AUTOGUIDE EQUIPMENT

# 40,000PXV ROPE WIND UP BRACKET

# MANUAL

## SPARE PARTS


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

Published: 16 March 2023
ID: M023 1.7

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)* |
|---|---|---|
| 47251 | 40,000PXV Powerhead | 10,000 |
| 48414 | Rope Wind Up Bracket | - |

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:-

# CONTENTS

# 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.

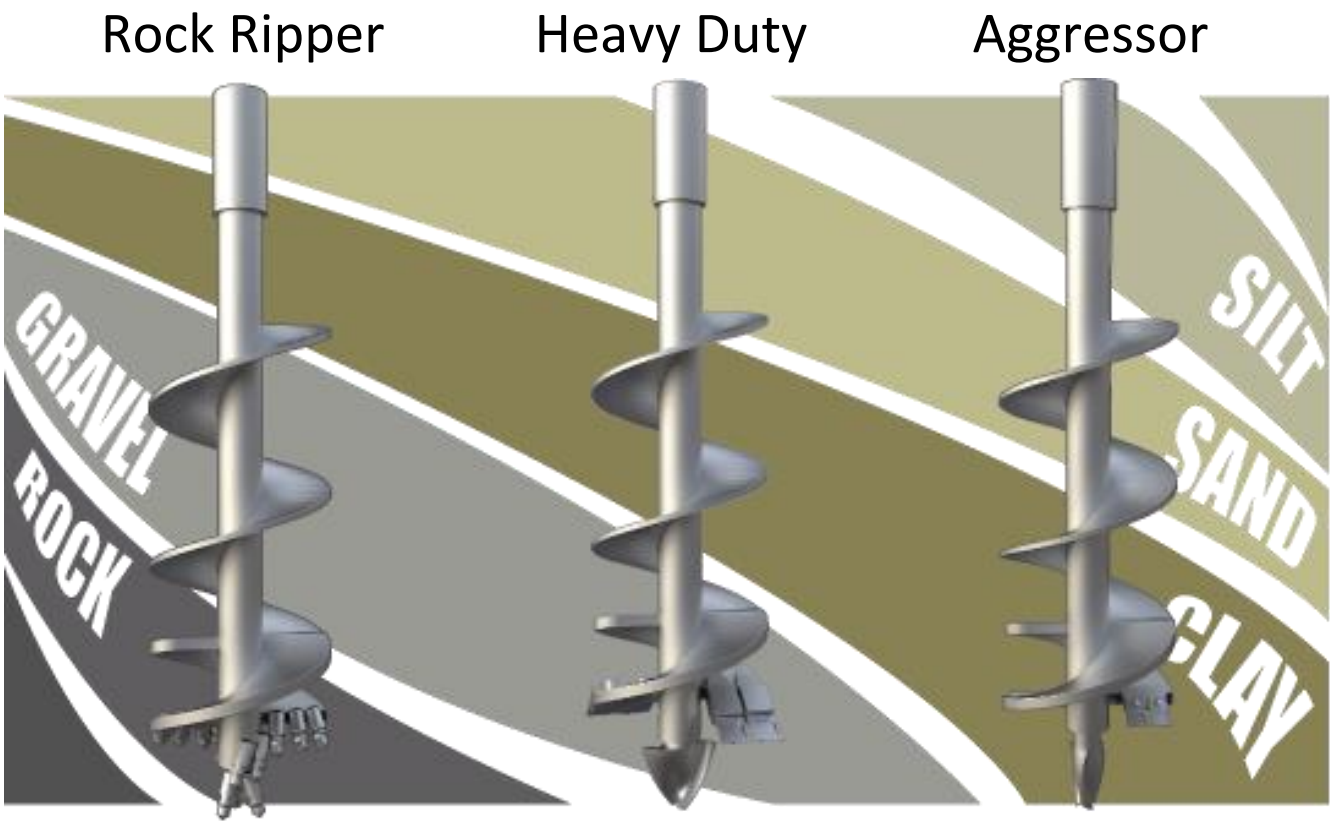
## Auger Selection

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<br>*in/labs (Nm)* | Typical Blow Count<br>*in/labs (Nm)* |
|---|---|---|---|---|
| 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<br>*(85-181)* | 60-100+ |
| 3 | Dense, Fine Sands, very hard silts & clays (may be pre-loaded) | Basalt Till, Boulder Clay, Caliche, Weathered Laminated Rock | 750-1600<br>*(85-181)* | 45-60 |
| 4 | Dense sands & gravel, hard silts & clays | Glacial Till, Weathered Shale's, Schist, Gneiss & Sandstone | 600-750<br>*(68-85)* | 35-50 |
| 5 | Medium dense sand & gravel; very stiff to hard silts and clays | Glacial Till, Hardpan, Marls | 500-600<br>*(58-68)* | 24-40 |
| 6 | Medium dense coarse sands & sandy gravels; stiff to very stiff clays | Saprolite's, Residual Soils | 400-500<br>*(45-56)* | 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<br>*(34-45)* | 7-14 |
| 8 | Loose, fine sands; alluvium; loess; medium & varied clays, fill | Flood Plain Soils. Lake Clays, Abode, Fill | 100-200<br>*(11-25)* | 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.**

