TRANSAIRVAC INTERNATIONAL LTD

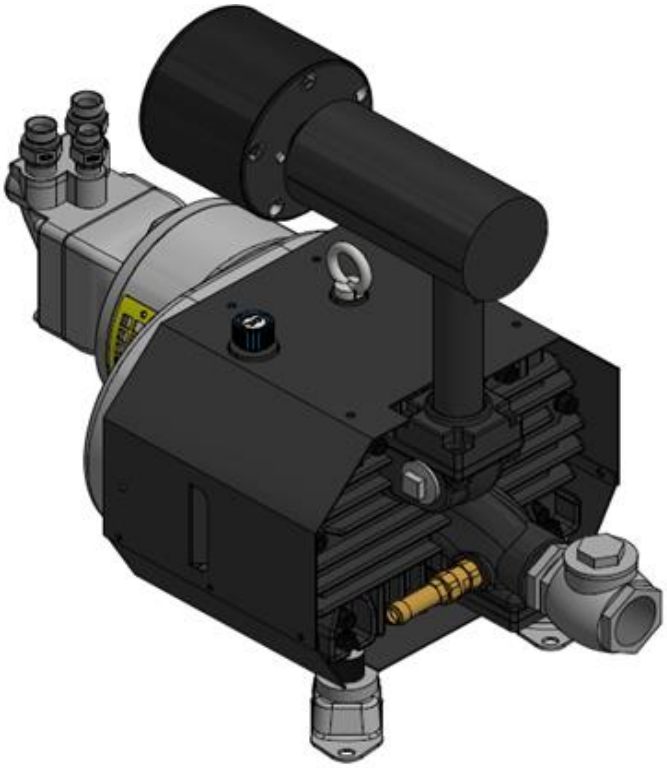
Hydraulic Coolers, Pressure Line Filters, Air & Gas Compressors / Vacuum Pumps / Blowers / Booster Packages and Rotary Lobe Pumps for Transport and Industry

E-mail: office@transairvac.com Website:- www.transairvac.com

Units 28 Croft Road Industrial Estate, Newcastle, Staffordshire ST5 0TW

Tel: +44 (0) 1782 710282 Fax: +44 (0)1782 710126

Hook & Claw Oil Free Compressor 2.5 Barg Model T155COMPACT Operating Manual



INSTALLATION & OPERATING MANUAL

Please read the manual before operating the compressor

TABLE OF CONTENTS

INSTALLATION AND OPERATING MANUAL for T155 compact

Please identify the model number and serial number when ordering parts.

1.0 INSTALLATION

1.1 General description

The compressor is dry and contactless machines, enclosed in acoustic sound shield and designed to have cooling air passed through the sound shield by fan. The warm air is exhausted through the vent. The compressor is constructed in modular construction consisting of two compartments: pumping and gear chambers separated by using labyrinth seals. In the pump chamber, as two rotary claws rotate in opposite direction, the air sucked in, shall be compressed and discharged under pressure. In the gear chamber (box), two gears for synchronizing of claws rotation will be located with oil lubrication. For a protection of overload, a pressure safety valve or regulating valve shall be installed in exhaust line or tank. The compressors are directly driven by a flanged Hydraulic motor via a coupling.

1.2 Unpacking

Inspect the box and compressor carefully for any signs of damage incurred in transit.

The inlet and exhaust of the compressor are covered with plastic caps to prevent dirt and other foreign substances from entering to it . Leave these caps in place until you are ready to pipe the compressor to your equipment.

1.3 Location

Install the compressor in a horizontal position on a level surface so that it can be evenly supported on its rubber feet. Leave access around the compressor to allow proper cooling. Also, adequate ventilation must be provided for the cooling for the compressor and motor.

Allow access to the oil sight glass in order to inspect the oil level regularly, and the oil fill and oil drain port for easy service.

1.4 Power Requirements

Appropriate Hydraulic Motor shall be provided to supply the power.
Standard motor fitted is Parker F11-19 subsection below gives all the details and operation.

1.5 Pressure Connections

Use a pipe size that is at least the size of the compressor outlet connection. Smaller and long pipe lines result in a reduced compressor capacity.

