



AUTOGUIDE EQUIPMENT



700X POWERHEAD ROPE WIND UP

MANUAL SPARE PARTS

Autoguide Equipment Ltd
Stockley Road,
Heddington, Calne,
Wiltshire, UK,
SN11 0PS
+44(0)1380 850885
www.autoguide.co.uk



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These instructions give safety and operations information regarding the use of a Crane Mounted Rope Wind up Bracket and Auger Powerhead supplied by Autoguide Equipment. They contain the relevant information for products:

Product Code	Description	Maximum Output Power (Nm)
52295	Rope Wind-Up with 700X	7,000

To ensure optimum results when operating this equipment it is very important to read this manual carefully, the information will prepare you to do a better, safer job.

Before operating the machine you should familiarise yourself with the instructions in this manual. Incorrect use can lead to damage which is not covered by the Warranty Conditions. This may create a dangerous situation or lead to unsatisfactory results.

These operating instructions **MUST** always be made available to the person or persons operating this equipment.

To assist in the ordering of spares, or other communications with our company, the serial number of the relevant equipment supplied, has been recorded below for your information.

Model No:-

Serial No:-

Date of Delivery:-

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INFORMATION

Your Powerhead has been individually built with great emphasis on quality, strength and simplicity of design and with routine care will give many years of trouble free operation.

The following instructions have been written to cover the use and maintenance of the machine. Care should be taken to ensure that you are referring to the correct section of your machine before carrying out any adjustments, or when ordering spare parts.

Like all mechanical products, regular cleaning, lubrication and maintenance will ensure a longer trouble free life. These instructions make no attempt to go beyond routine maintenance, and it is strongly advised that you contact your dealer should any major repairs become necessary.

Use only genuine service parts; non genuine parts may not meet standards required for safe and satisfactory operation.

Safety Instructions

1. Read and understand this operator's manual prior to operating the machine and keep it in a convenient place for future reference.
2. Keep untrained personnel away from the machine whilst it is in operation.
3. Keep all guards and safety devices in place.
4. Do not operate machine with guards removed.
5. Beware, pressured hydraulic oil can be very dangerous and can penetrate the skin - TAKE THE UTMOST CARE.
6. Keep hands, feet and loose clothing away from moving parts.
7. Always switch off the machine before making any adjustments or when carrying out lubrication and servicing.
8. Keep all nuts, bolts and fasteners tightened.
9. Check machine regularly for damaged or worn parts.
10. If the machine is left unattended ensure that it is locked or disabled to prevent use by untrained personnel.

Daily Check Items

1. Check the unit is properly and securely attached to the crane/excavator unit.
2. Check that all nuts and bolts are secure, mounting pins are properly retained, and all safety shields are in place. (All nuts and bolts should be checked after the first 10 hours of operation.)
3. Check the condition and security of any auger or anchor driver attachment.
4. Lubricate all grease nipples.

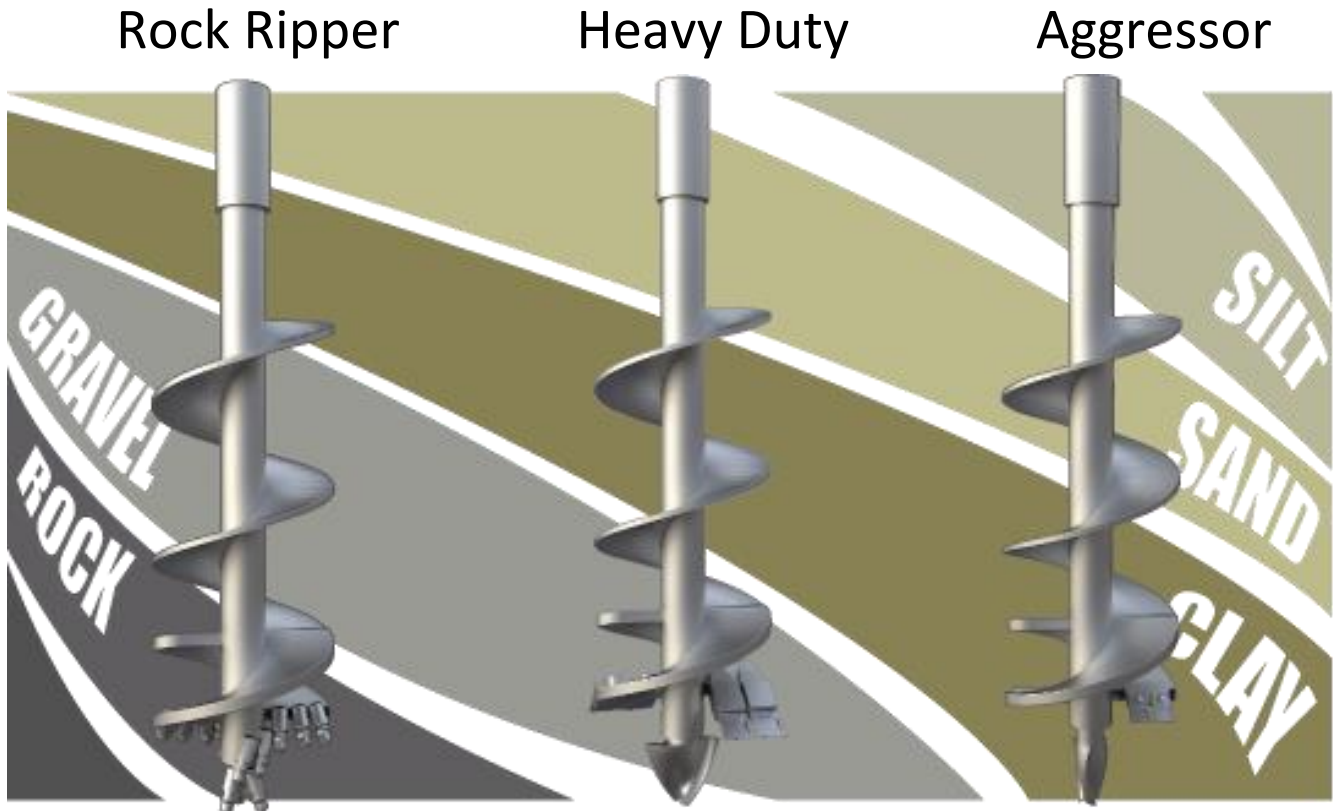
Auger Selection

When digging a hole it is important to know what soil type it is that the auger will be trying to penetrate. With this information the correct auger can be selected to give increased penetration and speed.