## Preparing the Powerhead

The powerhead and bracket comes attached directly to the crane so no installation or attaching is required each time the powerhead is to be used. Therefore only system checks are required.

1. Raise and lower the crane boom to make sure that there is no interference with the boom or swivel bracket.
2. Once complete, lower the auger unit to the ground while not in use.

## 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

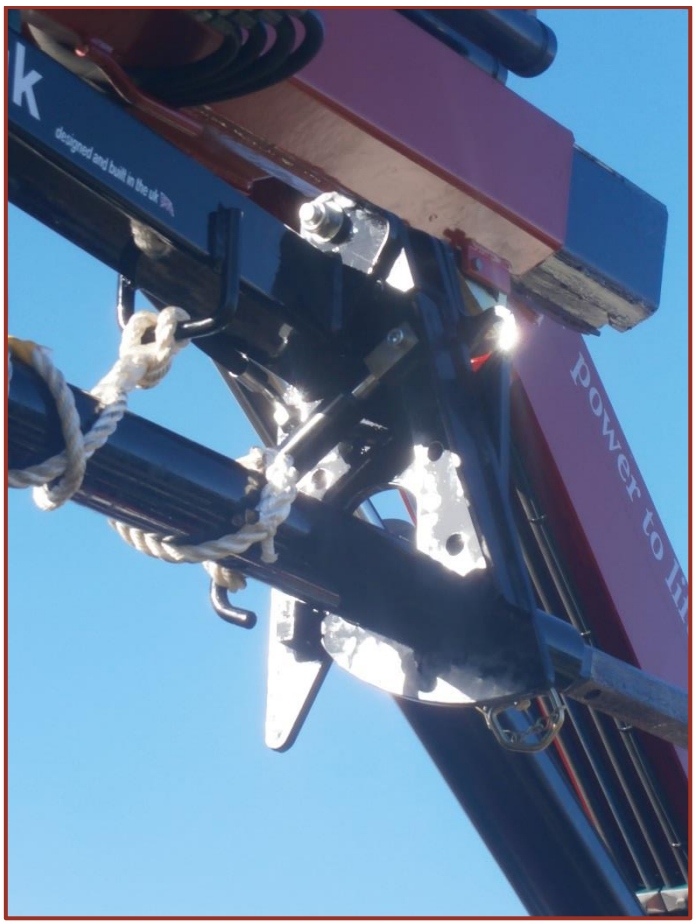
This method utilises the auger tube as a winch to wind the auger up to a latch. We provide an overwind valve to prevent rope breakage and an air controlled latch to release the auger for work.

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 hydraulic circuit to open the bottom latch using the inbuilt ram. Then put the powerhead into forward drive to gently lower itself through the opened 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 *a*t 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.

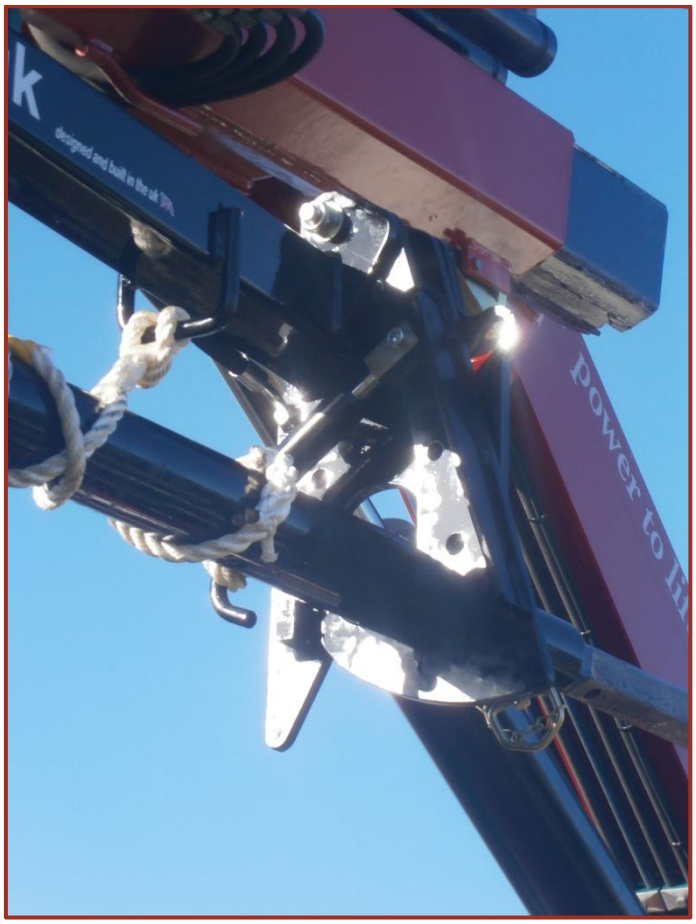
3. Put the powerhead into reverse and the unit will slowly start to wind itself up.