The following thread sizes are standard on the compressor.

Model	Inlet Size	Exhaust Size
T155	G 1-1/2" (BSP)	G 1-1/2" (BSP)

1.6 Oil Filling on Gear Box

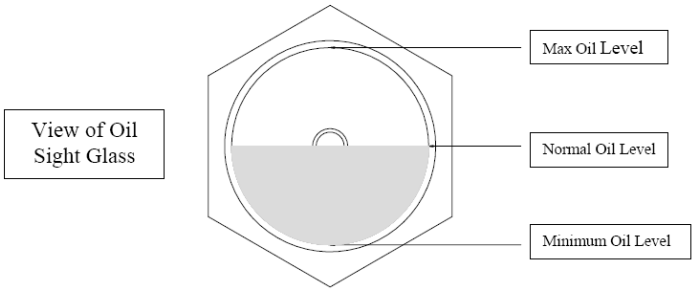
After level installation and correct rotation has been established, fill the compressor with recommended gear oil through the oil fill port if it is not shipped without oil. Oil level should be at the 1/2 position on the oil sight glass.

We recommend the following oil.

- **ISO VG150 PAO (fully synthetic polyalphaolefin) GEAR OIL**

The following table gives the approximate quantities of oil required for each model.

Model	Capacity (Ltrs)
T155	0.5



Do not add fill oil with compressor running! Do not overfill.

2.0 Safety

Please read the following safety notice carefully before operating the compressor.

2.1 General Notices

- Understand fully this installation and operating manual before operation.
- Unauthorized persons should not operate the compressor.
- When the compressor is not properly working, it should be stopped immediately.
- Transairvac shall have no liability for any accident and failure arising from no compliance with instructions in this manual.

2.2 Warning labels and its explanation

Following warning labels are shown and attached on T155 series compressor.

2.2.1 Read and Understand a manual:

Read and understand operator's manual before using this machine.

2.2.2 Burn Hazard:

Hot surface. Do not touch.

2.2.3 Loud noise Hazard

Loud noise hazard. Ear protection must be worn.

.

2.3 Location of the labels

The labels of 2.2.1 Read and Understand a manual, 2.2.2 Burn Hazard, and 2.2.3 Loud noise hazard shall be shown on the top of sound shield of the compressor.

3.0 OPERATION

3.1 Start-up

Check rotation of the hydraulic motor as described in paragraph 1.4 Power Requirements.
Fill the compressor with oil as described in paragraph 1.5 - Oil Filling

Run the compressor for a few minutes and then shut down. Check the
oil level again and make sure the oil level is 1/2 position of oil sight glass at stop status.

Add oil though oil fill port on the top, if necessary. Compressor oil should only be added when the compressor is off.

3.2 Stopping the compressor

To stop the compressor, turn off the power.

3.3 Operating Conditions

The ambient and suction air temperature must be between 5 and 40 °C deg. The standard Versions may not be used in hazardous areas. Also it is recommended for operating personnel who is working near compressor to wear ear protectors.

Caution: Any non compliance may lead to severe injury to persons and damage to the pump. The safety valve is set at permissible operating pressure and will be opened to discharge the Pressure if the compressor runs over the setting pressure for a safety operation.

Caution: Do not run the compressor without regulating valve or safety valve. Do not set the safety valve at over permissible pressure. The compressor may be damaged severely.

4.0 MAINTENANCE

The compressor requires very little maintenance. To ensure optimum performance, the following maintenance steps should be followed:

4.1 Compressor Lube Oil

4.1.1 Oil Level

Check the oil level on monthly basis. Under normal circumstances it should not be necessary to add oil between oil changes. A significant drop in oil level means there is an oil leak. Please check the o-rings, drain plug or oil sight glass.

Check the oil level only when the compressor is not running. Replenish oil if it drops below bottom position of the sight glass.

Caution: Do not add oil while the compressor is running, since hot oil can escape from the oil fill port.

