6-3333

MESSRS. CCA PHILADELPHIA

ULTRA FORMER INSTRUCTION MANUAL

NOV. 20. 1970

Introduction to the Ultra Former

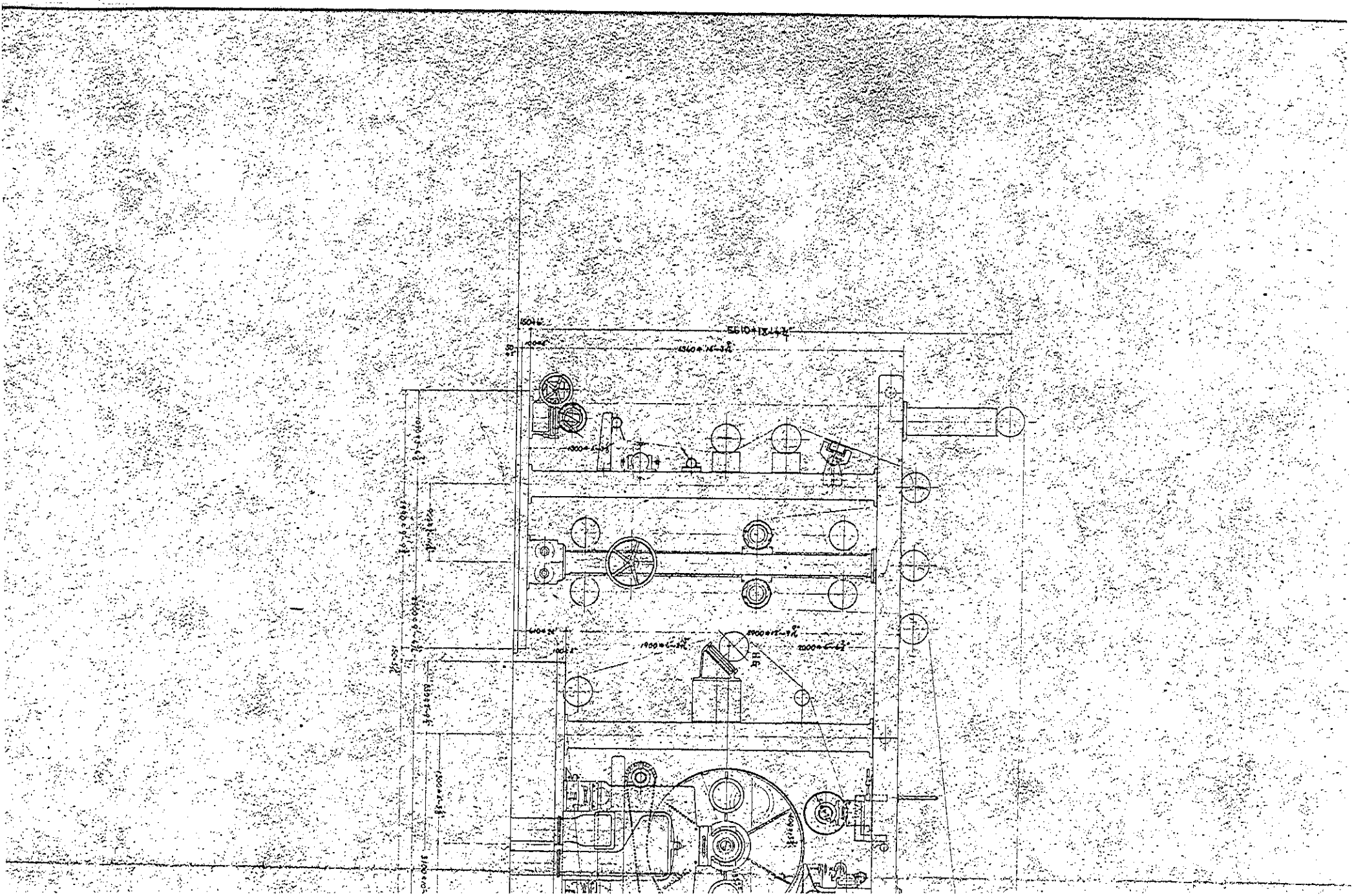
Machine Wet End Instruction Manual

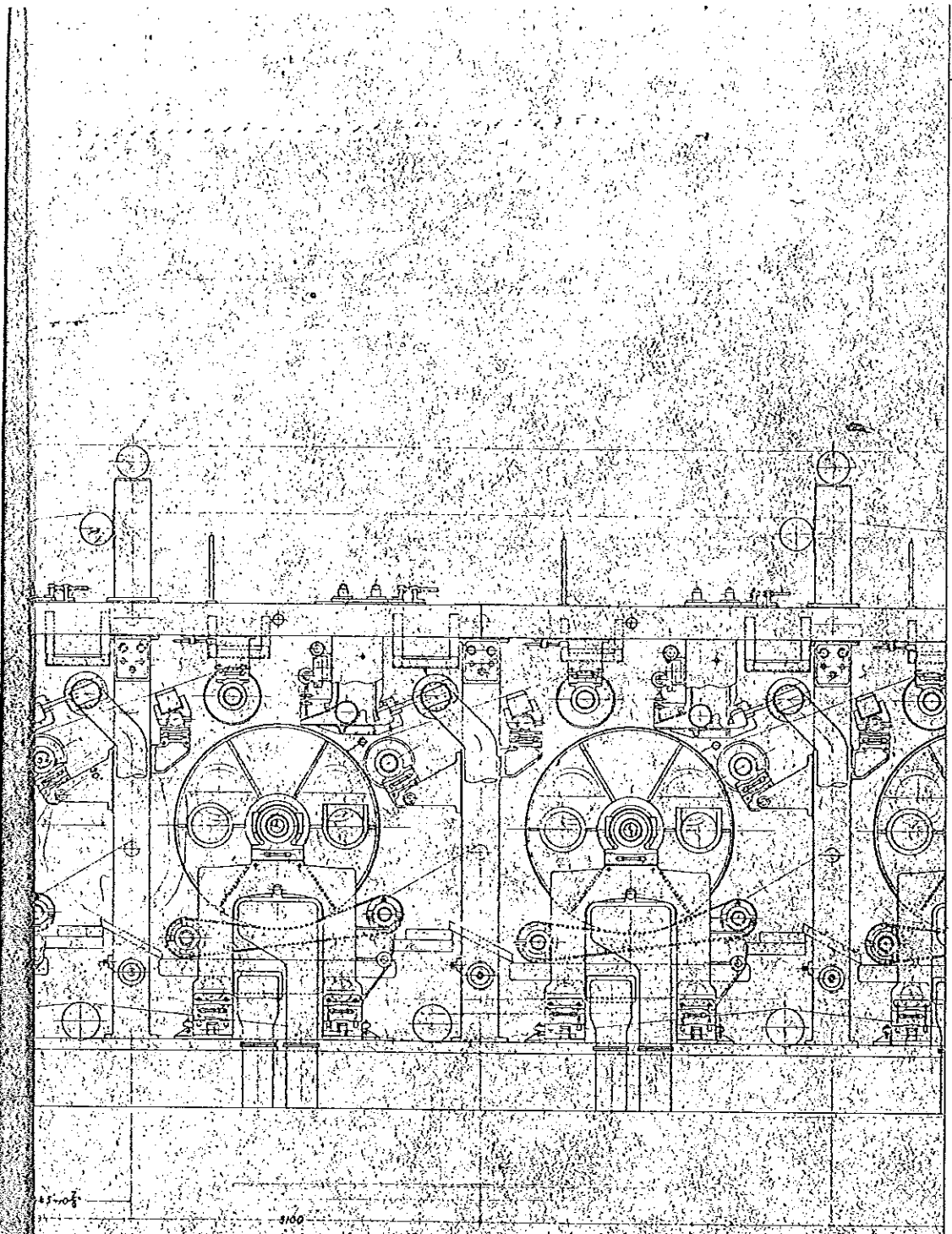
The Instruction Manual has been prepared to be provided to the operator of the Ultra Former Machine Wet End with a comprehensive study of the many parts and systems that are combined each other.

The each drawing is numbered and please make reference to these numbers, when placing order for spare parts.

If you have further questions, please do not hesitate to contact with Kobayashi Engineering Works, Ltd.

I N D E X

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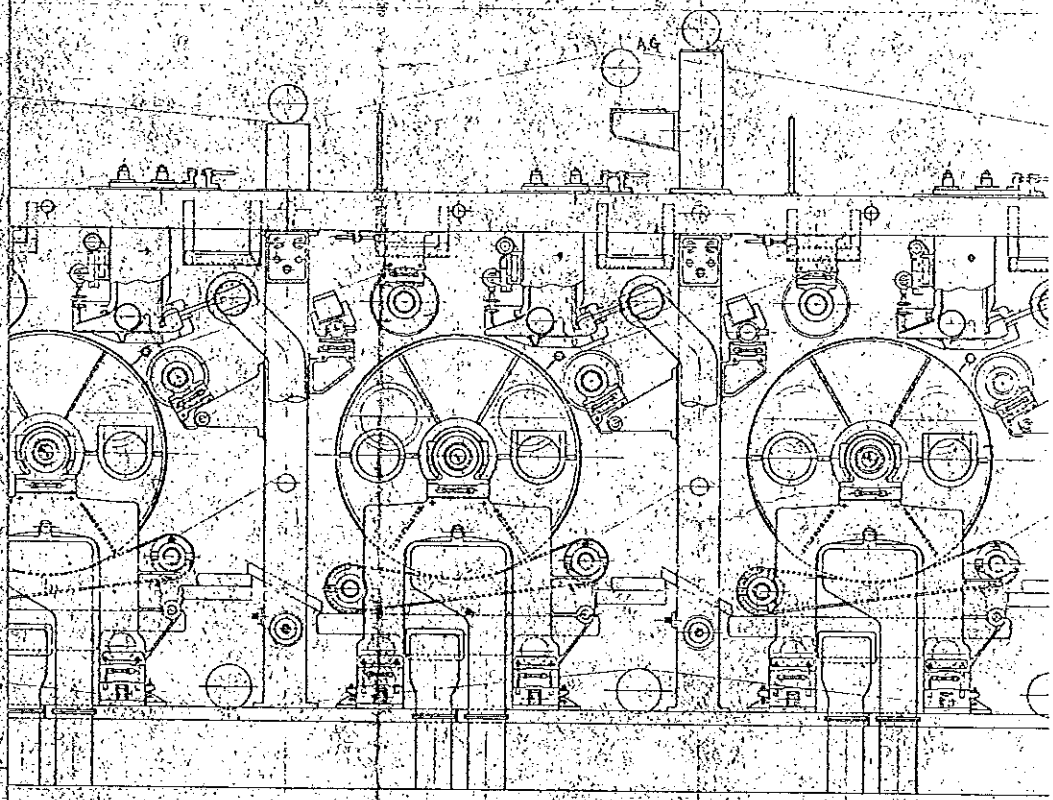
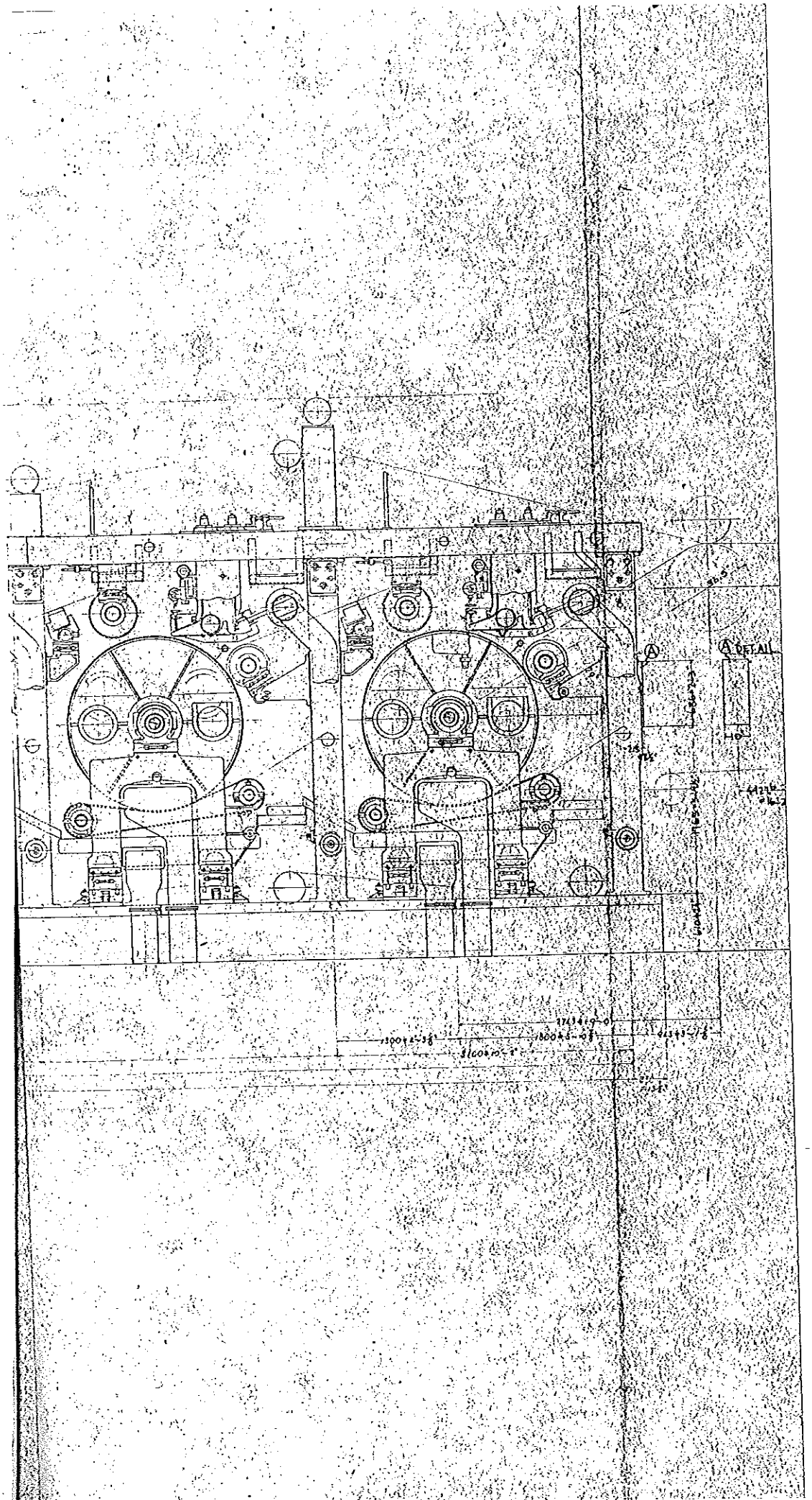



A
A DETAIL

⊕ : HELPER DRIVE

☐ FURNISHED BY THE CUSTOMER

DATE	SYM	REVISION	BY	APP'D
NOV 19[illegible]				[illegible]
[illegible]				[illegible]

No. A000040

ASSEMBLY DRAWING
168" ULTRA FORMER
WET END MODIFICATION

DRAWING No.	1564-0103		
DRAWN	CHECKED	DATE	SCALE
[illegible]	[illegible]		1:20

[illegible] ENGINEERING WORKS, LTD.
FUJI SHIZUOKA JAPAN

FIG.-1

A ULTRA FORMER PART

ULTRA FORMER PART

GENERAL

One complete Ultra-Former Part consisting of eight (8) Ultra Former units will be supplied.

One Ultra Former unit consists of cylinder mold, flow box, forming roll, couch roll, stock inlet, suction box, holding belt unit and etc.

The stock is jetted onto the cylinder mold from the nozzle slice of the flow box located above the cylinder mold at a rate conforming to the speed of machine.

The stock is allowed to form and is then sandwiched between the cylinder and the transfer felt which is coming in from the direction of the forming roll.

The water is gradually removed from the stock and then extracted more thoroughly at the couch roll. The formed sheet is then carried on the surface of the felt and fed into the next Ultra Former unit.

The wet sheet from the last Ultra Former unit is carried into the primary press section.

I N D E X

1 Assembling sequence for the Ultra Former

The Ultra Former is generally assembled by the following sequence. (See FIG.-2)

(1) Install the sole plate (8) to be equal distance from machine center, parallel, and on the same level.

(2) Install the vertical frames (6) on the sole plate (8).

(3) Set the drive side of the horizontal frame (17) on the drive side of the vertical frame (6).

