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TK08 TUNING KIT TECHNICAL MANUAL

FOR 26 SERIES SHOCKS

Revised 4/17/12

⚠ WARNING CONTENTS UNDER PRESSURE! USE EXTREME CAUTION WHEN DEPRESSURIZING OR PRESSURIZING SHOCK! FAILURE TO DO SO COULD CAUSE SERIOUS INJURY OR DEATH. READ THIS MANUAL COMPLETELY PRIOR TO HANDLING SHOCK.

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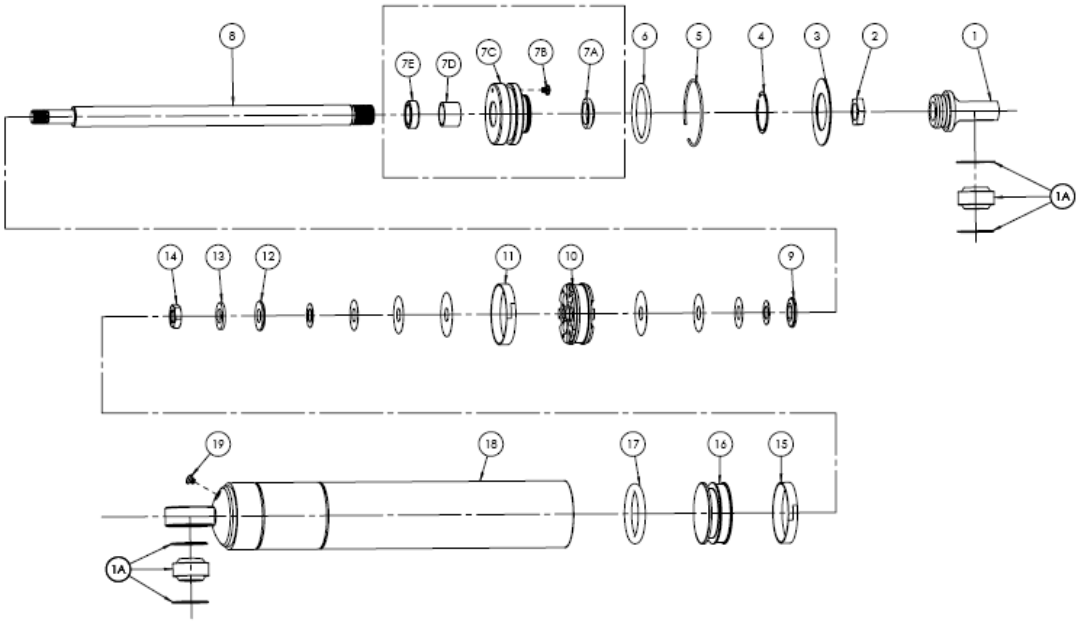
Parts included in the TK08 Tuning Kit:

Item	Description	Qty
9042-125	Seal, Piston 46mm	4
9044-105	O-ring, gland	4
9042-123	Double lip seal	4
9044-171	O-ring, floating piston	4
9013-108	Hyperscrew	4
9044-107	Travel indicator	4
9046-107	Rod wiper	4
7855-101	Disc Valve .70 x .015, 8 Pcs. / Kit	1 Kit
7855-102	Disc Valve .90 x .006, 8 Pcs. / Kit	1 Kit
7855-103	Disc Valve .90 x .008, 8 Pcs. / Kit	1 Kit
7855-104	Disc Valve .90 x .010, 8 Pcs. / Kit	1 Kit
7855-105	Disc Valve .90 x .012, 8 Pcs. / Kit	1 Kit
7855-106	Disc Valve .90 x .015, 8 Pcs. / Kit	1 Kit
7855-107	Disc Valve 1.1 x .006, 8 Pcs. / Kit	1 Kit
7855-108	Disc Valve 1.1 x .008, 8 Pcs. / Kit	1 Kit
7855-109	Disc Valve 1.1 x .010, 8 Pcs. / Kit	1 Kit
7855-110	Disc Valve 1.1 x .012, 8 Pcs. / Kit	1 Kit
7855-111	Disc Valve 1.1 x .015, 8 Pcs. / Kit	1 Kit
7855-178	Disc Valve 1.3 x .004, 8 Pcs. / Kit	1 Kit
7855-112	Disc Valve 1.3 x .006, 8 Pcs. / Kit	1 Kit
7855-113	Disc Valve 1.3 x .008, 8 Pcs. / Kit	1 Kit
7855-114	Disc Valve 1.3 x .010, 8 Pcs. / Kit	1 Kit
7855-115	Disc Valve 1.3 x .012, 8 Pcs. / Kit	1 Kit
7855-116	Disc Valve 1.3 x .015, 8 Pcs. / Kit	1 Kit

