

Owner's Manual

- Installation
- Use
- Maintenance









GENERAL PUMP A member of

A member of the Interpump Group



INDEX

1.	INTRODUCTION	. Page	4
2.	SYMBOL DESCRIPTIONS	. Page	4
3.	SAFETY 3.1 General safety instructions. 3.2 High pressure unit safety requirements. 3.3 Safety during operation. 3.4 General procedures for using nozzles. 3.5 Safety during unit maintenance.	. Page . Page . Page . Page	4 4 5 5
4.	PUMP IDENTIFICATION	. Page	6
5.	TECHNICAL DATA	. Page	7
6.	DIMENSIONS AND WEIGHT	. Page	7
7.	INFORMATION REGARDING PUMP USE 7.1 Water temperature	. Page . Page	8
8.	PORTS AND CONNECTIONS	. Page	10
9.	PUMP INSTALLATION 9.1 Installation 9.2 Direction of rotation 9.3 Version change 9.4 Hydraulic connections 9.5 Pump feeding 9.6 Suction line 9.7 Filtering 9.8 Delivery line 9.9 Internal diameter of hose 9.10 V-belt transmission 9.11 Transmission definition 9.12 Definition of belt static tension values 9.13 Transmission of power from second PTO	. Page . Page . Page . Page . Page . Page . Page . Page	10 11 11-12 12 12 12 13 14 14 15 16
10.	START UP AND OPERATION 10.1 Preliminary inspections 10.2 Starting up	. Page . Page . Page	19 19 19
11.	PREVENTATIVE MAINTENANCE	. Page	20
12.	STOPPING THE PUMP FOR LONG PERIODS	. Page	20

GENERAL PUMP

A member of the Interpump Group



Serial #10127003 and later

INDEX	((continued)	Serial #10127003 and late
13.	PRECAUTIONS AGAINST FREEZING	Page 21
14.	WARRANTY TERMS	Page 21
15	TROUBLESHOOTING	Page 21-22
16.	KF EXPLODED VIEWS AND PARTS	Page 23-25
17.	FLUSHING CIRCUIT DIAGRAM OF USE	Page 26
18.	KFR SPECIAL VERSIONS	Page 27
19.	KFR EXPLODED VIEW & PARTS LIST	Page 28-30
20.	MAINTENANCE LOG	Page 27



Serial #10127003 and later

1. INTRODUCTION

This manual describes the use and maintenance instructions of the KF pump, and should be carefully read and understood before using the pump. Correct use and adequate maintenance will guarantee the pumps trouble-free operation for a long time. General Pump declines any responsibility for damage caused by misuse or the non-observance of the instructions indicated in this manual. Upon receiving the pump, check that it is complete and in perfect condition.. Should anything be found out of order, please contact us before installing and starting the pump.

2. SYMBOL DESCRIPTIONS



WarningPotential Danger



Read carefully and understand the manual before operating the pump



Danger

High Voltage-Electrocution Danger



Danger

Wear protective mask



Danger Wear goggles



Danger

Wear protective gloves



Danger

Wear protective boots



Danger

Defines special safety requirements for the use of the pumps in areas identified in accordance with the ATEX Directive.

When pumps are ordered in the ATEX configuration because they are going to work in areas with a potentially explosive atmosphere, you must STRICTLY comply with the notes given under the headings marked with this symbol and the instructions in the Owner's Manual "ATEX EXPLOSION PROTECTION".

3. SAFETY

3.1 General Safety Indications

The misuse of pumps and high pressure units, and the non-observance of installation and maintenance instructions may cause severe injury to people and/or damage to property. Anyone requested to assemble or use high pressure units must possess the necessary competence to do so, should be aware of the characteristics of the components assembled/used, and must adopt all the necessary precautions in order to guarantee maximum safety in any operating condition. In the interest of safety, no precaution that is reasonably feasible must be neglected, both by the Manufacturer and the Operator.

3.2 High pressure unit safety requirements

- 1. The pressure line must always be equipped with a safety valve.
- 2. High pressure unit components, in particular for those units working outside, must be adequately protected against rain, frost and heat.
- 3. The units electrical parts must be adequately protected from water spray, and must comply with the specific norms in force.
- 4. High pressure hoses must be correctly sized for the unit's maximum operating pressure, and must only be used within the pressure range indicated by the hose manufacturer. The same conditions apply to all other unit accessories where high pressure is involved.
- 5. The extremities of high pressure hoses must be sheathed and fastened to a steady structure in order to avoid dangerous whiplashes should they burst or should their connections break.
- 6. Appropriate safety guards must be provided for the pump transmission systems (joints, pulleys and belts, auxiliary drives).

Rev. J 12-24 Page 4

GENERAL PUMP

A member of the Interpump Group





3.3 Safety During Operation

The working area of a high pressure system must be clearly signaled. Access must be prohibited to non-authorized personnel and, if possible, the area must be fenced in. The personnel authorized to access this area must be previously trained, and informed about the risks that may arise from failures or malfunctions of the high pressure unit.

Before starting the unit, the operator must check:

- 1. That the high pressure unit is correctly fed (see paragraph 9.5).
- 2. That pump intake filters are perfectly clean; we advise to use a device that indicates the filters clogging level.
- 3. That electrical parts are adequately protected and in perfect condition.
- 4. That high pressure hoses do not show apparent signs of abrasion, and that fittings are in perfect shape.
- 5. Attention: In relation to the application, use and environmental Conditions, during the operation the outer surfaces of the pump may reach high temperatures. We recommend to take precautions to avoid contact with hot parts.

Any anomaly or reasonable doubt that may arise before or during operation must be promptly reported and verified by competent personnel. In these cases, pressure must be immediately released and the high pressure unit stopped.







3.4 General Procedures For Using Nozzles

- 1. The Operator must always place their own and other worker's safety before any other interest; their actions should always be governed by good sense and responsibility.
- 2. The Operator must always wear a helmet with a protective visor, waterproof clothing, and appropriate boots capable of guaranteeing grip on wet pavement.

Note: appropriate clothing will effectively protect against water spray, but it may not offer adequate protection against the direct impact of water jets or sprays from a close distance. Some circumstances may require further protection.

- 3. We advise to employ a team of at least two Operators, able to provide mutual and immediate assistance if needed, and to rotate their duties in case of long and heavy work.
- 4. Access to the work area that is within the water jets' range must be absolutely forbidden; the area must be free of objects that may be unintentionally hit by the pressurized jet, causing damage or dangerous situations.
- 5. The water jet must only and always be directed towards the work area, even during testing or preliminary inspections.
- 6. The Operator must always pay attention to the trajectory of the debris removed by the water jet. If necessary, adequate side guards must be provided by the Operator in order to protect anything that may be accidentally exposed.
- 7. For no reason must the Operator be distracted during operation. The personnel that needs to access the working area must wait for the Operator to suspend his work, and then immediately make his presence known.
- 8. For safety reasons, it is important that each member of the team is perfectly aware of the intentions and actions of other team members in order to avoid dangerous misunderstandings,
- 9. The high pressure unit must not be started and brought up to pressure unless each member of the team is in his designated position, and the Operator has already directed the nozzle towards the work area.

3.5 Safety During Unit Maintenance

- 1. The maintenance of the high pressure unit must be done within the time intervals indicated by the Manufacturer, who is responsible for the entire unit's compliance with the norms in force.
- 2. Maintenance must always be carried out by specialized and authorized personnel.
- 3. Assembly and disassembly of the pump and its various components must be performed exclusively by authorized personnel, using appropriate tools in order to avoid damage to components and connections.
- 4. To guarantee total reliability and safety, always use original spare parts.

Ref 300763 Rev. J Page 5



4. PUMP IDENTIFICATION

Each pump has its own serial number XX.XXX.XXX (see point 1) and an identification plate (see point 2) which shows:

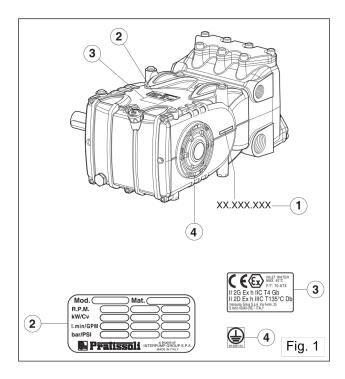
Pump model and version Maximum RPM Power absorbed Hp-kW Flow Rate I/mn - GPM Pressure bar/PSI



Pump model, version and serial number must always be specified when ordering spare parts.



Pump model, with the ATEX configuration. Point 3 specific ATEX making for explosion protection. Point 4 ground screw location,



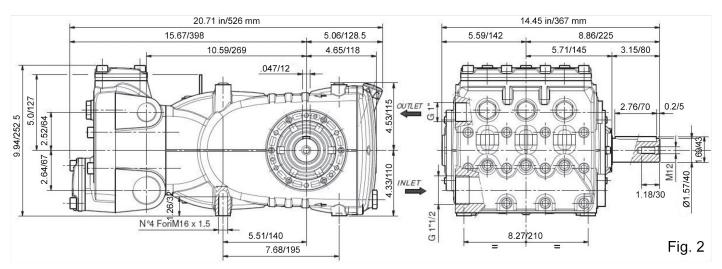


5. TECHNICAL FEATURES

MODEL	MODEL RPM		FLOW RATE		SURE	POWER
MODEL	KPIVI	GPM	l/min	PSI	Bar	ЕВНР
KF28A	1000	24.5	93	3000	207	50
KF30A	1000	28.0	106	2900	200	55
KF32A	1000	31.7	120	2610	180	56
KF36A	800	32.2	122	2300	160	50
KF36A	900	36.2	137	2050	140	50
KF36A	1000	40.0	153	1900	130	52
KF40A	900	45.0	170	1600	110	49

6. DIMENSIONS AND WEIGHT

For dimensions and weight of Standard Version pumps, please refer to fig. 2.



Weight: 150 Lbs./68 Kg.



7.INFORMATION ABOUT PUMP USE



The KF pump has been designed to operate with filtered water (see paragraph 9.7) and at maximum temperature of 104° F (40° C).

Other fluids may be used only upon the approval of The Customer Service Department .



7.1 Water Temperature

The max water temperature is 104° F (40° C). Nonetheless, it is possible to use the pump at temperatures of up to 185° F (85° C) for short periods of time. In this case we advise consulting the Customer Service Department.

7.2 Max Flow Rate and Pressure Values

The performance values indicated in the catalog refer to the maximum performance of the pump. Regardless of the power used, pressure and maximum RPM values indicated on the plate may not be exceeded unless expressly authorized by the **Customer Service Department**.

7.3 Lowest RPM

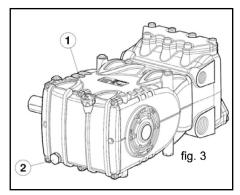
Any RPM value different from what is indicated in the performance table (see chapter 5) must be expressly authorized by the **Customer Service Department**.

7.4 Recommended Lubricant Oil Types & Manufacturers

The pump is delivered with lubricant oil compliant with room temperatures ranging between 32° and 86° F (0° and 30° C). Some recommended lubricant types are indicated in the table below; these lubricants are treated with additives in order to increase corrosion protection and resistance to fatigue. As an alternative, Automotive SAE 85W-90 gearing lubricants may also be used.

BRAND	TYPE
GENERAL PUMP	SERIES 220
ARAL	Aral Degol BG220
BP	ENERGOL HLP 220
CASTROL	Hyspin VG 220, Magna 220
ELF	POLYTELIS 220
ESSO	NUTO 220
FINA	Cirkan 220
FUCHS	RENOLIN DTA 220
MOBIL	DTE OIL BB
SHELL	TELLUS C 220
TEXACO	RANDO HD 220
TOTAL	CORTIS 220

Check the oil level by using the oil level dipstick with minimum and maximum value notches (1), fig. 3. Refill if needed. Correct oil level inspection is done with the pump at room temperature; oil is changed with the pump at working temperature, by removing the plug (2), fig 3. Checking and changing oil is to be carried out as indicated in Chapter 11. The amount required is 128.5 oz. (3.85 liters).



Ref 300763 Rev. J 12-24

GENERAL PUMP

A member of the Interpump Group





In any case, oil must be changed at least once a year since it may deteriorate by oxidation.

For room temperatures that differ from that mentioned earlier, follow the indications contained in the diagram below, keeping in mind that the oil must have a minimum viscosity of 180 cSt.

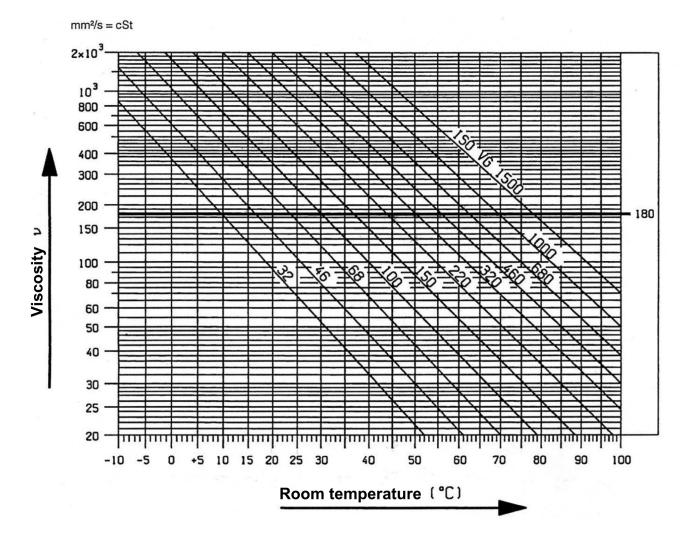


Set up the pumping system so that oil temperatures do not exceed in exceed 212° F (100° C) during pump operation.

