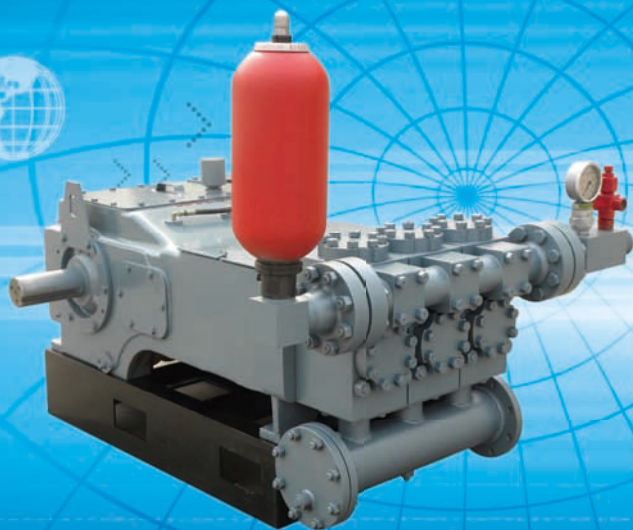




利安石油
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LEE-165 三缸柱塞泵用户手册

LEE-165 Triplex Plunger Pump Service Manual

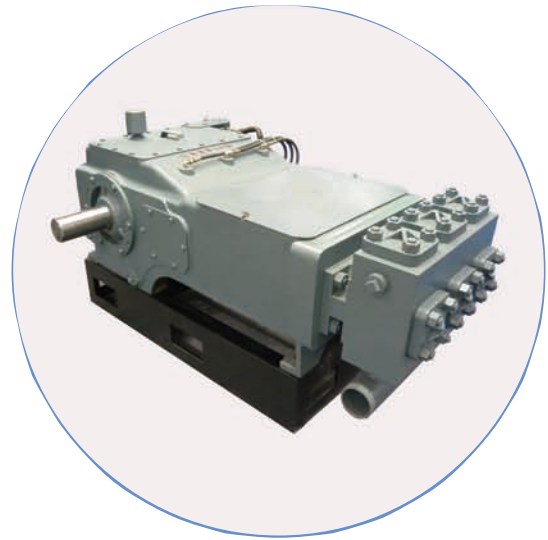
德州利安石油机械有限公司
DE ZHOU L&A PETROLEUM MACHINERY CO.,LTD

在您准备安装和使用钻井泵以前，请您务必阅读这份使用说明书，它将告诉您正确的安装方法与使用规则，这对钻井泵的使用和维护将是十分有益的。

Please make sure to read this user manual, before you prepare to install and use this drilling pump, and it will tell you the correct installation methods and operation rules, which will be very helpful to use and maintenance of this pair of drilling pumps.



LEED-165



LEEF-165

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使用维护手册

MAINTENANCE INSTRUCTIONS

一、技术规范 Technical specification

参数 Parameter	泵型号 Type	LEED-165 PUMP	LEEF-165 PUMP
最大输入功率 Max. Input Power		165HP	165HP
最大冲次 Max Stroke number		300 冲 / 分 (s/min.)	300 冲 / 分 (s/min.)
冲程 stroke		5" (127mm)	5" (127mm)
最大柱塞直径 Max Plunger Dia.		4" (101.6mm)	3" (76.2mm)
最大泵压 Max Pump Pressure		70MPa	70MPa
吸入管口 Suction Thread 可根据用户需要更改 Design according to consumer's demand.		标配: 6" 坡口焊接 / 法兰焊接 standard configuration: (6"Slop/ Flange)	标配: 4"- 6" 坡口焊接 standard configuration: (4"- 6"Slop)
排出管口 Discharge Thread		2-9/16" 10000PSI 法兰 Flange	NPT 2" 丝扣连接 Thread Connection
泵外形尺寸 (含底座) Outside Dimension (skid included)		1815*1200*955 mm	1765*1200*955 mm
重量 Weight		1451KG	1360KG

LEED-165 柱塞泵排量与压力关系表
LEED-165 Plunger Pump Displacement and Pressure Relational Table

Plunger/ Piston* Diameter 柱塞直径		Displacement Per Revolution 流量		50RPM 公升/分				100RPM 公升/分				200RPM 公升/分				250RPM 公升/分				300RPM 公升/分			
(in.)	(mm.)	Gal/ Rev	Liter/ Rev.	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm
4.00	102	0.817	3.091	155	41	3500	246	309	82	2950	206	618	163	1475	104	773	204	1175	83	927	245	975	69
3.50	89	0.623	2.359	118	31	4600	321	236	62	3800	268	472	125	1925	135	590	156	1550	108	708	187	1300	90
3.00	76	0.460	1.741	87	23	6200	438	174	46	5250	368	348	92	2625	184	435	115	2100	147	522	138	1750	123
2.75	70	0.387	1.463	73	19	7400	521	146	39	6150	433	293	77	3125	220	366	97	2500	176	439	116	2075	146
2.50	63	0.319	1.206	60	16	9000	630	121	32	7550	532	241	64	3775	265	302	80	3025	212	362	96	2525	177
2.25	57	0.258	0.977	49	13	10000	703	98	26	9300	655	195	52	4650	328	244	65	3725	262	293	77	3100	218
2.00	51	0.204	0.722	39	10	10000	703	77	20	10000	703	154	41	5900	414	193	51	4725	332	232	61	3925	276
1.75	44	0.156	0.591	30	8	10000	719	59	16	10000	703	118	31	7700	542	148	39	6175	433	177	47	5125	360

LEEF-165 柱塞泵排量与压力关系表
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Plunger/ Piston* Diameter 柱塞直径		Displacement Per Revolution 流量		50RPM 公升 / 分				100RPM 公升 / 分				200RPM 公升 / 分				250RPM 公升 / 分				300RPM 公升 / 分			
(in.)	(mm.)	Gal/ Rev	Liter/ Rev.	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm	LPM	GPM	PSI	Kg/ sq.cm
3.00	76	0.460	1.741	87	23	6200	438	174	46	5250	368	348	92	2625	184	435	115	2100	147	522	138	1750	123
2.75	70	0.387	1.463	73	19	7400	521	146	39	6150	433	293	77	3125	220	366	97	2500	176	439	116	2075	146
2.50	63	0.319	1.206	60	16	9000	630	121	32	7550	532	241	64	3775	265	302	80	3025	212	362	96	2525	177
2.25	57	0.258	0.977	49	13	10000	703	98	26	9300	655	195	52	4650	328	244	65	3725	262	293	77	3100	218
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1.75	44	0.156	0.591	30	8	10000	719	59	16	10000	703	118	31	7700	542	148	39	6175	433	177	47	5125	360

二、结构特点

Structure Characteristic

1. 动力端

Power End

泵机座 采用整体铸造结构，曲轴轴为锻钢件、曲轴为铸造件，两者热装后通过键连接传动扭矩。十字头导板和机座是整体结构。

The frame is integer cast structure, crank spindle is forged and crankshaft is cast. After heat installed, through key connected to the transmission torque. Cross head Guide and Frame is integer structure.

