DAWSON
CONSTRUCTION PLANT LTD

EMV-300 Metric
EXCAVATOR MOUNTED VIBRATOR

INNOVATIVE PILING EQUIPMENT

HYDRAULIC PILING HAMMERS

EXCAVATOR MOUNTED VIBRATORS

EXCAVATOR MOUNTED DRILLS

QUIET, VIBRATIONLESS PUSH-PULL PILING

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OPERATORS INSTRUCTIONS & SPARE PARTS LIST

4000M2 EMV300v7 METRIC HOSE KIT

May 2015 v7

DAWSON CONSTRUCTION PLANT LIMITED

EMV 300
OPERATORS INSTRUCTIONS
& SPARE PARTS LIST
PART No. 4000-M2
(Serial no.45-479 onwards)

CONTENTS

2.0 INTRODUCTION

The Excavator Mounted Vibrator (EMV) attachment is a perfect tool for readily converting any suitable size of excavator into a highly productive pile driving machine.

Piles can be lifted from a stack on the ground, engaged into a powerful hydraulic grip then positioned at will on a job site for vibrating and pushing into the ground. If the pile line is incorrect or the position inaccurate then simply pull the piles back out.

This ability to drive and extract sheet piles has made the unit particularly attractive to utility contractors where temporary sheet pile shoring has to be driven before excavation can commence. Following completion of the utility installation or repair and trench backfill the excavator can be quickly converted to a pile extractor to remove the sheets.

Once removed the sheet piles can be easily and safely laid down on the ground in a controlled and safe manner.

The EMV300 product is extremely versatile and readily adapts to most suit excavators from 12 to 25 tonnes, and with care up to 35 tonnes. Hydraulic power supply is taken from the excavators bucket ram circuit providing adequate power is available. Other than the addition of a small drain line directly back to the excavators tank there are no other special modifications to the base machine and no electrical system is required. The operator uses standard controls.

Maximum pile lengths are determined by excavator boom length but typical pile lengths are up to 7m (25') or more.

The contents of this manual are intended to give guidance on the installation, safe use and maintenance of the EMV product. It is not intended to be an exhaustive detailing of the manufacturers detailed knowledge of the product. Technical advise on this product is available through the manufacturer and their network of worldwide distributors.

Further training with Dawson Construction Plant Ltd can be provided as required. Please contact:

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Figure 1 – Basic Technical Specifications

EMV300 EXCAVATOR MOUNTED VIBRATOR – BASIC TECHNICAL SPECIFICATIONS

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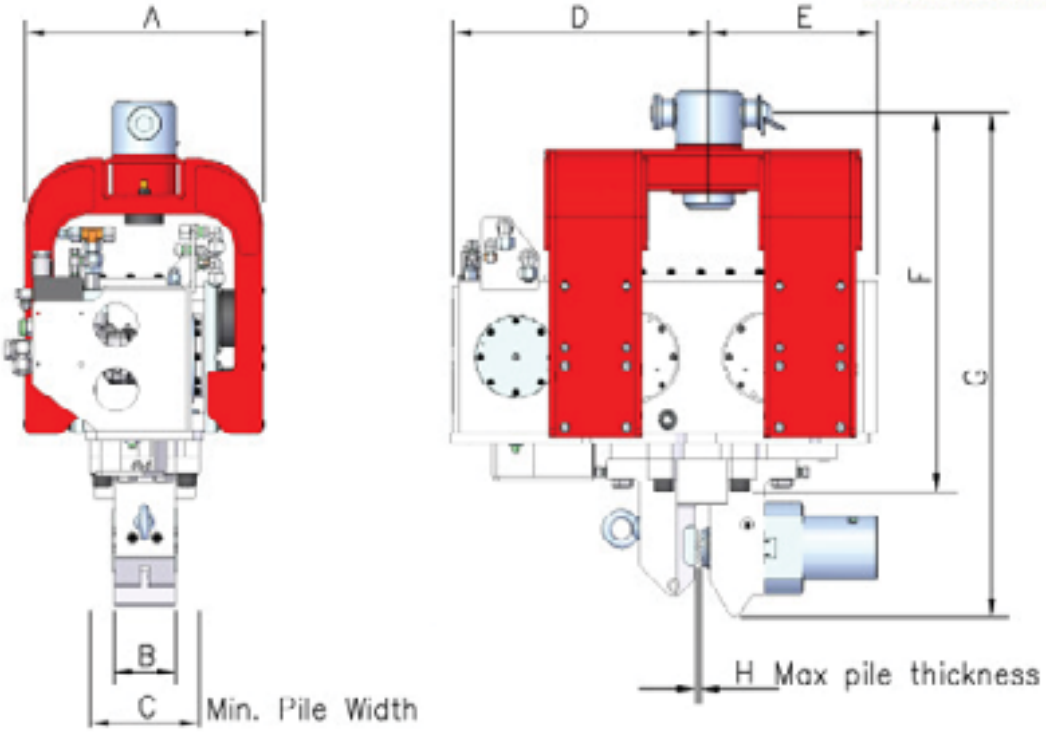


SPECIFICATIONS	EMV300	
UNITS	METRIC	US
Static Moment	4.6 Kg.m	400 lbs.in
Frequency	2400 r.p.m.	2400 r.p.m.
Centrifugal Force	300 KN	67,420 lbs.f
Amplitude	14.7 mm	0.58 ins
Min. Hydraulic Flow Rate	130 l/min	35 gpm
Max. Hydraulic Flow Rate	250 l/min	67 gpm
Max. Hydraulic Pressure	350 bar	5,076 psi
Min. Hydraulic Power	52 KW	70 hp
Dynamic Mass	625 Kg	1,380 lbs
Total Mass	860 Kg	1,890 lbs
Max. Pile Mass	800 Kg	1,760 lbs
Max. Push/Pull Force	15,000 Kg	33,000 lbs
Max. Push/Pull Deflection	146 mm	5.75 ins
DIMENSION A	615 mm	24.2 ins
DIMENSION B	150 mm	6 ins
DIMENSION C	250 mm	10 ins
DIMENSION D	582 mm	23 ins
DIMENSION E	429 mm	17 ins
DIMENSION F	927 mm	36.5 ins
DIMENSION G	1200 mm	47.25 ins
DIMENSION H	25 mm	1 ins

2.1 Basic Safety Points

- The vibrator should only be operated by suitably qualified personnel.
- There should be visual contact between operator and slinger (spotter) at all times.
- Monitor the piling operation constantly – interrupt the process immediately if any danger occurs.
- Do not operate the vibrator if any person is within the Danger Area – see section 2.1.4.
- Consider machine stability at all times.
- The operator should inspect the equipment for defects every day and before being taken into service. Any defects that affect operational safety should be corrected before the equipment is taken into service – see section 5.
- Pay attention to the Safe Working Load of all lifting accessories at all times.
- The working area should be properly illuminated.
- Work safely at all times and within the requirements of all local legislation.
- The vibrator can become very hot during operation – do not touch it unless wearing appropriate protective clothing.

2.1.1 Who is responsible?

Those who are in charge of, or responsible for, the use and maintenance must ensure that the vibrator and all it's auxiliary equipment are in good condition.

Piling should only be carried out under the supervision of an appropriately qualified and experienced person who can assess that the work is carried out safely.

The excavator operator must ensure that his communication signals are understood, by those on the ground, and followed. During piling operations he must watch out for any potential hazards.

2.1.2 Working Conditions

Vibrators should only be operated and driven on firm ground with clear visibility of the working area and the process monitored constantly.

The vibrator stand must stay upright and horizontal (at all times) to avoid personnel injury. Do not operate the vibrator if any personnel are within a 15m (50') radius of unit – ***The Danger Area***.

2.1.3 Working near Underground Obstacles

Before the start of any piling work it is up to the contractor to find out if there are any underground obstacles within the working area which could be dangerous to personnel. In the case of unforeseeable contact or damage of an underground obstacle, then work must stop immediately and the person in charge informed.

2.1.4 The Danger Area

This is an area defined as that being within a 15m(50') radius of the vibrator. Personnel are at risk when within this area from:

- Falling piles – should the pile be handled incorrectly
- Liquids under high pressure and associated components
- Mechanical failures of equipment components
- Noise – wear ear protection equipment when inside this area
- Unexpected overturning of the excavator

2.1.5 Transporting the Vibrator

When transporting the vibrator, ensure it is placed correctly in the stand.
Once in place on the stand the jaws must be closed. Release the hydraulic hoses from the excavator (the hard jaws will remain closed) and cap the hose ends to prevent contamination. Disconnect the vibrator from the excavator.

2.1.6 Transporting Piles on Site

Transporting a pile using the vibrator should only be done over a small distance, with the clamp fully engaged on the pile top and with the lifting chain fitted. Should the grip on the pile be reduced during this procedure, the excavator must stop, and a better grip effected. Should a pile slip then the lifting chain could snap and cause an accident. When transporting a pile extreme care must be taken to ensure that no one is in the Danger Area and that the pile is handled in such a way as to ensure no danger to site personnel at any time.

In order to avoid extensive transporting, have the piles laid out as close to the point of installation as possible. Do not use the excavator with the EMV300 installed to handle bundles of piles around the job site.

3.0 HOW DOES THE EXCAVATOR MOUNTED VIBRATOR WORK?

Modern pile vibrators basically work in the same way. Pairs of high-speed contra-rotating eccentric weights are geared together so as to produce net vertical vibratory forces.

The vibrations produced are transmitted to the pile through a powerful hydraulic grip. Consequently the pile is vibrated at the same speed and displacement (or movement) as the gearbox itself. This vibration effect is transmitted to the pile tip where the surrounding soils become almost fluid like.

The fluidising effect on the soil permits particles to shuffle themselves around creating some spaces for the pile to move into. This combined with the weight of the pile and vibrator is adequate to push the pile into the ground.

Not all soil types will however fluidise. Clays soils are very cohesive and extremely dense by comparison to sands and gravels where vibrators work best. The dense clay soil does not allow soil particles to shuffle themselves around so no fluidising effect can occur. Also the ground effectively sticks itself to the pile and much of the power generated is lost in shaking the ground.

The EMV is particularly effective for its size and weight because it is able to utilise the crowd force available from the excavator to add further push force to the pile.

The gearbox in the EMV unit is driven by a hydraulic drive motor that receives hydraulic power from the excavators bucket ram circuit. Typically this circuit will be able to supply adequate working pressure but excessive amount of oil flow rate. The EMV has a built-in flow regulator that limits the oil flow rate supplied to the drive motor so that the gearbox can not be run too fast. This is essential to prevent excessive bearing loads and correct performance of the unit.

In addition, the flow regulator has a sequence valve built-in that will not allow the vibrator to run until adequate clamping force has been applied to the pile – an essential safety feature. This simplified hydraulic system enables simple installation and reliable performance.

4.0 MOUNTING INSTRUCTIONS

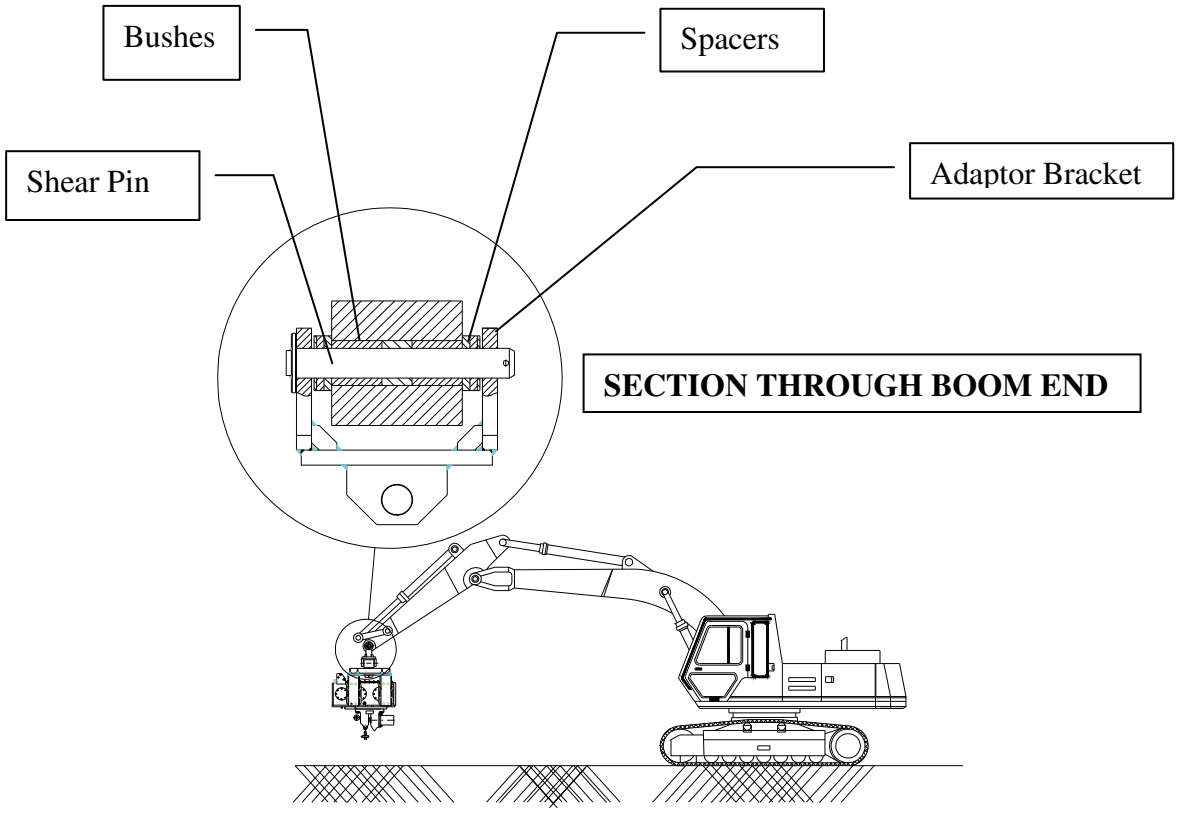
NOTE: The excavator hydraulic power output must be matched to the requirements of the vibrator before installation. A standard excavator enquiry sheet is available for the user to complete prior to considering the suitability of the excavator for use with the EMV300.

4.1 Mounting the Vibrator

The vibrator is mounted in place of the excavator's bucket, and should be allowed to hang freely once installed. Remove the bucket prior to installing the EMV.

