Manualslib.com - The Ultimate Manuals Library

MANITOU CIRCUS EXPERT SERVICE MANUAL



Table of Contents

Table of Contents
REQUIRED TOOLS
limited warranty
CASTING REMOVAL & SERVICE
CASTING REMOVAL & SERVICE
AIR SPRING SERVICE
TRAVEL CHANGE (OPTIONAL)
DAMPER SERVICE
CASTING INSTALLATION
COMPRESSION DAMPER INSTALL



SERVICE GUIDE

Downloaded from www.Manualslib.com manuals search engine



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

Downloaded from www.Manualslib.com manuals search engine

INTRODUCTION

This manual is intended to guide the user through the steps necessary to fully service and maintain the Circus Expert suspension fork.

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.

Downloaded from www.Manualslib.com manuals search engine

TABLE OF CONTENTS

SECTION	PAGE NUMBER
REQUIRED TOOLS	5
EXPLODED DIAGRAM	6–8
CASTING REMOVAL & SERVICE	10–12
AIR SPRING SERVICE	13–17
TRAVEL CHANGE (OPTIONAL)	14-15
DAMPER SERVICE	18–19
CASTING INSTALLATION	20–22
COMPRESSION DAMPER INSTALL	23–26

Downloaded from www.Manualslib.com manuals search engine

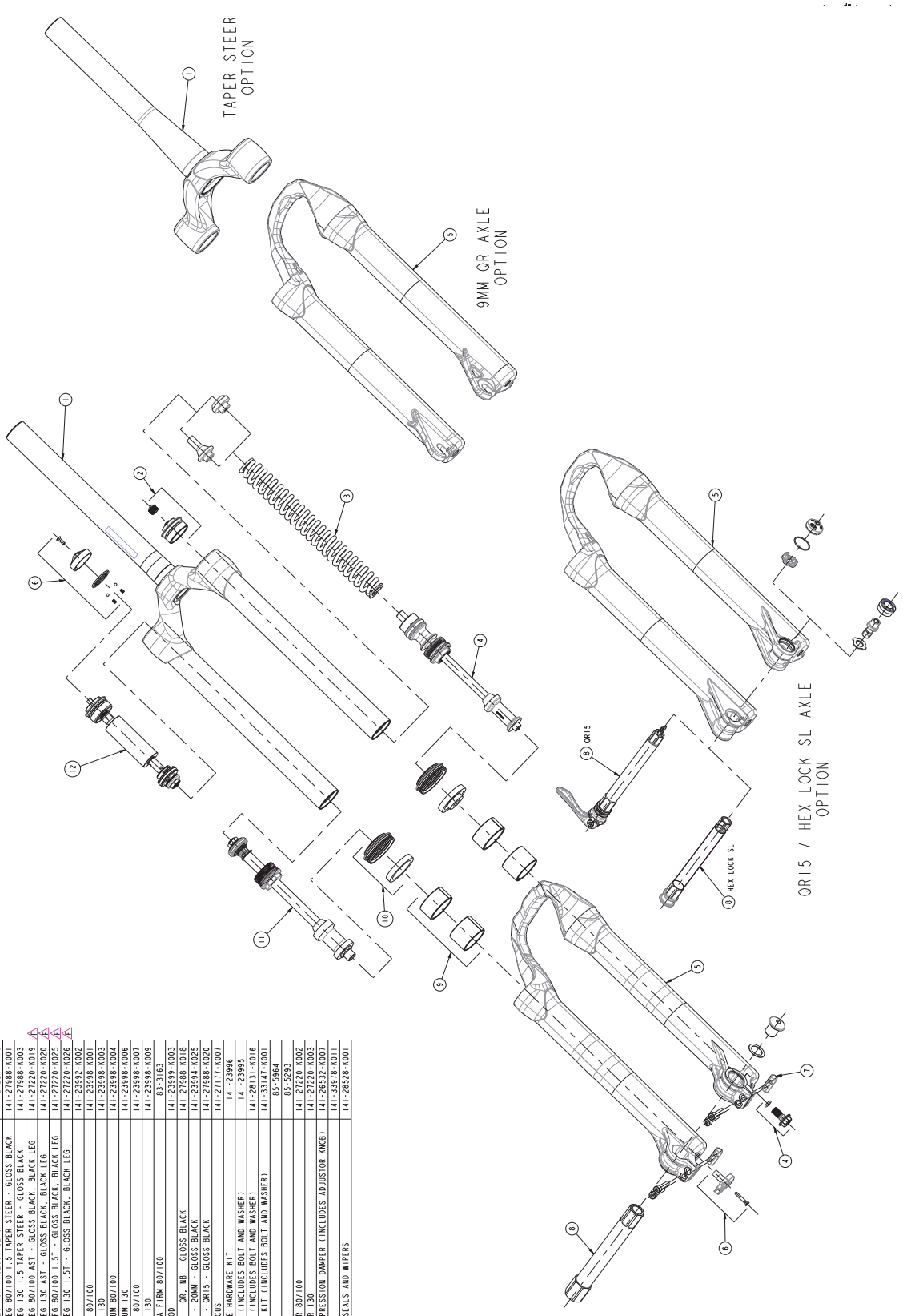
REQUIRED TOOLS

Below is a list of tools necessary for servicing the Circus Expert fork.