十字头 采用整体铸造，十字头与导板直接接触。

Cross head is integer cast. Cross head connected to guide plate directly.

轴承 为飞溅润滑，导板、十字头部位为强制润滑，为使润滑均匀充分，在适当的部位设置导油槽。

In order to assure fully equality lubrication, all bearings are splashed lubrication. Guide plate and Cross head are forced lubrication.

主轴轴承 采用圆锥滚子轴承

Main Bearing adopt Taper Roller Bearing.

十字头 连杆采用铜套连接

Cross head and connection rod connected through copper sleeve.

连杆 曲轴采用铜套连接

Connection rod and Crankshaft connected through copper sleeve

2. 液力端

Fluid End

LEED-165 泵缸体为分体结构，通过排出管、吸入管实现吸入和排出。LEEF-165 泵缸体为整体结构，通过缸体内的排出管和吸入管实现吸入和排出。两者吸、排出阀在同一铅垂线使容积余隙减小到最小程度。

The LEED-165 Cylinder is fission structure. Through Discharge pipe and Suction Pipe to realized discharge and suction. LEEF-165 Pump Cylinder is integral structure.

柱塞和介杆使用卡箍夹紧，可以快速进行检修。

Use clamp to connect the plunger and extension makes examine and repair quick and easy.

盘根盒通过螺柱固定在机座上。

Packing box is fixed on the frame through stud.

阀箱上压盖通过螺柱固定在阀箱上。

Use stud fix the valve cover on the module.

阀箱的阀座孔锥度为 1:6，滚压处理，适合长期使用。

Valve seat hole taper is 1:6, rolled and pressed for long term usage.

柱塞分喷焊合金型和镀铬型两种。

Two types of Plunger: Spray weld alloy and Chrome type.

在泵的两侧均有吸入口，可与吸入管线相接，吸入口为坡口管。

Both sides of the pump have suction input and can be connected with suction pipe which is slope pipe.

LEED-165 液力端排出管及焊颈法兰均采用 2-9/16" 10000psi 法兰，此处的密封环为 BX153 垫环。LEEF-165 液力端排出口为 NPT 2" 丝扣连接型。

LEED-165 Fluid End discharge pipe and weld flange are 2 9/16" 10000psi, the seal ring here is BX153. LEEF-165 fluid end discharge pipe is NPT 2" Threaded connection.

3. 附件

Accessories

为了充分保证泵润滑，LEED-165 和 LEEF-165 均装有齿轮油泵的强制润滑系统，齿轮油泵由传动轴驱动。

既节省能源又能主机同步工作，以保证各润滑点的正常运转。LEED-165 Pump and LEEF-165 Pump both fitted Gear Oil Pump to supply force lubrication to assure the fully lubrication. Transmission shaft drive the gear oil pump. This save will energy and work same time with pump to assure the normal operation.

三、安装

Fitting

安装前需有正确的布置方案，把柱塞泵的位置方向，吸入管线和排出管线的走向都规划好，以免安装之后返工，造成不必要的浪费。

Should have correct disposal before fitting, including the plunger pump direction, suction and discharge pipe direction, to avoid the changing after fitting cause waste.

为了使柱塞泵充分发挥效能，平稳的工作，尽量使用高于地面的吸入池，以改善柱塞泵的吸入性能，并使吸入管线尽可能缩短。

In order to use this pump efficiently and work smoothly, try to make the suck pool higher than earth surface to improve the suction performance and short length of the suction pipe.

1. 基础

Foundation

泵的安装基础必须是水平的，并有足够的强度，防止机架可能的扭曲或歪斜，以便能够支持泵的自重和运转时产生的力。

The foundation for pump must be horizontal and have a certain intensity to avoid the frame twist or deflection and to bear the pump weight and power forced when operation.

2. 传动

Transmission

泵需要通过减速箱传动，传动轴能安装在泵的一侧，安装时应注意泵的旋向，应保证与泵的旋向相同。

Gear box supply the transmission of the pump. Transmission shaft fitted on one side of the pump. Must keep the transmission shaft circle direction same as the pump.

3. 安全阀

Safety Valve

根据现场的需要，在泵的左、右两侧都可以安装排出管线，为了防止压力过高而损坏柱塞泵，在靠近泵的出口处必须安装安全阀，安全阀必须装在排出管线上的任何阀门前，这样如在阀关闭的情况下。不慎把泵启动，也不至于损坏泵，必须将安全阀的排出管接长并固定，安全地引入泥浆池，以免安全阀开启时，高压泥浆排出造成不必要事故。

According to site demands, on left and right side, both can be fitted discharge pipe. Near the output of the pump must fitted safety valve to avoid the high pressure damage to the plunger pump. The safety valve must be fitted before any valve on the discharge pipe, because in case start pump when valve closed, this will not damage the pump. And extend the length of the discharge pipe and guided to the mud pool to avoid the high pressure mud sprayed cause action.

4. 排出空气包

Pulsation Dampener

泵的排出部分应装有空气包，以减小排出液流的压力波动。

Pump Discharge section should fitted Pulsation Dampener to reduce the discharge fluid pressure wave.

四、操作

Operation

1. 开动前的准备工作

Preparation Before Operation

动力端：曲轴箱内只使用 GL-5 齿轮油，曲轴箱内的油容量约为 12 加仑（45.5 升），根据操作条件，润滑油要经常检查，定期更换，以保证清洁不含淤泥。

Power End: Only use GL-5 Gear Oil for Crankcase, the capacity is about 12Gal (45.5 L). According to operation conditions, should inspect the lubrication oil regularity and replacing to keep clean and no mud.

开动一台新泵或重新开动一台久停不用的泵时，先打开泵上的检查盖。

把润滑油加入曲轴箱并盘车数圈，使内部各储油部位都充满油，以保证启动泵时立即获得润滑。

Start a new pump or restart a pump after long time storage, should open the check-up cover. Add lubrication oil to the crankshaft and jigger a certain circles to fulfill each section with oil to assure lubricate once start the pump.

柱塞的润滑采用脂润滑，在装泵时已注入充足的润滑脂，久置后重新使用，应进行清洗，重新注油。

Plunger lubricated use grease oil. Add plenty of grease oil when assemble pump. Should clean it and add oil again

after long time storage.

检查液力端的柱塞和阀是否装配正常，柱塞泵排出管线阀门是否打开。

Check the plunger and valve whether normal and check the discharge pipe valve whether open

起动前，必须在液缸里灌满泥浆或水，以免发生气穴现象。

To avoid cavitations, before start pump, must fulfill the cylinder with mud or water

2. 开动后的工作

Works After starting

泵的转速最好慢慢提高，这样做可使管线内液体流速的增加跟上柱塞速度，不致发生气穴现象。

To improve the pump speed slowly, assure the fluid speed in pipe keep same as plunger speed to avoid cavitations.

检查各个轴承部位，十字头、导板等位置的温度是否过高和异常现象，一般油温不应超过 80°C。

Check the temperature of bearings, Cross head and guide plate to avoid high temperature and abnormality.

