

MARA PIGGYBACK | SERVICE GUIDE

manitou

MANITOU

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WARRANTY

For full warranty information please visit hayesbicycle.com/warranty

HAYES PERFORMANCE SYSTEMS

INTRODUCTION

This manual is intended to provide the information necessary for the 250 hour full service of the Manitou Mara PiggyBack shock. We highly recommend installation and service be performed by a qualified mechanic. These instructions can be downloaded from the Hayes Performance Systems website at www.manitoumtb.com

⚠WARNING⚠

We highly recommend that service to this shock be performed by a certified bicycle mechanic. Failure to follow instructions presented in this manual could lead to serious injury or death. Any questions about the servicing of this shock or the manual itself should be directed to Hayes Customer Support at:

Phone: 888-686-3472

Email: techsupport@hayesbicycle.com

Suspension shocks by design can contain preload springs, gases and fluids under extreme pressures.Warnings contained in this manual must be observed to avoid damage to shock,serious injury or even death.

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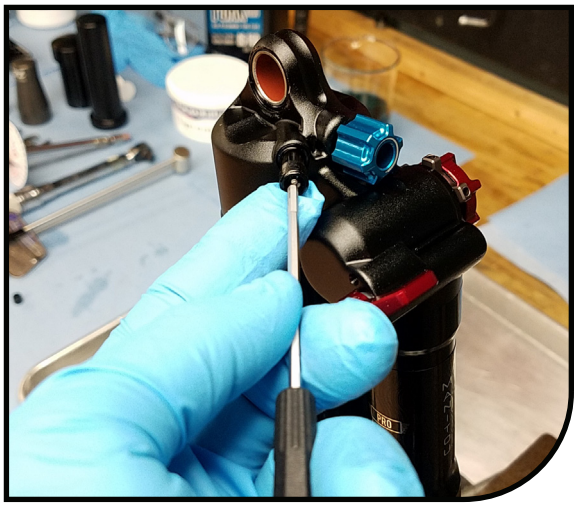
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TOOLS AND MATERIALS

- Safety Glasses
- Nitrile Gloves
- Lint-Free Rags
- Slickoleum™ Grease
- 10-Oz Tub – Manitou Part Number 20-32929
- 5Ml Tube – Manitou Part Number 141-33604-K001
- 5wt Maxima Synthetic shock Oil Manitou Part Number 85-0023
- *For cold weather use Maxima Synthetic All Temperarture 3wt fork oil. (PN 141-34078-K016)*
- Isopropyl Alcohol
- 3/8 drive socket wrench
- 16mm socket
- Torque wrench
- 21mm crows foot
- Free Hub Tool Park Tool PN FR-1
- Metric hex wrench set
- T-10 Torx wrench
- O-Ring Pick
- Hand Dyno
- Bench mounted vise
- Side cutters
- Small flathead screw driver
- Caliper for measuring IFP depth
- Shock Pump
- ½-13 UNC taper tap
- Blue medium strength Loctite
- Red high strength Loctite
- Mara Pro complete rebuild kit 142-37512-K032
- Air piston OD seal bullet tool PN 172-32189-K001
- Manitou Clamp Block PN 172-31464
- Manitou shaft seal bullet tool ID of the air piston PN 142-37512-K040
- Air Can / Reservoir Wrench PN 142-37512-K033
- Compression Assembly Pin Spanner HBG PN 142-37512-K031
- Air Piston Seal Pusher Tool PN 172-32189-K001
- Shaft Seal Bullet Tool PN 142-37512-K040
- Manitou Air Can Negative Seal Stop Install Tool 172-32193-K001
- Manitou Air Piston Bushing and Seal Tool 172-32192-K001
- Manitou Rear Shock Air Piston and Seal Tool 142-37512-K041
- Manitou Trunnion Tool 142-37512-K037

SHOCK TEARDOWN

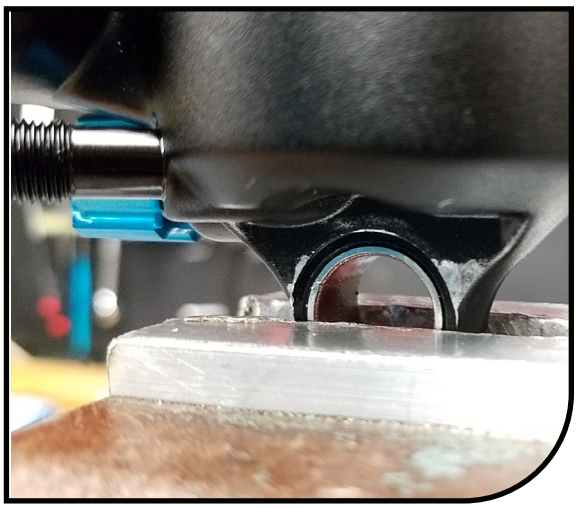
1 Unscrew air cap, thread on shock pump to note pressure. Using the pump's pressure release button release all air. Depress Schrader valve with a small tool to ensure all air is released. Remove valve core.



CAUTION

Do not proceed to the next step without completely depressurizing air spring.

2 Clamp upper eyelet of shock in vise. If Trunnion shock, clamp on trunion mounts. (Use soft jaws to not damage the shock)



3 With the shock top cap in a vise use the air can wrench PN 142-37512-K033 to loosen the air can on the shock. **DO NOT** completely remove the air can at this point, only loosen one full turn. Removing the air can completely at this point will damage the threads due to pressure in the negative chamber.



SHOCK TEARDOWN

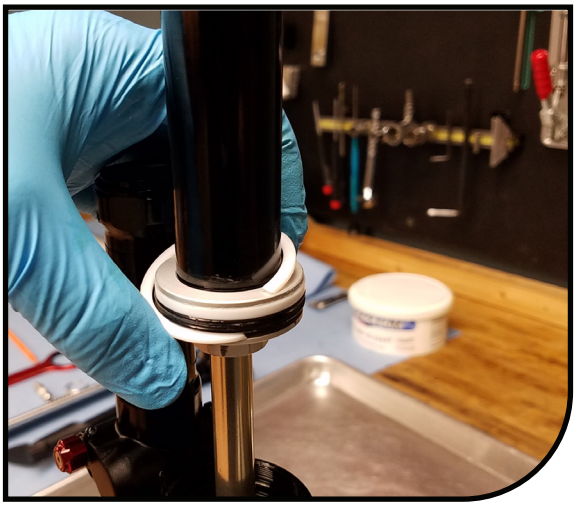
4 Place shock in a hand dyno or in a bicycle frame, slightly compress the shock. At this point unthread the air can fully.



5 Remove air can, bumper, and spacers (if present). These may remain in the air can, locate and save for later re-assembly.

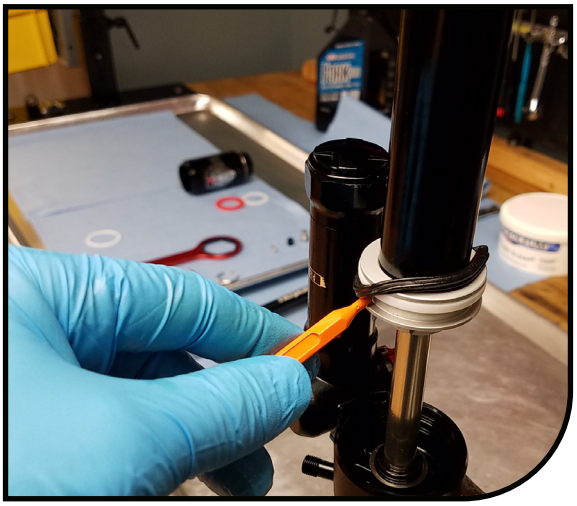


6 Remove split ring from the main air piston.

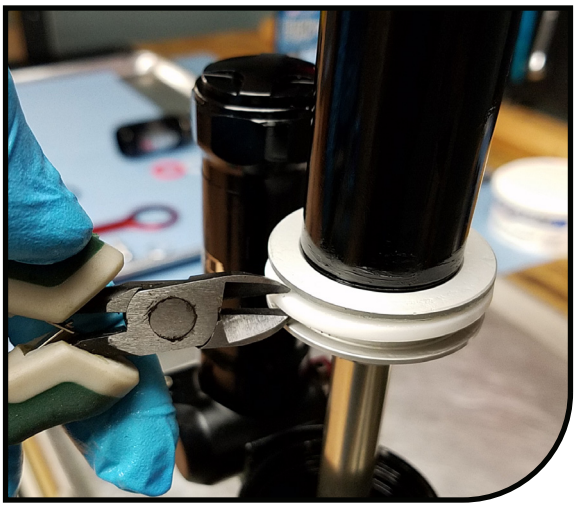


SHOCK TEARDOWN

7 With a plastic pick remove quad-ring seal.



8 A small side-cutter can be used to first partially cut the large piston ring, then break it to remove. Be careful not to damage the groove.



