MASTEK
AGRI MACHINERY & INNOVATION
Engineering For A Greener Future!

Front P.T.O. Compressor

Operator's Manual

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Engineering For A Greener Future!

Contents

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

Machine	Part number
P.T.O.	MSA02163

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. (see numbers below.)

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EC Declaration of Conformity

We, ***Mastek Limited***

Cootehill Business Park, Cootehill, Co.Cavan

Tel: +353495555953 Email: enquires@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

Do not carry out any modifications or rebuilding of the compressor module: modifications not authorized by ROTORCOMP VERDICHTER GmbH render the CE manufacturer's declaration invalid!

Observe the local safety regulations!

Installation, commissioning, operation, maintenance, repair, and disassembly must be carried out only by authorized, trained, and qualified personnel. The operating personnel are expected to safely use the working technology and to comply with all applicable local operating safety rules and regulations. Close-fitting clothing and the necessary personal safety equipment must be used during maintenance, repair, and disassembly of the compressor module. The following apply to all maintenance, repair, and disassembly work:

– Ensure sufficient illumination of the compressor module.

– Ensure sufficient tread safety in the region of the compressor module. Risk of injury from rotating and pressurized components. Risk of burns due to unit parts or oil hotter than 80 °C. Allow the screw compressor system to

cool.

Only use permissible or suitable tools for maintenance, and repair work.

Do not perform welding work or any other work that requires or produces heat near the oil system.

When handling oils, greases, and other chemical substances, comply with the safety regulations that are applicable for the product!

During maintenance, and repair, make sure to keep everything absolutely clean. Keep dirt away from the system. Cover parts and exposed openings with a clean cloth, paper or strips of adhesive tape.

⚠ **Before removing pressurized parts, the compressor system must be effectively cut off from all pressure sources and a pressure relief of the entire system must be carried out.**

RISK OF INJURY due to spurting oil or escaping compressed air!

⚠ **Never use flammable solvents or carbon tetrachloride to clean the compressor module. Take precautions against toxic vapours or cleaning agents.**

⚠ **The unit parts, oil, and oil filler plug can be hotter than 80°C.**

RISK OF BURNS! Allow the compressor system to cool.

⚠ **Wear safety goggles when using compressed air to clean the compressor module.**

⚠ 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
- 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.
- 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

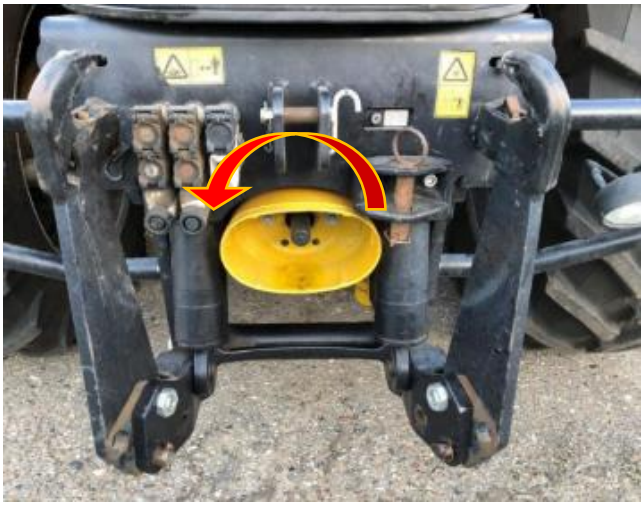
The following warranty terms relate to parts only.

- 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

Turning in Counter Clock Wise direction

This compressor is designed for tractors with Front linkage and driven using the front P.T.O.



Turning in a Clockwise direction

If the front PTO is operating in a clockwise direction, or the tractor does not have a front PTO the compressor can be driven from the front side of the compressor in an opposing direction using the rear P.T.O

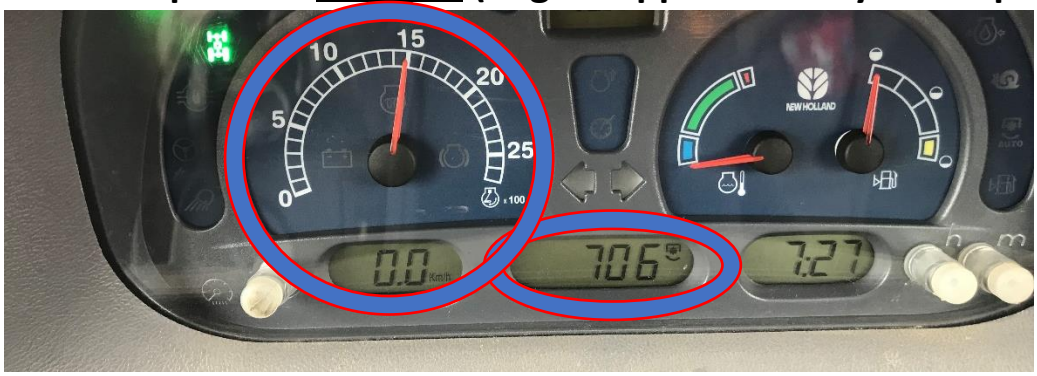
The PTO shaft must be connected to the front side of the compressor If being operated by the rear P.T.O. on the tractor

To start air flow:

