



**PRO/COMP
SERVICE GUIDE**



HAYES

PERFORMANCE SYSTEMS



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INTRODUCTION

This manual is intended to guide the user through the steps necessary to fully service and maintain the Mastodon Pro and Mastodon Comp suspension forks. Use pages 9-15 for both Pro and Comp forks. Continue with pages 16-26 for the Pro. Use pages 27-36 for the Comp.

 **WARNING** We highly recommend that service to this fork 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 fork or the manual itself should be directed to Manitou Customer Support at:
Phone: 888-686-3472
Email: techsupport@hayesbicycle.com


 **WARNING** Suspension forks by design can contain preloaded springs, gases and fluids under extreme pressures. Warnings contained in this manual must be observed to avoid damage to fork, serious injury or even death.

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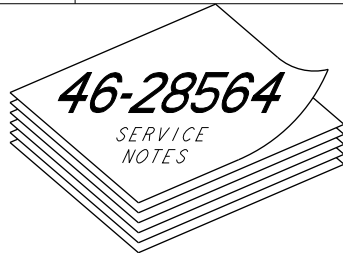
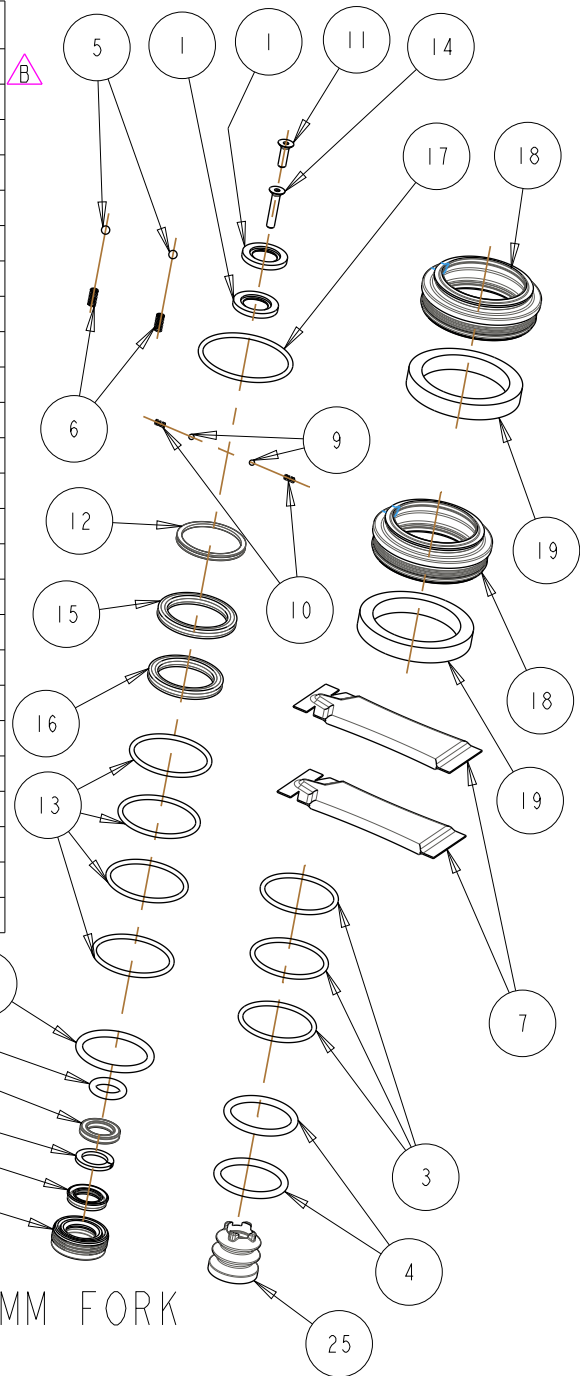
REQUIRED TOOLS

Below is a list of tools necessary for servicing the Mastodon Pro/Comp fork.

- Safety Glasses
- Nitrile Gloves
- Lint-Free Rags
- Torque Wrench
- Slickoleum Grease
- Semi-bath Oil, 5/40w Synthetic - Manitou PN 85-0022
- All-Temp Synthetic 3wt Fork Oil - Manitou PN 141-34078-K016
(Effective at all temperatures and required for extreme cold use)
- *Optional - Synthetic 5wt Fork Oil – Manitou PN 85-0023
(Effective in normal warm season applications)
- Mattoc Tool Kit - Manitou PN 172-31133
 - Manitou Cassette Tool
 - Manitou Thin Walled 8mm Socket
 - Manitou 24mm Flat Ground Socket
- Optional O-ring Kit - Manitou part number 141-28528-K008
- 8mm Hex Socket
- 2mm Hex Wrench
- 20mm Socket
- 24mm Socket
- 22mm Box end Wrench
- 12mm Box End Wrench
- 12mm Socket
- Ratchet
- 22mm Crow's Foot
- Fork/Shock Pump
- Pick
- Adjustable Wrench
- Downhill tire lever or flat blade screwdriver

