****
PARTS CATALOGUE

OF

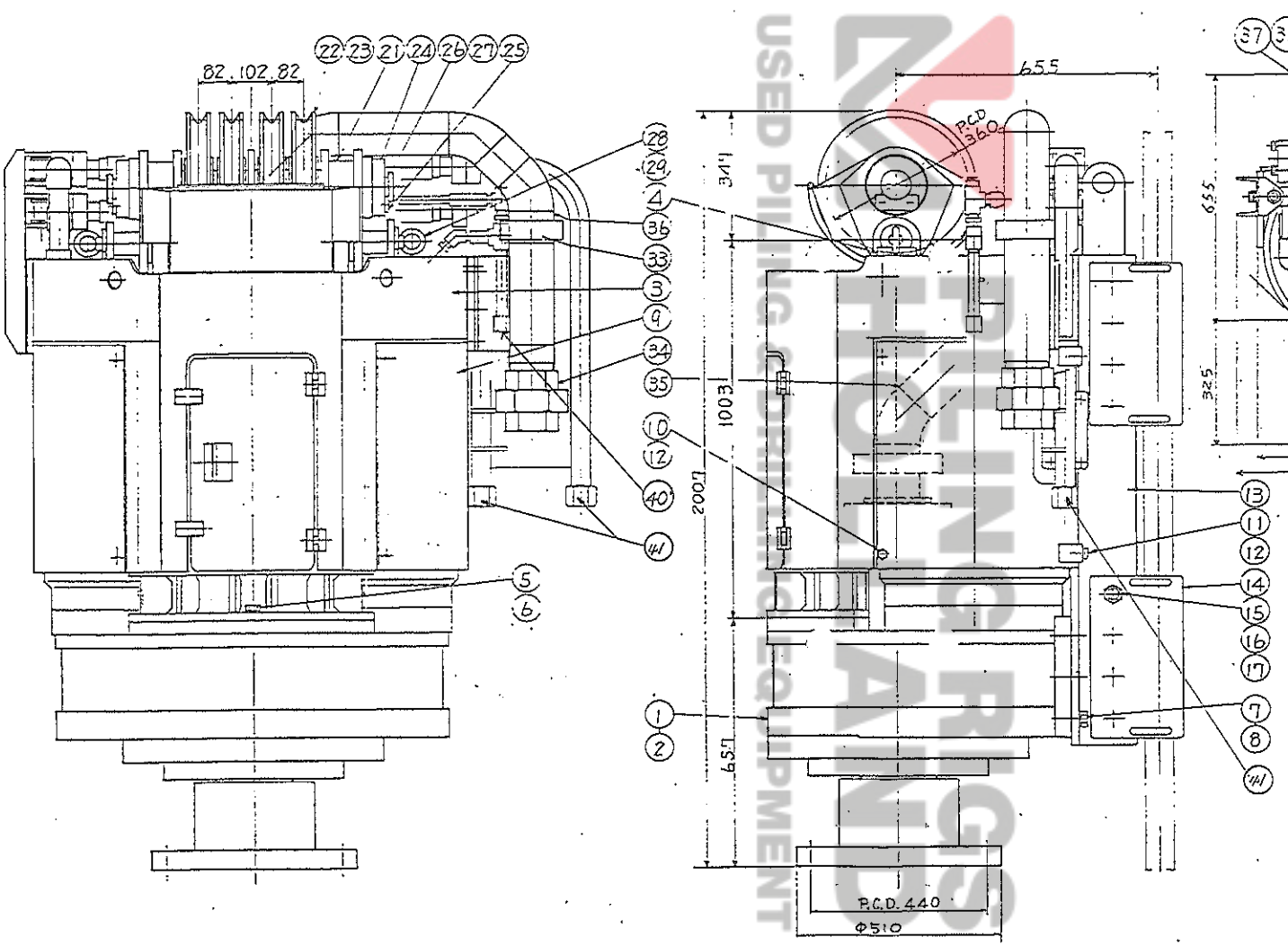
SANWA AUGER MODEL HO-5000
****

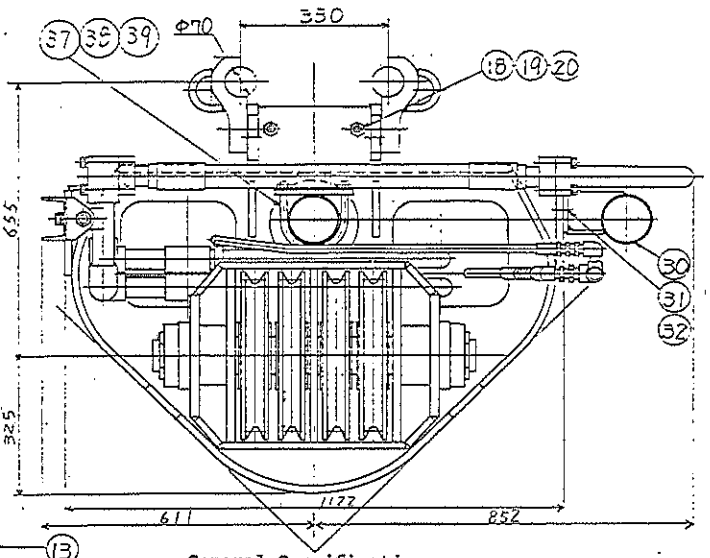
SANWA KIZAI CO,, LTD.

March '82 Tokyo

Reference No.221G00-15

C O N T E N T S





General Specifications

Model	: HO-5000
Hydraulic Motor	: Model H2600, 2 units
Stall Torque	: 5.0 ton-m at 210kg/cm2
Extracting Availabiltiy	: Max.50 ton
Weight	: 4 ton