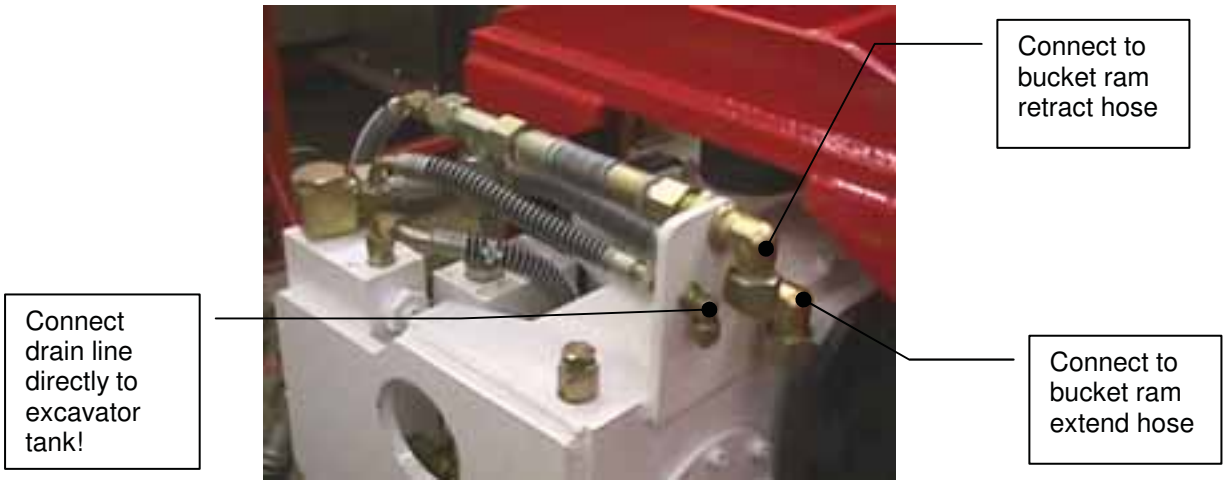
A shear pin is used to fix the vibrator to the boom via an adaptor bracket. Different adaptor brackets may be required for different excavators. Check this prior to the start of installation. If the excavator is fitted with a quick hitch it will either be necessary to remove it or purchase half a quick hitch and modify to suit the Dawson adaptor bracket.

Standard brackets are available for different machine size ranges. Typically, one of these brackets can be adapted to fit a variety of different pin sizes and dipper end widths by using a kit of bushes and spacers.



4.2 Hydraulic Hoses - Layout and Connections

The EMV hydraulic fittings are metric for the EMV300. The pressure and return lines (already connected to the vibrator) have metric 20 S. The pressure line is usually connected to the bucket ram "extend" circuit and the return line to the bucket ram “retract” circuit. The third, and smaller, drain line is fed either directly back into the hydraulic tank on the excavator, or connected to the breaker circuit return line. The fitting on the drain line connected to the vibrator is a metric 15 L male fitting. Excavators will rarely have the same fittings as these on their bucket circuit so adaptor fittings must be used.



Ensure all hydraulic connections are clean prior to fitting and that no contamination is introduced into the hydraulic circuit during installation – this may cause internal component damage to the hydraulic system or faulty operation of the vibrator or excavator.

If quick release couplings are installed on the excavator they should be replaced. It is strongly recommended that quick release couplings are not used for this application. For permanent installation ball valves can be added to the excavator boom to ensure rapid changing between bucket and EMV hydraulic function. As the bucket ram is no longer in use, it should be retracted and fastened down.

WARNING: THE DRAIN LINE MUST FLOW DIRECTLY TO TANK WITHOUT RESTRICTION. FAILURE TO DO SO WILL RESULT IN THE HYDRAULIC DRIVE MOTOR BLOWING ITS CASING SEAL OR FRONT CASING CASTING – THIS DAMAGE IS VERY COSTLY TO REPAIR.

The EMV is fitted with a motor case blow-off valve. This valve is effectively a check valve that vents some oil to atmosphere should the motor case drain line pressure exceed approximately 6 bar. It is not a pressure protection valve and is intended only as an early warning valve, giving a visual signal that something is wrong. Any sign of this and use of the EMV should be halted immediately and the cause investigated.

The blow-off valve does not guarantee the motor will be protected in all circumstances!

5.0 OPERATING INSTRUCTIONS

5.1 Preparations – before driving/extracting piles.

It is the excavator operator's responsibility to ensure that the equipment is functioning and performing correctly and that the EMV method of piling is implemented efficiently. In order to meet this responsibility please note the following points:-

a. Bundles of sheet piles should be set out on the job site so as to minimise the amount of handling and travelling required with the EMV.
b. Ensure that all piles have ∅40mm(∅1½") holes cut in them approximately 250mm(10") down from the top edge prior to commencement of the piling operation.
c. Allow the excavator engine to warm up, particularly in temperatures below minus 10°C and warm the excavators hydraulic system by, for example, tracking backwards and forwards – this avoids the EMV's blow-off valve spitting oil on initial start-up.
d. Before work commences slowly operate the bucket ram lever in both directions. It is particularly important that the vibrator is allowed to run freely for approximately 30 seconds, this allows the gearbox oil to reach all the necessary lubricating points.
e. Review section "2.1 Basic Safety Points" in this manual before starting work.
f. Review section "6.1 Daily Maintenance" before taking the equipment into service.
g. It is particularly important that you make sure that during a piling operation the vibrator is kept directly above and in line with the pile, otherwise the piling energy is transferred to the excavator arm and causes unnecessary wear and may lead to pile damage.

5.2 Driving Piles

a. Ensure that all safety procedures and maintenance has been carried out before starting the excavator – see section 5.1.

b. Ensure that it is safe to move the dipper arm. Release the stand from the jaws of the vibrator by operation of the retract bucket ram control function in the cab. Manoeuvre the vibrator above one end of the pile to be pitched, so that there is enough distance to allow safe insertion of the lifting chain through the hole at the top of the pile.

c. Check which way around the pile has to be lifted before inserting the lifting chain – was the previous pile pitched left or right handed? Insert the lifting chain correctly (no twists, knots etc) through the lifting hole in the pile and finally with the chain clamp. ***Allow enough free chain length for the pile to rotate to vertical during the lifting process without jamming against the underside of the clamp body. If this happens the chain will be overloaded, may subsequently break and allow the pile to fall – this is a sever hazard to all site personnel and must be avoided at all times.*** Do not allow too much chain so that the top of the pile

hangs too far away from the clamp when it is raised to the vertical – this will make it difficult to engage the pile in the clamp.

d. Clear all personnel standing in the Danger Area and lift up the pile until it just hangs freely off the ground.

e. Lower the pile slowly so that the pile can be correctly inserted into the clamp. Once firmly inserted, close the jaws.

f. Manoeuvre the pile to the insertion point and push the pile slowly into the ground. Plumb the pile and ensure all personnel are out of the Danger Area.

g. Start the vibrator and adjust (crowd) the hydraulic rams so that the vibrator is level and always sits directly on top of the pile as it goes into the ground. Do not over push the vibrator - stop pushing when the gearbox starts to vibrate against the rubber stops on the underside of the saddle. With the EMV300 the deflection is 146mm (5.75").

h. When the pile has reached the required depth turn the vibrator off by returning the control lever to the central position and allow all vibrations to stop. Release the hard jaws from the pile by slowly operating the control lever in the opposite direction. Do not operate the control lever from one extreme position to the other whilst the EMV is running – it will cause hydraulic system pressure spikes to occur.

i. Remove the chain clamp and lifting chain from the pile lifting hole.

j. Repeat steps b-j to continue.

k. When piling progress is less than 100mm/min (4ins/min) release ground resistance by augering or by water jetting. Under no circumstances should the pile be forced any further.

5.3 Extracting Piles.

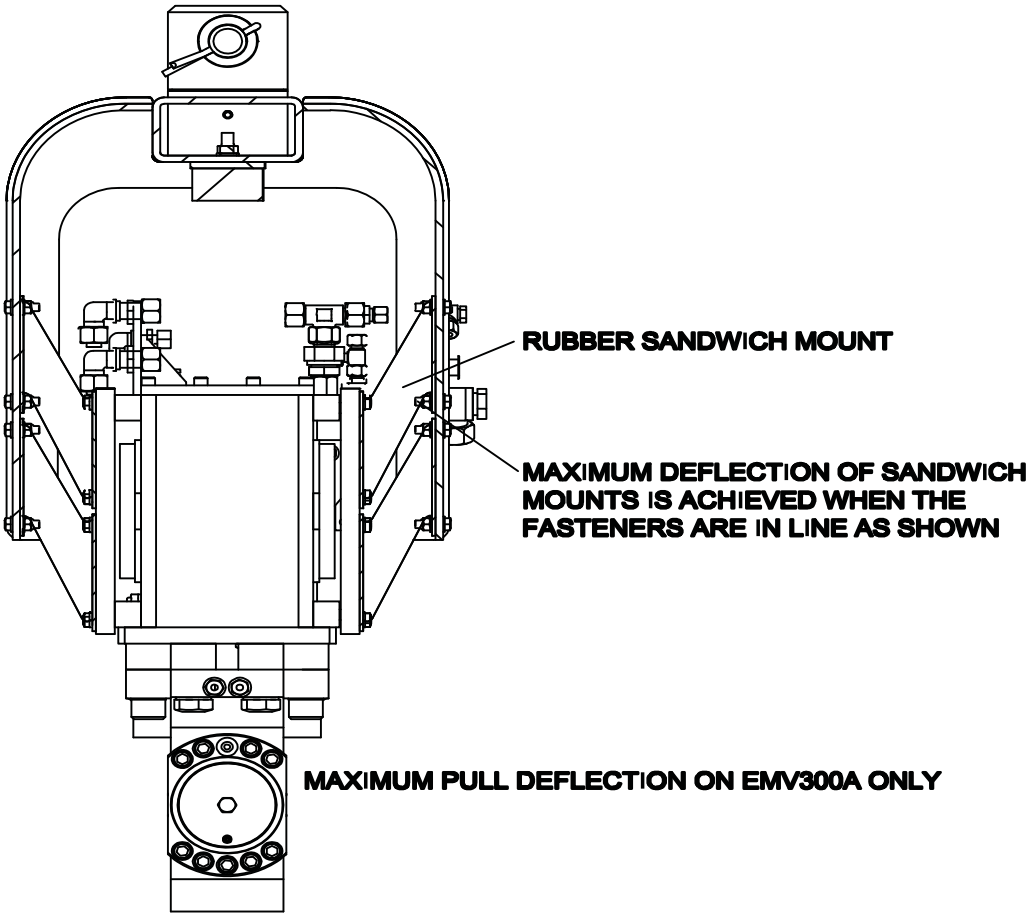
a. Ensure that all safety procedures and maintenance has been carried out before starting the excavator – see section 5.1.

b. Ensure that it is safe to move the dipper arm. Release the stand from the jaws of the vibrator by operation of the retract bucket ram control function in the cab. Manoeuvre the vibrator above one end of the pile to be extracted so that there is enough distance to allow safe insertion of the lifting chain through the hole at the top of the pile.

c. Insert the lifting chain correctly (no twists, knots etc) through the lifting hole in the pile and secure with the chain clamp. ***Allow enough free chain length for the pile to rotate to horizontal during the lowering process without jamming against the underside of the clamp body. If this happens the chain will be overloaded, may subsequently break and allow the pile to fall – this is a sever hazard to all site personnel and must be avoided at all times.*** Under no circumstances should a pile be pulled using the lifting chain only.

d. Clamp the vibrator onto the pile head ensuring that it is level. Ensure all personnel are out of the Danger Area.

e. Start the vibrator and allow the soil to loosen around the pile. Start to lift up the pile. Ensure the pile clutches are not rubbing together. Pay attention to the distortion of the rubber sandwich mounts - under no circumstances should these mounts be allowed to deflect by more than the stipulated amount shown on Figure 1 in section 2.0. Reduce the extraction force to continue pulling. Continue extracting the pile until the pile foot is almost extracted. Stop vibration at this point and carefully pull the pile out the remaining short distance.



f. Move the pile to a suitable area, and place the pile on the ground. Ensure that all personnel are out of the Danger Area.

g. Hold the pile on the ground and release the jaws. Raise the vibrator off the pile slowly ensuring that there is no snatch on the lifting chain. Slowly lower the pile towards the ground.

h. Remove the chain clamp and lifting chain from the pile lifting hole.

i. Repeat steps b-i to continue.

6.0 MAINTENANCE

The Excavator Mounted Vibrators have been designed to give years of trouble free service. Providing the equipment is treated with respect and the basic maintenance procedures are adhered to there will be little work additional work required.

The most important points are correct installation on good quality excavators, cleanliness when connecting to the excavator's hydraulic system and regular gearbox oil changes using appropriate oils - again cleanliness is paramount.

Visual inspection of the EMV by a competent person on a daily basis and before being taken into service can prevent many potential problems from occurring. Ensure that lifting accessory test certificates are correct and valid at all times.

- All service and maintenance work must be carried out by qualified personnel using original Dawson parts. The use of other parts will invalidate the whole warranty for the equipment.
- The equipment should be inspected at ground level only and should be positioned so as to be stable at all times.
- Secure the equipment against unexpected starting during the maintenance process.
- The equipment should be inspected by a Dawson technician or by one of their approved distributors once a year or every 1000 working hours.

6.1 Daily Maintenance.

a. **Grease the two grease points on the EMV300** – one on the Saddle Swivel and the other on the side of the Clamp Body. Two or three pumps with a molybdenum-based grease will be adequate.

b. **Check visible screws, bolts, fittings etc for tightness.**

c. **Visually inspect all hydraulic hoses and fittings for leaks or damage.**

d. **Check the gear oil level in the vibrator.** The level must be half way up the sight glass.

e. **Inspect the lifting chain and chain clamp for damage.** The chain should be in good order, free from any structural damage or permanent deformation of any kind. The chain clamp should also be free from any structural damage and its correct operation and safe function should be checked by depressing and releasing several times – any binding or hesitancy with its operation should result in it being changed for a new certified item. The chains Coupler and anchorage point should be in good order showing no signs of damage, wear or cracking. Remember ***if in doubt change it*** – Chains, Chain Clamps & Couplers require new test certificates to be recorded when changed!

f. **Inspect the condition of the Hard Jaws.** To be acceptable these should look to be in almost as new condition. The teeth on these pads have some flats on them when new (approximately 1.5x1.5mm). Over time they will round off, flatten out more and even become chipped. If not changed when required they will loose

their grip on the pile during driving and certainly during extraction. Besides causing a reduction in performance this can become a safety hazard. We define the following wear limit:

Hard Jaw Wear Limit - 90% of all teeth on any hard jaw should make contact with the pile and 80% of all teeth should have points with flats no greater than 5x5mm.

Changing the Hard Jaws – Static Side

Remove the two Cap Screws that hold this jaw in place. Tap out the old jaw and clean/inspect the clamp body seating area to ensure the faces are in good order. Slide in the new jaw and check that it is a snug fit – the jaw should not move up and down. Fit the two Cap Screws and tighten using a hexagonal wrench. Remember to install the washers on these screws.

