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G2-R COMPRESSION GOLD VALVE INSTALLATION

DIRT 32x8 2015 KYB AIR SPRING OPEN CHAMBER FORK

<IP FMGV 320802G.doc> 2 part LS FMGV 320802G P Thede © 2.12.15 5 pgs

TOOLS 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), 10mm wrench, Fine flat file, Hi-Strength Loctite (included), Metric calipers and micrometer.

DISASSEMBLY

D1 ***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*.**

NOTE: The Left Fork Leg has the compression adjusters on the fork cap. The Right Fork Leg has the rebound. Keep all components separate. The valving is identical on both legs except for the adjusters. The Rebound Leg has no hole in the center of the Rebound Rod Holder but it has a hole in the side of the Rod itself. The Compression Leg has a hole down the center of the Rebound Holder.

D2 ***Remove the nut***. When disassembling the compression valve for the first time, ***the thread above the nut must be filed off flat*.** Lightly deburr the end of the thread.

D3 ***Disassemble the valving stack***. Lay out the pieces in the order they come off the shaft. Clean and inspect all the original parts. Be careful to maintain the original order and orientation of the parts. *(You may need some of the original valving for spacing purposes, do not discard.)*

COMPRESSION VALVING

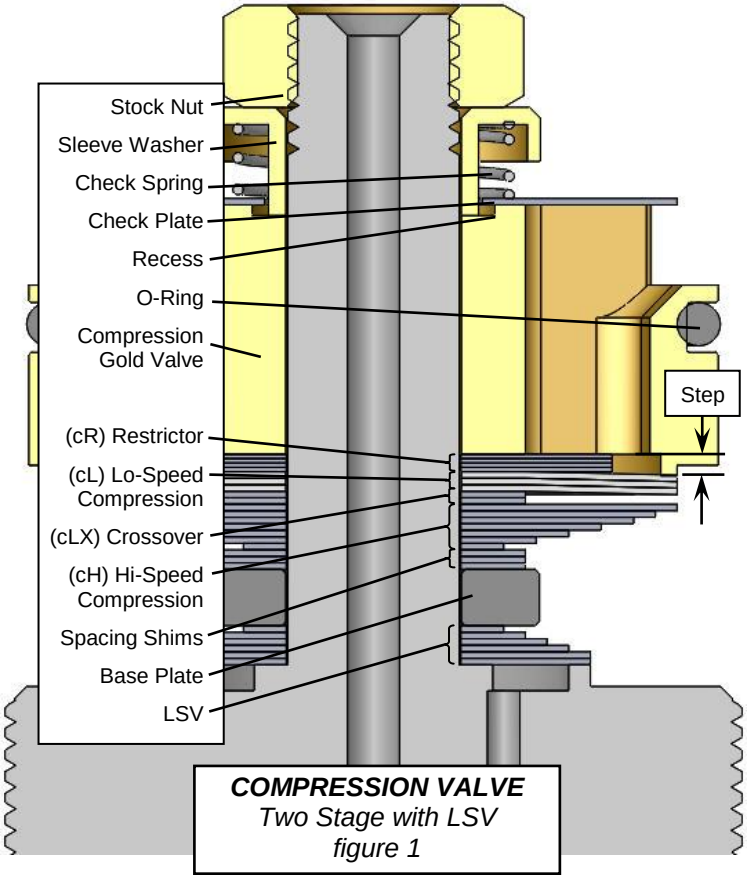
G2-R Theory - There are many ways to setup the valving with G2-Rs. They are made to be preloaded (digressive) or restricted (progressive). This adds a little complexity but makes them extremely versatile.

The Gold Valve piston face has a **1.0mm step** on it. This means if you put on a standard valving stack, without a Restrictor Stack, the shims will be bent 1.0mm without opening. This is called a 1mm preloaded stack. We have found that the best preloads are typically between zero and 0.10mm. The Restrictor Valving Stack thickness adjusts the preload.

'Step'–'Restrictor Stack Height'='Preload'

example. 1.00 – 0.90 = 0.10 preload

The Restrictor Valving serves a second function. Increasing the diameter restricts the flow area of the ports. This increases the damping at high velocities like landing off a jump.



COMPRESSION VALVE
Two Stage with LSV
figure 1

V1 There are two types of valving for Gold Valves, ***Single Stage and Two Stage***. **Two Stage Valving** is used for softer Motocross as well as Enduro, and Trail. **Single Stage** is used for Motocross, Desert and Supercross. The feel is firmer and the front end rides higher than Two Stage. You will be asked to choose Single Stage or Two Stage during the DVS process.

