

Grizzly Deep Digger RT015

PART NO. XCDMGJ01

ISSUE# 2 FROM SERIAL NO. 6816



**DEEP
DIGGER
RT015**

XCDMGJ01

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Foreword

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Publishers:

Grizzly Engineering Pty Ltd
2 McAllister Road
Swan Hill VIC 3585
AUSTRALIA

www.grizzlyag.com.au

Congratulations on your purchase of a Grizzly Deep Digger, proudly designed and manufactured in Australia to the highest level of quality and performance. Your Grizzly disc ripper has been designed to give you the best possible performance and serviceability over a wide range of conditions and applications.

This booklet is provided to help you obtain the best results from your machine.

The extent to which your machine performs to its potential will depend upon:

- 1) That it is the correct machine for the task.
- 2) That it is used in conjunction with a tractor of the correct specification.
- 3) That it is delivered in first class mechanical order, and is properly prepared for work.
- 4) That it is used correctly with understanding of the various limitations and tolerances as explained by your Grizzly Dealer, and in this booklet.
- 5) That it is serviced and maintained regularly as outlined in this booklet.

If you are uncertain of any aspect of your machine's performance, please refer to the appropriate sections of this booklet, your Grizzly Dealer or, if necessary, to Grizzly Engineering Pty Ltd



2 Welcome to Grizzly

Company Profile

Australia's largest manufacturer and exporter of Disc ploughs, Grizzly Engineering Pty Ltd is an Australian owned and operated manufacturing company based at Swan Hill in Victoria.

Like many other Australian icons of ingenuity, the Grizzly plough was founded on need. The Grizzly name was established in the early 1980's by country people with the will to construct a better offset disc plough.

In 1983, a unique three gang, tandem offset disc design was patented and released. This innovative Grizzly plough provided complete ploughing out (no unworked ridges), less working draught, elimination of side draught and longer disc life. Other new features, at that time, included self phasing wheel lift and improved scrapers.

Grizzly's broad range of versatile ploughs suit a wide variety of agricultural applications. Sizes vary from 1.4 metres to 15.6 metres working width.

Grizzly also manufacture Bankers, Renovators, and a large range of subsoil and row crop Rippers from 1 tine.

Advantages of Grizzly technology include lower power requirements, significant fuel savings, reduced stress on components, reduced maintenance costs, and greater operator control allowing effortless adjustments for better performance.

The Grizzly product has earned a reputation of uncompromising strength, performance and reliability.

Each model is designed with inbuilt durability, and accuracy, Efficiency and easy operation for sustainable farming practices.

Continued investment into research and development plays a key role in the success of the company's product range

The company has a very successful and loyal dealer network throughout Australia.

All dealers are backed by Grizzly training, technical support and rapid delivery parts replacement anywhere in Australia.

This manual includes safety, assembly, setting up and operating instructions, as well as lubrication, maintenance and problem solving instructions, disc warranty guidelines and assembly drawing and parts for the Deep Digger range of machines.

Some components explained in this manual may not be installed on your machine.

Replacement manuals are obtainable from your Grizzly dealer.

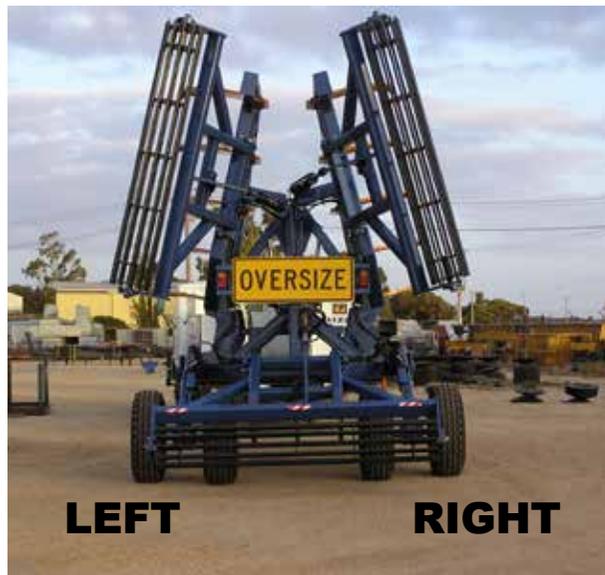


Factory and Head Office located in Swan Hill Victoria Australia

2 Welcome to Grizzly

Considerable practical research and continued improvements have been developed into all Grizzly products for the best possible performance and durability. This manual is designed to help you have a better understanding of your machine and to attain the best possible results from it. We are grateful for the feedback we have received over the years. We look forward to continued constructive comment from new owners and operators of Grizzly equipment.

The terms “left hand side” (LHS) and “right hand side” (RHS), when used in reference to the machine, mean viewed from behind.



Above: The serial number plate is located at the front of the main frame

Product Identification

The Deep Digger’s Serial Number Plate is located at the front of the main frame. If damage occurs to this Serial Number Plate, serial numbers are also stamped into the frame under the Serial Number Plate for identification.

This plate shows:

- The Grizzly name.
- The machine’s model number .
- The machine’s serial number.
- Patent numbers.

Precise product identification is important and must be used when seeking parts and service for the Ripper, namely:

- 1 The **model number** and **serial number**.
- 2 The **part number** and **description**.
(Refer to the Parts section of this Manual).

For quick reference, we suggest writing your Deep Digger’s model number and serial number in the space below:

Model No:

Serial No:

3 The Right Machine

The Grizzly Deep Digger is a heavy duty, fuel efficient, deep ripping machine for breaking up sub-soil hard pans. It is also used for deep cultivation applications and in conjunction with Agricultural architects where land forming, laser levelling and sub-soil ripping is required.

The action of the Deep Digger tine fractures the structure of the sub-soil so that drainage, root growth and the process of mineral osmosis is enhanced. This leads to better growth and higher crop yields in most compacted soils. The Deep Digger is also used to bring small stumps and roots, to the surface, ie grape vines to prepare for cultivation or laser levelling. All tasks or applications are performed with minimal disturbance to the soil surface.

The Deep Digger features parabolic tines configured in a “V” formation for ease of penetration, better traction and greater implement strength. Tines are constructed of High Tensile Steel for excellent wear resistance and strength. A hard faced wear boot and replaceable point, increases the effective action and life of the tine. All tines are fitted with shear pins to prevent damage to the frame in rough conditions. Tines can be individually locked up in a non-working position for narrower working width or wider tine spacing.

The Grizzly Deep Digger is available in linkage models ranging in size from 1 to 7 tines and trailing from 7 to 15 tines. We trust the Deep Digger will play an important part in your farming program for many years to come





4 Pre-Delivery Checklist

Comments

Specifications and Options	Check pull tongue, points, lights, oversize sign, taillights, tyres, rollers ensure the machine has the correct options fitted as per order	
Grease Machine	All grease points must be greased before operation. See section 12 for details of how to grease machine ensure all grease points function properly.	
Level Machine	Check the machine is level (see section 9)	
Tyre Pressure	Check tyre pressures (see section 8)	
Wheel Nuts	Check wheel nut torque (see section 8)	
Hydraulic Hoses and Fittings	Check for operation and leaks, inspect hoses and ensure hoses are not able rub on moving parts. Check hoses to tractor are routed correctly	
Decals and Paint	Check all decals are in correct location and in good condition, inspect paint and touch up as required (see section 13 for decal locations)	
Tighten Bolts	Check bolts, see section 8 for torque chart	

All checks done and correct

Name _____ **Sign** _____ **Date** ____/____/____

warranty registration

back of warranty
rego

6 Safe Use Instructions

Safety & Damage Warnings

The terms **WARNING**, **CAUTION** and **IMPORTANT** are used throughout this manual and on the machine to stress the importance of personal safety, potential machinery damage and useful operating information. The term description and usage is shown below.

WARNING!
Indicates a hazardous situation which if not avoided could result in death or serious injury.

IMPORTANT!
The note refers to significant, practical information which should not be overlooked

CAUTION!
The caution forewarns of a hazardous situation which may cause injury if instructions are not followed.

DANGER!
This is issued where there is a hazardous situation which will result in serious injury or death, if instructions are not followed.

SAFETY DECAL EXAMPLES...



- PD000005



- PD000106



- PD000108



- PD000046



- PD000151

6 Safe Use Instructions

Safety is the Operator's Responsibility

It is the dealer's responsibility to explain the capabilities, safe use and service requirements of the Implement. The dealer will demonstrate the safe operation of the machine according to Grizzly's instructions; which are in this manual.

The **Operator's Manual** delivered with the plough gives operating information as well as routine maintenance and service procedures. It is a part of the Grizzly machine and must always be stored on the machine, in the document holder provided.

Safe Operation Needs a Qualified Operator

Qualified Operators Must Do the Following:

1) Understand the Written Instructions, Rules and Regulations

The written instructions from Grizzly are included in the Machine's Operation & Maintenance Manual. Check the rules and regulations for your location. These rules may include any Federal and State safety requirements.

2) Have Training with Actual Operation

- Operator training must consist of a demonstration and verbal instruction. This training is given by your dealer or Factory representative, before or when the machine is delivered.
- In signing the installation and warranty form when taking delivery of the machine, the owner understands and undertakes responsibility for further training of any new operators of the machine.
- New operators must start in an area without bystanders and use all the controls until they can operate the machine safely.

3) Know The Work Conditions

- Operators must know any prohibited uses or work areas. They need to know about excessive slopes and rough terrain.
- Operators must know the local road transport regulations, and understand the dangers and requirements of transporting wide equipment.
- Always wear protective clothing when maintaining or servicing the machine, disc self sharpen, wear gloves.

- Operators must not use drugs or alcoholic drinks which impair their alertness or coordination while working. Operators who are taking prescription drugs must get medical advice to determine if they can safely operate a machine.

6 Safe Use Instructions

WARNING!

Read these safety instructions before allowing any person to operate the machine.

- ⚠️ **Take care when hitching to tractor, never stand between tractor and machine.**
- ⚠️ **Never leave the machine in a raised position** when not in use. Accidental release of control levers or hydraulic hose failure will cause implement to drop down. This can cause serious injury or death to someone near or under the machine.
- ⚠️ **Do not transport at speeds in excess of 30 kph.** Transporting at faster speeds may result in loss of implement control and serious damage or injury. Speed must be reduced when travelling on uneven ground or inclined terrain. Do not transport a fully loaded commodity cart on public roads.
- ⚠️ **Do not transport with a vehicle with a gross mass less than that of the Machine.** Use a tractor large enough to maintain control. Latch brakes together.



- ⚠️ **Never allow anyone to ride on the implement in work or transport!** Dangers of riding on a disc implement are extreme and can cause serious injury and death.
- ⚠️ **Do not make any adjustments to a machine until all people** who may be close to the machine are considered safe from any potential danger which may result from adjustment.
- ⚠️ **Do not use your hands to clear discs.** Discs can be very sharp and cause serious injury.
- ⚠️ **Use hazard warning lamps and signs** as required when transporting the disc plough on public roads.
- ⚠️ **Use a Safety chain** and adapter parts with a strength rating greater than the weight of the plough.
- ⚠️ **Do not remove** any safety decals from the implement. If any safety decals are removed or damaged they must be replaced in accordance with this manual



- ⚠️ **Use due care** when adjusting or maintaining any aspect of the machine. Failure to do so may result in serious injury.
- ⚠️ **When undertaking maintenance** on the plough, the operator must ensure that the tractor is turned off and hydraulics lowered, or pinned up.
- ⚠️ **Before moving the machine,** the operator must make sure the area is well clear and sound the horn as a warning before moving.
- ⚠️ **If operated incorrectly** the plough can cause serious injury or death.
- ⚠️ **Avoid High Pressure Fluids,** leaking hydraulic fluid can penetrate the skin, If skin is penetrated seek medical advice immediately. Relieve pressure before disconnecting any hydraulic fittings,
- ⚠️ **An oversize Agricultural vehicle** must not carry a load when travelling on public roads.

7 Warranty Policy

Grizzly Engineering Pty. Ltd. (Grizzly) warrants to its Authorised Dealer, who in turn, warrants to the original purchaser (Owner) that each new Grizzly product, part or accessory will be free from proven defects in material and workmanship for twelve (12) months after delivery and installation by an Authorised Grizzly Dealer, according to the conditions outlined.

This warranty does not cover damages resulting from abuse, accidents, alterations, normal wear or failure to maintain or use the Grizzly product with due care.

During the warranty period, the Authorised Grizzly Dealer shall repair or replace, at Grizzly's option, without charge for parts and labour any part of the Grizzly product which fails during normal use and operation because of defects in material or workmanship. The Owner must provide the Authorised Dealer with prompt written notice of the defect (within 14 days of its occurrence), and allow reasonable time for replacement or repair. The Authorised Dealer must provide Grizzly written notice and photos if required, within 14 days of receiving notice of the defect by the customer.

Grizzly (at its option) may request failed parts to be returned to the factory. Any travel time of a service technician and/or transportation of the Grizzly product to the Authorised Servicing Dealer for warranty work is the responsibility of the Owner.

This warranty is in lieu of all other warranties (except those of title), expressed or implied, and there are no warranties of merchantability or fitness for a particular purpose. In no event shall the Authorised selling Dealer or Grizzly be liable for downtime expenses, loss of machine use, loss of crops, loss of profits, injury or damage arising from accident, direct or indirect loss, or other incidental, consequential or special damages.

Conditions of Warranty

- 1) The warranty is not transferable to any third party or subsequent purchaser, unless approved with Grizzly Management.
- 2) The Installation & Warranty Registration Form (see page 6) **must be filled in and returned to Grizzly** by the Dealer within seven (7) days of delivery and installation of the unit. By signing the Installation & Warranty Registration Form, the owner acknowledges full responsibility for the safe operation of the Plough and undertakes to fully train any person that might operate the machine. Only when the Installation and Warranty Registration is **completed and returned**, can Grizzly fulfil all warranty obligations.

3) Components and conditions not covered by warranty include:

- **Abuse** Failure resulting from neglect, such as improper operation, lack of required maintenance or continued use of a machine after the discovery of a defect which results in greater damage to the unit.
- **Environmental Conditions** Deteriorated or failed components such as hydraulic hoses, seals, valves or connections damaged by corrosive materials, dirt, sand, excessive heat or moisture.
Warranty determination for these types of failures will be made by Grizzly only after inspection of failed components.
- **Normal Wear** Normal wear and consumable items such as oils and lubricants, nuts, bolts, washers, grease caps, spanners, jacks, bearing housing, axles, poppet valves or seal kits for hydraulic cylinders, seals, discs, axles, tyres, machine adjustment and periodic service. These are considered to be normal wear items and are not warranted.
- **Maintenance** Component failure caused by non performance of scheduled maintenance such as correct lubrication and maintenance, tightening or replacement of bolts, nuts, fittings, shields and covers.

7 Warranty Policy

- **Damage** Damage or machine failure caused by carelessness or accidental damage, improper operation, inappropriate transportation or storage of the machine, parts or attachments.
- **Alterations** Any unauthorised alteration, modification, attachments or unauthorized repairs to the Grizzly disc plough, parts or attachments. Written approval must be obtained from Grizzly for any such items to maintain warranty.
- **Replacement Parts & Service Work** The labour or expenses involved in any of the following replacements or service tasks is the responsibility of the owner:
 - (1) Replacement of faulty discs.
 - (2) Gang bearing replacement.
 - (3) Wheel bearing replacement.
 - (4) Adjustments (refer to manual).
 - (5) Spring adjustment or replacement.
 - (6) Scraper adjustment or replacement.
 - (7) Periodic service work.Grizzly and its Dealers are not responsible or liable for any such expenses
- **Clean-up Time** Grizzly does not pay for cleaning the machine, parts, accessories or work area before or after the warranty repair. Clean-up time is affected primarily by the application or conditions in which the unit is operated and maintained. Since clean-up time can be so variable, cleaning time should be considered a customer expense.
- **Transportation & Insurance Costs** Warranty does not cover transportation or insurance costs for ploughs or other equipment needing repair or replacement of warranted components. Nor does it cover any freight or insurance costs in obtaining new parts or returning old parts to Grizzly for inspection purposes.
- **Travel Time** Travel time required for warranty repairs is the responsibility of the Owner.
- **Diagnostic Time** Warranty does not cover time required to diagnose a warranty problem. Diagnostic time is affected greatly by the training and expertise of the technician employed to do the job. With proper training of service personnel, diagnostic time should be at a minimum. Grizzly expects that Dealers will assign a well trained and proficient technician to handle any warranty repairs.
- **Non-Genuine Parts** Use of parts other than Grizzly parts for repair of warranted parts will automatically negate any warranty. Warranted components must be replaced with genuine Grizzly repair parts.
- **Unauthorised** Repairs by an unauthorised agent will automatically forfeit any warranty. Warranty repairs must be carried out by an Authorised Grizzly Dealer.

4 Special Warranty Considerations apply in respect to the following:

- a) Tyres: Tyres are covered by the tyre manufacturer's warranty. Claims for tyre faults must follow Grizzly's normal claim procedures.
- b) Hydraulics: Hydraulics are covered by the hydraulics manufacturer's warranty. Claims for hydraulic faults must follow Grizzly's normal claim procedures.
- c) Discs: Discs are covered by the discs manufacturer's warranty. Claims for disc faults must follow Grizzly's normal claim procedures.
- d) Scrapers: Wear on scraper leading edges is normal. Scrapers are only covered under warranty in the event of breakage.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure within our 12 months machine warranty period.

