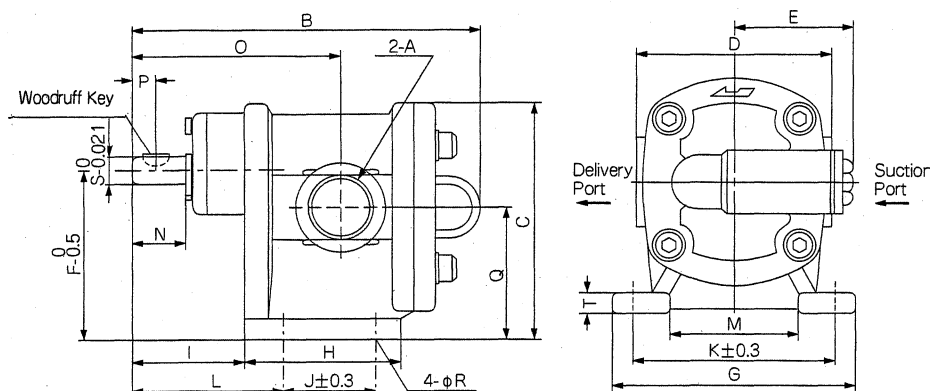
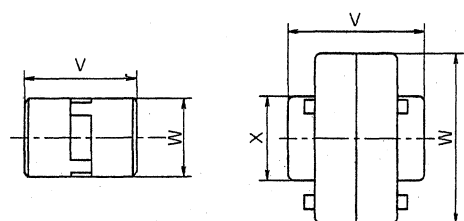


DIMENSION



TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
GL-13-□	PS½	189	131	108	64.5	95	138	73	71	40	116	87	58	30	113	15	75	11	18	12	4×19
GL-20-□	PS¾	196	131	108	64.5	95	138	73	71	40	116	87	58	30	117	15	75	11	18	12	4×19
GL-25-□	PS1	208	131	108	64.5	95	138	73	71	40	116	87	58	30	122	15	75	11	18	12	3×19
GL-32-□	PS1¼	222	131	108	64.5	95	138	73	71	40	116	87	58	30	130	15	75	11	18	12	4×19
GL-40-□	PS1½	265	189	148	89.5	136	184	112	86	70	156	111	100	40	158	19	106	11	22	16	5×22
GL-50-□	PS2	290	189	148	89.5	136	184	112	86	70	156	111	100	40	170	19	106	11	22	16	5×22

COUPLING DIMENSION



GL-13-□, GL-20-□,
GL-25-5

GL-25-10, GL-32-□,
GL-40-□, GL-50-□

	V	W	X	Parts No.
GL-13-□				
GL-20-□	69	55		0078022
GL-25-5				
GL-25-10	93	125	50	0078023
GL-32-□				
GL-40-5	93	125	50	0078024
GL-40-10	103	140	63	0078025
GL-50-5				
GL-50-10	115	160	80	0078026



GEAR PUMP

High Performance Gear Pump

OPERATION MANUAL

《GL MODEL》

- Thank you for purchasing KOSHIN GEAR PUMP.
- This manual is prepared for your safety when operating pump. Please read carefully and comprehend fully before use. (Wrong usage could cause injury or death.)
- Please keep this manual handy for future reference.

Please read this manual before operation.

KOSHIN LTD. www.koshinpump.com

12 Kami-Hachinotsubo Kotari, Nagaokakyo City, Kyoto 617-8511 JAPAN
TEL.+81-75-954-6111 FAX.+81-75-954-6119

CAUTION

1. Application

- Refrain from using such liquid as solvent, acid, or alkali because the pump is for oil.