Soils are classified into 9 categories ranging from hard rock to loose silt. To determine which category will be augured, a soil probe kit is available from Autoguide Equipment.

Class	Common Soil Type	Geological Soil Classification	Probe Values <i>in/labs (Nm)</i>	Typical Blow Count <i>in/labs (Nm)</i>
1	Sound, hard rock – Unweathered	Granite, Basalt, Massive Limestone	N/A	N/A
2	Very dense and/or cemented sands, Coarse gravel & Cobbles	Caliche (Nitrate-bearing Gravel/Rock)	750-1600 <i>(85-181)</i>	60-100+
3	Dense, Fine Sands, very hard silts & clays (may be pre-loaded)	Basalt Till, Boulder Clay, Caliche, Weathered Laminated Rock	750-1600 <i>(85-181)</i>	45-60
4	Dense sands & gravel, hard silts & clays	Glacial Till, Weathered Shale's, Schist, Gneiss & Sandstone	600-750 <i>(68-85)</i>	35-50
5	Medium dense sand & gravel; very stiff to hard silts and clays	Glacial Till, Hardpan, Marls	500-600 <i>(58-68)</i>	24-40
6	Medium dense coarse sands & sandy gravels; stiff to very stiff clays	Saprolite's, Residual Soils	400-500 <i>(45-56)</i>	14-25
7	Loose to medium dense fine to coarse sands to stiff clays and silt	Dense Hydraulic Fill, Compacted Fill, Residual Soils	300-400 <i>(34-45)</i>	7-14
8	Loose, fine sands; alluvium; loess; medium & varied clays, fill	Flood Plain Soils, Lake Clays, Abode, Fill	100-200 <i>(11-25)</i>	4-8
9	Peat, organic silts, inundated silts, fly ash, very loose sands, very soft	Miscellaneous Fill, Swamp Marsh	Less than 100	0-5

Once the soil classification is known the appropriate auger can be selected.



Aggressor Augers

Designed for drilling in loose soil and sand, Aggressor Augers come in 1.2m lengths, with an optional 1m extension.

These suit powerheads with up to a maximum rated output of 4500Nm. They use a 2" hexagon socket industry standard drive. Standard teeth are bolt on drop forged high carbon steel and carbide versions are available.

Heavy Duty Augers

Designed for drilling in dense gravel and soil, Heavy Duty Augers come in 1.2m lengths, with an optional 1m extension

These suit powerheads with up to a maximum rated output of 15,000Nm. They use a 2" hexagon or 65mm hexagon drive. Teeth are drop forged special steel or carbide tipped, retained with a rubber lock system.

Rock Ripper Augers

Designed for drilling solid rock, Rock Ripper Augers come in 1.2m lengths, with an optional 1m extension

These feature a unique computer generated tooth layout utilising self-sharpening carbide teeth which rotates in work. Whilst they do not perform well in hard clay soils, they will drill all materials up to hard concrete. Drilling performance in hard conditions depends on the application of sufficient down force. If additional down force is require a Rockmaster hammer system is available from Autoguide.

Autoguide have a wide range of different Augers available to dig holes ranging from 6" to 36" diameter in all soil classifications. These can be both rented and purchased.

POWERHEAD INSTALLATION

The safe operation of this equipment is the responsibility of the operator, who should be familiar with the lifting process, the power unit and all safety practices before starting operations.

The Autoguide Rope Wind Up bracket has been designed to enable powerheads for lorry mounted cranes to be permanently mounted on the crane whilst having minimal disruption to the cranes generic usage.

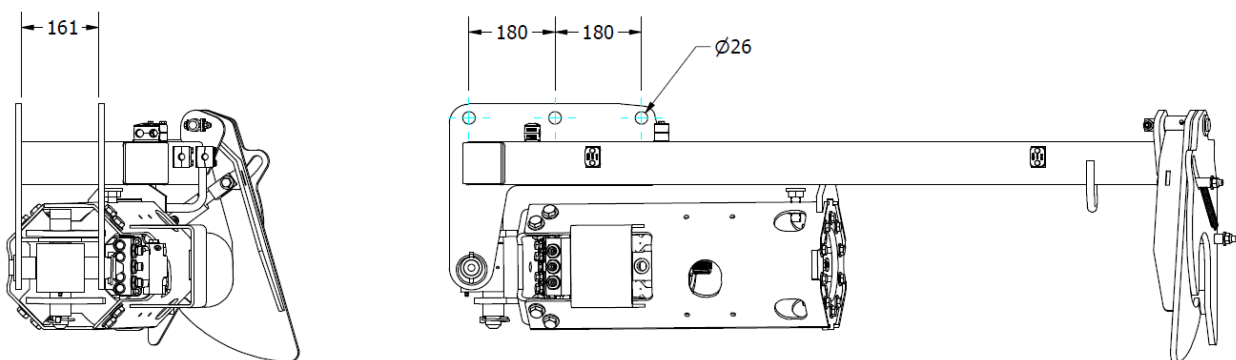
SAFETY: Never place any part of your body where it could get trapped, crushed or injured. Careful operation and a common sense approach will ensure you achieve these objectives.

IMPORTANT: The Rope Wind Up unit is a welded construction and therefore cannot be dismantled for servicing. In the unlikely event that a problem arises, the unit must be returned to Autoguide Equipment Ltd for any repair or service work.

Boom Clamp Plates

The Boom Clamp Plates enable the Rope Wind Up bracket to be clamped around the boom without altering the crane. It is important that they fit correctly and prevent any movement of the frame and offset loads during augering.

