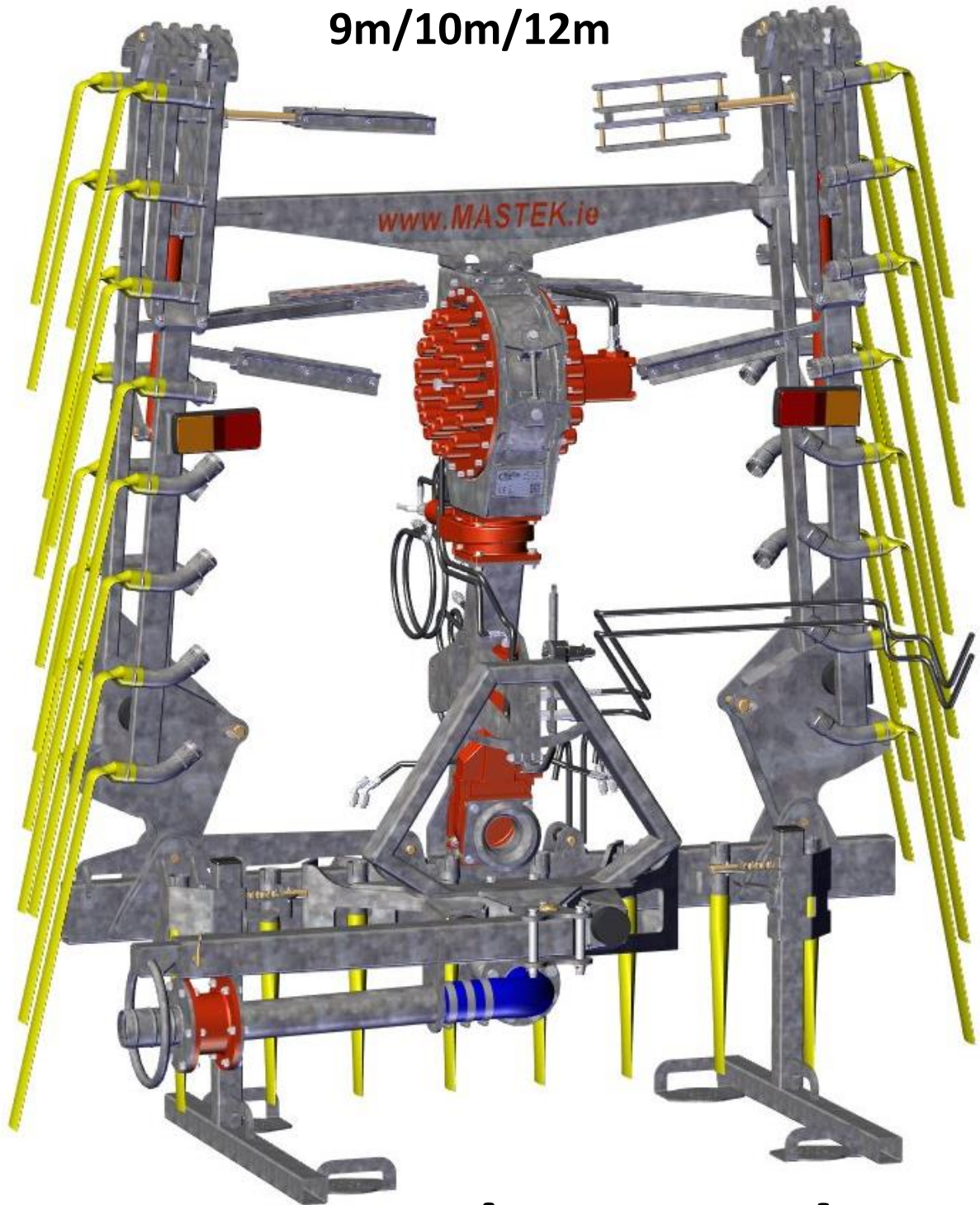


**Vertical Dribble Bar
Umbilical & Tanker Mounted**

9m/10m/12m



Operator's Manual

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This operations manual caters for all the machines listed below.
Including different mounting frames and optional extras

Machine Size	Part number
9m	MSA03686*
10m	MSA03611*
12m	MSA03795*

*This part number may have different variation it could cover different mounting styles and optional extras

Owner Assistance

- We at Mastek want you to be completely satisfied with your investment in our product. Sometimes in unlikely circumstances a problem may occur. We at Mastek advise to follow the steps below to resolve the problem.
1. Contact your local dealer, supplier of the implement and explain the problem, if required request assistance.
 2. If the implement was purchased directly through Mastek or the dealer fails to assist, then please contact Mastek.

Mastek Limited

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EC Declaration of Conformity



We, **Mastek Limited**

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Tel: +353495555953

Email: enquiries@mastek.ie

www.mastek.ie

Declare that the equipment specified hereafter:

- Product:
- Serial No.:
- Functions: For use in the agricultural sector for the specific purpose of spreading slurry

Conform to the following EU directives:

- **BS EN ISO 12100:2010** Safety of Machinery - General principles for design - Risk assessment & Risk reduction (ISO 12100:2010)
- **BS EN ISO 4254-1:2009** Agricultural Machinery – Safety Part 1: General requirements (ISO 4254-1:2008)
- **BS EN ISO 4254-6:2009** Agricultural Machinery – Safety Part 6: Sprayers and liquid fertilizer distributors (ISO 4254-6:2009)
- **BS EN 707:1999+A1:2009** Agricultural Machinery – Slurry tankers – Safety

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(S)

Paul Quinn

Director

Mastek Limited

14/10/2016



Safety

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

- It is essential that the attached operator's manual and safety instructions are read before operation of this machine

WARNING

- ⚠ Slurry is a known Chemical hazard!
- ⚠ Wear protective appropriate clothing when working with chemicals. Do not allow chemicals to contact skin or eyes. Always follow the chemical manufacturer's instructions.
- ⚠ Failure to comply could result in death or serious injury.
- ⚠ Unexpected machine movement!
- ⚠ Disengage power, shut down the tractor, and be sure that all moving parts have stopped before servicing, adjusting, cleaning, or unclogging the equipment.
- ⚠ Failure to comply could result in death or serious injury.

Escaping fluid!

⚠ Hydraulic fluid leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: Relieve all pressure before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and all components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately. Continuous long-term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Failure to comply could result in minor or moderate injury.

CAUTION

- Make sure all guards, shields and handrails are in good condition and properly installed before operating machine. Never operate the machine with shields removed. Always close access doors or panels before operating the machine.
- Before use, check the machine for safety, bearing in mind its intended use and if traveling on the public highway, ensure it complies with the road traffic laws.
- Be familiar with the equipment, control panels, and their functions before operating the machine.

- Avoid fire danger and keep machine clean.
- Ensure before driving, starting, or shutting down the machine that no one is standing in the operating area. Pay special attention to children. Make sure that there is a good view out of the tractor.
- It is strictly forbidden during operation or transport to have passengers on the machine.
- Couple the machine to the tractor in accordance with the operating instructions, and ensure it is properly locked in position.
- Take special care when you couple or un-couple the machine from the tractor, as hydraulic oil may be trapped in some hydraulic lines.
- Observe the permitted maximum dimensions for transport.
- Transport accessories such as lights, license plates, and all covers must be fitted before transporting.
- Place controls such as user panel or locking rope so that they are easily accessible for operation.
- Before traveling on the public highway, set the machine in transport position, and lock it in accordance with the manufacturer's instructions.

- Be aware of the hazard zone for your machinery and ensure no one stands in that area.
- Secure the machine before leaving it and ensure that no unauthorized person can tamper or interfere with it, thereby injuring themselves or leaving it in a dangerous state so that the legitimate operator is at risk
- As well as the specific safety rules mentioned in this manual, overserve the general accident and safety regulations both for yourself and others.
- The stickers and plates on the machine give important directions for safety use. Observe these signs.

Terms of warranty

The following warranty terms relate to parts only.

- This Machine is covered by the manufactures warranty for twelve months or one season.
- Machines hired out to and operated by third parties are not covered by manufacturer's warranty.
- Under no circumstances will warranty claims be accepted for any damage caused by failing to adhere to the operating instruction or maintenance requirements as outlined in this manual.
- Under no circumstances will warranty claims be accepted for accidents caused by negligence or any modifications not carried out by Mastek.
- Claims relating to wear and tear on the machine will not be claimable under warranty
- Warranty claims will only be assessed if the machine has been serviced regularly and according to the conditions set out in the manual
- Warranty claims will only be assessed when all alleged faulty parts have been returned to the manufacturer. All parts dispatched to replace damaged parts under warranty consideration are chargeable, pending decision on claim.
- The Warranty on parts that are used on Mastek machines but manufactured by a third party on behalf of Mastek (motors, pumps, tyres, cylinders etc...) will only be return when warranty is received by Mastek from that third party.
- Mastek cannot be held responsible for damages suffered to the machine or accessories during transport and handling. Machines parts and accessories are transported at the client's own risk.
- Mastek can at no time be held liable for complaints or injuries to the owner, a third party or any other liabilities following such complaints or injuries.

Operation

Tractor Requirements.

There are many different variations of how this machine could be hydraulically piped depending on the type of breakaway system used, the amount of gate valves etc.

Standard operating procedure

1. One hose will operate the folding arms and the macerator on a solenoid switch over-Oil flow set to 40LPM
2. One hose will operate the gate valve
3. One hose will operate the reeler if fitted

These hoses' will be colour co-ordinated ask or dealer or contact us here at Mastek if unsure.

- The tractor must have 1-3 spare rear hydraulic ports.
 - 1 additional valve needed to operate the macerator and to fold out the arms of the machine
 - Option 1 additional valve to operate the reeler if fitted.
 - Option 1 additional valve to gate valve.
- A gate valve must be fitted to the inlet of the machine if there is not already one fitted
- (Rare option) If there is a hydraulic switch over on the vacuum pump. The vacuum pump switch over and gate valve could be put on the same line so when the lever is pushed one way the gate valve closes and the tanker is set to fill and when pushed the other way the gate valve opens and the tanker is set to spread.

3 Hydraulic ports



2 Hydraulic ports



- If your tractor has a valve chest there will be switch box with the tanker and all will be clearly labelled

A 12 Volt power supply is required to power the solenoid valve which switches the hydraulic flow between the Arms and Macerator.



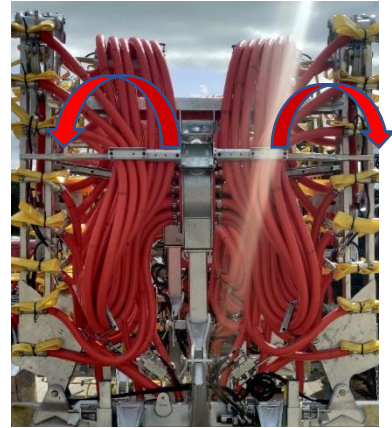
Operating the Arms

Set the oil pressure on this valve at 10-15% max operating pressure

Ensure the solenoid is off so the light is not illuminated as seen in the photo to the right



To **unfold** the arms, Pull the first hydraulic lever. The arms will automatically come down then fold out. As they are on sequence valves.



To **fold up** the arms, Push the first hydraulic lever back. The arms will automatically fold in first and then fold up. As they are on sequence valves.



Operating the Macerator

Flick the switch to ensure the solenoid is on so the light is illuminated as seen in the photo to the right



Push the lever but only once the gate valve is open the direction of the macerator should be alternated regularly so switch between pushing the lever forward and backwards.



When the tanker is empty put the lever back on neutral.

Spreading in the field

1. Lower the arms as stated on the previous page (light off)
2. Using 2nd lever open the rear lollypop
3. Turn on the tractor P.T.O. (Vacuum Pump)
4. Turn on the solenoid switch and then using the 1st lever
Turn on the oil flow to the macerator.



Spreading in the field the **macerator must be running** to ensure an even distribution of slurry across the dribble bar.

NEVER RUN THE MACERATOR DRY!

Finished spreading in the field:

1. Turn off the oil flow to the Macerator (1st lever)
2. Turn off tractor P.T.O. (Vacuum Pump)
3. Close the lollypop (2nd lever)
4. Lift the arms as shown on the previous page turn off solenoid switch (1st lever)

Note

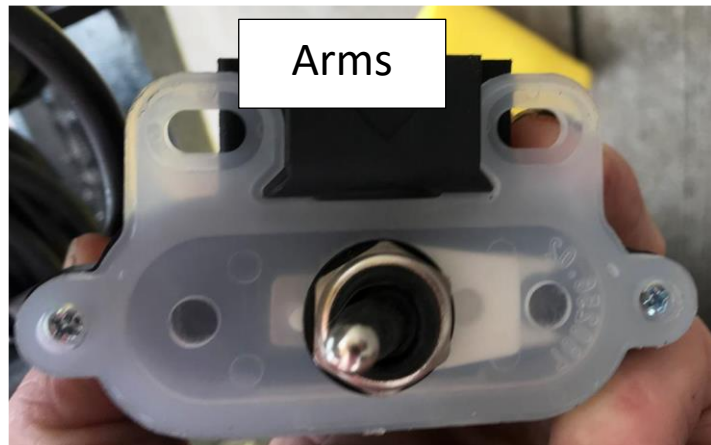
This could vary depending on the number of hydraulic valves in your tractor and how the machine is piped. If unsure contact your dealer or us here at Mastek.

Arm & Gate Valve on Solenoid (Rare option)

Pull the 2nd hydraulic lever to let down and fold out the arms as stated above



By clicking this switch in the tractor cab, it will change the oil flow from arms over to the gate valve.
(This switch is currently set for the Arms)



A light will illuminate to indicate the oil flow has been changed to the Gate Valve.



Note

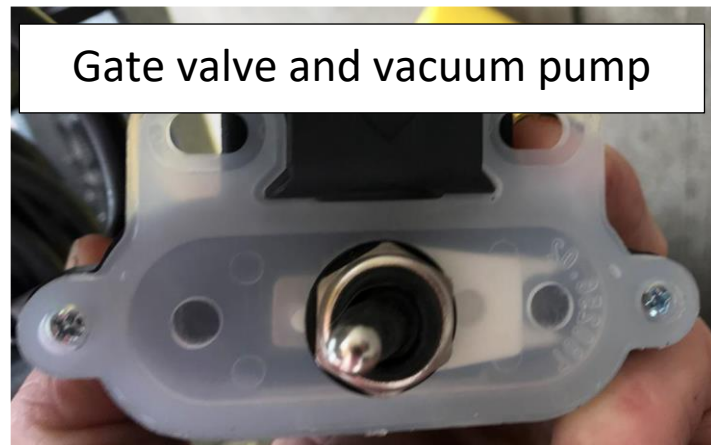
There may be no solenoid fitted to your machine so there would be a separate line for your arms your macerator and your gate valve in total 3 lines.

Gate valve, Vacuum pump switch over & Arms on Solenoid (Rare Option)

Pull the 2nd hydraulic lever to open the gate valve and switch the vacuum pump to spread this will all happen at once as they are on the same line.



By clicking this switch in the tractor cab, it will change the oil flow from gate valve and vacuum pump switch over to the Arms.



A light will illuminate to indicate the oil flow has been changed to the Arms.



Maintenance

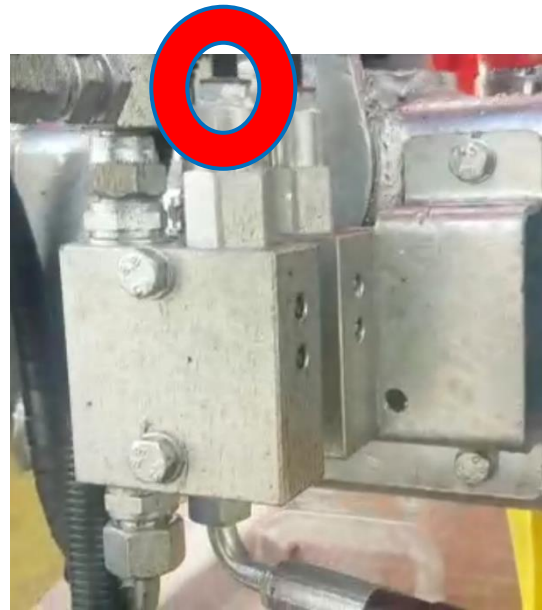
- To avoid premature wear to the macerator it is advised daily to change the rotation by moving the hydraulic lever in the cab to the opposite direction when starting to operate in the field.
- The **hydraulic oil flow from the tractor to the macerator motor should not exceed 40 LPM**. We recommend running the macerator at this oil flow for even distribution throughout the pipes in the macerator
- The **hydraulic oil pressure from the tractor to the rams in the arms should be set to 10-15% of max pressure**. We recommend not running the oil pressure any higher than this as the opening sequence of the rams will not work correctly and the valves ensuring correct opening could be damaged
- Inside the macerator there is a hub assembly and as it rotates, it closes/opens the different slurry outlet hoses. If the drum is rotating too fast it will not allow enough pressurised slurry into the hose to give good distribution.
- To correctly operate macerator after it is running continuously for 1 hour switch the hydraulic level to run the macerator in reverse. This is to prevent wear on one side of the rotary scrapers and to help the macerator clear itself of any blockages. It is advised to minimise the running of the macerator when dry as the rotary scrapers may suffer and wear quicker. **Here at Mastek we recommend not running the macerator while dry for any more than 30 seconds.**
- Ensure the macerator stone trap is empty of items – a build-up may block the macerator.
- **Exercise caution if working on the hydraulic line containing the accumulator!**

Adjusting Hydraulic breakaway (Sequence valves)

The breakaway system on this machine is used to prevent the arm of the dribble bar bending. If you hit the arm off a post of a tree the second fold of the arm will spring back as there is an accumulator fitting to the hydraulic circuit.

There are sequence valves fitted to the machine as seen in the figure to the right. These valves ensure the correct folding operation of the arms of the machine. These valves

might need to be adjusted to modify the folding operator this can be done by adjusting the settings ever so slightly on the top of the sequence valves blocks using an allen key adjust the threaded bar and small wrench to tighten and loosen then nut. Keep in mind when adjusting these setting that adjusting one of the valves will speed up one stage on



folding out and the opposite stage on folding up. These valves are factory set but may need to be adjusted for certain reasons.

The entire circuit is maintained at 40Bar pressure using a pressure relief valve this may need to be adjusted for certain reasons this can be done by adjusting the pressure relief valves by using an allen key adjust the threaded bar and small wrench to tighten and loosen then nut



Adjusting Counterbalance valve (Rarely fitted)

This setting is pre-set in the factory but can be adjusted if required.

If the end arm on the boom is springing back too easily or not easily enough in the case that it hits something in the field. The amount the arm springs back can be adjusted.