(4) Set the rail (14) on the sole plate (8) and also install the pull out rail on the floor.

(5) Guide the cylinder mold unit, which has been pre-assembled at Kobayashi, into the machine on the rail (14).

(6) Install the felt roll (16) on the sole plate (8).

(7) Set the connecting save all (40) to the save all (39).

(8) Set the suction box brackets and suction box (1) on the vertical frames (6).

(9) Assemble the diaphragm bellows (38), the couch roll bracket (36), and the swing arm (35) on the tender side of the vertical frame (6).

(10) Set the couch roll (33) on the swing arm (35) using the pull out piece (34).

(11) Fix the drive side of the flow box (25) on the drive side of the horizontal frame (17) and support the tender side of the flow box (25) from the upper beam (Not part of the machine).

(12) Set the tender side of the horizontal frame (17) on the tender side of the vertical frame (6).

(13) Fix the tender side of the flow box (25) on the tender side of the horizontal (17).

(14) Install the foam killer (26) in the flow box (25).

(15) Install the forming roll (19) mounted on the bracket which is installed underneath the horizontal frame (17).

(16) Set the shower pipe (32).

(17) Connect the vacuum pipe (46) to the side cover (47) and to the vertical frame (6).

(18) Set the rectifier roll motor (45) on the bracket and connect the rectifier roll (28) and the motor (44).

(19) Set the control panel and the manometer on the vertical frame (6).

(20) Connect the pipes (29), (32) to the main water pipe.

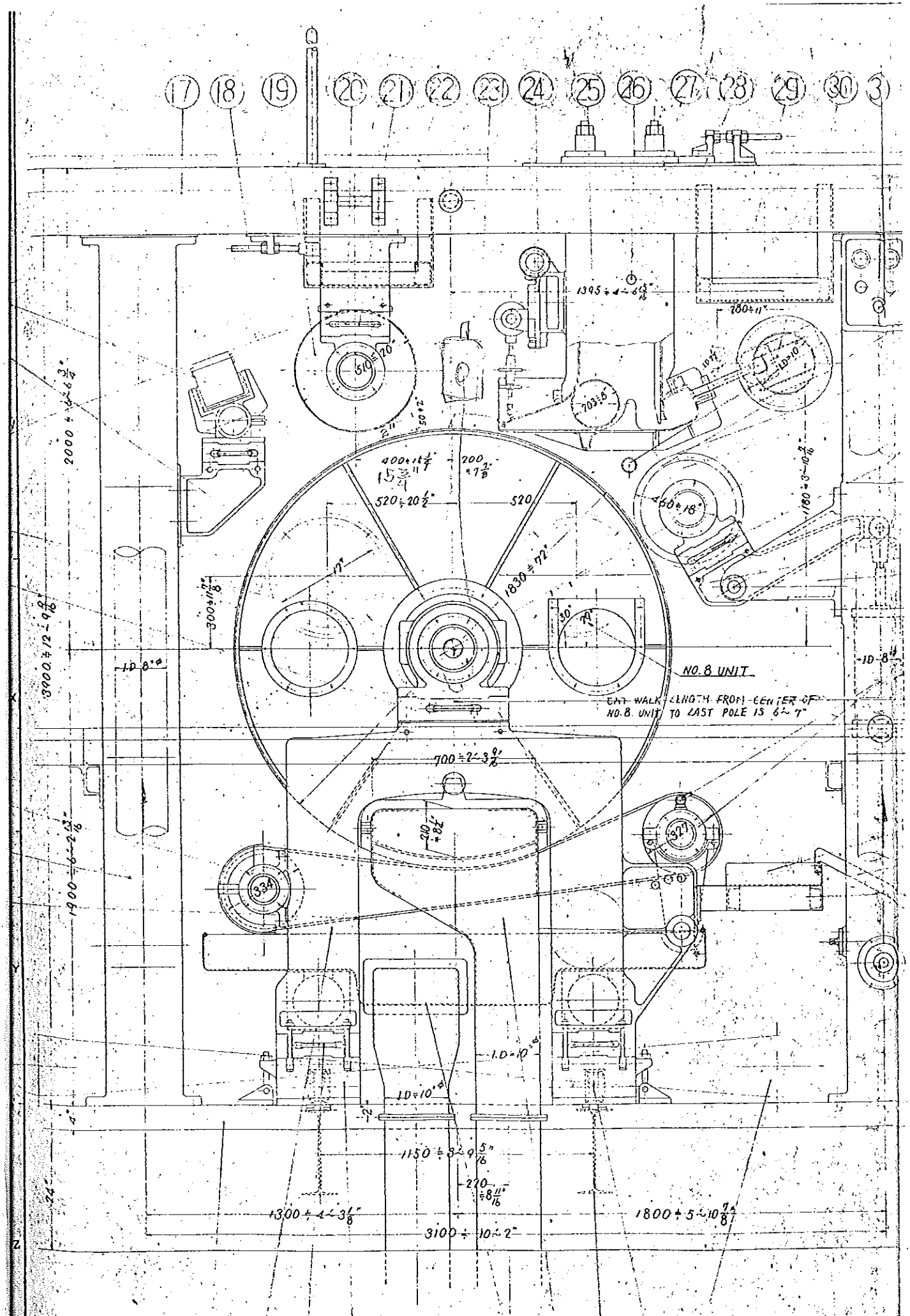
(21) After completion of assembly check that all roll centers are level and straight.

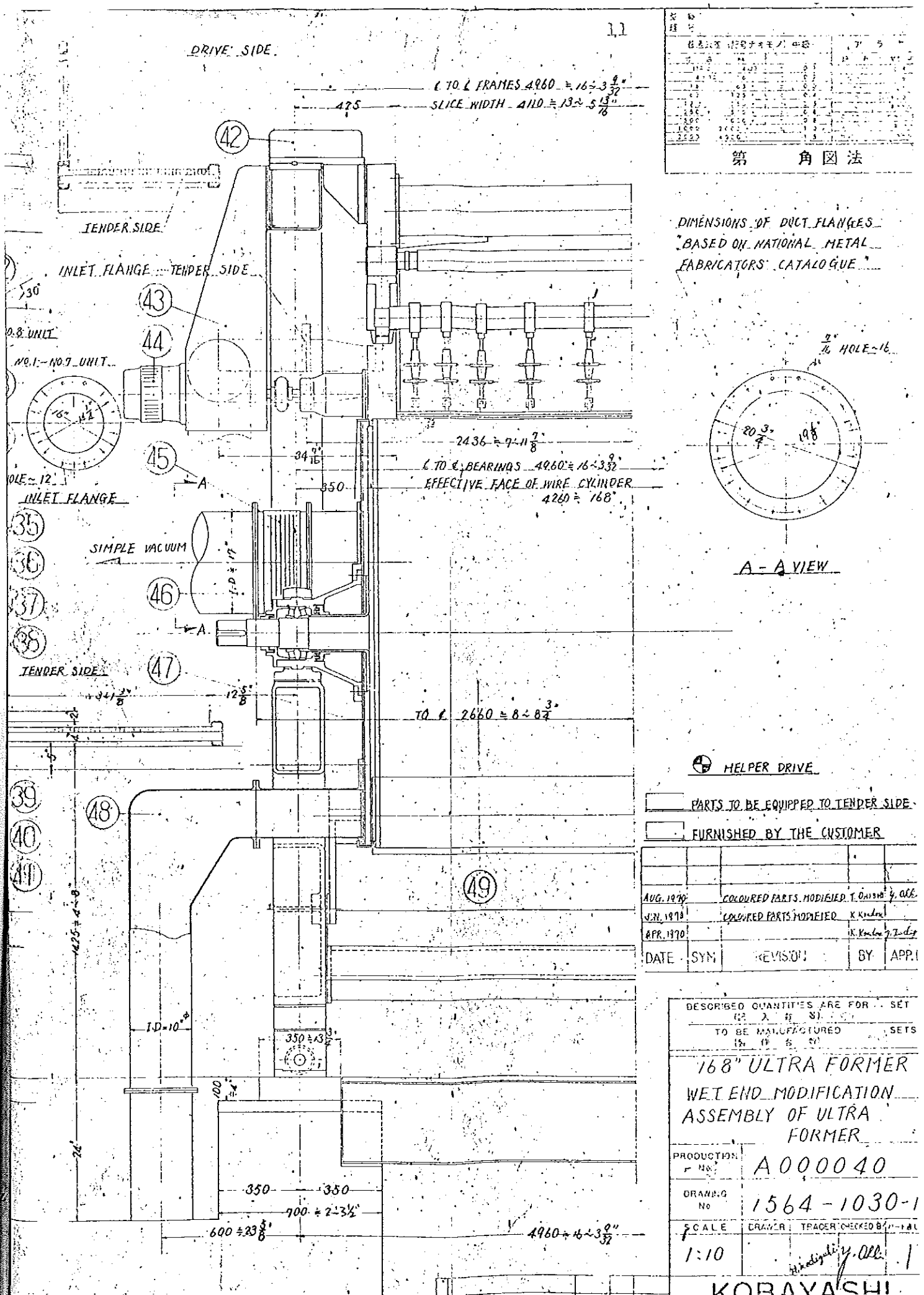
(22) Adjust the position of the forming roll (19) and alice lip clearance, when the machine will be started up.

Parts List of FIG.-2

No.	Parts Name
1.	Suction box
2.	Bracket
3.	Housing of wire cylinder
4.	Pull out piece
5.	Crown roll
6.	Vertical frame
7.	Holding belt
8.	Sole plate
9.	Side frame
10.	Pull out piece
11.	Stand
12.	Save all
13.	Drop bent
14.	Parmanent rail
15.	Roller
16.	Felt roll
17.	Horizontal frame
18.	Adjust screw
19.	Forming roll
20.	Housing of forming roll
21.	Pull out piece
22.	Bracket
23.	Deckele plate
24.	Slice lip lifting device

No.	Parts Name
25.	Flow box
26.	Foam killer
27.	Flow box adjusting device
28.	Rectifier roll
29.	Recirculation pipe
30.	Stock inlet
31.	Controll panel
32.	Shower pipe
33.	Couch roll
34.	Pull out piece
35.	Swing arm of couch roll
36.	Bracket
37.	Tension roll
38.	Diaphragm bellows
39.	Save all
40.	Connecting save all
41.	Bracket
42.	Side bracket of flow box
43.	Motor base
44.	Geared motor
45.	Flexible hose
46.	Simple vacuum pipe
47.	Side cover
48.	Drop bent
49.	Wire cylinder


17
18
19
20
21
22
23
24
25
26
27
28
29
30
3
NO.8 UNIT
EAT WALK LENGTH FROM CENTER OF NO.8. UNIT TO LAST POLE IS 6~7"
520
1830 ÷ 72"
700 ÷ 2 ~ 3 9/16"
1150 ÷ 3 ~ 9 5/16"
1300 ÷ 4 ~ 3 1/8"
3100 ÷ 10 ~ 2"
1800 ÷ 5 ~ 10 7/8"
I.D. 8"
I.D. 10"


DRIVE SIDE
℄ TO ℄ FRAMES 4960 ≒ 16~3 9/32"
475
SLICE WIDTH 4110 ≒ 13~5 13/16"
42
TENDER SIDE
INLET FLANGE TENDER SIDE
43
44
45
A
INLET FLANGE
2436 ≒ 7~11 7/8"
34 9/16"
℄ TO ℄ BEARINGS 4960 ≒ 16~3 9/32"
EFFECTIVE FACE OF WIRE CYLINDER
4260 ≒ 168"
350
35
36
37
38
SIMPLE VACUUM
46
I.D ≒ 12"
TENDER SIDE
47
12 5/8"
TO ℄ 2660 ≒ 8~8 3/4"
39
40
41
48
49
I.D=10"
350 ≒ 13 3/4"
100
24"
350
350
700 ≒ 2~3 1/2"
600 ≒ 23 5/8"
4960 ≒ 16~3 9/32"
DIMENSIONS OF DUCT FLANGES BASED ON NATIONAL METAL FABRICATORS' CATALOGUE
7/16" HOLE~16
20 3/4"
19 1/8"
A - A VIEW
HELPER DRIVE
PARTS TO BE EQUIPPED TO TENDER SIDE
FURNISHED BY THE CUSTOMER
AUG. 1970 COLOURED PARTS MODIFIED T. Oniishi Y. Aoki
JUN. 1970 COLOURED PARTS MODIFIED K. Kudo
APR. 1970 K. Kudo T. Tsuda
DATE SYM REVISION BY APP.
DESCRIBED QUANTITIES ARE FOR SET
TO BE MANUFACTURED SETS
168" ULTRA FORMER
WET END MODIFICATION
ASSEMBLY OF ULTRA FORMER
PRODUCTION No. A000040
DRAWING No 1564-1030-1
SCALE 1:10
DRAWN TRACED CHECKED Y. Aoki
KOBAYASHI

2 Components and operation manual

The detail specification of the principal components of the Ultra Former and the operation manual are as follows.

(1) Flow box

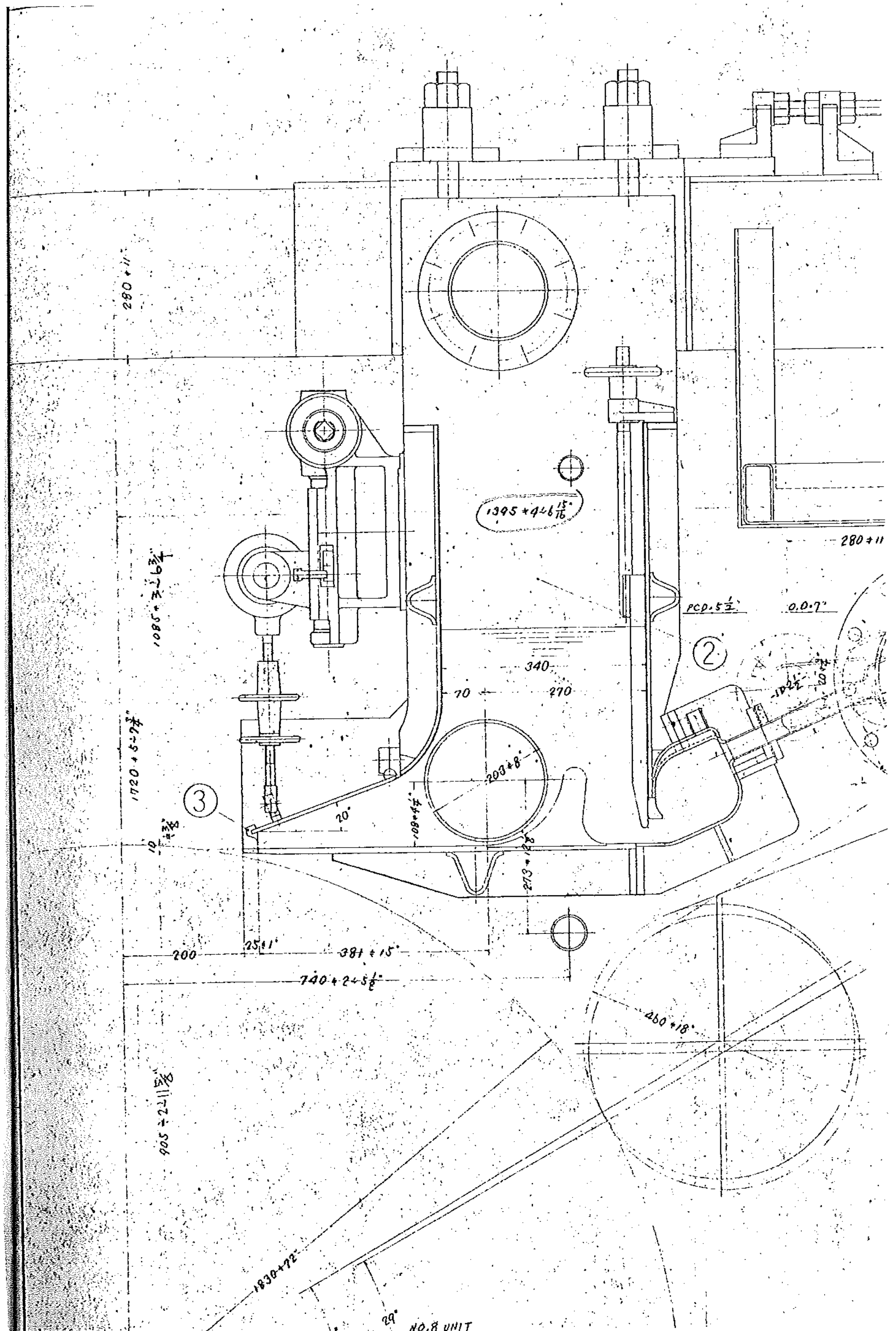
Eight (8) open type flow boxes are furnished for use over the cylinder mold to supply the stock onto the cylinder mold at a rate conforming to the speed of machine.