8 Specifications

DEEP DIGGER – Sub Soil Ripper

MODEL	RL001	RL003	RL005	RL007	RT007	RT009	RT011	RT015	
Draught kW (hp) Required approx	22-40 (30-50)	50-90 (70-120)	90-150 (120-200)	220-260 (300-350)	220-260 (300-350)	260-330 (350-450)	300-370 (400-500)	370+ (500+)	
Tine Spacing	N/A	500mm (20")							
Weight kg approx	300	650	950	1700	2605	3100	3460	12,600	
Width of Cut	-	1m	2m	3m	3m	4m	5m	7m	
Effective Working Width	0.5m (1'7")	1.5m (4'11")	2.5m (8'2")	3.5m (11'6")	3.5m (11'6")	4.5m (14'9")	5.5m (18') - SEE OPTIONS	7.5m (24'7")	
Frame Width (Transport width)	1.2m (3'10")	1.2m (3'9")	2.2m (7')	3.2m (10'5")	3.2m (10'5")	4.1m (13'7")	5.2m (17'1")	3.5m (11'6") Folding Wing	
Tyres	N/A		<i>Recommended Optional Depth Control Wheels</i>		(11.5/80 - 15.3) 14 PR, dual rocker wheel assembly (4 tyres in total)			385/65R 22.5 Super Singles, dual rockers	
Hitch/Pull Size	CAT 2/3 Linkage – <i>See Options single tine upgrade</i>		CAT 3		150 x 100 x 9mm RHS			150 x 150 x 9mm RHS	
Main Frame Size	100 x 100 x 9mm RHS			150 x 100 x 9mm RHS				150 x 150 x 9mm RHS	
Hydraulic Pitch Control	N / A				4" x 8"	5" x 12"		5" x 12"	
Phasing Rams					(5" x 12") & (4.5" x 12")			(6" x 18") & (5.5" x 18")	
Pull Tongue					Articulated Hitch CAT 4 – <i>See Options</i>				
Tine Size	710mm (28") long x 32mm (1 ¼") thick – maximum working depth 660mm (26") – <i>See Options</i>								
Tine and Point	32mm hardened steel plate with replaceable hard faced wear boot and replaceable point. – <i>See Options</i>								
Shear Pins	25mm with 15mm / 18mm shear points. [12 tonne breakout]								

OPTIONS

MODEL	RL001	RL003	RL005	RL007	RT007	RT009	RT011	RT015
Manual Crumble Roller	N/A							N/A
Hydraulic Crumble Roller <i>*Rollers Add .5mtr to transport width</i>	400kgs							Standard with roller
Hydraulic Depth Wheels	N/A		(7.50 x 16) 8 PR		<i>Transport wheels standard act as depth wheels</i>			
Pipe Laying Attachment	Poly up to 2" with fitting		RT015 ONLY has option for 100mm longer tine.					
Pull Tongues	N/A				Articulated Hitch CAT 3 or 5 – <i>See Page 23</i>			
Hard Facing	Hard Faced point							
CTF Tine Spacing	*AVAILABLE ON RT011 ONLY* Tine spacing becomes 550mm meaning overall effective working width is 6m to suit 12m Controlled Traffic applications – ADDS 0.5m to width of frame and roller							
Tungsten Tile	Tungsten Tile Point <i>(not recommend in rocky conditions)</i>							
Single Tine Upgrade	Single Tine CAT 3 / 4 (RL001 ONLY) Upgrade for tractors above 120hp							

9 Assembly Instructions

9:1 Loading / unloading

9:2 Setting pull height

9:4 Setting tongue height

9:5 Setting Level

9:6 Tow Bar

9:1 Loading / unloading

Deep Diggers can be transported flat packed or fully assembled, if fully assembled it can be unloaded by lifting, or by using a loading ramp, the truck must have a deck widener to do this.

1. The Deep Digger has 4 sling points as indicated, check the specifications in section 8 for the total weight, ensure crane, slings, etc. are capable of doing the job before lifting. 15 Tyne Deep Digger is 8.2 tonne.



The machine can be delivered assembled, with some tynes removed.

Assembled, with some tynes removed or in lifted position - Fit the tynes

The point of each tine is not fitted at the factory. The tine must be assembled and fitted to the frame. Each tine weighs 100kgs.

- Unfold the machine
- Lower the tines through the frame, with a suitable crane.
- Align the front pivot hole, fit and tighten the pivot bolt. (200ft lbs)
- Align the rear shear pin in the vee of the tine with the holes in the frame assembly. Fit the shear pin and lock the pin into position with the clips provided.

WARNING!

Extreme care must be taken when moving or repositioning tines to keep body parts out of pinch points.

IMPORTANT!

Grizzly Deep Diggers are designed for agricultural usage only. They are not suitable for land clearing (stump mining) operations or tillage at high speed.

If damage occurs from clearing or tillage at high speed.

9 Assembly Instructions

Fit the tines.

Using a suitable lifting device (front end loader, crane or forklift), the tine should be positioned over the frame and then lowered through the tine locating plates.

A small chain can be attached to the top hook of the tine to assist lowering the tine through the locating plates.

Align the front pivot hole, fit and tighten the pivot bolt so the plate just touch the tine.

Align the rear shear pin catch of the tine with the holes in the frame assembly. Fit the shear pin and lock the pin into position with the clips provided.

- a) Fully extend lift control cylinders and allow cylinders to fully phase by holding the hydraulic lever open for about three minutes after all cylinders are fully extended.
- b) Operate the pitch control cylinder 2 or 3 times to ensure seals bed-in and all air is bled from the circuit.

WARNING!

Always stay out from underneath a Deep Digger unless it is resting firmly on the ground or supported with appropriate stands or blocks when raised. Failure of hydraulic systems or jacks can cause the Deep Digger to drop, pinning or crushing personnel and causing serious injury.

Wheel Lift control circuit

When fitting the lift control circuit, first fit the feed hose to the bottom end of the master cylinder located on the RHS of the machine. Then connect the hose from the top of the master cylinder to the bottom of the slave cylinder on the LHS.

Finally, connect the tractor return hose into the top of the slave cylinder on the LHS of the machine. For phasing procedure, see the operating instructions in the next section.

When all hoses and tubes are fitted to all the circuits:

- a) Fit shell clamps supplied.
- b) Use zip ties every 300mm to tie hoses together to keep hoses neat, tight and tidy.
- c) Fit shrink wrap hose indicators near the tractor end of the hoses when the unit is fully plumbed.

Colour codes are:

- Blue - Pitch Control circuit
- Red - Lift Control circuit
- Green - Crumble Roller circuit
- Black - Wings



The unit is now ready to set up for operation. The RT15's centre tine requires fitting from underneath by two people lifting the tine up through the locating plates while a third locates the pin holes.

Connect the Deep Digger to the tractor drawbar and connect all hydraulic hoses. Connect the hoses of both hydraulic circuits to the tractor.

Operate and phase hydraulic circuits. Operate both hydraulic circuits to test.

WARNING!

Keep clear of pinch points!

9 Assembly Instructions

9:3 Pull height

The Deep Digger pull features hydraulic pitch control for precision operation. However the pull and the pitch control mechanism must be set up to work in the optimum position so that full adjustment is available to the operator.

When the ripper is working at the required depth, the optimum position of the pull is sloping up towards the tractor. There is an adjustment available to achieve this.



9:4 Pull tongue height

It may be necessary to move the tongue up or down to achieve a level pull. To set the correct working position of the pull, follow the instructions below:

1. Choose a level site for the ripper and tractor for adjusting the pull tongue.
2. Lower the ripper so that the tynes are resting on the ground, and the **wheels are resting on the ground**.
3. Disconnect the pull from the tractor, using the Pitch control hydraulics raise the pull to clear the tractor, move the tractor forward so that the tractor drawbar clears the pull. Raise / lower the pull so that it is sloping slightly down towards the tractor.
4. Remove the pull tongue and replace at the height of the tractor draw bar tighten the bolts to 274 ft/lbs.
5. Reconnect the tractor.
6. Test at working depth the pull should be sloping up towards the tractor.



Pull Tongue adjustment

IMPORTANT!

Whenever a different tractor is used with the machine, it is absolutely essential to check the pull height is correctly adjusted. Failure to adjust the pull height correctly may adversely affect ripping performance. The initial setting up of your machine behind a tractor is critical to its correct performance.

WARNING!

The initial setting up of your Deep Digger behind a tractor is critical to its correct performance.

Always use a torque wrench on wheel nuts over-tightening will damage threads

10 Operating Instructions

10:1 Before using the machine

10:2 Connecting the tractor

10:3 Preparing the Deep Digger for Transport

10:4 Ploughing Techniques

10:5 Changing from work to transport

10:1 Read the safety instructions

Before using the machine ensure anyone operating the machine is familiar with the contents of this manual, the pre-delivery check has been done and all operators have been trained in the safe use of this machine.

10:2 Connecting to the tractor

With the tractor close enough to the machine, connect the hydraulic hoses (ensure quick release couplings are clean) The hoses with the red band are the wheel lift system, the hoses with the blue band are for the pitch control, the hoses with the green band are for the wing fold.

Using the pitch control raise the pull to the tractor height

Back the tractor up, fit the drawbar pin, and safety chains.

Check the hoses to ensure the hoses from the tractor to the machine cant be damaged. if the hoses are too long they may need to be shortened, or reversed through the stand as shown.

Fit suitably rated safety chains (*not supplied with the machine*) to the bracket under the pull.



Hoses reversed through holder, out of harms way



Hoses hanging too close to draw bar pin

WARNING!

Do not transport with a vehicle with a gross mass less than that of the ripper. Check local road regulations. Use beacons flags and signs as required.

Always ensure wings are locked securely for transport. Remove shear pins.

10 Operating Instructions

10:3 Preparing the Deep Digger for transport.

The machine will be unloaded or delivered in the transport position.

The machine will need a oversize sign fitted, and flags. Consult local road authorities for specific advice.

Trailed Deep Digger Transport Mode

The procedure is as follows:

1. Fully raise the Deep Digger and fold the wings
2. Fit the transport pins on the wheel legs and in the wings
3. Fit wing lock pins.
4. Lock the tractor drawbar. Do not transport the Deep Digger with a swinging drawbar. It is suggested to remove the shear pins when towing on roads.



Pin in Wheel Leg

Pin is only a safety pin in case of failure and machine should not be lowered onto pin.



Wing Transport Pin

WARNING!

Always stay out from underneath a Deep Digger unless it is resting firmly on the ground or supported with the transport pins.

WARNING!

Do not allow, under any circumstances, a person to stand between the tractor and Deep Digger when reversing the tractor to fit the linkage arms. Keep all parts of the body well clear. Failure to observe this warning may result in serious injury.

WARNING!

Be aware of overhead power cables and their danger. Lack of attention to power cables can cause serious injury or death.

10 Operating Instructions

Before you use the Deep Digger for the first time.

Your Deep Digger is a robust machine, none-the-less the initial preparation of the machine for work and the “running in” period will be of critical importance to the service of the machine.

1. Securely tighten all nuts and bolts.
2. Check tyre pressures (see table on this page).
3. Check placement of shear pins so that break points (grooves on the shear pin) are positioned between the tine and tine locating plates so that correct operation is possible.
4. Check hydraulic system for leaks - **SEE WARNING. Folding Deep Diggers are fitted with rephasing cylinders.** It is necessary to bleed the system of air. This is done by holding the tractor control lever fully open for at least 2 minutes. This should be done as required.
5. Grease all nipples.

WARNING!

Under no circumstances should a body part be used to find hydraulic leaks. High pressure injection of fluid can cause serious injury and likely death. TIP: use a sheet of paper.

10:4 Ripping Techniques

10:4:1 Operating Depth

This will depend upon the task to be performed and the operating conditions.

10:4:2 Hard Pan Removal

Strictly speaking, establishing the exact nature of a hard pan is performed with a soil penetrometer which gives resistance pressures at various soil depths. Conversely it is possible to identify different bands of soil by investigating the soil profile. The hard pan layer is generally found between 4 to 10 inches below the ground surface, although this will vary with soil types, as will the degree of compaction.

10:4:3 Operating Speeds

The optimum speed for the machine will be determined by the conditions and the task being performed.

WARNING!

Do not exceed 30 km/hr when towing the machine. The maximum permissible speed is 30 km/hr. If this speed is exceeded, the tyre manufacturer will not warrant any damage to tyres.

A suggested operating speed of 3-5 mph (4.8-8 kph) is advised. Faster speeds will result in excessive draught and increased wear and tear on both tractor and Deep Digger.

Operating speeds in drier conditions will need to be reduced as premature wear of ground engaging parts will result.

Operating too fast in dry conditions may result in large clods coming to the surface. If clods remain a problem with slow speeds it may be necessary to delay the operation until more moisture is available, or fit the optional crumble roller.

10:4:4 Turning at the End of a Run

It is important that the Deep Digger is always raised from the ground with the transport wheels when turning to avoid unnecessary stress on the tractor and Deep Digger frame. Warranty does not apply for damage caused by turning in the ground.

10:4:5 Ideal Moisture Conditions

The Deep Digger is designed to lift and break or shatter hard layers of sub-soil. If the soil is too dry or too wet, the process of breaking and shattering hard soil pans is impeded. As a reference or guide to soil moisture for breaking hard pans; the most optimum soil moisture for ripping is typically present at the end of Spring when grasses mature and start to dry off.

10 Operating Instructions

These moisture levels can be present at other times of the year and ripping is not confined to the end of Spring.

When ripping for other reasons such as deep working or bed or site preparation, soil moisture content may not be so critical to a successful outcome.

10:4:6 Hard ground or ground which comes up in large clods

Generally, most conditions suitable for cultivation will allow you to get good penetration and good results from ripping. However, sometimes ripping in very dry conditions may result in large, hard to break clods and boulders being lifted to the soil surface.

If this occurs, it is totally unsatisfactory and you must wait for more suitable moisture conditions.

10:4:7 Wet Soils

There are limitations to the performance of any ripping implement especially when conditions become too wet for good ripping results.

The Deep Digger is designed to lift and break or shatter hard layers of sub-soil and for deep ripping. If conditions are too moist, then the tine will only slice through the soil and smear the soil. In this case the soil must be left to dry out.

10:4:8 Stumps and Rocks

The Deep Digger is capable of pulling out small stumps such as grape vine butts but must not be used for large stumps rocks, or land clearing operations.

10:5 Changing Deep Digger from Transport to Work Mode

The procedure is as follows:

1. Remove wing lock pins to allow wings to be lowered (folding version).
2. Remove the travel pins from the wheel legs.
3. Store the travel pins & wing lock pins in the tool box.

WARNING!

Failure to lift the Deep Digger while turning will cause uneven ridging and cause unnecessary pressures on the tines. Failure to lift the Deep Digger while turning may bend tynes. If the Deep Digger is used for pulling out stumps and rocks or land clearing operations, warranty will not be covered.

11 Storage

Wash the machine

To properly check the machine it must be clean.

After washing, lower the machine on to the tines and raise the wheels, this will protect the ram shafts and make it possible to check the wheel bearings.

Grease and check

Greasing the machine after washing will purge any water from pins etc. See Section 12 for more details.

Check bearings, pivots, pins etc. for wear. Retract all cylinders to protect shafts from rusting, this will ensure there is no weight left on the tyres.

Order parts

This is a good time to forward order any replacement parts you will need for next year, Some components are imported and may have long delivery times.

When ordering parts, quote the serial number of the machine, this is on the identification plate located on the front of the machine and the part number of the parts from the parts section of this manual.



12 Lubrication and Maintenance

12.1 Greasing

12.2 Before Use

12.3 Replacing Points & Shear Pins

12.4 Tyres

12.5 Wheel bearings

12.6 Replacing Tines

12.7 Hydraulics

12:1 Greasing

There are several grease points on the Deep Digger. These should be greased at the start of every season, then as indicated and again after cleaning the machine at the end of season.



figure g1 Pull tongue 3 points weekly



figure g2 Wheel Hubs 4 points weekly



figure g3 Wing Cylinders 2 points each weekly



figure g4 Wheel pivots, Wing Pivots and Pull Pivots weekly



figure g5 Wheel lift cylinders 2 points each weekly



figure g6 Roller 3 points weekly

12 Lubrication and Maintenance

12.2 Before Use

Ensure the pre-delivery checks have been done (See Section 4).

Your Grizzly Deep Digger has a running in period, just as any tractor or car!

During this period, it is of the utmost importance, that the following servicing must be done by the operator:

After 4 Hours Use

Tighten all bolts, and wheel nuts to specified torque (See Torque Table in Section 8).

- Check points for wear and heat buildup.
- Check location of shear pins. Use only the correctly specified shear pin, as shown in this parts manual available from your Grizzly Dealer.
- Grease all nipples.

Check over the machine, ensure there are no loose bolts, visually check

After 10 Hours Use

Check all items of the 4 hour service.

- Check points and wear boots for abnormal wear.

After 40 hours use

When working in stumps or rocky conditions check more frequently - continual checking at least every 4 hours is recommended.

Routine Service Procedures

Proper servicing and maintenance schedules must be carried out to gain the best performance and longest life of the Deep Digger and its components.

- Check all bolts and nuts are tight.
- Check location of shear pins. Use only the correctly specified shear pin, as shown in this parts manual available from your Grizzly Dealer.
- Grease all wheel system nipples on a weekly basis.
- Check that all pins and clips are in place and not excessively worn. Replace if necessary.
- All bolts must be checked for wear periodically during the life of the machine.
- Check tyre pressures regularly (See Section 8).
- Check points and wear boots for abnormal wear.

12.3 Replacing Points & Shear Pins

How to Replace Points

When points become worn or damaged it is necessary to replace them. This can be done without removing the tines from the Deep Digger.

Removing the point:

1. Raise the point off the ground.
2. Knock out the roll pin.
3. Remove the point and replace with new point and roll pin.

How to Replace Shear Pins

When shear pins break it is necessary to replace them:

1. Removing the broken pin from the frame. This may require a hammer and punch.
2. Align the rear shear pin vee of the tine with the holes in the frame assembly.
3. Fit the shear pin and lock the pin into position with the clips provided.

It is important that you use only the correct and specified replacement shear pins. See Page ?? for further information.

IMPORTANT!

