Grizzly Field Boss Folding 100-108 PART NO. XCDMZM60

ISSUE# 5 FROM SERIAL NO. 6720
Including 6586, 6666, 6703, 6714, 6717

FIELD BOSS FOLDING 100-108

XCDMZM60

Contents

Specifications are subject to change without prior notification

From serial number 6714

Including 6586, 6666, 6703

Foreword

Publishers:

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

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Congratulations on your purchase of a Grizzly Field Boss Folding Wing, proudly designed and manufactured in Australia to the highest level of quality and performance.
Your Grizzly disc plough 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.

PATENT PROTECTED

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, warranty guidelines and assembly drawing and parts for the Field Boss 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 plough’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 Plough, 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 Field Boss Folding’s model number and serial number in the space below:

Model No: .....

Serial No: .....

3 The Right Machine

The Field Boss is a tandem offset disc plough designed for both primary and secondary tillage operations. Its ability to be adjusted and used for both primary and secondary cultivation adds versatility, and extends the overall application of this machine.

Grizzly tandem offset disc ploughs can be adjusted to leave a level finish, and can handle large amounts of trash. The Field Boss can be used to incorporate stubbles, weeds, regrowth and chemicals into soils. The benefits of stubble retention and incorporation for good soil management are well known. As a general rule, the earlier the discing operation is performed after harvest and/or rain, the better the result of stubble incorporation with more complete bacterial breakdown at the time of sowing.

The ability to incorporate a wide variety of stubble and weed types in one pass means a saving of time and money. The Grizzly tandem offset disc plough is a minimum tillage machine which will be of most value to your farm program when used with due consideration to soil condition, soil types and the task to be performed. When working lighter soils, attention should be paid to the timing of workings, amount of trash cover and future program for the soil in question. Long fallows in light soils should be avoided.

We trust that your Grizzly Field Boss will play an important part in your farming program for many years to come.

From serial number 6714

Including 6586, 6666, 6703

4 Pre-Delivery Checklist

		Comments
Specifications and Options	Check pull tongue, discs, etc, 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.	
Scrapers	Check scraper adjustment. See section 10 for instructions.	
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 to 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.	
Tighten Hydraulic Fittings	Tighten all Hydraulic Fittings.	

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 war ranted 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.

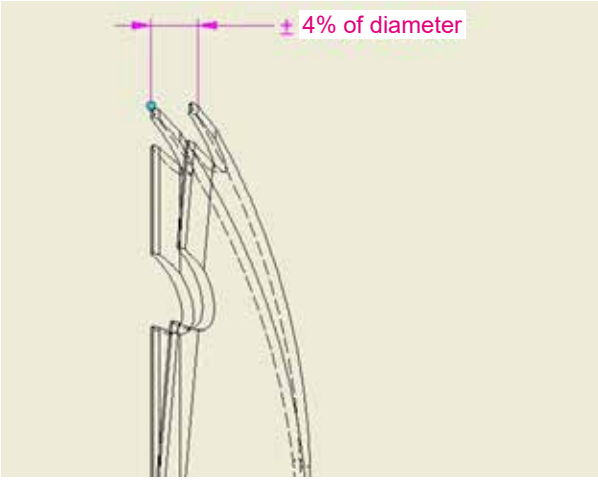
Disc Warranty Guidelines

Types of Disc Failure Most Often Encountered

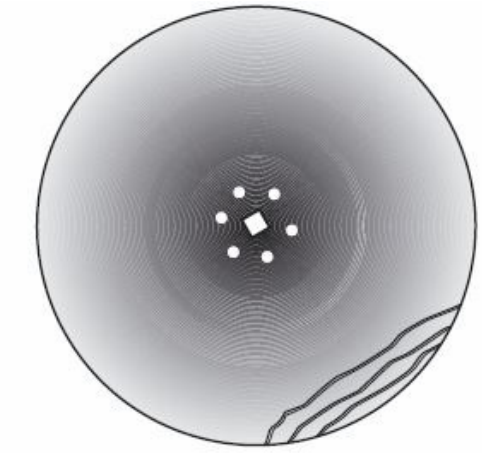
The first two illustrations (1 & 2) show typical material failures where a credit may be allowable.
The illustrations (3 a, b, c & 4) show examples of disc damage through misuse - where credits will not be allowed.

Covered by Warranty

1 Straight Line Breaks
A straight line break resulting from defective material.



Disc runout tolerance
±4% of the disc diameter.
For example: 4%=0.04x710mm(28”) = 28.4mm



Covered by Warranty

2 Laminated or Split Discs
Laminating of material resulting in splits or layering of the discs is the result of defective material from the steel mill. This steel defect is often beyond the disc manufacturer’s control because it is not possible to identifiy the problem before the failure occurs.

IMPORTANT!

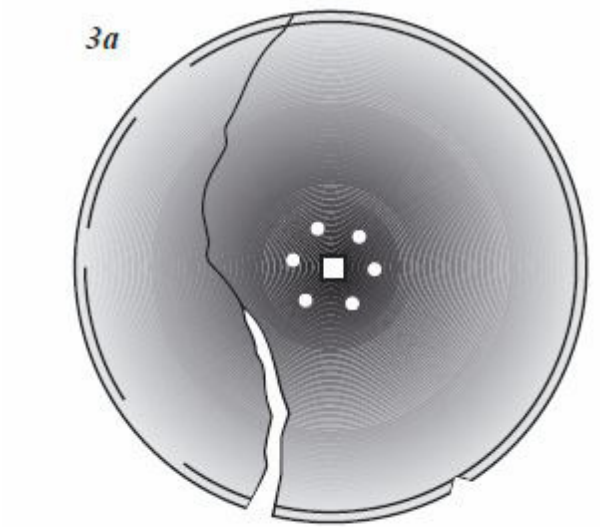
All warranty claims must be submitted in accordance with the Grizzly Warranty Policy. Credit for disc failure will be given only when the failure is the result of sub-standard or faulty materials. In many cases disc failure is the result of misuse and credit will not be given.

IMPORTANT!

Discs worn 4% below the original diameter will not be eligible for warranty claims.
Any instance where discs have been reworked, welded or reprocessed in any way since leaving the factory, will void all warranty.

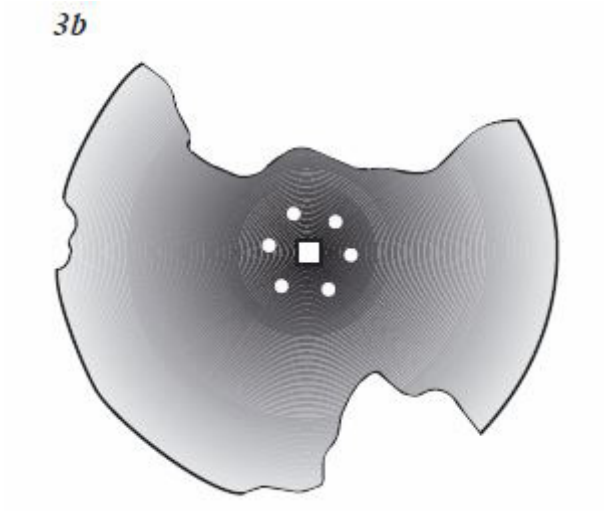
From serial number 6714
Including 6586, 6666, 6703

Disc Warranty Guidelines

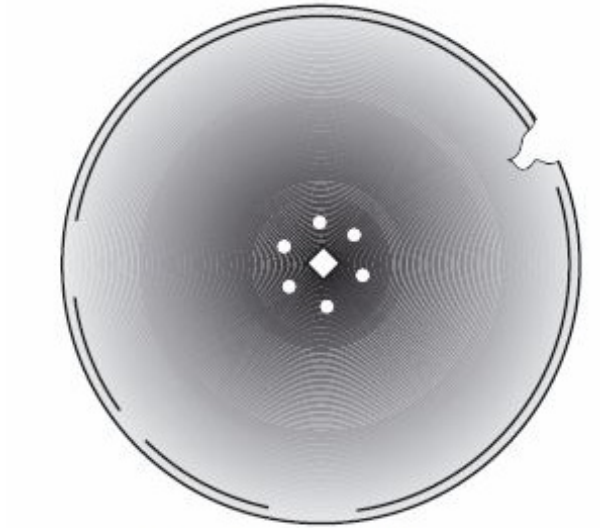


Not Covered by Warranty

3 Irregular Breaks or Fractures
Irregular breaks or fractures (where the cracks are not in a straight line) resulting from use in abnormal conditions such as excessive or large stones, tree stumps, frozen ground, etc.

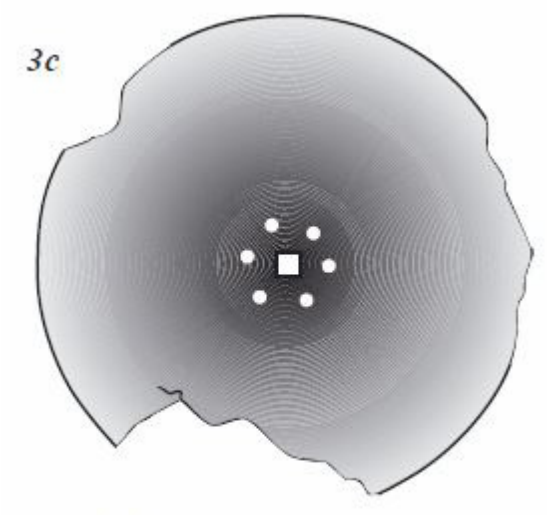


Not Covered by Warranty



Not Covered by Warranty

4 Chipped, Bent or Broken Edges
Chipped, bent or broken edges resulting from use in abnormal ground conditions.



Not Covered by Warranty

Not Covered by Warranty

IMPORTANT!

If the dish shape is deformed, credit will not be allowed.

8 Specifications

FIELD BOSS
Folding Wing (72-108 plate)

MODEL	FW072	FW076	FW080	FW084	FW092	FW100	FW108
Draught kW Requirements (hp)	156-186 (210-250)	164+ (220+)	170+ (230+)	178+ (240+)	186+ (250+)	240+ (300+)	242+ (325+)
Hectares per hour@ 8 kph	6.4	6.4	7.1	7.45	8.2	8.9	9.6
Disc Spacing	230mm (9")						
Total Weight kg approx	8700	9000	9350	9700	10100	11400	11880
Weight per disc kg	120	118	117	115	110	114	110
Weight with fillable wing beams kg	9000	9300	9750	10000	10400	11800	12200
Weight per disc (kg)	125	122	122	119	113	118	113
Cutting Width @21 Degrees	8.2m (26'7")	8.55m (28)	9.1m (29'6")	9.5m (31')	10.4m (34')	11.3m (37')	12.2m (40')
Transport Width	5.46m (17'11")	5.46m (17'11")	5.46 m (17'11")	5.46 m (17'11")	5.46m (17'11")	6.26m (20'6")	6.26m (20'6")
Transport Height	3.8m (12'8")	4m (13'4")	4.3m (14'1")	4.5m (14'9")	5m (16'5")	5m (16'5")	5.4m (17'9")
No. of Bearings	32	40					48
Tyres Size	8 x (13.0/65 – 18) 16PR - ***See Options***						
Stub Axle Size	75mm						
Main Frame Size	200 x 100 x 9.00mm RHS - ***See Options***						
Scrapers	Grizzly Floppy 'T' Bar Scrapers - Pat No. 602879, Reg. Design No 95931						
Gang Bearings	38mm x 100mm Self Aligning Greasable *2 year warranty*						
Gang Angles	19/21/23 degrees						
Gang Axles & Bolts	38mm (1 ½") Square / 6 x 20mm tie bolts						
Gang Frame Size	250mm x 150mm x 6.0mm RHS						
Spool Size	220mm Heavy Wall Pipe						
Pull Assembly	SHS 150mm x 150mm x 9mm Reinforced / Pull Tongue Fixed CAT 4 - ***See Options***						
Hydraulics - Lift	(5"x12", 4¾"x12", 4½"x12, 4¼"x12")				(5 ½ "x12", 5"x12", 4½"x12", 4¼"x12")		
Hydraulics - Wings	2 x (4" x 48")				2 x (5" x 48")		
Pitch Control	3"x 8" hydraulic pitch control with Dual Spring Assembly						
Disc Size	660mm x 6mm (26" x ¼") Scalloped Discs – ***See Options***						
Filler Disc Size	Two 4 notch 550mm x 6mm Filler Discs – ***See Options***						

FIELD BOSS FOLDING WING
OPTIONAL SPECIFICATIONS (72-108 plate)

OPTION	DESCRIPTON		
"Road" Tyre Options *For machines doing frequent road travel*	Upgrade to 8 x (305/70R 19.5)		
Discs **NOTE:** *Recommended disc configuration is 8mm on front with 6mm on rear, this allows for a more even wearing of the discs.* ***Fluted discs and larger scalloped discs can experience delays in supply. Always confirm availability before placing the order***	Scalloped 660mm x 8mm (26" x 5/16") *Adds extra 5kgs per disc*		
	Scalloped 710mm x 6mm (28" x ¼") *Adds extra 3kgs per disc*		
	Scalloped 710mm x 8mm (28" x 5/16") *Adds extra 8kgs per disc*		
	Fluted 710mm x 6mm (28" x ¼") *Adds extra 4kgs per disc*		
	Fluted 710mm x 8mm (28" x 5/16") *Adds extra 10kgs per disc*		
Pull Tongues ***NOTE:*** *CAT Sizes explained on Page 21*	**Fixed Pull –** CAT 2, 3, 5		
	Articulated Pull- CAT 2, 3, 4		
	Articulated CAT 5 Bisalloy tongue – *see page 21*		
Rear Lights Bracket with Oversize sign	Bracket includes indicator/brake lights and wiring to standard round 7 pin trailer plug, also includes Oversize sign fitted.		
Rear Tow Hitch	Heavy duty tow hitch. Bolts on to back of machine.		
Spare Wheel Bracket	Bolt on spare wheel bracket and wheel.		
Spring protected Bolt on Filler Discs (per pair)	Adjustable 20" Scalloped filler disc on outside of gang for fine tuning finish with spring protection **Additional to standard filler discs**		
Heavy Frame *new options	Upgrade Mainframe and Wing frame on **FW072 – FW092** to 200 x 100 x 12.5mm **Adds approx. 900kgs**		
	Upgrade Mainframe and Wing frame on **FW100 – FW108** to 200 x 100 x 12.5mm (FW100 and FW108 must also have the road tyre option) **Adds approx. 1100kgs**		
Gang Bearing Shields To protect bearings in rough conditions or deep working. *Inside bearings of front gangs not included due to folding style	**Suits 32 Bearings (FW072)** *PATENT PENDING*	**Suits 40 Bearings (FW076 to FW100)** *PATENT PENDING*	**Suits 48 Bearings (FW108)** *PATENT PENDING*

From serial number 6714

Including 6586, 6666, 6703

8 Specifications

Bolt Torque Chart

Integrated Management System

WI 09J TORQUE CHART

Work Instruction

pc 5.5 or Tapped Thread	Size	Nm	ft/lb
	M20	240	180
	M24	425	310
	M30	750	553
HYD	¾" JIC	53	39

pc 8.8 dry thread, zinc course	Size	Nm	ft/lb
	M5	4	3
	M6	8	6
	M8	18	14
	M10	37	27
	M12	65	48
	M16	160	118
	M20	312	230
	M24	538	397
	M30	750	553

pc 10.9 dry thread, zinc course	Size	Nm	ft/lb
	M5	7	5
	M6	11	8
	M8	27	20
	M10	53	39
	M12	92	68
	M16	227	167
	M20	444	327
	M24	750	553
	M30	1500	1106
Grade 8	1"	1220	900
L9 Nut	5/8"	278	205
L9 Nut	1 ½"	4950	3650

wheel nuts lubed	Size	Nm	ft/lb
	1/2"	125	92
	M18	475	350
	M20	570	420
	M22	610	450

gang bolts lubed	Size	Nm	ft/lb
	M16	122	91
	M20	270	200
		PC 10.9	
	M20 HT	420	310

Current Tyre Size	Model	Ply	Pressure	
			kpa	psi
11.5/80 - 15.3	56-64 FieldBoss	14	496	72
BKT 13.0/65 – 18	72-108 FieldBoss	16	670	97
305/70R 19.5	72-108 FieldBoss	N/A	690	100

9 Assembly Instructions

9:1 Loading / Unloading

9:2 Fitting Wing Gangs

9:3 Setting Pull Height

9:4 Setting Tongue Height

9:5 Tow Bar

9:1 Loading / Unloading

The Field Boss Folding Wing is delivered in a flat pack configuration. It requires a level floor area or ground site, the use of a crane, three adjustable stands, a tape measure and various spanners to assemble the machine.

1. Unpack the flat pack.
Using a crane, unstack the flat pack and place the components in a convenient place on the floor or ground. Use a plan view of the machine shown in the operator's manual under plough frame assemblies (see Parts Section) to familiarise yourself with location of machine sections. The plough comes with a tool kit which should be stored in the plough's tool box when not in use.

2. Assemble the main frame.
Align the two sections of the main frame (or centre frame) while on the ground and bolt them together. Fully tighten all the frame bolts.

3. Assemble disc gang assemblies to the main frame.

Follow the assembly instructions below:
a) Position the disc gang assemblies 1, 2 and 3 on the ground to assimilate their correct position under the main frame. See Section 13.
b) Use 75mm x 75mm (3" x 3") timber blocks on either side of the discs to chock the discs and stop the disc gangs moving or rolling away.

Sling Points

9 Assembly Instructions

c) Using adjustable stands with 1 tonne load bearing capacity, stand the disc gang beams up and position gangs as closely as possible to their position under the main frame.
To help position gangs accurately, a tape measure should be used to measure and locate the exact distance of hole positions between disc gangs. These can be quickly measured from the main frame. Fit all gangs to No 2 gang angle position.
d) Use the crane to lift and position the main frame over the top of disc gang assemblies 1, 2 and 3, and fit pivot bolts.
e) Align holes and bolt the disc gang assemblies to the main frame. Fully tighten gang to frame bolts.

4. Fit axles to the main frame wheel arms.
Fit axles to the main frame wheel arms and fully tighten axle bolts. See Section 13.

5. Fit wheels to the main frame axles.
Fit wheels to the main frame axles and fully tighten wheel studs.

6 Assemble the hitch pull onto the main frame.
a) Align the main pull frame and fit the two pins.
b) Fit the lock-up bar - using the pin attachment on the pull frame and two threaded bolts on the main frame. The two threaded bolts on the main frame must be fitted using Loctite (see instructions in the box).
c) Fit the two pins to hold the hitch pull in the lock-up position.

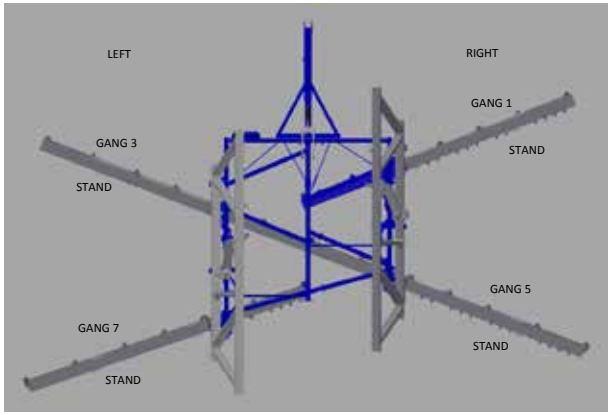
7 Fit the Hydraulic Pitch Control Assembly
Fit the Pitch Control Ram using the pin attachment on the pull frame, and the pitch control swivel assembly to the main frame using two threaded bolts. These two threaded bolts must be fitted using Loctite (see instructions in the box).

Important: The two threaded bolts used to attach the pitch control swivel assembly must be fitted using Loctite supplied in the kit.
There is a choice of two hole locations for the pitch control swivel assembly. Use the top hole location for most soil conditions.

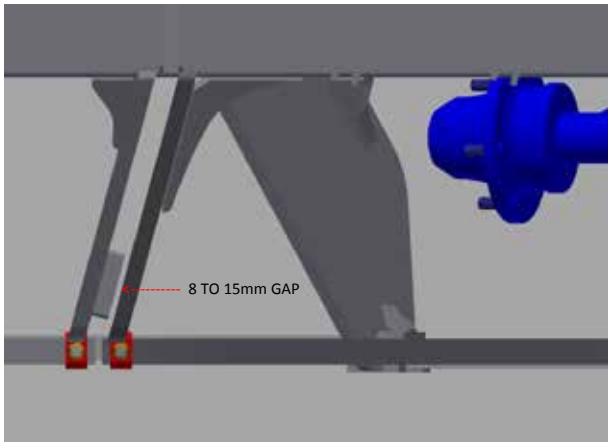
9 Assembly Instructions

9:2 Fitting Wing Gangs

With the machine on flat hard ground, sitting on the discs, fold the wing frames up and fit wing lock pins.
Check the setting of the centre frame gangs, these should be all on the same setting usually setting 2.
Place the 4 wing gangs in position as shown, use timber blocks to hold the gangs in alignment with centre frame gangs, and a stand (NJIG488) on the scraper side of each gang to hold the gangs up.
Place the wing gangs as close as possible to the centre frame gangs.



Position and locate the disc gang assemblies 1 & 5 for the right wing, and disc gang assemblies 3 & 7 for the left wing.



Lower the wings down onto the disc gang assemblies, align holes and bolt the disc gang frame's to the wing frame.

Before fully tightening the gang to frame bolts ensure that:
Wings are level with centre frame.
Wing disc gangs are fully in-line with main frame disc gangs, and are all on the same setting.
The gap between the block on the wing gangs and the centre gangs is no less than 8mm and no more than 15mm.
Disc spacing between the outer disc of centre frame gangs and inner disc of the wing gangs are the same on all 4 wings.
Tighten gang to frame bolts (380ft.lbs.).

For working flat level ground, or irrigation country, the wings should be as close as possible, 8 to 10mm.

For working undulating or crabhole country the gap between the centre frame and wings should be around 20mm.

9 Assembly Instructions

9:3 Pull Height

The Field Boss Folding Wing pull features hydraulic pitch control and level lift 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.
Too much tension will prohibit the ability of the disc gangs to float over undulations, and make it difficult to get a level finish.

When the plough is working at the required depth, the optimum position of the pull is level, or sloping slightly up towards the tractor.

IMPORTANT!

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

9:4 Pull Tongue Height

After adjusting the pull 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 plough and tractor for adjusting the pull tongue.
2. Lower the plough so that the discs 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.
4. Raise / lower the pull so that is is sloping slightly down towards the tractor.
5. Remove the pull tongue and replace at the height of the tractor draw bar tighten the bolts to 274 ft/lbs.
6. Reconnect the tractor.

Test at working depth the pull should be sloping slightly up towards the tractor.

Pull Tongue adjustment

IMPORTANT!

When ever a different tractor is used with the plough, it is absolutely essential to check the pull height is correctly adjusted. Failure to adjust the pull height correctly may adversely affect ploughing performance.

9 Assembly Instructions

9:5 Tow Bar

The Field Boss Folding Wing has a optional CAT 2 tow bar this is designed for towing harrows, trailer or fuel cart, or any light load. It may not be legal to tow impliments along public roads, check local road rules before using this hitch on roads.

Tow bar

IMPORTANT!

Always use a torque wrench on wheel nuts and gang bolts. Overtightening will damage threads.

From serial number 6714

Including 6586, 6666, 6703

10 Operating Instructions

WARNING!

Do not transport with a vehicle with a gross mass less than that of the plough. Check local road regulations.
Use beacons flags and signs as required.
Always ensure gangs are locked securely for 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 and fit the drawbar pin.
Check the hoses to ensure the hoses from the tractor to the machine can't 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

10 Operating Instructions

10:3 Preparing the Field Boss Folding Wing for Transport.

Folding Wings for Transport

To fold the wings for transport, follow these instructions:
1 Raise the plough off the ground with the lift circuit.
2 Fold the wings up until they rest in the wing cradles. Make sure every body is well clear of the machine when folding the wings up.
3 Lock both wings into their cradles with the pins provided.

Pin the Lock-Up Bar for Transport

The plough's lock-up bar (located under the pitch control) must be pinned to provide a rigid hitch for transport. This involves inserting two pins into the transport lock-up bar. To do this:

1. Fully raise the plough on the wheel lift circuit.
2. Using the Pitch Control cyclinder, level the machine by eye from the tractor.
3. Remove both lower and upper pins from lock-up slides and pin either slide, which allows machine to be at the closest level.
4. Adjust the cylinder so that the second slide can be fitted and pinned. Ensure the pin is locked.

Wing Locking Pin

Lock Up Bar in Transport Position

Travel Pin

Fit Travel Pins for Transport

Before the plough is transported, it is essential that the travel pins are placed on the wheel lift cylinders.

1. Fully raise the plough off the ground.
2. Next fit and secure the travel pins (stored in the plough toolbox) to the wheel lift cylinders.
3. When both travel pins are fitted, keep the pressure in the lines so weight is on the cylinders not on the travel pins.

WARNING!

Always stay out from underneath a Field Boss Folding Wing unless it is resting firmly on the ground or supported with transport pins.

From serial number 6714
Including 6586, 6666, 6703

10 Operating Instructions

IMPORTANT!

The most common mistakes made in operating tandem offset disc ploughs are:
1 Wheels not touching the ground when working.
2 Too much set (gang angle) for the job.
3 Levelling adjustment springs are too tight.
4 Failure to read and follow instructions in the operator's manual.
5 Operating at a speed greater then the conditions and application allow for.

10:4 Choosing the Correct Gang Angle for your Application

Most Grizzly offset disc ploughs do the majority of their work on the middle settings. It is important that all gangs are adjusted to the same setting, otherwise forces within the machine will be unbalanced.

IMPORTANT!

Take care and ensure that all gangs are given the same setting number and that all gangs are fully aligned. Misalignment or wrong settings will result is poor ploughing performance.

ALWAYS USE AS LITTLE SET AS POSSIBLE TO ACHIEVE YOUR REQUIRED PLOUGHING DEPTH.

