



LAMPIRAN

DATA KAPAL

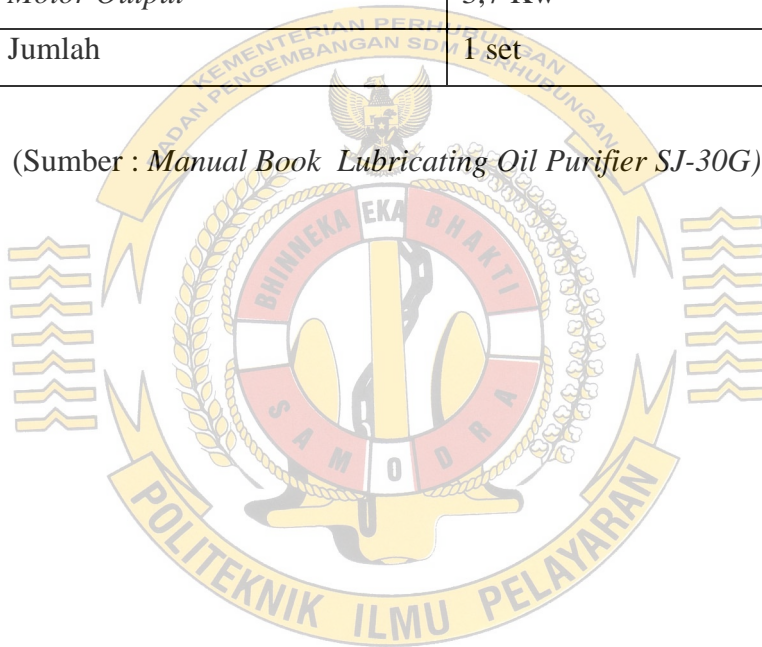
No	Data Kapal	Keterangan
1.	<i>Ship Name</i>	<i>MT Java Palm</i>
2.	<i>Port of Register</i>	Batam
3.	<i>Nationality</i>	Indonesia
4.	<i>Call sigh</i>	<i>JZAE</i>
5.	<i>Type of Vessel</i>	<i>Oil and Chemical Tanker</i>
6.	<i>Clasification</i>	BKI and ABS
7.	<i>Official No</i>	3927665
8.	<i>IMO No</i>	9403932
9.	<i>Owner</i>	PT Jaya Prima Nusantara
10.	<i>Operator</i>	<i>Pacc ship Management</i>
11.	<i>Comercial Manager</i>	<i>PCL Tankers PTE,LTD</i>
12.	<i>Year Build</i>	2008
13.	<i>Trade Nav Area</i>	<i>Ocean Going</i>
14.	<i>GRT</i>	11998.72
15.	<i>NRT</i>	10151.2
16.	<i>LOA</i>	144 M
17.	<i>LBP</i>	135. 6 M
18.	<i>Breadth</i>	23 M
19.	<i>Depth</i>	12. 5 M
20.	<i>Draft Summer</i>	8.8 M

(Sumber: *Ship Particular* MT Java Palm)

DATA PESAWAT

NO	DATA PESAWAT	KETERANGAN
1.	Nama pesawat	<i>ME LO Purifier</i>
2.	Model	<i>Mitsubishi Selfjector</i>
3.	Tipe	<i>SJ-30 G</i>
4.	Pabrik pembuat	<i>Mitsubishi Kaoki Kaisha, Co. Ltd</i>
5.	<i>Nominal Capacity</i>	3000 L/H
6.	<i>RPM</i>	10000 <i>Max</i>
7.	<i>Motor Output</i>	3,7 Kw
8.	Jumlah	1 set

(Sumber : *Manual Book Lubricating Oil Purifier SJ-30G*)



LANGKAH PENGOPERASIAN PESAWAT *PURIFIER*

NO.	TAHAPAN	KEGIATAN
1.	Langkah persiapan	<p>a. Pengukuran <i>LO sump Tank ME</i> yang berguna untuk mengetahui isi dari sump tank itu sendiri dan sebagai patokan kalau sump tank itu ada penambahan ataupun pengurangan saat pesawat bekerja sebelum pesawat dijalankan.</p> <p>b. Persiapan Kran-kran dari semua jalur dipastikan posisinya (terbuka/tertutup) sesuai yang telah di jelaskan di <i>Manual Book</i>.</p> <p>c. Pengecekan Tekanan angin untuk 3 <i>Way Valve</i> yaitu 6-7 Kg/cm²</p> <p>d. Pengecekan Kran uap (masuk dan keluar) untuk Heater dipastikan harus terbuka</p> <p>e. Pengecekan Tekanan Air untuk <i>bowl water operating</i> yang di set 4-5 kg/cm².</p>
2.	Menjalankan	<p>a. Tekan tombol <i>start</i> yang terdapat pada <i>panel elektriknya</i> untuk menjalankan <i>LO purifier feed pump</i>, untuk mensirkulasikan minyak lumas dari sump tank yang melalui 3 <i>way valve</i> kembali ke sump tank yang melalui heater akan tercapai suhu yang diinginkan yaitu 80 °C'.</p> <p>b. Menjalankan <i>LO Purifier motor</i> dengan menekan tombol start pada electric panel untuk menjalankan <i>purifier bowl. 3</i></p> <p>c. Saat pertama motor jalan putaran <i>bowl</i> belum maksimal dan beban motor masih tinggi bias dilihat di <i>Ampere Meter</i>, sekitar 30 detik putaran <i>bowl</i> akan bertahap mencapai maksimal dan</p>