2. Pump Setting Method

a) How to attach the pump

- Shaft center adjustment

Adjust the shaft center of the pump to the shaft center of the motor exactly while fitting a scale or the like so as to avoid any step difference. (See Fig. 1.) For fine adjustment, please use the attached adjust washer. (See Fig. 2)

Fig. 1

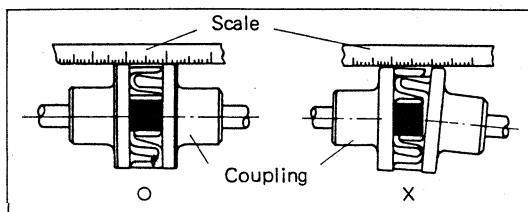
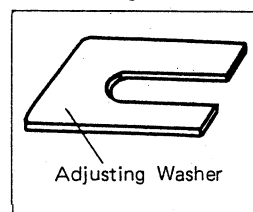


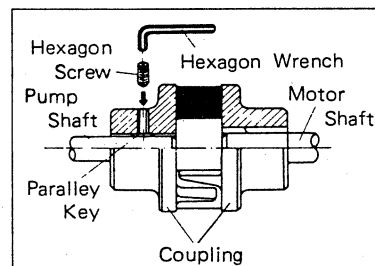
Fig. 2



- Fixing the coupling

Fix the coupling firmly onto the pump shaft by inserting a hexagon screw into the coupling at the pump side, then fastening the screw tightly over the woodruff key with a hexagon wrench so as the coupling may not move along revolution of the pump. (See Fig. 3)

Fig. 3



b) Revolutionary direction of pump

The pump should turn to the right, i.e. clockwise direction looking from the motor side. Check the revolutionary direction with the arrow mark indicated on the front cover. In forward direction, the right side looking from the motor side is the delivery outlet and the left side is the suction inlet.

Refrain from turning the pump in counterclockwise direction as the relief valve incorporated in the pump does not operate, which is very dangerous.

c) Suction piping

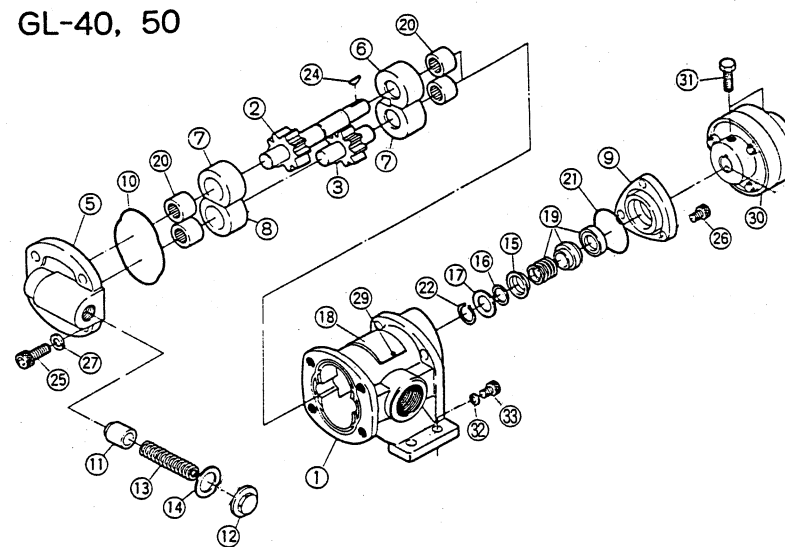
For the suction piping, pay close attention to prevent any cavitation in the pump due to the suction resistance. When a high viscosity liquid such as engine oil or B heavy oil is used under a cold climate condition, cavitation tends to be resulted and noise, abnormal wear of gears and other parts, and damage to mechanical seal are resulted.

HOW TO USE

- Turn on the switch after making sure the revolutionary direction of the pump.
- Before starting continuous operation, check the operational condition by turning on and off the switch for trial.
- Before turning off the switch to stop the pump, open the delivery side valve fully.

