built-in pressure gauge from 0 -300 Psi, a bleed valve and a zero loss schrader valve connection—and it is very affordable. Contact your local dealer or check www.foxracingshox.com. See figure 33.

If you are using Nitrogen, you can try to locate one of the original FOX pressure gauges. They were available in a hose style or handle style. The hose style had a low pressure (0-60Psi Model for forks and a high pressure (0-200Psi) model for the Air Shox.

FIGURE 33

However the best choice, and easily available today is Motion-Pro's Nitrogen shock gauge and filler. The gauge/filler set is easy to use, available from your local dealer and works well with gas shocks, new and old. Contact your local dealer or check out Motion-Pro at www.motionpro.com.

FIGURE 32

If you notice when you come back to check the shock pressure, it is always lower than you set it—remember that a specific volume of the air in the shock goes into the hose and pressure valve every time you measure the pressure. Therefore it is always important to have documentation of what the air pressure was set to—you can not come back and accurately measure it again.

SOURCES FOR AIR SHOX PARTS AND SERVICE

FOX RACING SHOX

FOX Racing Shox still services the original Air Shox, Gas Shock and Twin Clickers designed for Motocross applications. Jeff and his crew are dirt bike enthusiasts and really give the extra effort to help any customer with current or out of production product. A rebuild kit costs 28.00. FOX Racing Shox can rebuild a set of Air Shox, parts and labor, for 95.00. Twin Clickers can be rebuilt for 99.00. (all prices in US$) FOX Racing Shox also sell it's own special shock oil for Air Shox.

Contact Service at:
FOX Racing Shox
130 Hanger Way, Watsonville, CA 95076
1-800-FOX-SHOX

J.R.'S MACHINE

JR Ott at J.R.'s Machine Shop in Texas has almost 25 years of experience with the Air Shox. JR has built the tooling required to build the high pressure bladders for all sizes of the Air Shox. JR also sells seal kits and eyelet bushings for the Air Shoxs. JR is a long time Vintage MX racer and a wonderful resource for anyone working on FOX Air Shoxs or Vintage MX bikes. JR sells bladder kits for 42.00, seal kits for 35.00, shock eyelet bushings for 60.00 and a complete shock rebuild (Parts and Labor) for 150.00. (all prices in US$)

Contact JR at:
J.R.'s Machine Shop
838 North Dick Price Rd., Kennedale, Texas 76060
Tel.: 817-572-1025 • Fax: 817-478-4307

WWW.ELSINORE.AU.COM (AUSTRALIA)

Geoff Bull sell rebuild kits and bladders. Geoff's kit includes a newer design "Moly" impregnated seal and a super shaft bumper. Geoff's kit also includes a set of reproduction second generation shock decals and a copy of the original user's manual. The rebuild kit is 45.00 (Including Air Freight) and a set of long bladders cost 69.00. (all prices in US Funds) North American customers can contact Perry Sconzert.

Contact Geoff at oldmx@yahoo.com
Contact Perry at elsinore99@hotmail.com

PRO ACTION

Pro Action (Beaver Falls, PA) also offers a rebuild service for FOX Air Shoxs. Pro Action (Greg Workman) also has experience in repairing damaged shafts. Of course Pro Action can also help you with a wide variety of shock services for other makes of shocks. Pro Action charges 100.00 US to rebuild a set of FOX Air Shoxs. (Parts and Labor)

Contact Greg Workman at:
Pro-Action
3611 8th Ave, Beaver Falls, PA 15010
Tel.: 724-846-9055 • Fax: 724-846-1629
www.pro-action.com

RECOMMENDED FOX AIR SHOX SETTINGS

The following are the recommended Air Pressures for both the single and dual chamber Air Shox designs. The air pressure recommended is a function of your bikes Suspension Lever ratio. (SLR) Therefore in order to figure out your pressure settings you will have to also determine your bikes SLR. Table 1 gives some common SLR numbers taken from the original FOX manuals.

TABLE 1

Bike	SLR	Notes
1975 Bultaco	1.65	125, 250 & 360 Pursang
1975 Can-Am	1.53	250 MX-2
1975 CZ	1.58	250 and 400 Falta Replica Models Only
1975 CZ	1.20	
1975 Husqvarna	1.78	CP Model with Laydown Geometry
1975 Maico	1.63	Factory Moved up Shock Location Only
1975 Maico	1.20	Old Shock Location
1975 Montesa VR	1.70	Laydown Shock Geometry
1974 Montesa VR	1.31	Original Geometry
1975 Penton/KTM	1.56	240 & 400 Laydown Geometry
1975 Suzuki RM	2.18	125cc Laydown Geometry Only
1978 Honda CR250R	1.8	
1977 Husqvarna	1.8	CP Model Stock Shock Location
1976/77 Penton/KTM	2.2	
1976/77 Maico	2.2	AW Model
1976/77 Suzuki	1.9	RM-B and RM-C Models