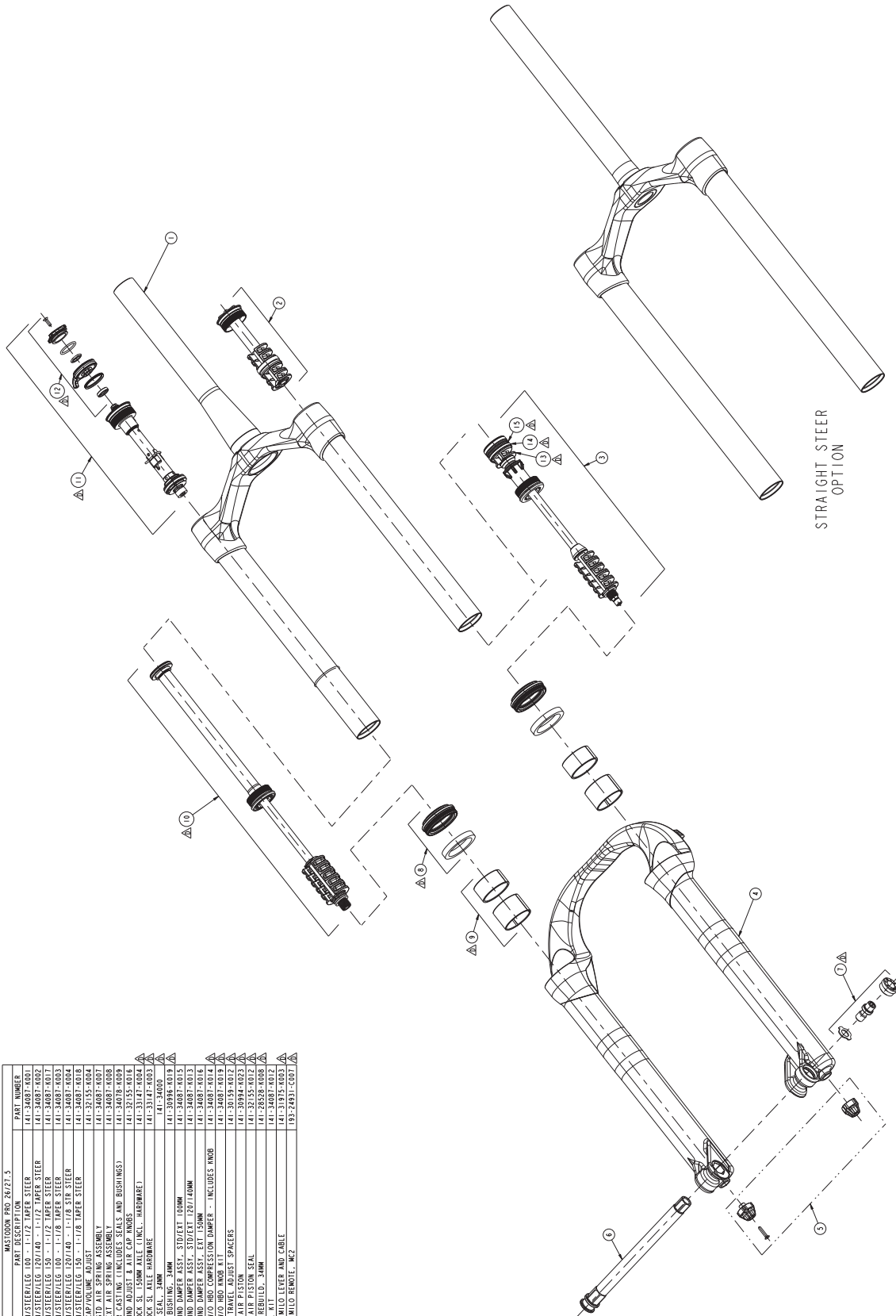
MASTODON REBUILD KIT EXPLODED VIEW

ITEM	PART NUMBER	DESCRIPTION	QTY
1	09-23859	GASKET, BONDED SEAL	2
2	100-120	O-RING, 2-SIZE, AS568A-021	1
3	100-023	O-RING, 2-SIZE, AS568A-021	3
4	100-119	O-RING, 2-SIZE, AS568A-021	2
5	040689	BALL, 1/8" DETENT	2
6	072162	SPRING, 1/8" DETENT	2
7	20-32819	GREASE, SLICKOLEUM 5ml PACKET	2
8	46-28564	SERVICE, MARKHOR/R7 REBUILD KIT	1
9	19-28296	BEARING, 2MM, STAINLESS	2
10	06-29643	SHOCK, SPRING,	2
11	211-11	FLAT HEAD SOCKET SCREW	1
12	08-29560	SEAL, V-RING, 23.0 ID x 1,8	1
13	100-024	O-RING, 2-SIZE, AS568A-021	4
14	211-13	FLAT HEAD SOCKET SCREW	1
15	110-213	QUAD RING, 4-SIZE, AS568A-210	1
16	110-212	QUAD RING, 4-SIZE, AS568A-210	1
17	100-027	O-RING, 2-SIZE, AS568A-021	1
18	08-33983-0001	SEAL, 34MM TSS HNBR INTEGRATED	2
19	072131	FOAM INSERT, 34mm	2
20	100-110	O-RING, 2-SIZE, AS568A-021	1
21	08-30018	QUAD-RING, 10.20 x 2.62, NBR	1
22	08-30013	BACK-UP RING (ID)10.00 x (W)2.30 x (T)1.20	1
23	08-28921-L100	SEAL, U-CUP ROD	1
24	08-33203	SEAL, DUAL LIP, 12.6 x 21 BN70	1
25	09-25044	BUMPER, TOP-OUT	1