To obtain custom valving settings visit www.racetech.com, go to Digital Valving Search (DVS), insert your Access Code (printed on the top of the first page), input your personal specifications and print the custom setup information. If you do not have access to the web contact our Technical Support Hotline 951.279.6655 for recommendations. Note: The Access Code is good for one limited-time use.

V2 Once you have selected your valving **begin assembling the valve**. Start by building the **Lo-Speed Bleed Valve Stack (LSV)** according to the DVS Sheet. Then place both the original Compression Base Plate on the shaft.

V2a **Single Stage Stacks** (figure 2) - A Single Stage Stack is a two-part stack made up of a combination of a **Lo-Speed Stack and a Hi-Speed Stack with NO Crossover**. Put the valving on the shaft in the order listed, starting with the smallest diameter shim of the Hi-Speed Stack. Then the Lo-Speed Stack gets placed on top of the Hi-Speed Stack. You will not use a Crossover but you will use a **Restrictor Valving Stack** installed next to the Gold Valve itself.

V2b **Two Stage Stacks** (figure 1) - For Two Stage Stacks the total valving stack is made up of a combination of a **Restrictor Valving Stack, a Lo-Speed Stack, a Crossover and a Hi-Speed Stack**. Put the valving on the shaft in the order listed, starting with the smallest diameter shim of the Hi-Speed Stack. Then the Crossover gets placed on top of the Hi-Speed Stack and ending with Lo-Speed Stack closest to the Gold Valve. Then the **Restrictor Valving Stack** is installed next to the Gold Valve itself.

V3 **Place the Gold Valve on the shaft** with the recess on the piston facing up. Make sure the o-ring is on the Gold Valve.

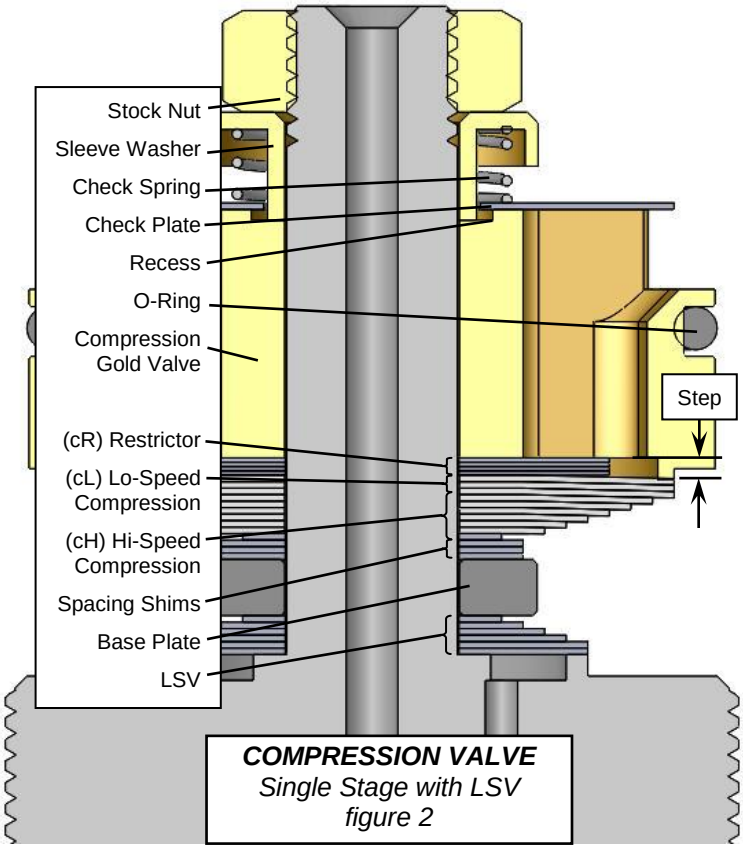
V4 **Place the Check Plate *(large ID washer)* and the Check Spring on the shaft**. Next install the Sleeve Washer and the stock Nut. Be sure the Check Plate is free to move on the Sleeve Washer before you tighten the nut.