PARTS LIST

GL-40, 50



No.	PARTS No.	PARTS NAME	QTY	MATERIAL	No.	PARTS No.	PARTS NAME	QTY	MATERIAL
1	GL-40 0070170 GL-50 0070171	Housing	1	FC	16	0090114	Stopper packing	1	NBR
2	GL-40 0070158 GL-50 0070159	Drive gear	1	SCM	17	0070138	Stopper plate	1	SPC
3	GL-40 0070164 GL-50 0070165	2nd gear	1	SCM	18	—	Name plate	1	
5	0070033	Bypass cover	1	FC	19	0111153	Mechanical seal	1	HG9A-MNφ25
6	0070080	Bush with flute	1	FC,BC	20	927500028	Needle bearing	4	RLM253225
7	0070124	Bush B	2	FC,BC	21	889955055	O-ring	1	G55 NBR
8	0070043	Bush A	1	FC,BC	22	888327025	Shaft stop-ring	1	
9	0070137	Foot cap	1	FC	24	886909010	Woodruff key	1	S45C
10	0070134	Particular O-ring	1	NBR	25	734532149	Hexagon socket bolt	4	M14×40SCM
11	0070110	Popet	1	S35C	26	743119032	Hexagon bolt	3	M6×20SCM
12	0070109	Bypass cap	1	FC-20	27	843822014	Spring washer	4	φ14
13	※1	Spring	1	SWP	29	854505006	Parker rivet	2	SUS
14	0070048	Valve packing	1		30	See another list	JIS Coupling	1	
15	0090115	Stopper	1	SUS	31	735719148	Hexagon bolt	1	M8×20
					31	735719152	Hexagon bolt	1	M8×30(GL-50-10)
					32	0340142	Seal ring	2	NBR
					33	0340153	Bind screw	2	M6×8SUS