		<p>beban motor di ampere meter <i>indicator</i> menunjukkan pada batas normal.</p> <p>d. Setelah itu pada <i>electric panel</i> terdapat tombol <i>LO Purifier Disludge</i> test dan selanjutnya tekan tombol tersebut untuk memastikan purifier bekerja normal yaitu <i>bowl</i> bisa membuka dan menutup.</p> <p>e. Selanjutnya tekan tombol <i>auto start</i> pada <i>electric panel</i>, maka <i>purifier</i> akan bekerja secara <i>auto</i>, <i>Water operating</i> nya diperintah secara <i>auto</i> lewat <i>solenoid valve</i> untuk menutup <i>bowl</i> dan <i>water sealing</i> nya akan jalan diperintah melalui <i>solenoid valve</i>, selanjutnya <i>LO feeding</i> nya akan masuk ke <i>purifier</i> setelah <i>3 way valve</i> bekerja yaitu yang ke <i>LO sump tank</i> tertutup dan yang ke <i>purifier</i> terbuka dimana ini diperintah secara otomatis melalui <i>solenide valve</i> dengan media angin bertekanan.</p> <p>f. Sekarang <i>Purifier</i> bekerja Normal, selama bekerja selalu diperhatikan <i>Flow Rate</i> dan <i>temperature</i>, dimana keduanya ini harus di set sesuai buku petunjuk untuk menghindari <i>purifier</i> bocor. Dimana <i>Temperature</i> diatur di <i>heater</i> dan <i>flow rate</i> di atur oleh kran <i>bypass</i> secara <i>manual</i>.</p>
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3.	Langkah mematikan	<p>a. Lakukan proses <i>Flushing</i> atau <i>Disludge</i> dengan menekan tombol <i>Dislugde</i> pada <i>Starter Panel</i>.</p> <p>b. Setelah selesai, tekan tombol <i>Stop</i> pada <i>Starter Panel</i>, maka <i>purifier</i> secara otomatis akan berhenti dan katub <i>3 way valve</i> untuk jalur minyak lumas kembali ke <i>sump tank</i> akan terbuka. Sampai <i>motor purifier</i> berhenti dan katub <i>3 way valve</i> kembali ke posisi normal yaitu jalur masuk ke <i>purifier</i> terbuka</p>
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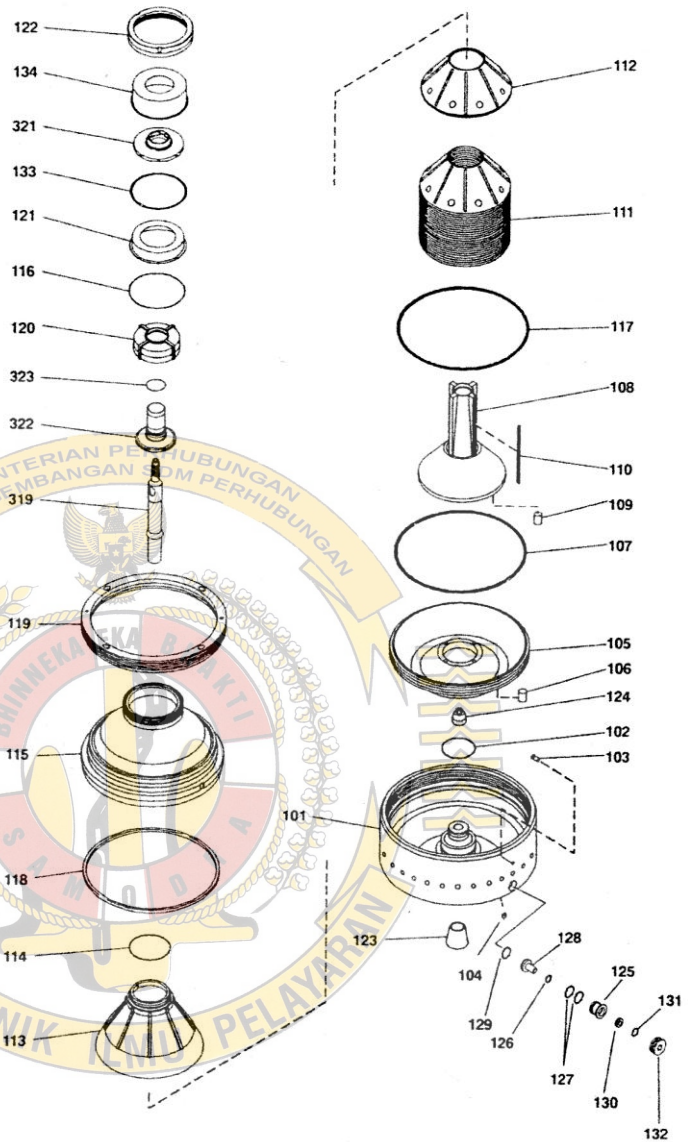
Sumber : Buku Petunjuk *Lubricating Oil Purifier SJ--30G*