The reasons for this are:

1. Less power (kW (hp) is required to pull the plough. At minimum settings there is less soil carried on the face of each disc. This means there is less soil movement and significantly less draught than at greater gang angle settings.
2. Minimum settings maximise your cutting width.
3. Discs tend to last longer.
4. If obstacles are encountered, discs have a better chance of rolling over them.
5. A greater percentage of straw is left on the soil surface to protect the soil from wind and water erosion.
6. A faster speed maybe achieved.

Remove the bolt and pin from each gang

Changing Gang Angles

Gang angles on the plough can be altered to suit varying soil and working conditions.
To alter gang angle follow these instructions:

To change the centre frame gangs:

1. Loosen the M24 pivot bolt and loosen the M20 bolts on the slots on the outside of the frame and completly remove the M20 bolts located in the gang setting holes.
2. Raise the frame on the wheels using hydraulics and slide gangs using a crow bar or similar.
3. Move the gang to the desired setting and torque bolts to specified torque.

To change the wing gangs:

1. Loosen all M20 bolts located on slots and completely remove the M20 bolt located in the setting hole.
2. Raise the frame on the wheels using hydraulics and slide gangs using a crow bar or similar.
3. Move the gang to the desired setting and torque bolts to specified torque ensuring the correct distance between wing gangs and centre frame gangs. See Section 9:2.

10 Operating Instructions

SETTING 1 (19 degree Gang Angle)

This is the best setting to use in the following situations:
a) Peaty country, soil that flows readily, soft soils.
b) Initial working in root bound pasture.
c) Wet or sticky conditions.
d) Secondary working, fallowing.
e) Provide for lowest draft requirements.
f) Where there is greater likelihood of encountering hidden objects, stumps, rocks etc.

SETTING 2 (21 degree Gang Angle)

This is a general purpose setting. Often machines are never changed from this setting. Setting 2 is recommended:
a) In sticky, puggy or rubbery ground, better penetration can often be achieved on 2 rather than using setting 3.
b) Used to achieve good cut out, but still ensure a fine tilth and level finish.
c) For leaving a predominance of stubble on top of worked country.
d) For general ploughing when ground is tighter.
e) Where greater penetration is required.
f) Where more vigorous cultivation is required or it is desired to bury more of the surface cover.

IMPORTANT!

All gangs must be set on the same setting, otherwise forces within the machine will be unbalanced. Failure to set gangs on the same setting will result in inferior ploughing performance.

SETTING 3 (23 degree Gang Angle)

The most vigorous setting 3 is only recommended:
a) To obtain maximum depth in hard bed conditions.
b) To chip weeds or increase cut out at shallower working depths.
c) To enable working in the tightest conditions.
Setting 3 has advantages in some conditions/ applications as outlined above. However, it should be noted that:
1) This setting is not suitable for:
i) Working wet or sticky ground as the discs will tend to throw the soil, and the trash handling ability of the machine is compromised.
ii) Working in stumps or stones as obstacles are struck at a greater angle which puts greater strain on the discs and the frame, making them more susceptible to damage.
iii) Secondary working, since the soil is moved the most, it is more difficult to achieve the desired level finish. The machine may produce ridges on this setting. Setting 1 or 2 will be much more satisfactory.
2) This setting is more likely to bring the ground up lumpy or cloddy and may cause ridging.
3) The machine is in its narrowest working width on this setting.
4) Discs continually used on this setting tend to wear blunt which to some extent reduces the cutting and penetrating ability of the machine.

The most common mistakes made in operating tandem offset disc ploughs are:

1. Wheels not touching the ground when working.
2. Too much set (gang angle) for the job.
3. Levelling adjustment springs are too tight.
4. Failure to read and follow instructions in the operator's manual.
5. Travelling too fast for the conditions.

IMPORTANT!

It is best practice to use the minimum possible set to achieve the desired result.

10 Operating Instructions

10:5 Ploughing Techniques

10:5:1 Turning at Headlands

The plough must always be raised from the ground when turning sharply at headlands. When turning at the end of a run it is necessary to lift discs clear of the ground to avoid uneven working and ridging as well as damage to the plough.
Also when turning sharply make sure the plough pull does not contact rear tractor tyres.

10:5:2 Operating Speed

The optimum speed for the machine will be determined by the conditions and the task being performed.
Operating speed is generally about 7-8kph (4-5mph).
Secondary working or working deeper in soft soils or peaty loam soils will require a reduction in speed, to as low as 4-5 kph.

IMPORTANT!

If the plough is not lifted from the ground and obstacles such as rocks and stumps are encountered while working through a corner, disc & machine damage may result because of the very square angle at which the disc strikes an obstruction.

10:5:3 Ploughing Patterns

Your plough is fitted with rear filler discs on each side at the rear of the machine. This allows for working in any direction, whether ploughing perimeters, headlands or diagonally.

10:5:4 Ploughing Soft Ground

Ploughing soft ground requires less set/gang angle, and reduced speed, when ploughing deeper than 100 mm (4”) deep more gang angle may be required to achieve the depth, depending on the size and concavity of the discs.

10:5:5 Ploughing hard ground or ground which comes up in large clods

Generally, most conditions will allow you to get the required depth on the first pass. Setting 1-2 is usually the most appropriate setting, it may be necessary to work some country twice to achieve the desired results. Sometimes full depth can be achieved in the first pass on Setting 3, but with the result of leaving large, hard to break clods and boulders.

10:5:6 Stumps and Rocks

A disc plough is primarily a rolling, chopping machine.This means that:
a) The faster the disc is going, the soil is thrown further, resulting in ridges and gutters.
b) When stumps, rocks, etc are encountered, the disc which strikes the obstacle must either break it, cut it or lift the machine over it. Discs are not designed to remove stumps.
c) The less set and less speed that can be used the better because:
i) The disc will have a better chance to cut the obstacle. More set creates a greater bulldozing and less cutting effect.
ii) There are less twisting and tearing forces acting on the disc. This gives the disc a better chance to roll over obstacles and minimises the chance of disc damage.
iii) Using less speed and minimal gang settings also exerts less strain on frame components and bearings.
Minimal set and speed will maximise the cutting width, and reduce the load on the tractor, reducing fuel consumption.

IMPORTANT!

Always use less set on discs and lower speed when operating in stumps and/or rocks. Damage caused by misuse in rocks and/or stumps is not covered by warranty.

10 Operating Instructions

IMPORTANT!

If the lead disc overlaps too little (less than 9” [one disc]), then soil cut-out will not be complete. If the lead disc overlaps too much (more than 9” [one disc]), then a line or gutter may be left in the ploughed ground.

IMPORTANT!

Always lift the plough out of work when turning sharply on headlands. Failure to lift the plough while turning will cause uneven working and ridging in the soil and may also cause excessive forces and damage to the plough. Also when turning sharply make sure the plough pull does not contact rear tractor tyres, otherwise damage may occur.

10:5: 7 Working in Moist Conditions

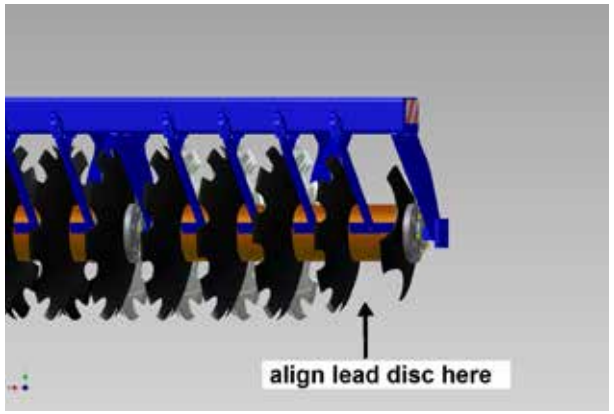
Your Grizzly features revolutionary Floppy T Bar Scrapers which enable it to operate in conditions in which ploughs with conventional scrapers would fail.
However there are limitations to the performance of any disc plough. There are various adjustments which can be made to assist the performance of your plough in trying conditions (refer Gang Angle Selection in previous section).
There may be times when your plough will block. In these situations, it will be necessary to wait until conditions are more suitable.

IMPORTANT!

When working at excessive speed in dry conditions, premature disc wear may occur.

10:5: 8 Working Against Prevously Worked Ground

Identify the mark left by the filler disc (outside rear disc) from a previous round which is a guide for placement of the leading disc (on either side).
The lead disc should be cutting (one disc) in from the filler disc mark.
The filler disc mark must be ploughed out by the leading disc for cut-out to be complete.



From serial number 6714

Including 6586, 6666, 6703

10 Operating Instructions

10:6 Operating the Plough with Depth Control Stops

Adjustable depth stops can be fitted to the master cylinder (the right side of the machine) for accurate depth settings when operating. Proper care must be taken when altering depth stops.

When adjusting depth stops:

- Make sure the plate grooves are clean and free of dirt to ensure proper meshing of grooves.
- **Two depth stop plates must be fitted to one cylinder,** there is no advantage fitting depth stop plates to two cylinders or more.
- Grooves must be properly aligned so that both plates contact the cylinder end equally. Inaccurate alignment will cause damage to the depth stops and/or cylinders. This is not covered by warranty.

Depth Stops

When adjusting depth stops make sure groove and plates are clean and properly aligned, use loctite 243 on bolts.

IMPORTANT!

Depth control stops can be damaged if they are incorrectly fitted.
Depth stops must be fitted to the right hand cylinder only and aligned to contact the cylinder evenly.

10 Operating Instructions

10:7 Hydraulic pitch control

The Grizzly hydraulic pitch control allows the operator to adjust the relative level of the front and rear gangs to maintain the best possible level finish.
The pitch control springs supply enough rigidity to allow easy hydraulic adjustment to give control of furrows or ridges left in the centre of the worked ground.
They should also be flexible enough to allow the plough frame to rise over undulations.

IMPORTANT!

If the swivel assembly is removed for service, always use Loctite stud lock to secure the bolts. Tighten to 450ft/lb.

Loctite bolts use high strength loctite

Adjusting the pitch control.:
With the hydraulic pitch control cylinder adjusted to around mid position (ram extended halfway), and the machine level, work the machine in typical working soil conditions at required working depth for 50 meters.
After stopping the machine, note the quality of the ploughed finish, the ploughed ground should be level across the width of the machine.
Adjust if the following occurs:

a) A hollow exists in the centre of ploughed work. If a furrow exists in the centre of ploughed work, adjust the hydraulic pitch control ram to raise the front and lower the rear of the machine.

b) A ridge in the centre of ploughed work.
If a ridge appears, it will be necessary to adjust the hydraulic pitch control ram to raise the rear and lower the front of the machine.

• Top Springs
The top springs should show 30mm of the thread above the lock nut.

To adjust the top springs:
a) Lower the plough onto the ground and extend the hydraulic pitch control cylinder to relieve pressure on top springs.
b) Loosen the lock nut and adjust so that there is 30mm of thread extend through the lock nut.
c) Tighten the lock nut.

Correctly adjusted the top springs have 30mm of thread extending through the lock nut.

10 Operating Instructions

10:8 Changing from work to Transport

Preparation of the plough for transport involves three steps:

1. **Fold the wings and fit pins**
2. **Ensure the pitch lock pins are fitted.**
3. **Fit the travel pins to the wheel lift assembly.**
4. **Check safety equipment**

WARNING!

Do not exceed 30 km/h when towing the plough

IMPORTANT!

Always ensure the transport lock-up is properly fitted to pitch control, and travel pins are fitted to the wheel lift.

1. Fold the wings and fit pins.

To fold the wings for transport, follow these instructions:

1. Raise the plough off the ground with the lift circuit.
2. Fold the wings up until they rest in the wing cradles. Make sure every body is well clear of the machine when folding the wings up.
3. Lock both wings into their cradles with the pins provided.

2. Ensure the pitch lock pins are fitted.

The plough's lock-up bar (located under the pitch control) must be pinned to provide a rigid hitch for transport. This involves inserting two pins into the transport lock-up bar.

To do this:

1. Fully raise the plough on the wheel lift circuit.
2. Using the Pitch Control cyclinder, level the machine by eye from the tractor.
3. Remove both lower and upper pins from lock-up slides and pin either slide, which allows machine to be at the closest level.
4. Adjust the cylinder so that the second slide can be fitted and pinned. Ensure the pin is locked.

Pitch lock pin, for transport only. Remove when working

2. Fit the travel pins to the wheel lift assembly.

Before the plough is transported, it is essential that the travel pins are placed on the wheel lift cylinders.

1. Fully raise the plough off the ground.
2. Next fit and secure the travel pins (stored in the plough toolbox) to the wheel lift cylinders. When both travel pins are fitted, keep the pressure in the lines so weight is on the cyllinders not on the travel pins.

11 Storage

Wash the machine

To properly check the machine it must be clean. After washing lower the machine on to the discs 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.
Check discs and scrapers.
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 Tightening Gang Bolts

12:4 Gang Bearings

12:5 Replacing Discs

12:6 Scrapers

12:7 Tyres

12:8 Wheel Bearings

12:9 Hydraulics

12 Lubrication and Maintenance

12:1 Greasing

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

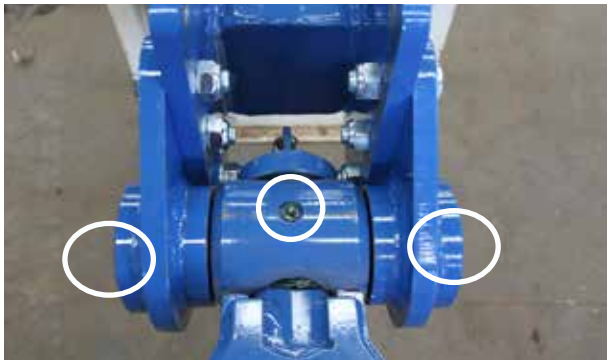


figure g1 Pull tongue 3 points weekly

figure g2 Wheel pivots 2 points per gang as required

figure g3 Wheel hubs 4 point weekly

figure g4 Pitch control points weekly (FW072-FW108)

figure g5 Disc gang bearings daily 1 point per hub

figure g6 Wheel lift cylinders 2 points each weekly

figure g7 Wing Pivot 2 points per side as required

12 Lubrication and Maintenance

12:2 Before Use

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

After 4 Hours Use

Tighten gang bolts, and wheel nuts to specified torque (See Torque Table in Section 8).
Check that scraper adjustment allows scrapers to move up to ½" (12mm) from disc spool, ensure the scrapers are not dragging on the spools or discs, this will cause premature wear.
Check over the machine, ensure there are no loose bolts, visually check disc bearings and dust covers.

After 10 Hours Use
Check all items of the 4 hour service.

After 40 hours use
The gang bolts should be tightened periodically thereafter.
When working in stump or rocky conditions check more frequently - continual checking at least every 4 hours is recommended.

IMPORTANT!

Use a torque wrench, do not over tighten bolts.

Routine Service Procedures
Proper servicing and maintenance schedules must be carried out to gain the best performance and longest life of the plough and its components.

12:3 Tighten Gang Bolts

Check gang axle and gang bolts.
Gang bolts may need to be retightened more regularly in some conditions, check the gang bolts often in the first week, loose blots will cause damage to housings, bolts, spools, and discs.
It is the operators responsibility to ensure bolts are kept tight, this type of damage is not covered by warranty.
Tighten to the specified torque (section 8) do not overtighten.

WARNING!

Whenever transporting the plough on roads, check the wheel nuts 570Nm.

WARNING!

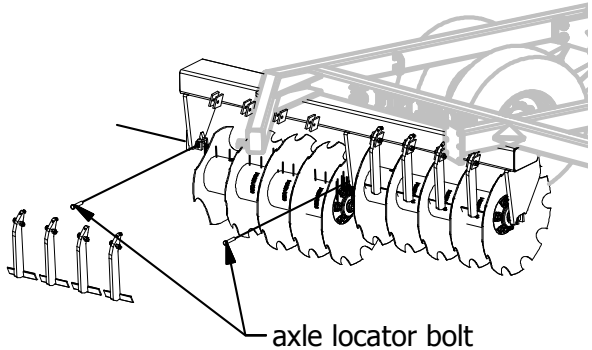
It may be necessary to tighten gang bolts at the hours specified when the plough is new because the disc and spool take time to "bed in". If this is not done, gang bolts may become loose and can cause considerable damage to bolts, spools and discs. Such wear or damage is not covered by warranty.

12 Lubrication and Maintenance

12:4 Gang Bearings

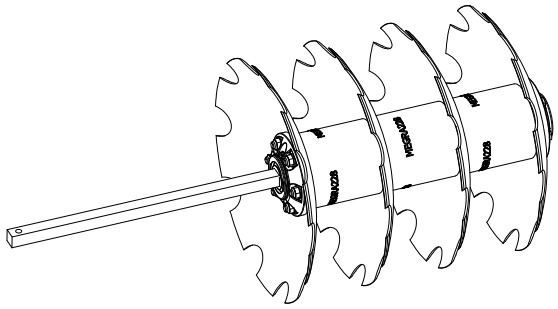
When disc gang bearings are unservicable it is neccessary to remove the gang assembly and replace the bearing.
Follow the procedures below:

1. Remove the scrapers from the bank of discs where the failed bearing is.
2. Clean the housing and area surrounding the bearing to be replaced.
3. With the discs resting on the ground, remove the two 16mm axle locator bolts holding the gang axle to the gang frame.
4. Lift the plough up about 250mm, ensure the bank of discs is free from the gang frame, if it doesn't drop out, ensure

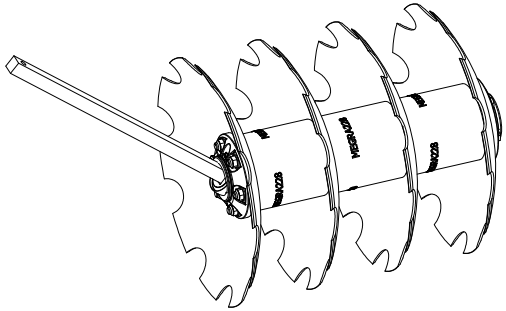


everybody is clear and carefully bump the discs with a crow bar, which will separate the disc gang from the gang frame. Roll the gang assembly out from under the plough.

5. Remove the dust covers and spacer washers and slide the gang axle out.
6. Clean the bearing and housing, to check if the bearing is serviceable or not, grip the inner race and apply pressure in and out and feel for movement, if there is noticeable movement, the bearing will need to be replaced.
7. Place the end of the gang axle into the bearing to be removed and twist bearing in the direction of the slots in the bearing housing, as far as it will go.
8. Using a soft bearing mallet, knock the bearing to a right angle position in the housing and remove it through the slot.



Place the end of the gang axle into the bearing to be removed.

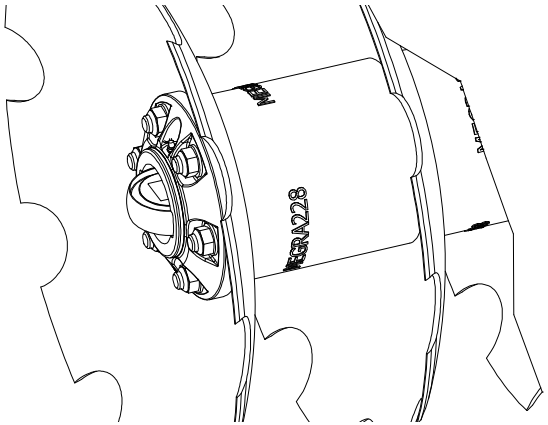


Twist bearing with the axle, in the direction of the slots in the bearing housing.

WARNING!

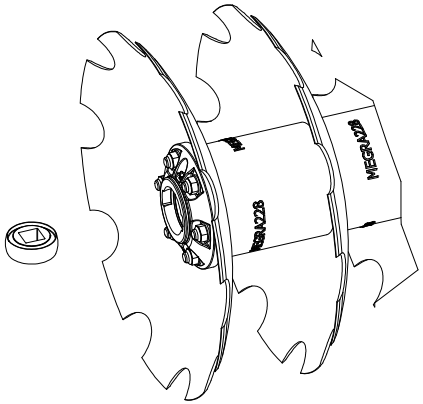
Replacing disc bearings involves moving and handling very heavy disc gangs and components. When moving, disassembling, reassembling and refitting discs & disc gangs, take all protective precautions necessary to avoid injury by sharp discs, heavy components, jamming or crushing. Never push against a disc with your foot or arm.
Failure to do this may lead to serious injury.

9. Thoroughly clean the housing, paying particular attention to the grease groove. Check for damage and replace if needed.
10. Insert the new bearing into the bearing housing, making sure to align the grease hole of the bearing and the grease groove of the bearing housing.

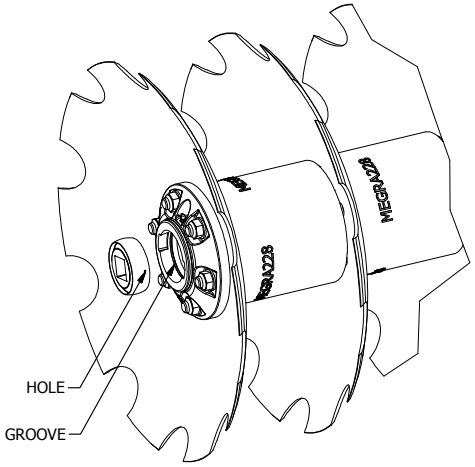


Use a soft mallet and drift to knock the bearing into right angled position to remove it.

12 Lubrication and Maintenance



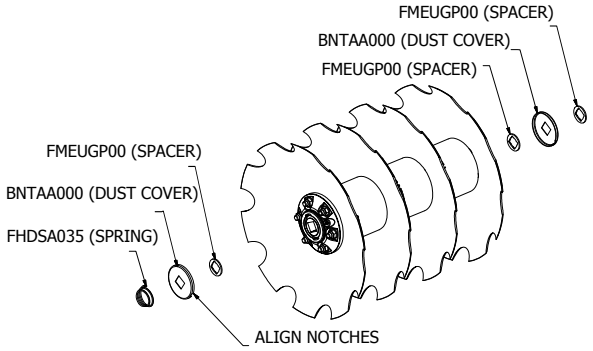
11. Partially twist the bearing into the housing by hand, notice how tight the bearing is in the housing, the bearing should require a mallet to tap it around far enough to complete the alignment of the bearing in the housing, using the gang axle. If the bearing can be aligned by hand, or is loose in the housing, the housing will need to be replaced. (See 12.8).



When installing the new bearing, make sure the grease hole of the bearing & the grease groove of the bearing housing are aligned.

12. Ensure both bearings are aligned correctly, grease the bearings and ensure they grease properly, Replace the gang axle and reassemble, dust covers, spacers and spring. Be sure to use a spacer washer under each dust cover and on the thrust end and a spring on the lead end. The dust cover hole must be facing downwards to allow dirt to fall out.

13. Roll gang to its position under the plough.



Spacer and dust cover detail

IMPORTANT!

When inserting the new bearing, make sure the grease hole of the outer bearing casing (which is offset from centre) will align with the grease groove in the bearing housing when the bearing is fully fitted. If it is not aligned you will not be able to get grease into the bearing.

WARNING!

When moving and refitting disc gangs to & from the gang frames, always stay out from underneath a plough unless it is resting on the ground or supported with stands or blocks when raised.
Failure of hydraulic systems or jacks can cause the plough to drop, pinning or crushing personnel and causing serious injury.

12:5 Replace discs

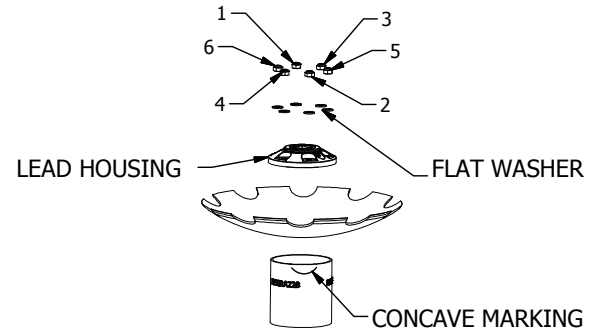
When discs become worn or damaged it is necessary to remove individual disc gang assemblies from the plough and replace the worn or damaged discs.
While discs are being replaced it is an excellent time to check the bearings, dust covers and gang axle bolts and replace if required.
Replacing discs involves moving heavy and sharp components, when replacing discs or bearings ensure all safe work practices are used to avoid injury. A crane will be required to lift most components.

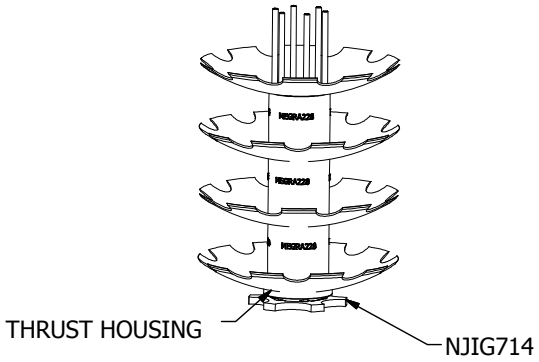
IMPORTANT!

Disc bearings can be changed without removing the bearing housing. The bearing housing will only be removed when discs are being replaced.