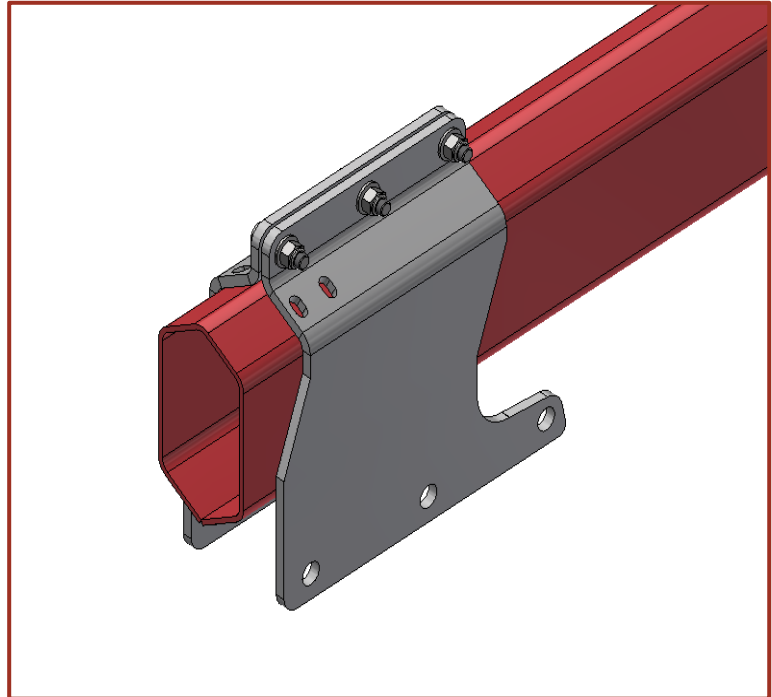
The Rope Wind Up bracket has 6 holes for M24 bolts that are for attaching to the Boom Clamp Plates. The holes are detailed below:



The boom clamp plates need to fit tight around the crane boom, and prevent any movement during use but also when the crane folds up including weld fillets on the crane.

Installation onto a Crane

1. Attach the boom clamp plates to the boom, do not tighten fully just enough to hold the plates in place.

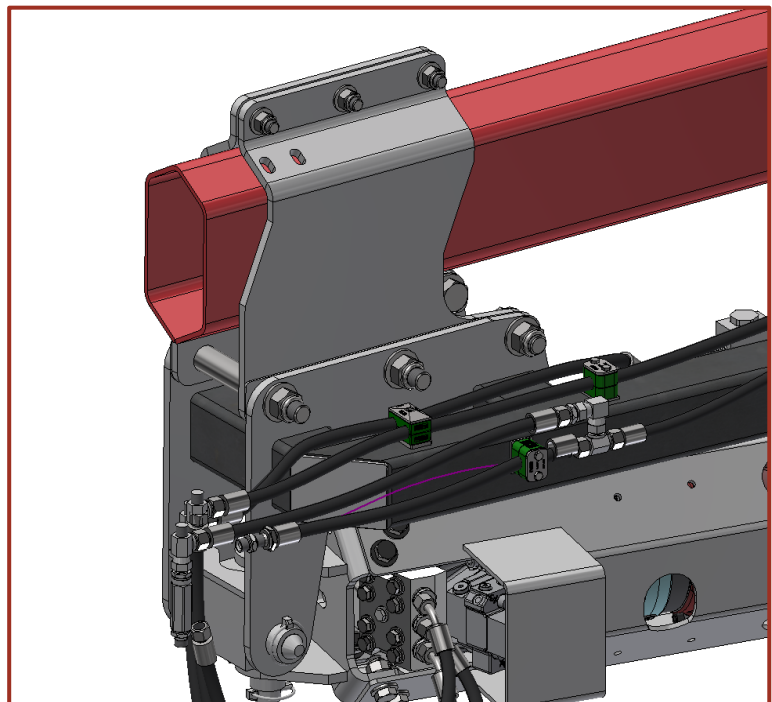


2. Lift the rope wind-up assembly into position with the clamp plates, ensuring that the 2 shim plates are between the outer faces of the clamp plates and the inner faces of the arm, and the spacer tubes are between the 2 front holes, bolt together with the long bolts in the front 2 holes and the short bolts on the other 2 holes.

Fully tighten all fixings to the following torques, ensuring a minimum 3mm gap is maintained between the plate flanges at the top of the boom that is equal along the length.

M16 – 190 Nm
M24 – 640 Nm

M24 –



Hydraulic Assembly

The Rope Wind Up Assembly comes with 2 hoses to be attached to the crane. They are all labelled with their function.

- Forward/Clockwise – This hose operates the motor of the auger unit and needs to be connected to the forwards lever on the spool/remote

- Reverse/Anti-Clockwise – This hose operates the motor of the auger unit in reverse and needs to be connected to the reverse lever on the spool/remote

The hose flows and pressures are listed below:

Function	Maximum Flow	Maximum Pressure
Forwards/Clockwise	50lpm	250 Bar
Reverse/Anticlockwise	50lpm	250 Bar

To fit the unit:

At the Spool

1. Identify the hydraulic lines that are controlled by lever 5 on the spool. These are the hydraulic lines that need connecting to the Powerhead.
2. Disconnect the hydraulic line that is related to pushing control lever 6 **UP** from the spool and label “Drain Line”.
3. Cap the spool valve and drain line appropriately.

At the Crane End

4. Identify the hydraulic line that is related to pushing control lever 5 **UP** from the spool.
5. Once confirmed, attach onto the hydraulic hose labelled “Reverse/Anti-Clockwise” on the Rope Wind Up Assembly
6. Identify the hydraulic line that is related to pushing control lever 5 **DOWN** from the spool.
7. Once confirmed, attach onto the hydraulic hose labelled “Forwards/Clockwise” on the Rope Wind Up Assembly

Note: You may need to manufacture additional short hoses dependent on crane hose length for connection of crane hoses to Rope Wind up hoses. Pressure and flow details listed above.

8. Once complete, there are 2 hydraulic lines from the top of the crane to the Powerhead unit. We recommend that the hoses are bundled together and wrapped in spiral wrap to protect from damage.

Hydraulic Diagram



Pneumatic Assembly

The rope wind up arm comes supplied with 2 lengths of pneumatic hose, one red and one black cut to 3m in length, a pneumatic valve for controlling the latch and two pneumatic silencers.