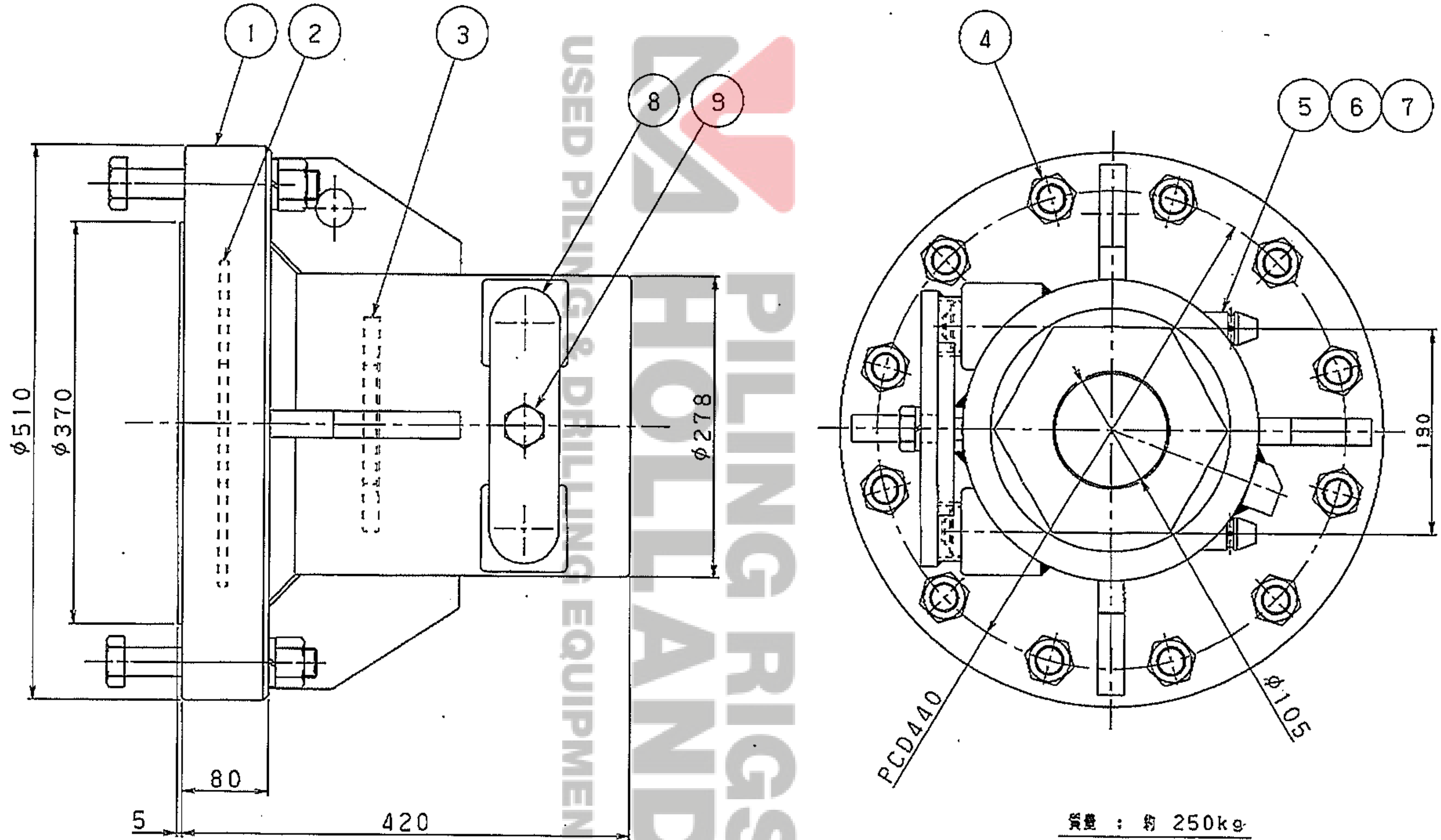
Model HO-5000
Auger Drive Unit
SANWA KIZAI CO., LTD.
Microfilm No.81-2718-0

AUGER DRIVE UNIT MODEL HO-5000

No.	Name of Parts	Q'ty	Parts No.	Remarks
1	Transmission	1	408 1256 80	
2	Hydraulic Motor	2	H25 263Y 13	
3	Holder	1	408 1248 00	
4	Keep Plate	2	ZKP 0600 00	KP-60
5	Hex. Bolt	7	N12 M240 70	11T M24 x 70 L
6	Spring Washer	7	N33 M240 00	M24
7	Hex. Nut	18	N12 M240 60	11T M24 x 60 L
8	Spring Washer	18	N33 M240 00	M24
9	Side Cover	2	408 1248 10	
10	Hex. Bolt	4	N11 M160 35	M16 x 35 L
11	Hex. Bolt	4	N11 M160 35	M16 x 35 L
12	Spring Washer	8	N33 M160 00	M16
13	Slide Bracket	1	408 1248 20	
14	Guide Clip	4	ZGO 7A43 10	G-7A43-1
15	Hex. Bolt	16	N12 M301 10	11T M30 x 110 L
16	Hex. Nut	16	N22 M300 00	11T M30
17	Spring Washer	16	N33 M300 00	M30
18	Both End Screw Bolt	4	407 7062 50	
19	Hex. Nut	8	N21 M160 00	M16
20	Spring Washer	8	N33 M160 00	M16
21	Sheave Block	1	407 9044 42	
22	Wire Sheave	4	ZWS 3600 00	WS-36
23	Collar	6	ZC7 5000 00	C-75
24	Spacer	2	407 9605 80	
25	Keep Plate	2	ZKP 0750 00	KP-75
26	Sheave Pin	1	407 9063 32	
27	Grease Nipple	2	ZGN A020 00	GN-A1/8
28	Pin	2	407 9204 30	
29	Eye Bolt	2	N14 M200 00	M20
30	Pipe Support (4^B)	1	408 1259 00	

AUGER DRIVE UNIT MODEL HO-5000

No.	Name of Parts	Q'ty	Parts No.	Remarks
31	Hex. Bolt	2	N11 M160 35	M16 x 35 L
32	Spring Washer	2	N33 M160 00	M16
33	TCP Joint 4^B	3	J42 TC64 00	
34	Union Coupling	1	ZHF CUAO 64	4^B
35	Pipe (A)	1	408 1258 70	
36	Pipe (B)	1	408 1258 80	
37	U-shaped Bolt	1	408 0042 10	
38	Hex. Nut	2	N21 M160 00	M16
39	Spring Washer	2	N33 M160 00	M16
40	Oil Port for Drive	2		PT 1 1/2
41	Drain Port	1		PT 3/4



質量 ： 約 250kg

部品表は、P00-3138-0を参照のこと。

製缶品ノ無記号寸法公差			機械加工無記号寸法公差		
寸法ノ呼ビ区分		寸法差	寸法ノ呼ビ区分		寸法差
	63 以下	±1.6		4 以下	±0.1
63ヲ超ス	325 以下	±2	4ヲ超ス	16 以下	±0.2
125ヲ超ス	250 以下	±2.5	16ヲ超ス	63 以下	±0.3
250ヲ超ス	500 以下	±3.15	63ヲ超ス	250 以下	±0.5
500ヲ超ス	1000 以下	±4	250ヲ超ス	1000 以下	±0.8
1000ヲ超ス	2000 以下	±5	1000ヲ超ス	4000 以下	±1.25
2000ヲ超ス	4000 以下	[illegible]	4000ヲ超ス	10000 以下	[illegible]

質量 WEIGHT	素	kg
	設・実	kg
記事 NOTE		

図面来歴 CAREER

日付 DATE	記号 MARK	印	詳細 DETAIL
	△		
	△		
	△		

GROUP. USER

名称 TITLE: SP6-120 (4^{B})
下部カップリング（特） 組立図

承認 APPR	検図 CHECK	設計 DESIG	製図 DRAWN
	島田	荒井	浜根

尺度 SCALE 1/4

日付 DATE 20000818

ブロック BROCK

数量 Q'TY

製番 MANUF. NO.