Changing the Hard Jaws – Moving (Cylinder) Side

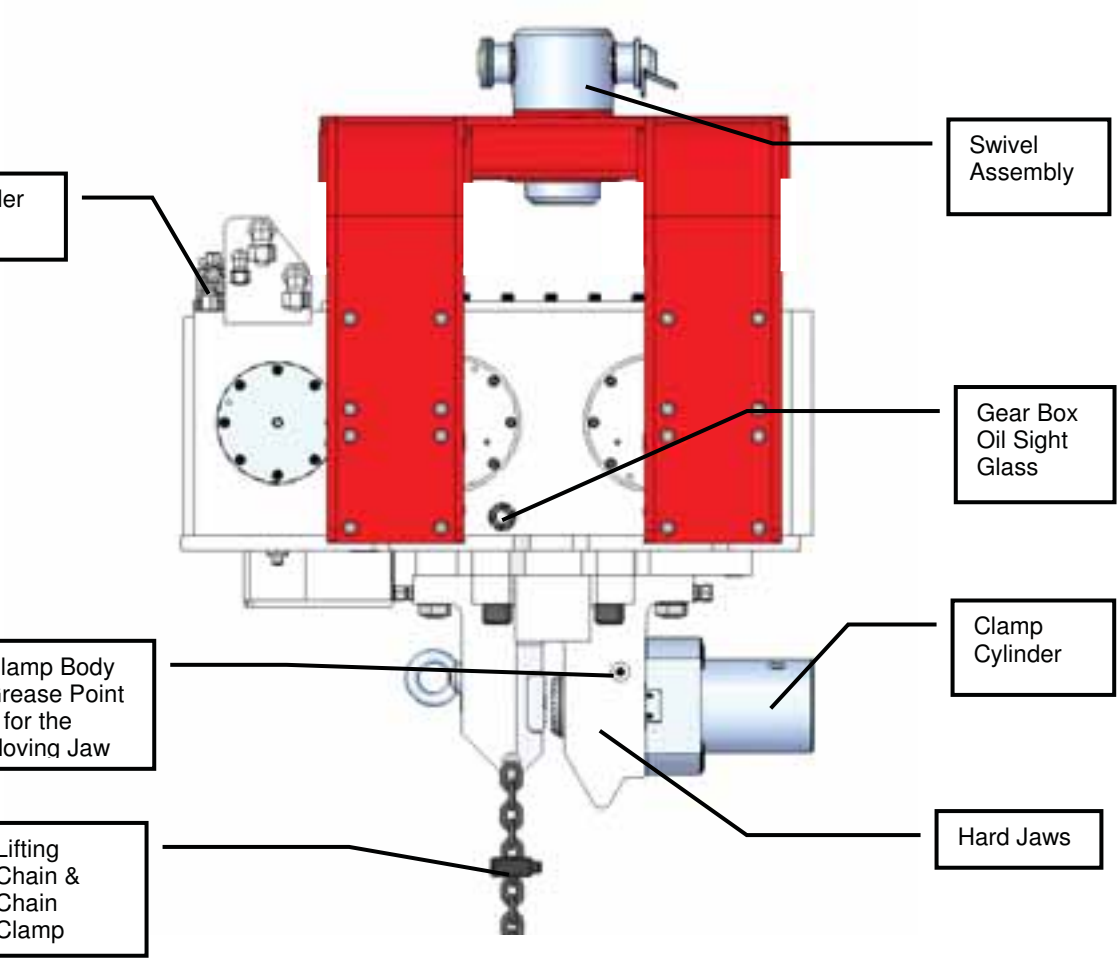
Release the Cap Screws that hold the Clamp Cylinder in place and remove the Clamp Cylinder. Undo the two clamp supply hoses, carefully marking them to ensure correct re-assembly. Once removed, unscrew the round Hard Jaw counter-clockwise and replace with a new one using a new O-ring. Ensure the Jaw is fully tightened on the Clamp Cylinder piston rod so that the O-ring is no longer visible. Inspect the bronze Guide Bush inside the Clamp Body whilst the cylinder is out – check the grooves in the front area of the bush and the condition of the bore. Replace the bush if badly worn.

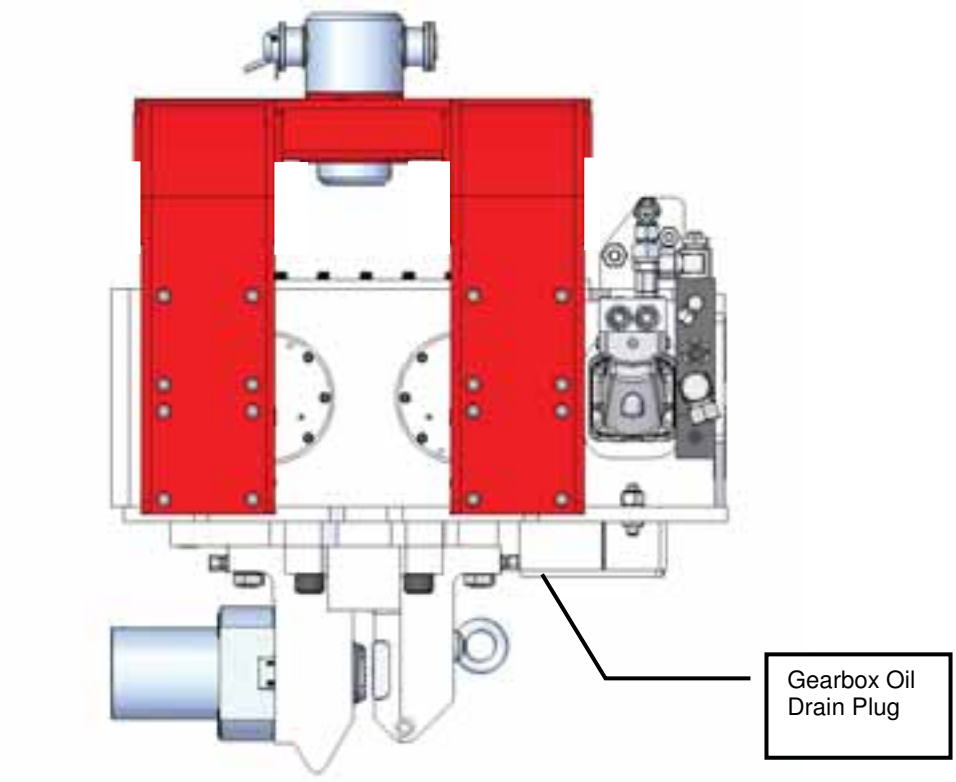
Assemble the Clamp Cylinder back into the Clamp Body, fit the clamp hoses then fit and tighten the Cap Screws using the hexagonal wrench. Ensure the clamp functions correctly after completing the work.

g. **Inspect the rubber Sandwich Mounts** (Elastomers) for wear or damage. Wear is typified by splitting/tares. This usually occurs in the rubber adjacent to the bonded steel plates and is usually a result of fatigue in the material over a long period of time. Crazing/softening may occur but this is usually associated with long term exposure to sunlight or exposure to petroleum based products. As a general rule change the Sandwich Mount if any single tare or split exceeds 40mm (1½") or if the rubber has become contaminated.

h. **Check the overall condition of the Swivel Assembly**. Check that the Lifting Bolt and Nut (that are the centre piece of this assembly) only allow rotational movement with minimal axial movement. Excessive axial movement will allow the assembly to rattle around, make more noise and cause in turn more wear. If the axial play exceeds 1mm it will be necessary to tighten the nut. To do this remove the coil/spring pin with a punch and hammer, tighten the nut further and drill and pin it in the new position.

i. **Check the condition of the boom Adaptor Bracket, Shear Pins, Spacers and Bushes**. The whole assembly should be relatively tight with minimal play in the components. The bracket needs to be able to float a little from side to side – as much as 5/10 mm is acceptable. The pins and bushes should however be little more than a running fit – clearances of more than 0.5mm would be considered excessive.


Swivel Assembly
Breather/Filler Plug
Gear Box Oil Sight Glass
Clamp Cylinder
Clamp Body Grease Point – for the Moving Jaw
Hard Jaws
Lifting Chain & Chain Clamp


Gearbox Oil Drain Plug

6.2 Every 50 working hours

Change the oil in the vibrator gearbox. Remove the Drain Plug from the bottom of the gearbox and the Breather/Filler Plug from the top. Allow the oil to drain out completely into a suitable container – this is best done at the end of a shift when the oil is relatively warm and thin. Replace the Drain plug and fill with new clean oil through the Breather/Filler hole until the oil level in the gearbox is approximately half way up the sight glass – this is approximately 4 litres (1.05 US gallons).

Re-fit the Breather/Filler Plug using a new seal and tighten.

The old oil must be taken to a certified waste disposal centre or handed over to a certified waste disposal contractor.

Generally any good quality mineral based gear oil in the class API GL-5 with viscosity class SAE 75W/90 will be suitable. Alternatively, in hotter climates fully synthetic oil of the same classification may be used. For example:

Manufacturer	Mineral Oil Reference	Synthetic Oil Reference
BP	ENEGEAR HT 75W/90	
MOBIL		MOBILUBE 1 SHC
CASTROL		SAF-EXB
ELF	TRANSELF B 75W/90	TRANSELF TR2 75W/80
TEXACO	GEARTEX EPC80W/90	GEARTEX 5S 75W/90

Note: Maximum ambient operating temperature for the unit +40ºC
Minimum ambient operating temperature for the unit –20ºC

6.3 Every 1000 hours

It is recommended that the unit be inspected and serviced by the manufacturer. Apart from undertaking to do the relevant preventative maintenance work and checks as described above Dawson will inspect the structural integrity of the equipment and ensure there are no safety related matters that may go unchecked. Bearings and gears will also be inspected to check for signs of unusual wear or potential problems. In some countries it is a requirement by law that the unit be inspected by qualified personnel.

7.0 TROUBLE SHOOTING

Please ensure that troubleshooting, inspection work and repairs are undertaken by suitably qualified personnel. Training can be carried out by the manufacturer or by your local approved Dawson distributor. The following guidelines are intended to assist with basic diagnostics and are not intended to be a definitive list – it assumes the inspector has a basic understanding of servicing techniques associated with this type of equipment. Work should not be undertaken by a novice without adequate supervision.

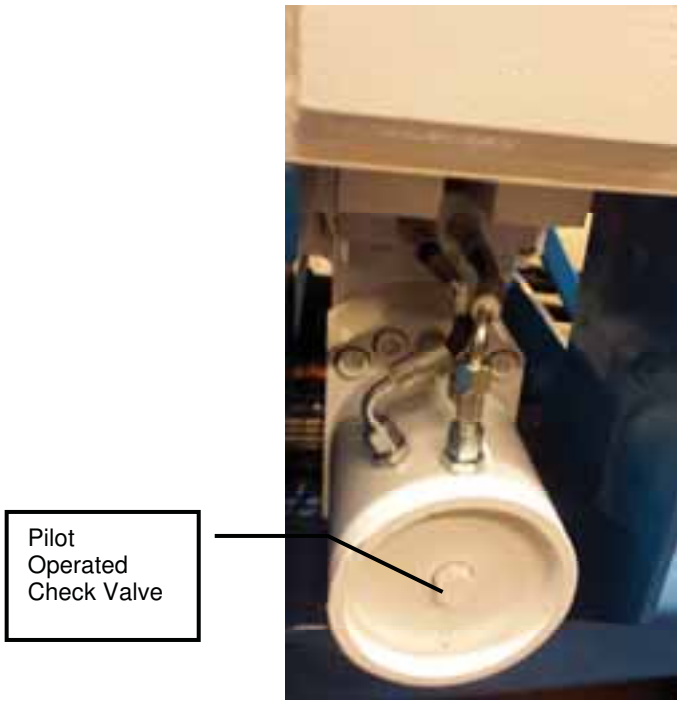
7.1 EMV clamp does not close

7.1.1 Check that base machine hydraulics lines are correctly connected – see section 4.2. Operate control lever in both directions to check flow directions.

7.1.2 Remove the check valve cartridge from the rear of the clamp cylinder and inspect for contamination or damage. The poppet inside the cartridge should move freely. If in doubt replace and use new seals.

7.1.3 Independently check the operation of the clamp cylinder with it removed from the hydraulic circuit. This should only be carried out by a competent person.

7.1.4 Remove the cylinder and inspect for mechanical damage inside the clamp or inside the cylinder.



7.2 EMV clamp closes but the unit will not vibrate

7.2.1 Check the base machine operating pressure and flow rate. If the pressure output of the excavator is too low the EMV will not run at all. This is because the sequence valve pressure setting has to be overcome before oil can pass to the drive motor.

7.2.2 Check the sequence valve setting by installing a pressure test gauge in the clamp close line and monitoring the pressure at which the valve opens. Ensure this is set to 165 bar.

7.2.3 Damaged sequence valve – remove and inspect but replace if in doubt using new seals.

7.2.4 Motor failure or gearbox problem. Try connecting the two main oil supply lines directly to the hydraulic motor ports and running the unit with low engine speed – effectively low oil flow rate. *Caution - it will be easy to over-speed the motor in this case because the flow regulator is now out of the circuit*.

7.2.5 If the unit does not vibrate either the motor has become damaged or there is a fault with the gearbox. Check the oil level in the gearbox to see that it has not become filled with hydraulic oil from the motor shaft seal – in this case the unit usually runs very slowly unless metal fragments have become entrapped in the transmission system as a result.

7.2.6 Remove the motor from the gearbox and test.

7.2.7 As a last resort take the saddle assembly off the EMV and remove the gearbox lid for an internal inspection. The gears, shafts and bearings should rotate freely. *Caution - pay attention to trapping body parts in the mechanism during inspection!*

7.2.8 Consult the manufacturer from section 7.2.5 onwards.

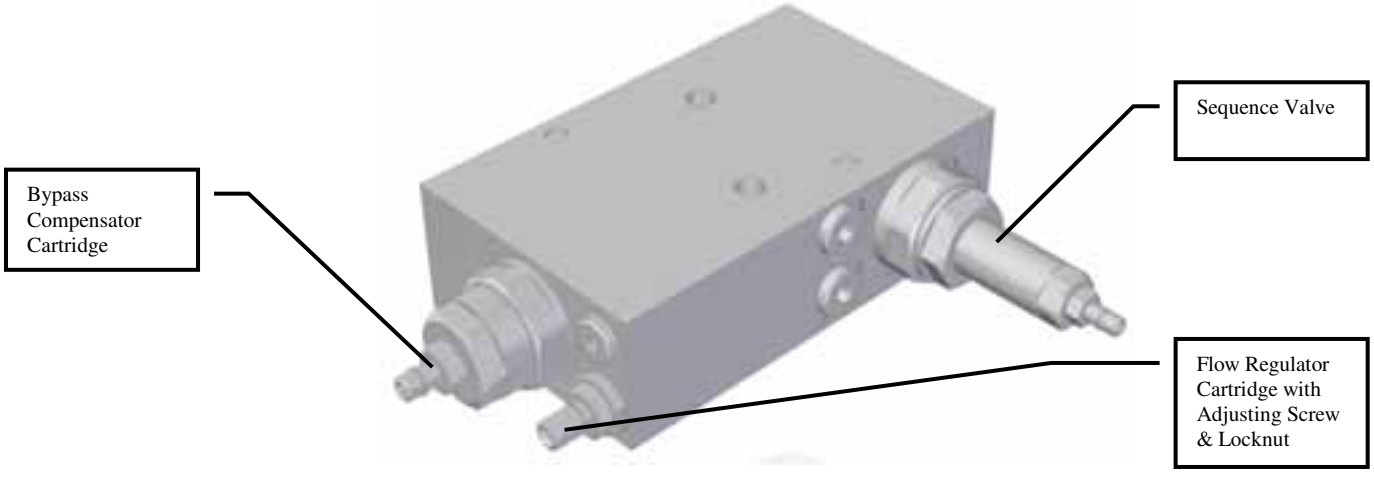
7.3 Unit will not run at the correct speed – "jumps around" or speed fluctuates.