Use a temperature probe to be inserted into to oil drain plug, (Pos. 2 Fig. 3).

See "ATEX EXPLOSION PROTECTION" manual. ATTENTION: Use only oil with a flash point higher than 392° F (200° C).

VISCOSITY/ROOM TEMPERATURE DIAGRAM





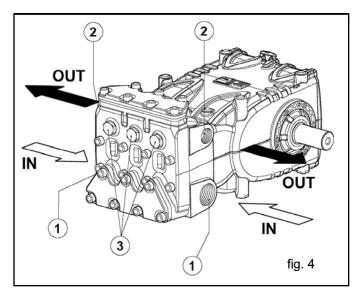
Exhausted oil must be collected in an appropriate recipient and disposed of in appropriate locations. In absolutely no case may it be dispersed into the environment.



8. PORTS AND CONNECTIONS

KF Series pumps (see fig. 4) are provided with:

- 1. 2 inlet ports "IN", 1" NPT-F
 - The line can be connected to either of the two inlet ports; the one not being used must be hermetically sealed.
- 2. 2 outlet ports "OUT", Ø 1/2" NPT-F
- 3. 3 auxiliary ports; used for the pressure gauge only



9. PUMP INSTALLATION

9.1 Installation

The pump must be installed in a horizontal position using the correct threaded feet M 16 x 1.5; fasten the screws with a torque value of 154.8 ft. lbs. (210 Nm).. The base must be perfectly flat and sufficiently rigid in order to avoid bending and misalignments on the pump/transmission coupling axis due to the torque applied during operation. The unit must not be rigidly fixed to the pavement, but requires the use of anti-vibration elements. For special applications contact the **Customer Service Department**.

The pump is equipped with two lifting eyebolts to facilitate installation, as shown in the following figure.



In case of disassembly, to avoid allowing debris inside the front part of the crankcase, close the threaded hole with the threaded cap.







Grounding: The pump must be connected to the grounding conductor using the stainless steel M6 screw and stainless steel serrated washer marked with a YELLOW label. See "ATEX EXPLOSION PROTECTION" manual.



Replace the oil cap, located on the rear crankcase cover, with the oil dipstick and check oil level. The oil dipstick must always be accessible, even when the unit is assembled.



The pump's shaft (PTO) must not be rigidly connected to the motor unit.

The following transmission types are suggested:

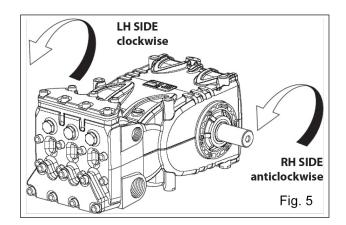
- Hydraulic by means of a flange; for correct application, please contact the Customer Service Department
- V-belts
- Cardan Joint (please respect the maximum working angles indicated by the manufacturer)
- Flexible joint



The transmission must be assembled correctly to avoid incorrect or harsh operation of the connection parts and to prevent excessive wear, temperature rise, and/or hazardous breakages that may create potential sources of ignition and explosion. See "ATEX EXPLOSION PROTECTION" manual.

9.2 Direction of rotation

An arrow situated on the crankcase near the shaft indicates the correct direction of rotation. Standing in front of the pump head, the direction of rotation must be as shown in fig. 5.



9.3 Version Change

A right version pump is defined when: observing the pump from the head side, the PTO shank of the pump shaft is on the right side.

A left version pump is defined when: observing the pump from the head side, the PTO shank is on the left side.

NOTE: Fig. 5 shows a right version



The version may be changed only by specialized and authorized personnel by carefully following the instructions that follow:

1. Separate the hydraulic part from the mechanical part as indicated in Chapter 2, paragraph 2.2.1 of the repair manual.

Ref 300763 Rev. J 12-24 Page 11



The version may be changed only by specialized and authorized personnel by carefully following the instructions that follow:

2. Rotate the mechanical part by 180°, and reposition the rear crankcase cover so that the oil dipstick is facing upwards; reposition the lifting bracket and the related closing caps in the upper part of the crankcase; finally, correctly reposition the identification plate in its appropriate seat on the crankcase.



Be sure that the lower draining holes on the crankcase near the plungers are open, and not closed by the plastic caps as required for the previous version.

Join the hydraulic part with the mechanical part as indicated in Chapter 2, paragraph 2.2.5 of the repair manual.

9.4 Hydraulic Connections

In order to isolate the system from the vibrations produced by the pump, we advise to build the first section of the duct near the pump (both for intake and delivery) with flexible hose. The consistency of the intake section must allow to avoid deformation caused by the de-pressurization produced by the pump.

9.5 Pump Feeding

To obtain the best volumetric efficiency, a minimum positive head of 0.20 meters is required.



For negative prevalence contact Customer Service Department

9.6 Suction Line

For the pump's correct operation, the suction line must have the following characteristics:

1. Minimum internal diameter as indicated in the diagram in paragraph 9.9, and in any case equal or greater than the pump head's value.



Along the duct, avoid localized diameter reductions that may cause pressure drops with subsequent cavitation. Absolutely avoid 90° elbows, connections with other hoses, bottlenecks, counter-slopes, upside down "U" shaped curves, "T" connections.

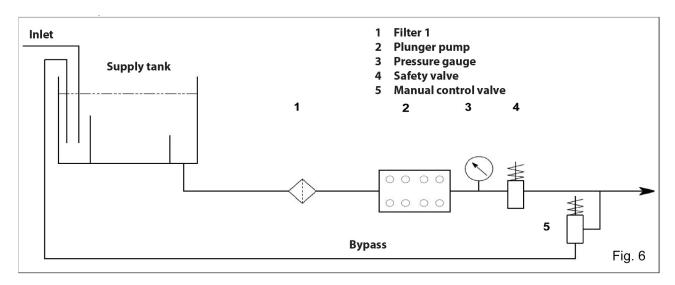
- 2. The selected lay-out must allow to avoid cavitation.
- 3. It should be perfectly airtight, and built in a way that guarantees perfect sealing over time.
- 4. Avoid pump emptying when stopping (even partial emptying).
- 5. Do not use hydraulic-type fittings, 3 or 4 way fittings, adapters, etc., since they may hinder the pump's performance.
- 6. Do not install Venturi tubes or injectors for detergent intake.
- 7. Avoid the use of standing valves, check valves, or any other type of one-way valves.
- 8. Do not connect the bypass line from the valve directly to the pump suction line.
- 9. Provide appropriate baffle plates inside the tank in order to avoid water flows coming from both the bypass and feeding lines may create turbulence near the tank's outlet port.
- 10. Make sure that the suction line is perfectly clean inside before connecting it to the pump.



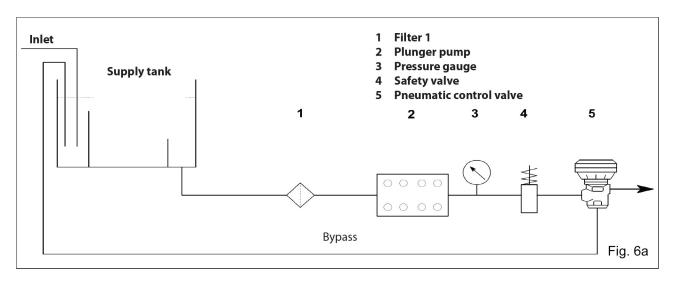
9.7 Filtering

On the pump suction line, install one filter as indicated in fig. 6 and fig.6/a.

With a manually activated control valve



With pneumatic control valve



The filter must be installed as close as possible to the pump, should allow easy inspection and have the following characteristics:

- 1. Minimum capacity 3 times greater than the pump's rated flow value.
- 2. Filter port diameters must not be smaller than the pump inlet ports.
- 3. Filtration degree ranging between 200 and 360 µm.

Ref 300763 Rev. J





In order to guarantee correct pump operation, it is important to plan periodical cleaning of the filter depending on actual pump usage, water quality and real clogging conditions.

9.8 Delivery Line

To obtain a correct delivery line, please comply with the following installation instructions:

- 1. The internal diameter of the pump must allow to guarantee correct fluid speed; see diagram in paragraph 9.9
- 2. The first section of the hose connected to the pump must be flexible in order to isolate pump vibrations from the rest of the system.
- 3. Use high pressure hoses and fittings that guarantee wide safety margins in any working condition.
- 4. Install a safety valve on the delivery line.
- 5. Use pressure switches suitable for the pulsating loads typical of plunger pumps.
- 6. In the design phase, take into proper account the pressure drop along the line, since this causes a reduction in usage pressure with respect to the value measured at the pump.
- 7. If the pump pulsations are harmful for particular applications, install an appropriately sized pulsation dampener on the delivery line.

9.9 Internal Diameter of the Hose Line

To determine the internal diameter of the hose, please refer to the diagram below.

Suction Hose

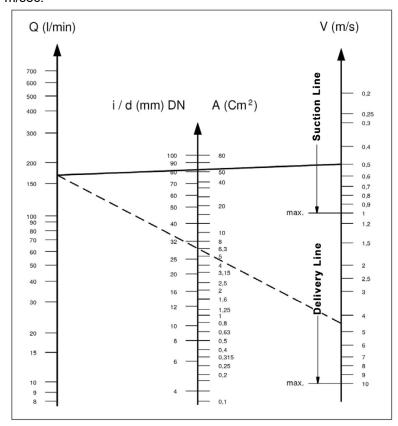
With a flow rate of \sim 45 GPM (170 l/mn) and water speed of 0.5 m/sec. the diagram line that connects the two scales intersects the central scale, indicating the diameters, at a value of \sim 3.15 inch (80 mm).

Delivery Hose

With a flow rate of ~45 GPM (170 l/mn) and water speed of 4.5 m/sec. The diagram line that connects the two scales intersects the central scale, indicating the diameters at a value of ~ 1.2 inch (30 mm).

Optimum speed values:

Suction: ≤ 0.5 m/sec.
 Delivery: ≤ 5.5 m/sec.



Ref 300763 Rev. J 12-24

Page 14





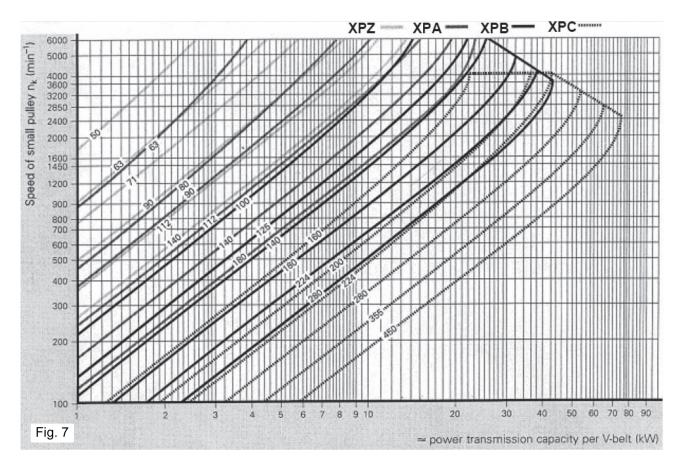
The diagram does not take into account the hose and valve resistance, the pressure drop due to the pipe length, the viscosity and the temperature of the pumped fluid. If necessary, contact our Customer Service Department.

9.10 V-belt Transmission

The pump may be driven by a v-belt system. For this pump model, we suggest using 4 XPB belts (16.5x13 cogged); for long durations, use the XPC profile; both the characteristics and the power transmission capacity of each belt can be verified on the diagram in **fig. 7**, in function of the number of rotations normally declared by the manufacturer. Minimum diameter of the driven pulley (on the pump shaft) \geq 9.8 in. (250 mm). The radial load on the shaft must not be greater than 7500 N (value required for the definition of the lay-out). The transmission is considered adequate if this load is applied at a maximum distance of a=40 mm from the shaft shoulder (PTO) as indicated in fig. 10.



For sizing that differs from that indicated above, please contact our **Customer Service Department** for assistance.

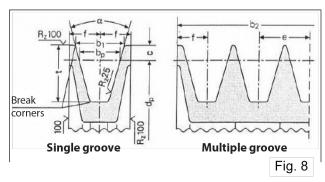




9.11 Transmission Definition

To avoid abnormal radial loads on the shaft and its related bearing, please comply with the following indications:

a) Use pulleys with race dimensions prescribed / recommended by the belt manufacturer. Should no indications be supplied, please see **fig. 9** and the table in **fig. 10**.

