

RACE TECH

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FORK CAP AND GOLD VALVE INSTALLATION ST1300 20mm 2C+2R+FORK CAPS

<IP FCGV S4210001.doc> FCGV S4210001 P Thede © 8.3.11

5 pgs

TOOLS & SUPPLIES REQUIRED: (In addition to those required for fork disassembly.) In-lb Torque Wrench that accurately measures 0 to 50 in-lbs (0.58 kgf-m), Metric Calipers, 0-25 mm Metric Micrometer, Loctite (included), TFSH 1025 (included), USF05 Suspension Fluid.

NOTE: In stock form both forks are identical internally. When this modification is completed the left leg will create only compression damping, while the right leg will create rebound damping.

DISASSEMBLY - BOTH LEGS

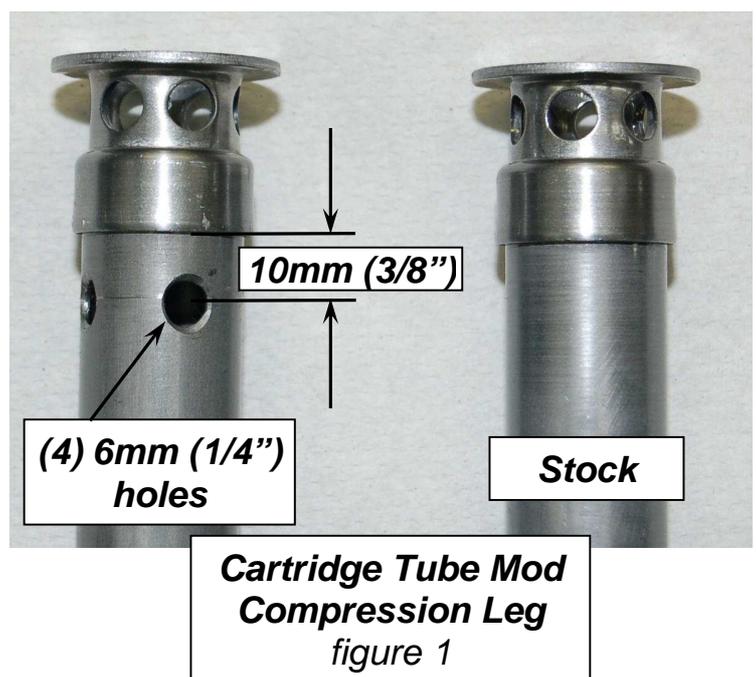
- 1 **CLEANLINESS IS CRITICALLY IMPORTANT.** Completely *disassemble and clean your front forks*. If you are unfamiliar with this process, **STOP!!!!** Do not proceed. Seek out a qualified suspension technician to complete the installation.
- 2 **Remove the compression valve body** from the cartridge. Push the compression valve holder into the cartridge about 5mm (0.2") to allow access to the wire retaining clip. Remove the clip with a small screwdriver by pushing down, it comes out easily. Once the clip is out, pull the holder out by screwing the bolt back in and pulling. Be very careful when holding the cartridge tube, it is very easy to dent or distort.
- 3 Remove the Jam Nut off the Damping Rod and slide it out of the Cartridge.
- 4 **The Valving Stacks are pre-valved for most riders.** Since the bikes are relatively heavy the rider weight is a much smaller percent of the total weight than, for example, a 600cc sport bike. This makes rider weight much less critical.