7.3.1 Check that the base machine hydraulic output complies with the minimum specified for the unit. Specifically check with the excavator supplier/manufacturer what system pressure is available on the bucket ram circuit at 130 l/min.

7.3.2 Check the setting of the flow regulator to ensure adequate flow is reaching the drive motor.

7.3.3 Check the sequence valve pressure setting – see section 7.2.2. If this setting is too close to the operating pressure the EMV will speed up then slow down, speed up then slow down etc.

7.3.4 Check the gearbox oil level. If it is much higher than the sight glass the motor shaft seal has probably blown – see section 7.4.



7.4 Oil blowing out of the motor blow-off valve.

7.4.1 Drain line restricted or blocked – stop work immediately.

7.4.1.1 Check the drain line hose for obvious restrictions at fittings, filters etc.

7.4.1.2 Check the drain hose for damage – look carefully as the bore of the hose can be crushed even when the outside of the hose looks to be in good order at a casual glance.

7.4.1.3 Check the drain hose point of entry into the base machine hydraulic oil system – it is always best to run it directly to tank.

7.4.1.4 Do not work with quick disconnects as they can cause restriction or complete blockage when they appear to be correctly connected.

7.4.2 Drain line being pressurised – check that the line is not connected to a supply line e.g. the pressure line from a breaker circuit.

7.4.3 Long drain hose or the hose bore too small – either of these can contribute to an increase in back pressure.

7.4.4 Extremely cold weather – if the base machine hydraulic oil is of an inappropriate viscosity grade for the ambient temperature it may well be too thick. This will cause an increase in back pressure in the drain hose.

7.4.5 Faulty Blow-Off Valve on the motor casing – check that this has a minimum crack pressure of 6 bar and a maximum of 7 bar. Replace if unsure using a new calibrated valve and a new sealing ring.

7.4.6 Leaking seals on the sequence valve cartridge leading to excessive drain line flow rate – remove the drain line from the EMV and measure leakage flow rate. Leakage in excess of 5 l/min (1.33 gpm) indicates either a seal kit problem with the sequence valve or high internal motor leakage. Split the sequence valve drain line and motor case drain line and measure leakage rates independently – the sequence drain line should have little or know leakage.

7.5 Oil blowing out of the gearbox breather valve & the gear box is full of oil

The drive motor case seal has been blown, typically because the drain line pressure has been exceeded – see also section 7.4.

The unit will need to be removed from the job site and repaired in a suitably equipped workshop. The oil in the box will be a mixture of hydraulic and gear oils.

Once in the workshop drain the oil from the gearbox and inspect the oil for signs of debris. If only the seal has blown out without any damage to the motor casting then it may be possible to repair the motor with an authorised Volvo (VOAC) distributor, change the gear oil and rebuild the unit.

If however, the motor casting has also been damaged in the area of the seal housing it will be necessary to completely inspect the inside of the gearbox. Remove the gearbox lid and inspect the gear teeth and inspect all bearings. Check the gears for any signs of damage. Remove all bearing covers from the gearbox sides and inspect the outer races for signs of grooves or any other contamination or damage – look at the rollers in each bearing. The bearings and all running faces should be in perfect condition, if not they will need to be replaced. Consult with the manufacturer at this stage or one of their approved distributors – it is strongly recommended that the unit be repaired by the manufacturer in order to ensure correct procedures and materials are used for an effective repair.

7.6 Clamp closes itself immediately after being opened

This fault can only occur on older units prior to serial number 45-083 without the reverse flow check valve fitted to the return motor port. It occurs when the D reg check valve on the flow regulator becomes jammed shut. When opening the clamp the drive motor can then rotate slowly. Once the control lever is released the motor effectively becomes a pump, driven by the inertia of the eccentric weights in the gearbox. Consequently the clamp can be driven closed again. Should this problem occur Dawson could supply a reverse flow check valve as a fix.

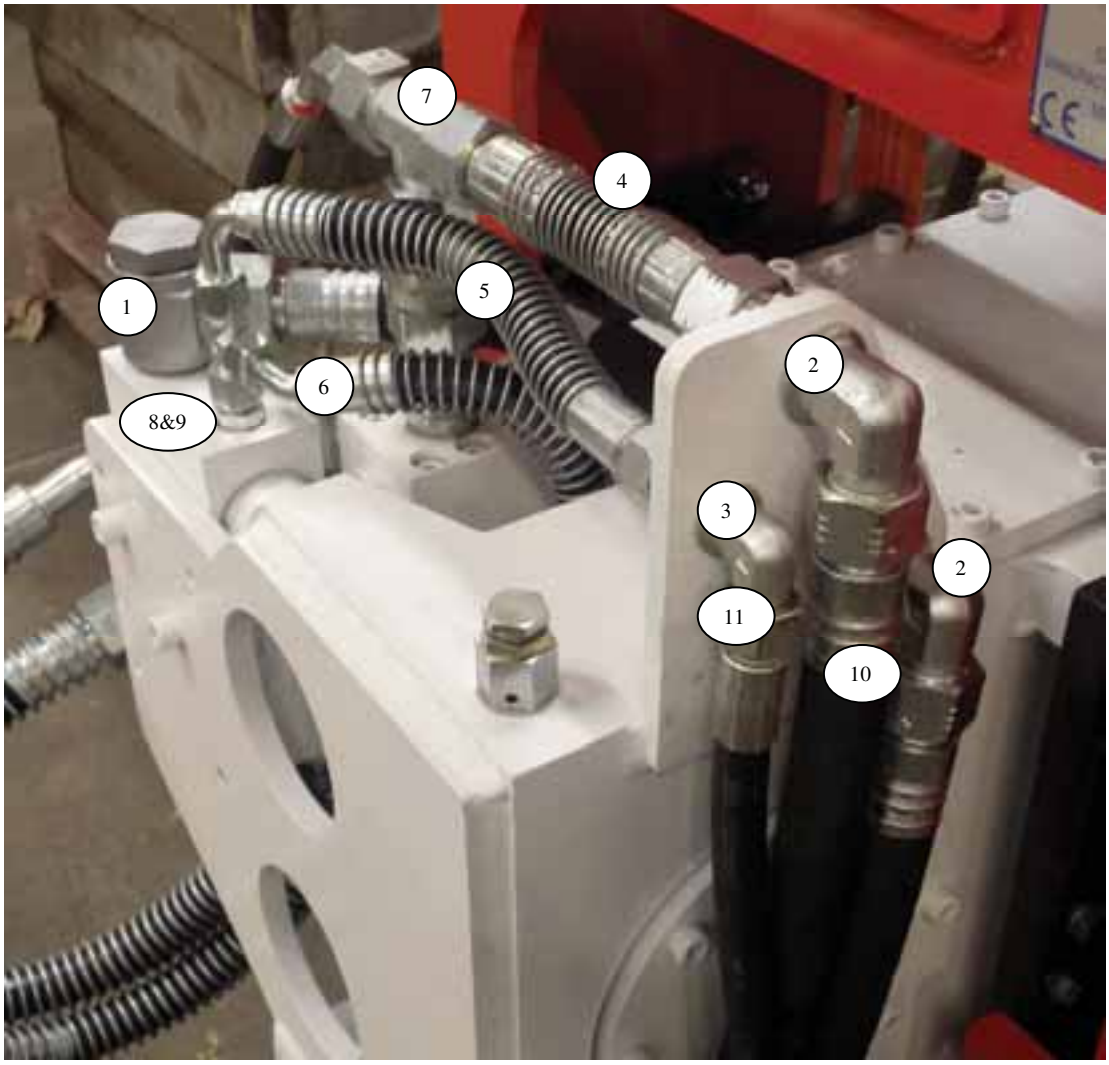
7.7 Clamp looses grip on the pile

Check the condition of the Hard Jaws – see section 6.1.f.

The clamp can also loose grip on the pile when clamped, with the vibrator not vibrating, if the check valve on the rear of the clamp cylinder has faulty/leaking seals or it the clamp cylinder piston seals are damaged/worn.

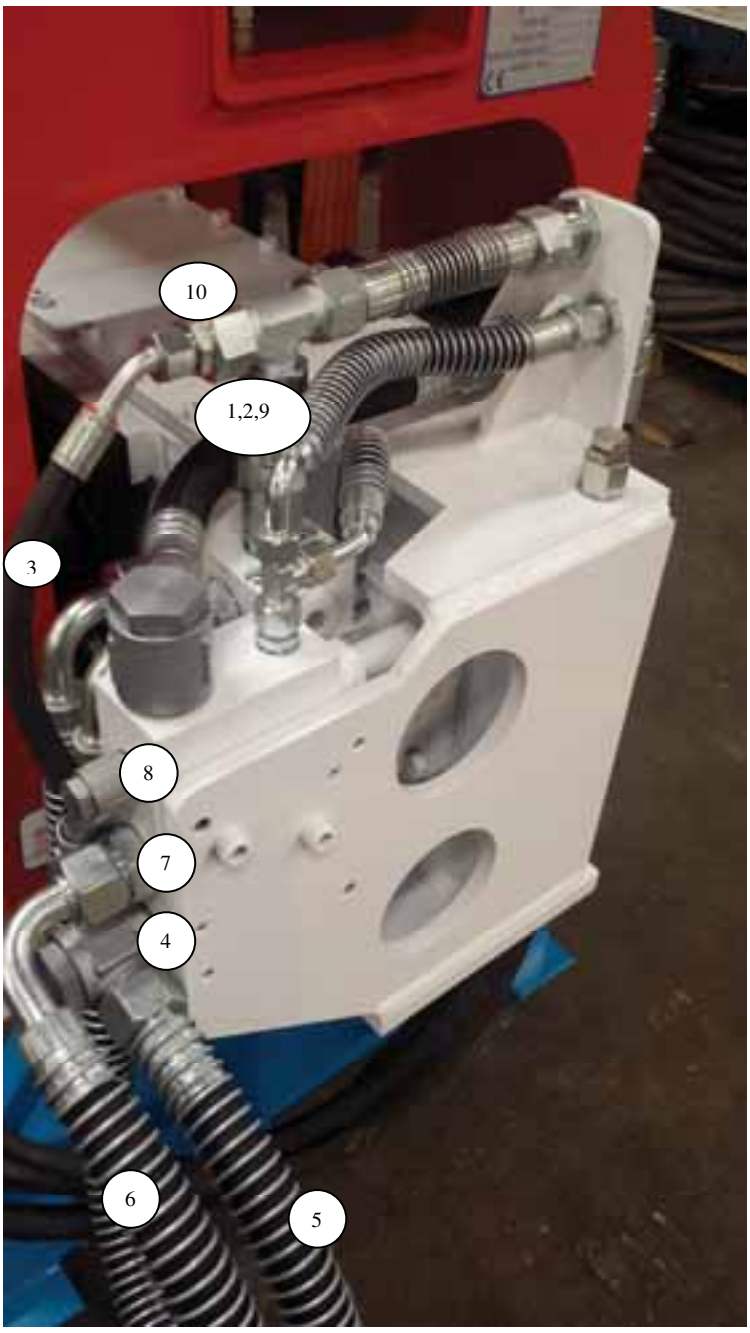
Alternatively there may be insufficient system operating pressure if the sequence valve setting has been adjusted down in order to attempt running on an unsuitable excavator. Check the system operating pressure and excavator specifications.

8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)



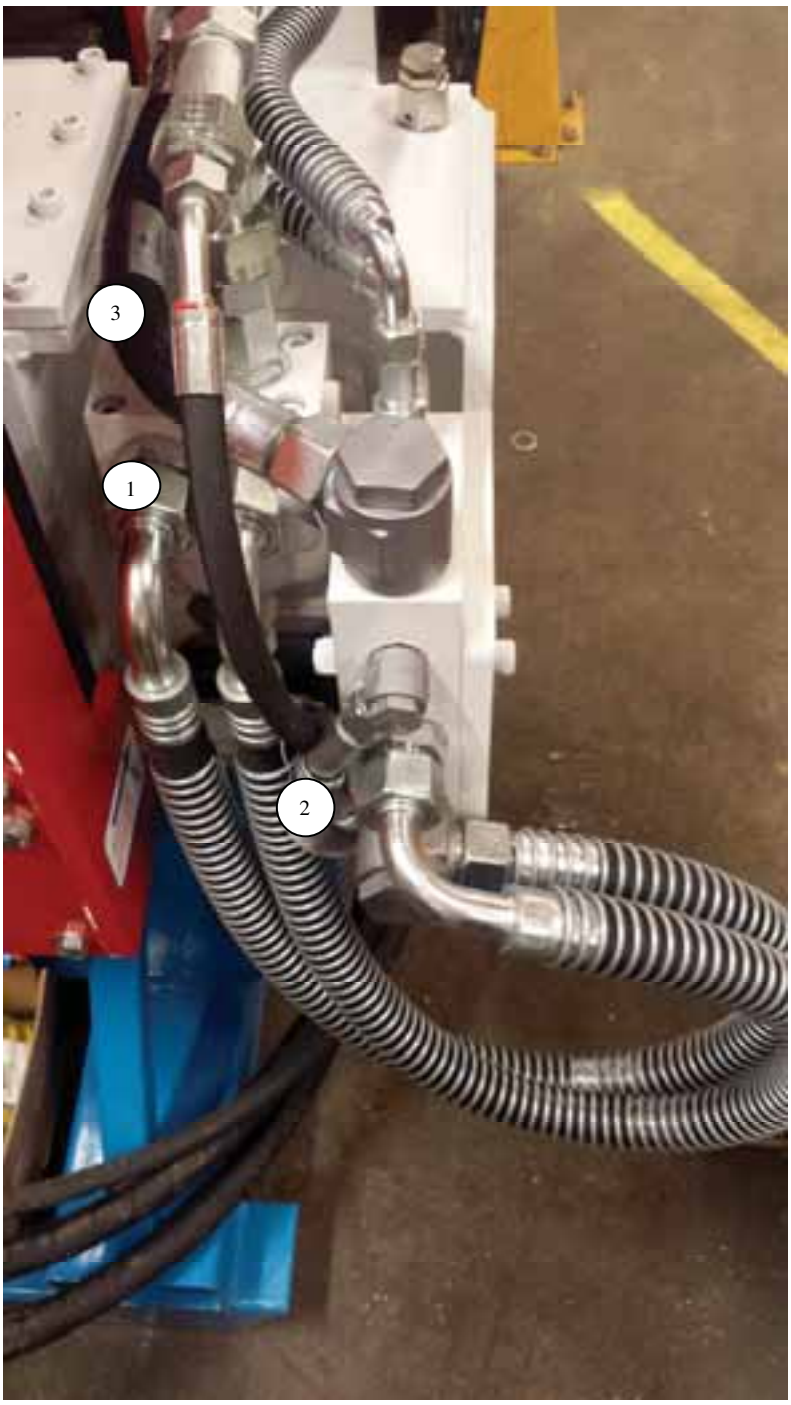
Item	Part No.	Description	Qnty
1	4212	Banjo Coupling WHO25SR1”	1
2	4223	Elbow Bulkhead WSV20S	2
3	4224-1	Elbow Bulkhead WSV15L	1
4	4222	Hose Assembly with spring guard	1
5	4220-1	Hose Assembly with spring guard	1
6	4207-2	Hose Assembly with spring guard	1
7	4229	Centre Swivel Tee ETV20S	1
8	4218	End Swivel Tee EVL12L	1
9	4217	Stud Coupling GEV12PLR 3/8” WD	1
10	4233	Dust cap for item 2	2
11	4234-1	Dust cap for item 3 – M15L	1