Use a torque wrench, do not over tighten bolts.

CAUTION!

Failure to use the correct shear pin may lead to under performance and/or damage of the Deep Digger. If damage occurs due to incorrect use of shear pins, such damage will not be covered by warranty.

12 Lubrication and Maintenance

12.4 Tyres

Check the tyre pressure (See Section 8), uneven tyre pressure can cause the machine to ripper unevenly.

12.5 Wheel Bearings

Check wheel bearings, with the wheels in the air spin the wheel, check for bearing noise, heat, and movement in the bearing. if there is excessive movement the bearing will need to be adjusted.

To adjust the wheel bearing preload.

1. Raise the wheels (using the hydraulics).
2. Remove the 4 cap screws from the cap and remove the cap from the hub.
3. Remove the cotter pin.
4. Tighten the nut while turning the hub.
When there is a tight bind on the bearing, the parts are seated correctly, approx 150ft/lbs
5. Back the nut off 1/6 to 1/4 of a turn or sufficiently to allow .005mm to .02mm end play. **Note:** Failure to back off adjusting nut could cause bearing to run hot and fail.
6. Replace the cotter pin.
7. Replace the cap (use flange sealant).

12.6 Replacing the Tines

To replace or remove tine for your machine extreme care must be taken. Always use correct and safe lifting equipment.

1. With a pin punch remove the roll pins in the tine that hold the point and the shin guard in place and remove the point and shin guard from the tine.
2. Remove the shear pin and the front bolt from the tine that connects the tine to the main frame.
3. Using the lifting points located on the top of the tine connect appropriate lifting apparatus and lift tine out of frame being careful that the tine doesn't jam or get caught when lifting.
4. To replace tine reverse the above steps. Be sure to fit new roll pins.

12.7 Hydraulics

Hydraulic Circuits

The Deep Digger Series utilises separate hydraulic circuits for wheel lift, pitch control, wings and crumble rollers. With proper care and maintenance these hydraulics will provide reliable and long life operations.

General Maintenance

The first and foremost consideration in maintaining hydraulics in good working condition is to be meticulous about keeping your hydraulic circuits clean and free from contaminants.

Avoid dirty oils and contaminants at all costs. They will damage hydraulic componentry and cause functionality problems.

When transporting the Deep Digger, always use the transport pins (provided) on wheel legs and wings. The transport pins are essential to prevent excessive loading on cylinder components when transporting.

Phasing Cylinders

When storing the Deep Digger overnight or for longer periods, make sure the phasing cylinders are left fully closed to avoid unnecessary seal damage,
OR
alternatively, coat the shafts with grease or equivalent.

Filters

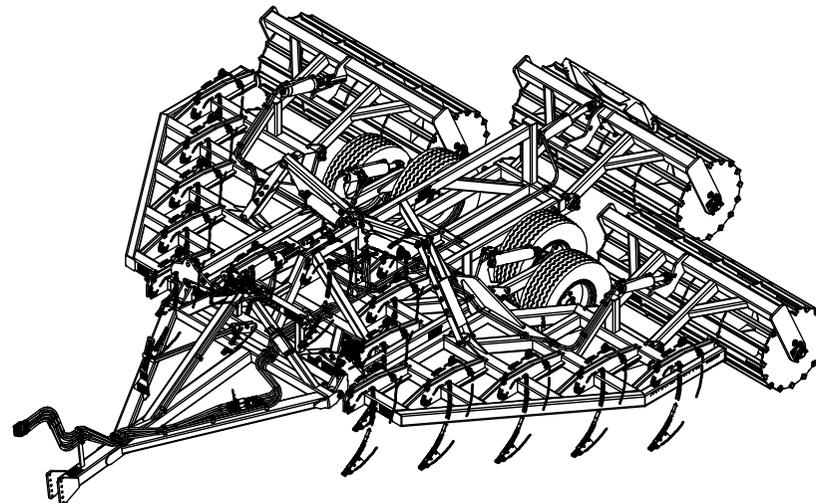
Filters are fitted to the supply and return line of the lift cylinders. The filters have a 60micron sintered element to catch any contaminants, the filters should be cleaned after the first 10 hours, then only if the system is opened for repairs.

13 Parts

15 TYNE TRAILING ASSY KIT

GSN15001

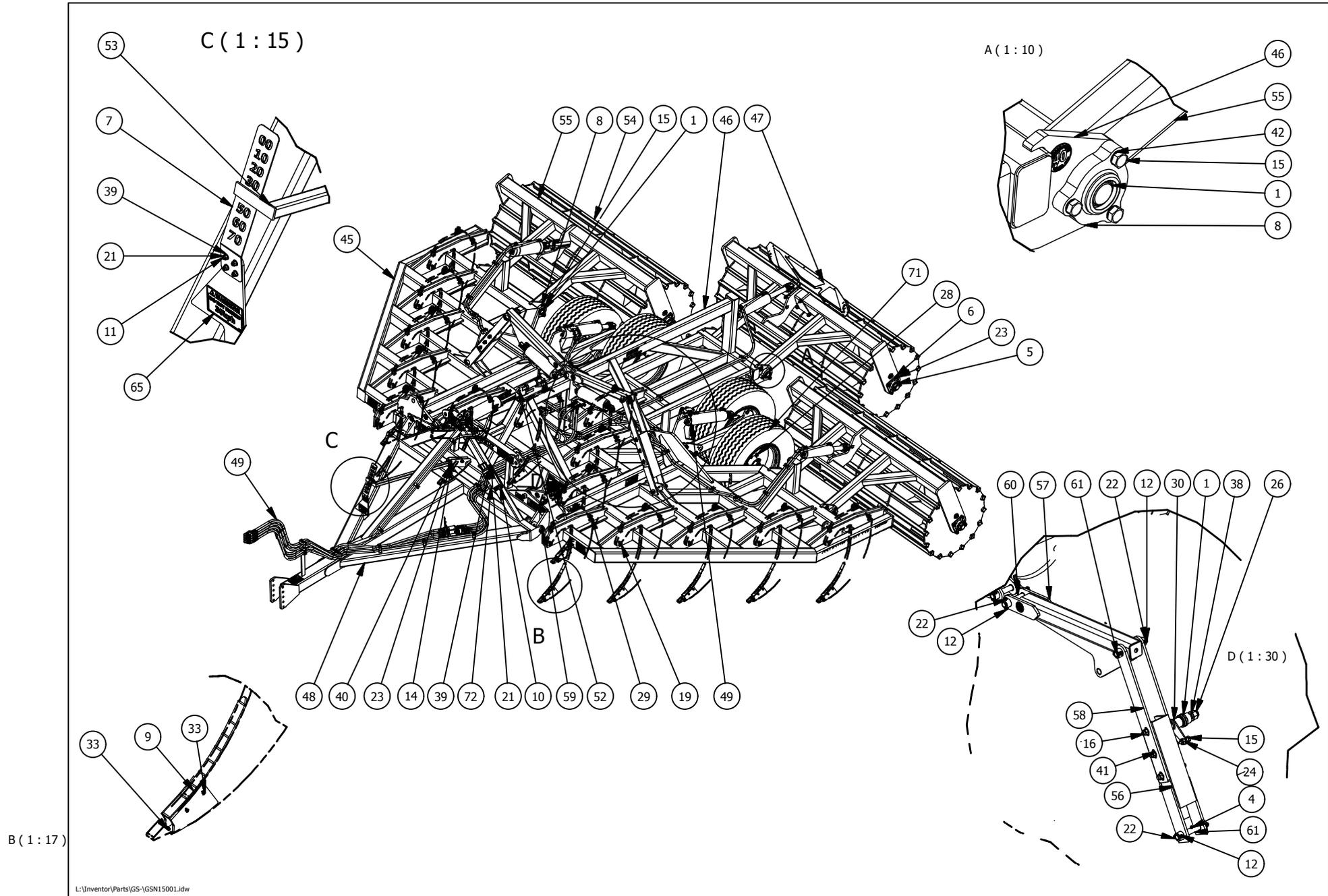
ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	14	BDGAA001	GE50 RADIAL SPHERICAL PLAIN	25	15	FFBKA000	NYLOC NUT M24 P TYPE	49	1	GHPC0015A	PTE 15 TYNE HYDRAULICS KIT
2	4	BDMZA000	GE70 RADIAL SPHERICAL PLAIN BEARING	26	4	FFBPA000	1-1/4" UNF NYLOC NUT	50	1	GJNC00031	RIGHT WHEEL LEG DEEP DIGGER 18"
3	9	BMAAA000	GREASE NIPPLE 1/4" UNF	27	2	FFDYA000	1 1/2 - 6 BSW THIN NUT (BLACK)	51	1	GJNC00041	LEFT WHEEL LEG - DEEP DIGGER 18"
4	14	BMCAA000	GREASE NIPPLE 1/8 BSP	28	24	FFFJA030	WHEEL NUT 18mm - (30mm AF)	52	1	GMGDA001	ADJUSTABLE RAM LUG
5	6	BZGCA060	BEARING 50mm 52.7 kN dynamic	29	30	FBKA094B	RIPPER SHEAR PIN 18mm shear 94	53	1	GNBEN000	DEPTH GAUGE POINTER RIPPER
6	6	BZGCA512	FY 512M BEARING FLANGE	30	4	FBRA000	WING HINGE PIN - DEEP DIGGER	54	3	GNBRM826	SHS ROLLER DRUM 2.5m X .95
7	1	CABSE131	DEPTH GAUGE	31	2	FGBSA191	TRANSPORT LOCK PIN	55	3	GNBRN50D	ROLLER BRACKET 15 TYNE DEEP DIGGER
8	10	CDEUU000	BEARING HOUSING - 3 BOLT	32	2	FGBSA200	TRANSPORT LOCK PIN ZINC 167	56	2	GNFCN000	WING LINK -FOLDING DEEP DIGGER
9	15	DYSPB500	WEAR BOOT HARD FACED - DEEP DIGGER	33	45	FGCBA050	ROLL PIN 8 X 50	57	2	GNFCN001	WING LINK - FOLDING RIPPER
10	3	FABEA020	BOLT M8 X 20	34	2	FKAKA000	LYNCH PIN 7/16" strong clip!	58	4	GNFCN002	LINK END - FOLDING RIPPER
11	4	FABEA025	BOLT M 8 X 25	35	10	FKDWA003	INTERNAL CIRCLIP 75	59	2	MDBBA285	PIN 40mm (285mm)
12	12	FABGA065	BOLT M12 X 65 PC 8.8	36	4	FKDXA004	Internal Circlip 105mm Dia	60	2	MDBUA190	PIN 31.75 X 208mm
13	24	FABHA065	BOLT M16 X 65 PC 8.8	37	2	FKEMA000	SHAFT LOCKING PIN 7/16"	61	4	MDBUA228	PIN 31.75 (228mm)
14	4	FABHA090	BOLT M16 X 90 PC 10.9 Z/P H/T~	38	4	FMAUKP02	FLAT WASHER 30mm / 1 1/4" HD 33X55X4	62	4	MECGA032	SPACER 50 X 32 - FOLDING RIPPER
15	34	FABJA055	BOLT M20 X 55 pc 8.8 COARSE	39	7	FMCEE000	M8 WASHER 5/16" F436 HARD ZYP	63	2	MFAAA100	ROCKER AXLE SPACER
16	12	FABJA065	BOLT M20 X 65 pc 10.9 COARSE	40	4	FMCHE000	M16 WASHER 5/8" F436 HARD ZYP	64	1	PAAGA300	GRIZZLY BLUE SPRAY CAN 300gram
17	12	FABJA075	BOLT M20 X 75 pc 8.8 COARSE	41	24	FMCJG000	M20 WASHER 3/4" F436 HARD	65	1	PDAER002	DECAL KIT RIPPER 15 TYNE
18	2	FABJA180	BOLT M20 X 180 pc 8.8 COARSE	42	30	FMHJA000	20mm NORD LOCK	66	1	TDASC000	SOCKET 30mm.3/4" DRIVE
19	15	FABKA110	BOLT M24 X 110	43	1	FZA00GCW	GCWHITE CAP (GREASE NIPPLE)	67	1	TDFHA000	19mm COMBINATION SPANNER
20	4	FEABA008	HAMMER DRIVER SCREW	44	1	GBN015LW	LEFT WING - 15 TYNE RIPPER	68	1	TDGAA200	3/4" DRIVE 200mm EXTENSION
21	7	FFBEA000	NYLOC NUT M8 P TYPE	45	1	GBN015RW	RIGHT WING - 15 TYNE RIPPER	69	1	TDGAC000	L HANDLE 3/4" DRIVE
22	12	FFBGA000	NYLOC NUT M12 P TYPE	46	1	GCN015C	FOLDING DEEP DIGGER CENTRE FRAME	70	2	WMMDA520	ROCKER AXLE H70 / 13.0 X 65 - 18
23	28	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC	47	1	GDZG0020B	LIGHT BRACKET - OVERSIZE-SIGN	71	4	WSMHHF00	WTA 385/65R 22.5 6/205 A2 SUPER SINGLE
24	30	FFBJA000	NYLOC NUT M20 P TYPE 2.5	48	1	GHNA005	PULL - FOLDING RIPPER	72	1	XBCDOC235	DOCUMENT HOLDER



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15 TYNE TRAILING ASSY KIT

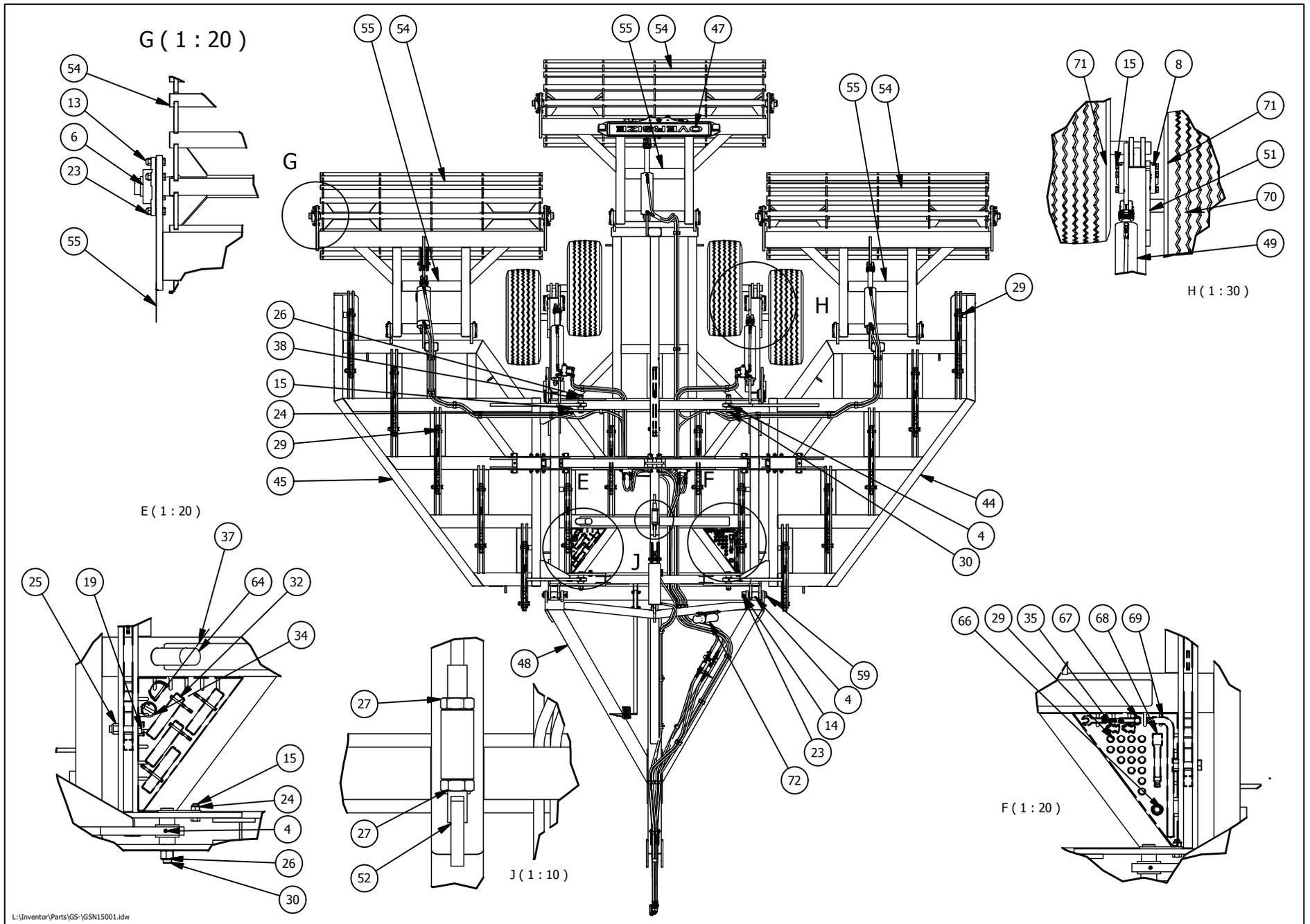
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15 TYNE TRAILING ASSY KIT