- Safety Glasses
- Nitrile Gloves
- Lint-Free Rags
- Torque Wrench
- Slickoleum Grease
- Semi-bath Oil, 5/40w Synthetic - Manitou part number 85-0022
- 5wt Maxima Fork oil - Manitou part number 85-0023
- 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

Downloaded from www.Manualslib.com manuals search engine

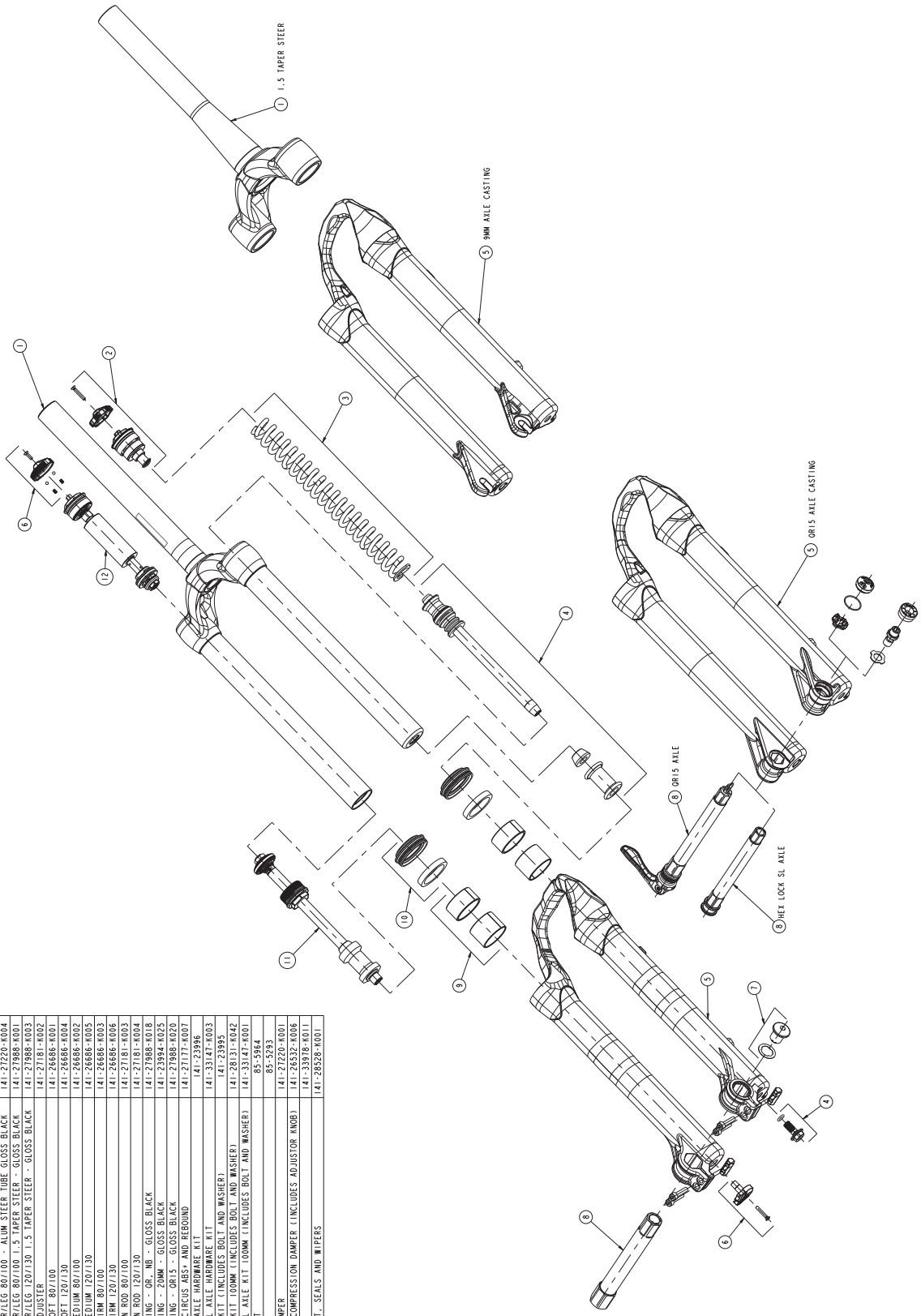
CIRCUS EXPERT EXPLODED VIEW



ITEM	CIRCUS EXPERT DESCRIPTION	PART NUMBER
1	CROWN/STEER/LEG 80/100 - GLOSS BLACK	141-27220-K006
	CROWN/STEER/LEG 130 - GLOSS BLACK	141-27220-K008
	CROWN/STEER/LEG 80/100 1.5 TAPER STEER - GLOSS BLACK	141-27988-K001
	CROWN/STEER/LEG 130 1.5 TAPER STEER - GLOSS BLACK	141-27988-K003
	CROWN/STEER/LEG 80/100 AST - GLOSS BLACK, BLACK LEG	141-27220-K019
	CROWN/STEER/LEG 130 AST - GLOSS BLACK, BLACK LEG	141-27220-K020
	CROWN/STEER/LEG 80/100 1.5T - GLOSS BLACK, BLACK LEG	141-27220-K025
	CROWN/STEER/LEG 130 1.5T - GLOSS BLACK, BLACK LEG	141-27220-K026
2	AIR CAP	141-23992-K002
3	RIDE KIT SOFT 80/100	141-23998-K001
	RIDE KIT SOFT 130	141-23998-K003
	RIDE KIT MEDIUM 80/100	141-23998-K004
	RIDE KIT MEDIUM 130	141-23998-K006
	RIDE KIT FIRM 80/100	141-23998-K007
	RIDE KIT FIRM 130	141-23998-K009
	RIDE KIT EXTRA FIRM 80/100	83-3163
4	COMPRESSION ROD	141-23999-K003
5	OUTER CASTING - QR - NB - GLOSS BLACK	141-27988-K018
	OUTER CASTING - 20MM - GLOSS BLACK	141-23984-K025
	OUTER CASTING - QR15 - GLOSS BLACK	141-27988-K020
6	KNOB KIT, CIRCUS	141-27177-K007
7	20MM THRU AXLE HARDWARE KIT	141-23996
8	20MM AXLE KIT (INCLUDES BOLT AND WASHER)	141-23995
	QR15 AXLE KIT (INCLUDES BOLT AND WASHER)	141-28131-K016
	HEX LOCK AXLE KIT (INCLUDES BOLT AND WASHER)	141-33147-K001
9	BUSHING KIT	85-5964
10	SEAL KIT	85-5293
11	REBOUND DAMPER 80/100	141-27220-K002
	REBOUND DAMPER 130	141-27220-K003
12	ABSOLUTE+ COMPRESSION DAMPER (INCLUDES ADJUSTOR KNOB)	141-26532-K007
	DECAL KIT	141-33978-K011
	REBUILD KIT, SEALS AND WIPERS	141-28528-K001