8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)



Item	Part No.	Description	Qnty
1	4225	Non-return valve RVV20SRWD	1
2	4227	Socket Modified FFB12 ¾”BSP	1
3	4204-1	Hose Assembly with spring guard	1
4	4212	Banjo Coupling WHO25SR1”	1
5	4206	Hose assembly with spring guard	1
6	4205	Hose assembly with spring guard	1
7	1-111-13-01	Stud coupling GEV25PSR 1” WD	1
8	4282-1	Hose Assembly	1
9	4226	Adaptor MB12	1
10	4228	Reducer REDVD 20/12S	1

8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)



Item	Part No.	Description	Qnty
1	1-111-05-01	Stud coupling GEV25PSR ¾" WD	2
2	4282-1	Hose assembly	1
3	4221	Hose assembly with spring guard	1

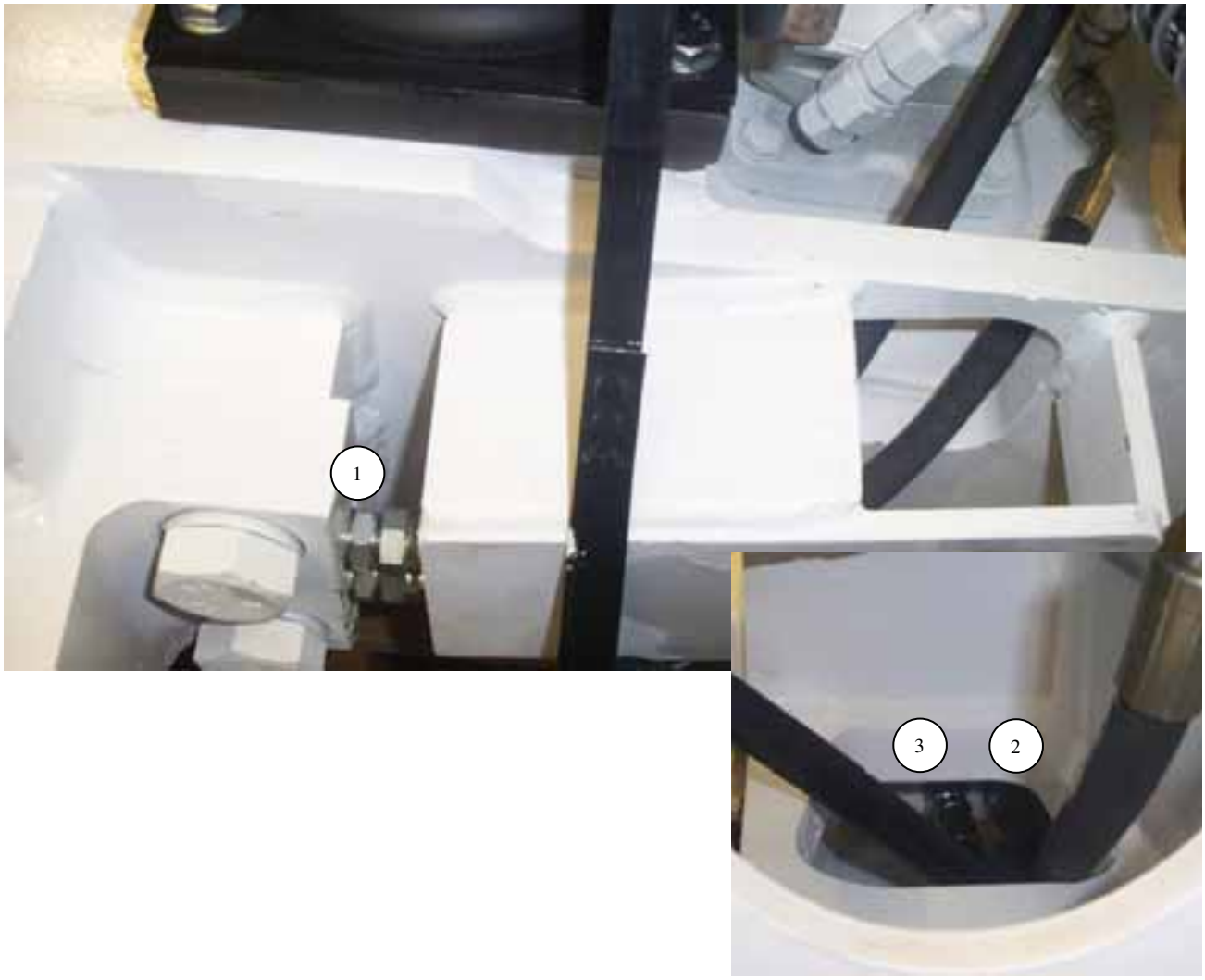
8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)

Item	Part No.	Description	Qnty
1	-	Sequence Valve	1

8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)

Item	Part No.	Description	Qnty
1	4280	Hose assembly	1
2	4281	Hose assembly	1
3	4217	Stud coupling	2
4	4209	Elbow	1
5	4116.5	End swivel tee	1

8.0 HYDRAULIC METRIC HOSE AND FITTING LIST – EMV300 (SERIAL NO. 45-478 ONWARDS)



Item	Part No.	Description	Qnty
1	4217	Stud Coupling	2
2	4282-1	Hose assembly	1
3	4283-1	Hose assembly	1

DAWSON CONSTRUCTION PLANT LTD

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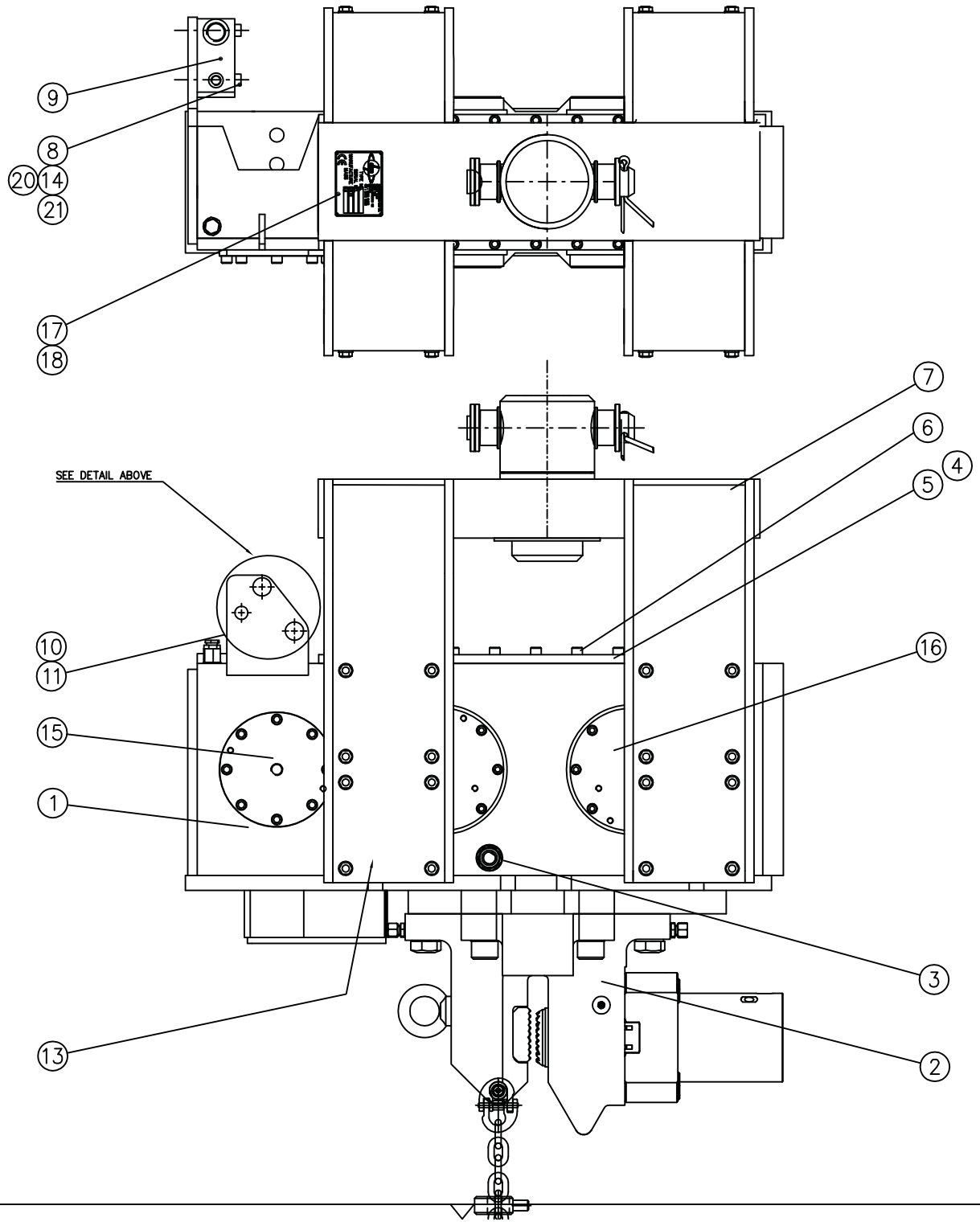
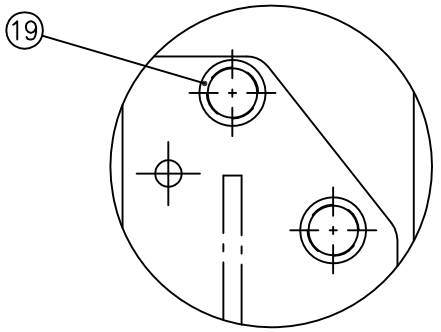
9.0 PARTS LISTS FOR THE EMV300



Rf.no	Qnt.	Revision	Date	Intro.	Appr.by
A		BUSHES FOR JIC FITTINGS AND DETAIL VIEW ADDED. ITEM 1 CASING WAS 4002a.	20/11/98		WJW
B		4018-1T WAS 4018A	5/7/00		WJW
C		IT 20 ADDED,IT 9 WAS ISS-1	19/03/0'		WJW
D		CASING WAS 4002-1. CHANGE TO SUIT ADDITIONAL FIXINGS IN CLAMP BODY	26-08-04		DAB
E		4018-2T WAS 4018-1T	6/5/05		PLW
F		4018-3T WAS 4018-2T	26/06/06		PLW
G		SHOW NEW SADDLE	08/12/10		MDB
H		NEW FLOW REGULATOR	19/06/15		MDB



ENLARGED BULKHEAD DETAIL Ⓐ

SHOWING BUSHES FOR JIC HOSE FITTINGS APPLICATION

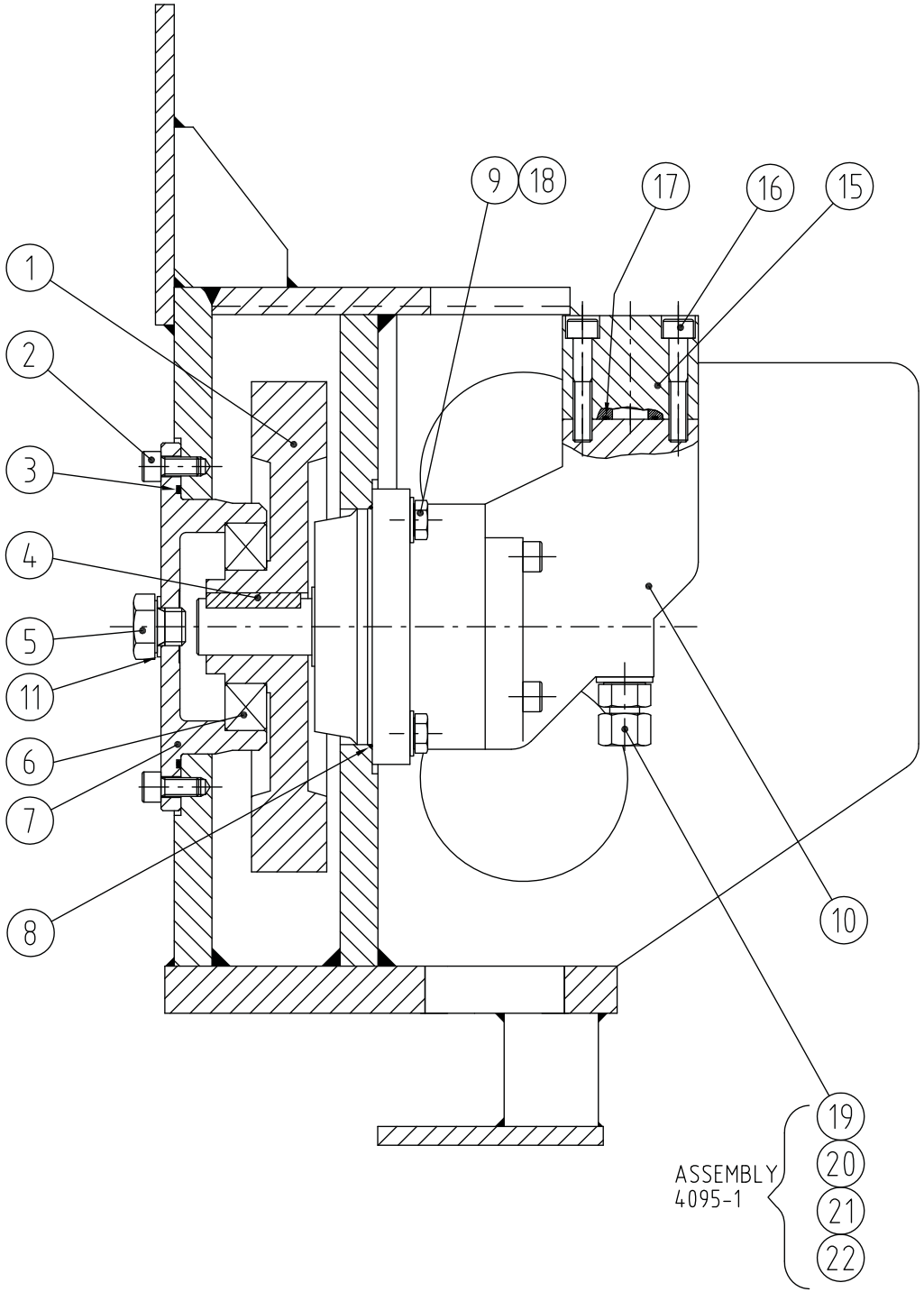
NOTES :