BOWL PART

2.2 Bowl Parts

101	Bowl body	1
102	O ring	1
103	Knock pin	1
104	Drain nozzle	2
105	Main cylinder	1
106	Spring pin	1
107	O ring	1
108	Distributor	1
109	Pin	1
110	Key	1
111	Disc (1)	1set
112	Upper disc	(*1set)
113	Top disc	1
114	O ring	1
115	Bowl hood	1
116	O ring	1
117	O ring	1
118	Main seal ring	1
119	Bowl nut	1
120	Light liquid chamber	1
121	Gravity disc	1set
122	Disc nut	1
123	Bowl bush	1
124	Cap nut	1
125	Valve guide	2
126	O ring	4
127	O ring	4
128	Pilot valve	2
129	O ring	2
130	Valve sheet	2
131	O ring	2
132	Valve nut	2
133	Packing	1
134	Heavy liquid chamber	1
319	Inlet pipe	1
321	Impeller (2)	1
322	Impeller (1)	1
323	O ring	1

* NOTE: Upper disc
 SJ10G/20G/30G/50G/70G/100G : 3 sheets
 SJ60G/120G/150G : 7 sheets

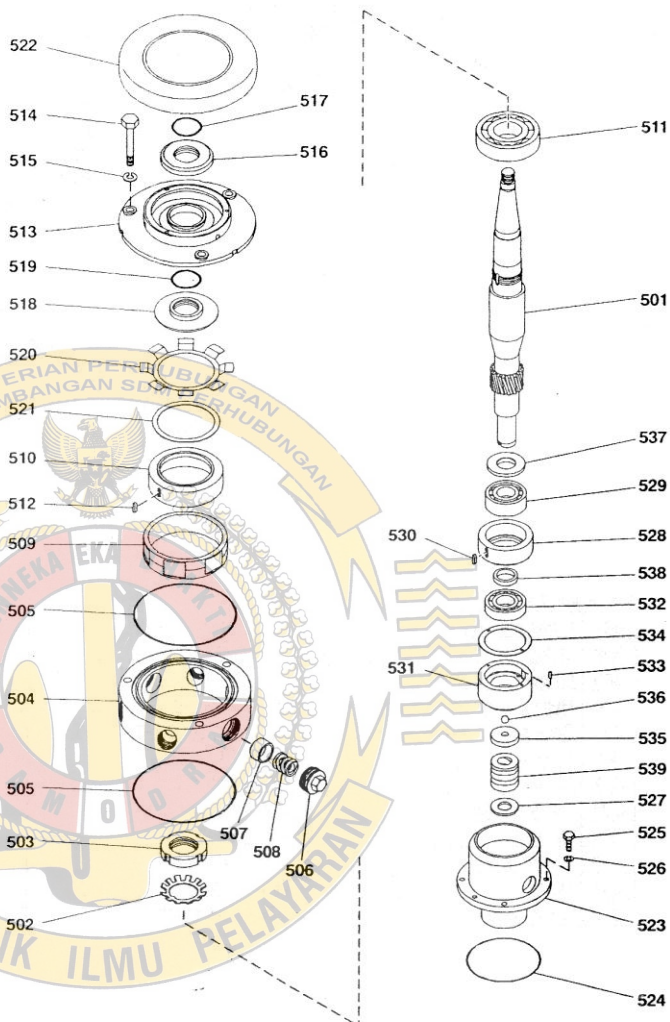


(Sumber: Manual Book Mitsubishi Selfjector SJ-30G)