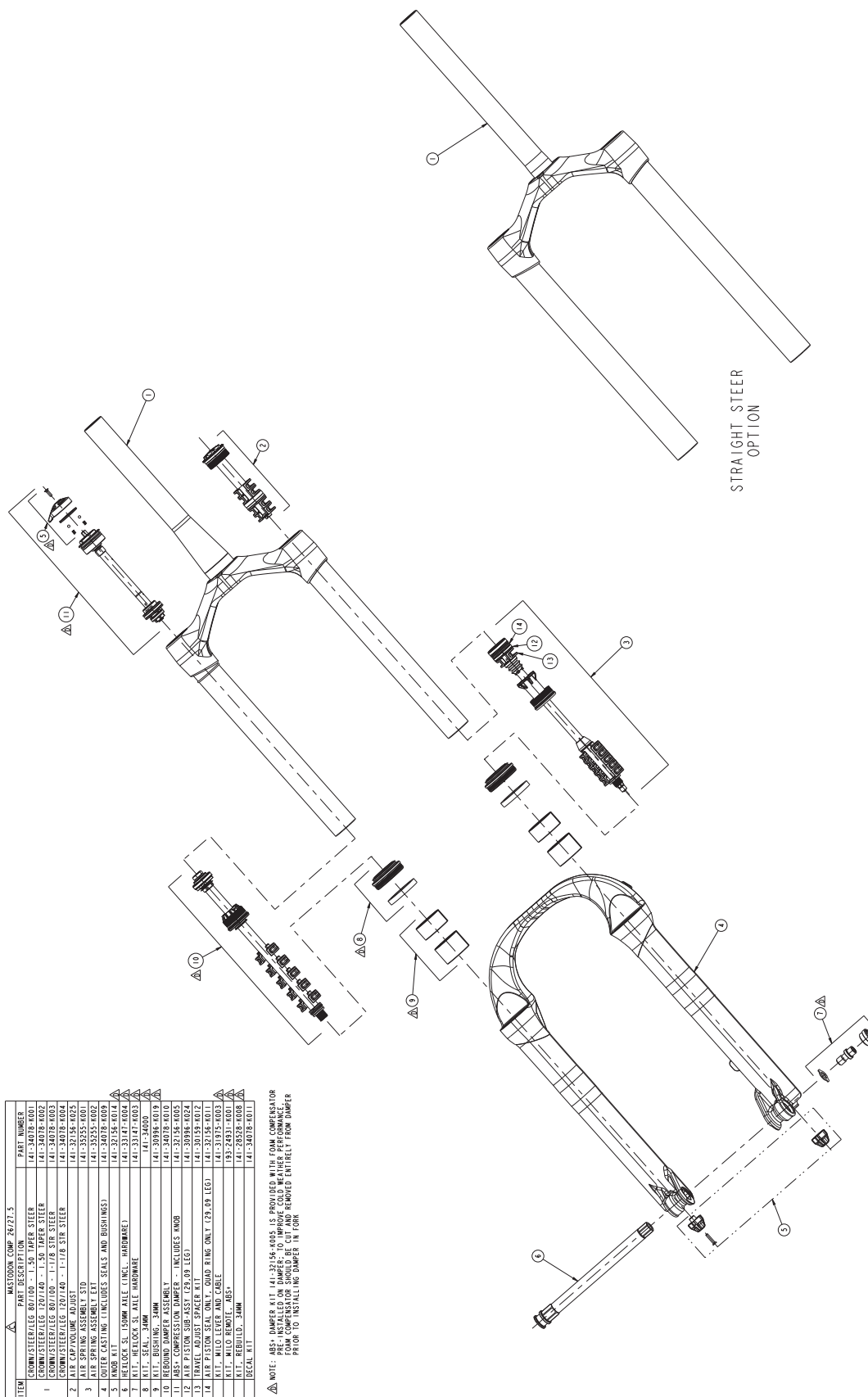
141-28528-K008
 SERVICE, 34MM REBUILD KIT
 MASTODON / MATTOC / MAGNUM 34MM FORK
 REV D

MASTODON PRO STD & EXT EXPLODED VIEW



ITEM	MASTODON PRO 26/27.5	PART DESCRIPTION	PART NUMBER
		CROWN/STEER/100 - 1-1/2 TAPER STEER	141-24087-0001
		CROWN/STEER/150 - 1-1/2 TAPER STEER	141-24087-0017
1		CROWN/STEER/150 - 1-1/8 TAPER STEER	141-24087-0003
		CROWN/STEER/150 - 1-1/8 STR STEER	141-24087-0004
		CROWN/STEER/150 - 1-1/8 TAPER STEER	141-24087-0018
2		PRO STD AIR SPRING ASSEMBLY	141-24087-0007
3		PRO EXT AIR SPRING ASSEMBLY	141-24087-0008
4		OUTER CASTING, INCLUDES SEALS AND BUSHINGS	141-24087-0016
5		REBOUND ADJUST & AIR CAP NUTS	141-32155-0016
6		STEERING KNUCKLE HUB, BUSHING	141-32155-0017
7		HEAVY DUTY AIR PISTON	141-33147-0003
8		KIT, SEAL, 3MM	141-34000
9		KIT, BUSHING, 3MM	141-30896-0019
10		REBOUND DAMPER ASST, STD/EXT 10MM	141-24087-0015
		REBOUND DAMPER ASST, EXT 15MM	141-24087-0016
11		REBOUND DAMPER ASST, EXT 15MM	141-24087-0016
12		MC2 W/O HD COMPRESSION DAMPER - INCLUDES NUB	141-24087-0014
13		MC2 W/O HD NUB KIT	141-30159-0012
14		KIT, TRAVEL ADJUST SPACERS	141-32155-0012
15		KIT, AIR PISTON SEAL	141-32155-0012
		KIT, REBUILD, 3MM	141-28228-0008
		DECAL KIT	141-24087-0012
		KIT, WILD LEVER AND CABLE	141-31975-0003
		KIT, WILD BOWTIE, MC2	103-24931-0001

MASTODON COMP STD & EXT EXPLODED VIEW



ITEM	MASTODON COMP 24/27.5	PART NUMBER
	CHROM/STEEL LEG 80/100 - 1.50 TAPER STEER	141-34070-002
1	CHROM/STEEL LEG 80/100 - 1.50 TAPER STEER	141-34070-003
2	CHROM/STEEL LEG 120/140 - 1.178 STR STEER	141-34070-003
3	CHROM/STEEL LEG 120/140 - 1.178 STR STEER	141-34070-004
4	AIR CAP/VOLUME ADJUST	141-32156-002
5	AIR SPRING ASSEMBLY STD	141-32156-001
6	AIR SPRING ASSEMBLY STD	141-32156-002
7	OUTER CASTING (INCLUDES SEALS AND BUSHINGS)	141-34070-002
8	ROCK KIT	141-32156-001, 14
9	HEXLOCK SL 150MM AXLE (INCL. HARDWARE)	141-33147-002, 14
10	HEXLOCK SL AXLE HARDWARE	141-33147-003, 14
11	ROCK KIT	141-30996-001, 19
12	ROCK KIT - BUSHING - 34MM	141-34070-010
13	REBOUND DAMPER ASSEMBLY	141-32156-005
14	ABS* COMPRESSION DAMPER - INCLUDES ROBE	141-32156-005
15	PISTON ASSEMBLY (29.09 LEG)	141-30959-002
16	PISTON ASSEMBLY (29.09 LEG)	141-30959-004
17	PISTON ASSEMBLY (29.09 LEG)	141-30959-004
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97	PISTON ASSEMBLY (29.09 LEG)	141-30959-004
98	PISTON ASSEMBLY (29.09 LEG)	141-30959-004
99	PISTON ASSEMBLY (29.09 LEG)	141-30959-004
100	PISTON ASSEMBLY (29.09 LEG)	141-30959-004