9 Remove the Piggyback Reservoir cap by unthreading it counter-clockwise.



SHOCK TEARDOWN

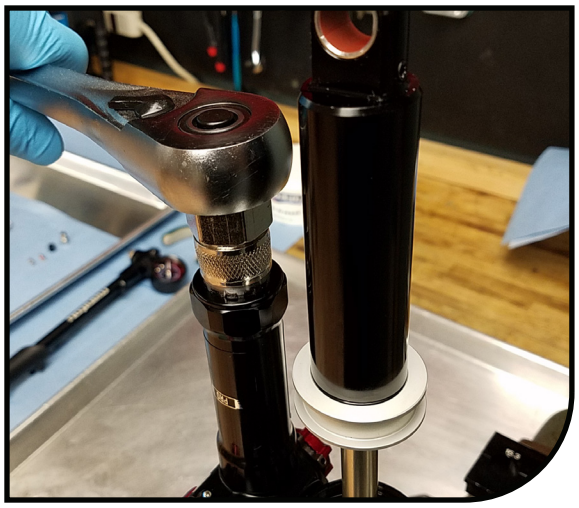
10 Thread on shock pump, using the pump's pressure release button, release all air. Then depress Schrader valve with a small tool a few times to ensure all air is released. Remove the valve core.



CAUTION

Do not proceed to the next step without completely depressurizing reservoir.

11 Use a freewheel removal tool (example: Park Tool FR-1) to remove the Reservoir End Cap.



12 Place a catch basin under the shock to catch oil. Use the air can / reservoir wrench (PN 142-37512-K033) to unthread the shock reservoir. (Alternative: use a 30mm wrench)



SHOCK TEARDOWN

13 The rubber internal floating piston (IFP) will be inside the reservoir. Remove the piston towards the hex end of the reservoir, note orientation and set aside. Removing the IFP in the other direction may damage the seals on the threads. (IFP is replaced during a full service.)



14 The shock's lock-out piston will be visible at this point, carefully remove this assembly and set aside on a lint-free rag. Be sure to account for the rubber face seal which may still be in the top cap when assembly is removed.



15 Using a small flathead screw driver, gently pry up to remove the red LSC knob. Be careful when removing this knob, underneath are two detent balls and springs. Pull these out and set aside, remove the O-ring used to retain the LSC knob.



SHOCK TEARDOWN

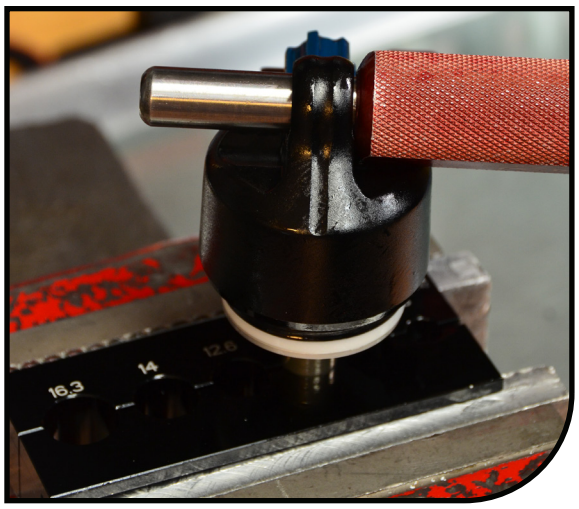
16 Rotate the HSC so the points of the star pattern expose the spanner holes in the adjuster housing underneath. Using the Compression Assembly Pin Spanner (PN 142-37512-K031), engage the pins past the HSC adjuster into the holes in the adjuster housing. Turn counter-clockwise to unthread and remove compression adjuster assembly.



17 Hold the bottom eyelet in a vise, and place a drip pan under the shock. Using a 21mm wrench, remove the air piston from the damper body.

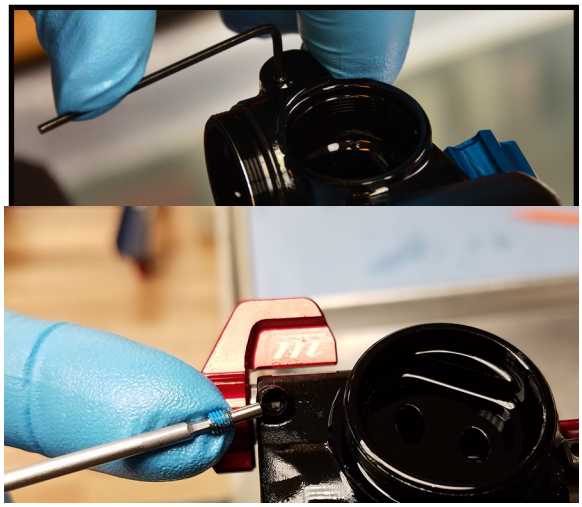


18 Place the main shock shaft into the 12mm Manitou clamp block. Using an eyelet tool such as a pin wrench or an adjustable wrench accross the flat turn the top cap counter clockwise to release the top cap from the main shock shaft.

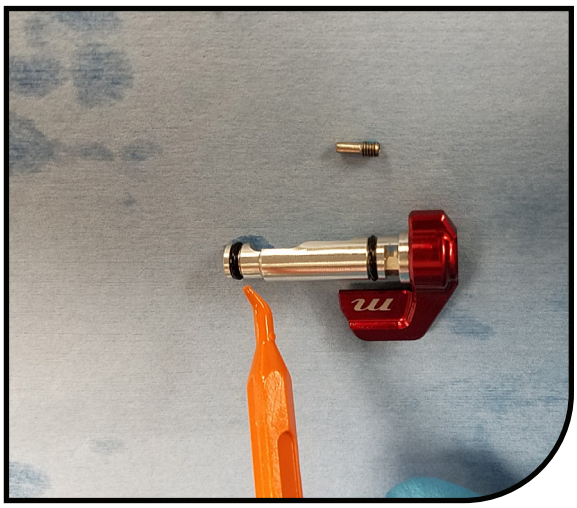


TOP CAP SERVICE

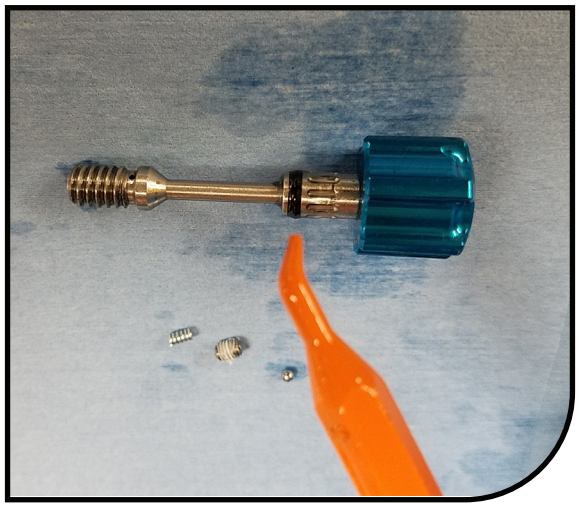
1 Remove the Lock-Out detents by using an M1.5 hex tool, and unthread the small set-screw on the end near the compression adjuster. Flip the shock over and tap, or use a small pointed tool to aid in removing the spring and ball. Next, remove the set-screw/ retaining pin near the red Work/Party lever.



2 Remove the lockout lever assembly by gently sliding it out. Remove the two O-rings. Clean the spool with isopropyl alcohol. Install new O-rings (the Larger 101-600 close to the lever, and the smaller 101-500 near the end.)



