

PRO & COMP Service & Travel Guide











Hayes Performance Systems 5800 W. Donges Bay Rd. Mequon, WI 53092

Tel: 888.686.3472 Email: techsupport@hayesbicycle.com Web: www.hayescomponents.com

> Hayes Components Europe Dirnismaning 20 a 85748 Garching (b. Munich) Germany ph: +49 (0)89 203237450

Email: techsupportEU@hayesbicycle.com Web: www.hayescomponents.com



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	Dust Seals	Stripped or Worn Bolts	
Rear Shock	Fork/Shock Air Seals and/or O-rings	Remote Lockout Cable	
Mount Hardware	Bearings	Gloves	
Handlebar grips	Upper Stanchion Tubes	Lower Stanchion Tubes(Dorado)	
Tubeless Valves	Tubeless Tape		

(()

SUN

M

++++HYES

MACHETE SERVICE & TRAVEL GUIDE

INTRODUCTION

This manual is intended to guide the user through the steps necessary to fully service and maintain the Machete line of suspension forks.

! 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 pre-loaded 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.



TABLE OF CONTENTS

SECTION	PAGE NUMBER	
Tools and Materials	6	
Casting Removal & Service	7–9	
Air Spring Service	10-14	
Damper Service	15–17	
Casting Installation	18-20	
Compression Damper Install	21–25	
Exploded Diagrams	26-31	
Rebuild Kit Diagrams	32-37	
Compression Rod Kit/Travel Settings	38	

-+:AYES



SUN ringlé

TOOLS AND MATERIALS

Below is a list of tools and materials necessary for servicing the Machete fork.

- Safety Glasses
- Nitrile Gloves
- Lint-Free Rags
- Slickoleum[™] Grease
 - 10-Oz Tub Manitou Part Number 20-32929
 - 5MI Tube Manitou Part Number 141-33604-K001
- Semi-Bath Oil, 5/40W Synthetic Manitou Part Number 85-0022
- 5W Maxima Fork Oil Manitou Part Number 85-0023
- 32mm Seal Press Manitou Part Number 172-31122
- 32mm Rebuild Kit Manitou Part Number 141-28528-K009
- 8mm Hex Socket
- 2mm Hex Wrench
- 12mm Socket
- 20mm Socket
- 24mm Socket
- 22mm Box End Wrench
- 12mm Box End Wrench
- Torque Wrench Ratchet
- 22mm Crow's Foot
- Fork/Shock Pump
- Pick
- Adjustable Wrench
- Downhill Tire Lever Or Flat Blade Screwdriver

If your fork has the Kwik Toggle damper then you will need;

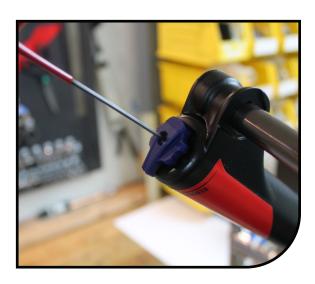
- Manitou Tool Kit Manitou Part Number 172-31133 (Includes The 3 Tools Below) Manitou Cassette Tool Manitou Thin Walled 8mm Socket
 - Manitou 24mm Flat Ground Socket



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

Use a 12mm wrench to remove the compression rod bolt.

M

HAYES

SUN ringlé 0



7

CASTINGREMOVAL & SERVICE

4 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.





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

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



CASTINGREMOVAL & SERVICE

7 Remove springs from lip of dust seals. Using the Manitou 32mm Seal Press or large socket press in the dust seals. Reinstall springs onto seals.







SUN ringlé

1

! 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.

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







HAVE ERFORMANCE SYS

Remove air cap using a 20mm socket.

3

2

Invert the fork and use a 22mm box end wrench to unthread the air spring assembly from the stanchion.

4 Remove air spring assembly from the stanchion. Clean spring and rod assembly and re-grease. The air spring pictured to the right is from the **Machete Pro**.



The air spring pictured to the right is from the **Machete Comp**.



₩AYES



SUN ringlé

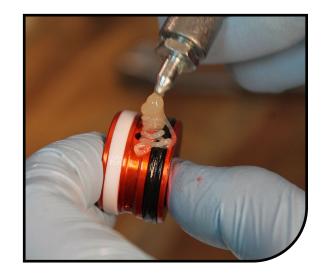
5 Using a long dowel rod or similar tool push the air piston down the stanchion and out of the bottom. Be careful to not scratch the inner surface of the stanchion. Once the piston is removed clean the inside of the stanchion with isopropyl alcohol and a lint free towel. Inspect the inside and outside of the stanchion for scratches or other damage.