**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.

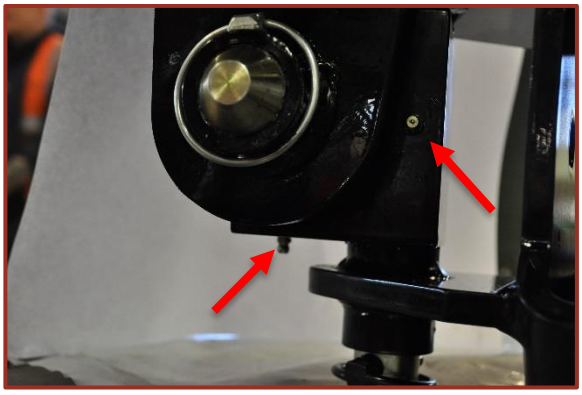
# MAINTENANCE SCHEDULE

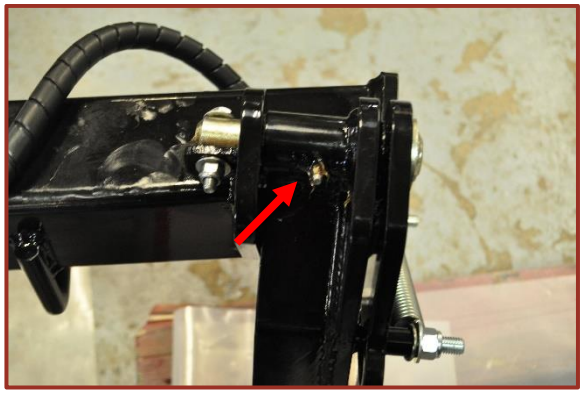
## Daily

- Check the unit is properly and securely attached to the crane unit.
- Check that all mounting pins are properly retained.
- Check the condition and security of any auger and anchor driver attachment.
- Check hydraulic hoses and fitting for leaks and damage.
- Check that the rope is not frayed, cut or damaged.

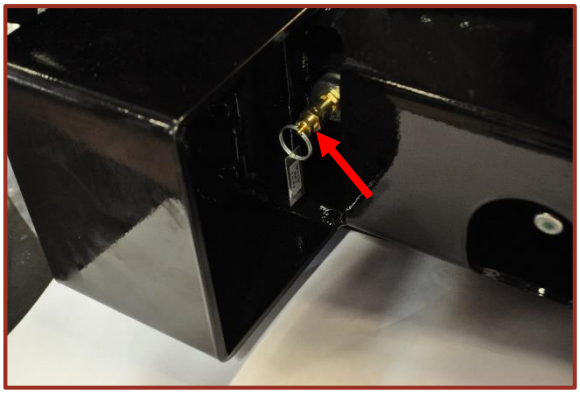
## Weekly

- Check that all nuts and bolts are secure.
- Lubricate all grease nipples.





- Check relief valve on the motor, ensuring it is not leaking.



## Monthly

- Check condition of auger teeth and replace if required.
- Visually check for damage to arm, powerhead body, auger and attachments.

## Annually

- Check the powerhead body for signs of fatigue and weld failure.
- Check the mounting top plate for signs of fatigue and weld failure.
- Check the arm and catcher plate’s signs of fatigue and weld failure.
- Check all pins and bosses for damage and signs of wear.
- Pressure check the hydraulic system.
- Check each fitting and valve for leaks, damage and wear.
- Examine each hose for leaks, cuts, abrasion and wear.
- Check output seals on gearbox for wear and leaks.
- Drain gear oil and checked for signs of gear wear, replaced to correct level.