GSN15001



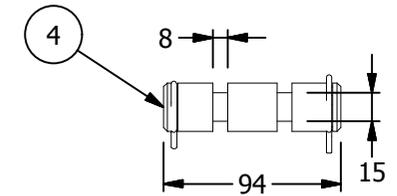
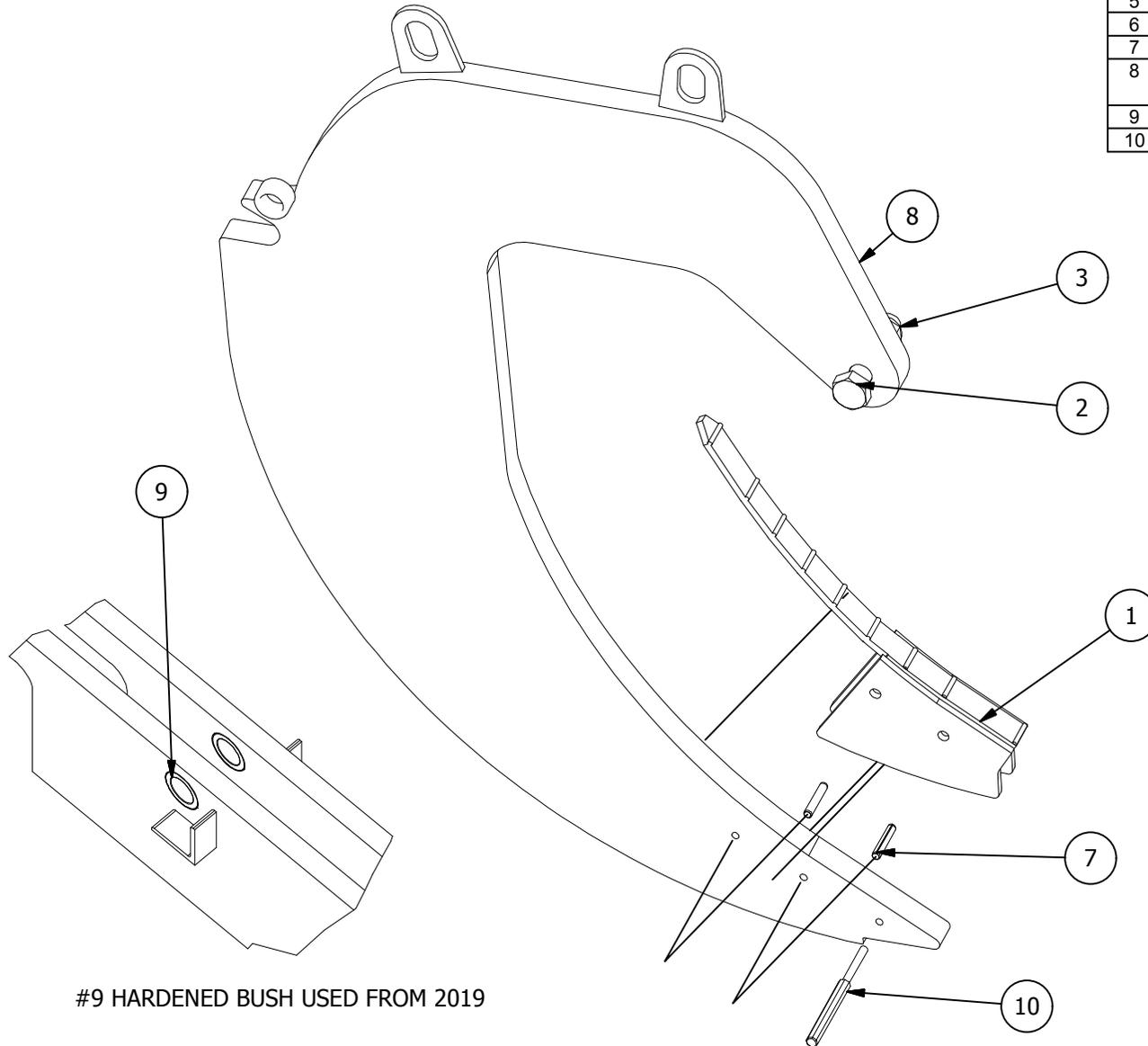
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RIPPER TYNE ASSY / WEARBOOT 700

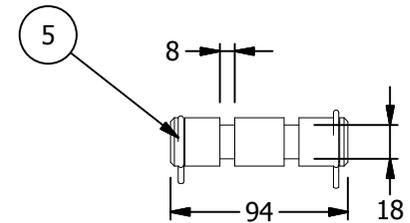
GNAFM503

BIS 80

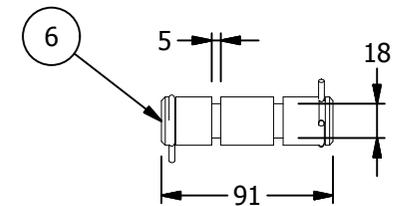
POS	QTY	PART NO	DESCRIPTION
1	1	DYSPB500	WEAR BOOT (HARD FACED)
2	1	FABKA110	BOLT M24 X 110
3	1	FFBKA000	NYLOC NUT M24 P TYPE
4	0	FGBKA094A	PIN 1" RIPPER SHEAR PIN (15mm)
5	0	FGBKA094B	RIPPER SHEAR PIN 18mm shear 94
6	1	FGBKA094C	PIN 1" RIPPER SHEAR PIN (18mm)
7	2	FGCBA050	ROLL PIN 8 X 50
8	1	GNAFM502	RIPPER TYNE 700mm UNDER FRAME BIS 80
9	0	MDBZA020	1" x 1 1/2" BUSH - SHEAR PIN
10	0	TGA80050	ROLL PIN PUNCH 5/16"



USED BEFORE 2019



USED ON 15 TYNE BEFORE 2019

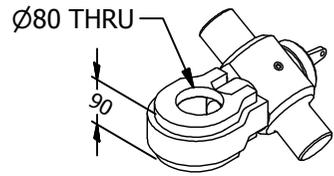


USED ALL MACHINES FROM 2019

#9 HARDENED BUSH USED FROM 2019

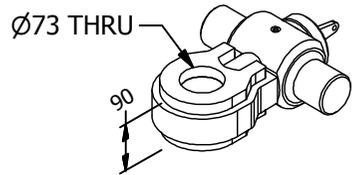
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ARTICULATED PULLS



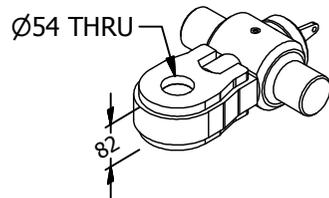
GPEBF00C CONSTRUCTION TONGUE
75mm PIN (PAINTED GOLD)

GPCATA5C
CONSTRUCTION ARTIC
PULL ASSY



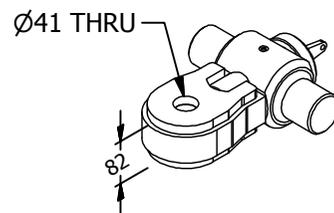
GPEBF000 CAT 5
ARTICULATED TONGUE

GPCATA5 CAT 5
ARTICULATED PULL ASSY.



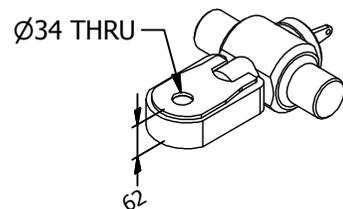
GPDBF000 CAT 4
ARTICULATED TONGUE

GPCATA4 CAT 4
ARTICULATED PULL ASSY.



GPCBF000 CAT 3
ARTICULATED TONGUE

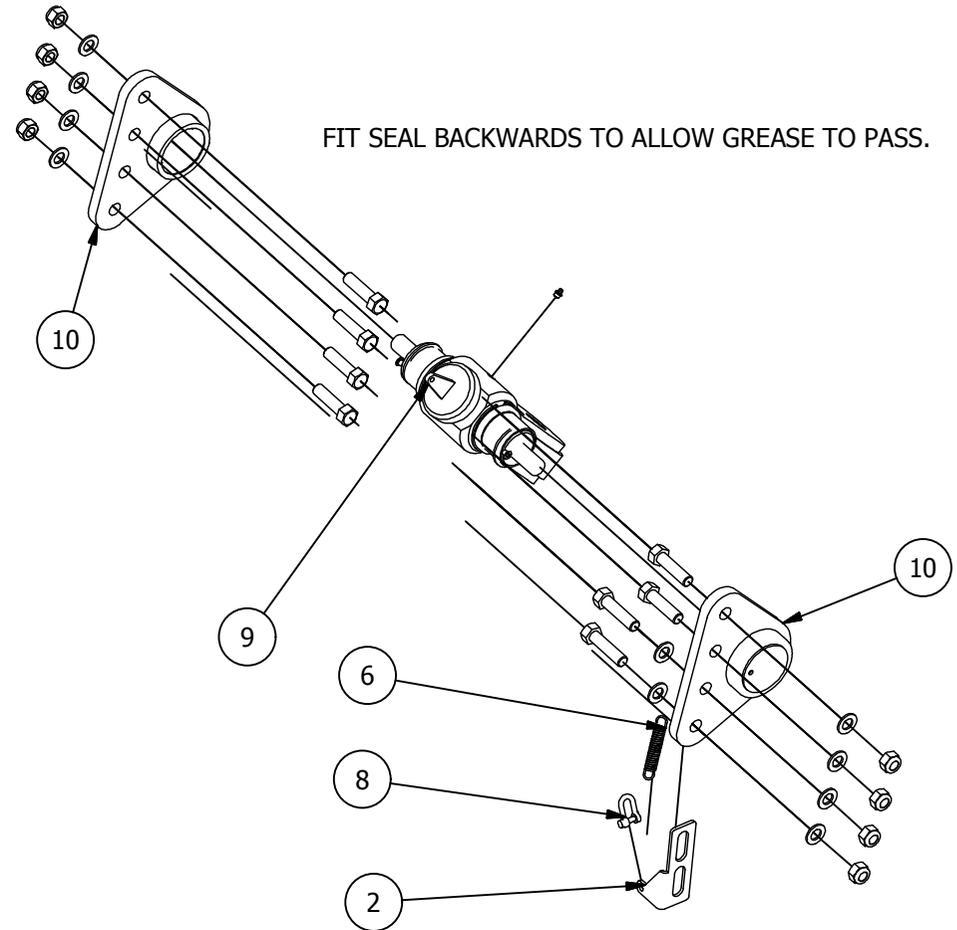
GPCATA3 CAT 3
ARTICULATED PULL ASSY.



GPBBF000 CAT 1-2
ARTICULATED TONGUE

GPCATA1-2 CAT 1-2
ARTICULATED PULL ASSY.

POS	QTY	PART NO	DESCRIPTION
1	2	BMCAA000	GREASE NIPPLE 1/8 BSP
2	1	CCDDA002	SPRING RETAINER
3	6	FABJA075	BOLT M20 X 75 pc 8.8 COARSE
4	2	FABJA080	BOLT M20 X 80 pc 8.8 COARSE
5	8	FFBJA000	NYLOC NUT M20 P TYPE 2.5
6	1	FHKDC091	EXTENSION SPRING 98 X 25 X 3.15
7	10	FMCJG000	M20 WASHER 3/4" F436 HARD
8	1	FYBCC000	8mm D SHACKLE
9	1	GPCBF000	CAT 3 FLOPPY SWIVEL TONGUE
10	2	GPFAB000	ARTIC. PULL SIDE PLATE ASSY



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H70 HUB ASSEMBLY

WMMDA520

To assemble and adjust the setting of this hub:

NOTE: CLEAN THREAD BEFORE ASSEMBLING NEW AXLE

USING 1-1/2" UNF DIE NUT

Step 1: Clean and prime the seal #3 and seal ring #9 Fit seal to seal ring using Loctite 480, allow to dry before proceeding.

Step 2: Place bearing #1 into the hub #11.

Step 3: Fit the seal and seal ring to axle, ensure this does not rotate on axle, use loctite 680 if required.

Step 4: Fit the hub to the axle, then fit the bearing #2, washer #8, and nut #5.

Step 5: Tighten the nut while turning the hub. When there is a tight bind on the bearing, the parts are seated correctly, approx 150ft/lbs.

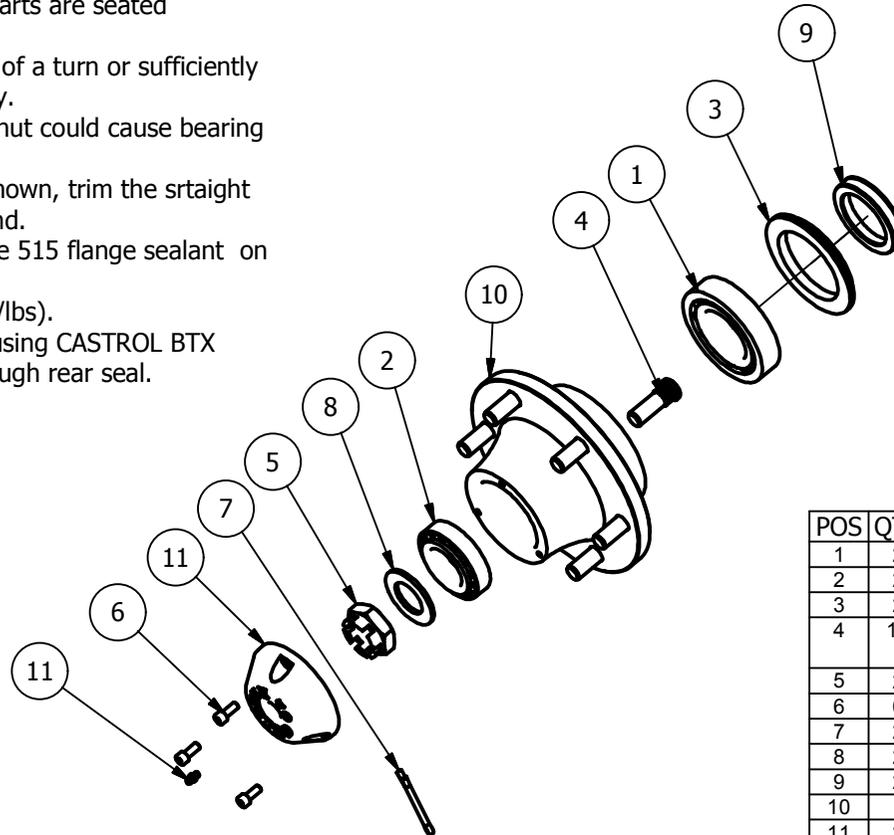
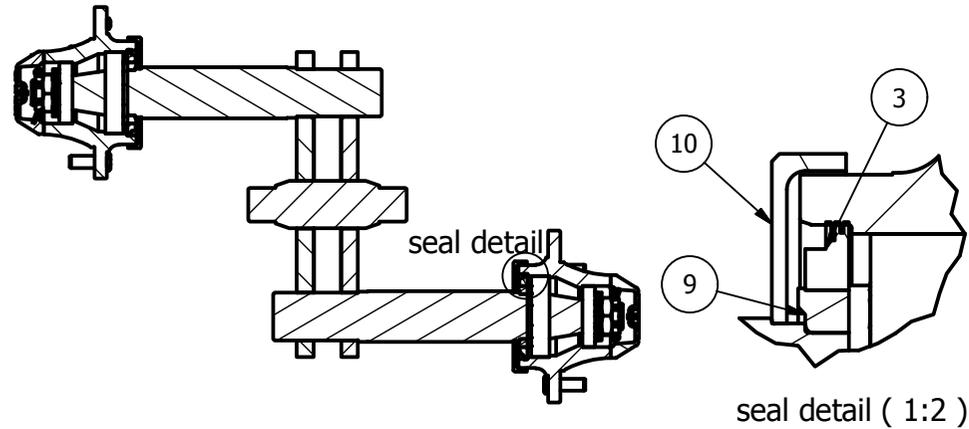
Step 6: Back the nut off 1/6 to 1/4 of a turn or sufficiently to allow .005mm to .02mm end play.

Note: Failure to back off adjusting nut could cause bearing to run hot and fail.

Step 7: Insert the split pin #7 as shown, trim the straight leg, bend the other over the axle end.

Step 8: Fit the cap #12 using loctite 515 flange sealant on the faces, and tighten the 4 M6 #6 cap screws 16nm(12ft/lbs).

Step 9: Grease with a grease gun using CASTROL BTX or similar until grease is visible through rear seal.