6 Liberally grease the piston quad seal and outer surface with Slickoleum[™] grease.



- Install greased air piston into the top of the stanchion and push it down past the threads.

8

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

₩AYES



SUN ringlé

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



10 Install air spring assembly into stanchion. Using a 22mm crow's foot, tighten assembly end cap to 80-100 in lb [9.0-11.3 N m].



11 Attach a shock pump and inflate air leg to 40-50PSI. This will aid in installing the casting later.





DAMPER SERVICE

The Machete fork can have two compression damper configurations, ABS+ or Kwik Toggle. The following instructions will work for both. Remove ABS+ or Kwik Toggle knob using a 2mm Allen wrench. If the fork has ABS+, remove knob carefully as there are two detent ball bearings on springs below the knob.



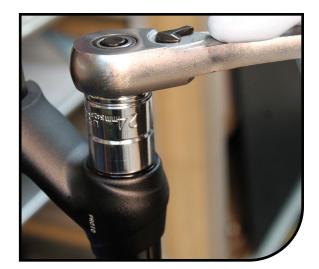
(ABS+ knob detent ball and springs.)



2 Unthread ABS+ compression damper assembly from the stanchion using a 24mm socket and ratchet. If the fork has the Kwik Toggle compression damper you will need to use the Manitou Cassette Tool and 1" wrench or socket to remove the damper.

M

₩₽¥€5

SUN SUN 



DAMPER SERVICE

4

3 Remove Kwik Toggle or ABS+ or compression damper assembly from the stanchion.





Pour damper oil into a catch pan.

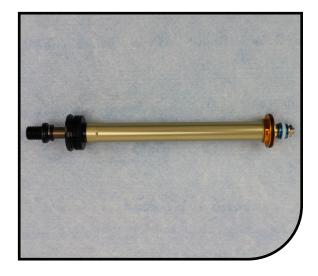
5 Using a 22mm box end wrench, unthread the rebound damper assembly from the fork stanchion.





DAMPER SERVICE

Remove rebound damper assembly 6 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. The rebound damper pictured to the right is from the Machete Pro.



The rebound damper pictured to the right is from the Machete Comp.



Install rebound damper into stanchion. Using a 22mm crow's foot and torque wrench, tighten the rebound damper assembly end cap to 80-100 in lb [9.0-11.3 N m].

M









17

CASTING INSTALL

Before filling the fork with fork oil and installing the ABS+ or Kwik Toggle compression damper, we must first install the casting. This ensures a correct oil level. First apply a generous amount of grease to the dust seal.







Fill the air chamber with a small 2 amount of air (40-50PSI). This will extend the air spring assembly and make casting installation easier.

Fully extend the rebound damper rod.

3

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 fold over upon installation





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 Ib [3.95–4.5 N m] by turning them **counter-clockwise.** Do not overtighten, doing so can damage the end of the rods.

M

₩₽⋎€5

SUN SUN 

5

MACHETE SERVICE & TRAVEL GUIDE

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 Install compression rod bolt. It helps to have at least 50psi in the air chamber when tightening down the bolt to the proper torque. Use a 12mm socket and torque wrench and tighten to 45–55 in lb [5.1–6.2 N m].







1

Pour 5wt Maxima fork oil into the damper leg. Fill it up about 3/4 full.

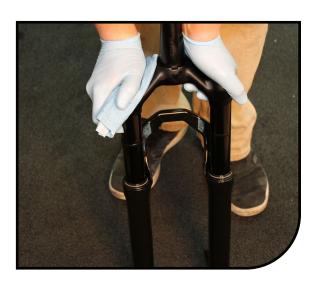


Place a lint-free towel over the opening in the damper leg and compress the fork 10-15 times.

Pour additional 5wt 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.

M

HAYES

SUN ringlé 



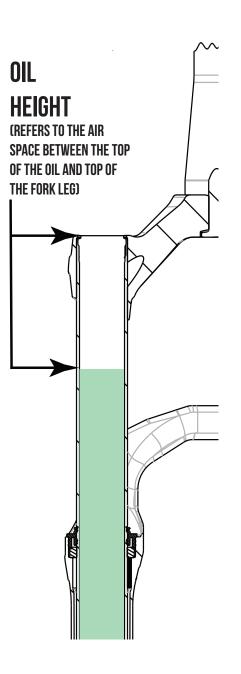
3

2



OIL HEIGHT CHART 2017-2018

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 PR0	83MM
DORADO (SEE DORADO SERVICE GUIDE)	180-190MM



NOTE

1. OIL HEIGHT IS SET WITH COMPRESSION DAMPER Removed.

2. OIL HEIGHT IS SET WITH FORK FULLY EXTENDED AND CASTING INSTALLED.



4 Insert the ABS+ or Kwik Toggle 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 24mm socket and torque wrench, tighten the damper to 60–80 in lb [6.8–9.0 N m].