五、保养

Maintenance

1. 每天的保养工作

Every day Maintenance

停泵每班检查一次动力端的油位。

Each shift power off pump to check the power end oil level

柱塞泵安装完毕后，第一次运转几小时后，应当重新检查一下柱塞卡箍的上紧力矩，安装时如果卡箍和接头没有擦干净，有脏东西或外来物质夹在里面，泵运转一段时间后，夹子会松动，重新上紧卡箍螺丝，可以避免泥浆泵在接头松动的情况下运转。

After assembling plunger pump, operating several hours, and then re-check the tighten torque of the plunger clamp. If the clamp and joint not clean or have some dirty things stuck in it, the clamp will loosen after operation. Should re-tighten the stud of the clamp to avoid operation with loosen joint.

每天检查一次排出空气包的压力，保证他的充气程度符合规定要求。

Joint each week check the Discharge Pulsation Dampener pressure to assure the charge condition comply with requirements.

2. 每周的保养工作 Every Week Maintenance

检查阀盖导向孔的磨损情况，如已磨损严重，把它换掉。不圆或椭圆的导向孔会失去正确引导阀杆运动的作用，会加速阀的磨损。

Check the abrasion of the valve cover guide hole, if seriously damaged, change it. If the hole is not round or elliptical, it will lose its guiding function. And will speed the abrasion.

检查阀和阀座的磨损情况，把磨损或损坏了的阀座换掉。

Check the abrasion of the valve and seat, if seriously wore or damaged, change it.

检查柱塞和盘根，如磨损大或损坏必须更换。

Check the plunger and packing, if wear seriously or damaged, change it.

3. 每月的保养 Every Month Maintenance

每六个月把动力端内油槽和沉淀池中的脏油放掉并加以清洗，并加入新油。

Each six month change the oil of groove and the deposit pool, clean and add new oil.

检查动力端的密封垫和密封圈，如有损坏把它换掉，螺栓松了应上紧。

Check the gasket and seal ring of the power end. Change the damaged parts, tighten the loosen studs.

每六个月检查一次导板和十字头之间的间隙。

Each six month to check the clearance between guide plate and Cross head.

液力端的所有双头螺柱和螺母都要检查一次上紧程度。

All double studs and nuts of the fluid end should check the tightness.

4. 年度保养工作 Yearly Maintenance

每隔一年或两年，检查曲轴轴承，连杆铜套，十字轴铜套是否松动，如果发现有松动的地方应当对泵进行一次更加彻底的检查并采取纠正措施。

Yearly Each year or each two year, should check the Crankshaft bearing, connecting rod copper sleeve, Cross head shaft copper sleeve whether loosen. If find any place loosen, should make a thoroughly examine and take correct methods.

六、储藏 Storage

动力端：如果泵的停车时间超过半个月，应当把液力端提起垫高，使泵向动力端倾斜，然后，将油槽和沉淀池放空，洗干净做长期储备。把油放掉后，所有的轴承，加工表面及动力端整个表面上都涂防锈油。

Power end: If storage over half month, should block up the fluid end let the pump lean to power end. Then release the oil from oil groove and deposit pool. Clean it for long term storage. After released oil, paint anti-rust oil on all bearing, machine surfaces and power end.

卸下液缸的阀、柱塞总成，彻底清理液缸内部和所有的零件，在整个液缸阀和零件上都要涂防锈油。

Disassemble the fluid valve, plunger assembly, thoroughly clean the inner of the cylinder and all parts and paint anti-rust oil.

每月对泵检查一次，并转动一次，如有必要重新涂防锈油。 Check the pump each month and operate it. If needed paint anti-rust oil.

七、储藏后重新开动 Re-start after storage

储藏一段时间后重新开动泵时，不管是现场用的泵，还是从工厂送来的新泵，都必须彻底检查，确定他有没有损坏零件，以及所有零件是否都装配良好，如果不注意下列各点，可能会引起严重的破坏事故。

When Re-start the pump after storage, whether used pump in site or new pump from factory, must done thoroughly examination. Must assure no damage and all part are in good condition, if not noted this may cause serious accident.

把动力端和液力端的盖子都打开，彻底检查，清理所有零件和加工面，检查所有轴承，保证他们都是清洁而且情况良好，在动力端加润滑油，加至规定油位，在润滑分配油槽内加油，并使它流到轴承里面去。

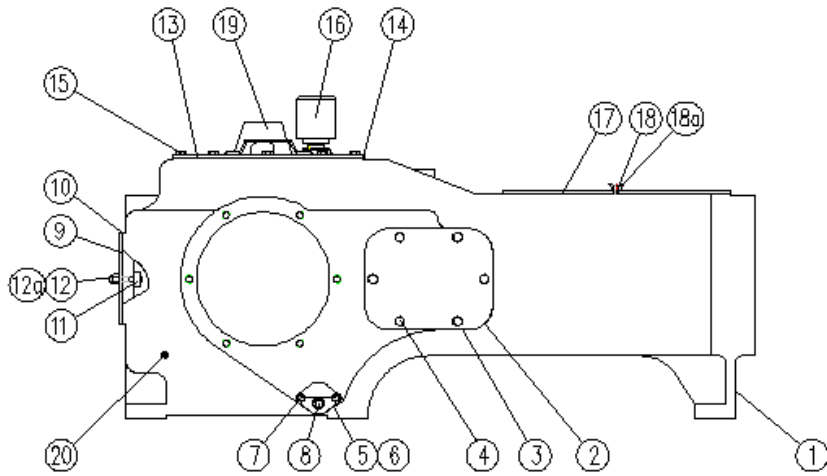
Open the cover of the power and fluid end, make thoroughly examination, Clean all parts and machine surface. Check all bearings, assure the clearness. Add lubricate oil to ruled lever at power end. Add oil to oil distribution groove and make the oil flow into the bearings.

阀、柱塞，盘根和液力端的所有零件必须正确安装，并且处于良好状态，上好螺栓，螺帽，双头螺栓和接头。 Must correctly fitting the valve, plunger, packing and fluid end parts and keep then in good condition. Tighten the stud and nut, double stud and joint.

