

REDROO Shocks – Shock Rebuild Guide HV2000

To be used in conjunction with a Service Kit supplied by REDROO

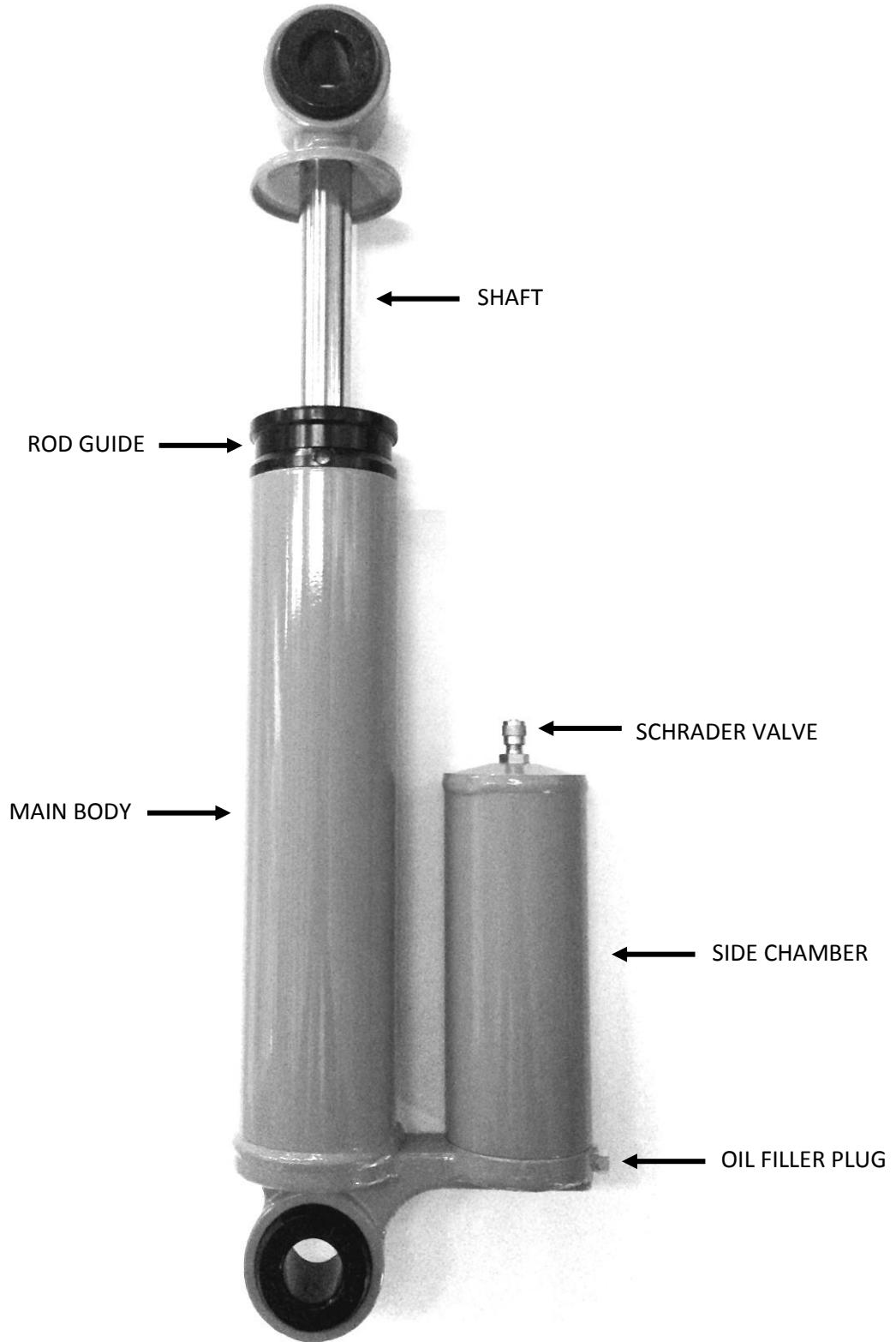