1. **Make sure the PTO is set to 1000rpm.**

2. **Turn on PTO.**

3. **Set PTO speed to <u>700 rpm</u> (engine approximately 1500 rpm).**

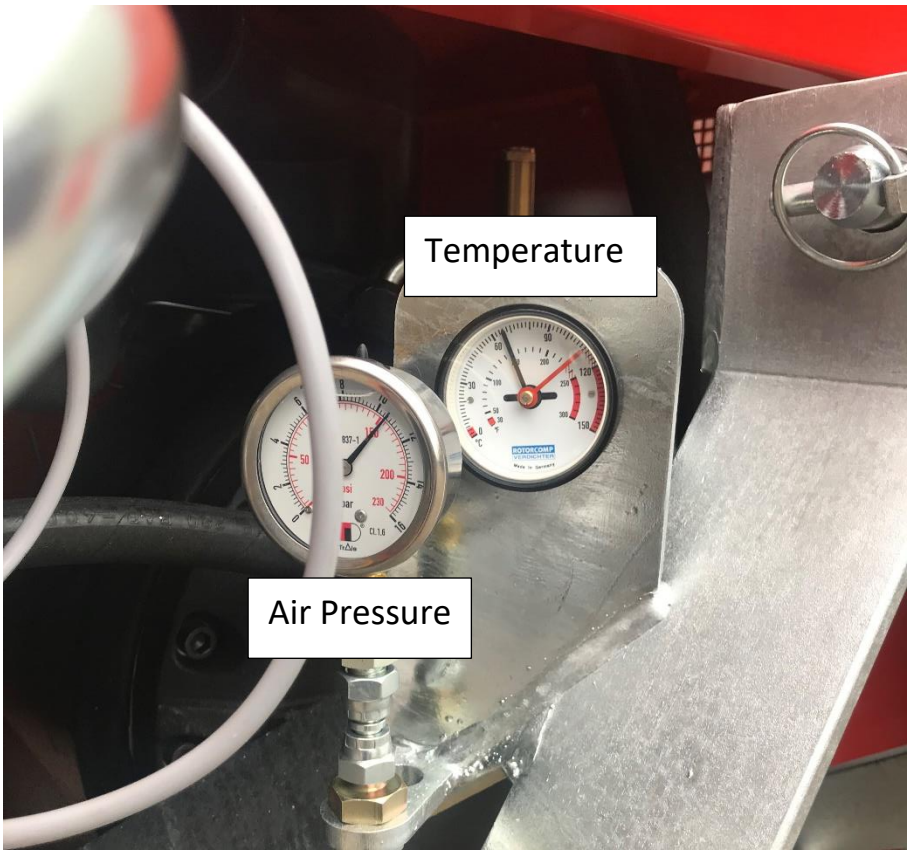


4. **Connect air supply hoses.**

Never operate the airline hose without the safety rope

5. **Open supply tap, to allow air flow freely**

6. **Pressure and oil temperature are displayed, below the supply tap.**



Maintenance

Oil Level

An important factor for the operating safety of the compressor system is the oil level in the oil reservoir.

The oil level check must be carried out every 10 operating hours.

There are two methods for performing the oil level

check:

– Via the oil filler opening

– Via the oil-level sight glass (option)

The exact oil level check can only be carried out

via the oil filler opening.

 With hot oil, the oil level can be approx. 10 mm higher than with cold oil.

As a result, oil may escape when the screw plug is opened if the compressor is hot. In this case, close the screw plug again immediately.

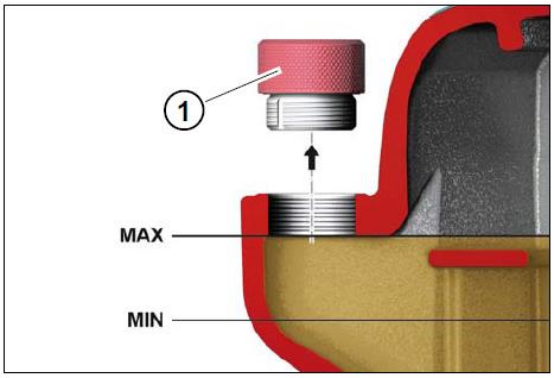
Only check the oil level when the compressor

system is in a cold condition before use.

Oil level,

⚠ Unit parts can be hotter than 80°C!

RISK OF BURNS! Wear personal safety equipment!

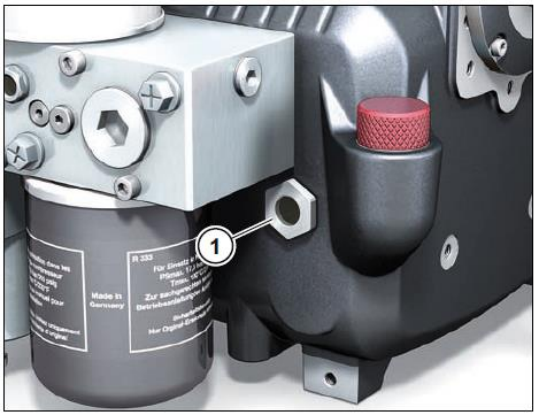


Oil level check via oil filler opening

(sample depiction)

The screw cap of the oil filler neck is provided with a safety hole on the side from which oil or air escapes if there is any residual pressure in the separating tank. Wait briefly in this case.

The oil filler neck is positioned so that it is not possible to overfill the system. Excess oil runs out of the filler neck again.



Oil level check via sight glass

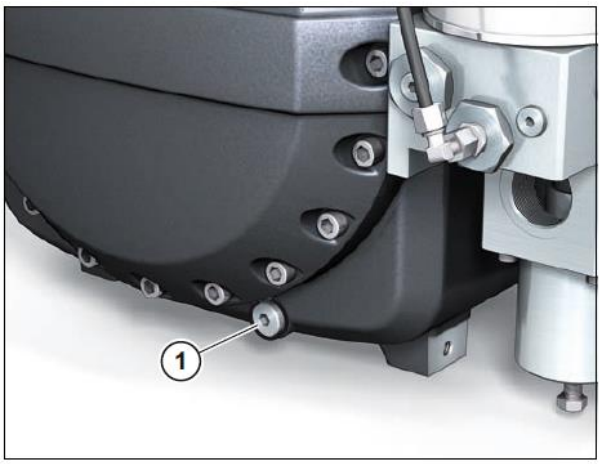
The oil-level sight glass 1 is mainly intended for an oil level check when the screw compressor system is stopped.