零 部 件 手 册

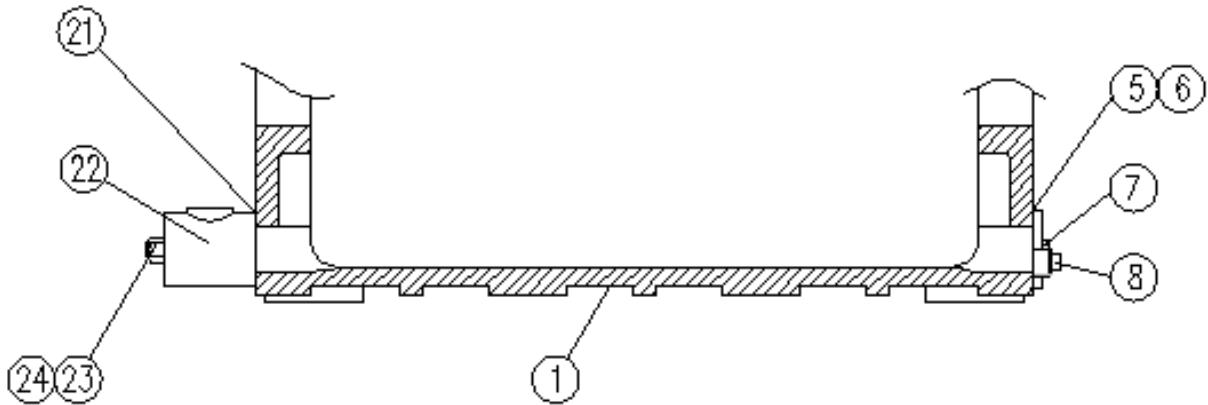
PARTS MANUAL

1. 机架总成
FRAME GROUP



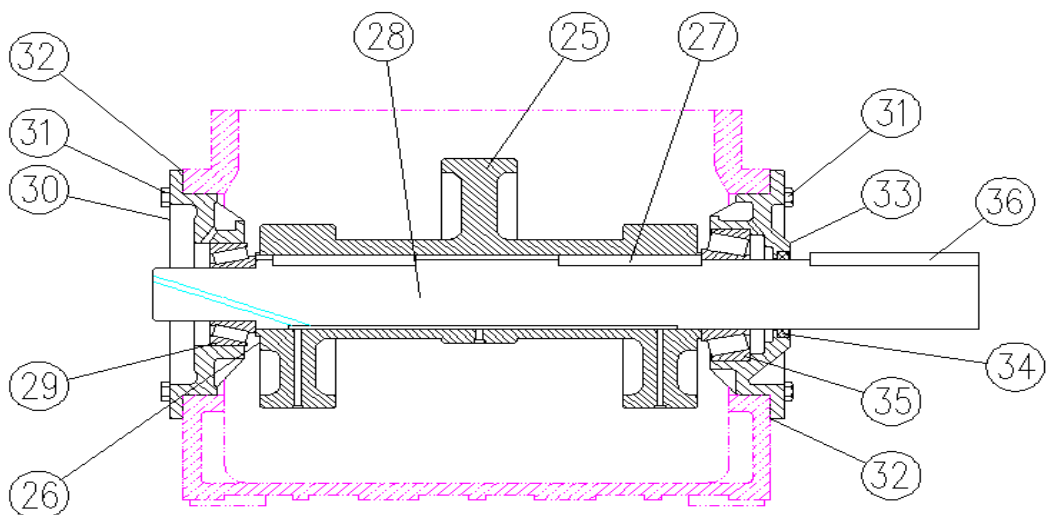
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
1	泵壳	HOUSING PUMP/FRAME	L&A-200LEE001	1
2	十字头观察盖板	CROSSHEAD INSPECTION PLATE	L&A-PE723	2
3	垫圈	GASKET Plate inspection to Frame	L&A-25C1941	2
4	螺栓	SCREW Plate inspection to Frame	L&A-75A136	12
5	法兰	FLANGE Crankcase oil drain	L&A-29AUX27	1
6	垫圈	GASKET Flange to frame	L&A-25C157N	1
7	螺栓	SCREW Flange to frame	L&A-655ED030	2
8	丝堵	PLUG Crankcase Flange	L&A-64AA7	1
9	泵壳后观察板	PLATE INSPECTION Frame end	L&A-200LEE052	1
10	垫圈	GASKET Inspection plate	L&A-200LEE715	1
11	锁定板	RETAINER	L&A-PE1400	1
12	螺栓	STUD BOLT Retainer	L&A-79A69	3
12a	螺母	NUT RETAINER	L&A-50Q14	3
13	上盖板	HOOD Top Cover Plate	L&A- 200LEE053	1
14	垫圈	GASKET HOOD	L&A-201LEE715	1
15	螺栓	SCREW HOOD	L&A-75A136	16
16	通风罩	BREATHER	L&A-5C7	1
17	上观察板	INSPECTION PLATE	L&A-201LEE052	1
18	螺栓	STUD BOLT Inspection Plate	L&A-79A466	2
18a	蝶形螺母	WING NUT Inspection Plate	L&A-50H1	2
19	吊耳	LIFTING EYE	L&A-200LEE263	2
20	丝堵	PLUG Oil Level	L&A-64AA5	2

2. 润滑管件
LUBRICATION PIPING



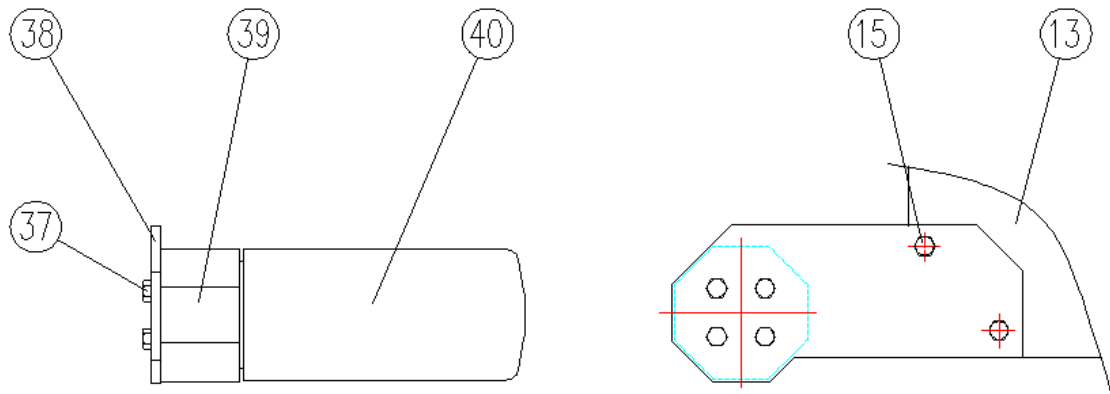
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
21	垫圈	GASKET Oil Drain Frame	L&A-25C157N	1
22	三通	CONNECTOR	L&A-200PEE284	1
23	螺柱	STUD CONNECTOR TO FRAME	L&A-79A204	2
24	螺母	NUT CONNECTOR TO FRAME	L&A-50B3	2