26 Series Parts List

Steel Body Monotube



Item	Part No.	Description	Item	Part No.	Description
1	**9036-103**	Steel bearing loop assembly	9	**9005-238**	Disc, valve stack plate (2 per shock)
1A	**SIB8-101PK**	Bearing kit (2 bearings, 4 snap rings)	10	**9057-239**	Piston, linear, no bleed 46mm
2	**9014-113**	Jam nut	10	**9057-238**	Piston, low – speed digressive 46mm
3	**9005-233**	Washer, gland retaining	10	**9057-243**	Piston, digressive .125" bleed 46mm
4	**9007-155**	Washer snap ring	11	**9042-125**	Seal, Piston 46mm
5	**9007-131**	Snap ring .06" wire	12	**9005-237**	Plate, valve stack (2 per shock)
6	**9044-105**	O-ring, gland	12	**9005-238**	Disc, valve stack plate (2 per shock)
7	**9054-128**	Gland assembly	13	**7855-179**	Spacer, digressive pistons only (8pk)
7A	**9046-107**	Rod wiper	14	**9014-420**	Spiralock nut, M10-1.25
7B	**9013-108**	Hyperscrew	15	**9042-125**	Seal, Piston 46mm
7C	**9054-125**	Gland, bare	16	**9057-237**	Floating piston
7D	**9032-107**	Bushing, piston rod guide	17	**9044-171**	O-ring, floating piston
7E	**9042-123**	Double lip seal	18	**9726-127**	7" body
8	**9028-118**	7" piston rod	18	**9726-128**	9" body
8	**9028-114**	9" piston rod	19	**9013-108**	Hyperscrew
9	**9005-237**	Plate, valve stack (2 per shock)			

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IMPORTANT: Before rebuilding or revalving your QA1 26 series shock absorbers, your work area must be clean. Shock absorber performance is greatly affected by any contamination (i.e. dirt, dust, rag lint, etc.).

TOOLS NEEDED FOR REBUILDING AND TUNING (REVALVING):

- Vise with soft jaws (aluminum or plastic)
- Torque wrench with 15mm socket
- QA1 shock oil (part #SF04)
- QA1 rebuild kit and/or tuning kit (26 series rebuild kit part #RK10; revalving/tuning kit part #TK08)
- QA1 monotube inflation tool (part #7791-140)
- Snap ring pliers
- Phillips screwdriver
- Soft faced mallet
- Clean rags

DISASSEMBLY:

⚠ WARNING CONTENTS UNDER PRESSURE! USE EXTREME CAUTION WHEN DEPRESSURIZING OR PRESSURIZING SHOCK! FAILURE TO DO SO COULD CAUSE SERIOUS INJURY OR DEATH. READ THIS ENTIRE MANUAL COMPLETELY BEFORE HANDLING SHOCK!

