

CRUSH MAINTENANCE GUIDE & TROUBLESHOOTING



LUBRICATION – Parallel Squeeze Models Only – always keep parallel squeeze well lubricated to prevent seizing of the pivot and bush. Grease can be pumped into these points through the grease nipples located at points in the top and bottom frame. All pivot and bolt points on the headbail and rear door should be regularly sprayed with an aerosol lubricant (eg. Lanoguard, Inox or Teflon Spray) to ensure smooth working of head bail.

BOLTS – All bolts should be regularly checked for correct tightness. Bolts should be tightened firmly so they do not rattle around in bolt hole, but should not be over-tightened to cause restrictive movement of the headbail. Worn bolts should be replaced immediately.

HYDRAULIC RAM

Regularly spray the top of the ram (where the activator rod enters the housing) with an aerosol type lubricant.

It is recommended when the unit is not in use open the head bail handle fully. This will place the chrome shaft of the ram inside the housing, thus protecting it from extended exposure to the elements.

We recommend you **change the oil every 2 years** with a light hydraulic oil/auto transmission fluid (ATF- DX-3) – 22 grade.

Always monitor the ram for any oil leaks, which may indicate a faulty seal. Any ram malfunction should be reported immediately to an RMP representative at head office – **07 5462 3433**.

TROUBLE SHOOTING:

FAULT	PROBLEM CAUSE	SUGGESTION
Headbail won't hold closed on animal	Activator rod may be stuck down after a period of non use	<ul style="list-style-type: none"> Lubricate activator rod until it springs back up to touch the activator ring
	Lack of oil in the ram	<ul style="list-style-type: none"> Check for oil leaks - may need new seals Follow the oil replenishment procedure outlined below
Headbail won't open completely	Water/condensation absorbed into ram	<ul style="list-style-type: none"> Check for oil leaking out the top of the ram – may need new seals Follow the oil replenishment procedure outlined below



OIL AMOUNTS:

RAM COLOUR	HEADBAIL	HEADLOCK/CALF CRADLE	PARALLEL SQUEEZE
Yellow (1100mm long)	500ml	375ml	900ml
Maroon/Black (1100mm long)	400ml	375ml	900ml
Orange/Sky Blue (750mm long)	375ml	375ml	900ml

OIL REPLENISHMENT**1. HEADBAIL RAM**

1. Unbolt the whole ram off headbail
2. Pull out top activator rod & the bottom chrome shaft to drain remaining fluid out of the top and bottom of the ram
3. Check the condition of the seals inside the top & bottom of the ram – if damaged please contact RPM to purchase new seals
4. To begin filling the ram with the light hydraulic oil, put the top activator rod back in the top of the ram and turn the ram upside down
5. See table above for amount of oil required for your ram
6. Fill the bottom chamber of the ram with the light hydraulic oil up to the seals
7. When putting chrome bar back in the ram, the centre valve must be activated. Place a block under the bottom of the activator rod and push the ram down on top of it. This will release the pressure in the ram to allow the chrome bar to push back in.
8. Turn the ram back upright and remove the top activator rod
9. Fill the ram with the remaining amount of oil through the activator rod hole.
10. Put the activator rod back in the top of ram and begin bleeding process.
11. **IMPORTANT TO BLEED RAM** – see page 3 for this process

2. HEADLOCK/CALF CRADLE RAM

1. Unbolt the whole ram off the headlock
2. Unbolt the release handle off the top of the ram – this will release the activator rod & allow you to remove it
3. **FOLLOW** the same process above for the Headbail Ram.

3. PARALLEL SQUEEZE RAM

1. Unbolt the overhead ram from the crush
2. Pull out top activator rod & the bottom chrome shaft to drain remaining fluid out of the top and bottom of the ram
3. Check the condition of the seals inside the top & bottom of the ram – if damaged please contact RPM to purchase new seals
4. To begin filling the ram with the light hydraulic oil, put the top activator rod back in the top and turn the ram upside down
5. Fill the ram up to the seals and put the bottom chrome bar back in the ram.
6. Pour the remaining oil in to the reservoir (tank) on the top of the ram.
7. Bolt ram back on the top of the crush
8. Work squeeze approximately 20 times to allow for the ram to bleed

IMPORTANT – after bleeding the ram and putting the ram back onto the crush - work the headbail/headlock/squeeze open and closed 20-30 times to ensure that the ram is locking before working with animals again.