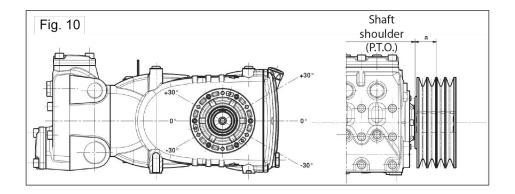


Dimensions (in mm)

		(,				
Belt section as per DIN symbol					XPB/SPB	XPC/SPC
DIN	7753 p	art 1 and B.S. 3790	symbol B.S./ISO		SPB	SPC
Belt	section	as per	DIN symbol		17	22
		nd B.S. 3790	symbol B.S./ISO		В	С
Pitch	n width			b _w	14.0	19.0
		Increased grooving width $b_1 \approx \alpha = 34^{\circ}$			18.9	26.3
		$\alpha = 38^{\circ}$			19.5	27.3
				С	8.0	12.0
Dist	ance be	etween grooving		and	23 ± 0.4	31 ± 0.5
				f	14.5 ± 0.8	20.0 ± 1.0
Incre	eased g	rooving depth		t_{min}	22.5	31.5
α	34°	by primitive diameter		d _w	from 140 to 190	from 224 to 315
	38°	narrow-section V-belts DIN 7753 part 1			> 190	> 315
α	34°	by primitive diameter		d _w	from 112 to 190	from 180 to 315
	38°	classic section V-belts DIN 2215			> 190	> 315
Tole	rance fo	or $\alpha = 34^{\circ}-38^{\circ}$			± 1°	± 30'
		o2 by grooving number z		1	29	40
b2 =	(z-1) e	+ 2 f		2	52	71
				3	75	102
				4	98	133
				5	121	164
				6	144	195
				7	167	226
				8	190	257
				9	213	288
				10	236	319
					259	350
				12	282	381
Minimum pulley diameter must be respected.						Fig. 9
Do not use laminated V-belts.						

b) Use high efficiency belts - for example **XPB** instead of **SPB**; this will allow to use a lower number of belts to transmit the same power, and consequently a minor distance of the resultant from the shaft shoulder (PTO), "a" in **fig. 10**.





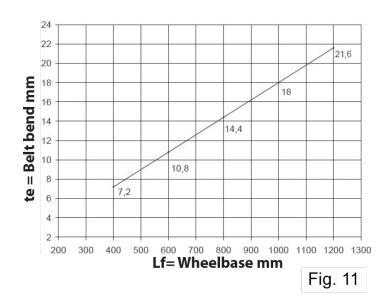
- c) Set belt tension according to the Manufacturer's suggestions; an excessive value will abnormally stress the bearing, reduce its duration and cause premature wear of the pulley. The tension value depends on different variables as indicated in paragraph 9.12.
- d) Belt length has a natural tolerance ≥ ± 0.75%; for this reason the 4 belts must be purchased in pairs
- e) Follow the belt tension directions as indicated in **fig. 9**; for different needs, please contact the **Customer Service Department**.
- f) Carefully align driver pulley and driven pulley races.

9.12 Definition of belt static tension values

Static tension depends on:

- a) The center distance between the two pulleys (belt length).
- b) The load due to the belt's static tension.
- c) The number of belts.
- d) The angle of wrap of the smallest pulley.
- e) Average speed.
- f) Etc.

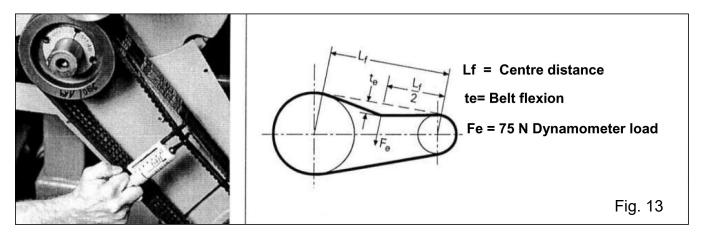
For belts with an XPB profile, the diagram in **fig. 11** allows to obtain the values of the static tension that must be applied vs. the center distance between pulleys.



Ref 300763 Rev. J 12-24



Finally, given a distance between pulley centers of 23.6 inches (600 mm) and a load of 75 N at the middle of the distance, a belt flexion "te" of around .425 inch (10.8 mm) will confirm the correct belt tension as shown in **fig. 12**.



Note 1: If not differently indicated by the belt Manufacturer, the inspection of the correct tension value, and the related tension adjustment if needed is to be carried out after at least 30 minutes of operation in order to obtain belt setting. The best efficiency and maximum belt life is obtained with the correct tension value.

Note 2: If required, or during normal maintenance, never replace a single belt, but the entire set.

9.13 Transmission of power from the second PTO

Upon request, KF series pumps can be supplied with an auxiliary PTO on the opposite side to the drive (Transmission of power from the second PTO).

Transmission can be carried out:

- By means of the V-belt.
- By means of the joint.

By means of the V-Belt, withdrawable max torque is: 48 ft. lbs. (65 Nm) which corresponds to:

7 HP at 750 rpm;

7.4 HP at 800 rpm;

8.3 HP at 900 rpm;

9.3 HP at 1000 rpm;

11.1 HP at 1200 rpm.

By means of the V-Belt, with drawable max torque is: 98 ft. lbs. (130 Nm) which corresponds to:

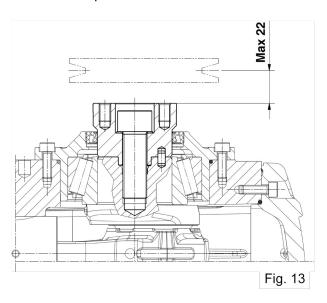
14 HP at 750 rpm;

14.8 HP at 800 rpm;

16.6 HP at 900 rpm;

18.6 HP at 1000 rpm;

22.2 HP at 1200 rpm.





By the means of the V-belt, the transmission is considered suitable if: belt pull is applies at a max distance of 0.87 in. (22 mm) from the bend shaft shoulder fig. 13. Min diameter of pulley to be used = \emptyset 3.94 (100).



With transmission by means of the joint, make sure it is perfectly aligned so that to transverse forces are generated on the pump shaft.



For applications different from those specified above, please contact our Technical or Customer Service Department.

Ref 300763 Rev. J



10. START-UP AND OPERATION

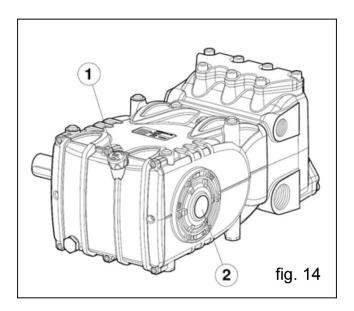
10.1 Preliminary Inspections

Before Start-up Be sure that:



The suction line is connected and up to pressure (see Chapter 9) the pump must never run dry.

- 1. The suction line must be perfectly airtight.
- 2. All the On-Off valves between the pump and the feeding source are completely open. The delivery line must discharge freely in order to allow the air in the pump to be ex-pulsed easily, thus facilitating pump priming.
- 3. All suction/delivery connections and fittings must be correctly tightened.
- 4. Coupling tolerances on the pump/transmission axis (half-joint misalignment, Cardan inclination, belt tightening, etc.) must remain within the limits indicated by the transmission Manufacturer.
- 5. The pump's oil level must be verified using the correct dipsticks (position 1, fig 14), and especially by means of the oil sight glass (position 2, fig. 14).





In case the pump has not run for a long period of time, verify the correct operation of the suction and delivery valves.

10.2 Start-up

- 1. When starting the pump for the first time, check for the correct direction of rotation.
- 2. The pump must be started off-load.
- 3. Verify correct feeding pressure.
- 4. During operation, check that the rotating speed does not exceed the rated value.
- 5. Before putting the pump under pressure let it run for at least 3 minutes.
- 6. Before stopping the pump, release the pressure by acting on the adjustment valve or on any discharging device.



11. PREVENTIVE MAINTENANCE

To guarantee pump reliability and efficiency, respect the maintenance intervals as indicated in the table below.

PREVENTIVE MAINTENANCE				
EVERY 500 HOURS	EVERY 1500 HOURS			
Check oil level	Change oil			
	Check / Replace:			
	 Valves 			
	 Valve seats 			
	 Valve springs 			
	 Valve guides 			
	Check / Replace:			
	 H.P packings 			
	 L.P. packings 			



ATTENTION: Replace the bearings and the related seal rings every 8000 hours of operation.

Preform periodical checks on cleaning and maintenance on the pump. See "ATEX EXPLOSION PROTECTION" manual.

12. STOPPING THE PUMP FOR LONG PERIODS



12.1 Inactivity For Long Periods

If the pump is started up for the first time after a long period from the shipment date, before starting operation check the oil level, check the valves as indicated in Chapter 11, and follow the start-up procedures described.

12.2 Filling the Pump With An Anti-Corrosion Emulsion or Antifreeze By Using An External Diaphragm Pump As In The Layout Shown in Paragraph 9.7, between pos. 1 and pos. 2 of fig. 6 and fig. 6/a.

- a) In place of a service tank, use a suitable container containing the solution to be pumped.
- b) Close the filter draining, if open.
- c) Be sure that the connecting hose is clean, spread with grease and connect it to the high pressure outlet port.
- d) Fit a suction hose to the membrane pump. Open the pump suction connection and fit hose between it and the membrane pump.
- e) Fill the container with the solution/emulsion.
- f) Put the free extremities of the suction line and the high pressure outlet hose inside the container.
- g) Start up the diaphragm pump.
- h) Pump the emulsion until it comes out of the high pressure hose.
- i) Continue pumping for at least another minute; if needed, the emulsion can be reinforced by adding, for example, Shell Donax
- j) Stop the pump, remove the hose from the suction connection and close it with a plug.
- k) Remove the hose from the high pressure outlet port. Clean, grease and plug both connections and the hoses.



13. PRECAUTIONS AGAINST FREEZING



In areas and periods of the year where there is risk of freezing, follow the instructions indicated in Chapter 12 (see paragraph 12.2).



In the presence of ice, in no case must the pump be started until the entire circuit has been completely thawed out; not complying with this indication may cause serious damage to the pump.

14. WARRANTY TERMS

The duration and the terms of the warranty are contained in the purchase contract. The warranty is void if:

- a) The pump has been used for purposes that differ from that agreed.
- b) The pump has been fit with an electric or engine with performance greater than that indicated in the table.
- c) The required safety devices were not adjusted or disconnected.
- d) The pump was used with accessories or spare parts not supplied by General Pump.
- e) Damage was caused by:
 - 1) improper use
 - 2) the non-observance of maintenance instructions
 - 3) use not compliant with operating instructions
 - 4) insufficient flow rate
 - 5) faulty installation
 - 6) incorrect positioning or sizing of the hoses
 - 7) non-authorized design changes
 - 8) cavitation

15. TROUBLESHOOTING



The pump does not produce any noise at start-up:

- The pump is not primed and is running dry
- There is no water in the inlet line
- · The valves are blocked
- The delivery line is closed and does not allow the air in the pump to be discharged



The pump pulses irregularly (knocking):

- Air suction
- · Insufficient feeding
- Bends, elbows, fittings along the suction line obstruct the fluid's passage
- · The inlet filter is dirty or too small
- · The booster pump, where provided, supplies insufficient pressure or flow rate
- The pump is not primed due to insufficient head or the delivery line is closed during priming
- The pump is not primed due to valve seizing
- Worn valves
- · Worn pressure packings
- Incorrect operation of the pressure adjustment valve
- · Transmission problems

Ref 300763 Rev. J 12-24

GENERAL PUMP

A member of the Interpump Group



15. TROUBLESHOOTING (cont)



The pump does not deliver the rated flow / is noisy:

- Insufficient feeding (see the causes listed above)
- · RPM are less than the rated value
- Excessive amount of water by-passed by the pressure adjustment valve



- Worn valves
- · Leakage from the pressure packings
- · Cavitation due to:
 - 1) Wrong sizing of the suction hose/ undersized diameters
 - 2) Insufficient flow rate
 - 3) High water temperature



Insufficient pump pressure:

- The nozzle (or has become)too large
- Insufficient RPM
- · Leakage from the pressure packings
- · Incorrect operation of the pressure adjustment valve
- Worn valves



Overheated pump:

- The pump is overloaded (pressure or RPM exceed the rated values)
- Oil level is too low, or the oil is not of a suitable type, indicated in Chapter 7 (see paragraph 7.4)
- Incorrect alignment of the joint or pulleys
- Excessive inclination of the pump during operation