VERTICAL SHAFT PART

2.5 Vertical Shaft Parts

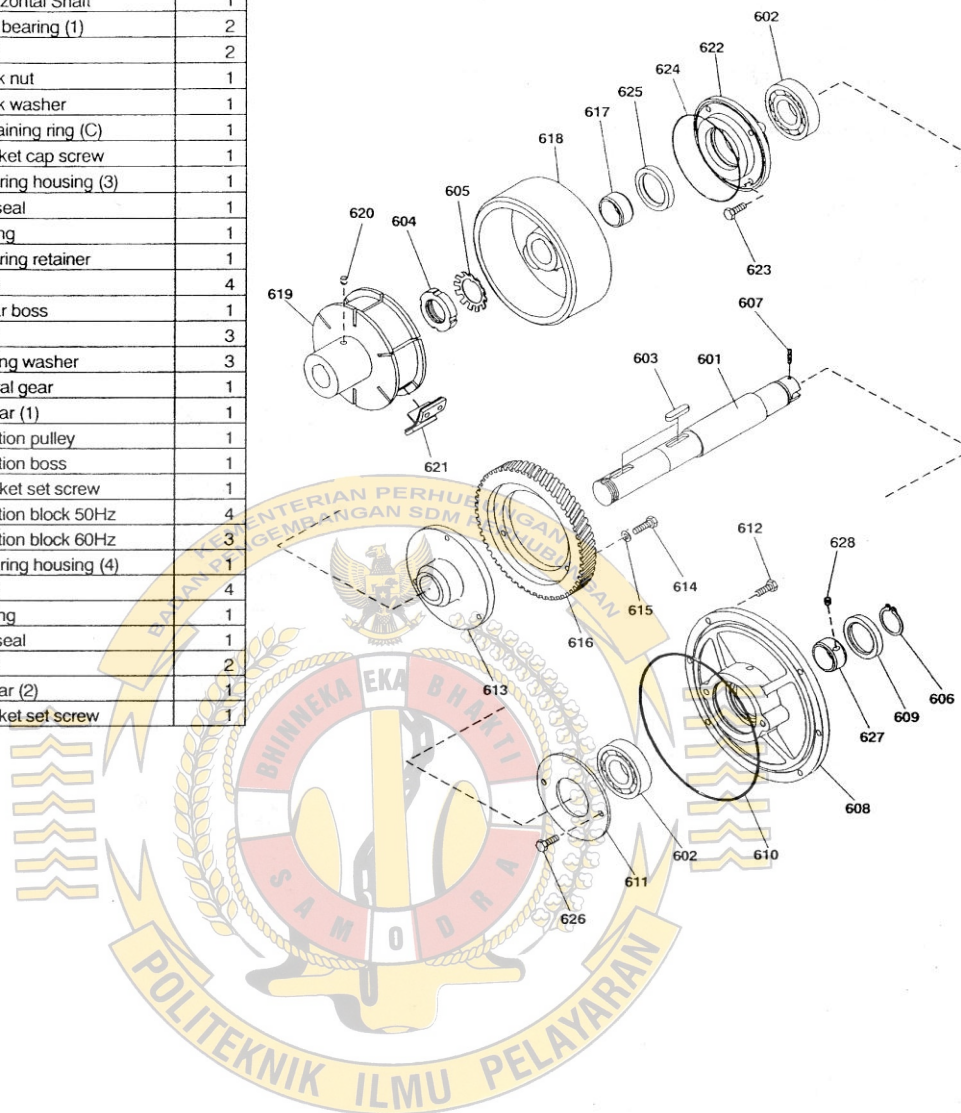
501	Vertical shaft	1
502	Lock washer	1
503	Lock nut	1
504	Bearing housing (1)	1
505	O ring	2
506	Spring retainer (1)	6
507	Spring case	6
508	Upper spring	6
509	Bearing sleeve	1
510	Bearing case (1)	1
511	Ball bearing (1)	1
512	Key	1
513	Bearing cover (1)	1
514	Bolt	3
515	Spring washer	3
516	Bearing cap (1)	1
517	O ring	1
518	Bearing cap (2)	1
519	O ring	1
520	Flat spring	1
521	Spacer (1)	1
522	Mist cover	1
523	Bearing housing (2)	1
524	O ring	1
525	Bolt	4
526	Spring washer	4
527	Washer	1
528	Bearing case (2)	1
529	Bearing (2)	1
530	Key	1
531	Bearing case (3)	1
532	Ball bearing (3)	1
533	Spring pin	2
534	Spacer (2)	1
535	Spring seat	1
536	Steel ball	1
537	Bearing cover (2)	1
538	Collar	1
539	Lower spring	1



(Sumber: Manual Book Mitsubishi Selfjector SJ-30G)