NOTE: ABS* DAMPER KIT 141-32156-005 IS PROVIDED WITH FOAM COMPENSATOR FROM INSTALLATION DAMPER TO IMPROVE SOLO BEARING PERFORMANCE. FROM INSTALLATION DAMPER TO IMPROVE SOLO BEARING PERFORMANCE. PRIOR TO INSTALLING DAMPER IN FORK

HAYES PERFORMANCE SYSTEMS WARRANTY

Limited Warranty:

HAYES warrants its products to be free from defects in materials or workmanship under normal intended use for a period of one year (two years in European Union countries) from the date of purchase, subject to normal wear and tear. Unless otherwise prohibited by law, any such defective products will be repaired or replaced at the option of HAYES when received with proof of purchase, freight prepaid. This warranty does not cover breakage, bending, or damage that may result from crashes or falls. This warranty does not cover any defects or damage caused by alterations or modifications of HAYES products or by normal wear, accidents, improper maintenance, damages caused by the use of HAYES products with parts of different manufacturers, improper use or abuse of the product, application or uses other than those set forth in the HAYES instruction manual or failure to follow the instructions contained in the applicable HAYES instruction manual. Instruction manuals can be found on-line at www.hayescomponents.com. Any modifications made by the BUYER or any subsequent user will render the warranty null and void. This warranty does not apply when the serial number or production code has been deliberately altered, defaced or removed from the product. The cost of normal maintenance or replacement of service items, which are not defective, shall be the BUYER's responsibility. If permitted by local law, this warranty is expressly in lieu of all other warranties (except as to title), express or implied, and in particular and without limitation HAYES disclaims the implied warranties of merchantability or fitness for purpose. If for any reason warranty work is necessary, return the component to the place of purchase or contact your dealer or local HAYES distributor. In the USA, contact HAYES for a return authorization number (RA#) at (888) 686-3472. At that time, instructions for repair, return, or replacement shall be given. Customers in countries other than the USA should contact their dealer or local HAYES distributor.

Limitation of Liability.

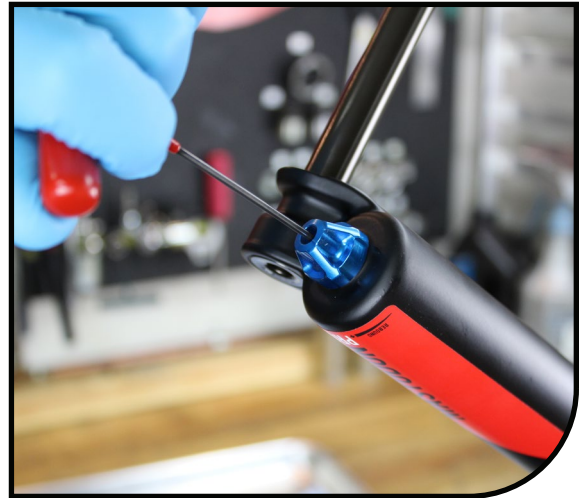
Unless required by mandatory law, HAYES shall not be liable for any incidental, indirect, special or consequential damages.

This warranty does not apply to normal wear and tear. Wear and tear parts are subject to damage through normal use, failure to service according to recommendations or riding in conditions other than recommended. The cost of normal maintenance or replacement of service items, which are not defective, shall be paid for by the original purchaser. Wear and tear parts that will not be replaced under warranty include but are not limited to the following:

- Bushings
- Rear Shock
- Mount Hardware
- Handlebar grips
- Tubeless Valves
- Dust Seals
- Fork and Shock air Seals and/or O-rings
- Bearings
- Upper Stanchion Tubes
- Stripped or worn bolts
- Remote Lockout Cable
- Gloves
- Lower Stanchion Tubes(Dorado)

CASTING REMOVAL & SERVICE

- 1 Remove rebound knob using a 2mm Hex wrench.



- 2 Insert an 8mm Hex wrench into the end of the rebound damper rod and turn the rod **clockwise** until it is disengaged from the casting and can be pushed into the casting.



- 3 Unscrew air cap and depress Schrader Valve a few times to ensure all air is released.



CASTING REMOVAL & SERVICE

- 4 Using the Manitou 8mm Thin Wall Socket, turn the compression rod **clockwise** until compression rod is disengaged from the casting threads.



- 5 Remove casting from fork. It is recommended this be done over a drain pan as the lower casting contains semi-bath oil. Allow oil in casting to drain out before continuing to next step.



- 6 Using a downhill tire lever or similar tool, gently pry the dust seals out of the casting.



CASTING REMOVAL & SERVICE

- 7 Remove old foam wiper rings. Apply semi-bath fluid to the new foam wiper rings and install into fork casting.



- 8 Remove springs from lip of dust seals. Clean seal area with Isopropyl alcohol. Using the Manitou 34mm Seal Press or large socket press in the dust seals. Reinstall springs onto seals.



AIR SPRING SERVICE

- 1** Release air from the fork. Depress Schrader valve a few times to ensure all air is released.



- 2** Remove IVA using a 24mm socket.



- 3** Pull IVA straight out.



AIR SPRING SERVICE

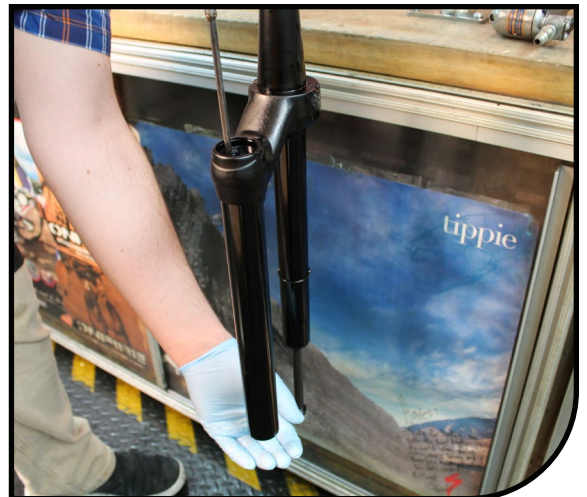
- 4** Invert the fork and use Manitou cassette tool and adjustable wrench to unthread the air spring assembly from the stanchion.