GTコード

GT. NO

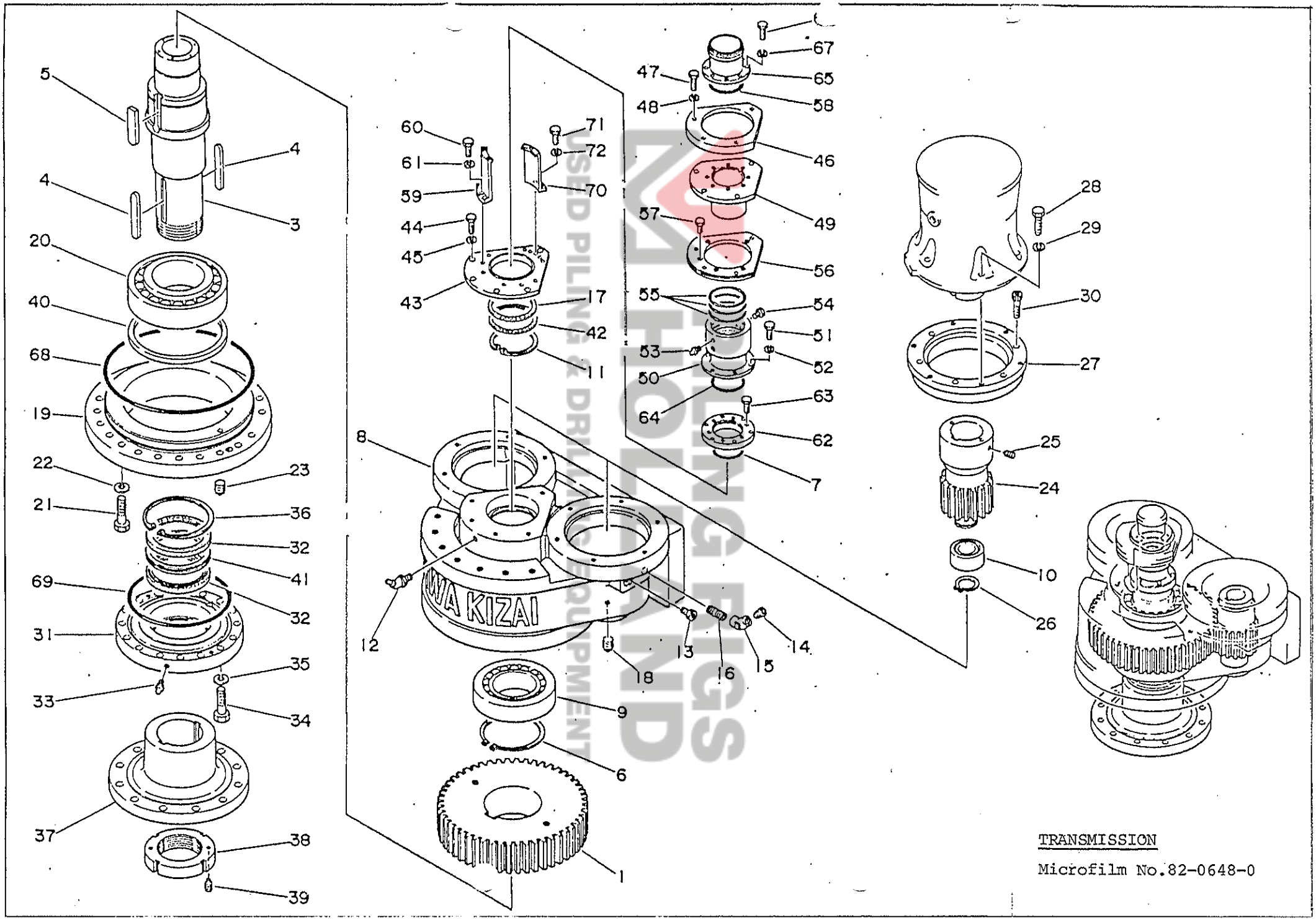
EC NO.

部品番号 PARTS. NO. 400-0313-70

図面番号 DRAW. NO. P00-3137-0

A3

三和機材株式会社
SANWA KIZAI CO., LTD.