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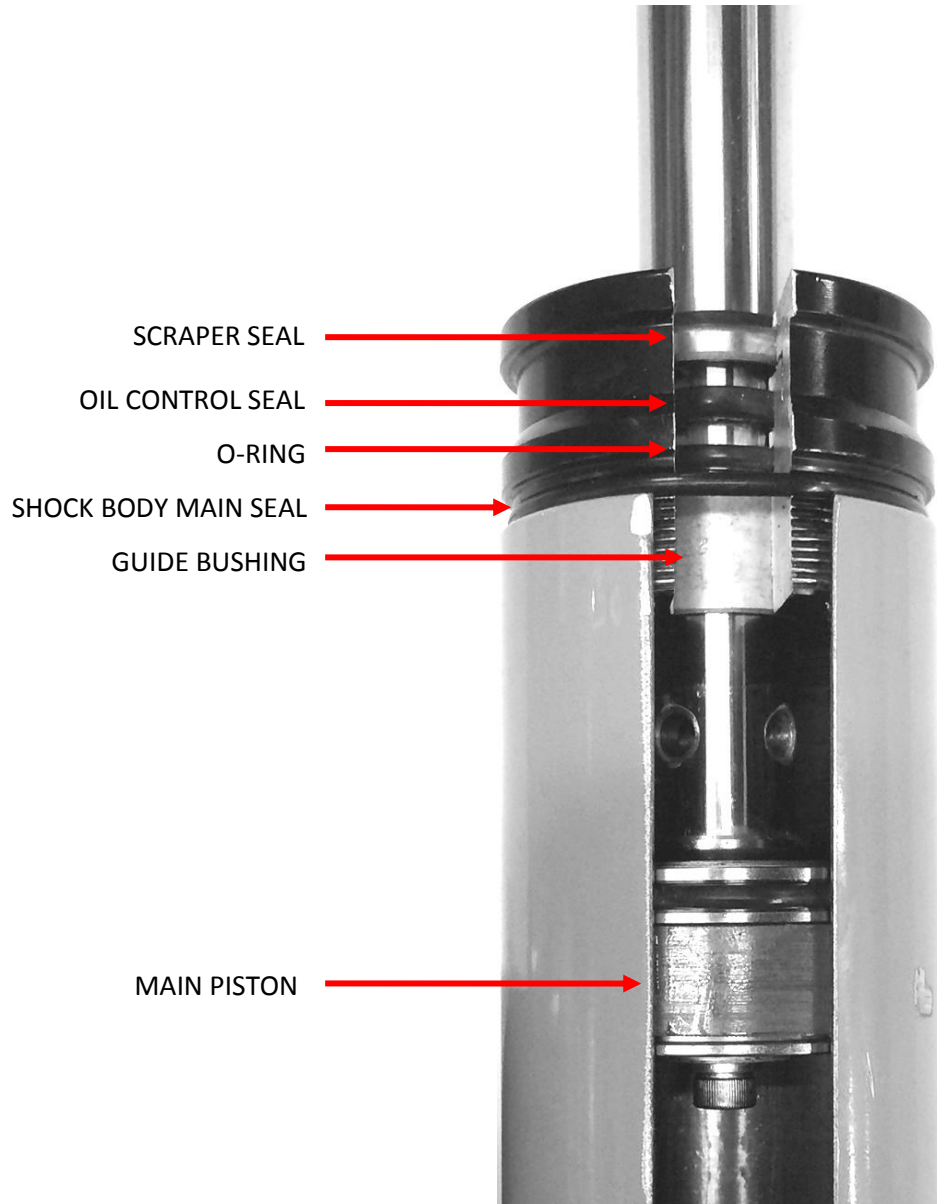
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PURPOSE