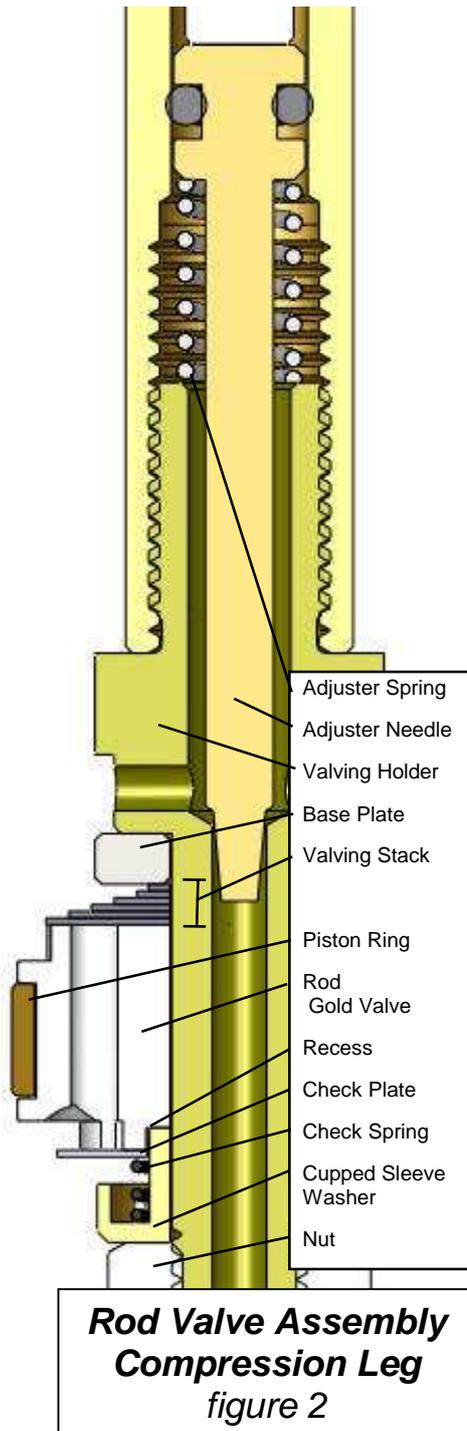
COMPRESSION LEG (LEFT)

The Compression Base Valve and Compression Rod Valve Assemblies are packaged together. They will both go into a modified Cartridge Tube.

CARTRIDGE TUBE MODIFICATION – COMPRESSION LEG (figure 1)

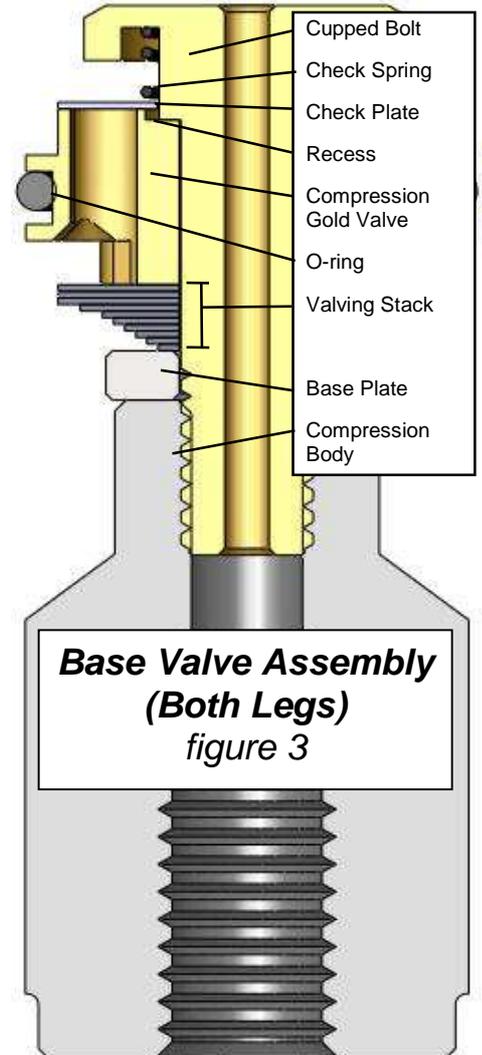
- 5 The cartridge tube on the compression leg requires holes to be drilled near the top of the tube. Drill (4) 6mm (1/4") holes 10mm down from the bottom edge of the cartridge spring seat (figure 1). De-burr the holes inside and out and clean thoroughly.





ROD VALVE – COMPRESSION LEG
(figure 2)

- 6 Hold the Damping Rod in the Shaft Holding Tool in a vise. **Remove the entire valving assembly from the damping rod** by unscrewing the valving holder from the rod. Do not worry about the punch marks as it will unscrew fairly easily. Clean everything thoroughly.
- 7 Grease or oil the o-ring and insert the Adjuster Needle and the Adjuster Needle Spring into the Damping Rod. Use the Loctite supplied on the Compression Rod Valve Holder Thread and screw it into the Rod. Torque it to 16 ft-lbs.
- 8 The Compression Rod Valve Assembly is pre-valved and is different than the Rebound Rod Valve. You will not need to change the valving on this valve.
- 9 **Install the new Piston Ring and insert the Compression Damping Rod Assembly into the Cartridge. Install the new Fork Cap Jam Nut.**