One flow box consists of a stock inlet (1), a flow box (2) and a slice (3).

(See FIG.-3)

Parts List of Flow box (FIG.-3)

No.	Parts Name
1.	Stock inlet
2.	Flow box
3.	Slice

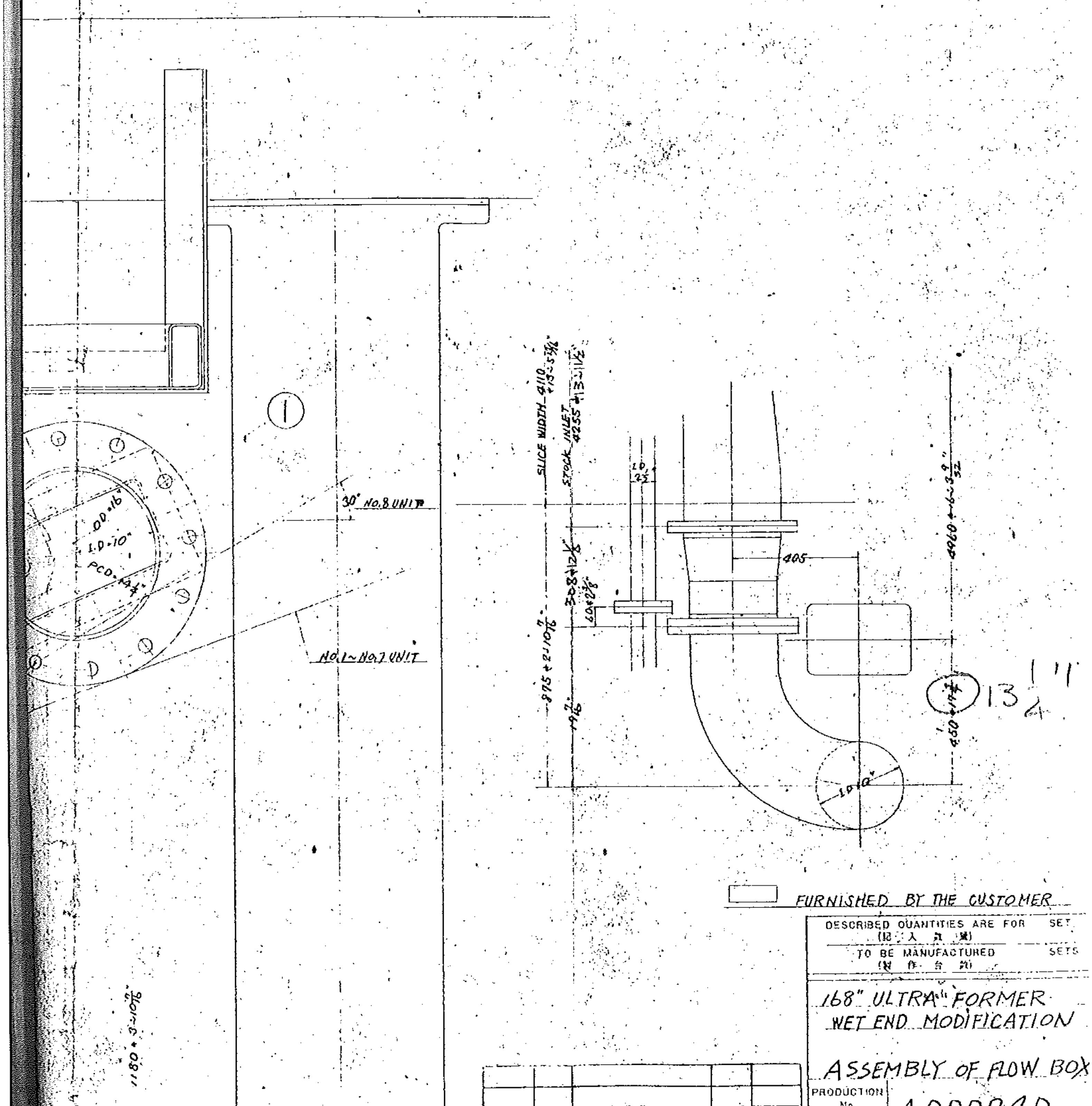


280 + 11
1395 + 4-6 15/16"
280 + 11
PCD. 5 1/2"
O.D. 7"
340
70
270
203 + 8"
20°
381 + 15"
200
740 + 2-5 1/2"
460 + 18"
1830 + 72"
29°
NO.8 UNIT

14

普通公差 (記号ナキモノ) 中級

第　角図法



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DESCRIBED QUANTITIES ARE FOR (記入員数)	SET
TO BE MANUFACTURED (製作台数)	SETS

168" ULTRA" FORMER
WET END MODIFICATION

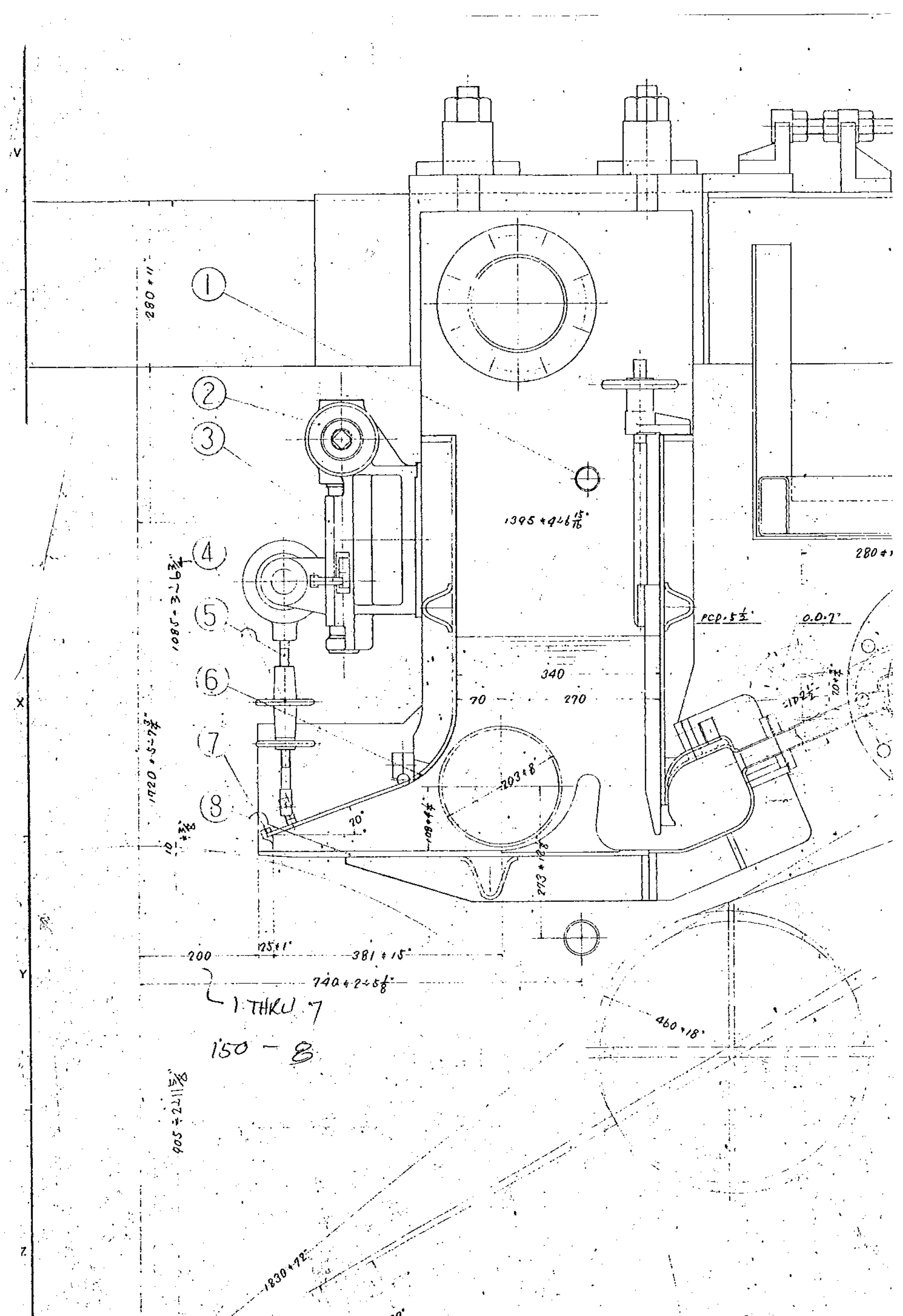
ASSEMBLY OF FLOW BOX

PRODUCTION No	A000040
DRAWING No	1164-9030

SCALE	DRAWER	TRACER	CHECKED
1/4	K. Kondo		Y. Oki

DATE	SYM	REVISION	BY	APP.D

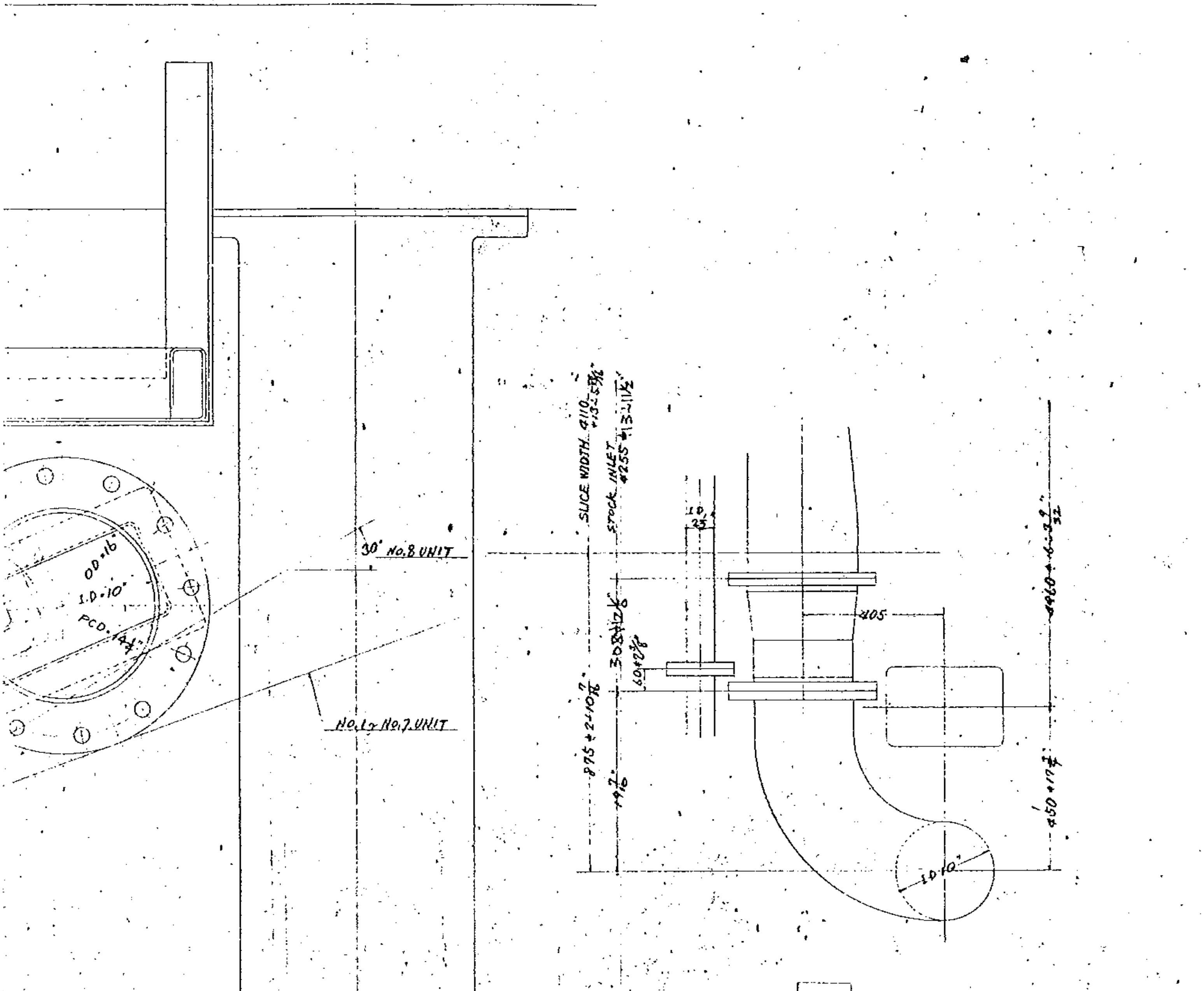
KOBAYASHI



V
X
Y
Z
1
2
3
4
5
6
7
8
280 ± 11
1395 ± 4-6 15/16"
280 ±
PCD 5 1/2"
0.D. 7"
340
70
270
203 ± 8"
20°
1085 ± 3-6 3/4"
1720 ± 5-7 3/4"
10 ± 3/8
273 ± 10 3/4
125 ± 1"
200
381 ± 15"
740 ± 2-5 5/8"
1 THRU 7
150 - 8
460 ± 18"
905 ± 2-11 5/8
1830 ± 72"

普通公差 (記号ナキモノ) 中級

第　角図法



FURNISHED BY THE CUSTOMER.

DESCRIBED QUANTITIES ARE FOR SET (記 入 数 量)
TO BE MANUFACTURED SETS (製 作 台 数)

168" ULTRA FORMER
WET END MODIFICATION

ASSEMBLY OF FLOW BOX

PRODUCTION No: A000040

DRAWING No: 1164-9030

SCALE	DRAWER	TRACER	CHECKED BY	
1/4	K. Kondo		Y. Oka	1

DATE	SYM	REVISION	BY	APP.D

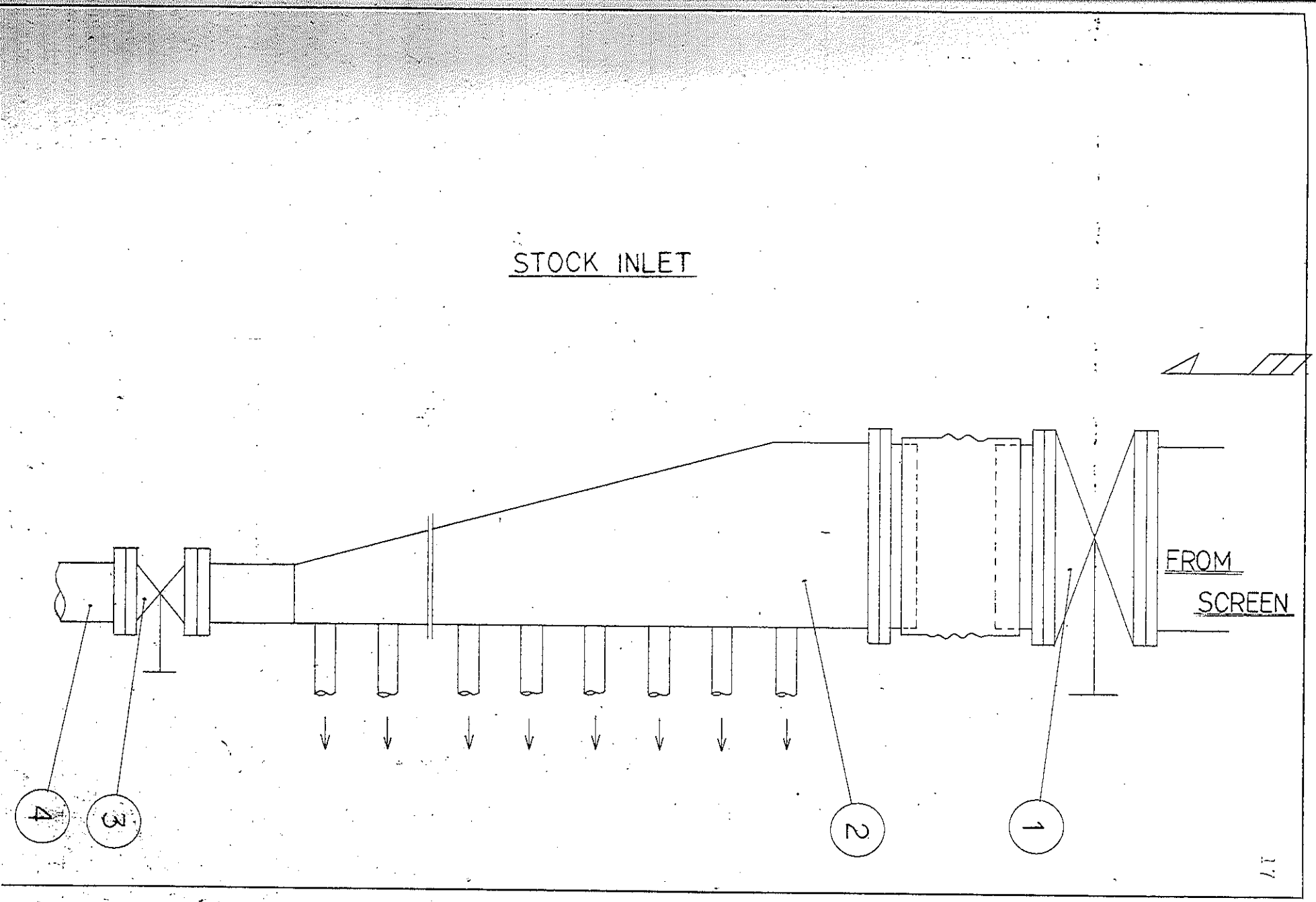
a) Stock inlet

The manifold type stock inlet which is designed to create a constant flow pressure at all points across the full width of the machine will be supplied for entering stock into the flow box.

