

RACE TECH

1501 Pomona Rd, Corona, CA 92880 • 951.279.6655 • fax 951.279.7171 • www.racetech.com

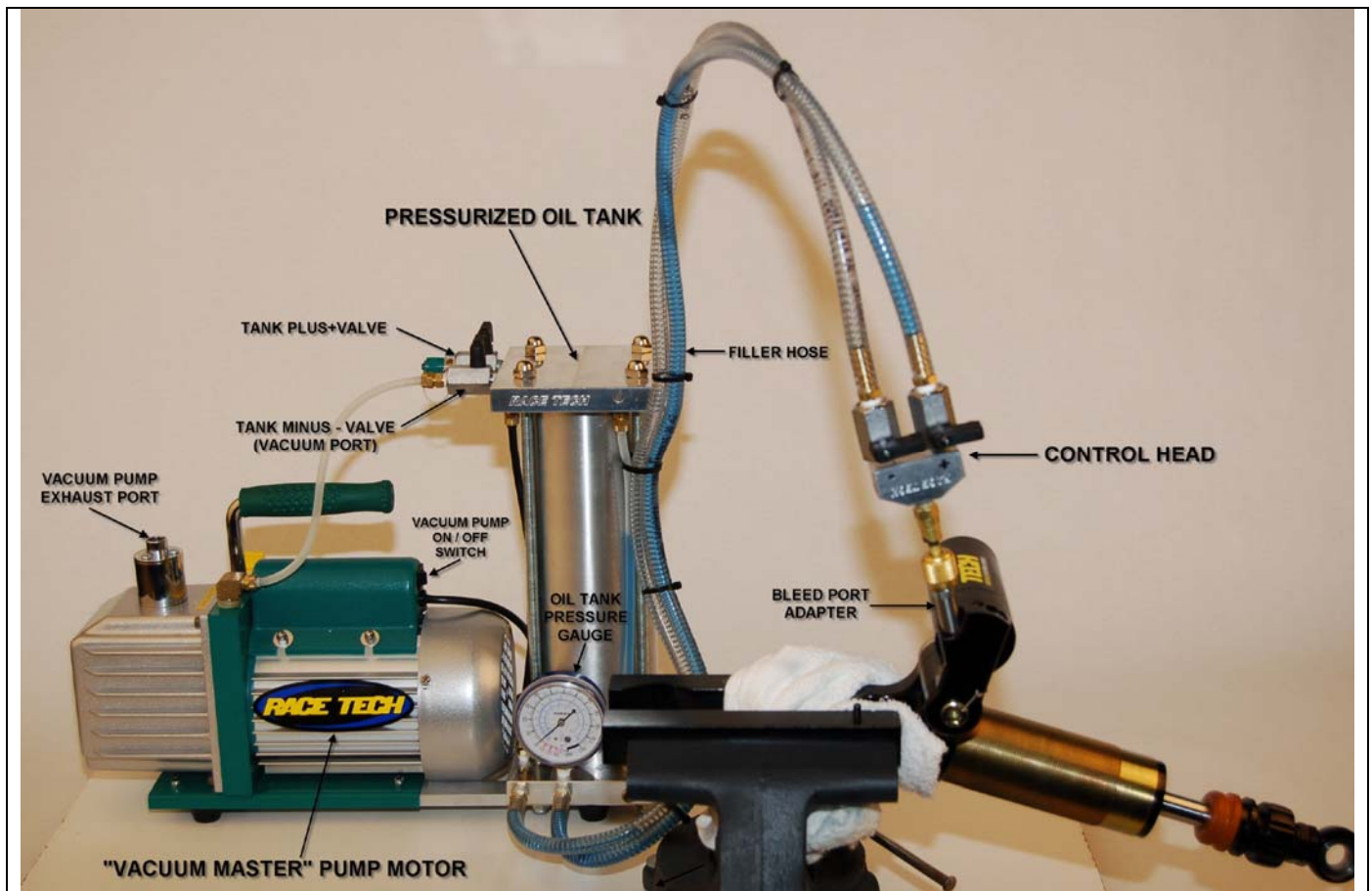
VACUUM MASTER SHOCK FILLING TOOL

<IP TSVM 01.doc> P Thede © 8-11-10

9 pages

Thank you for purchasing the Race Tech Vacuum Master shock filling tool. This semi-manual shock filling tool requires a specific step by step procedure. Please follow these instructions to ensure a complete fill with ease.

