

North Carolina Department of Environment, Health, and Natural Resources  
 Division of Environmental Health, Public Water Supply

# SOURCE INFORMATION GROUND WATER

Date Form Completed

M M D D Y Y  
 0 1 2 4 9 5

PWSID  
 0467041

Owner Assigned source Code: 622 Well Name (If purchase, name of system): HASNOT POINT 622

Code: G  
 G=Ground  
 W=Purchase/G  
 Y=G w/direct influence  
 Z=W w/direct influence

If Purchase, seller ID#:          Source Begin Date:          Source exempt—SWTR?  Y  N Direct Influence Date:         

Availability: P  
 P=Permanent  
 E=Emergency  
 S=Seasonal  
 I=Interim  
 O=Other

Location of well within the system (If purchase, location of master meter):  
STONE STREET

Latitude (N): 344233.7 Longitude (W): 0772118.1 How Determined: G GPS Data: Q2 No. of Sats. Locked on: 3  
 G=GPS, M=Map, S=Surveyed; Q=# or DOP #

(If purchase, use seller's primary source lat/long)  
 Vulnerable (VOCs):  Y  N Assessment Date:         

## ENTRY POINT INFORMATION

Owner Assigned Entry Point Code: 100 Use Code: C Availability: P  
 C=Ground/Permanent, D=Ground/non-permanent; P=Year-round, S=Seasonal, E=Emergency, I=Interim, O=Other  
 Entry Point Name: HP 622 WEA HASNOT PT WTP

Location: \_\_\_\_\_  
 Well Site: Owned or controlled? Y (Y,N) Control Area (100' radius): NO (Y,N) If no, explain: \_\_\_\_\_  
 Sources of pollution/distance: STREET @ 50'

Surface water within 200'?  Y  N If yes, actual distance          feet If yes, bact. samples collected?          (Y,N)  
 Adequate slope? Y (Y,N) Flooding? N (Y,N) Maintenance: OK

Well House: Free of stored materials? Y (Y,N) Properly drained? Y (Y,N) Locked? Y (Y,N)  
 Condition of house: OK Type of freeze protection: Elec heat

Well: Diameter: 8" Type: SCREENED Yield (gpm): 310 Properly sealed? Y (Y,N)  
 Properly vented? Y (Y,N) Casing depth 50 ft. (If unknown, put 'UNK') Well depth: 327 Meter available? Y (Y,N)  
 Concrete slab adequate? Y (Y,N) If no, explain: \_\_\_\_\_ Size: 268E

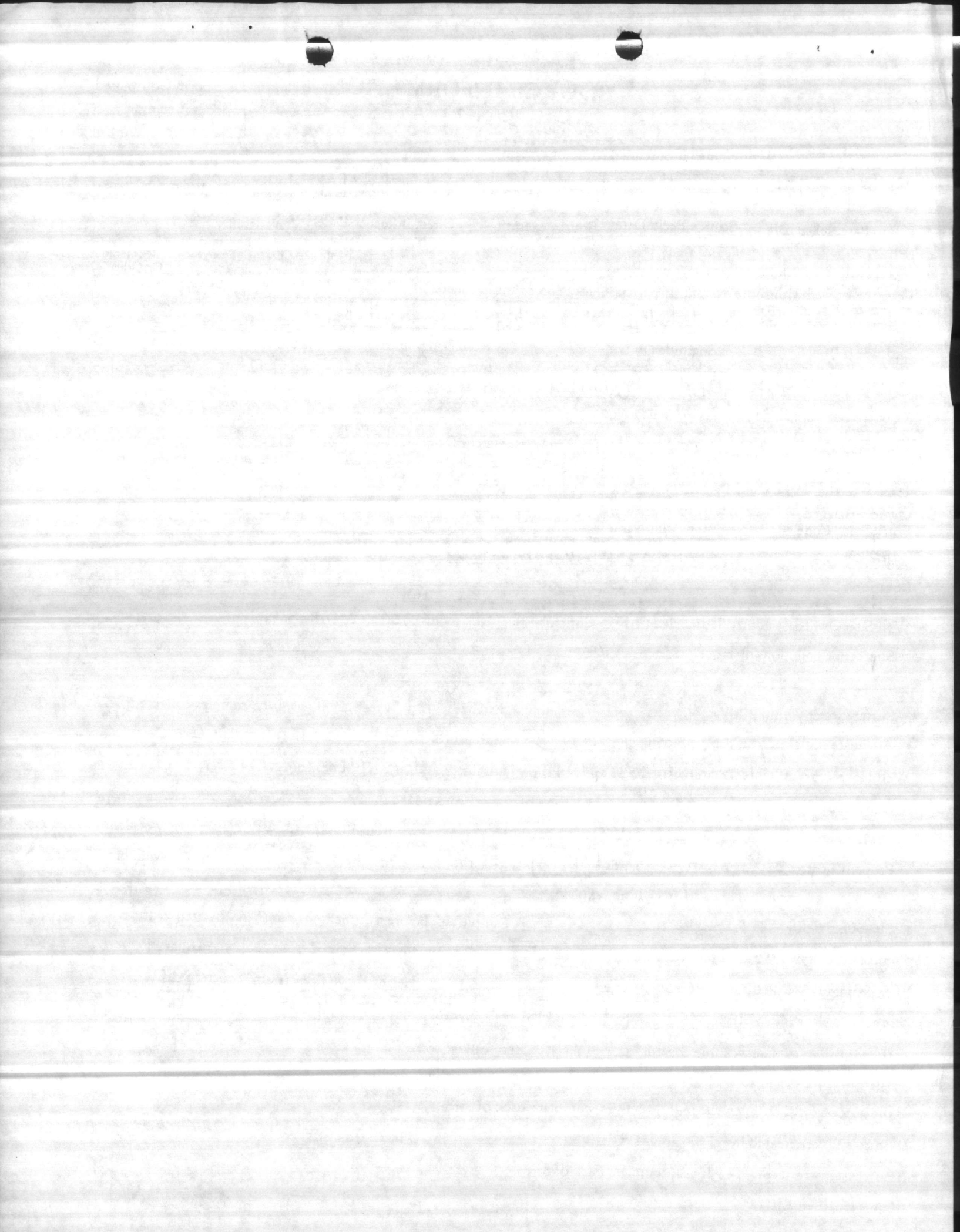
Size of blow-off: 4" (V) Sample tap: Before treatment? Y (Y,N) After treatment?          (Y,N)  
 Pumps: Capacity: GPM: 300 HP: 15 Pump intake depth: 227 Auxiliary Power? Y (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 12'  
 Storage at well site: Elev:          Hydro:          Ground:         

If hydroautomatic, air volume control?          (Y,N) Safety valves?          (Y,N) Coded?          (Y,N)  
 High service pumps: 1.          gpm          hp 2.          gpm          hp 3.          gpm          hp Auxiliary Power? Y (Y,N)  
 Is the water treated at this well?  Y  N If yes, complete back of form.

If other wells are treated here, which ones? \_\_\_\_\_ If treated elsewhere, where? HP-20 PLANT

If purchase, retreat?  Y  N If yes, complete back of form. ① spill containment for aux genset fuel  
② 12' x 12' (well not in center of slab)



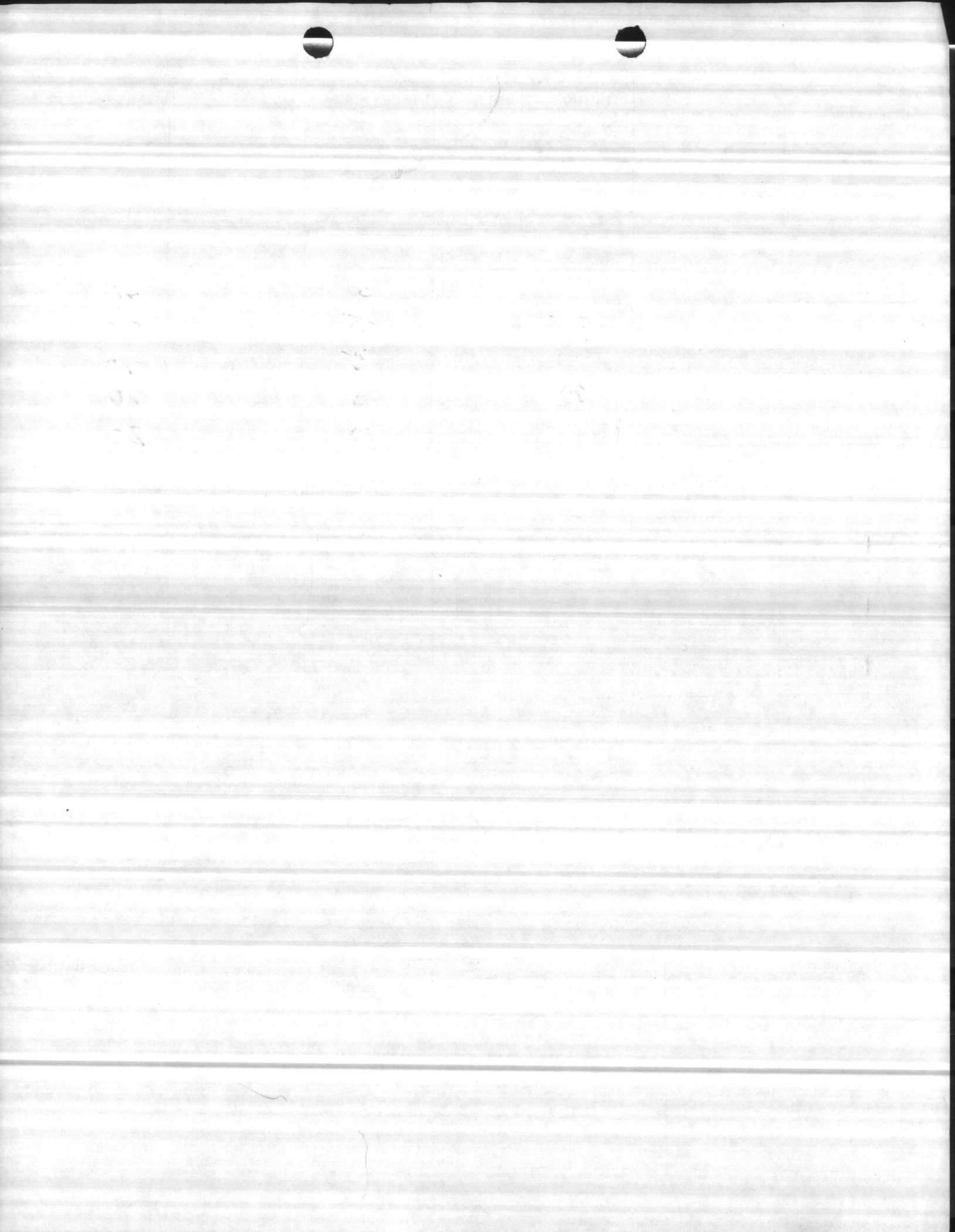


WELL NUMBER 022		BY SACS			DATE 3-20-01	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
90	20	25	05	115	100	00
		30	10	105	149	10
		40	20	95	159	20
		45	25	85	192	30
		50	30	75	221	40
		55	35	65	244	50
		60	40	55	267	60
		68	48	45	284	10
		73	53	40	293	20

REMARKS

D/H 130

ANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE



DATE 7-25-00

PWSID 04-67-041

WELL # HP 622

WELL NAME HADNOT POINT HP20

BLDG. HP 622

CODE S.

AVAILABILITY P.

LOCATION STONE STREET.

LATITUDE 34.70938

LONGITUDE 77.35514

WELL DIAMETER 8"

WELL DEPTH 227'

SCREEN INTERVAL \_\_\_\_\_

YIELD 310

STATIC LEVEL 22'

PUMPING LEVEL 78'

PUMP TYPE VERTICAL TURBINE

MOTOR HP 15

INTAKE DEPTH 80'

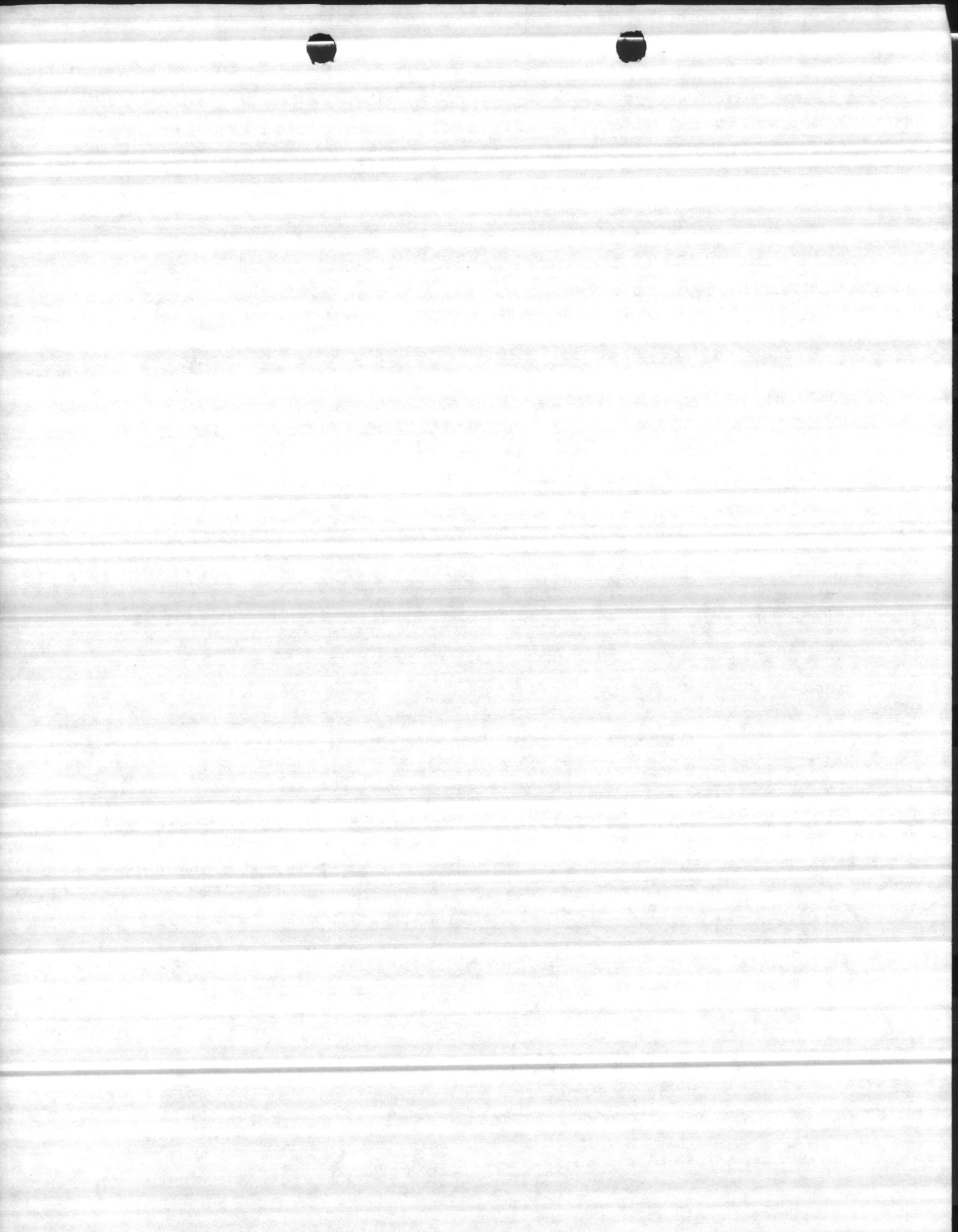
DESIGN CAPACITY 300

ACTUAL GPM 310

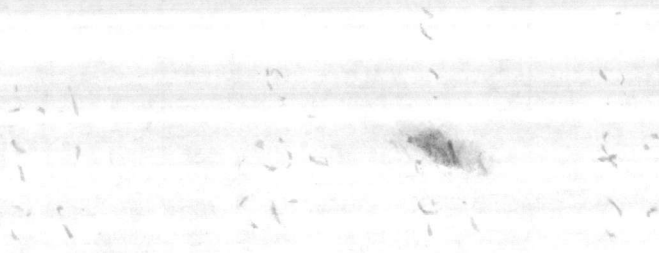
SIZE OF CONCRETE SLAB 7' 6x6

HEIGHT OF CASING 12"