BASE VALVE-COMPRESSION LEG – on the bottom (figure 3)

- 10 **Install the Compression Base Valve Assembly** into the compression cartridge. Insert the circlip into the groove, screw the bolt back in and pull to seat the assembly on the circlip.
- 11 The Compression Base Valve Assembly is pre-valved with **CB33**. If you need to change the valving, disassemble and carefully lay out the components. Adjust the valving and reassemble.
 - 11a If you have changed the valving install the bolt into the holder and tighten it. **CAUTION!** The threads can be damaged without extreme care. You must use Loctite (included). The 6mm bolt must be torqued with a torque wrench to 30 in-lbs (0.35 kgf-m), **NO MORE!** Do not take this step lightly.
 - 11b **Inspect the assembled stack.** Hold the valving stack up to the light and look for proper assembly. If there are any problems, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.

REBOUND LEG (RIGHT)

ROD VALVE – REBOUND LEG

(figure 4)

The Rebound leg is similar to the Compression Leg except there are no extra holes in the cartridge and the valving on the Rod Valve is inverted.

- 12 As with the Compression Leg, hold the Rebound Damping Rod in the Shaft Holding Tool. **Remove the entire valving assembly from the damping rod** by unscrewing the valving holder from the rod. Clean everything thoroughly.
- 13 Grease or oil the o-ring and insert the Adjuster Needle and the Adjuster Needle Spring into the Damping Rod. Use the Loctite supplied on the Compression Rod Valve Holder Thread and screw it into the Rod. Torque it to 16 ft-lbs.
- 14 The Rebound Rod Valve Assembly is pre-valved with **RR33**. If you need to change the valving, disassemble and carefully lay out the components. Adjust the valving and reassemble. Follow the instructions as with the Compression Leg.
- 15 **Install the new Piston Ring and insert the Rebound Damping Rod Assembly into the Cartridge. Install the new Fork Cap Jam Nut.**

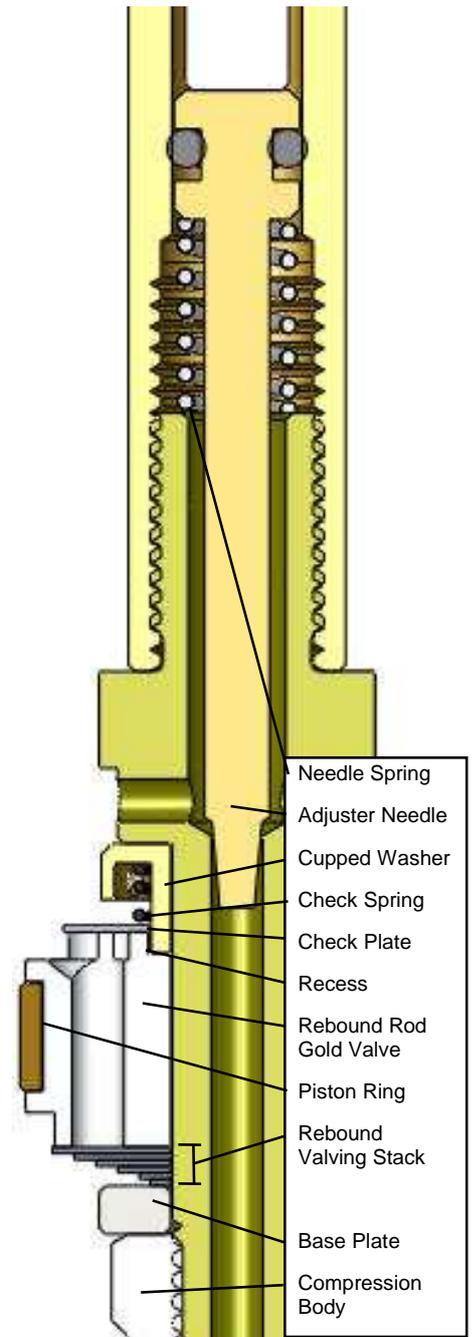
REBOUND BASE VALVE – on the bottom

(refer back to figure 3)