HORIZONTAL SHAFT

601	Horizontal Shaft	1
602	Ball bearing (1)	2
603	Key	2
604	Lock nut	1
605	Lock washer	1
606	Retaining ring (C)	1
607	Socket cap screw	1
608	Bearing housing (3)	1
609	Oil seal	1
610	O ring	1
611	Bearing retainer	1
612	Bolt	4
613	Gear boss	1
614	Bolt	3
615	Spring washer	3
616	Spiral gear	1
617	Collar (1)	1
618	Friction pulley	1
619	Friction boss	1
620	Socket set screw	1
621	Friction block 50Hz	4
621	Friction block 60Hz	3
622	Bearing housing (4)	1
623	Bolt	4
624	O ring	1
625	Oil seal	1
626	Bolt	2
627	Collar (2)	1
628	Socket set screw	1

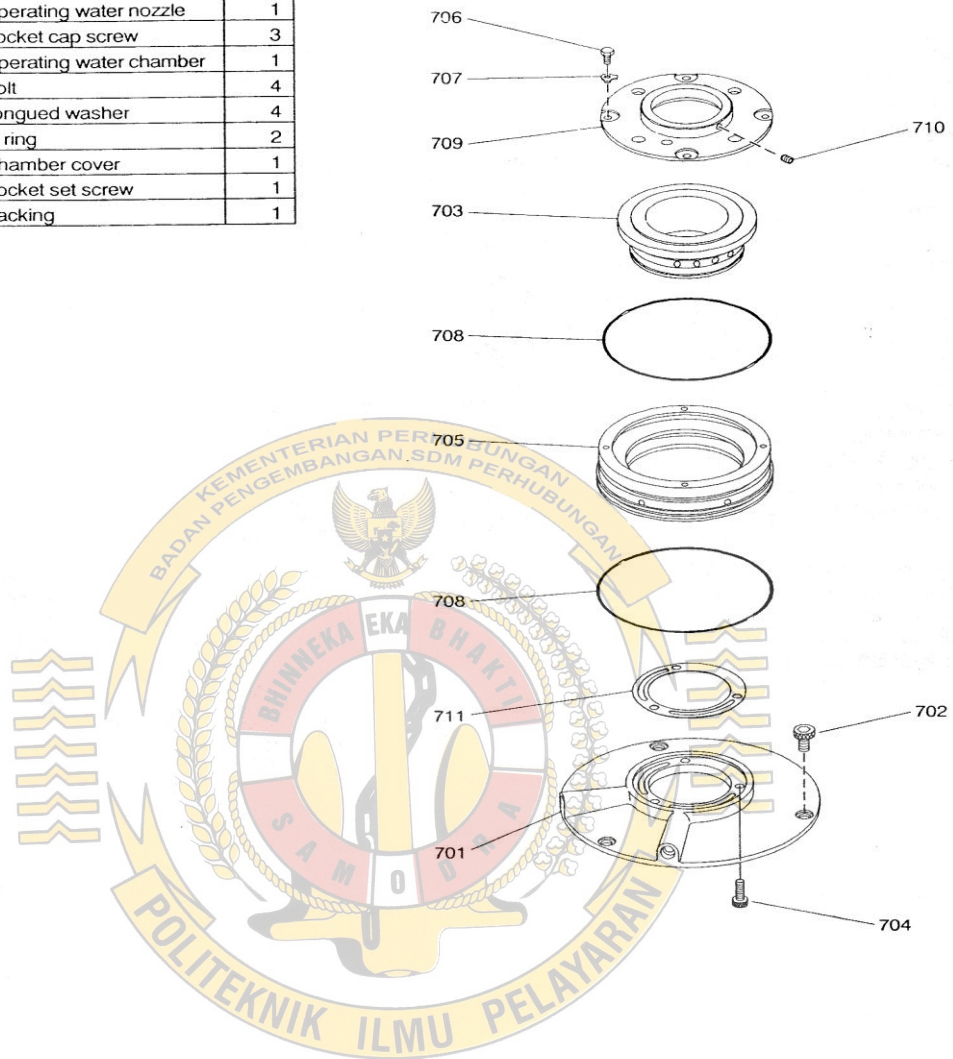


(Sumber: Manual Book Mitsubishi Selfector SJ-30G)

WATER SUPPLYING DEVICE

2.4 Water Supplying Device Parts

701	Operating water disc	1
702	Socket cap screw	3
703	Operating water nozzle	1
704	Socket cap screw	3
705	Operating water chamber	1
706	Bolt	4
707	Tongued washer	4
708	O ring	2
709	Chamber cover	1
710	Socket set screw	1
711	Packing	1



(Sumber: Manual Book Mitsubishi Selfjector SJ-30G)

DAFTAR MAINTENANCE PESAWAT LUBRICATING OIL PURIFIER

4 Routine Checks

4.1 Routine Check Items

Check Item	Description
Feed rate	Has it changed with respect to the set Feed rate?
Feed thermometer	Has it changed with respect to the set temperature?
Pressure of light liquid outlet	Does it coincide roughly with the set pressure of the Leakage Monitor?
Frame vibration	Hasn't vibration increased?
Operation noise	Isn't a strange sound generated (from the bearing, gear pump, etc.)?
Current	Isn't the rated current exceeded or changing?
Gear pump	Isn't the oil quantity low? Isn't the oil contaminated or emulsified?
Safety joint of Gear pump	Isn't it deformed or broken?
Pipe joint	Aren't there oil leaks?
Leakage Monitor (Multi-Monitor)	Is the Adjust pressure LED (yellow) lit or flashing?
Discharge Monitor (Multi-Monitor)	Is the Indicate revolution LED (green) flashing?