When the compressor system is stopped, oil must be visible in the sight glass; if it is not, then it is necessary to add oil

⚠ If necessary, top up oil of the same oil type and the same brand up to the maximum level.

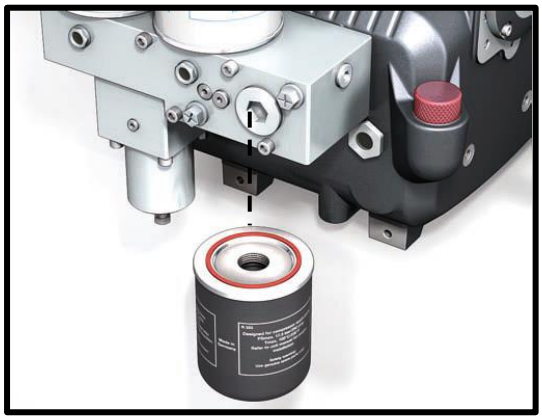
Oil Change

The compressor system must be at operating temperature in this case.



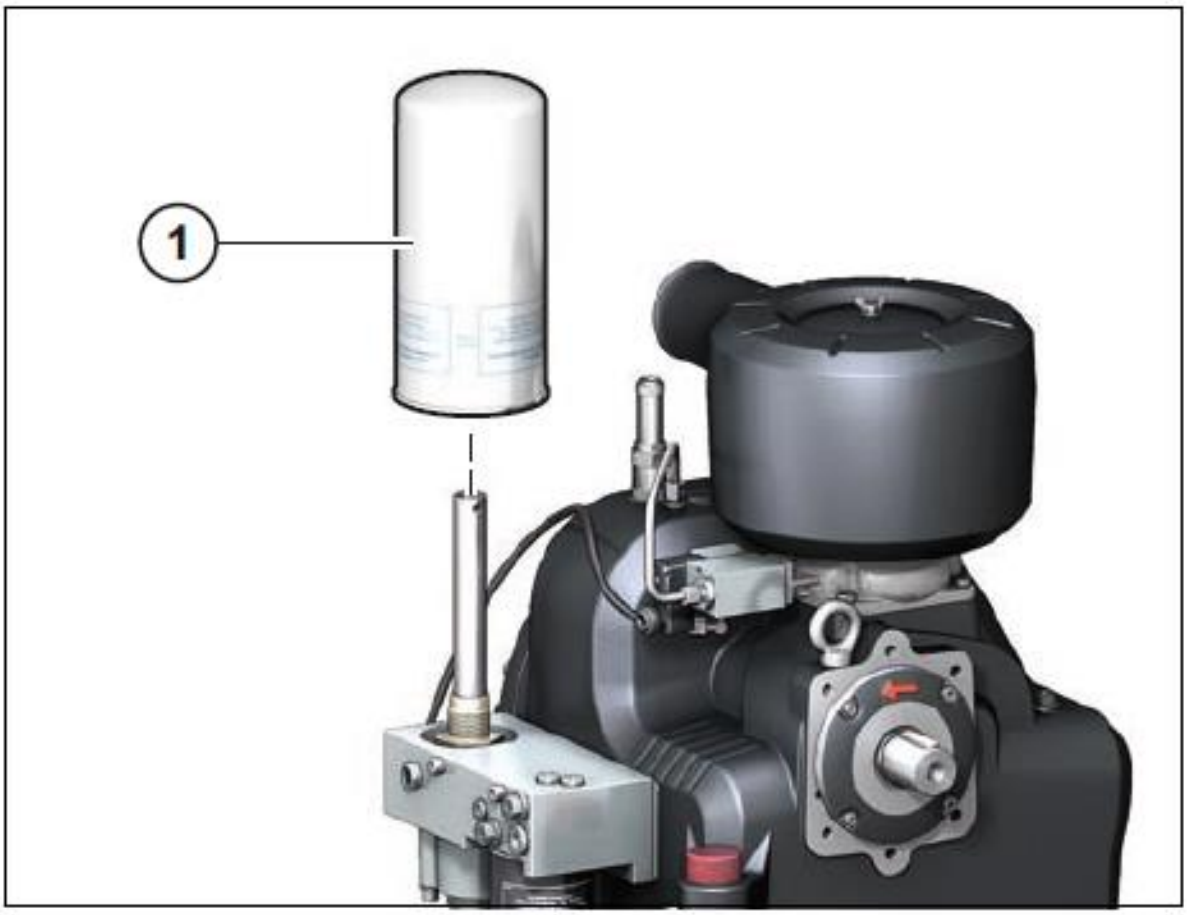
- Switch off the system and prevent it from being switched back on without authorization.
- Depressurize the system completely.
- Slowly unscrew the screw plug of the oil filler neck by hand.
- Carefully unscrew the oil drain screw 1 and catch the used oil in a suitable container.

MASTEK recommends also replacing the oil filter during an oil change.



- The new oil filter cartridge 1 must be held vertically and filled with oil of the same oil type as in the compressor module before being screwed on.
- Screw the new oil filter cartridge onto the multiblock and tighten by hand. No tool is required.
- Switch on the system.
- The oil filter must then be checked for leaks with the system running.

Separator Cartridge



The separator cartridges must only be replaced when the compressor system is stopped and completely depressurized.

• Oil the seal on the new separator cartridge 1 with oil of the same oil type as in the screw compact unit.