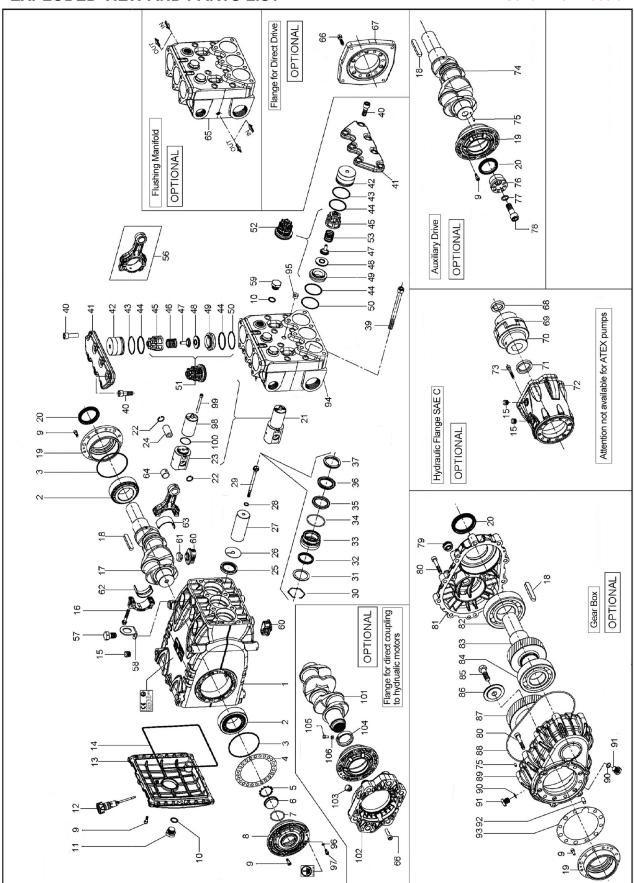


Pump vibrations or knocking:

- Air suction
- Incorrect operation of the pressure adjustment valve
- Valve malfunction
- · Irregular drive transmission motion

KF SERIES Serial #10127003 and later

16. KF EXPLODED VIEW AND PARTS LIST



GENERAL PUMP

A member of the Interpump Group

KF PARTS LIST

Item 1	Part No. 71010022	Description Crankcase	QTY 1
2	91859000	Bearing, Taper Roller	2
3	90391800	O-ring, Ø94.92 x 2.62	3
3			1
4	F71220081	Spacer, 0.25 mm	1
	F71220381	Spacer, 0.25 mm	
5	90075600	Retainer Clip	1
_	90075500	Retainer Clip, ATEX	1
6	70211801	Oil Sight Glass	1
7	90387700	O-ring, Ø39.34 x 2.62	1
8	F71150122	Cover, Bearing	1
	F71150522	Cover, Bearing, ATEX	1
9	F99186700	Screw, M6 x 18	20
10	F90384100	O-ring, Ø17.13 x 2.62	4
11	F98218700	Plug, G 1/2"x13, Zinc	4
	F98218150	Plug, G 1/2"x13, SS, ATEX	4
12	98212000	Oil Dipstick	1
12	98212100	Oil Dipstick, ATEX	1
13	F71160022	Cover, Crankcase	1
14	F90400000	O-ring, Ø21.5 x 3	1
15	98206000	Plug, Black Rubber Ø15	4
16	F99313800	Screw, Connecting Rod, M8 x 1 x 48	6
17	F71020035	Crankshaft	1
18	F91500000	Key, 12 x 8 x 70	1
19	F71150022	Cover, Bearing, PTO	1
20	90170000	Seal, Oil Crankshaft, Ø50 x 65 x 8	1
	71606601		_
21		Plunger Guide, Complete	3
22	F90060600	Ring	6
23	71050015	Plunger Guide	3
24	F97743000	Pin, Plunger, Ø20 x 38	3
25	90167800	Seal, Oil, Plunger, Rod Ø38 x 52 x 7	3
26	96714000	Washer, Flinger	3
	F71040609	Plunger, Ø28x95	3
	F71040309	Plunger, Ø30x95	3
27	F72040009	Plunger, Ø32x95	3
	F71040409	Plunger, Ø36x95	3
	F71040509	Plunger, Ø40x95	3
28	90367100	O-ring, Ø11 x 2	3
29	F71219566	Plunger Screw	3
30	F90079700	Circlip, 52 mm	3
-	F71217670	Ring, Seal, Ø28	3
	F71217770	Ring, Seal, Ø30	3
31	F72210570	Ring, Seal, Ø32	3
31	F71218070	Ring, Seal, Ø36	3
			_
	F71218270	Ring, Seal, Ø40	3
	90275000	Seal, L.P., Ø28x36x5.5	3
	90276000	Seal, L.P., Ø30x38x5.5	3
32	90278000	Seal, L.P., Ø32x40x5.5	3
	90279800	Seal, L.P., Ø36x44x5.5	3
	90282800	Seal, L.P., Ø40x48x5.5	3
	F71215670	Support, Gasket, Ø28	3
	F71215370	Support, Gasket, Ø30	3
33	F72210470	Support, Gasket, Ø32	3
	F71215470	Support, Gasket, Ø36	3
	F71215570	Support, Gasket, Ø40	3
34	90389100	O-ring, Ø52.07x2.62	3
	F90275500	Ring, Restop, Ø28x45x8.5/4.0	3
	F90277400	Ring, Restop, Ø30x45x8.0/4.5	3
35	F90278400	Ring, Restop, Ø32x44x5.5/3.0	3
55	F90281800	Ring, Restop, Ø36x45x6.0/3.0	3
	F90283800	Ring, Restop, Ø40x55x8.0/4.5	3
	F90263600 F90275800	Packing, H.P., Ø28x45x8.5/5.0	3
26	F90277000	Packing, H.P., Ø30s45x7.5/4.5	3
36	F90278800	Packing, H.P., Ø32x44x6.0/3.5	3
	F90282000	Packing, H.P., Ø36x48x6.0/3.5	3
	F90283200	Packing, H.P., Ø40x55x7.5/4.5	3
	F70100351	Ring, Front, Ø28	3
	F70100451	Ring, Front, Ø30	3
37	F72100051	Ring, Front, Ø32	3
	F71100251	Ring, Front, Ø36	3
	F71100351	Ring, Front, Ø40	3
39	F99448000	Screw, M12x150	8
	F99429500	Screw, M12x35	14
40	F994/9500		

KF	SE	RI	ES
Sei	rial #101	27003	and later

Item	Part No	Description	QTY.
42	F72210370	Valve Plug	6
43	F90525000	Anti-extrusion Ring, Ø50.9x55x1.5	6
44	90388900 36204505	O-ring, Ø48.89x2.62 Guide, Valve	12
46	F94755000	Spring, Ø25.2x26	3
47	F36208651	Internal Valve Guide	6
48	F36208502	Poppet Valve	6
49	F36204156	Valve Seat	6
50	F90524000	Anti-extrusion Ring, Ø49.5x54x1.5	6
51	F36713701	Outlet Valve Packing	3
52	F36713601	Inlet Valve Packing	3
53	F94754000	Spring, Ø24.7x27	3
56	F71030701	Connecting Rod	3
57	F99426600	Bolt, M12x25	1
58 59	F71223074	Eyebolt Plug, Valve G 1/2"x13	3
60	F98218100 F71225851	Plug, Drain	6
61	F71225951	Cap, Vented	3
62	F90924300	Babbitt Bearing, Non Load side	3
63	F90924000	Babbitt Bearing, Non Load side	3
64	F90911000	Bronze Bushing	3
65	-	Manifold, Flushing	1
66	F99309800	Screw, M8x35	
67	F10067720	Flange, Direct Drive	1
68	F10074570	Spacer, Ø31.75x10.50	1
69	F10074947	Flex Coupler, Ø55	1
70	F10742801	Flex Coupler, Ø40x31.75	1
71	F10074670	Spacer, Ø40x10	6
72	F10075020	Hydraulic Flange, SAE C	1
73	F99314600	Screw, M8x50	1
74 75	F71020735	Crankshaft, Ø50, PTO	1
76	F97615200 F71226554	Pin Guide. 5x10 Auxiliary Power Take-off	1
77	F96737800	Washer, Ø17x24x10	1
78	F99514200	Screw, M16x45	1
79	F97594000	Oil Sight Glass	1
80	F99314600	Screw, M8x50	16
81	F72210920	Cover, Gearbox	1
82	F91859300	Bearing	1
	F10070835	Pinion, Z27, 1.250	1
83	F10070935	Pinion, Z25, 1.500	1
	F10071035	Pinion, Z22, 1.830	2
84	F91857700	Bearing	1
85	F99430700	Screw, M12x40	1
86	F72211055 F10071135	Gear Mounting Washer Ring Gear, Z34, 1.250	1
87	F10071135	Ring Gear, 234, 1.250 Ring Gear, Z37, 1.500	1
01	F10071235	Ring Gear, Z40, 1.830	1
88	F90394800	O-ring, Ø209.22x2.62	1
89	F72210820	Housing, Gear	1
90	F90358500	O-ring, Ø10.82x1.78	2
91	F98204250	Plug, G 1/4"x13	2
92	F97618500	Pin, Ø8x18	1
93	F72210784	Gasket, Reducer Box	1
	F71125036	Manifold, Ø28-30, NPT	1
94	F71128936	Manifold, Ø32, NPT	1
	F71125136	Manifold, Ø36, NPT	1
0.5	F71125236	Manifold, Ø40, NPT	1
95	F98209800 F96693950	Plug, G 3/8"x10 Washer, Ø6.4x11x0.7, ATEX	1
96 97	F99093950 F99180900	Screw, M06x10, ATEX	1
98	F71050866	Plunger Guide	3
99	F99199400	Screw, M6x65	6
100	F90352800	O-ring, Ø29x1.5	3
101	F71020835	Crankcase, Ø50 SAE-C	1
102	F10085422	Flange, Hydraulic	1
103	F90206500	Plug, Plastic	1
104	F71228971	Ring, Ø40	1
105	F70227034	Screw, M6x12	1
106	F92202500	Nut, M6x5	1
	200082	Bolt, M16/1.5x40	4
	200083	Lock Washer, M16	4



REPAIR KITS

KIT NUMBER	F2014 Plunger Packing Kit KF28A	F2016 Plunger Packing Kit KF30A	F2066 Plunger Packing Kit KF32A	F2018 Plunger Packing Kit KF36A	F2020 Plunger Packing Kit KF40A
Positions Included	32, 34, 35, 36	32, 34, 35, 36	32, 34, 35, 36	32, 34, 35, 36	32, 34, 35, 36

KIT NUMBER	F2012 Suction Valve Kit
Positions Included	44, 50, 52

KIT NUMBER	F2013 Outlet Valve Kit
Positions Included	44, 50, 51

KIT NUMBER	F2015 Complete Seals Kit KF28A	F2017 Complete Seals Kit KF30A	F2222 Complete Seals Kit KF32A	F2019 Complete Seals Kit KF36A	F2021 Complete Seals Kit KF40A
Positions Included	25, 28, 32, 34, 35,	25, 28, 32, 34, 35,	3, 5, 7, 10, 14, 20, 25, 28, 32, 34, 35, 36, 37, 43, 50, 100	25, 28, 32, 34, 35,	25, 28, 32, 34, 35,

KIT NUMBER	F2135 Connecting Rod Bushing Kit (Standard)	F2154 Connecting Rod Bushing Kit (+0.25)	F2155 Connecting Rod Bushing Kit (+0.50)
Positions Included	62, 63	62, 63	62, 63

Torque Specifications

Position	Torque
9	7.5 ft. lbs. (10 Nm)
11	29.5 ft. lbs. (40 Nm)
16	22 ft. lbs. (30 Nm)
29	14.75 ft. lbs. (20 Nm)
39	59 ft. lbs. (80 Nm)
40	88.5 ft. lbs. (120 Nm)
57	29.5 ft. lbs. (40 Nm)
59	29.5 ft. lbs. (40 Nm)
66	29.5 ft. lbs. (40 Nm)
73	29.5 ft. lbs. (40 Nm)
78	265.5 ft. lbs. (360 Nm)
79	7.5 ft. lbs. (10 Nm)
80	29.5 ft. lbs. (40 Nm)
85	51.75 ft. lbs. (70 Nm)
91	29.5 ft. lbs. (40 Nm)
95	22 ft. lbs. (30 Nm)

Thread Lock Requirements

Position	Thread Lock
78	Loctite 243
/ 0	Part #12006400
0.5	Loctite 243
85	Part #12006400
0.5	Loctite 542
95	Part #12006200

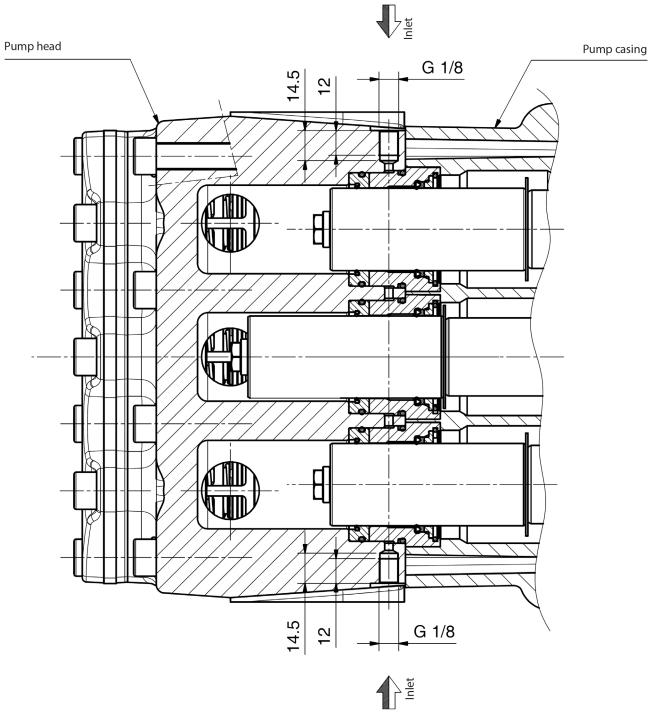
Ref 300763 Rev. J 12-24



17. FLUSHING CIRCUIT DIAGRAM OF USE

Adhere to the following valves for proper system operations: Minimum circuit flow rate 1.06 GPM (4 I/min), max fluid pressure 87.02 PSI (6 bar)







18. SPECIAL VERSIONS

The KF pump is also available in the special Version:

KFR

The following information is helpful in deciding how to choose and use this pump version. Unless specified, observe the above instructions for the standard KF pump.