TRANSMISSION

Microfilm No.82-0648-0

TRANSMISSION

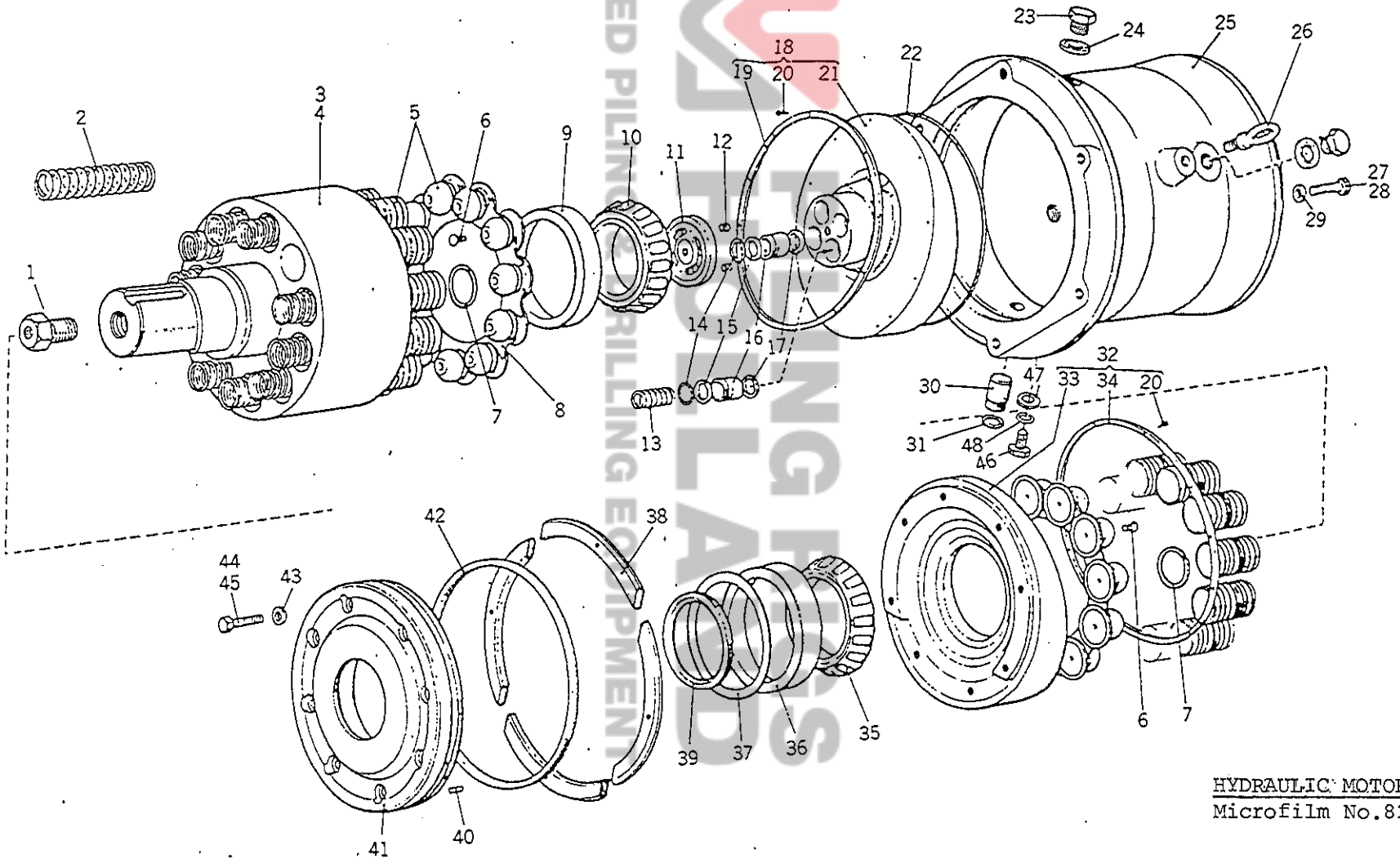
No.	Name of Parts	Q'ty	Parts No.	Remarks
1	External Gear (10-53-120)	1	408 1219 60	
2	Nil			
3	Output Shaft	1	408 0482 81	
4	Key	2		
5	Key	1		
6	Stop Ring	1	B51 0210 00	
7	O Ring	1	S11 S112 00	
8	Case	1	408 1237 80	
9	Bearing	1	B16 3223 2U	
10	Bearing	2	B31 0450 14	
11	Stop Ring	1	B52 0180 00	
12	Grease Nipple	1	ZGN A020 00	
13	Oil Level Gauge	1	H88 M016 00	
14	Nipple	2	ZHF CN00 16	
15	90° Elbow	2	ZHF CL00 16	
16	Plug	2	ZHF CBPO 16	
17	Oil Seal	2		
18	Plug	2	ZHF CBPO 16	
19	Housing	1	408 0529 10	
20	Bearing	1	B16 3223 80	
21	Hex. Bolt	22	N12 M241 00	
22	Spring Washer	22	N33 M240 00	
23	Plug	1	ZHF CBPO 12	
24	Spur Shaft (10-17-124)	2	408 1219 50	
25	Hex. Hollow Set Screw	4	N41 M121 50	
26	Stop Ring	2	B51 0070 00	
27	Spacer	2	408 1240 90	
28	Hex. Bolt	12	N11 M200 90	
29	Spring Washer	12	N33 M200 00	
30	Hex. Hollow Set Bolt	12	N13 M161 20	

TRANSMISSION

No.	Name of Parts	Q'ty	Parts No.	Remarks
31	Housing	1	408 0084 10	
32	Oil Seal	2		
33	Grease Nipple	1	ZGN A020 00	
34	Hex. Bolt	16	N12 M241 00	
35	Spring Washer	16	N33 M240 00	
36	Stop Ring	1	B52 0230 00	
37	Coupling	1	408 0184 81	
38	Nut	1	407 8093 70	
39	Hex. Hollow Set Screw	2	N41 M125 00	
40	Collar	1	408 0022 10	
41	Oil Ring	1	408 0022 10	
42	Oil Ring	1	407 8447 51	
43	Flange	1	408 0537 01	
44	Hex. Bolt	5	N11 M160 40	
45	Spring Washer	5	N33 M160 00	
46	Flange	1	408 1246 40	
47	Hex. Bolt	4	N11 M120 50	
48	Spring Washer	4	N33 M120 00	
49	Swivel Pipe	1	408 1246 30	
50	O Ring Support	1	408 0019 51	
51	Hex. Bolt	4	N11 M100 30	
52	Spring Washer	4	N33 M100 00	
53	Grease Nipple	2	ZGN A060 00	
54	Hex. Hollow Set Plug	2	ZGH SPA0 02	
55	O Ring	3	S11 P120 00	
56	Flange	1	408 1246 20	
57	Hex. Hollow Set Bolt	5	N13 M10	
58	O Ring	1	S11 G120 00	
59	Bracket	2	407 9242 41	
60	Hex. Bolt	6	N11 M100 25	

TRANSMISSION

No.	Name of Parts	Q'ty	Parts No.	Remarks
61	Spring Washer	6	N33 M100 00	
62	Flange	1	408 0019 60	
63	Hex. Hollow Set Bolt	6	N13 M080 35	
64	O Ring	1	S11 S112 00	
65	Pipe Flange	1	408 0019 30	
66	Hex. Bolt	6	N13 M10U 30	
67	Spring Washer	6	N33 M100 00	
68	O Ring	1	408 0538 20	
69	O Ring	1	408 0022 20	
70	Bracket	1	408 1246 50	
71	Hex. Bolt	2	N11 M100 25	
72	Spring Washer	2	N33 M100 00	