V5 **Check to see the total valve stack thickness is correct. WARNING: *You must be very sure that the nut does not run out of thread onto the straight part of the shaft.* If it does, the nut will not tighten down on the valving. This will cause incorrect operation or the nut will come off. This is a critical part of the installation.** To get the proper total valve stack thickness you may need to use some of the original shims as Packing Shims on the shaft just above the base plate. NOTE: Any shims added must be larger in diameter than the last shim in the stack. **Be sure the nut is fully engaging the thread!**

V6 **Make sure the check plate *(large ID washer)* is free** and can move up and down against the spring.

V7 ***CAUTION! The thread can be damaged without extreme care. Use Loctite on the Special Nut. The 8mm nut must be torqued with a torque wrench to 48 in-lbs (4 ft-lbs or 0.56 kgf-m), NO MORE! Do not take this step lightly.***

V8 **Inspect your work**. For two stage stacks, hold the compression stack up to the light and look for the gap at the cross-over between the lo-speed and hi-speed stack *(the small shim near the top of the stack).* This gap should be visible, if it isn't, disassemble the stack and look for burrs to surface and/or dirt in the valving. Reassemble and check again.



COMPRESSION VALVE
Single Stage with LSV
figure 2

LO-SPEED VALVE CHART – FLSV 2008 – KYB 32x8

LSV1	LSV2	LSV3	LSV4	LSV5	LSV6	LSV7	LSV8	LSV9	LSV10
(4).15x14	(4).15x14	(4).15x14	(4).15x14	(4).15x14	(4).15x14	(3).15x14	(3).15x14	(3).15x14	(3).15x14
(4).10x14	(3).10x14	(2).10x14	.10x14		(4).10x14	(3).10x14	(2).10x14	.10x14	
LSV11	**LSV12**	**LSV13**	**LSV14**	**LSV15**	**LSV16**	**LSV17**	**LSV18**	**LSV19**	**LSV20**
.10x20	(2).10x20	.10x20	.10x20	(2).10x20	(3).10x20	.15x20	.15x20	(2).15x20	(3).15x20
.10x18	.10x18	.10x19	.10x19	.10x19	.10x19	.15x18	.15x19	.15x19	.15x19
.10x16	.10x16	.10x18	.10x18	.10x18	.10x18	15x16	.15x18	.15x18	.15x18
.10x14	.10x14	.10x17	.10x17	.10x17	.10x17	.15x14	.15x17	.15x17	.15x17
.10x12	.10x12	.10x16	.10x16	.10x16	.10x16		.15x16	.15x16	.15x16
		.10x15	.10x15	.10x15	.10x15	.	.15x15	.15x15	.15x15
		.10x14	.10x14	.10x14	.10x14		.15x14	.15x14	.15x14
		.10x13	.10x13	.10x13	.10x13				
		.10x12							

MID-VALVE AND REBOUND

Rebound Gold Valve Kits are highly recommended. You can expect significant improvement in both plushness and traction with these kits. This is a great time to install one.

ASSEMBLY

A1 **Install the damping rod into the cartridge.** Reassemble the fork tubes according to the procedure in your manual.

A2 Install the cartridge into the fork tubes and tighten the bottom bolt.

A3 **Fill and bleed the cartridge. Set the Oil Level according to the DVS**.

NOTE: Upside-down KYB forks without a bleed hole in the inner (chrome) tube, require special care to set the oil level. There is a space between the inner and outer tube and without a bleed hole there is no way to know how much oil is in this space. To deal with this situation extend the outer tube all the way before setting the level, this will dump all the oil from this space into the inner tube. This will call for higher oil levels than the manufacturer recommend.

A4 Use Loctite on the damping rod thread at the Rebound Adjuster Bolt and ***torque it to manufacturers specs*** (typically 16 to 21 ft-lbs [21.7 – 28.5 NM).

A5 ***Adjust the compression and rebound adjusters, and air pressure*** according to the DVS Setup Sheet. **IMPORTANT-THE AIR PRESSURE SHOULD BE SET EVERY TIME THE BIKE IS RIDDEN!**

A6 ***Install the forks on the bike***. 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.

A7 ***If you have any questions*** please call our Technical Support Hotline at 951.279.6655. Feel free to experiment and please call if you need us. Have fun!