3 Remove the M1.5 set screw under the rebound adjustment knob. Remove the spring and detent ball. Remove the rebound adjuster by turning clock-wise (left-handed thread). Remove O-ring and clean the adjuster with isopropyl alcohol. Install a new O ring (101-450) and set aside. *Requires main shaft to be separated from top cap*



TOP CAP SERVICE

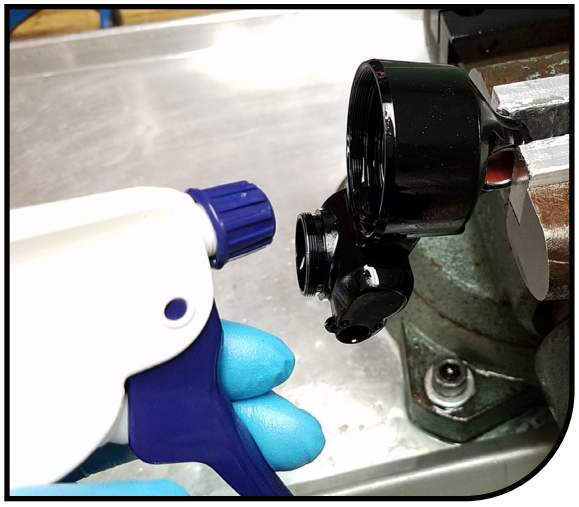
4 Remove main shaft O-ring, air can O-ring and reservoir O-ring from the top cap.



5 Remove valve stem with a 3mm hexwrench.



6 Thoroughly clean topcap, spraying isopropyl alcohol into all ports and passageways. Allow to air dry or blow out with clean compressed air.



TOP CAP SERVICE

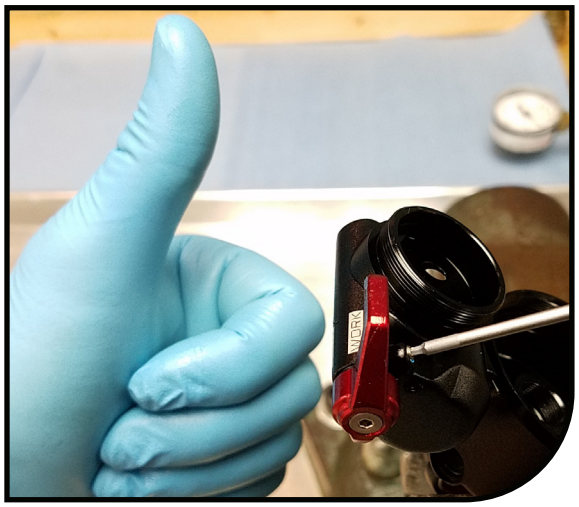
7 Replace O-Ring (101-550-100), apply small drop of blue Loctite to the valve stem threads. Reinstall valve stem into top cap torque to 2.3-2.7Nm (20-24 INlbs) Reinstall valve core.



8 Install reservoir O-ring (101-2600-150), main shaft O-ring (100-013) and air can O-ring (101-4100-200).

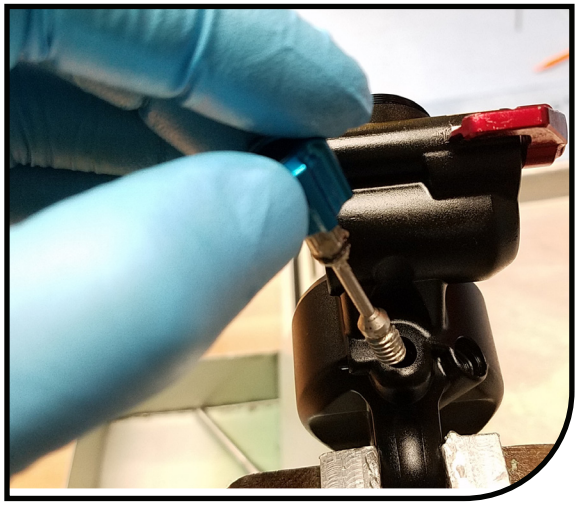


9 Grease O-rings, reinstall Work/Party assembly into the top cap. Install retention pin, check for full movement of the Work/Party lever by adjusting the depth of the retention pin. Such that the lever flips just past the word “WORK”.



TOP CAP SERVICE

10 Apply a dab of grease to the O-ring, ramped surface and thread on the rebound adjuster. Insert into top cap, rotate counter-clockwise to engage the left handed thread. Turn until it lightly bottoms. Reinstall spring and detent ball.



11 Replace the O-Ring (101-1600-0180) on the HSC Piston. Replace the O-Ring (100-018) on the compression cartridge body (above threads at the flange). Grease both O-Rings.

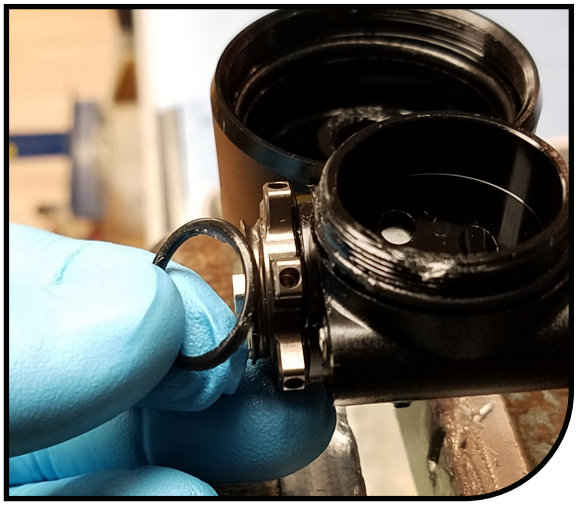


12 Install the compression assembly into the top cap. Use the compression assembly Pin spanner tool (142-37512-K031) and torque to 5.7Nm (50 in-lb).

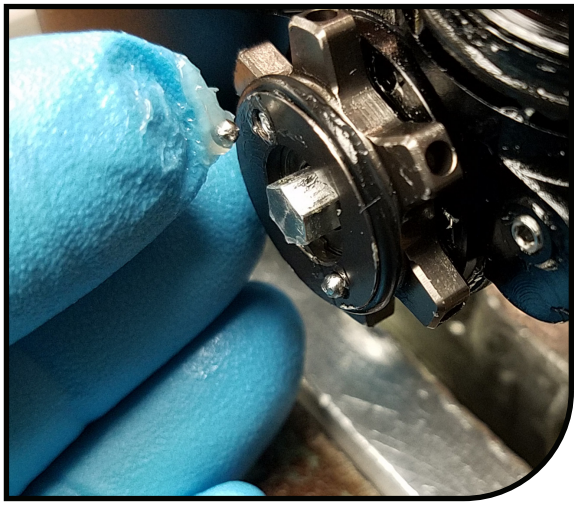


TOP CAP SERVICE

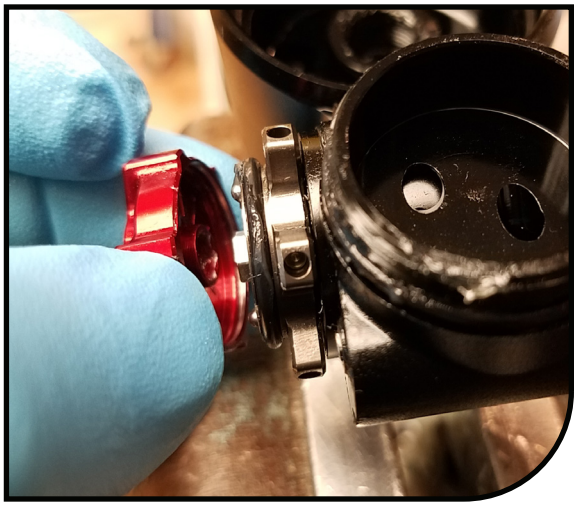
13 Lightly grease O-ring (PN 100-016) and install on the HSC compression adjuster.



14 Use this procedure to install detent and spring for lockout, rebound and LSC knob. Install detent spring using a tool and a dab of grease to help hold the spring in place. Repeat procedure with detent balls.



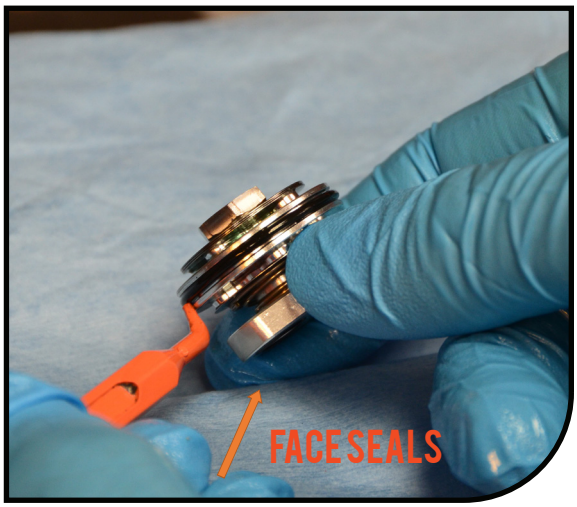
15 Reinstall LSC knob by pushing straight down to not disrupt the detent balls.