18.1 KFR Pump

18.1 KFR Pump



18.1.1 Operating Instructions

The KFR series pump has been designed to operate in environments with atmospheres that are not potentially explosive and for using water rich in particulate, therefore it is considered ideal for system with fluid recirculation. The durability of the piston seal is directly in relation to the percentage of the presence of solids in the fluid as regards both their size and their density.

For a long seal life we recommend a particulate grain size of no more than 200 micron and 20% max. in volume. For more information and general system layout see par. 9.7.



18.1.2 Water Temperature

The maximum water temperature is 104° F (40° C). However, the pump can be used with water temperatures up to 140° F (60° C), but only for short periods. In this case it is best to contact our **Technical or Customer Service Department.**

18.1.3 Maximum Pressure and Flow Rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and RPM indicated on the specification label can never be exceeded unless prior authorization given by our **Technical or Customer Service Department**.

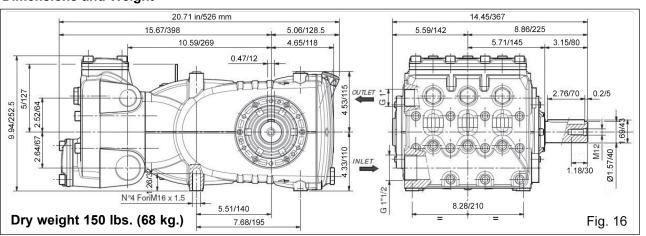
18.1.4 Minimum Operating Speed

The minimum permissible speed of the crankshaft for these types of pumps is 100 RPM; any RPM other than as shown in the performance table (see par. 18.1.5) must be authorized by our **Technical or Customer Service Department.**

18.1.5 Technical Features

Model	RPM	Flow Rate		Pressure		Power	
	Krivi	GPM	I/min	PSI	bar	HP	kW
KFR28A	1000	24.5	93	3045	210	50	37
KFR30A	1000	28	106	2900	200	55	40
KFR32A	1000	31.7	120	2610	180	56	41.2
	800	32.2	122	2300	160	50	37
KFR36A	900	36.2	137	2050	140	50	37
	1000	40	153	1900	130	52	38.2
KFR40A	900	45	170	1595	110	49	36

18.1.6 Dimensions and Weight

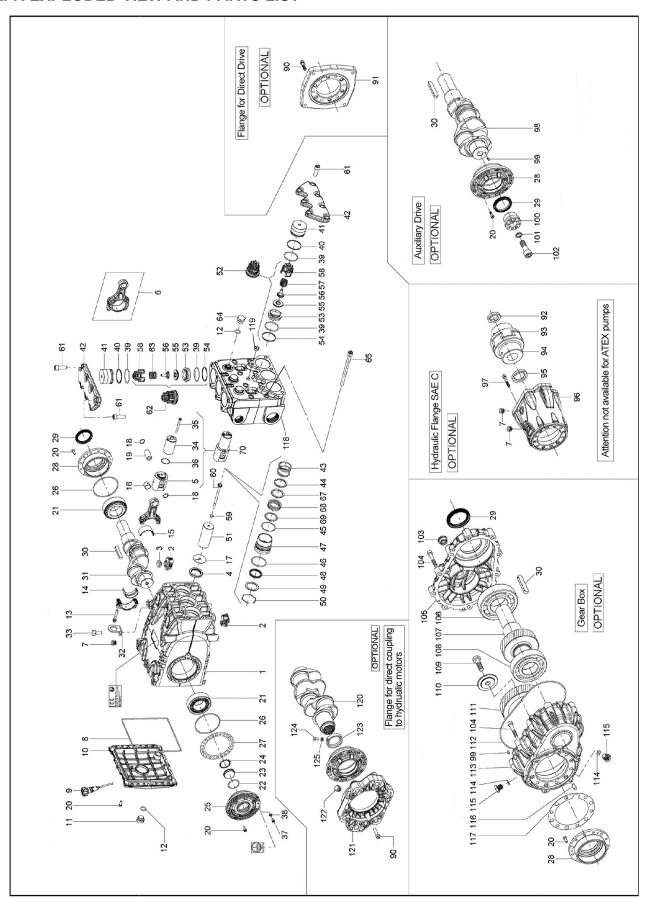


Ref 300763 Rev. J

12-24



19. KFR EXPLODED VIEW AND PARTS LIST



GENERAL PUMP

A member of the Interpump Group

tem	Part No.	Description	QT
1	71010022	Crankcase	1
2	F71225851	Plug, Drain	6
3	F71225951	Cap, Vented	3
4	90167800	Seal, Oil, Ø38 x 52 x 7.0/8.5	3
5	71050866	Plunger Guide	3
6	F71030701	Connecting Rod	3
7	98206000	Plug	4
8	F90400000	O-ring, Ø215.0 x 3.0	1
9	98212000	Dipstick, Ø21.5x91	1
	98212100	Dipstick, Ø21.5 x 91, ATEX	1
10	F71160022	Cover, Crankcase	1
11	F98218700	Plug, G1/2" x 13, Zinc	1
'''	F98218150	Plug, G1/2" x 13, SS, ATEX	1
12	F90384100	O-ring, Ø17.13 x 2.62	4
13	F99313800	Connecting Rod Screw	6
14	F90924300	Babbitt Bearing, Non load side	3
15	F90924000	Babbitt Bearing, Load Side	3
16	F90911000	Bronze Bushing	3
17	96714000	Washer, Flinger, Ø10 x 50 x 1	3
_			
18	F90060600	Ring	6
19	F97743000	Pin, Plunger Ø20 x 30	3
20	F99186700	Screw, M6 x 18	20
21	91859000	Bearing, Taper Roller	2
22	90387700	O-ring, Ø39.34 x 2.62	1
23	70212801	Oil Sight Glass	1
	90075600	Retainer Ring	1
24	90075500	Retainer Ring, ATEX	1
	71150122	Cover, Bearing	1
25	71150122	Cover, Bearing, ATEX	1
26			2
26	90391800	O-ring, Ø94.92x2.62	
27	F71220081	Spacer, 0.10 mm	1
	F71220381	Spacer, 0.25 mm	1
28	F71150022	Cover, Bearing	1
29	90170000	Seal, Oil Crankshaft, Ø38 x 52 x 8	1
30	F91500000	Key	1
31	F71020035	Crankshaft	1
32	F71223074	Eyebolt	1
33	F99426600	Screw, M12 x 25	1
34	71050715	Plunger Guide	3
35	99199400	Screw, M6x65	6
36	90352800	O-ring, Ø29 x 1.5	3
37	99180900	Screw, M6x10 ATEX	1
38	96693950	Washer, Ø6.4 x 11 x 0.7 ATEX	1
39	90388900	O-ring, Ø48.89 x 2.62	12
40	F90525000	Anti-extrusion Ring, Ø50.9 x 55 x 1.5	6
41	F72210370	Valve Plug	6
42	F71210136	Cover, Valve	2
	94766800	Spring, Ø35.4 x 36, KFR28A, KFR30A	3
	94769000	Spring, Ø39 x 36, KFR32A	3
43	94771100	Spring, Ø43 x 35.5, KFR36A	3
	94771500	Spring, Ø46.8 x 36, KFR40A	3
-	71213056	Spring Ring, Ø28	3
, ,	71213156	Spring Ring, Ø30	3
44	71229956	Spring Ring, Ø32	3
	71229656	Spring Ring, Ø36	3
	71229356	Spring Ring, Ø40	3
15	90362300	O-Ring, Ø44.17 x 1.78, KFR28-30-32	3
45	90362600	O-Ring, Ø50.52 x 1.78, KFR36-40	3
4-	90389100	O-Ring, Ø52.07 x 2.62	3
46	90389300	O-Ring, Ø53.65 x 2.62	3
	F71213456	Support Gasket, Ø28	3
}			3
47	F71213556	Support Gasket, Ø30	
47	F71229856	Support Gasket, Ø32	3
ļ	F71229556	Support Gasket, Ø36	3
	F71229256	Support Gasket, Ø40	3
	F90275050	Seal, Ø28 x 36 x 5.5, L.P.	3
[F90276050	Seal, Ø30 x 38 x 5.5, L.P.	3
48	F90278050	Seal, Ø32 x 40 x 5.5, L.P.	3
Ì	F90279900	Seal, Ø36 x 44 x 5.5, L.P.	3
Ì	F90282700	Seal, Ø40 x 48 x 5.5, L.P.	3
	F71217670	Ring, Seal, Ø28	3
}		Ring, Seal, Ø26 Ring, Seal, Ø30	3
40	F71217770	Ding Coal (22)	
49	F72210570	Ring, Seal, Ø32	3
ļ	F71218070	Ring, Seal, Ø36	3
	F71218270	Ring, Seal, Ø40	3
50	F90079700	Circlip, Ø52	3
	F71040609	Plunger, Ø28 x 95	3
- 1		Plunger, Ø30 x 95	3
	F71040309		
51	F71040309 F72040009		
51	F71040309 F72040009 F71040409	Plunger, Ø32 x 95 Plunger, Ø36 x 95	3

