



AUTOGUIDE EQUIPMENT



400H HAND-HELD ANCHOR DRIVER

MANUAL SPARE PARTS

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These instructions give safety and operations information regarding the use of a Handheld Powerhead supplied by Autoguide Equipment. They contain the relevant information for products:

Product Code	Description	Maximum Output Power (Nm)
52550	400H Anchor Driver 2021	4,000
52552	400H Underwater Anchor Driver	4,000

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 400H handheld anchor driver 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.

Observe all safety information in the manual and on decals fitted to the machine and power unit.

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 secured and/or disabled to prevent use by untrained personnel.

Description

This is a 4000Nm torque capacity, through shaft, screw pile driving unit, for a minimum 2 man operation. The design of the unit enables the pile shaft to pass through the hollow driving hub, so there is no limit to the length of pile that can be driven.

A torque arm mounted onto the base frame prevents the unit from rotating in an anti-clockwise direction (Clockwise when removing piles).

Note: The reaction load when the arm is set at 2 metres long will be in the range of 200kg, so it is very important to ensure the outer end is firmly anchored. Take extreme care!

Power is supplied by a 140 Bar, 30Litre/min ABC Powerpack. (If required, the flow can be reduced to 20 Litre/min for operation of lower flow tools).

Specification.

Type	Hydraulic Hollow Shaft Torque Head
Maximum Torque	4000Nm at 140 BAR
Speed	12 rev/min at 30 L/min
Anchor Type	Autoguide 60R and 76R Piles
Operation	Hand Lever control allows Forward/Reverse rotation

Important Notes

The unit is only suitable for use by trained operators using appropriate protective clothing.

This should include: **Safety Boots, High Visibility Jacket, Hard Hat, and Gloves.**

Do not adjust the relief valve, or use more than 30 Litre/min of oil flow. Autoguide can supply suitable valves if it is intended to operate the unit from power sources other than the ABC Powerpack.

Remember, great care must be taken to restrain the torque arm, ideally by tying it to an immovable object at least 2 metres away from the Anchor, with the line of pull at right angles to the torque arm. For maximum safety this connection must be able to withstand a minimum pull of **600kg**.

ASSEMBLY

The 400H needs to be connected to the Powerpack and torque arm prior to use.

1. If not already, attach a suitable Autoguide 60R or 76R driver to the 400H using 8 x M12 Cap Head Bolts. Ensure these are tightened to 140 Nm.
2. With the Powerpack turned off and ensuring that the hydraulic fittings are clean and free from dirt, connect the two supplied hoses onto the Powerpack unit.
3. Similarly, ensuring that the hydraulic fittings are clean and free from dirt, connect the other end of the two hoses onto the 400H handheld unit.
4. The circuit should look like this:

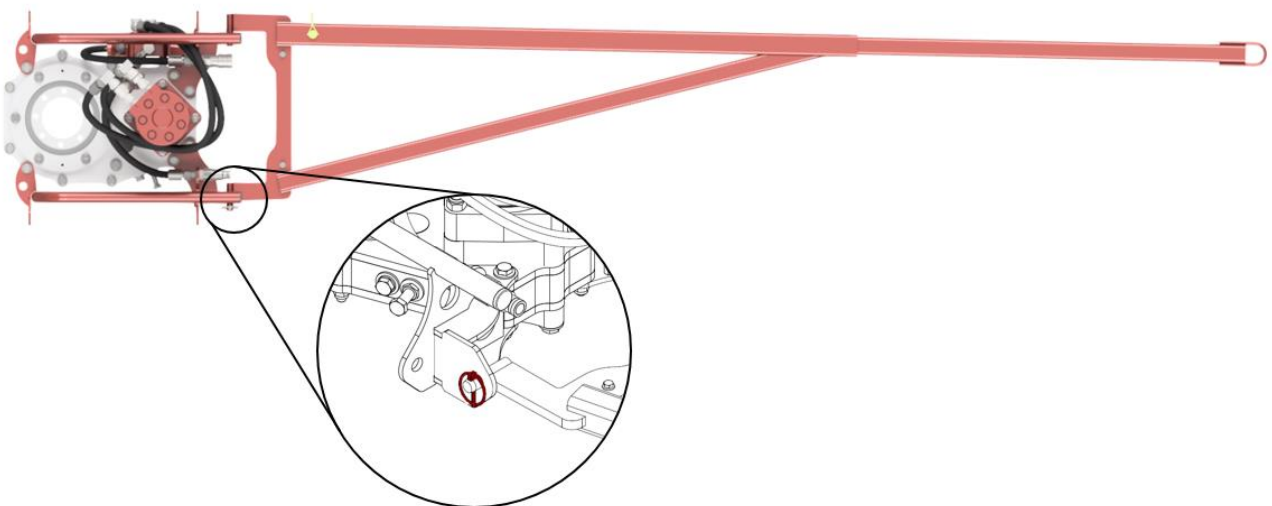


Note: Do not connect the hoses in the wrong orientation as it may cause damage to the valve and powerhead.

Hose Connections

Torque Head Inlet	- Male 3/8" Flat Face	Powerpack Feed	- Female 3/8" Flat Face
Torque Head Outlet	- Female 3/8" Flat Face	Powerpack Return	- Male 3/8" Flat Face

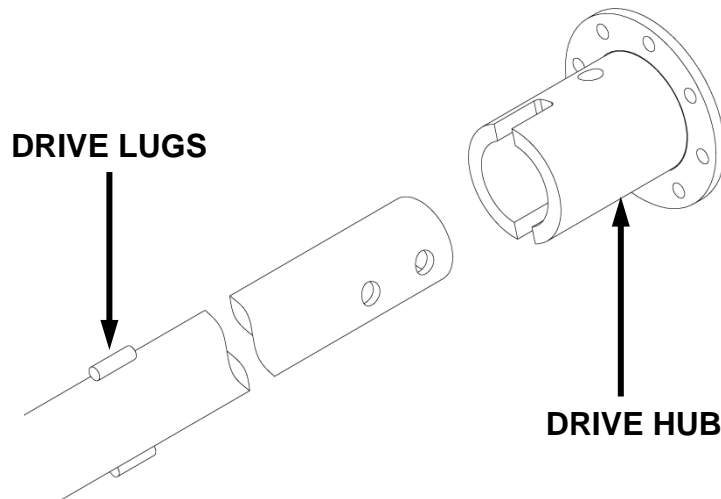
5. Connect the torque arm to the powerhead in either of the 3 possible positions, ensuring the lugs go through the frame.
6. Secure the torque arm with a suitable, working condition 'Lynch Pin' as shown below.



OPERATION

To install an anchor, first clear away any vegetation in the area and check for underground cables, pipes, drains or other obstructions. It is not unusual to manually excavate round buried pipes and start the pile within 50mm of a known obstruction.

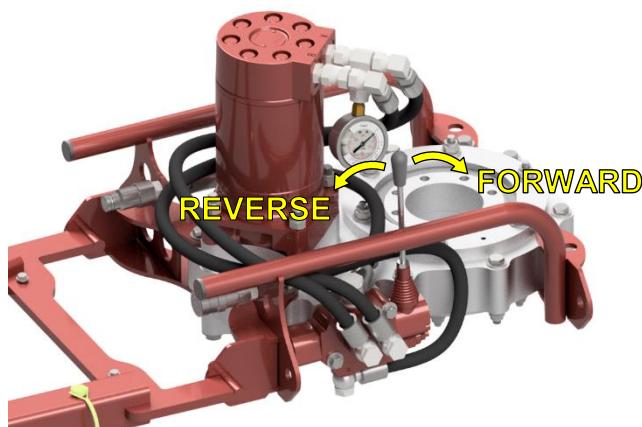
1. Lay the 400H Driver on the ground and by tipping it on edge, pass the anchor through the driver ensuring the drive lugs engage in the drive hub slot.



2. Stand the anchor and 400H vertically, positioning the anchor tip in the desired location and push it into the surface.
3. Ensure torque arm is extended and positioned against a suitable object capable of withstanding 600kg of force and if possible, restrained to prevent detachment or slipping.

Note: Ensure that the torque arm extension is engaged into the torque arm a minimum of 500mm when in use.