Downloaded from www.Manualslib.com manuals search engine

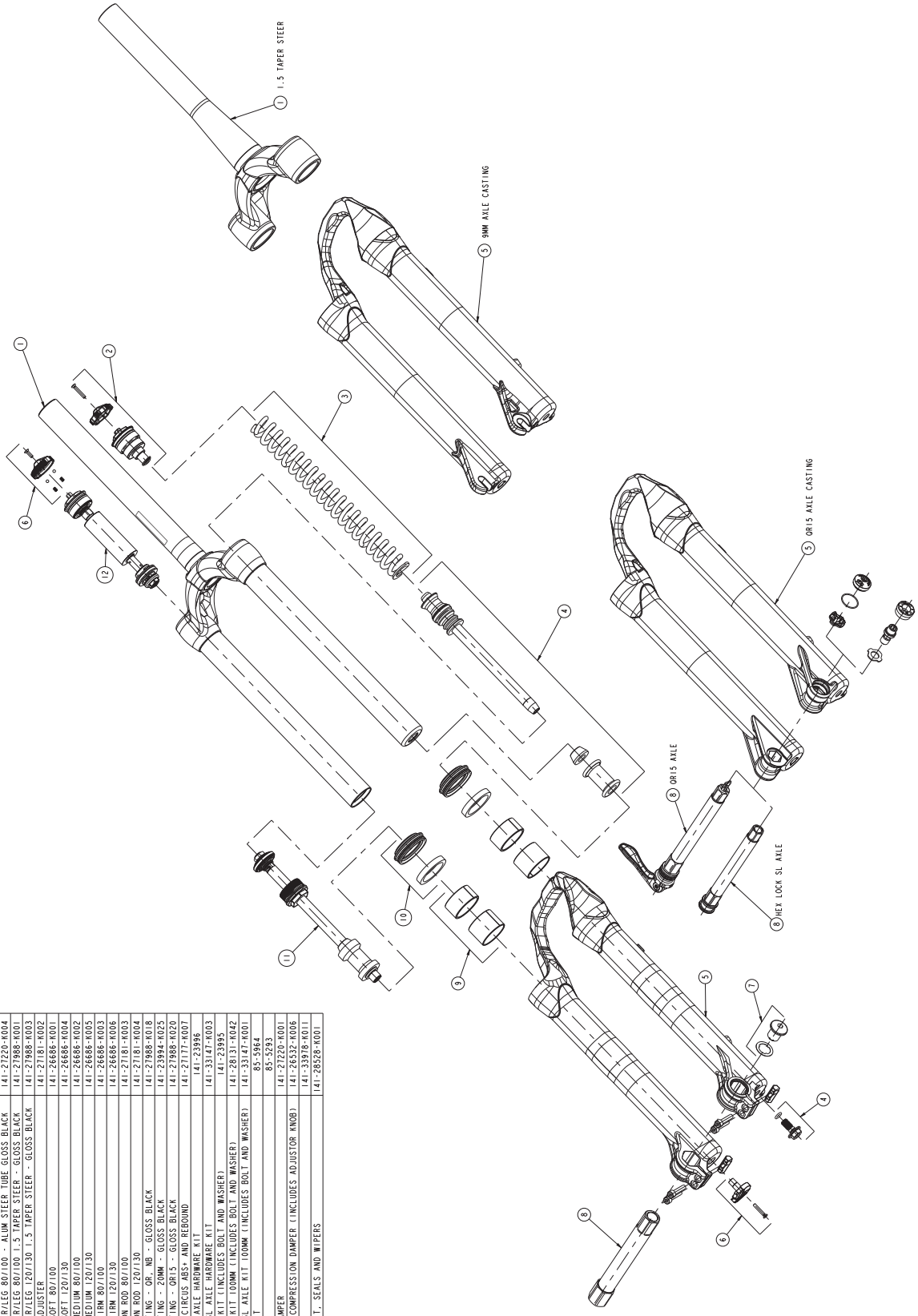
CIRCUS COMP EXPLODED VIEW



ITEM	DESCRIPTION	PART NUMBER
	CIRCUS COMP	
1	CROWN/STEER/LEG 80/100 - STEEL STEER TUBE GLOSS BLACK	141-27181-K005
	CROWN/STEER/LEG 80/100 - ALUM STEER TUBE GLOSS BLACK	141-27220-K004
	CROWN/STEER/LEG 80/100 1.5 TAPER STEER - GLOSS BLACK	141-27988-K001
	CROWN/STEER/LEG 120/130 1.5 TAPER STEER - GLOSS BLACK	141-27988-K003
2	PRE-LOAD ADJUSTER	141-27181-K002
3	RIDE KIT SOFT 80/100	141-26686-K001
	RIDE KIT SOFT 120/130	141-26686-K004
	RIDE KIT MEDIUM 80/100	141-26686-K002
	RIDE KIT MEDIUM 120/130	141-26686-K005
	RIDE KIT FIRM 80/100	141-26686-K003
	RIDE KIT FIRM 120/130	141-26686-K006
4	COMPRESSION ROD 80/100	141-27181-K003
	COMPRESSION ROD 120/130	141-27181-K004
5	OUTER CASTING - QR, NB - GLOSS BLACK	141-27988-K018
	OUTER CASTING - 20MM - GLOSS BLACK	141-23994-K025
	OUTER CASTING - QR15 - GLOSS BLACK	141-27988-K020
6	KNOB KIT, CIRCUS ABS+ AND REBOUND	141-27177-K007
7	20MM THRU AXLE HARDWARE KIT	141-23996
	HEX LOCK SL AXLE HARDWARE KIT	141-33147-K003
8	20MM AXLE KIT (INCLUDES BOLT AND WASHER)	141-23995
	QR15 AXLE KIT (100MM (INCLUDES BOLT AND WASHER)	141-28131-K042
	HEX LOCK SL AXLE KIT (100MM (INCLUDES BOLT AND WASHER)	141-33147-K001
9	BUSHING KIT	85-5964
10	SEAL KIT	85-5293
11	REBOUND DAMPER	141-27220-K001
12	ABSOLUTE+ COMPRESSION DAMPER (INCLUDES ADJUSTOR KNOB)	141-26532-K006
	DECAL KIT	141-33978-K011
	REBUILD KIT, SEALS AND WIPERS	141-28528-K001