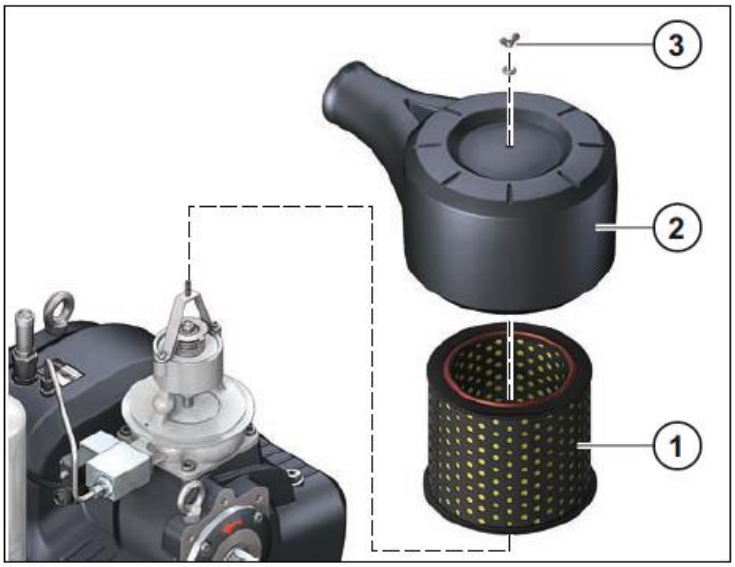
• Tighten the new separator cartridge by hand. No tool is required.

• Switch on the compressor system.

• The new separator must be checked for air leaks with the system running.

Intake Air Filter

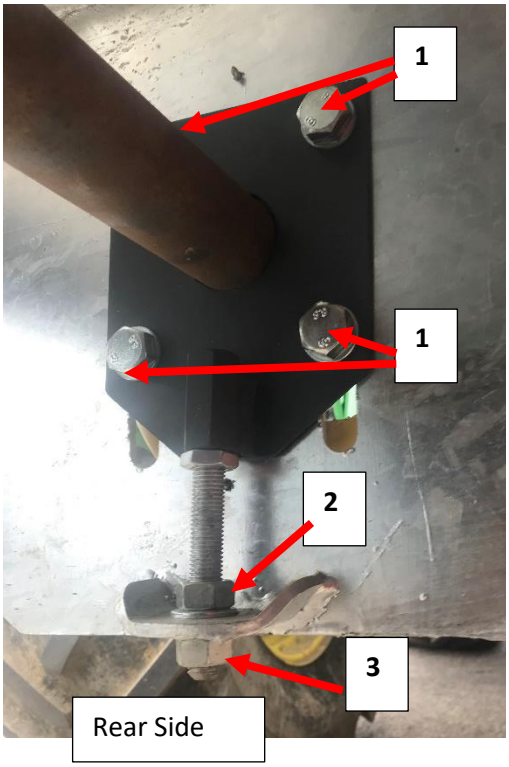
In case of heavily soiled intake air, an earlier replacement of the filter element is necessary when the optical or electric maintenance indicator (option) indicates this (perm. vacuum up to 50 mbar).



- Switch off the screw compressor system and prevent it from being switched back on without authorization.
- Screw off the wing nut 3 and remove the filter housing 2.
- Remove the old filter element 1.
- Carefully remove dust from the filter housing.
- Insert the new filter element in the filter housing.
- Lay on the filter housing, ensuring proper positioning during assembly.
- Tighten the wing nut.
- Switch on the system.
- Conduct a test run and an operating test.

Drive belt assembly

The compressor consists of 4 drive belts,



To tension the belts,

- Loosen the four bearing housing studs (1)
- Loosen retaining nut (2)
- Pull the shaft downwards using nut (3)
- Complete this process on both sides (front and Back side)
- Once correct belt tension has been achieved tighten retaining nut (2)
- Retighten bearing housing studs (1)

Drive belt tension

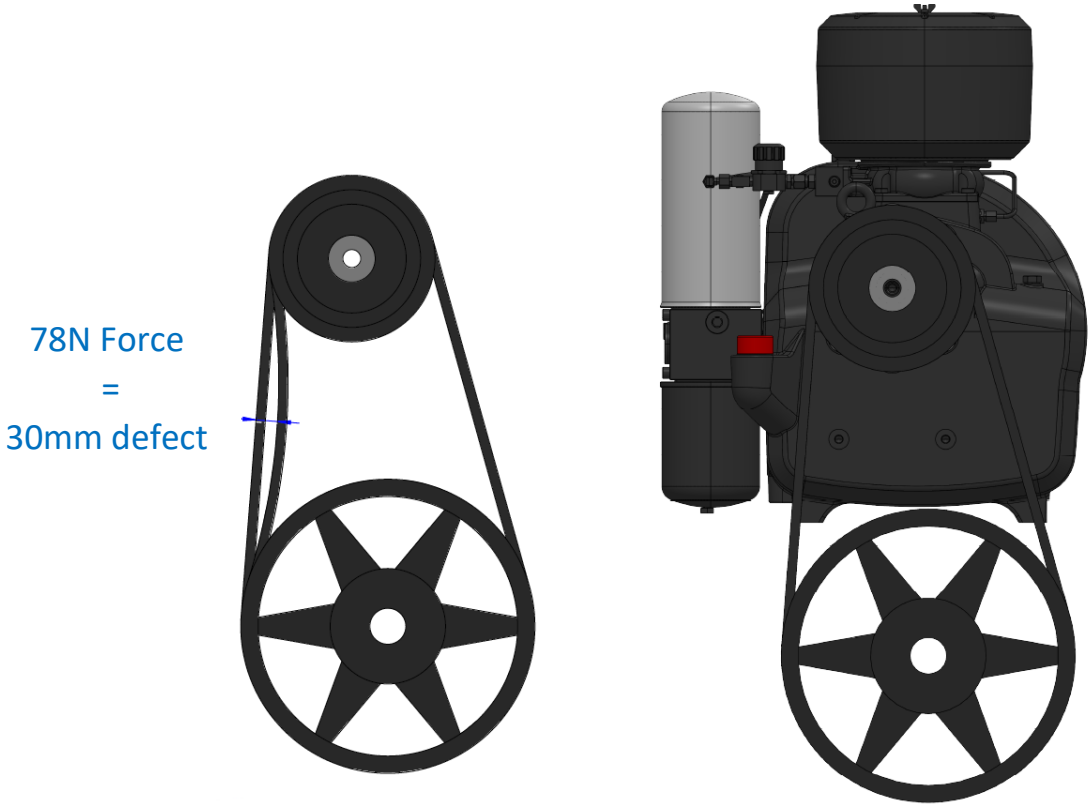
Check the tension by applying a load of 78 - 85 N to the centre of the belt run indicated in the figure below: the belt should deflect approximately 25-30 mm as shown.