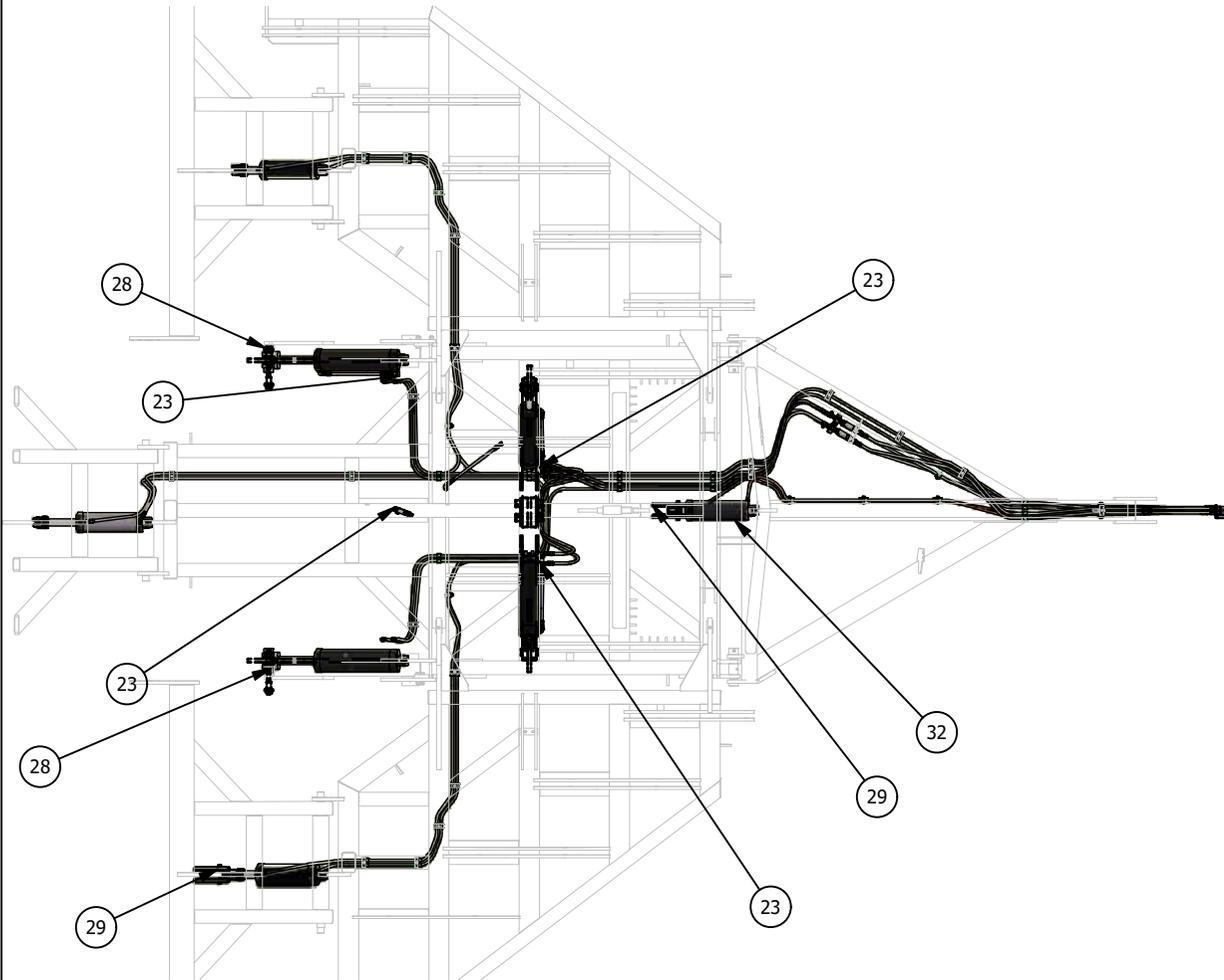


POS	QTY	PART NO	DESCRIPTION
1	2	BBMAA000	BEARING - H70 INNER (32213)
2	2	BCMAA000	BEARING FOR H70 OUTER (32210)
3	2	BNRBA010	H70 TRIPPLE LIP SEAL
4	12	FDBJA001	WHEEL STUD 18 X 55 (PC10.9-12.9)
5	2	FFCUA000	1 1/2"UNF CASTELLATED NUT
6	6	FJBEA020	8 X 20 SOCKET HEAD CAP SCREW
7	2	FKCFA080	Split Pin 6 X 80
8	2	FMAUKP00	WASHER 41 X 70 X 4
9	2	MFRNA015	SEAL SPACER
10	1	GNBXN520	ROCKER AXLE H70 520
11	2	WJMAA000	H70 HUB
12	2	WKMBA000	H70 CAP

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PTE 15 TYNE HYDRAULICS KIT

GHPC0015A

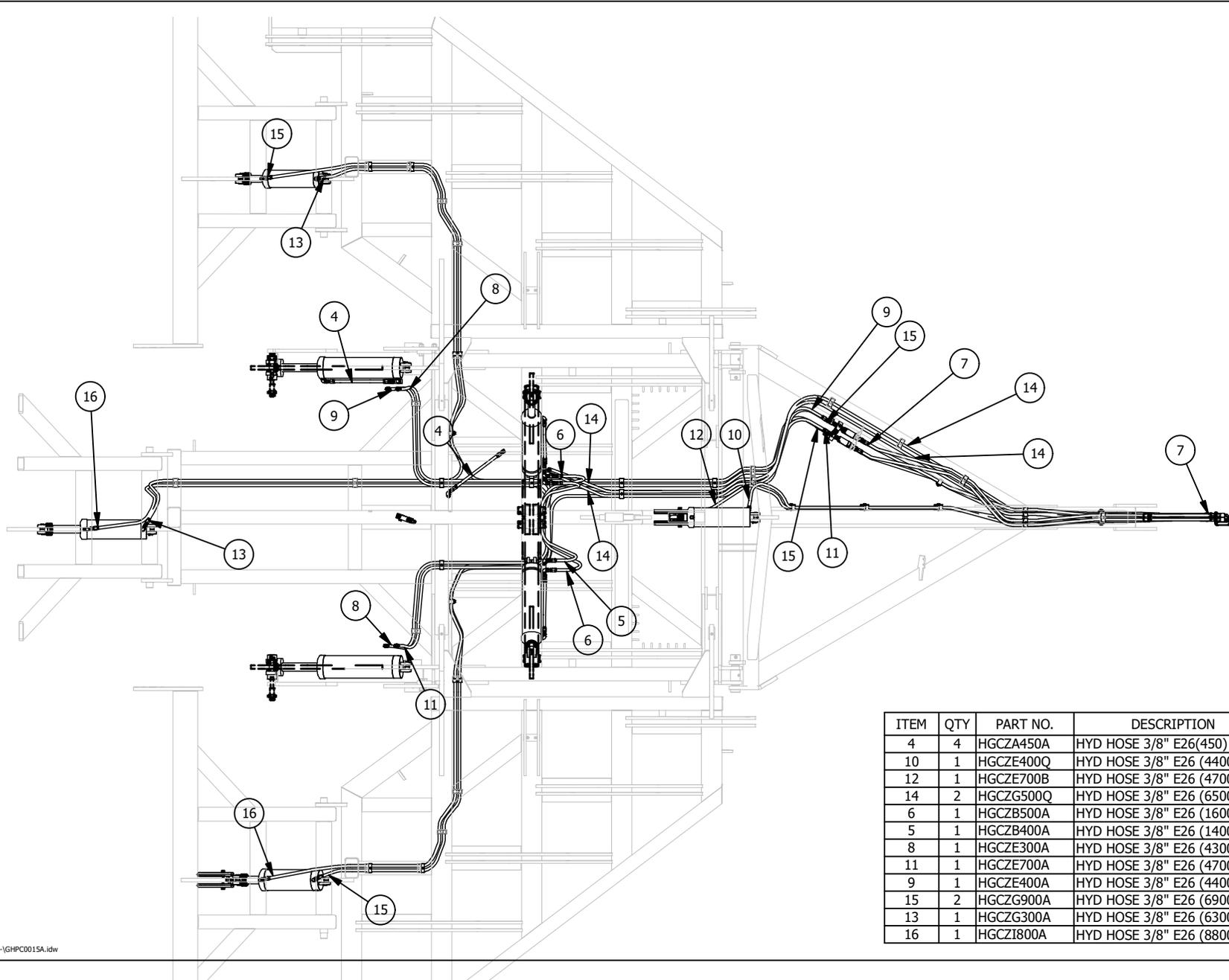


ITEM	QTY	PART NO.	DESCRIPTION
1	29	FABEA045	BOLT M8 X 45
2	10	FABEA080	BOLT M 8 X80
3	2	HFALL50-B	RETRACT LINE RELIEF VALVE KIT
4	4	HGCZA450A	HYD HOSE 3/8" E26(450)
5	1	HGCZB400A	HYD HOSE 3/8" E26 (1400)
6	1	HGCZB500A	HYD HOSE 3/8" E26 (1600)
7	4	HGCZD200B	HYD HOSE 3/8" E26 (3200) QR
8	1	HGCZE300A	HYD HOSE 3/8" E26 (4300)
9	1	HGCZE400A	HYD HOSE 3/8" E26 (4400)
10	1	HGCZE400Q	HYD HOSE 3/8" E26 (4400) QR
11	1	HGCZE700A	HYD HOSE 3/8" E26 (4700)
12	1	HGCZE700B	HYD HOSE 3/8" E26 (4700) QR
13	1	HGCZG300A	HYD HOSE 3/8" E26 (6300)
14	2	HGCZG500Q	HYD HOSE 3/8" E26 (6500) QR
15	2	HGCZG900A	HYD HOSE 3/8" E26 (6900)
16	1	HGCZI800A	HYD HOSE 3/8" E26 (8800)
17	2	HHAABA07	TEE 3/4JICF 3/4JICM 3/4JICM
18	8	HHABAA07	ELBOW 3/4J.I.CM. 3/4JICF (S15-1212)
19	14	HHABAM07	ELBOW 3/4 JICM 3/4 UN ORING MALE
20	2	HHABAM07A	RESTRICTOR ELBOW
21	4	HHACBF12	STRAIGHT 1/2BSPTM 3/4 JICF SWIVEL
22	12	HHBEM000	STRAIGHT 3/4 JIC M 1/2 BSPP ORING M
23	4	HHHWBB17	SINGLE COUNTER BALANCE VALVE
24	4	HHZWUA07B	HYD Coupling COVER BLUE
25	4	HHZWUA07R	HYD Coupling COVER RED
26	49	HJBCA000	20mm DOUBLE HOSE CLAMP SHELL
27	39	HJBFA000	TOP PLATE DOUBLE FOR GROUP 3
28	2	HMCC1100	CONSTRUCTION CLEVIS ASSEMBLY
29	2	HMDEA004	DEPTH STOP - CAPTIVE PAIR
30	2	HXEBF000	HEAT SHRINK GREEN - FOLD
31	1	HXECF000	HEAT SHRINK BLUE- PITCH CONTROL
32	1	HYP500/12D	HYD.CYL 5"x12"-2" SHAFT-D/STOP - non phasing
33	2	HYP500/18	HYD. CYL. 5 X 18 (2" ROD) 1.25 PINS
34	1	HZP450/12D2	HYD. CYL. 4.5 X 12 DS 2" SHAFT
35	1	HZP500/12D55	HYD. CYLINDER 5 X 12 DS 55 ROD
36	1	HZP550/12D	HYD. CYLINDER 5.5 X 12 DS 2.25" ROD
37	1	HZP550/18NC	HYD. CYL. 5.5 X 18 2.25" ROD 1.25 PINS
38	1	HZP600/18NC	HYD CYL 6" x 18" 60mm ROD 1.25" PINS
39	1	PD000038	DECAL PITCH DEPTH 15 TYNE

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PTE 15 TYNE HYDRAULICS KIT

HOSES

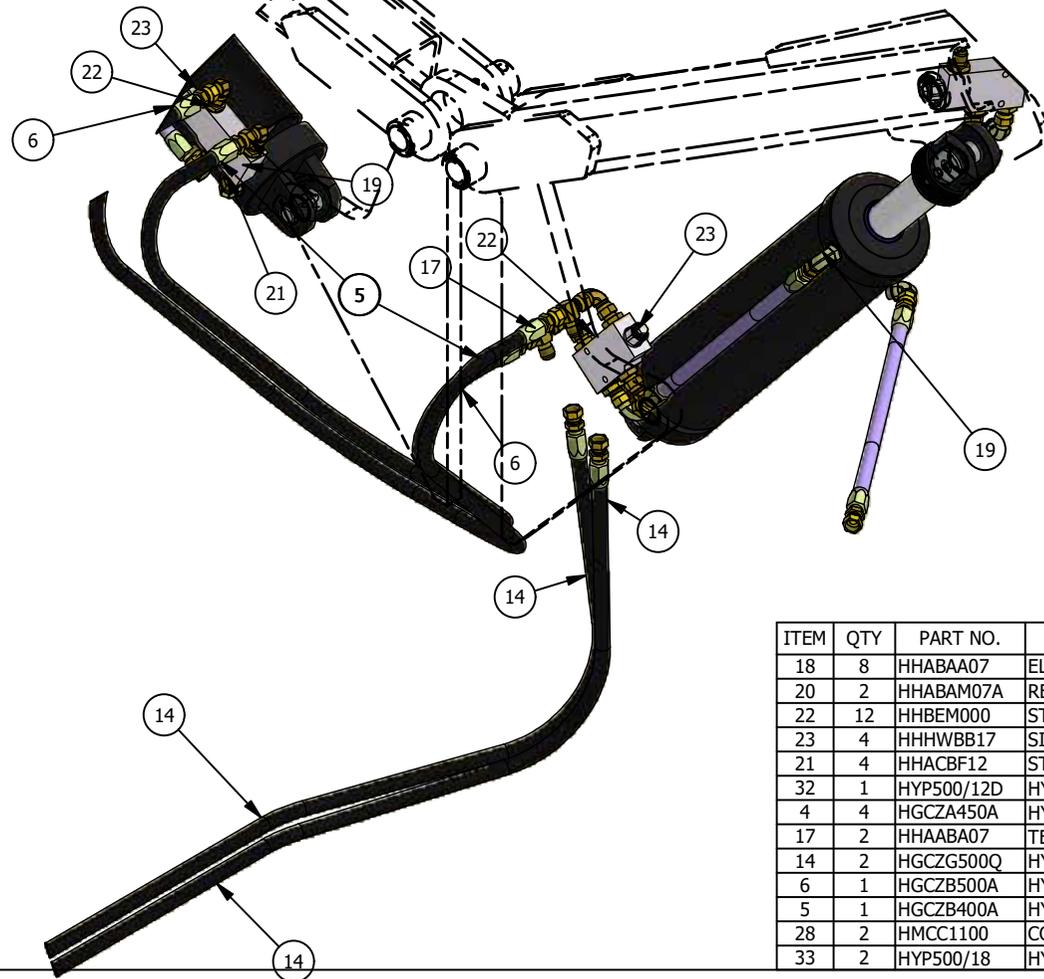
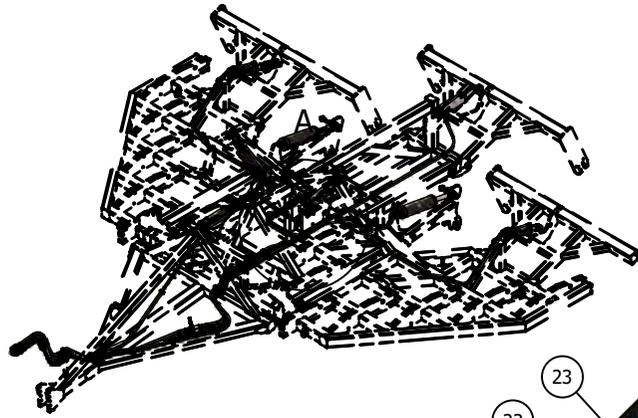


ITEM	QTY	PART NO.	DESCRIPTION
4	4	HGCZA450A	HYD HOSE 3/8" E26(450)
10	1	HGCZE400Q	HYD HOSE 3/8" E26 (4400) QR
12	1	HGCZE700B	HYD HOSE 3/8" E26 (4700) QR
14	2	HGCZG500Q	HYD HOSE 3/8" E26 (6500) QR
6	1	HGCZB500A	HYD HOSE 3/8" E26 (1600)
5	1	HGCZB400A	HYD HOSE 3/8" E26 (1400)
8	1	HGCZE300A	HYD HOSE 3/8" E26 (4300)
11	1	HGCZE700A	HYD HOSE 3/8" E26 (4700)
9	1	HGCZE400A	HYD HOSE 3/8" E26 (4400)
15	2	HGCZG900A	HYD HOSE 3/8" E26 (6900)
13	1	HGCZG300A	HYD HOSE 3/8" E26 (6300)
16	1	HGCZI800A	HYD HOSE 3/8" E26 (8800)

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PTE 15 TYNE HYDRAULICS KIT

WING LIFT

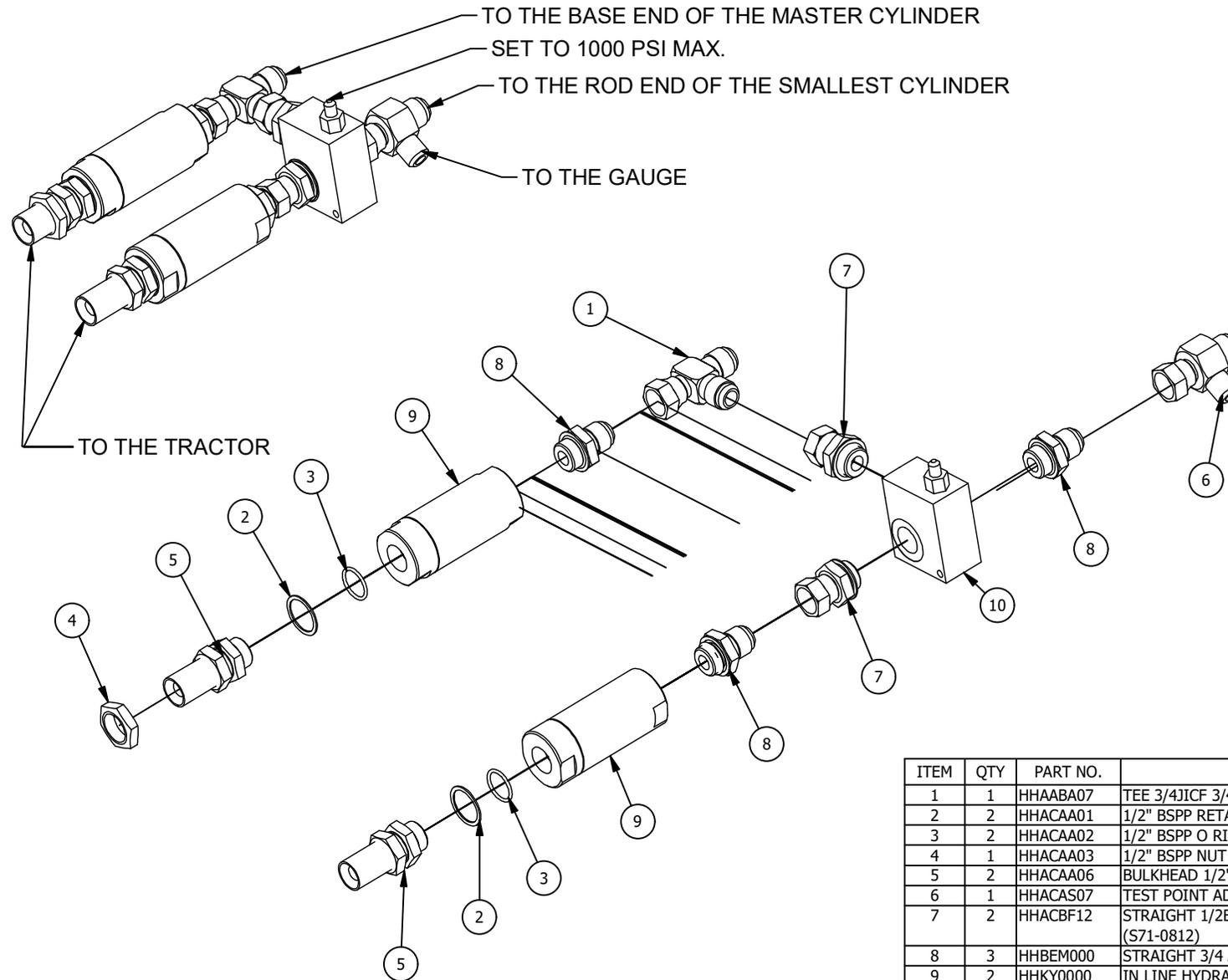


ITEM	QTY	PART NO.	DESCRIPTION
18	8	HHABAA07	ELBOW 3/4J.I.CM. 3/4JICF (S15-1212)
20	2	HHABAM07A	RESTRICTOR ELBOW
22	12	HHBEM000	STRAIGHT 3/4 JIC M 1/2 BSPP ORING M
23	4	HHHWBB17	SINGLE COUNTER BALANCE VALVE
21	4	HHACBF12	STRAIGHT 1/2BSPTM 3/4 JICF SWIVEL
32	1	HYP500/12D	HYD.CYL 5"x12"-2" SHAFT-D/STOP - non phasing
4	4	HGCZA450A	HYD HOSE 3/8" E26(450)
17	2	HHAABA07	TEE 3/4JICF 3/4JICM 3/4JICM
14	2	HGCZG500Q	HYD HOSE 3/8" E26 (6500) QR
6	1	HGCZB500A	HYD HOSE 3/8" E26 (1600)
5	1	HGCZB400A	HYD HOSE 3/8" E26 (1400)
28	2	HMCC1100	CONSTRUCTION CLEVIS ASSEMBLY
33	2	HYP500/18	HYD. CYL. 5 X 18 (2" ROD) 1.25 PINS