TUNING NOTES

- **Damping depends on vertical wheel velocity, not position in the stroke.**
- **If the forks feel too soft all the way through**, increase compression damping with the external adjuster. If that is not enough, change the compression stack internally.
- **The compression damping adjuster** controls the lowest speed damping and affects the entire range. NOTE: The closer to maximum damping (full clockwise) the more effect one click makes. In other words going from 3 to 2 out has a lot more effect than going from 14 to 13. Adjusters are numbered from all the way clockwise (the slowest or firmest setting).
- **If your valving needs to be stiffer, move to the right on the valving chart.** Moving to the right on the Lo-Speed Chart will stiffen up lo-speed damping. This will improve bottoming resistance with minimum increase in harshness. Moving to the right on the Hi-Speed Chart will increase damping overall, making it stiffer through the entire speed range. If the forks are too firm, go to the left.
- **Spring rate affects ride height, dive and bottoming.** Typical spring preload should be 3-5mm.
- **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").

BUILDING the COMPRESSION VALVING STACK - DIRT 320802G

Welcome to the wonderful world of Gold Valving. **To obtain your personal Custom Suspension Settings:**

1. **Log on to www.racetech.com and go to Digital Valving Search (DVS)**
2. **Input your Access Code (on top of page 1) when prompted**
3. **Input your personal specifications**
4. **Print your Digital Valving Search (DVS) Setup Sheet**

If you do not have access to the Internet contact our Technical Support Hotline 951.279.6655 for recommendations. Note: The Access Code is good for one bike for a limited-time.

Once you have your valving settings, build your compression valving stacks.

Single Stage - made up of a Restrictor Stack, a Lo-Speed Stack and a Hi-Speed Stack – **NO Crossover**.

Two Stage - made up of a Restrictor Stack, a Lo-Speed Stack, a Crossover, and a Hi-Speed Stack.

Example Single Stage *(figure 2)*

The **Total Compression Valving Stack** is:

Restrictor Valving	**cR00.24**
Lo-Speed	**cL1017**
Crossover	**cLX – none**
Hi-Speed	**cH158**

Starting from the Gold Valve piston face:

Restrictor Valving – cR00.24

(6) .15x24
(1) .10x17

Lo-Speed Stack – cL1017

(8) .15x28

Lo-Speed Crossover – NONE

Hi-Speed Stack – cH158

(1) .10x28
(1) .10x26
(1) .10x24
(1) .10x23
(1) .10x22
(1) .10x21
(1) .10x20
(1) .10x19
(1) .10x18
(1) .10x17
(1) .10x16
(1) .10x15

Visit www.racetech.com, go to Digital Valving Search (DVS) with your Access Code (from the top of page 1) for your personal computer calculated valving setup!

Example Two Stage *(figure 1)*

The **Total Compression Valving Stack** is:

Restrictor Valving	**cR10.22**
Lo-Speed	**cL1017**
Crossover	**cLX2020**
Hi-Speed	**cH158**

Starting from the Gold Valve piston face:

Restrictor Valving – cR10.22

(6) .15x22

Lo-Speed Stack – cL1017

(8) .15x30

Crossover – cLX2020

(2) .10x20

Hi-Speed Stack – cH158

(1) .10x28
(1) .10x26
(1) .10x24
(1) .10x23
(1) .10x22
(1) .10x21
(1) .10x20
(1) .10x19
(1) .10x18
(1) .10x17
(1) .10x16
(1) .10x15

OIL LEVEL, EXTERNAL ADJUSTERS, SPRING RATE, and PRELOAD are listed on the DVS on racetech.com.

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 parenthesis the quantity is one. Example: (2).15x28 means quantity two, 15 hundredths of a millimeter thick by 28 millimeters in diameter.

RESTRICTOR VALVING ***STIFFER*** *(Diameter)* →

0.00 Preload	**cR00.17**	**cR00.22**	**cR00.24**
0.00	(6).15x16	(6).15x22	(6).15x24
	(1).10x16	(1).10x16	(1).10x16
0.05 Preload	**cR05.17**	**cR05.22**	**cR05.24**
0.05	(5).15x16	(5).15x22	(5).15x24
	(2).10x16	(2).10x16	(2).10x16
0.10 Preload	**cR10.17**	**cR10.22**	**cR10.24**
0.10	(6).15x16	(6).15x22	(6).15x24

STIFFER ↓

The Restrictor Valving Stack serves 2 purposes. First, its diameter can restrict the port size. Second, its thickness can create preload.

The piston face has a 1.0mm step on it. This means if you put on a standard valving stack the shims will bend 1.0mm without opening. We call this a 1mm preloaded stack. Testing has shown that the best preloads are between zero and 0.10mm. The Restrictor Valving Stack thickness adjusts the preload.