The tapered inlet, manifold piping and recirculation piping exposed to stock or water are made of stainless steel. The stock inlet is shown in FIG.-4.

Parts List of Stock Inlet (FIG.-4)

No.	Parts Name
1.	No.1 valve
2.	Manifold
3.	No.2 valve
4.	Over flow pipe


STOCK INLET
FROM
SCREEN
4
3
2
1

b) Flow box

The flow box which is located over the cylinder mold consists of a rectifier roll driven by a geared motor, a box body and a gate.

The supporting structure of this flow box is adjustable horizontally, and vertically so that the box can be moved every direction above the cylinder mold.

The stock is fed into the flow box through a manifold pipe and rectified by the rectifier roll.

All parts of the flow box which is exposed to stock are made of stainless steel.

The flow box is shown in FIG.-6.

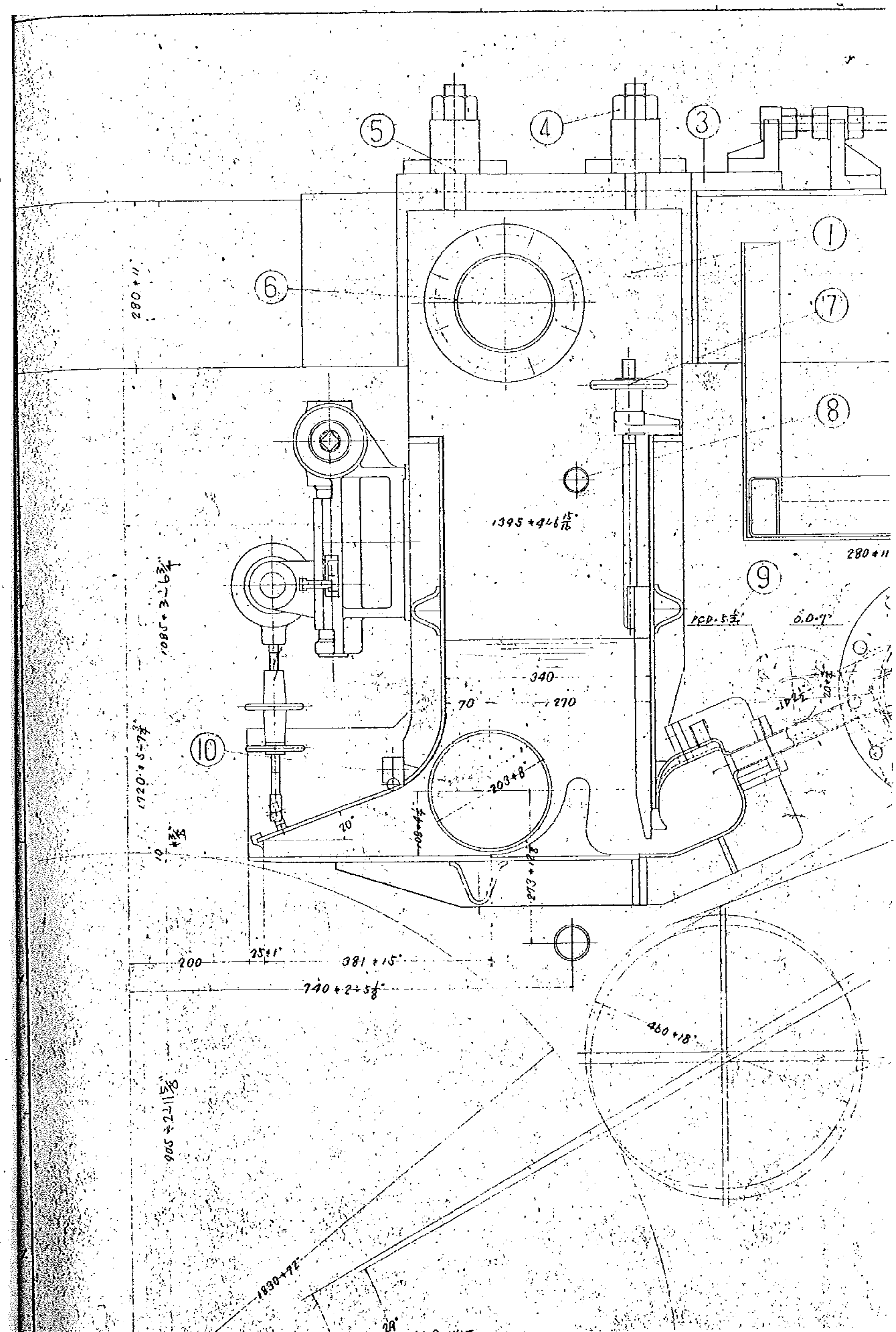
The operating procedure is as follows:

1) Turn the hand wheel (7) and let the gate down.
2) Open the valve and the water will spray from the shower pipe (Foam killer) (8).

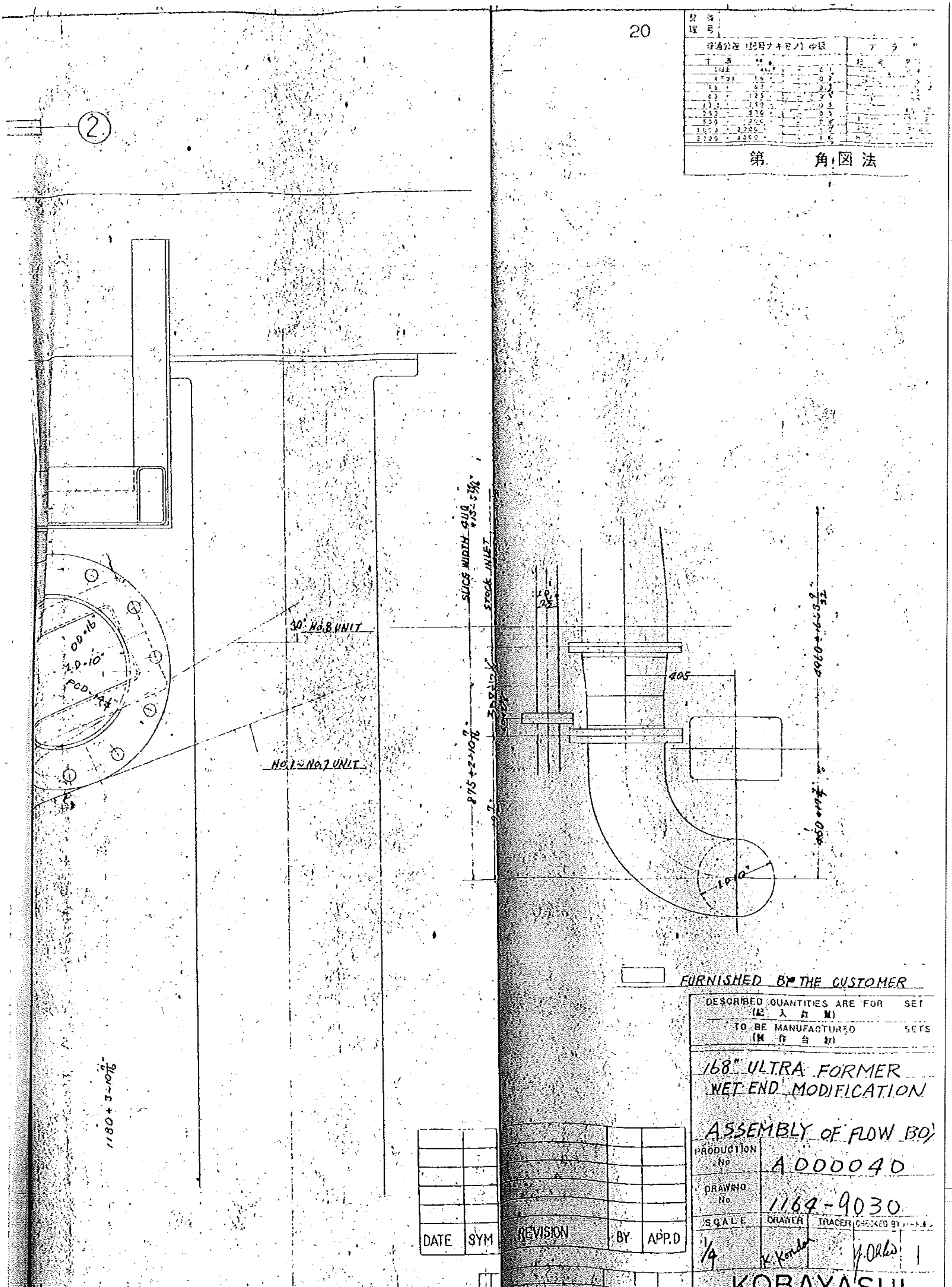
Note: The water head in the flow box will be shown in FIG.-6.

Parts List of Flow box (FIG.-6)

No.	Parts Name
1.	Flow box
2.	Adjust screw
3.	Slide base
4.	Adjust screw
5.	Flow box lifting device
6.	Connecting frame
7.	Hand wheel
8.	Foam killer
9.	Gate
10.	Rectifier roll



5
4
3
1
6
7
8
9
10
280+11
1395+46 15/16"
280+11
PCD.5 3/4"
O.D.7"
340
70
270
203+8"
70°
200
15+1"
381+15"
740+2-5 5/8"
460+18"
1830+72"



2
第 角図法
OD 16
I.D 10"
PCD 14"
30° No.8 UNIT
No.1~No.7 UNIT
SLICE WIDTH
STOCK INLET
405
10"
1180+3-10 7/16"
FURNISHED BY THE CUSTOMER
DESCRIBED QUANTITIES ARE FOR SET
(記 入 数 量)
TO BE MANUFACTURED SETS
(製 作 台 数)
168" ULTRA FORMER
WET END MODIFICATION
ASSEMBLY OF FLOW BO
PRODUCTION No
A000040
DRAWING No
1164-9030
SCALE
1/4
DRAWER
TRACER
CHECKED BY
DATE
SYM
REVISION
BY
APP.D

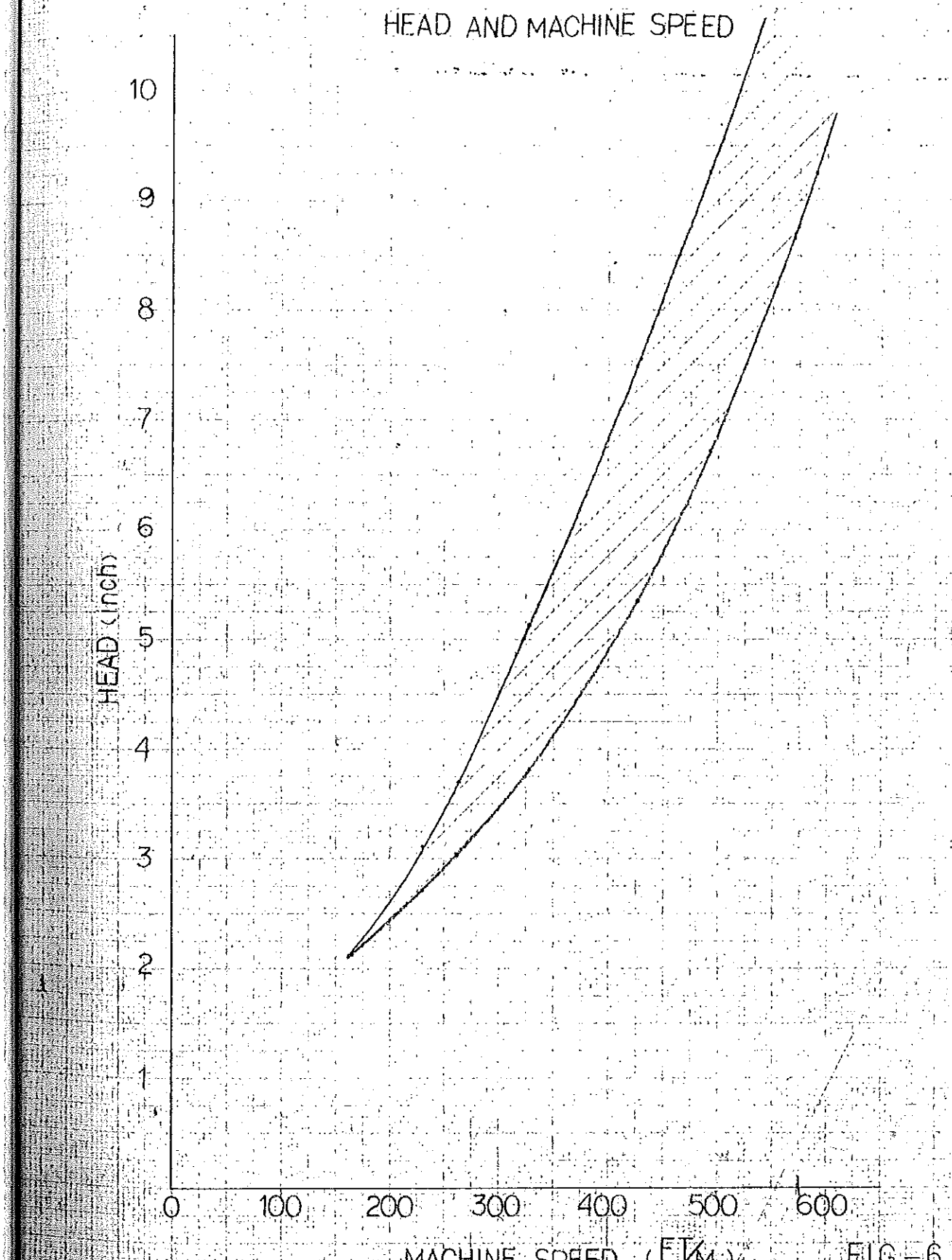

HEAD AND MACHINE SPEED
HEAD (inch)
10
9
8
7
6
5
4
3
2
1
0
100
200
300
400
500
600
MACHINE SPEED (FT/M)

FIG.-6

c) Slice

The rectified stock is jetted onto the cylinder mold through the nozzle type slice.

The slice is made of stainless steel plates.

Across the cylinder mold the slice has a lip with screws at close interval to adjust the opening of the slice.

By regulating the screws the opening of the slice will be adjusted.

The slice is shown in FIG.-7.

The operating procedure is as follows:

1) Using the gauge turn the screw (3) and make the lip (7) and the bottom slice (8) parallel.
2) Turn the hand wheel (4) and open the lip (7).

Parts List of Slice (FIG.-7)

No.	Parts Name
1.	Foam killer shower
2.	Gear box
3.	Screw
4.	Hand wheel
5.	Screw
6.	Slice body
7.	Slice lip
8.	Bottom slice

(2) Cylinder mold

Eight (8) cylinder molds are installed to form the wet sheet, sandwiching the stock between the wire and the transfer felt.