Downloaded from www.Manualslib.com manuals search engine

CIRCUS SPORT EXPLODED VIEW



ITEM	DESCRIPTION	PART NUMBER
	⚠CIRCUS COMP	
1	CROWN/STEER/LEG 80/100 - STEEL STEER TUBE GLOSS BLACK	141-27181-K005
	CROWN/STEER/LEG 80/100 - ALUM STEER TUBE GLOSS BLACK	141-27220-K004
	CROWN/STEER/LEG 80/100 1.5 TAPER STEER - GLOSS BLACK	141-27988-K001
	CROWN/STEER/LEG 120/130 1.5 TAPER STEER - GLOSS BLACK	141-27988-K003
2	PRE-LOAD ADJUSTER	141-27181-K002
3	RIDE KIT SOFT 80/100	141-26686-K001
	RIDE KIT SOFT 120/130	141-26686-K004
	RIDE KIT MEDIUM 80/100	141-26686-K002
	RIDE KIT MEDIUM 120/130	141-26686-K005
	RIDE KIT FIRM 80/100	141-26686-K003
	RIDE KIT FIRM 120/130	141-26686-K006
4	COMPRESSION ROD 80/100	141-27181-K003
	COMPRESSION ROD 120/130	141-27181-K004
5	OUTER CASTING - QR, NB - GLOSS BLACK	141-27988-K018
	OUTER CASTING - 20MM - GLOSS BLACK	141-23994-K025
	OUTER CASTING - QR15 - GLOSS BLACK	141-27988-K020
6	KNOB KIT, CIRCUS ABS+ AND REBOUND	141-27177-K007
7	20MM THRU AXLE HARDWARE KIT	141-23996
	HEX LOCK SL AXLE HARDWARE KIT	141-33147-K003
8	20MM AXLE KIT (INCLUDES BOLT AND WASHER)	141-23995
	QR15 AXLE KIT 100MM (INCLUDES BOLT AND WASHER)	141-28131-K042
	HEX LOCK SL AXLE KIT 100MM (INCLUDES BOLT AND WASHER)	141-33147-K001
9	BUSHING KIT	85-5964
10	SEAL KIT	85-5293
11	REBOUND DAMPER	141-27220-K001
12	ABSOLUTE+ COMPRESSION DAMPER (INCLUDES ADJUSTOR KNOB)	141-28532-K006
	DECAL KIT	141-33978-K011
	REBUILD KIT, SEALS AND WIPERS	141-28528-K001

Downloaded from www.Manualslib.com manuals search engine

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.

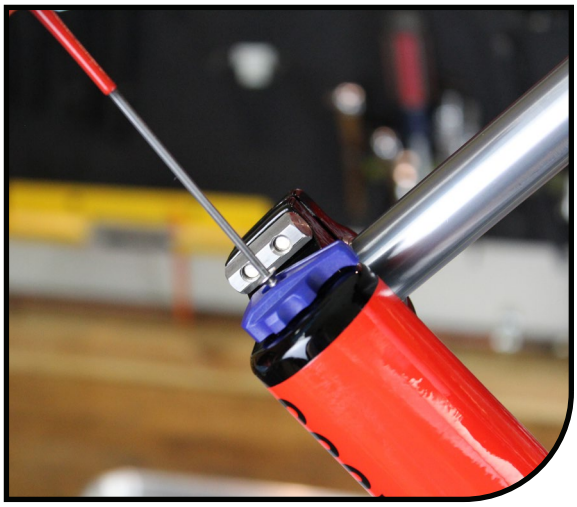
This warranty does not apply to normal wear and tear. Wear and tear parts are subject to damage through normal use, failure to service according to recommendations or riding in conditions other than recommended. The cost of normal maintenance or replacement of service items, which are not defective, 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)

Downloaded from www.Manualslib.com manuals search engine

CASTING REMOVAL & SERVICE

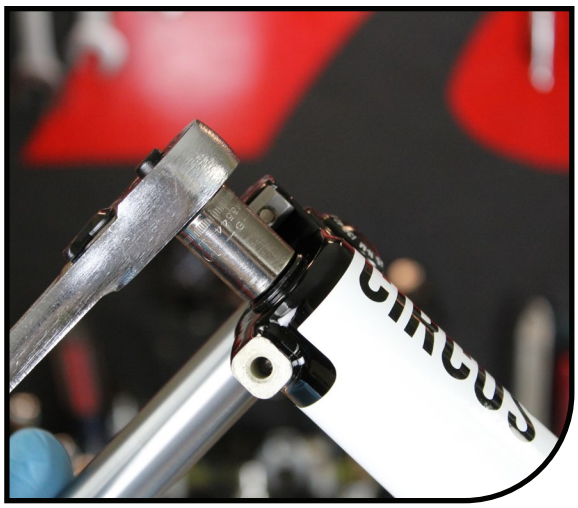
1 Remove rebound knob using a 2mm hex wrench.