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RETRACT LINE RELIEF VALVE KIT

HFALL50-B

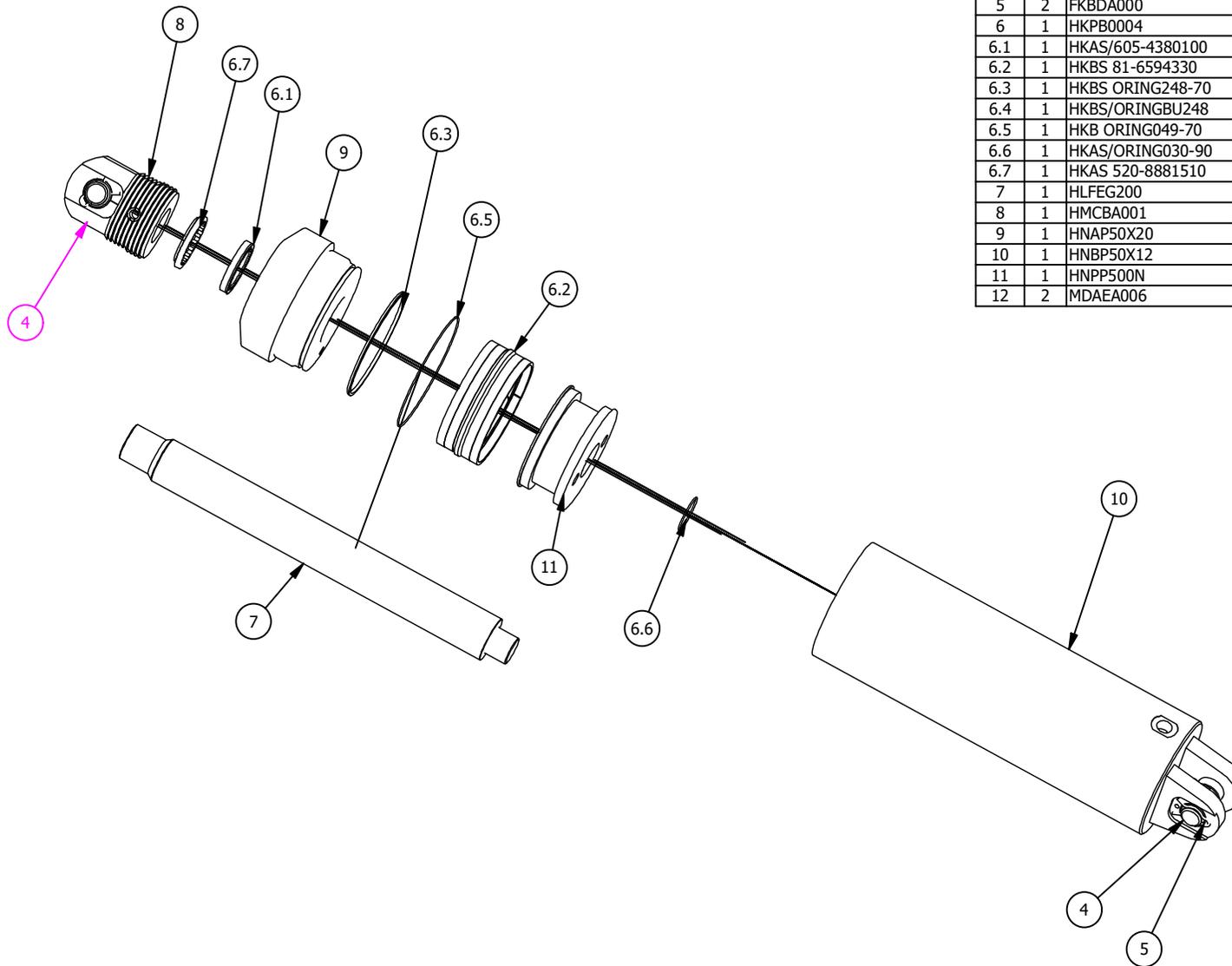


ITEM	QTY	PART NO.	DESCRIPTION
1	1	HHAA07	TEE 3/4JICF 3/4JICM 3/4JICM
2	2	HHACAA01	1/2" BSPP RETAINING RING 36B-08
3	2	HHACAA02	1/2" BSPP O RING ROD-BP08
4	1	HHACAA03	1/2" BSPP NUT
5	2	HHACAA06	BULKHEAD 1/2" BSP
6	1	HHACAS07	TEST POINT ADAPTOR 3/4 JIC - M16
7	2	HHACBF12	STRAIGHT 1/2BSPTM 3/4 JICF SWIVEL (S71-0812)
8	3	HHBEM000	STRAIGHT 3/4 JIC M 1/2 BSPP ORING M
9	2	HHKY0000	IN LINE HYDRAULIC FILTER
10	1	HHMWA008	INLINE RELIEF VALVE 1/2" BSP

HYD.CYL 5"x12"-2" SHAFT-D/STOP - non

HYP500/12D

phasing



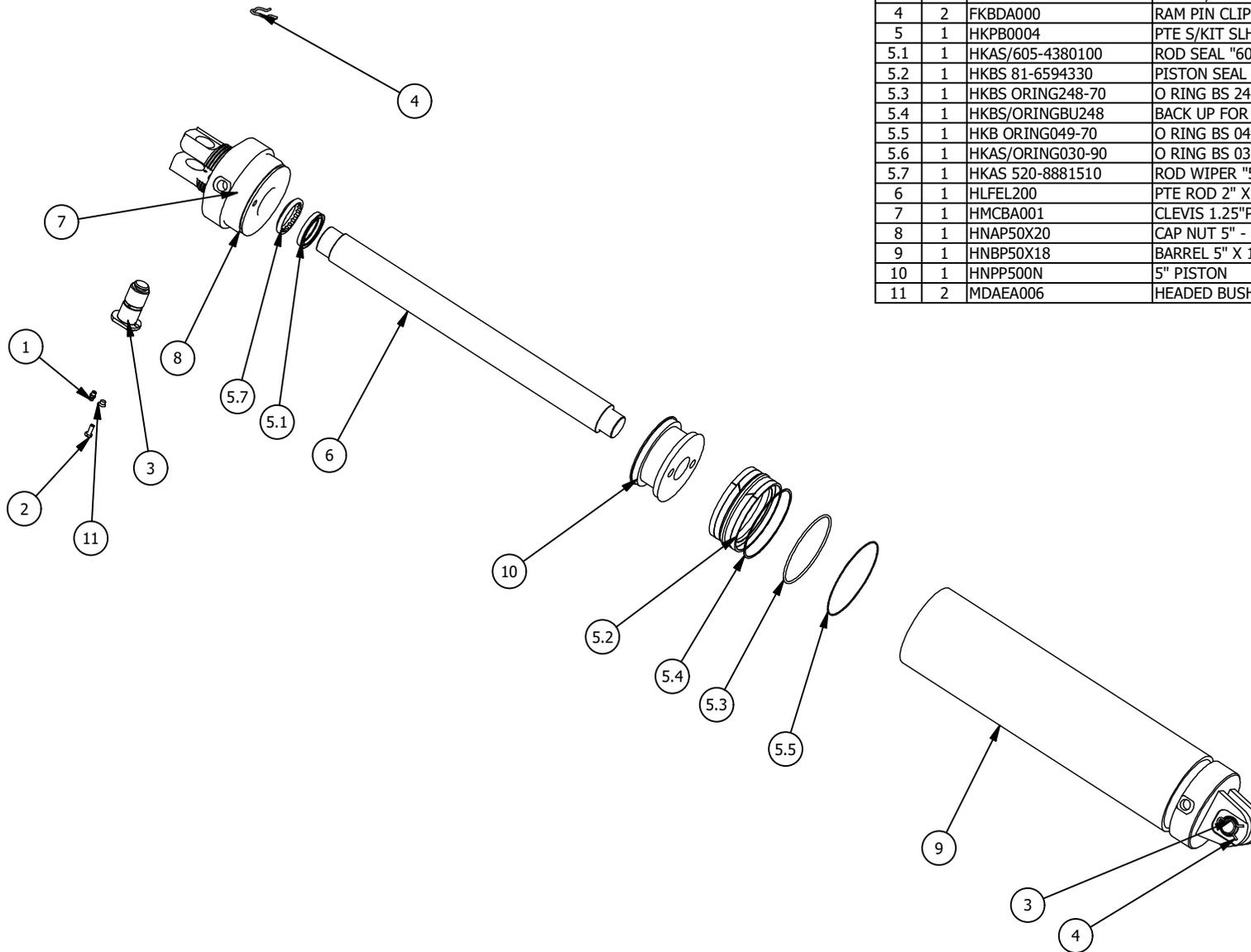
ITEM	QTY	PART NO.	DESCRIPTION
1	1	BMAAA000	GREASE NIPPLE 1/4" UNF
2	1	BMAAA006	STRAIGHT GREASE NIPPLE 6mm
3	2	FABDA016	SET SCREW 6 X 15
4	2	FGHPA072	PIN 1 1/4" ANTI ROT. GREASABLE
5	2	FKBDA000	RAM PIN CLIP
6	1	HKPB0004	PTE S/KIT SLH 5.0" X 2.0" ROD
6.1	1	HKAS/605-4380100	ROD SEAL "605" 2.0" X 2.375" X .375"
6.2	1	HKBS 81-6594330	PISTON SEAL 4.0" HALLITE "81"
6.3	1	HKBS ORING248-70	O RING BS 248 70 DURO - 5"
6.4	1	HKBS/ORINGBU248	BACK UP FOR O RING BS 24 - 5"
6.5	1	HKB ORING049-70	O RING BS 049 70 DURO - 5"
6.6	1	HKAS/ORING030-90	O RING BS 030 90 DURO - 2"
6.7	1	HKAS 520-8881510	ROD WIPER "520" 2.0"X2.5"X.25
7	1	HLFEG200	PTE ROD 12" x 2" (1.25" UNF)
8	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
9	1	HNAP50X20	CAP NUT 5" - 2"ROD
10	1	HNBP50X12	BARREL 5" X 12"
11	1	HNPP500N	5" PISTON
12	2	MDAEA006	HEADED BUSH

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HYD. CYL. 5 X 18 (2" ROD) 1.25 PINS

HYP500-18

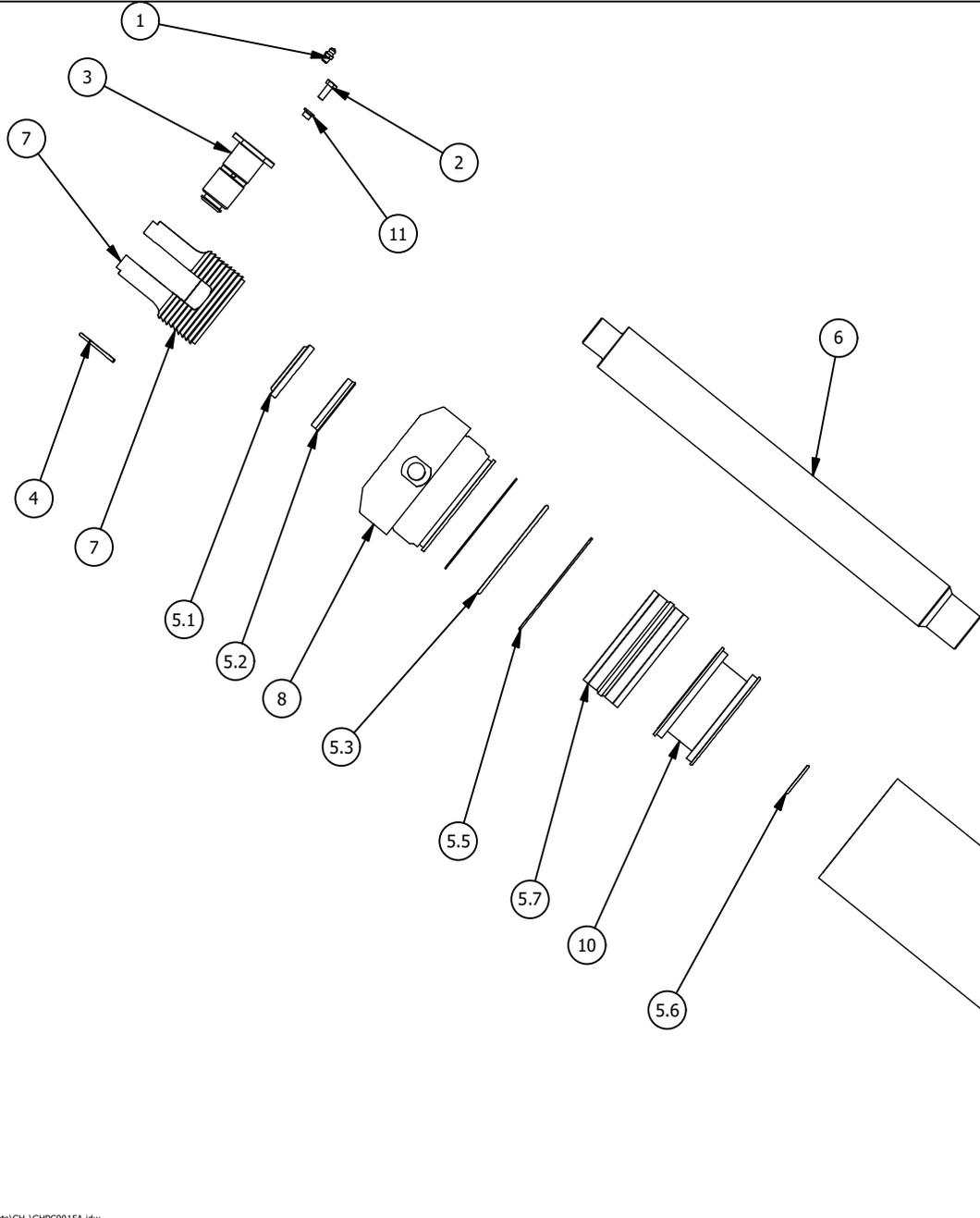
ITEM	QTY	PART NO.	DESCRIPTION
1	2	BMAAA000	GREASE NIPPLE 1/4" UNF
2	2	FABDA016	SET SCREW 6 X 15
3	2	FGHPA072	PIN 1 1/4" ANTI ROT. GREASABLE
4	2	FKBDA000	RAM PIN CLIP
5	1	HKPB0004	PTE S/KIT SLH 5.0" X 2.0" ROD
5.1	1	HKAS/605-4380100	ROD SEAL "605" 2.0" X 2.375" X .375"
5.2	1	HKBS 81-6594330	PISTON SEAL 4.0" HALLITE "81"
5.3	1	HKBS ORING248-70	O RING BS 248 70 DURO - 5"
5.4	1	HKBS/ORINGBU248	BACK UP FOR O RING BS 24 - 5"
5.5	1	HKB ORING049-70	O RING BS 049 70 DURO - 5"
5.6	1	HKAS/ORING030-90	O RING BS 030 90 DURO - 2"
5.7	1	HKAS 520-8881510	ROD WIPER "520" 2.0"X2.5"X.25
6	1	HLFEL200	PTE ROD 2" X 18"
7	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
8	1	HNAP50X20	CAP NUT 5" - 2"ROD
9	1	HNBP50X18	BARREL 5" X 18"
10	1	HNPP500N	5" PISTON
11	2	MDAEA006	HEADED BUSH



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HYD. CYL. 4.5 X 12 DS 2" SHAFT