The cylinder mold is made of the out side and intermediate bronze spiders fixed to a hollow steel shaft. In order to prevent the mold from rusting a ring should be inserted between each spider boss, stainless steel ring plates are wound around the outer surface of the spider. Stainless steel cross bars are run through the ring plates.

The cylinder mold is accurately tested for the dynamic balance. The journal of the cylinder mold is mounted on spherical roller bearings which are enclosed in the cast iron housings. The housings are fitted onto the side cover of the cylinder mold.

The operating procedure is as follows:

a) How to produce a vacuum in the cylinder mold. (See FIG.- 8)

1) Start up the vacuum pump connected with the wire cylinder (2).

2) Seeing the manometer (6), open the butterfly valve (5).

Parts List of Cylinder mold (FIG.- 8)

No.	Parts Name
1.	Bend
2.	Wire cylinder
3.	Sight glass
4.	Flexible hose
5.	Butterfly valve
6.	Manometer

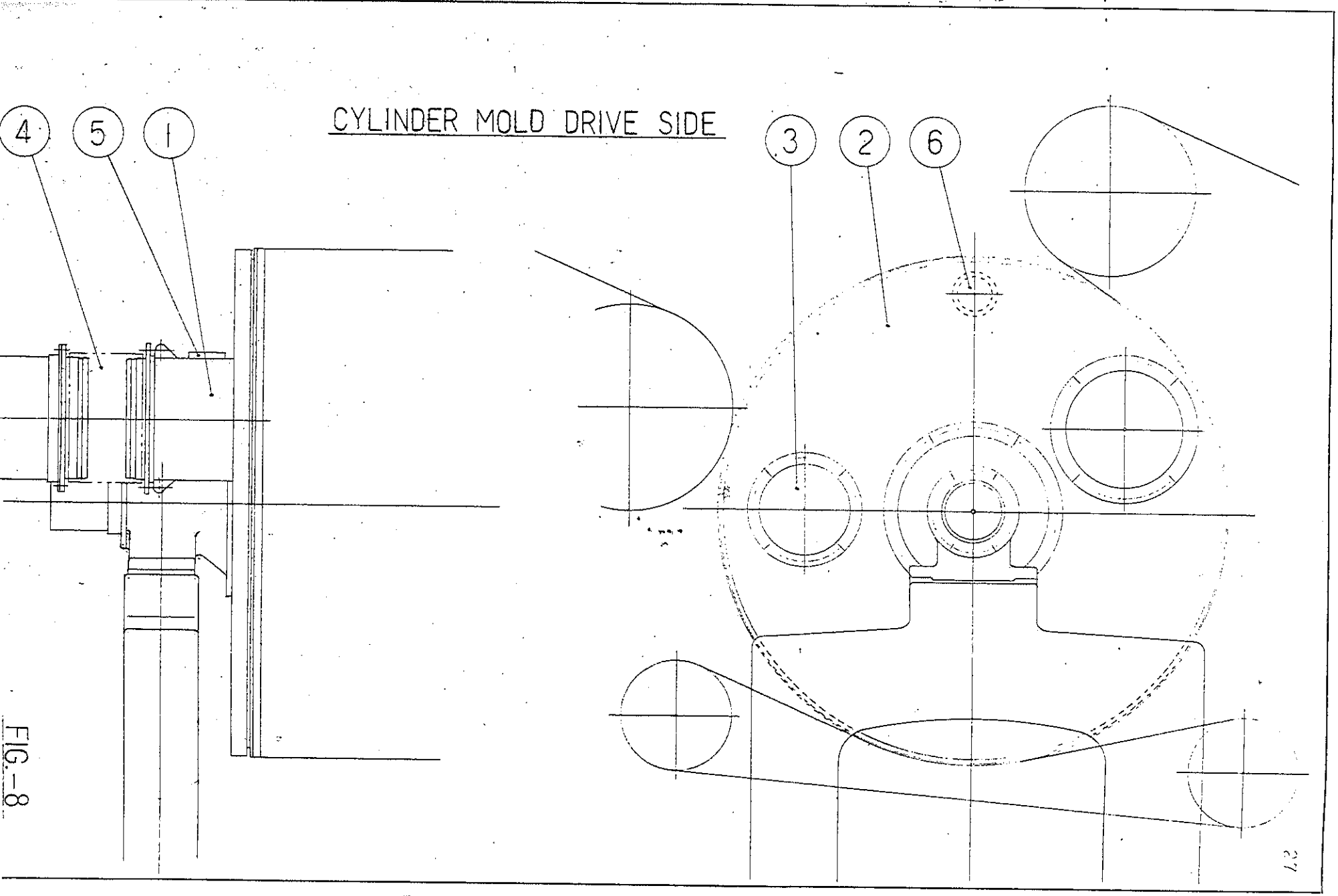


FIG.-8

b) Pull out procedures for the Ultra Former cylinder mold.

The cylinder mold of the Ultra Former is pulled out to exchange the cylinder wire by the following sequence: (See FIG.- 9)

1) In order to pull out the cylinder, the stands (3) should be installed on the plate (4) and the pull out rail (2) should be set on them.
2) Pull out the wire cylinder after removing the pull out piece of the cylinder side frame.

Parts List of Pull out procedure for the cylinder mold (FIG.- 9)

No.	Parts Name
1.	Rail
2.	Pull out rail
3.	Stand
4.	Plate

CYLINDER PULL OUT DEVICE

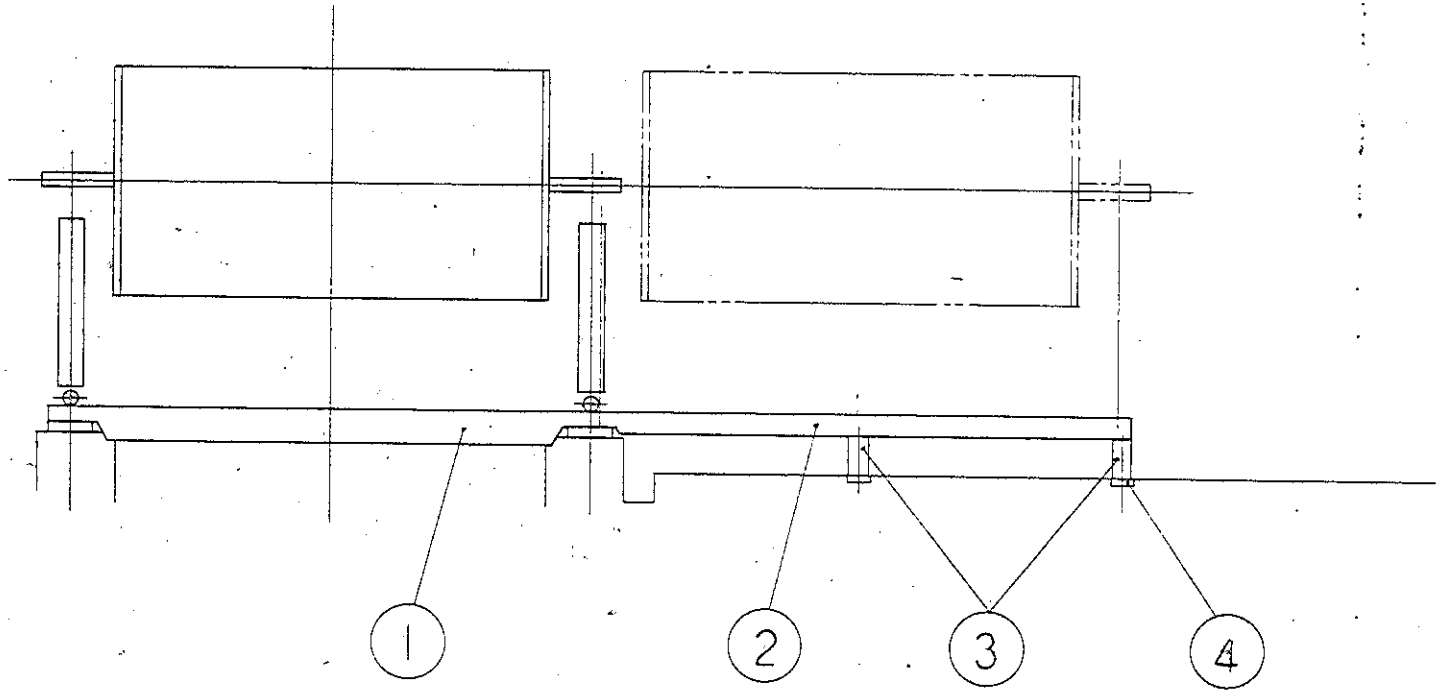


FIG.-9

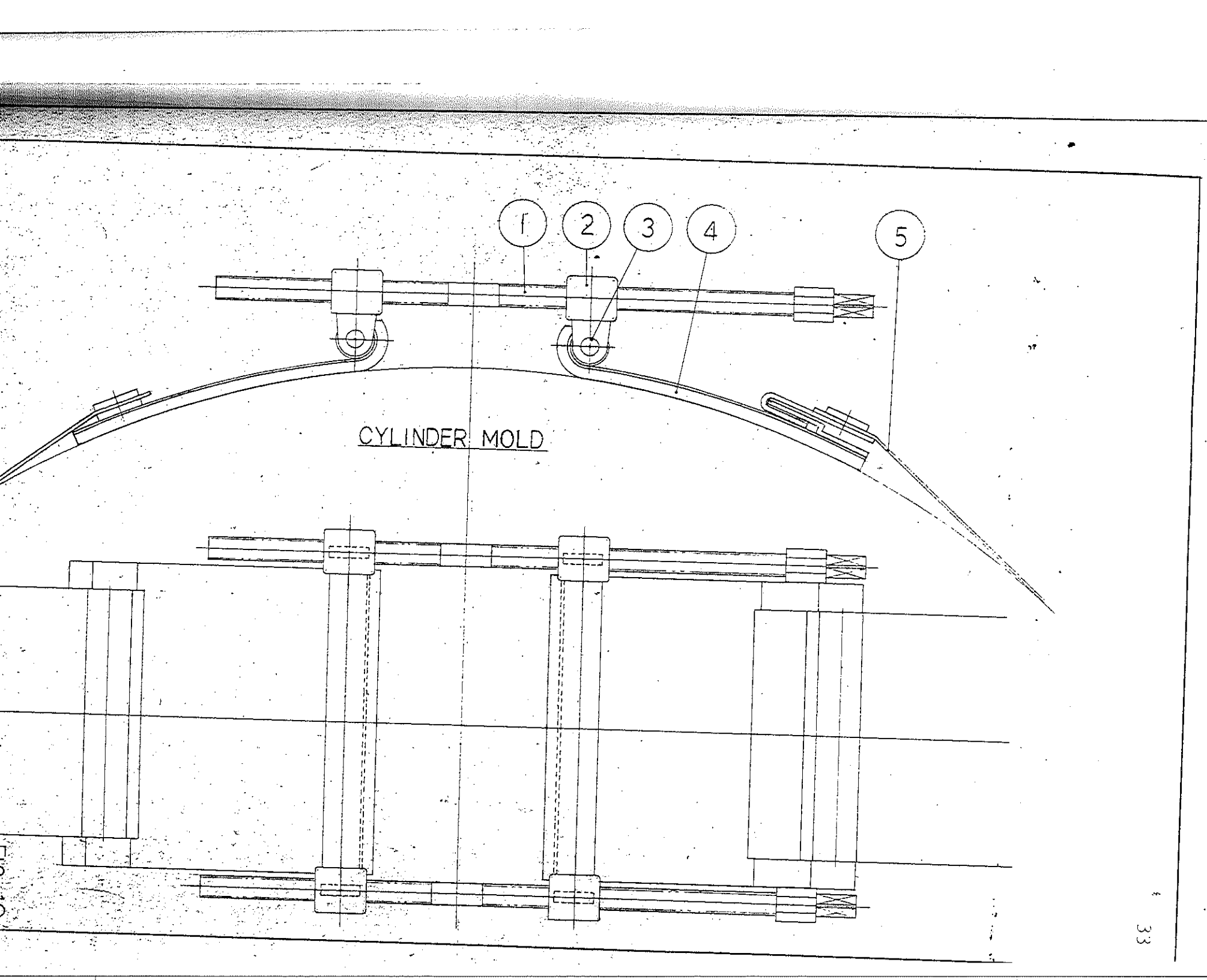
e) Wire exchanging procedure

Wire exchanging device is shown in FIG.-10.

1) Remove the worn out wire, after pulling out the cylinder mold.
2) Wind the new wire around the wire cylinder.
3) Cover the new wire on the cylinder with the lesycon belt, and spread it.
4) Connect the push plate (4) with lesycon belt (5).
5) Turn the screw shaft (1) by using lever to tighten the wire around the cylinder.
6) Cut the wire the same length as the wire cylinder.
7) Weld the wires together.

Parts List of Wire exchanging device (FIG.-10)

No.	Parts Name
1.	Screw shaft
2.	Screw guide
3.	Pin
4.	Push plate
5.	Lesycon belt


1
2
3
4
5
CYLINDER MOLD

(3) Wire cylinder cleaning device

As shown in FIG.-2, one type of shower is oscillated above the wire cylinder to clean the wire and to remove any plug from the wire.

a) Cylinder oscillating shower

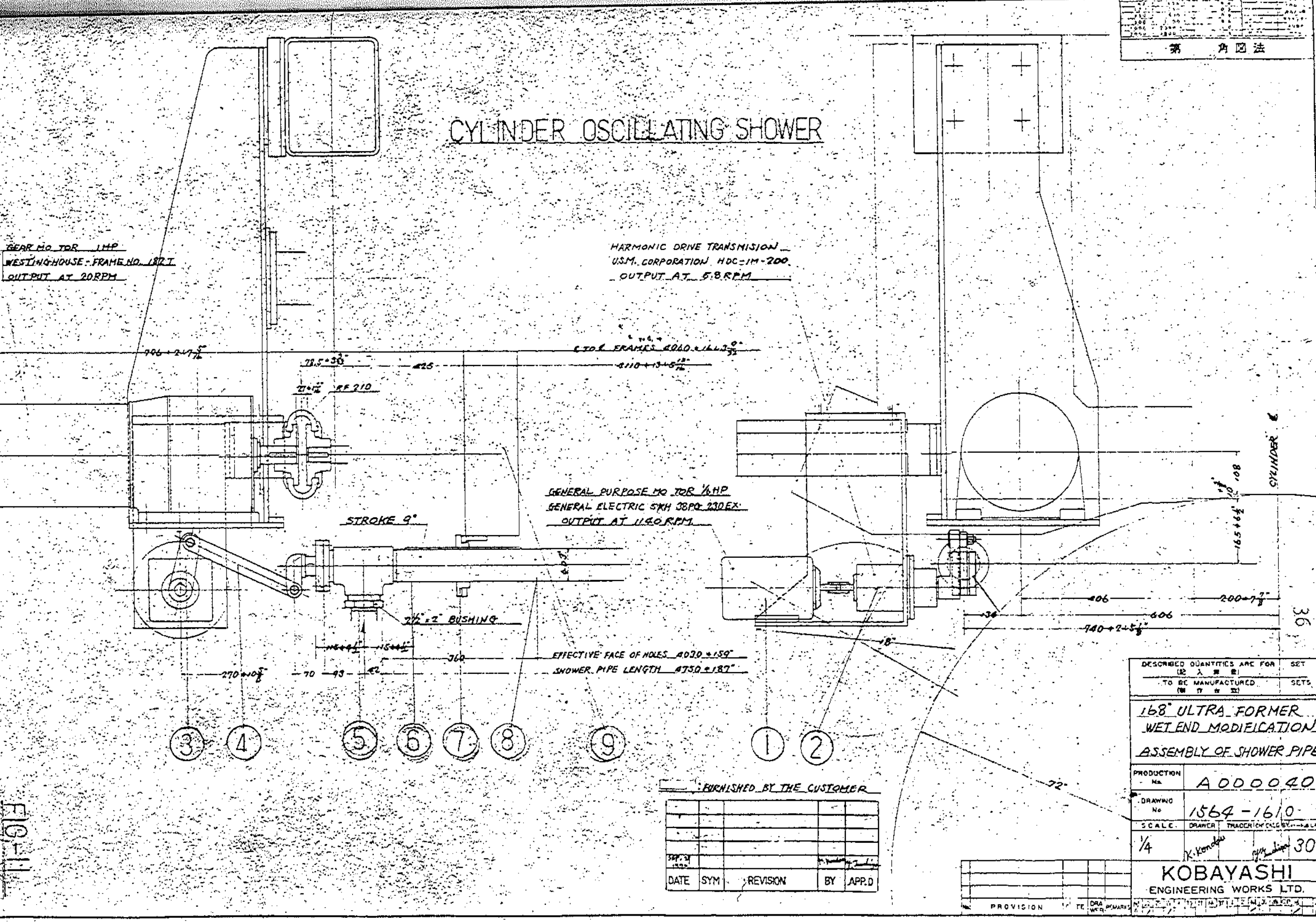
The cylinder oscillating shower is oscillated by the harmonic drive transmission (2) driven by the general purpose motor (1).