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.



Downloaded from www.Manualslib.com manuals search engine

CASTING REMOVAL & 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.



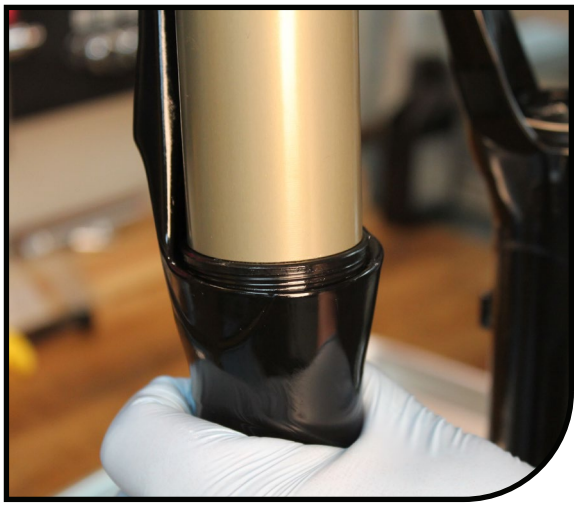
6 Remove old foam wiper rings. Apply semi-bath fluid to the new foam wiper rings and install into fork casting.



Downloaded from www.Manualslib.com manuals search engine

CASTING REMOVAL & SERVICE

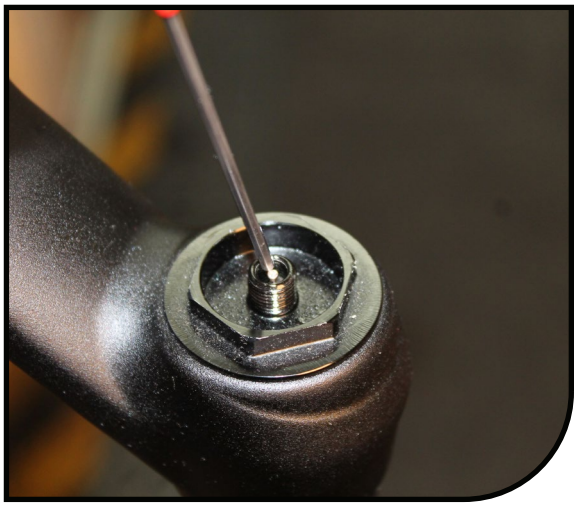
7 Remove springs from lip of dust seals. Using the Manitou 32mm Seal Press (Manitou part number 172-31122) or large socket press in the dust seals. Reinstall springs onto seals.



Downloaded from www.Manualslib.com manuals search engine

AIR SPRING SERVICE

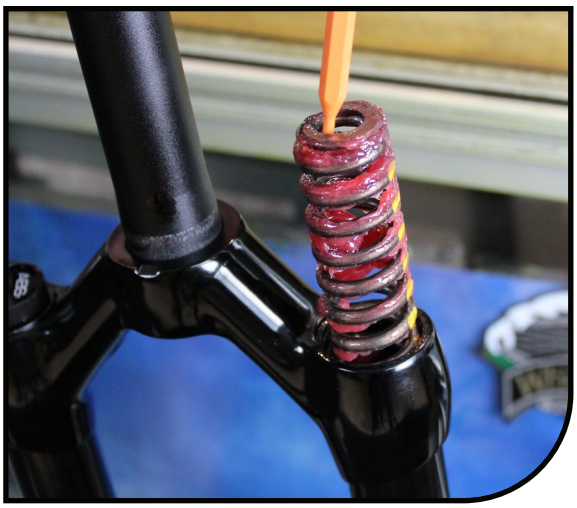
1 Release air from the fork. Depress Schrader valve a few times to ensure all air is released.



2 Remove air cap using a 20mm socket.



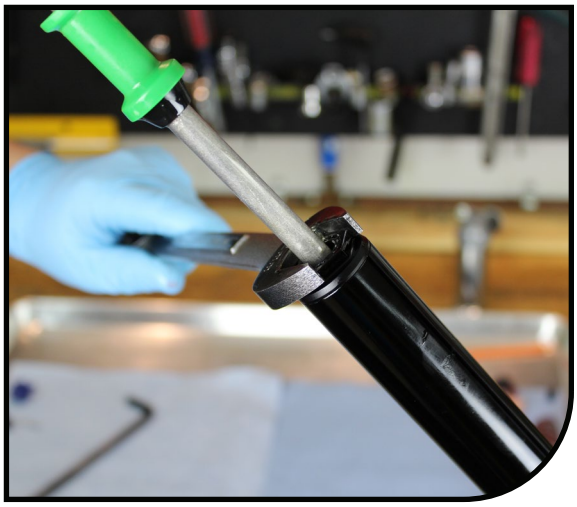
3 Remove the compression spring.



Downloaded from www.Manualslib.com manuals search engine

AIR SPRING SERVICE/TRAVEL CHANGE

4 Invert the fork and use a 22mm box end wrench to unthread the compression rod assembly from the stanchion.



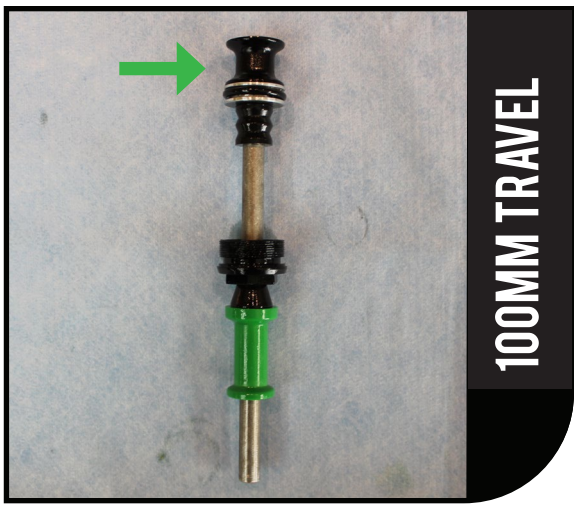
5 Remove compression rod assembly from the stanchion. Clean the assembly and re-grease.