When checking the tension, also check the amount of drive belt wear. The main problems are as follows:

• Belt shiny: Smooth sides may slip on pulleys. Corrective action may include adjusting the belt to proper tension or replacement.

• Belt cracked: May break suddenly due to splits on the inner surface caused by excessive flexure. If cracks are excessive, the belt should be replaced.

• Worn sides: With the sides worn or the inner surface cracked, the belt can break at any moment. Check belt alignment.



NOTE: If the belt squeaks when running, check the tension and adjust if necessary. If the noise continues, replace the belts.

NOTE: It is not recommended to replace only 1 belt, the complete set of 4 should be replaced.

Setting operating pressure

To check the system operating pressure,

1, Turn on the tractor P.T.O.

2, Set P.T.O. **Minimum** speed to 700 RPM

3, Insure discharge valve is closed fully.

4, Inspect the pressure clock.

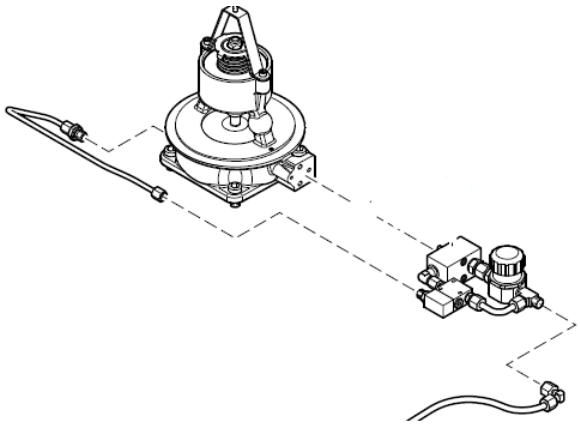
To adjust this pressure,

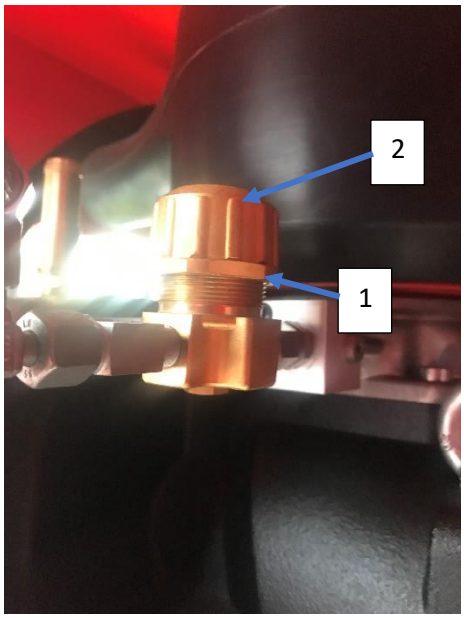
Loosen the retaining nut 1.

Turn the knob 2, (clockwise to increase pressure, counter clockwise to decrease pressure)

Open, then close discharge tap briefly and allow pressure to build up fully.

If the desired pressure has been reached tighten retaining nut 1





Frequency of servicing components

The frequency of the maintenance intervals (oil change, replacement of oil filter, separator cartridges, and air filter element) varies depending on the application and the operating parameters. Depending on the design of the system, maintenance interval should therefore be specified by the compressor manufacturer. These must be given priority. It is advisable to conclude a maintenance agreement.

Maintenance Intervals Operating Hours	Maintenance Work
Every 10 Hrs	Check the oil level in the separating tank, top up if required
Every 100 Hrs	Listen for abnormal running noise. Check all lines, hoses, and screw fittings for leaks. Check drive belt tension adjust if required
Every 1000 Hrs or 12 months	Change the separator filters. Replace oil filter and carry out oil change. Replace air intake filter element. Replace drive belts. Check system for leaks

Trouble Shooting

Fault	Possible Cause	Action To Be Taken
Safety valve blows off (at a permissible operating pressure)	Safety valve defective	Replace safety valve
	Separator cartridge dirty	Replace Separator cartridge
Oil in compressed air	Operating pressure and delivery quantity are not in the permissible range	Check operating pressures
	Separator cartridge faulty	Check Separator Cartridge and replace if necessary
	Oil level too high; possibly excessive condensate	Check oil level, drain and replace if necessary
No or insufficient feed quantity	Intake filter blocked	Replace air filter
	Oil Shortage	Check oil level
	Intake control valve faulty	Check control valve control flap, clean and replace if necessary
	Supply hose leaking	Check hose
Oil escapes during stop	Sealing surface in control valve damaged, spring in control valve broken	Check and replace parts
	Incorrect operating speed	Check PTO speed is set to 700RPM
Oil escapes during discharging (foam in separator cartridge)	Incorrect oil type	Change oil
	Oil level to high	Check oil level, drain to correct level
Abnormal noise during operation	Insufficient lubrication, loose parts, damage to drive shaft bearing failure	Check, if necessary, replace parts or have them replaced

Specification

Compressor model EV09-NK	Unit measured	Qty
Max. Operating Pressure	BAR	15
	PSI	218
Max. Gauge Pressure	BAR	16.5
	PSI	239
Max. delivery quantity according to DIN-ISO 1217 through	m3/min	9.2
	CFM	325
Power requirement	kW	55
	hp	75
Drive speed requirement (at PTO shaft)	Min rpm	650
	Max rpm	800
Max. outlet temperature	◦C	110
	◦F	230
Machine Weight (without oil)	kg	278
	lb	612
Oil capacity,	L	25
Oil type	viscosity	ISO VG 68