Water flows into the shower pipe (6) through the hose (5) and is jetted onto the wire from the nozzle (8).

This shower is oscillated 4.5 inches, 5.7 returns per minutes, so that the wire is cleaned uniformly.

Parts List of Cylinder oscillating shower (FIG.-11)

No.	Parts Name
1.	General purpose motor
2.	Harmonic motor
3.	Swing arm
4.	Lever
5.	Hose
6.	Shower pipe
7.	Bush
8.	Nozzle
9.	Side frame of Flow box



CYLINDER OSCILLATING SHOWER
GEAR MOTOR 1HP
WESTINGHOUSE FRAME NO. 182T
OUTPUT AT 20RPM
HARMONIC DRIVE TRANSMISION
USM. CORPORATION HDC-1M-200
OUTPUT AT 5.8RPM
GENERAL PURPOSE MOTOR 1/6HP
GENERAL ELECTRIC 5KH 38PG 230EX
OUTPUT AT 1140RPM
STROKE 9"
2½" x 2" BUSHING
EFFECTIVE FACE OF HOLES 4030 = 159"
SHOWER PIPE LENGTH 4750 = 187"
CYLINDER ℄
FURNISHED BY THE CUSTOMER
1 2 3 4 5 6 7 8 9
DATE SYM REVISION BY APP.D
PROVISION
第 角図法
DESCRIBED QUANTITIES ARE FOR SET
TO BE MANUFACTURED SETS
168" ULTRA FORMER WET END MODIFICATION
ASSEMBLY OF SHOWER PIPE
PRODUCTION No. A000040
DRAWING No. 1564-1610
SCALE 1/4
30
KOBAYASHI ENGINEERING WORKS LTD.

36

FIG. 11

(4) Forming roll

The forming roll adjusts the opening between the transfer felt and the cylinder mold in which the wet sheet is formed. The forming roll is built of steel tubing covered with rubber and mounted on spherical roller bearings which are enclosed in cast iron housings with the end plates having seals.

The operating sequence is as follows:
(See FIG.-12)

a) How to move the forming roll horizontally,
Turn the adjust screw (4).

Parts List of Forming roll (FIG.-12)

No.	Parts Name
1.	Hand rail
2.	Bracket
3.	Slide base
4.	Adjust screw
5.	Bracket
6.	Pull out piece
7.	Housing
8.	Forming roll
9.	Cat walk

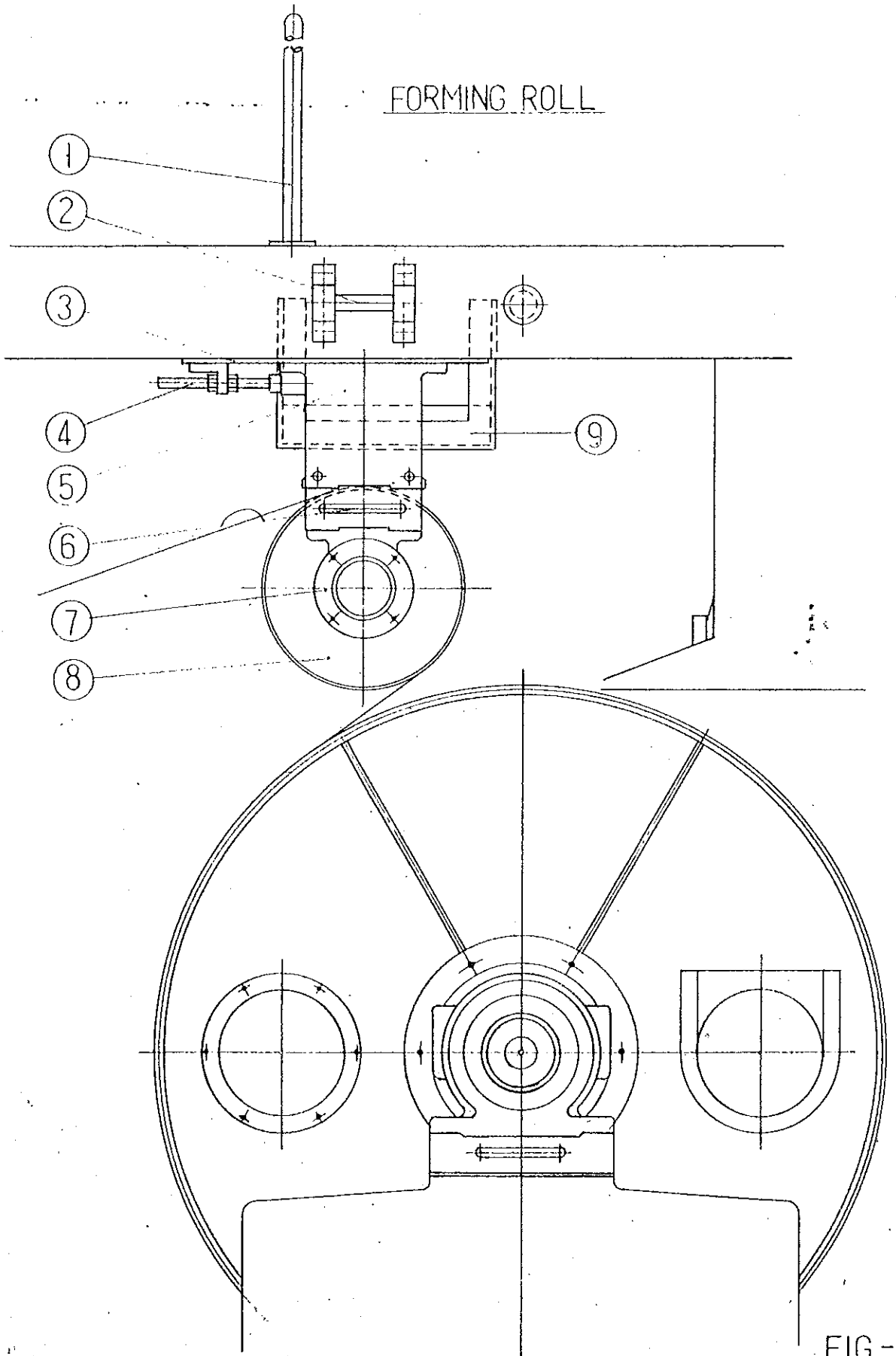


FIG.-12

(5) Holding belt unit

A holding belt unit consisting of a crown roll, a tension roll, an endless belt is installed under the cylinder mold to hold the transfer felt.

a) Crown roll

The crown roll is made of steel tubing covered with synthetic resin. It has the proper crown to prevent the belt from moving either to the drive side or to the tender side.

The roll is mounted on the spherical roller bearings which are enclosed in the cast iron housings. The roll is set on the cylinder side frames and adjustable vertically.

b) Tension roll

The tension roll is made of steel tubing covered with synthetic resin.

This roll is mounted on the spherical roller bearings which are enclosed in the cast iron housings.

The cast iron housings are fixed on the swing arm and adjustable radially for proper tension control.

The tension roll and gear box are connected by chain to move the tension roll radially.

c) Holding belt

The holding belt is endless and made of rubber.

The operating procedure is as follows:

(See FIG.-13)

1) Operate the ratchet handle which is located inside the vertical frame and move the tension roll (1) radially referring the felt tension.

Parts List of Holding belt unit (FIG.-13)

No.	Parts Name
1.	Tension roll
2.	Housing
3.	Swing arm
4.	Worm gear
5.	Worm wheel
6.	Side frame
7.	Holding belt
8.	Belt shift
9.	Crown roll
10.	Housing

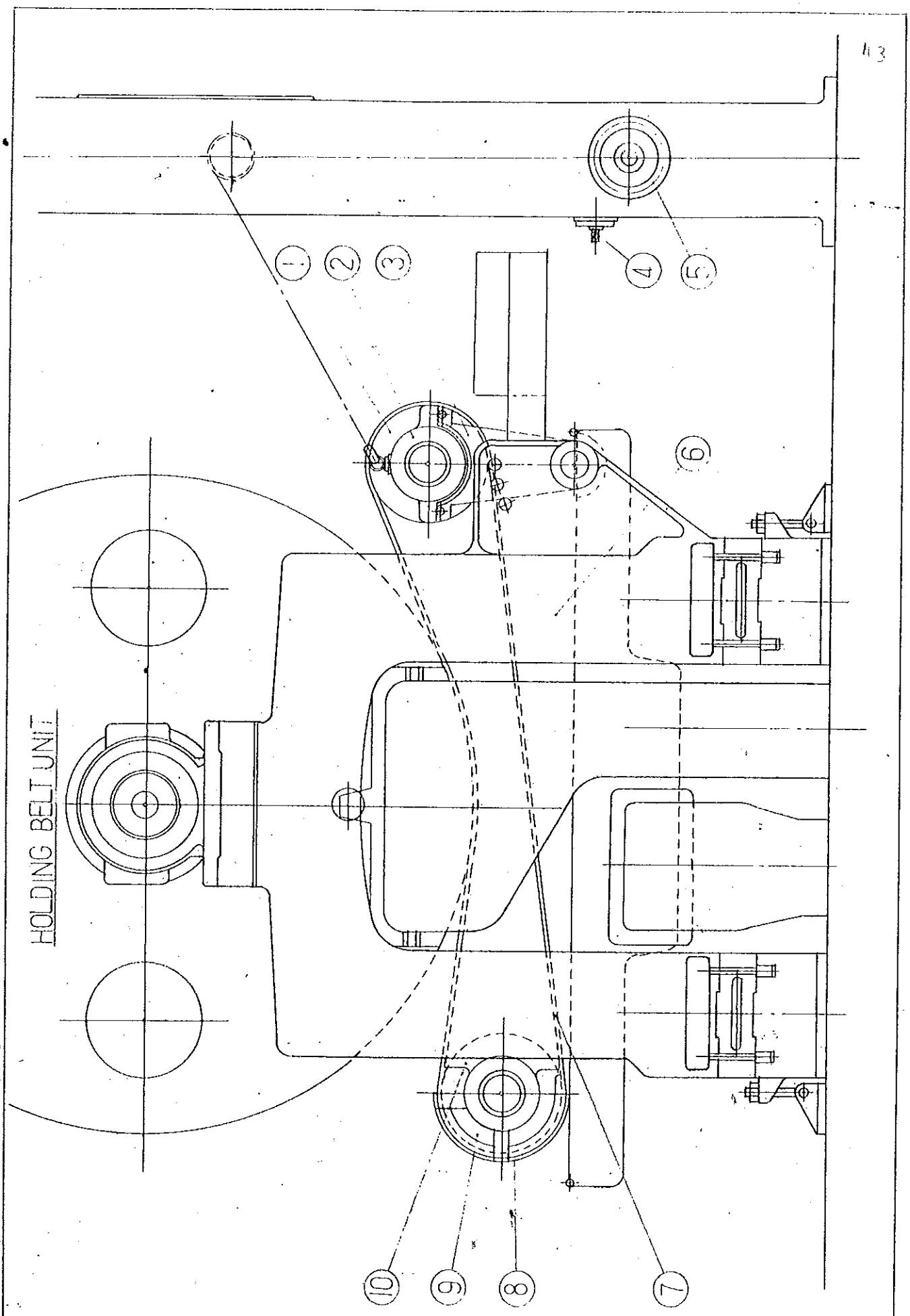


FIG.-13

(6) Couch roll

The couch roll strips the wet sheet from the wire on the cylinder mold, and moves it to the transfer felt.

The wet sheet is then, carried on the surface of the felt.

The couch roll is made of steel tubing covered with rubber and mounted on spherical roller bearings which are enclosed in cast iron housings with end plated having seals.

The operating sequence is as follows:

(See FIG.-14)

a) Checking the pressure gauge on the control panel.

b) Open the valve of the pressure line and then the couch roll (1) moves toward the cylinder mold.

Parts List of the Couch roll (FIG.-14)

No.	Parts Name
1.	Couch roll
2.	Housing
3.	Pull out piece
4.	Pin
5.	Pin
6.	Swing arm
7.	Bracket
8.	Diaphragm bellows

COUCH ROLL

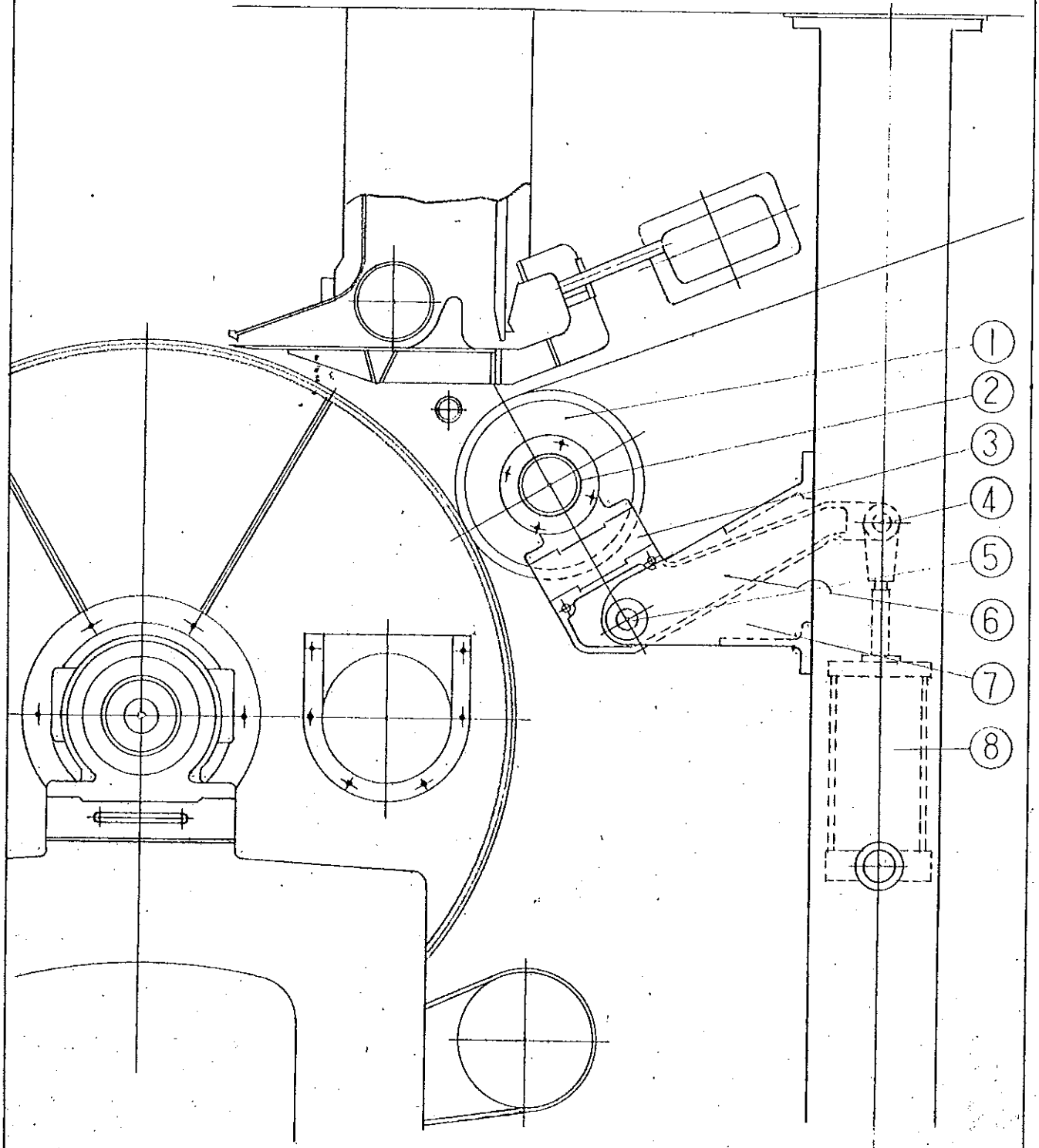


FIG. 12

(7) Suction box

The suction boxes remove water from the wet sheet through the transfer felt by sucking.