TOP CAP SERVICE

16 Remove the O-ring (101-2300-150) from the lock-out piston assembly. Remove face seals if still in place. Clean assembly with Isopropyl alcohol. Install new piston O-ring and new face seal(s). O-ring type face seals (2pc) (101-700-110) or figure 8 type seal (08-37751) depending on the seal gland available. Lockout will be installed at the time of oil fill.

Note: Use grease to hold face seals in place.



17 Remove O-ring (100-021) from the reservoir end cap. Clean end cap with Isopropyl alcohol. Install new O-ring and apply grease. Set aside on a clean, lint free rag until needed after the oil fill process.

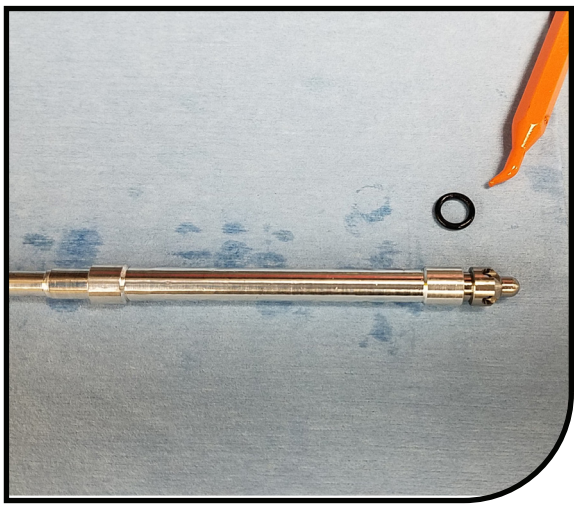


SHAFT SERVICE

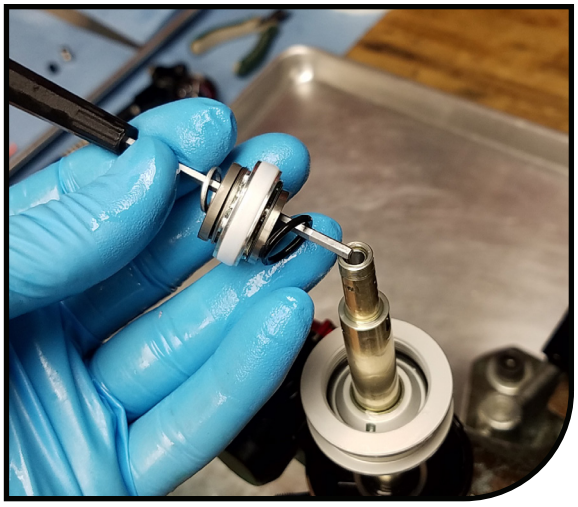
1 Remove the rebound needle (inner piece with rounded head) from the main shaft by gentle pulling it up. Be aware of the spring and two small washers at the bottom of the rebound needle.



2 Remove O-ring (101-600) from the rebound needle. Clean needle with Isopropyl alchohol. Replace the O-ring (101-600) on the rebound shaft. **DO NOT** grease this O-ring! Function and assembly is better without grease.

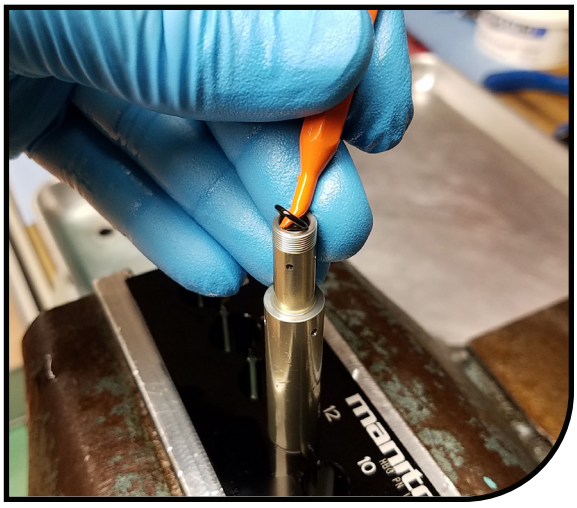


3 Clamp the main shaft in the 12mm Manitou Clamp Block (PN 172-31464) Remove the piston nut from the shaft with a 16mm socket wrench. Carefully slide the shims and piston onto a small tool like an O-ring pick or screw driver to preserve the sequence of components. Carefully set aside.



SHAFT SERVICE

4 Remove inner shaft O-ring.

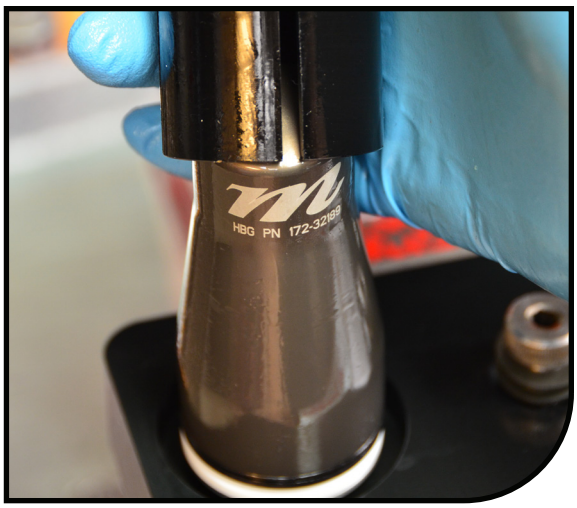


5 If the service warrants replacement of bushings within the air piston, use a ½-13 UNC bottoming tap and the Manitou clamp block to remove the bushings. (See Manitou Air Piston Bushing and Seal Tool instructions for information)



SHAFT AND AIR PISTON ASSEMBLY

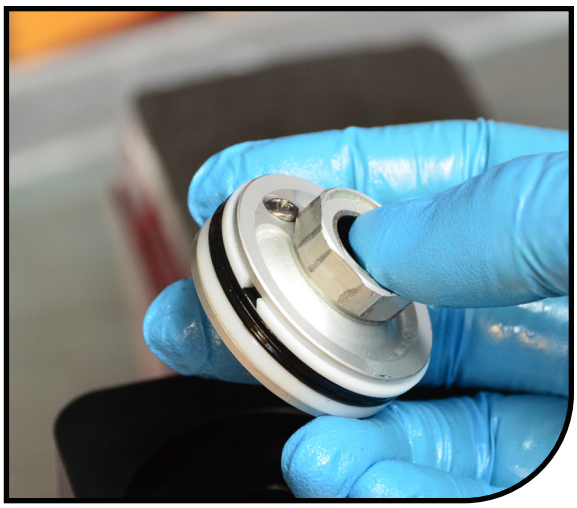
1 Place the air piston into the first pocket of the service block. Grease the outside of the bullet tool and place it on top of the piston. Use the Air Piston Seal Pusher Tool (PN 172-32189-K001) to install the glide ring onto the air piston. Note If bullet tool is not available see "50 hour air can and piston service guide" for alternative method of replacing the seals. If using this method the air piston will need to be installed on the main shaft. It is recommended this would be done after the full service is complete. Please skip to step 5 if using the alternative method



2 Grease new air piston quad seal (08-30017) and use the seal pusher to install onto the air piston.



3 Install the Split Ring (08-30718) onto the air piston.

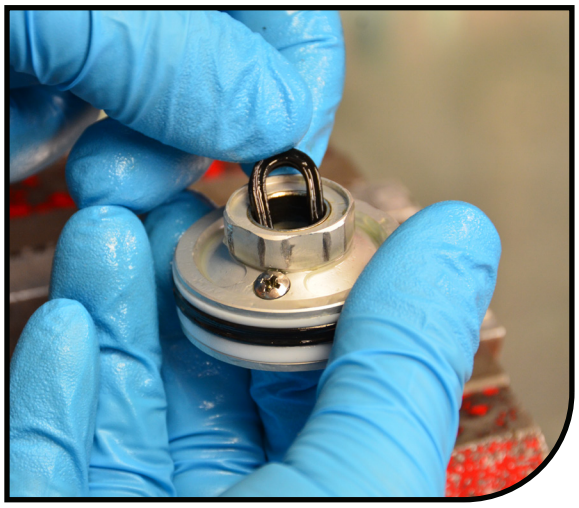


SHAFT AND AIR PISTON ASSEMBLY

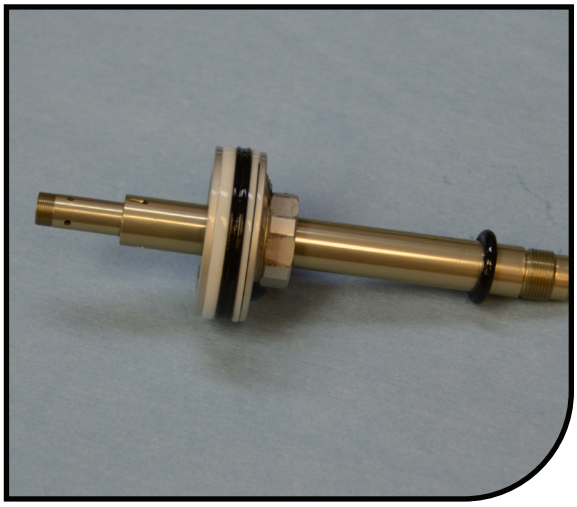
4 Replace the O-Ring (101-2600) in the bottom of the air piston.