- 5** Remove air spring assembly from the stanchion. Clean spring and rod assembly with Isopropyl alcohol.



- 6** Once the air spring assembly is removed clean the inside of the stanchion with isopropyl alcohol and a lint free towel (Be careful to not scratch the inner surface of the stanchion). Inspect the inside and outside of the stanchion for scratches or other damage.



AIR SPRING SERVICE

7

Liberal grease the piston quad seal and outer surface with Slickoleum™ grease.



8

Add 8cc's of Slickoleum™ grease to the top of the air piston.



9

Add Slickoleum™ grease to the stanchion threads before inserting the air spring assembly. Spread grease across entire thread surface.



AIR SPRING SERVICE

- 10** Install air spring assembly into stanchion. Using a 26mm crow's foot and Manitou cassette tool, tighten assembly end cap to 60-80 in lb [6.8-9.0 N m]



- 11** Install air cap onto stanchion. Tighten to 60-80 in lb [6.8-9.0 N m].



- 12** Attach a shock pump and inflate air leg to 60PSI. This will aid in installing the casting later.





PRO DAMPER SERVICE

PRO DAMPER SERVICE

1

Using a 2mm Hex wrench, remove the black high speed adjustment knob from the MC2 assembly.

Note: Be sure to hold the knob still while removing the screw/nut. These tend to move and can damage the damper if the knob is over turned.



2

With a 13mm socket, unthread the exposed nut and remove the red low speed adjustment knob.

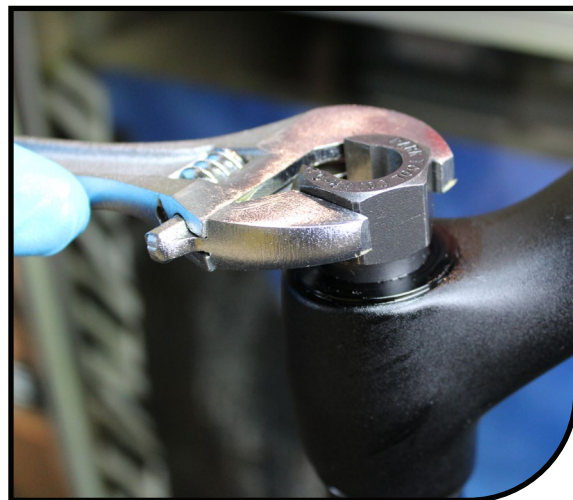
Note: Be sure to hold the knob still while removing the screw/nut. These tend to move and can damage the damper if the knob is over turned.



PRO DAMPER SERVICE

3

Use the Manitou cassette tool and adjustable wrench to unthread the compression damper assembly from the stanchion.



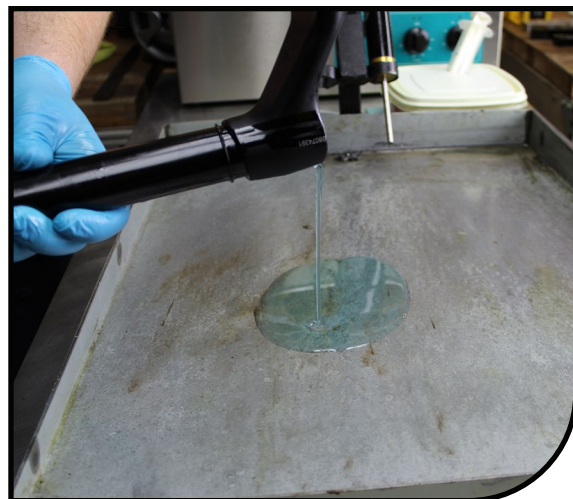
4

Remove compression damper assembly from the stanchion.



5

Pour damper oil into a catch pan.



PRO DAMPER SERVICE

6

Using a Manitou cassette tool and adjustable wrench, unthread the rebound damper assembly from the fork stanchion.



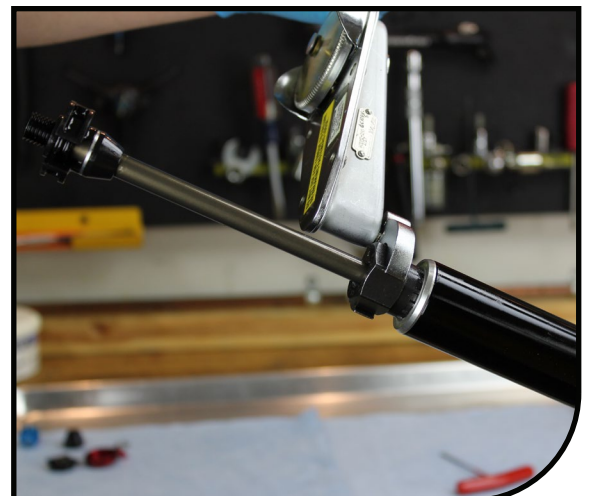
7

Remove rebound damper assembly from the fork. Once the damper assembly is removed, clean the inside of the stanchion with isopropyl alcohol and a lint free towel. Inspect the inside and outside of the stanchion for scratches and other damage. Inspect rebound damper for damage as well. Replace if necessary.



8

Install rebound damper into stanchion. Using a 26mm crow's foot, Manitou cassette tool, and torque wrench, tighten the rebound damper assembly end cap to 60-80 in lb [6.8-9.0 N m].



CASTING INSTALL

1

Before filling the fork with fork oil and installing the ABS+ compression damper, the casting must first be installed. This ensures a correct oil level. First apply a generous amount of grease to the oil seal/dust seal area of the casting.



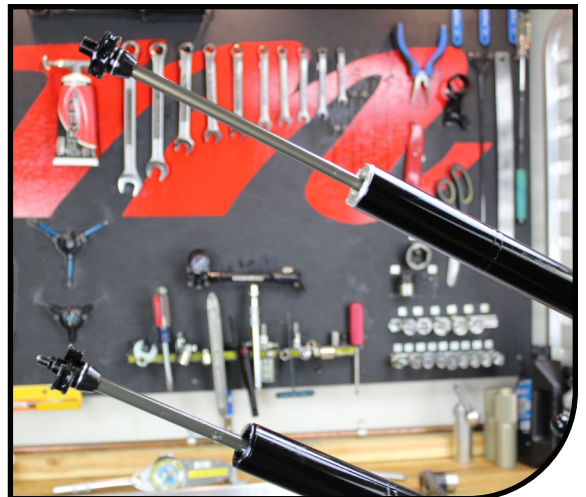
2

Fill the air chamber with air (60PSI). This will extend the air spring assembly and make casting installation easier.