A suction box consists of suction plate furnished by the customer made of high molecular polyethylene, box made of stainless steel and hose joint which is connected with the vacuum line.

The operating sequence if as follows:

(See FIG.-15-A,B)

a) Using the set plate (2), connect the suction box (3) with the suction plate (1).

b) Set the suction box (3) on the bracket (4).

c) Adjust the bracket (4) to parallel with the felt and affix the bracket (4) by the tap bolt.

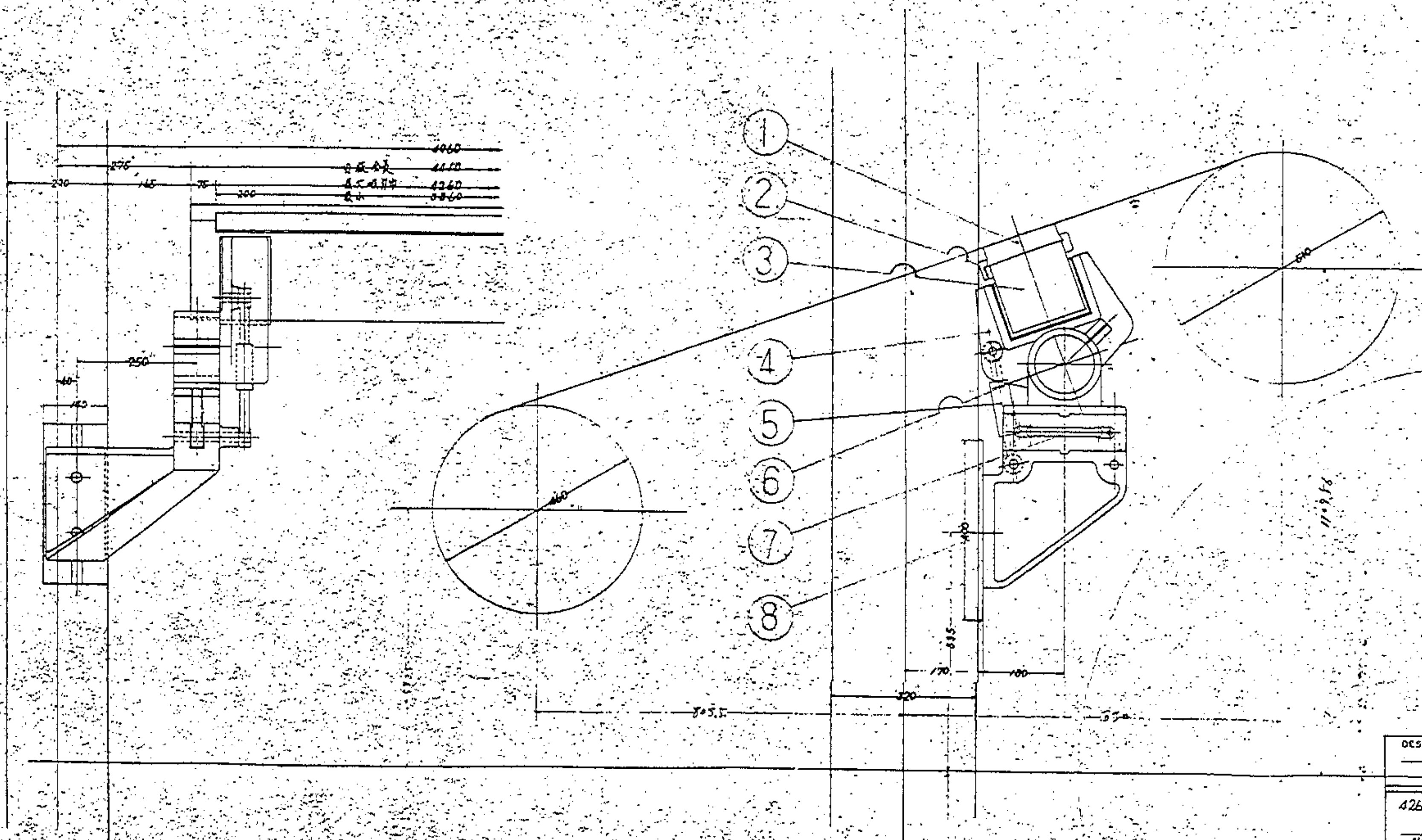
d) Open the valve of the vacuum line and then the suction tube begins to remove water from the wet sheet through the transfer felt.

e) When changing the felt, the pull out piece (7) should be pulled out.

Parts List of Suction box (FIG.-15-A,B) .

No.	Parts Name
1.	Suction plate
2.	Set plate
3.	Suction box
4.	Bracket
5.	Turn buckle
6.	Ful crum
7.	Pull out piece
8.	Bracket

SUCTION BOX FOR NO.1 ~ NO.7 UNIT



第　角図法

DESCRIBED QUANTITIES ARE FOR (記入台数)	SET
TO BE MANUFACTURED (製作台数)	SETS
4260 巾 ウルトラホーマー ウェットエンド改造 ウルトラホーマーパート NO.1 ~ NO.7 用 サクションボックス取付図	
PRODUCTION No.	A000040
DRAWING No.	1564-1710
SCALE	1:5
TRACER	日置
	34

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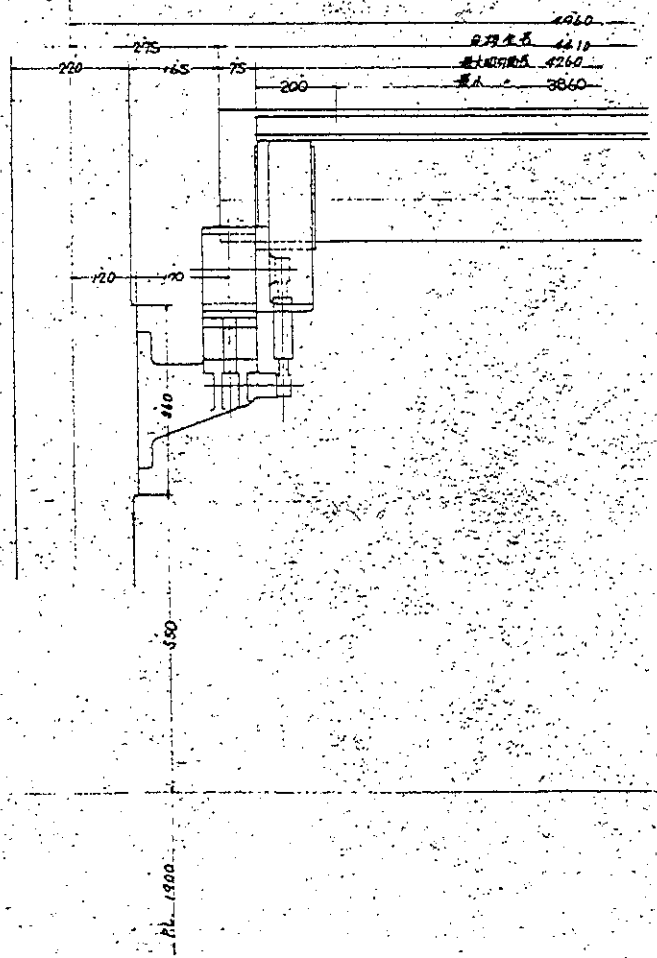
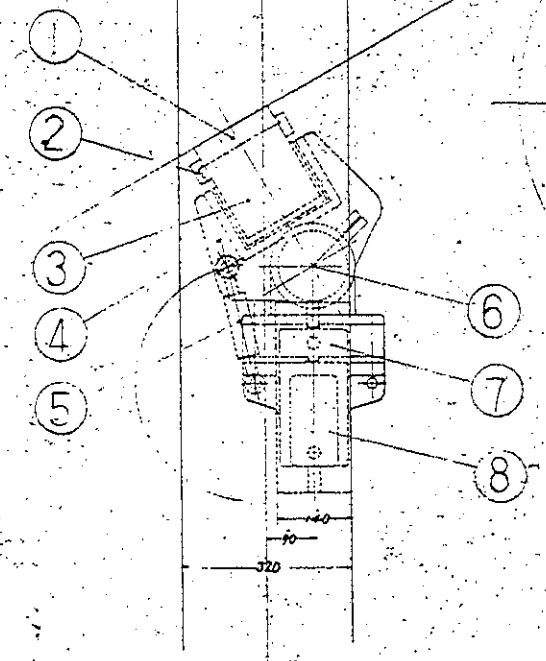
PROVISION	DATE	DRAWN	REMARKS

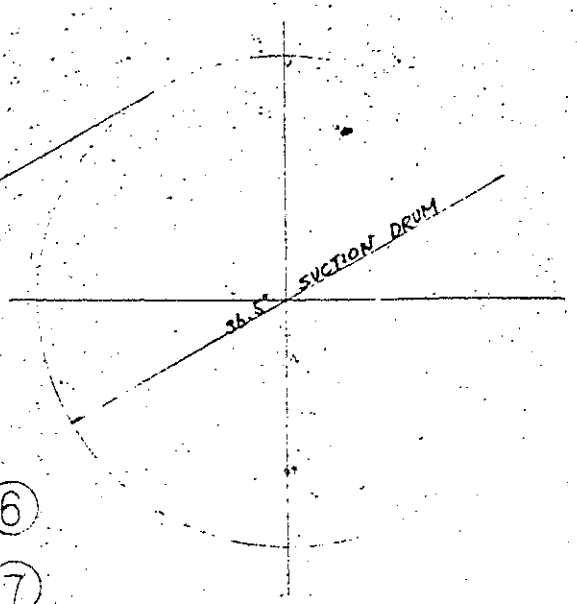
適用先 A000100

SUCTION BOX FOR NO.8 UNIT

第　角図法







DESCRIBED QUANTITIES ARE FOR SET
(組入数量)
TO BE MANUFACTURED SETS
(製作台数)

4260㎜ ウルトラホーマーウェットエンド改造
ウルトラホーマーパート
NO.8 用
サクションボックス取付図

PRODUCTION No. A000040

DRAWING No. 1564-1720

SCALE	DRAWER	TRACER	
1:5	コボク		34-11

KOBAYASHI
ENGINEERING WORKS LTD.

No.	REVISION	DATE	CHK	APP'D

FIG-15-B

(8) Save all

The save all is shown in FIG.-17.

Stainless steel drop vent (9) and save all (8) are located under each cylinder mold.

The save all collects the white water from the cylinder mold and then discharges it to the drive side of the machine.

(9) Side frame for the cylinder mold

The side frame is shown in FIG.-16.

The tender and drive sides of the side frame (2) are used to support the cylinder mold.

This frames is made of cast iron. Also it has rails (6) and a lifting device, so that the cylinder mold can be pulled out to exchange the wire. (Ref. FIG.-9)

Parts List of Save all & Side frame (FIG.-16)

No.	Parts Name
1.	Pull out piece
2.	Side frame
3.	Pull out piece
4.	Stand
5.	Bracket
6.	Rail
7.	Roller
8.	Save all
9.	Drop vent

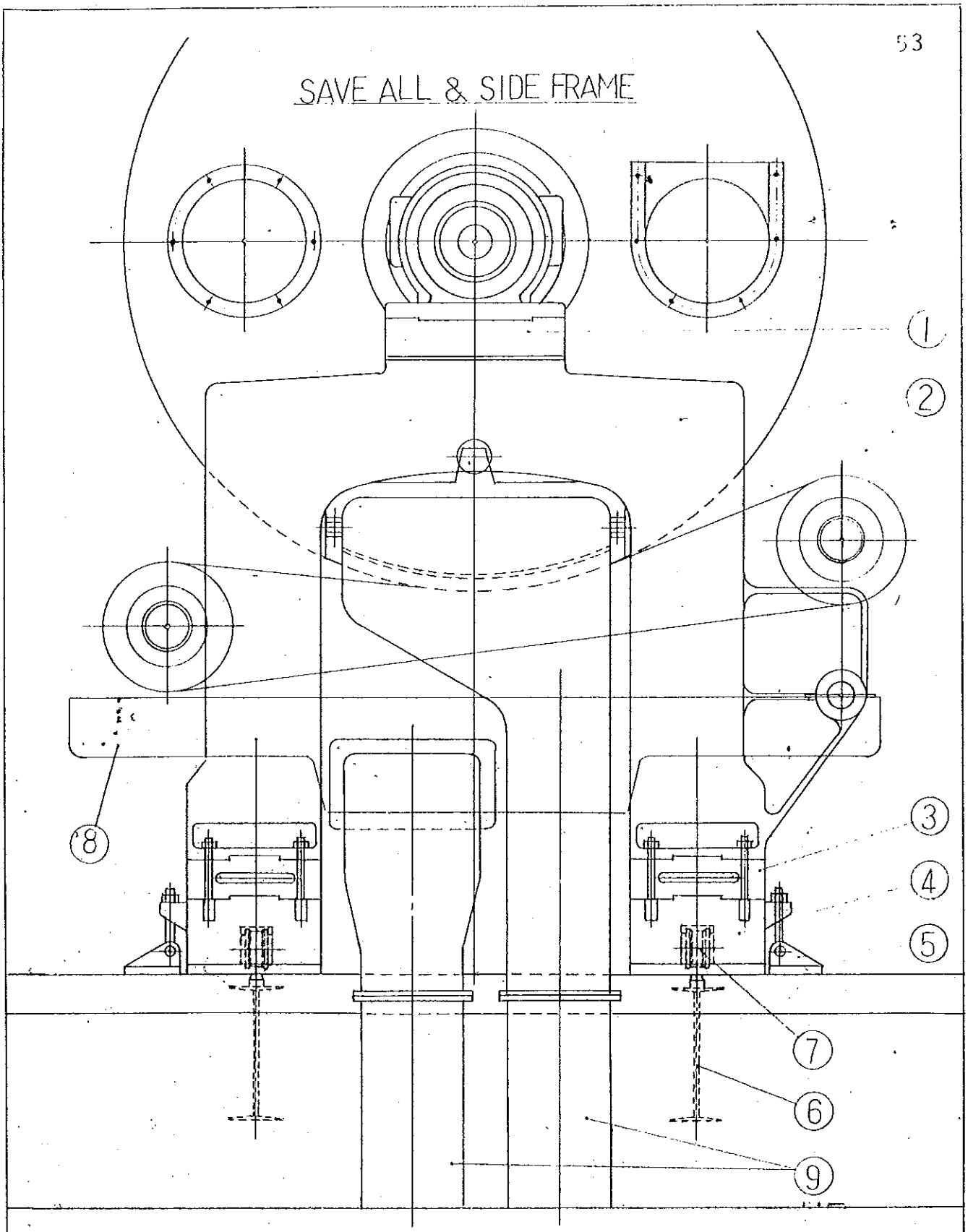


FIG. 16

B TOP FELT CLEANING PART

TOP FELT CLEANING PART

GENERAL

When white water goes through the felt, the porosity will decrease markedly as a result of impurities which accumulate between the yarns of the felt. Therefore, we arranged the top felt cleaning device to remove the accumulated impurities from felt. The felt squeeze part consists of the felt stretchers which keep the tension constant; felt guiders which hold the felt on the correct path and prevent the felt from moving sideways; felt washing devices which clean the felt by whipper and showers.

I N D E X

(1) Felt cleaning device

Felt cleaning device is shown in FIG.-17.

The whipper is placed outside of the felt; it revolves in the opposite direction against that of the felt.

The rapid motion of the whipper causes the felt to vibrate forcibly against the whipping pipe, which beats out dirts from the felt.

Shower pipes (2),(4) which are set both sides of the felt wash out loosened dirts. The worm roll (5) can be adjusted by turning the hand wheel (6) about ± 2 inches.