If installing a Kwik Toggle damper use a 1" socket or crow's foot, the Mattoc Cassette tool and a torque wrench to tighten down the damper to the same torque specification.

6 If the damper is an ABS+, 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.

M

KAYES

SUN ringlé 



Using a 2mm Hex wrench, install the ABS+ or Kwik Toggle knob.



8 Clean fork and use a shock pump to set to desired pressure. Pressure charts on next page for reference.





Machete Pro					
Rider Weight		Air Pressure			
LBS	KGS	PSI	[BAR]		
>220	>100	76-84	5.2-5.8		
200	91	65-76	4.5-5.2		
170	77	53-65	3.7-4.5		
140	64	42-53	2.9-3.7		
12	55	34-42	2.3-2.9		
! WARNING !					
MAX PRESSURE NOT TO EXCEED 120 PSI [8.3 BAR]					

Machete Comp					
Rider Weight		Air Pressure			
LBS	KGS	PSI	[BAR]		
>220	>100	75-95	5.2-6.6		
200	91	72-87	5.0-6.0		
170	77	68-80	4.7-5.5		
140	64	64-75	4.4-5.2		
12	55	55-72	3.8-5.0		
! WARNING !					
MAX PRESSURE NOT TO EXCEED 120 PSI [8.3 BAR]					