6

TRAVEL CHANGE (OPTIONAL)

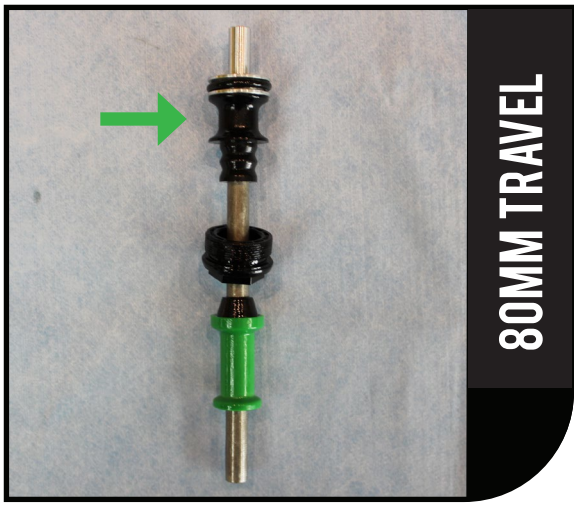
With the compression rod assembly removed you can adjust the travel on the aftermarket Circus Expert by adjusting the spacer as shown.



Downloaded from www.Manualslib.com manuals search engine

AIR SPRING SERVICE/TRAVEL CHANGE

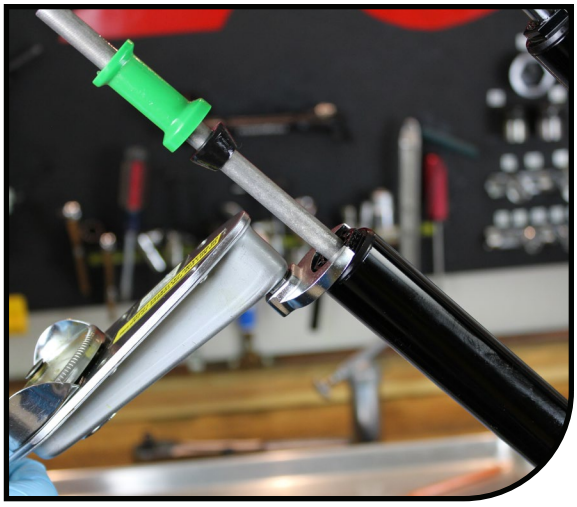
TRAVEL CHANGE (OPTIONAL)



7 Liberally grease the piston seal and outer surface with Slickoleum™ grease



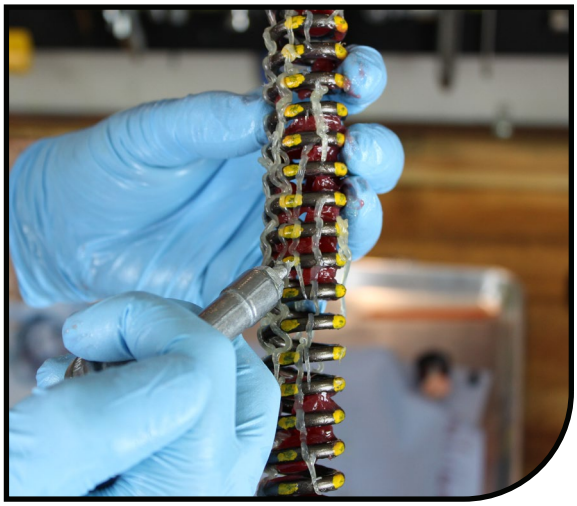
8 Install air spring assembly into stanchion. Using a 22mm crow's foot, tighten assembly end cap to 80-100 in lbs [9.0-11.3 NM].



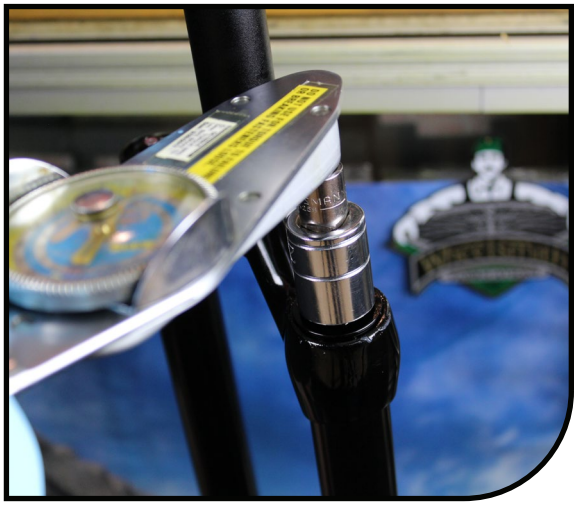
Downloaded from www.Manualslib.com manuals search engine

AIR SPRING SERVICE

9 Liberally grease the compression spring outer surface with Slickoleum™ grease



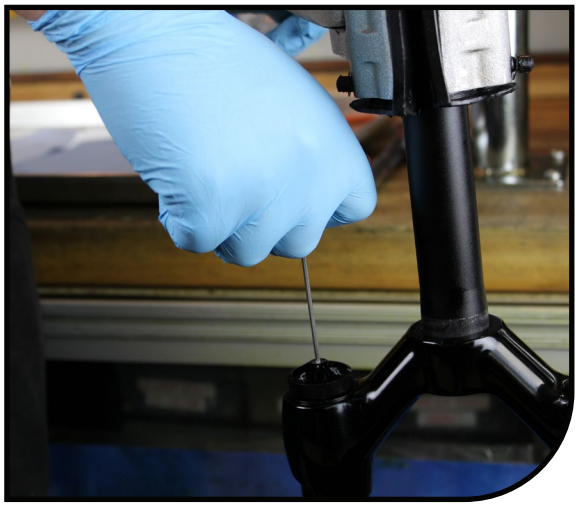
10 Insert the compression spring and install air cap onto stanchion. Tighten to 60-80 in lbs. [6.8-9.0 NM].