4.1.2 Oil Type and Quantity

See section 1.5 - Oil Filling - for details on oil type and quantity

4.1.3 Oil Change

Under normal ambient conditions with proper Gear Oil, it is recommended to change the oil every 1000 operation hours.

Caution: If a different brand of oil will be used, the old oil must be drained completely from the gearbox.

4.2 Inlet air Filter

Check the (inlet) filter on a weekly basis. The filter cartridge should be cleaned or replaced when dirty. Consult Transairvac for replacement element information.

Caution: Depending on the mounting position of the filter, be careful not to allow accumulated foreign material to fall in the pump suction inlet when removing the filter cartridge. Horizontal filter installation is recommended to prevent this.

4.3 Maintenance Chart

Weekly:	Check inline inlet filter element / Mesh. More often if high particulates in inlet stream Check the oil level, Protective Mesh.
Monthly:	Check cooling fans and coupling
Annually:	Check Bearings / Shaft Seals, More frequently if operated at ambient temperature exceeding 20°C

5.0 PROBLEM SOLVING

5.1 Problem

Compressor does not reach capacity.

5.1.1 Possible Cause

Inlet screen internal (mesh) of the inlet filter clogged with debris.
Remedy : check inlet filter element and clean internal screen (mesh) by compressed air or wash it.

5.1.2 Possible Cause

Pipe work is too long or small.
Remedy : Use the bigger diameter pipe and shorten the lines length if possible.

5.2 Problem

Compressor runs over set pressure.

5.2.1 Possible Cause

Pressure Regulator or Safety Valve set over the set point, or is out of order.
Remedy : Set the point again or replace it with new one.

5.3 Problem

Compressor does not reach the set pressure.

5.3.1 Possible Cause

Leak on the compressor or system.
Remedy : Check the leak on the compressor or system.

5.4 Problem

Compressor runs very noisy.

5.4.1 Possible cause

Contamination of the claws or chamber.
Remedy : Clean the pumping chamber and the claws.

5.4.2 Possible cause

Coupling insert is worn.
Remedy : replace coupling insert in motor/compressor coupling.

5.4.3 Possible Cause

Bearing noise
Remedy : replace bearings or call Transairvac for service or exchange program.

5.4.4 Possible Cause

Pressure regulator or safety valve noise
Remedy : replace Pressure regulator or Safety valve

5.5 Problem

Compressor will not start.

5.5.1 Possible Cause

Supply of hydraulic pressure is not proper.
Remedy : check hydraulic system..
Remedy. Repair or replace if needed or call Transairvac for service or exchange program.

5. 6 Problem

Compressor is running too hot abnormally.

5.6.1 Possible Cause

Not enough air ventilation to compressor.
Remedy : Make certain a sufficient amount of fresh air is supplied to the compressor.

5.7 Problem

Compressor will not operate (seized up).