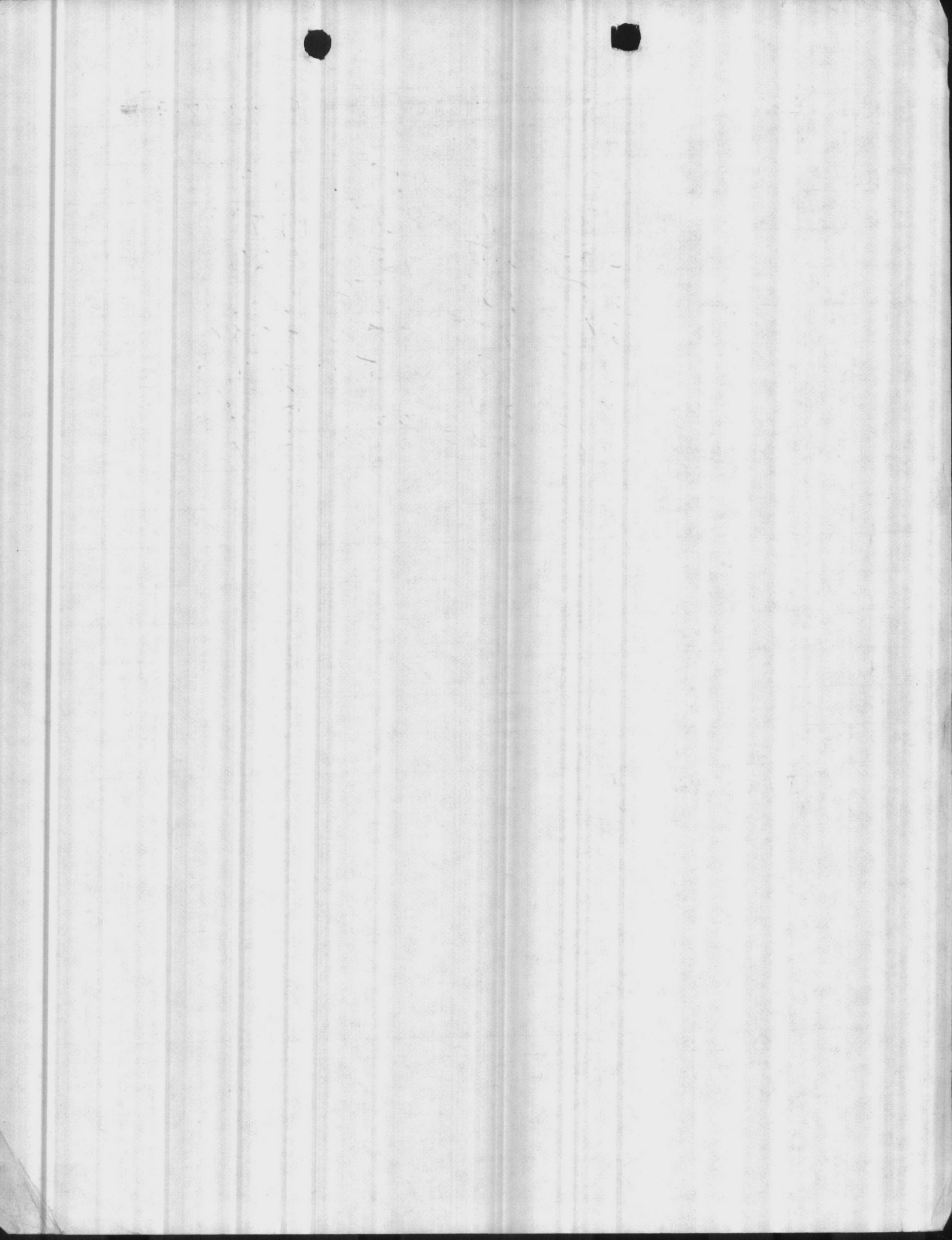






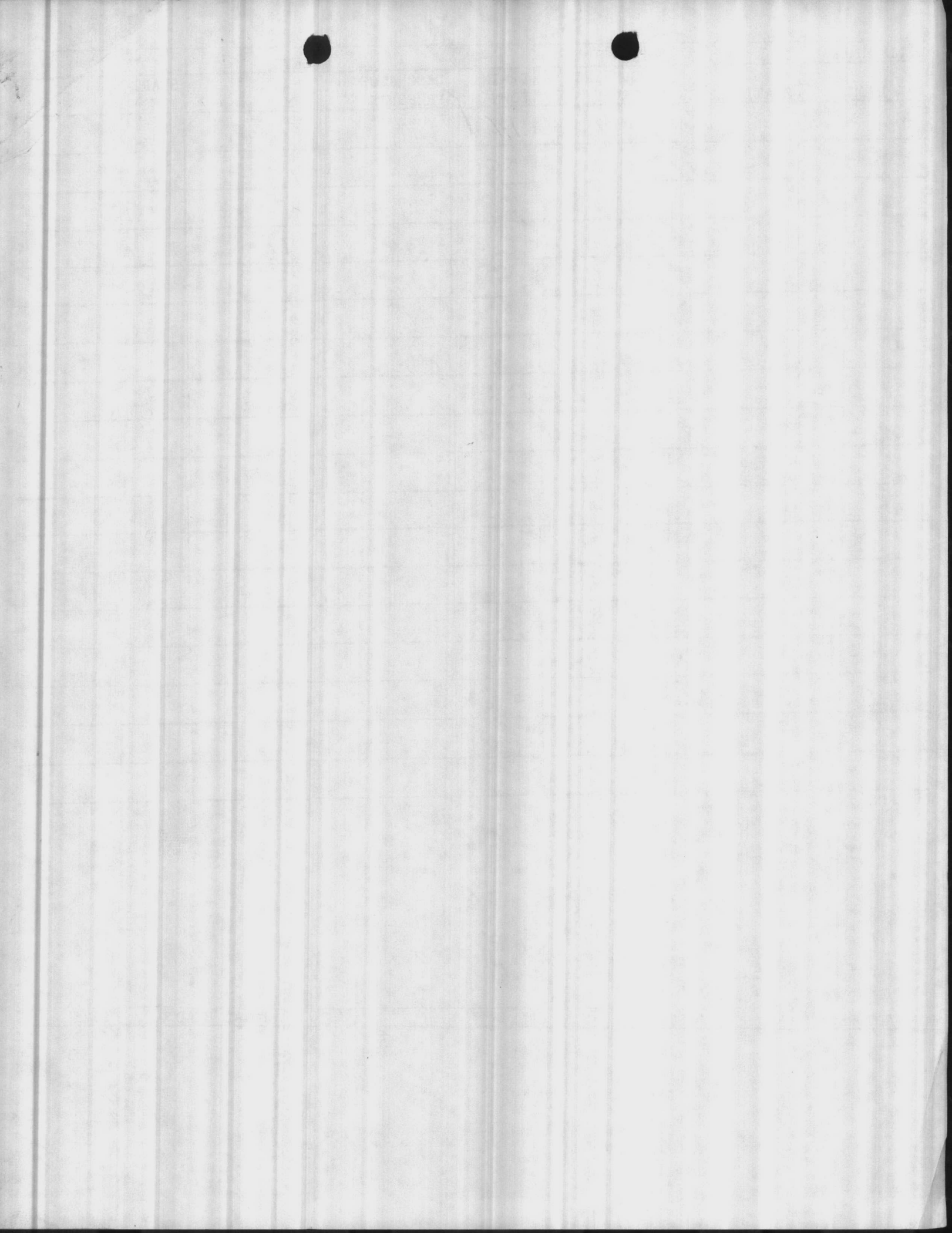




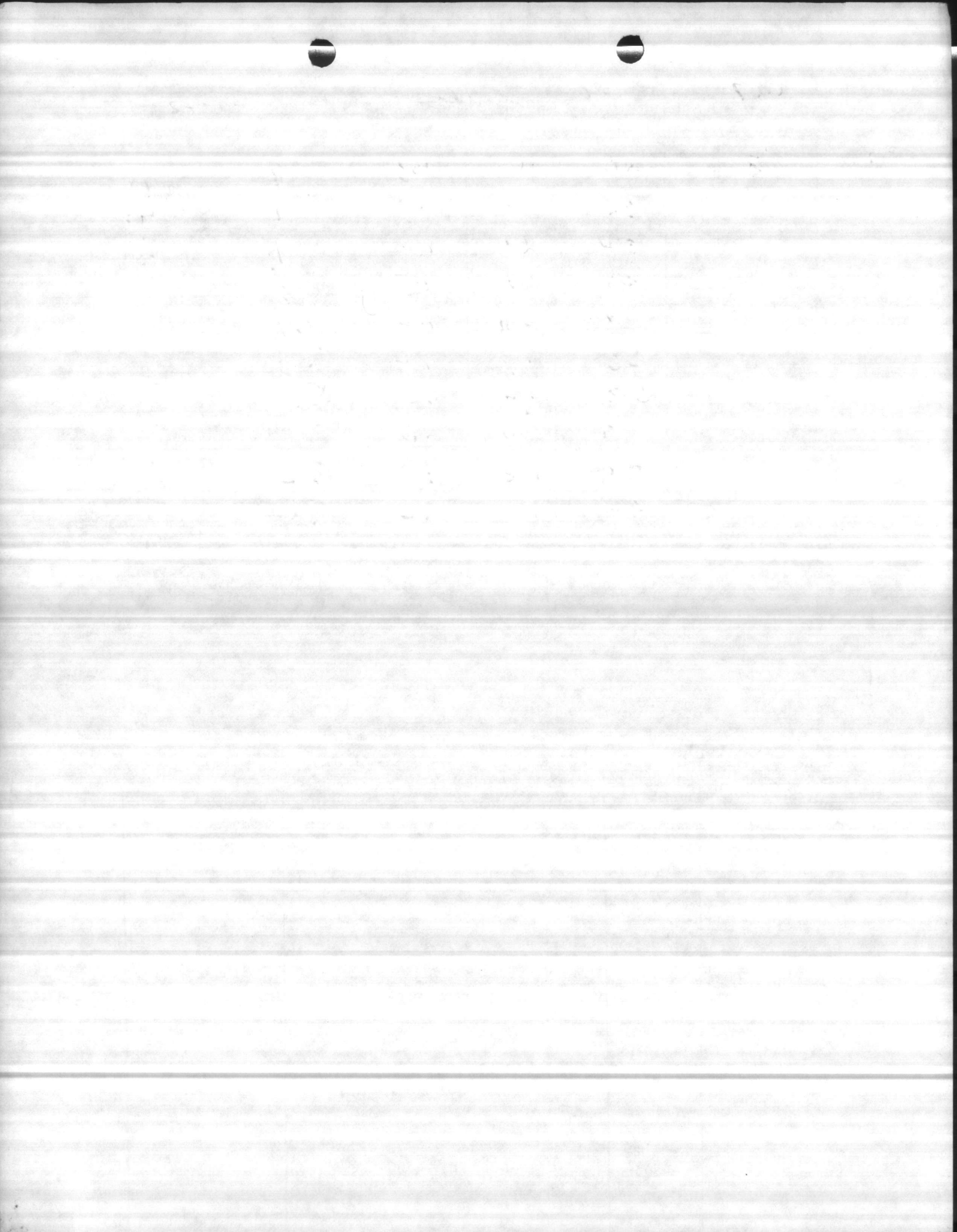












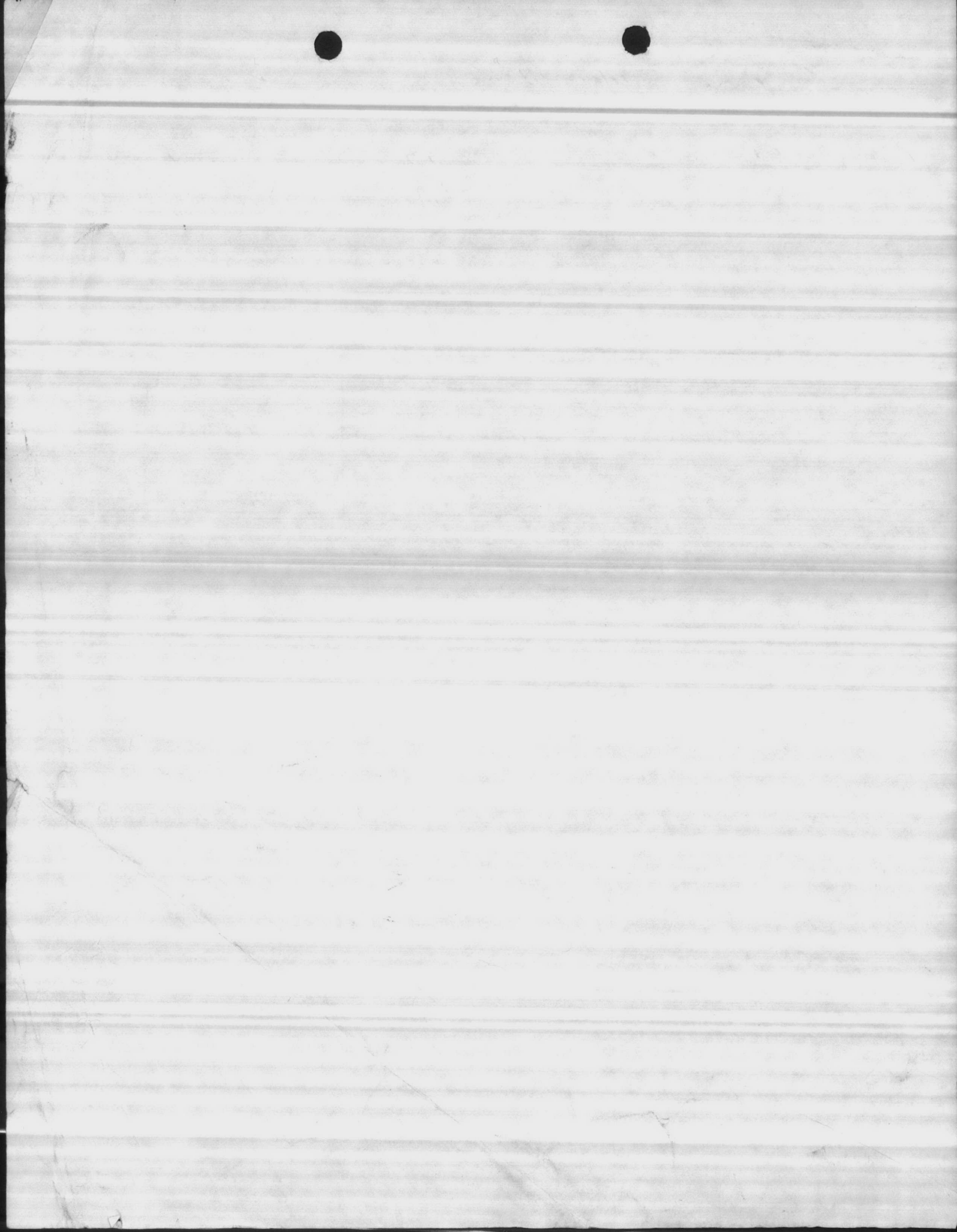


WELL NUMBER		BY			DATE	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
622		THOMAS BARONIS			5-2-88	
90	18	40	22	98	155	
		46	28	90	185	
		53	35	80	218	
		58	40	70	240	
		62	44	60	258	
		65	47	50	275	
		68	50	40	290	
		71	53	35	300	