1. Check shock mount bearings for excessive play and replace as needed.
2. Depressurize shock by **SLOWLY** loosening the hyper-screw located on the body. When all pressure is relieved, completely remove the screw. See Figure 1.
3. With the screw removed, make certain that the shock is depressurized by fully collapsing the piston rod. If the rod remains collapsed, then the shock is relieved of all gas pressure and you may proceed to the next step. If the shaft extends at all, you have failed to remove the screw located in the cap and need to refer back to step 1.
4. Insert shock into vice with soft jaws or body clamp with piston rod pointing up. Do not attempt to do this in a vise without the body clamp fixture, as it will damage the body. See Figure 2.
5. **⚠ WARNING Make certain that gas pressure is relieved before completing this step**. **Failure to do so could cause serious injury or death!** With a snap ring pliers, remove snap ring from dust cap at the end up the body and remove dust cap. Remove hyperscrew from the gland, and slowly push the gland into the shock body about ½". Using a pick, remove the large snap ring from the end of the shock body. Pull with an upward force on the piston rod to remove the piston rod assembly from the body. See Figure 3.

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WARNING!
Loosen hyper-screw located in cap very slowly to relieve all gas pressure before disassembling.

Figure 1

Shock enclosed in body clamp fixture can be secured into bench vise.

Figure 2

Remove screw before removing closure gland.

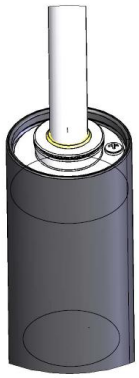

Figure 3

6. Place the piston rod assembly into a shock vise.
7. Pour oil into a clean container for re-use or properly dispose of oil. Watch for any debris in the used oil and properly dispose of the oil if debris is present.
8. Make sure floating piston is seated as far down into the body as it will go. Use a long rod or long handle tool to ensure it is indeed all the way down.

REVALVING:

Shock absorbers create dampening by flowing oil through restrictive paths - the more restricted the flow, the higher the dampening force. Nearly all shocks use a combination of “bleed passages” and “blow-off valves” to control the oil flow in both compression and rebound separately.

Bleed is typically controlled by the size of a small hole(s) or slit(s). The oil can flow easily at low shaft velocities, but as velocity increases, the resistance rises progressively. QA1 26 series monotube shocks use a bleed hole in the piston. Smaller or larger bleed holes may be used to raise or lower low-speed dampening. Unless you have access to a shock dyno, it is best to stay with the standard bleed.

Blow-off is typically controlled by either a spring pushing on a valve, or a set of disc valves covering a set of larger holes. Once the shaft reaches a certain velocity, the valves will open – allowing a linear or digressive dampening curve. QA1 shocks utilize two sets of disc valves, one for compression and one for rebound. The following information will help you tune your QA1 26 series monotube body shocks:

LOW SPEED (0~1 in/sec): The piston bleed hole size has the main effect. Larger bleed holes will lower the low-speed dampening and will delay the blow-off to occur at a higher velocity. Smaller bleed holes will raise the low-speed dampening – blow-off will tend to occur at lower velocities.

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MEDIUM SPEED (1~10 in/sec): Valve stack begins to open. Valve stack thicknesses determine the blow-off velocity and the slope of the dampening curve. Bleed can affect the blow-off velocity, but the slope of the graph remains the same. The blow-off can be more or less distinct depending on the amount of bleed.

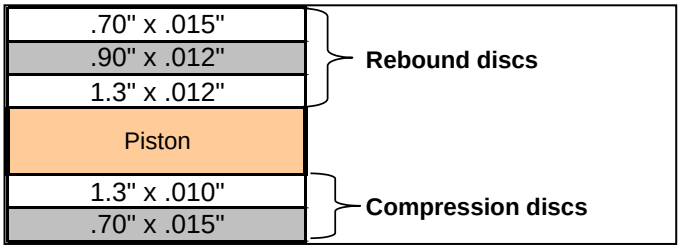
HIGH SPEED (>10 in/sec): The shape of the valve stack has main effect. Thickness, outside diameters, and number of discs determine the shape of the dampening curve.

Once you have decided which valve code you would like to revalve to, use the tables at the end of the manual to determine the components needed for the revalving. Use the following guidelines:

A. Determine the discs needed for your desired compression valve code.
B. Install the compression discs stack onto the piston rod.
C. Determine the discs needed for your desired rebound valve code.
D. Install the rebound discs onto the piston rod.