Parts List of Felt cleaning device (FIG.-17)

No.	Parts Name
1.	Suction box
2.	Shower pipe
3.	Whipper
4.	Shower pipe
5.	Worm roll
6.	Hand wheel

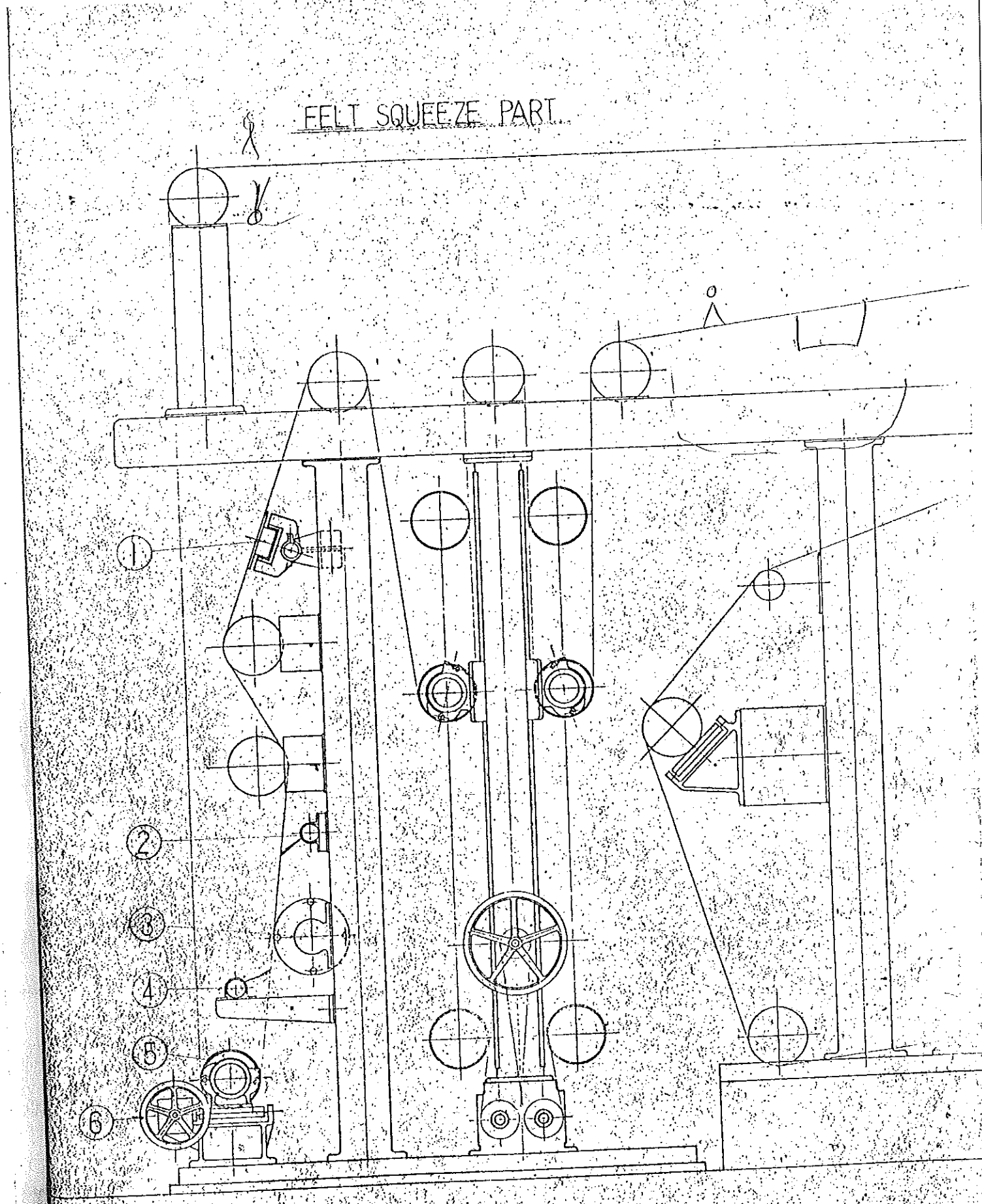


FIG-17

C FELT STRETCHER

COMPONENT & OPERATING MANUAL

Felt stretcher

FIG.-18 shows felt stretcher for the felt. The felt worm roll (2) is supported by journals and a screw shaft (4) in each portion after bearing (3) fits inside the guide rail (9).

Screw shaft (4) that runs inside the guide rail. The screw shaft (4) can rotate to adjust the position of the bracket. The screw have bevel gears (7) at one end, the gears (7) is meshing with those on the connecting pipe (5). By rotating the air motor (11), the connecting pipe (5) and the bevel gears (7) rotate; this causes the screw shafts in the pipe on either side of the machine, to rotate equally until the brackets carry the felt worm roll to the correct position to keep the felt in the required state of tension. This felt stretcher can also be adjusted by rotating the hand wheel (6).

Parts List of Felt Stretcher (FIG.-18)

No.	Parts Name
1.	Cross frame
2.	Felt worm roll
3.	Bearing
4.	Screw shaft
5.	Connecting pipe
6.	Hand wheel
7.	Bevel gear
8.	Joint
9.	Guide rail
10.	Chain & chain wheel
11.	Air motor

FELT STRETCHER

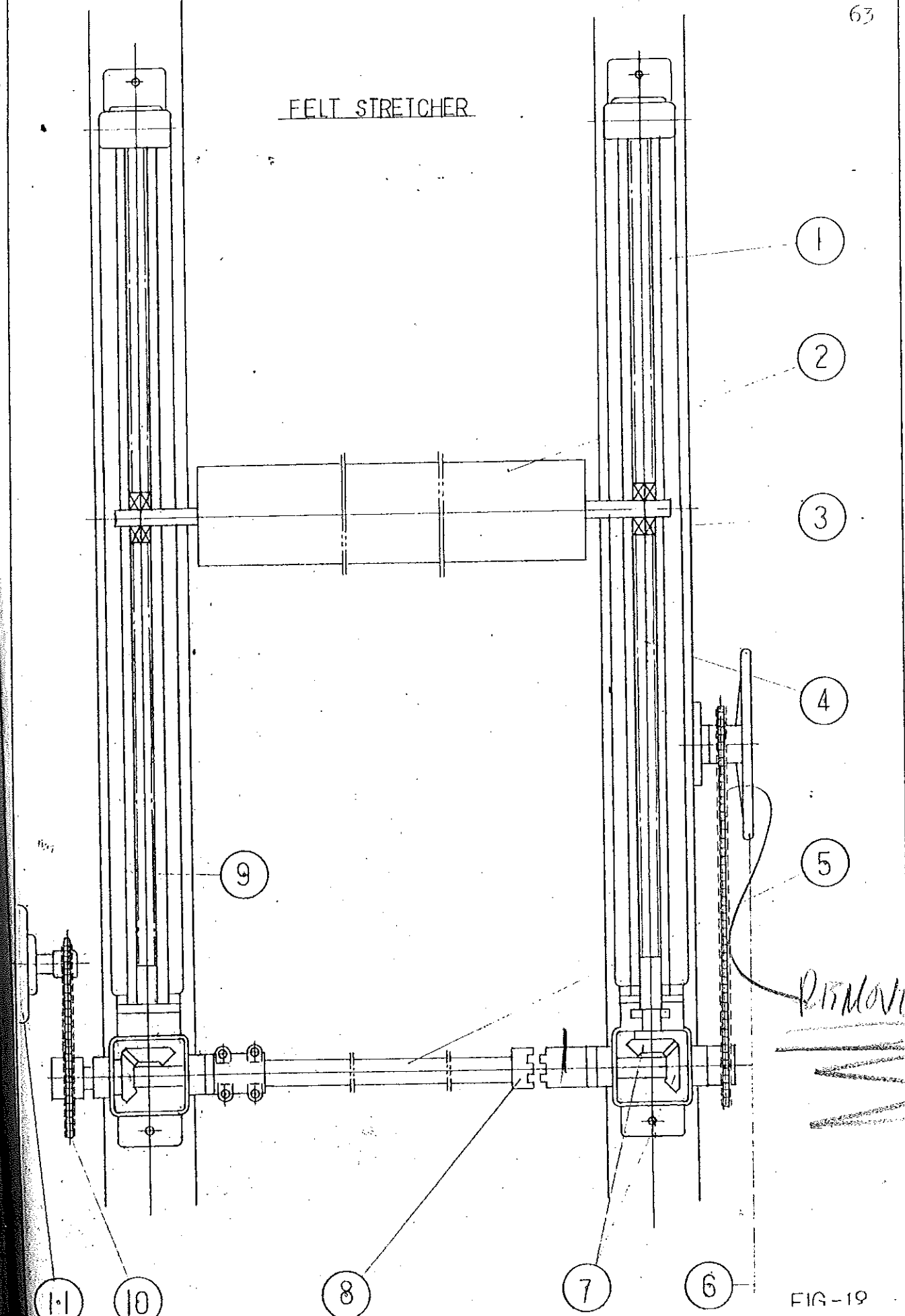


FIG-19

D ULTRA FORMER START UP PROCEDURE

I N D E X

1. How to put the bottom felt on the machine

(1) Preparation

1) Detach the couch roll from the cylinder mold.

2) Lower the holding belt all the way through.

3) Take the edge plate off.

4) Take the splash guard and tray off.

5) Take the hoses off.

6) Put the felt underneath the cylinder molds and set the felt in the return roll.

7) Separate the upper felt to tender side and the lower felt to drive side (Tender side's felt will be set in cylinder part first, and after that, set the other felt in felt rolls.)

(2) Underneath the cylinder mold

1) Loosen the bolts for the pull out pieces, both lengths of the side frame of the cylinder mold, and then open the bolts both sides.

2) Hang the chain block on the horizontal frame over the cylinder mold.

3) Put rubber sheet between the cylinder mold and the bottom lip of the slice.

4) Raise the cylinder mold carefully and slowly up to about 3/8".

5) Take the both pull out piece off.

6) Pull the tender side's felt out. (Take care of not tearing the felt.)

7) Reset the pull out pieces on.

8) Lower the cylinder mold all the way through but remain with the chain block on.

9) Fasten the bolts up.

(3) Cylinder part

1) Loosen the bolts for the cylinder pull out piece (only tender side) and open the bolts both sides.

2) Check the rubber sheet between the cylinder mold and lip again.

3) Raise the cylinder mold carefully and slowly up to about 3/8".

4) Take the pull out piece off.

5) Insert the felt, which is pulled out before, into the cylinder mold side.

6) Reset the pull out piece on.

7) Lower the cylinder mold all the way through.

8) Fasten the bolts up.

9) Take the chain block and rubber sheet off.

(4) Couch roll

1) Pull the felt up to the couch roll.

2) Hang the hanger for the couch roll on the horizontal frame.

3) Loosen the bolts for the couch roll housing, only tender side, and raise the couch roll carefully and slowly up to about 3/8".

4) Take the pull out piece off.

5) Insert the felt into the couch roll side.

6) Reset the pull out piece on.

7) Loosen the hanger all the way through.

8) Fasten the bolts up.

9) Take the hanger off.

(5) Forming roll

1) Pull the felt up to the forming roll.

2) Hang the hanger for the forming roll on the horizontal frame.

3) Loosen the bolts for the forming roll housing, only tender side, and raise the lever by turning the hand wheel. Make sure to check the position before.

4) Take the pull out piece off.

5) Insert the felt into the forming roll side.

6) Reset the pull out piece on.

7) Lower the lever up to the original position.

8) Fasten the bolts up.

9) Take the hanger off.

(6) Suction box

1) Pull the felt up to the suction box.

2) Hang the hanger for the suction box.

3) Loosen the bolts for the pull out piece and raise the suction box.

4) Take the pull out piece off.

5) Pull the felt out.

6) Reset the pull out piece on.

7) Take the hanger off.

8) Set the felt on the suction box.

2. Start up preparation

(1) Flushing

a) Air piping

1) Close all inlet valves to instruments, open only end valve in main line.

2) After finished the main line flushing, open all inlet valves and take connections off each instrument. Flush all lines.

b) Fresh water piping

1) Close all inlet valves, open only end valve in main line.

Flush the main line until getting clear water.

2) After this is finishing the main line flushing, open all inlet valves and take connections off each instrument. Flush all lines. However, if it is impossible to take off connection, shower, take off cap or plug.

c) Vacuum piping

1) Attach strainers in each vacuum pump inlet to protect foreign substances (a piece of stone, wood or metal).

2) Open up each vacuum pump inlet.

3) Supply seal water and priming water of each vacuum pump.

4) Start vacuum pump and drain pump.

5) Supply fresh water from around vacuum pump inlet, and flush until pump drained.

6) After finishing flushing, take strainers off and wash drain tank off.

d) White water piping

1) Wash white water pits off.

2) Fill up water in pits. At the same time, check foreign substances in the head boxes and take drain cap off the both sides of the head box.

3) Run the white water pump and circulate water continuously. (Don't run the screen, because the foreign substances in it will damage the screen.)

4) Open flow valve for head box slowly. Flush stock inlet and head box.

After finishing, wash cylinder mold and save all, and recheck white water pit.

3. Ultra Former start up procedure

1) Start line shaft.

2) Check tensions of bottom and top felt stretchers and holding belt.

3) Touch all rolls except couch rolls -- No loading.

4) Turn all showers on.

5) Start running the machine slowly about 50 - 100 ft/min.

6) Check felt tension and guides.

7) Stop only machine, after about 15 minutes running.

8) Start machine again and then increase the speed to proper running speed slowly. At the same time, put proper pressure on each couch roll.

9) Recheck top and bottom felt tension and guides operation.

10) Fill white water pits with water.

11) Fill wet broke pit with water and start agitator.

12) Start vacuum pump and simple vacuum fan.

13) Start screens and fan pumps. (Beginning with No.1 units continuing in order.)

14) Adjust stock flow valve openning to synchronize stock velocity at slice lip with machine speed.

15) Check to make sure of proper water circulation. Pit - Fan pump - Screen - Flow box - Cylinder mold - Save all - Pit.

16) Close all shower valves for suction rolls except for necessary one.

17) Raise pressure of all rolls up to proper nip pressure.

18) Put stock on beginning with No.1 cylinder mold continuing in order.

19) Adjust stock flow speed of every cylinder mold, deckle showers, and suction pressure of cylinder mold and felt suction tubes.

Cylinder mold except

No.1 & No.2: Below 2" Aq

Felt suction tube: 2" Hg. but close No.1 units.

20) Adjust and align nozzles for both edge cutter.

4. Proper roll maintenance

(1) Storage

1) Store rolls in a cool, dark and damp room. Keep away from sunlight or sudden temperature change.

2) Cold rolls which have been stored should be allowed to reach ambient temperature before use. (Ideal storage temperature: about 60°F.)

3) Rolls should be stored in shipping cases if possible. Otherwise, they should be protected with strong wrapping paper, covered with old felts, burlap, or pulp laps.

4) Always support the roll on its journal, giving it a quarter turn about every two months. Don't allow it to rest on the rubber cover, even for a short time.

5) Store rolls away from traffic lanes to avoid damage by passing equipment. And make sure no grease or oil come in contact with the rubber cover.

(2) Handling

1) If possible, handle rolls with a crane which has two hoists, and a separate chain and sling for each journal. (If the crane has only one lift, use a yoke with adjustable sling at each end.)

2) You can use a wide, flat belt as a sling. Be sure there's nothing on its surface to scratch the cover and, for safety, provide padding.

3) If rolls must be transported on small factory trucks, provide padding to eliminate any contact with wood or metal.

(3) Grinding

1) Don't finish grind the roll when removing it from the machine to put it in storage. Rough grinding can be done at this time-- but finish grinding should wait until just before installation, to insure a fresh surface when the roll is started up.
(If rolls are to be stored for only a blief period-- two months or less-- finish grinding may be done before storage.)

2) Take your time. Good grinding jobs can't be harried.

3) The wheel should be kept well dressed, with slightly rounded corners. Dressing should be done while the wheel is mounted in the grinder, preferably with a diamond.

4) During grinding, be sure to remove all traces of cracks or checks. If you don't the covering will check prematurely when placed in service.

5) To remove a very deep cut, you'll save time by turning off the covering to the depth of the cut with a tool in a lathe, and then finishing in the grinder.

6) During grinding, roll should revolve at about 20 to 22 RPM. Only on very hard rolls should the speed of the roll be reduced when finishing up, and then to about 11 RPM, or slowest speed the grinder will run. This will help eliminate chatter marks.

7) Grinding cycle

The grinding cycle of covering rubber depends on the type of machine, operating speed, kind of product, stock and other Various conditions, however, the followings would be generally desired.

*1) Touch roll .... 3 months

2) Forming roll .... 6 months

*This should be checked most often and carefully. The roll should be removed and reground when the edge of covering rubber is found worn.