REMARKS

dead head @ 126  
 left net @ 40 PSI

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE



8 WATER WELLS - MARINE CORP. BASE - Camp Lejeune

No.	LOCATION	Pump Data		Motor HP	Casing Dia	6" Dia	V. Depth	1st Screen Setting	2nd Screen Setting	3rd Screen Setting	4th Screen Setting	5th Screen Setting	Ft. to Water		Pump Rate GPM
		Model	Size										Static	Dynamic	
11	Barkley Manor	8MS	8"	20	20	70	45	65-75	115-135	132-137	—	—	35	49	300
14	Stone Street	8MS	8"	20	20	80	44	106-100	150-170	217-227	—	—	15	80	300
14	4006 MIDWAY PARK	8HL	8"	30	40	80	42	90-114	116-134	—	—	—	25	70	450
21	PINEY GREEN RD	8MS	6"	15	20	70	40	60-70	125-135	160-170	220-230	—	18'-2"	54'-9"	200
27	SNEEDS FERRY RD	8MS	6"	15	20	70	40	50-65	87-102	125-135	—	—	14	44	175
R 227	RIFLE RANGE	8HL	8"	25	40	80	35	190-210	223-233	242-247	—	—	23	58	300
638	TARAWA TERRACE	8MS	6"	15	20	85	35	70-95	132-142	—	—	—	27	63	160
39	SNEEDS FERRY RD	8MS	6"	15	20	70	42	121-131	134-146	185-195	215-220	225-230	4	96	200

these wells — 10-10-84





# CONSOLIDATED PUMP & EQUIPMENT, INC.

DISTRIBUTORS AND MANUFACTURER REPRESENTATIVES • WATER & WASTE WATER TREATMENT  
POST OFFICE BOX 3188 • ROCK HILL, SOUTH CAROLINA 29730 • 803/328-1891

March 28, 1983

## SUBMITTAL DATA

JOB:

Replace Water Wells  
Camp Lejeune, N. C.

Engineer:

Peirson & Whitman, Inc.

Contractor:

East Coast Construction Co.

Material Submitted:

- 8 - Jacuzzi Model 15-SMSA6 Verticle Turbine Pump consisting of 6 stage 8MS pump head, 10' - 6" suction pipe with cone strainer, 100' - 6" discharge column, 1" drive shaft, model L6A discharge head, model S-20 Combination Right Angle Gear Drive, 1 : 1 Ratio, and 15 HP V. H. S. motor.

Conditions of service 200 GPM @ 190.5' TDH



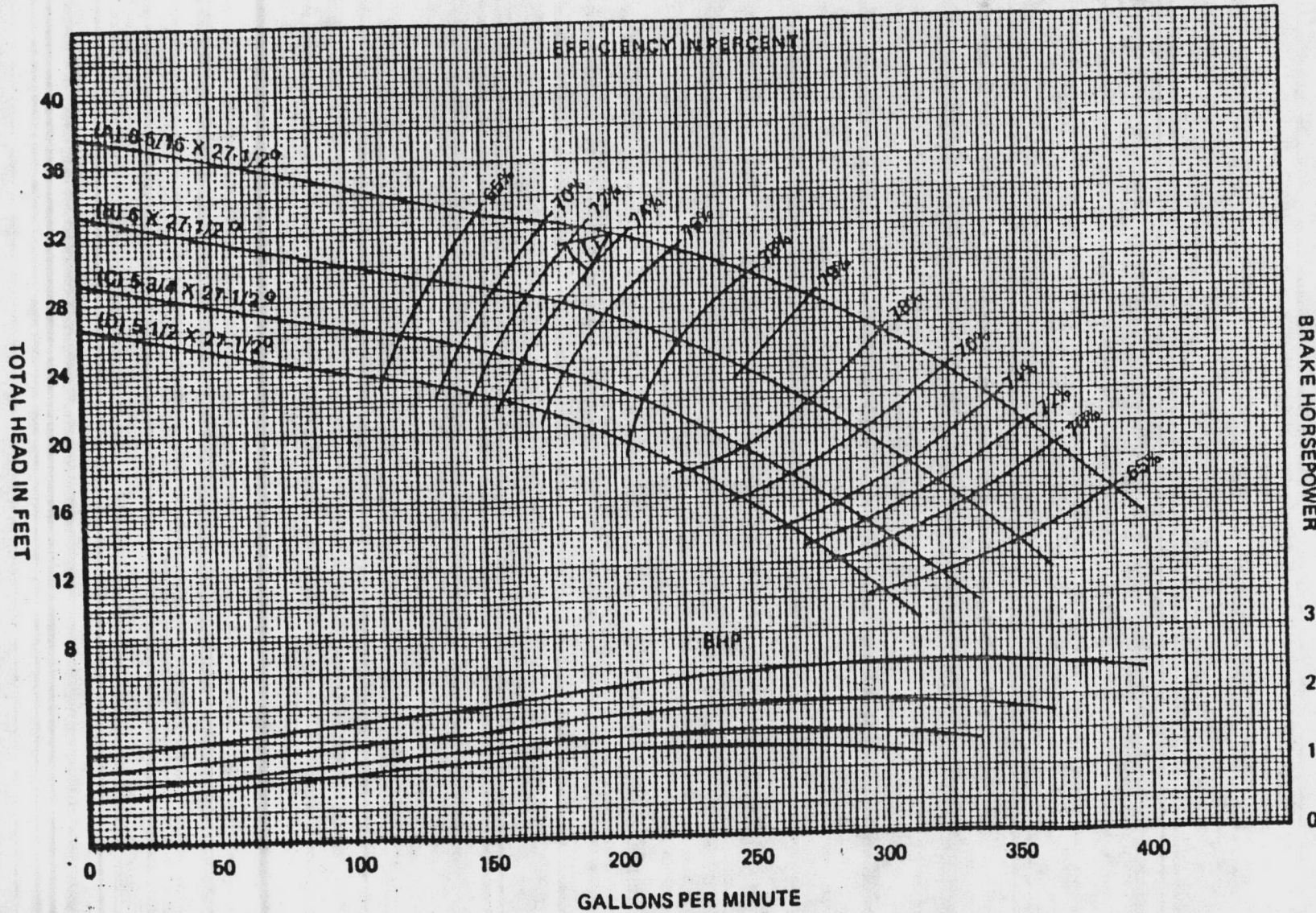


# TURBINE PUMP CURVE

MAY 15, 1970

SECTION  
2120

**BMS**



NUMBER OF BOWLS	CHANGE EFFICIENCY AS FOLLOWS
1	-4
2	-3
3	-2
4	-1

Change in efficiency may affect both head and horsepower

Bowl Dia.	7-1/2 In.
Bowl No.	3591-S, C.I., ENAM.
Impeller No.	3590, BRONZE
Eye Area	6.6 Sq. In.
Imp. Type	SEMI-OPEN K = 4.28

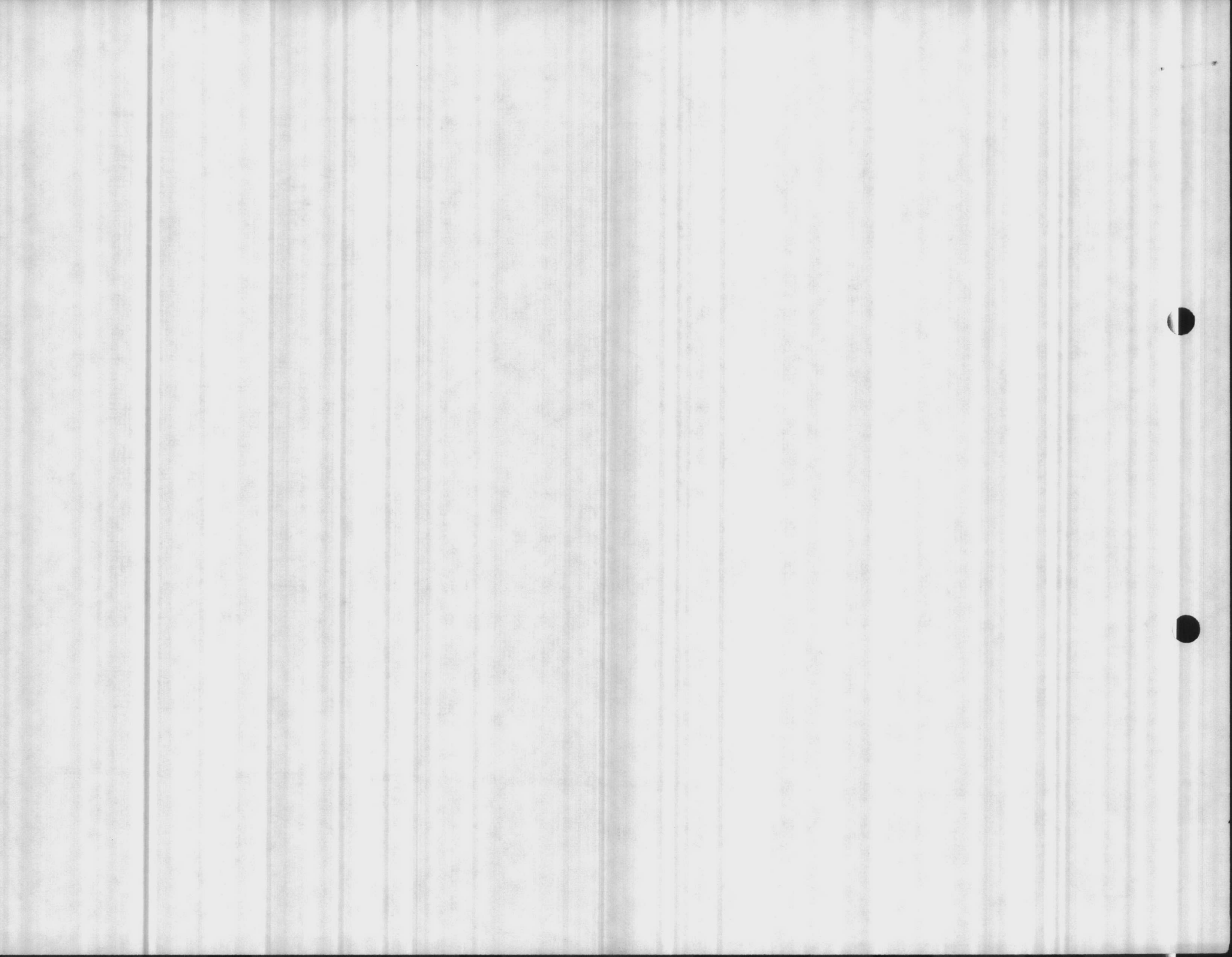
### STAGE PERFORMANCE

Curve No.	8M-172
R. P. M.	1760
Bowl	8MS

Performance based on pumping clear, fresh water at a temperature not over 85°F., and free of gas, air or abrasives, and with bowls properly adjusted and submerged.