# 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 |
| Slow | Non Compatible Quick Couplers | Replace |
| | Hoses too small for flow | Replace |
| | Wrong Model Powerhead | Select appropriate model |
| | 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,<br>Check Hose Sizes,<br>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 | Drain Link is Kinked | Check 2 bar max back Pressure. Replace Relief Valve. |
| | Non Return Valve Seizes | 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.

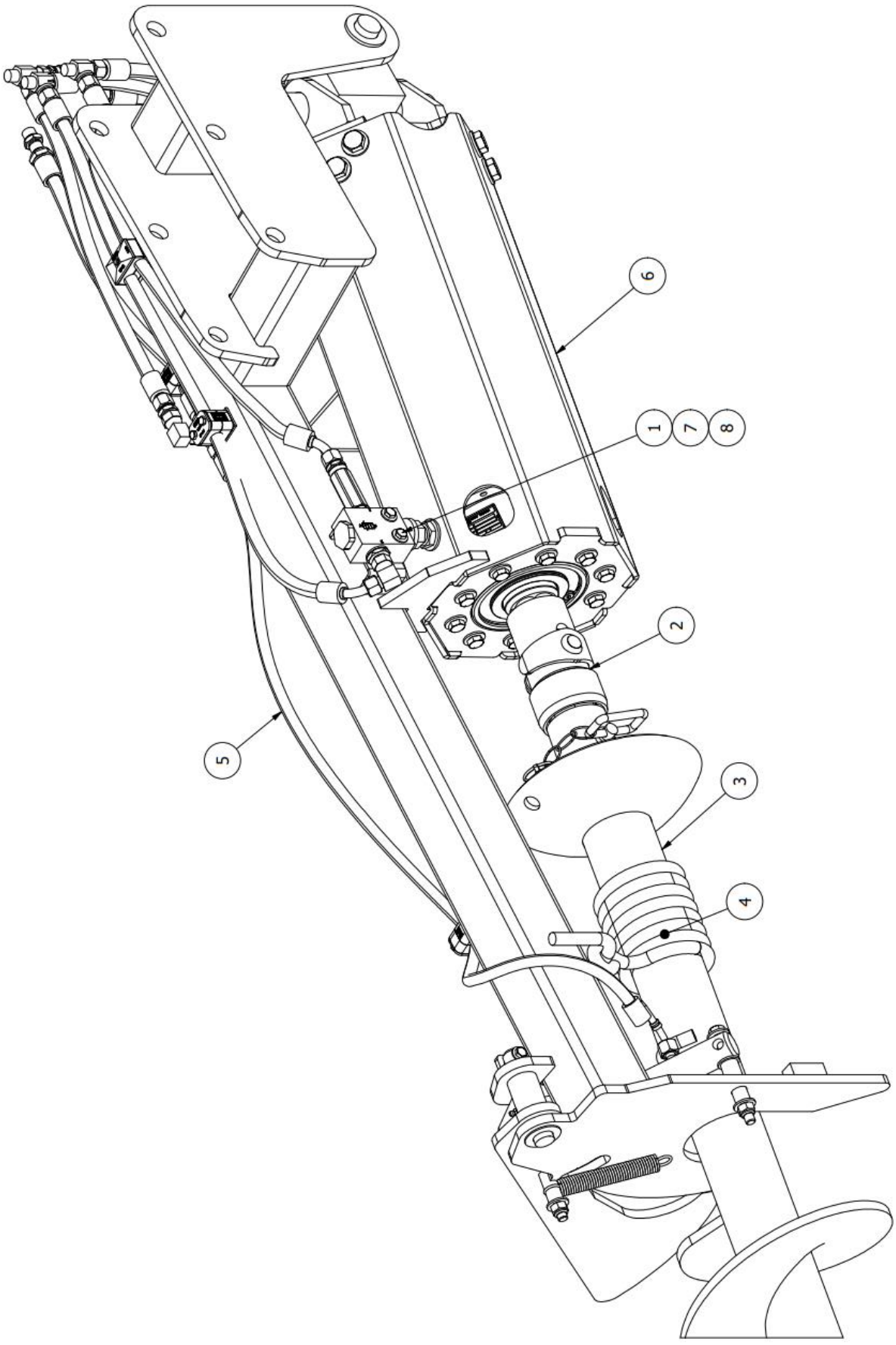
| Component | What to do? |
|---|---|
| Metals | All metals should be recycled with an appropriate scrap metal merchant, preferable sorted into metal type. |
| Electronics | All electrical components should be recycled at an appropriate facility according to the WEEE Directive and Regulations 2013 |
| 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 be 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 no recyclable and then either sent to suitable recycling facilities or landfill. |