4. Ensure the area is clear of non-operating personnel and that no-one is near the torque reaction arm, especially on the 'anticlockwise' side.
5. Drive the pile forward, checking if it is vertical whilst it is near the surface.



6. Once the first flight of the anchor is under the surface, continue to install slowly and adjust the angle of installation to desired position. No downwards force should be required at this stage.
7. Continue to install the anchor taking care to achieve the correct angle of installation.
8. As the anchor is installed, ensure the moving part of the torque arm is able to slide, enabling the anchor to remain vertical.
9. When the driver is close to the ground, carefully run the driver in reverse to release the torsion in the anchor.
10. Raise the 400H to the top of the anchor, align the holes and fix in place using the supplied drive pins.

Note: When moving the 400H driver to another drive position on an anchor, it is often convenient to remove the torque arm.

11. After ensuring the torque arm is refitted correctly, continue to drive the anchor forward into the ground.
12. Once ground level is reached once again, the powerhead can be removed from the anchor.
13. If required, insert an extension into the 400H drive adapter and secure it with the supplied drive pins.
14. Lift the driver and anchor onto the anchor previously installed into the ground, so that the sleeve of the extension passes over the end of the anchor protruding from the ground, and secure with suitable bolts.
15. Repeat the process of screwing the anchor into the ground, whilst taking note of the torque on the pressure gauge.
16. As the anchor descends you will see an increase in torque. Each job will have a specified minimum torque and/or depth of pile. Generally the minimum torque should be maintained over at least 3 revolutions when installing compression piles.
17. When running at full speed, the torque gauge will be inaccurate. In order to obtain an accurate torque reading, stop the driver completely and then start driving again slowly. The most accurate torque reading can be seen when the driver first starts turning.
18. Once the correct torque and/or depth is reached, stop the driver and remove from the anchor.

MAINTENANCE

Service Schedule

The service schedule of machine items is as follows:

Service Item		First 50 hour service	Service Interval			
			10 Hours <i>Daily</i>	50 Hours <i>Weekly</i>	500 Hours 6 <i>Months</i>	1000 Hours <i>Annually</i>
Hydraulics	Hydraulic Oil		Check			Change
	Hydraulic Hoses			Check		
	Quick Couplers		Check			
Other	Lubricating Points			Grease		
	Wear Pads			Check		
	Wear Pad Tensioning Bolts			Check		

Daily Service Items

Hydraulic Oil

The machine is powered by Hydraulic Oil. Clean oil and filters are essential for reliability and performance.

The machine runs on **HLP 32 Grade Hydraulic Mineral Oil**. Make sure you use the correct grade for the ambient conditions and only top up with the same make and grade.

Drive Chain Tension

Operating the valve directs the hydraulic flow to the motor which drives the hollow centre sprocket via a chain. The chain must be kept tight; an aperture in the chain case allows you to check the tension and adjust as & when necessary.

The chain is tensioned with a plastic wear pad inside the driver. Tension is adjusted via the tension bolt that protrudes from the side of the case, as shown circled below. Turning the bolt clockwise will push against the chain and therefore increase tension. It is important not to overtighten this bolt; in most cases tightening by hand is sufficient. Once adjusted, the lock nut must be tightened to prevent unwanted adjustment.

Inspection holes are present on the top and bottom of the 400H driver. These are covered with plastic plugs to prevent debris from entering the driver. If removed, these plastic plugs must be reinstalled before use.