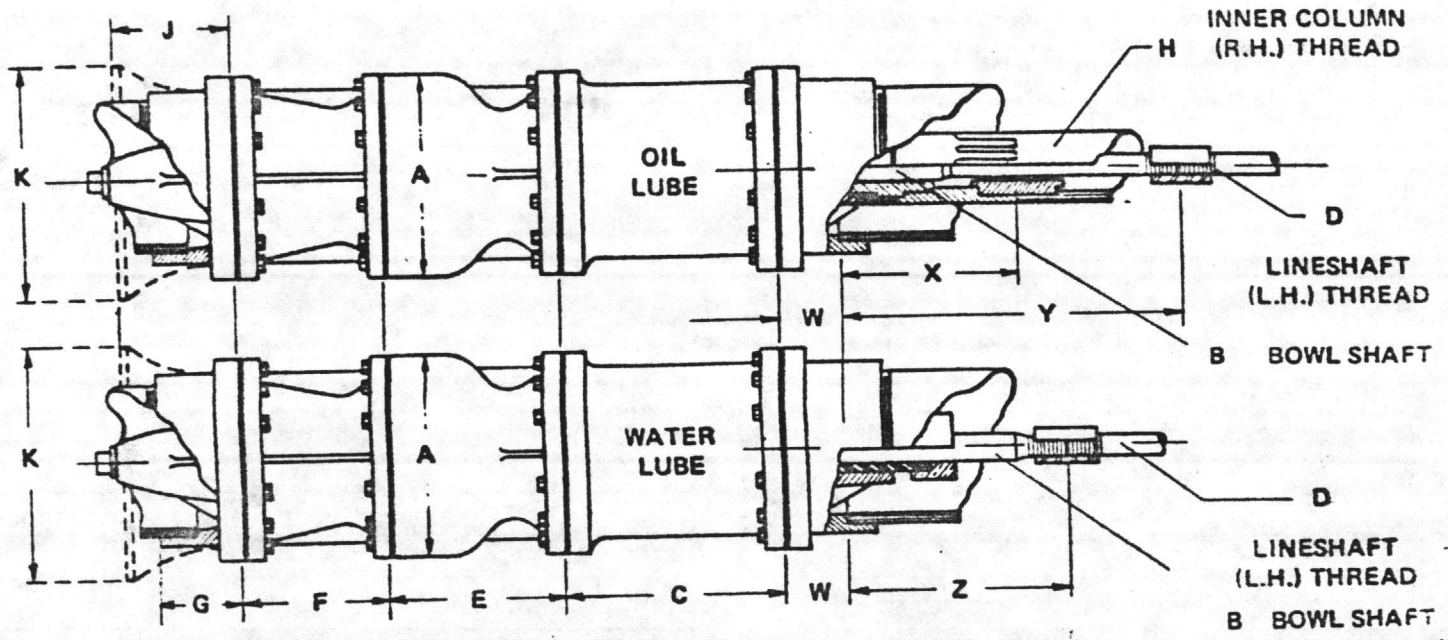
BRAKE HORSEPOWER

3  
2  
1  
0





## Turbine Bowl



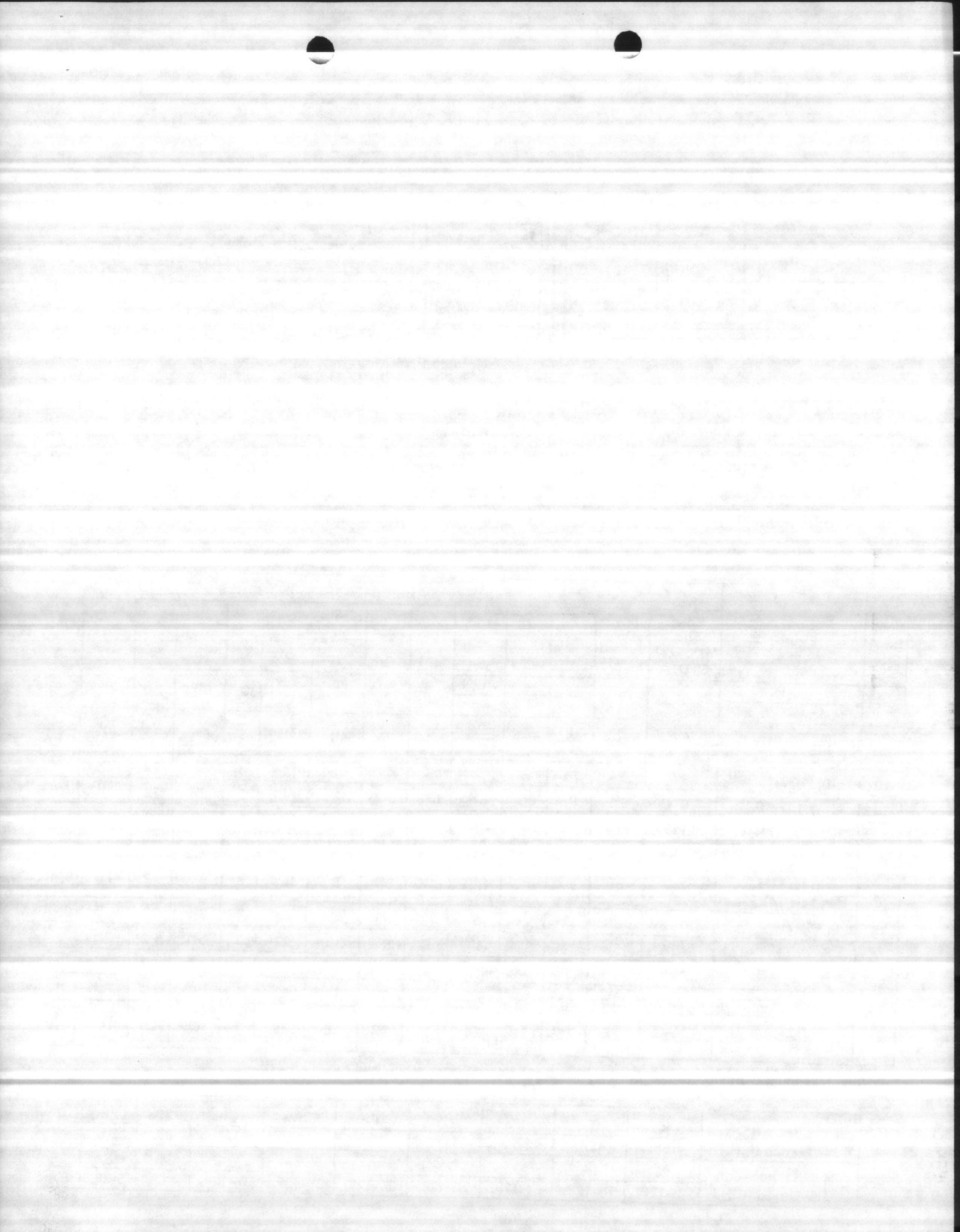
ALL DIMENSIONS IN INCHES.

Nom. Bowl Size	Bowl Figure Number	Bowl Dia. Max. O.D. STD. A	Bowl Dia. Turned ALT. A	B	C	E	F	Max. G	Suction Bell			O.L.			W.L. Z	Available Outer Column and Suction Pipe
									J	K	W	X	Y			
6	6J,6L	5 5/8		3/8	4 1/2	3 3/4	3 3/4	5	4	7 1/4	3	9 1/2	22	7 1/2	3, 4, 5	
	6M,6H,6X,6W,6Y			1		4 1/4										4
8	8J,8L,8K,8M,8H,8Y	7 7/8	7 1/2	1	6	5 5/8	4	5	4 1/2	9 1/4	3	9 1/2	22	7 1/2	4, 5, 6	
		7 1/2		1 1/8		7 1/2										4
10	10L,10M,10H	9 1/2	9 1/4	1 1/2	8	7	6	4 3/8	5 1/4	11 1/4	3	9 1/2	22	7 1/2	4, 5, 6	
10	10W,10Y,10Z	9 3/4	9 1/2	1 1/8	8 1/2	8 1/2	6 1/2	5 1/8	7	14 1/4	3	9 1/2	22	7 1/2	6, 8, 10	
12	12L, 12M, 12H, 12X	11 1/8	11 1/4	1 1/8	9	10 1/2	5 1/2	3 3/4	6	13 3/4	3	9 1/2	22	7 1/2	6, 8, 10	
12	12W	12 3/8	12	1 1/8	9	11 1/4	5 1/2	3 3/4	6	13 3/4	3	9 1/2	22	7 1/2	6, 8, 10	
14	14L,14M, 14H,14X	13 3/8	13 1/4	1 1/8	9 3/8	12 1/2	7 1/8	5 1/8	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12	
14	14W	14 1/8	13 3/4	1 1/8	9 3/8	13 1/4	7 1/8	5 1/8	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12	
16	ALL	15 1/2	15 1/4	1 1/8	9 3/8	15	8	6 3/8	10	22	3	9 1/2	22	7 1/2	10, 12	
20	ALL	19 1/4	19 1/4	1 1/8	14	18	12	6 3/8	12 1/2	27	3	9 1/2	22	7 1/2	12, 14	
24	ALL	23 3/4	23 3/4	2 1/8	20	21	14	3 3/8	14	32	1	16 1/2	29	14 1/2	12, 14, 16	
28	ALL	27	27	2 1/8	24	24	15	3 3/8	16	38	1	16 1/2	29	14 1/2	14, 16, 18	

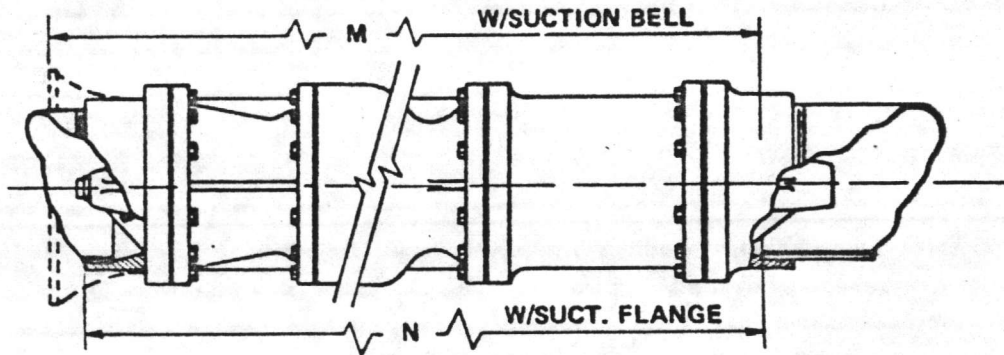
\* Note: Maximum Diameter for 24" Bowl is Discharge Column Flange at 25" and for 28" is 27 1/2".

D	Lineshaft Dia. & Pitch (L.H.)	3/8	1	1 1/8	1 1/2	1 3/4	2	2 1/4	2 3/4	3	3 1/4	3 1/2	4	5	5 1/2
		16P.	12P.	12P.	12P.	12P.	12P.	12P.	12P.	12P.	12P.	12P.	12P.	8P.	8P.
H	O.L. Inner Col. & Thread (R.H.)	1 1/4	1 1/2	2	2 1/2	3	3 1/2	3 3/4	4	5	5 1/2	6	6 1/2	7	7 1/2
		1 1/4-12P.	1 1/2-12P.	2-12P.	2 1/2-12P.	3-12P.	3 1/2-12P.	3 3/4-12P.	4-12P.	5-12P.	5 1/2-12P.	6-12P.	6 1/2-12P.	7-12P.	7 1/2-12P.