BLEEDING PROCESS – very important step!

Before replacing the strut back on equipment, it must be properly bled in order to extract any air from the pressure (lower) side of the system. The following method below is simple and only takes a minute:

1. Place a screwdriver or other suitable rod through the hole in the bottom of the ram (1" chrome bar)
2. Place your thumb or palm over the adjusting nut on top of the plunger (1/2" chrome bar)
3. With the ram resting on the ground, place a foot on either side of the screwdriver and pull the strut body upwards by approximately 150mm, while at the same time holding down the adjusting nut so that it stops against the top of the strut body.
4. Push the strut body downwards, while pressing and releasing the adjusting nut over and over
5. Repeat this process until you feel the strut begin to lock while you have the adjusting nut released, usually after about four cycles.
6. The strut is now bled and ready for installation.

SEAL KIT

Description

This kit contains enough seals to recondition any one of the RPM Hydra strut cylinders. There is a variation on seals required depending upon whether you are servicing a headbail Ram, Squeeze (overhead) Ram, Headlock Ram or Calf cradle Ram

** Refer to accompanying diagram while servicing cylinder

Method

1. Unbolt the ram off the unit and completely drain all the old oil out of the strut by withdrawing the bottom rod (1" diameter chrome bar) fully from the strut.
 - It is recommended you do this over a drum or other suitable container to catch the oil as it exits the strut.
2. Withdraw the plunger (1/2" diameter chrome bar) from the top of the strut, tip the strut over to drain the oil out of the reservoir
3. Using a suitable seal pick, remove firstly the 1/2" plunger pressure seal (**Diagram 1**) from the top of the cylinder, and both the Wiper seal (**Diagram 3**) and 1" Pressure Seal (**Diagram 3**) from the bottom of the ram cylinder and discard them.
4. Examine all components of ram for pitting and/or wear on the chrome rods and inside the ram cylinder. If rods or inside ram appear pitted, a new ram is usually required. Please contact RPM office for further investigation.
5. If necessary, clean all grooves with a suitable solvent (eg. Methylated spirit) and dry with compressed air.
6. To insert new seals, firstly lubricate the grooves with grease/oil. The plunger and wiper seals need to be replaced in reverse order of removal in bottom of ram.
7. **Bottom of Ram:** firstly insert the plunger seal by pinching the seal together between thumb and forefinger, inserting into groove, and winding into place (ensure the groove on the pressure seal faces back into the cylinder. Repeat process with the wiper seal, but ensure the projection of the wiper seal faces out of the cylinder and the serial numbers on the seal will therefore face back into cylinder.
8. **Top of Ram:** Using the same technique, insert the 1/2" plunger pressure seal, ensuring the groove on the seal is facing back into the cylinder.
9. Use the **Oil Replenishment** steps above to fill the ram with light hydraulic oil
10. Bleed the ram using the **Bleeding Process** above
11. Bolt the ram back onto unit.

GENERAL CRUSH COMPONENTS & OPERATIONS

Headbail Operation

The headbail can be operated from two points – the front and rear lever. Both levers are ‘drop down’ style levers that can be engaged by pushing them upwards and linking them to the top of the lever arm. This is a safety feature that prevents the lever from sticking out when not in use.

The front lever is locked in place with a spring for easy operation. If the rear lever operation is preferred, it is recommended that the operator remove the front lever spring and attach it to the rear lever. It is **NOT** recommended to attach a spring to both headbail lever arms as this would engage both arms at the same time and it could result in a striking hazard to the operator or for those working or walking near the crush. As an added safety feature, both the front and rear levers are painted in a contrasting colour to the crush unit for high visibility.