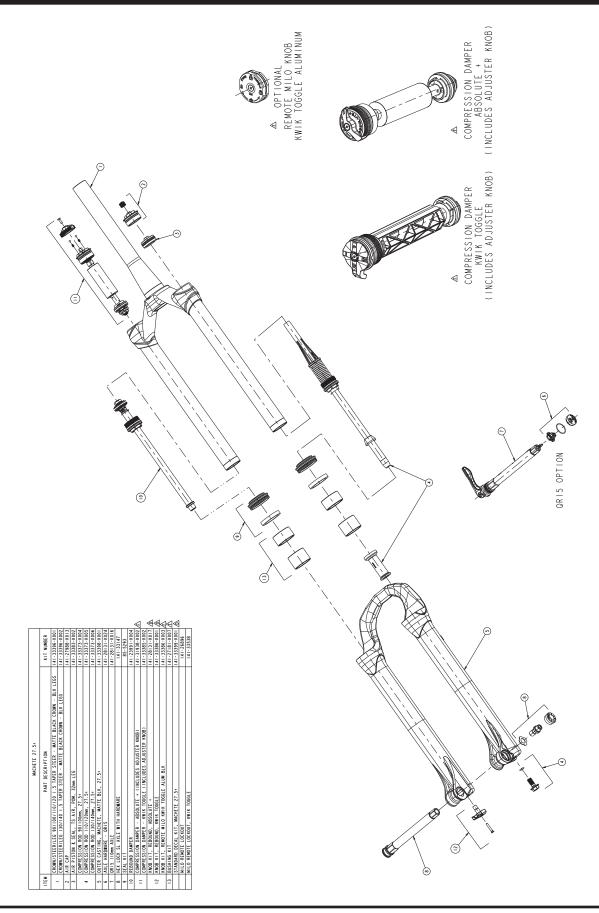
SUN ringlé

M

0

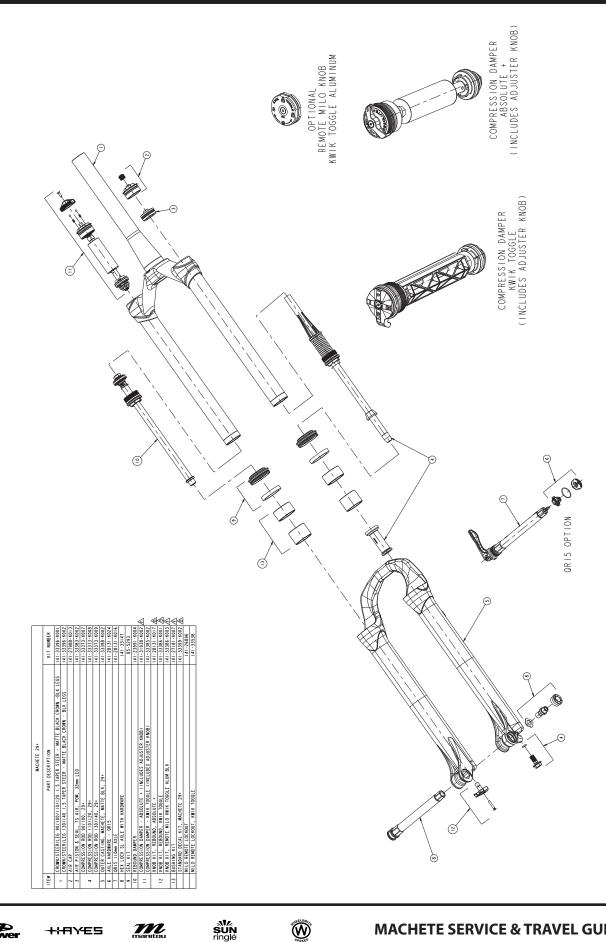
-+:AYES

MACHETE 110 COMP 27.5+ EXPLODED VIEW





MACHETE 110 COMP 29+ EXPLODED VIEW

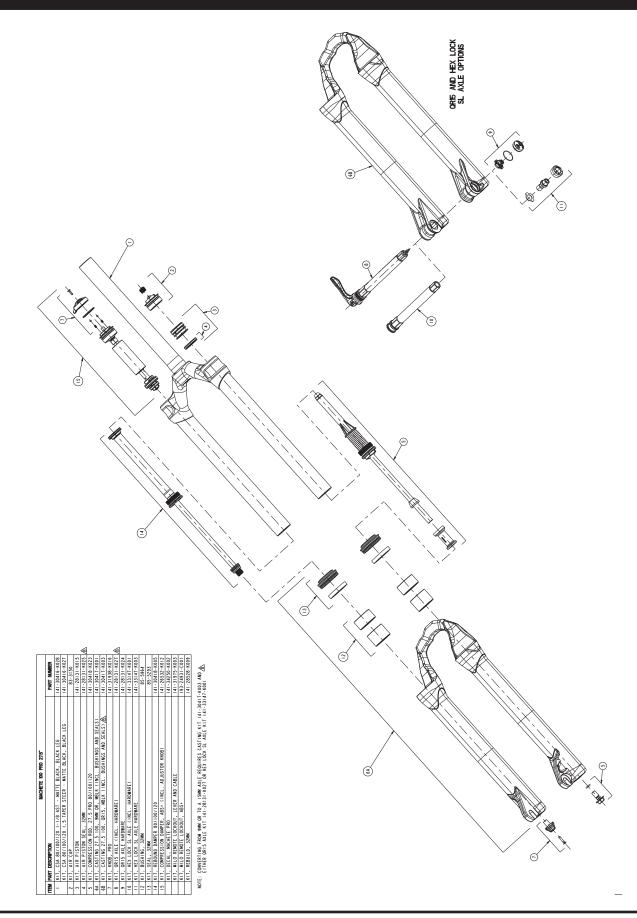




M

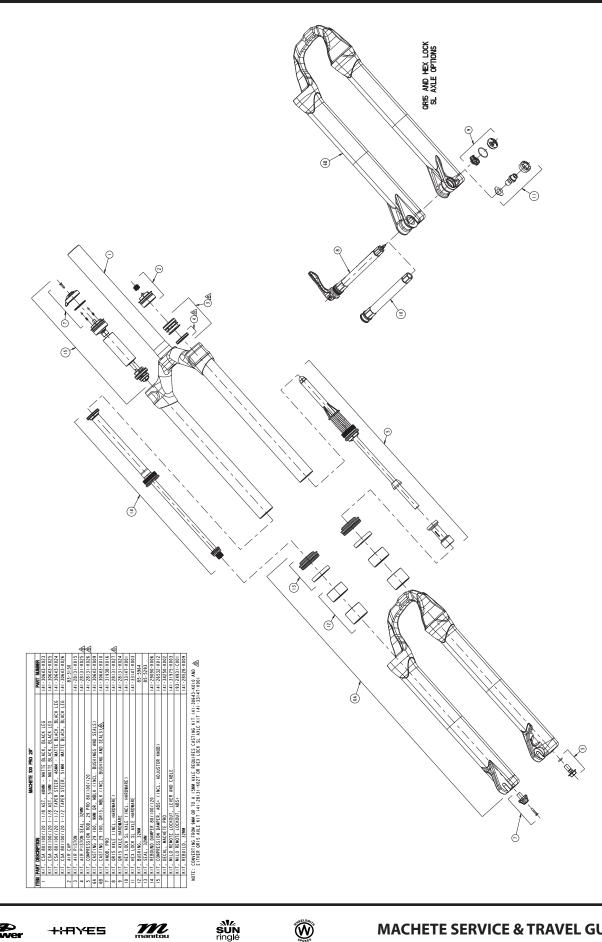
₩ĦYES

MACHETE 100 PRO 27.5 EXPLODED VIEW