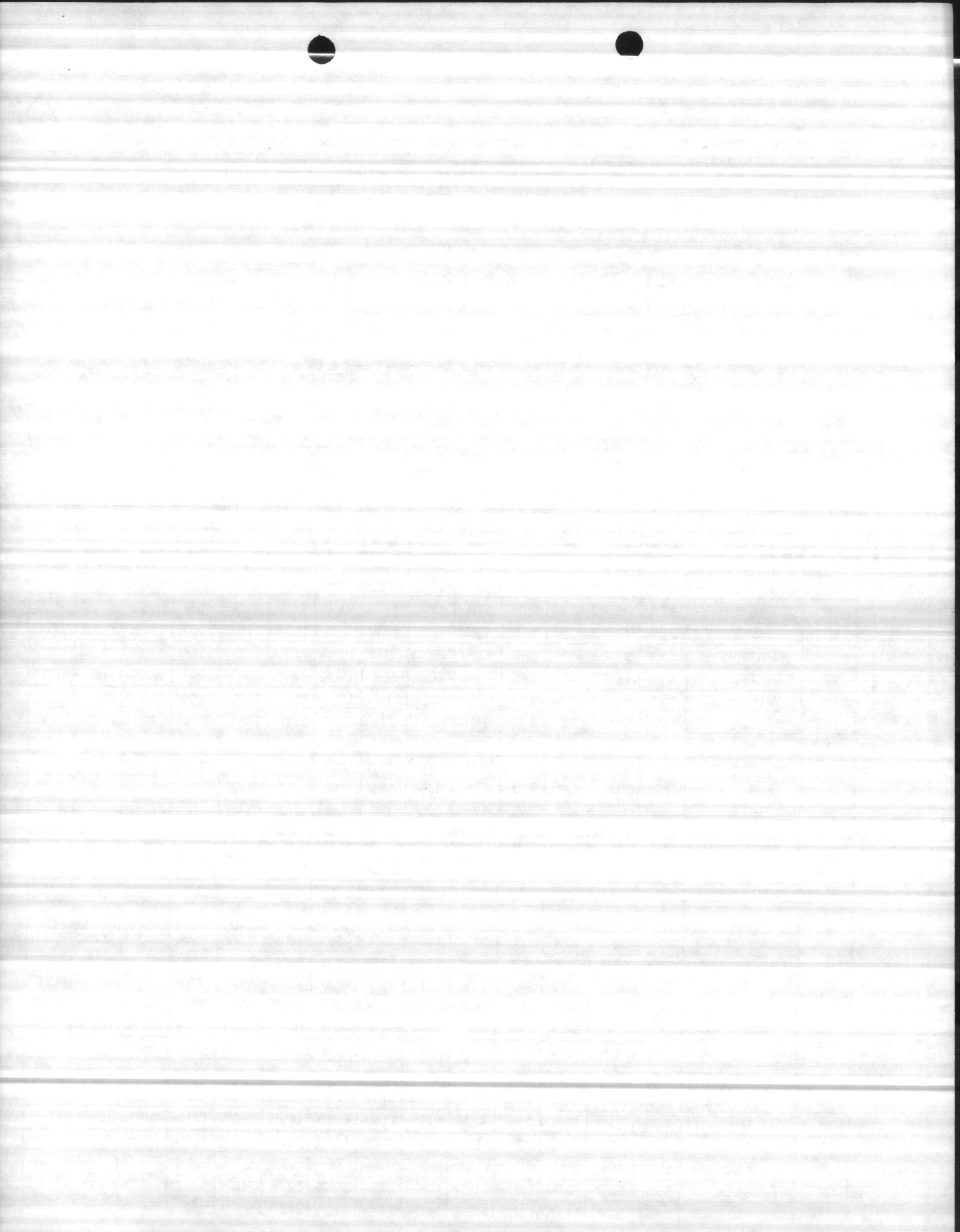


# Turbine Bowl



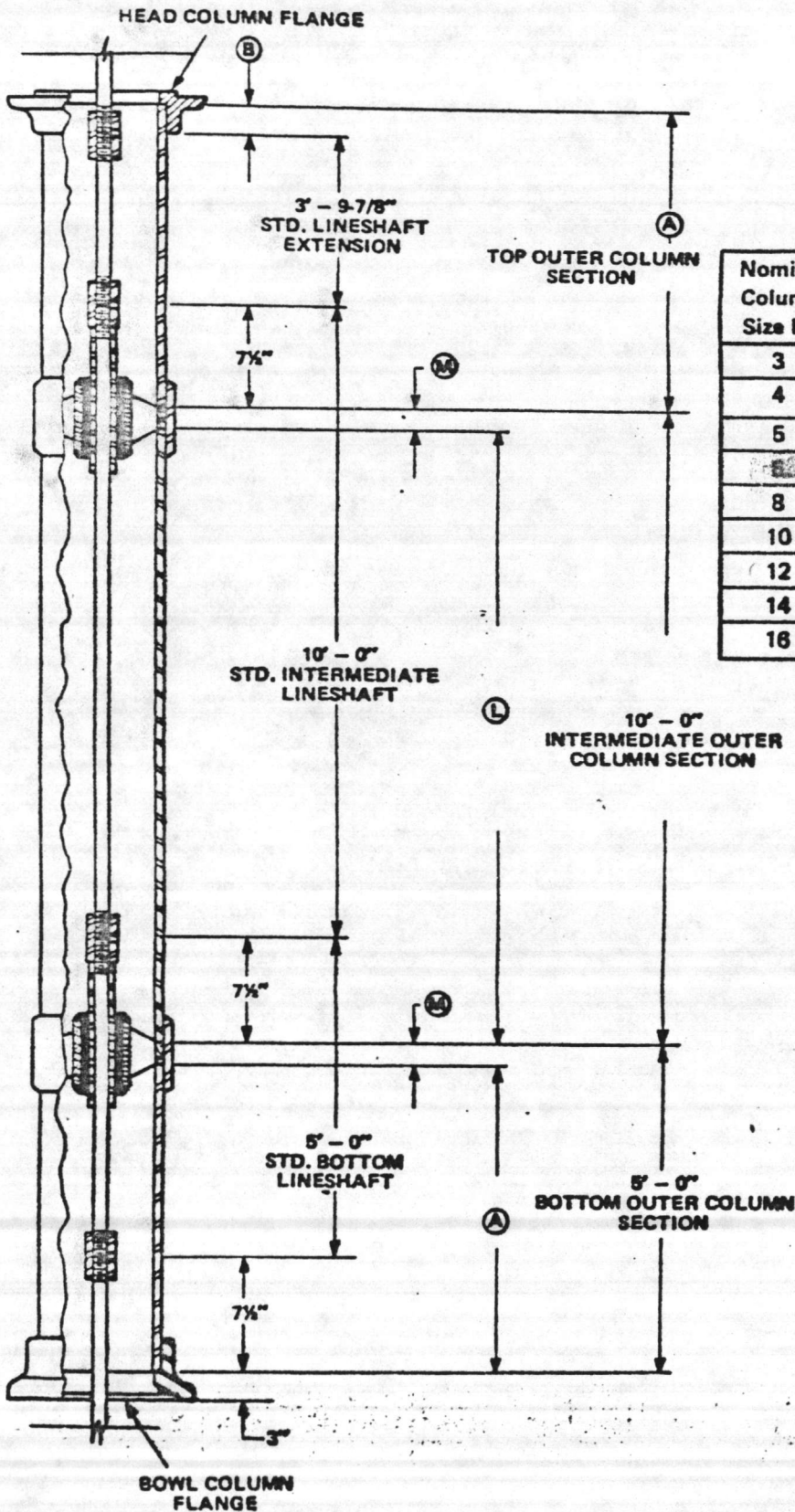
Nom. Bowl Size	Bowl Figure Number	(M) = BOWL ASSEMBLY LENGTH W/SUCTION BELL - INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	18½	22	25½	29	32½	36	39½	43	46½	50	53½	57	60½	64
	6M,H,X,W,Y	19½	24½	29½	34	38½	43½	48½	53	57½	62½	67½	72	76½	81½
	8J,8L,8K,8M,8H	23½	28½	34½	40	45½	51½	56½	62½	68½	73½	79½	85	90½	96½
8	8Y	25	32½	40	47½	55	62½	70	77½	85	92½	100	107½	115	122½
10	10L,M,H	29½	36½	43½	50½	57½	64½	71½	78½	85½	92½	99½	106½	113½	120½
10	10W,Y,Z	34½	42½	51½	59½	68½	76½	85½	93½	102½	110½	119½	127½	136½	144½
12	12L, M, H, X	33½	44½	54½	65½	75½	86½	96½	107½	117½	128½	138½	149½	159½	170½
12	12W	34½	45½	57	68½	79½	90½	102	113½	124½	135½	147	158½	169½	180½
14	14L,M,H,X	40½	53½	65½	78½	90½	103½	115½	128½	140½	153½	165½	178½	190½	203½
14	14W	41½	54½	68	81½	94½	107½	121	134½	157½	160½	174	187½	200½	213½
16	ALL	46	61	76	91	106	121	136	151	166	181	196	211	226	241
20	ALL	59½	77½	95½	113½	131½	149½	167½	185½	203½	221½	239½			
24	ALL	70	91	112	133	154	175	196	217	238	259				
28	ALL	80	104	128	152	176	200	224	248	272					

Nom. Bowl Size	Bowl Figure Number	(N) = BOWL ASSEMBLY LENGTH W/SUCTION FLANGE - INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	19½	23	26½	30	33½	37	40½	44	47½	51	54½	58	61½	65
	6M,H,X,W	20½	25½	30½	35	39½	44½	49½	54	58½	63½	68½	73	77½	82½
8	8J,8L,8K,8M,8H	23½	29½	34½	40½	46½	51½	57½	63	68½	74½	79½	85½	91½	96½
8	8Y	25½	33	40½	48	55½	63	70½	78	85½	93	100½	108	115½	123
10	10L,M,H	28½	35½	42½	49½	56½	63½	70½	77½	84½	91½	98½	105½	112½	119½
10	10W,Y,Z	33½	41½	50½	58½	67½	75½	84½	92½	101½	109½	118½	126½	135½	143½
12	12L, M, H, X	31½	42	52½	63	73½	84	94½	105	115½	126	136½	147	157½	168
12	12W	32½	44½	55½	67	78½	89½	100½	112	123½	134½	145½	157	168½	179½
14	14L,M,H,X	38½	51½	63½	76½	88½	101½	113½	126½	138½	151½	163½	176½	188½	201½
14	14W	39½	52½	65½	79½	92½	105½	118½	132½	145½	158½	171½	185½	198½	211½
16	ALL	42½	57½	72½	87½	102½	117½	132½	147½	162½	177½	192½	207½	222½	237½
20	ALL	53½	71½	89½	107½	125½	143½	161½	179½	197½	215½	233½			
24	ALL	59½	80½	101½	122½	143½	164½	185½	206½	227½	248½				
28	ALL	67½	91½	115½	139½	163½	187½	211½	235½	259½					





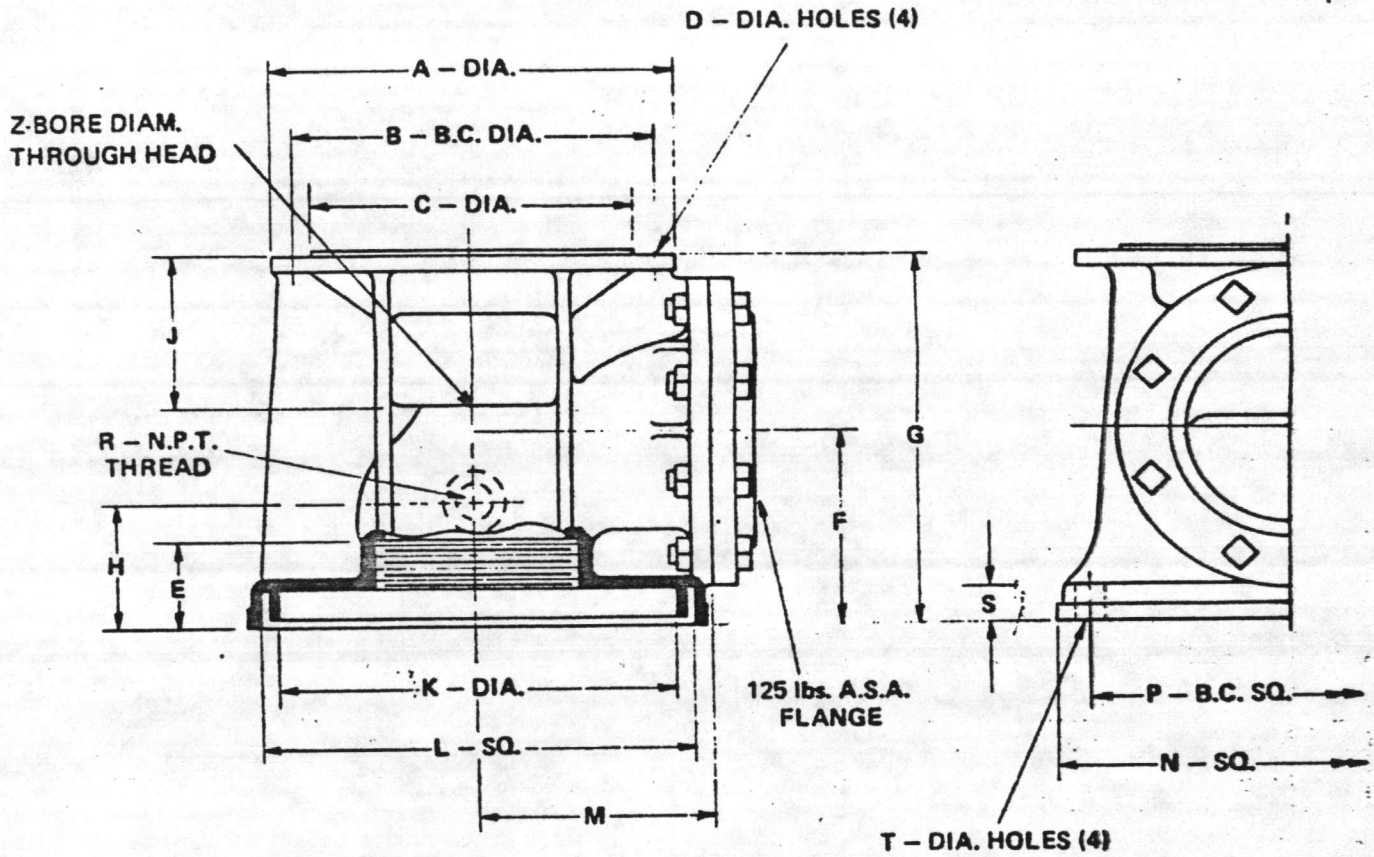
# Turbine Column – Water-Lube, Butt Joint



Nominal Column Size In.	A	B	L	M
3				
4	4'11 1/2"	6 1/4"	9'11 1/2"	1/2"
5				
8				
10	4'11 1/4"	5 1/4"	9'11 1/4"	3/4"
12				
14				
16				



# Cast, Standard Discharge Heads



Head Fig. No.	Max. Size (In.) Disch.	Inner Col. (In.)	Outer Col. (In.)	DIMENSIONS INCHES																	
				A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	Z
L5A	6	1½	5	10	9%	8%	¾	3%	8%	15%	4%	6%	14%	14%	8%	15%	13%	1	1%	¾	2%
L5AB																					3%
L6A	6	1½	8	10	9%	8%	¾	3%	8%	15%	4%	6%	14%	14%	8%	15%	13%	1	1%	¾	2%
L6AB																					3%
L8C	8	2	8	16%	14%	13½%	¾	3%	7%	15%	4%	6%	16%	17%	9%	18%	15%	1½	1½	1%	3%
L8CD																					3%
L10C	10	2½	10	16%	14%	13½%	¾	4%	9%	18%	5½%	6%	16%	18%	10%	19%	16%	1½	1½	1%	3%





# Water Lubricated Turbine Pump

## MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
1	Discharge Head	Cast Iron	ASTM A48 CL.30	
2	Head Column Flange	Cast Iron	ASTM A48 CL.30	
3	Head Column Flange Gasket	Asbestos		
4	Studs (Hd. Column Flange Assy)	Steel	C1137	
5	Nuts (Used W/Key No. 4 Head Column Flange Assy)	Low Carbon Steel	ASTM A-307	
6	Head Discharge Flange	Cast Iron	ASTM A-126	
7	Head Discharge Flange Gasket	Asbestos		
8	Discharge Flg. Assy. Cap Scr.	Steel	ASTM A-301	
9	Discharge Flg. Assy. Nuts (Used with Key No. 8)	Low Carbon Steel	ASTM A-307	
10	Head Dsch. Flg. Assy. Studs	Steel	C1137	
11	Head Dsch. Flg. Assy. Nuts (Used With Key No. 10)	Low Carbon Steel	ASTM A-307	
14	Head Packing Housing W/Brg. Includes Key No. 32	Cast Iron (Pkg. Hsg.)	ASTM A48 CL.30	
15	"O" Ring	Buna-N		
16	Head Packing Housing Cap Scr.	S. Steel	300 Series	
18	W/L Headshaft	S. Steel	AISI 316	
19	Headshaft Flinger	Neoprene		
20	Headshaft Adj. Nut	Steel	C-1213	
21	Hd. Pkg. Hsg. Sand Shield	Bronze	SAE 660	
22	Packing (Set)	Asbestos		
23	Packing Follower	Bronze	SAE 40	
25	Hd. Pkg. Housing Grease Fittings	Steel		
26	Packing Follower Studs	S. Steel	AISI 416	
27	Packing Follower Retn. Nuts	S. Steel	300 Series	
28	Adapter Flange	Cast Iron	ASTM A48 CL45	
29	Adapter Flange O-Ring	Buna-N		
30	Adapter Flg. Assy. Cap Screws	S. Steel	300 Series	
32	W/L Headshaft Bearing	Bronze	SAE 660	
33	Headshaft Gib Key	Steel		
34	Adj. Nut Machine Screw	S. Plated		
67	Shaft Coupling (Hd. Shaft, Line Shaft, Bowl Shaf.)	Steel	C1137	
68	Shaft Adapter Coupling Hd/Sht, L/Sht., Bowl/Sht	Steel	C1137	
69	O/C Coupling	Blk. Steel	ASTM A-120-57T Grade B	
76	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
77	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
78	W/L L/S Bearing Spider	Brass		
79	W/L L/S Bearing	Rubber		





June 1, 1974

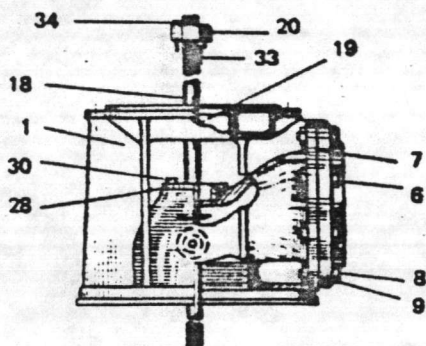
# Water Lubricated Turbine Pump

## MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

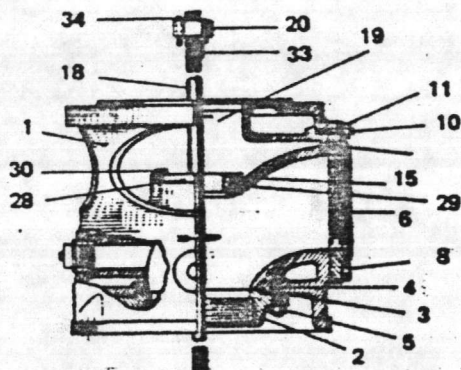
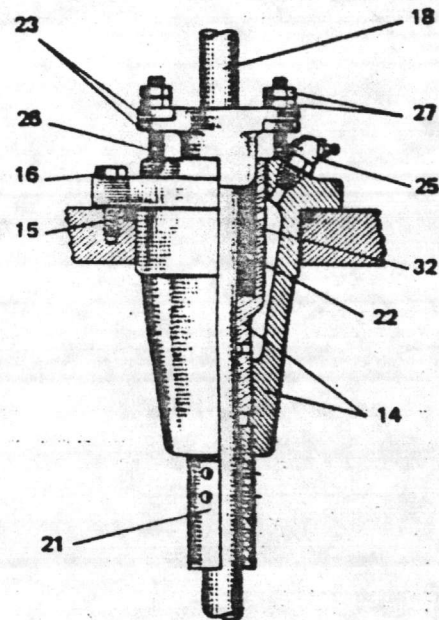
KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
80	W/L S/S Sleeve	S. Steel	304	
81	W/L L/S Extension 3' - 9 7/8" Lg.	Steel	C-1045	
82	W/S L/S Section (5' - 0" Lg.)	Steel	C-1045	
83	W/L L/S Section 10' - 0" Lg.	Steel	C-1045	
84	W/L Bowl Shaft	S. Steel	AISI 416	
90	W/L Discharge Housing Assy (Includes Key No. 91 & No. 92)	Cast Iron	ASTM A48 CL30	
91	W/L Upper Disch. Hsg. Brg.	Neoprene		
92	W/L Lower Disch. Hsg. Brg.	Neoprene		
93	W/L Disch. Hsg. Brg. Sand Cap	Bronze	SAE 40	
94	Sand Cap Set Screws (For K. No. 93)	S. Steel	300 Series	
103	Bowl Assy. (Closed Type) Includes Key No. 104	Cast Iron	ASTM A48 CL 30	
104	Bowl Bearing	Bronze	SAE 794	
105	Bowl Assy. (Semi-Open Type) Includes Key No. 104	Cast Iron	ASTM A48 CL30	
106	Impeller (Closed Type)	Bronze	SAE 40	
107	Impeller (Semi-Open Type)	Bronze	SAE 40	
108	Taper Lock	S. Steel	416 SS	
109	Brg. Stage Assy. (Closed Type) Includes Key No. 110	Cast Iron	ASTM A48 CL30	
110	Bearing Stg. Bearing	Bronze	SAE 660	
111	Brg. Stg. Assy. (Semi-Open) Includes Key No. 110	Cast Iron	ASTM A48 CL30	
112	Pipe Plug (For Key No. 109 & No. 111)	Galv. Steel		
113	Bearing Stage End Plug	Galv. Steel		
114	Bearing Stage Sand Cap	Bronze	SAE 40	
115	Sand Cap Set Screws (For K. No. 114)	S. Steel	300 Series	
116	Bowl Suction Flange	Cast Iron	ASTM A48 CL30	
117	Bowl Assy. Cap Screws	S. Steel	300 Series	
119	Suction Bell (Optional; Delete Key No. 116 if Suct. Bell is Used)	Cast Iron	ASTM A48 CL30	
152	W/L O/C Assy. T & C (Nom. 5' Lg.) (Assy of Key No. 69 & No. 76)	Black Steel	ASTM A-120-57T Grade B	
153	W/L O/C Assy T & C (Nom. 10' Lg.) (Assy of Key No. 69 & No. 77)	Black Steel	ASTM A-120-57T Grade B	