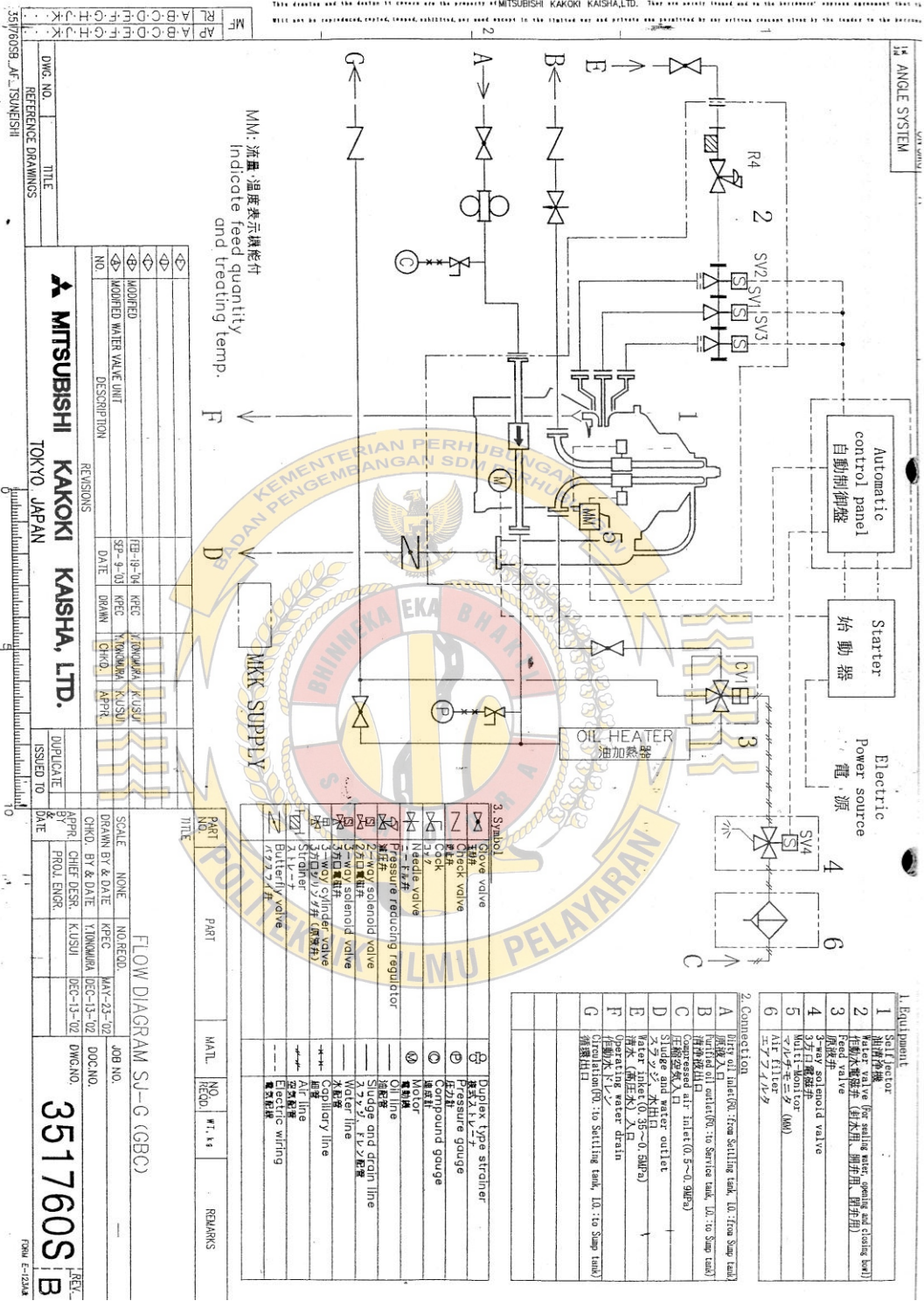
4.2 Expendable Parts Replacement Intervals

