



ROTRIX

AFRICA INDUSTRIES CC

13 Krone Street

Worcester

South Africa

☎ +27 23 342 3438

📠 +27 23 342 8469

Your new Rhino 300 carries a 12 Month warrantee, please read through the recommended maintenance schedule to ensure you get many years of reliable service.

ROTRIX RHINO 300 IRRIGATOR SERVICE MAINTANANCE

1. **Chassis:** Maintenance free

The chassis is hot dipped fully galvanized and protected against rust under wet conditions.

Note: The chassis may discolour and turn brown if water supply has high iron content, but this will not affect the galvanized protection.

2. **Wheels:**

The RHINO 300 has 4 x 13" Road tyres fitted to bearing stub axles for easy manoeuvring. General use over time may require bearings to be re greased or replaced . 1- 1.5 bar is recommended for good floatation. (See parts list for replacement.)

Bearing and seal sizes:

Outer: 30205

Inner: 30204

Seal: 30527

3. **Intermediate Shaft and Bushes:**

The intermediate sprocket require a set of 2 bushes which turn on the intermediate shaft. Regular maintenance inspections should be done to check for any excessive wear resulting in to much play on the bushes. This may cause damage to the shaft and chain. If the play exceeds 5mm, replace the bush set. Bushes are manufactured from a hard wearing Eartalite. On assembly ensure shaft is free of any rust using a fine sand paper and apply universal bearing grease for lubrication.

Note: see parts list for details.

4. **Cable Drum Shaft and Bushes:**

The cable drum requires a set of 3 bushes (Rainmaker cable drum bush set) and a cable drum shaft. 2 x bushes fit into the cable drum and 1 x bush fits into

the centre of large sprocket plate wheel. Regular maintenance inspection should be done to check that no excessive wear has taken place on bushes and shaft. If play exceeds 5mm, replace bush set. On assemble ensure shaft is free of any rust using a fine sand paper and apply universal bearing grease. Bushes are manufactured from Eartalite

Note: See parts list for details

5. **Cable Maintenance:**

Rotrix Rhino 300 is supplied with a 5mm x 300m galvanized wire rope. The cable is supplied with a swivel anchor ring to attach over anchor pole which prevents the cable twisting while in operation. To prevent cable damage always insure it is firmly wound back onto drum. Do not allow cable to kink as this may cause failure at a later stage. To preserve the cable life while not in use, it is recommended to pour diesel or used engine oil over cable while wound on drum and allow it to soak into cable to prevent inner core rust.

6. **Cable Guide Block and Stopping Lever:**

The Rhino 300 has a stopping lever which is designed to shut off the water supply to drive nozzle and is activated by a stopper attached towards the end of the cable near the anchor pole which pulls up against the cable guide block (see parts list for details). This pulls the stopping lever, which via a cable closes the ball valve supplying the water to drive nozzle. The cable block guides the cable and keeps it clean. Normal wear and tear of the cable block is acceptable with replacement annually recommended. (See parts list for details).

7. **Front wheel axle assembly:**

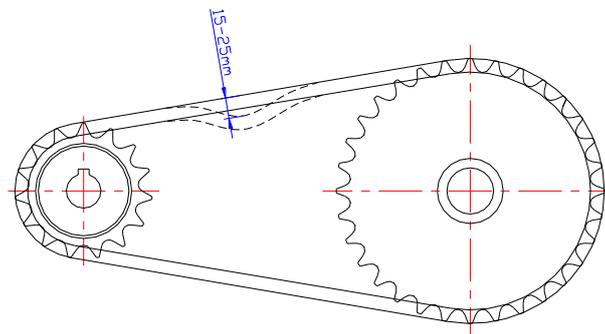
The Rhino 300 is equipped with a front axle and two wheels for easy manoeuvring and mobility. The front axle is equipped with a pivoting joint and both the front axle and rear axle track can be adjusted to suit the client's requirements. The front pivot point has two bushes which may be checked annually and greased if required. **Note: Bush locking nuts should not be over tightened.**

8. **Sprockets:**

The Rhino 300 has 3 x drive sprockets. Namely: 1x Gearbox sprocket, 1 x Intermediate sprocket set, 1 x cable drum plate wheel sprocket, 2 x Hose winder sprockets and 2 x PTO drive sprockets.(see parts list for details) These are locked via key's and grub screws to the shafts and should be inspected for any loose grub screws on a regular basis. Note: After many years of use or if a chain is replaced reverse the large cable drum plate wheel as the teeth may show signs of wear in the forward direction.

9. Chain Maintenance:

The Rhino 300 is supplied with 1 x Primary and 1 x Secondary drive chain which connects the gearbox sprocket to cable drum plate wheel and 1x hose winder chain. Tension in the chains should be set to allow for 15mm to 25mm free play.



SPROCKET PLAY DETAIL

Note:

Keep chain well greased at all times.