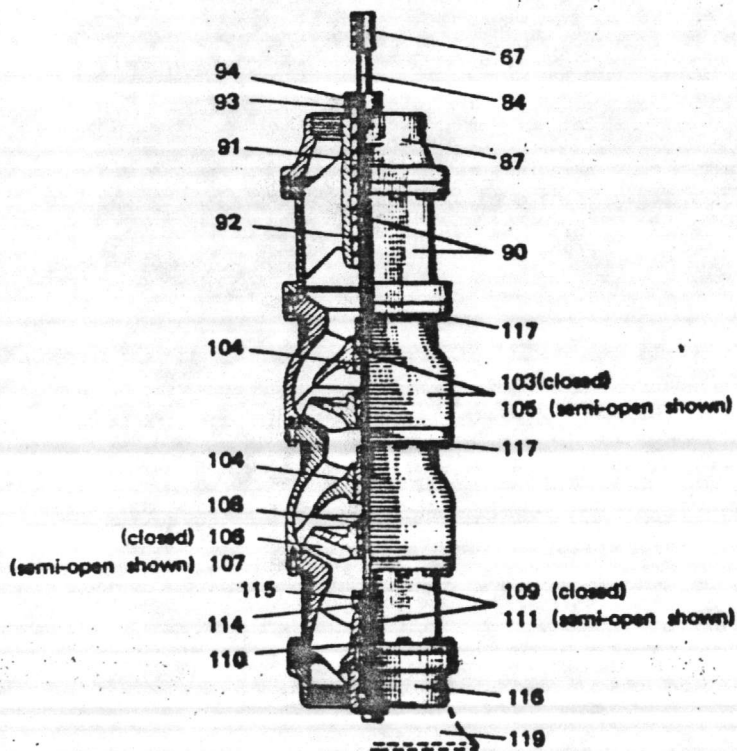
WATER LUBRICATED TURBINE PUMP PARTS DIAGRAM



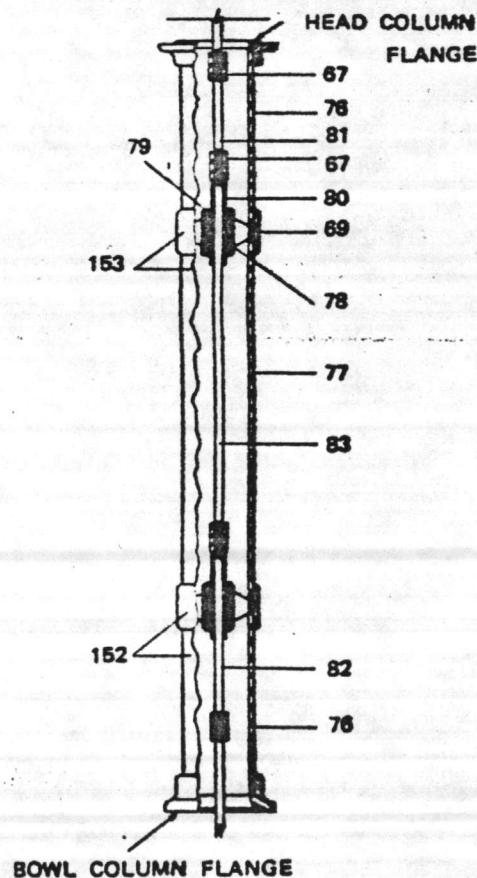
TYPICAL STANDARD HEAD



TYPICAL HEAVY DUTY HEAD

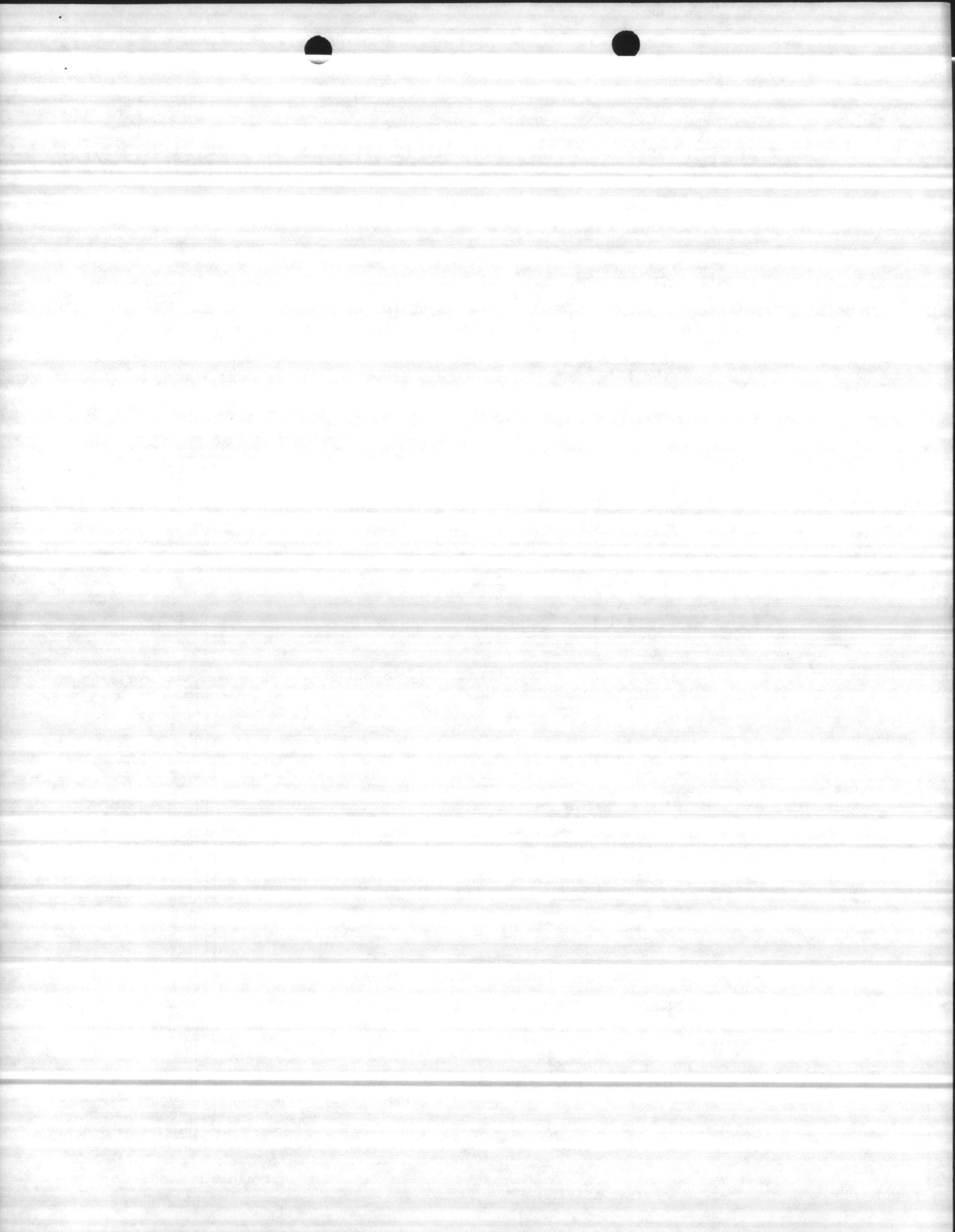


BOWL ASSEMBLY



BOWL COLUMN FLANGE





**TABLE 3**

NOTE: Drives that are rated at 1760 RPM vertical speed ARE NOT LIMITED to 1760 RPM. See Table 1.

MODEL	Vertical Shaft RPM	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS													
			HOLLOW SHAFT						SOLID SHAFT						COMB.	
			Type SL		Type S		Type SH		Type SSL		Type SS		Type SSH		Type C	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
20	1160	15	0	978	797	2358	797	3680	0	978	0	2358			0	2358
	1460	18	0	901	760	2173	760	3392	0	901	0	2173			0	2173
	1760	20	0	850	700	2050	700	3200	0	850	0	2050			0	2050
	3460	30	0	680	534	1640	534	2560	0	680	0	1640			0	1640
40	1160	30	0	1495	1138	3565	1138	5520	0	1495	0	3565			0	3565
	1460	35	0	1378	1055	3286	1055	5088	0	1378	0	3286			0	3286
	1760	40	0	1300	1000	3100	1000	4800	0	1300	0	3100			0	3100
60	960	39	0	2074	1490	5002	1490	7320	0	2074	0	5002			0	5002
	1160	45	0	1955	1422	4715	1422	6900	0	1955	0	4715			0	4715
	1460	53	0	1802	1331	4346	1331	6360	0	1802	0	4346			0	4346
	1760	60	0	1700	1250	4100	1250	6000	0	1700	0	4100			0	4100
80	960	52	0	3904	2085	6954	2085	11224	0	3904	0	6954			0	6954
	1160	60	0	3680	1991	6555	1991	10580	0	3680	0	6555			0	6555
	1460	70	0	3392	1846	6042	1846	9752	0	3392	0	6042			0	6042
	1760	80	0	3200	1750	5700	1750	9200	0	3200	0	5700			0	5700
100	960	66	0	3904	2101	7198	2101	11224	0	3904	0	7198			0	7198
	1160	75	0	3680	1991	6785	1991	10580	0	3680	0	6785			0	6785
	1460	88	0	3392	1856	6254	1856	9752	0	3392	0	6254			0	6254
	1760	100	0	3200	1750	5900	1750	9200	0	3200	0	5900			0	5900
125	720	68	0	5535	3135	7965	3135	12420	0	5535	0	7965			0	7965
	960	83	0	5002	2722	7198	2722	11224	0	5002	0	7198			0	7198
	1160	94	0	4715	2560	6781	2560	10580	0	4715	0	6781			0	6781
	1460	110	0	4346	2387	6254	2387	9752	0	4346	0	6254			0	6254
150	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0	9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0	8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0	7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
200	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0	9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0	8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0	7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
275	720	107	0	6750	3531	9180	3531	14243	0	6750	0	9180	0	14243	0	9180
	960	131	0	6100	3242	8296	3242	12871	0	6100	0	8296	0	12871	0	8296
	1160	150	0	5750	3072	7820	3072	12133	0	5750	0	7820	0	12133	0	7820
	1460	176	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
375	720	147	0	8100	3920	17213	3920	25650	0	8100	0	13973	3920	25650		
	960	180	0	7320	3600	15555	3600	23180	0	7320	0	12627	3600	23180		
	1160	206	0	6900	3410	14663	3410	21850	0	6900	0	11903	3410	21850		CONSULT FACTORY
	1460	241	0	6360	3169	13515	3169	20140	0	6360	0	10971	3169	20140		CONSULT FACTORY
450	580	172	0	8700	4871	27550	4871	36250	0	8700	0	15008	4871	27550		
	720	201	0	8100	4586	25650	4586	33750	0	8100	0	13973	4586	25650		
	960	246	0	7320	4209	23180	4209	30500	0	7320	0	12627	4209	23180		CONSULT FACTORY
	1160	281	0	6900	3979	21850	3979	28750	0	6900	0	11903	3979	21850		CONSULT FACTORY
600	580	207	0	8700	5583	27550	5583	36250	0	8700	0	15008	5583	27550		
	720	241	0	8100	5236	25650	5236	33750	0	8100	0	13973	5236	25650		
	960	295	0	7320	4807	23180	4807	30500	0	7320	0	12627	4807	23180		CONSULT FACTORY
	1160	337	0	6900	4545	21850	4545	28750	0	6900	0	11903	4545	21850		CONSULT FACTORY
750	580	275	0	11600	6259	36250			0	11600	0	15008	6259	36250		
	720	321	0	10800	5885	33750			0	10800	0	13973	5885	33750		
	870	367	0	10080	5568	31500			0	10080	0	13041	5568	31500		CONSULT FACTORY
	960	393	0	9760	5404	30500		CONSULT FACTORY	0	9760	0	12627	5404	30500		CONSULT FACTORY

Please see pages 13 and 14 for all information on Model 1200 Drives.