To connect the unit:

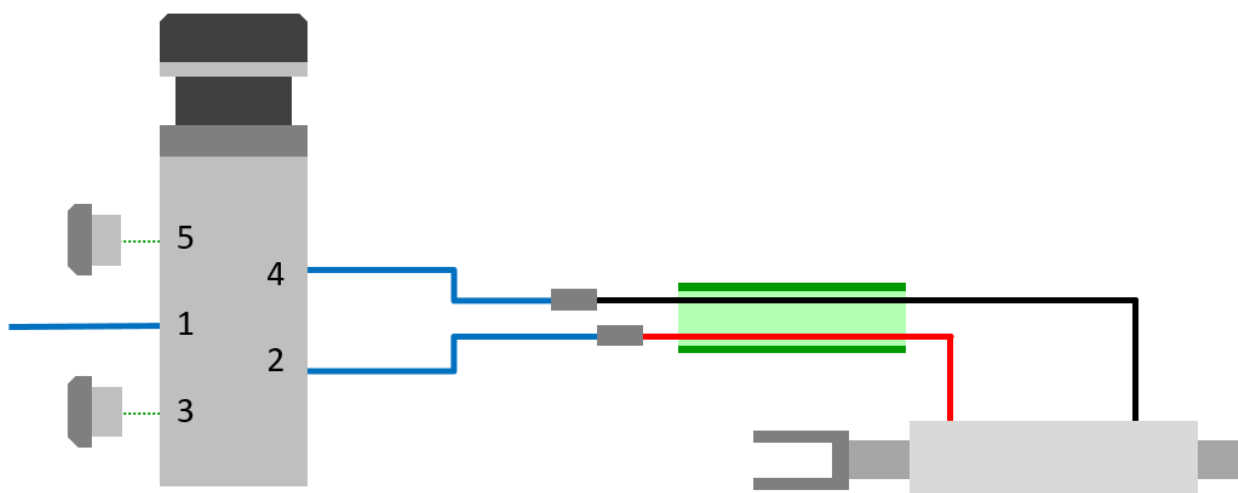
At the Crane Base

1. Mount the supplied pneumatic valve that has been supplied in the kit. The black operation knob should be easily accessible.
2. Connect the two pneumatic silencers to ports 3 and 5 on the pneumatic valve.
3. Supply the pneumatic valve with an air supply into port 1.
4. Connect the airlines that run up the crane boom to ports 2 & 4.

At the Crane End

1. Identify which airline is connected to port 2 of the valve.
2. Connect this airline to the red air hose supplied.
3. Route the red airline through the steel pipe along the side of the rope wind up bracket to the rod end of the pneumatic ram.
4. Identify which airline is connected to port 4 of the valve.
5. Connect this airline to the black air hose supplied.
6. Route the black airline through the steel pipe along the side of the rope wind up bracket to the butt end of the pneumatic ram.
7. Switch on the pneumatic supply and test the latch. It should be closed normally, and open when the valve button is pressed.

Pneumatic Diagram



OPERATION

Pre-operation check list

1. Keep bystanders away from all rotating attachments.
2. Ensure you are aware of the environment you are working in; be aware of overhead cabling and other utilities services.

POWERHEAD OPERATION

Operating the Rope Wind-Up Bracket

This method utilises the auger tube as a winch to wind the auger up to a latch. We provide an overwind valve to prevent rope breakage and an air controlled latch to release the auger for work.

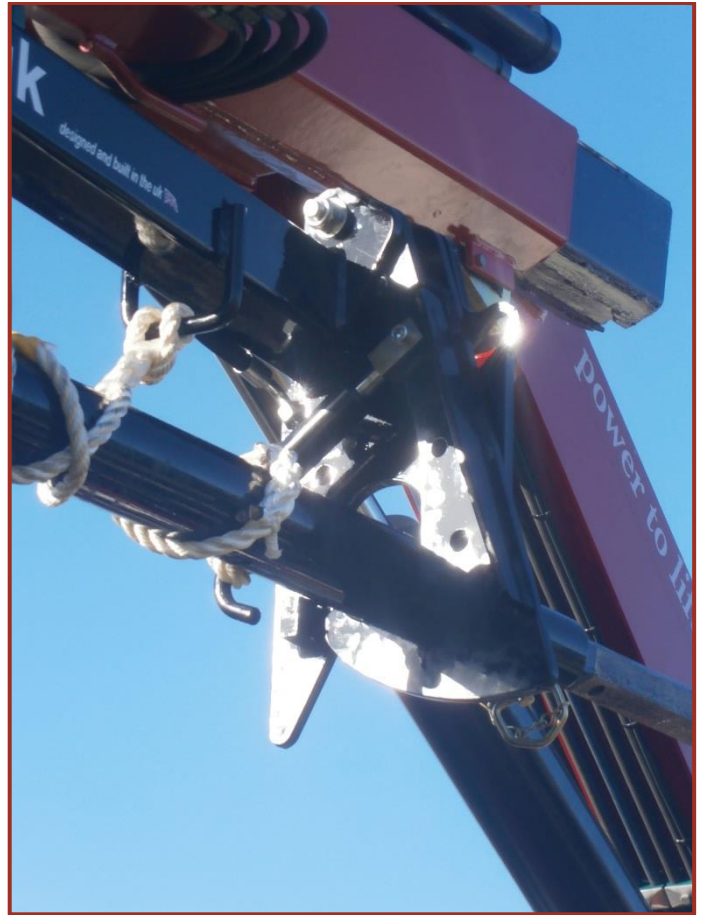
The auger hangs from the centre of the boom when working, but stows at an angle to permit full crane articulation. The system usually uses 2m long augers as the crane cannot normally fold up in transport. Versions are available to achieve this where necessary.

Releasing the Powerhead

1. Position the crane boom parallel to the ground with enough clearance for the auger and Powerhead to be lowered.



2. Put the powerhead in reverse using the hydraulic circuit to rotate and tighten the rope, taking the weight of the Powerhead and auger.



3. Operate the pneumatic circuit to open the bottom latch pressing the valve at the crane base. Then put the powerhead into forward drive to gently lower itself through the opened latch. Release the valve once the auger is clear of the latch.