Parallel Squeeze & Ratchet Operation

Engage squeeze on animal - raise the lever arm so that it is horizontal and push or pull it towards the front end of the crush unit. This action engages the hydra-lock ram on top of the unit that squeezes the side walls together in a parallel motion and the ram locks the sides in place

Disengage Squeeze on animal – it can only be disengaged by pushing or pulling the lever arm horizontally back towards the rear of the crush unit and into its original position.

Ratchet Squeeze Model – Pull out the locking pawl and place it on the locking plate between the teeth of the ratchet. Open both the bottom and top slit gate handles and push door in on animal, whilst the locking pawl skips over the locking plate. The locking pawl will lock the gate and can only be disengaged by pulling it up and pulling the gates back out towards you.

Gates (side & vet inspection)

All gates swing on a full length pipe hinge (Parallel squeeze models) or hinges (ratchet models), and are opened via cam handles. These cam handles are opened by raising the handle lever up and closed by pushing it down. All gates are designed to be shut rapidly (kicked or pushed) if required, and automatically lock in place without travelling past the locking point.

Rear Door (animal access door)

The rear door slides open and closed via nylon rollers and is operated by pulling a spring-loaded cam handle towards you to unlock/lock the door. Lubricate these wheels if required.

Anti-Backing (Bum) Bar

To operate, slide the removable galvanised bar (usually located behind the headbail) into the rear of the anti-backing system so it is positioned behind the animal's rump. Then slide the bar right through the crush to the opposite sides anti-backing system. Lock into position by sliding forward with the multiple locking pins until the desired position is achieved. Care should be taken when using the bum bar as the force of the beast on the bar can present a striking hazard.

Headlock (optional extra)

To operate, first ensure that the small lever on top of the headlock ram is in the down position. Now push the handle lever (galvanised bar) down; the headlock ram engages the headlock arms to begin closing in a scissor action around the animal's head/neck.

To release, slide the operation handle inwards so the bar is not sticking out in the way, hold onto the handle with a firm grip, the release the small lever on the top of the headlock ram by pulling up and slowly allow the headlock arms to open vertically fully.

CAUTION – headlock will open rapidly if not gripped firmly and could cause a striking injury. The headlock does not completely immobilise the animal's head and care should still be taken when working on the animal.



Seal Kit SK-23 for Hydra Strut Versions 2/3

Description:

This kit contains enough seals to recondition any one of the RPM Hydra strut cylinders of series 2, 3 and 4; characterized by fully machined, dismantle able construction. For earlier version 1 hydra struts; characterized by welded together construction, optional seal kit SK-1 is recommended.

There is a variation on seals required depending upon whether you are reconditioning a Headbail or Squeeze ram, OR Hydra Headlock or Calf Cradle ram.

The Headbail/squeeze ram requires all four 34mm 'O' rings, as well as the large and small pressure seals and the wiper seal. The Headlock/Calf Cradle ram only requires one 34mm 'O' ring, the large 52mm 'O' ring and the same pressure and wiper seals as the Headbail/Squeeze. *Any 'O' rings left over will not be required*

Refer to accompanying diagram while servicing cylinder

Method:

- Completely drain all the old oil out of the strut by firstly withdrawing the ram (1" diameter chrome bar) fully from the strut housing. It is recommended you do this over a drum or other suitable container to catch the oil as it exits the strut.
- Withdraw the plunger (1/2" diameter chrome bar) from the top of the strut, tip the strut over to drain the oil out of the reservoir.
- Place the strut in a suitable vice and unscrew all threaded unions. A quality wipe wrench (stillsons) is recommended for this procedure.
- Remove all old 'O' rings and discard them.
- Using a suitable seal pick, remove firstly the wiper seal (**diagram 3**) and both plunger seal (**diagram 1**) and ram seal (**diagram 3**), and discard them.
- Using a suitable pair of internal circlip pliers, remove the circlip and retainer (**diagram 2**) and spring and ball valve from the valve body.
- Examine all components for pitting and/or wear, (the free length of the tapered spring should be 17mm-1mm), replace any components if necessary. All body components are available ex factory as service parts.
- Clean all grooves with a suitable solvent such as Methylated Spirit and dry with compressed air.
- Place new 'O' rings where removed by rolling them into place, do not stretch them.
- Replace pressure and wiper seals in reverse order of removal by firstly lubricating the grooves with the grease supplied, then pinching the seals together between thumb and forefinger, inserting into groove, and winding the seal into place (ensure that the groove on each pressure seal faces back into the cylinder (**diagram 1 and 3**) and the projection on the wiper seal faces out of the cylinder (**diagram 3**)).
- Ensure all threaded unions are free from debris, lubricate all 'O' rings sparingly with the supplied grease, and re-assemble strut, tightening all unions to 20Nm. The fully assembled strut is shown in diagram 4.
- Lubricate the inner faces of the pressure and wiper seals with the supplied grease, as well as the tapered end of the ram (1"chrome bar) and insert this end into the strut assembly.
- Pour 500ml of quality SAE 68 hydraulic oil into the top of the strut assembly (1/2" hole).
- Insert the plunger (1/2" chrome bar) into the top of the strut.

Bleeding

Before replacing the strut on equipment, it must be properly bled in order to extract any air from the pressure (lower) side of the system, the following method is simple and only takes a few second:

- Place a screwdriver or other suitable bar through the hole in the bottom of the ram (1"chrome bar).
- Place your thumb or palm over the adjusting nut on top of the plunger (1/2"chrome bar).
- With the ram resting against the ground, place a foot on the screwdriver and pull the strut body upwards by approximately 150mm, while at the same time holding down the adjusting nut so that it stops against the top of the strut body.
- Push the strut body downwards, while pressing and releasing the adjusting nut over and over.
- Repeat this process until you feel the strut begin to lock while you have the adjusting nut released, usually after about four cycles. The strut is now bled and ready for installation.

Maintenance:

It is recommended you replace the hydraulic oil every 2 years, the seals should be replaced every 5 years, or when they show signs of leakage.

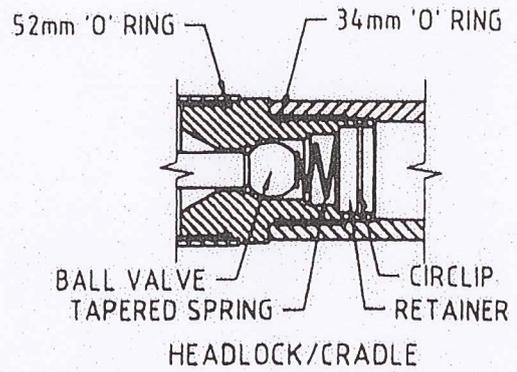
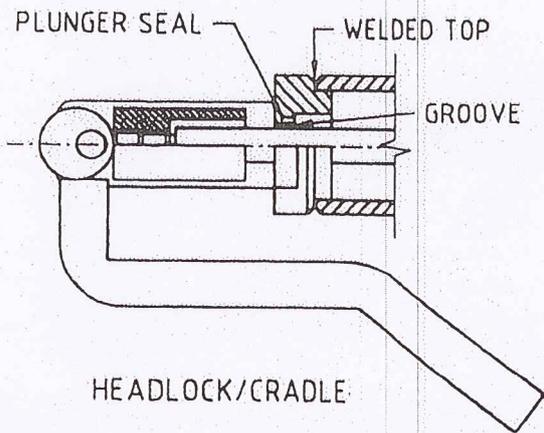
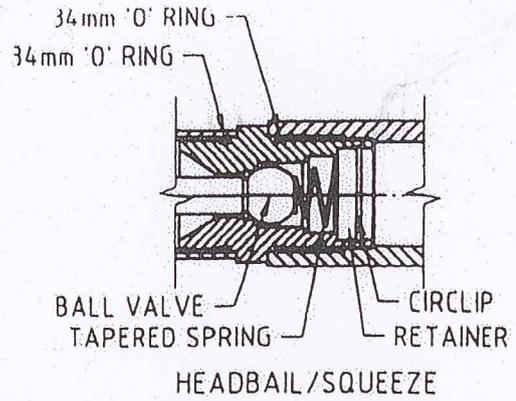
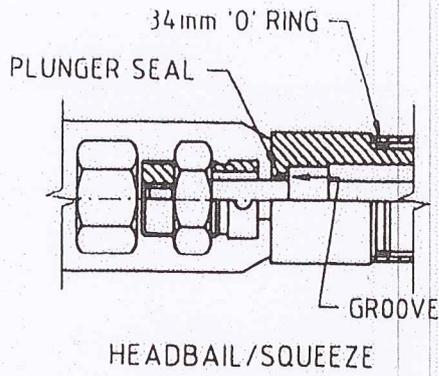