10. Manual Hose Winder 4 : 1 Ratio and PTO gear driven winder

The Rhino 300 is supplied with a manual 4 : 1 Ratio hose winder. This allows 1 person the ability to wind the hose back onto its storage reel. The operator should first make sure that hose ends are disconnected from the machine and the hydrant and laid in a straight line behind the Rhino 300. The machine should remain anchored to the anchor pole for stability. This will stop the machine rolling backwards during the hose roll up process. Once the hose is lying flat on the ground behind the machine, walk along the full hose length lifting it to drain the excess water from the hose. Once this is done, feed the hose end into the centre of the hose reel and start winding. Remember to feed the hose under the roller guide as this action will **purge** out the remaining water in the hose. Keep the 2 shaft bearings well greased.

Note: This process should be followed every time the machine is moved to a new lane. Failure to do so may **affect** the hose warrantee.

PTO drive:

The Rhino 300 is also equipped with the option of connecting to the PTO take off on a tractor to mechanically wind up the hose via a gearbox, chain and

sprocket drive. This includes a maintenance free safety slip clutch. Note: Keep the shaft bearings and PTO gearbox clutch well greased.

11. **Gearbox and Pelton open Turbine drive Wheel:**

The gearbox is a sealed unit and does not require maintenance, however if it is discovered that the input shaft has play on the bearings, they should be replaced immediately.

ORANGE GEARBOX: R47 Input bearing and seal specifications

Bearings: Outer: 6204 Inner: 6004

Seals: Outer: 18x47x10 Inner:17x30x7

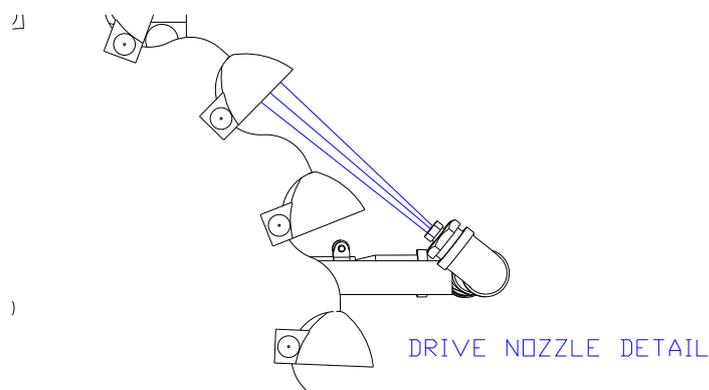
The gearbox can be half filled with universal Bearing or synthetic grease on assembly.

The open drive pelton wheel has 15 specially designed rubber cups which harness the energy form the 1 or 2 x 4mm drive nozzle. It is important that the drive nozzles do not touch the rubber cups as this will cause damage. (Refer to parts list for replacement).

12. **Drive Nozzle with Stream Straightener:**

The drive nozzle is the heart of the mechanical drive process and it is very important that its jet angle is correctly aligned. Incorrect angle will alter the machines performance. The drive nozzle has a 4mm diameter and under normal conditions at 3 bar will use 1m³/hour. If the jet appears fuzzy and spread, remove and check for any blockages. The water inlet of the Rhino 300 is supplied with a removable filter disk. This is to prevent any particles larger than 4mm to pass through the machine thus causing a possible blockage to drive nozzle.

Note: see sketch for adjustment



Adjustment of the drive nozzle can be done by releasing the clamping wing bolt and aligning the nozzle.

13. **Sprinklers:**

The Rhino 300 is supplied with 2 x Standard (part circle) sprinklers or a single Large (Part circle) sprinkler. At 3 bar the sprinkler has a wetted diameter of 50m and different size nozzles are available on request to suit water application requirements. The main nozzle has a plastic stream straighter to give the nozzle maximum performance. The stream straighter may become obstructed at times, which will affect the nozzle jet performance. Remove the nozzle to access the stream straighter. Each sprinkler is equipped with a set of 3 seals which allows the sprinkler to turn freely. These may require replacing from time to time if water supply contains dirt particles which act abrasively.

Note: See Parts list

14. **Control Valves & Pressure Gauge:**

The Rhino 300 is supplied with 4 x pressure control valves: 2 x 50mm brass gate valve to control the flow and pressure to sprinklers. 1 x 20mm brass gate valve to control the drive nozzle pressure and speed and 1 x 3 way pressure gauge valve connected to a pressure gauge which will give the individual pressure readings of the drive nozzle and the sprinkler nozzles. **Note:** It is important that the pressure gauge should be turned off from the pressure while not in use as this will prolong its life. This is done via the 3 way valve.

Note: It is recommended that your Rotrix Rhino 300 have a general check over once a month while in full time operation, with all grease points greased, nuts and bolts and chain drives checked.

A full service is recommended every season as per attached maintenance plan.

For more information and assistance please contact Rotrix Africa cc.

**PREVENTATIVE MAINTANACE IS KEY TO
HASSLE FREE IRRIGATION**