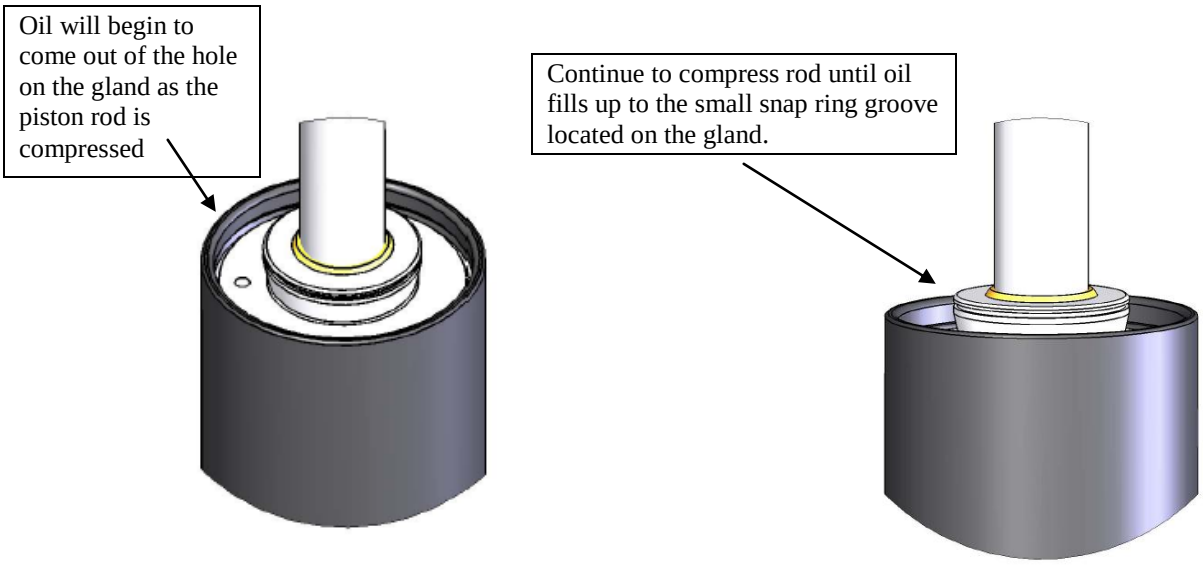
Example:

You want to build a 26 series 3-5 (3 compression / 5 rebound) valved shock. Using the tables at the end of the manual, you would use the following discs in the order they would appear on the piston rod (see Detail B for the proper placement of shims):



ASSEMBLY:

1. With the floating piston pushed all the way to the end of the body, place the shock body in a soft jawed vice or body clamp.
2. Inspect and replace all worn or damaged o-rings and seals on the piston rod assembly. Properly lubricate dry o-rings before assembly where applicable.
3. Fill the body with proper amount of oil based on the stroke of the shock.
   320ml – 7” 400ml – 9”
4. Insert the piston rod assembly into the body and stroke the shock up and down about an inch. Be careful, as oil will want to shoot up through the bleed hole on the piston. Stroke the shock several times until no air bubbles are present.
5. Holding the rod straight and centered, slide the gland assembly down the piston rod and into the shock body. By hand, press the gland into the body of the shock until the top of the gland is about 3/4” below the snap ring groove in the body.
6. Strike the top of the shaft with a plastic tipped hammer 2-3 times. This will “flip” the valves open enough to release any air trapped inside the piston.
7. Slowly compress the piston rod until oil begins to come out of the bleed hole on the gland.
8. Continue to compress the rod until oil has filled up to the snap ring groove on the gland itself.



9. Insert a Hyperscrew into the bleed hole on the gland.
10. Install the large snap ring into the snap ring groove on the body, making sure it is fully seated over its entire diameter.
11. Using an air hose, lightly pressurize shock through the gas port hole on the shock body. This step will extend the rod slightly, and ensures that the snap ring in the body is seated correctly.
12. Slowly compress shock about 4 inches.