HZP450-12D2

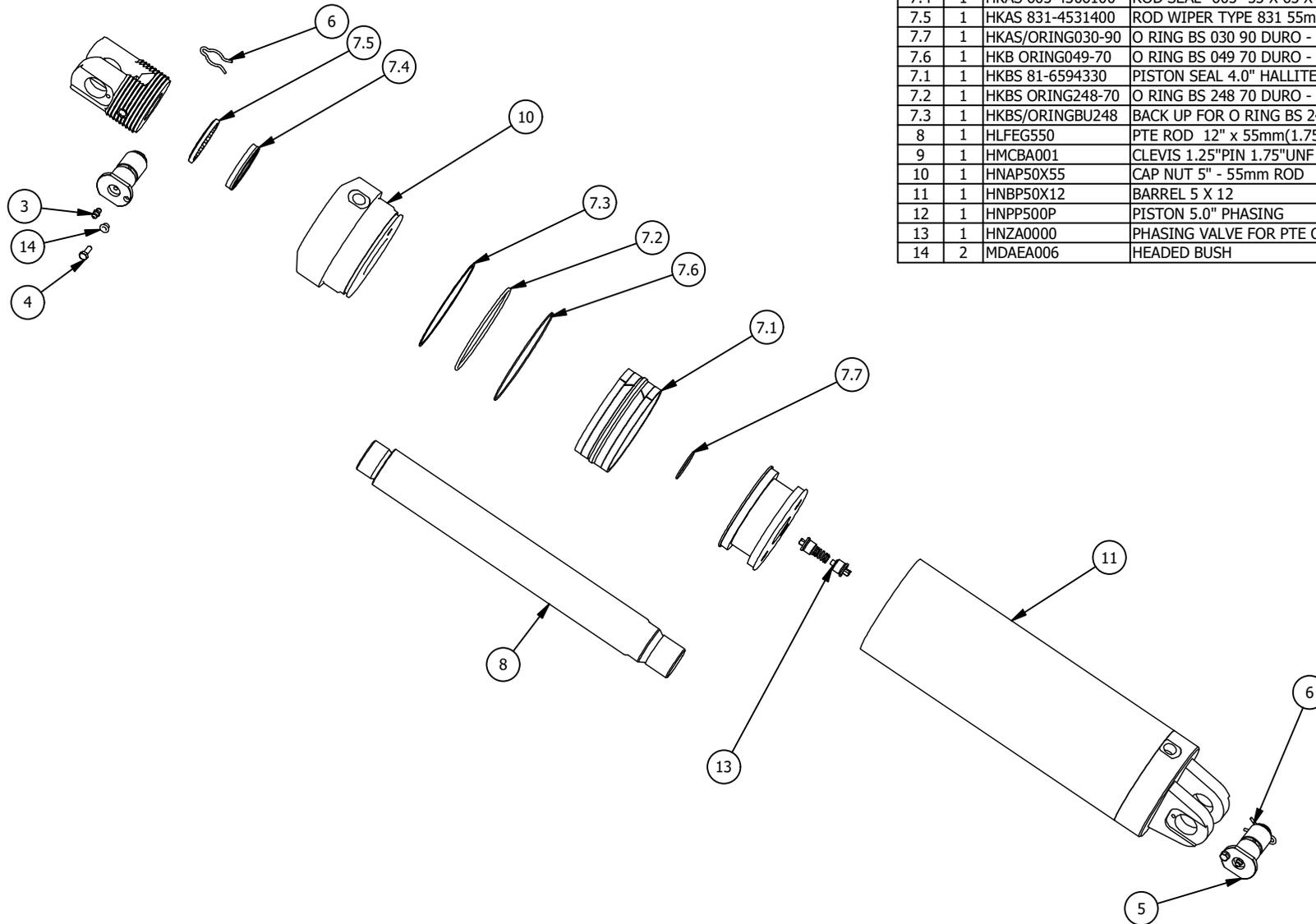


ITEM	QTY	PART NO.	DESCRIPTION
1	2	BMAAA006	STRAIGHT GREASE NIPPLE 6mm
2	2	FABDA016	SET SCREW 6 X 15
3	2	FGHPA072	PIN 1 1/4" ANTI ROT. GREASABLE
4	2	FKBDA000	RAM PIN CLIP
5	1	HKMB0001	PTE S/KIT SHP 4.5" X 2.0" ROD
5.1	1	HKAS 520-8881510	ROD WIPER "520" 2.0"X2.5"X.25
5.2	1	HKAS 513-8835910	ROD SEAL "513"2.0"X2.375"X.375
5.3	1	HKBS ORING244-70	O RING BS 244 70 DURO
5.4	1	HKBS ORINGBU244	BACK UP FOR O RING BS 244 -4.5"
5.5	1	HKBS ORING047-70	O RING BS 047 70 DURO
5.6	1	HKBS ORING124-90	O RING BS 124 90 DURO
5.7	1	HKBS 53-6594230-a	P.T.E. S/KIT 4.5" X 2.0" ROD
6	1	HLFEG200	PTE ROD 12" x 2" (1.25" UNF)
7	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
8	1	HNAP45X20	CAP NUT 4.5" - 2"ROD
9	1	HNBP45X12	HYD. CYL. 4.5 X 12 DS 2" SHAFT
10	1	HNPP450P	PISTON 4.5" PHASING
11	2	MDAEA006	HEADED BUSH
12	1	HNZA0000	PHASING VALVE FOR PTE CYINDER

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HYD. CYLINDER 5 X 12 DS 55 ROD

HZP500-12D55



ITEM	QTY	PART NO.	DESCRIPTION
3	2	BMAAA006	STRAIGHT GREASE NIPPLE 6mm
4	2	FABDA016	SET SCREW 6 X 15
5	2	FGHPA072	PIN 1 1/4" ANTI ROT. GREASABLE
6	2	FKBDA000	RAM PIN CLIP
7	1	HKPB0002	PTE S/KIT SHP 5.0" X 55mm ROD
7.4	1	HKAS 605-4306100	ROD SEAL "605" 55 X 65 X 10
7.5	1	HKAS 831-4531400	ROD WIPER TYPE 831 55mm ROD 65
7.7	1	HKAS/ORING030-90	O RING BS 030 90 DURO - 2"
7.6	1	HKB ORING049-70	O RING BS 049 70 DURO - 5"
7.1	1	HKBS 81-6594330	PISTON SEAL 4.0" HALLITE "81"
7.2	1	HKBS ORING248-70	O RING BS 248 70 DURO - 5"
7.3	1	HKBS/ORINGBU248	BACK UP FOR O RING BS 24 - 5"
8	1	HLFEG550	PTE ROD 12" x 55mm(1.75" UNF)
9	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
10	1	HNAP50X55	CAP NUT 5" - 55mm ROD
11	1	HNBP50X12	BARREL 5 X 12
12	1	HNPP500P	PISTON 5.0" PHASING
13	1	HNZA0000	PHASING VALVE FOR PTE CYINDER
14	2	MDAEA006	HEADED BUSH

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LIGHT BRACKET - OVERSIZE-SIGN

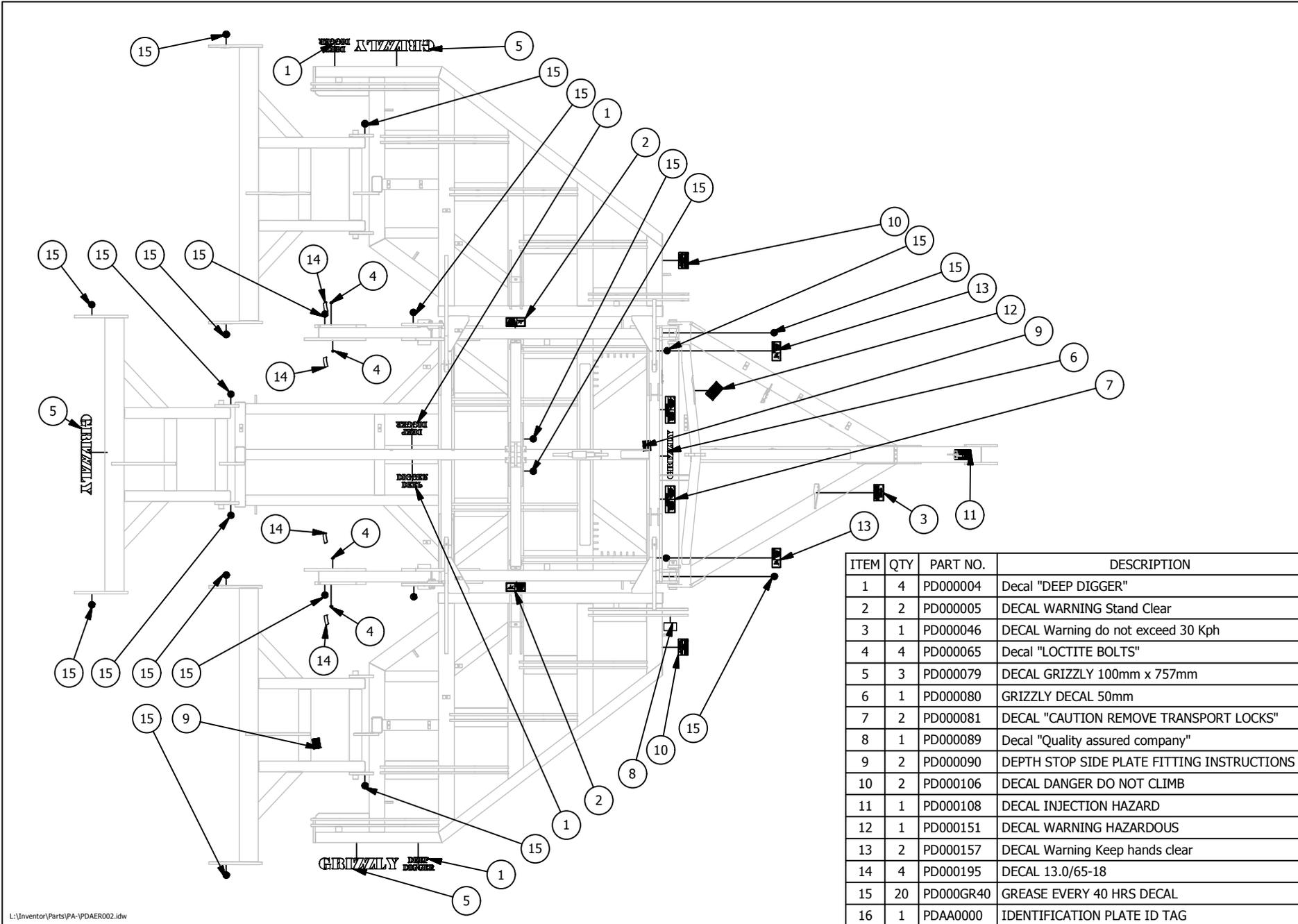
ITEM	QTY	PART NO.	DESCRIPTION
1	1	CDCEF00B	8mm BACKING CLAMP PLATE
2	1	EHFABR10M	10M EXTENSION - TAIL LIGHTS
3	1	EHFABR207	LED LAMP HARNESS KIT 6X4
4	3	FABJA200	BOLT M20 X 200pc 8.8 zinc
5	14	FEABB000	ALUMINIUM BLIND RIVET AS6-8
6	3	FFBJA000	NYLOC NUT M20 P TYPE 2.5
7	6	FMCJG000	M20 WASHER 3/4" F436 HARD
8	1	GDZG0017A	LIGHT BRKT.- OVERSIZE-
9	1	PDAA0001	OVERSIZE SIGN



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DECAL KIT RIPPER 15 TYNE

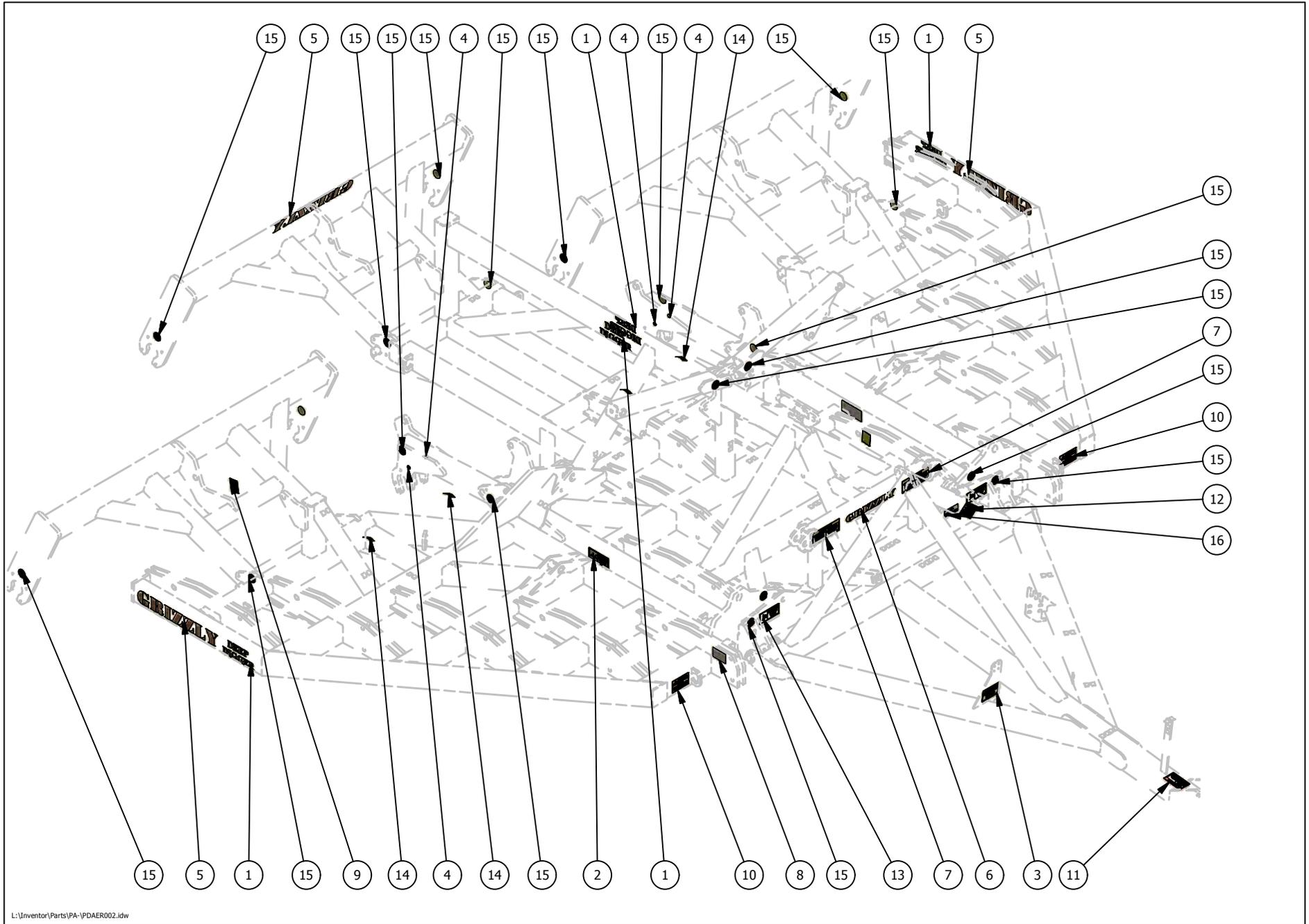
PDAER002



ITEM	QTY	PART NO.	DESCRIPTION
1	4	PD000004	Decal "DEEP DIGGER"
2	2	PD000005	DECAL WARNING Stand Clear
3	1	PD000046	DECAL Warning do not exceed 30 Kph
4	4	PD000065	Decal "LOCTITE BOLTS"
5	3	PD000079	DECAL GRIZZLY 100mm x 757mm
6	1	PD000080	GRIZZLY DECAL 50mm
7	2	PD000081	DECAL "CAUTION REMOVE TRANSPORT LOCKS"
8	1	PD000089	Decal "Quality assured company"
9	2	PD000090	DEPTH STOP SIDE PLATE FITTING INSTRUCTIONS
10	2	PD000106	DECAL DANGER DO NOT CLIMB
11	1	PD000108	DECAL INJECTION HAZARD
12	1	PD000151	DECAL WARNING HAZARDOUS
13	2	PD000157	DECAL Warning Keep hands clear
14	4	PD000195	DECAL 13.0/65-18
15	20	PD000GR40	GREASE EVERY 40 HRS DECAL
16	1	PDA00000	IDENTIFICATION PLATE ID TAG

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DECAL KIT RIPPER 15 TYNE



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15 MAINTENANCE RECORD CHART

	DATE	PART NUMBER	NOTE
1			
2			
3			
4			
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6			
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16 Problem Solving

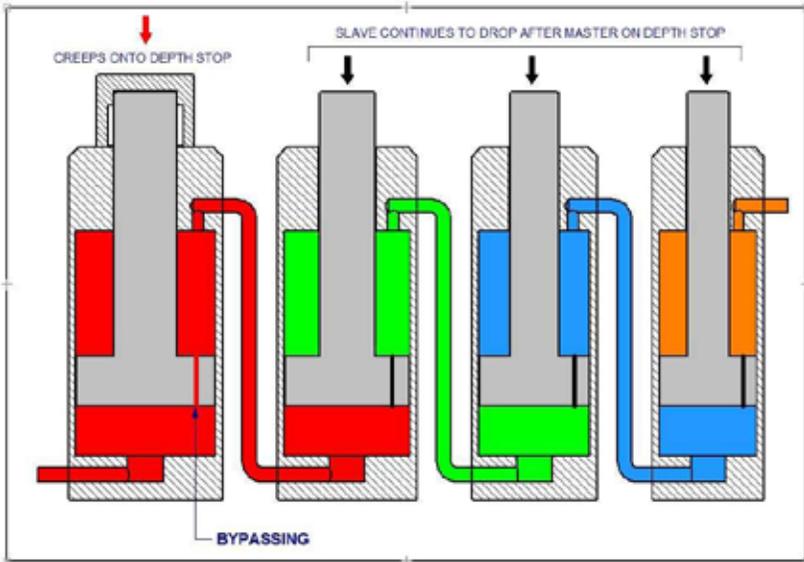
PROBLEM	CAUSE	REMEDY
Machine ripping deeper on one side	Trailed machine wheel rams not rephased	Bleed system for at least 1 to 3 minutes to ensure all air is expelled
	Linkage machine bottom link arms incorrectly adjusted	Ensure these are level during operation
	Uneven tyre pressure	Inflate to correct pressure
Loss of penetration	Some soil types may produce bottom wear, thick hard pan, or varying depth causing variations in performance.	Reverse points, and ensure that machine is level at working depth
	Conditions too hard	It may be necessary to wait until conditions are more suitable
Damage to Deep Digger at tines at point	Machine pitch angle incorrectly set, (nose down) over loading points.	Ensure machine is level in working situation especially in root bound pasture conditions
	Machine being used to lever rocks and stumps	Stop! The machine is not designed for this operation. Damage caused as a result will not be covered by warranty
Rapid point wear	Excessive speed	Wait until conditions are more suitable. Slow down!
	Abrasive soil type	Keep spare points on hand
		Install hard faced points
Machine 'bounces' in operation	Tyre pressure too low	Inflate to correct pressure (see assembly instructions)