12 Lubrication and Maintenance

1. Repeat the steps 1 to 6 from 12.4 to remove the scrapers and bank of discs. In a clean area, disassemble the discs in the following manner.
2. Remove the dust covers, spacers, spring, and gang axle.
3. Mark each disc spool clearly so that the concave and convex ends of each spool can be identified for reassembly (See picture).
4. On a flat hard surface stand the bank of discs up on the bolt heads, a support part number NJIG714, is available from your Grizzly Dealer as a spare part.
5. Remove the gang tie bolt nuts Dismantle the assembly of discs and spools by lifting the components up, a crane will be required for the larger discs.
6. Reassemble the disc gang, making sure the concave end of each spool is fitted to the convex side of a disc, and the convex end of each spool fitted to the concave side of a disc.
7. Use the support (NJIG714) to sit the bearing housing on to keep the gang bolts in position, ensure scalloped discs don't have the notches in the same line.
8. Apply a small amount of anti-seize to the threads of the gang bolts, attach washers and new nuts to the gang bolts. Evenly tighten the gang bolts in sequence 1, 2, 3, 4, 5 & 6 (shown right) so that the discs and spools bed together properly. Tighten 6 bolt systems to 200ftlb for PC. 8.8 20mm bolts or 310ft/lb for PC. 10.9 20mm bolts (See Section 8).
9. Replace the gang axle and reassemble using new dust covers, spacers, and springs as required. Check the parts drawing for the spacer and spring locations. The dust cover hole is facing down to allow dirt to fall out.
10. Roll gang to its position under the plough making sure all safety precautions are taken to avoid injury.
11. Lower the plough to re-attach the gang axle making sure all safety precautions are taken to avoid injury. It is important to secure the lead end of the gang axle first and fully compress the dust cover spring. Check the spring tension. The spring should be compressed to a length of 10-12mm. Use spacer washers to minimise end play. Allow 12mm movement.
12. Replace the two axle bolts and nuts, and tighten. See Section 9 (use new bolts and nuts).
13. Replace the gang scrapers and tighten bolts, don't over tighten scraper bolts, ensure the scraper can move freely, adjust the scrapers to 10mm-12mm from the spool.





12 Lubrication and Maintenance

12:6 Scrapers

Check the scrapers regularly, the scrapers should move freely from the spool to 12mm away, The side movement should be kept to a minimum by tightening the scraper pivot bolt. Don't overtighten the pivot bolt, this will lock the scraper, this will result in the scraper not functioning correctly. To adjust the scraper loosen the lock nut at the top of the scraper, adjust the adjuster bolt as required , to achieve 8mm - 12mm cleatance between the scraper and spool, tighten the lock nut.

IMPORTANT!

Having a gap of over 12mm may cause damage to the gang beam and adjuster bolt. Ensure correct gap is maintained.

12:7 Tyres

Check the tyre pressure.
Uneven tyre pressure can cause the machine to plough unevenly. See Section 8.

12:8 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 hydraulics).
2. Remove the 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 Lubrication and Maintenance

12:9 Hydraulics

The Field Boss Folding Wing Series utilises separate hydraulic circuits for wheel lift and pitch control. With proper care and maintenance these hydraulics will provide reliable and long life operations.

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 functional problems.

When transporting the plough, always use the travel bars (provided with the plough) on wheel lift cylinders. The travel bars are essential to prevent excessive loading on cylinder components when transporting.

Phasing Cylinders

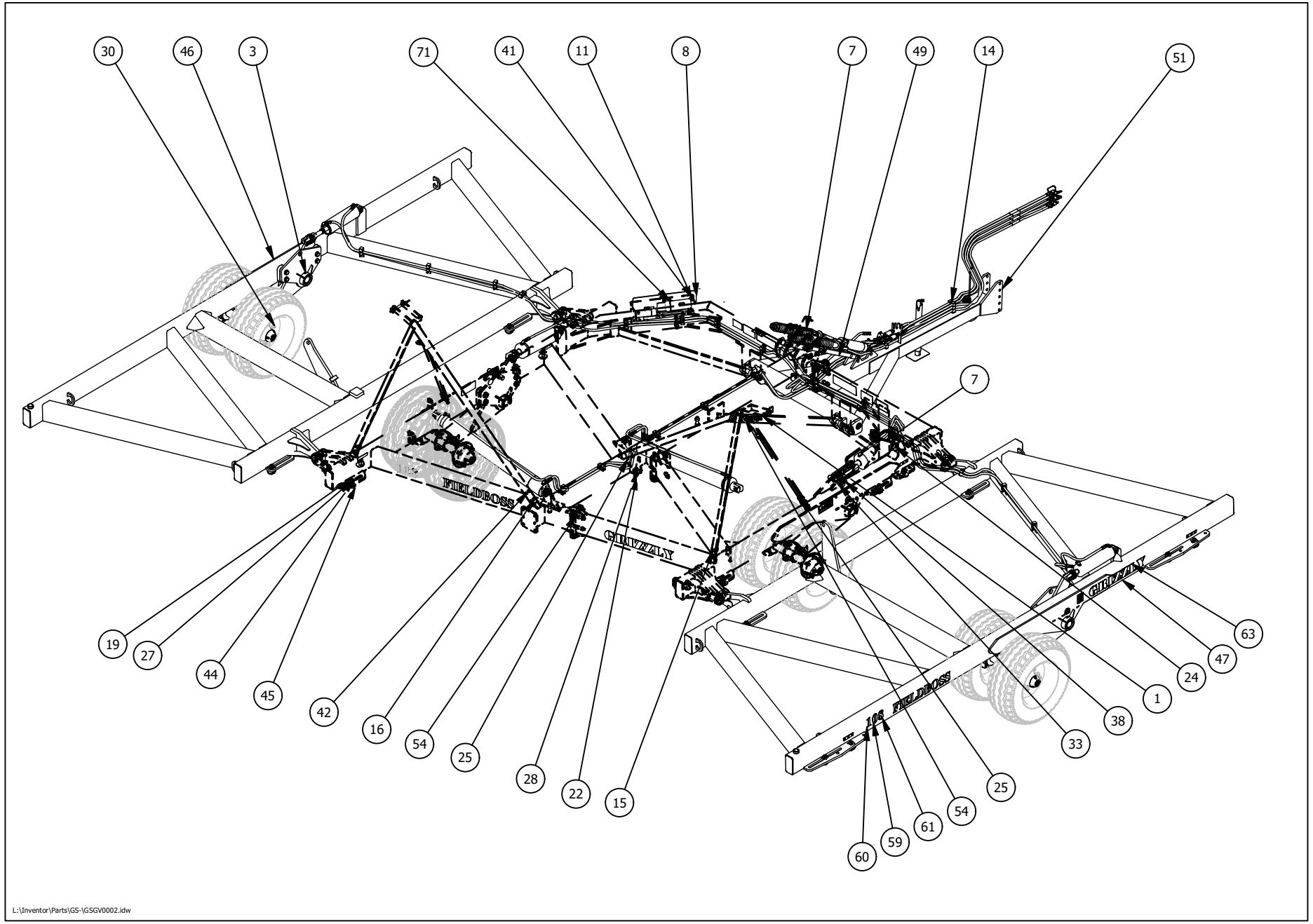
When storing the plough overnight or for longer periods, make sure the phasing cylinders are left fully closed to protect shafts and avoid unnecessary seal damage, OR alternatively, coat the shafts with CRC or equivalent to protect them while the rams are extended.

WARNING!

Ensure pressure in the retract line does not exceed 2000psi.

13 Parts

ASSEMBLY KIT-FIELD BOSS 100-108 9mm GSGV0002



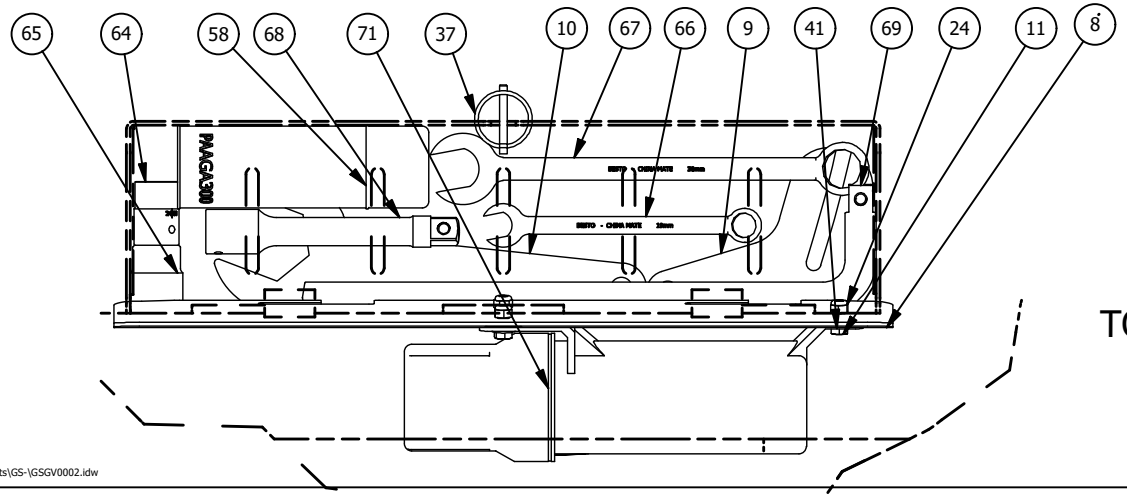
ASSEMBLY KIT-FIELD BOSS 100-108 9mm

GSGV0002

ITEM	QTY	PART NO.	DESCRIPTION
1	2	ATS404	HITCH PIN, 3/4
2	2	ATS423	S74 CAT 1 TOP LINK PIN
3	8	BMAAA000	GREASE NIPPLE 1/4" UNF
4	10	BMCAA000	GREASE NIPPLE 1/8 BSP
5	4	BVA5278	DU THRUST WASHER
6	4	BVBEA06X	DX BUSH 50 x 55(40mm)
7	2	CABSE130	DEPTH GAUGE
8	1	CGBEE003A	TOOL BOX LID 3mm
9	1	CHAGH000	DISC LOCK SPANNER<10mm DISC
10	1	CHCUG000	PLATE 12mm.S/A SPANNER 57mmA/F
11	3	FABEA020	BOLT M8 X 20
12	8	FABEA025	BOLT M 8 X 25
13	22	FABEA045	BOLT M8 X 45
14	2	FABEA080	BOLT M 8 X80
15	8	FABGA050	BOLT M12 X 50 PC 8.8
16	4	FABGA075	BOLT M12 X 75 PC 8.8
17	2	FABHA040	BOLT M16 X 40 PC 8.8
18	4	FABHA065	BOLT M16 X 65 PC 8.8
19	8	FABJA080	BOLT M20 X 80 pc 8.8 COARSE
20	2	FABKA047B	BOLT M24x47 34mm SHANK zinc
21	2	FABKA047BB	BOLT KIT- PITCH CONTROL SWIVEL
22	3	FABKA075	BOLT M24 X 75
23	4	FEABA008	HAMMER DRIVER SCREW
24	11	FFBEA000	NYLOC NUT M8 P TYPE

ITEM	QTY	PART NO.	DESCRIPTION
25	12	FFBGA000	NYLOC NUT M12 P TYPE
26	4	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC
27	8	FFBJA000	NYLOC NUT M20 P TYPE 2.5
28	3	FFBKA000	NYLOC NUT M24 P TYPE
29	2	FFDYA000	1 1/2 - 6 UNC THIN NUT (ZINC)
30	48	FFFJA030	WHEEL NUT 18mm - (30mm AF)
31	2	FFGYA065	SPRING ASSY NUT (38.1) 100mm
32	2	FGBKA135C	LOCKUP PIN 1" (130)
33	2	FGBSA191	TRANSPORT LOCK PIN
34	2	FGBSA250	PULL PIN 40mm (247)
35	4	FGBUA128	WING PIVOT PIN - FIELD BOSS
36	4	FHURA280	Spring 280 x 17 x 68 11 coils
37	1	FKAEA000	LYNCH PIN 6mm
38	4	FKAKA000	LYNCH PIN 7/16" strong clip!
39	4	FKBDA000	RAM PIN CLIP
40	2	FMAMGK00	1" FLAT WASHER (ZINC COATED)
41	11	FMCEE000	M8 WASHER 5/16"F436 HARD ZYP
42	24	FMCGE000	M12 WASHER 1/2" type 1HARD ZYP
43	8	FMCHE000	M16 WASHER 5/8" F436 HARD ZYP
44	8	FMDJNJ00	SQUARE WASHER M20 X 50 X 8
45	8	FSAA2001	20mm BOLT HEAD LOCK
46	1	GBG100-108-W-5L	9mm100-108 LEFT FIELD BOSS WING
47	1	GBG100-108-W-5R	9mm100-108 RIGHT FIELD BOSS WING
48	1	GDFE0000	LOCKUP SLIDER- PAINTED

ITEM	QTY	PART NO.	DESCRIPTION
49	1	GDFE0008	LOCK UP ASSEMBLY (1175mm)
50	1	GHPF0002-4	HYDRAULIC KIT F BOSS 100-108 9mm FRAME
51	1	GHGA0008-1	100 - 108 PULL
52	1	GKFE0000	PARKING JACK - HEAVY-DUTY
53	2	GKUA0001P	SWIVEL ASSY PITCH CONTROL
54	1	GSFM0002S	BOLT KIT - FIELD BOSS SPLIT
55	1	GSFM0008	BOLT KIT - FIELD BOSS WING GANG
56	2	MDAYA014	PIN RETAINER BUSH
57	2	MGGFA075P	SLIDER ASSEMBLY- PITCH LOCK
58	1	PAAGA300	GRIZZLY BLUE SPRAY CAN 300gram
59	3	PD000053	Decal "0"
60	3	PD000054	Decal:"1" GOLD 100mm x 55mm
61	3	PD000061	Decal "8"
62	1	PD000082	SHUT THE GATE SIGN
63	1	PDAEF004	DECAL KIT 100-112 FIELD BOSS
64	1	TDAPC000	SOCKET 24mm.3/4" DRIVE
65	1	TDASC000	SOCKET 30mm.3/4" DRIVE
66	1	TDFHA000	19mm COMBINATION SPANNER
67	1	TDFSA000	30mm COMBINATION SPANNER
68	1	TDGAA200	3/4" DRIVE 200mm EXTENSION
69	1	TDGAC000	L HANDLE 3/4" DRIVE
70	8	WSMGGK001	WTA 13.0/65-18 16ply 6/205 A2
71	1	XBCDOC235	DOCUMENT HOLDER
72	1	XCDMZM00	FIELD BOSS FOLDING MANUAL
73	1	XIDP	ENGRAVE ID PLATE



TOOL BOX

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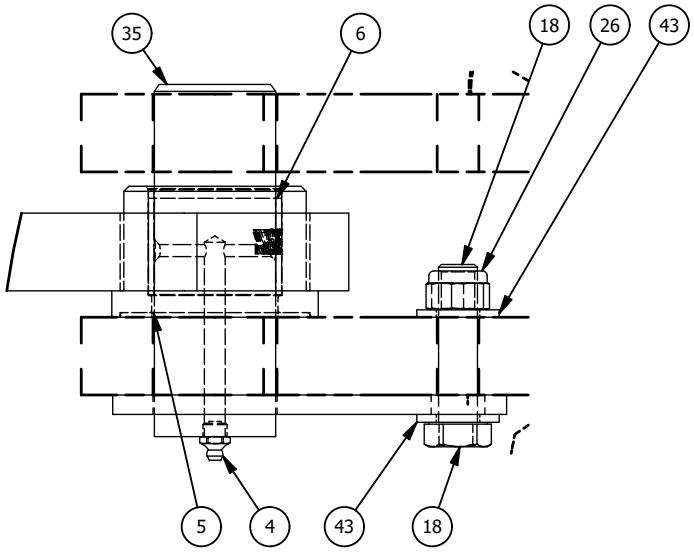
From serial number 6714

Including 6586, 6666, 6703

ASSEMBLY KIT-FIELD BOSS 100-108 9mm

GSGV0002



WING HINGE
COMPONENTS

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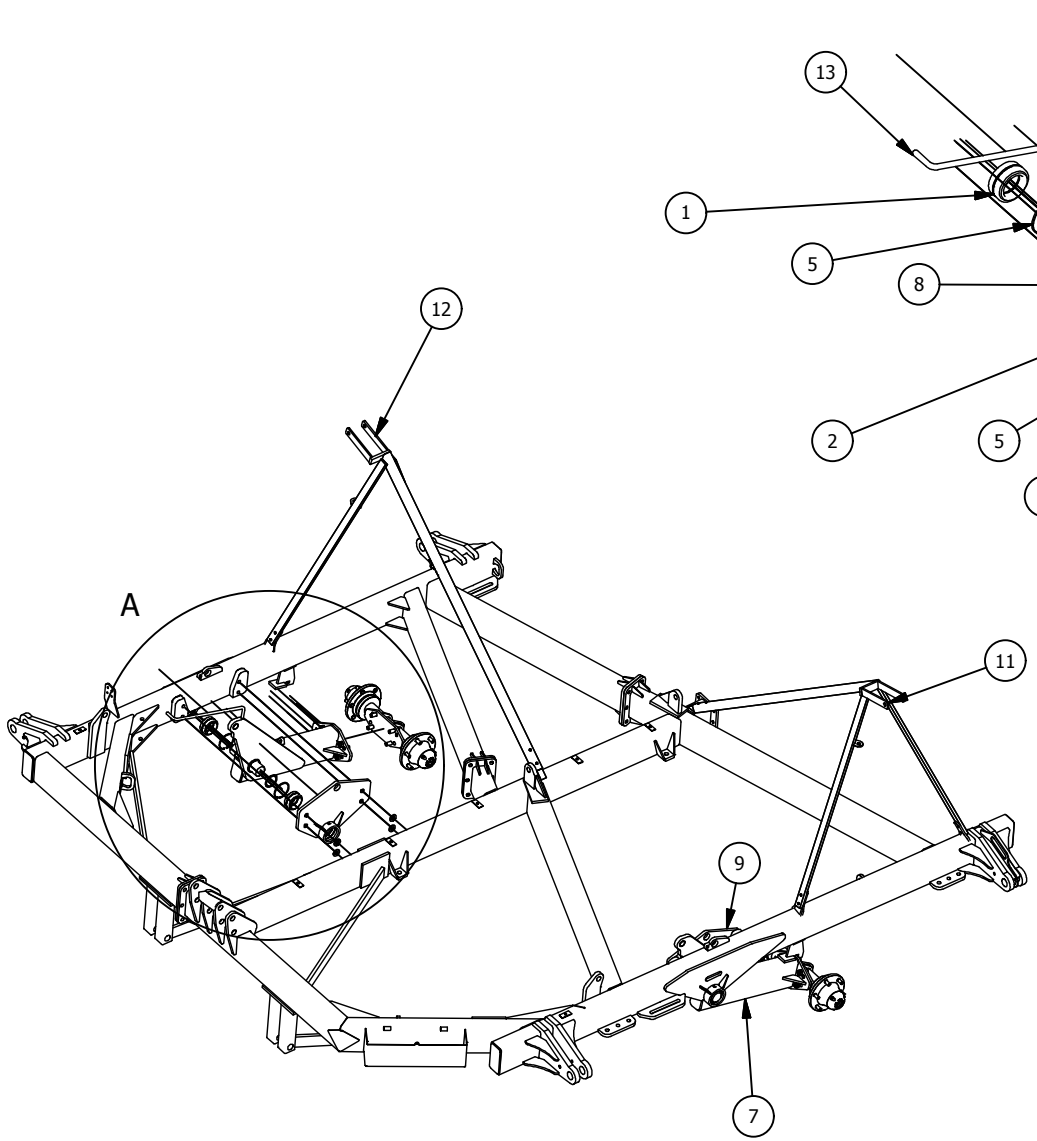
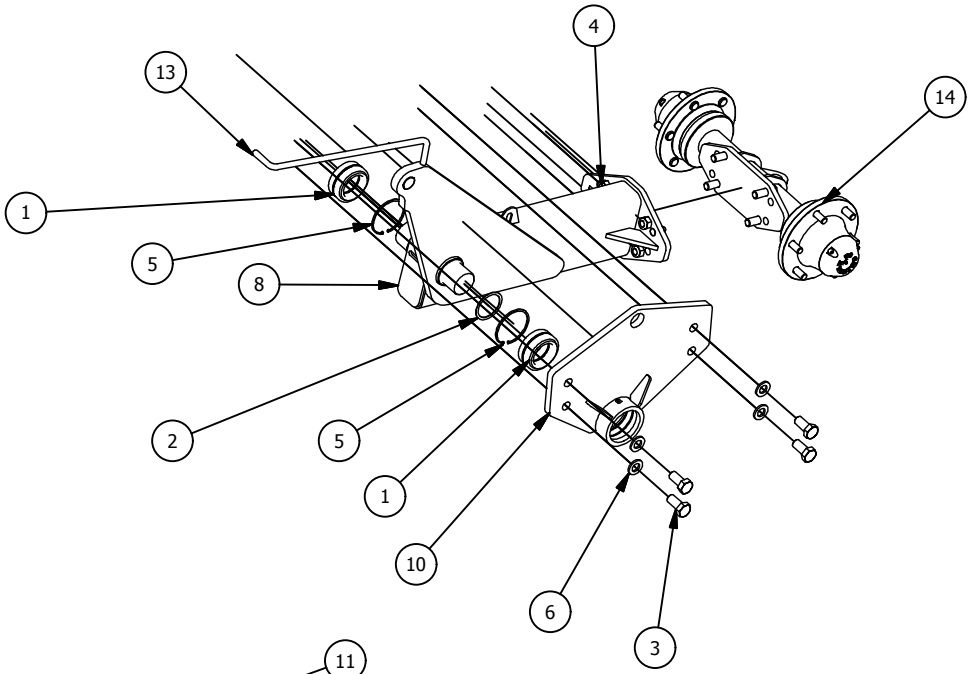
FIELD BOSS 100 / 108 FRAME

GCG100-108-5





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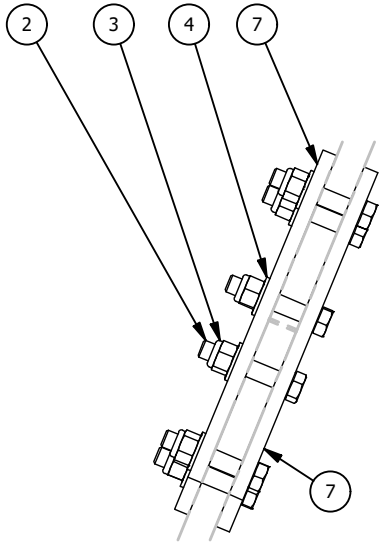
ITEM	QTY	PART NO.	DESCRIPTION
1	4	BDMZA000	GE70 RADIAL SPHERICAL PLAIN BEARING
2	2	CCACA301	2mm SPACER WHEEL LEG - 70mm id
3	8	FABKA050	BOLT M24 X 50
4	8	FFBJA000	NYLOC NUT M20 P TYPE 2.5
5	4	FKDXA004	Internal Circlip 105mm Dia
6	8	FMCMG000	M24 WASHER F436 HARD ZYP
7	1	GJGA0013A	LEFT WHEEL LEG - 108 FIELD BOSS
8	1	GJGA0014A	RIGHT WHEEL LEG - 108 FIELD BOSS
9	1	GJHB01L	LEFT INSIDE WHEEL LEG PLATE
10	1	GJHB01R	RIGHT INSIDE WHEEL LEG PLATE
11	1	GNAKG100L	LEFT WING SUPPORT F/B 100/108
12	1	GNAKG100R	RIGHT WING SUPPORT F/B 100/108
13	1	MDAEA650	ROUND 16mm (650mm) depth point
14	2	WMNAA740	H70 HUB AND STUB DUAL

From serial number 6714

Including 6586, 6666, 6703

BOLT KIT - FIELD BOSS SPLIT

GSFM0002S



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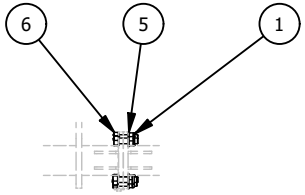

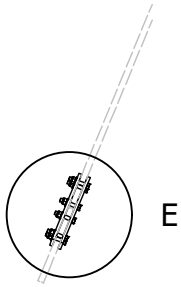

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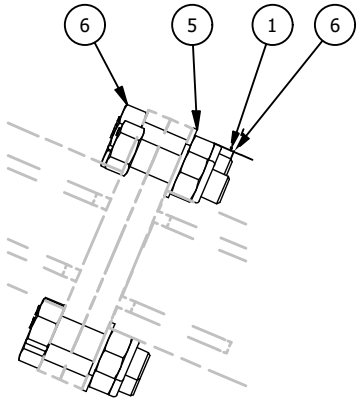

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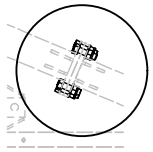

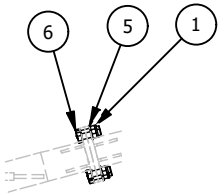

ITEM	QTY	PART NO.	DESCRIPTION
1	36	FFBJA000	NYLOC NUT M20 P TYPE 2.5
2	12	FABGA065	BOLT M12 X 65 PC 8.8
3	12	FFBGA000	NYLOC NUT M12 P TYPE
4	12	FMCGE000	M12 WASHER 1/2" type 1HARD ZYP
5	36	FMCJG000	M20 WASHER 3/4" F436 HARD
6	36	FABJA065	BOLT M20 X 65 pc 10.9 COARSE
7	4	MAEMA250P	PULL STAY JOINER