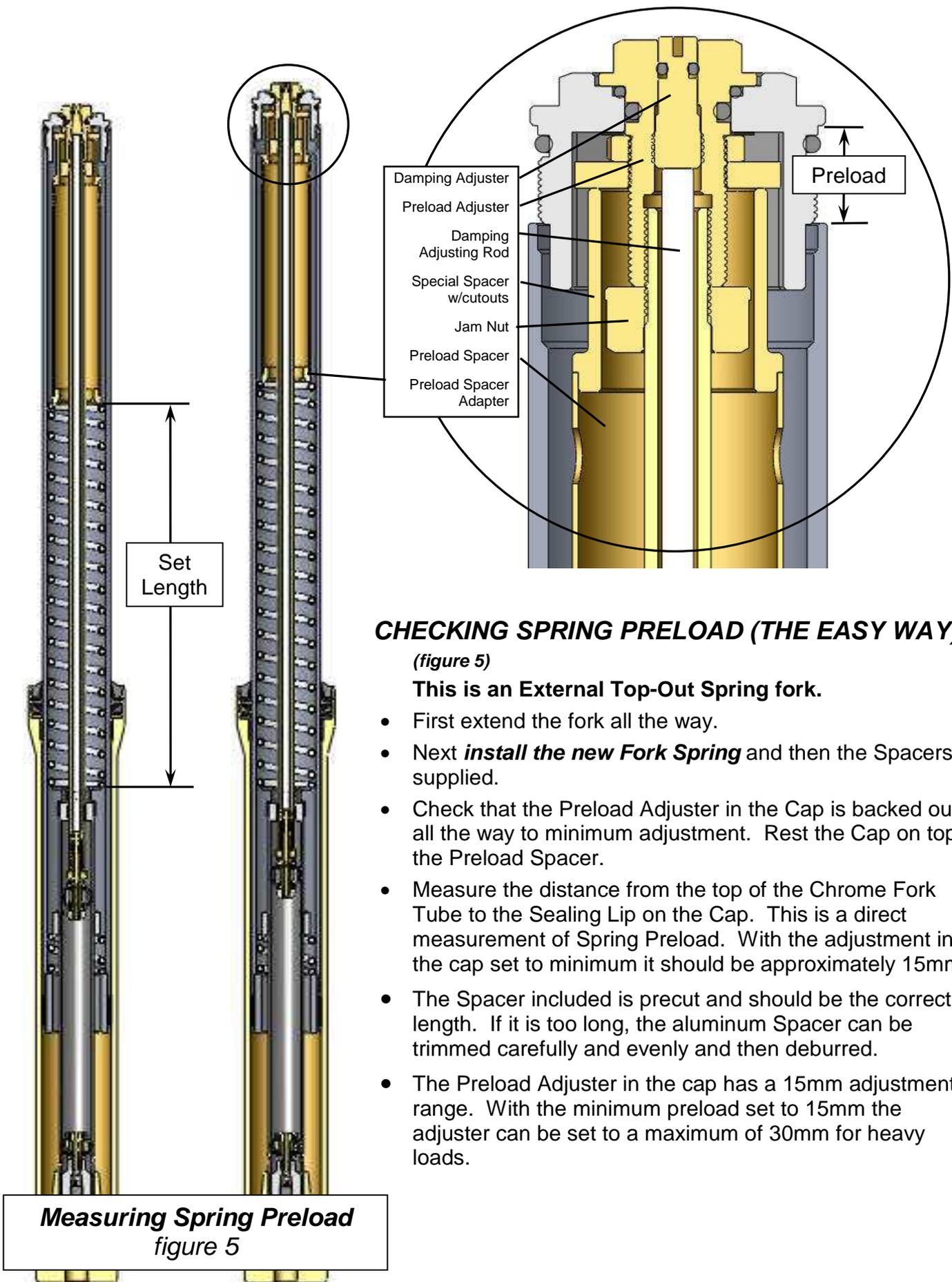
- 16 **Install the Rebound Base Valve Assembly into the Rebound Cartridge.** Insert the circlip into the groove, screw the bolt back in and pull to seat the assembly on the circlip.
- 17 The Rebound Base Valve Assembly is pre-valved and is different than the Compression Base Valve. You will not need to change the valving.