MACHETE 100 PRO 29 EXPLODED VIEW

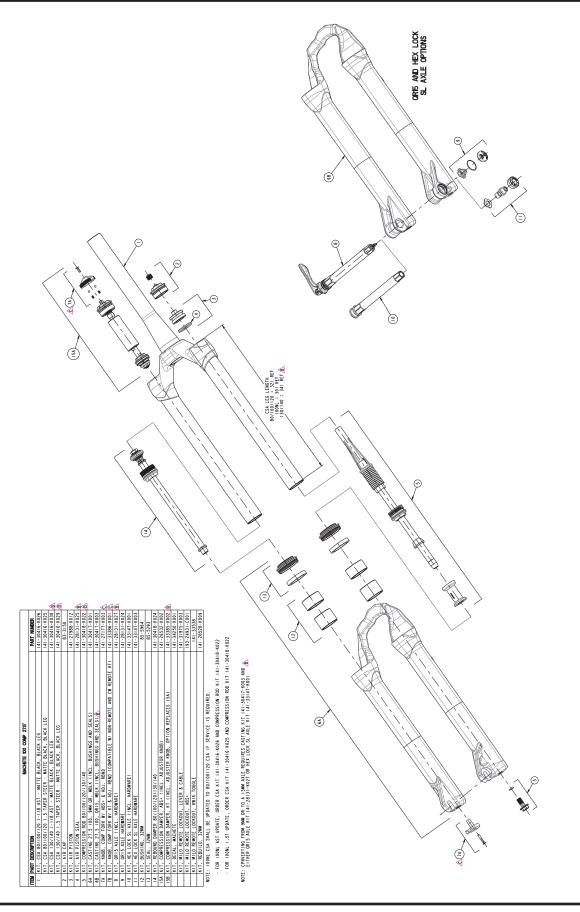




M

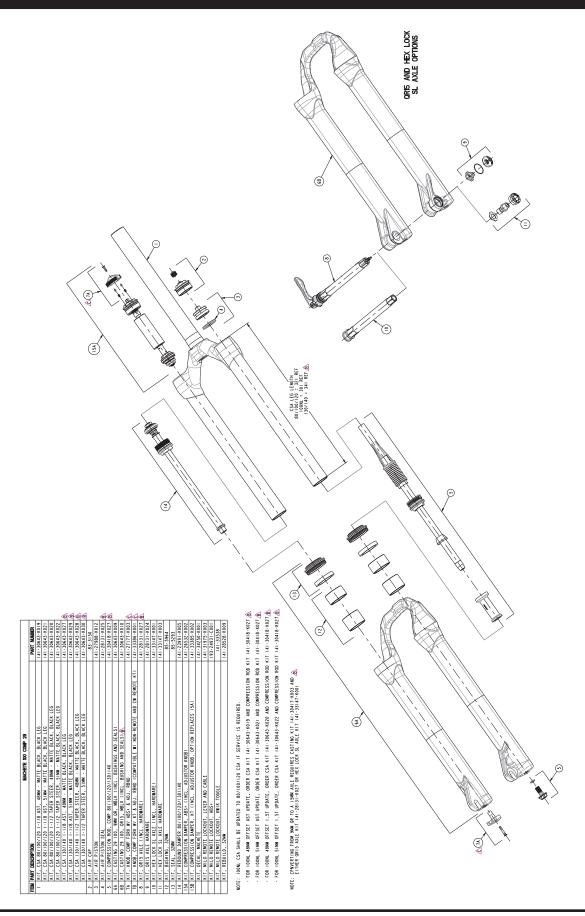
HAYES

MACHETE 100 COMP 27.5 EXPLODED VIEW





MACHETE 100 COMP 29 EXPLODED VIEW



SUN ringlé

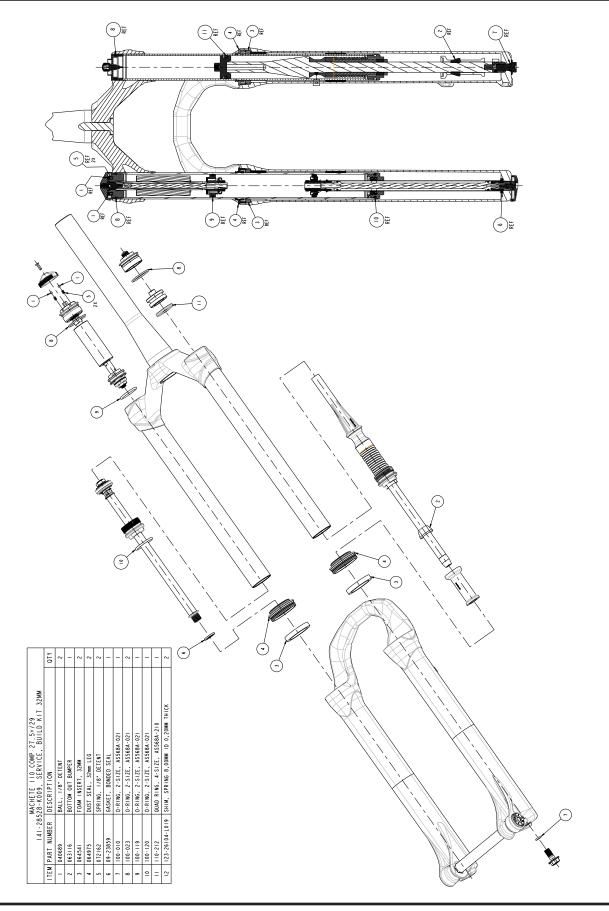
M

HAYES

0

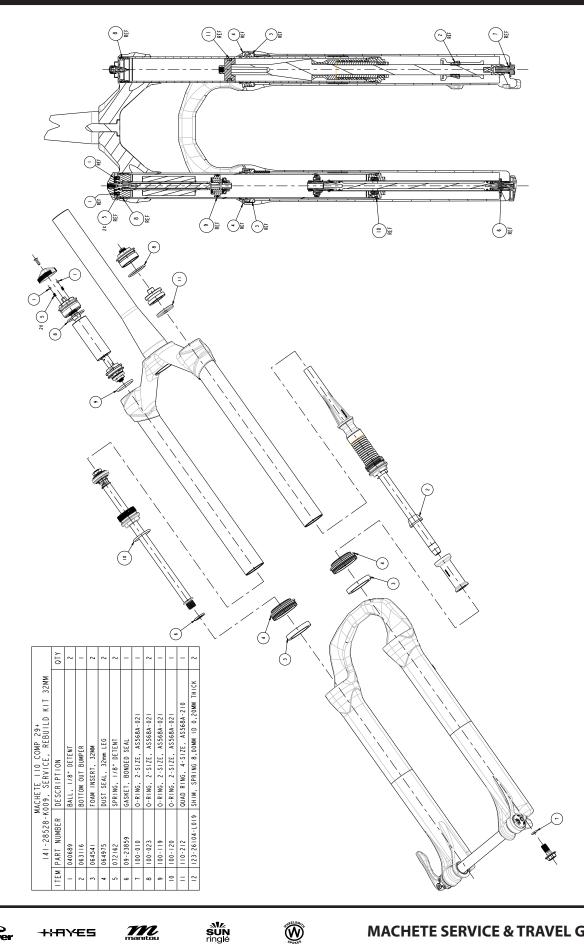