4. Keep the forward drive applied to the powerhead until the unit hangs free and the rope detaches itself.



5. The powerhead is now ready for use.

Drilling Holes

1. Attach the Auger to the powerhead by sliding it over the hexagon bar output.



2. Insert the safety pin through the corresponding holes on both the auger and powerhead.
3. Carefully raise the powerhead on the crane boom into position with the tip of the auger resting on the ground at the desired hole position.
4. Operate the auxiliary circuit on the crane to start the powerhead turning.
5. Let the auger penetrate the surface. It may require some additional downwards force depending on the soil classification.
6. Gradually bore out the hole, removing the auger at regular intervals to remove the excess material.

General Principles of Operation

All powerheads are designed to stall at the rated operating pressures before anything breaks, however continuous operation of stalled motors will overheat the hydraulic system and cause expensive damage. Therefore operate as fast as required but avoid excessive motor stall.

When drilling it is better to remove the auger from the hole when it is half full of soil and remove the excess. If loose material comes beyond the top of the auger it may act as an anchor and prevent the auger from being raised. In such cases engage reverse to get it out.

Always replace worn teeth before damage occurs to the tooth holders. Regular hard face welding will extend the auger life.

Rock Ripper augers will drill very hard material but the rate of penetration depends on the down force available. The Rockmaster hammer system available from Autoguide permits high penetration rates even with lorry mounted cranes.

In hard material careful addition of water to the powder material in the hole will allow the auger to work at increased rates.

Storing the Powerhead

1. Set the boom parallel to the ground with the tip of the auger just touching the surface and the rope bracket facing the crane.



2. Attach the rope to the hook.



3. Put the powerhead into reverse and the unit will slowly start to wind itself up.

Note: The principle is to keep the rope tight but allow gravity to fold the auger into the latch. Gentle adjustment of the crane boom may be required.



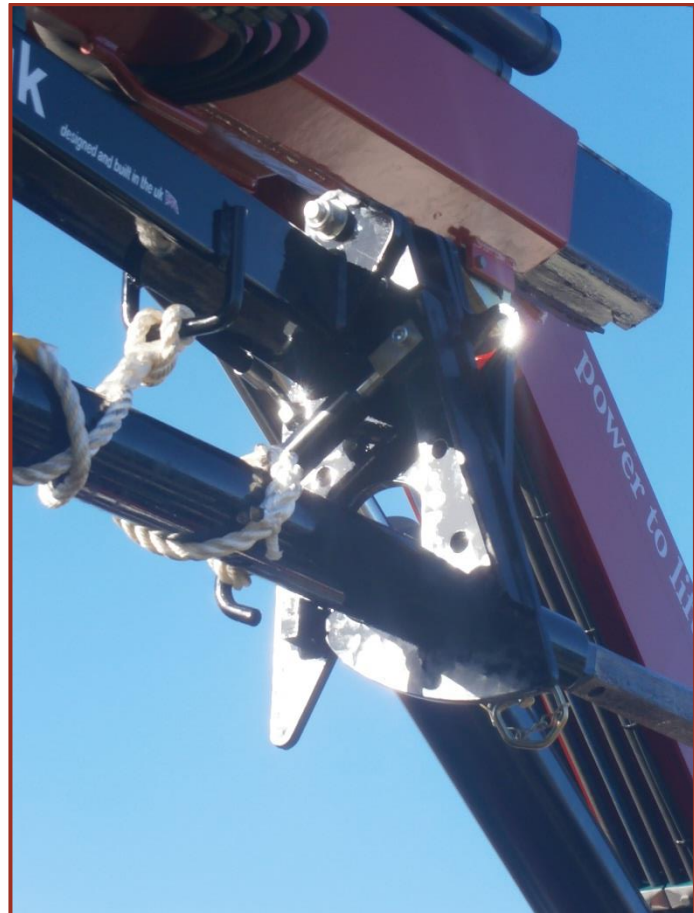
4. The dome on the powerhead should enable to rope to wind up smoothly but be vigilant in case of snagging.



5. As the powerhead winds itself; up it will pass through the sprung latch. It will not keep winding once past this point due to an override switch when it reaches the extreme.



6. Reverse the powerhead until the weight of the Powerhead is resting on the latch and not tensioning the rope.



7. The powerhead is now stored securely.

TROUBLESHOOTING

Symptom	Possible Cause	Action
Jerky	Cold Oil	Allow time to warm up
	Air in Pipes	Check oil Level
	Non Compatible Quick Couplers	Use Matched pairs
	Non Compatible Quick Couplers	Replace
	Hoses too small for flow	Replace
	Wrong Model Powerhead	Select appropriate model
Slow	Pump Failing	Carry Out flow and Pressure Check
	Oil Filter Blocked	Carry Out flow and Pressure Check
	Dirt Contamination	Service Exchange Motor
	Low Speed Lock Engaged	Put Selector in Auto
Poor Torque	Low Hydraulic Pressure	Carry Out Flow and Pressure Check
	Excessive Oil Temperature	Check Pump, Check Hose Sizes, Use Correct Powerhead
	Relief Valve Blows	Use smaller Auger or Larger Powerhead
Oil leaks	Loose Fittings	Tighten Up Fittings
	Leaky Connections	Reseal or check Configuration
	Pressure Too High	Use compatible head and fittings
Leak from Relief Valve	Non Return Valve Seizes	Check 2 bar max back Pressure. Replace Relief Valve. Remove unit and check ball is free moving. Ball can become wedged & sticky, due to high pressure (over 20 bar) or extended storage. Replace valve & relief valve