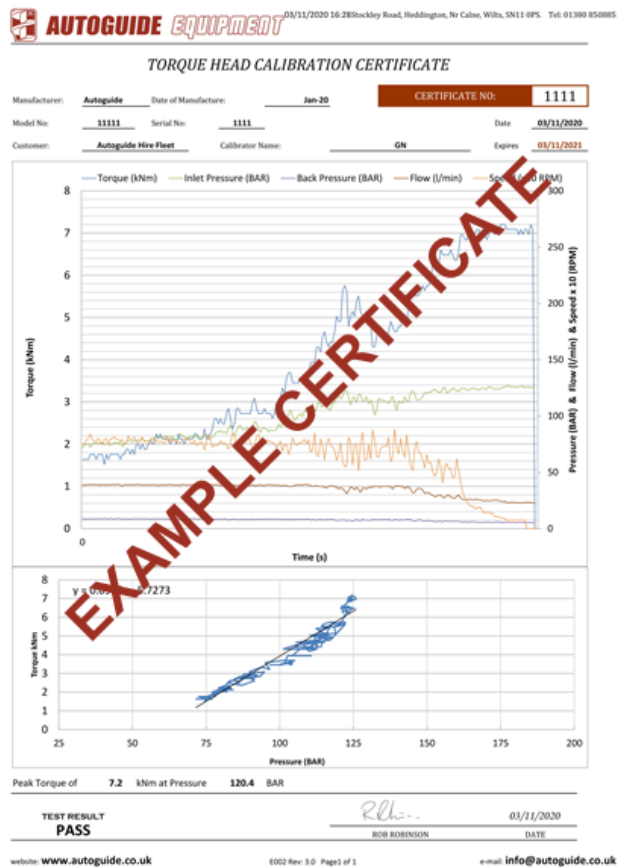


Calibration

Each 400H is supplied with a Torque Head Calibration Certificate showing the performance of the individual unit. To ensure the continued life and quality of work of the driver, the 400H hand held must be returned to Autoguide Equipment at yearly intervals for testing and calibration.

Hydraulic motor performance changes over time, a calibration will ensure that the correct torque is being produced and that the gauge matches this performance. This in turn will ensure that anchors are installed correctly to the specified torque at each job by the operators.

Note: Each certificate states the expiry date for the unit's calibration. The unit should be returned to ABC Anchors for calibration before this date.



Underwater Variant

For underwater applications a special variant of the 400H can be supplied. This variant makes use of self-lubricating solid bearings, stainless steel components and food-safe chain grease to minimize the effects of salt water corrosion on the unit.

Due to the nature of the unit it is impossible to fully protect it against salt water corrosion and therefore the following must be carried out after each use underwater.

After underwater usage

1. Remove casing plastic plugs and flush with fresh clean water to remove any remaining salt water.
2. Rinse body with fresh clean water.
3. Re-grease internal chain with food-grade grease.
4. Apply a suitable rust preventative to any painted components on the unit.

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
Poor Torque	Low Hydraulic Pressure	Carry Out Flow and Pressure Check
	Excessive Oil Temperature	Check Pump, Check Hose Sizes, Use Correct Powerhead
	Back Pressure	Ensure hoses are free flowing and not kinked. Check 2 bar max back pressure. Replace Relief Valve.
Oil leaks	Loose Fittings	Tighten Up Fittings
	Leaky Connections	Reseal or check Configuration
	Pressure Too High	Use compatible head and fittings