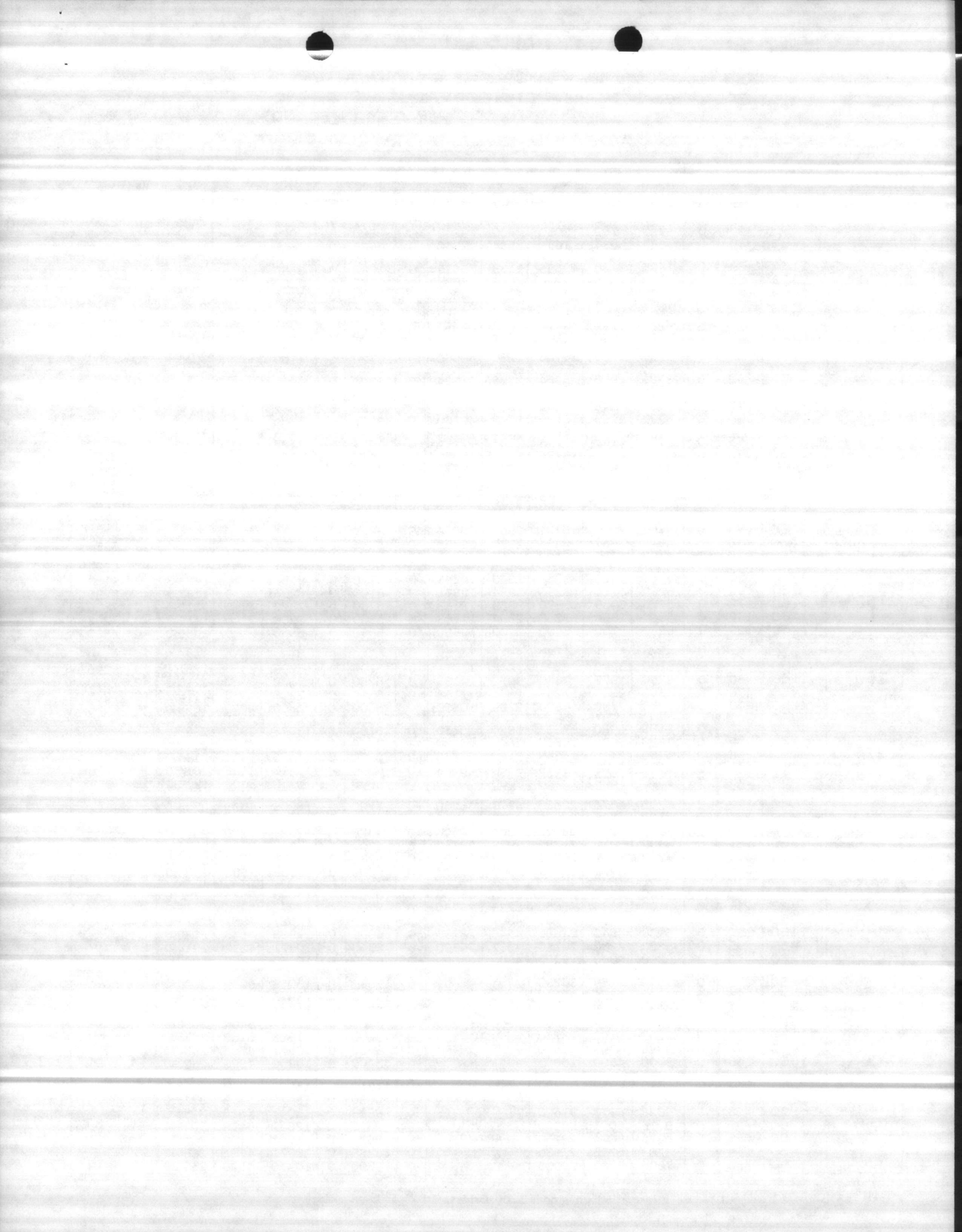




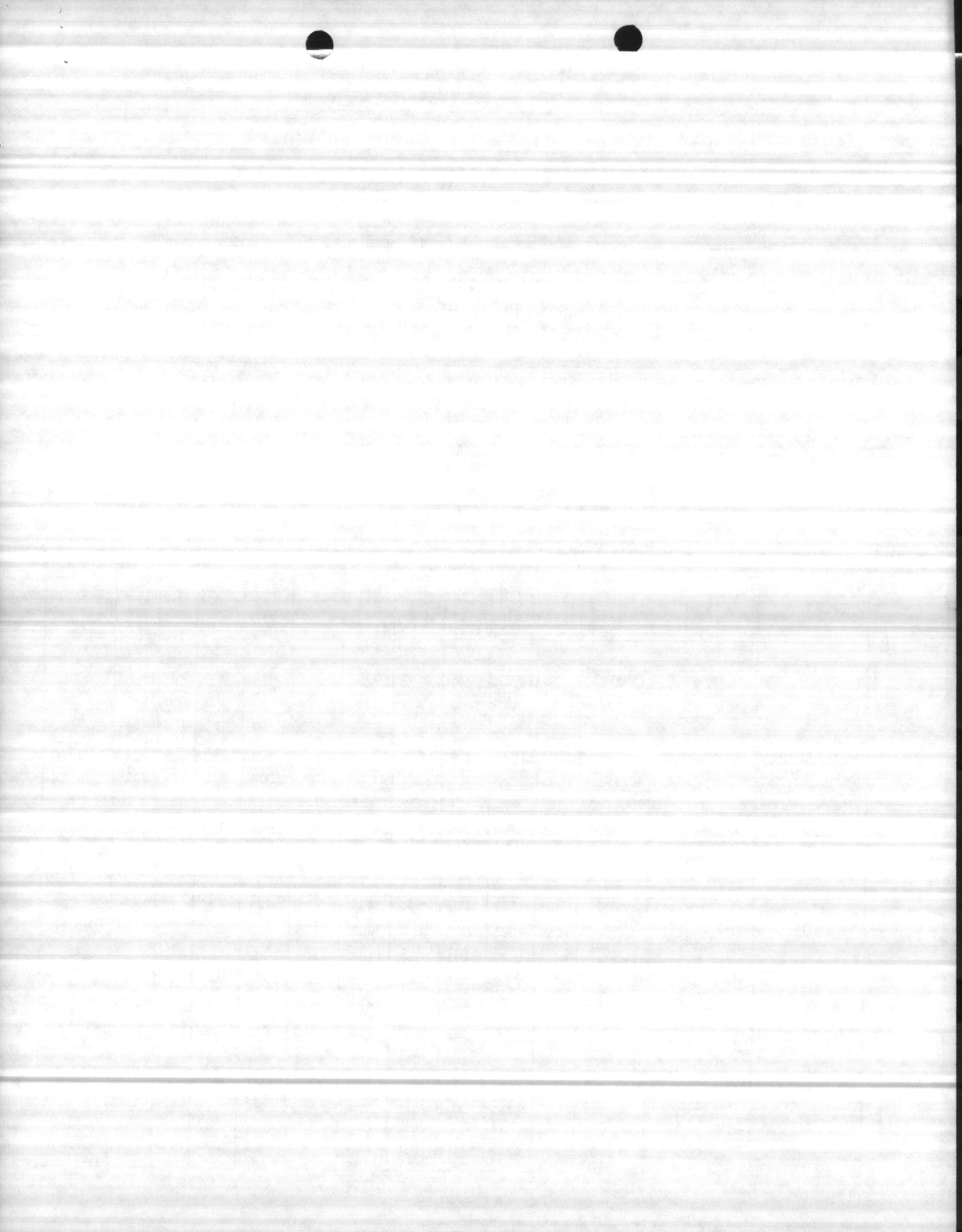
TABLE 4

NOTE: Drives that are rated at 1760 RPM vertical speed ARE NOT LIMITED to 1760 RPM. See Table 1.

MODEL	VERTICAL SHAFT RPM	ENGINE RPM											
		1:1	10:11	5:6	4:5	3:4	2:3	5:8	4:7	1:2	4:9	2:5	1:3*
20	1160	1160		967		870	773			580			387
	1460	1460		1217		1095	973			730			487
	1760	1760		1467		1320	1173			880			587
	3460	3460		2883		2595	2307			1730			1153
40	1160	1160		967		870	773		667	580			387
	1460	1460		1217		1095	973		840	730			487
	1760	1760		1467		1320	1173		1012	880			587
60	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
80	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
100	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
125	720	720	650	600	576	540	480						
	960	960	867	800	768	720	640						
	1160	1160	1048	967	928	870	773						
	1460	1460	1319	1217	1168	1095	973						
1760	1760	1590	1467	1408	1320	1173							
150	720	720	650	597	576	540	480		409	360	320	293	240
	960	960	867	796	768	720	640		545	480	426	391	320
	1160	1160	1048	960	928	870	773		659	580	516	473	387
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	487
1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	587	
200	720	720	650	597	576	540	480		409	360	320	293	
	960	960	867	796	768	720	640		545	480	426	391	
	1160	1160	1048	960	928	870	773		659	580	516	473	
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	
1760	1760	1590	1458	1408	1320	1173		1000	880	782	717		
275	720	720	656	623	576	540	480	450	409	352	318	291	
	960	960	875	830	768	720	640	600	546	470	425	388	CONSULT FACTORY
	1160	1160	1058	1003	928	870	773	725	660	568	513	468	
	1460	1460	1331	1263	1168	1095	973	913	830	715	646	590	
1760	1760	1605	1522	1408	1320	1173	1100	1000	862	778	711		
375	580	580	529	502	464	439	392	363	330	284			
	720	720	656	623	576	545	486	450	409	352			
	960	960	875	830	768	726	648	600	546	470			
	1160	1160	1058	1003	928	875	783	725	660	568			
1460	1460	1331	1263	1168	1105	985	913	830	715				
1760	1760	1605	1522	1408	1332	1188	1100	1000	862				
450	580	580	529	502	461	439	392	363	330	284			
	720	720	656	623	573	545	486	450	409	352			
	960	960	875	830	764	726	648	600	546	470			
	1160	1160	1058	1003	923	878	783	725	660	568			
1460	1460	1331	1263	1161	1105	985	913	830	715				
1760	1760	1605	1522	1400	1392	1188	1100	1000	862				
600	580	580			461	432	383	360	327	285			
	720	720			573	536	475	447	406	353			
	870	870			692	648	574	539	490	427			
	960	960			764	715	634	595	541	471			
1160	1160			923	864	766	719	654	569				
1460	1460			1161	1087	964	905	823	717				
1760	1760			1400	1311	1162	1091	992	864				
750	580	565		486		429	383		327	276			
	720	700		603		533	475		406	342			
	870	846		729		643	574		490	414			
	960	933		804		710	634		541	456			
1160	1128		972		858	766		654	551				
1460	1421		1223		1080	963		823	694				
1760	1712		1475		1302	1162		992	837				

\*Model 20 1:3 ratio not available with Figure 2 or Figure 3 rotation.

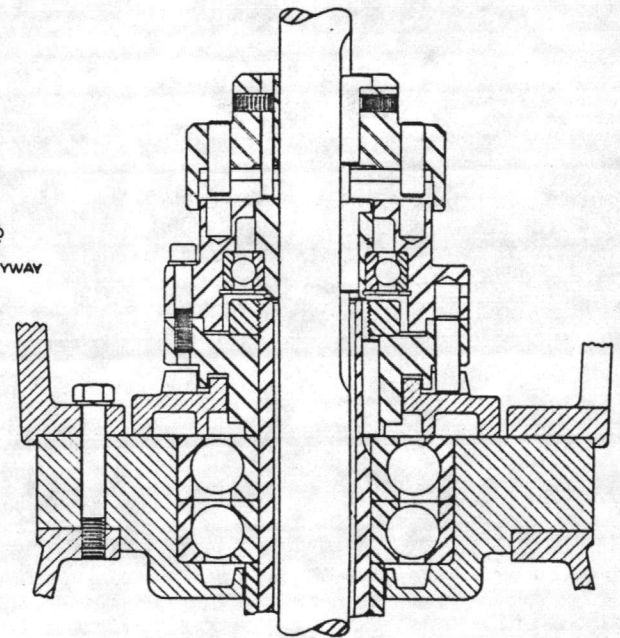
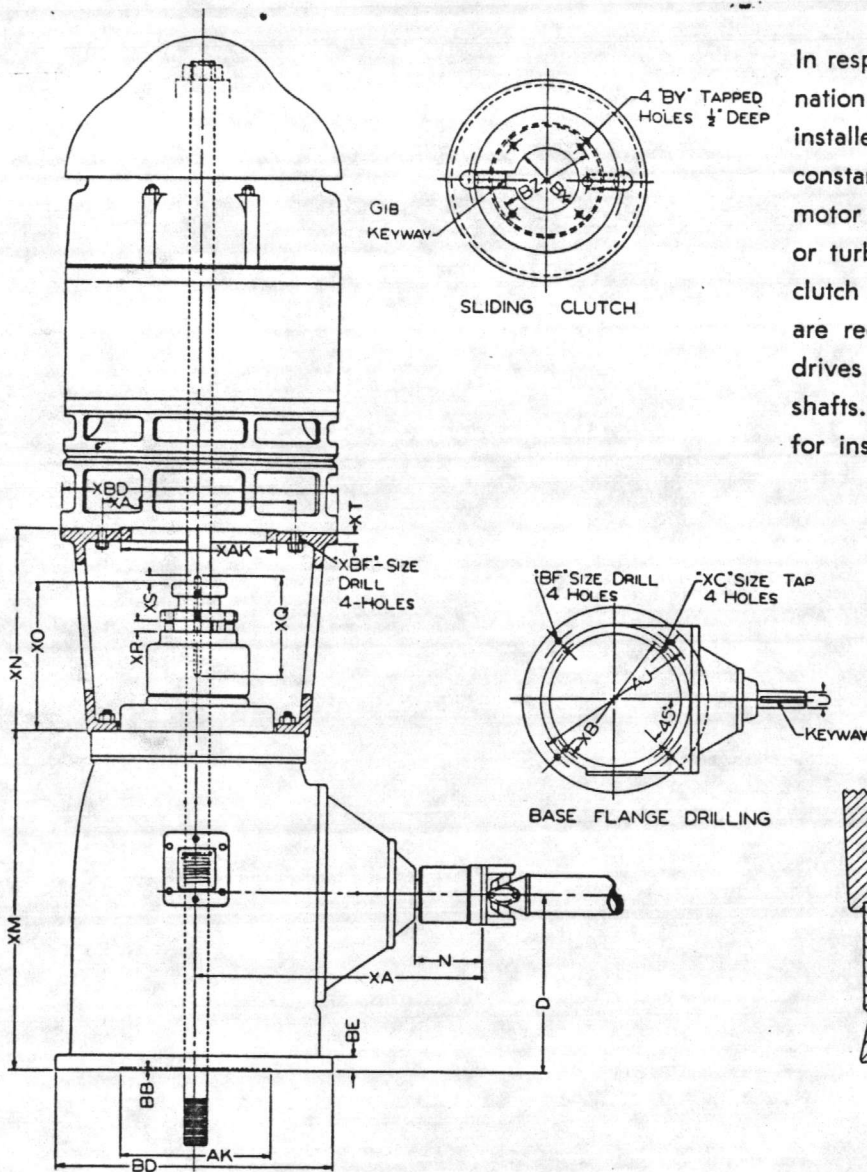
Please see pages 13 and 14 for all information on Model 1200 Drives.





# COMBINATION DRIVE

In response to the need for utmost reliability, a combination drive may be specified. This drive is normally installed with an electric motor top-mounted for constant service. In the event of power failure or motor failure the drive is simply converted for engine or turbine operation by lowering the integral sliding clutch into drive position. No additional pins or bolts are required for this conversion. These combination drives may be furnished with either solid or hollow shafts. Consult combination drive operation manual for installation instructions.