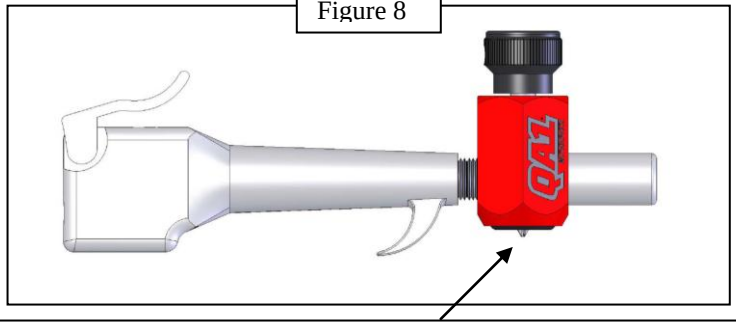
CHARGING SHOCK / ADJUSTING GAS PRESSURE:

⚠WARNING CONTENTS UNDER PRESSURE! USE EXTREME CAUTION WHEN PRESSURIZING/CHARGING OR DEPRESSURIZING SHOCK! FAILURE TO DO SO COULD CAUSE SERIOUS INJURY OR DEATH.

⚠WARNING CAREFULLY EXAMINE FIGURE 8 WARNING BEFORE PROCEEDING.

QA1 CHARGING TOOL (PART #7791-140)

Figure 8



⚠WARNING USE EXTREME CAUTION WHEN CHARGING SHOCK! DO NOT PUT SKIN OR ANY BODY PART UNDER THE FILL TOOL PORT AT ANY TIME. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH!

13. If you are only **adjusting** gas pressure, refer to steps 2 & 3 only under DISASSEMBLY section before continuing.
14. Insert hyper-screw into the shock body all the way but do not fully tighten.
15. Using the QA1 inflation tool, insert the locator stud into the eyelet. See Figure 9.