HYDRAULIC MOTOR/M2600
Microfilm No.82-1018-0

HYDRAULIC MOTOR M2600

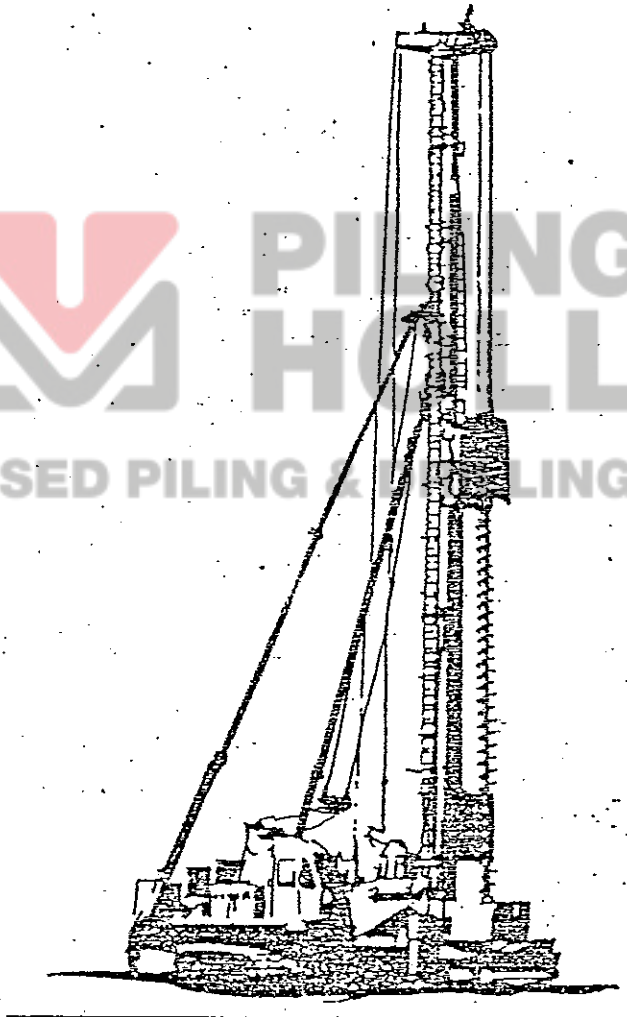
Item No.	Name of Parts	Q'ty	Remarks
1	Adaptor Bolt	1	
2	Piston Spring	11	
3	Cylinder Block Assy., Keyway Shaft	1	
4	Cylinder Block Assy., Splined Shaft	1	
5	Piston/Slipper Assy.	22	
6	Restrictor Plug	22	
7	Piston Ring	22	
8	Slipper Retaining Plate	2	
9	Taper Roller Bearing Cup	1	
10	Taper Roller Bearing Cone	1	
11	Timing Plate	1	
12	Timing Plate Piston	2	
13	Timing Plate Spring	2	
14	O-Ring	4	
15	Backing Ring	4	
16	Oil Transfer Sleeve	4	
17	Spring Retainer	4	
18	Thrust Retainer Plate Assy.	1	
19	Retaining Ring	1	
20	Self Tapping Screw, Pan Head	10	
21	Thrust Retainer Plate	1	
22	O Ring	1	
23	Hex. Head Plug	3	
24	Bonded Seal	3	
25	Casing	1	
26	Eye Bolt	1	
27 28	Bolt (M12short) Bolt (M12long)	8	
29	Toothed Lock Washer	8	
30	Dowel Pin	1	

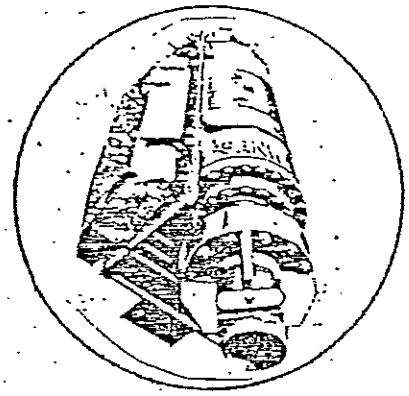
HYDRAULIC MOTOR M2600

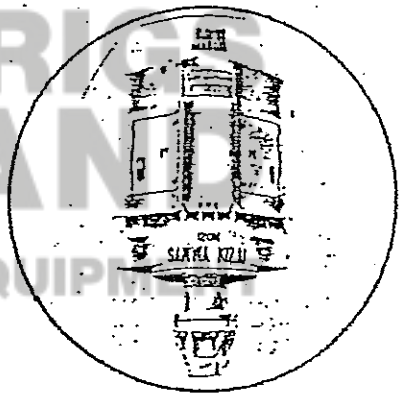
Item No.	Name of Parts	Q'ty	Remarks
31	O Ring	1	
32	Thrust Plate Assy.	1	
33	Thrust Plate	1	
34	Retaining Ring	1	
35	Taper Roller Bearing Cone	1	
36	Taper Roller Bearing Cup	1	
37	Shim	As required	
38	4-Piece Key	1	
39	Shaft Seal	1	
40	Spring Pin	3	
41	Bearing Housing	1	
42	O Ring	1	
43	Bonded Seal	8	
44	Bolt (M16short)	2	
45	Bolt (M16long)	6	
46	Retention Bolt for Dowel	1	M8 x 6
47	Large Bright Washer	1	
48	Spring Washer for M8	1	

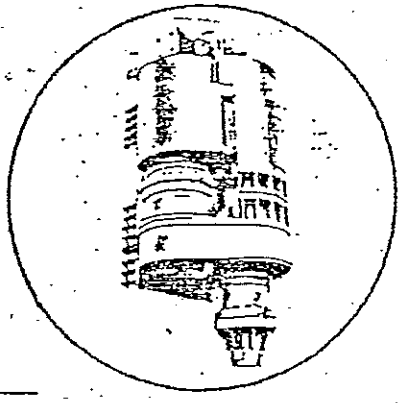
SANWA AUGER MODEL HO-5000

Operation Manual









SANWA KIZAI CO., LTD.

To use a hydraulic unit without a trouble for a long period, a satisfactory work of maintenance inspection is required. The most of troubles in the hydraulic unit have been caused by a mixing of foreign materials, deterioration of hydraulic oil and the like.

Be sure to perform a periodic inspection. And refer to the instruction manual for a base machine.

This publication covers a description of assembly, care taken for operational adjustments and maintenance inspection required for a hydraulically correct and safe handling of the machine.

Though a close attention should be always paid for handling hydraulic unit, a work of correct handling and complete maintenance inspection can prevent a generation of trouble and always keep the machine in the best condition, and please carefully read the publication before operating the machine.