'Step' – 'Restrictor Stack Height' = 'Preload'

FORK COMPRESSION GOLD VALVE CHART - DIRT G2-R 32mm

<FK GV Chart FC322802G-140312.doc> ©R Brown, P Thede 3.12.14

LO-SPEED COMPRESSION ***STIFFER →***

cL1001	cL1002	cL1003	cL1004	cL1005	cL1006	cL1007	cL1008	cL1009	cL1010
(1).10x28	(2).10x28	.15x28	.15x28	.15x28	.15x28	(2).15x28	(2).15x28	(2).15x28	(3).15x28
			(1).10x28	(2).10x28	(3).10x28		(1).10x28	(2).10x28	
cL1011	**cL1012**	**cL1013**	**cL1014**	**cL1015**	**cL1016**	**cL1017**	**cL1018**	**cL1019**	**cL1020**
(3).15x28	(3).15x28	(3).15x28	(4).15x28	(4).15x28	(4).15x28	(5).15x28	(5).15x28	(5).15x28	(6).15x28
(1).10x28	(2).10x28	(3).10x28		(1).10x28	(2).10x28		(1).10x28	(2).10x28	
cL1021	**cL1022**	**cL1023**	**cL1024***	**cL1025***	**cL1026***	**cL1027***	**cL1028***	**cL1029***	**cL1030***
(6).15x28	(6).15x28	(6).15x28	(7).15x28	(7).15x28	(7).15x28	(8).15x28	(8).15x28	(8).15x28	(8).15x28
(1).10x28	(2).10x28	(3).10x28		(1).10x28	(2).10x28		(1).10x28	(2).10x28	(3).10x28
cL1031*	**cL1032***	**cL1033***	**cL1034***	**cL1035***	**cL1036***	**cL1037***	**cL1038***	**cL1039***	**cL1040***
(9).15x28	(9).15x28	(9).15x28	(10).15x28	(10).15x28	(10).15x28	(11).15x28	(11).15x28	(11).15x28	(11).15x28
	(1).10x28	(2).10x28		(1).10x28	(2).10x28		(1).10x28	(2).10x28	(3).10x28

COMPRESSION CROSSOVER ***STIFFER →***

cLX1016*	cLX1018*	cLX1020	cLX1022*	cLX1024*
.10x16	.10x18	.10x20	.10x22	.10x24
cLX2016*	**cLX2018***	**cLX2020**	**cLX2022***	**cLX2024***
(2).10x16	(2).10x18	(2).10x20	(2).10x22	(2).10x24
cLX3016*	**cLX3018***	**cLX3020**	**cLX3022***	**cLX3024***
(3).10x16	(3).10x18	(3).10x20	(3).10x22	(3).10x24