REASSEMBLY

- 18 **Install the Compression Damping Cartridge into the chrome Fork Tube. Install the Bottoming Cone onto the bottom of the Cartridge. Slide the Left Lower Fork Leg onto the Chrome Fork Leg. Install and tighten the 8mm bolt on the bottom. Repeat with the Rebound (right) leg.**
- 19 Check the Spring Preload. Refer to the next page for details.
- 20 Remove the Cap and Spring. Use Ultra Slick USF05 (5w) and bleed the Cartridge. Completely bottom the Forks and the Damping Rod and **set the oil level** to 130mm (5.1") with the springs out.
- 21 Insert the Adjusting Rod down the center of the Damping Rod. Install the Springs and Spacers.
- 22 **Unscrew the Adjuster all the way then screw it in 4 turns.** Use Loctite on the damping rod threads at the cap. **Screw on the cap until it gently bottoms.** This means it has pushed the Adjusting Needle into the Seat. **Unscrew the Adjuster ½turn and torque the Jam Nut to manufacturers specs. Tighten the Cap. Set the Adjuster to 2 turns out from all the way in on both Compression and Rebound legs.**
- 23 When the forks are put on the bike it is very important to **align the fork tubes.** This is done by first tightening the axle all the way, then the tubes are aligned by pumping the forks up and down with the right-hand axle clamp loose. This will line the tubes up so they won't bind. Finally, tighten the axle clamp.
- 24 If you have **any questions** please call our Technical Support Hotline at 951.279.6655.



**Rod Valve Assembly
Rebound Leg
figure 4**



CHECKING SPRING PRELOAD (THE EASY WAY)

(figure 5)

This is an External Top-Out Spring fork.

- First extend the fork all the way.
- Next **install the new Fork Spring** and then the Spacers supplied.
- Check that the Preload Adjuster in the Cap is backed out all the way to minimum adjustment. Rest the Cap on top of the Preload Spacer.
- Measure the distance from the top of the Chrome Fork Tube to the Sealing Lip on the Cap. This is a direct measurement of Spring Preload. With the adjustment in the cap set to minimum it should be approximately 15mm.
- The Spacer included is precut and should be the correct length. If it is too long, the aluminum Spacer can be trimmed carefully and evenly and then deburred.
- The Preload Adjuster in the cap has a 15mm adjustment range. With the minimum preload set to 15mm the adjuster can be set to a maximum of 30mm for heavy loads.

Measuring Spring Preload
figure 5

VALVING STACKS – ST1300 20mm

NOTE: All measurements are metric (*for inches divide by 25.4*). The valving list starts at the piston face and goes towards the base plate. Valve specs are listed by (QUANTITY) THICKNESS x DIAMETER. A number in parentheses means quantity. If there is no number in parentheses the quantity is one. Example: (2).15x17 means quantity two, 15 hundredths of a millimeter thick by 17 millimeters in diameter.

FORK GOLD VALVE CHART – ST1300 20mm

Chart 20ST 8.3.11 © P Thede

COMPRESSION BASE VALVING **STIFFER** →

CB31	CB32	CB33	CB34*	CB35*
(1).15x17	(2).15x17	(3).15x17	(4).15x17	(5).15x17
.10x17	.10x17	.10x17	.10x17	.10x17
.15x15	.15x15	.15x15	.15x15	.15x15
.15x13	.15x13	.15x13	.15x13	.15x13
.15x11	.15x11	.15x11	.15x11	.15x11
(2).15x10	(2).15x10	(2).15x10	(2).15x10	(2).15x10

REBOUND ROD VALVING (closest to the Nut – flat side of the Piston)

RR31	RR32	RR33	RR34*	RR35*
(1).15x17	(2).15x17	(3).15x17	(4).15x17	(5).15x17
.15x15	.15x15	.15x15	.15x15	.15x15
.15x13	.15x13	.15x13	.15x13	.15x13
(2).15x11	(2).15x11	(2).15x11	(2).15x11	(2).15x11

* SHIMS NOT PROVIDED IN STANDARD KIT (please call)

Shim Dimensions - (QUANTITY) THICKNESS x DIAMETER in mm (*for inches divide by 25.4*)

TUNING NOTES

- Damping is sensitive to vertical wheel velocity, not position in the stroke. If your valving needs to be stiffer, move to the right. This will improve bottoming resistance by increasing damping overall, making it stiffer through the entire speed range. If the forks are too firm, go the opposite direction, to the left.
- Spring rate is dependent mostly on rider and bike weight. Spring rate, preload and compression damping affect dive, wallow and bottoming.
- Oil level can drastically alter bottoming resistance and only affects the last part of the travel (*near bottoming*). If you like the action, but the forks bottom too easily, raise your oil level by 10mm (0.4").
- If you would like assistance, please contact the Race Tech Technical Support Hotline 951.279.6655.

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