# SPARE PARTS

## Wind-Up Bracket

**48414 Rope Wind-up 40,000 PXV**

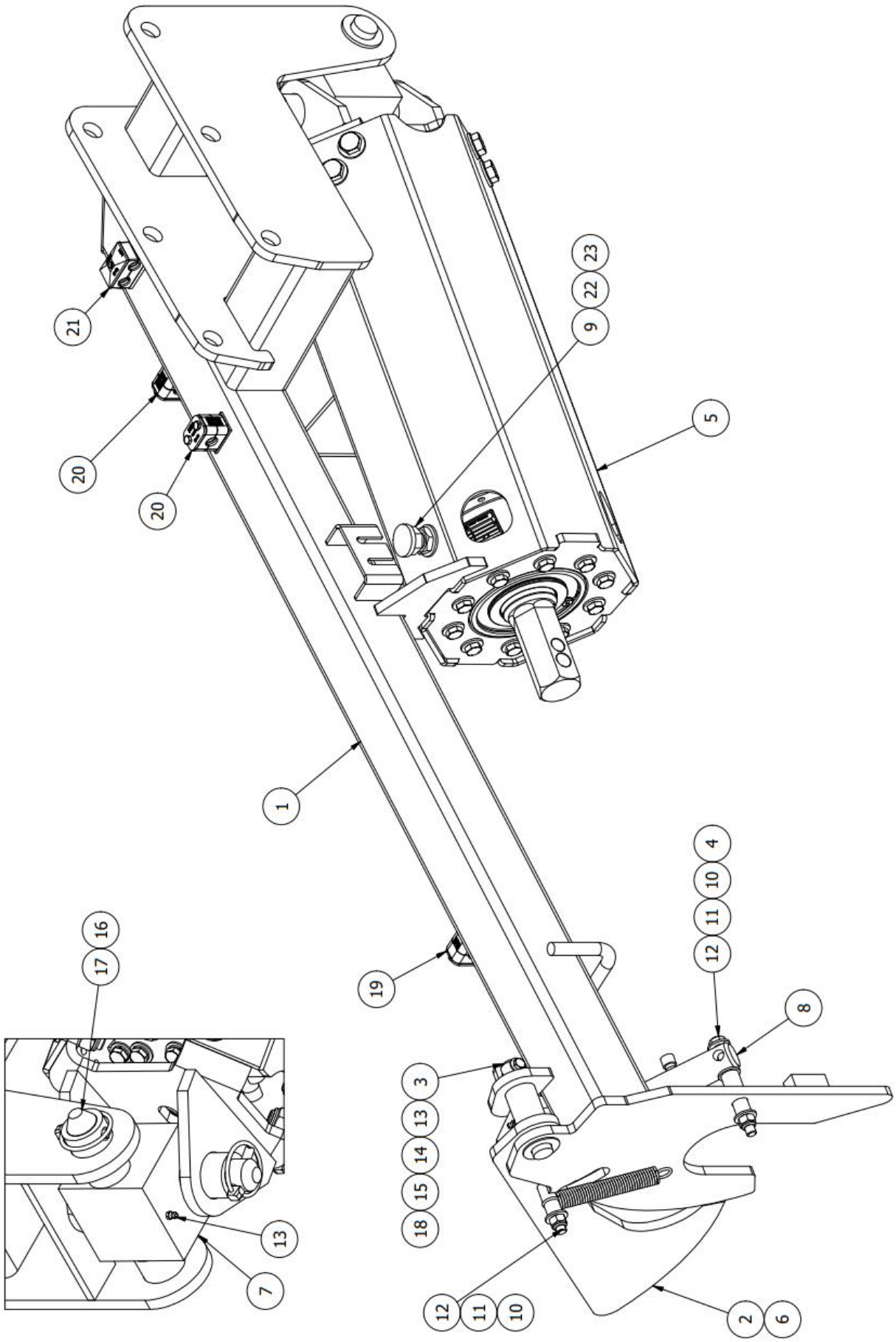
| No. | Code | Description | QTY |
|---|---|---|---|
| 1 | 02977 | WASHER M8 (FORM C) | 4 |
| 2 | 46667 | 1M 2" HEX EXTENTION ASSY BT | 1 |
| 3 | 46662 | BT AUGER 12" RR 1.8M 2" ASSY | 1 |
| 4 | 03231 | ROPE STROP M016 X 2.2M | 1 |
| 5 | 49255 | WIND-UP HYDRAULICS | 1 |
| 6 | 49256 | ROPE WIND-UP ASSY 1 | 1 |
| 7 | 02454 | BOLT HEX M8 X 60 | 2 |
| 8 | 02496 | NUT NYLOC M8 | 2 |