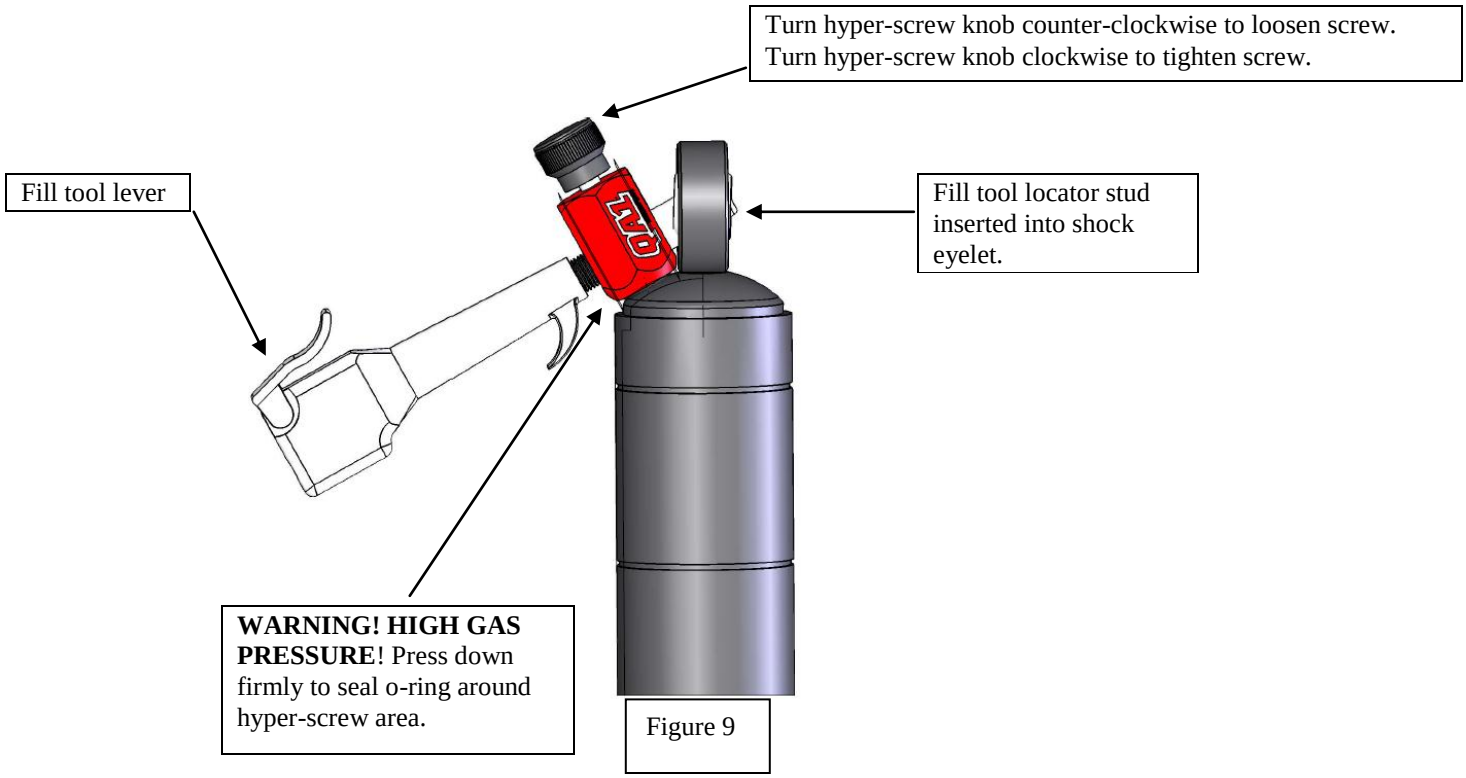


Figure 9

16. Set your regulator gauge to the desired pressure.
17. Press down firmly to seal the o-ring onto the cap surface around the hyper-screw.
18. Squeeze the fill tool lever to pressurize the system. **⚠WARNING USE EXTREME CAUTION WHEN CHARGING SHOCK! DO NOT PUT SKIN OR ANY BODY PART UNDER THE FILL TOOL PORT AT ANY TIME. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH!**
19. Push down the hyper-screw knob while turning it counterclockwise to loosen the hyper-screw and allow the rod to extend.
20. When the rod is fully extended, filling is complete. Tighten the hyper-screw by turning the knob clockwise.
21. When the screw is tight, release the fill tool lever and remove the tool from the shock.
22. The gas pressure is now set.

WARRANTY / DISCLAIMER

QA1 warrants that the products will be free from defects in material and workmanship for one year from date of sale to the original purchaser. QA1 makes no other warranty of any kind, express or implied. QA1 shall have no obligation under the foregoing warranty where the defect is the result of improper or abnormal use, your negligence, vehicle accident, improper or incorrect installation or maintenance, nor when the product has been repaired or altered in any way. QA1's liability in the case of defective products subject to the foregoing warranty shall be limited to the repair or replacement, at QA1's option, of the defective products. Consequential or incidental damages are not recoverable under this warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. In order to be eligible for service under this warranty, you must return the defective part to QA1 together with a R.M.A. number issued from QA1. Tag each item with the part number and the specific explanation of defect. We will inspect the part and determine: a) if it is eligible for repair or replacement; and, b) if so, whether to repair or replace it. All returns must be shipped prepaid to:

QA1 Precision Products, Inc.
RMA #_____
21730 Hanover Avenue
Lakeville, MN 55044

THE BUYER UNDERSTANDS AND RECOGNIZES that racing parts, specialized street rod equipment, and all parts and services sold by QA1 are exposed to many and varied conditions due to the manner in which they are installed and used. QA1 shall bear no liability for any loss, damage or injury, either to a person or to property, resulting from the direct or indirect use of any QA1 products or inability by the buyer to determine proper use or application of QA1 products. With the exception of the limited liability warranty set forth above, QA1 SHALL NOT BE LIABLE FOR ANY CLAIMS, DEMANDS, INJURIES, DAMAGES, ACTIONS, OR CAUSES OF ACTION WHATSOEVER TO BUYER ARISING OUT OF OR CONNECTED WITH THE USE OF ANY QA1 PRODUCTS. MOTORSPORTS ARE DANGEROUS; AS SUCH, NO WARRANTY OR REPRESENTATION IS MADE AS TO THE PRODUCT'S ABILITY TO PROTECT THE USER FROM INJURY OR DEATH. THE USER ASSUMES THAT RISK.