3. 曲轴壳、曲轴及轴承组件 ECCENTRIC SHAFT & BEARING GROUP



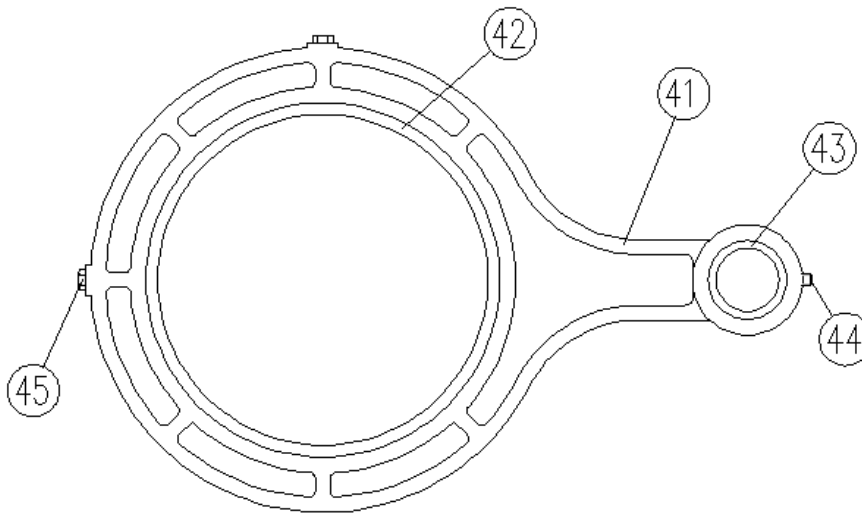
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
25	曲轴	ECENTRIC	L&A-200LEE255	1
26	丝堵	ORIFICE	L&A-200LEE814	2
27	键	KEY Eccentric to Shaft	L&A-35K17	2
28	曲轴轴	SHAFT ECCENTRIC	L&A-1PE367	1
29	轴承	BEARING Oil Pump End	L&A-12C60	1
30	轴承座	HOUSING-BRARING Oil Pump End	L&A-2PE366	1
31	螺栓	SCREW Bearing Housing To Frame	L&A-655EF050	12
32	垫圈	GASKET Bearing Housing	L&A-25C1945	2
33	轴承座	HOUSING BEARING Drive End	L&A-3PE366	1
34	油封	OIL SEAL Eccentric shaft	L&A-60G6	1
35	轴承	BEARING Drive End	L&A-12BA64	1
36	键	KEY Drive	L&A-35B72	1

4. 油过滤器
OIL FILTER



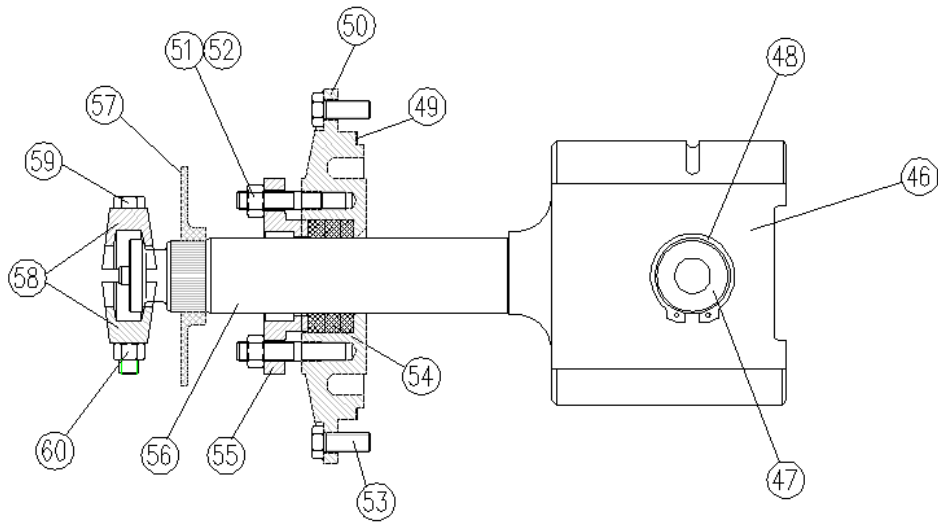
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
37	螺栓	SCREW BRACKET TO FILTER	L&A-655ED030	4
38	支架	BRACKET FILTER	L&A-200LEE389	1
39	滤字头	FILTER HEAD ASSEMBLY	L&A-2109408	1
40	滤芯	OIL FILTER	L&A-2109409	1

5. 连杆总成 CONNECTING ROD



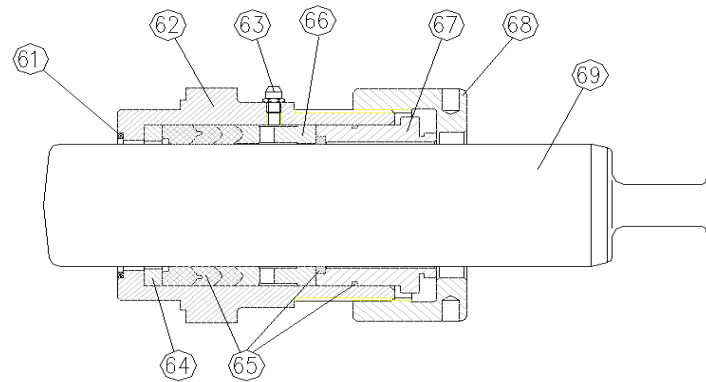
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
41	连杆	CONNECTION ROD	L&A-PE417	3
42	曲轴铜套	ECCENTRIC BUSHING	L&A-PE421	3
43	十字头销铜套	CROSSHEAD PIN BUSHING	L&A-PE229	3
44	顶丝	PLUG	L&A-64AC2	3
45	锁紧螺丝	LOCK SCREW	L&A-75LM162N	6

6. 字头及止油头组件
CROSSHEAD & OIL STOP HEAD GROUP



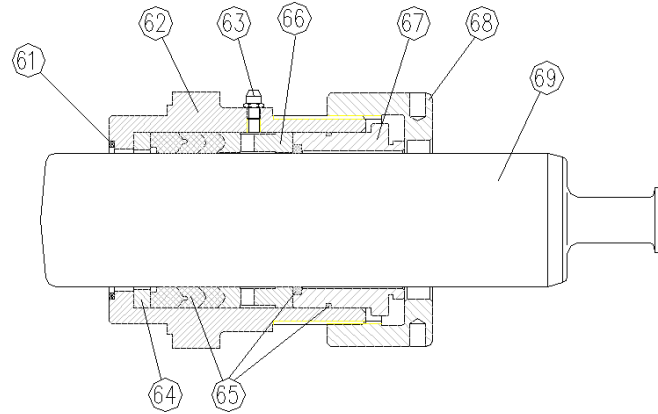
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
46	十字头	CROSSHEAD	L&A-300LEE005	3
47	十字头销	CROSSHEAD PIN	L&A-2005051	3
48	卡簧	RING CROSS HEAD PIN RETAINER	L&A-65W19	6
49	垫圈	GASKET IOIL STOP HEAD TO FRAME	L&A-25C1948	3
50	止油头	OIL STOP HEAD	L&A-PE226A	3
51	螺柱	STUD GLAND TO OIL STOP HEAD	L&A-79A238	6
52	螺母	NUT GLAND TO OIL STOP HEAD	L&A-50F5	6
53	螺栓	SCREW OIL STOP HEAD TO FRAME	L&A-655EE	12
54	垫环	PACKING OIL STOP HEAD	L&A-60DD99	6
55	压盖	GLAND OIL STOP HEAD	L&A-PE238	3
56	介杆	ROD EXTENSON	L&A-300LEE839	3
57	挡泥板	BAFFLE PISTON ROD	L&A-200TAE840	3
58	卡箍体	PLUNGER COUPLING ASSEMBLY	L&A-201TAE092A	6
59	卡箍螺栓	SCREW Coupling	L&A-655EE17S	6
60	卡箍螺母	COUPLING NUT	L&A-50AW35	6