5.7.1 Possible cause

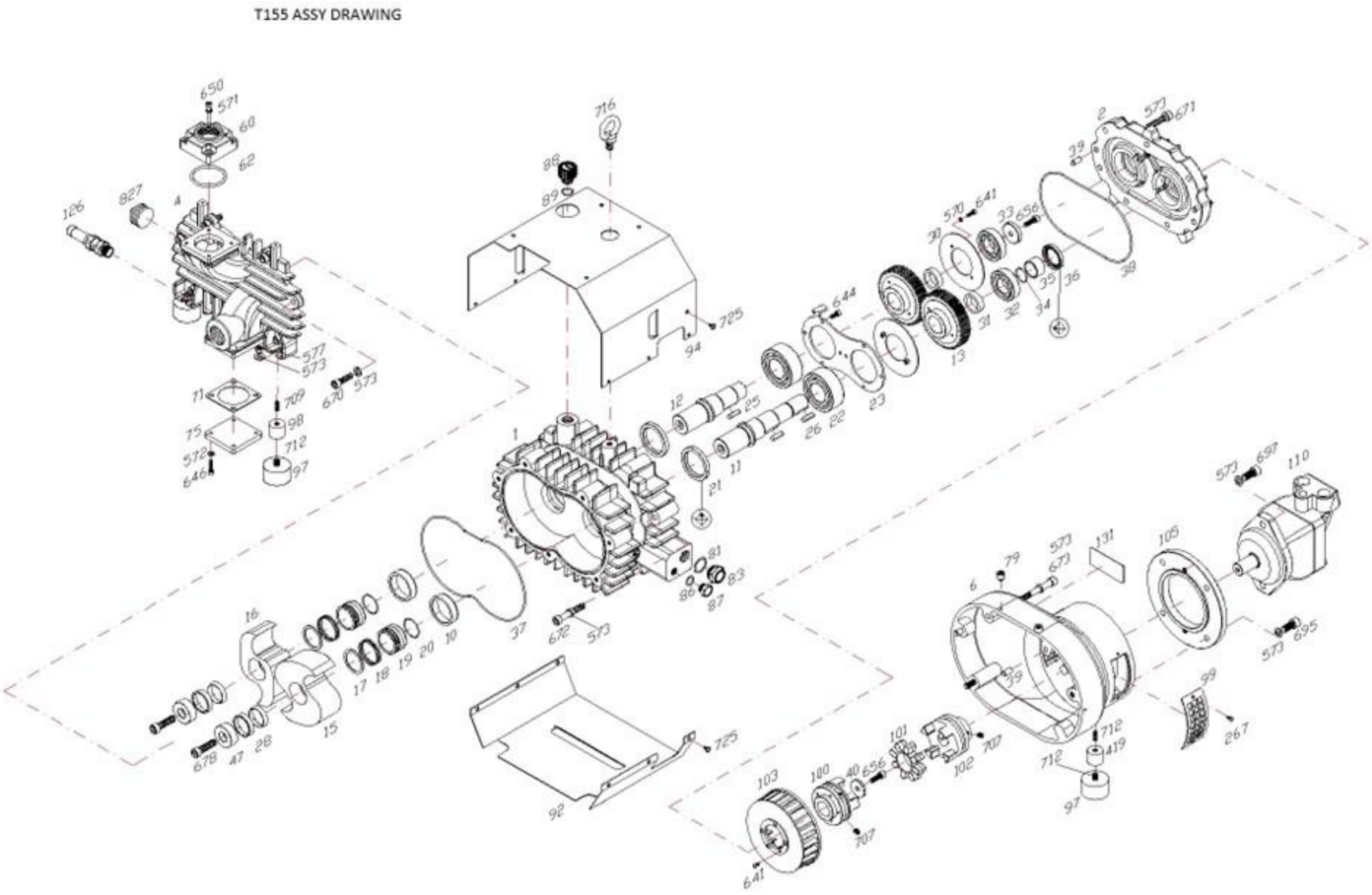
Rotary Claws, Bearings or Gears stuck on..

Remedy : Call Transairvac for service or exchange program

6.0 TECHNICAL DATA

MODEL	T155	
Speed	RPM	2500-3500
Flow rate	M3/h	150
Pressure	Bar	2.5
Hydraulic motor	Piston	Parker.F11-19
Oil Capacity (Gear box)	Liter	0.5
Inlet/Outlet Connections	BSP(G)	1-1/2" / 1-1/2"
Dimensions (L x W x H)	mm	715 x 406 x 585
Approx. *Weight (Kg).	Kg	90
Accessories	Safety Valve, Exhaust Silencer, and Inlet Filter, Inlet silencer	