DIAGRAM 1
TOP SEALS AND PLUNGERS

DIAGRAM 2
VALVE BODIES

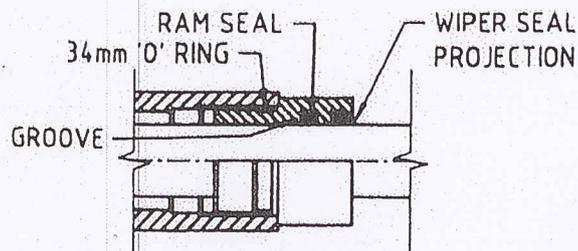


DIAGRAM 3
BOTTOM SEALS AND RAM

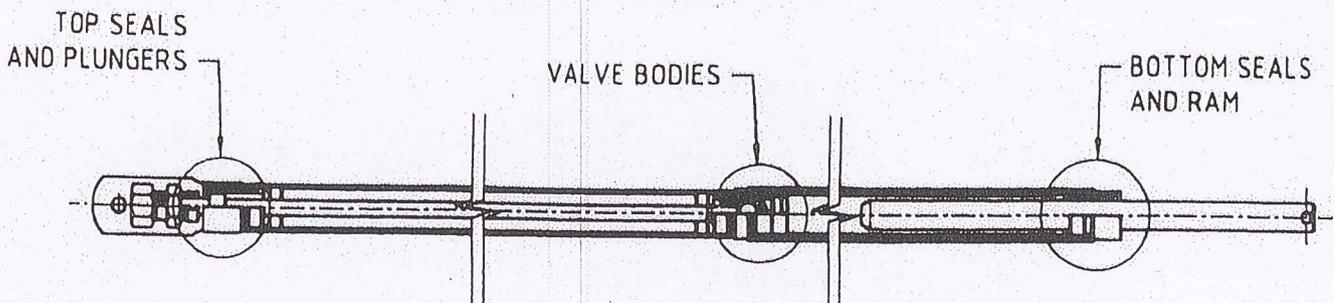


DIAGRAM 4
RAM ASSEMBLY
HEADBAIL RAM SHOWN, OTHERS SIMILAR



RPM AUSTRALIA-PACIFIC PTY LTD

SAFETY & WARRANTY REGISTRATION

CARD

Thank you for purchasing a product from the RPM Range.

To assist us in providing valuable after sales service, please fill in the following details and return within 30 days from receiving your new RPM product.

Purchaser's Name (full): _____

Business Name (if applicable): _____

Phone: _____ Fax: _____

Address: _____

Postcode: _____

Email: _____

Product/s Purchased: _____

Serial Number/s: _____

(Located inside the crush on the top runner near the headbail)

Delivery Date: ___/___/___

Dealer Name: _____

Location of Dealer: _____

Are you interested in receiving further information regarding the RPM Product Range?

Yes/No (Please Circle)

If so, what information are you interested in?

In signing this warranty, I acknowledge that I have both read and understood the RPM Operation & Maintenance Guide for the product/s I have purchased.

Purchaser's Signature: _____ Date: _____

Please return by post to:

*Warranty Card Registration
RPM Australia-Pacific Pty Ltd
3 Industrial Road
Gatton QLD 4343*

or by fax on 1800 648 667

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