answer

MACHETE 110 COMP 27.5+ REBUILD KIT





MACHETE 110 COMP 29+ REBUILD KIT

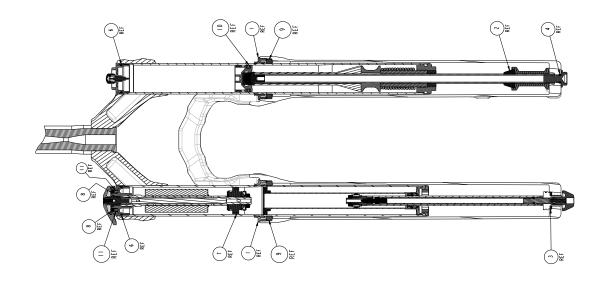


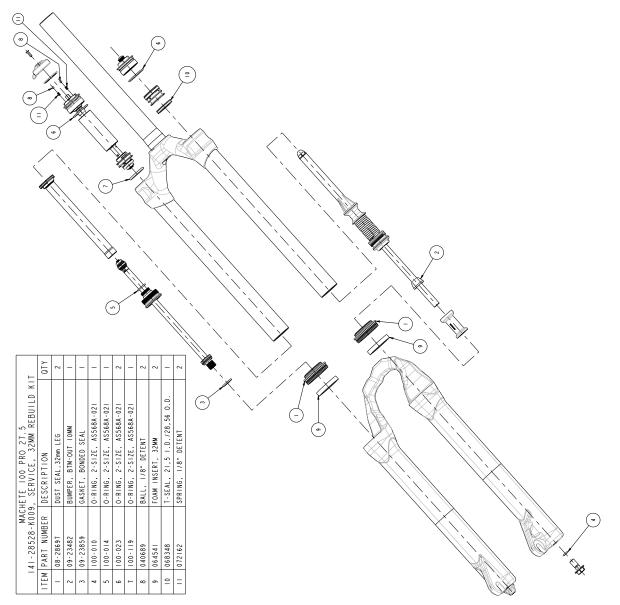


M

++AYES

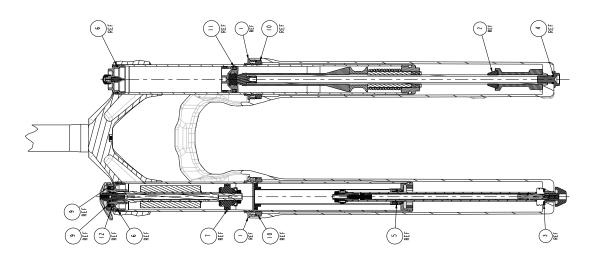
MACHETE PRO 27.5 REBUILD KIT

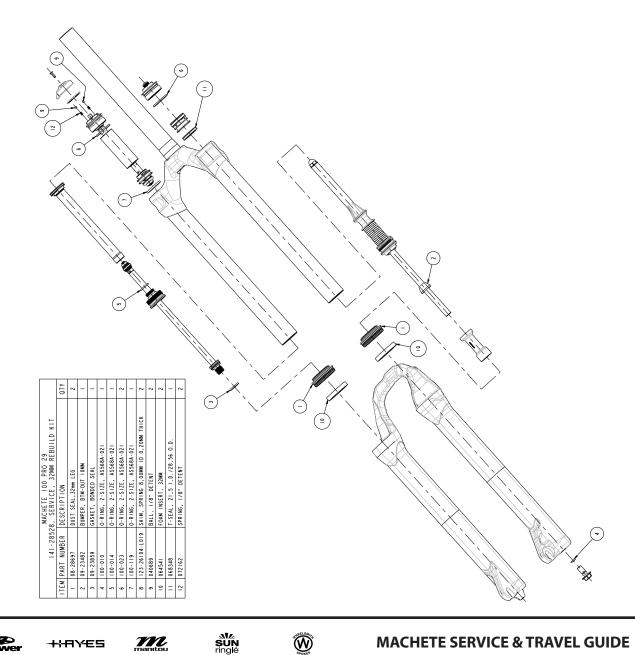