KF	R	S	EF	?//	ES
	Ser	ial #1	01270	103 ar	nd later

52 F36713601 Inlet Valve Packing 3 536204156 Valve Seat 6 53 F3620456 Poppet Valve 6 6 53 F36208502 Poppet Valve 6 6 53 F36208502 Poppet Valve 6 6 55 F36208501 Internal Valve Guide 6 6 57 F94754000 Spring, Ø24.7 x 27 3 3 53 6204505 Valve Guide 6 6 6 6 71219566 Plunger Screw 3 6 71219566 Plunger Screw 3 6 71219566 Plunger Screw 3 6 736713701 Outlet Valve Packing 3 59475000 Screw, M12 x 35 1 6 5 5 5 5 5 5 5 5 5			Serial #10127003 and	
53 F36204156 Valve Seat 54 F90524000 Anti-extrusion Ring, Ø49.5 x 54 x 1.5 65 F36208652 Poppet Valve 66 F36208651 Internal Valve Guide 66 F36208502 Poppet Valve Guide 66 F36204505 Valve Guide 67 F36204505 Valve Guide 71 Valve Packing 38 Valve Guide 71 Valve Guide 71 Valve Packing 71 Valve Guide 71	Item	Part No.	Description	QTY.
F90524000	_			3
55 F36208501 Internal Valve Guide 66				6
56 F36208651 Internal Valve Guide 6 57 F94754000 Spring, Ø24.7 x 27 3 58 36204505 Valve Guide 6 60 71219566 Plunger Screw 3 61 F99429500 Screw, M12 x 35 1 62 F36713701 Outlet Valve Packing 3 63 F94755000 Spring, Ø25.2 x 26 3 64 F98218100 Valve Plug, G1/2* x 13 3 65 F99448000 Screw, M12 x 150 8 67 F71212882 Ring, Scraper, Ø28 3 67 F71212882 Ring, Scraper, Ø30 3 67 F7122882 Ring, Scraper, Ø30 3 67 F7122882 Ring, Scraper, Ø30 3 67 F71228482 Ring, Scraper, Ø30 3				6
F94754000 Spring, @24.7 x 27 Sa 36204505 Sp 90367100 O-Ring, @11 x 2 Sp 90367100 O-Ring, @12 x 15 Sp 9036713701 Outlet Valve Packing Sp 9036713700 Screw, M12 x 15 0 Sp 9036713702 Sp 9036713702 Sp 9036713700 Sp 9036713700 Anti-extrusion Ring, @28 x 28 x 15 Sp 9036713700 Anti-extrusion Ring, @30 x 40 x 2 Sp 903671300 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 1 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Anti-extrusion Ring, @30 x 40 x 2 Sp 90367100 Screw, M8 x 35 Sp 90367100 Screw, M8 x 35 Sp 90367100 Screw, M8 x 35 Sp 90367100 Screw, M8 x 50 Sp 90367100				6
58 36204505 Valve Guide 6 59 90367100 O-Ring, Ø11 x 2 3 60 71218566 Plunger Screw 3 61 F99429500 Screw, M12 x 35 1 62 F36713701 Outlet Valve Packing 3 63 F94755000 Spring, Ø25 z x 26 3 64 F98218100 Valve Plug, G112" x 13 3 65 F99448000 Screw, M12 x 150 8 67 F71212482 Ring, Scraper, Ø30 3 67 F71212882 Ring, Scraper, Ø30 3 68 F90559000 Ring, Scraper, Ø36 3 68 F90559000 Ring, Ø30 x 42 x 15 3 68 F9052900 Ring, Ø30 x 42 x 15 3 69 F9051710 Anti-extrusion Ring, Ø30 x 44 x 15 3 <td></td> <td></td> <td></td> <td></td>				
599 90367100 O-Ring, Ø11 x 2 3 3 3 5 5 5 6 6 71219566 Plunger Screw 3 3 5 4 5 5 5 5 5 5 5 5				
60 71219566 Plunger Screw 61 F9942900 Screw, M12 x 35 62 F38713701 Outlet Valve Packing 63 F94755000 Spring, 0252 x 26 64 F98248100 Valve Plug, G1/2′x 13 65 F99448000 Screw, M12 x 150 65 F99448000 Screw, M12 x 150 67 F71212482 Ring, Scraper, 028 68 F71212882 Ring, Scraper, 030 69 F71212882 Ring, Scraper, 030 60 F71229782 Ring, Scraper, 030 61 F71229782 Ring, Scraper, 036 62 F71229782 Ring, Scraper, 036 63 F90559000 Ring, 028 x 28 x 15 64 F90559000 Ring, 028 x 28 x 15 65 F9056900 Ring, 028 x 28 x 15 66 F90559900 Ring, 030 x 40 x 15 67 F9056900 Ring, 030 x 40 x 15 68 F90559900 Ring, 030 x 40 x 15 69 F9057900 Anti-extrusion Ring, 030 x 40 x 2 69 F90517730 Anti-extrusion Ring, 030 x 40 x 2 69 F90517730 Anti-extrusion Ring, 030 x 40 x 2 69 F90517865 Anti-extrusion Ring, 030 x 40 x 2 69 F9051900 Anti-extrusion Ring, 030 x 40 x 2 60 F9050900 Plunger Guide 60 F9050900 Plunger Guide 70 F9050900 Plunger Guide 70 F9050900 Plunger Guide 70 F9050900 Plunger Guide 70 F9074947 Filex Coupler 71 F10067720 Flange, Direct Drive 72 F1007497 Filex Coupler 73 F1007497 Filex Coupler 74 F10742801 Filex Coupler 75 F90512000 Hydraulic Flange, SAE C 75 F99314600 Screw, M8 x 50 76 F90512000 Hydraulic Flange, SAE C 77 F99314600 Screw, M8 x 50 78 F71007497 Filex Coupler 79 F99314600 Screw, M8 x 50 79 F99314600 Screw, M8 x 50 70 F99314600 Screw, M8 x 50 71 F90615200 Pin Guide, 5x 10 71 F10070305 Pinion, 222, 1.250 71 F10071335 Pinion, 222, 1.830 71 F1007135 Pinion, 222, 1.830 71 F1007135 Pinion, 224, 1.250 71 F1007135 Pinion, 227, 1.250 71 F1007135 Pin				
61 F99429500 Screw, M12 x 35 62 F36713701 Outlet Valve Packing 63 F94755000 Spring, Ø25.2 x 26 64 F98218100 Valve Plug, G1/2" x 13 65 F99448000 Screw, M12 x 150 65 F99448000 Screw, M12 x 150 66 F71212482 Ring, Scraper, Ø28 67 F71212682 Ring, Scraper, Ø30 67 F71212682 Ring, Scraper, Ø30 68 F71229482 Ring, Scraper, Ø30 68 F9055900 Ring, Ø28 x 28 x 15 68 F9055900 Ring, Ø30 x 40 x 15 68 F9055900 Ring, Ø30 x 40 x 15 68 F9055900 Ring, Ø30 x 40 x 15 69 F90517100 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90520100 Anti-extrusion Ring, Ø30 x 40 x 15 70 7160601 Pluger Guide 90 F99309800 Screw, M8 x 35 91 F10074970 Spacer, Ø3175 x 10.50 91 F10074971 Flex Coupler 94 F10742801 Flex Coupler 95 F10074570 Spacer, Ø3175 x 10.50 96 F10075020 Pln Guide, 5 x 10 97 F9951400 Screw, M8 x 35 98 F10074970 Spacer, Ø31.75 x 10.50 99 F9951790 Pln Cuide, 5 x 10 90 F99309800 Screw, M8 x 35 91 F10074970 Spacer, Ø31.75 x 10.50 92 F10074570 Spacer, Ø31.75 x 10.50 93 F10074970 Spacer, Ø31.75 x 10.50 94 F1075020 Pln Guide, 5 x 10 95 F99514200 Screw, M8 x 50 96 F71020735 Crankshaft Ø50, PTO 97 F99514200 Screw, M8 x 50 98 F71020735 Crankshaft Ø50, PTO 99 F97615200 Pln Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 101 F96737800 Washer, Ø17 x 24 x 10 101 F72210920 Cover, Gearbox 110 F9930800 Screw, M16 x 45 111 F9070335 Ring Gear, Z31, 1.500 112 F9953000 Bearing 113 F72210920 Cover, Gearbox 114 F0071335 Ring Gear, Z34, 1.250 115 F98204250 Plug, G1/4" x 13 116 F9820800 Plug, G3/8" x 10 117 F1020735 Crankshaft, Ø50 SAE-C 118 F7122036 Manifold, Ø36 F71122736 Manifold, Ø36 F71122736 Manifold, Ø36 F71122737 Ranifold, Ø30 F71228971 Ring, Ø40 F7128				
62 F36713701 Outlet Valve Packing 63 F94755000 Spring, Ø25.2 x 26 64 F99218100 Valve Plug, G1/2' x 13 65 F99448000 Screw, M12 x 150 66 F99448000 Screw, M12 x 150 67 F71212482 Ring, Scraper, Ø28 67 F71212582 Ring, Scraper, Ø30 68 F71229482 Ring, Scraper, Ø36 68 F905900 Ring, Ø28 x 28 x 15 68 F9055900 Ring, Ø30 x 40 x 15 69 F9056900 Ring, Ø30 x 40 x 15 69 F9056900 Ring, Ø30 x 40 x 15 69 F9057100 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517930 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517930 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517930 Anti-extrusion Ring, Ø30 x 40 x 2 69 F90517930 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017935 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017935 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 69 F905017936 Anti-extrusion Ring, Ø30 x 40 x 2 60 F905017936 Anti-extrusion Ring, Ø30 x 40 x 1.5 60 F905020100 Anti-extrusion Ring, Ø30 x 40 x 1.5 60 F905020100 Anti-extrusion Ring, Ø30 x 40 x 1.5 60 F90502000 Anti-extrusion Ring, Ø40 x 50 x 1.5 71606601 Pinuger Guide 70 F90309800 Screw, M8 x 35 71 F10074707 Spacer, Ø40 x 10 71 F10074707 Spacer, Ø40 x 10 71 F10075020 Hydraulic Flange, SAE C 71 F10075020 Hydraulic Flange, SAE C 71 F10075020 Hydraulic Flange, SAE C 71 F10071305 Pinug, Ø40 x 50 71 F				
63 F94755000 Spring, Ø25.2 x 26 64 F98218100 Valve Plug, G1/2* x 13 3 55 F99448000 Screw, M12 x 150 8 56 F99448000 Screw, M12 x 150 8 F71212862 Ring, Scraper, Ø28 3 F71229782 Ring, Scraper, Ø30 3 F7122982 Ring, Scraper, Ø32 3 F71229482 Ring, Scraper, Ø30 3 F9055900 Ring, Ø38 x 28 x 15 3 F90559900 Ring, Ø30 x 40 x 15 3 F90571700 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90571700 Anti-extrusion Ring, Ø38 x 46 x 1.5 3 F90520700 Anti-extrusion Ring, Ø32 x 42 x 2 3 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 3				_
64 F99218100 Valve Plug, G1/2" x 13 3 65 F99448000 Screw, M12 x 150 8 F71212482 Ring, Scraper, Ø28 3 F71212582 Ring, Scraper, Ø30 3 F71229482 Ring, Scraper, Ø36 3 F71229482 Ring, Scraper, Ø40 3 F90559500 Ring, Ø28 x 28 x 15 3 F90559500 Ring, Ø30 x 40 x 15 3 F90559500 Ring, Ø30 x 40 x 15 3 F90559500 Ring, Ø30 x 40 x 15 3 F90564000 Ring, Ø30 x 40 x 15 3 F90564500 Ring, Ø30 x 40 x 15 3 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 3 69 F90517780 Anti-extrusion Ring, Ø30 x 40 x 2 3 69 F90520700 Anti-extrusion Ring, Ø30 x 40 x 2 3 69 F90520700 Anti-extrusion Ring, Ø30 x 40 x 50 x 1.5 3 70 T1606801 Pulneger Guide 3 90 F99399800 Screw, M8 x 35 6 <td< td=""><td></td><td></td><td></td><td></td></td<>				
F90448000 Screw, M12 x 150 Serew, M12 x 100				
F71212482 Ring, Scraper, Ø28 F71212582 Ring, Scraper, Ø30 33 F71229782 Ring, Scraper, Ø30 F71229782 Ring, Scraper, Ø36 F71229482 Ring, Scraper, Ø36 F71229482 Ring, Scraper, Ø36 F90559000 Ring, Ø28 x 28 x 15 F90559000 Ring, Ø30 x 40 x 15 F90562400 Ring, Ø30 x 40 x 15 F90564500 Ring, Ø36 x 46 x 15 F90564500 Ring, Ø36 x 46 x 15 F90571700 Anti-extrusion Ring, Ø30 x 40 x 2 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 F90520700 Anti-extrusion Ring, Ø30 x 40 x 2 F90520700 Anti-extrusion Ring, Ø30 x 40 x 5 F90520700 Anti-extrusion Ring, Ø30 x 40 x 5 F90520700 Anti-extrusion Ring, Ø30 x 40 x 5 F90520700 Figurer Guide Screw, M8 x 35 F90520700 Figurer Guide F905074047 Filex Coupler F10074570 Spacer, Ø31.75 x 10.50 F10074570 Spacer, Ø31.75 x 10.50 F10074670 Spacer, Ø31.75 x 10.50 F10074670 Spacer, Ø31.75 x 10.50 F10074670 Spacer, Ø40 x 10 F1007502 Hydraulic Flange, SAE C F995314600 Screw, M8 x 50 F996715200 Pin Guide, 5 x 10 F996715200 Screw, M8 x 50 F996715200 Pin Guide, 5 x 10 F71226554 Auxiliary Power Take-off F1007035 Pinion, Z22, 1.550 F1007135 Ring Gear, Z43, 1.250 F1007135 Ring Gear, Z34, 1.250 F1007135 Ring Gear, Z				
67 F71212582 Ring, Scraper, Ø30 3 F712128982 Ring, Scraper, Ø36 3 F71229482 Ring, Scraper, Ø40 3 F90559000 Ring, Ø30 x 40 x 15 3 68 F90559900 Ring, Ø30 x 40 x 15 3 F90564500 Ring, Ø36 x 46 x 15 3 F90564500 Ring, Ø36 x 46 x 15 3 F90517100 Anti-extrusion Ring, Ø32 x 38 x 2 3 F90517730 Anti-extrusion Ring, Ø32 x 42 x 2 3 F90517985 Anti-extrusion Ring, Ø32 x 42 x 2 3 F90520100 Anti-extrusion Ring, Ø32 x 42 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 1.5 3 70 71606601 Plunger Guide 3 90 F99309800 Screw, M8 x 35 6 91 F10077407 Spacer, Ø31.75 x 10.50 1 92 F10074670 Spacer, Ø40 x 10 1 94 F10742801 Flex Coupler, Ø40 x 35.75 1	05			
67 F71212682 Ring, Scraper, Ø36 3 F71229482 Ring, Scraper, Ø40 3 F90559500 Ring, Ø28 x 28 x 15 3 F90559900 Ring, Ø30 x 40 x 15 3 F90562400 Ring, Ø32 x 42 x 15 3 F905671700 Ring, Ø30 x 40 x 15 3 F905177100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 46 x 1.5 3 F90520100 Anti-extrusion Ring, Ø30 x 46 x 1.5 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 1.5 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 1.5 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520200 Screw, M8 x 35 6 F10074327<				
F71229782 Ring, Scraper, Ø36 F71229482 Ring, Scraper, Ø40 33 F90559000 Ring, Ø30 x 40 x 15 F90559900 Ring, Ø30 x 40 x 15 F90569900 Ring, Ø30 x 40 x 15 F90569900 Ring, Ø30 x 40 x 15 F90562400 Ring, Ø30 x 40 x 15 F90564500 Ring, Ø30 x 40 x 15 F905177100 Anti-extrusion Ring, Ø30 x 40 x 2 33 69 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 33 69 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 30 Anti-extrusion Ring, Ø30 x 40 x 2 31 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 32 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90520100 Anti-extrusion Ring, Ø30 x 40 x 50 F90520700 Anti-extrusion Ring, Ø30 x 40 x 50 F90520700 Anti-extrusion Ring, Ø30 x 40 x 50 F90309800 Screw, M8 x 35 91 F10067720 Flange, Direct Drive 11 92 F10074570 Spacer, Ø31.75 x 10.50 93 F10074947 Flex Coupler 94 F10742801 Flex Coupler 95 F10076702 Spacer, Ø40 x 10 96 F10075020 Hydraulic Flange, SAE C 97 F99314600 Screw, M8 x 50 60 97 F99314600 Screw, M8 x 50 60 98 F71020735 Crankshaft Ø50, PTO 99 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 101 F96737800 Oil Sight Glass 104 F99314600 Screw, M18 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070935 Pinion, Z25, 1.500 119 F9854200 F1007035 Ring Gear, Z34, 1.250 110 F7102735 Ring Gear, Z37, 1.500 110 F7122656 Ring Gear, Z37, 1.500 111 F10071335 Ring Gear, Z34, 1.250 112 F9934800 O-Ring, Ø209.22 x 2.62 114 701013 O-Ring, Ø209.22 x 2.62 115 F92210850 Ping, Ø310.82 x 1.78 116 F97618500 Ping, Ø310.82 x 1.78 117 F72210780 Manifold, Ø32 F71122736 Manifold, Ø32 F71122736 Manifold, Ø36 F711227376 Manifold, Ø30 F711207370 Ring, G40 119 F9820800 Ping, G38* x 10 120 F99208000 Flug, G38* x 10 121 F9020800 Ping, Flastic 122 F90208500 Ping, Plastic 132 F71228971 Ring, Ø40 133 F72220800 Nut, M6x5 140 150 F72220500 Nut, M6x5	67			
F71229482 Ring, Scraper, Ø40 F90559500 Ring, Ø30 x 40 x 15 F90559500 Ring, Ø30 x 40 x 15 F90569500 Ring, Ø30 x 40 x 15 F90569400 Ring, Ø36 x 46 x 15 F90569400 Ring, Ø36 x 46 x 15 F90569400 Ring, Ø36 x 46 x 15 F90569400 Anti-extrusion Ring, Ø30 x 40 x 2 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 F90517790 Anti-extrusion Ring, Ø30 x 40 x 2 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 F90520100 Anti-extrusion Ring, Ø30 x 40 x 2 F90520100 Anti-extrusion Ring, Ø36 x 46 x 1.5 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 F10074820 Flange, Direct Drive F10074947 Flex Coupler F10074947 Flex Coupler F10074947 Flex Coupler F10074070 Spacer, Ø40 x 10 F10075020 Hydraulic Flange, SAE C F99814600 Hydraulic Flange, SAE C F10074073 Crankshaft Ø50, PTO F1007673800 Washer, Ø17 x 24 x 10 F1007673800 Washer, Ø17 x 24 x 10 F10076935 Pin Guide, 5 x 10 F10070935 Pin Guide, 5 x 10 F10070935 Pinion, Z27, 1.250 F1007135 Ring Gear, Z37, 1.500 F1007135 Ring Gear, Z34, 1.250 F1122736 Manifold, Ø30 F71122736 Manifold, Ø30 F71122736 Manifold, Ø30 F71122737 Manifold, Ø40 F119 F9820800 Plug, G3/8' x 10 F10076020 Plug, Plastic F1027737 Ring, Ø40 F1122897 Ring, Ø40 F1128970 Ring, Ø40 F11285 F92202500 Nut, M6x5	07		Ring Scraper Ø36	
F90559000 Ring, Ø28 x 28 x 15 33 F90559900 Ring, Ø30 x 40 x 15 33 F90559900 Ring, Ø36 x 46 x 15 590562400 Ring, Ø36 x 46 x 15 5905614700 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90517700 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90517793 Anti-extrusion Ring, Ø32 x 42 x 2 33 F905177985 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90520700 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F10074570 F10074570 F10074570 F10074670 F100746				
F90559500 Ring, Ø30 x 40 x 15 33 F90559500 Ring, Ø32 x 42 x 15 33 F90562400 Ring, Ø36 x 46 x 15 33 F90517100 Anti-extrusion Ring, Ø38 x 38 x 2 F90517730 Anti-extrusion Ring, Ø38 x 40 x 2 33 F90517730 Anti-extrusion Ring, Ø38 x 40 x 2 33 F90517735 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 34 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 34 F90520700 F				
68 F90559900 Ring, Ø32 x 42 x 15 3 F90562400 Ring, Ø36 x 46 x 15 3 F90517100 Anti-extrusion Ring, Ø28 x 38 x 2 3 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90517935 Anti-extrusion Ring, Ø30 x 40 x 2 3 F90520100 Anti-extrusion Ring, Ø30 x 46 x 1.5 3 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 3 F90520700 Anti-extrusion Ring, Ø30 x 40 x 2 x 2 3 F90520700 Anti-extrusion Ring, Ø30 x 46 x 1.5 3 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 3 70 71606601 Plunger Guide 3 90 F99309800 Screw, M8 x 35 6 91 F10067720 Plange, Direct Drive 1 92 F10074570 Spacer, Ø31.75 x 10.50 1 93 F10074670 Spacer, Ø40 x 10 1 94 F10742801 Flex Coupler 1 95 F10075201 Hydraulic Flange, SAE C 1 97 <td< td=""><td></td><td></td><td></td><td></td></td<>				
F90562400 Ring, Ø36 x 46 x 15 33 F90564500 Ring, Ø40 x 50 x 15 33 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90517730 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90520100 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 F9052070	68			