7.0 Spart Parts 7.1 exploded view

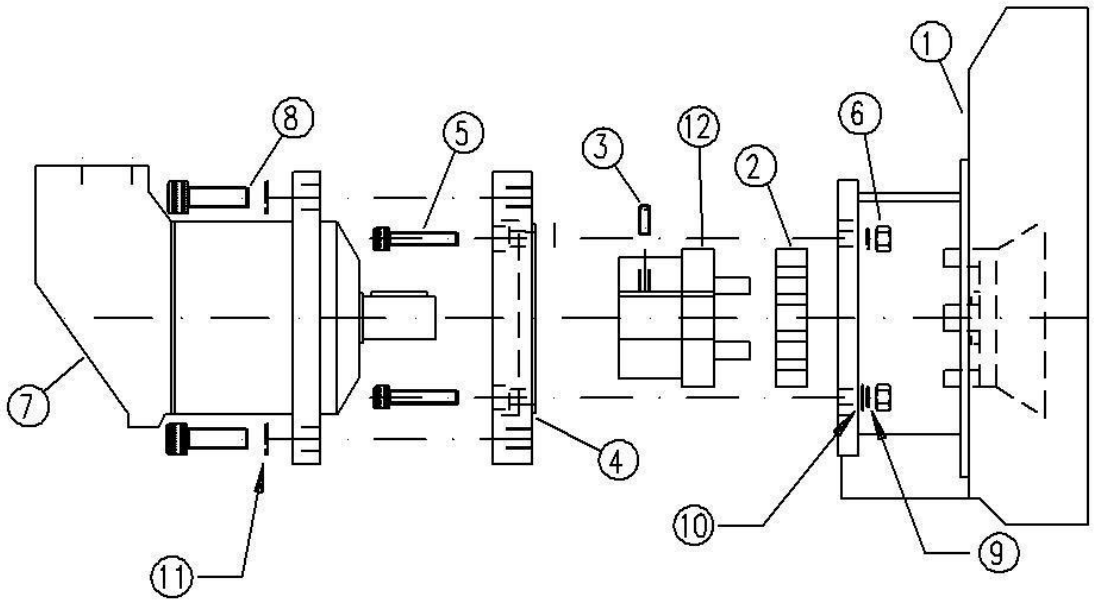


T155 Parts List						
Pos.No.	**Quantity**	**SK**	**OK**	**Description**	**Part Description**	**Art.No.**
GK		↓		Gasket kit	See all parts marked at GK	C15549000
OK			↓	Overhaul kit	See all parts marked at OK	C15550020
1	1			Gear Box Housing	Cast Iron	C155001A0
2	1			Gear Box Cover (rear)	Cast Iron	C155002A0
4	1			Pump Housing Cover 1 (End Plate)	Cast Iron	C155004A0
6	1			Fan Housing IEC 90 B5	AL casting	C155006A0
10	2			Sleeve	Steel, 45C ø50.2xø60x15.6	C15501000
11	1			Shaft 1	Steel, SCM4	C15501100
12	1			Shaft 2	Steel, SCM4	C15501200
13	2			Gear 1	Steel, SCM4	C15501300
15	1			Rotor 1	Cast Iron	C15501500
16	1			Rotor 2	Cast Iron	C15501600
17	2		2	Spacer	Steel, 45C	C15501700
18	4	4	4	Piston Ring	ø50 x t3	C15501800
19	2		2	Sleeve	ø40 x ø50 x 29.6	C15501900
20	2	2	2	O-Ring	Viton, ø36 x t2	0000U3100
21	2	2	2	Shaft Seal,	Viton, ø50 x ø68 x t8	0000USI00
22	2		2	Bearing,	5208 C3, No Grease	0000G2900
23	1			Bearing cover	Steel	C15502300
25	2			Key, for Gear	Steel, 45C 8x7x30	00008GI00
26	1			Key, for Coupling	Steel, 45C 8x7x30	00008GI00
28	2			Power Lock	Steel, 45C	C15502800
30	2			Flinger	Steel	C15503000
31	2			Sleeve	Steel, 45C ø30.1xø40xt11.5	C15503100
32	2		2	Bearing,	No Grease	0000G3000
33	1			Locking Disk, Shaft 2	Steel, 45C ø8.2 x ø42 x 9	C15503300
34	1	1	1	O-Ring	Viton, ø26 x t2	0000U3000
35	1		1	Sleeve	Steek, 45C ø35 x ø30 x 20	C155.035.00
36	1	1	1	Shaft Seal,	Viton, ø35 x ø50 x t7	0000USK00
37	1	1	1	O-Ring, Compressor cover	Viton, t3	0000U7I00
38	1	1	1	O-Ring, Gear Box cover	Viton, t3	0000U7J00
39	4			Dowel Pin	Steel, 45C, ø10 x 30	0000SLQ00
40	1			Locking Disk, Shaft 1	Steel, 45C ø8.2 x ø36 x 9	C15504000
47	2			Locking Disk, side Rotor	Steel, 45C ø12.2 x ø44.6 x 19	C15504700
60	1			Inlet flange, Upper Housing	AL casting	C15506000
61	1		1	Inlet screen, (Conical)		C15506100
62	1	2	2	O-Ring, Inlet Flange, low and upper part	Viton, ø65 x t3	0000U1200
64	1	1	1	O-Ring, Check valve plate		0000U0900
71	1			Gasket, Plate (Blocked)	Non Asbestos, 77 x 77 x ø58	C15505200
75	1			Plate (Blocked)	Steel, 77 x 77 x t10	C15507300
79	2			Support isolator	Rubber, NBR ø15 x 10 x M5	0000F9C00
81	1	1	1	Gasket, Oil Sight Glass	Teflon, ø26 x ø34 x t1.5	0000UTA00
83	1			Oil Sight Glass	G 3/4"	0000OSF00
86	1	2	2	O-ring, Drain Plug	Viton, ø15 x t2.3	0000U0300
87	1			Drain Plug	AL, G 3/8"	0000OPD00
88	1			Oil filler Breather, Plastic	Plastic, AL, 1/2"	0000ORE00
89	1	1	1	O-Ring for Oil filler	Viton, ø15 x t2.3	0000U0300
92	1			Shield Cover, Bottom	Steel	C155092B0
94	1			Shield Cover, Side	Steel	C155094B0
97	3			Foot	Rubber, 52x30xM10	0000F8F00
98	2			Foot Support	Steel, 45C M10 x L25	C15509800
99	2			Grill for Fan	Steel	C15509900
100	1			Coupling, Pump Side	Steel, ø30 x ø80 x 56	00C020900
101	1		1	Insert, Coupling	Urethan	00IC00000
102	1			Coupling, Motor Side Hyd. Motor F11-19	Steel, ø25 x ø80 x L51	00C020701
103	1			Fan	Plastic, ø51 x ø157 x 47	C10010300
105	1			Coupling, Motor Side Hyd. Motor F11-19	AL casting or Steel	00FL51000
110	1			Motor		MO0300000
126	1			Safety Valve	Brass 1/2"	00SV00000
130	1			Label, Direction Arrow		111100300
131	1			Name Plate	AL	111100100