Name of part	Replacement intervals	Remarks
● Bowl		
Main seal ring	6 months	
O ring and the like	6 months	
Valve sheet	6 months	
● Frame, Cover		
O ring and the like	12 months	24 months on those used to seal the upper and lower frames
Gasket (for piping)	12 months	24 months on gaskets for gear cover and oil gauge
Rubber plate	24 months	
Sludge pipe	24 months	
● Vertical shaft, Water supplying device		
O ring and the like	12 months	24 months on those used for bearing housing (2)
Upper spring	12 months	
Lower spring	24 months	
Flat spring	24 months	
Spring case	24 months	
Gasket	12 months	
Bearing	24 months	
Spring seat	24 months	
Steel ball	24 months	
● Horizontal shaft		
Oil seal	12 months	
O ring and the like	24 months	
Bearing	24 months	
Friction block	12 months	
Friction lining	24 months	
● Gear pump		
Oil seal	12 months	
Safety joint	12 months	
O ring and the like	12 months	
Bush	24 months	
● Multi-Monitor		
Pressure sensor ^(*)	36 months	Although the pressure sensor is not an expendable part, it is advisable to replace the pressure sensor at regular intervals to keep a certain indication/detection function.

(*) The pressure sensors are installed to the light-liquid line, the heavy-liquid line, and the circulation line (G-HIDENS specification) and there are the functions of flux indication, pressure indication / leakage detection, and water detection each.

(Sumber: Manual Book Mitsubishi Selfjector SJ-30G)

FLOW DIAGRAM



MF	AP	AB	BC	CD	DE	FE	FG	GH	JK
PL	AL	BL	CL	DL	EL	FL	GL	HL	KL

DWG. NO.	TITLE
351760S_B	FLOW DIAGRAM SJ-G (GBC)
REV.	DATE
B	

NO.	DESCRIPTION	DATE	DRAMAN	CHKD.	APPR.
1	MODIFIED	03-18-74	KREG	I.HONMURA	K.USUI
2	MODIFIED WATER VALVE UNIT	09-9-70	KREG	I.HONMURA	K.USUI

3. Symbol	Symbol	Part	Material	No. Recd.	Remarks
①	Duplex type strainer				
②	Pressure gauge				
③	Needle valve				
④	Pressure reducing regulator				
⑤	2-way solenoid valve				
⑥	3-way solenoid valve				
⑦	3-way cylinder valve				
⑧	Strainer				
⑨	Butterfly valve				
⑩	Electric wiring				

1. Equipment	Symbol	Description
1	Selfjector	油分离器
2	Water valve (for settling tank, opening and closing boat)	水閥(油分离器用、開閉用)
3	Pressure gauge	油圧計
4	3-way solenoid valve	3方口電磁弁
5	2-way solenoid valve	2方口電磁弁 (MM)
6	Air filter	エアフィルター

2. Connection	Symbol	Description
A	Oil inlet (to settling tank, 10: from Sump tank)	油入口
B	Oil outlet (to service tank, 10: to Sump tank)	油出口
C	Water inlet (0.35~0.5MPa)	水入口
D	Sludge and water outlet	泥水出口
E	Water inlet (0.35~0.5MPa)	水入口
F	Water inlet (to settling tank, 10: to Sump tank)	水入口

(Sumber: Manual Book Mitsubishi Selfjector SJ-30G)

Foto Out Line Lubricating Oil Purifier Mesin Induk Starter Panel



(Sumber : Foto Maintenance Desember 2014 MT Java Palm)

Foto Maintenance Lubricating Oil Purifier Mesin Induk



(Sumber : Foto Maintenance November 2014 MT Java Palm)

Machine Condition
Lubricant Condition

CRITICAL
CRITICAL

Machine Name: B ID FAN BEARING LUBE OIL
Machine ID: BBV2543-6

Analysis Report

Component Information			Sample Information		Customer Information	
Machine Type:	Anti-Friction Bearing	Sump Size: Unknown	Received:	10/02/2014	Great Lakes Generation	
Lubricant:	CONOCO/AW 46		Report:	10/28/2014	20338 Progress Drive	
Machine MFG:	AIR PROD INC		Sample No.:	19-1-4-4	Strongsville, OH 44149	
Machine MOD:	B175A		Data Analyst:	MMM	Contact: Jack Boilerman	