7. LEED-165 盘根盒、柱塞及盘根
STUFFING BOX, PLUNGERS & PACKING (LEED)



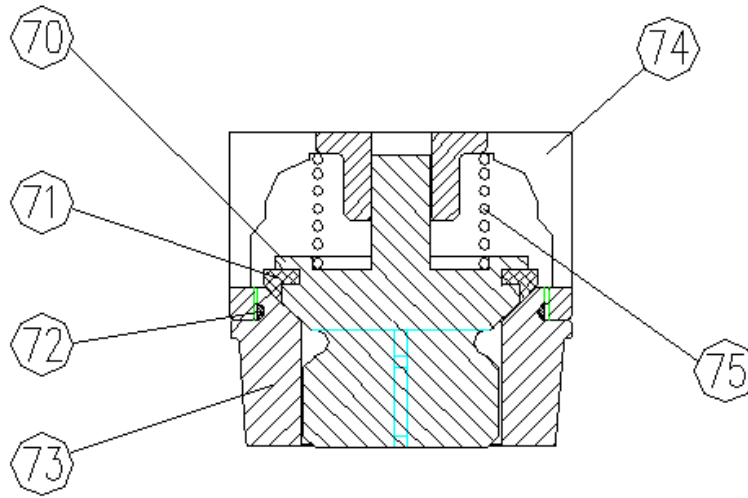
序号 Item No.	品名	Component	数量 QTY	零件号 P/N								
				4"	3.5"	3"	2.75"	2.5"	2.25"	2"	1.75"	
61	密封圈	GASKET STUFFING BOX TO FLUID END	3	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20
62	盘根盒	STUFFING BOX	3	L&A-200LEE014	L&A-201LEE014	L&A-202LEE014	L&A-203LEE014	L&A-204LEE014	L&A-205LEE014	L&A-206LEE014	L&A-207LEE014	L&A-207LEE014
63	油嘴	FITTING LUBE	3	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7
64	盘根下压环	RING JUNK	3	L&A-200LEE317	L&A-201LEE317	L&A-202LEE317	L&A-203LEE317	L&A-204LEE317	L&A-205LEE317	L&A-206LEE317	L&A-207LEE317	L&A-207LEE317
65	盘根密封	PACKING SEAL	3	L&A-60DD116	L&A-60DD115	L&A-60DD114	L&A-60DD113	L&A-60DD112	L&A-60DD111	L&A-60DD110	L&A-60DD109	L&A-60DD109
66	盘根上压环	SPACER LATERN	3	L&A-200LEE445	L&A-201LEE445	L&A-202LEE445	L&A-203LEE445	L&A-204LEE445	L&A-205LEE445	L&A-206LEE445	L&A-207LEE445	L&A-207LEE445
67	盘根压盖	BUSHING GLAND	3	L&A-200LEE152	L&A-201LEE152	L&A-202LEE152	L&A-203LEE152	L&A-204LEE152	L&A-205LEE152	L&A-206LEE152	L&A-207LEE152	L&A-207LEE152
68	盘根螺母	GLAND	3	L&A-200PEE008	L&A-200PEE008	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007
69	柱塞 (喷焊合金)	PLUNGER COLMONOY	3	L&A-1PE3840	L&A-1PE3835	L&A-1PE3830	L&A-1PE3827	L&A-1PE3825	L&A-1PE3822	L&A-1PE3820	L&A-1PE3817	L&A-1PE3817

8. LEEF-165 盘根盒、柱塞及盘根
STUFFING BOX, PLUNGERS & PACKING (LEEF)



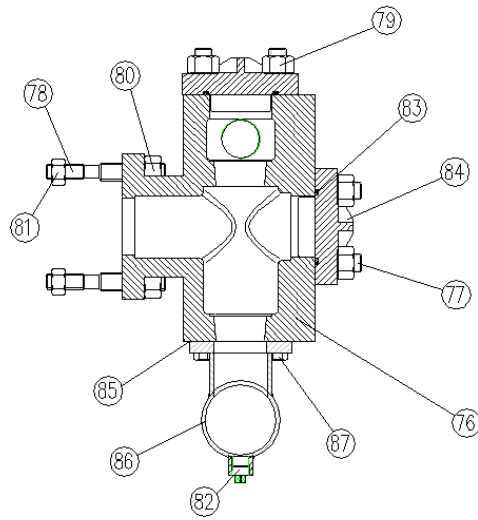
序号 Item No.	品名	Component	数量 QTY	零件号 P/N					
				3"	2.75"	2.5"	2.25"	2"	1.75"
61	密封圈	GASKET STUFFING BOX TO FLUID END	3	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20	L&A-25AL20
62	盘根盒	STUFFING BOX	3	L&A-202LEE014	L&A-203LEE014	L&A-204LEE014	L&A-205LEE014	L&A-206LEE014	L&A-207LEE014
63	油嘴	FITTING LUBE	3	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7	L&A-40E7
64	盘根下压环	RING JUNK	3	L&A-202LEE317	L&A-203LEE317	L&A-204LEE317	L&A-205LEE317	L&A-206LEE317	L&A-207LEE317
65	盘根密封	PACKING SEAL	3	L&A-60DD114	L&A-60DD113	L&A-60DD112	L&A-60DD111	L&A-60DD110	L&A-60DD109
66	盘根上压环	SPACER LATERN	3	L&A-202LEE445	L&A-203LEE445	L&A-204LEE445	L&A-205LEE445	L&A-206LEE445	L&A-207LEE445
67	盘根压盖	BUSHING GLAND	3	L&A-202LEE152	L&A-203LEE152	L&A-204LEE152	L&A-205LEE152	L&A-206LEE152	L&A-207LEE152
68	盘根螺母	GLAND	3	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007	L&A-200PEE007
69	柱塞 (喷焊合金)	PLUNGER COLMONOY	3	L&A-1PE3830	L&A-1PE3827	L&A-1PE3825	L&A-1PE3822	L&A-1PE3820	L&A-1PE3817

9. LEEF-165 吸入和排出阀
 SUCTION AND DISCHARGE VALVE(LEEF)



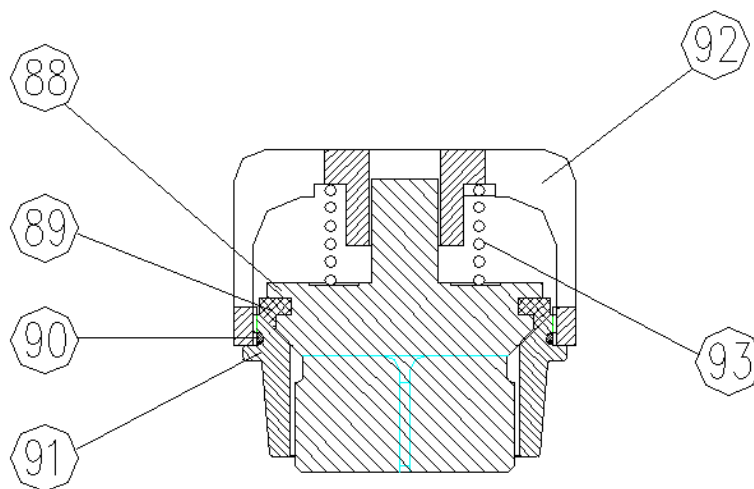
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
70	阀体	VALVE SEAT	L&A-2116522	6
71	阀胶皮	INSERT SEAL	L&A-2116521	6
72	O形密封圈	O-RING	L&A-2116520	6
73	阀座（吸入）	VALVE(SUCTION)	L&A-2116687	3
	阀座（排出）	VALVE(DISCHARGE)	L&A-2116686	3
74	阀盖	CAGE	L&A-2116524	6
75	阀弹簧	SPRING	L&A-22116523	6