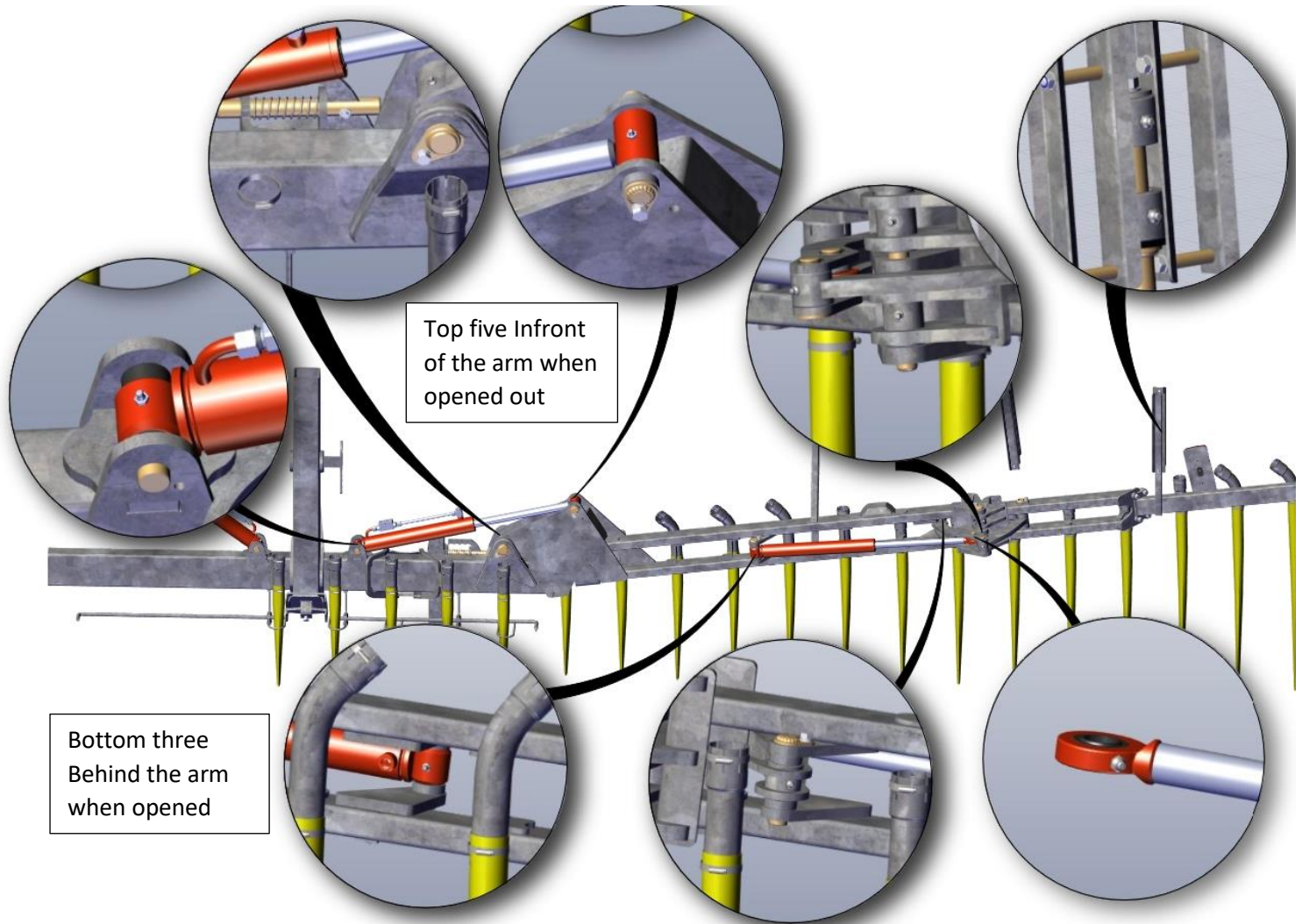
To tighten the spring back on the arm, adjust the comparator. Adjust the side nearest the hinge in the middle of the arm (this could vary depending on the way your machine is piped if unsure contact your dealer or us here at mastek). Screw out (anti-clockwise) the centre bolt (1 labelled below) using and 5mm allen key and tighten the nut (2 labelled below) up using a 17mm spanner.

To loosen the spring back on the arm, adjust the comparator. Adjust the side nearest the hinge in the middle of the machine (this could vary depending on the way your machine is piped if unsure contact your dealer or us here at mastek). Screw out (anti-clockwise) the nut (2 labelled below) up using a 17mm spanner and tighten the centre bolt (1 labelled below) using and 5mm allen key.



Weekly Greasing Point

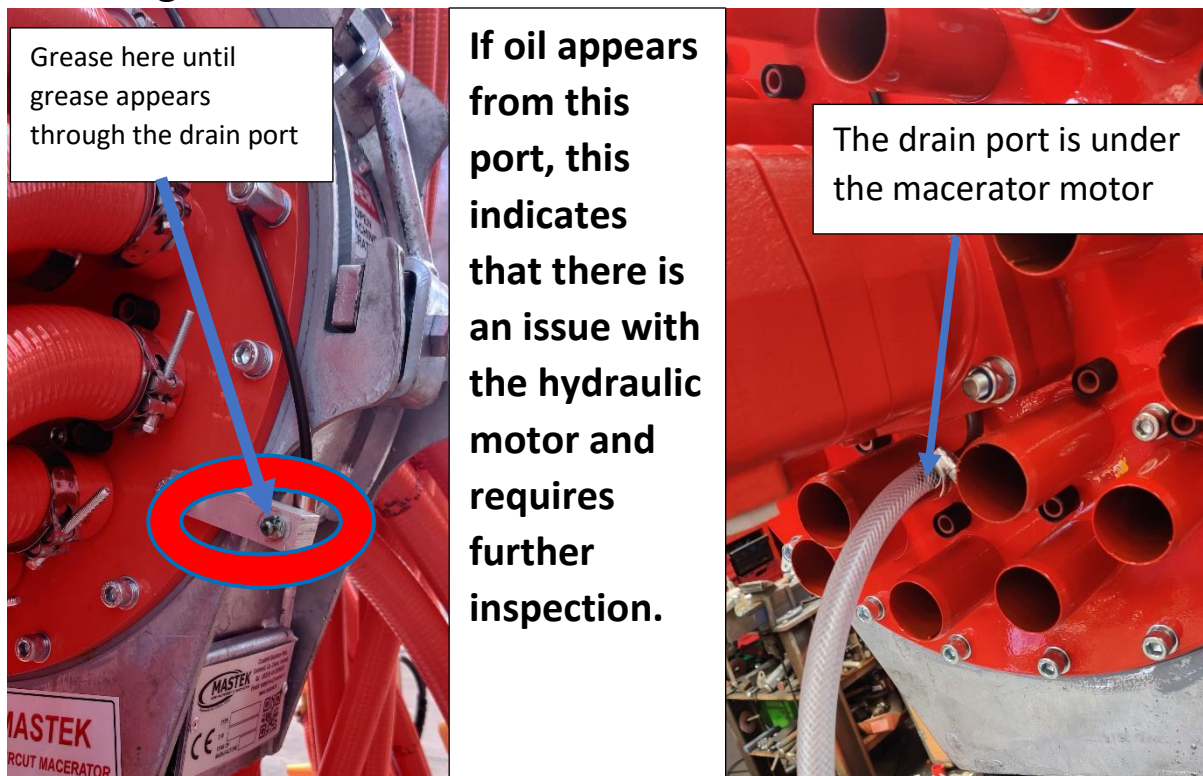
Greasing Arms



Ensure to grease all 11 grease nipples on each arm weekly. Their location is shown above

There is one extra grease nipple on the swivel arm of the umbilical machine

Greasing Macerator and motor



- Observe safety and maintenance stickers, greasing all pins and bushings, ensure all bolts are tight and all hoses are securely fastened to macerator and socks.

Cleaning after use

Once finished operating the slurry tanker, we strongly recommend cleaning out the duckbills, we recommend using a hose or pressure washer for this.

At Mastek we advise when the slurry spreading season is finished or storing the tanker for a long period, to remove the rear macerator door and flush the macerator out with water.

If storage is for a long period, then we advise to grease the knife plates as well.

Trouble Shooting

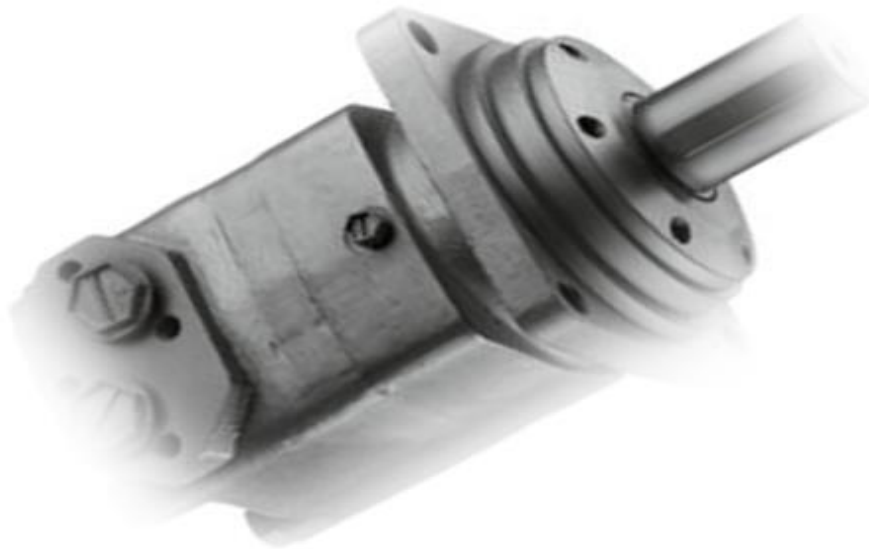
Fault	Possible Cause	Action To Be Taken
Macerator Vibrates	Rotor runs too slowly	Check hydraulic settings
	Rotor is clogged	Clean macerator
	Ventilation is blocked	Clean, use water to flush out
Bad Distribution	Rotor speed too high	Check hydraulic settings
	Pressure in tank too low	Check vacuum pump
	Macerator not running	Check power at solenoid valve / hydraulic flow at the motor
Only a few hoses are fed with slurry	Rotor not turning	Reverse rotor several times
		Disassemble Macerator and clean
		Check motor is running
Macerator will not run	No Hydraulic oil reaching the motor	Check solenoid valve is operating and the small LED light is illuminating at the valve when powered
Rear valve is sucking air when tank is filling.	Valve not closed fully due to trapped oil pressure	Turn off the tractor and move the hydraulic lever used for the lolly pop releasing all hydraulic pressure, move the hydraulic tap valve on the bottom of the macerator gate valve, then complete the same action.
Macerator will not turn	Not flushed out before storage	Open studs on right side of macerator and try to turn rotor

If you encounter any problem not covered in this table or if the action recommended in this table does not solve your problem. Contact your dealer or contact us here at Mastek and we would be more than willing to solve your issue.

Specification

Macerator Motor

Model	BM4-320	
Displacement (ml/r)	317.5	
Max Pressure (Mpa)	Cont	20
	Int	24
	Peak	28
Max Torque (N.m)	Cont	902
	Int	1143
	Peak	1322
Speed. Range (r/min)	7-380	
Max. Flow (l/min)	125	
Recommended. Flow (l/min)	40	
Max. Output. Power (Kw)	25.2	
Weight (Kg)	22.4	



Delivery Report

Customer Name _____

Model _____

Serial Number _____

Bolts missing

Check bolt torque

Hose damaged

Hoses missing

Hose clips missing

Hydraulic oil leakage

General operation of machine

Lights

Hose and harness routing

Grease points

General Appearance

Condition of paint, galvanizing

Defect Notes;

Signed; _____ (person whom completed the inspection)

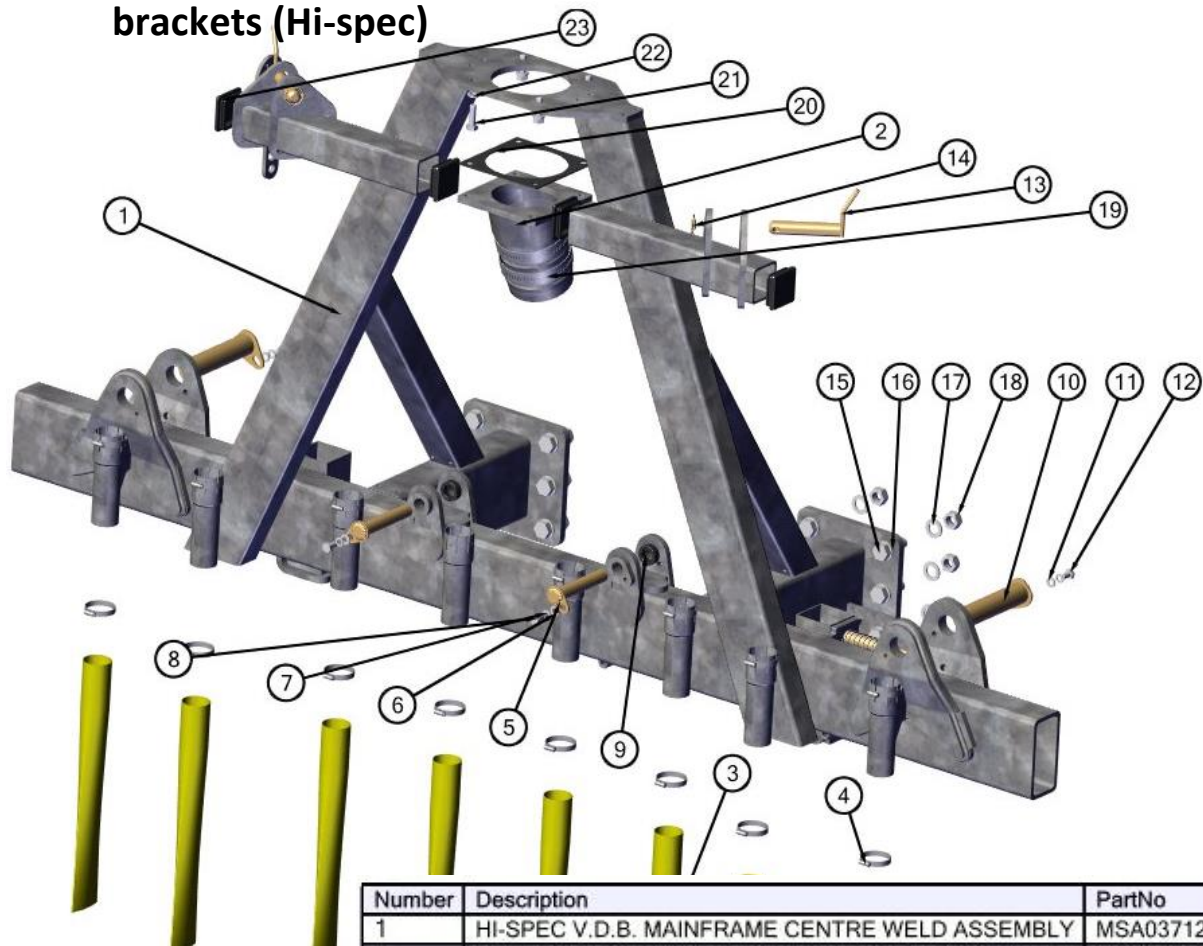
Date; _____



Dribble Bar Spare Parts

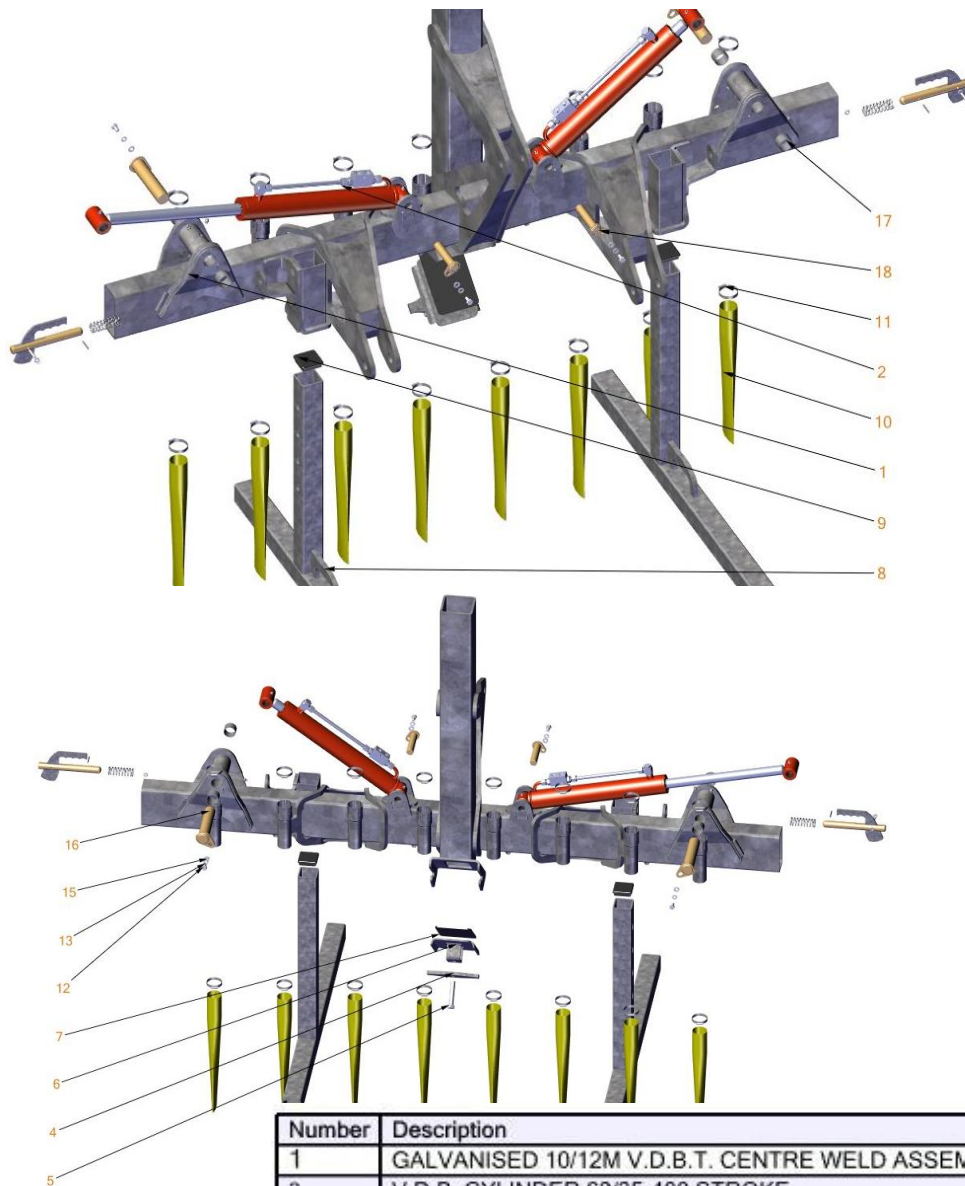
Back frame (Four Variations Below)