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 rooting	☐
Grease points	☐
General Appearance	☐
Condition of paint, galvanizing	☐

Defect Notes;

_____

_____

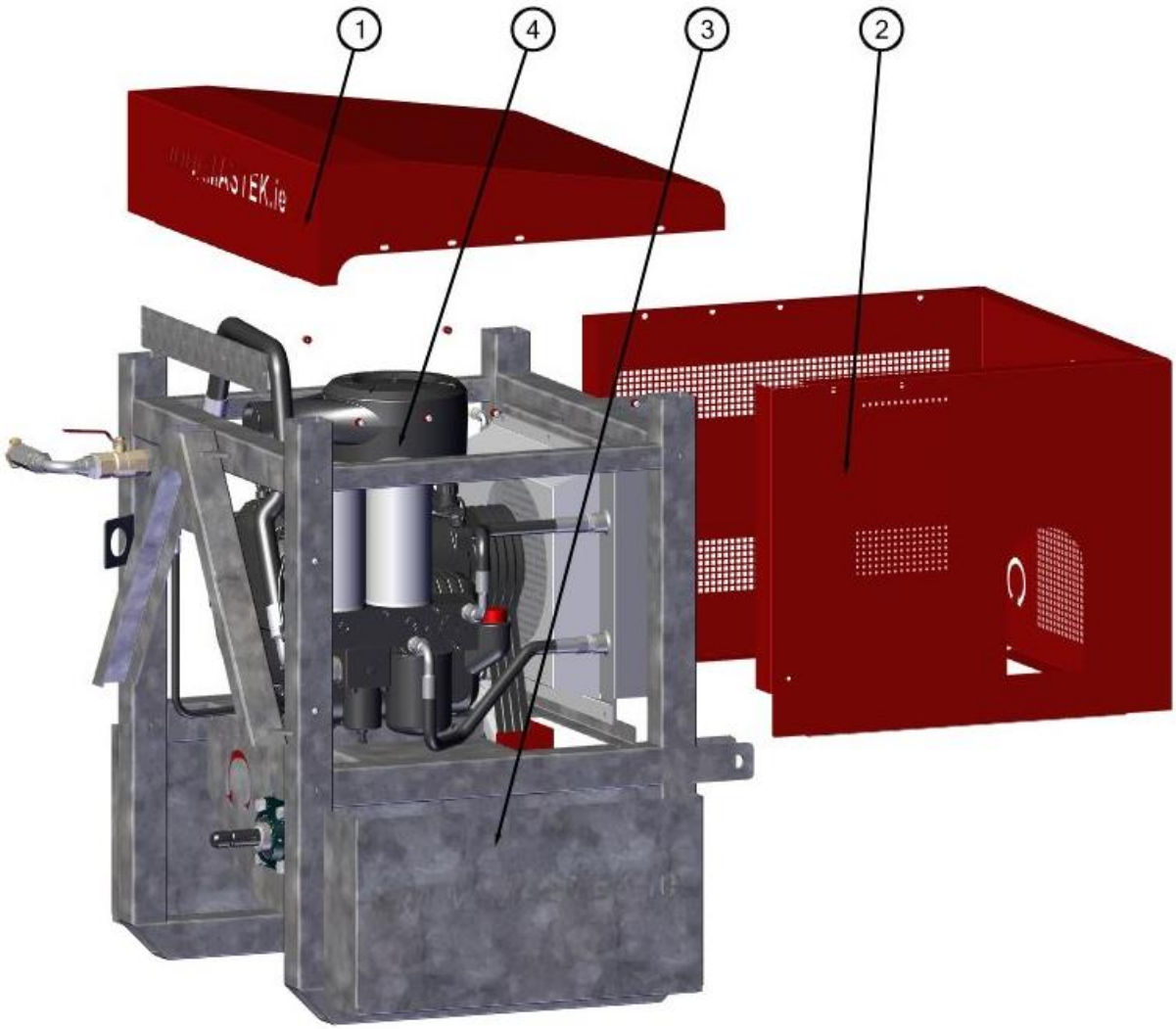
_____

Signed; _____(person whom completed the inspection)