5 Grease new shaft Quad Ring (110-112) and install into the air piston. Ensure it is not twisted. Note: Air Piston Service Tool can be used for this step. The peg on the end acts as a stop for installing the seals in the piston.

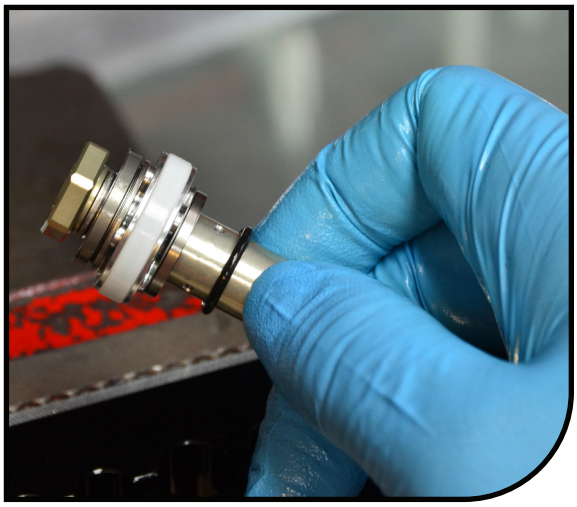


6 Grease the mainshaft. Using the shaft seal bullet tool (142-37512-K040), slide the air piston on at the damping-end of the shaft



SHAFT AND AIR PISTON ASSEMBLY

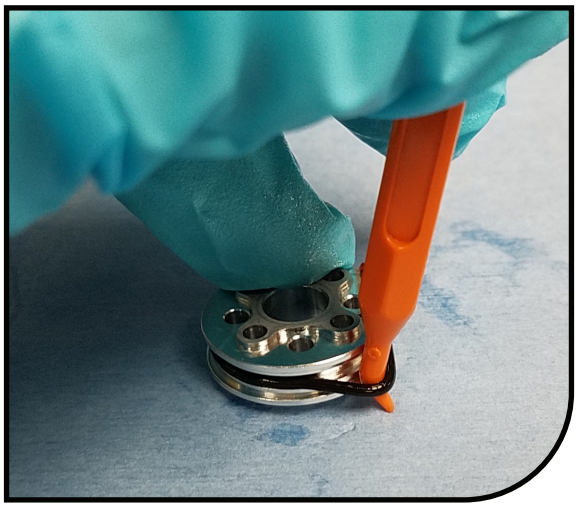
7 Replace the top-out bumper O-ring (100-013) on the main shaft that will sit on the main piston.



8 Reinstall shim stack below the piston by gently sliding the tool into the main shaft. Be careful to maintain the correct sequence of components. Remove the piston and stack above the piston for further disassembly.



9 Using an O-ring pick, remove the white piston ring, and the O-ring underneath. Install a new O-ring (PN 101-1810). Install a new piston glide ring (PN 129-30020).



SHAFT AND AIR PISTON ASSEMBLY

10 Reinstall the piston and top shim stack by gently sliding the tool into the main shaft. Be careful to maintain the correct sequence of components.



11 With a small drop of red Loctite, replace the main shock nut on the bottom of the main shaft. Torque to 5nm (45in-lb). *Excess Loctite can contaminate the assembly)

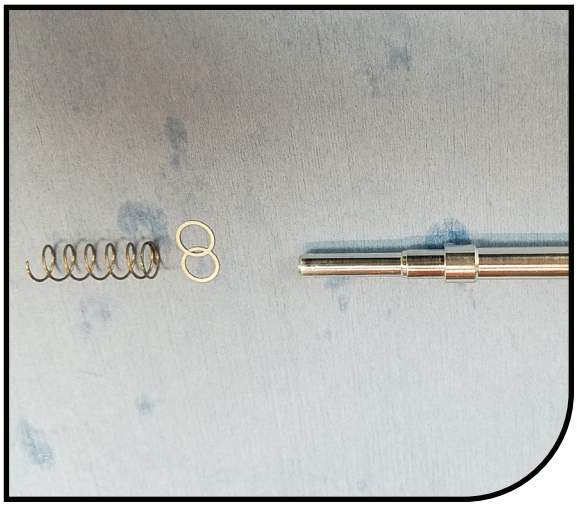


12 From the bottom of the main piston install a new inner shaft O-Ring. (PN 101-500-100)



SHAFT AND AIR PISTON ASSEMBLY

13 Orient flat side of the spring towards the upper end of the rebound needle against the two shims.



14 Reinstall the rebound shaft into the main shaft.



15 Replace the bottom out bumper O-Ring (101-1150-0300) above the air piston.

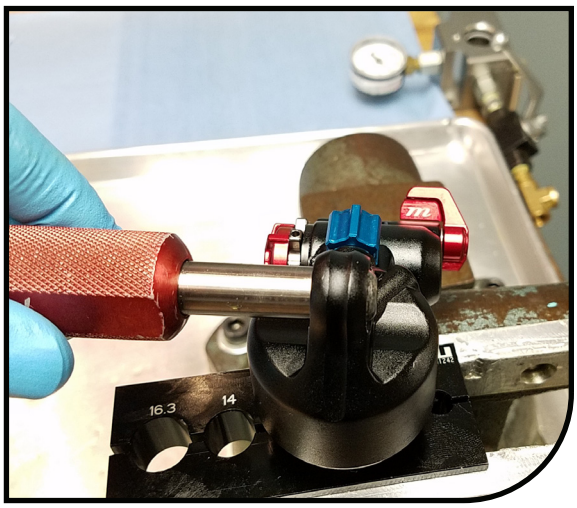


SHAFT AND AIR PISTON ASSEMBLY

16 Install the bottoming shims or spacers. *Some shocks may have a 2.5mm plastic spacer or a 5mm aluminum spacer.*



17 Hold the main shaft in the vise using Manitou clamp block tool (172-31464). Thread the top cap onto the main shaft and torque to 11.3Nm (100in-lb)



AIR CAN SERVICE

1 Remove the negative chamber MCU and spacer(s). Carefully remove the dust wiper using an O-ring pick. Remove the quad-ring and piston ring. Clean and inspect air can for damage.



2 Remove the King Can outer sleeve. Remove the O-rings, remove white back-up ring from the middle groove (Mid-King Can volume setting), and volume spacer rings if used. Thoroughly clean the entire air can with Isopropyl alchohol

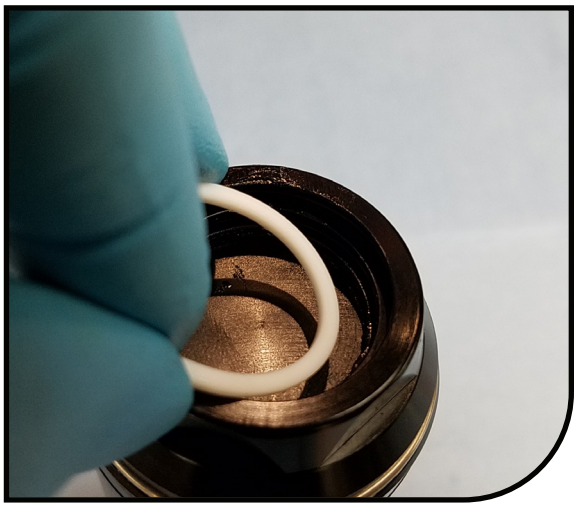


3 Optional use Air Can Negative Seal Service Tool (172-32193-K001) to ease seal installation. If not available refer to "50 hour Air Can and Piston Service Guide." The flat surface of the tool will help direct the seals into the internal seal glands. Install the quad-ring first.