1. Slurry input through pipe with Splash plate. Tanker mount brackets (Hi-spec)



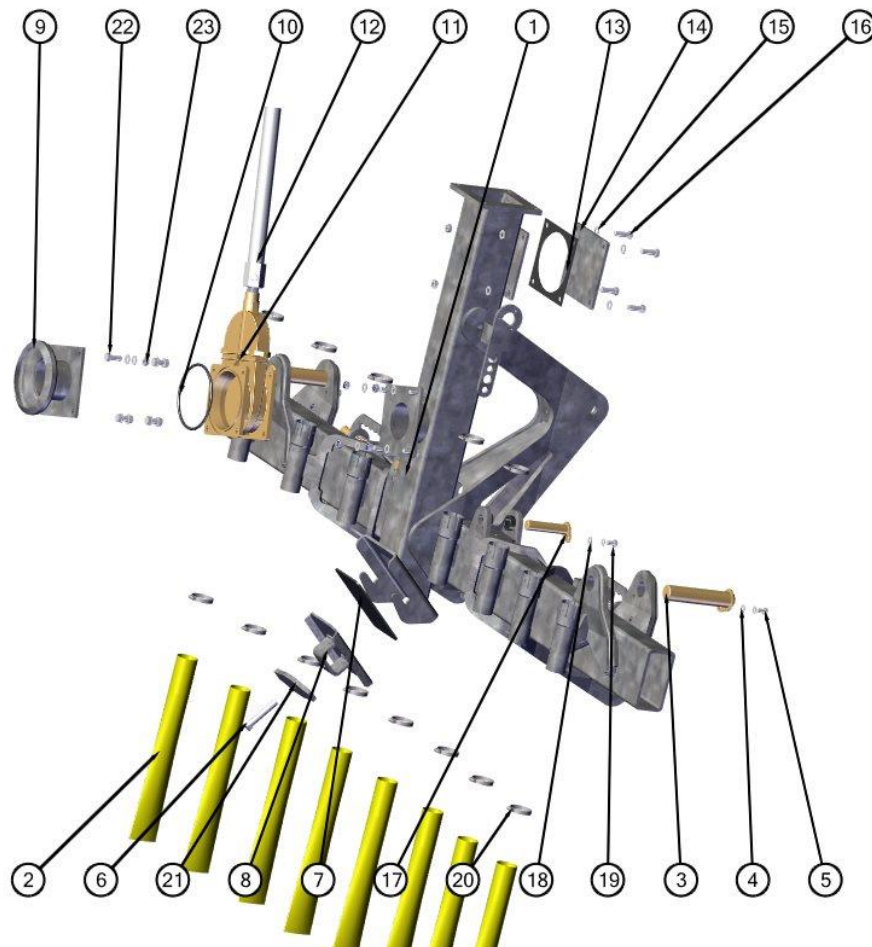
Number	Description	PartNo
1	HI-SPEC V.D.B. MAINFRAME CENTRE WELD ASSEMBLY	MSA03712
2	GALVANISED 20 DEGREE INLET PIPE ASSEMBLY	MS010799
3	50MM LAYFLAT HOSE -	MS004705
4	JUBILEE CLIP 52MM-55MM	MS000104
5	DIA. 25MM PEAR PIN - 142MM	MS000259
6	M10 PLAIN WASHER	MS000211
7	M10 SPRING WASHER	MS000578
8	M10 X 20mm HEX HEAD SET (8.8)	MS000212
9	15MM SPACER (25.5 I.D.)	MS009163
10	DIA. 40MM SHAFT 185MM LONG	MS009862
11	M10 PLAIN WASHER	MS000211
12	M10 X 20mm HEX HEAD SET (8.8)	MS000212
13	LINK PIN & HANDLE 25x123mm Hole 12mm	MS000196
14	RING CLIP Linch pin	MS000197
15	M20 HEX HEAD BOLT (8.8) - 60MM	MS000121
16	M20 PLAIN WASHER	MS000122
17	M20 PLAIN WASHER	MS000122
18	M20 HEX HEAD LOCKNUT	MS000123
19	5" JUBILEE CLIP	MS004379
20	4" SQUARE FLANGE GASKET SEAL	MS000261
21	M12 HEX HEAD BOLT (8.8) - 40MM	MS000149
22	M12 PLAIN WASHER	MS000103
23	70 X 70 SQUARE PLASTIC END CAP	MS001389

2. Slurry input from bottom of centre frame only. With 3-point linkage



Number	Description	PartNo
1	GALVANISED 10/12M V.D.B.T. CENTRE WELD ASSEMBLY ANTI DRIP	MS010562
2	V.D.B. CYLINDER 60/35-400 STROKE	MS007135
4	GALVANISED MACERATOR COVER LATCH	MS006952
5	M16 HEX HEAD BOLT (10.9) - 90MM	MS000136
6	GALVANISED MACERATOR COVER ASSEMBLY	MS010571
7	MACERATOR COVER SEAL	MS001206
8	GALVANISED L-H LEG ASSEMBLY	MS008149
9	70 X 70 SQUARE PLASTIC END CAP	MS001389
10	50MM LAYFLAT HOSE -	MS004705
11	JUBILEE CLIP 52MM-55MM	MS000104
12	M10 X 20mm HEX HEAD SET (8.8)	MS000212
13	M10 SPRING WASHER	MS000578
15	M10 PLAIN WASHER	MS000211
16	40MM PIN 171MM	MS009864
17	40 X 44 X 30 SPLIT BUSH BEARING	MS000043
18	DIA. 25MM PEAR PIN - 114MM	MS000306
19	LATCH PIN ASSEMBLY W/ SHORT HANDLE	MSA00465

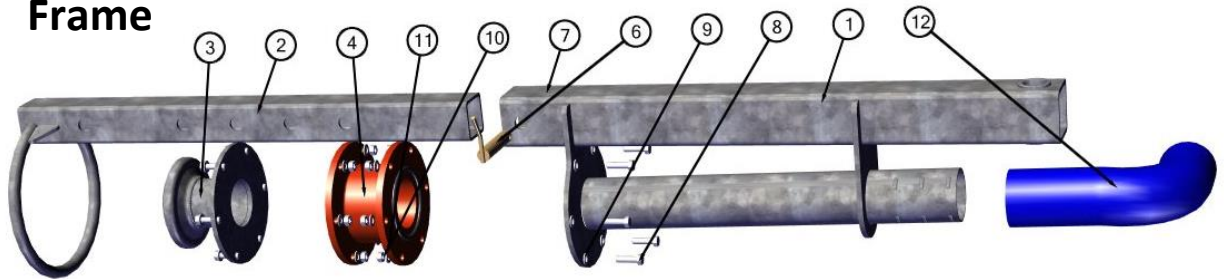
3. Slurry input from sides of centre frame with 3-point linkage



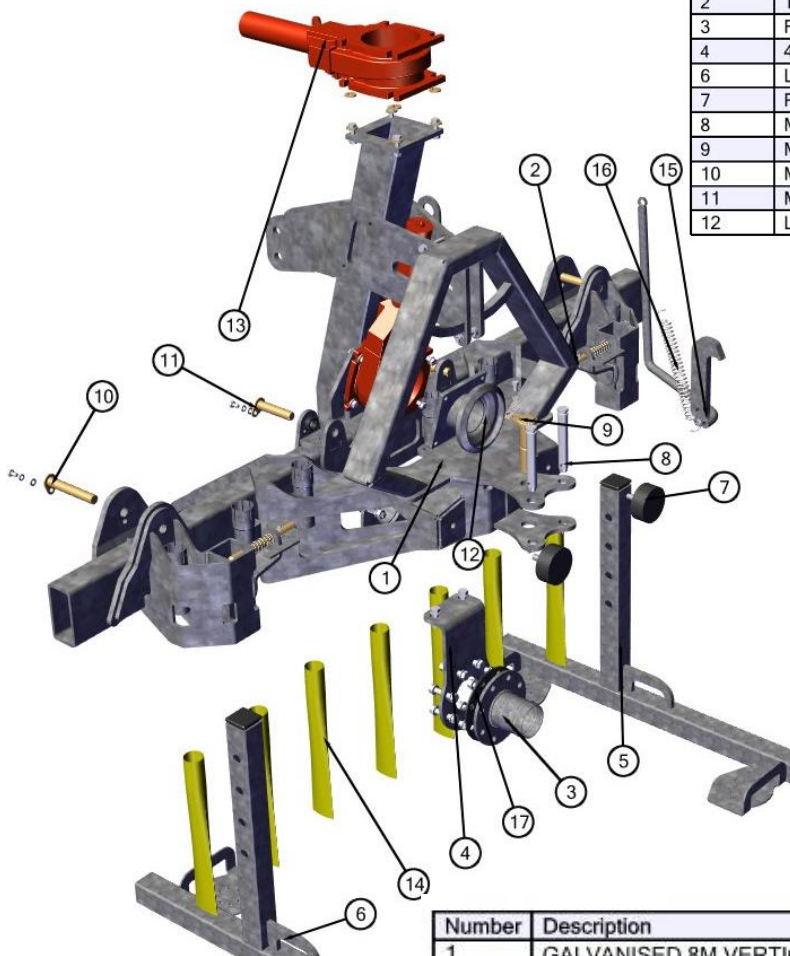
Number	Description	PartNo
1	GALVANISED 12M V.D.B.T. CENTRE ASSEMBLY	MS010346
2	50MM LAYFLAT HOSE -	MS004705
3	DIA. 40MM SHAFT 185MM LONG	MS009862
4	M10 PLAIN WASHER	MS000211
5	M10 X 20mm HEX HEAD SET (8.8)	MS000212
6	M16 HEX HEAD BOLT (10.9) - 90MM	MS000136
7	MACERATOR COVER SEAL	MS001206
8	GALVANISED MACERATOR COVER ASSEMBLY	MS010571
9	GALVANISED FEMALE BAUER 4" SQUARE FLANGE WELDED ASSEMBLY	MS008327
10	6" GATE VALVE O-RING	MS000256
11	6" GATE VALVE (BRASS)	MS000251
12	6" GATE VALVE HYDRAULIC RAM	MS000255
13	4" SQUARE FLANGE GASKET SEAL	MS000261
14	FLANGE BLANK (SQUARE)	MS001620
15	M12 PLAIN WASHER	MS000103
16	M12 HEX HEAD BOLT (8.8) - 40MM	MS000149
17	DIA. 25MM PEAR PIN - 114MM	MS000306
18	M10 PLAIN WASHER	MS000211
19	M10 X 20mm HEX HEAD SET (8.8)	MS000212
20	JUBILEE CLIP 52MM-55MM	MS000104
21	MACERATOR COVER LATCH (THREADED)	MS001202
22	M12 HEX HEAD SET (8.8) - 35MM	MS000270
23	M12 HEX HEAD LOCKNUT	MS000109

4. Umbilical & Tanker mounted with small Mastek A

Frame

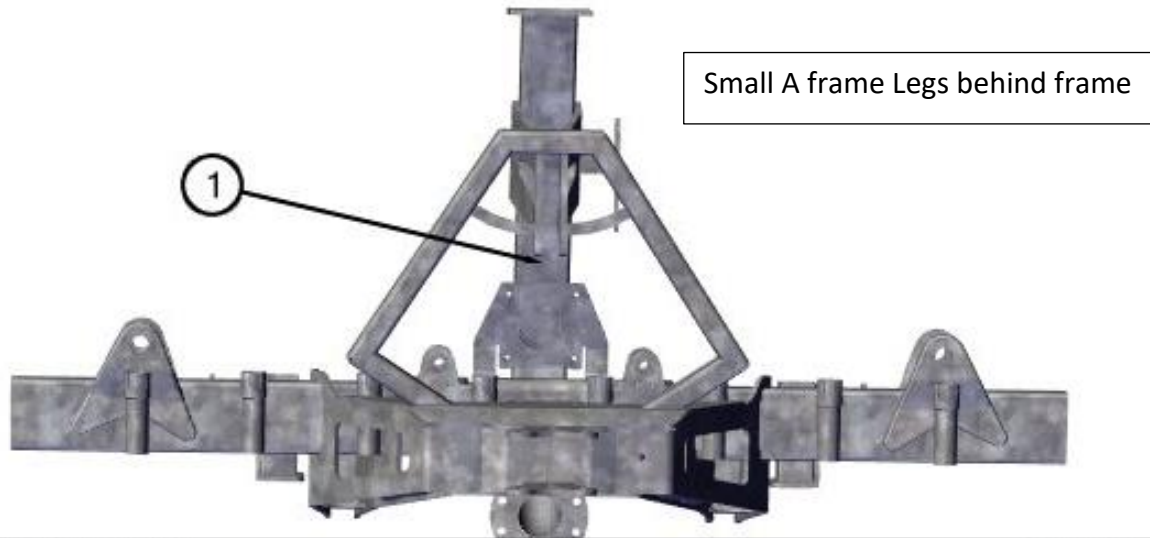


Number	Description	PartNo
1	GALVANISED SWING ARM (FARMERS KIT)	MS007248
2	TELESCOPIC HOSE GUIDE- GALVANISED	MS002920
3	FEMALE BAUER INLET/4" SWIVEL ADAPTER - Galvanised	MS002921
4	4" SWIVEL JOINT	MS000232
6	LINK PIN & HANDLE 25x123mm Hole 12mm	MS000196
7	RING CLIP Linch pin	MS000197
8	M12 HEX HEAD BOLT (8.8) - 45MM	MS000150
9	M12 PLAIN WASHER	MS000103
10	M12 HEX HEAD LOCKNUT	MS000109
11	M12 PLAIN WASHER	MS000103
12	LAYFLAT JOINT	MS007989

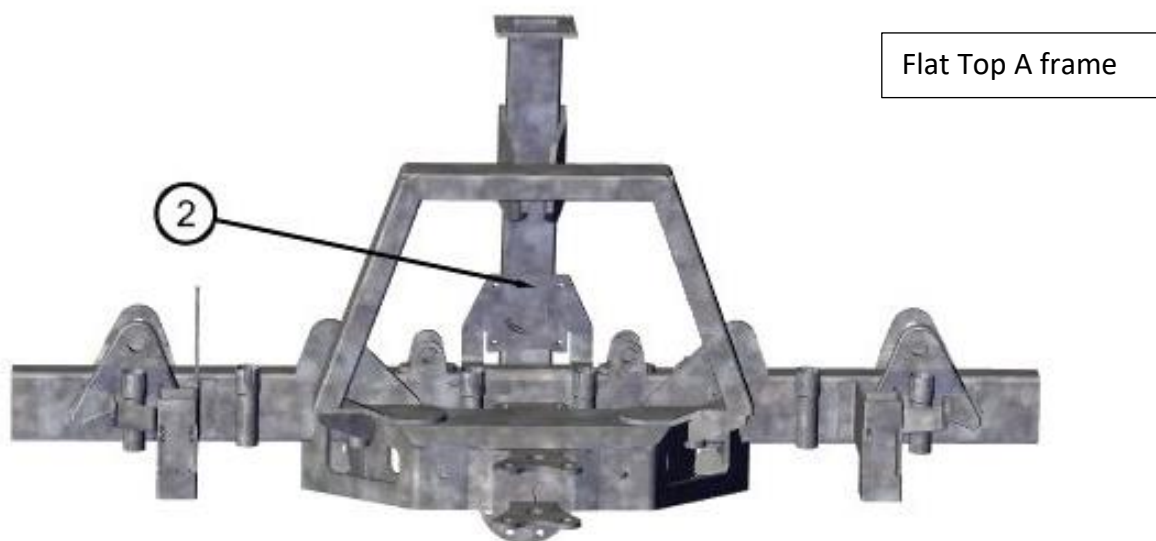
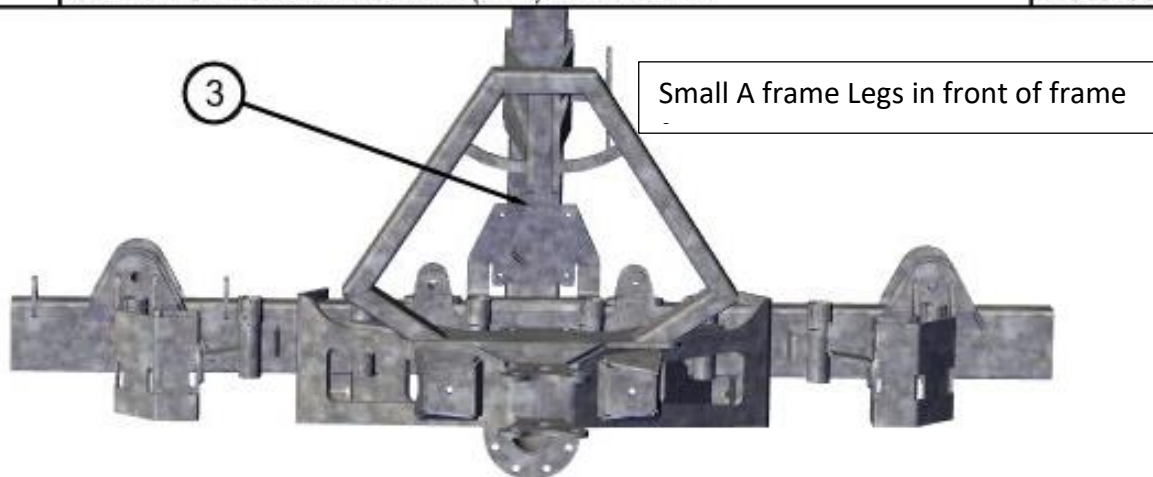


Number	Description	PartNo
1	GALVANISED 8M VERTICAL DB (MK2) MAINFRAME	MS007968
2	LATCH PIN ASSEMBLY W/ SHORT HANDLE	MSA00465
3	GALVANISED 4" FLOWMETER FLANGE BAUER HOSETAIL	MS010345
4	FRONT MOUNT GALVANISED	MS007932
5	GALVANISED L-H LEG ASSEMBLY	MS008149
6	GALVANISED R-H LEG ASSEMBLY	MS008150
7	RUBBER MOUNTING - D-TYPE	MS003954
8	LINK PIN CAT 2 (1") 25MM	MS002018
9	SWIVEL ARM PIN	MS000113
10	DIA. 25MM PEAR PIN - 163MM	MS002813
11	DIA. 25MM PEAR PIN - 113MM	MS000306
12	SPLASH PLATE MOUNT GALVANISED	MS007935
13	6" HERTELL SLEW VALVE (CAST IRON)	MS000147
14	50MM LAYFLAT HOSE -	MS004705
15	GALVANISED Q-R HANDLE ASSEMBLY	MS008151
16	EXTENSION SPRING	MS001274
17	4" CIRCULAR GASKET (8 HOLES)	MS000279