Date; _____

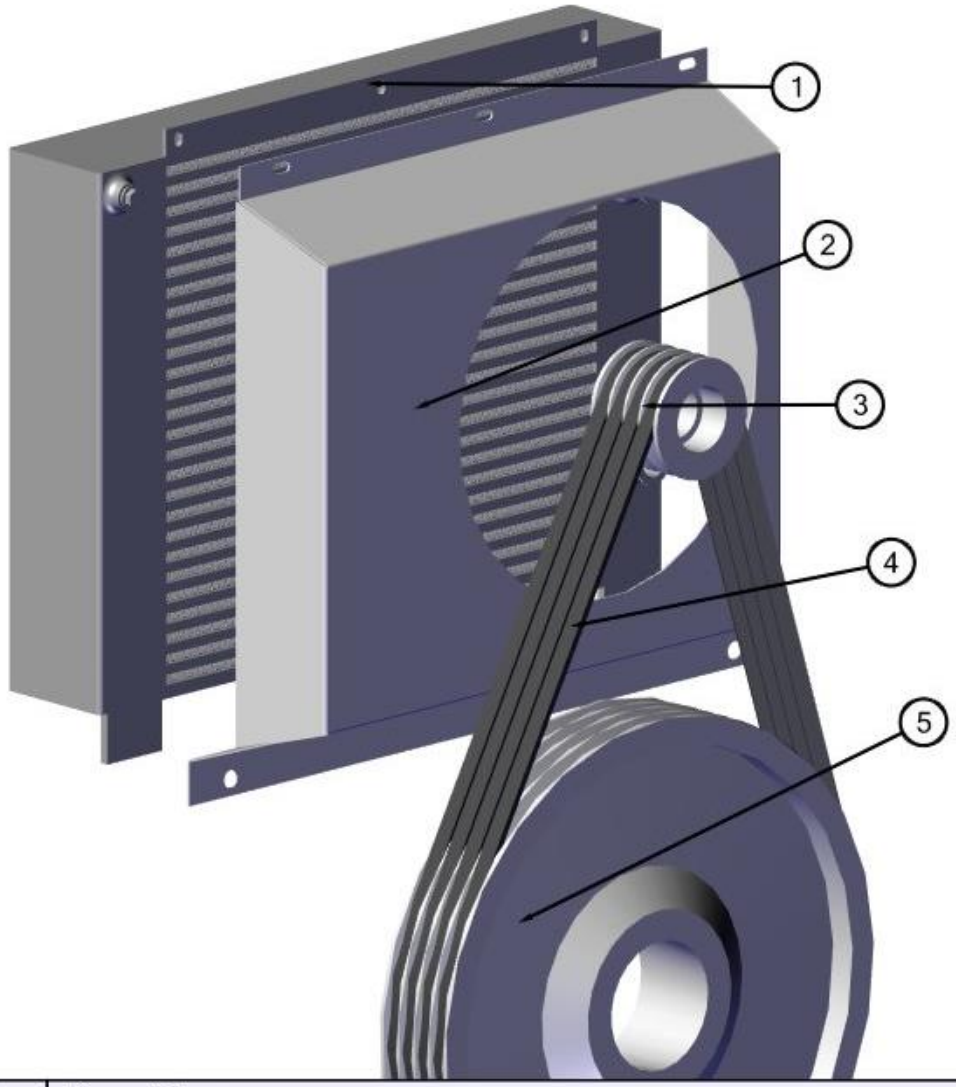
Spare Parts

Mainframe



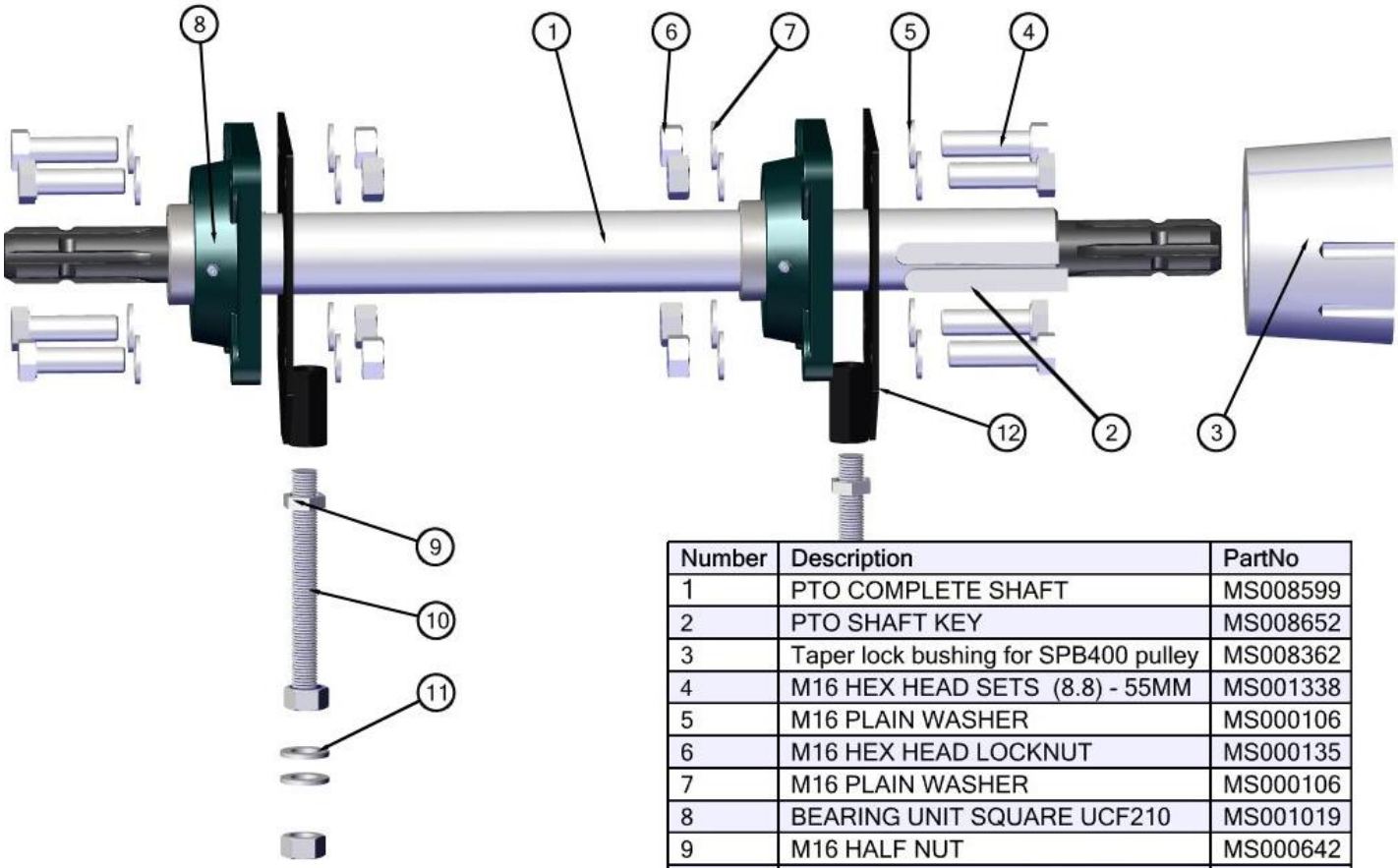
Number	Description	PartNo
1	PAINTED PTO TOP PANNEL	MS008510
2	PTO FRAME SIDE PANNEL	MS008437
3	GALVANISED COMPRESSOR FRAME	MS008522
4	COMPRESSOR PTO DRIVEN	MS001960