-THIS DRAWING MUST NOT BE REPRODUCED BY ANY MEANS WITHOUT PRIOR PERMISSION OF THE COPYRIGHT OWNER

	Ref.no.	Qnt.	Part name	Material	Dimension	Part number
	21	2	NORD-LOCK NUT		M12	0M12-000-10
	20	2	SPRING PIN		ø8 X 30	0M08-030-22
Ⓐ	19	2	HEADED BUSH			4003.3
	18	4	ELECTRO-BRASSED SCREW	TYPE U	No6 x 1/2"	1-204-00-01
	17	1	IDENTIFICATION PLATE	CE TYPE		1-203-00-02
	16	1	DRIVEN GEAR ASSEMBLY			4001
	15	1	DRIVE GEAR ASSEMBLY			4040A
	14	2	WASHER		M12	012
	13	1	DRAIN PLUG		VS-R1 WD	1-064-00-01
	12	–	–		–	–
	11	1	BREATHER/FILLER PLUG		SIV 10K	4043
	10	1	DOWTY WASHER		M22	4043D
	9	1	FLOW REG.& SEQ.VALVE	INT' HYD'	CXP 13163	4080.6
	8	2	SOCKET HEAD CAP SCREW	12.9	M12 x 80	0M12-080-02
	7	1	SADDLE ASSEMBLY			4020a
	6	26	SOCKET HEAD CAP SCREW	12.9	M10 x 35	0M10-035-02
	5	1	CASING LID			4004
	4	1	GASKET			4019
	3	1	OIL LEVEL SIGHT GLASS			4039
Ⓒ	2	1	JAW ASSEMBLY			4018-3T
Ⓐ	1	1	CASING			4002-2

Design by M.LEE	Drawn at	Copied	Checked	Standard A3	Affirmed	Scale 1 : 5	Replace / Replaced by
DAWSON CONSTRUCTION PLANT LTD.	EMV 300A ASSEMBLY					File name emv 300	Date 10-10-96
						Drawing no. 4000a	

Rf.nr	Qnt.	Revision	Date	Intro.	Appr.by
A		BLOW-OFF NOW ON ELBOW	28-10-99		ML
B		MANIFOLD BLOCK	19-06-15		MDB



NOTES :

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WITHOUT PRIOR PERMISSION OF THE COPYRIGHT OWNER

Ref.no.	Qnt.	Part name	Material	Dimension	Part Number
22	1	ELBOW SWIVEL		EVW12S	1-112-10-01
21	1	STUD STANDPIPE		EGESD12...	4230
20	1	BLIND GROMMET	RUBBER	13mm	4096
19	1	"BLOW-OFF" CHECK VALVE	6 bar		4231
18	4	WASHER		M12	012
17	2	'O' RING 204-025-4470			4079
16	6	SOCKET HEAD CAP SCREW	12.9	M10 X 55	4078
15	1	MANIFOLD BLOCK			4071.1
14	2	NYLOC NUT (ANSIB)	GRADE 2	7/8"-14 UNF	4110
13	2	ANTI-VIBRATION WASHER	NORD-LOCK	M22	4109
12	2	BULKHEAD CONNECTOR		9/16" JIC	4256a
11	1	WASHER	COPPER	M20 x 2	4038
10	1	HYDRAULIC MOTOR	VOLVO	F12-40-MF-1H-K	4075
9	4	HEXAGON HEADED SCREW	8.8	M12 x 35	4084
8	1	'O' RING 206-223-4470			4076
7	1	DRIVESHAFT END CAP			4006
6	1	BEARING 6212-2RS1			4035
5	1	HEXAGON HEADED BOLT	8.8	M20 x 15	4061-1
4	1	KEY	KEYSTEEL	8 X 7 X 50	4077
3	1	'O' RING 206-444-4470			4033
2	8	SOCKET HEAD CAP SCREW	12.9	M10 x 20	4062
1	1	DRIVE GEAR			4010-1

Design by	Drawn at	Copied	Checked	Standard	Affirmed	Scale	Replace	Replaced by
M.LEE				A3		1 : 2.5		

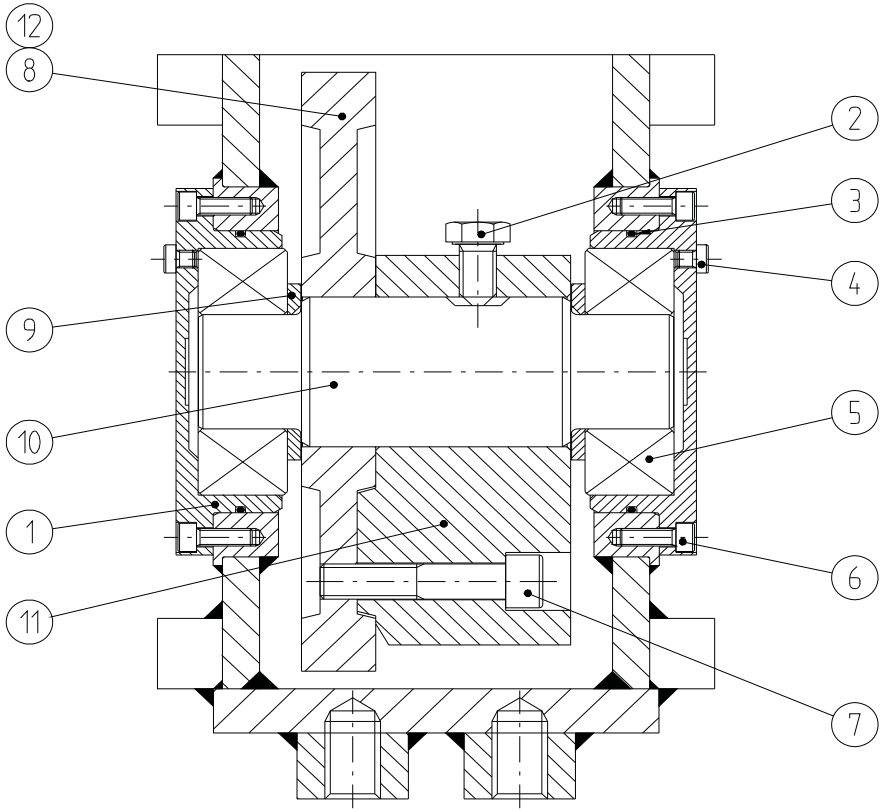
DAWSON CONSTRUCTION PLANT LTD.

DRIVE GEAR ASSEMBLY FOR EMV 300A & EMV300M

File name | Date 07-11-96

Drawing no. 4040a

Rf.nr	Qnt.	Revision	Date	Intro.	Appr.by



NOTES :

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Ref.no.	Qnt.	Part name	Material	Dimension	Remark
12	1	DRIVEN GEAR B			4009 B
11	2	ECCENTRIC WEIGHT			4008
10	2	MAINSHAFT			4007
9	4	THRUST WASHER			4011
8	1	DRIVEN GEAR A			4009 A
7	6	SOCKET HEAD CAP SCREW	12.9	M20 x 100	1-068-00-01
6	32	SOCKET HEAD CAP SCREW	12.9	M10 x 30	1-018-11-01
5	4	BEARING NJ 2313 EC			4032
4	12	SKT LOW HEAD CAP SCREW	12.9	M10 x 10	4031 (MOD FROM 16 LONG)
3	4	'O'RING 204-250-4470			4030
2	2	HEX' HEAD BOLT (SPECIAL)			4029
1	4	MAINSHAFT ENDCAP			4005

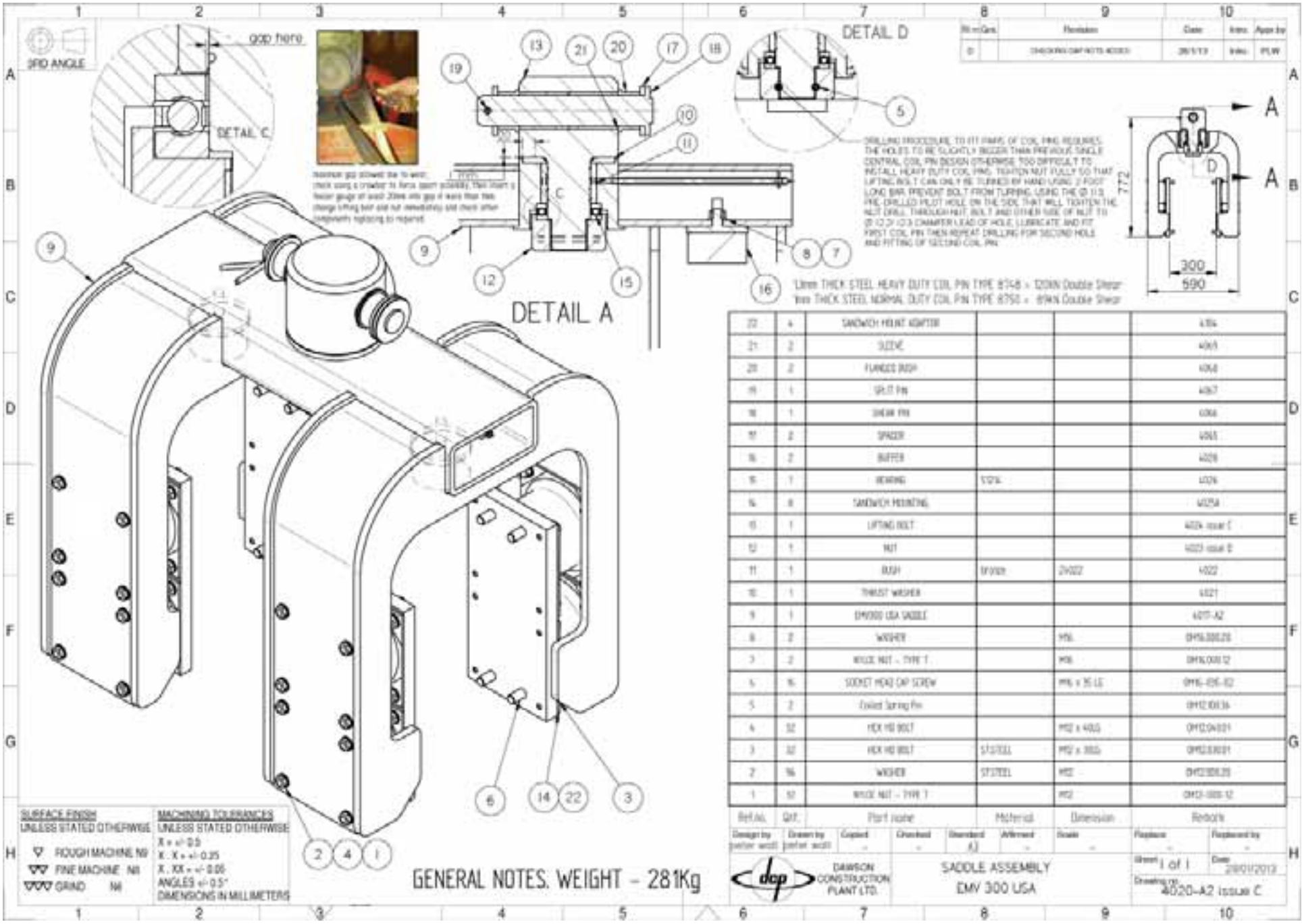
Design by	Drawn at	Copied	Checked	Standard	Affirmed	Scale	Replace	Replaced by
A.J.R.				A3		1 : 2.5		

DAWSON CONSTRUCTION PLANT LTD.

DRIVEN GEAR ASSEMBLY - EMV300,

File name	Date
	10-12-92

Drawing no. 4001



Rt-m/Gen.	Revision	Date	Intro.	Appr by
D	CHECKING DIM NOTE 4020/1	28/5/19	MAC	PLW

Ref.	Qty.	Part name	Material	Dimension	Remark
22	4	SANDWICH MOUNT ADAPTER			4004
21	2	SLEEVE			4005
20	2	FLANGED BUSH			4006
19	1	SPLIT PIN			4007
18	1	SHEAR PIN			4008
17	2	SPACER			4009
16	2	BUFFER			4010
15	1	BEARING	S.C.H.		4011
14	8	SANDWICH MOUNTING			4012A
13	1	LIFTING BOLT			4013 issue C
12	1	NUT			4023 issue B
11	1	BUSH	Bronze	2V322	4022
10	1	THRUST WASHER			4021
9	1	EMV300 USA SADDLE			4017-A2
8	2	WASHER		M16	BMS.000.20
7	2	NYLOC NUT - TYPE T		M16	BMN.000.12
6	16	SOCKET HEAD CAP SCREW		M16 x 35 LG	BM6-035-102
5	2	Coiled Spring Pin			BM12.000.36
4	32	HEX HD BOLT		M12 x 40LG	BM12.040.01
3	32	HEX HD BOLT	ST/STEEL	M12 x 35LG	BM12.035.01
2	96	WASHER	ST/STEEL	M12	BM12.000.20
1	32	NYLOC NUT - TYPE T		M12	BM12-000.12

Design by (prefer acad)	Drawn by (prefer acad)	Copied	Checked	Standard: A3	Afterward	Scale	Replaces	Replaced by
		-	-		-	-	-	-

DAWSON CONSTRUCTION PLANT LTD.