Downloaded from www.Manualslib.com manuals search engine

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.



(ABS+ knob detent ball and springs.)



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



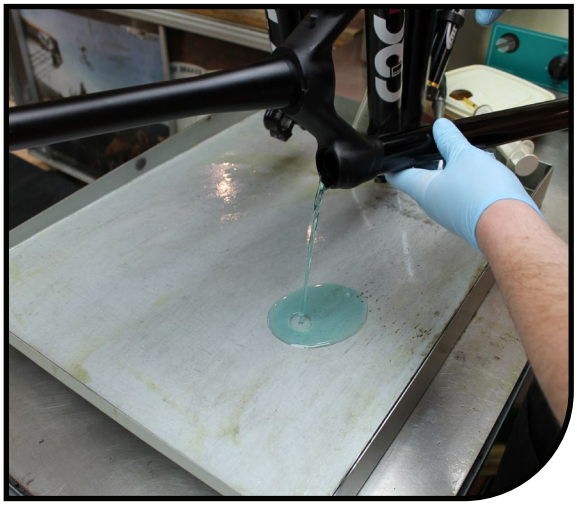
Downloaded from www.Manualslib.com manuals search engine

DAMPER SERVICE

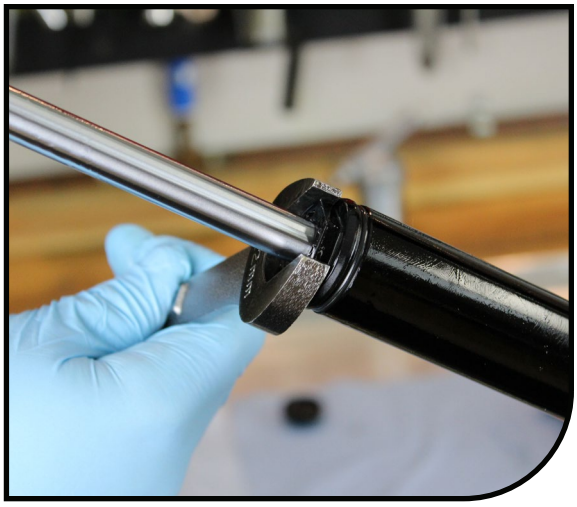
3 Remove ABS+ compression damper assembly from the stanchion.



4 Pour damper oil into a catch pan.



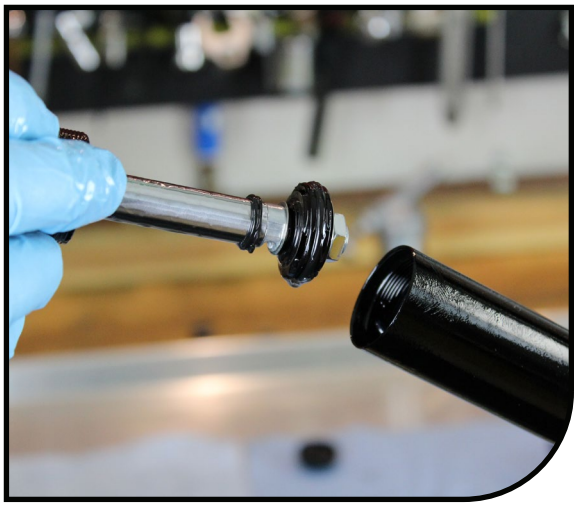
5 Using a 22mm box end wrench, unthread the rebound damper assembly from the fork stanchion.



Downloaded from www.Manualslib.com manuals search engine

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 a 22mm crow's foot and torque wrench, tighten the rebound damper assembly end cap to 80-100 in lbs [9.0-11.3 NM].



Downloaded from www.Manualslib.com manuals search engine

CASTING INSTALL

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



2 Spread grease evenly along entire seal inner diameter.



3 Fill the air chamber with a small amount of air (30-50PSI). This will extend the air spring assembly and make casting installation easier.



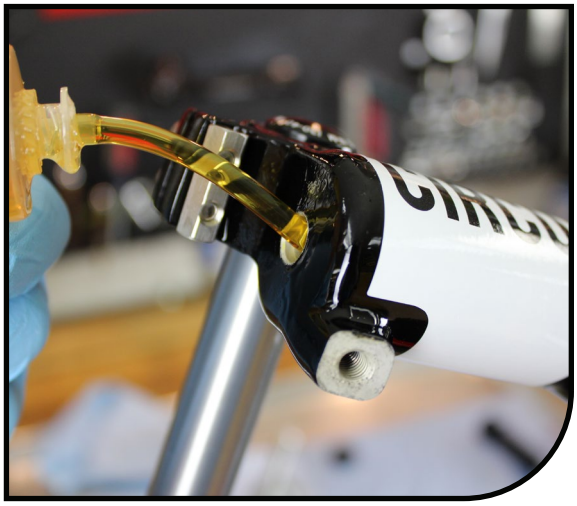
Downloaded from www.Manualslib.com manuals search engine