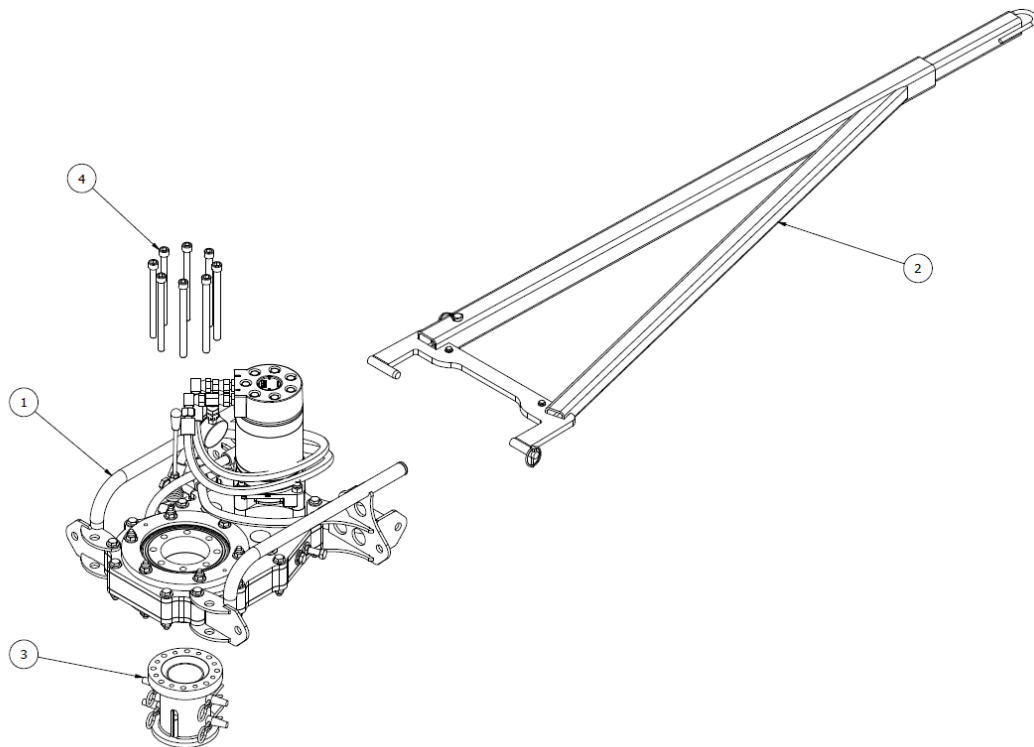
END OF LIFE

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 electronic 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 LIST

Hydraulic Anchor Driver 400H Kit



Code
52550

Description
400H Anchor Driver Kit

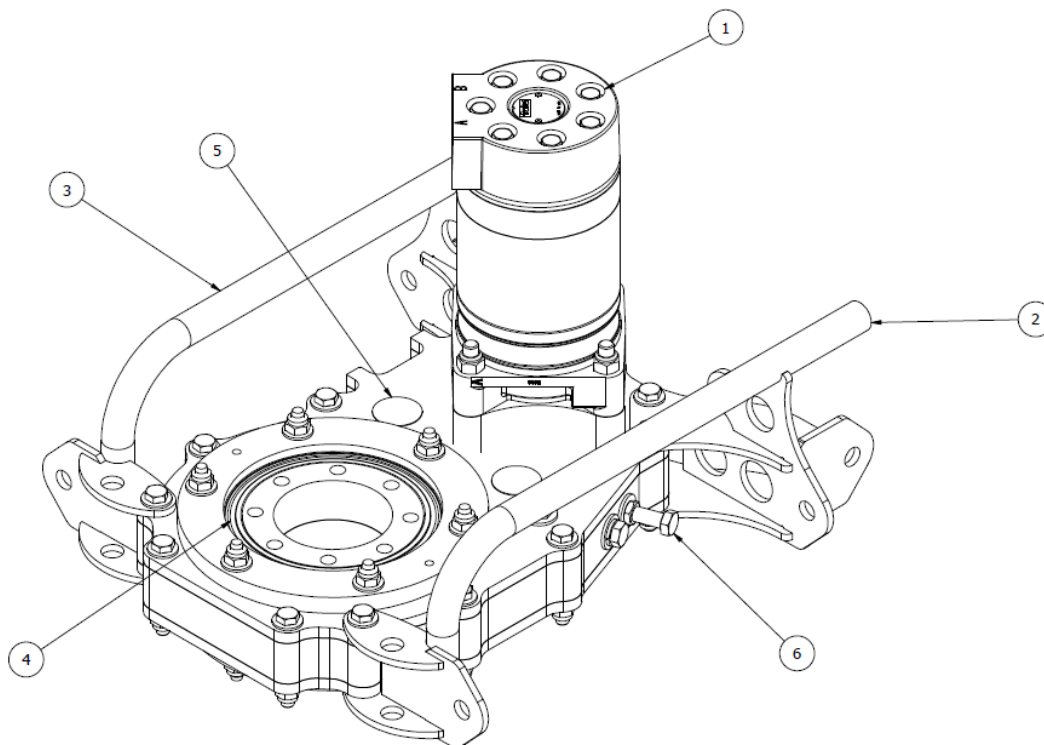
No.	Code	Description	Quantity
1	50815	400H Anchor Driver	1
2	50724	Torque Arm 400H GA	1
3	49989	60R Handheld Driver Kit	1
4	12361	Bolt	8