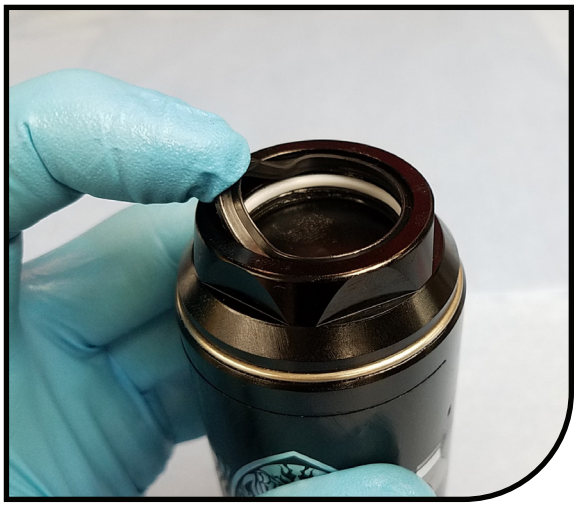


AIR CAN SERVICE

4 Next install the white PTFE back-up ring, fitting in the same groove. Note the back-up ring must be to the outside of the quad-ring



5 Install the wiper seal, with the narrow lip facing externally.

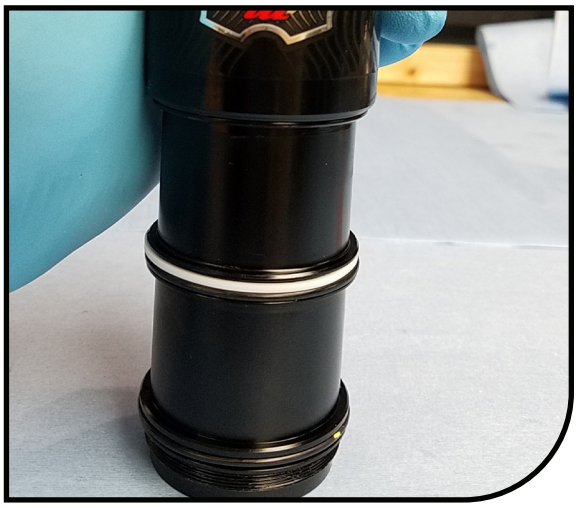


6 Replace the King Can sleeve seals in three places (if using a full King Can, only the two outer seals will be used.) (100-030). Apply a few dabs of grease to the middle seal gland, and install back-up ring (08-36360). Apply Slickoleum grease to the ID of the cleaned King Can sleeve.



AIR CAN SERVICE

7 Install the sleeve over the seals, being careful not to pinch the back-up ring. Install wire retaining ring in the groove at the lower end of the sleeve.



8 The MCU and negative spacers will be installed on the damper body at a later time. Grease the air can ID and negative seals with Slickoleum. Set aside on a clean shop rag for later use.



BLEED AND FILL

1 Clamp the shock damper tube in the vise on the eyelet. Fill the damper tube to the top with 5wt damper fluid. *For cold weather use Maxima Synthetic All Temperarture 3wt fork oil. (PN 141-34078-K016)*



2 Install the main shaft and piston into the shock damper tube. Add oil if needed to top-off the damper tube once the piston is installed.

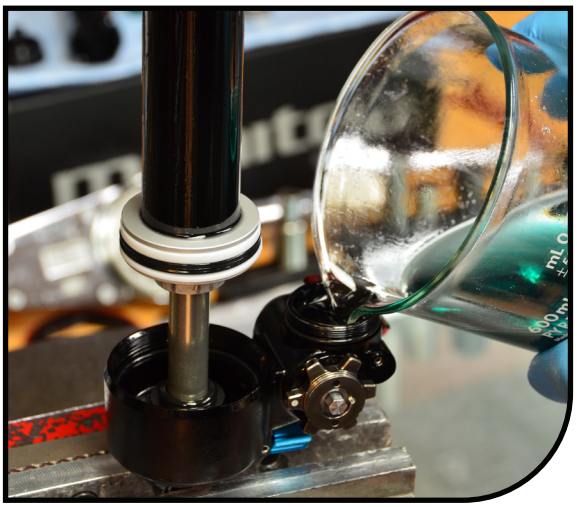


3 Remove the bleed screw on the air piston so that air can escape while the air piston is threaded on to the damper tube. Torque the air piston to 26Nm (230in-lb). Replace the bleed screw.



BLEED AND FILL

4 Flip the shock and clamp the eyelet (or clamp across the trunnion faces) into the vise. With the lockout assembly removed, fill the compression assembly with oil. Actuate the lockout lever 5-10x to work air out of the shock.



5 Place the lockout assembly into its location in the top cap. Be sure the face seals stay in place.



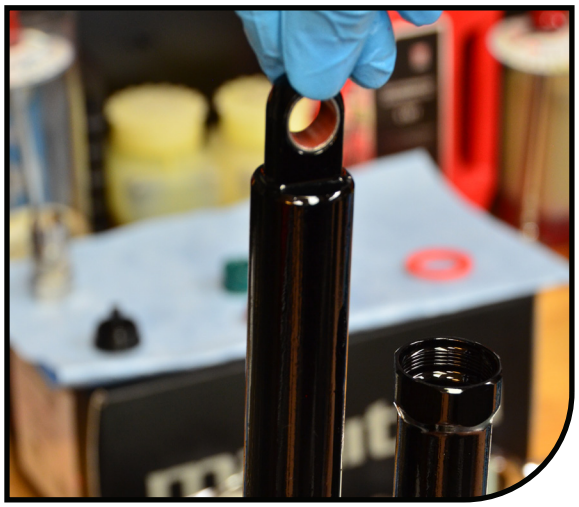
6 While pushing down firmly to engage the O-ring thread the reservoir onto the top cap and torque to 9Nm (80 in-lb). Fill the reservoir 2/3 full of oil.



BLEED AND FILL

7 Set the Lockout to Party Mode. Slowly compress the damper body about 1/2 way or until bubbles stop coming up in the reservoir. Compressing slowly helps reduce atomization of the bubbles, allowing them to rise out more quickly. Fully extend the damper body.

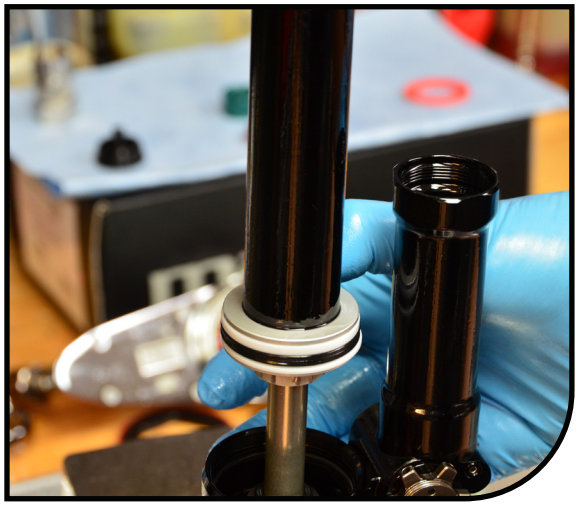
Note: At this step, minimal stroking will help prevent excess aeration of the oil.



8 Angle the shock in the vise so the bleed screw is pointing slightly downwards. This sets the flow path from the body to the high point. Flip the Lockout Lever to Work Mode. This will create a strong resistance to oil flow going to the reservoir. Crack open the bleed screw at the damper eyelet. Slowly compress the damper body, noting the air coming out the bleed screw. At bottom-out or when oil begins to show, stop the compression and close the bleed screw. Slowly extend the shock.