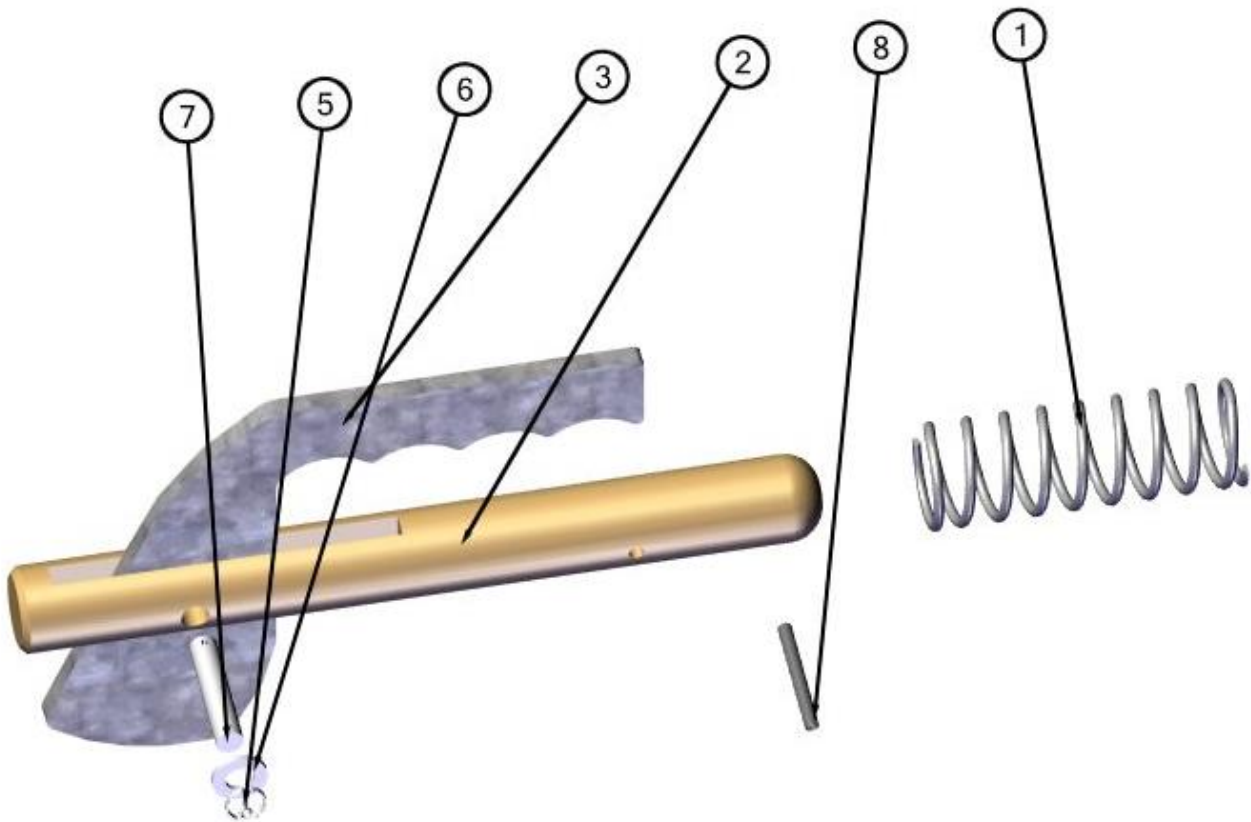
Different Mainframe Assemblies for Umbilical



Number	Description	PartNo
1	GALVANISED 10M/12M V.D.B. MAINFRAME (MK3) CENTRE ASSEMBLY	MS010428
2	GALVANISED 9M / 10M / 12M V.D.B. MAINFRAME (MK3) CENTRE ASSEMBLY	MS010685
3	GALVANISED 8M VERTICAL DB (MK2) MAINFRAME	MS007968



Latch Pin (Universal to all)

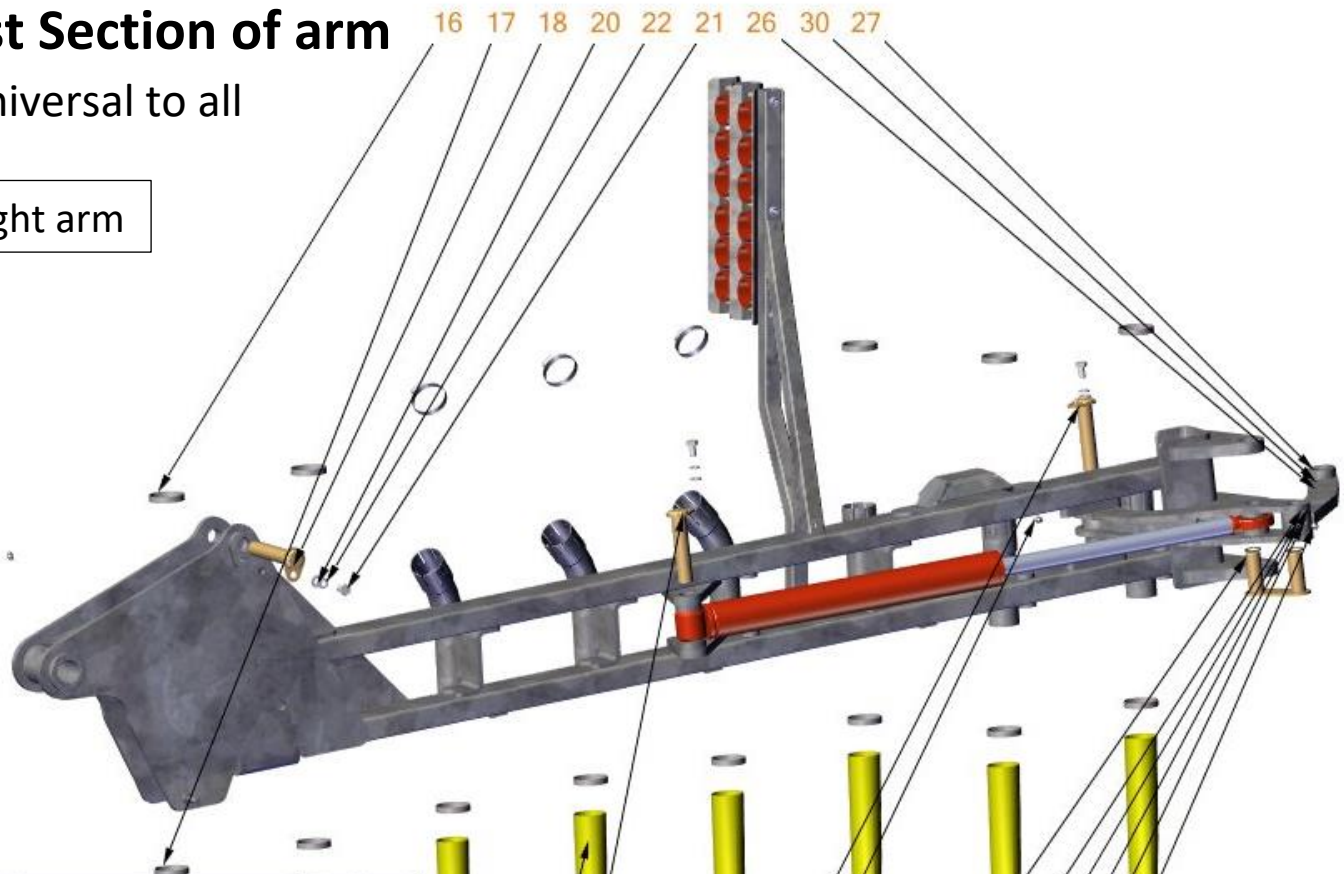


Number	Description	PartNo
1	COMPRESSION SPRING	MS001273
2	CARRIAGE LATCH PIN	MS001347
3	QUICK RELEASE HANDLE CURVED	MS002407
5	SPLIT PIN 1.5 X 20 DIN94	MS001351
6	M8 PLAIN WASHER	MS002722
7	MK3 ANCHOR PIN	MS001932
8	DIN 1481 ROLL PIN 4 X 40	MS001349

First Section of arm

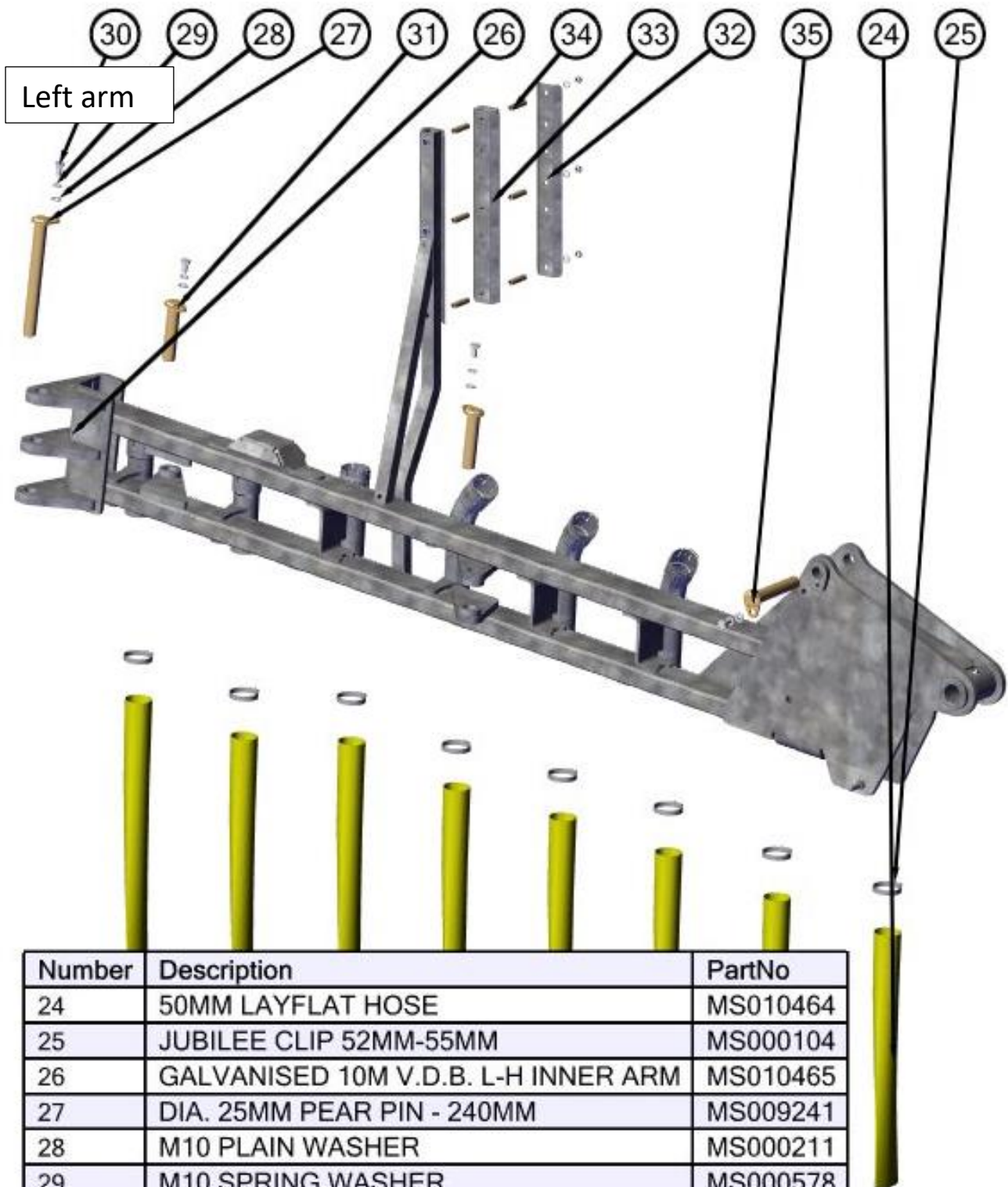
Universal to all

Right arm



Number	Description	PartNo
2	1/8" BSP GREASE NIPPLE STRAIGHT	MS000208
16	JUBILEE CLIP 52MM-55MM	MS000104
17	JUBILEE CLIP 52MM-55MM	MS000104
18	DIA. 25MM PEAR PIN - 142MM	MS000259
20	M10 PLAIN WASHER	MS000211
21	M10 X 20mm HEX HEAD SET (8.8)	MS000212
22	M10 SPRING WASHER	MS000578
26	25 X 28 X 15 SPLIT BUSH BEARING	MS000380
27	25 X 28 X 15 SPLIT BUSH BEARING	MS000380
28	25 X 28 X 15 SPLIT BUSH BEARING	MS000380
29	25 X 28 X 15 SPLIT BUSH BEARING	MS000380
30	DIA. 50-25 PIN BUSHING - 50MM	MS000381
31	SECONDARY LINKAGE	MS007263
32	DIA. 50-25 PIN BUSHING - 40MM	MS000379
33	1/8" BSP GREASE NIPPLE STRAIGHT	MS000208
34	DIA. 25MM PEAR PIN - 114MM	MS000306
35	DIA. 25MM PEAR PIN - 114MM	MS000306
36	50MM LAYFLAT HOSE	MS010464

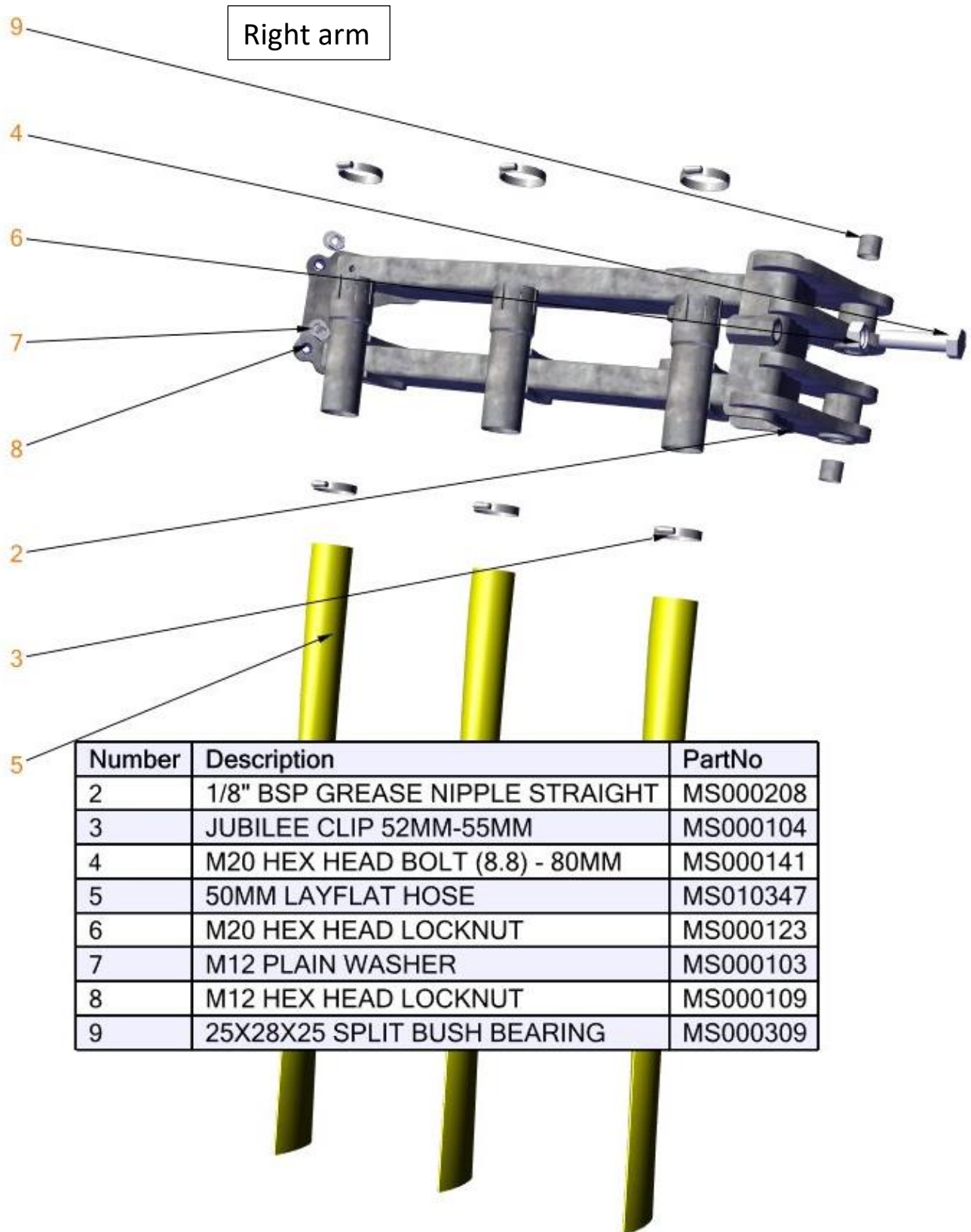
36 35 34 2 28 32 31 29 33



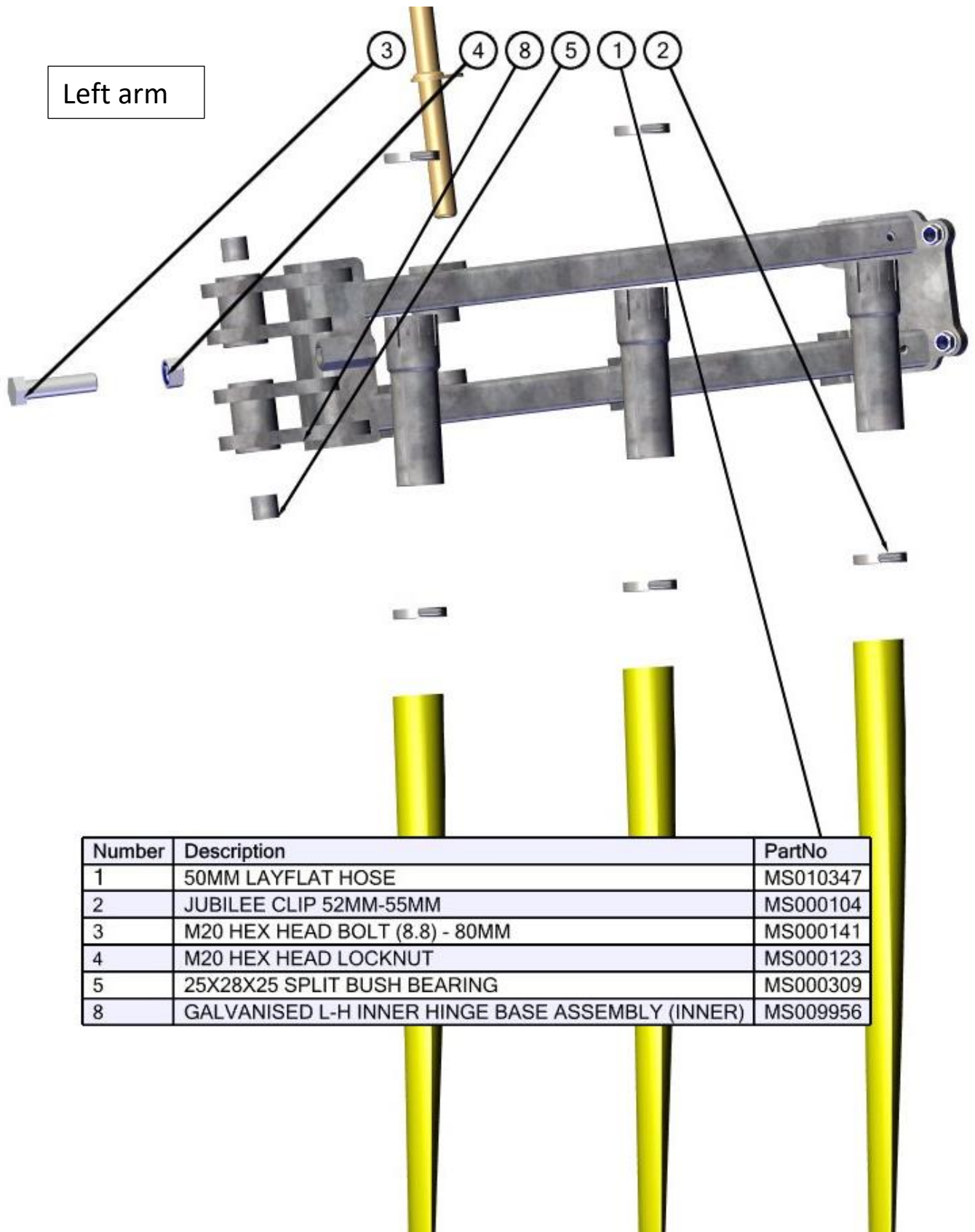
Number	Description	PartNo
24	50MM LAYFLAT HOSE	MS010464
25	JUBILEE CLIP 52MM-55MM	MS000104
26	GALVANISED 10M V.D.B. L-H INNER ARM	MS010465
27	DIA. 25MM PEAR PIN - 240MM	MS009241
28	M10 PLAIN WASHER	MS000211
29	M10 SPRING WASHER	MS000578
30	M10 X 20mm HEX HEAD SET (8.8)	MS000212
31	DIA. 25MM PEAR PIN - 114MM	MS000306
32	PIPE CLAMP (393MM)	MS007949
33	PIPE CLAMP (393MM)	MS007949
34	47MM SPACER	MS007948
35	DIA. 25MM PEAR PIN - 142MM	MS000259