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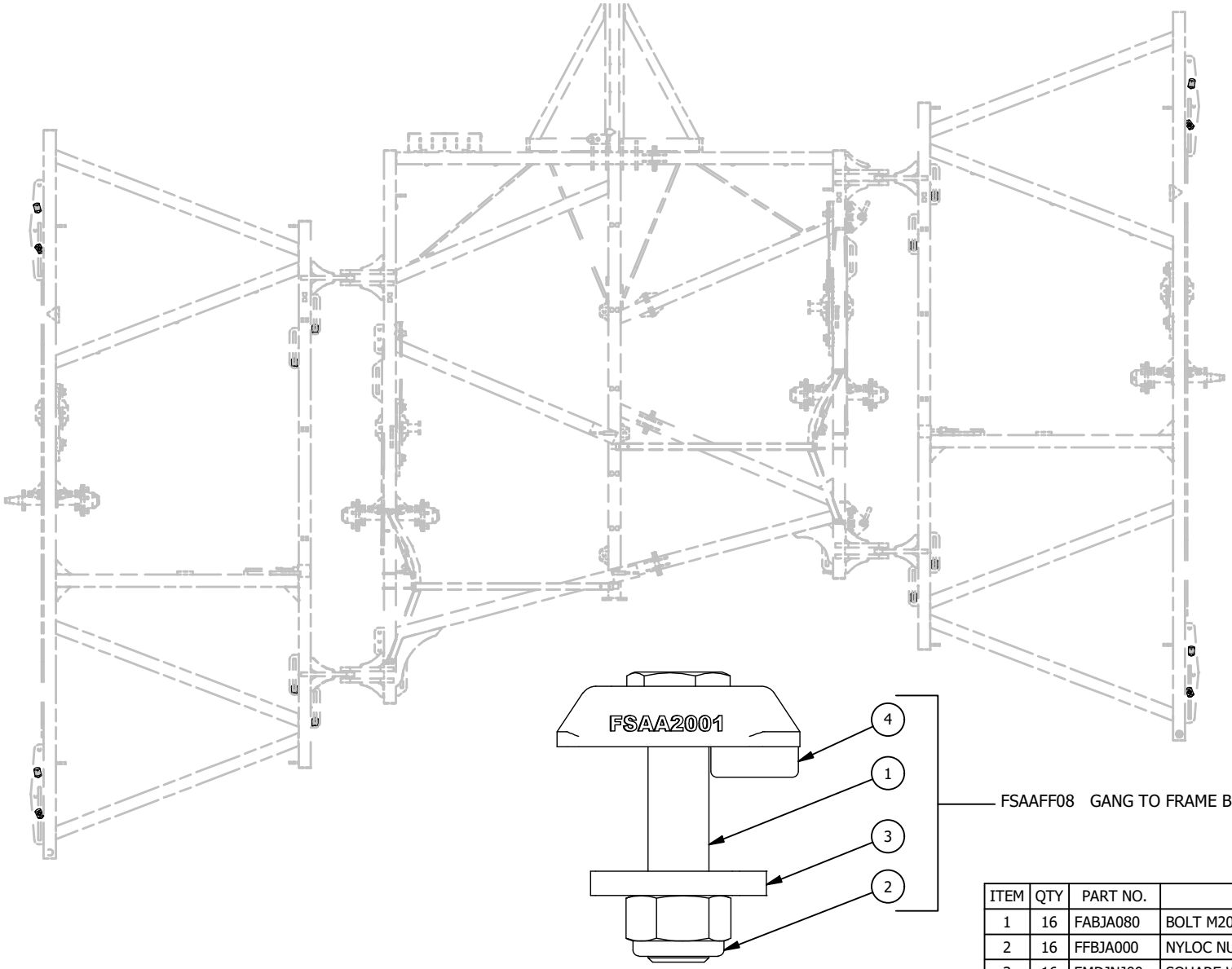
BOLT KIT - FIELD BOSS WING GANG

GSFM0008



FSAAFF08 GANG TO FRAME BOLT KIT 1 UNIT

ITEM	QTY	PART NO.	DESCRIPTION
1	16	FABJA080	BOLT M20 X 80 pc 8.8 COARSE
2	16	FFBJA000	NYLOC NUT M20 P TYPE 2.5
3	16	FMDJNJ00	SQUARE WASHER M20 X 50 X 8
4	16	FSAA2001	20mm BOLT HEAD LOCK

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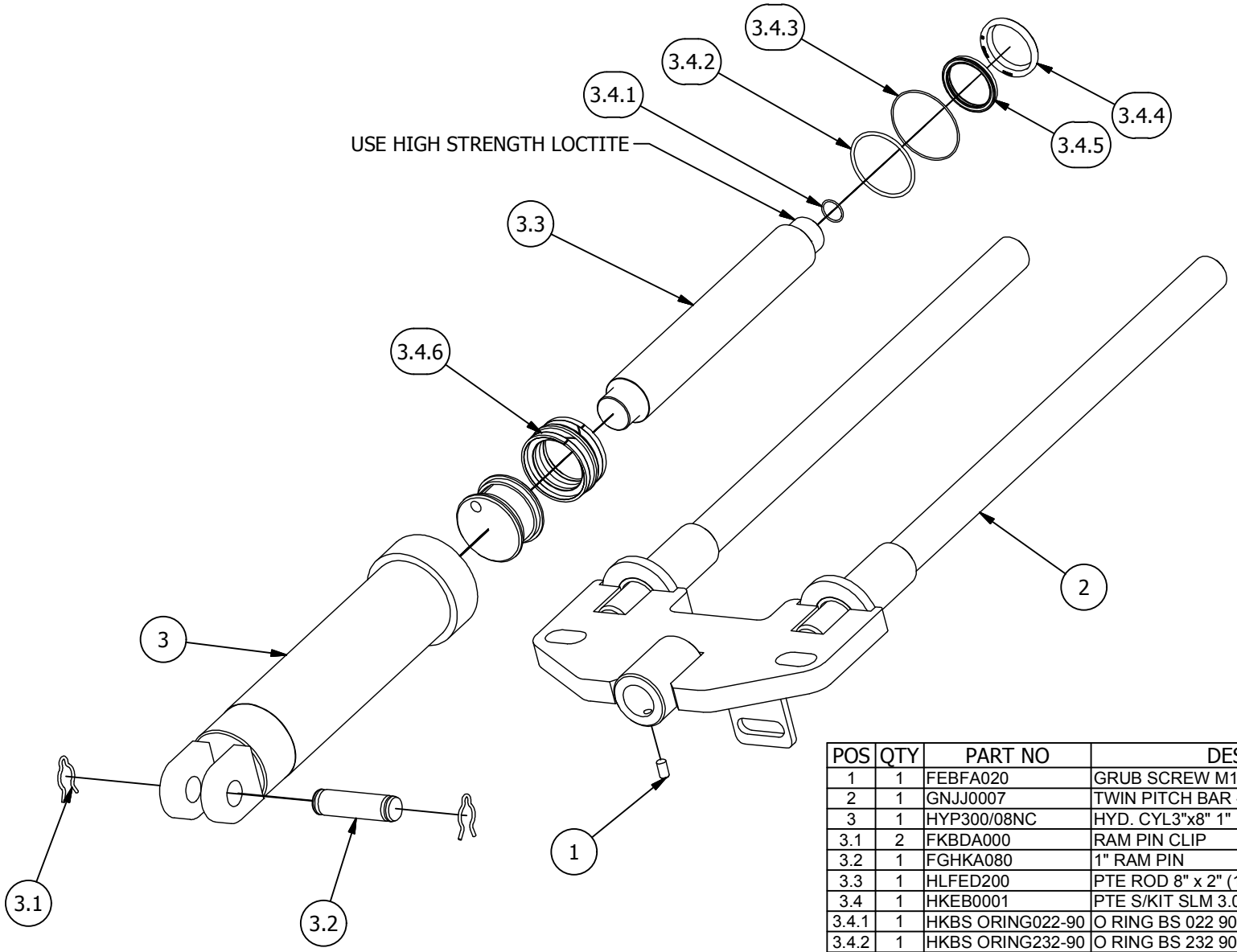
From serial number 6714

Including 6586, 6666, 6703

TWIN PITCH CONTROL

GDFGL006



POS	QTY	PART NO	DESCRIPTION
1	1	FEBFA020	GRUB SCREW M10X1.5 x (20mm)
2	1	GNJJ0007	TWIN PITCH BAR - FIELD BOSS
3	1	HYP300/08NC	HYD. CYL3"x8" 1" PIN 2"ROD
3.1	2	FKBDA000	RAM PIN CLIP
3.2	1	FGHKA080	1" RAM PIN
3.3	1	HLFED200	PTE ROD 8" x 2" (1.5" UNF)
3.4	1	HKEB0001	PTE S/KIT SLM 3.0" X 2.0" ROD HALLITE 81
3.4.1	1	HKBS ORING022-90	O RING BS 022 90 DURO
3.4.2	1	HKBS ORING232-90	O RING BS 232 90 DURO
3.4.3	1	HKBS ORING041-70	O RING BS 041 70 DURO
3.4.4	1	HKAS/520-881510	ROD WIPER "520" 2.0"X2.5"X.25
3.4.5	1	HKAS 520-4458700	ROD SEAL "605"2.0"X2.375"X.25
3.4.6	1	HKBS 81-1377630	PISTON SEAL 3.0" HALLITE "81"

H70 HUB AND STUB DUAL

WMNAA740

To assemble and adjust the setting of this hub:

NOTE: CLEAN THREAD BEFORE ASSEMBLING, IF YOU ARE ASSEMBLING A NEW AXLE USING 1-$\frac{1}{2}$" UNF DIE NUT, CLEAN ALL OTHER COMPONENTS.

Step 1: Clean and prime the seal #1.3 and seal ring #6 Fit seal to seal ring using Loctite 480, Fit the seal and seal ring to axle, use loctite 680, allow to cure before proceeding. ensure the seal is secure before fitting the hub.

Step 2: Fit bearing cups #1.1 and #1.2 into the hub, using a press tool, place bearing cone #1.1 into the hub, apply a smear of grease to the seal surface on the back of the hub.

Step 3: Fit the hub to the axle, then fit the bearing cone #1.2, washer #5, and nut #3.

Step 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.

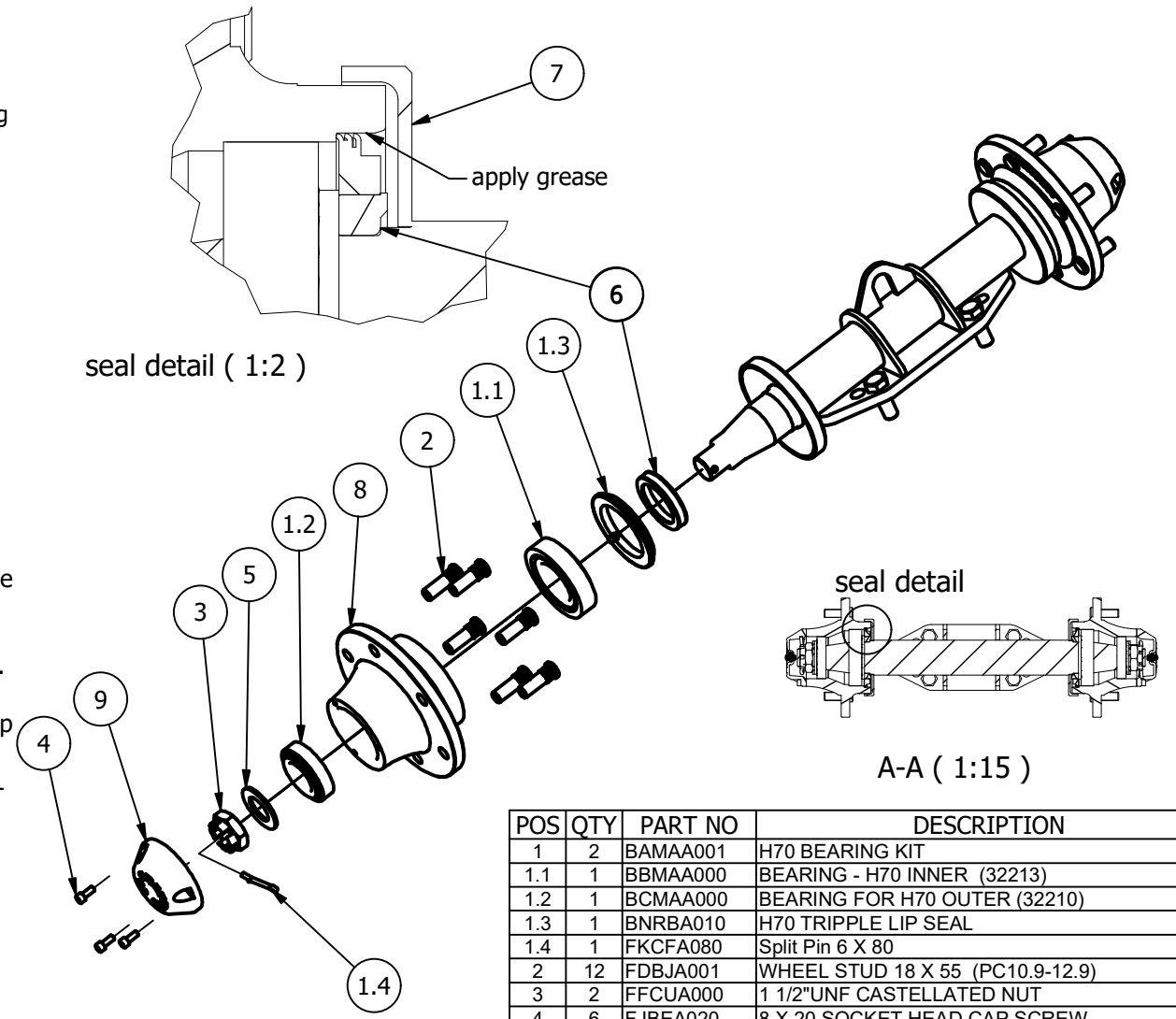
Step 5: Back the nut off 1/6 to 1/4 of a turn or sufficiently to allow .005mm to .02mm end play.

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

Step 6: Insert the split pin #1.4 as shown, trim the srtaight leg, bend the other over the axle end.

Step 7: Fit the cap #9 using loctite 515 flange sealant on the faces, and tighten the 3 M8 #4 cap screws 16nm(19ft/lbs).

Step 8: Grease with a grease gun using CASTROL BTX or similar until grease is visible through rear seal.



POS	QTY	PART NO	DESCRIPTION
1	2	BAMAA001	H70 BEARING KIT
1.1	1	BBMAA000	BEARING - H70 INNER (32213)
1.2	1	BCMAA000	BEARING FOR H70 OUTER (32210)
1.3	1	BNRBA010	H70 TRIPPLE LIP SEAL
1.4	1	FKCFA080	Split Pin 6 X 80
2	12	FDBJA001	WHEEL STUD 18 X 55 (PC10.9-12.9)
3	2	FFCUA000	1 1/2"UNF CASTELLATED NUT
4	6	FJBEA020	8 X 20 SOCKET HEAD CAP SCREW
5	2	FMAUKP00	WASHER 41 X 70 X 4
6	2	MFRNA015	SEAL SPACER
7	1	WBMBA740	H70 DUAL WELDED STUB MAINSTREAM
8	2	WJMAA000	H70 HUB
9	2	WKMBA000	H70 CAP

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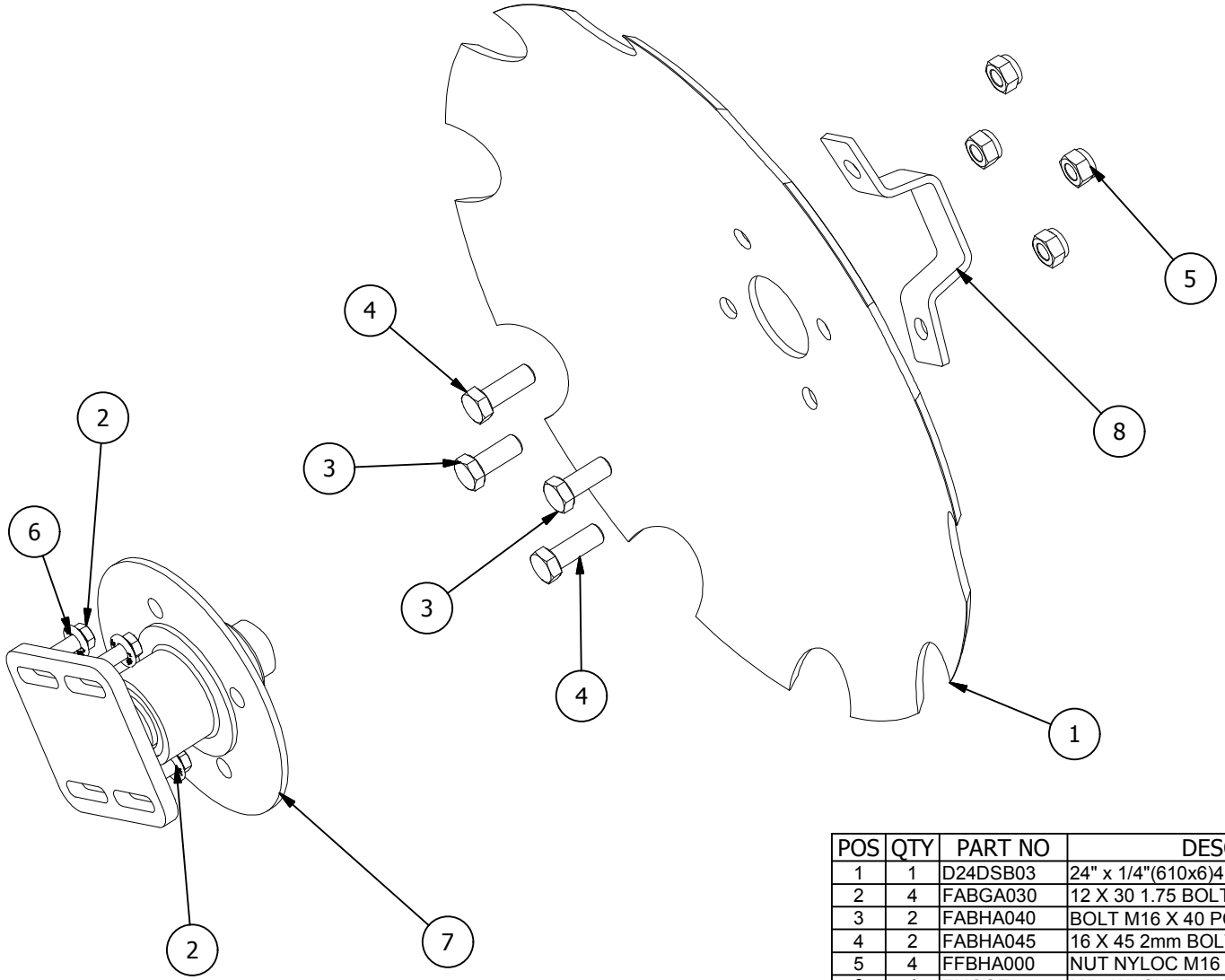
From serial number 6714

Including 6586, 6666, 6703

BOLT ON DISC 24 x 6 filler

GDADA024



POS	QTY	PART NO	DESCRIPTION
1	1	D24DSB03	24" x 1/4"(610x6)4 bolt scalloped
2	4	FABGA030	12 X 30 1.75 BOLT
3	2	FABHA040	BOLT M16 X 40 PC 8.8
4	2	FABHA045	16 X 45 2mm BOLT
5	4	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC
6	4	FMCGE000	M12 WASHER 1/2" type 1HARD ZYP
7	1	GNANA01A	STUB AXLE - BOLT ON DISC
8	1	MACGA255A	H30 DUST CAP COVER(40 x 6 X 255mm)

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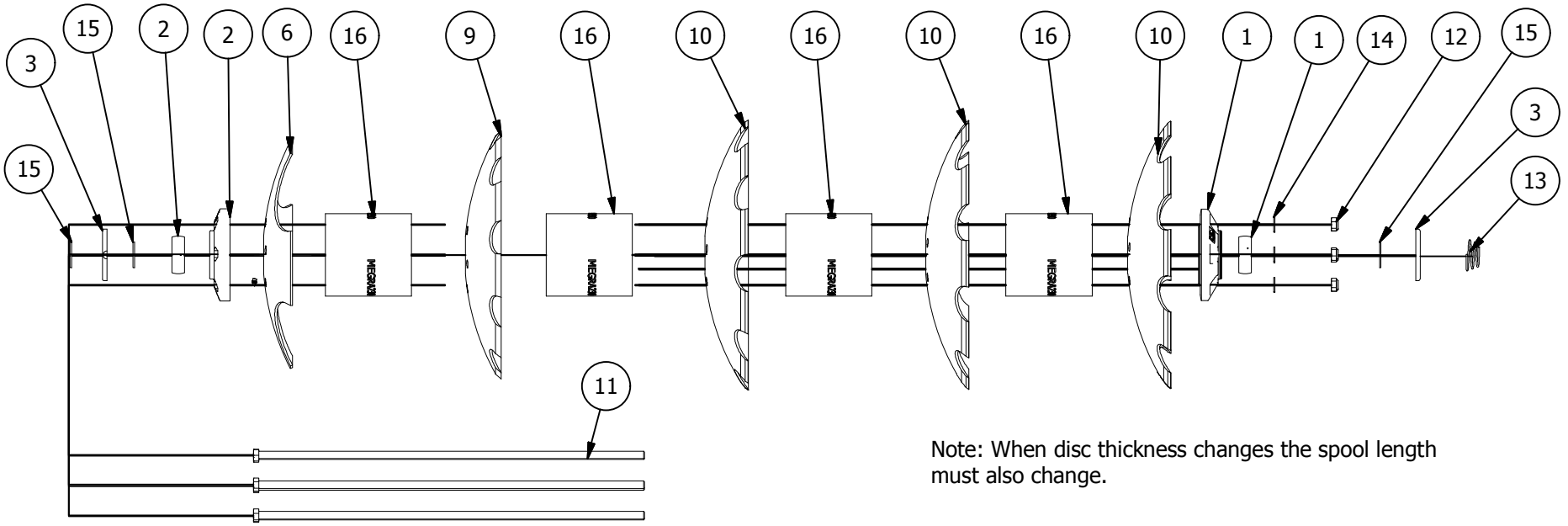
FIELDBOSS and TINY 230 DISC SET



Note: When disc thickness changes the spool length must also change.

POS	PART NO	DESCRIPTION	POS	PART NO	DESCRIPTION
1	BGB100B1	1 1/2" 6 BOLT HOUSING (lead) BEARING FITTED	10	D28EWB01	DISC 28"X 8mm FLUTED 6 BOLT
2	BHB100B1	1 1/2" 6 BOLT HOUSING (thrust) BEARING FITTED	10	D28FSB02	DISC 28"x10mm 10SCALLOPED 6BLT
3	BNTAA000	DUST COVER -1 1/2" (38mm) AXLE	10	D28FW01	DISC 28"x 10mm FLUTED 6 BOLT
4	D22CSB04	DISC 22"x5mm 10 SCALLOPED 6BLT	10	D2SESB02	DISC 26 X 8 SCALLOPED 6 BOLT
5	D22CSB05	DISC 22"x6mm 4FILLER 6BOLT	11	FAAJA550	M20 BOLT - 3 DISC 230 (550mm)
6	D24CSB05/***	24" X 1/4" (610 X 6) 6 BOLT FILLER	11	FAAJA790	M20 BOLT - 4 DISC 230 (785mm)
7	D24DSB02	DISC 24"x6mm 10SCALLOPED 6BLT	11	FAAJB020	M20 BOLT - 5 DISC 230 (1025mm)
8	D24DWB01	DISC 24" x 6 mm FLUTED 6BOLTS	11	FAAJB260	M20 BOLT - 6 DISC 230(1255mm)
9	D26DSB26-***	DISC 26" X 6mm SCALLOPED 6 BOLT	11	FAAJB490	M20 BOLT - 7 DISC 9" (1490mm)
9	D26DWB02	DISC 26 x 6mm FLUTED 6 BOLTS	12	FFBJA003	M20 CONE LOCK NUT CLASS 10
9	D26ESB02	DISC 26"x8mm 10SCALLOPED 6BLT	13	FHDSA035	1 1/2" CONICAL SPRING
9	D26EWB02	DISC 26 x 8mm FLUTED 6 BOLT	14	FMCJG000	M20 WASHER 3/4" F436 HARD
9	D26FSB02	DISC 26"x10mm,10 SCALLOPED 6BT	15	FMEUGP00	4mm SPACER 40 SQUARE
10	D28DSB08/***	DISC 28"x6mm SCALLOPED 6BLT	16	MEGRA226	SPOOL 219 (225mm) 10mm DISC
10	D28DWB01	DISC 28"x6mm FLUTED 6 BOLT	16	MEGRA228	SPOOL 219 (227mm) 8mm DISC
10	D28ESB01	DISC 28"x8mm 10SCALLOPED 6BLT	16	MEGRA230	SPOOL 219mm (229mm) 6mm DISC

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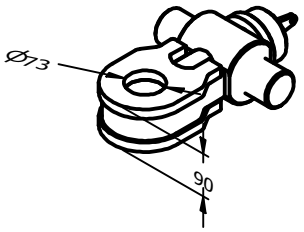
From serial number 6714

Including 6586, 6666, 6703

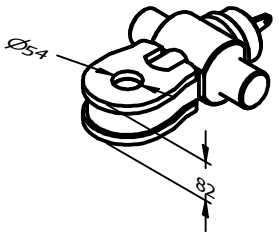
ARTICULATED PULLS



GPEBF00C CAT 5 TONGUE - BISALLOY

GPCATA53 CAT 3 ARTIC PULL ASSEMBLY
4 BOLT - FIELD BOSS / RIPPER BISALLOY

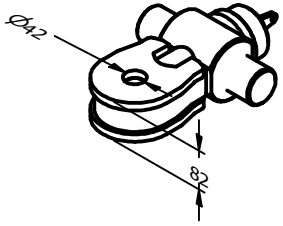
GPCATA56 CAT 5 ARTIC PULL ASSEMBLY
6 BOLT - TINY - BISALLOY



GPDBF004 CAT 4 TONGUE - BISALLOY

GPCATA44 CAT 4 ARTIC PULL ASSEMBLY
4 BOLT - FIELD BOSS / RIPPER BISALLOY

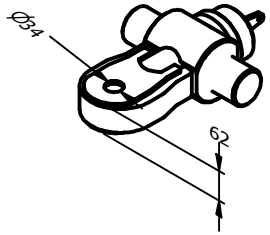
GPCATA46 CAT 4 ARTIC PULL ASSEMBLY
6 BOLT - TINY - BISALLOY