CASTING INSTALL

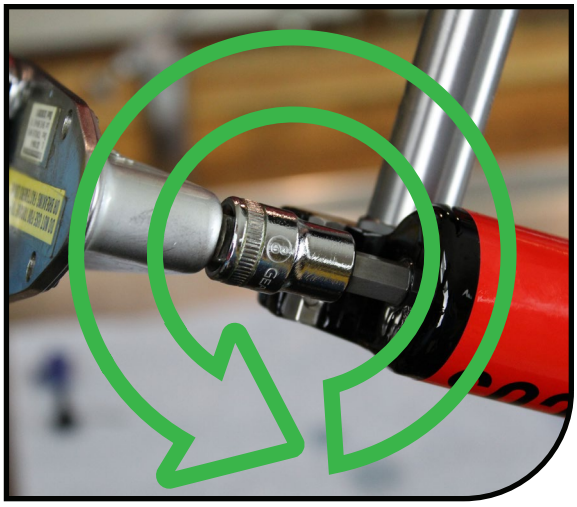
4 Slide casting onto the stanchion assembly. Only slide the casting down about halfway at this point. Take care that the seals do not get folded over on installation.



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 35–40in lbs [3.95–4.5 Nm] by turning them **counter-clockwise.** Do not overtighten, doing so can damage the end of the rods.



Downloaded from www.Manualslib.com manuals search engine

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 30-50PSI 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].



Downloaded from www.Manualslib.com manuals search engine

COMPRESSION DAMPER INSTALL

1 Pour 5wt Maxima fork oil into the damper leg. Fill it up ¾ of the way.



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



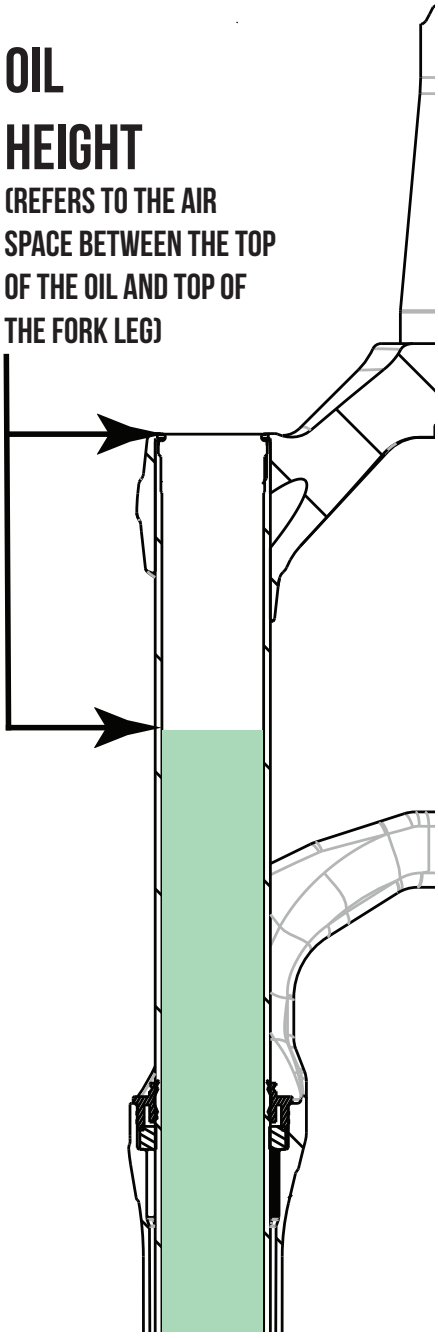
3 Pour additional 5wt fork oil into the damper leg until the oil height (space from the top of the damper leg to the top of the oil) is set at the proper level. See following page for the correct oil height depending on compression damper type and fork travel. An oil height setting tool used for motorcycle forks similar to the one pictured makes this job easier.



Downloaded from www.Manualslib.com manuals search engine

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



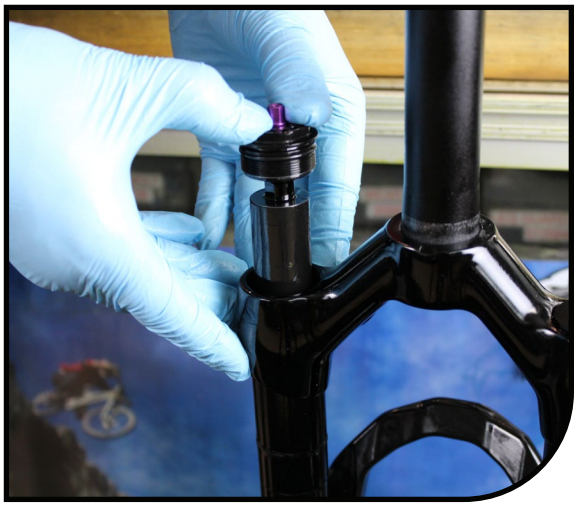
NOTE

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

Downloaded from www.Manualslib.com manuals search engine

COMPRESSION DAMPER INSTALL

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



5 Install the ABS+ damper using a 24mm socket and torque wrench, tighten the damper to 60–80 in lbs [6.8–9.0 NM].



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.



Downloaded from www.Manualslib.com manuals search engine

COMPRESSION DAMPER INSTALL

7 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 chart below for reference.



ACT AIR

RIDER WEIGHT			
LBS	KGS	SOFT SPRING	FIRM SPRING
220	99.8	30-50 PSI [2.0-3.4 BAR]	15 PSI [1.0 BAR]
200	90.7	20-35 PSI [1.4-2.4 BAR]	10 PSI [0.7 BAR]
170	77.1	10-25 PSI [0.7-17 BAR]	N/A
140	63.5	5-15 PSI [0.3-1.0 BAR]	N/A
120	54.4	0-10 PSI [0-.07 BAR]	N/A

MAX PRESSURE NOT TO EXCEED 50PSI (3.45 BAR)

Downloaded from www.Manualslib.com manuals search engine





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

Downloaded from www.Manualslib.com manuals search engine