6
1
7
8
2
5
3
4

# Rope Wind Up Assembly 1

**49256** **Rope Wind-up Assy 1**

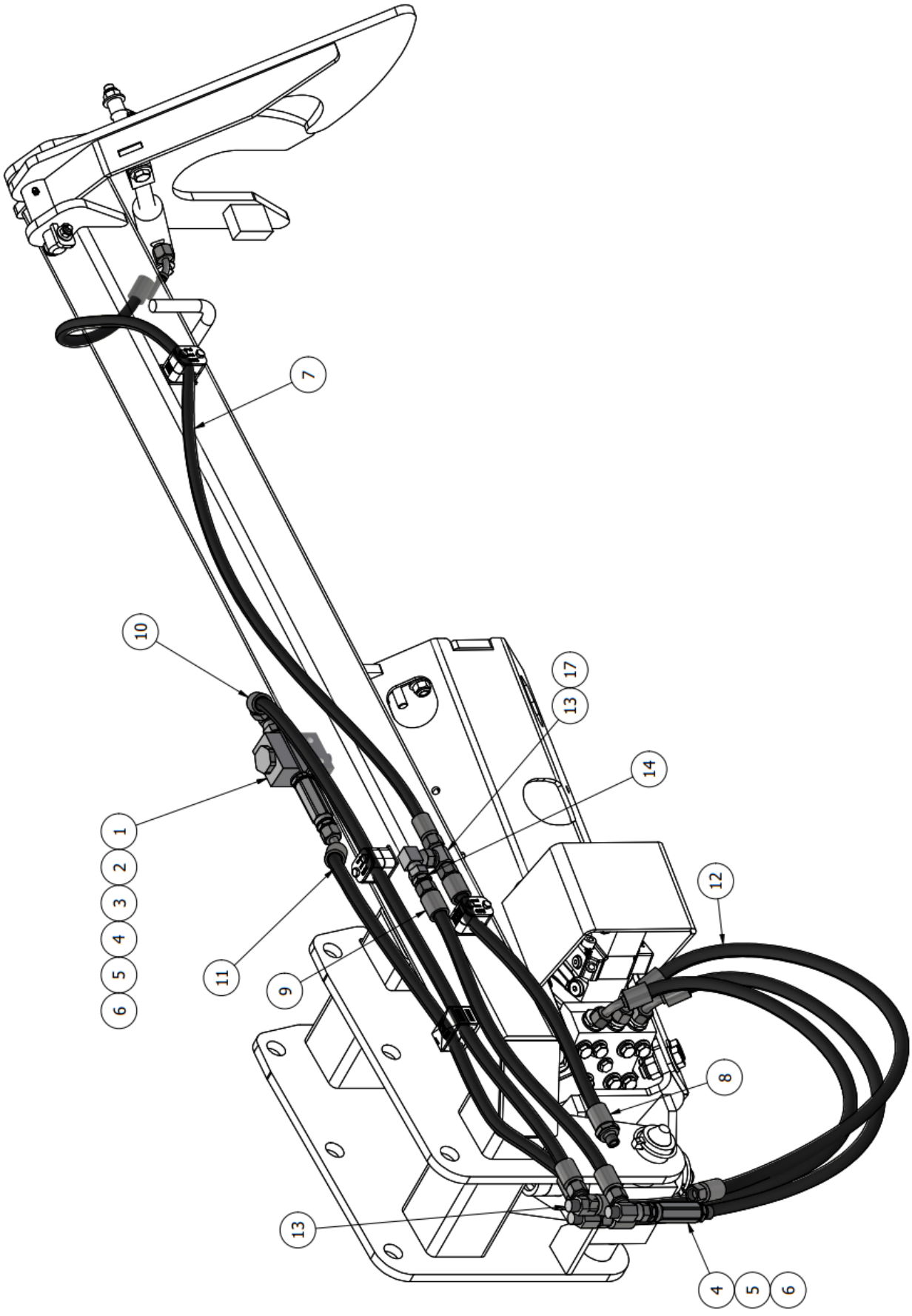
| No. | Code | Description | QTY |
|---|---|---|---|
| 1 | 48413 | ARM WA | 1 |
| 2 | 48412 | LATCH WA | 1 |
| 3 | 51202 | PIVOT PIN WA | 1 |
| 4 | 02838 | SPRING | 1 |
| 5 | 47251 | 40,000 PXV POWERHEAD | 1 |
| 6 | 03248 | IGUS BUSH 2528 - 25 | 2 |
| 7 | 23620 | SWIVEL UNIVERSAL BLOCK | 1 |
| 8 | 10624 | RAM M20 BRAKE BR20 | 1 |
| 9 | 27622 | VALVE STOP SCREW | 1 |
| 10 | 02105 | WASHER M12 (FORM C) | 5 |
| 11 | 02774 | NUT NYLOC M12 | 2 |
| 12 | 05078 | BOLT HEX M12 X 130 | 2 |
| 13 | 02137 | NIPPLE GREASE M6X1 | 2 |
| 14 | 02977 | WASHER M8 (FORM C) | 2 |
| 15 | 02496 | NUT NYLOC M8 | 1 |
| 16 | 03431 | PIN LYNCH M009 X 045 | 1 |
| 17 | 48927 | SWIVEL PIN WA | 1 |
| 18 | 01895 | BOLT HEX M8 X 50 | 1 |
| 19 | 06772 | CLAMP STAUFF M014 SINGLE | 1 |
| 20 | 11078 | CLAMP STAUFF M016 SINGLE | 2 |
| 21 | 01819 | CLAMP STAUFF M016 DOUBLE | 1 |
| 22 | 03868 | WASHER M20 (FORM C) | 1 |
| 23 | 06922 | NUT LOCK M20 | 1 |