MACHETE PRO 29 REBUILD KIT



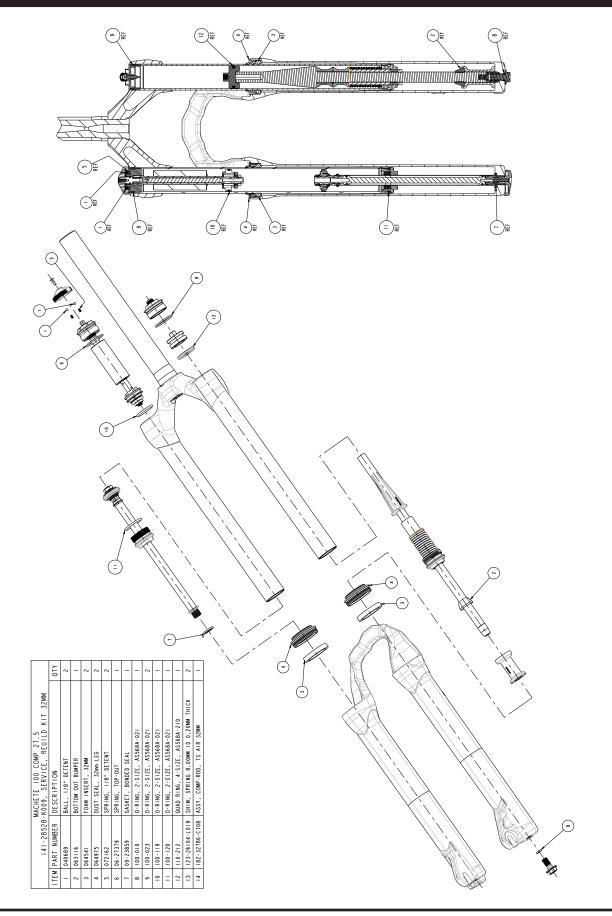




M

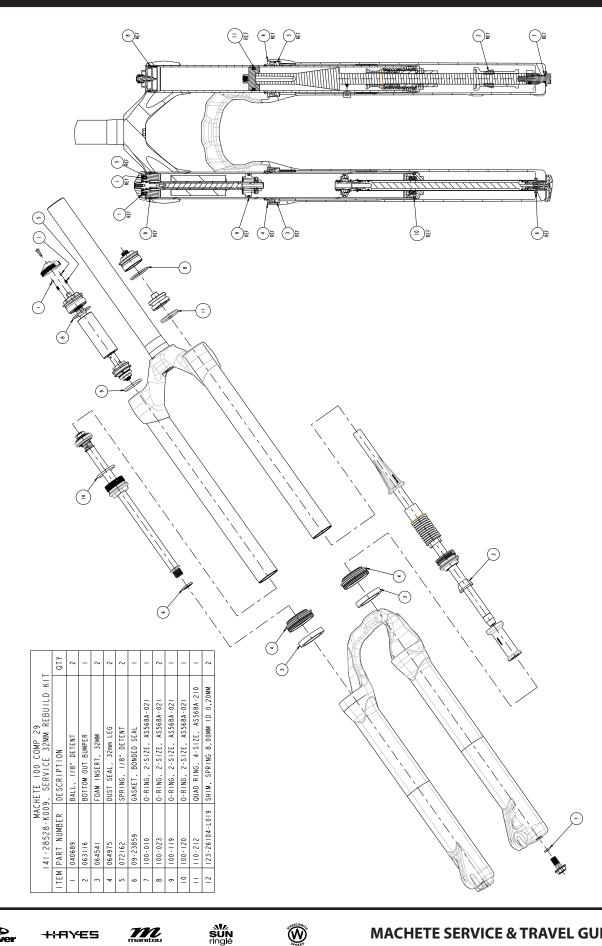
₩AXES

MACHETE COMP 27.5 REBUILD KIT





MACHETE COMP 29 REBUILD KIT



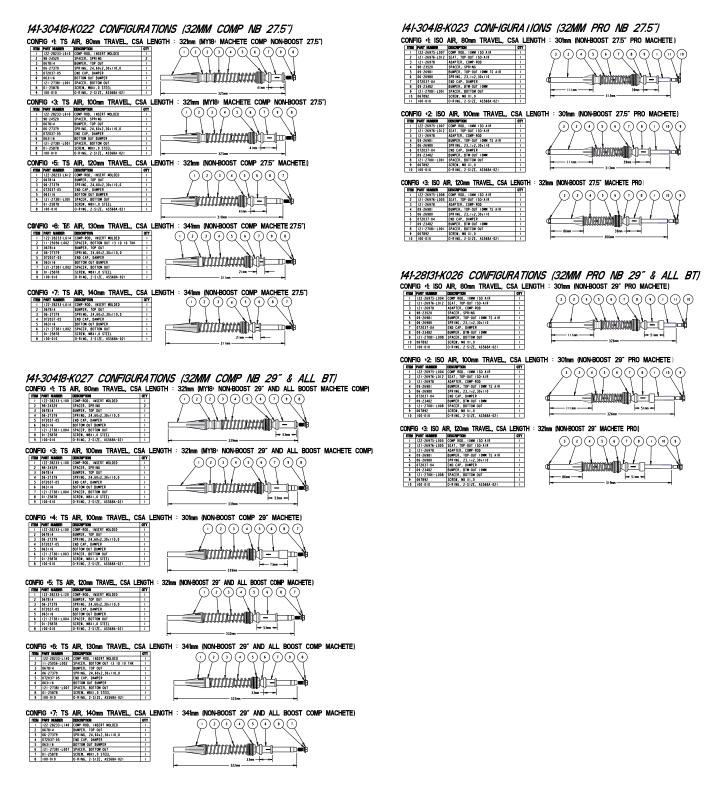


M

₩AXES

COMPRESSION ROD KIT/TRAVEL SETTINGS

Below are the possible travel settings for each model of Machete fork. NOTE: Each aftermarket Machete fork has two ranges of travel options. The crown steer assembly determines the range. A 120mm Machete can go down to 80mm and a 130mm can go up to 140mm.









WWW. MANITOUMTB.COM WWW.HAYESCOMPONENTS.COM 5800 W DONGES BAY ROAD MEQUON WI 53092