10. LEEF-165 液力端
FLUID END (LEEF)



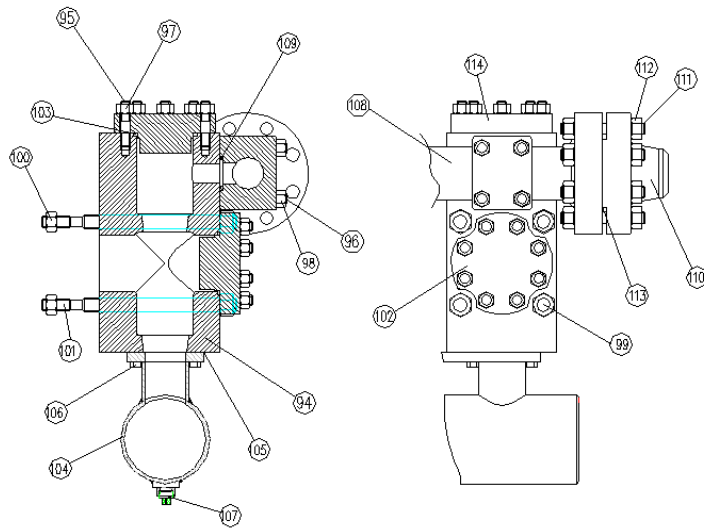
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
76	阀箱	FLUID CYLINDER	L&A-4PE29	1
77	螺柱	STUD Valve Cover to Cylinder	L&A-79AJ5	24
78	螺柱	STUD Cylinder to Frame	L&A-79AB16	12
79	螺母	NUT Valve Cover Stud	L&A-50B34	12
80	螺母	NUT Cylinder to Frame Stud	L&A-50B34	12
81	螺母	NUT Cylinder to Frame & Stuffing Box	L&A-50T90	24
82	丝堵	PLUG Manifold	L&A-64AA3	1
83	密封圈	GASKET Valve Cover	L&A-25AL35	6
84	阀(缸)盖	COVER-VALVE	L&A-7PE147	6
85	密封垫	GASKET Suction Manifold to Cylinder	L&A-25C1271N	1
86	吸入管汇	MANIFOLD Suction 4 inch	L&A-4PE110	1
87	螺栓	SCREW Suction Manifold to Cylinder	L&A-655EF060	12

11. LEED-165 吸入和排出阀
 SUCTION AND DISCHARGE VALVE (LEED)



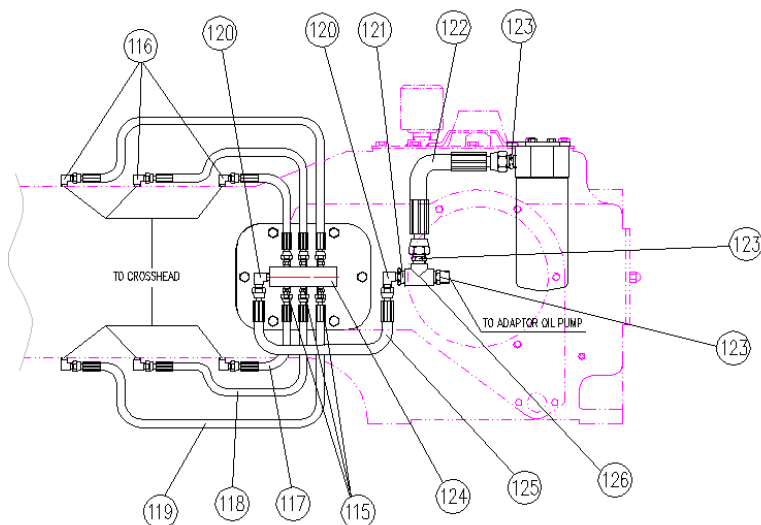
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
88	阀体	VALVE SEAT	L&A-2116347	6
89	阀胶皮	INSERT SEAL	L&A-2116283	6
90	O形密封圈	O-RING	L&A-2116284	6
91	阀座	VALVE	L&A-2116581	6
92	阀盖	CAGE	L&A-2116282	6
93	阀弹簧	SPRING	L&A-2116384	6

12. LEED-165 液力端
FLUID END (LEED)



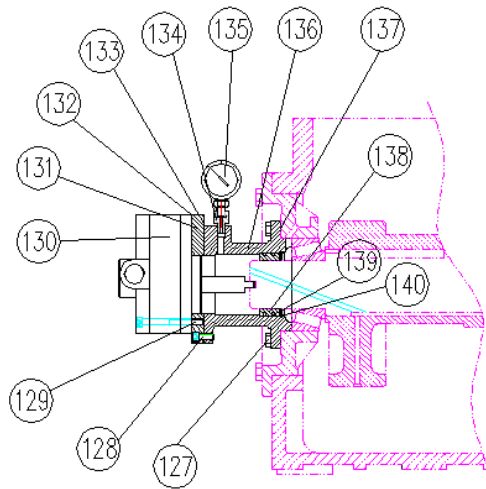
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
94	阀箱	FLUID CYLINDER	L&A-200LEE029B	3
95	螺柱	STUD Valve Cover	L&A-201LEE110	48
96	螺柱	STUD Cylinder to Discharge Manifold	L&A-79L96	12
97	螺母	NUT Valve Cover Stud	L&A-50B32	48
98	螺母	NUT Cylinder to Discharge Manifold Stud	L&A-50B32	12
99	螺母	NUT Cylinder to Frame Stud	L&A-50B34	12
100	螺母	NUT Cylinder to Frame & Stuffing Box	L&A-50AQ30	12
101	螺柱	STUD Cylinder to Frame & Stuffing Box	L&A-200LEE110	12
102	缸盖	COVER-VALVE Suction	L&A-200LEE147	3
103	阀盖密封圈	GASKET Valve Cover	L&A-25AL20	6
104	吸入管汇	MANIFOLD-SUCTION	L&A-200PEE069	1
105	垫圈	GASKET Suction Manifold to Cylinder	L&A-25C1271N	3
106	螺栓	SCREW Suction Manifold to Cylinder	L&A-655EF060	12
107	丝堵	PLUG Suction Manifold	L&A-64AA3	1
108	排出管汇	MANIFOLD-DISCHARGE	L&A-200LEE071	1
109	排出管密封圈	GASKET Cylinder to Discharge Manifold	L&A-25AL59	3
110	排出法兰	FLANGE Discharge (Steel – Weld Neck)	L&A-LEE165-F2	2
111	螺柱	SCREW Flange to Discharge Manifold	L&A-75A231	16
112	螺母	NUT Discharge Flange	L&A-50B9	32
113	垫环	GASKET Discharge Flange	L&A-25BC42	2
114	阀盖	COVER-VALVE Discharge	L&A-200LEE147	3