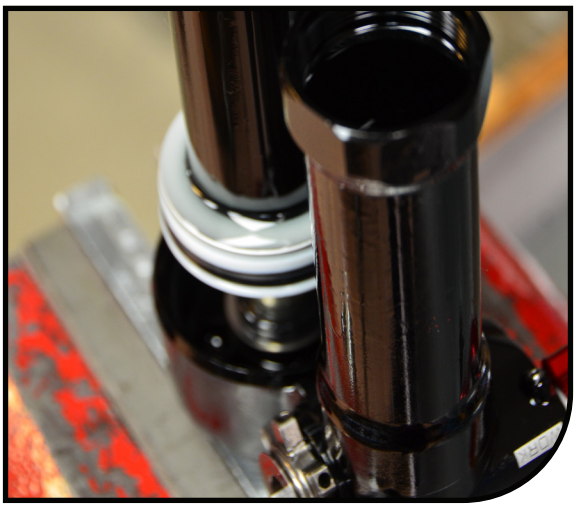


9 Always ensuring the reservoir is about 2/3 full to prevent air ingestion, repeat step 8 until no air expels from the bleed port. With bleed screw closed and shock in Work mode, the damper should be difficult to compress, with no gap or soft feel at the very beginning of stroke. It may require 5 to 8 cycles to complete this step.



BLEED AND FILL

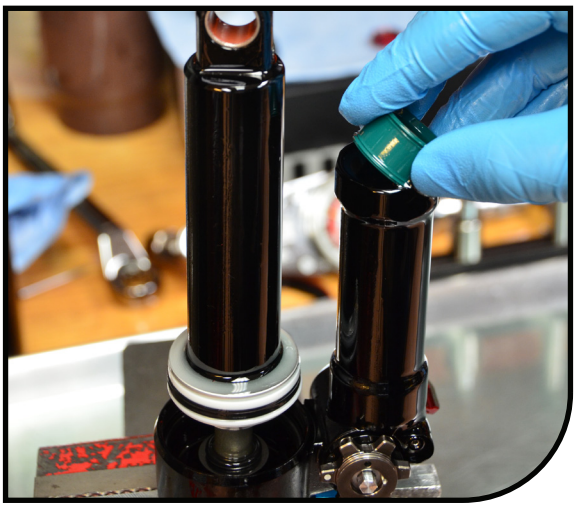
10 Set the lockout switch to Party Mode. Compress the damper body and note any bubbles rising up in the reservoir. Repeat as needed. Close the LSC adjuster, open the HSC adjuster and repeat. This will expel any air trapped under the HSC shim stack. Repeat steps 8-9 as needed if there is any suspicion of air remaining in the system. With Work Mode engaged, the damper should be very firm.



11 Fully extend the damper body. Fill the reservoir completely full with damper oil.



12 The large cup side of the SKF IFP will be facing up (towards the gas charge side). Use 1 edge, and "scoop" the shallow face of the piston into the oil, allowing the small air pocket to clear before submersing. Stop when the leading edge of the IFP is engaged on the primary inner diameter of the reservoir below the threads.



BLEED AND FILL

13 Ensure damper is fully extended, by pressing lightly on the IFP while pulling up on the damper body. Completely remove the bleed screw.



14 Use a finger to press the IFP down to the specified depth per shock and reservoir size published in Table 2 "IFP Depth."



15 Reinstall the bleed screw while applying a light pressure to the IFP, preventing air entering into the bleed port.



BLEED AND FILL

16 Thread on the reservoir end cap and torque to 5.6Nm (50 in-lb) with the freewheel removal tool (example: Park Tool FR-1).

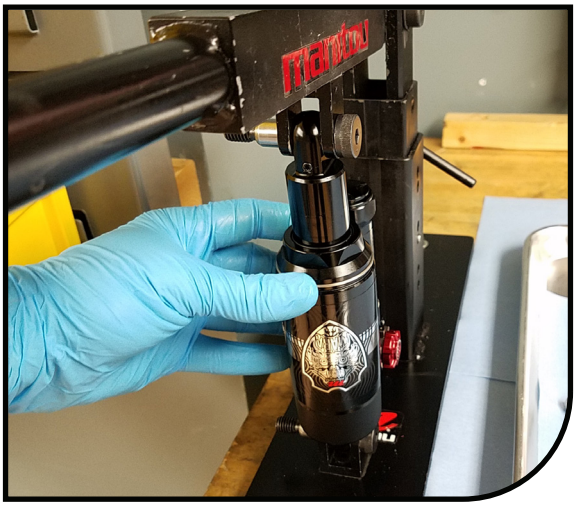


17 Pressurize the shock IFP to 300psi, test function in a hand dyno.



18 Clean the air can, replace negative spacers, apply grease and install the air can while easing the air piston back-up rings into the air can. Place the shock in a bike or on a hand dyno, compress the shock and thread on the air can to a torque of 10.7Nm (95in-lb).

Note: If compressing by hand it may be necessary to release the gas charge to ease the process.



BLEED AND FILL

19 Pressureize air can to 125 psi. Recharge IFP to 300 psi if previously released. Replace the dust caps on the Reservoir and mair chamber. Install bottom out O-ring on the damper body.



20 Refer to Mara Set-up guide for air can pressure.(See Below)



SETUP GUIDE

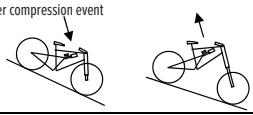
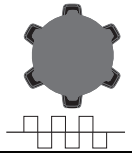
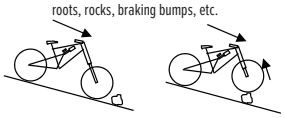
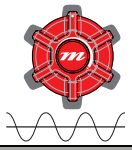
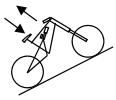
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MARA PRO SET-UP GUIDE



SET UP NOTES

- SET SAG TO 20-30% OF TRAVEL WITH RIDER IN THE ATTACK POSITION AND SHOCK IN PARTY MODE.
  (This is the standing position a rider should be in while riding aggressively. A deep bend in knees and elbows with heavy feet, light hands. The head and eyes up scanning the trail ahead.)
  SEE OWNERS MANUAL FOR SAG MEASUREMENT PROCEDURE.
- FURTHER ADJUST PRESSURE BASED ON PERFORMANCE
- MAX PRESSURE NOT TO EXCEED 250 PSI [17.2 BAR]
- SHOCK SHOULD BE UNWEIGHTED WHEN ADJUSTING AIR PRESSURE.
- BASELINE SETTING IS RECCOMENDED SETTING FOR AVERAGE TERRAIN
- MAKE CHANGES AS SMALL AS 3PSI AND 1 VOLUME RING TO INFLUENCE CORNERING CHARACTERISTICS AND BOTTOMING FEEL.

DAMPING ADJUSTMENT	FUNCTIONAL DESCRIPTION	RECOMMENDED SETTINGS BASED ON 170LB RIDER	
REBOUND 	Controls speed at which wheel returns to sagged position after compression event 	− MIN 12 - 0 + MAX	BASELINE REBOUND: MAX -5
		• Rebound speed is dependent on air spring pressure. Rebound setting will vary for different rider weights and /or spring pressures. • For best performance rebound speed should be equal for front and rear wheels. • Add rebound damping to reduce "kick" off jump lips and busy wheel activity on square edged rocks. Reduce rebound damping to improve tire traction or ground following.	
HI-SPEED (OUTER) 	Controls damping force for unsprung wheel movement; roots, rocks, braking bumps, etc. 	− MIN 0 - 6 + MAX	BASELINE HI-SPEED: MIN +3
		• Reduce high speed compression to eliminate spiking or harshness. • Add high speed compression when the rear wheel i s busy and overshooting square edged bumps. The bike will skate around and be difficult to steer accurately in this condition.	
LO-SPEED (INNER) 	Controls damping for sprung chassis movement; pedaling, pumping, berms, g-out etc. 	− MIN 24 - 0 + MAX	BASELINE LO-SPEED: MAX-15
		• Opening lo-speed from closed reduces initial compression force and improves small bump sensitivity. • Lo-speed adjuster controls the chassis movement and rider inputs. Increase lo-speed to improve support off lips of jumps and prevent bottoming on landings, and reduce wallowing from steering or body movements.	
DAMPING ADJUSTMENT	**FUNCTIONAL DESCRIPTION**	**PARTY MODE**	**WORK MODE**
PLATFORM 	Activates platform mode for more efficient climbing 	• "Open Mode" • Adjustments to lo-speed and high-speed compression and rebound are active	• "Closed Mode" • Adjustments to lo-speed and high-speed compression are deactivated • Rebound remains fully active • Separate internal circuit with pre-defined platform

HBG PART NO. 46-38278

REV B [2020.4.20]