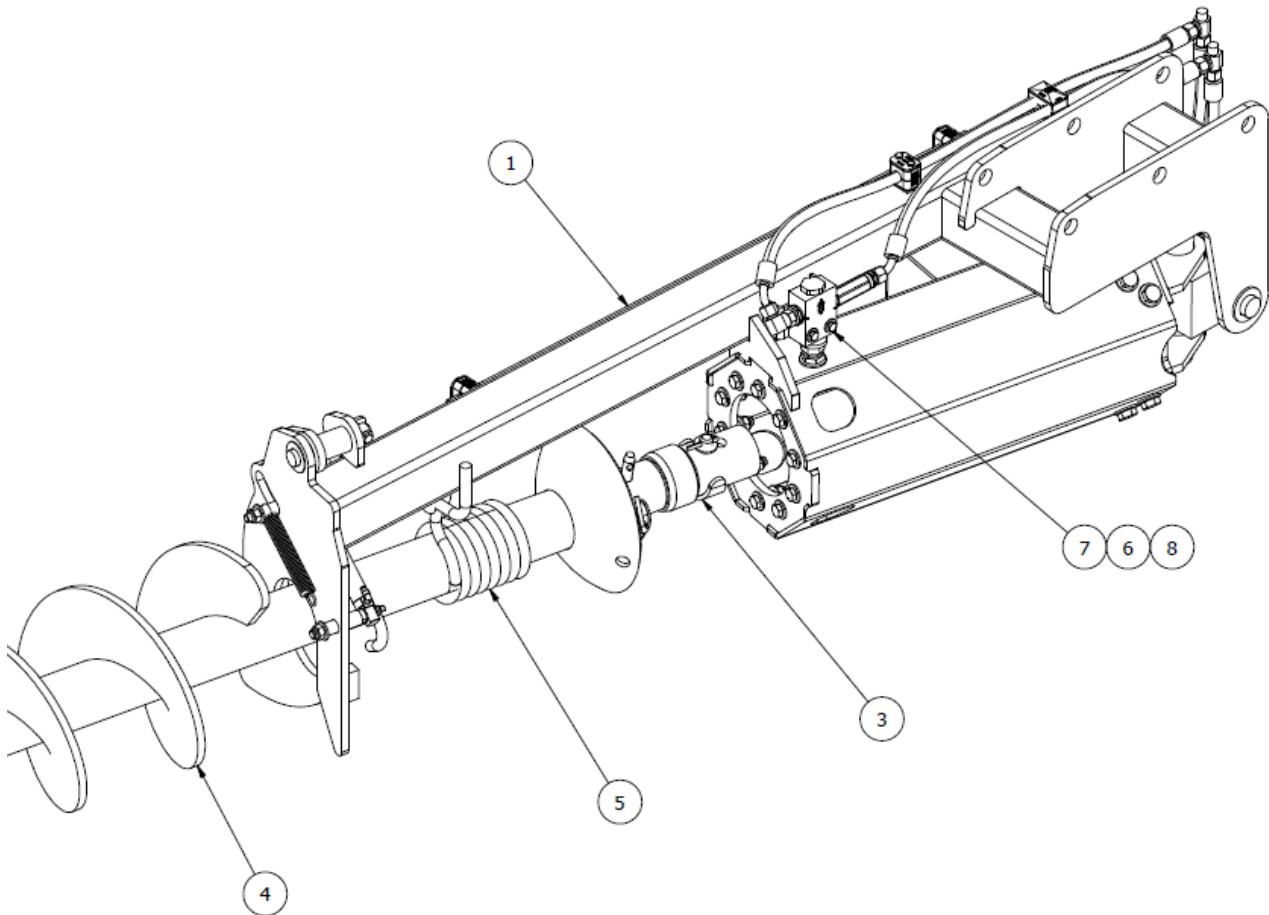
END OF LIFE

When the machine reaches the end of its useable lifetime it is important that the independent elements of the machine are reused, recycled or disposed of suitably.

Component	What to do?
Metals	All metals should be recycled with an appropriate scrap metal merchant, preferable sorted into metal type.
Electronics	All electrical components should be recycled at an appropriate facility according to the WEEE Directive and Regulations 2013
Oils	Oil waste is classed as Hazardous and therefore must be stored separately and according to legal regulations (that differ dependent on country). It must be disposed of by a suitable Waste Oil collection company.
Hydraulic Hoses	Hydraulic hoses should be drained of oil, metal ends removed and then recycled with a suitable specialist recycling company. Metal ends can be sent to metal recycling centers.
Plastics	All plastics should be sorted into recyclable and non-recyclable and then either sent to suitable recycling facilities or landfill.