Second Section of arm

Universal to all



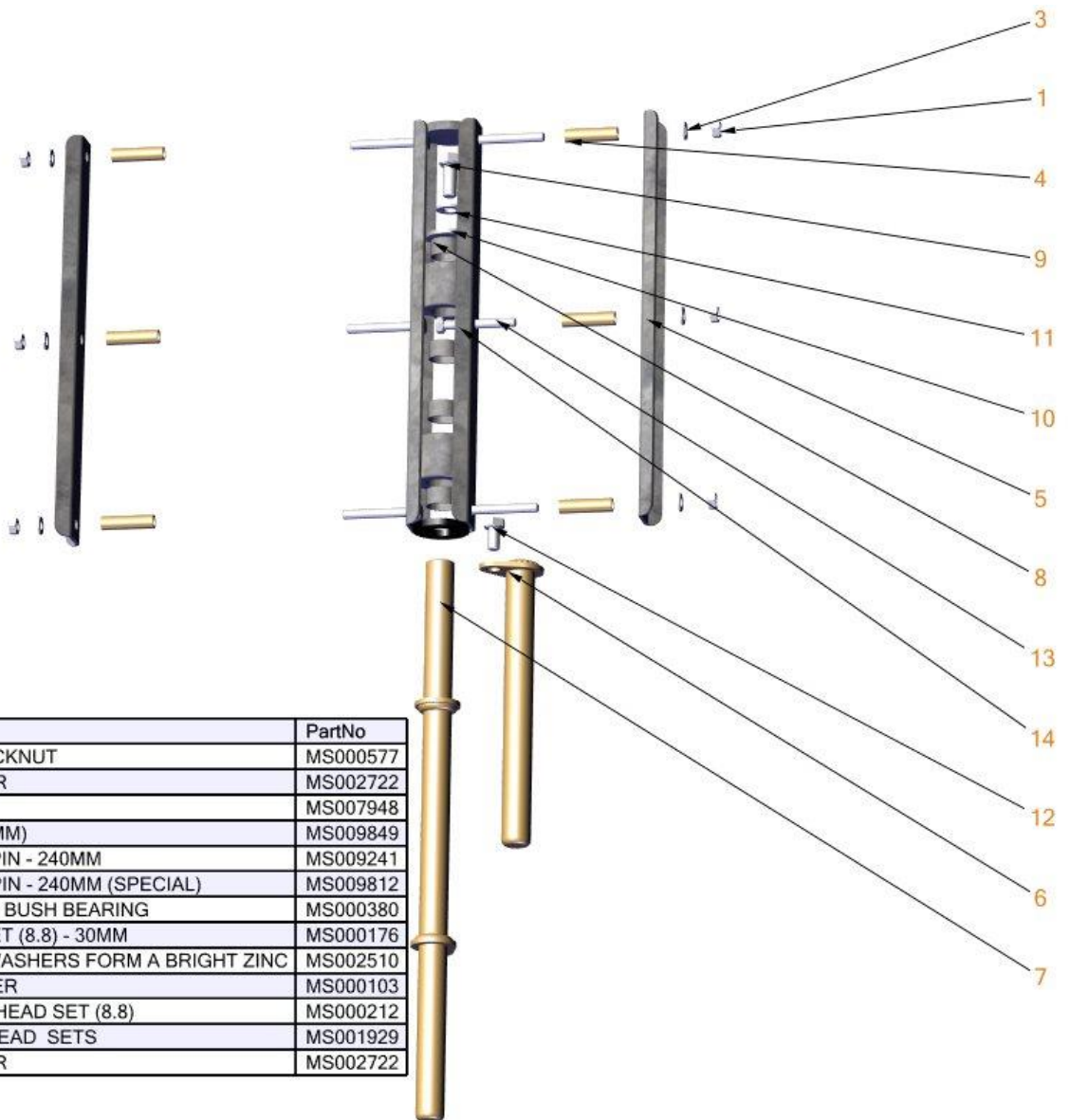
Number	Description	PartNo
2	1/8" BSP GREASE NIPPLE STRAIGHT	MS000208
3	JUBILEE CLIP 52MM-55MM	MS000104
4	M20 HEX HEAD BOLT (8.8) - 80MM	MS000141
5	50MM LAYFLAT HOSE	MS010347
6	M20 HEX HEAD LOCKNUT	MS000123
7	M12 PLAIN WASHER	MS000103
8	M12 HEX HEAD LOCKNUT	MS000109
9	25X28X25 SPLIT BUSH BEARING	MS000309



Number	Description	PartNo
1	50MM LAYFLAT HOSE	MS010347
2	JUBILEE CLIP 52MM-55MM	MS000104
3	M20 HEX HEAD BOLT (8.8) - 80MM	MS000141
4	M20 HEX HEAD LOCKNUT	MS000123
5	25X28X25 SPLIT BUSH BEARING	MS000309
8	GALVANISED L-H INNER HINGE BASE ASSEMBLY (INNER)	MS009956

Pipe holder same both sides

Universal to all

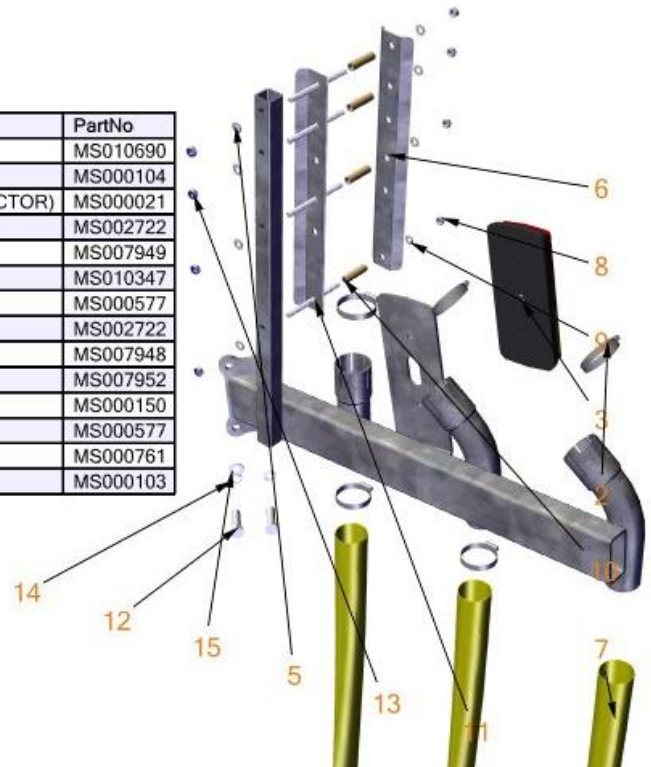


Number	Description	PartNo
1	M8 HEX HEAD LOCKNUT	MS000577
3	M8 PLAIN WASHER	MS002722
4	47MM SPACER	MS007948
5	PIPE CLAMP (350MM)	MS009849
6	DIA. 25MM PEAR PIN - 240MM	MS009241
7	DIA. 25MM PEAR PIN - 240MM (SPECIAL)	MS009812
8	25 X 28 X 15 SPLIT BUSH BEARING	MS000380
9	M12 HEX HEAD SET (8.8) - 30MM	MS000176
10	M12X43X3 FLAT WASHERS FORM A BRIGHT ZINC	MS002510
11	M12 PLAIN WASHER	MS000103
12	M10 X 20mm HEX HEAD SET (8.8)	MS000212
13	M8 X 65mm HEX HEAD SETS	MS001929
14	M8 PLAIN WASHER	MS002722

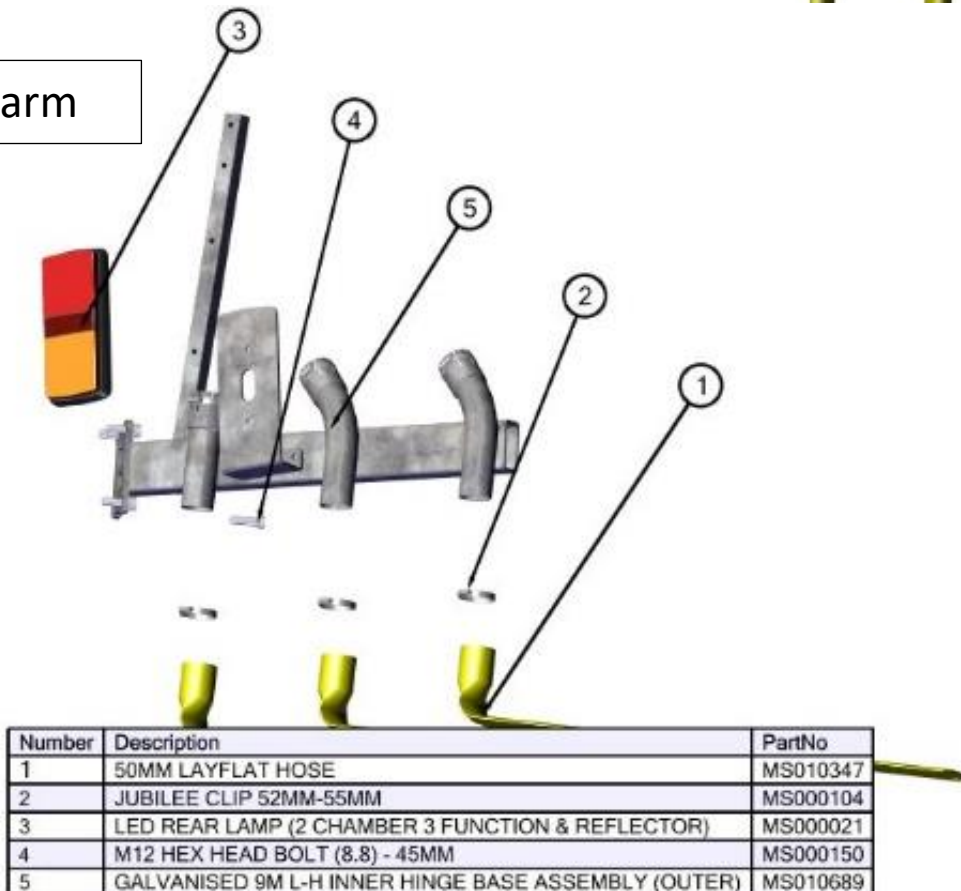
End of arm 9m

Right arm

Number	Description	PartNo
1	RIGHT END ARM FRAME	MS010690
2	JUBILEE CLIP 52MM-55MM	MS000104
3	LED REAR LAMP (2 CHAMBER 3 FUNCTION & REFLECTOR)	MS000021
5	M8 PLAIN WASHER	MS002722
6	PIPE CLAMP (393MM)	MS007949
7	50MM LAYFLAT HOSE	MS010347
8	M8 HEX HEAD LOCKNUT	MS000577
9	M8 PLAIN WASHER	MS002722
10	47MM SPACER	MS007948
11	M8 THREADED BAR (8.8) ZINC PLATED 1000MM	MS007952
12	M12 HEX HEAD BOLT (8.8) - 45MM	MS000150
13	M8 HEX HEAD LOCKNUT	MS000577
14	M12 SPRING WASHER	MS000761
15	M12 PLAIN WASHER	MS000103



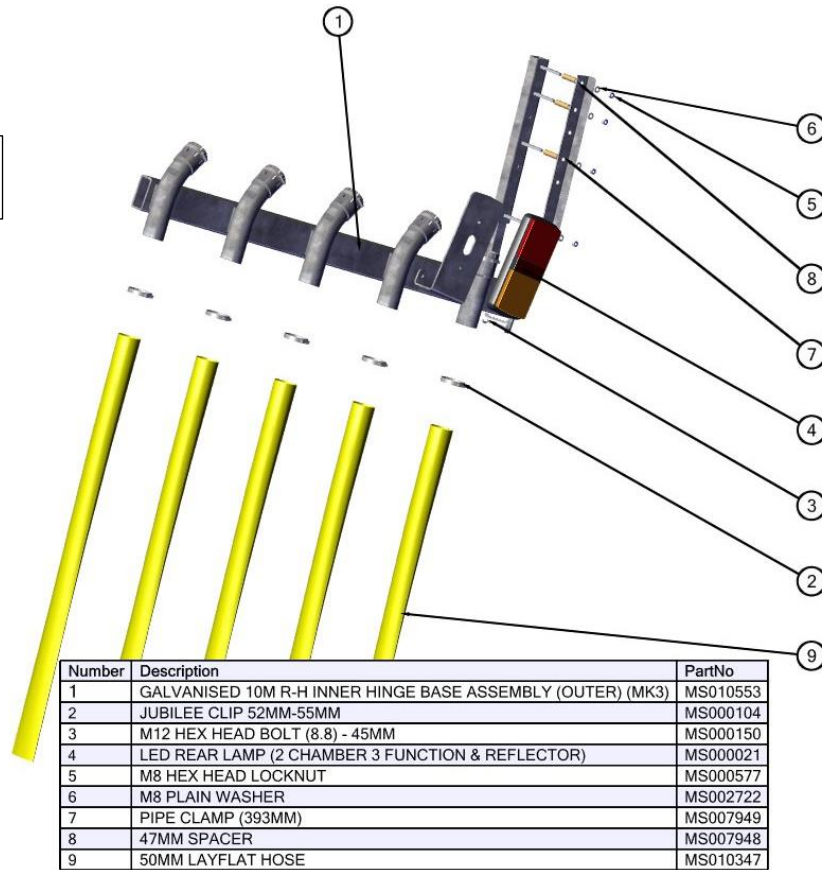
left arm



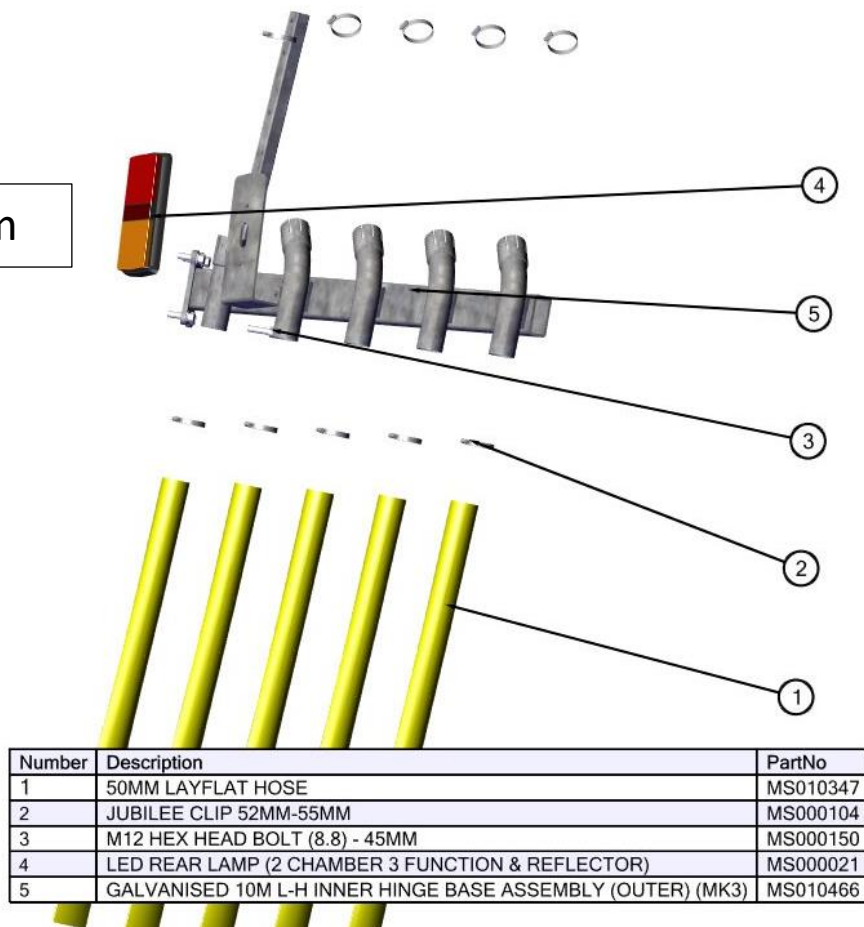
Number	Description	PartNo
1	50MM LAYFLAT HOSE	MS010347
2	JUBILEE CLIP 52MM-55MM	MS000104
3	LED REAR LAMP (2 CHAMBER 3 FUNCTION & REFLECTOR)	MS000021
4	M12 HEX HEAD BOLT (8.8) - 45MM	MS000150
5	GALVANISED 9M L-H INNER HINGE BASE ASSEMBLY (OUTER)	MS010689