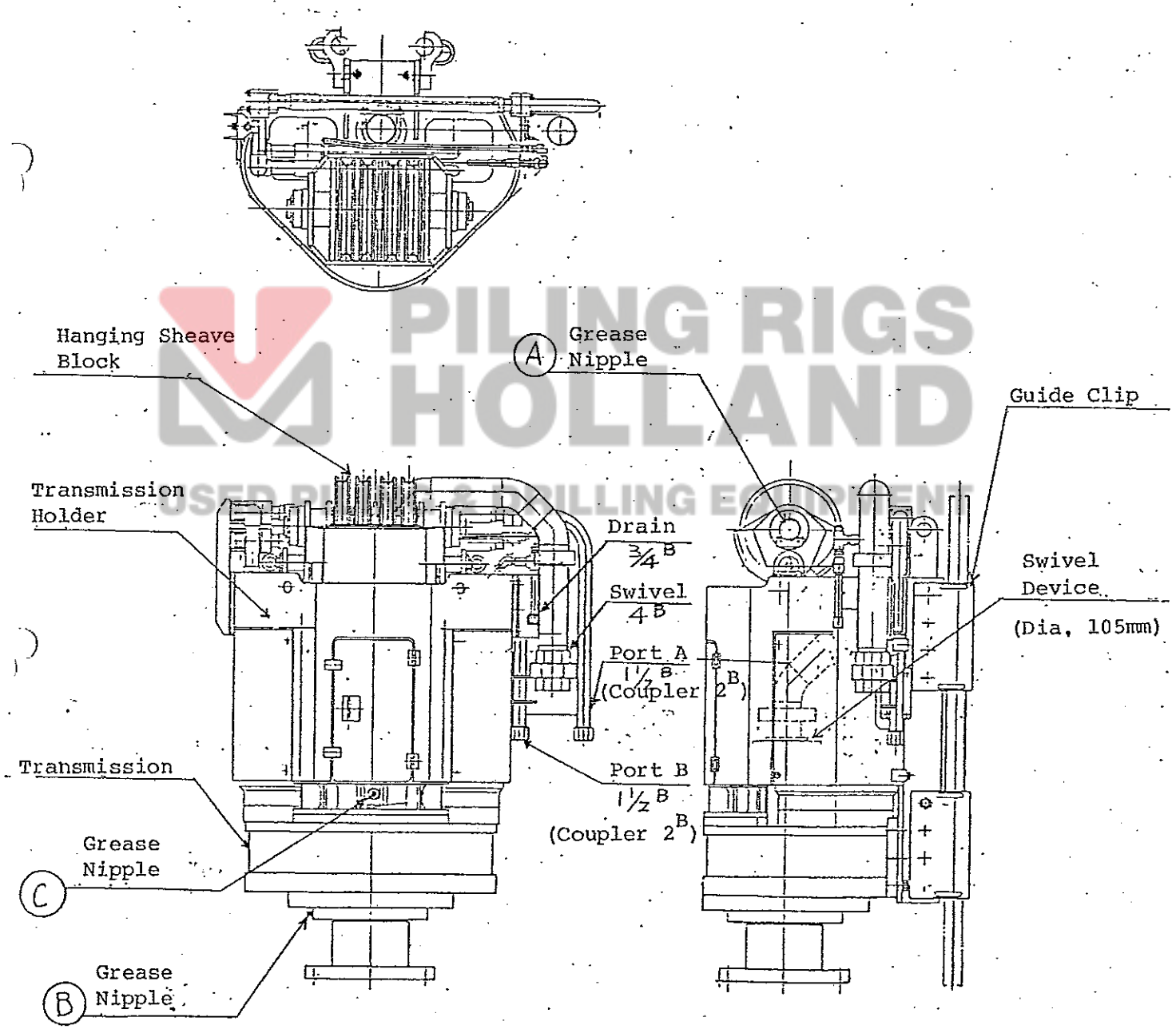
C O N T E N T

1. SPECIFICATIONS

Model	: HO-5000
Drive Motor	: Hydraulic Motor
Type of Hydraulic Motor	: Axial Piston Type
Rotation Speed of Auger Flight	: 15 - 30 rpm (Oil flow 251-502L/min)
Output Torque	: Max. 5.0 ton-m (Pressure Max.210 kg/cm2)
Swivel Diameter	: 105mm (4 inch)
Guide Clip	: G-7A43 1 x 4 pcs
Lower Coupling	: SP6-120-4S Type
Bearable Extracting Load	: Max. 50 ton
Bearable Thrusting Load	: Total 50 ton
Guide Pipe	: P330 x ø70
Distance between Center of Guide Pipe & Augering	: 655 mm
Weight	: 4 ton

2. CONCEPTION OF AUGER DRIVE UNIT

Auger Drive Unit is composed of Transmission HO-5000 and rotates Auger Screw and Auger Head.
Transmission is built in Swivel Device to carry air, mortar and so on. (Refer to Fig. 1)



Auger Drive Unit Assembly Fig. 1

3. ASSEMBLING

3-1. Hanging Wire of Auger Drive Unit should be installed to Leader by removing Hanging Sheave Block from Auger Drive Unit before erecting Leader.

3-2. Hanging Wire Dia. of Auger Drive Unit is ø18 - ø22.
(JIS 18 B Class IWRC 6 x Fi (29))
The required length depends on the length of Leader and should be calculated by the below.

Required Length of Hanging Wire (m) : A
Length of Leader (m) : B
Allowance Length (5 - 6m) : C

~~A = B + C~~ $A = (B \times 2) + C$

3-3. When erected Leader after an installation of Wire, fix Hanging Sheave Block to the bottom portion of Leader by using a rope, wires and the like.

3-4. After a completion of erection of Leader, mount Hanging Sheave Block to Auger Drive Unit and mount it to Leader.
An installation of Guide Clip to one side of Auger Drive Unit before mounting can save a time required for assembly.

4. MAINTENANCE & INSPECTION

4-1. Auger Drive Unit

4-1-1. Inspection of Transmission Gear Oil Volume.
When the level of Transmission Gear Oil is below the center of Oil Gage, supply Oil from Filler Cap on top of Reduction Gear to the center of Oil Gage.

4-1-2. Drain a little amount of Oil from Drain Cap at the bottom of Transmission Gear, and check for water, air, mortar, bentonite, etc. if mixed. When mixed, a condition will appear with Oil in muddy white color or foaming.
When Oil is deteriorated or mixed with foreign materials, fully drain Oil and clean the inside of Reduction Gear by using treated oils.

4-1-3. After a completion of cleaning, fill a specified amount of Oil from Filler Cap on top of Transmission Gear.