DETERMINING YOUR BIKE'S SLR

The Suspension Lever Ratio is equal to:
The distance between the swing arm pivot and the center of the rear axle
The distance from the swing arm pivot to the centerline of the shock, measure perpendicular to the centerline of the shock
Figure 1 shows the two measurements

DUAL CHAMBER FOX AIR SHOX

If the tables below do not have data for your scenario, just do the following:

Step 1) Multiply your bike weight by 0.10 (10%)
Step 2) Multiply your riding weight by 0.15 (15%)
Step 3) Add the numbers from Steps 1 and 2 and then multiply this by your SLR. This number is the recommended pressure for the low-pressure chamber. To determine the recommended pressure for the high-pressure chamber, multiply the low-pressure number by 1.5. (1.8 if you are pro or fast expert.)

BIKE WEIGHT 170-190 LBS.

Rider Weight*	Suspension Lever ratio							
	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
120 lbs.	54/81	57/86	61/92	64/96	68/102	71/107	76/114	79/119
130 lbs.	56/84	59/89	63/95	67/101	71/107	75/113	78/117	82/123
140 lbs.	58/87	62/93	66/99	69/104	73/110	77/110	81/122	85/128
150 lbs.	60/90	64/96	68/102	72/108	76/114	80/120	85/126	88/132
160 lbs.	62/93	67/101	71/107	75/113	79/119	83/125	87/131	91/137
170 lbs.	64/96	69/104	74/111	78/117	81/122	85/128	90/135	94/141
180 lbs.	67/101	72/108	76/114	80/120	85/128	89/134	94/141	98/147
190 lbs.	69/104	74/111	79/119	83/125	87/131	92/138	97/146	101/152
200 lbs.	72/108	76/114	81/122	86/129	91/137	96/144	101/152	106/159
210 lbs.	74/111	79/119	84/126	89/134	94/141	99/149	104/156	109/164
220 lbs.	76/114	81/122	86/129	91/144	96/144	101/152	106/159	111/167

BIKE WEIGHT 190-210 LBS.

Rider Weight*	Suspension Lever ratio							
	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
120 lbs.	57/87	60/90	64/96	68/102	72/108	76/114	80/120	84/126
130 lbs.	59/89	62/93	67/106	71/107	75/113	79/119	83/125	87/131
140 lbs.	61/92	65/98	69/104	73/110	77/116	81/122	85/128	89/134
150 lbs.	63/95	67/101	71/107	76/114	80/120	84/126	88/132	93/140
160 lbs.	65/98	70/105	74/111	78/117	82/123	86/129	91/137	95/143
170 lbs.	68/102	72/108	76/114	81/122	86/129	91/137	95/143	100/150
180 lbs.	70/105	74/111	79/119	84/126	89/134	93/140	98/147	103/155
190 lbs.	72/108	77/116	81/122	86/129	91/137	96/144	101/152	106/159
200 lbs.	74/111	79/119	84/126	89/134	94/141	99/149	104/156	109/164
210 lbs.	76/114	81/122	87/131	92/138	96/144	101/149	106/159	111/167
220 lbs.	78/117	84/126	89/134	89/134	95/143	104/156	109/164	114/171

BIKE WEIGHT 210-230 LBS.

Rider Weight*	Suspension Lever ratio							
	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2
120 lbs.	59/89	64/96	67/101	72/108	75/113	79/119	83/125	87/131
130 lbs.	62/93	66/99	70/105	74/111	79/119	83/125	87/131	91/135
140 lbs.	64/96	68/102	72/108	76/114	81/122	85/128	90/135	94/141
150 lbs.	66/99	71/107	75/113	79/119	84/126	88/132	92/138	97/146
160 lbs.	69/104	73/110	77/116	82/123	87/131	92/138	97/146	101/152
170 lbs.	69/104	75/113	80/120	85/128	90/135	95/143	100/150	104/156
180 lbs.	71/107	78/117	83/125	87/131	92/138	97/146	102/153	107/161
190 lbs.	73/110	80/120	85/128	90/135	95/143	100/150	105/158	110/165
200 lbs.	75/113	82/123	88/132	93/140	98/147	103/155	108/163	113/170
210 lbs.	79/119	85/128	90/135	96/144	100/150	105/158	111/167	116/174
220 lbs.	82/123	87/131	93/140	98/147	104/156	110/165	115/173	120/180

**Add approximately 15 lbs. For weight of riding equipment.*

SINGLE CHAMBER AIR SHOX DESIGN

If the tables below do not have data for your scenario, just do the following:

Step 4) Multiply your bike weight by 0.14 (14%)

Step 5) Multiply your riding weight by 0.21 (21%)

Step 6) Add the numbers from Steps 1 and 2, and then multiply this by your SLR. This number is the recommended pressure for the low-pressure chamber. To determine the recommended pressure for the high-pressure chamber, multiply the low-pressure number by 1.5. (1.8 if you are pro or fast expert.)