3

Fully extend the rebound damper rod.



CASTING INSTALL

4

Slide casting onto the stanchion assembly. Only slide the casting down about halfway at this point. Take care that the seals do not get folded over upon installation.



5

Insert 15cc's (15ml) of semi-bath into each casting leg. Once the semi-bath is in the legs slide the casting the rest of the way onto the stanchion assembly.



6

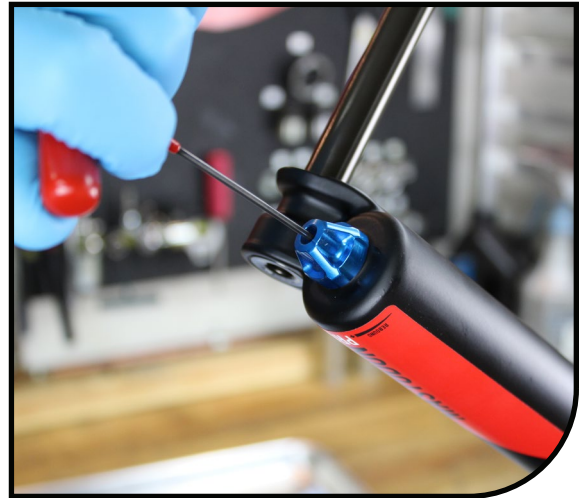
Using an 8mm Hex wrench tighten the rebound damper rod to 35–40 in lb [3.95–4.5 N m] by turning them **counter-clockwise**. Do not overtighten, doing so can damage the end of the rods.



CASTING INSTALL

7

Install the rebound knob using a 2mm Hex wrench. Add a small drop of blue Loctite to the screw before installation to prevent the screw from backing out during riding.



8

Using the Manitou 8mm Thin Wall Socket, turn the compression rod **counter-clockwise**. Tighten to 35–40 in lb [3.95–4.5 N m]



COMPRESSION DAMPER INSTALL

1

Pour All-Temp synthetic 3wt Fork Oil into the damper leg. *(Optional, use 5wt Fork Oil for normal warm weather use)*

Fill it up about 3/4 full.



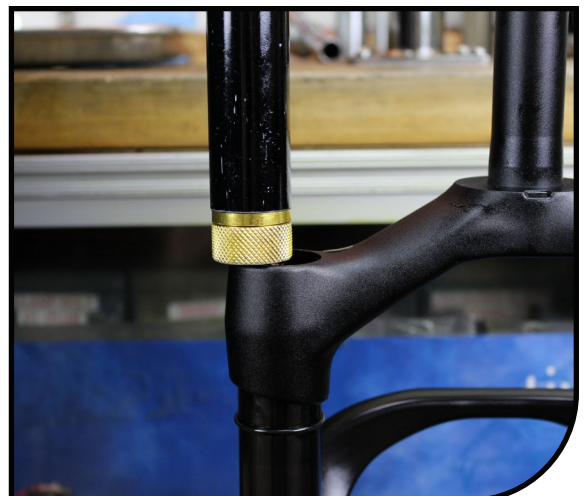
2

Place a lint-free towel over the opening in the damper leg and compress the fork 10-15 times.



3

Pour additional fork oil into the damper leg until the oil height (space from the top of the damper leg to the top of the oil) is set at the proper level. See following page for the correct oil height depending on compression damper type and fork travel. An oil height setting tool used for motorcycle forks similar to the one pictured makes this job easier.

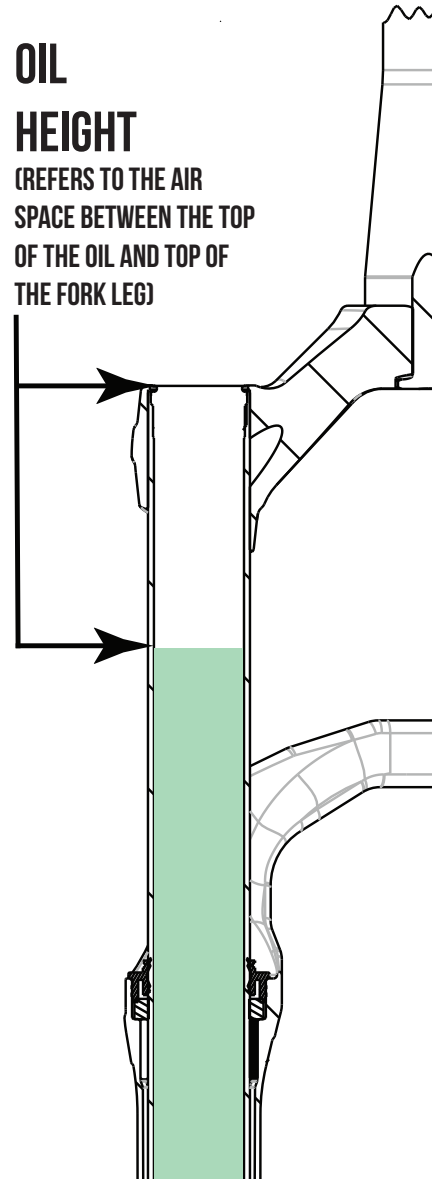


COMPRESSION DAMPER INSTALL

FORK MODEL	OIL HEIGHT
MASTODON PRO	75MM
MASTODON COMP	87MM
MARKHOR (80/100MM)	92MM
MARKHOR (120MM)	97MM
MATTOC PRO	75MM
MATTOC COMP	87MM
MACHETE (ABS+)	87MM
MACHETE (KWIK TOGGLE, 90-120MM)	87MM
MACHETE (KWIK TOGGLE, 130-140MM)	91MM
CIRCUS COMP/EXPERT	87MM
CIRCUS SPORT (FFD)	83MM
R7 PRO	83MM
DORADO (SEE DORADO SERVICE GUIDE)	180-190MM

OIL HEIGHT

(REFERS TO THE AIR SPACE BETWEEN THE TOP OF THE OIL AND TOP OF THE FORK LEG)



NOTE

1. OIL HEIGHT IS SET WITH COMPRESSION DAMPER REMOVED.
2. OIL HEIGHT IS SET WITH FORK FULLY EXTENDED AND CASTING INSTALLED.