Code
52552

Description
400H Underwater Driver Kit

No.	Code	Description	Quantity
1	50767	400H Underwater Anchor Driver	1
2	50696	Torque Arm Stainless GA	1
3	49989	60R Handheld Driver Kit	1
4	12361	Bolt	8

Hydraulic Anchor Driver 400H



Code
50814

Description
400H Assembly 2021

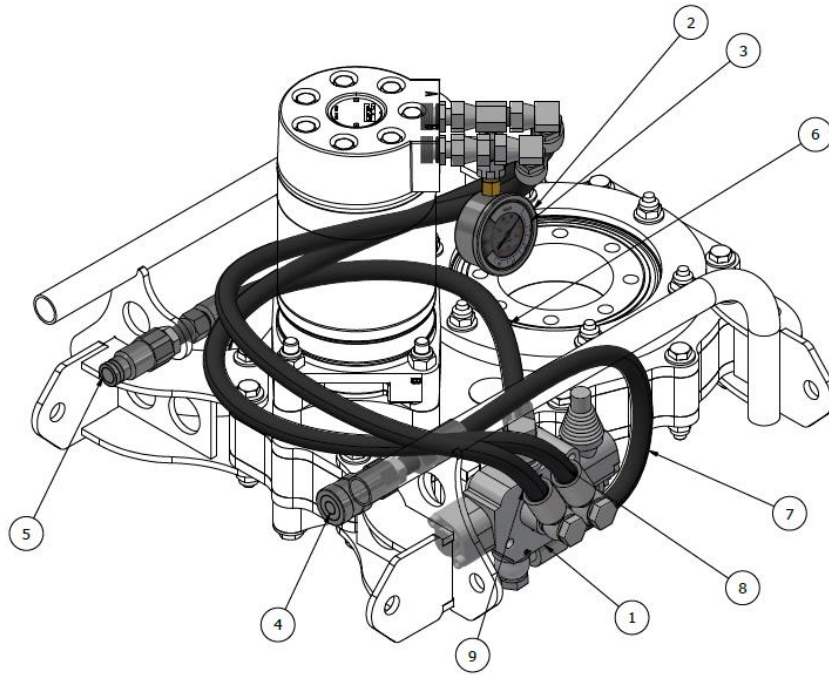
No.	Code	Description	Quantity
1	33004	Motor	1
2	50664	Left Handle 2021	1
3	50670	Right Handle 2021	1
4	11644	Solid Bearing	2
5	26595	Plastic Cap	2

Code
50649

Description
400H Underwater Assembly

No.	Code	Description	Quantity
1	33004	Motor	1
2	52422	Left Handle 2021 SS	1
3	52431	Right Handle 2021 SS	1
4	50689	Solid Bearing	2
5	26595	Plastic Cap	2