T155 Parts List						
Pos.No.	Quantity	SK	OK	Description	Part Description	Art.No.
419	1			Spacer for Foot, ES-Type	Steel	C155419A0
570	4			Washer, Spring Lock	5mm	0000F3C00
571	4			Washer, Spring Lock	6mm	0000F3D00
572	4			Washer, Spring Lock	8mm	0000F3E00
573	25			Washer, Spring Lock	10mm	0000F3F00
577	2			Hexagon Nut	M10	0000F1F00
641	9			Hex. Socket Head Cap Screw	M10 x 25	0000B5E00
644	8			Hex. Socket Head Cap Screw	M6 x 15	0000B6E00
646	4			Hex. Socket Head Cap Screw	M8 x 25	0000B8G00
650	4			Hex. Socket Head Cap Screw	M6 x 65	0000B6O00
656	2			Hex. Socket Head Cap Screw	M8 x 25	0000B8G00
670	7			Hex. Socket Head Cap Screw	M10 x 35	0000BAI00
671	7			Hex. Socket Head Cap Screw	M10 x 50	0000BAL00
673	4			Hex. Socket Head Cap Screw	M10 x 85	0000BAT00
678	2			Hex. Socket Head Cap Screw	M12 x 45	0000BBK00
695	4			Hexagon Bolt	M12 x 25	0000ABG00
697	2			Hexagon Bolt	M12 x 35	0000ABI00
707	4			Set Screw	M8 x 15	0000C8E00
709	2			Set Screw	M10 x 20	0000CAG00
712	6			Set Screw	M10 x 25	0000CAG00
716	1			Eye Bolt	M12 / Forged Steel	0000F5G00
725	12			Round Head Bolt	M5 x 10	0000E7I00