SUPPLIES REQUIRED – Regulated Nitrogen (preferred) or compressed air.



INITIAL SETUP

Connect to 110V AC power. Connect regulated nitrogen (or air) at 50 psi to the Tank Pressure Plus “+” Valve on the top of the Tank. Note—nitrogen is preferred as it is both free of oxygen and moisture.

Remove the plastic cap on the exhaust port of the vacuum pump. Keep it, as it is useful for transport. Note—if you don't remove it before use it will remove itself, and you'll have to go find it afterwards.



Fill the Tank with Suspension Fluid.

This is done by first attaching the Fill Tube (TSVM FT01) to the Control Head (not too tight or it will squeeze the rubber gasket excessively and choke it off). Immerse the Fill Tube into the oil, turn on the Vacuum Pump, open the Tank Minus “-” Valve and open the Control Head Minus “-” Valve. Watch the Level Tube and fill the Tank to within 75mm (3”) from the top—do not overfill or oil will be drawn out into the Vacuum Pump itself during use.



SHOCKS WITH A BLEED PORT AND A PISTON TYPE NITROGEN SEPARATOR

1. **Rebuild the shock without oil.**
Mount the “dry” shock in a vise (no spring) with the bleed port at its highest point.





2. **Select the appropriate Adapter.** Remove the Bleed Screw and attach the Adapter to the Shock. Then attach the Control Head to the Adapter.



3. Loop the filler hose upward.

Refer to the initial setup photo above to see how to loop the fill hose.

<p>4. Draw a vacuum in the shock. Turn on the Vacuum Pump. Open the Minus “-“ Valve (Vacuum Port) on the top of the tank and the Minus “-“ Valve on the Control Head. The shock will compress as the air is vacuumed out. Let it continue to draw down for at least 2 minutes (the longer you let it sit under vacuum the more air that is drawn out). After the shock is completely compressed, close both Minus “-“ Valves, then turn the Vacuum Pump off.</p>	
<p>5. Force oil into the shock. Open the Tank Plus “+” Valve (50 psi) then barely open the Control Head Plus “+” Valve. A bubble will form in the fill hose when the Control Head Valve is opened. As the oil begins to fill the shock, make sure the fill rate is slow enough that the bubble is not forced into the shock. Control the oil flow by slightly opening or closing the Plus “+” Valve on the Control Head. The shock will extend as it fills with oil.</p>	
<p>6. After shock is fully extended close the Plus “+” Valve on the Tank. Open the Plus “+” Valve on the Control Head completely, then stroke the shock a couple of times to help dislodge trapped bubbles.</p>	
<p>7. Depressurize the Oil Tank. Close both Plus “+” Valves. Then slowly open the Minus “-“ Valve on the tank until pressure is released through the pump.</p>	
<p>8. Turn the Vacuum Pump on. Open both Minus “-“ Valves and repeat the procedure.</p>	<p style="text-align: center;">Refer to step 1.</p>

9. Once two fill cycles have been completed you must **depressurize the Oil Tank again.** (Refer to step 7)

10. **Set the Reservoir Piston height.** After the oil tank is depressurized the second time, open the Plus “+” Valve on the Control Head and push the Reservoir Piston to the manufacturer’s suggested height—usually about 15mm from the shock end (not the nitrogen end).

SPECIAL CASE - If the shock has a bladder and a bleed port (KTM PDS with RT Bladder Conversion).

Assemble the shock completely, pressurize the bladder to 2 to 3 psi. Then fill and bleed the shock as normal. Note—there is no need to set the piston height as the bladder is in its relaxed, fully extended state with the low pressure in it.



11. Disconnect the Control Head from the Adapter. Remove the Adapter. Replace the Bleed Port Screw and pressurize the shock to the recommended setting. Make sure any required o-rings are in place.



SHOCKS WITH A BLADDER AND NO BLEED PORT

1. **Rebuild the shock without oil and without the Bladder.**

Mount the “dry” shock in a vise (no spring) with the top of the reservoir facing upward.



2. **Select the appropriate Bladder Adapter.** Insert the Adapter into the Reservoir and install the stock Bladder Cap Clip. Thread on the Adapter Plate (TSVM ABP70) and draw the Adapter up to the Clip. Then Attach the Control Head to the secured Adapter.