21
20
20
9
22
23
5
1
19
16
17
4
10
11
12
8
3
13
14
15
18
13
7
12
11
10
2
6

# Rope Wind Up Hydraulics

**49255 Wind-Up Hydraulics**

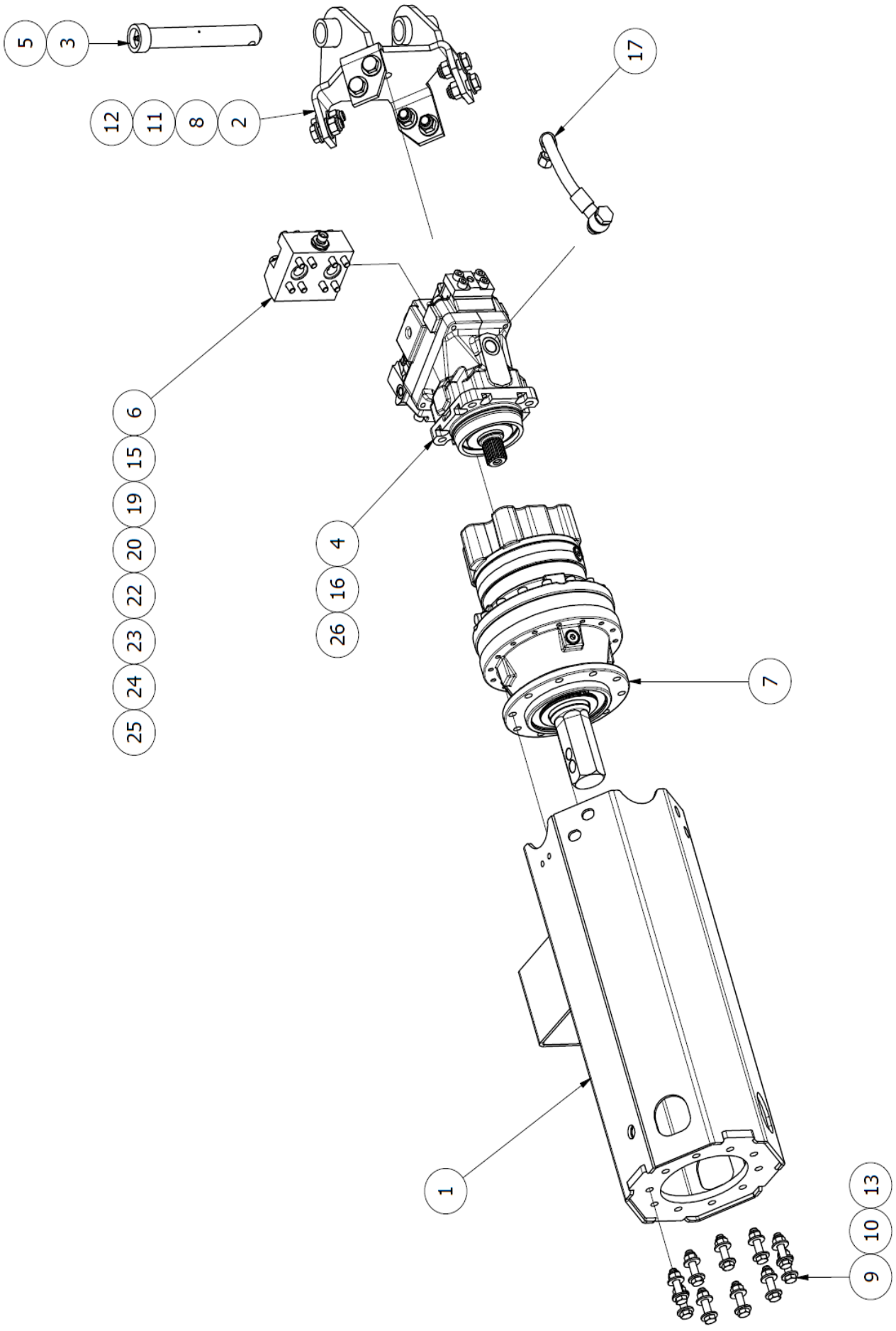
| No. | Code | Description | QTY |
|---|---|---|---|
| 1 | 10692 | VALVE OVERWIND 008 | 1 |
| 2 | 02182 | SEAL BONDED 008 | 2 |
| 3 | 01096 | 3/8"-1/2" MM ADAPTOR | 2 |
| 4 | 01628 | 3/8" CHECK VALVE VUR IN LINE | 2 |
| 5 | 01812 | SEAL BONDED 006 | 4 |
| 6 | 01095 | 3/8" MM ADAPTOR | 3 |
| 7 | 49258 | HOSE 1 | 1 |
| 8 | 49260 | HOSE 2 | 1 |
| 9 | 49261 | HOSE 3 | 1 |
| 10 | 49262 | HOSE 4 | 1 |
| 11 | 49263 | HOSE 5 | 1 |
| 12 | 49264 | HOSE 6 | 3 |
| 13 | 01134 | TEE 006 MMM BSP | 3 |
| 14 | 07580 | 3/8" MM RESTRICTOR ADAPTOR 0.5MM | 1 |
| 15 | 02188 | TEE 006 FMM BSP | 1 |
| 16 | 01120 | ELBOW 006 SH MF BSP | 1 |
| 17 | 04881 | ELBOW 006 SH FF BSP | 1 |