4-1-3. After a completion of cleaning, fill a specified amount of Oil from Filler Cap on top of Transmission Gear.

* The first time

  500 hrs after a start of operation

* The second time and thereafter of operation

  At every 2500 hrs

° Use Oil : Shell Tellus Oil C220
FBK Oil RO220

° Use Volume of Oil : Approx. 120 L

4-1-4. Other Inspection Parts of Auger Drive Unit

(1) Wear of Guide Clip

(2) Crack of Wire Sheave and Run-out of Grease

(3) Looseness of Bolts and Nuts

4-2. Swivel Device

4-2-1. Fill Grease from Grease Nipples once a month.
(Two Grease Nipples are put.)

4-2-2. The grease up work should be carried at the before of operation after storage.

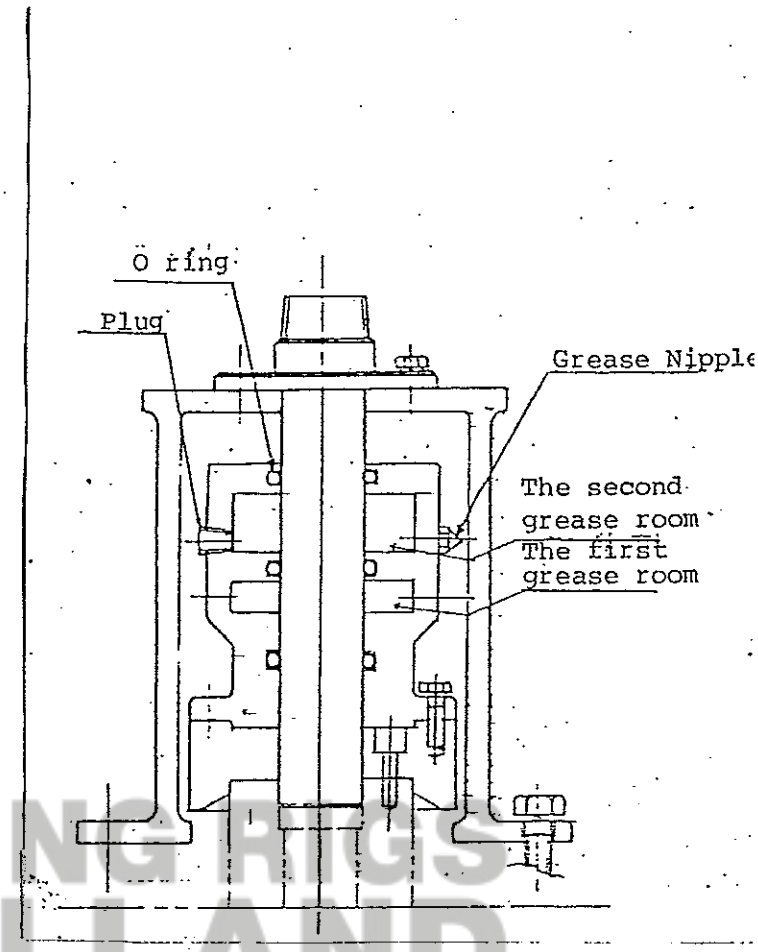
4-2-3. When Grease is filled, remove the plug of Discharge Port to scrape off the old grease.

4-2-4. When Grouting Materials are leaked from Swivel Device, perform overhaul maintenance.

4-2-5. For grease up, use a grease pump.

4-2-6. Use Epinoc Grease No.2.

4-2-7. There are other places of grease up which are showed by mark, A, B & C. (Refer to Figure 1.



Swivel Part Grease Nipple

Name of Transmission Grease

Name of manufacturer	Trade name
Nippon Oil Co., Ltd.	Epinoc Grease No.2
Mitsubishi Oil Co., Ltd.	Diamond CLS Grease No.2
Showa Oil	Sunlight Grease No.2
Daikyo Oil Co., Ltd.	Dynamic Grease No.2
Maruzen	Centlux No.2
Kyodo Oil Co., Ltd.	Kyoseki Risonix Grease (No.2)
Idemitsu Oil	Dafni-Colonex Grease EP-2
Kigunas Oil	Kignus MP Grease S-1,3
Shell Oil	Alvania EP Grease RO2
Mobil Oil	Lax Grease No.1
General Oil Co., Ltd.	Gemico Grease ME-01

Standard JIS-K-2225 Class 2 No.2

Name of Transmission Gear Oil

Name of manufacturer	Trade name
Nippon Oil Co., Ltd.	FBK Oil RO220
Mitsubishi Oil Co., Ltd.	Diamond Lub RO220
Showa Oil Co., Ltd.	Showa J-H220
Daikyo Oil Co., Ltd.	PIO LUBE ALLPUR A220
Maruzen Oil Co., Ltd.	Swaloope RO220
Kyodo Oil Co., Ltd.	KYOSEKI LATHUS 220
Idemitsu Kosan	Duffny Mechanic Oil 220
Kigunas Oil	Unit Oil P220
Shell Oil	Shell Tellus Oil C220
Mobil Oil	Mobil DTE Oil BB
General Sekiyu K.K.	General Panol P-220

Standard JIS-K-2219 Gear Oil Class 1 No.4

5. CARE TO BE TAKEN AT WORK

5-1. Care should be taken for Cabtyre Cable and Grout Hose not to be hooked onto Screws and broken during the work.

5-2. Absolutely never move Base Machine when Screw is rotating.

5-3. When required to change the direction of rotation of Screw during the work, once stop it and then rotate in the reverse direction.

5-4. When Screw is extracted, completely perform a discharge of soil. Then fully take care not to be caught in Screw. If augered soils are left in Screw, they fall down from the above or worsen a stability of the machine, resulting in the serious hazard.

5-5. Never approach carelessly to Screw rotating during the work and never climb Leader without sufficient cause.

5-6. When required to stop the rotating motion of Auger for additionally connecting Screw, perform the stopping operation after a reduction of the load. If Auger is stopped while in a state of high load, Screw may be not able to be extracted by a pressure of soils.

5-7. When required to discontinue the work, Screw should be extracted from the ground. If it is as left in the ground, Screw may be incapable of rotation and extraction due to the soil pressure when the work is restarted.