Oil volume
7” – 320ml 9” – 400ml

26 Series Linear Valving (M)

	1	2	3	4	5	6	7	8	9	10	11	12
Pressure	100 psi	100 psi	100 psi	100 psi	100 psi	100 psi	125 psi	150 psi	175 psi	300 psi	300 psi	300 psi
C				**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**
O				**.90 x .006**	**.90 x .008**	**.90 x .010**	**.90 x .012**	**.90 x .012**	**.90 x .015**	**.90 x .015**	**.90 x .015**	**2x, .90 x .015**
M			**1.1 x .006**	**1.1 x .006**	**1.1 x .008**	**1.1 x .010**	**1.1 x .012**	**1.1 x .012**	**1.1 x .015**	**1.1 x .015**	**2x, 1.1 x .015**	**2x, 1.1 x .015**
P	**1.3 x .004**	**1.3 x .006**	**1.3 x .006**	**1.3 x .006**	**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .015**	**1.3 x .015**	**2x, 1.3 x .015**	**2x, 1.3 x .015**	**2x, 1.3 x .015**
Piston	**Linear**											
Bleed	**0.070**											
R	**1.3 x .004**	**1.3 x .006**	**1.3 x .006**	**1.3 x .006**	**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .015**	**1.3 x .015**	**2x, 1.3 x .015**	**2x, 1.3 x .015**	**2x, 1.3 x .015**
E			**1.1 x .006**	**1.1 x .006**	**1.1 x .008**	**1.1 x .010**	**1.1 x .012**	**1.1 x .012**	**1.1 x .015**	**1.1 x .015**	**2x, 1.1 x .015**	**2x, 1.1 x .015**
B				**.90 x .006**	**.90 x .008**	**.90 x .010**	**.90 x .012**	**.90 x .012**	**.90 x .015**	**.90 x .015**	**.90 x .015**	**2x, .90 x .015**
D				**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**

Oil volume
7” – 320ml 9” – 400ml

26 Series *Digressive* Valving									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Pressure	100 psi	100 psi	100 psi	100 psi	100 psi	100 psi	125 psi	150 psi	175 psi
C									
O					**.70 x .015**		**.70 x .015**	**.70 x .015**	**.70 x .015**
M	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.90 x .012**	**.70 x .015**	**.90 x .015**	**1.1 x .015**	**1.3 x .015**
P	**1.3 x .006**	**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .012**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**
Piston	**Digressive**								
Bleed	**0.125**								
R	**1.3 x .006**	**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .012**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**
E	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.90 x .012**	**.70 x .015**	**.90 x .015**	**1.1 x .015**	**1.3 x .015**
B					**.70 x .015**		**.70 x .015**	**.70 x .015**	**.70 x .015**
D									

Oil volume
7” – 320ml 9” – 400ml

26 Series *Digressive 2* Valving (H)									
	5	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Pressure	100 psi	150 psi	150 psi	175 psi	200 psi				
C									
O				**.70 x .015**					
M	**.70 x .015**	**.70 x .015**	**.70 x .015**	**.90 x .012**	**.70 x .015**				
P	**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .012**	**1.3 x .015**				
Piston	**Digressive 2**								
Bleed	**0.028**								
R		**1.3 x .008**	**1.3 x .010**	**1.3 x .012**	**1.3 x .012**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**	**1.3 x .015**
E		**.70 x .015**	**.70 x .015**	**.70 x .015**	**.90 x .012**	**.70 x .015**	**.90 x .015**	**1.1 x .015**	**1.3 x .015**
B					**.70 x .015**		**.70 x .015**	**.70 x .015**	**.70 x .015**
D									