SPARE PARTS

700X Rope-Windup Complete

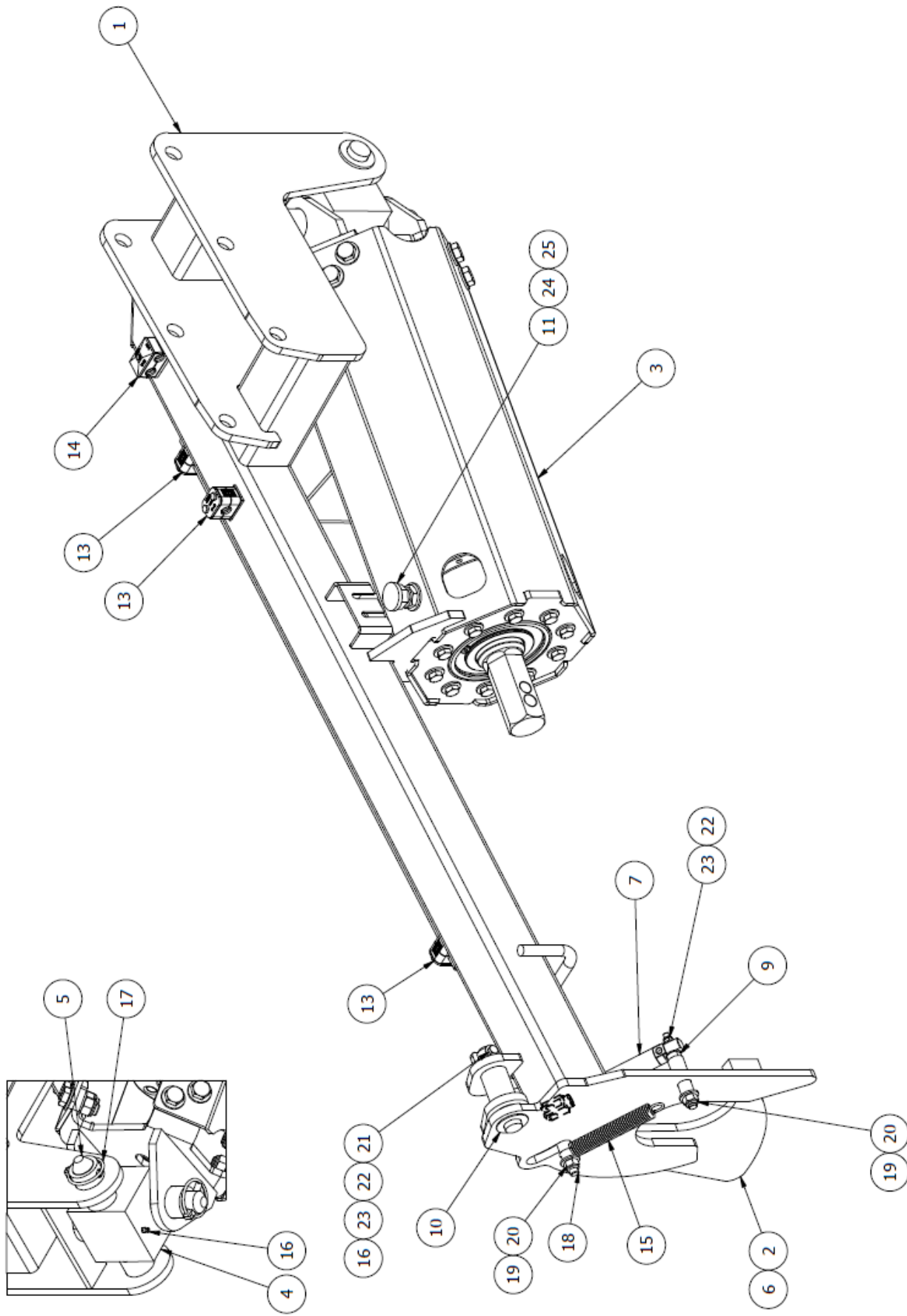


Code
52295

Description
Rope Wind-Up 700X GA

No.	Code	Description	Quantity
1	52299	Rope Wind-Up 700X	1
2	52294	Wind-Up 700X Hydraulics	1
3	46667	1m 2" Hex Extension Assembly	1
4	46662	Auger 12" RR 2m 2" Assembly	1
5	03231	Rope Strop	1
6	02977	Washer M8	4
7	11939	Bolt Hex M8 x 55	2
8	02496	Nyloc M8	2

Rope Wind-Up Assembly 1

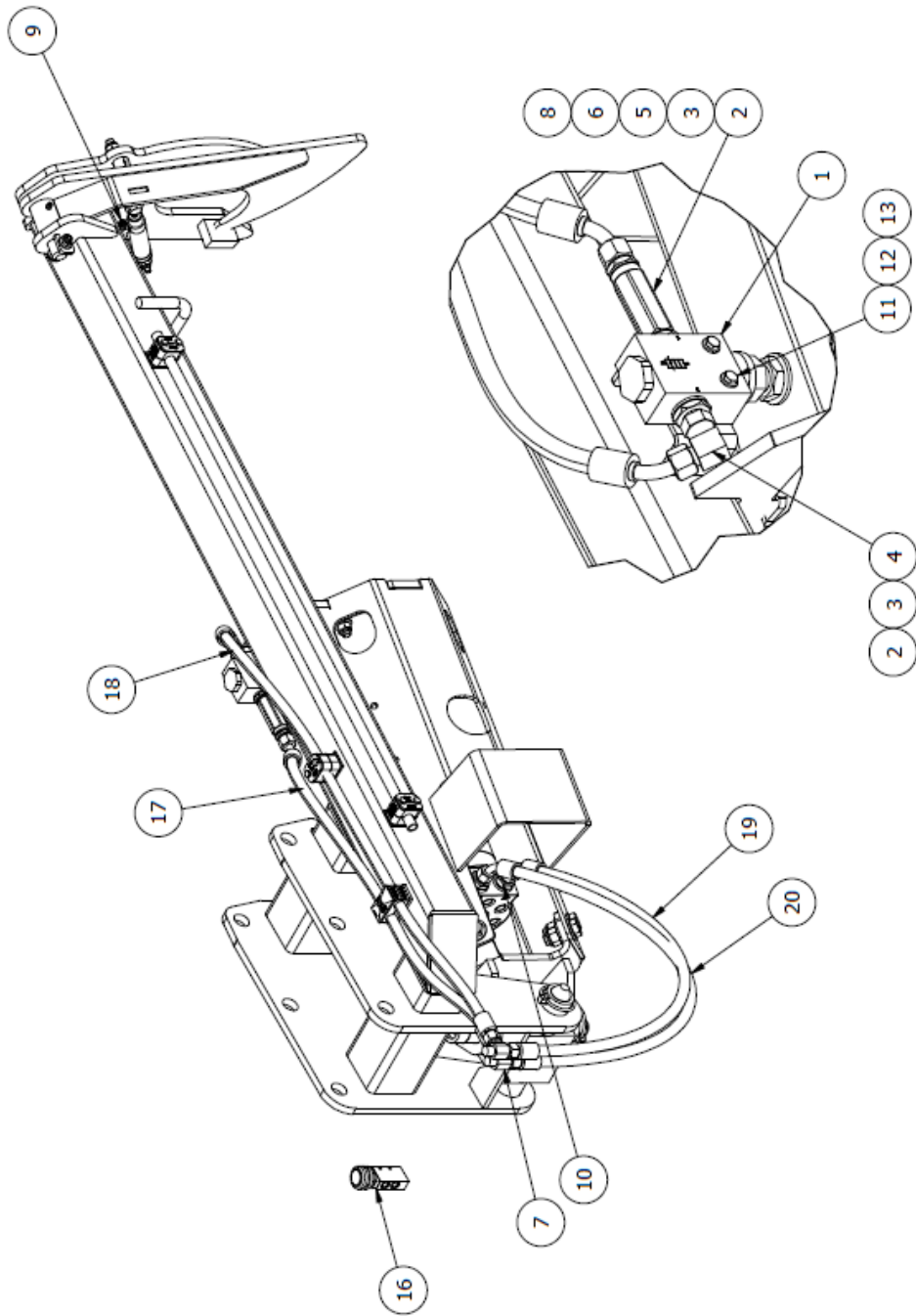


Code
52299

Description
Rope Wind-Up 700X

No.	Code	Description	Quantity
1	48413	Arm WA	1
2	48412	Latch WA	1
3	52293	700X Powerhead GA	1
4	23620	Swivel Universal Block	1
5	48927	Swivel Pin WA	1
6	03248	Bush	2
7	01690	Air Ram	1
8	52297	Clevis Machined	1
9	52296	Reducer Bolt	1
10	51202	Pivot Pin WA	1
11	27622	Valve Stop Screw	1
12	52298	Shield Tube	1
13	11078	Pipe Clamp	3
14	01819	Pipe Clamp	1
15	02838	Spring	1
16	02137	Grease Nipple M6	2
17	03431	Lynch Pin	1
18	01216	Bolt Hex M12 x 120	1
19	02105	Washer M12	3
20	02774	Nyloc Nut M12	2
21	01895	Bolt Hex M8 x 50	1
22	02977	Washer M8	4
23	02496	Nyloc Nut M8	2
24	03868	Washer M20	1
25	06922	Lock Nut M20	1