This document is intended as a guide to assist the mechanic or handyman with the re-conditioning of a REDROO branded HV2000 model shock absorber. Both new style REDROO shocks, and early model ROBO branded shocks are covered by this guide.

The REDROO HV2000 is a premium, heavy duty shock absorber designed for the Heavy Vehicle market. The unique patented valving provides superior oil flow, whilst minimising aeration and shock absorber fade. Several models of HV2000 are available to suit different applications. Rebuild steps are applicable to all of these models.

COMPONENTS OF THE HV2000

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1. SHOCK DISSASSEMBLY

- A. Degrease shock.
- B. Fully extend shock.
- C. Drain any compressed air that is present in the side chamber.
- D. Place shock in vice. Using a hinged pin spanner, unscrew the rod guide from the main body, in a counter clockwise motion.
- E. Slide the rod guide up the shaft. Remove shock from vice and drain as much oil from the shock as possible.
- F. Place shock back in vice. Remove the shaft assembly from the shock. NOTE: It may be necessary to loosen the filler plug in order to remove the shaft. This will eliminate the vacuum, however be careful not to spill oil.
- G. With the shaft removed from the body, remove the body from the vice, and drain the remainder of the oil. Place the body back into the vice.
- H. Remove the filler plug completely.
- I. Ensuring that all air is drained from the side chamber, (STEP 3) remove the Schrader valve/ air fitting from the top of the side chamber.
- J. Unscrew the side chamber in a counter clockwise motion. NOTE: An Oil Filter strap can be used to facilitate this.
- K. With the side chamber removed, place a long screwdriver through the hole in the top of the side chamber. Using a rubber mallet, knock out the floating piston from the bore.
- L. Remove the shock body from the vice.
- M. Place the shaft upside down in the vice.
- N. Using a number 2.5 tip hex key, remove the hex screw securing the rebound shims and piston. Remove the shims keeping them together in a pack.
- O. Using an adjustable face pin spanner, unscrew the piston from the shaft in a counter clockwise direction. NOTE: Some earlier models have a grub screw underneath the largest piston o-ring which needs to be removed also.
- P. Remove the compression shims from the shaft. Keep note of their positions for re-assembling.
- Q. Remove the domed washer from the shaft noting the orientation.
- R. Slide the rod guide from the shaft.
- S. The shock is now disassembled ready for cleaning and re-kitting.

2. CLEANING & INSPECTION

- A. Remove the old o-ring from the side chamber mounting point.
- B. Thoroughly clean and dry the internal bores of both the main body and side chamber. Inspect for any scoring or damage to these surfaces. If any heavy scoring or damage is present, it may be necessary to replace the damaged component.
- C. Inspect for damage around the top edge of the main body. The rod guide o-ring seals on this surface therefore it is very important that this is damage and defect free.
- D. Inspect for damage around the lower edge of the side chamber. As with the previous step, this is an oil seal surface, therefore it is important this surface is damage free.
- E. Clean and check the shaft for any heavy scoring or damage. If the shaft is heavily scored, then it may be necessary to replace it.
- F. Clean and inspect the main & floating pistons for any signs of obvious damage. Remove the old o-rings.

3. REPLACING SEALS – Rod Guide, Black REDROO Style

- A. Separate the two halves of the rod guide, using the hinged pin spanner and adjustable face pin spanner. Some models are equipped with a small grub screw that is fitted through the top for locking purposes. Loosen this if present.
- B. Using a scribe (or suitable small screwdriver) remove the o-ring and oil control seal from the lower section of the rod guide. DO NOT gouge or damage any surface in the rod guide.
- C. If the guide bushing is to be replaced, remove it with a hammer and flat blade screwdriver. Press in the new bushing using a press if available. A block of wood and a hammer will suffice if a press is not available.
- D. Grease and fit a new o-ring to the lower half of the assembly. (RR14)
- E. Grease and fit a new oil control seal to the lower half of the assembly. (RR12)
- F. Remove the scraper seal from the top half of the rod guide, using a hammer and flat blade screwdriver.
- G. Lubricate and press in a new scraper seal. (RR13) A hammer and drift will suffice if a press is not available.
- H. Wind approximately 3 turns of Teflon sealant tape (clockwise) around the thread that fastens the two halves of the rod guide together.
- I. Leave the two halves of the rod guide separate to enable easy re-installation over the shaft. Screw these together after *STEB B, SECTION 5*.
- J. Remove the large o-ring around the outer diameter of the rod guide. (Shock body main seal)
- K. Fit a new o-ring to the outer diameter of the rod guide. (RR11)

4. REPLACING SEALS – Rod Guide, Green ROBO Style

The same procedure should be followed as with the REDROO Style rod guide, with exception that it is a one piece unit. It does not separate into two halves. Different seals are required and these are included in the relevant service kits.