HI-SPEED COMPRESSION ***STIFFER →***

cH140	cH141	cH142	cH143	cH144	cH145	cH146	cH147	cH148	cH149
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28
.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26
.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24	.10x24
.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22	.10x22
.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20	.10x20
.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18	.10x18
.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x16	.10x17	.10x16
.10x14	.10x14	.10x14	.10x14	.10x14	.10x15	.10x14	.10x15	.10x16	.10x15
.10x12	.10x12	.10x13	.10x12	.10x13	.10x14	.10x13	.10x14	.10x15	.10x14
.10x10	.10x11	.10x12	.10x11	.10x12	.10x13	.10x12	.10x13	.10x14	.10x13
	.10x10	.10x11		.10x11	.10x12		.10x12	.10x13	
		.10x10			.10x11			.10x12	
cH150	**cH151**	**cH152**	**cH153**	**cH154**	**cH155**	**cH156**	**cH157**	**cH158**	**cH159**
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28
.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x26	.10x27	.10x26	.10x26
.10x24	.10x24	.10x24	.10x24	.10x25	.10x24	.10x25	.10x26	.10x24	.10x25
.10x22	.10x22	.10x22	.10x23	.10x24	.10x23	.10x24	.10x25	.10x23	.10x24
.10x20	.10x20	.10x21	.10x22	.10x23	.10x22	.10x23	.10x24	.10x22	.10x23
.10x18	.10x19	.10x20	.10x21	.10x22	.10x21	.10x22	.10x23	.10x21	.10x22
.10x17	.10x18	.10x19	.10x20	.10x21	.10x20	.10x21	.10x22	.10x20	.10x21
.10x16	.10x17	.10x18	.10x19	.10x20	.10x19	.10x20	.10x21	.10x19	.10x20
.10x15	.10x16	.10x17	.10x18	.10x19	.10x18	.10x19	.10x20	.10x18	.10x19
.10x14	.10x15	.10x16	.10x17	.10x18	.10x17	.10x18	.10x19	.10x17	.10x18
.10x13	.10x14	.10x15	.10x16	.10x17	.10x16	.10x17	.10x18	.10x16	.10x17
	.10x13	.10x14	.10x15	.10x16	.10x15	.10x16	.10x17	.10x15	.10x16
		.10x13	.10x14	.10x15	.10x14	.10x15	.10x16		.10x15
			.10x13	.10x14		.10x14	.10x15		
				.10x13			.10x14		
cH160	**cH161**	**cH162**	**cH163**	**cH164**	**cH165**	**cH166**	**cH167**	**cH168**	**cH169**
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.10x28
.10x27	.10x26	.10x26	.10x27	.10x26	.10x26	.10x27	.10x26	.10x26	.10x27
.10x26	.10x24	.10x25	.10x26	.10x24	.10x25	.10x26	.10x24	.10x25	.10x26
.10x25	.10x23	.10x24	.10x25	.10x23	.10x24	.10x25	.10x23	.10x24	.10x25
.10x24	.10x22	.10x23	.10x24	.10x22	.10x23	.10x24	.10x22	.10x23	.10x24
.10x23	.10x21	.10x22	.10x23	.10x21	.10x22	.10x23	.10x21	.10x22	.10x23
.10x22	.10x20	.10x21	.10x22	.10x20	.10x21	.10x22	.10x20	.10x21	.10x22
.10x21	.10x19	.10x20	.10x21	.10x19	.10x20	.10x21	.10x19	.10x20	.10x21
.10x20	.10x18	.10x19	.10x20	.10x18	.10x19	.10x20	.10x18	.10x19	.10x20
.10x19	.10x17	.10x18	.10x19	.10x17	.10x18	.10x19		.10x18	.10x19
.10x18	.10x16	.10x17	.10x18		.10x17	.10x18			.10x18
.10x17		.10x16	.10x17			.10x17			
.10x16			.10x16						
.10x15									
cH170	**cH171**	**cH172**	**cH173**	**cH174**	**cH175**	**cH176***	**cH177***	**cH178***	**cH179***
.10x28	.10x28	.10x28	.10x28	.10x28	.10x28	.15x28	.15x28	.15x28	.15x28
.10x26	.10x26	.10x27	.10x26	.10x26	.10x27	.15x26	.15x26	.15x26	.15x26
.10x24	.10x25	.10x26	.10x24	.10x25	.10x26	15x24	15x24	.15x24	.15x25
.10x23	.10x24	.10x25	.10x23	.10x24	.10x25	.15x22	.15x22	.15x23	.15x24
.10x22	.10x23	.10x24	.10x22	.10x23	.10x24	.10x20	.15x21	.15x22	.15x23
.10x21	.10x22	.10x23	.10x21	.10x22	.10x23		.10x20	.15x21	.15x22
.10x20	.10x21	.10x22	.10x20	.10x21	.10x22			.10x20	.15x21
.10x19	.10x20	.10x21		.10x20	.10x21				.10x20
	.10x19	.10x20			.10x20				
		.10x19							

cH180*	cH181*	cH182*	cH183*	cH184*	cH185*	cH186*	cH187*	cH188*	cH189*
.15x28	.15x28	.15x28	.15x28	.15x28	.15x28	.15x28	.15x28	.15x28	.15x28
.15x27	.15x26	.15x26	.15x27	.15x26	.15x26	.15x27	.15x27	.15x27	.15x27
.15x26	.15x24	.15x25	.15x26	.15x24	.15x25	.15x26	.15x26	.15x26	.15x26
.15x25	.15x23	.15x24	.15x25	.15x23	.15x24	.15x25	.15x25	.15x25	(2).15x25
.15x24	.15x22	.15x23	.15x24	.15x22	.15x23	.15x24	.15x24	(2).15x24	(2).15x24
.15x23	.15x21	.15x22	.15x23		.15x22	.15x23	(2).15x23	(2).15x23	(2).15x23
.15x22		.15x21	.15x22			.15x22	.15x22	.15x22	.15x22
.15x21			.15x21						
.10x20									

* SHIMS NOT PROVIDED IN STANDARD KIT (please call) SHIM SIZING: (QUANTITY) THICKNESS x DIAMETER in mm (inches divide by 25.4)