Rope Wind-Up Hydraulics

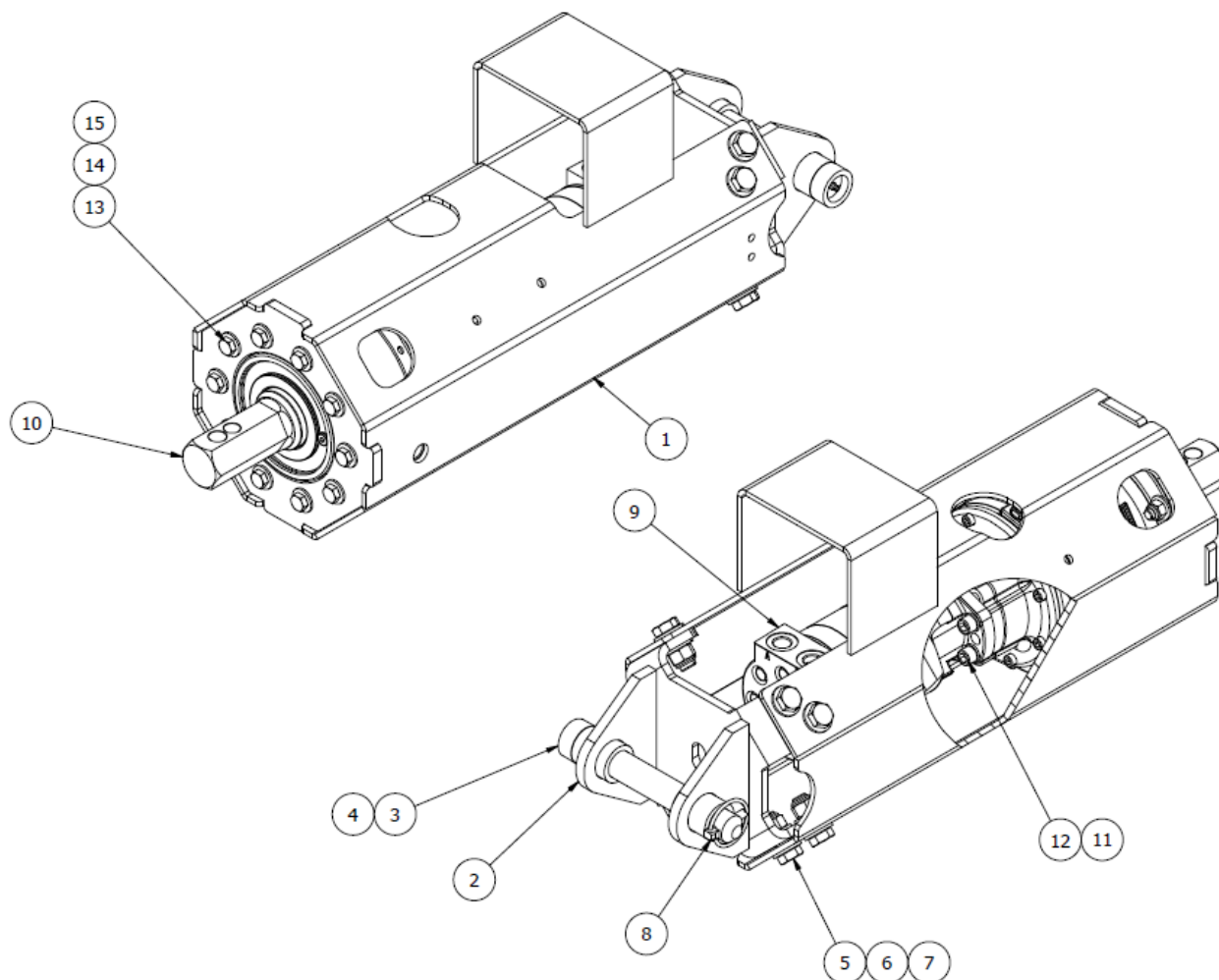


Code
52294

Description
Wind-Up 700X Hydraulics

No.	Code	Description	Quantity
1	10692	Valve	1
2	02182	Seal	2
3	01096	MM Adaptor	2
4	01120	Elbow	1
5	01812	Seal	2
6	01095	MM Adaptor	1
7	01134	Tee MMM	2
8	01628	Check Valve	1
9	04409	Air Fitting Elbow	2
10	08138	Adaptor O Ring	2
11	02350	Washer M6	4
12	12524	Bolt Hex M6 x 55	2
13	02513	Nyloc M6	2
14	04410	Air Tube Black	3
15	04411	Air Tube Red	3
16	12802	Pneumatic Valve	1
17	52301	Hose 1	1
18	52302	Hose 2	1
19	52303	Hose 3	1
20	52304	Hose 4	1

700X Powerhead



Code
52293

Description
700X Powerhead

No.	Code	Description	Quantity
1	47246	Body 40,000 WA	1
2	47250	Top Plate WA	1
3	23368	Top Pin WA	1
4	02137	Grease Nipple M6	1
5	02104	Washer M16	16
6	03941	Nyloc Nut M16	8
7	06000	Bolt Set M16 x 45	8
8	03431	Lynch Pin	1
9	27917	Motor	1
10	12275	Gearbox	1
11	02529	Washer Spring M12	4
12	08819	Bolt Cap M12 x 45	4
13	02105	Washer M12	20
14	03866	Bolt Hex M12 x 50	10
15	02774	Nyloc Nut M12	10



Autoguide Equipment
Stockley Road
Heddington
Nr. Calne
Wiltshire SN11 0PS
England
Tel: +44 (0) 1380 850885
Website: www.autoguide.co.uk