400H Hydraulics

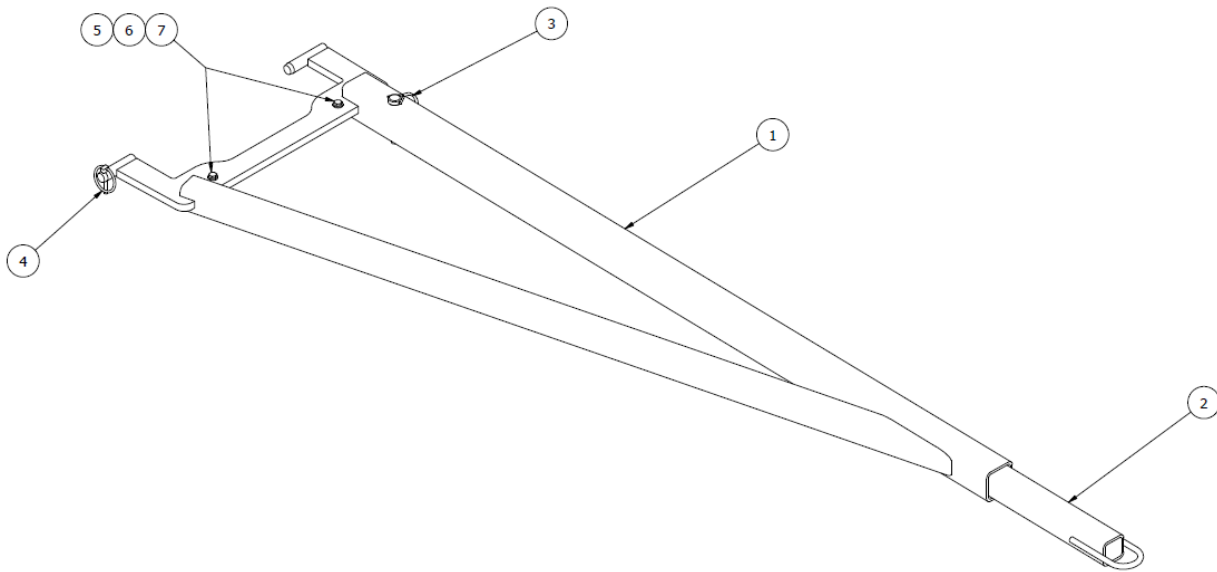


Code
50651

Description
400H Hydraulics Kit 2021

No.	Code	Description	Quantity
1	42654	Valve	1
2	09056	Gauge	1
3	50766	Gauge Sticker	1
4	02401	Quick Coupler Female	1
5	03624	Quick Coupler Male	1
6	50706	Hose 1	1
7	50707	Hose 2	1
8	50708	Hose 3	1
9	50709	Hose 4	1

400H Torque Arm



Code
50724

Description
Torque arm 400H GA

No.	Code	Description	Quantity
1	50725	Torque Arm 400H	1
2	50731	Arm Inner WA	1
3	05591	Shaft Locking Pin	1
4	03128	Lynch Pin	1
5	02513	Nyloc Nut	2
6	02350	Washer	4
7	01584	Hex Bolt	2
8	02155	Crimp	4
9	02319	Bowden cable	.4m

Code
50696

Description
Torque Arm Stainless GA

No.	Code	Description	Quantity
1	50695	Torque Arm SS 400H	1
2	50693	Arm Inner SS WA	1
3	05591	Shaft Locking Pin	1
4	03128	Lynch Pin	1
5	02513	Nyloc Nut	2
6	02350	Washer	4
7	01584	Hex Bolt	2
8	02155	Crimp	4
9	02319	Bowden cable	.4m

RISK ASSESSMENT – 400H & 700H HANDHELD

Section 1: Assessment Information

Assessment Date	04/11/2020
Activity / Item / Area	400H and 700H Handheld
Person at Risk	Operator/User
Total Number of People at Risk	2+
Responsible Person	Installation Operative
Assessor	Sian Parsons

Section 2: Likelihood/Severity of Injury

	Significant Risks	Likelihood	Severity	Residual Risk
1.	Injury caused by crushing	2	4	8
2.	Manual Handling	3	2	6
3.	Injury caused by rotation	2	3	6
4.	Injury caused by lifting	1	6	6

		Severity				
		Minor	Serious	Major	Fatality	Multiple Fatalities
Likelihood	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25
	6	6	12	18	24	30

Low Risk	Moderate Risk	Significant Risk	High Risk
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Likelihood X Severity = Residual Risk

Section 3: Control Measures

1. Appropriate PPE to be worn including Hard Hat, Eye Glasses, Gloves and High Visibility Clothing.
2. Installation operator to insure the area is clear from other equipment
3. Installation operator to always ensure that the unit is operated by a minimum of 2 people
4. Hands will be kept away from connecting and moving parts. Connecting parts such as pins will be maintained in good order. Safety clips and other appropriate fittings will be fitted at all times.
5. Operators will ensure that all unauthorised persons are kept away from the work area, by bounding off the area if practicable.
6. Operators to ensure they have checked the environment they are working in. Overhead cabling utilities services etc.
7. Operators to ensure personnel stand the correct side of the torque arm at all times and ensure that the arm is securely attached before operating the unit.
8. All fittings to be kept in good working orders, checked for tightness and PPE will be worn when fitting, maintaining or repairing. Any faults will be reported and a record kept.
9. All users to have appropriate training to warn of potential hazards and on maintenance and how to use the equipment in a safe and effective behaviour.

Further Action Required

NO FURTHER ACTION REQUIRED

Prepared By

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ABC Anchors



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