10m

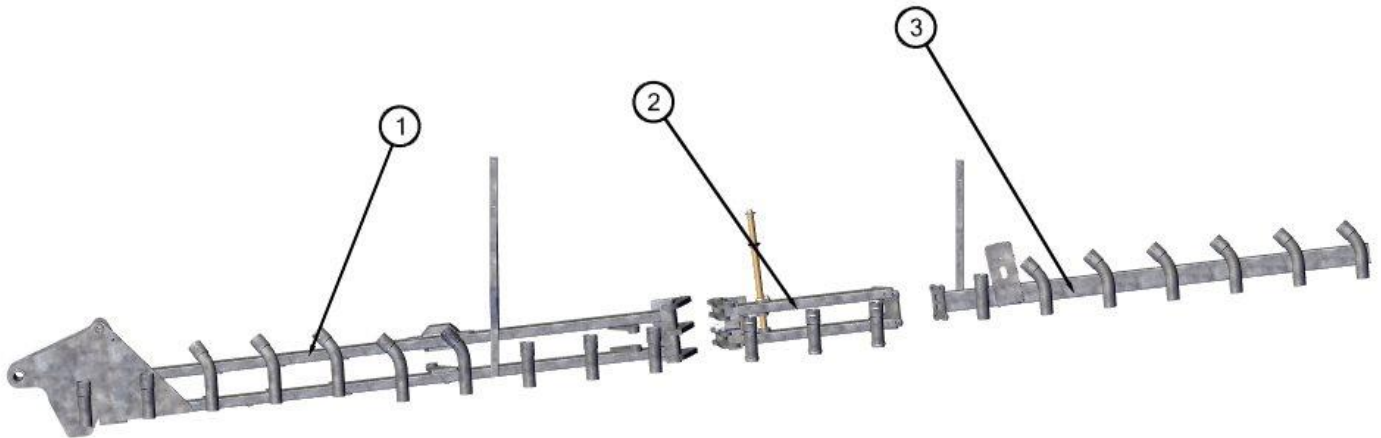
Right arm



Left arm

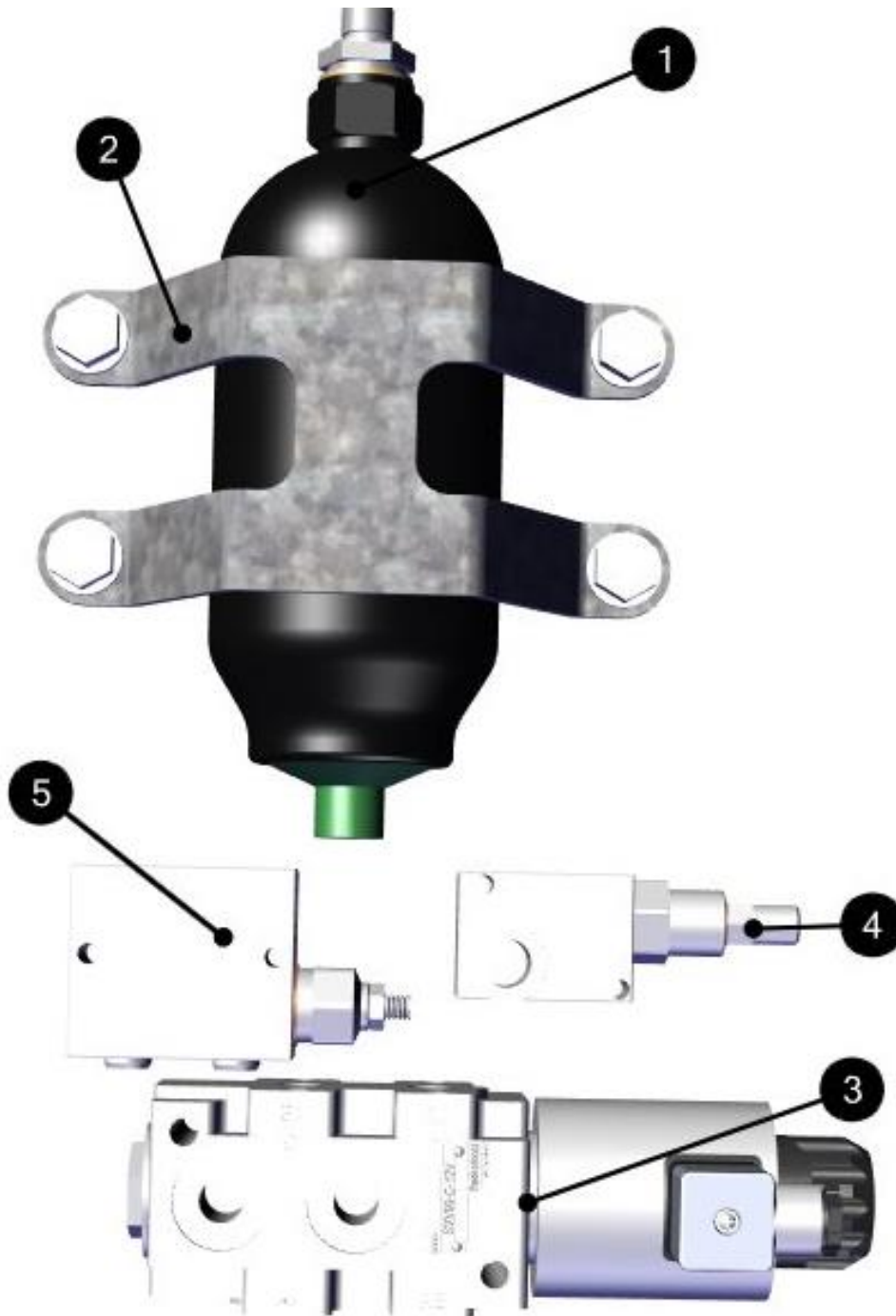


12m different Arm Frames



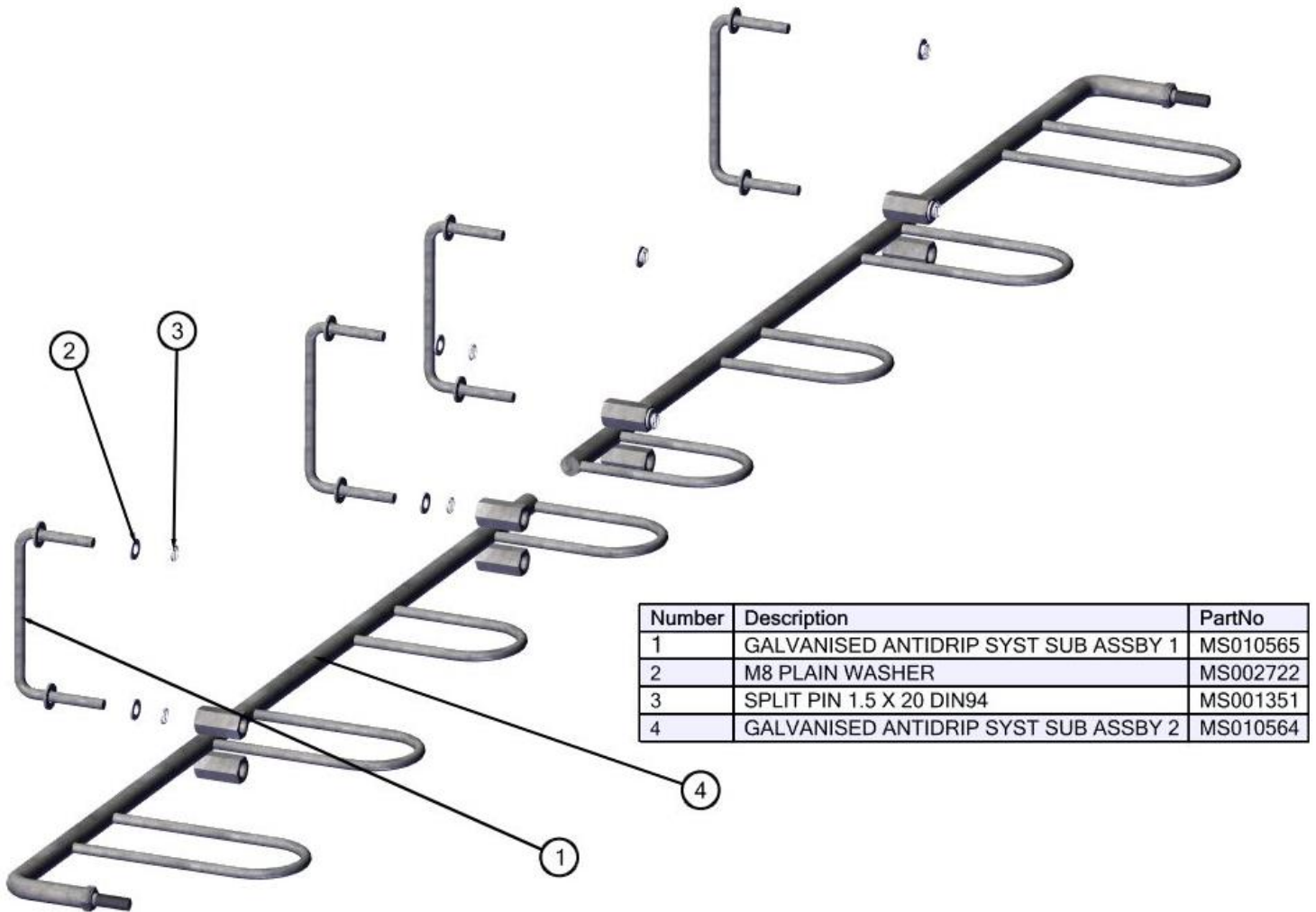
Number	Description	PartNo
1	GALVANISED 12M V.D.B. L-H INNER ARM	MS010452
2	L-H OUTER ARM BASE ASSEMBLY (MK3)	MSA03581
3	GALVANISED 12M L-H INNER HINGE BASE ASSEMBLY (OUTER) (MK3)	MS010463

Hydraulic Valves and Components



BOM ID	PartNo	Description
1	MS011409	FOX H700-LT ACCUMULATOR
2	MSA04116	ACCUMULATOR MOUNT WELD ASSEMBLY
3	MS001106	6 PORT SOLENOID VALVE 12V
4	MS011605	PRESSURE RELEASE VALVE
5	MS006798	SEQUENCE VALVE

Anti-Dip (Optional Extra) (Universal to all)

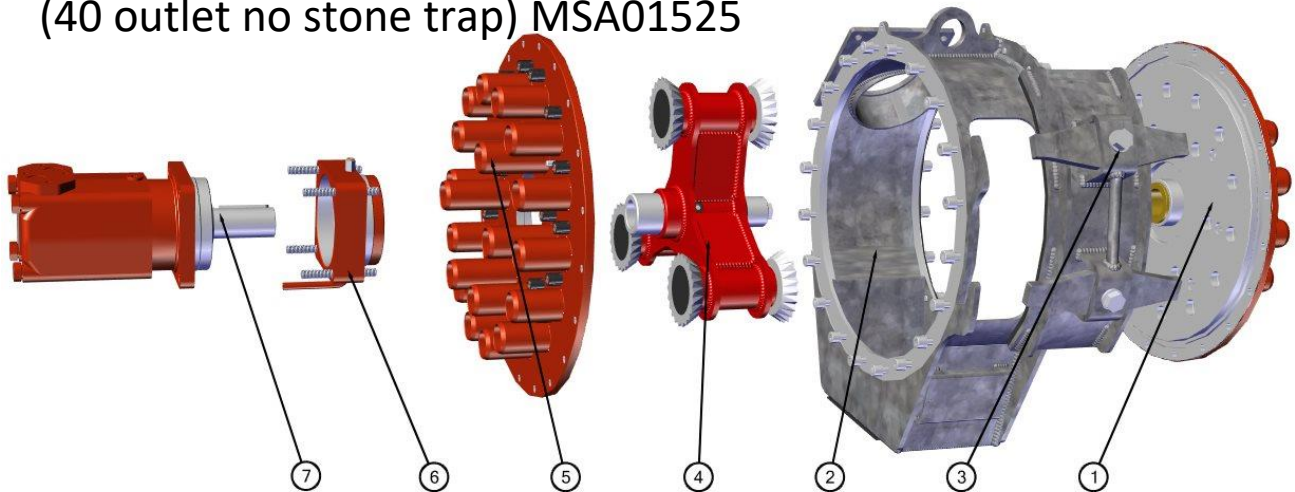


Number	Description	PartNo
1	GALVANISED ANTIDRIP SYST SUB ASSBY 1	MS010565
2	M8 PLAIN WASHER	MS002722
3	SPLIT PIN 1.5 X 20 DIN94	MS001351
4	GALVANISED ANTIDRIP SYST SUB ASSBY 2	MS010564

Macerator Spare parts

Break down of four variations

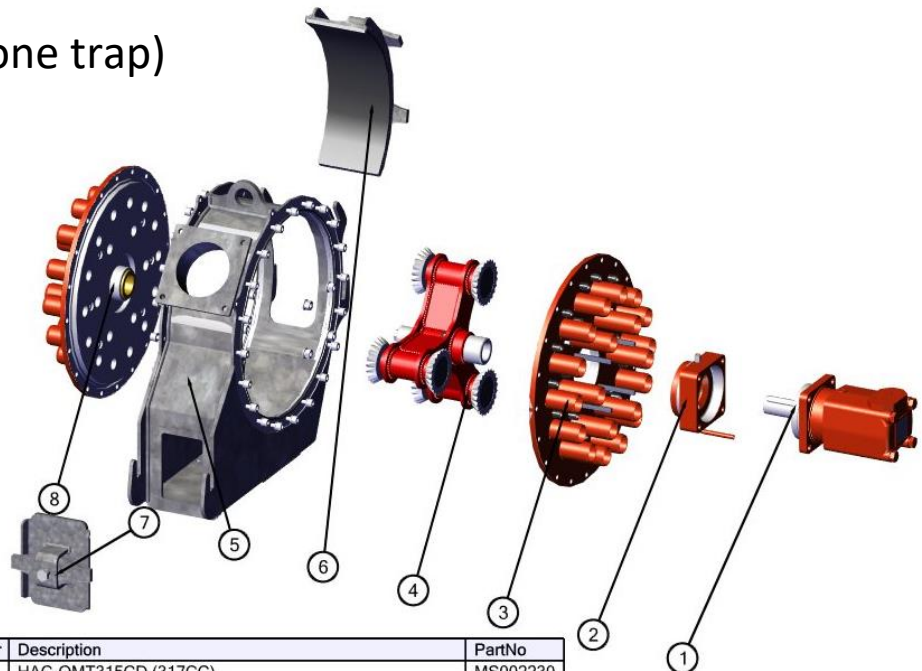
(40 outlet no stone trap) MSA01525



Number	Description	PartNo
1	10M SIDEPLATE (MK4-A) NON-DRIVE SIDE	MS003256
2	MACERATOR CARCAS MK4-B (MACHINED)	MS003978
3	MACERATOR ACCESS DOOR MK4-B ASSEMBLY (FULL)	MSA01339
4	CENTRE HUB ASSEMBLY MK4-C (FULL)	MSA00787
5	10M SIDEPLATE (MK4-A) MOTOR MOUNT SIDE	MSA00783
6	HAC-OMT315CD ADAPTER FULL ASSEMBLY	MSA02050
7	HAC-OMT315CD (317CC)	MS002230

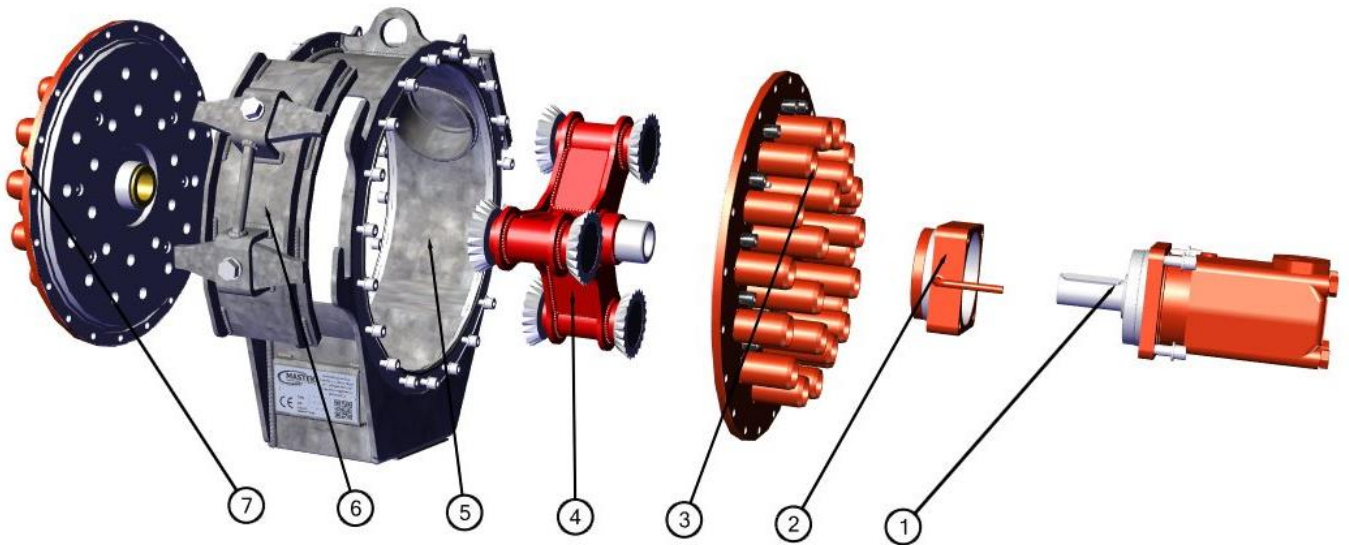
(40 outlet with stone trap)

MSA03692



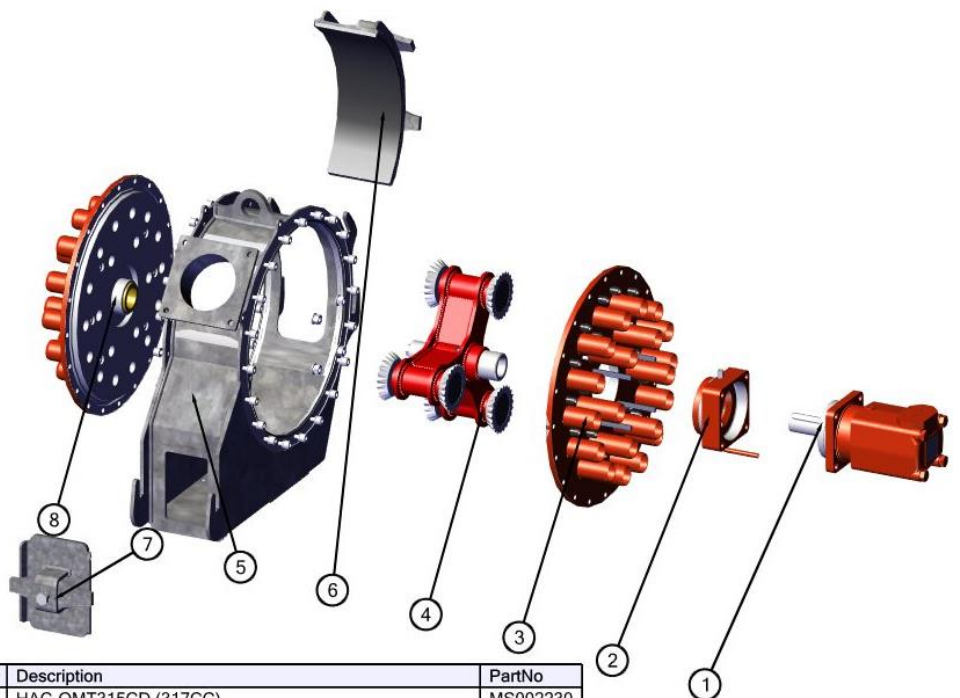
Number	Description	PartNo
1	HAC-OMT315CD (317CC)	MS002230
2	HAC-OMT315CD ADAPTER FULL ASSEMBLY	MSA02050
3	10M SIDEPLATE (MK4-A) MOTOR MOUNT SIDE	MSA00783
4	CENTRE HUB ASSEMBLY MK4-C (FULL)	MSA00787
5	GALVANISED CARCASS MACHINED	MS010759
6	MACERATOR ACCESS DOOR MK4-B ASSEMBLY (FULL)	MSA01339
7	MACERATOR INSPECTION DOOR ASSEMBLY	MSA00271
8	10M SIDEPLATE (MK4-A) NON-DRIVE SIDE	MS003256