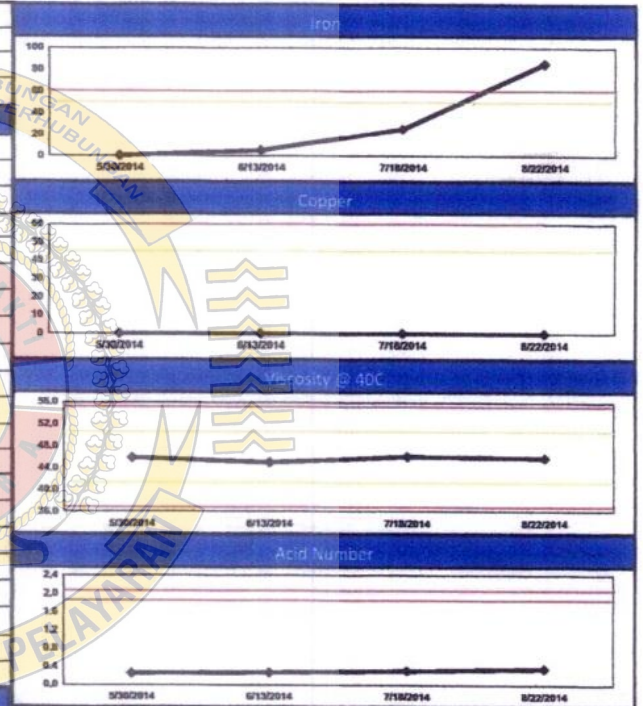
PROBLEMS
HIGH IRON.
HIGH LEAD.
High WATER CONTENT.
EXCESSIVE PARTICLE COUNT.

COMMENTS Water content at .689% (6890 ppm) is likely the result of condensation or water ingestion. Water contamination can lead to oil degradation, corrosion and reduction in load carrying capacity. If specific source of moisture cannot be located, inspect or install desiccant breathers. The particulate contamination exceeds our limits for a bearing (19/17/16). High particulate contamination will lead to abrasive wear and damage internal components. Reducing particle levels will significantly extend component life. Fluid contamination is a possible contributor to elevated wear metals.

CUSTOMER NOTES Filter change 1/5/2011

Date Sampled	NEW OIL	8/22/2014	7/18/2014	6/13/2014	5/30/2014
Lab No	1278905	168113	168112	168111	168110
Machine / Lube Cond.		C / C	N / M	N / N	N / N
Lube Hours		2016	1176	336	0

ELEMENTAL SPECTROSCOPY (ppm) ASTM D5185 Mod () indicates below detection limit						
Wear Metals	Iron	-	85	25	5	
	Copper	-	-	-	-	
	Lead	-	49	9	-	
	Aluminum	-	-	-	-	
	Tin	-	-	-	-	
	Nickel	-	-	-	-	
	Chromium	-	-	-	-	
	Titanium	-	-	-	-	
	Vanadium	-	-	-	-	
	Silver	-	-	-	-	
Additives	Calcium	174	50	44	39	41
	Magnesium	2	-	-	-	-
	Phosphorus	429	329	318	341	321
	Zinc	659	495	495	472	484
	Barium	-	-	-	-	-
	Molybdenum	3	-	-	-	-
Contaminants	Silicon	4	14	7	9	6
	Boron	-	-	-	-	-
	Lithium	-	-	-	-	-
	Sodium	-	-	-	-	-
	Potassium	-	-	-	-	-



FTIR SPECTROSCOPY (Indexing Numbers) ASTM E2412					
Oxidation	2	2	3	2	2
Nitration	3	2	2	2	2
Anti Wear	12	12	12	12	12
Other Fluid	40	118	118	117	117

PARTICLE COUNT (particles per ml) ISO 4406:99					
ISO Code	18/18/13	21/19/17	19/17/15	18/17/13	17/16/13
>4 Micron	1543	10156	2518	1456	899
>6 Micron	600	2695	789	654	401
>14 Micron	45	1256	198	78	52
>50 Micron	2	25	5	2	1
>100 Micron	0	12	2	0	0

VISCOSITY (centistokes) ASTM D445					
Viscosity@40°C	42.4	45.9	46.1	45.1	45.9
ACID NUMBER (mg KOH/g) ASTM D974					
Acid Number	0.94	0.35	0.31	0.27	0.25
WATER (H ₂ O) ASTM D6304 a: IWI-133 b: IWI-133 c: ASTM D6304 d: IWI-135* e: IWI-135* f: IWI-136* g: Cradock h: IWI 370*					
Water		0.689 (a)	0.325 (a)	0.043 (a)	0.009 (a)

Date	Customer Corrective Actions
11/19/13	changed oil ; Angela Ritchie
3/21/12	corrected oil leak ;
6/3/10	replaced bearing ;

Testing performed by Insight Services®, an ISO/IEC 17025:2005 accredited laboratory L-A-B Accredited Certificate Number 2221 Testing. (*) - Not in scope of accreditation. Great Lakes Generation assumes sole responsibility for the application of and reliance upon results and recommendations reported by TestOil, whose obligation is limited to good faith performance.

Foto Out Line Lubricating Oil Purifier Mesin Induk Starter Panel Discharge Monitor



(Sumber : Foto Maintenance Desember 2014 MT Java Palm)