GPCBF003 CAT 3 TONGUE - BISALLOY

GPCATA34 CAT 3 ARTIC PULL ASSEMBLY
4 BOLT - FIELD BOSS / RIPPER BISALLOY

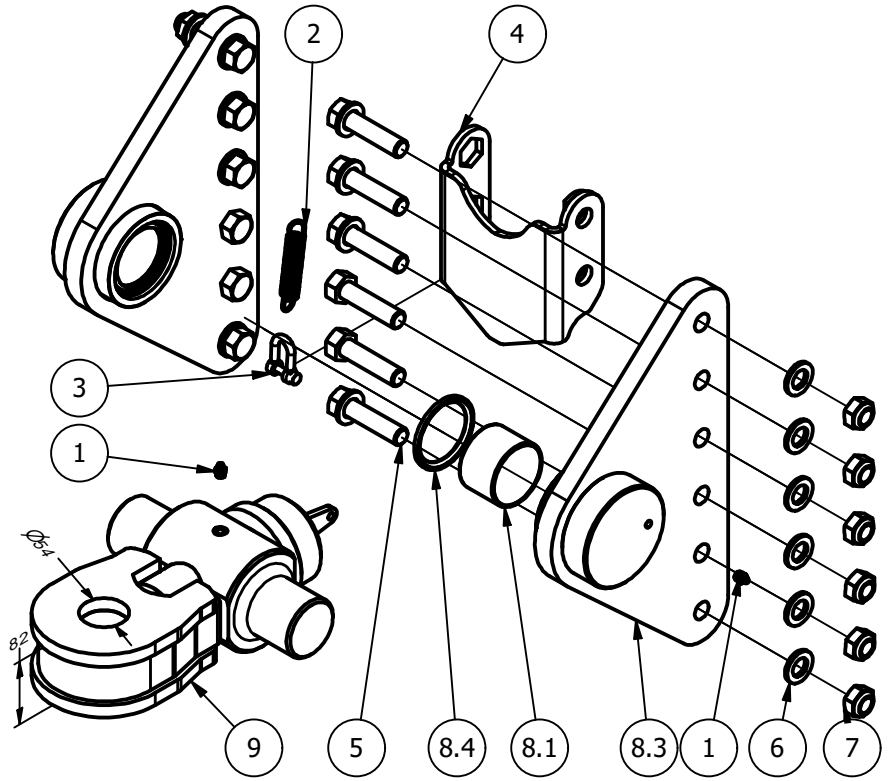
GPCATA36 CAT 3 ARTIC PULL ASSEMBLY
6 BOLT - TINY - BISALLOY



GPBBF012 CAT 1-2 ARTICULATED TONGUE

GPCATA24 CAT 1-2 ARTIC PULL ASSEMBLY
4 BOLT - TINY / FIELD BOSS / RIPPER
BISALLOY

POS	QTY	PART NO	DESCRIPTION
1	3	BMCAA000	GREASE NIPPLE 1/8 BSP
2	1	FHKDC091	EXTENSION SPRING 98 X 25 X 3.15
3	1	FYBCC000	8mm D SHACKLE
4	1	GPFAC000	PULL SPRING SHIELD - TINY
5	12	FABJA080	BOLT M20 X 80 pc 8.8 COARSE
6	20	FMCJG000	M20 WASHER 3/4" F436 HARD
7	12	FFBJA003	M20 CONE LOCK NUT CLASS 10
8	2	GPFAB004	ARTIC. PULL SIDE PLATE ASSY 6 BOLT - INC. BUSH & PIN WIPER
8.1	1	BVHPA040	DU BUSH 70 X 75 X 50
8.2	1	NJIG0011	TOOL FOR INSTALLING 70mm DU/DX
8.3	1	GPFAA004	PULL SIDE PLATE 6 hole (welded)
8.4	1	HKAS/919-90 70088	WIPER 919 70 X 85 X 5
9	1	GPDBF004	CAT 4 TONGUE - BISALLOY



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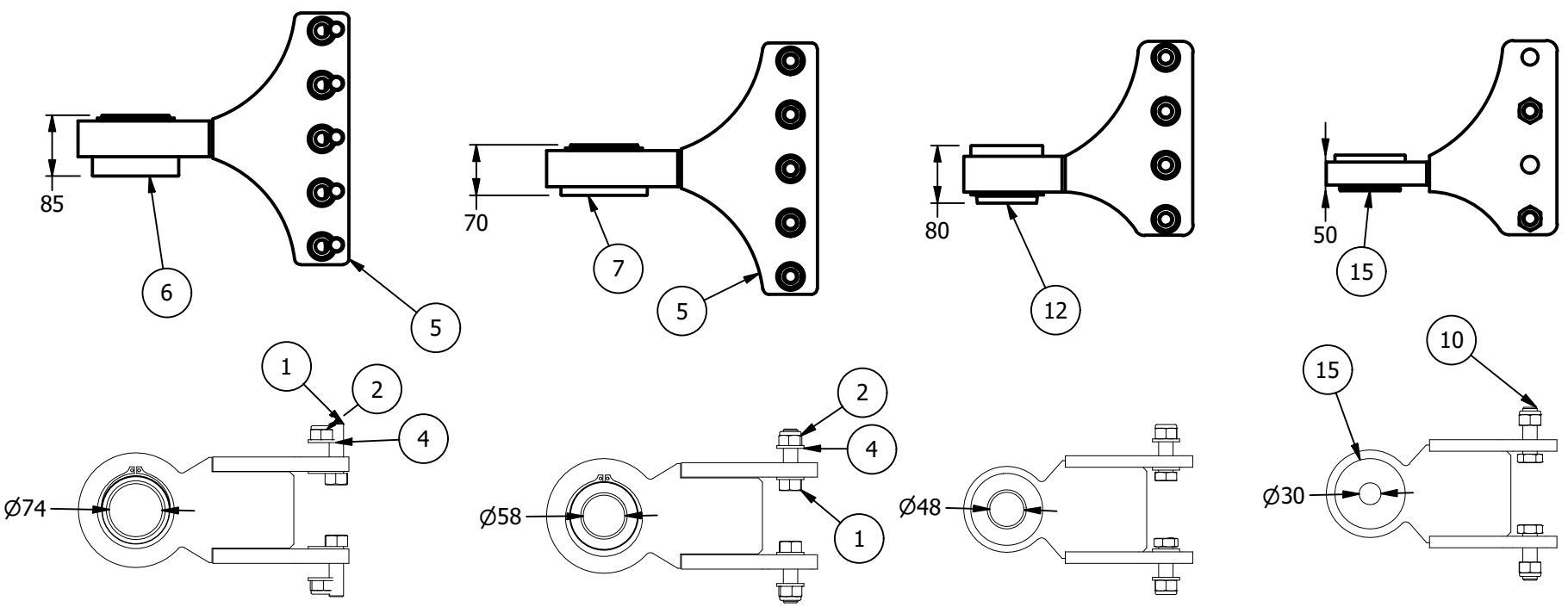
FIXED PULL TONGUES



GPBAA500 / GPCATF5
CAT 5 FIXED PULL ASSY

POS	QTY	PART NO	DESCRIPTION
1	10	FABJA070	BOLT M20 X 70 pc 10.9 COARSE
2	10	FFBJA000	NYLOC NUT M20 P TYPE 2.5
3	1	FKDYA000	CIRCLIP 95mm
4	20	FMCJG000	M20 WASHER 3/4" F436 HARD
5	1	GPBAA04-5	CAT 4-5 FIXED PULL TONGUE
6	1	MDBUA085	CAT 5 PULL BUSH

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GPBAA005 / GPCATF4
CAT 4 FIXED PULL ASSY

POS	QTY	PART NO	DESCRIPTION
1	10	FABJA070	BOLT M20 X 70 pc 10.9 COARSE
2	10	FFBJA000	NYLOC NUT M20 P TYPE 2.5
3	1	FKDYA000	CIRCLIP 95mm
4	20	FMCJG000	M20 WASHER 3/4" F436 HARD
5	1	GPBAA04-5	CAT 4-5 FIXED PULL TONGUE
7	1	MDDTA068A	CAT 4 PULL BUSH

GPBAA400 / GPCAT3F
CAT 3 FIXED PULL ASSY

POS	QTY	PART NO	DESCRIPTION
8	2	CCCZH000	PULL TONGE S/PLATES
9	1	CGCTU000	PLATE 50mm PULL TONGUE
10	8	FABJA065	BOLT M20 X 65 pc 10.9 COARSE
2	8	FFBJA000	NYLOC NUT M20 P TYPE 2.5
11	1	FKDZA003	CIRCLIP 85mm
4	16	FMCJG000	M20 WASHER 3/4" F436 HARD
12	1	MDDRA067A	CAT 3 HARDENED BUSH

GPBAA007 / GPCATF1-2
CAT 0 FIXED PULL ASSY

POS	QTY	PART NO	DESCRIPTION
8	2	CCCZH000	PULL TONGE S/PLATES
13	1	CGCTP001	CAT 0- 3 FIXED PULL TONGUE
10	4	FABJA065	BOLT M20 X 65 pc 10.9 COARSE
2	4	FFBJA000	NYLOC NUT M20 P TYPE 2.5
14	1	FKDZA060	CIRCLIP 60mm
15	1	MDDRA049a	CAT 0 PULL BUSH

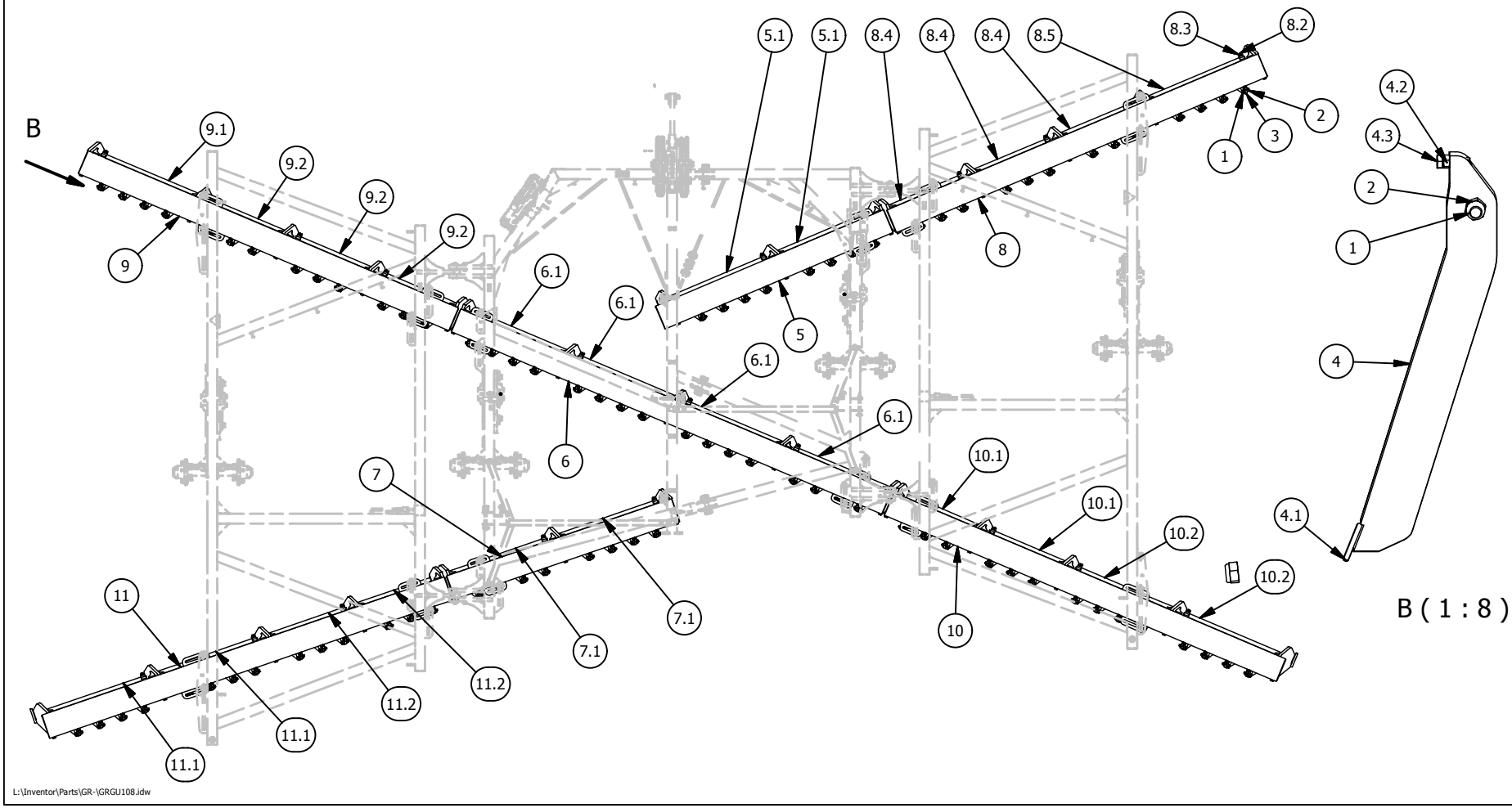
From serial number 6714

Including 6586, 6666, 6703

108 Folding Field Boss Gangs 6mm RHS

GRGU108

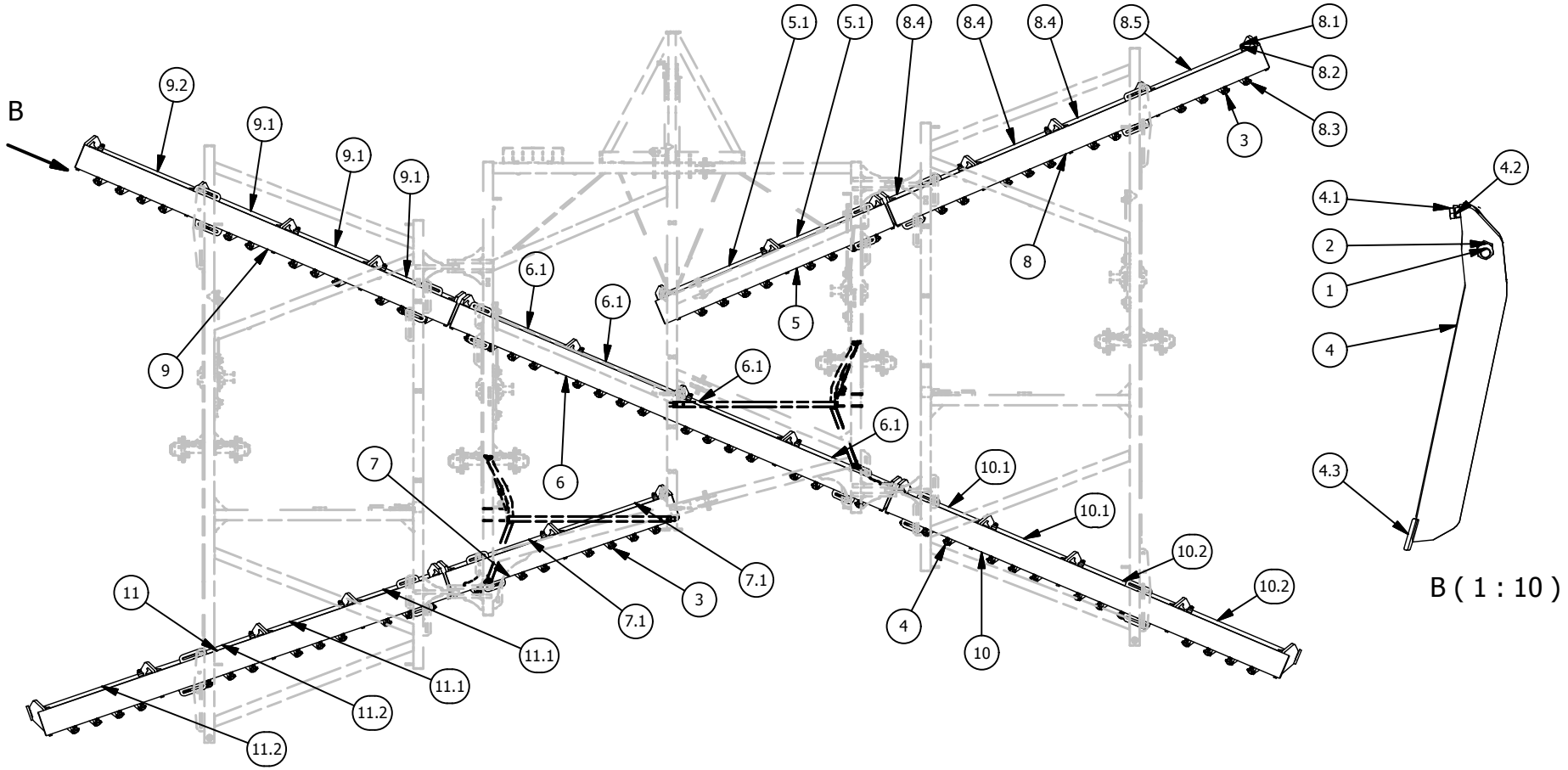
ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	86	FABHA065	BOLT M16 X 65 PC 8.8	6	1	GRGU100-108-4	100 TO 108 PLATE GANG 4	8.5	1	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
2	86	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC	6.1	4	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	9	1	GRGU108-3	108 PLATE GANG 3
3	43	GFXAA200	SCRAPER - LEFT	7	1	GRGU100-108-6	100 TO 108 PLATE GANG 6	9.1	1	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
4	43	GFXBA200	SCRAPER - RIGHT	7.1	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	9.2	3	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230
4.1	1	MCCHA200	SCRAPER PAD (50x6x200)	8	1	GRGU108-1	108 PLATE GANG 1	10	1	GRGU108-5	108 PLATE GANG 5
4.2	1	FFAFA000	M10 Hex Nut ZINC AS1112	8.1	26	MAEJA080A	SCRAPER LUG FLAT 65 X 10 (80mm)	10.1	2	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230
4.3	1	FEBFA040	BOLT M10 X 35	8.2	11	FABHA090	BOLT M16 X 90 PC 10.9 Z/P H/T~	10.2	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
5	1	GRGU100-108-2	100 TO 108 PLATE GANG 2	8.3	11	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC	11	1	GRGU108-7	108 PLATE GANG 7
5.1	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	8.4	3	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230	11.1	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
								11.2	2	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230



108 Folding Field Boss Gangs 9mm

GRGU108-9

ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	86	FABHA065	BOLT M16 X 65 PC 8.8	6	1	GRGU100-108-4-9	GANG 4 - 100-112 FIELD BOSS	8.5	1	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
2	86	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC	6.1	4	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	9	1	GRGU108-3-9	GANG 3-9mm 108 FIELD BOSS
3	43	GFXAA200	SCRAPER - LEFT	7	1	GRGU100-108-6-9	GANG 6 - 100-112 FIELD BOSS	9.1	3	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230
4	43	GFXBA200	SCRAPER - RIGHT	7.1	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	9.2	1	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
4.1	1	FEBFA040	BOLT M10 X 35	8	1	GRGU108-1-9	GANG 1-9mm 108 FIELD BOSS	10	1	GRGU108-5-9	GANG 5-9mm 108 FIELD BOSS
4.2	1	FFAFA000	M10 Hex Nut ZINC AS1112	8.1	11	FABHA090	BOLT M16 X 90 PC 10.9 Z/P H/T~	10.1	2	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230
4.3	1	MCCHA200	SCRAPER PAD (50x6x200)	8.2	11	FFBHA000	NUT NYLOC M16 P TYPE PC8 ZINC	10.2	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230
5	1	GRGU100-108-2-9	GANG 2-9mm 100-112 FIIELD BOSS	8.3	26	MAEJA080A	SCRAPER LUG FLAT 65 X 10 (80mm)	11	1	GRGU108-7-9	GANG 7-9mm 108 FIELD BOSS
5.1	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230	8.4	3	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230	11.1	2	MJAMA944A	AXLE 1 1/2"(946) 4 DISC-230
								11.2	2	MJAMB181A	AXLE 1 1/2"(1181) 5 DISC- 230



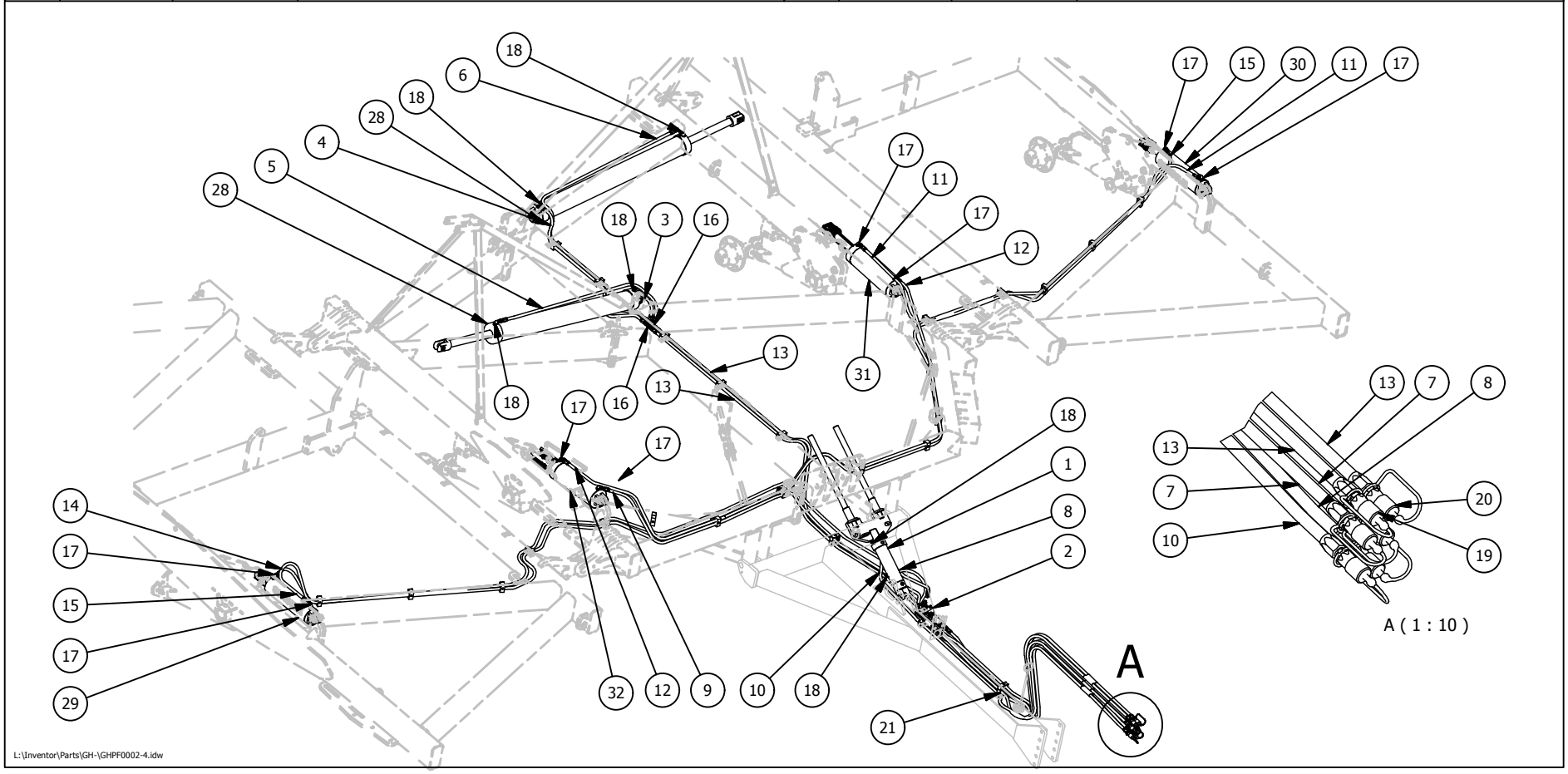
From serial number 6714

Including 6586, 6666, 6703

HYDRAULIC KIT F BOSS 100-108 9mm FRAME

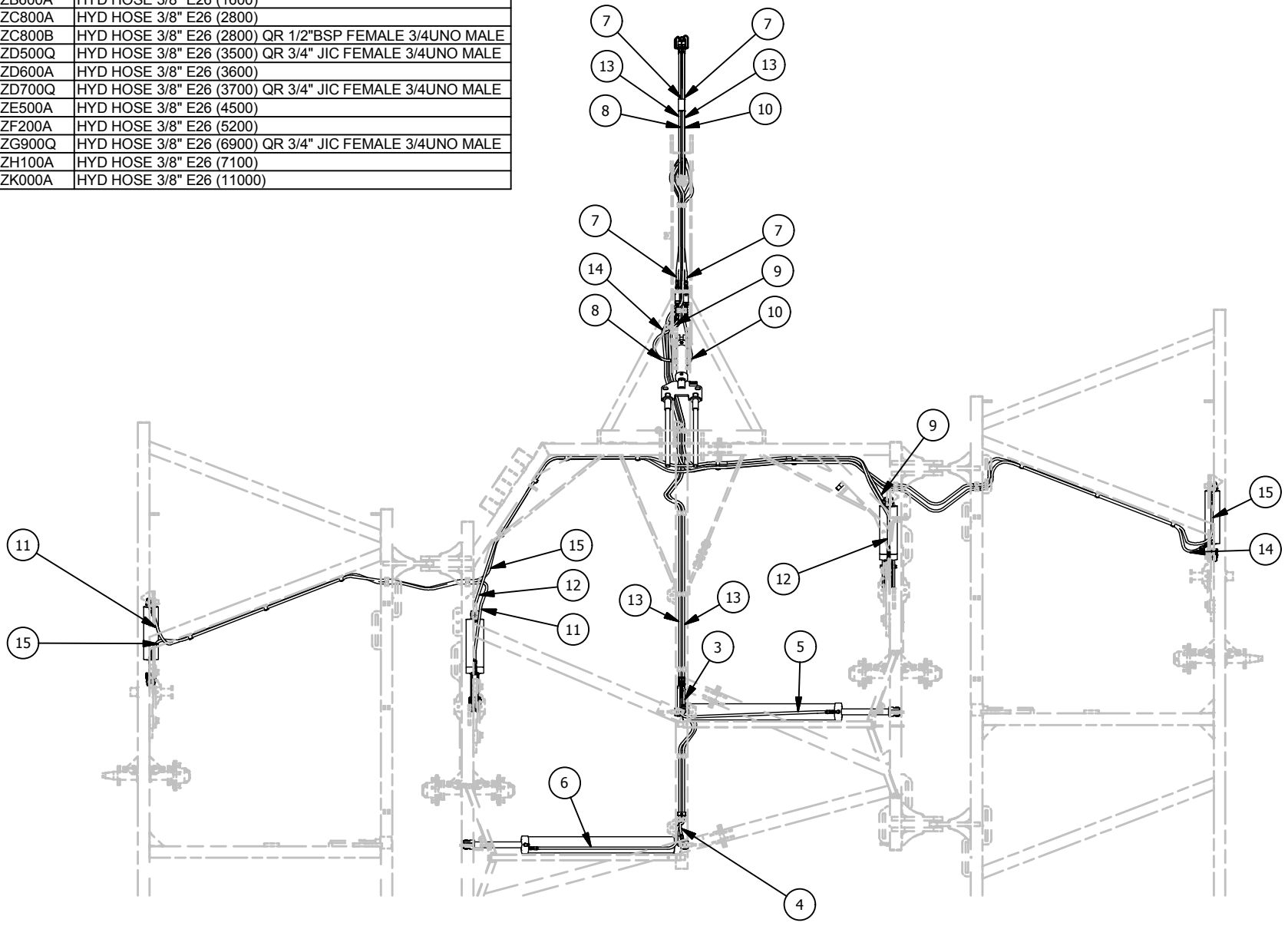
GHPF0002-4

POS	QTY	PART NO	DESCRIPTION	POS	QTY	PART NO	DESCRIPTION
1	1	GDFGL006	TWIN PITCH CONTROL	17	8	HHABAM07	ELBOW 3/4 JICM 3/4 UN O MALE
2	1	HFALL50-BA	RETRACT LINE RELIEF VALVE KIT	18	6	HHABAM07A	ELBOW RESTRICTOR3/4 JICM 3/4 UN O
3	1	HGCZA350A	HYD HOSE 3/8" E26 (350)	19	3	HHZWUA07B	HYD Coupling COVER BLUE
4	1	HGCZB500A	HYD HOSE 3/8" E26 (1500)	20	3	HHZWUA07R	HYD Coupling COVER RED
5	1	HGCZB600A	HYD HOSE 3/8" E26 (1600)	21	32	HJBCA000	20mm DOUBLE HOSE CLAMP SHELL
6	1	HGCZC800A	HYD HOSE 3/8" E26 (2800)	22	1	HJBEA000	STACKING BOLT RCD-3BS
7	2	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE	23	26	HJBFA000	TOP PLATE DOUBLE FOR GROUP 3
8	1	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE	24	1	HMDEA004	DEPTH STOP - CAPTIVE PAIR
9	1	HGCZD600A	HYD HOSE 3/8" E26 (3600)	25	1	HXEAF000	HEAT SHRINK RED - WHEEL LIFT
10	1	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE	26	1	HXEBF000	HEAT SHRINK GREEN - FOLD
11	1	HGCZE500A	HYD HOSE 3/8" E26 (4500)	27	1	HXECF000	HEAT SHRINK BLUE- PITCH CONTROL
12	1	HGCZF200A	HYD HOSE 3/8" E26 (5200)	28	2	HYP500/48	HYD. CYLINDER 5" x 48" 2" Rod
13	2	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR 3/4" JIC FEMALE 3/4UNO MALE	29	1	HZP425/12D	HYD CYL.4.25"x12" D/S 1.38"rod
14	1	HGCZH100A	HYD HOSE 3/8" E26 (7100)	30	1	HZP450/12D	HYD. CYL. 4.5 X 12 DS 1.5"
15	1	HGCZK000A	HYD HOSE 3/8" E26 (11000)	31	1	HZP500/12D55	HYD. CYLINDER 5 X 12 DS 55 ROD
16	2	HHAAAA77	TEE 3/4JICM 3/4JICM 3/4JICM S19-121212	32	1	HZP550/12D	HYD. CYLINDER 5.5 X 12 DS 2.25" ROD