TORQUE SPEC

TORQUE SPECS		
COMPRESSION ASSEMBLY	**NOMINAL**	**TOLERANCE**
PISTON INTO CARTRIDGE	50 in-lb	±3
NUT ONTO LSC SHAFT	35 in-lb	±3
CARTRIDGE INTO TOPCAP	50 in-lb	±5
LOCKOUT ASSEMBLY		
BOLT IN LOCKOUT BODY	50 in-lb	±3
RESERVOIR		
RESERVOIR INTO TOPCAP	80 in-lb	±10
SCHRADER INSERT INTO RESERVOIR	50 in-lb	±3
MAIN SHAFT		
SHAFT INTO TOPCAP	100 in-lb	±10
NUT TO SHAFT	45 in-lb	±3
DAMPER BODY		
DAMPER BODY TO AIR PISTON	230 in-lb	±10
BLEED SCREW INTO DAMPER BODY	12 in-lb	±2
TOP CAP		
KNOB SCREWS	5 in-lb	±1
AIR CAN TO TOPCAP	95 in-lb	±5
SCHRADER VALVE CORE	3 in-lb	±1

Table 1: Torque Spec

IFP DEPTH

IFP DEPTH		
SHOCK SIZE	STANDARD RESERVOIR IFP DEPTH (MM)	OPTIONAL SHORT RESERVOIR IFP DEPTH (MM)
200 X 56	40	x
216 X 63	44	x
222 X 68	50	44
240 X 76	50	44
190 X 40	40	x
190 X 45	40	x
210 X 50	40	x
210 X 55	40	x
230 X 60	50	44
230 X 65	50	44
250 X 70	50	44
250 X 75	50	44
160 X 40	40	x
165 X 45	40	x
185 X 50	40	x
185 X 55	40	x
205 X 60	50	44
205 X 65	50	44
225 X 70	50	44
225 X 75	50	44
230 X 60	50	44
260 X 65	50	44

Table 2: IFP Depth Chart

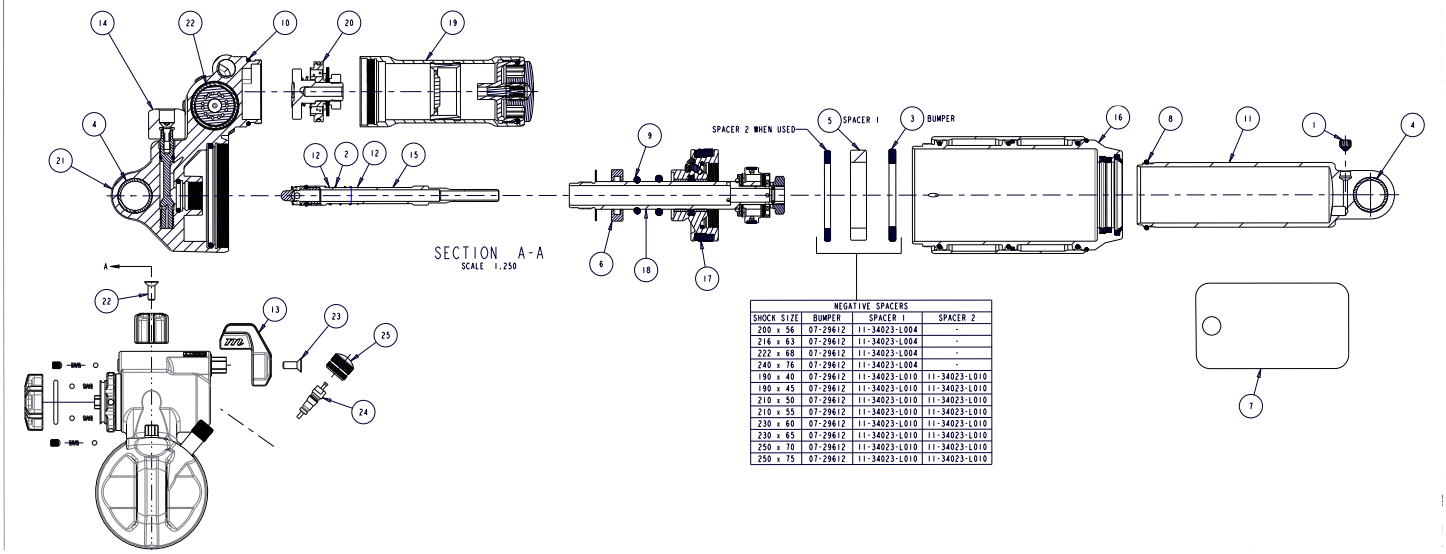
O-RING LOCATIONS

O-RING LOCATION	
PART NUMBER	**LOCATION**
100-021 O-Ring, 2-size As568A-021	Top of Reservoir
101-2600 O-Ring, Metric 7.10IDx1.80xs	Bottom of Reservoir
101-2300 O-Ring	Reservoir Piston
08-37751 Seal	Reservoir Piston
101-330-150	LS compression needle
100-016 A5568A-021	Comp. Adjustment Body
101-950-0150	Comp. Adjustment Body
100-018 As568A-021	Comp. Adjustment Body
101-1600	Comp. Adjustment Body
101-500	Lockout Lever
101-600	Lockout Lever
101-450	Rebound Adjustment knob
101-1150	Main Shock Shaft
100-013	Main Shock Shaft
08-30017	Air Piston
08-30015	Air Piston
08-30718	Air Piston
110-112	Air Piston
110-122	Shock Damper Tube
08-30014	Shock Damper Tube
08-30019	Shock Damper Tube
100-013	Top Cap
101-500	Top Cap
101-4100	Top Cap
101-600	Rebound Shaft
101-500	Rebound Shaft

Table 3: O-Ring Location

MARA PIGGYBACK EXPLODED VIEW

ITEM	PART NUMBER	DESCRIPTION	QTY
1	01-21114	SCREW,BLEED	1
2	06-37741	SPRING, RBND NEEDLE 6.8 ID/8.0 OD x0.6 T x26 FL	1
3	07-29612	BUMPER, NEGATIVE SHOCK 3MM THK	1
4	11-28998	BUSHING	2
5	11-34023-L010	SPACER, AIR CAN 7.0 THICK	2
6	11-37001-005	SPACER, STROKE 22.25 X 12.1MM X 5 THK	1
7	29-25280-G004	SHOCK, AIR PRESSURE HANG TAG 135PSI	1
8	100-023	O-RING, 2-SIZE, AS568A-021	1
9	100-111	O-RING, 2-SIZE, AS568A-021	1
10	101-2600-150	O-RING, METRIC Ø7.101D x 1.80XS	1
11	111-36334-M001	TUBE, SHOCK DAMPER MARA PB 190X45 102.25 LG	1
12	123-37762-L080	SHIM, 6.50MM ID 0.15MM THICK	2
13	127-37332	LEVER, LOCKOUT, PB SHOCK	1
14	127-37343	KNOB, REBOUND, PB SHOCK	1
15	183-36561-M001	ASSY, MARA RBND PB 83.30 LG	1
16	183-36629-C103	ASSY, TRUNNION DBL AIR CAN 40MM 190/165X45 HALF	1
17	183-36841-C001	ASSY, PB/TRUNNION AIR PISTON	1
18	183-36841-CAAE	ASSY, PB/TRUNNION MAIN SHAFT 74.5LG	1
19	183-36856-C001	ASSY, PB SHOCK RESERVOIR 70 LG	1
20	183-36857	ASSY, PB SHOCK RESERVOIR PISTON	1
21	183-36871-C002	ASSY, PB TOP CAP EYELET NON-REMOTE	1
22	183-37353	ASSY, COMP ADJUSTMENT	1
23	211-10	FLAT HEAD SOCKET SCREW	2
24	061751	SCHRADER VALVE CORE	1
25	065139	SCHRADER CAP	1



NEGATIVE SPACERS			
SHOCK SIZE	BUMPER	SPACER 1	SPACER 2
200 x 56	07-29612	11-34023-L004	-
216 x 63	07-29612	11-34023-L004	-
222 x 68	07-29612	11-34023-L004	-
240 x 76	07-29612	11-34023-L004	-
190 x 40	07-29612	11-34023-L010	11-34023-L010
190 x 45	07-29612	11-34023-L010	11-34023-L010
210 x 50	07-29612	11-34023-L010	11-34023-L010
210 x 55	07-29612	11-34023-L010	11-34023-L010
230 x 60	07-29612	11-34023-L010	11-34023-L010
230 x 65	07-29612	11-34023-L010	11-34023-L010
250 x 70	07-29612	11-34023-L010	11-34023-L010
250 x 75	07-29612	11-34023-L010	11-34023-L010

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