F90564500 Ring, Ø40 x 50 x 15 F90517710 Anti-extrusion Ring, Ø28 x 38 x 2 33 F90517730 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90517985 Anti-extrusion Ring, Ø30 x 40 x 2 33 F90520700 Anti-extrusion Ring, Ø32 x 42 x 2 33 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 S90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 33 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 34 F90520700 F99309800 Screw, M8 x 35 60 60 F99309800 Screw, M8 x 35 60 F10074570 Spacer, Ø40 x 40 x 50 F10074570 Spacer, Ø40 x 40 x 50 F10074947 Flex Coupler Flex Coupler F10074670 Spacer, Ø40 x 10 F10075020 Hydraulic Flange, SAE C F10075020 Hydraulic Flange, SAE C F10075020 Hydraulic Flange, SAE C F10075020 F10076020 F10076	00			
F90517100				
69 F90517793b Anti-extrusion Ring, Ø32 x 42 x 2 33 F90520100 Anti-extrusion Ring, Ø36 x 46 x 1.5 3 F90520700 Anti-extrusion Ring, Ø40 x 50 x 1.5 3 70 71606601 Plunger Guide 3 90 F99309800 Screw, M8 x 35 6 91 F10074570 Spacer, Ø31.75 x 10.50 1 92 F10074570 Spacer, Ø31.75 x 10.50 1 93 F10074947 Flex Coupler 1 94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F9759400 Oil Sight Glass				3
69 F90517985 Anti-extrusion Ring, Ø32 x 42 x 2 3 F90520700 Anti-extrusion Ring, Ø36 x 46 x 1.5 3 70 71606601 Plunger Guide 3 90 F99309800 Screw, M8 x 35 6 91 F10067720 Flange, Direct Drive 1 92 F10074570 Spacer, Ø31.75 x 10.50 1 93 F10074947 Flex Coupler 1 94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 99 F97615200 Pin Guide, 5 x 10 1 100 F71226554 Auxiliary Power Take-off 1 101 F99514200 Screw, M16 x 45 1 102 F99514200 Screw, M8 x 50 1 103 F97594000 Oil Sight Glass				3
F90520100 Anti-extrusion Ring, Ø36 x 46 x 1.5 33 70 71606601 Plunger Guide 3 90 F99309800 Screw, M8 x 35 6 91 F10067720 Flange, Direct Drive 1 92 F10074570 Spacer, Ø31.75 x 10.50 1 93 F10074977 Flex Coupler 1 94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 1 105 F72210920 Cover, Gearbox 1	69			3
F90520700				3
70				3
90 F99309800 Screw, M8 x 35 6 91 F10067720 Flange, Direct Drive 1 92 F10074570 Spacer, Ø31.75 x 10.50 1 93 F10074947 Flex Coupler 1 94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F9759400 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 1 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 107 F100770935 Pinion, Z27, 1.250 1	70			3
91 F10067720 Flange, Direct Drive 92 F10074570 Spacer, Ø31.75 x 10.50 93 F10074947 Flex Coupler 94 F10742801 Flex Coupler 95 F10074670 Spacer, Ø40 x 10 96 F10075020 Hydraulic Flange, SAE C 97 F99314600 Screw, M8 x 50 98 F71020735 Crankshaft Ø50, PTO 99 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070935 Pinion, Z27, 1.250 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 110 F70071335 Ring Gear, Z34, 1.250 111 F0071335 Ring Gear, Z34, 1.250 111 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø209.22 x 2.62 115 F98204250 Plug, G1/4" x 13 116 F97618500 Pin, Ø8x18 117 F72210784 Reducer Box Gasket 118 F71120736 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 120 F71027036 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 120 F71027036 Screw, Manifold, Ø36 118 F71120736 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 120 F71020835 Crankshaft, Ø50 SAE-C 121 F10085422 Flange, Hydraulic 122 F90206500 Plug, Plastic 123 F71228971 Ring, Ø40 155 F92202500 Nut, M6x5				6
92 F10074570 Spacer, Ø31.75 x 10.50 93 F10074947 Flex Coupler 94 F10742801 Flex Coupler 95 F10074870 Spacer, Ø40 x 35.75 96 F10074570 Spacer, Ø40 x 10 97 F10075020 Hydraulic Flange, SAE C 98 F71020735 Crankshaft Ø50, PTO 99 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070835 Pinion, Z27, 1.250 107 F10070935 Pinion, Z25, 1.500 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 110 F70071335 Ring Gear, Z34, 1.250 111 F10071335 Ring Gear, Z34, 1.250 112 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø10.82 x 1.78 115 F98204250 Plug, G1/4" x 13 116 F97618500 Ping, G1/8" x 13 117 F72210784 Reducer Box Gasket 118 F7112036 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 110 F98209800 Plug, G3/8" x 10 111 F98209800 Plug, G3/8" x 10 112 F9039850 Plug, G1/4" x 13 115 F98204250 Plug, G1/4" x 13 116 F97618500 Plug, G1/4" x 13 117 F72210784 Reducer Box Gasket 117 F72210784 Feducer Box Gasket 118 F7112036 Manifold, Ø30 119 F98209800 Plug, G3/8" x 10 110 F71228971 Ring, Ø40 111 F98209800 Plug, Ring, Hydraulic 112 F90206500 Plug, Plastic 113 F71228971 Ring, Ø40 114 F70227034 Screw, M6 x 12 115 F98202500 Nut, M6x5		F10067720		1
93 F10074947 Flex Coupler 94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 99 F97615200 Pin Guide, 5 x 10 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 1 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 107 F10070935 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 110 F1007135 Ring Gear, Z34, 1.250 1 111 F1007135 Ring Gear, Z34, 1.250 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 F01013 O-Ring, Ø109.22 x 1.78 1 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 118 F98209800 Plug, G1/4" x 13 1 119 F98209800 Plug, G1/8" x 10 1 110 F732210784 Reducer Box Gasket 1 111 F10076352 Flange, Hydraulic 1 112 F90208600 Plug, G3/8" x 10 1 112 F90208600 Plug, G3/8" x 10 1 115 F98209800 Plug, G3/8" x 10 1 116 F97618500 Plug, G3/8" x 10 1 117 F72210784 Reducer Box Gasket 1 118 F71122636 Manifold, Ø36 1 119 F98209800 Plug, G3/8" x 10 1 110 F7322871 Ring, Ø40 1 111 F10085422 Flange, Hydraulic 1 112 F90206500 Plug, Plastic 1 113 F72210874 Screw, M6 x 12 1 115 F98202500 Nut, M6x5 1				1
94 F10742801 Flex Coupler, Ø40 x 35.75 1 95 F10074670 Spacer, Ø40 x 10 1 96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 99 F97615200 Pin Guide, 5 x 10 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 1 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z22, 1.830 1 108 F99430700 Screw, M12 x 40 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 111 F10071235 Ring Gear, Z34, 1.250 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 1 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Plug, G1/4" x 13 2 117 F72210784 Reducer Box Gasket 1 118 F971120736 Manifold, Ø36 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø30 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	93			1
95 F10074670 Spacer, Ø40 x 10 96 F10075020 Hydraulic Flange, SAE C 97 F99314600 Screw, M8 x 50 98 F71020735 Crankshaft Ø50, PTO 199 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070835 Pinion, Z27, 1.250 107 F10070935 Pinion, Z27, 1.830 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 110 F707135 Ring Gear, Z34, 1.250 111 F1007135 Ring Gear, Z34, 1.250 112 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø10.82 x 1.78 115 F98204250 Plug, G1/4" x 13 116 F97618500 Pin, Ø8x18 117 F72210784 Reducer Box Gasket 118 F71120736 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 119 F98209800 Plug, G3/8" x 10 110 F79227038 Crankshaft, Ø50 SAE-C 121 F10085422 Flange, Hydraulic 122 F9020500 Nut, M6x5	94	F10742801		1
96 F10075020 Hydraulic Flange, SAE C 1 97 F99314600 Screw, M8 x 50 6 98 F71020735 Crankshaft Ø50, PTO 1 99 F97615200 Pin Guide, 5 x 10 1 100 F71226554 Auxiliary Power Take-off 1 101 F96737800 Washer, Ø17 x 24 x 10 1 102 F99514200 Screw, M16 x 45 1 103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 10 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 F10071235	95	F10074670		1
97 F99314600 Screw, M8 x 50 98 F71020735 Crankshaft Ø50, PTO 11 99 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 1101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070935 Pinion, Z27, 1,250 107 F10070935 Pinion, Z25, 1,500 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 110 F72211055 Gear Mounting Washer 111 F10071235 Ring Gear, Z34, 1,250 112 F90394800 O-Ring, Ø209,22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø209,22 x 2.62 115 F98204250 Plug, G1/4" x 13 116 F97618500 Pin, Ø8x18 117 F72210784 Reducer Box Gasket 118 F71120736 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 120 F71020835 Crankshaft, Ø50 SAE-C 121 F10085422 Flange, Hydraulic 122 F90206500 Plug, Plastic 123 F71220734 Screw, M6 x 12 124 F70227034 Screw, M6 x 12 125 F92202500 Nut, M6x5	96	F10075020		1
98 F71020735 Crankshaft Ø50, PTO 19 F97615200 Pin Guide, 5 x 10 100 F71226554 Auxiliary Power Take-off 1101 F96737800 Washer, Ø17 x 24 x 10 1102 F99514200 Screw, M16 x 45 1103 F97594000 Oil Sight Glass 1104 F99314600 Screw, M8 x 50 1105 F72210920 Cover, Gearbox 1106 F91859300 Bearing 1107 F10070935 Pinion, Z27, 1.250 1107 F10070935 Pinion, Z25, 1.500 1108 F91857700 Bearing 1109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 111 F10071235 Ring Gear, Z34, 1.250 111 F1007135 Ring Gear, Z34, 1.250 111 F1007135 Ring Gear, Z37, 1.500 11 F1007135 Ring Gear, Z37, 1.500 11 F1007135 Ring Gear, Z37, 1.500 11 F1007136 Ring Gear, Z37, 1.500 11 F1007137 Ring Gear, Z37, 1.500 11 F1007138 Ring Gear, Z37, 1.500 11 F1007139 Ring Gear, Z37, 1.500 11 F107130 Pinion, Ø209.22 x 2.62 11 P107130 Pinion, Ø209.22 x 2.62 11	97	F99314600		6
100 F71226554 Auxillary Power Take-off 101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F10070835 Pinion, Z27, 1.250 107 F10070935 Pinion, Z25, 1.500 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 107 F10071135 Ring Gear, Z34, 1.250 111 F1007135 Ring Gear, Z34, 1.250 111 F1007135 Ring Gear, Z34, 1.830 112 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø10.82 x 1.78 115 F98204250 Plug, G1/4" x 13 126 F9618500 Pin, Ø8x18	98	F71020735		1
101 F96737800 Washer, Ø17 x 24 x 10 102 F99514200 Screw, M16 x 45 103 F97594000 Oil Sight Glass 104 F99314600 Screw, M8 x 50 105 F72210920 Cover, Gearbox 106 F91859300 Bearing 107 F1007035 Pinion, Z27, 1.250 108 F91857700 Bearing 109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer 110 F72211055 Gear, Z34, 1.250 111 F1007135 Ring Gear, Z34, 1.250 112 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø10.82 x 1.78 115 F98204250 Plug, G1/4" x 13 116 F97618500 Pin, Ø8x18 117 F72210736 Manifold, Ø36 119 F98209800 Plug, G3/8" x 10 120 F71020835 Crankshaft, Ø50 SAE-C 121 F100850 Ring, Ø40 122 F90206500 Plug, Plastic 123 F71228971 Ring, Ø40 124 F70227034 Screw, M6 x 12 125 F92202500 Nut, M6x5	99	F97615200		1
102 F99514200 Screw, M16 x 45 1 103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 11 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z25, 1.500 1 F10071035 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 110 F72211055 Gear Mounting Washer 1 111 F10071135 Ring Gear, Z37, 1.500 1 111 F1007135 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 T01013 O-Ring, Ø14" x 13 2 115 F98	100	F71226554	Auxiliary Power Take-off	1
103 F97594000 Oil Sight Glass 1 104 F99314600 Screw, M8 x 50 10 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z25, 1.500 1 F10071035 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 <td>101</td> <td></td> <td>Washer, Ø17 x 24 x 10</td> <td>1</td>	101		Washer, Ø17 x 24 x 10	1
104 F99314600 Screw, M8 x 50 10 105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 107 F10070935 Pinion, Z25, 1.500 1 F10071035 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 111 F10071135 Ring Gear, Z34, 1.250 1 111 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784	102	F99514200	Screw, M16 x 45	1
105 F72210920 Cover, Gearbox 1 106 F91859300 Bearing 1 F10070835 Pinion, Z27, 1.250 1 F10070935 Pinion, Z25, 1.500 1 F10071035 Pinion, Z22, 1.830 1 108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 111 F10071235 Ring Gear, Z37, 1.500 1 F1007135 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 118 F7112076 Manifold, Ø36 1	103	F97594000	Oil Sight Glass	1
106 F91859300 Bearing F10070835 Pinion, Z27, 1.250 11 107 F10070935 Pinion, Z25, 1.500 F10071035 Pinion, Z22, 1.830 11 108 F91857700 Bearing 1109 F99430700 Screw, M12 x 40 110 F72211055 Gear Mounting Washer F10071135 Ring Gear, Z34, 1.250 111 F10071235 Ring Gear, Z37, 1.500 F10071335 Ring Gear, Z37, 1.500 112 F90394800 O-Ring, Ø209.22 x 2.62 113 F72210820 Housing, Gear 114 701013 O-Ring, Ø10.82 x 1.78 115 F98204250 Plug, G1/4" x 13 116 F97618500 Pin, Ø8x18 117 F72210784 Reducer Box Gasket 118 F71120936 Manifold, Ø28-30 119 F98209800 Plug, G3/8" x 10 120 F71020835 Crankshaft, Ø50 SAE-C 121 F10085422 Flange, Hydraulic 122 F90206500 Plug, Plastic 124 F70227034 Screw, M6 x 12 125 F92202500 Nut, M6x5		F99314600	Screw, M8 x 50	16
F10070835			Cover, Gearbox	1
Temperature	106			1
F10071035 Pinion, Z22, 1.830 1			Pinion, Z27, 1.250	1
108 F91857700 Bearing 1 109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120366 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø36 1 F71120738 Manifold, Ø36 1 F71120738 Manifold, Ø36 1 F7120835 Crankshaft, Ø50 SAE-C	107			1
109 F99430700 Screw, M12 x 40 1 110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F7112036 Manifold, Ø28-30 1 F7112036 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1				1
110 F72211055 Gear Mounting Washer 1 F10071135 Ring Gear, Z34, 1.250 1 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71120936 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1				1
F10071135 Ring Gear, Z34, 1.250 1 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 F10071335 Ring Gear, Z40, 1.830 1 F10071335 Ring Gear, Z40, 1.830 1 F12 F90394800 O-Ring, Ø209.22 x 2.62 1 F13 F72210820 Housing, Gear 1 F701013 O-Ring, Ø10.82 x 1.78 2 F98204250 Plug, G1/4" x 13 2 F97618500 Pin, Ø8x18 1 F7120936 Manifold, Ø28-30 1 F71120936 Manifold, Ø32 F71122636 Manifold, Ø32 F71122736 Manifold, Ø36 F71120736 Manifold, Ø40 1 F71120736 Manifold, Ø40 1 F98209800 Plug, G3/8" x 10 1 F10085422 Flange, Hydraulic 1 F10085422 Flange, Hydraulic 1 F10085422 Flange, Hydraulic 1 F70227034 Screw, M6 x 12 1 F99200500 Nut, M6x5 1				1
111 F10071235 Ring Gear, Z37, 1.500 1 F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1	110			1
F10071335 Ring Gear, Z40, 1.830 1 112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1 <td></td> <td></td> <td>Ring Gear, Z34, 1.250</td> <td>1</td>			Ring Gear, Z34, 1.250	1
112 F90394800 O-Ring, Ø209.22 x 2.62 1 113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90205500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	111		King Gear, Z37, 1.500	
113 F72210820 Housing, Gear 1 114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	110			
114 701013 O-Ring, Ø10.82 x 1.78 2 115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122736 Manifold, Ø32 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
115 F98204250 Plug, G1/4" x 13 2 116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	_			
116 F97618500 Pin, Ø8x18 1 117 F72210784 Reducer Box Gasket 1 F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
117 F72210784 Reducer Box Gasket 1 118 F71120936 Manifold, Ø28-30 1 F71122736 Manifold, Ø32 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				_
F71120936 Manifold, Ø28-30 1 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 F71120736 Manifold, Ø40 1 F71120736 Manifold, Ø40 1 F71020835 Crankshaft, Ø50 SAE-C 1 F10085422 Flange, Hydraulic 1 F1020737 Ring, Ø40 1 F71228971 Ring, Ø40 1 F70227034 Screw, M6 x 12 1 F92202500 Nut, M6x5 1				
118 F71122636 Manifold, Ø32 1 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	11/			
118 F71122736 Manifold, Ø36 1 F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
F71120736 Manifold, Ø40 1 119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	118			
119 F98209800 Plug, G3/8" x 10 1 120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
120 F71020835 Crankshaft, Ø50 SAE-C 1 121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1	110			
121 F10085422 Flange, Hydraulic 1 122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
122 F90206500 Plug, Plastic 1 123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
123 F71228971 Ring, Ø40 1 124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				
124 F70227034 Screw, M6 x 12 1 125 F92202500 Nut, M6x5 1				1
125 F92202500 Nut, M6x5 1				1
,				1
		200082	Bolt, M16/1.5x40	4
				4
, , , , , , , , , , , , , , , , , , , ,			·	