(48 outlet no stone trap) MSA01080



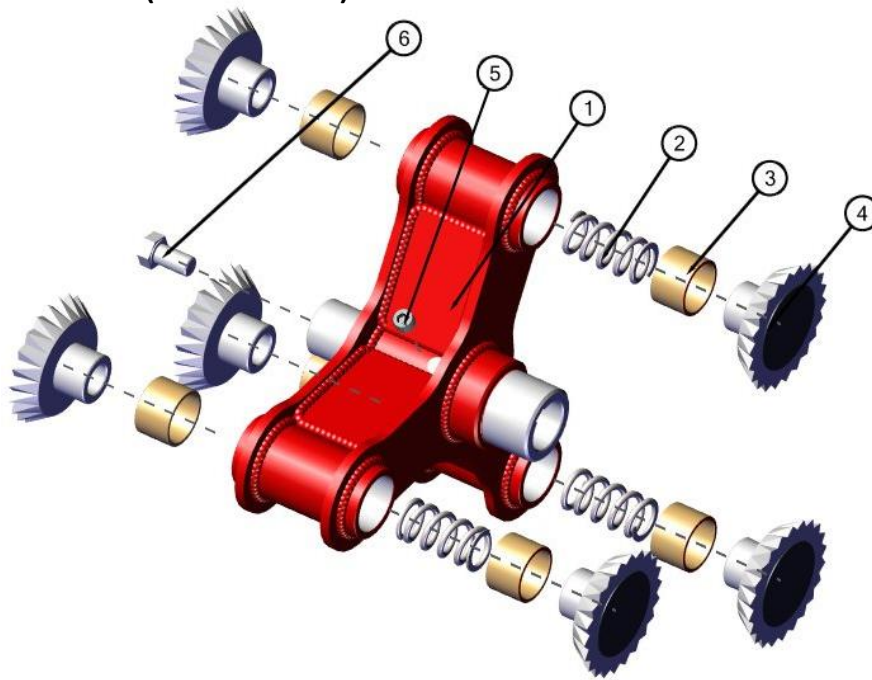
Number	Description	PartNo
1	HAC-OMT315CD (317CC)	MS002230
2	HAC-OMT315CD ADAPTER FULL ASSEMBLY	MSA02050
3	12M D.B. SIDEPLATE (MK4-A) MOTOR MOUNT SIDE	MS003186
4	CENTRE HUB ASSEMBLY MK4-C (FULL)	MSA00787
5	MACERATOR CARCASS MK4-B (MACHINED)	MS003978
6	MACERATOR ACCESS DOOR MK4-B ASSEMBLY (FULL)	MSA01339
7	12M SIDEPLATE (MK4-B) NON-DRIVE SIDE	MS003715

(48 outlet stone trap) MSA01080*



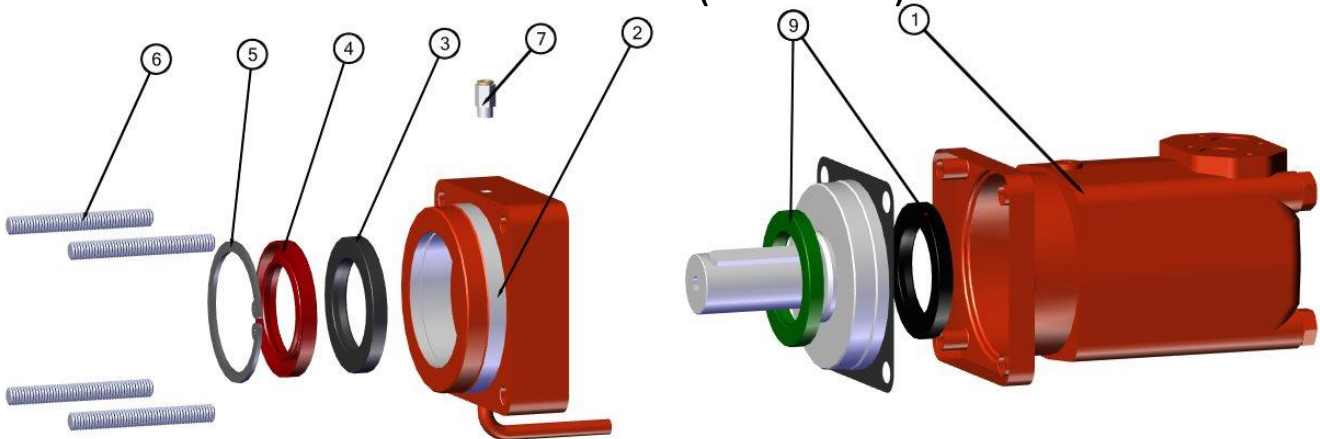
Number	Description	PartNo
1	HAC-OMT315CD (317CC)	MS002230
2	HAC-OMT315CD ADAPTER FULL ASSEMBLY	MSA02050
3	10M SIDEPLATE (MK4-A) MOTOR MOUNT SIDE	MSA00783
4	CENTRE HUB ASSEMBLY MK4-C (FULL)	MSA00787
5	GALVANISED CARCASS MACHINED	MS010759
6	MACERATOR ACCESS DOOR MK4-B ASSEMBLY (FULL)	MSA01339
7	MACERATOR INSPECTION DOOR ASSEMBLY	MSA00271
8	10M SIDEPLATE (MK4-A) NON-DRIVE SIDE	MS003256

Centre Hub (Universal)



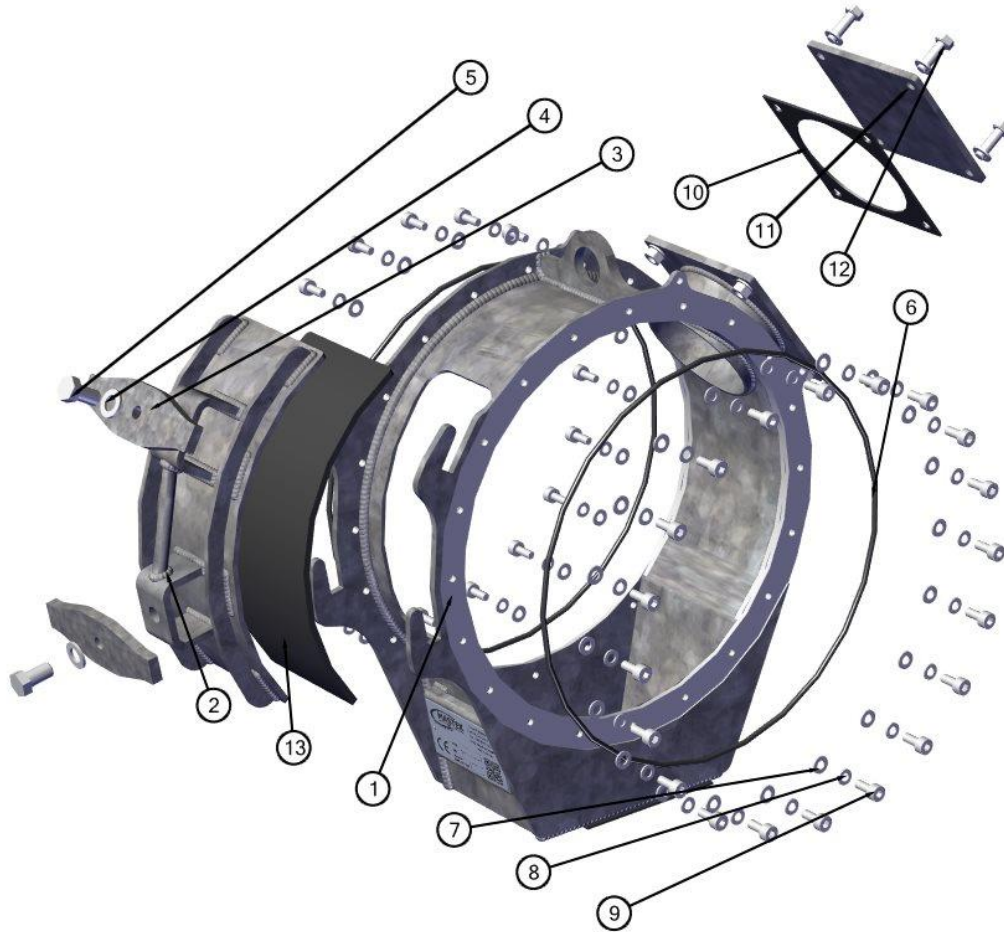
Number	Description	PartNo
1	MSA01532 PAINTED RAL 2002	MS004696
2	MACERATOR SPRING (OLD TYPE)	MS001220
3	BRONZE BUSHING	MS002144
4	ROTARY SCRAPER ASSEMBLY	MSA00851
5	M16 X 12 GRUBSCREW (FLAT HEAD)	MS003717
6	M16 HEX HEAD SETS (8.8) - 30MM	MS002850

Motor & Isolation Block (Universal)



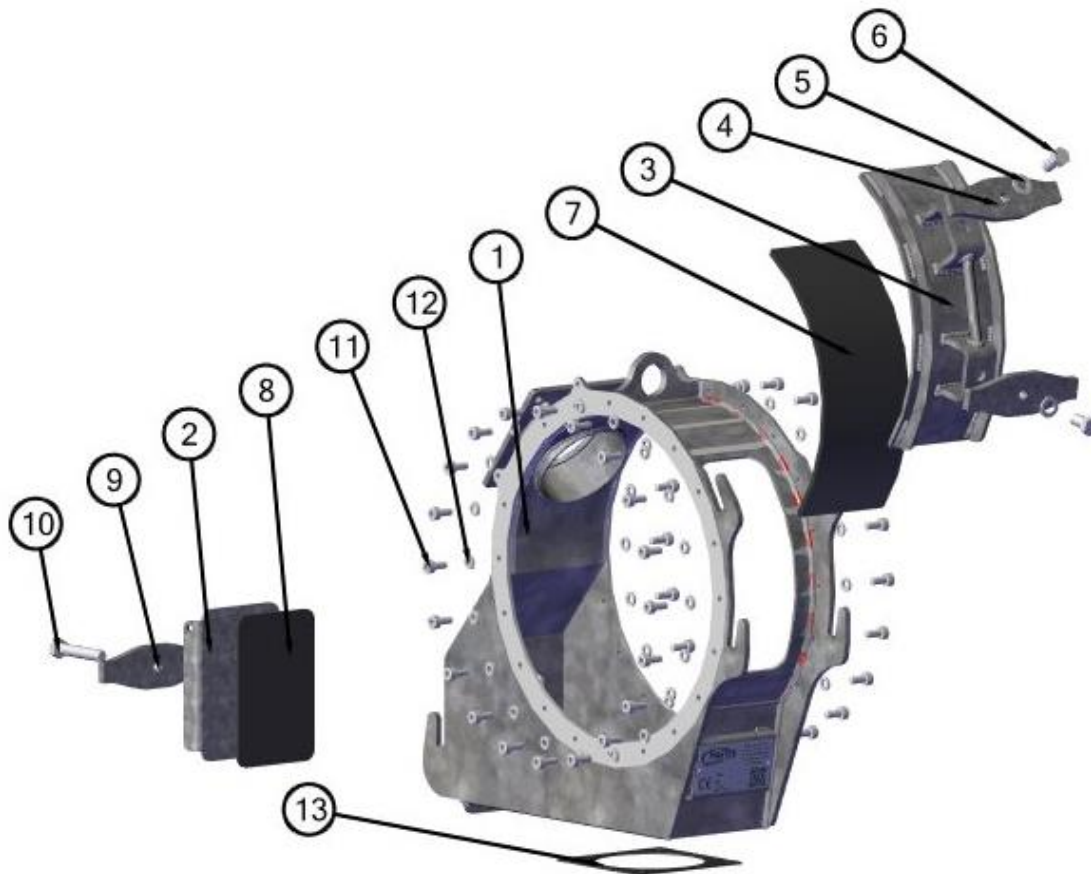
Number	Description	Patr No
1	HAC-OMT315CD (317CC)	MS003168
2	HYDRAULIC OIL ISOLATION BLOCK	MS007343
3	ROTARY SHAFT LIP SEAL 90X60X10 (S/S) (macerator)	MS007345
4	Slurry Seal 90X60X10	MS005457
5	INTERNAL CIRCLIP 90MM	MS006982
6	M12 X 100 THREADED STUD	MS007284
7	1/8" BSP Q-R GREASE PORT	MS006980
9	Motor Seal Kit	MS005397

Carcass & Access Doors No stone trap



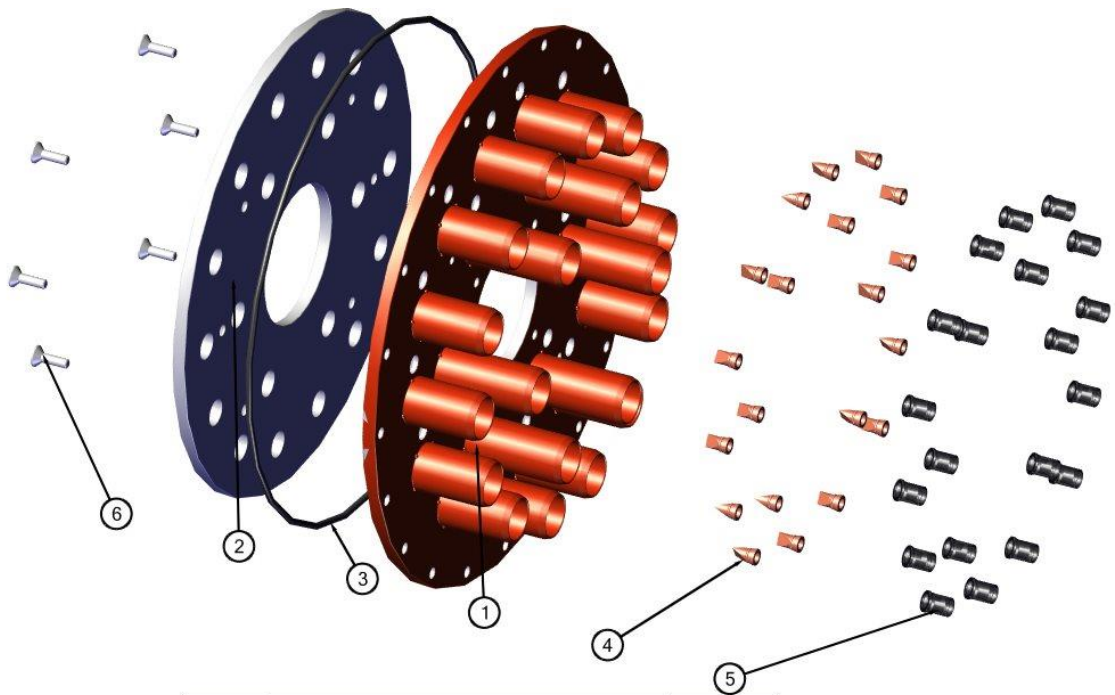
Number	Description	PartNo
1	MACERATOR CARCAS MK4-B (GALVANISED)	MS003
2	MACERATOR ACCESS DOOR MK4-B (GALVANISED)	MS003
3	MACERATOR COVER LATCH (THREADED)	MS001
4	M16 PLAIN WASHER	MS000
5	M16 HEX HEAD SETS (8.8) - 30MM	MS002
6	SIDEPLATE O-RING	MS002
7	M10 PLAIN WASHER	MS000
8	M10 SPRING WASHER	MS000
9	M10 X 25 SOCKET HEAD BOLT	MS002
10	4" SQUARE FLANGE GASKET SEAL	MS000
11	FLANGE BLANK (SQUARE)	MS001
12	M12 HEX HEAD BOLT (8.8) - 40MM	MS000
13	INSPECTION COVER SEAL 8MM (MK4-B)	MS003

Carcass & Access Doors with Stone trap



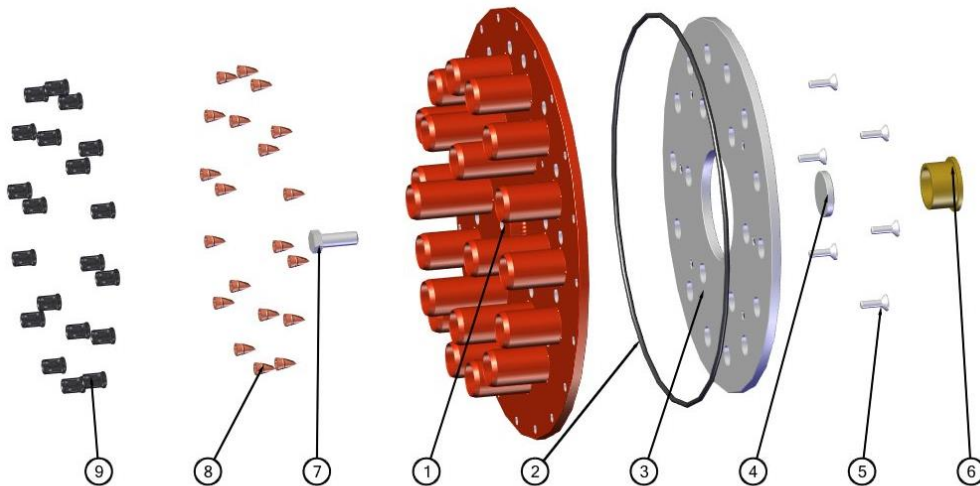
Number	Description	PartNo
1	GALVANISED CARCASS MACHINED	MS010759
2	GALVANISED MACERATOR COVER ASSEMBLY	MS010571
3	MACERATOR ACCESS DOOR MK4-B (GALVANISED)	MS003965
4	MACERATOR COVER LATCH (THREADED)	MS001202
5	M16 PLAIN WASHER	MS000106
6	M16 HEX HEAD SETS (8.8) - 30MM	MS002850
7	INSPECTION COVER SEAL 8MM (MK4-B)	MS003951
8	MACERATOR COVER SEAL	MS001206
9	MACERATOR COVER LATCH (THREADED)	MS001202
10	M16 HEX HEAD BOLT (10.9) - 90MM	MS000136
11	M10 X 25 SOCKET HEAD BOLT	MS002174
12	M10 SPRING WASHER	MS000578
13	4" SQUARE FLANGE GASKET SEAL	MS000261