8 Hydraulic motor

8.1 Motor coupling assembly

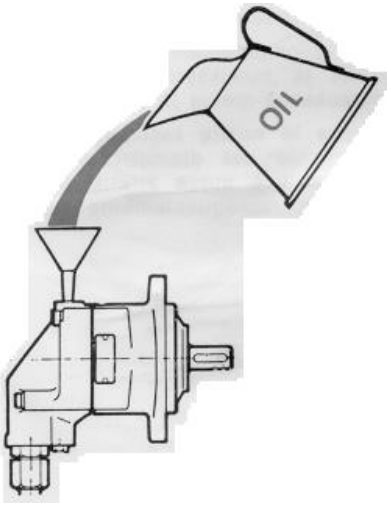


1. T155 Compressor
2. Coupling
3. M6 Grub screw
4. Spacer Plate
5. M8 x 50 Cap screw
6. Now in machine
7. Hydraulic Motor (F11-19)
8. M12 x 35 Cap screw
9.
10.
11. M12 Locking Washer
12. Spider (insert)

8.2Case pressure (For F11-19 Motor)

The table below shows the highest recommended case pressure for the hydraulic motor as a function of shaft speed. To obtain the longest seal life, the case pressure should be limited to 50% or less of the figures shown.

Shaft Speed [rpm]	Max Case Pressure [bar]
2500	2.2
3000	1.4
3500	0.9



8.3 Hydraulic Fluid

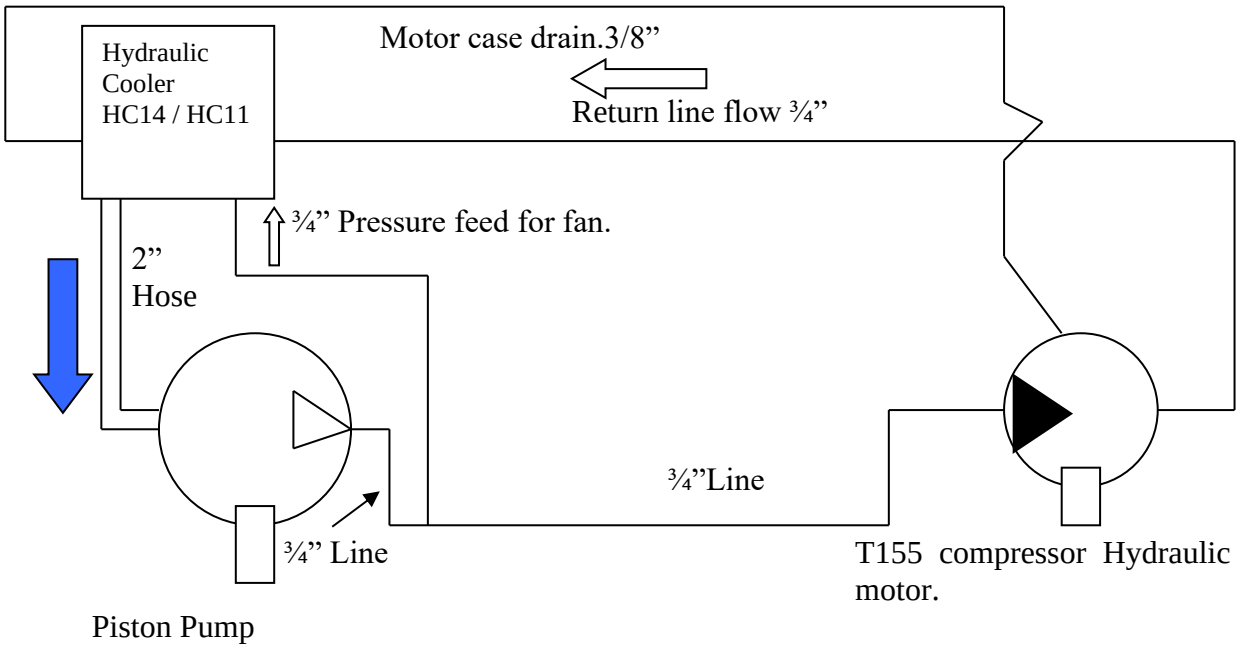
Carefully clean the system before the system is filled with oil.
Fill the casing with oil before start up.