PHASING PROBLEMS

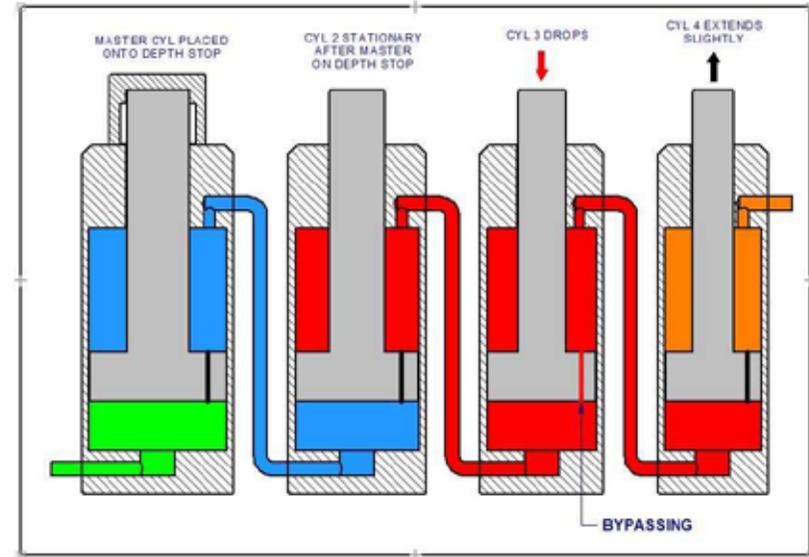
Creeping	
Air in the hydraulic system	
	A. Hose vibrating/squealing
	B. Control valve shuddering
	C. Lag in cylinder movement
	D. Creeping when load is applied
By-passing of the piston	
	A. Both cylinder move together until Master is on depth stop then Slave stops
	Check valve or Tractor valve leaking
	B. Both cylinders creep, Master cylinder stops when it hits the depth stop but the slave continues
	Master cylinder piston by-passing (1)
	C. Master cylinder retracts but the slave extends slightly
	Master cylinder piston by-passing (2)
	D. Master cylinder stationary but not on depth stop, Slave creeps in
	Slave cylinder piston by-passing
Cylinder moving at different rates	
	Cylinders connected the wrong way around
	They should be connected in series so that the rod end of the larger cylinder is connected to the base of the smaller cylinder

Bleeding	
	1. Ensure oil is clean and couplings are clean
	2. If depth stops are fitted to the cylinders they should be adjusted so that the cylinder can be fully retracted before commencing the bleeding operation
	3. Ensure oil level is topped up. Low oil levels and/or foaming oil is a common cause of unsuccessful bleeding
	4. CAUTION! During bleeding operation the master cylinder will fully extend before the next cylinder extends (otherwise injury may occur)
	5. If equipment is likely to be damaged due to this motion then the ends of the cylinders must be disconnected and positioned so that the rods can move in and out freely
	6. Purge all the air from the system by fully stroking the rams in both directions. Allow the oil to flow through the cylinders for about 2 minutes at each end of the stroke
	7. In most cases the tractor should be run at idle only
	8. Cylinder bleed better in extension with the rod ends up
	9. Cylinder bleed better in retraction with the rod ends down
	10. Horizontal cylinders bleed better if the valve is at the top
	11. The system can be considered to be correctly bled when all the cylinders move together without any lag between them and there is no creep when load is applied to the cylinders
	12. Other signs of air in the system can be hoses vibrating / squealing or the control handle shuddering
	13. Minute air bubbles dissolved in the oil will not be totally eliminated until the oil is allowed to stand for 12 hours approx., then ultimate phasing performance will result
Re-phasing	
	<ul style="list-style-type: none"> • After initial bleeding the cylinders will only require occasional re-phasing during operation. This is done by fully extending the rams until all cylinders have reached the end of their stroke. • There is a difference between bleeding and re-phasing. Bleeding is removing air from the circuit, re-phasing is synchronising the cylinders. Stop the re-phasing operation as soon as the cylinders have reached the end of the stroke. • Holding the cylinders at the end of the stroke and allowing oil to flow for no reason will cause premature wear of the phasing valves. • Cylinders should not require re-bleeding unless air has entered the system due to low oil level, or removing hoses/cylinders etc.
Fault Finding	
	If the system is free from air and the cylinders still creep, raise the machine and mark each rod with a "Nikko" pen a known distance (say 10mm) from the wiper or face of gland. Measure the movement of each cylinder rod to determine which cylinder is moving the most (Do not rely on the movement of the machine as this can give a false indication).



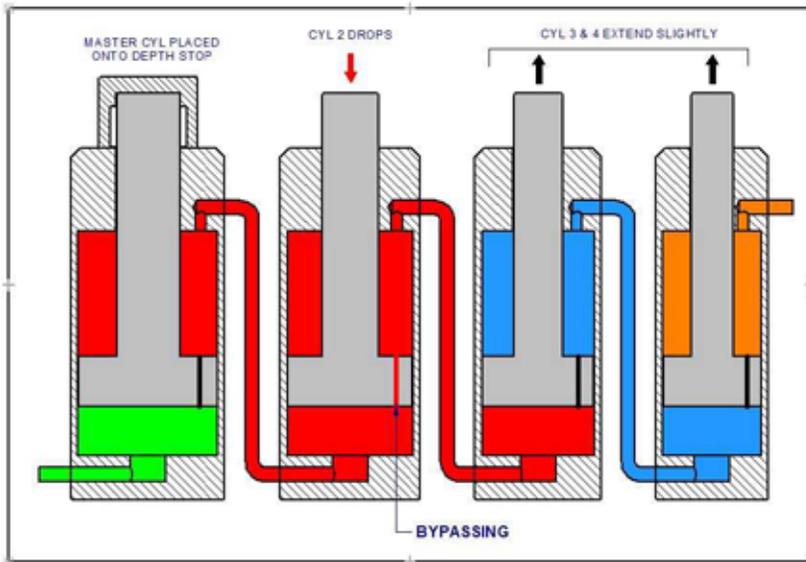
Master cylinder bypass

When all cylinders creep and the Master cylinder hits the depth stop but the Slave continues to creep.



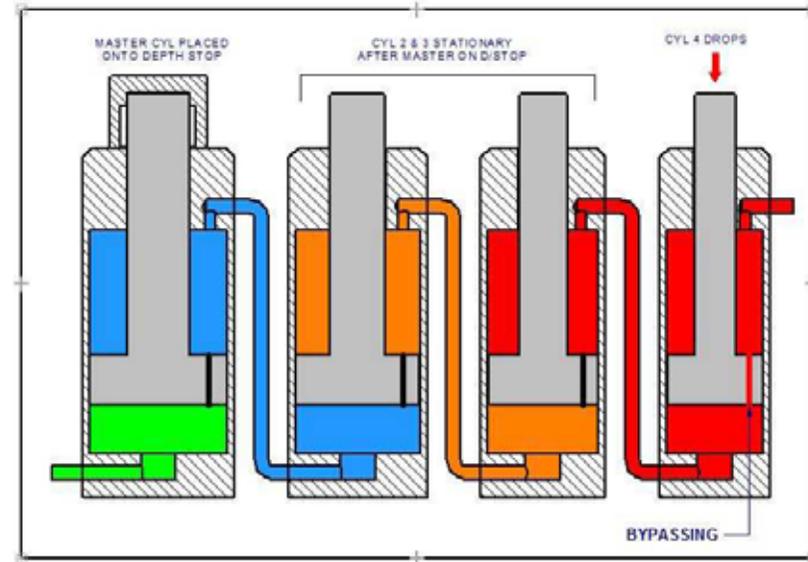
Third cylinder bypass

When the Master cylinder lowers onto depth stop and the Second cylinder also stops but cylinder 3 creep down while cylinder 4 creep outward slightly.



Second cylinder bypass

When the Master cylinder lowers onto depth stop and the Second cylinder continues to creep but the cylinder 3 & 4 creep outward slightly.



Fourth cylinder bypass

When the Master cylinder lowers onto depth stop and the Second and Third cylinders also stop but cylinder 4 creep down.

Grizzly can make your work easier!



BANKER / CHANNELLER

The **Banker/Channeller** is designed specifically for water-tight bank and channel formation.

Applications include irrigation channels, flood irrigation, embankments, tree plantation rows, elevated seed bed preparation, salt reduction programs, contour farming, erosion control, levee banks and ect. **Banker/Channeller's** linkage is compatible with quick hitch systems.



WHEEL TRACK RENOVATOR

Grizzly's very successful **Wheel Track Renovator** is designed to fill wheel depressions and gutters left from Controlled Traffic Farming, Self Propelled Sprayers and situations where wheel tracks are an issue.

The machine can be set up for 2m or 3m centres (or adjusted to be anywhere in between thanks to the Grizzly Tension Clamp System) and is capable of filling gutters 350mm (14") deep in one pass.

No hassles!!!

The machine is available in 10 up to 14 discs, with a wide or narrow frame.



BANKER / HILLER

Built to form small water tight contour banks on lower horsepower tractors. Help prevent erosion from water run off.

Ideal for forming small banks for tree planting in orchards and tree plantations.

The machine is available with 3 discs per side and is width adjustable.



GRADER BLADE

The **Grader Blade** is perfect for many varied applications from professional road maintenance crews to maintaining farm roads and tracks. The Grader Blade is an extremely robust blade with the most features on the market.

It can be optioned up so there is 4 way hydraulic movement. If hydraulic banks are in short supply on the tractor you can get optional Electronic over hydraulic diverter which allows you to operate all 4 sets of hydraulics from just 2 sets in the tractor cab.

Available in 1.8, 2.4 & 3 mtr models.

DEEP DIGGER

The **Deep Digger** breaks up hardpan and compacted soils. By opening the subsoil, compacted ground can be rejuvenated, allowing better drainage, root growth and mineral osmosis.

The **Deep Digger** is available in both linkage and trailing designs. Heavy Duty tines are set in a characteristic “V” formation for quick and easy penetration and draft reduction.

All tines can be removed to a non-working position if wide tine spacing or a narrower width is desirable.

The machine is available in sizes 1 up to 15 tines.



GM44 LITTLE JACK RIPPER

The **Little Jack** machine is a medium duty machine with an easy to change shear pin breakout system. **Little Jack** is most at home doing general ripping and pasture renovation, and with its optional coulters it can leave a pasture paddock looking like its barely been touched.

Little Jack offers a heavy duty head stock and uses the same heavy duty tines as the bigger Jack Machine. These standar features ensure that this medium duty machine has maximum strenth and durability for it's size.



GM77 JACK RIPPER

The minimum tillage point on both **Jack** and Little Jack Rippers are replaceable as are the shin guards and can have the optional hard facing done at the factory. Standard minimum underframe clearance of 700mm means a superior trash flow and a greater maximum depth.

Grizzly's unique Tension Clamp System is the secret to its superior strength in tough going conditions.

BEDFORMER

The Grizzly **Bed Former** is designed to be able to form beds on varying bed widths in both irrigation and dryland farming situations when drainage in high rainfall areas is critical.

The machine can be used in cultivated or uncultivated soil depending on conditions and performance of the machine. In some conditions the area to be formed into beds will need to be cultivated to ensure beds are formed in the best manner.

If you are working where rocks or underground obstacles may be present then a hydraulic breakout machine should be used and care should be taken when using the machine.



VINI - DISC

Highly versatile medium linkage tandem offsets suitable for vineyard, orchard and small farm cultivation.

Renowned for ground breaking technology in large scale cultivation equipment, Grizzly brings the same engineering expertise to our medium duty linkage systems. Ideal for small acreage, where maneuverability is of prime importance.

Typical applications include viticulture, orchards, small farms, market gardens, and other specialized circumstances.

The machine is available in 12 and up to 20 discs.



GRUMPY

Medium duty tandem offset for general farm use on small to medium sized farms. Narrow transport width (9' 6") allowing machine to pass through any gate and transport on public roads.

With extra strong frame and all features of Grizzly's heavier models, the **Grumpy** is effective for pasture renovation, seed bed preparation and general tillage applications.

The machine is available in sizes 28 up to 40 discs.

LINKAGE-HEAVY

The **Linkage Heavy** offset features a heavy frame construction. This model particularly suits conditions requiring extra strength and penetration such as fire break maintenance and deep working in hard soil types.

The machine is available in 16 up to 40 discs.



Specifications are subject to change without prior notification



THE OFFSET

The **Offset** is Grizzly's only 2-gang disc plough. Available in a medium duty machine, the **Offset** range features proven Grizzly features as well as the option of hydraulically adjustable gangs.

The **Offset** comes with standard hydraulic pitch control that has the ability to control depth on the front and rear gangs. Adjustments can be made on the move and has the added benefit of helping to keep the machine tracking straight. By putting more or less force on the rear gangs, the pitch control keeps you on track.

The machine is available in sizes 24 up to 36 discs.



HEAVY

The original Grizzly **Heavy** duty disc that is still a favourite of many farmers and contractors. Its simple, heavy, robust design and its ability to take a 32" disc, makes it a very attractive choice for farmers wanting strength, weight and of course a great job out the back of the machine.

SANDGROPER

Light to medium duty, broad acre machine. Ideally suited to sandy soil conditions. Uses proven, reliable features of the heavy duty Grizzly range.

The **Sandgroper** is the accurate and versatile solution for incorporating stubble, green-manure or killing weeds.

Advantages include depth consistency, lower horsepower requirements, significant fuel savings and minimized stress on components, resulting in less wear and reduced maintenance costs.

The machine is available in sizes 72 (8.7 metres) up to 108 (11.9 metres) discs.



FIELD BOSS FIXED FRAME

The **Field Boss** features heavy construction for long lasting strength and excellent penetration in tight and heavy soils. By eliminating power-draining side draft, the **Field Boss** requires less horsepower, making it less punishing on tractors and very cost effective to operate.

The **Field Boss** is equipped with a great range of setting options and Grizzly patented features making it a flexible, accurate and easy to operate with an ideal finish every time.

The machine is available in sizes 24 up to 48 discs.





FIELD BOSS FOLDING WING

The **Field Boss** features heavy construction for long lasting strength and excellent penetration in tight and heavy soils.

By eliminating power-draining side draft, The **Field Boss** requires less horsepower, making it less punishing on tractors and very cost effective to operate.

The **Field Boss** is particularly effective for uneven and undulating ground due to the independent flotation of the centre frame and wings.

The machine is available in sizes 56 (6.2 metres) up to 108 (12 metres) discs.

FIELD MASTER

The new **Field Master** is the latest award winning machine from Grizzly. With its 2.5mtr transport width that allows transport through narrow gates and roads and its hydraulic gang shift which gives smooth, reliable and easy transport to working position.

Grizzly have maintained the use of its legendary tried, tested and proven running gear. However adding the hydraulic gang shift makes this the perfect machine for farmers on the move or contractor's that require a fast transition from transport to working position and back again in seconds without having to get out of the tractor.

The Grizzly **Field Master** is the answer to all those cultivation problems you have.



EAST / WEST COASTER

The **East Coaster's** fully floating gang design, engineered to automatically conform to the natural contour of the ground. Gangs may be liquid filled for extra penetration. Operating adjustments are effortless requiring no tools or personal strain.

Quick, easy opening and closing between transport and working modes is hydraulically performed with minimal operator input.

The **East Coaster** is packed with advanced features and is available in sizes 108 (12 metres) up to 136 (15.1 metres) discs, with disc sizes available from 26" to 28".

TINY RANGE

The **TINY 230** is the starting point in the **TINY** range of Heavy Duty Disc ploughs. The heavy frame construction is ideal for Heavy Duty work such as cotton, land clearing and getting into hard to penetrate soils. The **TINY 230** has 230mm disc spacings and up to 32" x 10mm scalloped discs and uses the proven bearing design found in the Field Boss and other Heavy Duty Grizzly ploughs. The narrow spacings also make it ideal at cutting out at shallower depths and with plenty of flotation available with optional tyres it can perform primary and secondary tillage needs.

The **TINY 290** takes things to the next level in weight and robust design. Made using a full frame and gangs of 16mm thick RHS. The 290mm spacings and either 32" x 10mm discs or optional 36" x 1/2 " discs allow for deep penetration and



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handling the toughest country. Often used for cutting out tree regrowth or controlling tough woody regrowth and renovating buffel grass country. The **TINY** is also used for mixing of lime and clay deep into acidic or non-wetting soils with great success.

The **TINY 390** is the ultimate in heavy machines – offering up to a massive 400kg of weight per disc with its 390mm disc spacings and 36" x 1/2" discs. Ideal for heavy duty mixing jobs at maximum depths or for breaking into hard soil conditions.

The **TINY 460** is fitted with 42" discs and is designed for use where deep working is required. Deep mixing of all soil types 300mm and deeper as well as getting a cut out of tree roots. This machine it truly impressive to see and owners of these machines are truly impressed with its performance. Break open country in a way you thought couldn't be done.

All the **TINY** range folds down to an amazing 3.5m road transport.



Specifications are subject to change without prior notification