13. 十字头润滑管路 CROSSHEAD LUBRICATION PIPING



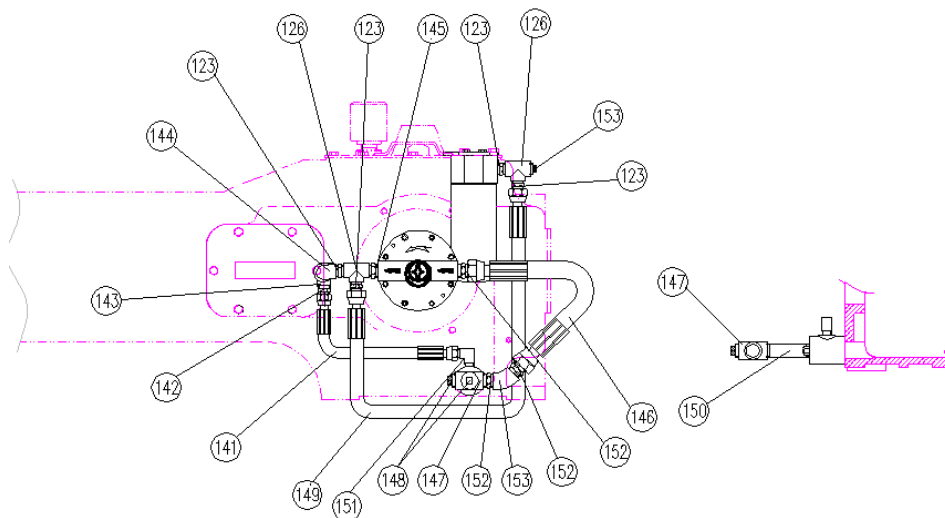
序号 Item No.	品名	Component	零件号 P/N	数量 QTY
115	1/4" 接头	ADAPTOR 1/4"		6
116	1/4" 90° 接头	ADAPTOR 1/4" 90°		6
117	胶管	HOSE ASSEMBLE	L&A-29E18	2
118	胶管	HOSE ASSEMBLE	L&A-29E19	2
119	胶管	HOSE ASSEMBLE	L&A-29E20	2
120	3/8" 90° 接头	ADAPTOR 3/8" 90°		2
121	3/4"-3/8" 转换接头	ADAPTOR 3/4" TO 3/8"		1
122	胶管	HOSE ASSEMBLE	L&A-29E12	1
123	3/4" 接头	ADAPTOR 3/4"		3
124	分流座	TUBE OIL CIRCULATING	L&A-85E6A	1
125	胶管	HOSE ASSEMBLE	L&A-201PEE715	1
126	3/4" 三通	TEE 3/4"		1

14. 油泵润滑
OIL PUMP AND PIPING



序号 Item No.	品名	Component	零件号 P/N	数量 QTY
127	螺栓	SCREW TO BEARING HOUSING	L&A-655EE050	6
128	内六角螺栓	SCREW FLANG TO ADAPTOR OIL PUMP	L&A-LEE01	4
129	内六角螺栓	SCREW FLANG TO OIL PUMP	L&A-LEE02	4
130	油泵	OIL PUMP	L&A-LEE03	1
131	调整板	FLANG ADAPTOR OIL PUMP TO OIL PUMP	L&A-LEE04	1
132	密封垫	GASKET FLANG TO OIL PUMP	L&A-LEE05	1
133	密封垫	GASKET FLANG TO ADAPTOR OIL PUMP	L&A-LEE06	1
134	转换接头 1/4"-M14	ADAPTOR 1/4"-M14	L&A-LEE07	1
135	压力表 1.6MPa M14	GAUGE PRESSURE		1
136	油泵调整套	ADAPTOR OIL Pump	L&A-200PEE170	1
137	密封垫	SHIM	L&A-77G16	1
138	油密封环	SEAL OIL MAIN SHAFT	L&A-1PE447	1
139	活塞环	RING PISTON OIL SEAL	L&A-65A33	2
140	卡簧	RING RETAINING INTERNAL SNAPRING	L&A-65W10	1

15. 吸油管路 INLET LUBRICATION PIPING

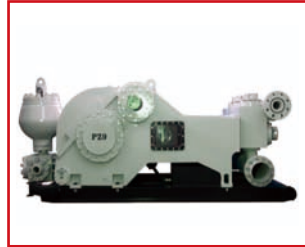


序号 Item No.	品名	Component	零件号 P/N	数量 QTY
123	3/4" 接头	ADAPTOR 3/4"		4
126	3/4" 三通	TEE 3/4"		2
141	胶管	HOSE ASSEMBLY	L&A-29R29	1
142	转换接头 3/4"-1/2"	ADAPTOR 3/4"-1/2"		1
143	安全阀	VALVE LIQUID RELIEF		1
144	90° 弯头	ELBOW TUBE 90°		1
145	转换接头 1"-3/4"	ADAPTOR 1"-3/4"		1
146	胶管	HOSE ASSEMBLY	L&A-29R30	1
147	1" 四通	CROSS 1"		1
148	丝堵	BLIND PLUG		2
149	胶管	HOSE ASSEMBLY	L&A-29R30	1
150	油管短节	NIPPLE CONNRCTOR TO CROSS	L&A-2WAJ511	1
151	1/2" 90° 弯头	ELBOW TUBE 1/2" 90°		1
152	1" 接头	ADAPTOR 1"		3
153	45° 弯头	ELBOW TUBE 45°		1

泥浆泵系列 MUD PUMP



LW440/LW446

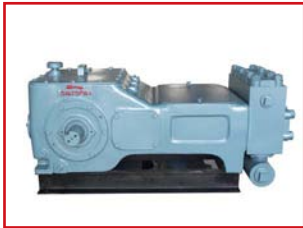


PZ7/8/9

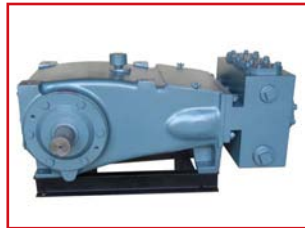


F800-F1600

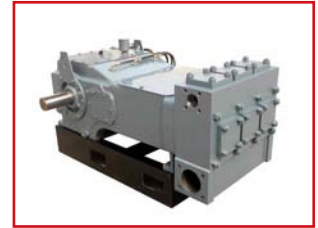
柱塞泵系列 PLUNGER PUMP



LG3



L59T



LHE215



LEE165



德州利安石油机械有限公司

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ADD: Dezhou Economic Development Zone, Shandong