Make sure the motor/pump case as well as the entire hydraulic system is filled with a recommended fluid (see table below). In this system, the oil is the mean that, beyond transmitting power, ensures the lubrication and protection of the unit devices; therefore we recommend using high-grade oil with anti-foam and anti-oxidation additives.
The internal leakage, especially at low operating pressures, is not sufficient to provide lubrication at start-up.

Spec. DIN 51524	H-LP32	H-LP46
Viscosity CST @50^{O}C	16-20	24-28
AGIP	OSO 32	OSO 46
IP	Hydrus 32	Hydrus 46
BP	Energol HLP 32	Energol HLP 46
CASTROL	Hyspin AWS 32	Hyspin AWS 46
ESSO	Nuto H 24	Nuto H 46
MOBIL	DTE 24	DTE 25
SHELL	Tellus 32	Tellus 46
CHEVRON	EP Hydraulic Oil 32	EP Hydraulic Oil 46

8.4 Operating Temperature
The following temperatures should not be exceeded:
Hydraulic System fluid: 80°C

8.5 Hydraulic Circuit Diagram for T155 Hydraulic Motor System



EU DECLARATION OF INCORPORATION

We, Transairvac International Ltd, located at Unit 28 Croft Road Industrial Estate, Croft Road, Newcastle, Staffordshire, ST5 0TW, United Kingdom declare:

- In exclusive responsibility that the **T155** meets the essential health and safety requirements of the directive(s) detailed below.
- This partly completed machinery must not be out into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this directive, where appropriate.
- The relevant technical documentation is compiled in accordance with Annex VII part B and, where appropriate, a sentence declaring the conformity of the partly completed machinery with other relevant Directives.
- We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery.

Directive	Requirements and / or Standards applied
Machinery Directive 2006/42/EC	EN 60204-1: 2018
Pressure Equipment Directive 2014/68/EU	Group II Gases, Article 4, Para 3 Category SEP,

Product type	Oil free contactless air compressor (hook and claw)
Part number	T155
Manufacturer's representative	Transairvac International Limited
Flow	250 m3/hr of air
Pressure	2.5 barg
Temperature	max working ambient 40°C
Drive method	Hydraulic drive via hydraulic motor 19cc/rev
Speed range	2500 to 3600 rpm
Application	Pressure discharge from road tankers
Marketplace	Transportation of bulk material

TCF reference no: TCF2023/AAC

Name: Mitchell Hill, BEng

Date: 30th September 2024

Title: Technical Director

Signature: M. Hill

UK DECLARATION OF INCORPORATION

We, Transairvac International Ltd, located at Unit 28 Croft Road Industrial Estate, Croft Road, Newcastle, Staffordshire, ST5 0TW, United Kingdom declare:

- In exclusive responsibility that the **T155** meets the essential health and safety requirements of the directive(s) detailed below.
- This partly completed machinery must not be out into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this directive, where appropriate.
- The relevant technical documentation is compiled in accordance with and, where appropriate, a sentence declaring the conformity of the partly completed machinery with other relevant Directives.
- We undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery.

Directive	Requirements and / or Standards applied
Supply of Machinery (Safety) Regulations 2008	BS EN 60204-1: 2018
Pressure Equipment (Safety) Regulations S.I. 2016:1105	Sound Engineering Principles Cat 1, Module

Product type	Oil free contactless air compressor (hook and claw)
Part number	T155
Manufacturer's representative	Transairvac International Limited
Flow	250 m3/hr of air
Pressure	2.5 barg
Temperature	max working ambient 40ºC
Drive method	Hydraulic drive via hydraulic motor 19cc/rev
Speed range	2500 to 3600 rpm
Application	Pressure discharge from road tankers
Marketplace	Transportation of bulk material

TCF reference no: TCF2023/AAC

Name: Mitchell Hill, BEng

Date: 30th September 2024

Title: Technical Director

Signature: M. Hill