※1 Spring 0.5MPa (5kgf/cm²) TYPE : GL-40-5, GL-50-5

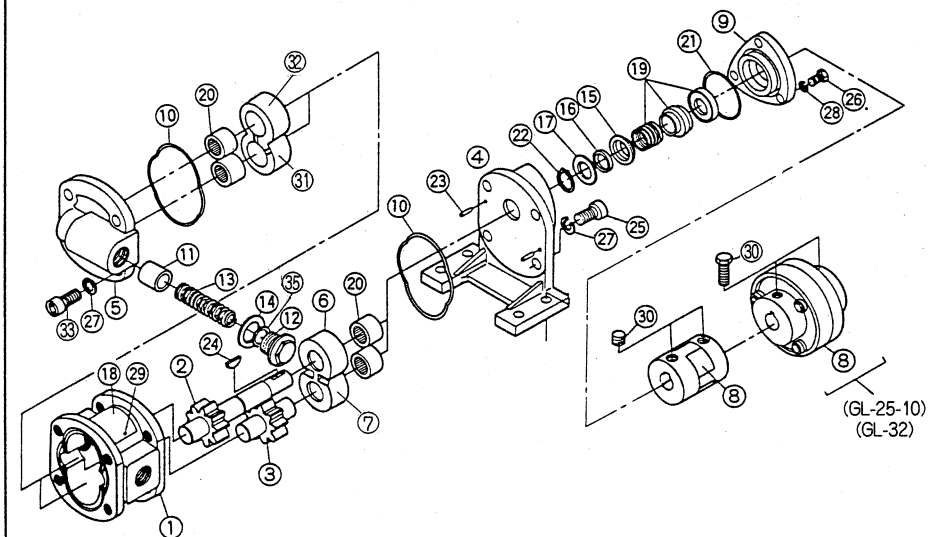
→ 0070078

1MPa (10kgf/cm²) TYPE : GL-40-10, GL-50-10

→ 0070079

PARTS LIST

GL-13, 20, 25, 32



No.	PARTS No.	PARTS NAME	QTY	MATERIAL	No.	PARTS No.	PARTS NAME	QTY	MATERIAL
1	GL-13 0070004	Housing	1	FC	14	0070038	Valve packing	1	
	GL-20 0070003			ADC	15	0070133	Stopper	1	SUS
	GL-25 0070002			ADC	16	0070126	Stopper packing	1	NBR
	GL-32 0070001			FC	17	0070125	Stopper plate	1	SPC
2	GL-13 0070153	Drive gear	1	SCM	18	—	Name plate	1	
	GL-20 0070154				19	0070258	Mechanical seal	1	HG9ALN-3φ20
	GL-25 0070155				20	927500021	Needle bearing	4	RLM202820
	GL-32 0070156				21	890155045	O-ring	1	S45 NBR
3	GL-13 0070160	2nd gear	1	SCM	22	888327020	Shaft stop-ring	1	
	GL-20 0070161				23	848609077	Parallel pin	2	
	GL-25 0070162				24	887009007	Woodruff key	1	S45C
	GL-32 0070163				25	734532090	Hexagon socket bolt	4	M10×25SCM
4	0070283	Foot cover	1	ADC	26	734532035	Hexagon socket bolt	3	M5×16SCM
5	0070284	Bypass cover	1	ADC	27	843822010	Spring washer	8	φ10
6	0070317	Bush with flute	1	FC	28	843822005	Spring washer	3	φ5
7	0070318	Bush B	1	FC	29	854505006	Parker rivet	2	SUS
8	See another list	Coupling	1		30	713832026	Hexagon socket screw	1	M6×10SCM
9	0070141	Foot cap	1	ADC	30	735719148	Hexagon bolt	1	M8×20
10	0070131	Particular O-ring	1	NBR	31	0070319	Bush A	1	FC
11	0070106	Popet	1	S35C	32	0070320	Bush B heat-treated	1	FC
12	0070105	Bypass cap	1	ZDC	33	734532088	Hexagon socket bolt	4	M10×20SCM
13	※ 1	Spring	1	SWP	35	0070095	Bypass adjusting plate	1	SPCC

※ 1 Spring 0.5MPa (5kgf/cm²) TYPE : GL-13-5, GL-20-5, GL-25-5, GL-32-5

→ 0070077

1MPa (10kgf/cm²) TYPE : GL-13-10, GL-20-10, GL-25-10, GL-32-10

→ 0070026

CAUTION

1. The figures at the end of each type designation (GL XX-5, GL XX-10) indicate the pressure when the relief valve starts to open, 0.5MPa (5kgf/cm²), and 1MPa (10kgf/cm²), respectively, and these are selected with due consideration to the piping resistance and throttle pressure etc.
2. Applicable viscosity differs depending on each type, power output, rate of revolution, piping and suction condition. Ordinarily, an oil within the viscosity range from 5 mm²/s(cst) to 500 mm²/s(cst) should be used.
3. For operation, keep the liquid temperature below 60°C.
4. Idling is prohibitive.
Absolutely refrain from idling when kerosine, diesel, A heavy oil and other low and other low viscosity oil is used because the bearings in the pump are lubricated by the liquid transferred.
5. Refrain from closing the delivery valve while the pump is in operation.
A by-pass valve is incorporated in the pump but this is only for safety. Never close the delivery valve while the pump is in operation as such is extremely dangerous because the oil temperature in the pump is increased.
6. When the pump is stopped for a long time, prevent rusting in the pump by taking out the transfer liquid in the pump and supplying grease, machine oil and others.

MAKING CABITATION

1. Lower the setting position of the pump as far as possible so as to increase the suction side liquid pressure. (Fig. 4.)
2. Make the suction piping as short as possible.
3. Use a little larger pipes as the suction pipe. (Fig. 5)
4. When any suction hose is used, employ larger size by one step than the one of nominal size in general, i.e. the hose of the same I.D. as that for gas pipe. (Fig. 5)
5. Air allowed into the suction pipe generates unusual noise and causes abrasion of the pump. Seal the joints of suction pipe completely.