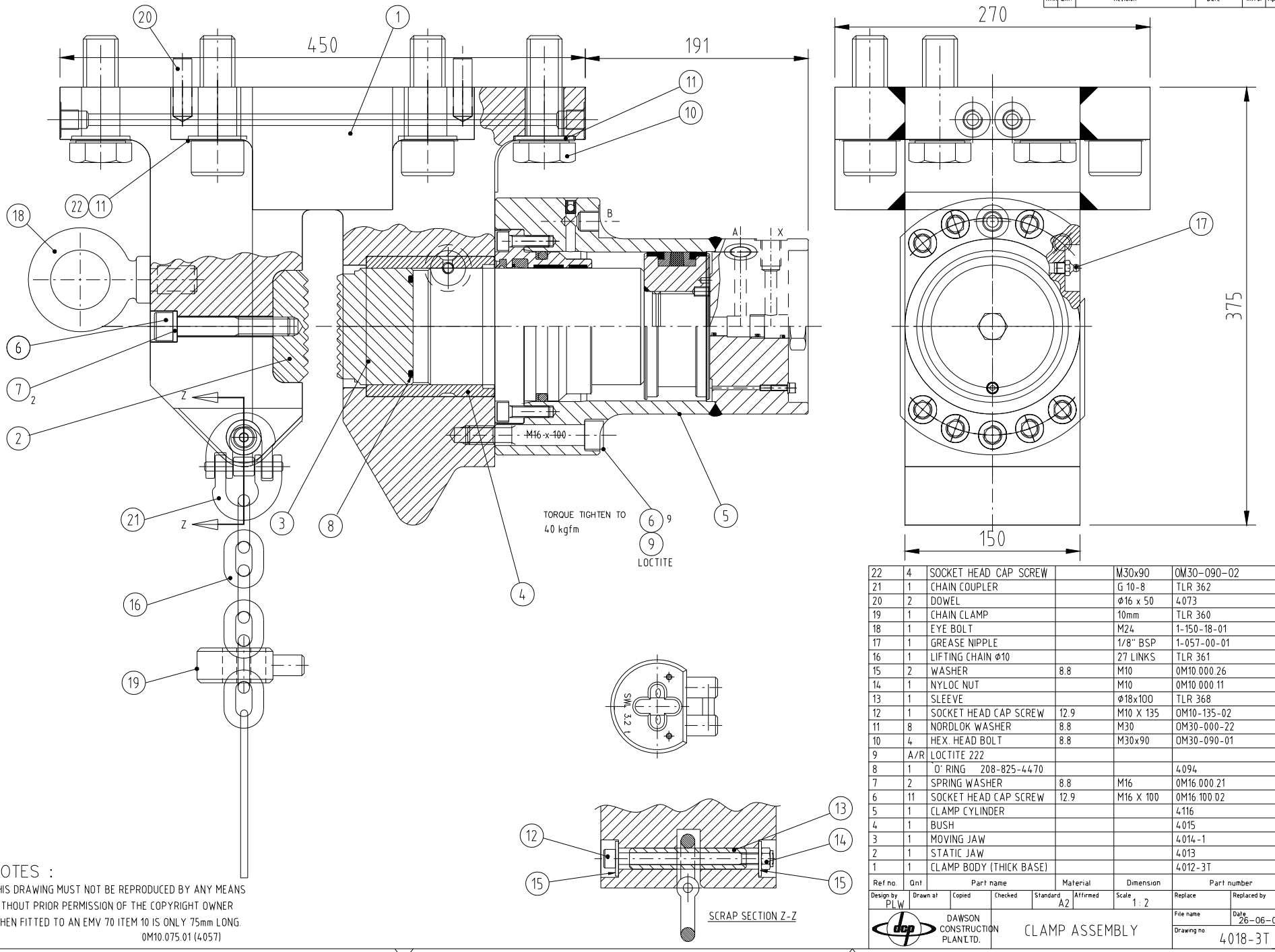
SADDLE ASSEMBLY
EMV 300 USA

Sheet 1 of 1 | Date 28/01/2019

Drawing no. 4020-A2 issue C

SURFACE FINISH	MACHINING TOLERANCES
UNLESS STATED OTHERWISE	UNLESS STATED OTHERWISE
▽ ROUGH MACHINE N9	X = +/- 0.5
▽▽ FINE MACHINE N8	X . X = +/- 0.25
▽▽▽ GRIND N6	X . XX = +/- 0.05
	ANGLES +/- 0.5°
	DIMENSIONS IN MILLIMETERS

GENERAL NOTES. WEIGHT - 281Kg



Rf.no	Qnt.	Revision	Date	Intro.	Appr.by

22	4	SOCKET HEAD CAP SCREW		M30x90	OM30-090-02
21	1	CHAIN COUPLER		G 10-8	TLR 362
20	2	DOWEL		ø16 x 50	4073
19	1	CHAIN CLAMP		10mm	TLR 360
18	1	EYE BOLT		M24	1-150-18-01
17	1	GREASE NIPPLE		1/8" BSP	1-057-00-01
16	1	LIFTING CHAIN ø10		27 LINKS	TLR 361
15	2	WASHER	8.8	M10	0M10.000.26
14	1	NYLOC NUT		M10	0M10.000.11
13	1	SLEEVE		ø18x100	TLR 368
12	1	SOCKET HEAD CAP SCREW	12.9	M10 X 135	OM10-135-02
11	8	NORDLOK WASHER	8.8	M30	OM30-000-22
10	4	HEX. HEAD BOLT	8.8	M30x90	OM30-090-01
9	A/R	LOCTITE 222			
8	1	'O' RING 208-825-4470			4094
7	2	SPRING WASHER	8.8	M16	0M16.000.21
6	11	SOCKET HEAD CAP SCREW	12.9	M16 X 100	0M16.100.02
5	1	CLAMP CYLINDER			4116
4	1	BUSH			4015
3	1	MOVING JAW			4014-1
2	1	STATIC JAW			4013
1	1	CLAMP BODY (THICK BASE)			4012-3T

Ref no.	Qnt	Part name	Material	Dimension	Part number

Design by	Drawn at	Copied	Checked	Standard	Affirmed	Scale
PLW				A2		1 : 2

DAWSON CONSTRUCTION PLANT LTD.

CLAMP ASSEMBLY

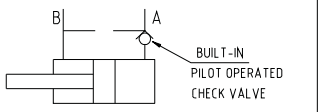
Replace	Replaced by
File name	Date 26-06-06
Drawing no. 4018-3T	

NOTES :

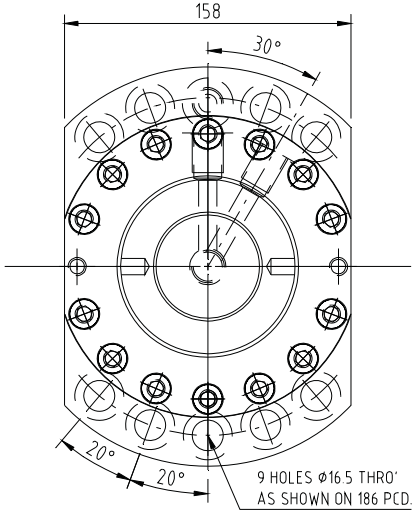
THIS DRAWING MUST NOT BE REPRODUCED BY ANY MEANS WITHOUT PRIOR PERMISSION OF THE COPYRIGHT OWNER

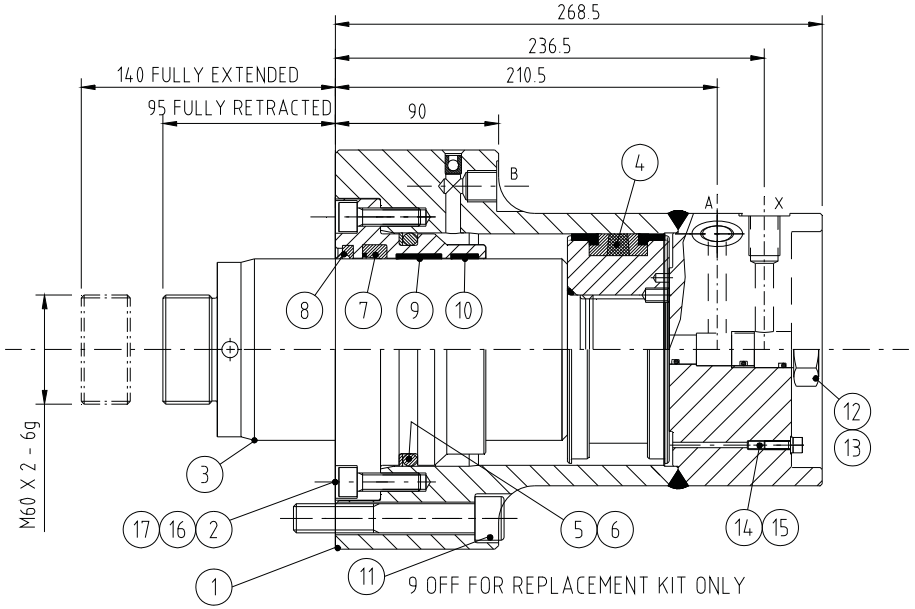
WHEN FITTED TO AN EMV 70 ITEM 10 IS ONLY 75mm LONG. 0M10.075.01 (4057)

Ref.nr	Qnt	Revision	Date	Intro	Appr by
A	1	CARTRIDGE WAS CKCB-XCN	24-03-04	DAB	



SCHEMATIC DIAGRAM





FOR REPLACEMENT KITS:			
	4116.R (METRIC)		4116.R A (JIC)
1	4116. CYL ASSY	1	4116. CYL ASSY
1	4116.5 PIPE KIT	1	4116.5 A PIPE KIT
9	0M16.100.02	9	0M16.100.02

NOTES:

CYLINDER BORE = 127.0mm (5.0")
STROKE = 45mm
NORMAL PRESSURE = 250 BAR
MAX TEST PRESSURE = 350 BAR

TIGHTENING TORQUES:
M5 SHCS 8.5 NM
M10 SHCS 80 NM
SUN VALVE 45/50 NM

HYD PIPE &
FITTINGS KIT
4116.5 METRIC
4116.5A JIC.

SERVICE SEAL
KIT $
4116-1

EST WT.:42 KG

	Ref.no.	Qnt.	Part name	Material	Dimension	Remark
	17	A/R	LOCTITE 242			
	16	12	SKT HEAD CAP SCREW	12.9	M10 X 35	0M10.035.02
$	15	1	M5 BONDED SEAL			0M05.000.40
	14	1	M5 X 16 SHCS	12.9		1-050-21-01
	13	1	SUN CARTRIDGE SEAL KIT			4016-3
(A)	12	1	SUN CARTRIDGE COMPLETE	CKCD-XCN		4016-2
	11	9	SKT HEAD CAP SCREW	12.9	M16 X 100	0M16.100.02
$	10	1	WEAR STRIP	GR73.100.15	15 WIDE	4116-24
$	9	1	WEAR STRIP	GR73.100.25	25 WIDE	4116-23
$	8	1	ROD WIPER	CSWM 100		4016-15
$	7	1	ROD SEAL (DLI)	MD100113.13E		4016-16
$	6	1	BACKUP RING	BKM 425	SPIRAL	4116-22
$	5	1	'O' RING	BS 425		4016-17
$	4	1	PISTON SEAL	SPS 500400		4016-18
	3	1	PISTON AND ROD ASSY			4116-6
	2	1	GLAND			4116-10
	1	1	CYLINDER HOUSING ASSY			4116-11

Design by	Drawn by	Copied	Checked	Standard	Affirmed	Scale	Replace	Replaced by
	WJW			A3		1:2.5		

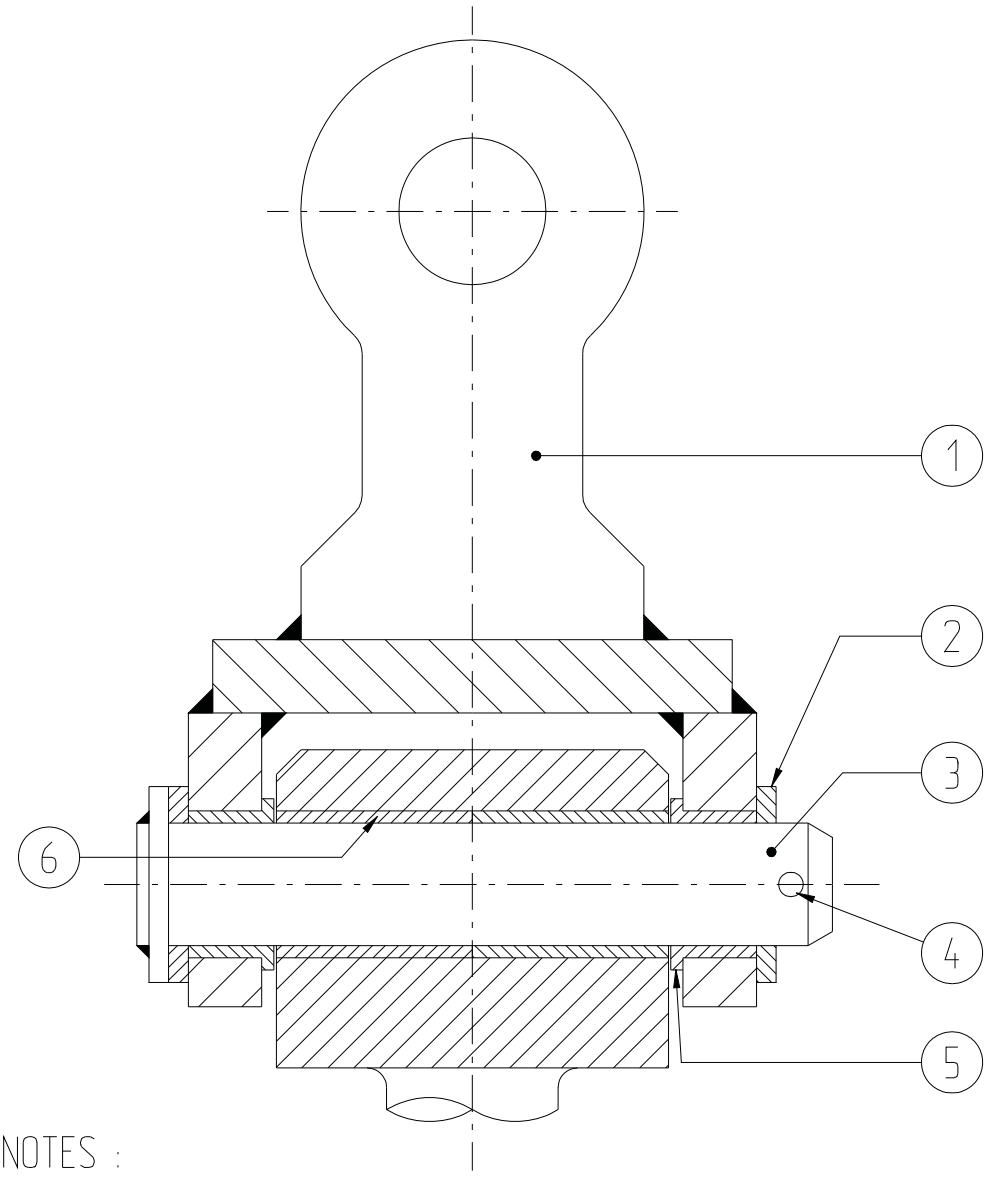
DAWSON CONSTRUCTION PLANT LTD.

ASSEMBLY CLAMP CYLINDER
EMV 300 AND VARIANTS

File 4116.dwg | Date 28/4/99

Drawing no. 4116.dwg (INC R, RA)

Rf.nr	Qnt.	Revision	Date	Intro.	Appr.by



NOTES :

- THIS DRAWING MUST NOT BE REPRODUCED BY ANY MEANS WITHOUT PRIOR PERMISSION OF THE COPYRIGHT OWNER

Ref.no.	Qnt.	Part name	Material	Dimension	Remark
6	2	SLEEVE			4069
5	2	FLANGED BUSH			4068
4	1	SPLIT PIN		Φ3/8"X5"	4067
3	1	SHEAR PIN			4066
2	2	SPACER			4065
1	1	ADAPTOR BRACKET			4063/?