Side Plate Motor Side 40 outlet



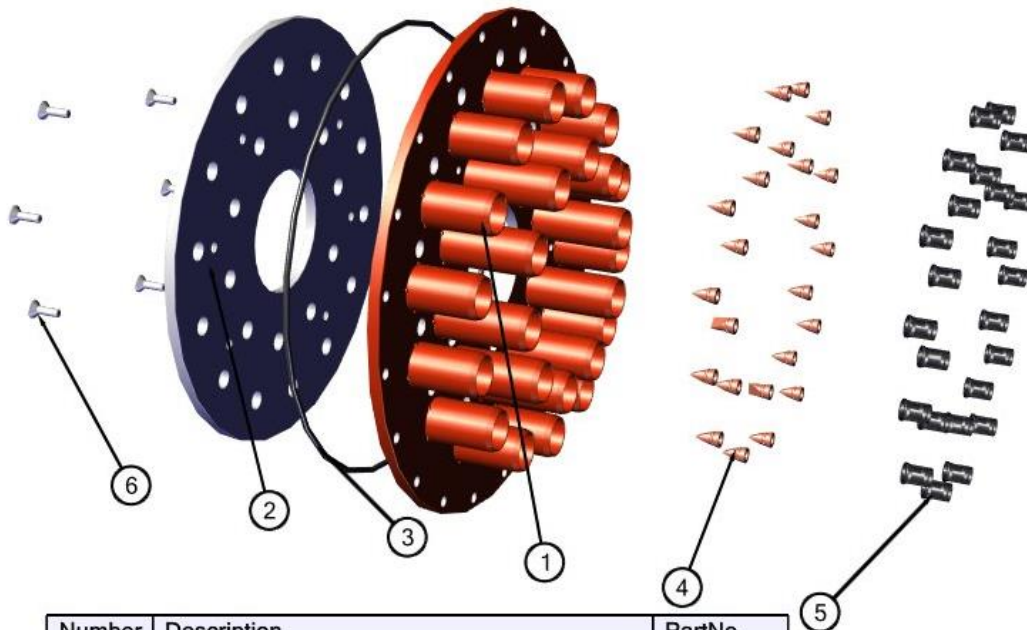
Number	Description	PartNo
1	10M SISEPLATE PAINTED RAL 2002	MS008440
2	10M KNIFEPLATE (MK4)	MS002321
3	SIDEPLATE O-RING	MS002261
4	DUCK BILL	MS001980
5	BREATHER MOUNT	MS002057
6	M10 X 25 CSK SCREW (STAINLESS STEEL)	MS003440

Side Plate Left side 40 outlet



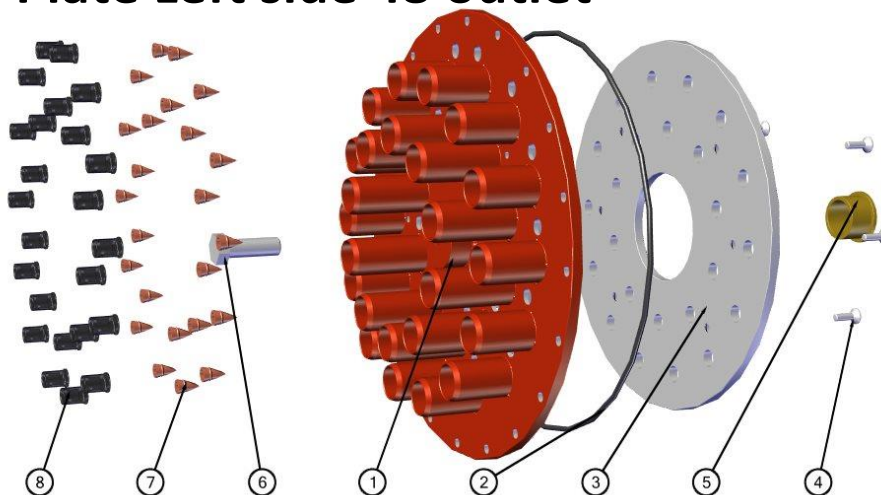
Number	Description	PartNo
1	10M D.B. MK4-A SIDEPLATE PAINTED	MS003253
2	SIDEPLATE O-RING	MS002261
3	10M KNIFEPLATE (MK4)	MS002321
4	HEAVY WASHER	MS002170
5	M10 X 25 CSK SCREW (STAINLESS STEEL)	MS003440
6	BRONZE BUSHING	MS002165
7	M16 HEX HEAD SETS (8.8) - 45MM	MS000265
8	DUCK BILL	MS001980
9	BREATHER MOUNT	MS002057

Side Plate Motor Side 48 outlet



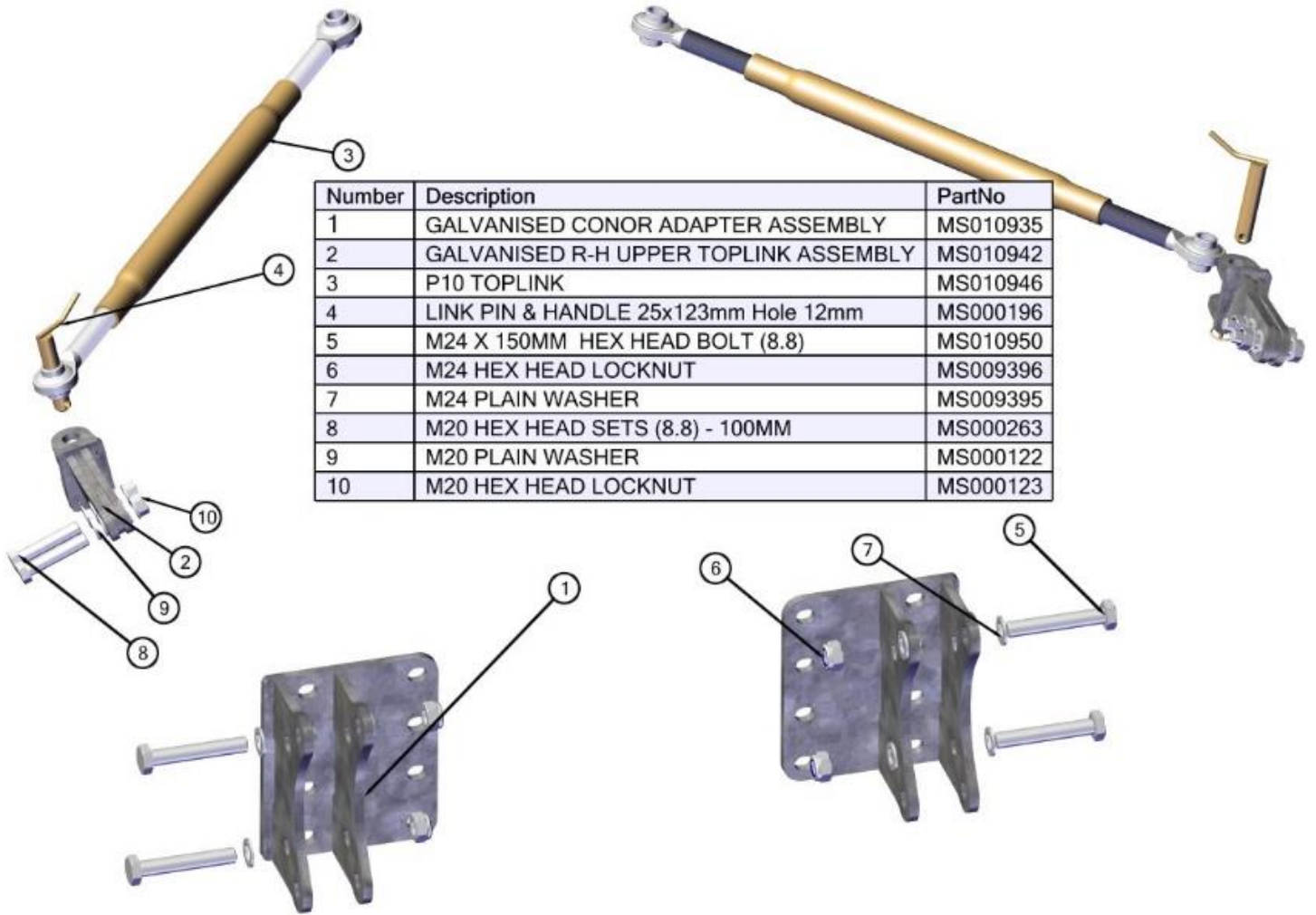
Number	Description	PartNo
1	12M D.B. MK4-A SIDEPLATE PAINTED	MS003183
2	12M KNIFEPLATE (MK4) 20MM HOLES	MS006283
3	SIDEPLATE O-RING	MS002261
4	DUCK BILL	MS001980
5	BREATHER MOUNT	MS002057
6	M10 X 25 CSK SCREW (STAINLESS STEEL)	MS003440

Side Plate Left side 48 outlet



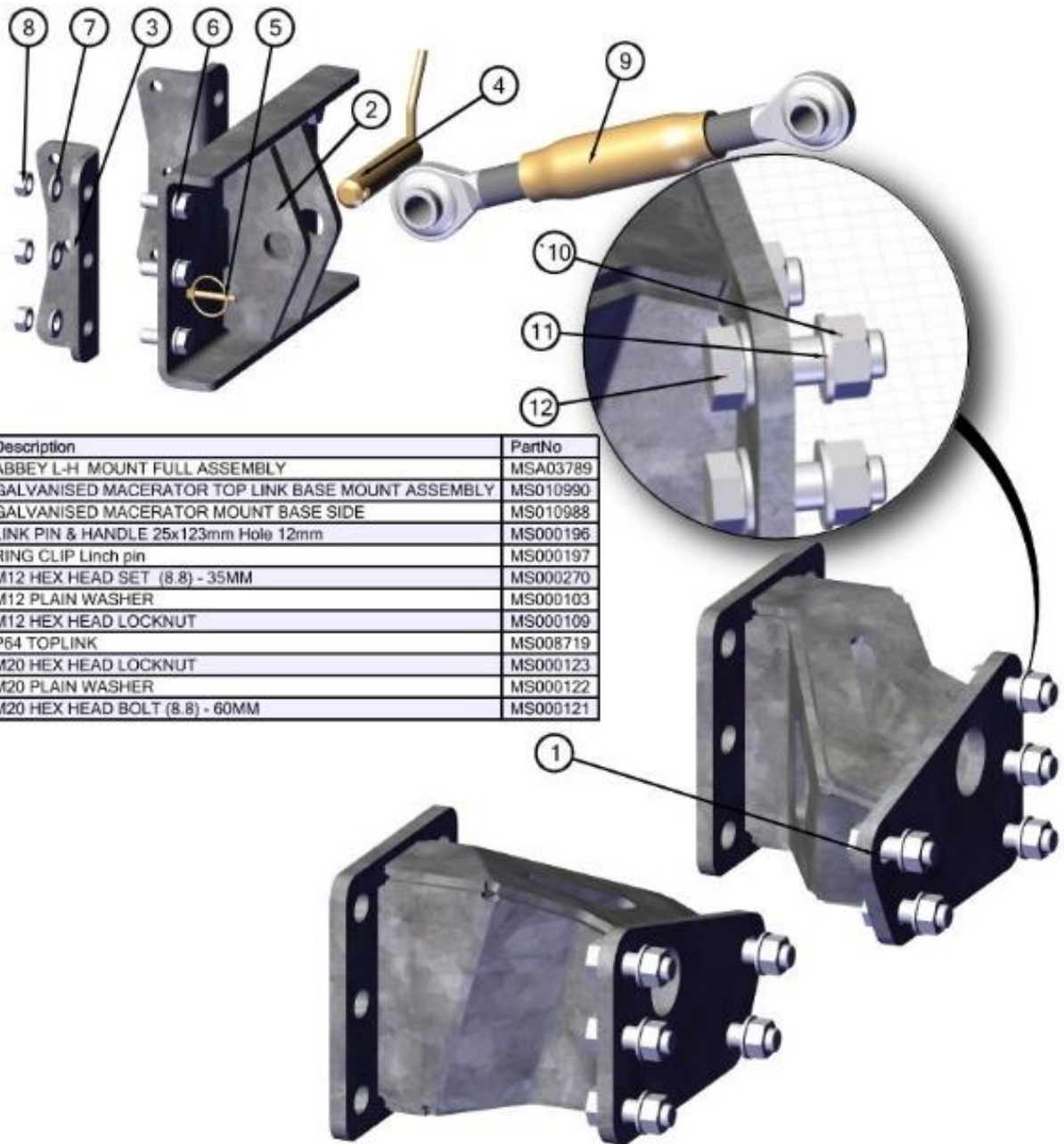
Number	Description	PartNo
1	12M D.B. MK4-B SIDEPLATE PAINTED	MS003713
2	SIDEPLATE O-RING	MS002261
3	12M KNIFEPLATE (MK4) 20MM HOLES	MS006283
4	M10 X 25 CSK SCREW (STAINLESS STEEL)	MS003440
5	BRONZE BUSHING	MS002165
6	M20 HEX HEAD BOLT (8.8) - 60MM	MS000121
7	DUCK BILL	MS001980
8	BREATHER MOUNT	MS002057

Connor Adapter Brackets



Number	Description	PartNo
1	GALVANISED CONOR ADAPTER ASSEMBLY	MS010935
2	GALVANISED R-H UPPER TOPLINK ASSEMBLY	MS010942
3	P10 TOPLINK	MS010946
4	LINK PIN & HANDLE 25x123mm Hole 12mm	MS000196
5	M24 X 150MM HEX HEAD BOLT (8.8)	MS010950
6	M24 HEX HEAD LOCKNUT	MS009396
7	M24 PLAIN WASHER	MS009395
8	M20 HEX HEAD SETS (8.8) - 100MM	MS000263
9	M20 PLAIN WASHER	MS000122
10	M20 HEX HEAD LOCKNUT	MS000123

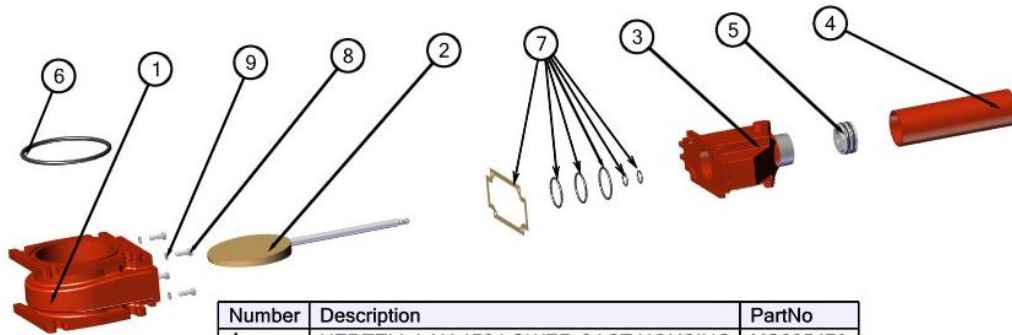
Abbey Adapter Brackets



Number	Description	PartNo
1	ABBEY L-H MOUNT FULL ASSEMBLY	MSA03789
2	GALVANISED MACERATOR TOP LINK BASE MOUNT ASSEMBLY	MS010990
3	GALVANISED MACERATOR MOUNT BASE SIDE	MS010988
4	LINK PIN & HANDLE 25x123mm Hole 12mm	MS000196
5	RING CLIP Linch pin	MS000197
6	M12 HEX HEAD SET (8.8) - 35MM	MS000270
7	M12 PLAIN WASHER	MS000103
8	M12 HEX HEAD LOCKNUT	MS000109
9	P64 TOPLINK	MS008719
10	M20 HEX HEAD LOCKNUT	MS000123
11	M20 PLAIN WASHER	MS000122
12	M20 HEX HEAD BOLT (8.8) - 60MM	MS000121

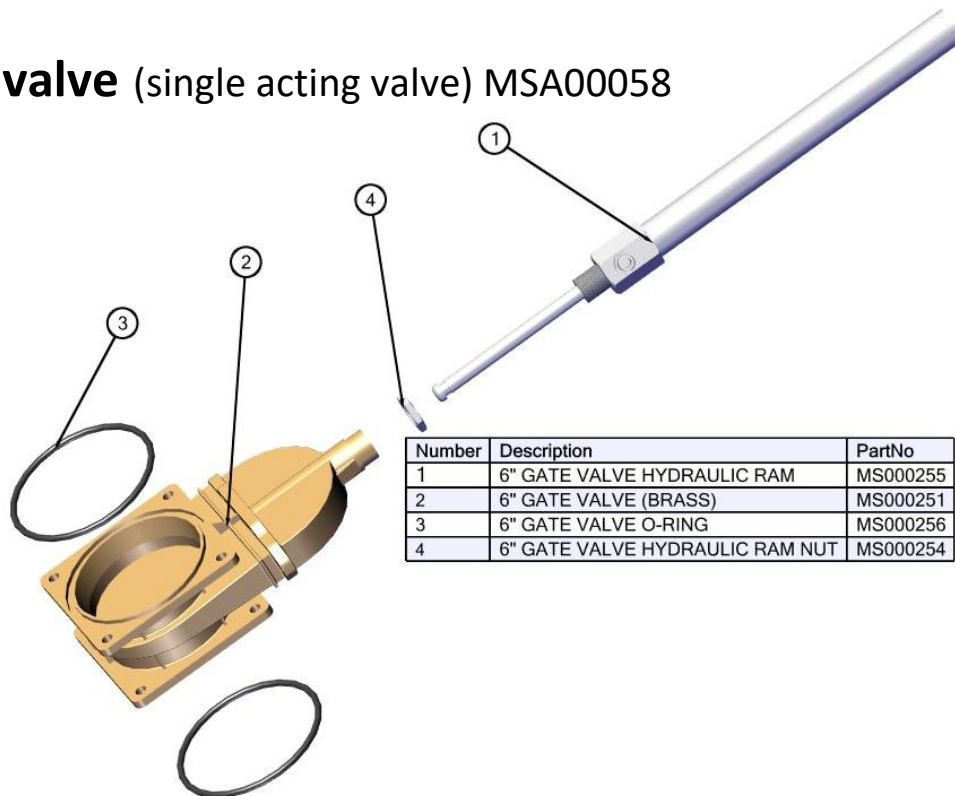
Gate valves (universal to all) (Optional)

Hertel (Two way valve) MSA0283



Number	Description	PartNo
1	HERTELL LAU 150 LOWER CAST HOUSING	MS005479
2	BRASS CHISEL FOR 150 GATE	MS005483
3	HERTELL LAU 150 UPPER CAST HOUSING	MS005481
4	HERTELL VALVE TUBE	MS010904
5	HERTELL VALVE PISTON	MS010905
6	O RING OD 174MM SECTION 8MM	MS010891
7	HERTELL GATE VALVE SEAL KIT	MSA01629
8	M08 HEX HEAD BOLT (8.8) - 25MM	MS001100
9	M8 PLAIN WASHER	MS002722

Brass valve (single acting valve) MSA00058



Number	Description	PartNo
1	6" GATE VALVE HYDRAULIC RAM	MS000255
2	6" GATE VALVE (BRASS)	MS000251
3	6" GATE VALVE O-RING	MS000256
4	6" GATE VALVE HYDRAULIC RAM NUT	MS000254

Miscellaneous parts (Universal to all)



45mm Flex Pipe
MS001988
Sold Per meter



50mm Lay flat Hose
MS000189
Sold Per meter



Pipe strapping
MS001243



Wiring harness complete.
MS000954



6 Port Solenoid valve,
Part Number MS001106