Fig 4

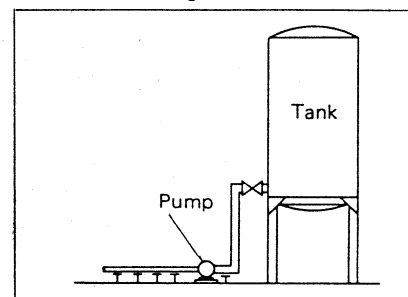
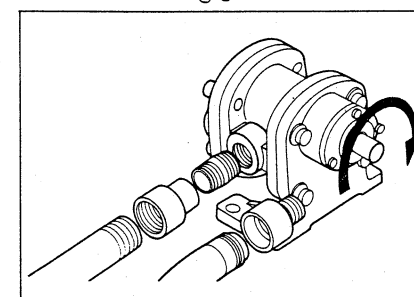


Fig 5



TROUBLE & REMEDY

Pump does not turn	Gear is rusted _____	Repair	
	Foreign substance _____ in pump	Overhauling	
No delivery pressure is given	Operation of by-pass valve	High viscosity of _____ pumping liquid	Lower viscosity by lowering liquid temp
		Piping resistance is _____ excessive	Reduce the resistance by using larger pipes or by some other measures.
		Foreign substance _____ allowed into the by-pass valve.	Overhauling.
		Blocking of liquid _____ passage	Cleaning of pipe
	Rate of revolution _____ is lower than the regular level.		Checking of electrical system
	Cavitation is resulted	High viscosity of _____ pumped liquid	Lower the viscosity by increasing liquid temperature.
		Rate of revolution is _____ too high.	Lower the revolution.
	Liquid leakage _____		Checking of delivery piping
	Air coming through _____ suction side.		Checking of suction piping.
	Noise is generated.	Shaft center deflection _____	
Incomplete fixing of _____ pump or motor			Checking of the fixed condition.
Wear of gear _____			Repair
Breakage of bearing _____			Repair
Air coming through _____ suction side			Checking of suction piping
Resonance of piping _____			Piping check
Cavitation is resulted.		High viscosity of _____ pumped liquid	Lower the viscosity by in- creasing liquid
		Excessive resistance of _____ suction pipe.	Reduce resistance by using larger pipes or by other means.
		Rate of revolution is _____ too high.	Lower the rate of revolution.

SPECIFICATION

Pump	Curve No	Power	Connection Dia	Max Pressure	Delivery volume		Coupling	Pump Shaft Dia
					60Hz (1720rpm)	50Hz (1450rpm)		
GL-13-5	①	0.4kw4p 200V 3phase	PS13m/m (1/2")	0.5MPa	20ℓ/min 5.3U.S.G./min	17ℓ/min 4.5U.S.G./min	ZDC	φ18m/m
GL-13-10	②	0.75kw4p 200V 3phase		1MPa				
GL-20-5	③	0.75kw4p 200V 3phase	PS20m/m (3/4")	0.5MPa	35ℓ/min 9.2U.S.G./min	29ℓ/min 7.7U.S.G./min		
GL-20-10	④	1.5kw4p 200V 3phase		1MPa				
GL-25-5	⑤	1.5kw4p 200V 3phase	PS25m/m (1")	0.5MPa	55ℓ/min 14.5U.S.G./min	46ℓ/min 12.1U.S.G./min		
GL-25-10	⑥	2.2kw4p 200V 3phase		1MPa				
GL-32-5	⑦		PS32m/m (1 1/4")	0.5MPa	85ℓ/min 22.4U.S.G./min	71ℓ/min 18.7U.S.G./min	JIS	φ22m/m
GL-32-10	⑧	3.7kw4p 200V 3phase		1MPa				
GL-40-5	⑨	2.2kw6p 200V 3phase	PS40m/m (1 1/2")	0.5MPa	123ℓ/min 32.5U.S.G./min	100ℓ/min 26.4U.S.G./min		
GL-40-10	⑩	5.5kw6p 200V 3phase		1MPa	(1180rpm)	(960rpm)		
GL-50-5	⑪	3.7kw6p 200V 3phase	PS50m/m (2")	0.5MPa	200ℓ/min 52.8U.S.G./min	165ℓ/min 43.6U.S.G./min		
GL-50-10	⑫	7.5kw6p 200V 3phase		1MPa	(1160rpm)	(940rpm)		

The specification is subject to change without notice for improvement.

PERFORMANCE CURVE