7
10
17
13
14
1
2
3
4
5
6
11
9
12
8
13
4
5
6

## Powerhead

| Code | Description |
|---|---|
| **47251** | **40,000 PXV Powerhead** |

| No. | Code | Description | QTY |
|---|---|---|---|
| 1 | 47246 | BODY 40,000 WA | 1 |
| 2 | 47250 | TOP PLATE WA | 1 |
| 3 | 23368 | TOP PIN WA | 1 |
| 4 | 01578 | MOTOR | 1 |
| 5 | 02137 | NIPPLE GREASE M6X1 | 1 |
| 6 | 47400 | 50,000 PXV PORT BLOCK | 1 |
| 7 | 06653 | GEARBOX | 1 |
| 8 | 02104 | WASHER M16 (FORM C) | 16 |
| 9 | 02105 | WASHER M12 (FORM C) | 20 |
| 10 | 10167 | BOLT HEX M12 X 50 | 10 |
| 11 | 03941 | NUT NYLOC M16 | 8 |
| 12 | 06000 | BOLT SET M16 X 45 | 8 |
| 13 | 02774 | NUT NYLOC M12 | 10 |
| 14 | 09425 | PIN LYNCH M009 X 052 | 1 |
| 15 | 02182 | SEAL BONDED 008 | 6 |
| 16 | 01812 | SEAL BONDED 006 | 1 |
| 17 | 01923 | 1/2 BANJO BOLT | 1 |
| 18 | 01096 | MM ADAPTOR | 1 |
| 19 | 02702 | WASHER M10 (FORM C) | 8 |
| 20 | 02525 | WASHER SPRING M10 | 8 |
| 21 | 02986 | BOLT HEX M10 X 70 | 8 |
| 22 | 09156 | ADAPTOR 008/011 BSP ORFS MM | 3 |
| 23 | 47259 | HOSE 1 | 1 |
| 24 | 01813 | SEAL BONDED 004 | 2 |
| 25 | 02132 | PLUG 004 | 2 |
| 26 | 01677 | PLUG 006 | 1 |


5
3
12
11
8
2
17
6
15
19
20
22
23
24
25
4
16
26
7
1
9
10
13

Autoguide Equipment
Stockley Road
Heddington
Nr. Calne
Wiltshire SN11 0PS
England

Tel: +44 (0) 1380 850885

Website: www.autoguide.co.uk