REPAIR KITS

KIT NUMBER	F2399 Plunger Packing Kit KFR28A	F2400 Plunger Packing Kit KFR30A	F2401 Plunger Packing Kit KFR32A	F2402 Plunger Packing Kit KFR36A	F2393 Plunger Packing Kit KF40A
Positions	45, 46, 48,	45, 46, 48,	45, 46, 48,	45, 46, 48,	45, 46, 48,
Included	67, 68, 69	67, 68, 69	67, 68, 69	67, 68, 69	67, 68, 69

KIT NUMBER	F2012 Suction Valve Kit
Positions Included	39, 52, 54

KIT NUMBER	F2013 Outlet Valve Kit
Positions Included	39, 54, 62

KIT NUMBER	F2403 Complete Seals Kit KFR28A	F2404 Complete Seals Kit KFR30A	F2405 Complete Seals Kit KFR32A	F2406 Complete Seals Kit KFR36A	F2393 Complete Seals Kit KFR40A
Positions Included	4, 8, 12, 22, 24, 26 26, 29, 36, 39, 40, 45, 46, 48, 54, 59, 67, 68, 59	4, 8, 12, 22, 24, 26 26, 29, 36, 39, 40, 45, 46, 48, 54, 59, 67, 68, 59	4, 8, 12, 22, 24, 26 26, 29, 36, 39, 40, 45, 46, 48, 54, 59, 67, 68, 59	4, 8, 12, 22, 24, 26 26, 29, 36, 39, 40, 45, 46, 48, 54, 59, 67, 68, 59	

	F2135				
KIT	Connecting Rod				
NUMBER	Bushing Kit				
	(Standard)				
Positions Included	14, 15				

Torque Specifications

Torque					
29.5 ft. lbs. (40 Nm)					
22 ft. lbs (30 Nm)					
7.5 ft. lbs (10 Nm)					
29.50 ft. lbs. (40 Nm)					
7.5 ft. lbs. (10 Nm)					
14.75 ft. lbs. (20 Nm)					
88.5 ft. lbs. (120 Nm)					
47.25 ft. lbs. (64 Nm)					
59 ft. lbs. (80 Nm)					
29.5 ft. lbs. (40 Nm)					
29.5 ft. lbs. (40 Nm)					
265.5 ft. lbs. (360 Nm)					
7.5 ft. lbs. (10 Nm)					
29.5 ft. lbs. (40 Nm)					
51.75 ft. lbs. (70 Nm)					
29.5 ft. lbs. (40 Nm)					
22 ft. lbs. (30 Nm)					
7.5 ft. lbs. (10 Nm)					

Thread Lock Requirements

Position	Thread Lock				
102	Loctite 243 Part #12006400				
109	Loctite 243 Part #12006400				
119	Loctite 542 Part #12006200				

Ref 300763 Rev. J 12-24



MAINTENANCE LOG

HOURS & DATE

OIL CHANGE				
GREASE				
PACKING REPLACEMENT				
PLUNGER REPLACEMENT				
VALVE REPLACEMENT				



GP Companies, Inc.
1174 Northland Drive
Mendota Heights, MN 55120
Phone:651.686.2199 Fax: 800.535.1745
www.generalpump.com email: sales@gpcompanies.com

Ref 300763 Rev. J 12-24