ALL FORKS LISTED USE 5W SYNTHETIC OIL FOR THE DAMPER, MANITOU PART NUMBER 85-0023.
ALL FORKS LISTED USE 5W40 SYNTHETIC OIL FOR THE LOWERS, MANITOU PART NUMBER 85-0024.

COMPRESSION DAMPER INSTALL

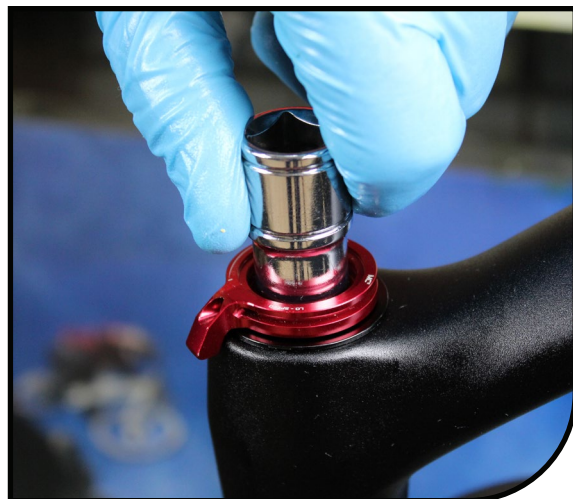
- 4** Insert compression damper into the damper leg. Ensure the damper is set in the unlocked position when installing.



- 5** If installing an ABS+ damper use a 1" socket or crow's foot, the Manitou Cassette tool and a torque 60–80 in lb [6.8–9.0 N m].



- 6** Secure red high speed knob adjustment knob with the 13mm nut using a socket, tighten down hand tight.



COMPRESSION DAMPER INSTALL

7 Using a 2mm Hex wrench reinstall the black high speed adjustment knob.



8 Clean fork and use a shock pump to set to desired pressure. Lightly pull the casting away from the CSA as you add air. Pressure chart below for reference.



RIDER WEIGHT		AIR PRESSURE	
LBS	KGS	PSI	[BAR]
>220	>100	90-110	[6.2-7.6]
200	91	85-100	[5.9-6.9]
170	77	73-85	[5-5.9]
140	64	59-73	[4-5]
120	55	51-59	[3.5-4]

MADE IN TAIWAN

MAX PRESSURE NOT TO EXCEED 120 PSI [8.3 BAR]
 PATENTS: WWW.HAYESCOMPONENTS.COM/PATENTS

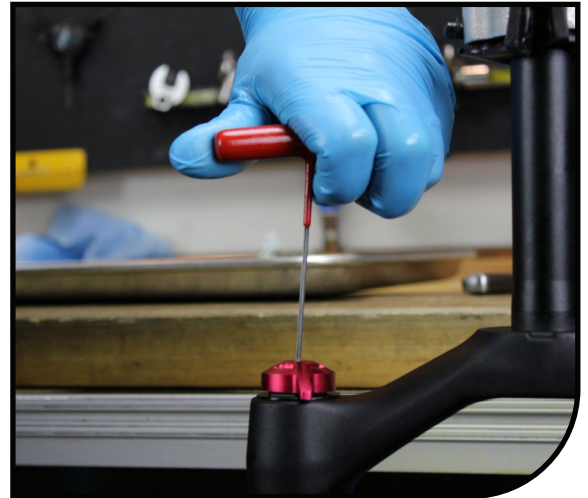


COMP DAMPER SERVICE

COMP DAMPER SERVICE

1

Remove ABS+ knob using a 2mm Hex wrench. Remove knob carefully as there are two detent ball bearings on springs below the knob.



2

Unthread ABS+ compression damper assembly from the stanchion using a 24mm socket and ratchet.



COMP DAMPER SERVICE

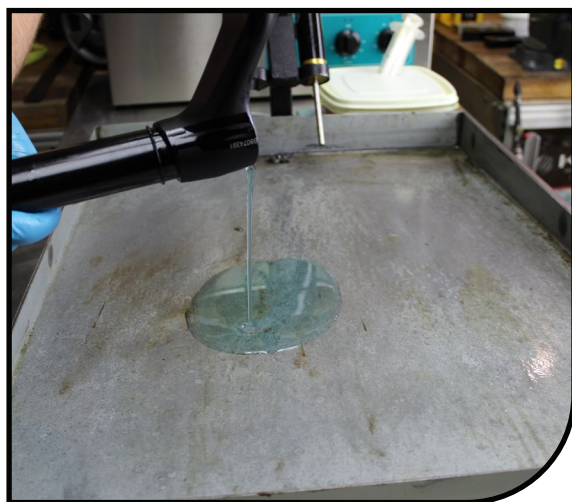
3

Remove ABS+ compression damper assembly from the stanchion.



4

Pour damper oil into a catch pan.



5

Using the Manitou cassette tool and wrench or crow's foot unthread the rebound damper assembly from the fork stanchion.



COMP DAMPER SERVICE

- 6** Remove rebound damper assembly from the fork. Once the damper assembly is removed, clean the inside of the stanchion with isopropyl alcohol and a lint free towel. Inspect the inside and outside of the stanchion for scratches and other damage. Inspect rebound damper for damage as well. Replace if necessary.



- 7** Install rebound damper into stanchion. Using the Mattoc cassette tool, a crow's foot and torque wrench, tighten the rebound damper assembly end cap to 80-100 in lb [9.0-11.3 N m].