BIKE WEIGHT 170-190 LBS.

Rider Weight*	Suspension Lever Ratio							
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
120 lbs.	55psi	60psi	66psi	71psi	76psi	81psi	86psi	91psi
130 lbs.	58	63	68	74	79	84	89	95
140 lbs.	60	66	71	76	82	87	93	98
150 lbs.	62	68	74	79	85	91	96	102
160 lbs.	65	71	76	82	88	94	100	106
170 lbs.	67	73	79	85	91	97	104	110
180 lbs.	69	76	82	88	95	101	107	113
190 lbs.	72	78	85	91	98	104	111	117
200 lbs.	74	81	87	94	101	108	114	121
210 lbs.	76	83	90	97	104	111	118	125
220 lbs.	79	86	93	100	107	114	121	129

BIKE WEIGHT 170-190 LBS.

Rider Weight*	Suspension Lever Ratio							
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
120 lbs.	59psi	64psi	69psi	74psi	80psi	85psi	90psi	96psi
130 lbs.	61	66	72	77	83	88	94	100
140 lbs.	63	69	75	80	86	92	98	103
150 lbs.	65	71	77	83	89	95	101	107
160 lbs.	68	74	80	86	92	99	105	111
170 lbs.	70	76	83	89	96	102	108	115
180 lbs.	72	79	86	92	99	105	112	118
190 lbs.	75	81	88	95	102	109	115	122
200 lbs.	77	84	91	98	105	112	119	126
210 lbs.	79	87	94	101	108	115	123	130
220 lbs.	82	89	96	104	111	119	126	134

BIKE WEIGHT 170-190 LBS.

Rider Weight*	Suspension Lever Ratio							
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
120 lbs.	62psi	67psi	73psi	78psi	84psi	90psi	95psi	101psi
130 lbs.	64	70	76	81	87	93	99	105
140 lbs.	66	72	78	84	90	96	102	108
150 lbs.	69	75	81	87	93	100	106	112
160 lbs.	71	77	84	90	97	103	109	116
170 lbs.	73	80	86	93	100	106	113	120
180 lbs.	75	82	89	96	103	110	117	123
190 lbs.	78	85	92	99	106	113	120	127
200 lbs.	80	87	95	102	109	116	124	131
210 lbs.	82	90	97	105	112	120	127	135
220 lbs.	85	92	100	108	116	123	131	139

**Add approximately 15 lbs. For weight of riding equipment.*

The single chamber Air Shox featured an external damping adjustment. Table 2 shows the recommended damping settings for the air pressure being used. The damping setting is the number of turns out from the full in position.

TABLE 2

Air Pressure Psi	Damping Setting Turns
50	4 1/2
55	4-1/4
60	4
65	3-3/4
70	3 1/2
75	3-1/4
80	3
85	2-3/4
95	2 1/2
105	2-1 /4
115	2
125	1-3/4
140	1 1/2

IMPORTANT DATA

STANDARD OIL REFILLS

Shock Length Inches	Oil Quantity cc
13	151
13 1/2	158
14-1/4	168
14 3/4	177
15-1/8	182
15 1/2	209
15-3/4	192
16	206
16-1/4	192
16.7	213
17	213
17 1/2	213

DAMPING JET ORIFICE SIZE

Shock Size	Min Jet Dia.	Std Jet Dia.	Max Jet Dia.
13	.106	.116	.122
13 1/2	.112	.120	.128
14-1/2	.120	.128	.136
14 3/4	.128	.136	.144
15-1/8	.132	.140	.147
15 1/2	.128	.136	.144
15-3/4	.132	.140	.147
16	.136	.147	.157
16-1/4	.132	.140	.147
17	.144	.152	.162
17-1/2	.144	.152	.164

POP-OFF SPRING NUMBERS

	13	13-1/2	14-1/4	14-3/4	15-1/8	15-1/2	15-3/4	16	16-1/4	17	17-1/2
XSoft	2.7	2.6	2.5	2.2	2.1	2.2	2.1	2.0	2.1	2.0	2.0
Soft	2.9	2.8	2.7	2.5	2.4	2.5	2.4	2.2	2.4	2.1	2.1
STD	3.1	3.0	2.9	2.7	2.6	2.7	2.6	2.5	2.6	2.2	2.2
Firm	3.3	3.2	3.1	2.9	2.8	2.9	2.8	2.7	2.8	2.4	2.4
Xfirm	3.5	3.4	3.3	3.1	3.0	3.1	3.0	2.9	3.0	2.6	2.6