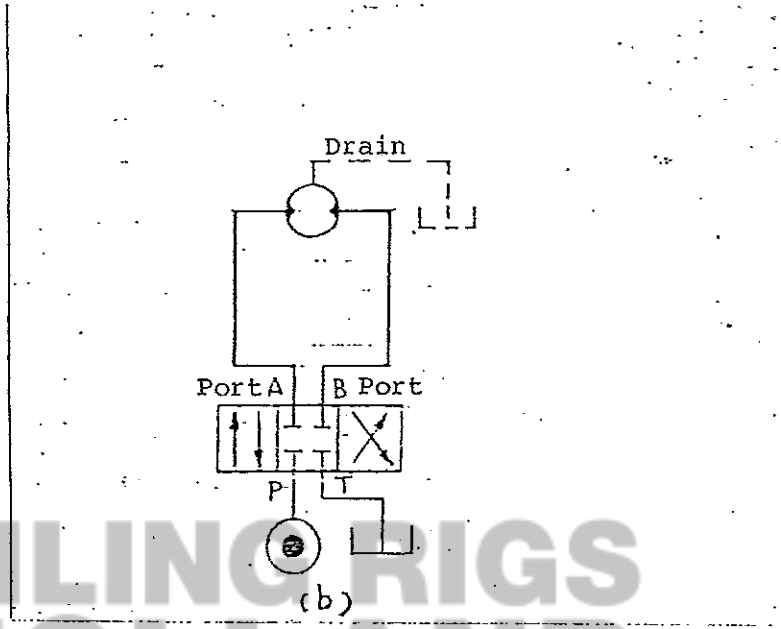
5-8. Inspect Bolts of Transmission and Motor periodically. Especially care for Bolts of Motor.

5-9. Replace Guide Clip in case of hard wear.

5-10. When an injecting work is performed, wash inside of Grout Hose, Screw and Head by water.

6. MAINTENANCE AND INSPECTION OF HYDRAULIC MOTOR

As showed the following figure, both A & B Ports in Hydraulic Circuit should make Closed Circuit at the neutral position of Valve.



Hydraulic Circuit

6-1. When Earth Auger is not used for a long period, care the following points.

6-1-1. Ports A, B and Drain Port of Hydraulic Motor should be fully filled with Oil and capped by a plug for no entrance of dust.

6-1-2. Earth Auger should be prevent from wind and rain.

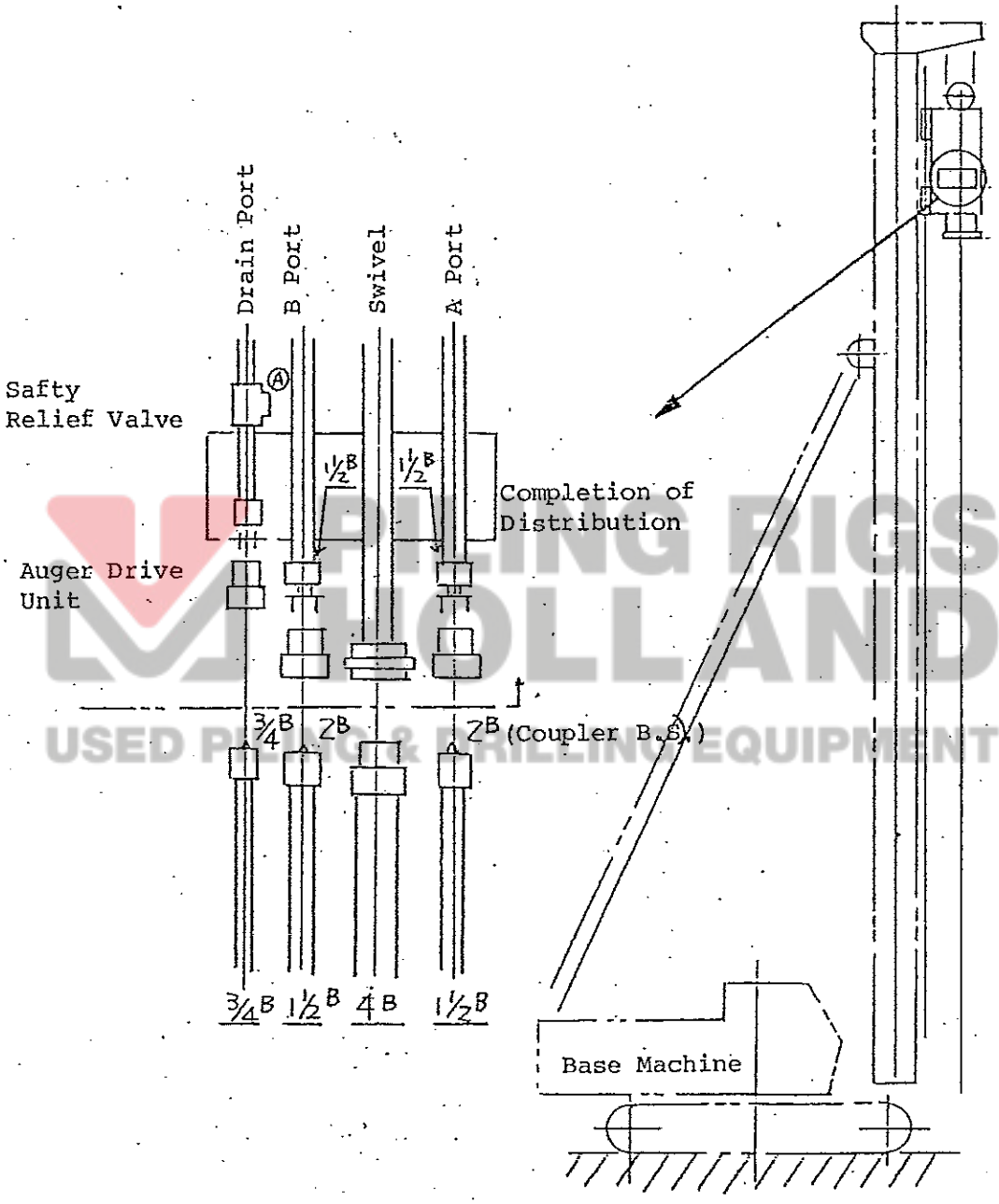
6-1-3. Be sure to operate Hydraulic Motor rotating at no load once every six months and replace Oil of Hydraulic Motor.

6-2. Before starting the work be sure to operate Hydraulic Motor at no load for about 10 - 30 minutes to prevent Hydraulic Motor from a rapid temperature change or damage in Motor due to the load.

6-3. Connecting T Port with Drain Port ($3/4^{B}$) causes destruction of Hydraulic Motor.

6-4. Certainly connecting each Port by Coupler must be confirmed .

7. HYDRAULIC LINES AND SWIVEL



Hydraulic Lines and Swivel