3. Loop the filler hose upward.

Refer to the initial setup photo above to see how to loop the fill hose.

4. **Draw a vacuum in the shock.** Turn on the Vacuum Pump. Open the Minus “-“ Valve (Vacuum Port) on the top of the tank and the Minus “-“ Valve on the Control Head. The shock will compress as the air is vacuumed out. Let it continue to draw down for at least 2 minutes (the longer you let it sit under vacuum the more air that is drawn out). After the shock is completely compressed, close both Minus “-“ Valves, then turn the Vacuum Pump off.



<p>5. Force oil into the shock. Open the Tank Plus “+” Valve (50 psi) then barely open the Control Head Plus “+” Valve. A bubble will form in the fill hose when the Control Head Valve is opened. As the oil begins to fill the shock, make sure the fill rate is slow enough that the bubble is not forced into the shock. Control the oil flow by slightly opening or closing the Plus “+” Valve on the control head. The shock will extend as it fills with oil. After shock is fully extended close the Plus “+” Valve on the Tank.</p>	
<p>6. Open the Plus “+” Valve on the Control Head, hold the shock with the shaft end down. Stroke the shock a couple of times to help dislodge trapped bubbles. Hold the body with the reservoir on the high side. This will allow the bubbles to exit the body into the reservoir. Then invert the shock and mount it in a vise as before, allowing the bubbles to exit the reservoir.</p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="669 779 1052 1312">  <p>Stroke the shaft of the shock with the reservoir at its highest point</p> </div> <div data-bbox="1101 779 1498 1312">  <p>Mount Shock to allow dislodged bubbles to exit the reservoir through the Control Head</p> </div> </div>
<p>7. Depressurize the Oil Tank. Close both Plus “+” Valves. Then slowly open the Minus “-” Valve on the tank until pressure is released through the pump.</p>	
<p>8. Turn the Vacuum Pump on. Open both Minus “-” Valves, and repeat the procedure.</p>	<p>Refer to step 1.</p>
<p>9. Once two fill cycles have been completed you must depressurize the Oil Tank again. (Refer to step 7)</p>	

10. After pressure is released, open the Plus “+” Valve on the Control Head. **Compress the shock shaft.** Some oil will be displaced out of the shock. Back the Adapter Plate up to the Control Head. Then, while holding the shock shaft down, **press the Adapter Plate down to the top of the reservoir.** More oil will be displaced out of the shock.



11. Disconnect the Control Head from the Adapter. Remove the clip and the Adapter.

12. Put the Bladder on the Cap and pressurize it just enough so the bladder is taugt (2-3 psi). **Insert the bladder assembly into the Reservoir**, allowing the oil to overflow.

To avoid waste, you can remove a bit of oil from the reservoir before inserting the bladder. However, make sure there is enough oil in the reservoir so some will overflow when the bladder is inserted.



13. Insert the Clip, seat the Cap and pressurize the shock with nitrogen to the recommended setting.



ADAPTERS: Your choice of any two Adapters are Included in purchase.

BLEED PORT ADAPTERS

TSVM AM06100 – 90° M6x1.0
 TSVM AM05080 – 90° M5x.8
 TSVM AM04070 – 90° M4x.7



WP Shock Adapter

TSVM AS3828WP
 3/8"-28



Öhlins Steering Damper Adapter

TSVM AM11100 – M11x1.0



BLADDER ADAPTERS

TSVM AB40 TSVM AB54
 TSVM AB46 TSVM AB57
 TSVM AB48.5 TSVM AB60
 TSVM AB52 TSVM AB64



BLADDER ADAPTER PLATE

TSVM ABP70
 (universal—used with all
 Bladder Adapters)



FILLER TUBE

TSVM FT01
 (Included in purchase)



MAINTENANCE

Periodically check oil level through the View Port on the side of the pump. During use, some of the suspension fluid will be pulled into the pump (particularly if the Tank is overfull). When the pump becomes overfull open the Tank “-“ Minus Valve and draw a vacuum on the Tank. Then shut off the Pump Switch with the Tank “-“ Minus Valve still open. Oil will be drawn from the pump back into the Tank. Shut the Tank “-“ Minus Valve when the level in the View Port is drawn down to the mid level. The Vacuum Pump is filled with suspension oil. Race Tech suggests using the same oil in the Vacuum Pump as in the shocks.