Design by	Drawn at	Copied	Checked	Standard	Affirmed	Scale	Replace	Replaced by
M.LEE						1 : 2.5		

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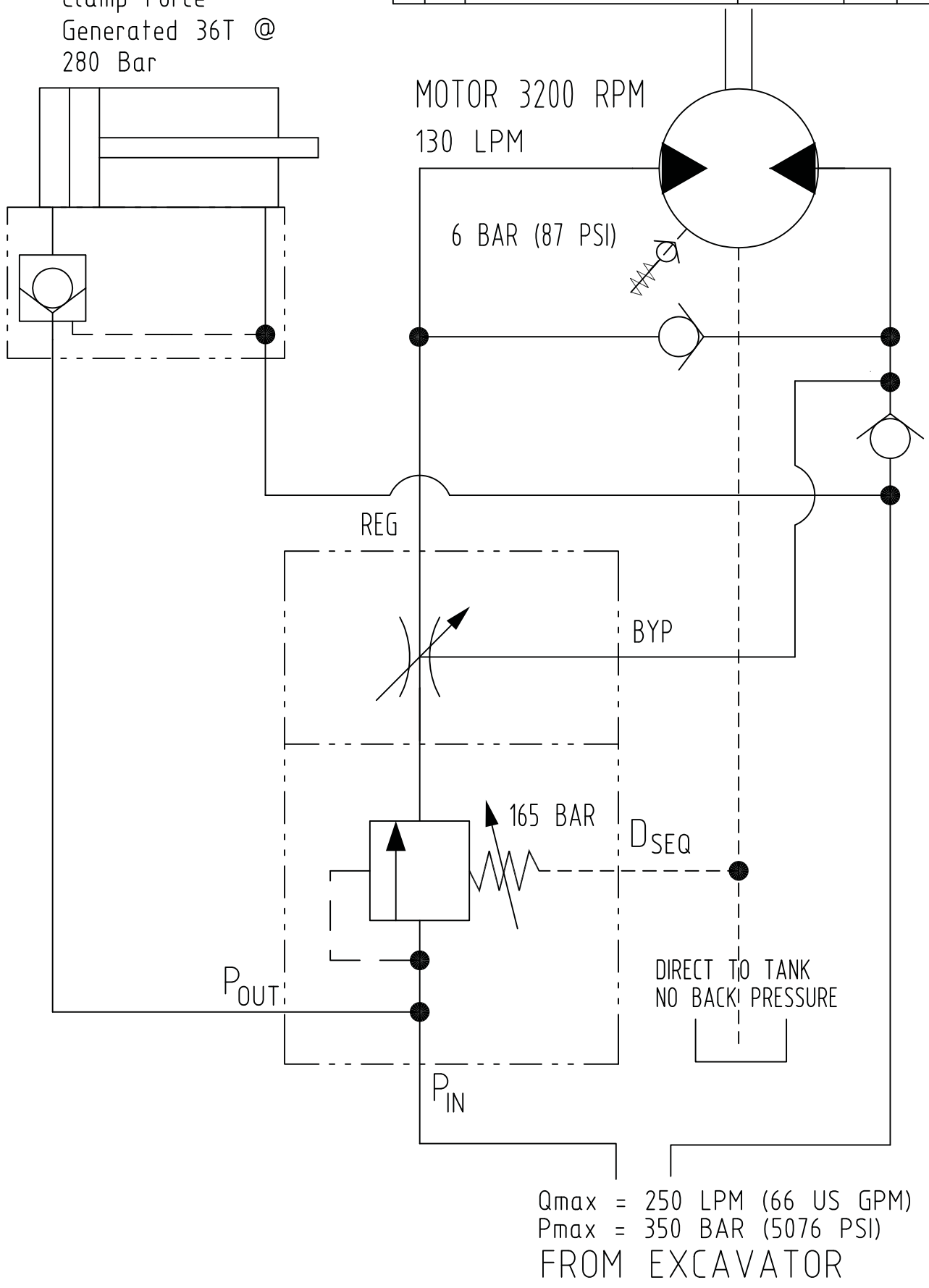
ADAPTOR BRACKET ATTACHMENT

File name

Date 21-12-92

Drawing no. 4064

Rf.nr	Qnt.	Revision	Date	Intro.	Appr.by



Ref.no.	Qnt.	Part name	Material	Dimension	Remark

Design by	Drawn at	Copied	Checked	Standard	Affirmed	Scale	Replace	Replaced by
M.LEE				A4				

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HYDRAULIC CIRCUIT SCHEMATIC

EMV 300

File name	Date
	30-06-15

Drawing no. emvhydcir

DAWSON
CONSTRUCTION PLANT LTD

EMV-300 Metric

EXCAVATOR MOUNTED VIBRATOR

Dawson Construction Plant Ltd
Chesney Wold.
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Milton Keynes,
MK6 1NE, England
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Ver. 4000M2v7

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PRE-DELIVERY INSPECTION SHEET

EMV'S, VPC'S AND EMD'S

MACHINE TYPE

EMV550	EMV450	EMV400	EMV300	EMV70	VPC	EMD140	EMD70	✓

Serial No:
Photo taken before dispatch:

ADAPTOR BRACKET / QUICK HITCH ASSEMBLY

Adaptor Pin	Diameter	Length
Bushes List		
Additional Spares Supplied		

SADDLE ASSEMBLY

		✓ / ✗
Sandwich Mount Condition		
Buffer Stop Condition		
Top Swivel Condition Max gap 1mm (ideally no play)		
Greased		

Maximum gap allowed due to wear.(see photo)
Check using a crowbar to force apart assembly, then insert a feeler gauge at least 20mm into gap, if more than 1mm change lifting bolt and nut immediately and check other components replacing as required.

Remarks:

HOSES

		✓ / ✗
Hoses Condition		
Spring Guard Condition		
Running Leaks		
Fittings		
Additional Spares Supplied		

Remarks:

GEARBOX ASSEMBLY

		✓ / ✗
Oil Level		
Leaks *(Visual)*		
Case Breather Valve		
Motor Blow off Valve		
General Condition		

Remarks:

CLAMP ASSEMBLY

Serial No.

		✓ / ✗
Static Jaw Condition		
Moving Jaw Condition		
Greased		
Chain Clamp (Serial No.)		
Lifting Chain (Serial No.)		
Coupler (Serial No.)		

Remarks:

Stand:	✓ / ✗
Remarks:	

VIBRO RUNNING CHECKS

			✓ / ✗
Cycle Clamp x5 to Check Function			
Close Clamp Stop Vibro & Leave for 5 mins (CLAMP MUST STAY CLOSED)			
Run Vibro and Check for External Leaks	Hoses		
	Fittings		
	Motor Blow Off Valve		
	QRC		

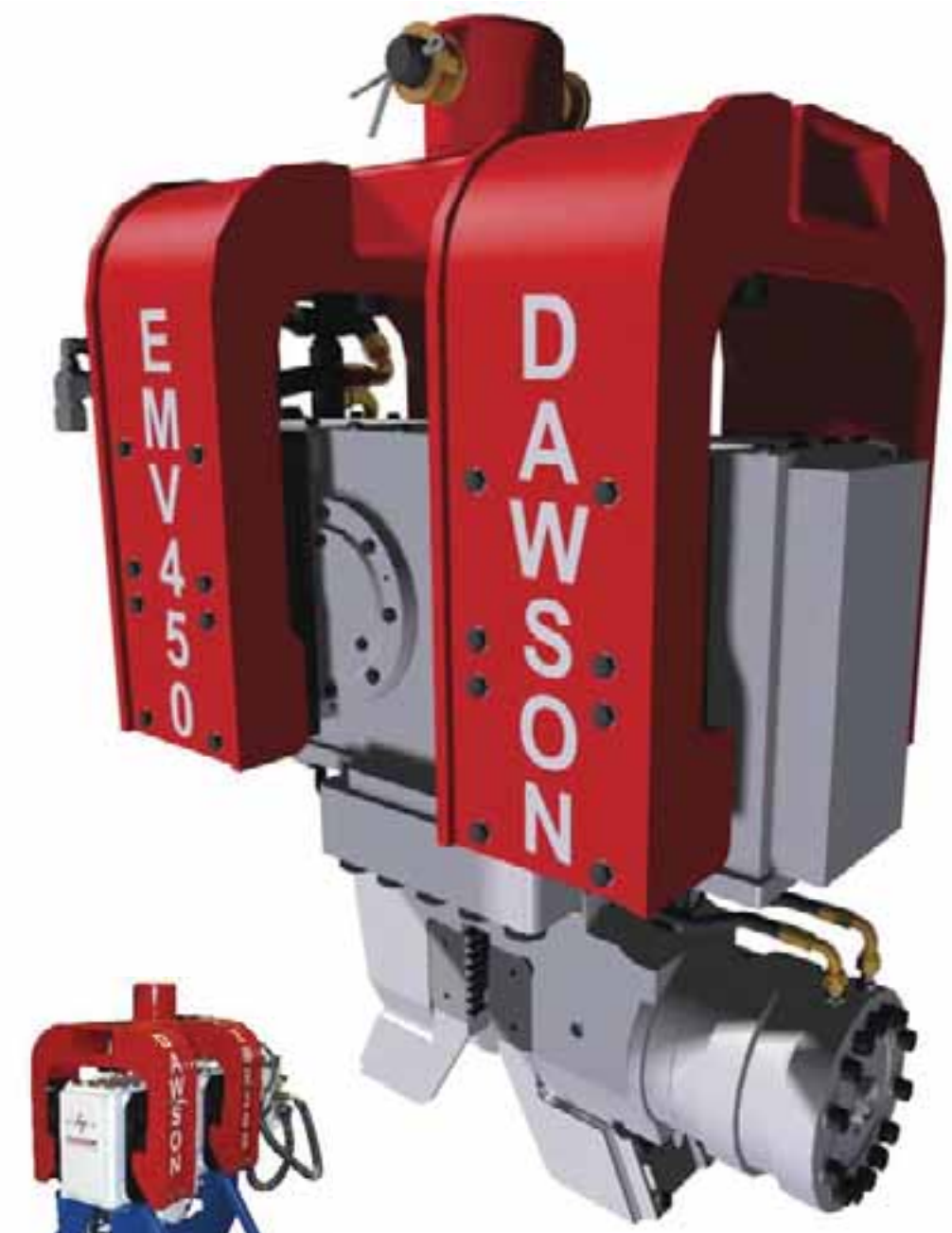
Inspection Time / Date:	Inspector Name:

DAWSON EMV INSPECTION PROCEDURE

WORLDWIDE DEALER NETWORK

GLOBAL SUPPLY, LOCAL SUPPORT.

A GUIDE TO EMV GENERAL MAINTENANCE PROCEDURE
(USED WITH PDI CHECK SHEET)



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CONSTRUCTION PLANT LTD

Old position of grease point on post

New position of grease point on end of saddle

ADAPTOR BRACKET ASSEMBLY

Remarks:

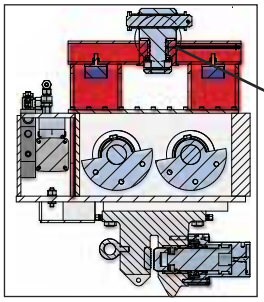
- Check for wear on pin adaptor
- Visual inspect weld condition
- Check bushes for wear
- Check pin is ok, free from warping

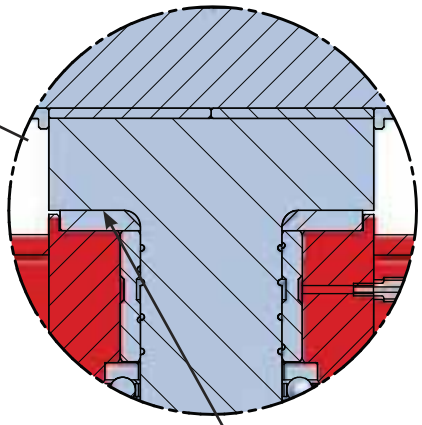
Severe wear to pin

Wear to adaptor

Wear to bush

- Check for wear to post





When EMV is lifted, check there is no more than a 1mm gap here. A gap could mean wear to bearing or thrust washer

- Grease

IMPORTANT!
GREASE DAILY

SADDLE ASSEMBLY

Remarks:

- Visual inspect saddle for cracks
- Check sandwich mounts for splits / damage

- Check bump stops for damage

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Photo of EMV450

Photo of EMV300

GEARBOX ASSEMBLY

Remarks:

- Check general condition
- Check temperature of bearing - (Run on test pile for 15mins, check and compare, temperatures on bearing caps should be even)
- Visual check for oil leaks - Bearing Cover / Gasket
- Ensure all bolts are tight

Damage to motor due to incorrect fitting of drain line

Temperature check on bearings with laser temperature gun

- Check case breather valve

- Check oil levels

- Check motor blow off valve

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HOSE ASSEMBLY

Remarks:

- Check general condition
- Check spring guard condition

Severe damage to hose assembly

- Insure fittings are all tight
- Check for running leaks

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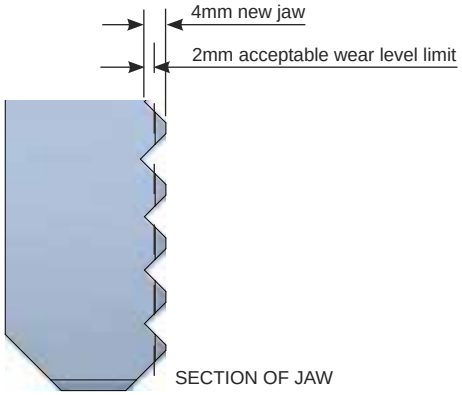
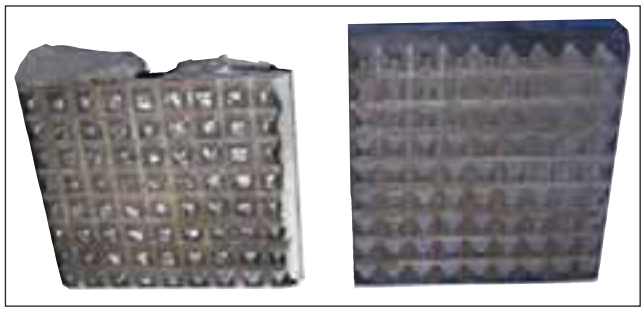


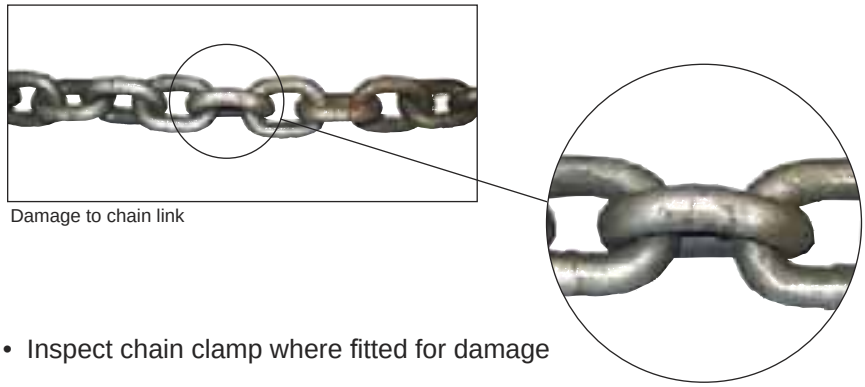
CLAMP ASSEMBLY

Remarks:

- Check Static and Moving jaw wear on teeth and general damage
- Inspect chain for damage



Severe damage and wear to teeth on jaws on left, in comparrison new jaw on right



Damage to chain link

- Inspect chain clamp where fitted for damage

Chain clamp on EMV300

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STAND	✓
Remarks: • Inspect general condition of stand	

DAWSON EMV INSPECTION PROCEDURE

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