Oil Cooler and Pulleys



Number	Description	PartNo
1	OIL COOLER FOR PTO COMPRESSOR	MS006237
2	PTO COMP FAN COWLING	MS009044
3	SPB100MM 4 GROOVE PULLEY - MACHINED TO 45MM SHAFT	MS009119
4	PULLEY BELT SPB2060 (RP3 - RED POWER)	MS009173
5	SPB500MM 4 GROOVE TAPERLOCK PULLEY	MS009118

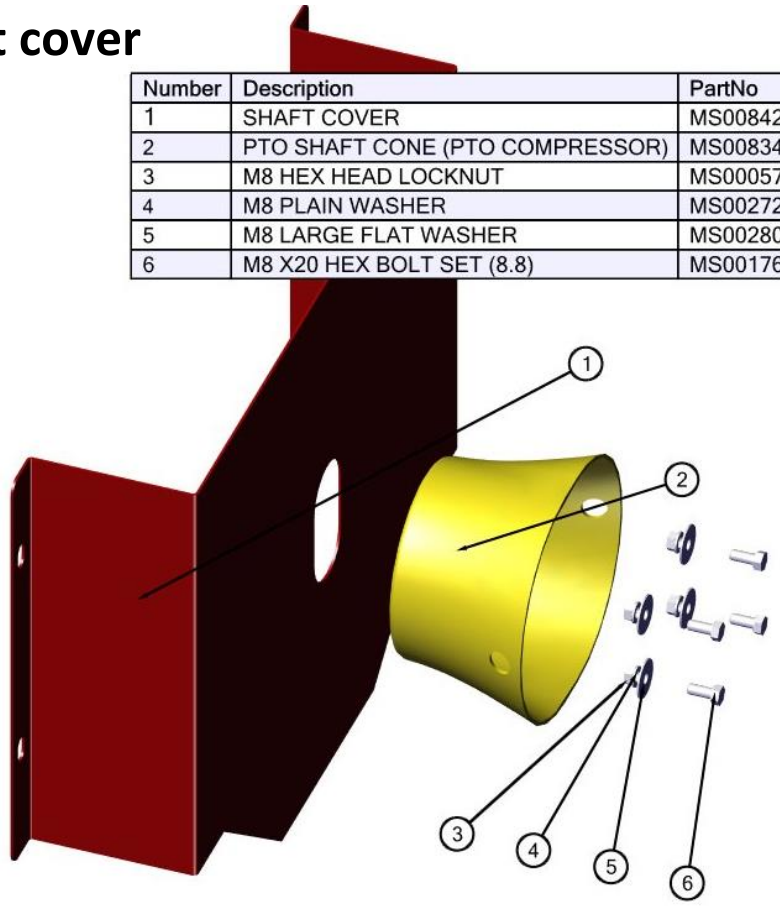
Drive shaft assembly



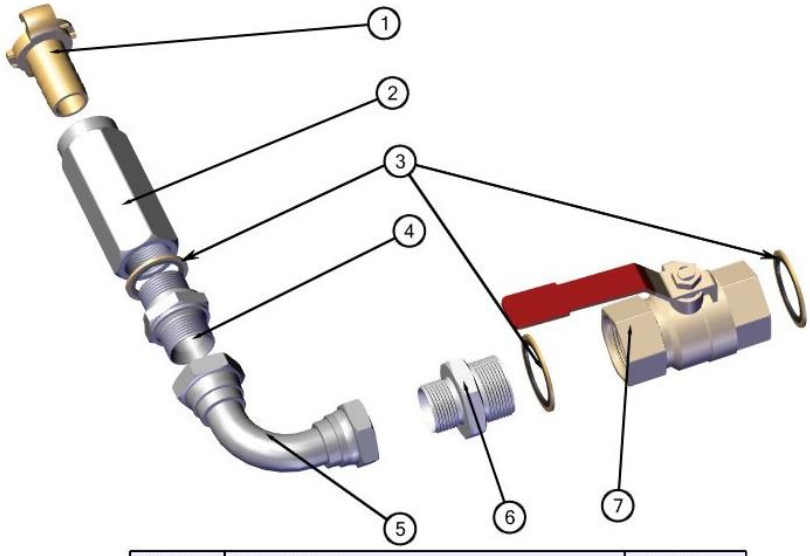
Number	Description	PartNo
1	PTO COMPLETE SHAFT	MS008599
2	PTO SHAFT KEY	MS008652
3	Taper lock bushing for SPB400 pulley	MS008362
4	M16 HEX HEAD SETS (8.8) - 55MM	MS001338
5	M16 PLAIN WASHER	MS000106
6	M16 HEX HEAD LOCKNUT	MS000135
7	M16 PLAIN WASHER	MS000106
8	BEARING UNIT SQUARE UCF210	MS001019
9	M16 HALF NUT	MS000642
10	M16 HEX HEAD BOLT (8.8) - 150MM	MS001780
11	M16 PLAIN WASHER	MS000106
12	PAINTED BEARING SUPPORT	MS008648

Shaft cover

Number	Description	PartNo
1	SHAFT COVER	MS008426
2	PTO SHAFT CONE (PTO COMPRESSOR)	MS008349
3	M8 HEX HEAD LOCKNUT	MS000577
4	M8 PLAIN WASHER	MS002722
5	M8 LARGE FLAT WASHER	MS002804
6	M8 X20 HEX BOLT SET (8.8)	MS001763



Air output Valves



Number	Description	PartNo
1	1" BSPT CLAW AIRLINE END	MS008663
2	1" INLINE CHECK VALVE 0.5 BAR	MS008443
3	1 1/4 BSP DOWTY Bonded	MS008444
4	1" BSP M/M ADAPTOR	MS008358
5	1" TO 1" BSP 90 DEGREE F/F (SWEEP)	MS008637
6	1" BSP M 1 1/4 BSP M	MS005643
7	1 1/4" BSP FEMALE BALL TAP 2 WAY	MS008636

Notes