HYDRAULIC KIT F BOSS 100-108 9mm FRAME

POS	QTY	PART NO	DESCRIPTION
3	1	HGCZA350A	HYD HOSE 3/8" E26 (350)
4	1	HGCZB500A	HYD HOSE 3/8" E26 (1500)
5	1	HGCZB600A	HYD HOSE 3/8" E26 (1600)
6	1	HGCZC800A	HYD HOSE 3/8" E26 (2800)
7	2	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE
8	1	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE
9	1	HGCZD600A	HYD HOSE 3/8" E26 (3600)
10	1	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE
11	1	HGCZE500A	HYD HOSE 3/8" E26 (4500)
12	1	HGCZF200A	HYD HOSE 3/8" E26 (5200)
13	2	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR 3/4" JIC FEMALE 3/4UNO MALE
14	1	HGCZH100A	HYD HOSE 3/8" E26 (7100)
15	1	HGCZK000A	HYD HOSE 3/8" E26 (11000)



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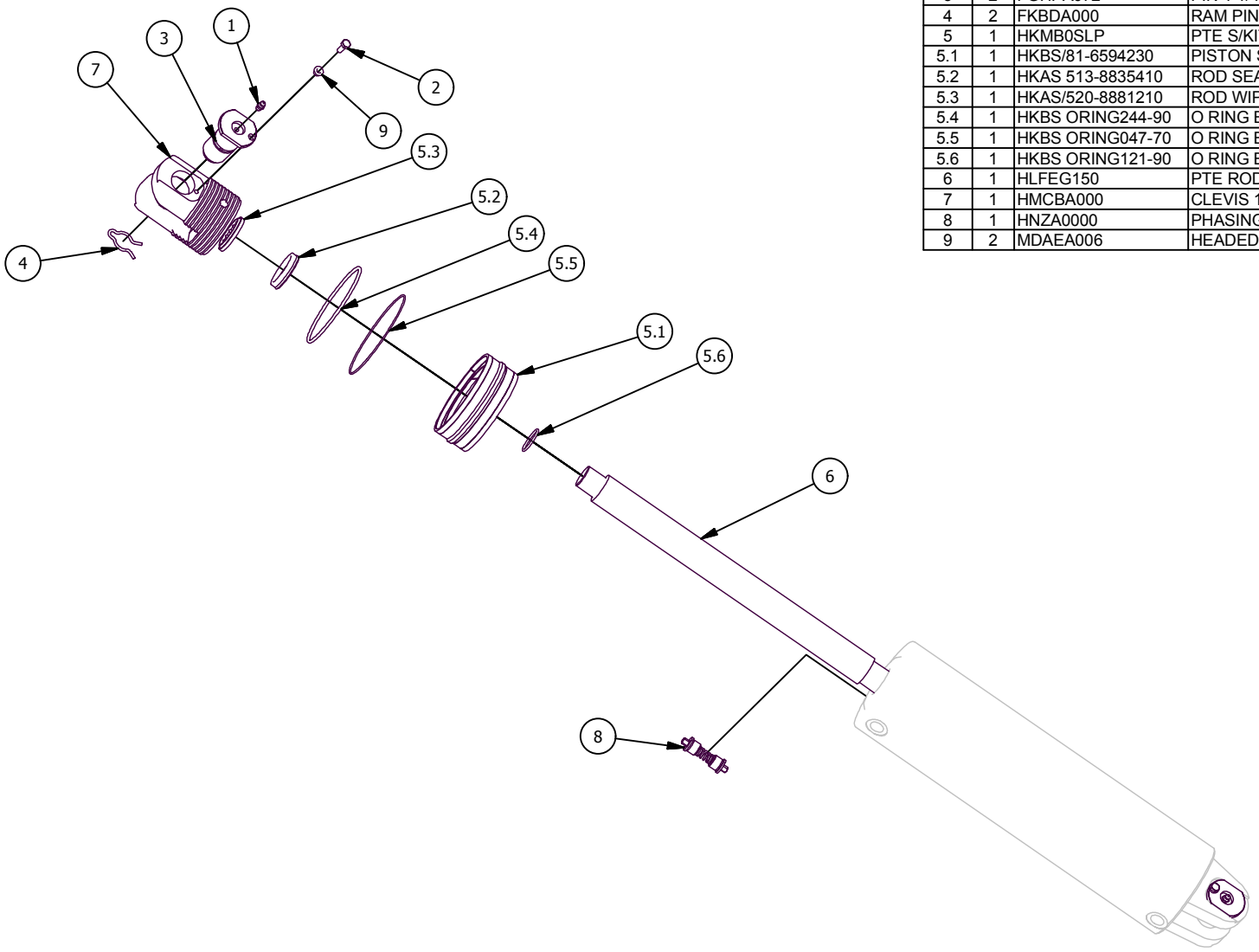
From serial number 6714

Including 6586, 6666, 6703

HYD. CYL. 4.5 X 12 DS 1.5"

HZP450-12D

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	HKMB0SLP	PTE S/KIT SLP 4.5" X 1.5" ROD
5.1	1	HKBS/81-6594230	PISTON SEAL 4.5" HALLITE "81"
5.2	1	HKAS 513-8835410	ROD SEAL "513"1.5"X1.875"X.375
5.3	1	HKAS/520-8881210	ROD WIPER"520"1.5"X1.875"X .18
5.4	1	HKBS ORING244-90	O RING BS 244 90 DURO
5.5	1	HKBS ORING047-70	O RING BS 047 70 DURO
5.6	1	HKBS ORING121-90	O RING BS 121 90 DURO
6	1	HLFEG150	PTE ROD 12" x 1.5" (1.25"UNF)
7	1	HMCBA000	CLEVIS 1.25" PIN 1.25"UNF D/S
8	1	HNZA0000	PHASING VALVE FOR PTE CYINDER
9	2	MDAEA006	HEADED BUSH



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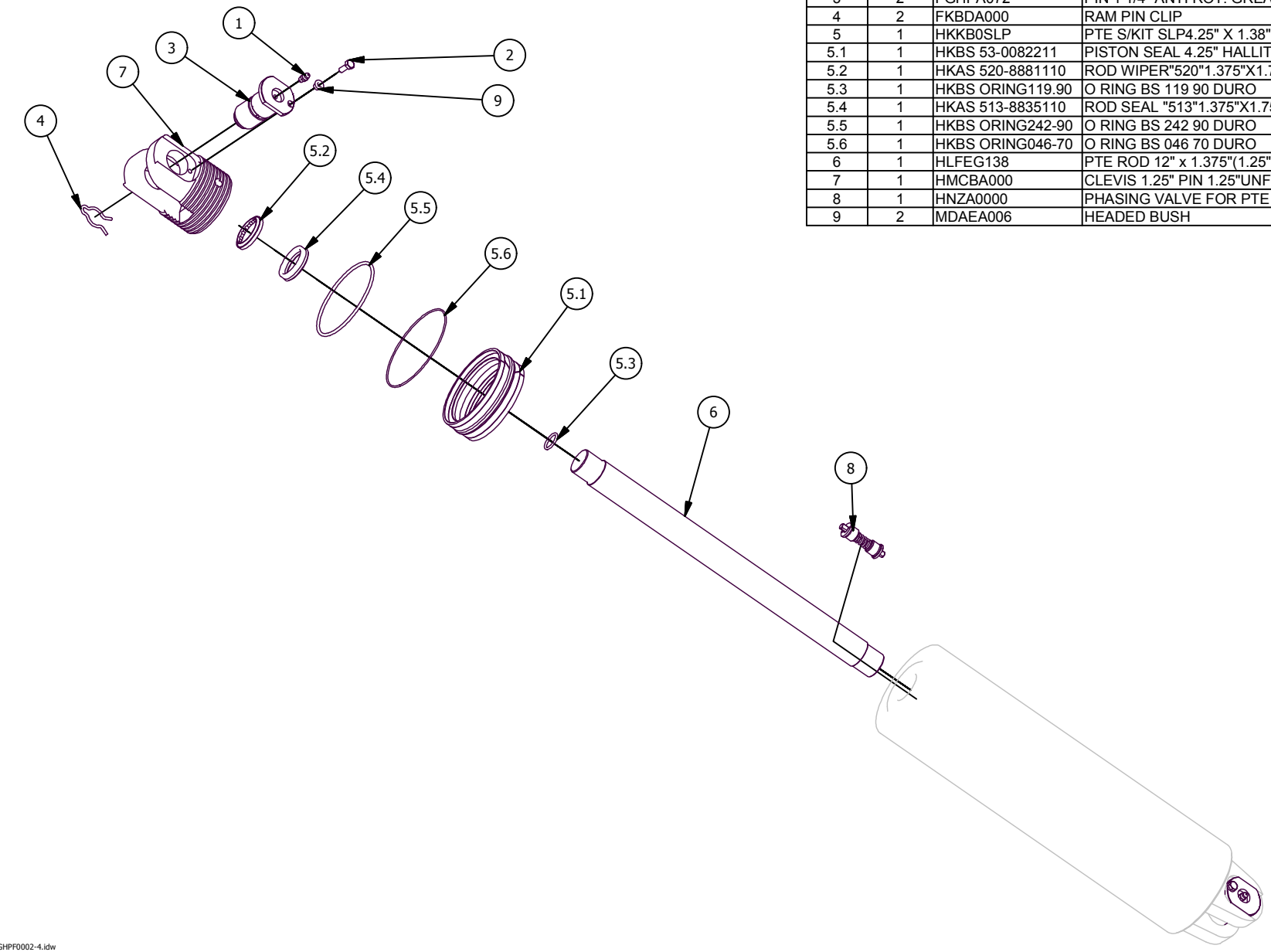
HYD CYL.4.25"x12" D/S 1.38"rod

HZP425-12D



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	HKKB0SLP	PTE S/KIT SLP4.25" X 1.38" ROD
5.1	1	HKBS 53-0082211	PISTON SEAL 4.25" HALLITE "53"
5.2	1	HKAS 520-8881110	ROD WIPER"520"1.375"X1.75"X.18
5.3	1	HKBS ORING119.90	O RING BS 119 90 DURO
5.4	1	HKAS 513-8835110	ROD SEAL "513"1.375"X1.75"X.37
5.5	1	HKBS ORING242-90	O RING BS 242 90 DURO
5.6	1	HKBS ORING046-70	O RING BS 046 70 DURO
6	1	HLFEG138	PTE ROD 12" x 1.375"(1.25"UNF)
7	1	HMCBA000	CLEVIS 1.25" PIN 1.25"UNF D/S
8	1	HNZA0000	PHASING VALVE FOR PTE CYINDER
9	2	MDAEA006	HEADED BUSH

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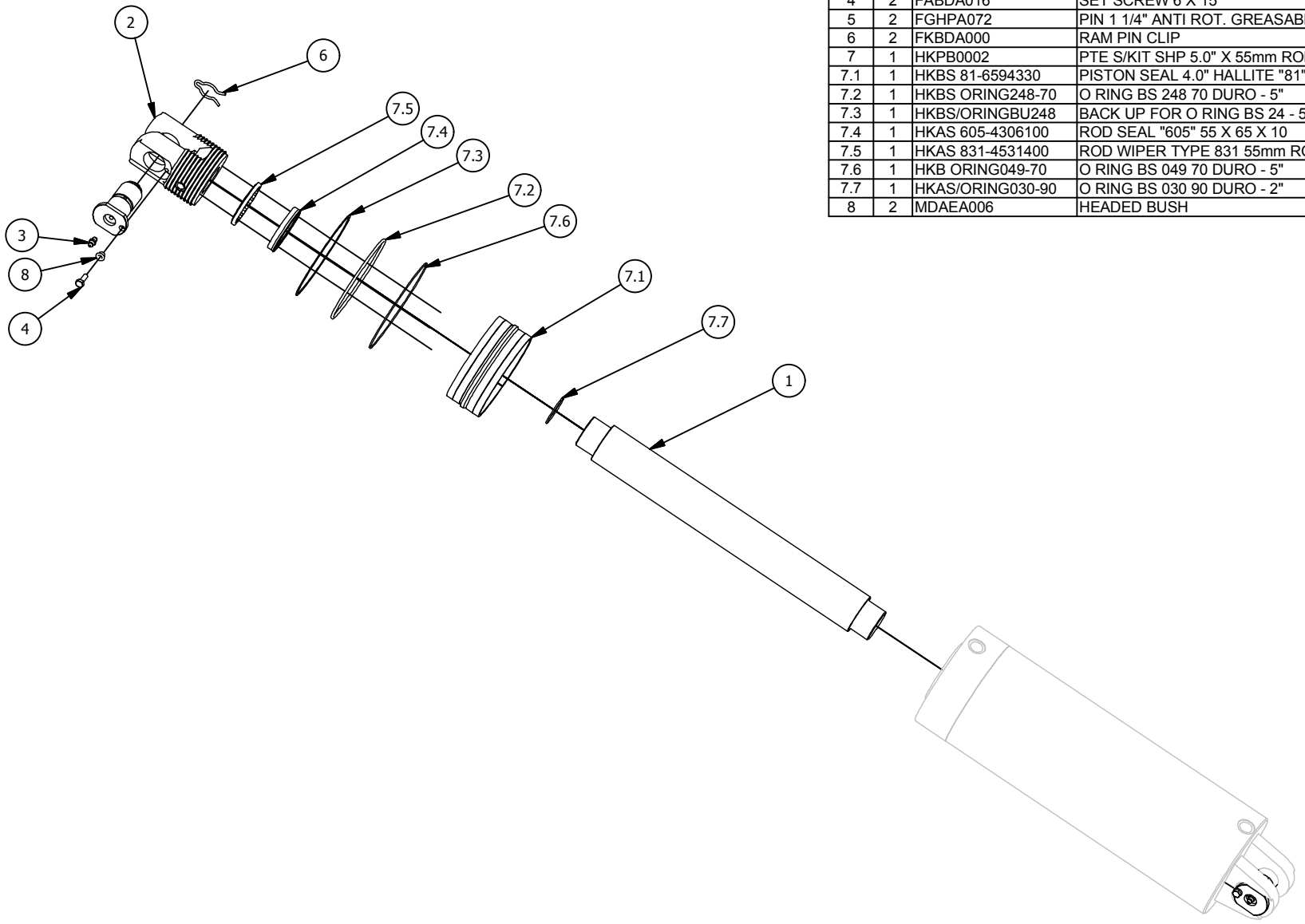
From serial number 6714

Including 6586, 6666, 6703

HYD. CYLINDER 5 X 12 DS 55 ROD

HZP500-12D55

ITEM	QTY	PART NO.	DESCRIPTION
1	1	HLFEG550	PTE ROD 12" x 55mm(1.75" UNF)
2	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
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
7.1	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"
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
7.6	1	HKB ORING049-70	O RING BS 049 70 DURO - 5"
7.7	1	HKAS/ORING030-90	O RING BS 030 90 DURO - 2"
8	2	MDAEA006	HEADED BUSH



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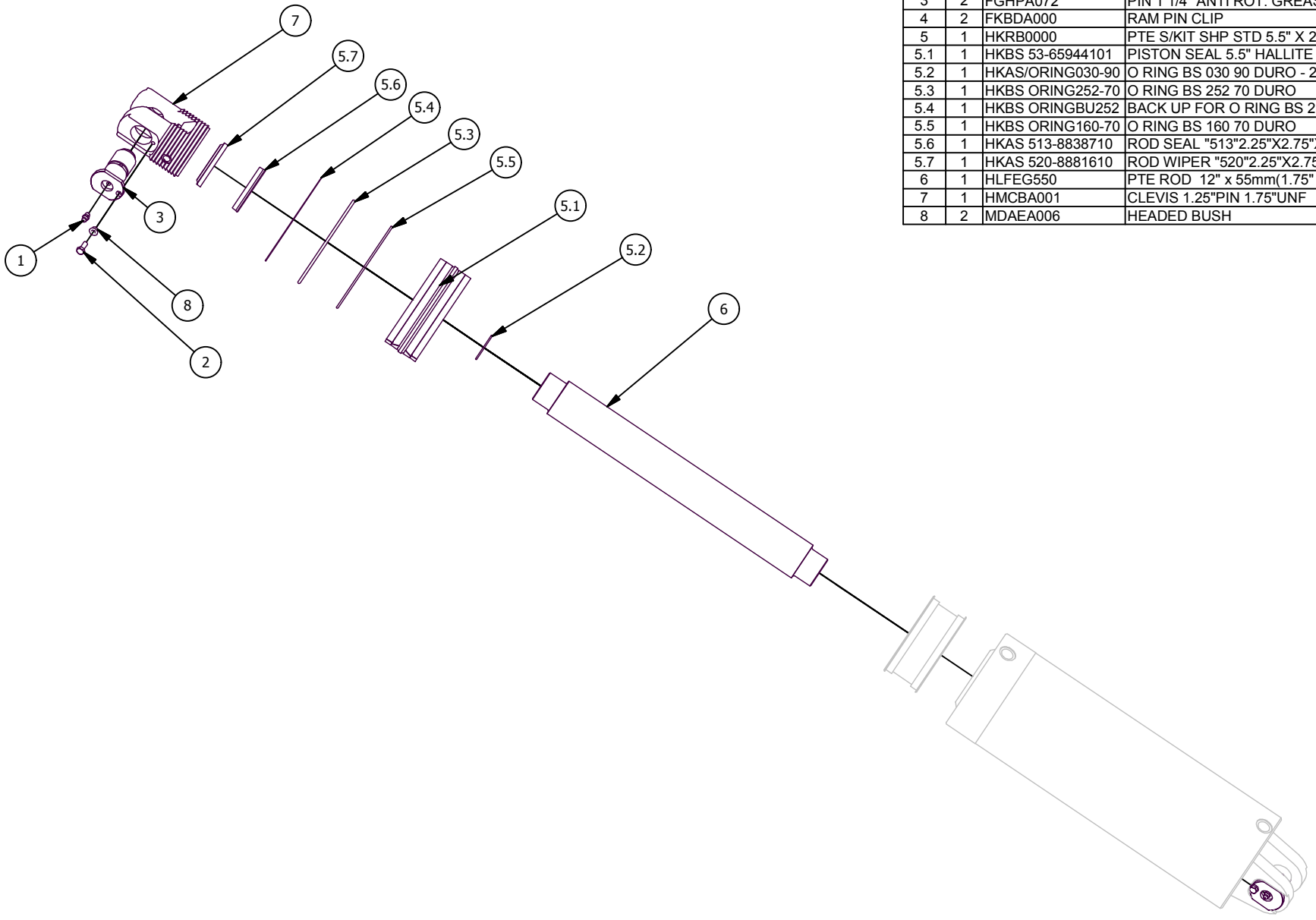
HYD. CYLINDER 5.5 X 12 DS 2.25" ROD

HZP550-12D

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	HKRB0000	PTE S/KIT SHP STD 5.5" X 2.25"
5.1	1	HKBS 53-65944101	PISTON SEAL 5.5" HALLITE "53"
5.2	1	HKAS/ORING030-90	O RING BS 030 90 DURO - 2"
5.3	1	HKBS ORING252-70	O RING BS 252 70 DURO
5.4	1	HKBS ORINGBU252	BACK UP FOR O RING BS 252
5.5	1	HKBS ORING160-70	O RING BS 160 70 DURO
5.6	1	HKAS 513-8838710	ROD SEAL "513"2.25"X2.75"X.375
5.7	1	HKAS 520-8881610	ROD WIPER "520"2.25"X2.75X.25
6	1	HLFEG550	PTE ROD 12" x 55mm(1.75" UNF)
7	1	HMCBA001	CLEVIS 1.25"PIN 1.75"UNF
8	2	MDAEA006	HEADED BUSH



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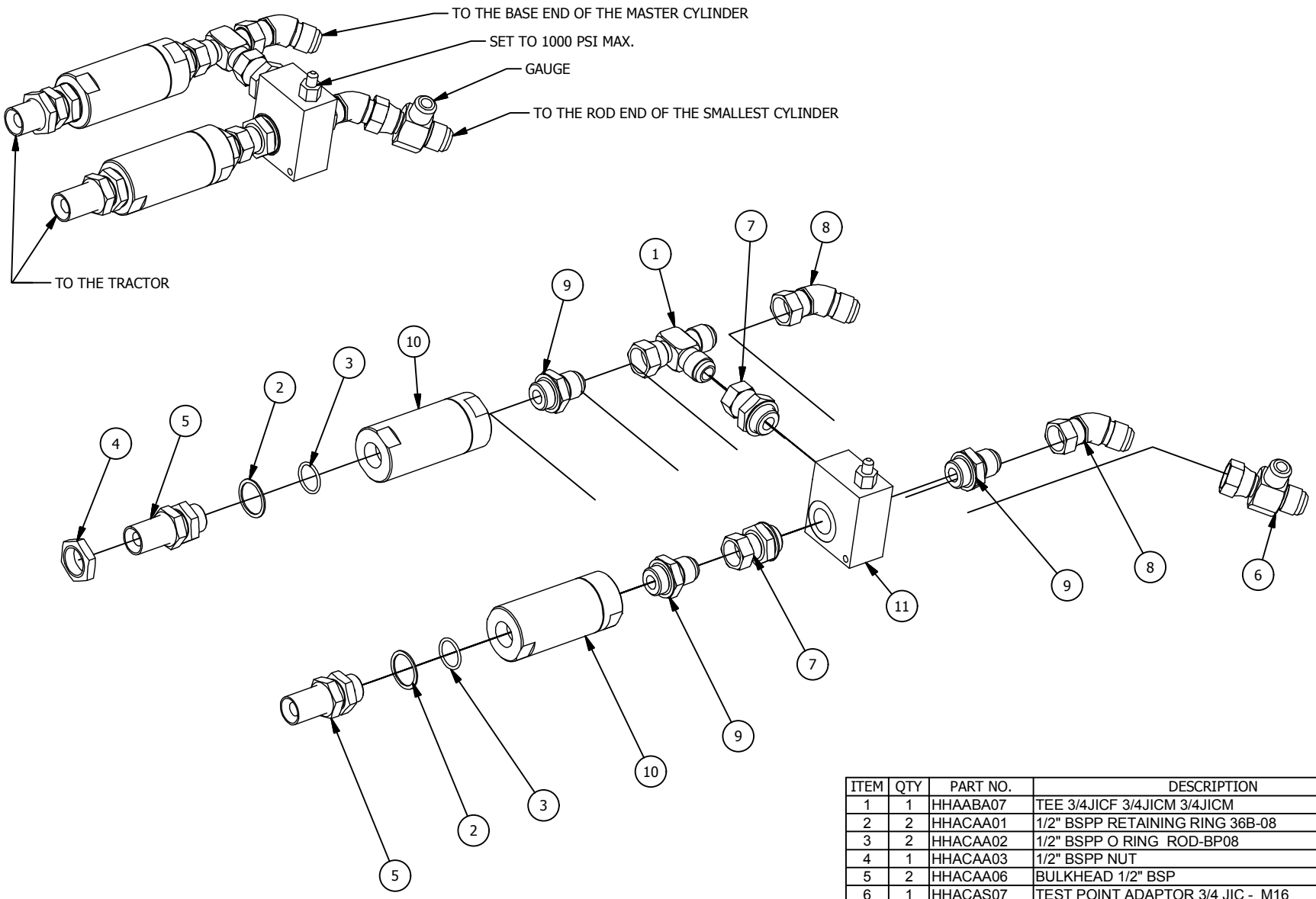
From serial number 6714