CASTING INSTALL

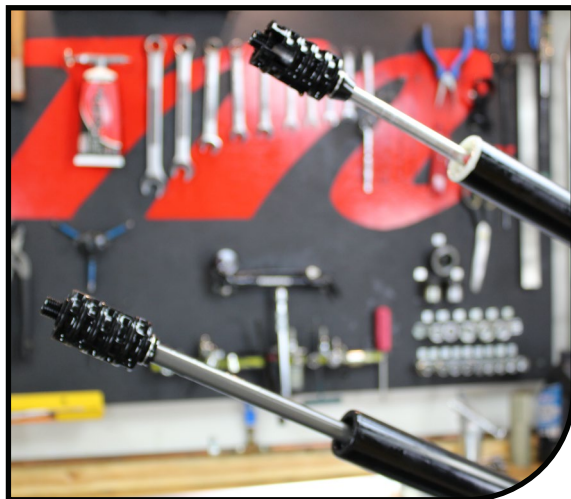
- 1 Before filling the fork with fork oil and installing the ABS+ compression damper, the casting must first be installed. This ensures a correct oil level. First apply a generous amount of Slickoleum grease to the oil seal/dust seal area of the casting.



- 2 Fill the air chamber with a small amount of air (20-30PSI). This will extend the air spring assembly and make casting installation easier.



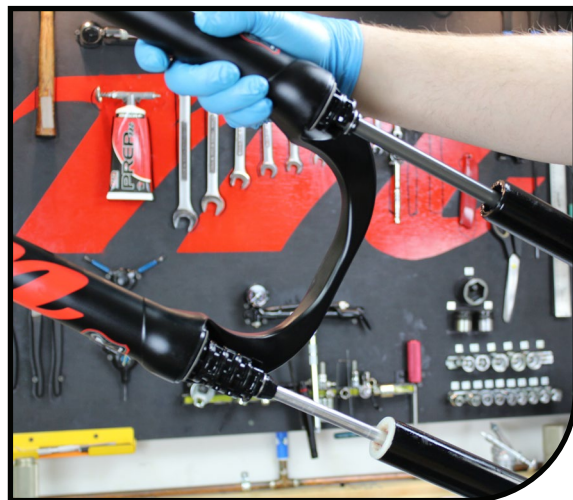
- 3 Fully extend the rebound damper rod.



CASTING INSTALL

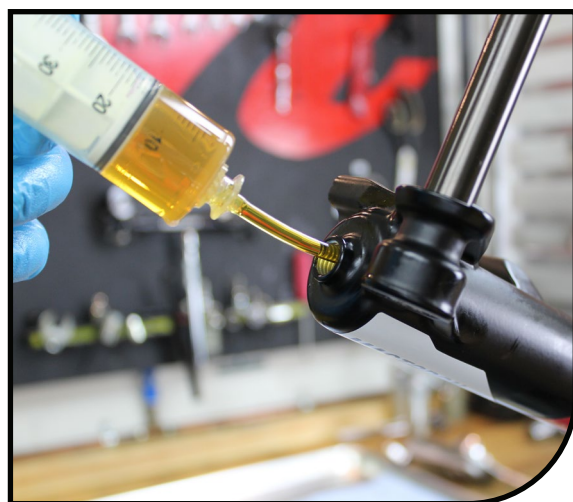
4

Slide casting onto the stanchion assembly. Only slide the casting down about halfway at this point. Take care that the seals do not get folded over upon installation.



5

Insert 15cc's (15ml) of semi-bath into each casting leg. Once the semi-bath is in the legs slide the casting the rest of the way onto the stanchion assembly.



6

Using an 8mm Hex wrench tighten the rebound damper rod and air spring assembly to 35–40 in lb [3.95–4.5 N m] by turning them **counter-clockwise**. Do not overtighten, doing so can damage the end of the rods.



CASTING INSTALL

7

Install the rebound knob using a 2mm Hex wrench. Add a small drop of blue Loctite to the screw before installation to prevent the screw from backing out during riding.



ABS+ DAMPER INSTALL

- 1 Pour All-Temp synthetic 3wt Fork Oil into the damper leg. (Optional, use 5wt Fork Oil for normal warm weather use)

Fill it up about 3/4 full.



- 2 Place a lint-free towel over the opening in the damper leg and compress the fork 10-15 times.



- 3 Pour additional fork oil into the damper leg until the oil height (space from the top of the damper leg to the top of the oil) is 85–90mm (87mm is nominal). An oil height setting tool used for motorcycle forks similar to the one pictured makes this job easier.



ABS+ DAMPER INSTALL

4

Insert the ABS+ compression damper into the damper leg. Ensure the damper is set in the unlocked position when installing.



5

Using a 24mm socket and torque wrench, tighten the ABS+ damper to 60–80 in lb [6.8–9.0 N m].



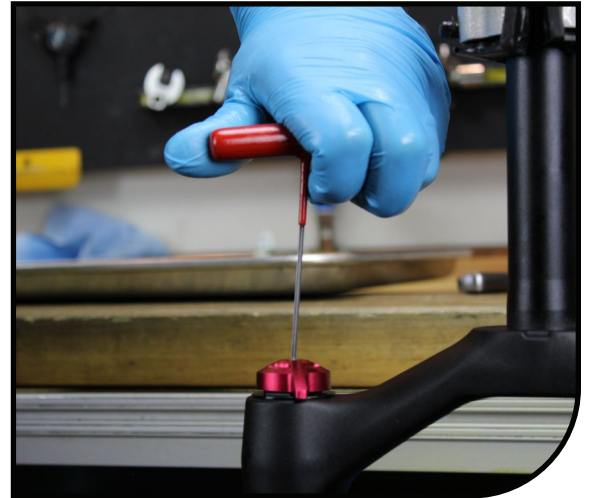
6

Install springs and ball bearings into ABS+ top cap. A small dab of grease on top of the spring can help hold the ball bearings in place.



ABS+ DAMPER INSTALL

7 Using a 2mm Hex wrench, install the ABS+ knob.



8 Clean fork and use a shock pump to set to desired pressure. Pressure chart below for reference.



ISO AIR 34	RIDER WEIGHT		AIR PRESSURE	
	LBS	KGS	PSI	[BAR]
PATENTS: WWW.HAYESCOMPONENTS.COM/PATENTS	>220	>100	72-80	[5-5.5]
	200	91	65-72	[4.5-5]
	170	77	57-65	[3.9-4.5]
	140	64	48-57	[3.3-3.9]
	120	55	39-48	[2.7-3.3]
MAX PRESSURE NOT TO EXCEED 150 PSI (10.3 BAR)				



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