5. SHAFT REASSEMBLY

- A. Lubricate the shaft with some shock oil.
- B. Slide the two halves of the rod guide over the shaft. (The ROBO Style rod guide will need to be installed in one piece. It may be necessary to tap it gently on with a rubber mallet, ensuring no damage is sustained to the new seals.)
- C. Screw the two halves of the rod guide together, and tighten the locking grub screw.
- D. Ensure the rod guide moves freely up and down the shaft, with minimal play.
- E. Fit the domed washer to the shaft, as it was removed.
- F. Fit the compression shim pack to the shaft, as it was removed. Replace the shims with new items. Ensure the shims are clean and sitting flush.
- G. Screw the main piston onto the shaft. Nip up lightly with the adjustable face pin spanner. Do not over-tighten.
- H. Fit the rebound shim pack, washer and hex screw to the shaft. Replace the shims with new items, and keep them in the same configuration as removed. Ensure the shims are clean and sitting flush.
- I. Torque the hex screw to 12lbs/ft.

6. SHOCK REASSEMBLY

- A. Place the shock body in the vice.
- B. Fit a new o-ring to the side chamber mounting point. (RR17)
- C. Where feasible, REDROO recommends the use of a suitable thread sealant on both the side chamber thread, and the main rod guide thread. (eg HERNON Powerseal grade 932) The sealant must be suitable for hydraulic applications and be rated to 200°C. DO NOT use a sealant which attacks rubber.
- D. If applying thread sealant, apply a thin bead to the side chamber thread, above the o-ring. Smear the sealant flat.
- E. Fit 2 new o-rings to the floating piston. (RR18)
- F. Fill the centre groove of the floating piston with a generous amount of heavy duty lithium grease.
- G. Press the floating piston into the side chamber. It may be required to tap the piston in with a drift and mallet.
- H. Screw the side chamber onto the main body mounting in a clockwise direction. Using the Oil Filter strap, tighten the side chamber until it is fully seated.
- I. Pump a small amount of clean shock oil into the top of the side chamber. (Through the air fitting hole) One to two pumps from the oil can is sufficient.
- J. Fit a new Schrader valve to the side chamber.
- K. Pressurise the side chamber to 50PSI. At this point you should hear the pop of the floating piston as it sets itself at the lowest point. NOTE: If fitting an olive-type air fitting in place of the Schrader valve, set the floating piston to the lowest point in the chamber manually, using a long screwdriver and mallet.
- L. Screw in the OLD filler plug finger tight.
- M. Fill the main body of the shock with the recommended hydraulic oil. It should be filled no more than 15mm below the thread in the main barrel.
- N. Pick the new green wear strip from the kit, (RR30) coat in shock oil, roll up tightly and release. This will assist it is gripping to the piston during installation of the shaft.
- O. Whilst holding the wear strip in place, reinsert the shaft assembly into the main shock body. Compress the shaft so the main piston sits just below the thread in the barrel.
- P. Slide the rod guide down to the main body. If applying thread sealant (See Step 3) apply a thin even bead around the thread, up to the o-ring. Smear flat.
- Q. Tighten the rod guide into the main body. Ensure that it is tightened until seated fully.
- R. Turn the shock over in the vice so the filler plug is facing upwards.
- S. Remove the old filler plug fitted in Step 12.
- T. Top up the oil in the shock to the bottom of the filler neck.
- U. Apply a bead of thread sealant (such as Loctite 567 or even Teflon tape) to the NEW filler plug and install.
- V. Tighten the filler plug.
- W. Wash down excess oil from shock.
- X. If the eye type mounting bushes are to be replaced, these will need to be pressed out and in with a suitable hydraulic press.
- Y. Re-paint the body of the shock if so desired.

APPENDIX**TOOLS REQUIRED**

- 2.5 tip hex key (Suitable to be fitted to a ratchet)
- Adjustable Face Pin Spanner Wrench (PROTO Brand Part # JC482)
- Allen Key set – Imperial and Metric
- Bench Vice
- Flat blade screwdriver set
- General purpose socket set – Imperial and Metric
- Hammer
- Hinged Pin Spanner – 2 to 4-3/4"
- Hydraulic Press (Optional – however recommended)
- Oil Can - Small
- Oil filter strap
- Rubber Mallet
- Scribe
- Torque Wrench set @ 12 lbs/ft

ADDITIONAL PARTS

- Approximately 700ml of light hydraulic oil. Mobil Velocite No.6 or Castrol Hyspin AWS-10 is recommended.
- Teflon thread sealant tape.

TIME REQUIRED

- Approximately one hour to re-kit one shock absorber.

For Technical Support relating to this document please call REDROO Shocks on (03) 9751 7999

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