Including 6586, 6666, 6703

RETRACT LINE RELIEF VALVE KIT

HFALL50-BA



ITEM	QTY	PART NO.	DESCRIPTION
1	1	HHAABA07	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	2	HHBCS2312	ELBOW 45DEG JIC -12-12
9	3	HHBEM000	STRAIGHT 3/4 JIC M 1/2 BSPP ORING M
10	2	HHKY0000	IN LINE HYDRAULIC FILTER
11	1	HHMWA008	INLINE RELIEF VALVE 1/2" BSP

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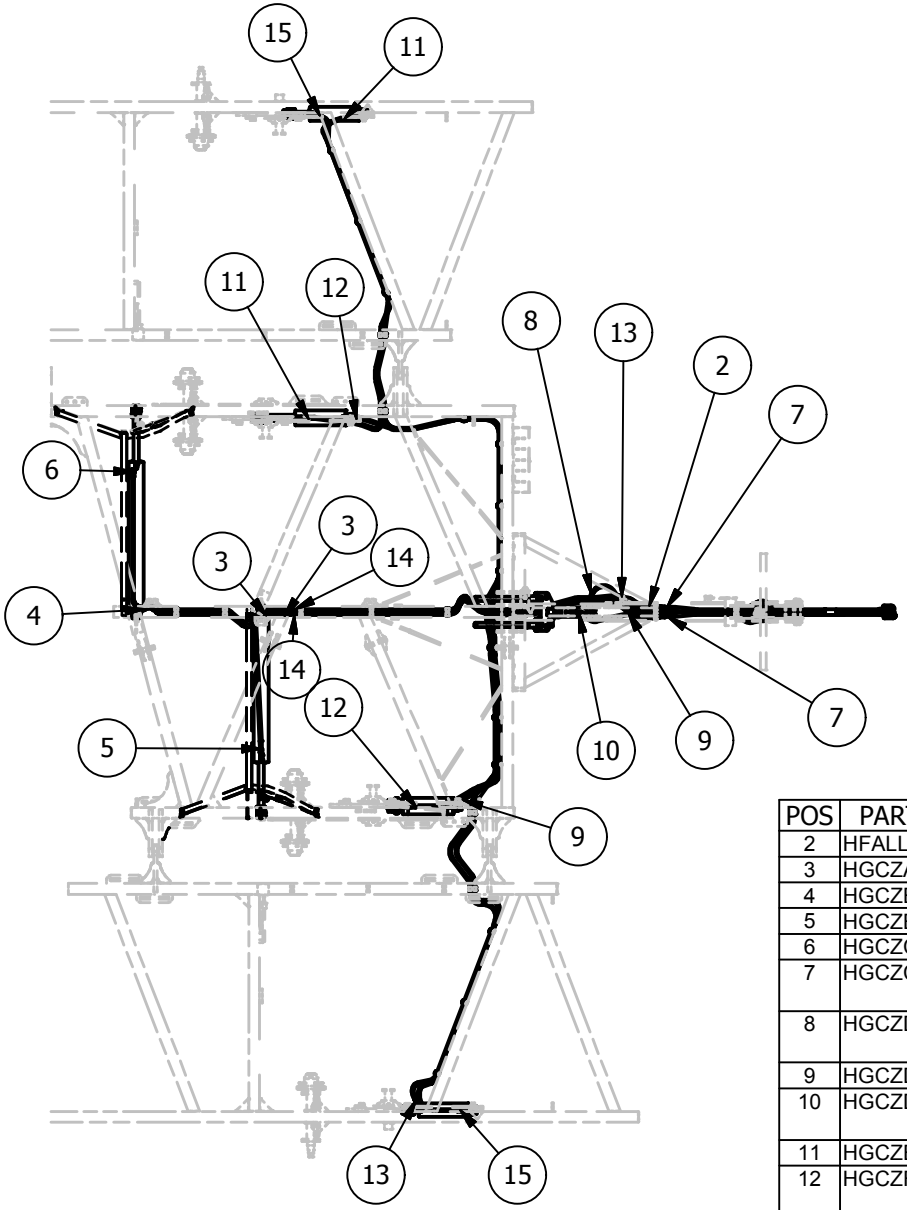
PTE 100-108 F/BOSS RAM KIT 12mm

GHPF0002-5



POS	PART NO	DESCRIPTION	QTY	CHECKED
2	HFALL50-BA	RETRACT LINE RELIEF VALVE KIT	1	
3	HGCZA350A	HYD HOSE 3/8" E26 (350)	1	
4	HGCZB500A	HYD HOSE 3/8" E26 (1500)	1	
5	HGCZB600A	HYD HOSE 3/8" E26 (1600)	1	
6	HGCZC800A	HYD HOSE 3/8" E26 (2800)	1	
7	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE	2	
8	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE	1	
9	HGCZD600A	HYD HOSE 3/8" E26 (3600)	1	
10	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE	1	
11	HGCZE500A	HYD HOSE 3/8" E26 (4500)	1	
12	HGCZF900A	HYD HOSE 3/8" E26 (5900) 3/4JIC FEMALE 3/4JIC FEMALE	1	
13	HGCZG600A	HYD HOSE 3/8" E26 (6600)	1	
14	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR 3/4" JIC FEMALE 3/4UNO MALE	2	
15	HGCZK600A	HYD HOSE 3/8" E26 (11600)	1	

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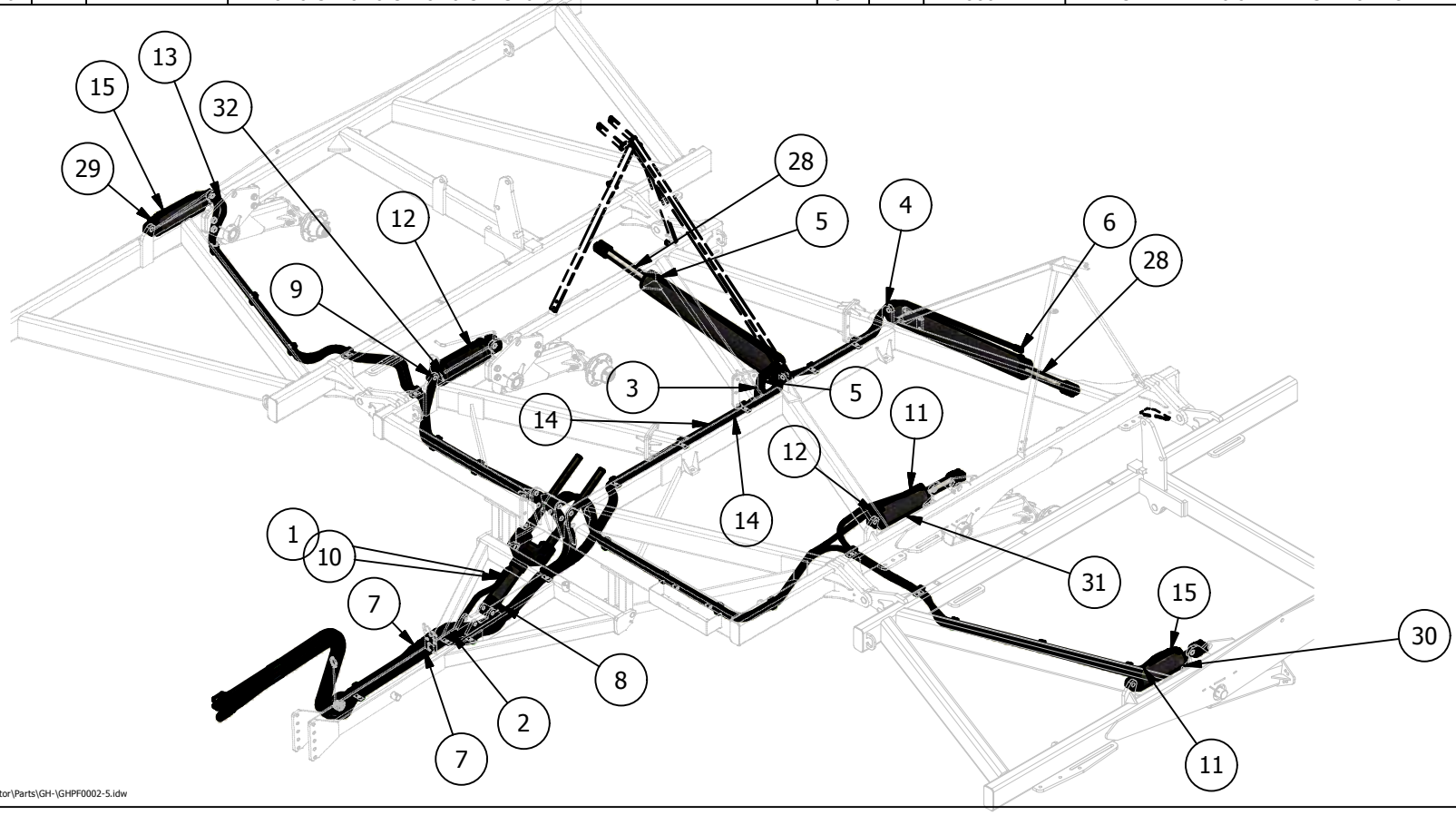
From serial number 6714

Including 6586, 6666, 6703

PTE 100-108 F/BOSS RAM KIT 12mm

GHPF0002-5

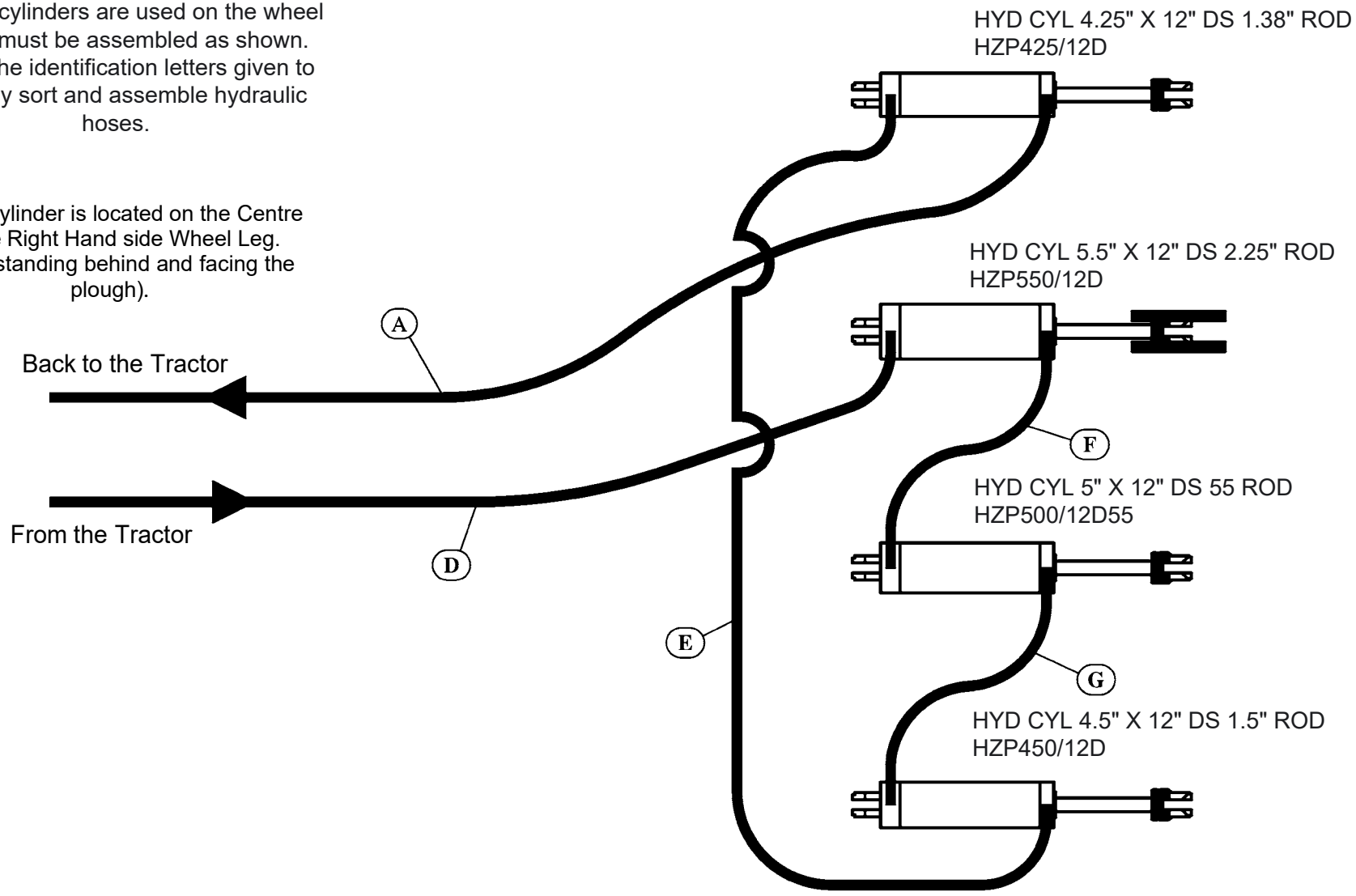
POS	QTY	PART NO	DESCRIPTION	POS	QTY	PART NO	DESCRIPTION
1	1	GDFGL006	TWIN PITCH CONTROL	17	8	HHABAM07	ELBOW 3/4 JICM 3/4 UN ORING MALE
2	1	HFALL50-BA	RETRACT LINE RELIEF VALVE KIT	18	7	HHABAM07A	ELBOW RESTRICTOR3/4 JICM 3/4 UN O
3	1	HGCZA350A	HYD HOSE 3/8" E26 (350)	19	3	HHZWUA07B	HYD Coupling COVER BLUE
4	1	HGCZB500A	HYD HOSE 3/8" E26 (1500)	20	3	HHZWUA07R	HYD Coupling COVER RED
5	1	HGCZB600A	HYD HOSE 3/8" E26 (1600)	21	32	HJBCA000	20mm DOUBLE HOSE CLAMP SHELL
6	1	HGCZC800A	HYD HOSE 3/8" E26 (2800)	22	1	HJBEA000	STACKING BOLT RCD-3BS
7	2	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE	23	26	HJBFA000	TOP PLATE DOUBLE FOR GROUP 3
8	1	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE	24	1	HMDEA004	DEPTH STOP - CAPTIVE PAIR
9	1	HGCZD600A	HYD HOSE 3/8" E26 (3600)	25	1	HXEAF000	HEAT SHRINK RED - WHEEL LIFT
10	1	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE	26	1	HXEBF000	HEAT SHRINK GREEN - FOLD
11	1	HGCZE500A	HYD HOSE 3/8" E26 (4500)	27	1	HXECF000	HEAT SHRINK BLUE- PITCH CONTROL
12	1	HGCZF900A	HYD HOSE 3/8" E26 (5900) 3/4JIC FEMALE 3/4JIC FEMALE	28	2	HYP500/48	HYD. CYLINDER 5" x 48" 2" Rod
13	1	HGCZG600A	HYD HOSE 3/8" E26 (6600)	29	1	HZP425/12D	HYD CYL.4.25"x12" D/S 1.38"rod
14	2	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR 3/4" JIC FEMALE 3/4UNO MALE	30	1	HZP450/12D	HYD. CYL. 4.5 X 12 DS 1.5"
15	1	HGCZK600A	HYD HOSE 3/8" E26 (11600)	31	1	HZP500/12D55	HYD. CYLINDER 5 X 12 DS 55 ROD
16	2	HHAAAA77	TEE 3/4JICM 3/4JICM 3/4JICM S19-121212	32	1	HZP550/12D	HYD. CYLINDER 5.5 X 12 DS 2.25" ROD



Hydraulic Wheel Lift Plumbing Diagram - 100 to 108 plate

Phasing cylinders are used on the wheel lift and must be assembled as shown. Follow the identification letters given to correctly sort and assemble hydraulic hoses.

Master cylinder is located on the Centre Frame Right Hand side Wheel Leg. (When standing behind and facing the plough).



From serial number 6714

Including 6586, 6666, 6703

100-108plt F/BOSS

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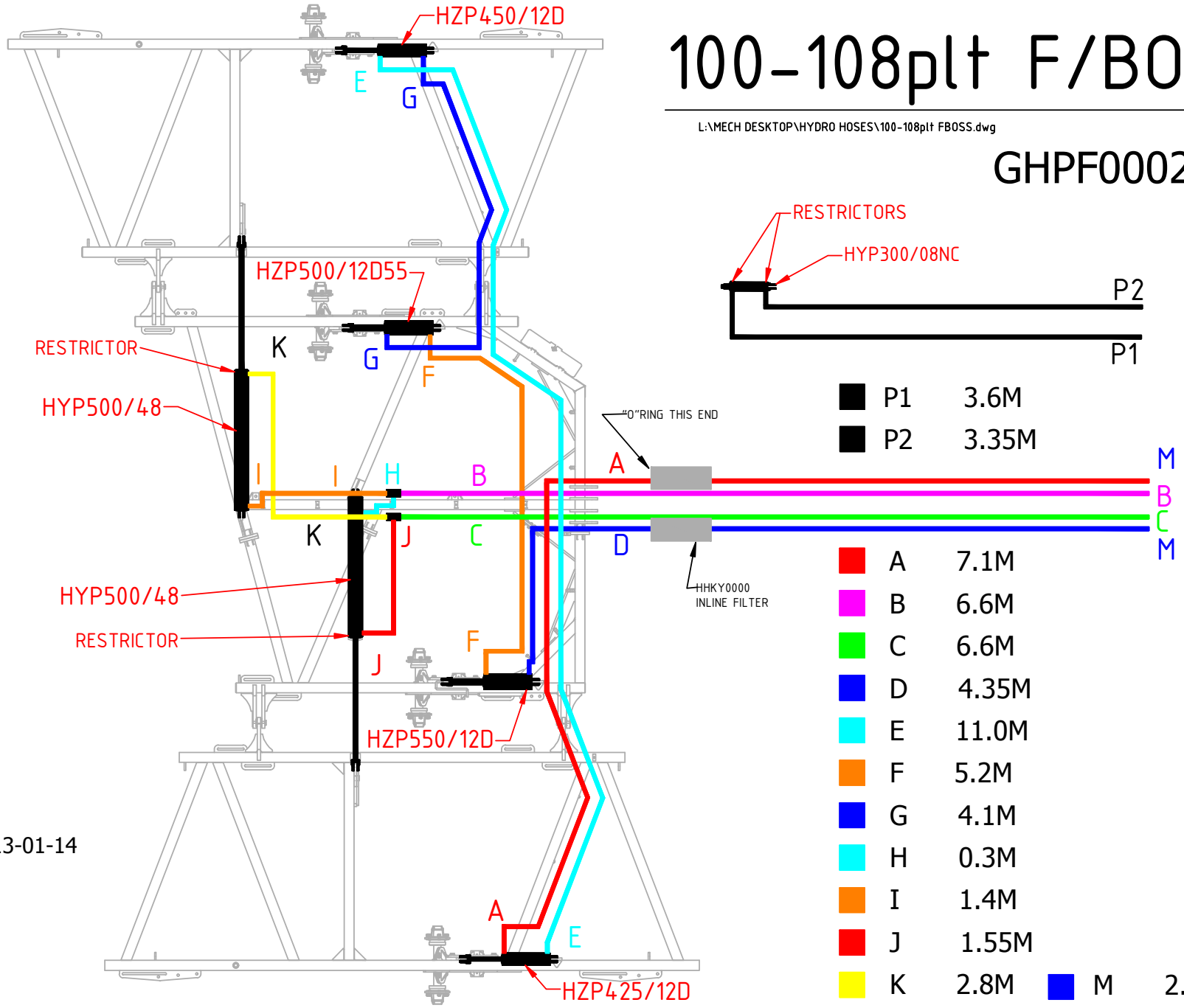
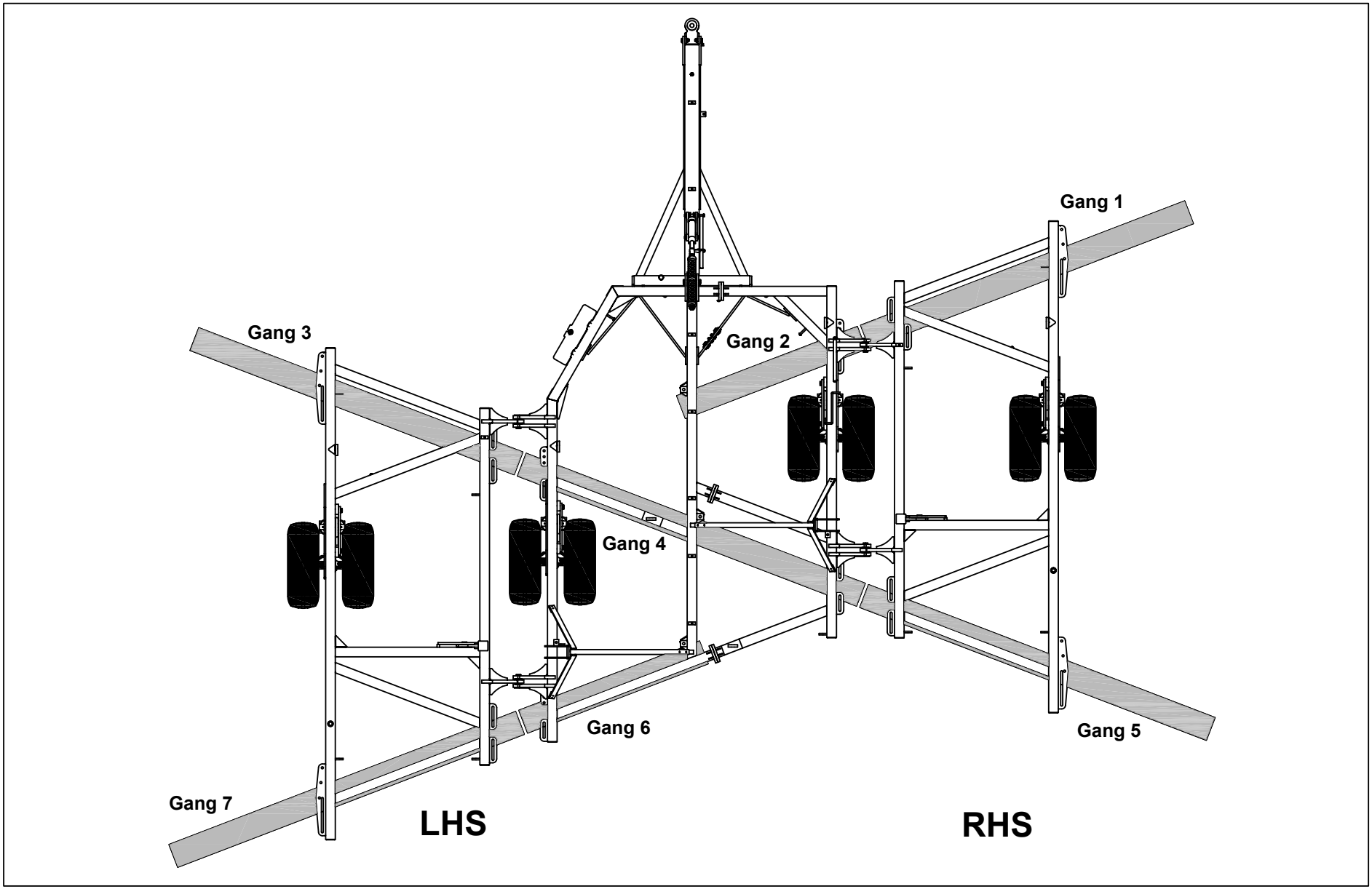


P1	3.6M		
P2	3.35M		
A	7.1M		
B	6.6M		
C	6.6M		
D	4.35M		
E	11.0M		
F	5.2M		
G	4.1M		
H	0.3M		
I	1.4M		
J	1.55M		
K	2.8M	M	2.7M X 2

UPDATED: 13-01-14

Plough Frame Assemblies



From serial number 6714

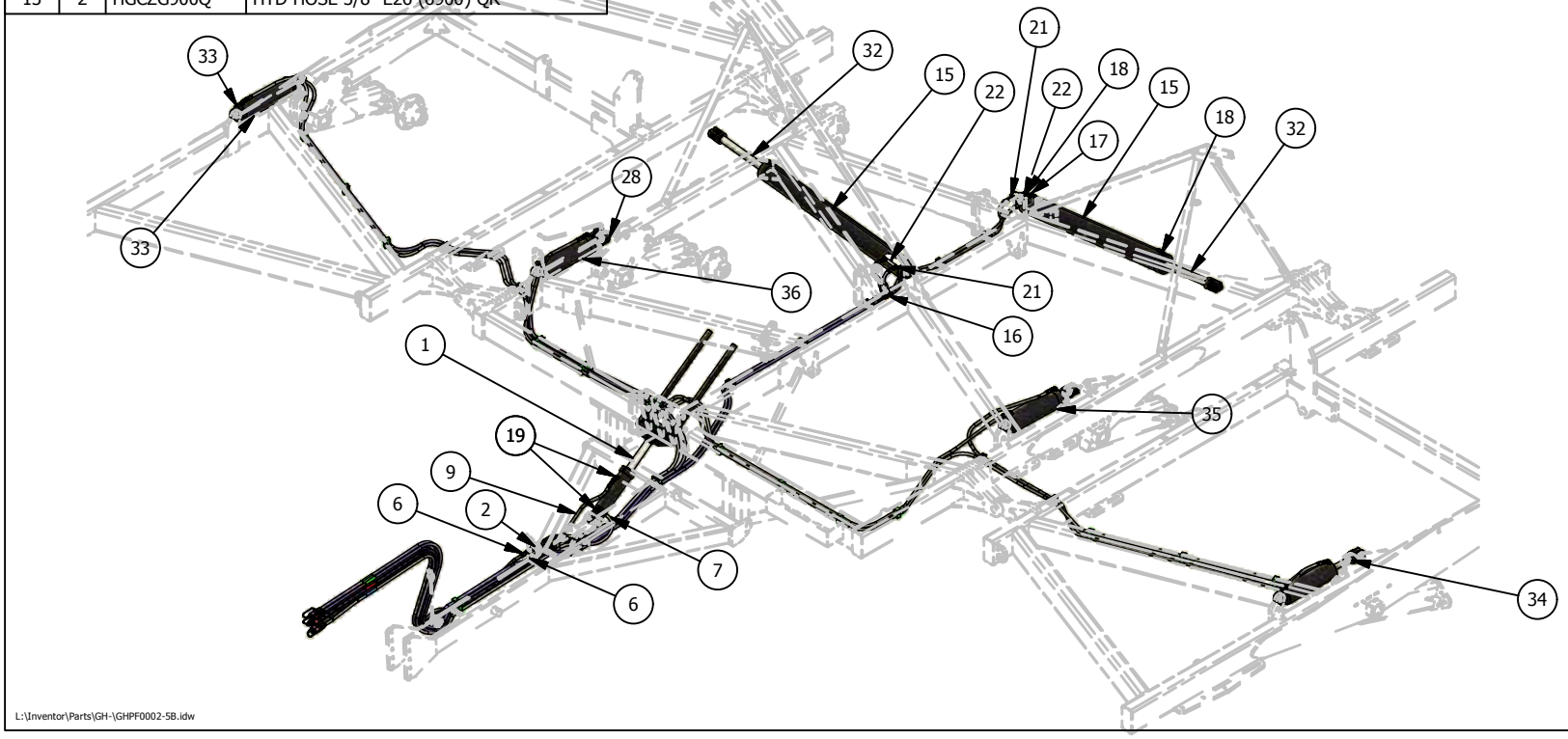
Including 6586, 6666, 6703

HYDRAULIC KIT F BOSS 100-112 12mm

GHPF0002-5B

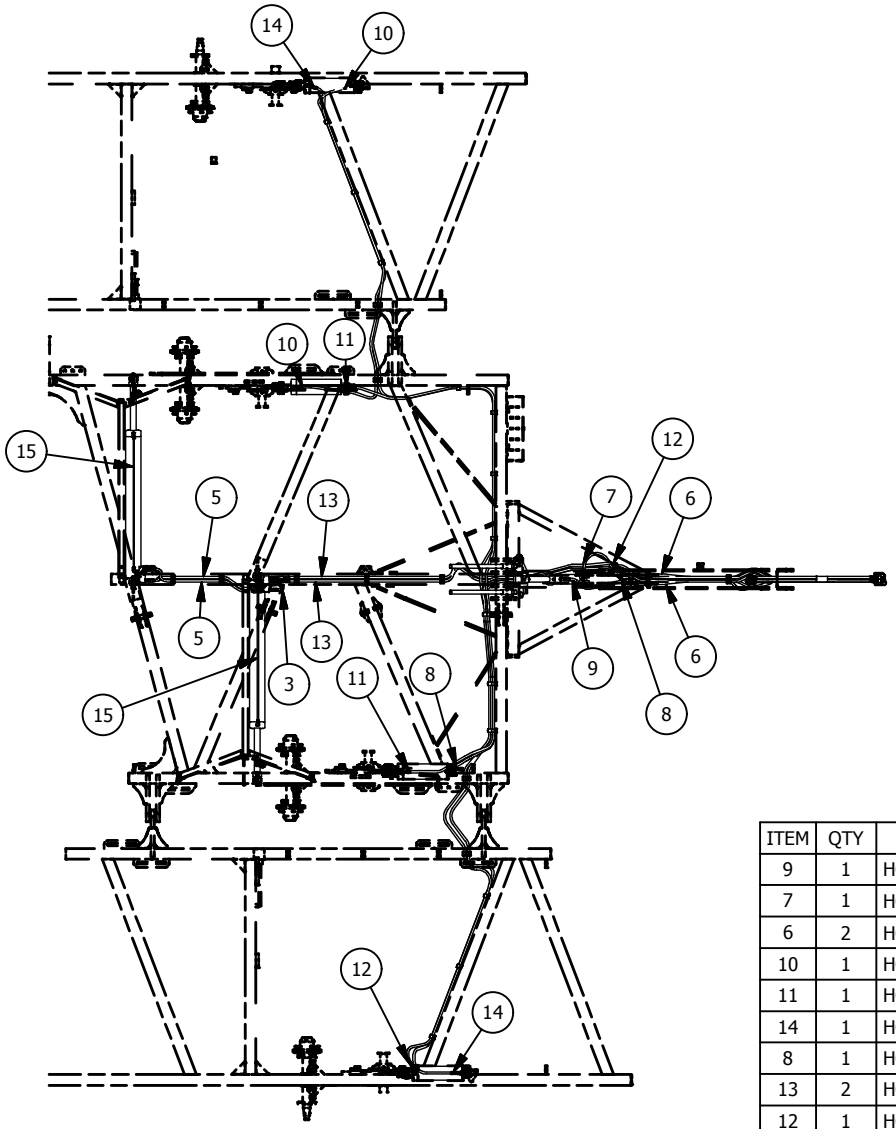
FRAME - WING LOCK VALVES

ITEM	QTY	PART NO.	DESCRIPTION
1	1	GDFGL006	TWIN PITCH CONTROL
2	1	HFALL50-BA	RETRACT LINE RELIEF VALVE KIT
3	2	HGCZA350A	HYD HOSE 3/8" E26 (350)
5	2	HGCZB500A	HYD HOSE 3/8" E26 (1500)
6	2	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE
7	1	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE
8	1	HGCZD600A	HYD HOSE 3/8" E26 (3600)
9	1	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE
10	1	HGCZE500A	HYD HOSE 3/8" E26 (4500)
11	1	HGCZF900A	HYD HOSE 3/8" E26 (5900)
12	1	HGCZG600A	HYD HOSE 3/8" E26 (6600)
13	2	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR
14	1	HGCZK600A	HYD HOSE 3/8" E26 (11600)
15	2	HGGDB222	HYDRAULIC TUBE 3/8" - 3/4"JIC (1222)
16	2	HHAAAA77	TEE 3/4JICM 3/4JICM 3/4JICM S19-121212
17	2	HHABAA07	ELBOW 3/4J.I.CM. 3/4JICF (S15-1212)
18	12	HHABAM07	ELBOW 3/4 JICM 3/4 UN O MALE
19	2	HHABAM07A	ELBOW RESTRICTOR3/4 JICM 3/4 UN O
20	2	HHACBF12	STRAIGHT 1/2BSPTM 3/4 JICF SWIVEL
21	6	HHBEM000	STRAIGHT 3/4 JIC M 1/2 BSPP ORING M
22	2	HHHWBB07	DUAL COUNTERBALANCE VALVE
23	3	HHZWUA07B	HYD Coupling COVER BLUE
24	3	HHZWUA07R	HYD Coupling COVER RED
25	32	HJBCA000	20mm DOUBLE HOSE CLAMP SHELL
26	1	HJBEA000	STACKING BOLT RCD-3BS
27	26	HJBFA000	TOP PLATE DOUBLE FOR GROUP 3
28	1	HMDEA004	DEPTH STOP - CAPTIVE PAIR
29	1	HXEAF000	HEAT SHRINK RED - WHEEL LIFT
30	1	HXEBF000	HEAT SHRINK GREEN - FOLD
31	1	HXECF000	HEAT SHRINK BLUE- PITCH CONTROL
32	2	HYP500/48	HYD. CYLINDER 5" x 48" 2" Rod
33	1	HZP425/12D	HYD CYL.4.25"x12" D/S 1.38"rod
34	1	HZP450/12D	HYD. CYL. 4.5 X 12 DS 1.5"
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



HYDRAULIC KIT F BOSS 100-112 12mm GHPF0002-5B

FRAME - WING LOCK VALVES



ITEM	QTY	PART NO.	DESCRIPTION
9	1	HGCZD700Q	HYD HOSE 3/8" E26 (3700) QR 3/4" JIC FEMALE 3/4UNO MALE
7	1	HGCZD500Q	HYD HOSE 3/8" E26 (3500) QR 3/4" JIC FEMALE 3/4UNO MALE
6	2	HGCZC800B	HYD HOSE 3/8" E26 (2800) QR 1/2"BSP FEMALE 3/4UNO MALE
10	1	HGCZE500A	HYD HOSE 3/8" E26 (4500)
11	1	HGCZF900A	HYD HOSE 3/8" E26 (5900)
14	1	HGCZK600A	HYD HOSE 3/8" E26 (11600)
8	1	HGCZD600A	HYD HOSE 3/8" E26 (3600)
13	2	HGCZG900Q	HYD HOSE 3/8" E26 (6900) QR
12	1	HGCZG600A	HYD HOSE 3/8" E26 (6600)
15	2	HGGDB222	HYDRAULIC TUBE 3/8" - 3/4"JIC (1222)
3	2	HGCZA350A	HYD HOSE 3/8" E26 (350)
5	2	HGCZB500A	HYD HOSE 3/8" E26 (1500)

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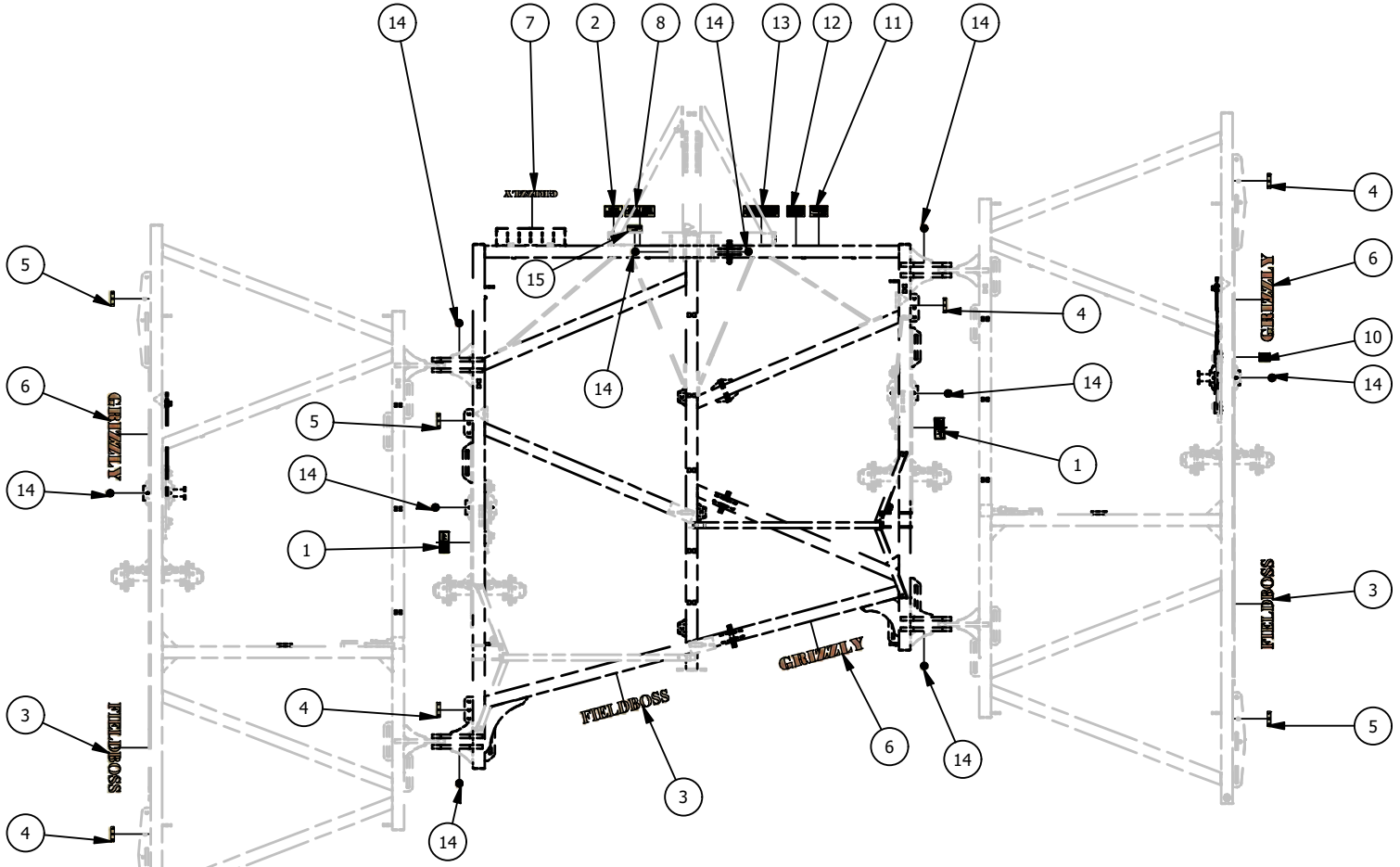
From serial number 6714

Including 6586, 6666, 6703

DECAL KIT 100-112 FIELD BOSS

PDAEF004



ITEM	QTY	PART NO.	DESCRIPTION	ITEM	QTY	PART NO.	DESCRIPTION
1	2	PD000005	DECAL WARNING Stand Clear	9	1	PD000089	Decal "Quality assured company"
2	1	PD000046	DECAL Warning do not exceed 30 Kph	10	1	PD000090	DEPTH STOP SIDE PLATE FITTING INSTRUCTIONS
3	3	PD000070	DECAL "FIELD BOSS"				
4	4	PD000074	DECAL 1 2 3 (30 X 130)	11	1	PD000108	DECAL INJECTION HAZARD
5	3	PD000076	321 gang angle	12	1	PD000151	DECAL WARNING HAZARDOUS
6	3	PD000079	DECAL GRIZZLY 100mm x 757mm	13	1	PD000152	DECAL OPERATING INSTRUCTION. TRAILING
7	1	PD000080	GRIZZLY DECAL 50mm	14	13	PD000GR40	GREASE EVERY 40 HRS DECAL
8	1	PD000081	DECAL "CAUTION REMOVE TRANSPORT LOCKS"	15	1	PDAA0000	IDENTIFICATION PLATE ID TAG

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15 MAINTENANCE RECORD CHART

	DATE	PART NUMBER	NOTE
1			
2			
3			
4			
5			
6			
7			
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9			
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19			

16 Problem Solving

PROBLEM	CAUSE	REMEDY
One side digging deeper than the other.	a) Rams need rephasing.	a) Hold tractor control lever in fully open position on the lift side for 30 seconds.
	b) Ploughing Shallow. Ploughing with a large % of weight on wheels.	b) Sometimes a large amount of set is required to Ploughing with a large % of weight on wheels. be able to plough shallow and still plough every thing out.
	c) Ploughing with too much set (especially secondary working).	c) Reduce set.
Ground left uneven.	a) Machine travelling too fast.	a) Slow down until soil pattern on worked ground is level.
	b) Machine performing secondary work with too much set.	b) Place all gangs on setting one. Rework.
Machine predominantly hangs to one side.	a) Forces each side of the machine uneven gangs not all on same set.	a) Check setting.
	b) Paddock has a ridge in it.	b) Plough down centre of the ridge.
	c) Tyre pressure uneven.	c) Check tyre pressures. See Section 8.
	d) Rams not rephased.	d) Rephase as explained previously.
	e) Ploughing with too much set (especially secondary working smaller machines) in free flowing soil.	e) Reduce set to 1, reduce speed until seedbed is level.
	f) Ploughing on side of hill.	f) Reduce Set.
Rib of unploughed ground in the middle of the work area.	Cutting edges out of adjustment.	Contact Grizzly Dealer.
Machine bouncing.	a) Travelling too fast.	a) Slow down.
	b) Tyre pressure too great.	b) Check tyre pressure. See Section 8.
	c) Too much set for conditions.	c) Reduce set and/or slow down.
	d) Not enough weight (or all of 5 above).	d) Add oil to outside wing beams (for extra weight).

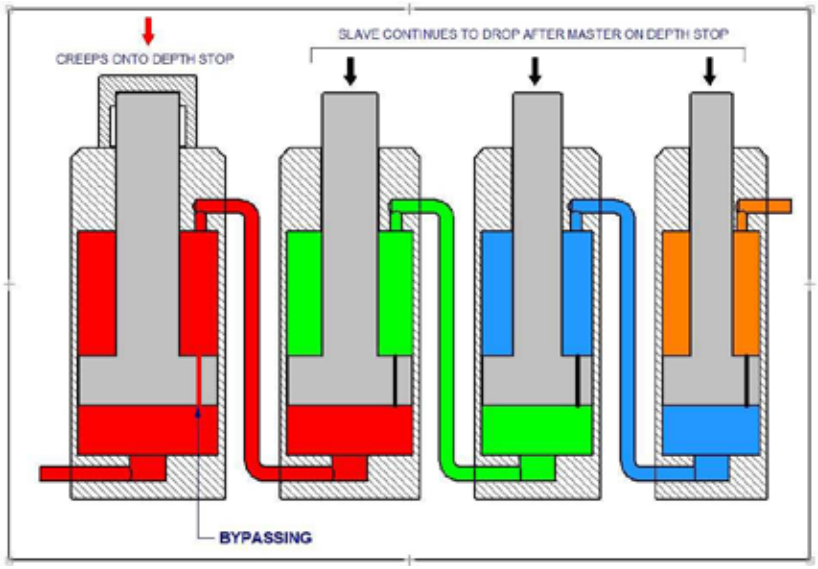
16 Problem Solving

Folding machine wings ploughing deeper than centre section.	a) Hydraulic rams out of phase. b) Tyre pressure lower on wings.	a) Refer rephasing earlier. b) Check tyre pressures. See Section 8.
Straw or cotton wrapping around the edge of the disc.	a) Ground wet or soft. b) Too much set and disc is bulldozing material. Scallop disc (straw tends to wrap in the scallop of the disc because it has nothing to cut against).	a) Wait till condition more suitable. Can sometimes be helped by ploughing deeper. b) Reduce set, plough deeper.
Ridge left in the middle of the work.	a) Too much soil travelling through the rear discs. b) Going too fast. c) Front discs worn more then the rear discs.	a) Close-up the pitch control ram to reduce the soil flow through the rear discs. b) Slow down. c) Replace with new discs.
Hollow or gutter left in the middle of the work.	a) Not enough soil travelling through the rear discs. b) Going too fast.	a) Extend the pitch control ram to increase the soil flow through the rear discs. b) Slow down.
Excessive wear of disc spools. **(Please note: Some wear is normal)**	a) Working in wet conditions and dirt causes extra wear. b) Scrapers set too close to spools. c) Scraper pivot bolt too tight.	a) Wait until soil conditions improve. b) Adjust scrapers to be approximately 10-12mm away. c) Loosen pivot bolt nut to all scraper arms to move more freely.
Excessive scraper noise only detected when machine is working.	Scraper pads move against the “back” of discs when under load.	Remove scraper and straighten it so that it does not contact disc. Alternatively, adjust by levering with a crowbar or similar tool.

PHASING PROBLEMS

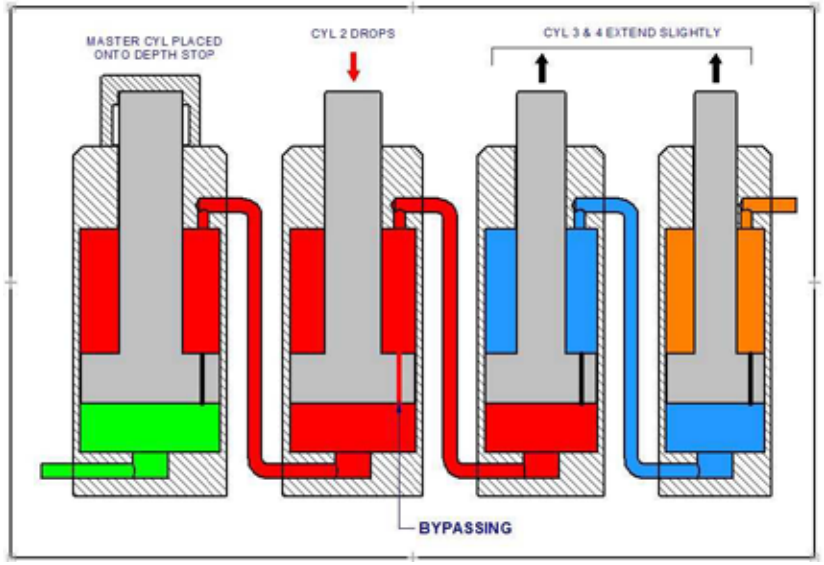
Creeping	
Air in the hydraulic system	
	A. Hose vibrating/squealing
	B. Control valve shuddering
	C. Lag in cylinder movement
	D. Creeping when load is applied
By-passing of the piston	
	A. Both cylinder move together until Master is on depth stop then Slave stops
	Check valve or Tractor valve leaking
	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	
	• 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).



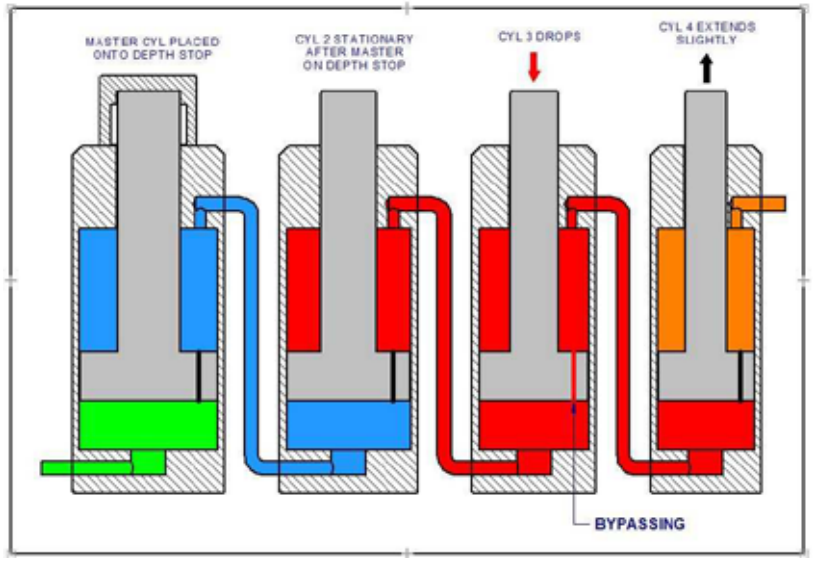
Master cylinder bypass

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



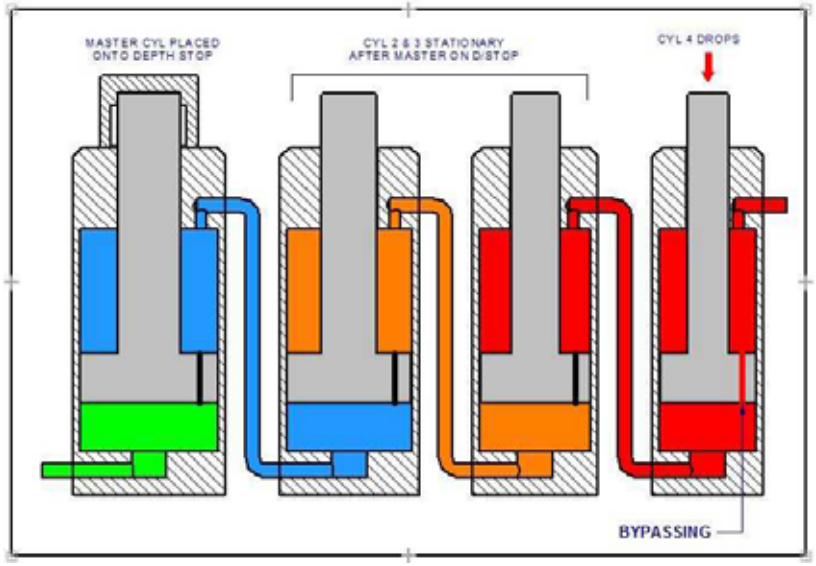
Second cylinder bypass

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



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.



Fourth cylinder bypass

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

Grizzly can make your work easier!

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!!!

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 etc. **Banker/Channeller's** linkage is compatible with quick hitch systems.

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.

From serial number 6714

Including 6586, 6666, 6703

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 standard features ensure that this medium duty machine has maximum strength 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.

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.

From serial number 6714

Including 6586, 6666, 6703

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.

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 is sizes 28 up to 40 discs.

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.

The machine is available with 24 to 48 discs, with a choice between 9” disc spacings or 11.5” for more agressive penetration.

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 flexible, accurate and easy to operate with an ideal finish every time.

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

From serial number 6714

Including 6586, 6666, 6703

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 lasted award winning machine from Grizzly. With it's 2.5mtr transport width that allows transport through narrow gates and roads and it's hydraulic gang shift which gives smooth, reliable and easy transport to working position.

Grizzly have maintained the use of it's 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

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 ½” 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.

From serial number 6714

Including 6586, 6666, 6703