Combination Clutch — Sub-Assembly  
Clutch Shown 'Disengaged

TABLE OF DIMENSIONS — COMBINATION DRIVE  
TABLE 7

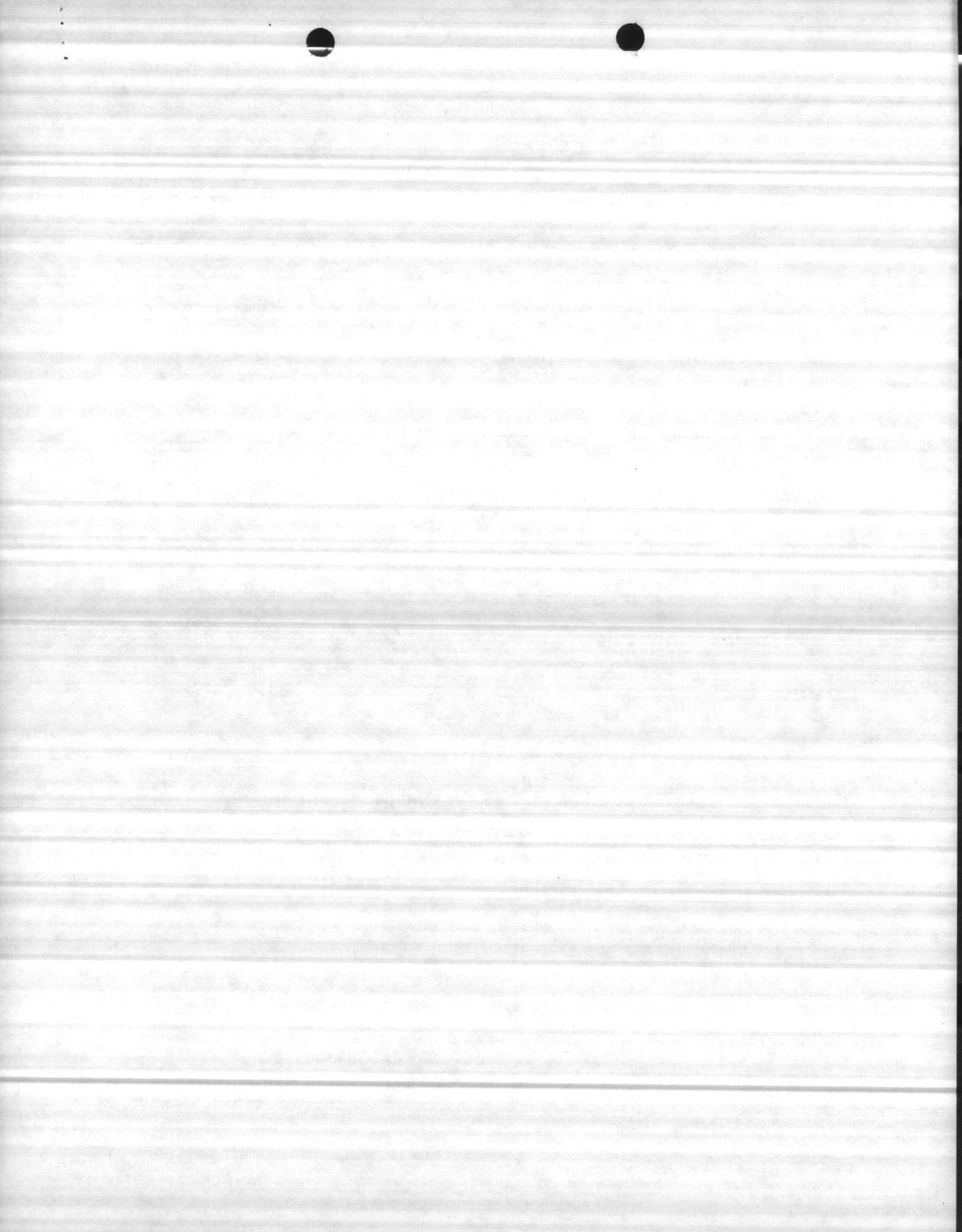
MODEL	D	N	HORIZONTAL SHAFT U			AJ	AK	BB	BD	BE	BF	XA	XB	XC	XL	XM	XN	XO	XQ	XR	XS	XT	XAJ	XAK	XBD	XBF	BX BORE MAXIMUM	
			NOM. INAL.	ACTUAL	KEYWAY																							
C20	6 3/8	2 5/8	14	1.249	5/16 X 5/32	9 1/8	8.250	3/16	10	5/8	7/16	10 7/8			9 3/32	12 1/4	12 1/2	5 1/2	5 1/4	2	1 1/2	1 1/2						1 *
C40A	8 1/2	4 3/8	12	1.499	5/8 X 3/16	9 1/8	8.250	1/4	12	13/16	7/16	15 5/8			9 3/32	16 3/16	16	6 1/2	7	5/8	2	5/8						1 1/4
C40B	8 1/2	4 3/8	12	1.499	5/8 X 3/16	14 3/4	13.500	1/4	16 1/2	13/16	11/16	15 5/8			9 3/32	16 3/16	16	6 1/2	7	5/8	2	5/8						1 1/4
C60	11 1/2	4 1/4	12	1.499	5/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9 3/32	20 1/4	18	7 13/16	7 3/4	3/4	2 1/4	3/4						1 1/2
C80	11 1/2	4 1/4	18	1.874	5/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9 3/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4						1 1/2
C100	11 1/2	4 1/4	18	1.874	5/8 X 3/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	16 3/4			9 3/32	20 3/8	18	7 13/16	7 3/4	3/4	2 1/4	3/4						1 1/2
C125	11 1/2	4 1/2	2 7/16	2.436	5/8 X 5/16	14 3/4	13.500	1/4	16 1/2	3/4	11/16	18 3/4			9 3/32	21 1/8	18	7 1/2	9	3/4	2 1/4	3/4						1 1/16
C150	13 3/4	5 1/4	2 1/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	18	11/16	20 3/4	14 3/8	5-11-NC	9 3/32	25 5/8	20	9	10	7/8	2 1/4	7/8						2 *
C200	13 3/4	5 1/4	2 1/16	2.436	5/8 X 5/16	18 1/4	13.500	1/4	20	18	11/16	20 3/4	14 3/8	5-11-NC	9 3/32	25 5/8	20	9	10	7/8	2 1/4	7/8						2
C275	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	18	13/16	25 1/2	14 3/8	5-11-NC	9 3/32		27	12 1/2	11 1/2	1 1/8	3 1/2	1						2 1/16
C375	16	6	2 15/16	2.936	3/4 X 3/8	23	13.500	1/4	24 1/2	18	13/16	25 1/2	14 3/8	5-11-NC	9 3/32		27	12 3/8	11 1/2	1 1/8	3 1/2	1						2 1/16
C450	16	6	3 3/4	3.749	7/8 X 1/2	23	13.500	1/4	24 1/2	18	13/16	25 1/2	14 3/8	5-11-NC	9 3/32		27	12 3/8	11 1/2	1 1/8	3 1/2	1						2 1/16
C600	18	6	3 3/4	3.749	7/8 X 1/2	23	13.500	1/4	24 1/2	18	13/16	26 3/4	14 3/8	5-11-NC	9 3/32													2 1/16
C750	21	8	4	3.998	1 X 1/2	28 1/2	22.000	1/4	30 1/2	14	13/16	36 3/8	26	4-10-NC	7/16		30	16 1/4	15	1 3/16	4	1 1/4						2 15/16

\* Model C20, ratio 1:3, maximum clutch bore 7/8"; Model C150, ratio 1:3, maximum 1-11/16". Consult factory for maximum clutch bore for Fig. 2 and Fig. 3 rotation. Model C20, 1:3 ratio, not available with Fig. 2 or Fig. 3 rotation.

\*\* Horizontal shaft dimensions shown for Model 450 apply to ratios in Table 4 only. Consult factory for dimensions of all others.

10 † "XA" dimensions shown apply to ratios in Table 4 and reducing ratios 11:10, 6:5 and 4:3 only. Consult factory for dimensions of all others.





New Well Replacement 614  
622



## Hartsoe CIV Joel R

---

**From:** Hartsoe CIV Joel R  
**Sent:** Thursday, July 14, 2005 11:21 AM  
**To:** Whited CIV Steven J  
**Subject:** RE: Shut Down of Potable Supply well 623

Has been shut down and locked out as of today. 07-14-05

-----Original Message-----

**From:** Whited CIV Steven J  
**Sent:** Thursday, July 14, 2005 9:59  
**To:** Hartsoe CIV Joel R  
**Cc:** Smith CIV Stephen Andrew; Ashton CIV Brynn T  
**Subject:** FW: Shut Down of Potable Supply well 623

623

Joe,

Please temporarily close well 623 until further notice.

Thanks,  
v/r

-----Original Message-----

**From:** Smith CIV Stephen Andrew  
**Sent:** Monday, July 11, 2005 11:09  
**To:** Whited CIV Steven J  
**Cc:** Ashton CIV Brynn T; Cheng CIV Rick H  
**Subject:** RE: Shut Down of Potable Supply well 623

Steven,

I haven't been able to find any email correspondence/history that Nikki had regarding the well, but I have spoken with Mike Mason and Jeff Beckon at CATLIN. Mike says that abandonment was probably the wrong term to use in that Feb 2004 report, but the well should have been temporarily shut down nonetheless. He believes that Nikki put in a request for shut down, but that it wasn't taken offline because it was a major producer. CATLIN recommends that the well be taken offline as soon as possible and remain shut down until we get the new delineation data. The major concern is that the vertical migration of the contamination plume is most likely attributed solely to the drawdown of the supply well.

V/r,  
Andrew

-----Original Message-----

**From:** Whited CIV Steven J  
**Sent:** Monday, July 11, 2005 10:14  
**To:** Smith CIV Stephen Andrew  
**Cc:** Ashton CIV Brynn T; Cheng CIV Rick H  
**Subject:** RE: Shut Down of Potable Supply well 623

Any word on this well Andrew?

v/r  
Steven

-----Original Message-----

**From:** Smith CIV Stephen Andrew  
**Sent:** Tuesday, July 05, 2005 8:07  
**To:** Smith CIV Stephen Andrew; Ashton CIV Brynn T; Whited CIV Steven J  
**Subject:** RE: Shut Down of Potable Supply well 623





10/10

Brynn/Steve

I spoke to Dave Cleland (Lantdiv) this morning about the subject well. Before any action is taken, I guess we need to look at the recent history of this well. Dave says that in the past Catlin will make recommendations in the Corrective Action Plans that aren't necessarily needed/can't be funded and Nikki has scratched the action. Dave has no information/email correspondence on the well and why the Catlin recommendation was ignored.

Andrew

-----Original Message-----

**From:** Smith CIV Stephen Andrew  
**Sent:** Friday, July 01, 2005 10:56  
**To:** Ashton CIV Brynn T; Whited CIV Steven J  
**Subject:** Shut Down of Potable Supply well 623

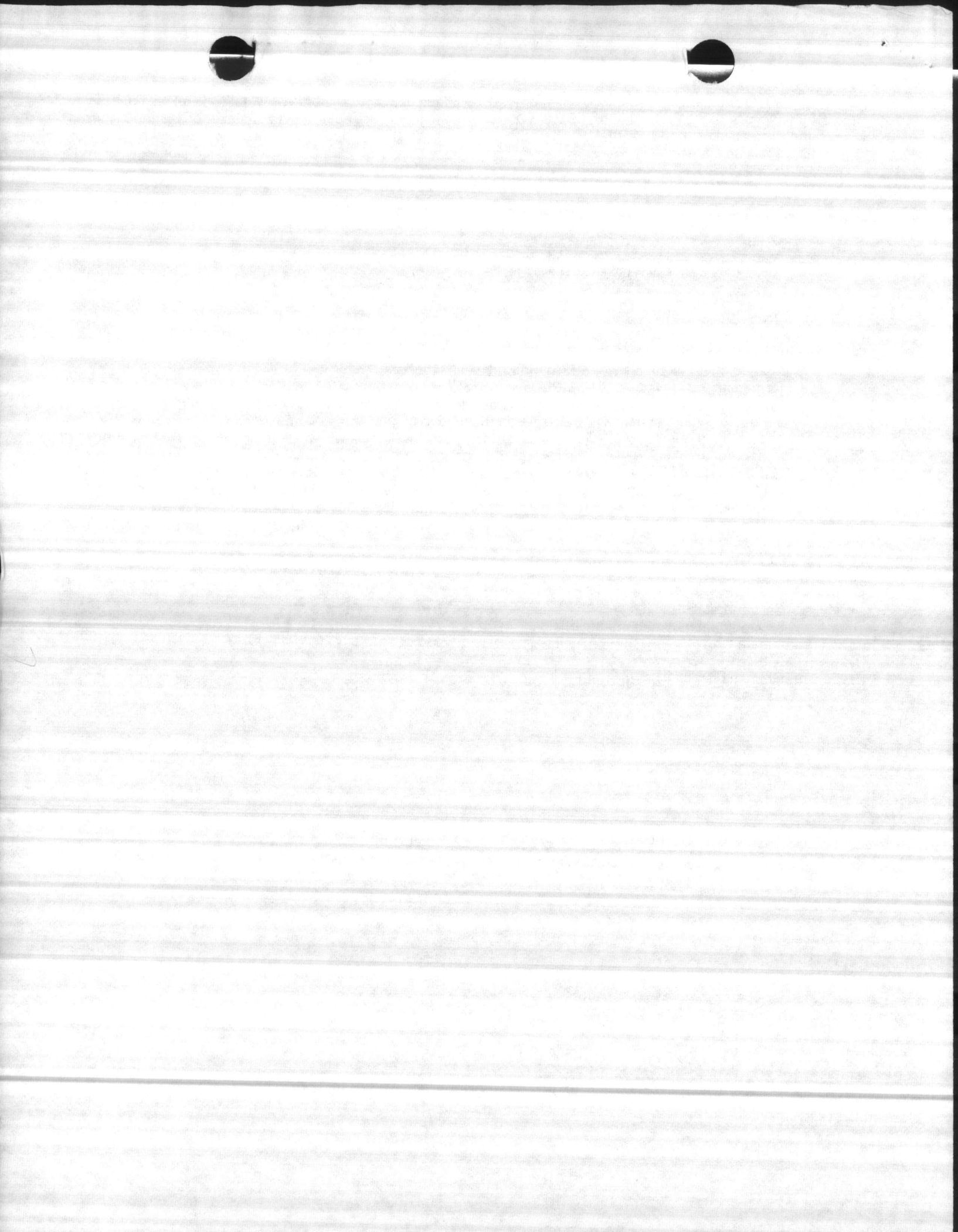
Brynn/Steven,

In the attached letter dated 24 June 2005, Bruce Reed requests notification of shut down and abandonment of supply well 623 in the Berkeley Manor area. This action was recommended in the Remedial Action Optimization & Revised Corrective Action Plan, Building 820 dated 26 February 2004. Section 7.2 of this report titled "Schedule for Implementation" states "the shutdown and abandonment of the potable water supply well 623 is recommended to be implemented immediately". Paragraph 2 of section 6.2.2 offers justification of the necessary action with the following statement: "Based on the location of the potable water supply well 623, identified during the receptor survey..., the downward hydraulic gradient and the 50 feet deep contamination..., CATLIN recommends that MCB Camp Lejeune shut down and abandon this potable water supply well as soon as possible." Please make sure that water distribution/treatment personnel are notified and let me know what required action is necessary.

V/r,  
Andrew

S. Andrew Smith  
Environmental Engineer  
Environmental Management Division  
Marine Corps Base, Camp Lejeune, NC  
910.451.9017  
stephen.a.smith2@usmc.mil

<< File: Bldg 820 SCR review.tif >>





DATE 2-25-00

PWSID 04-62041

WELL # HP 623

WELL NAME HAD NOT POINT HP 20

BLDG. HP 623

CODE G

AVAILABILITY P.

LOCATION SERVICE RD. NORTH OF UTAH ST. BARKLEY MANOR

LATITUDE 34.70262

LONGITUDE 77.35098

WELL DIAMETER 8"

WELL DEPTH 197'

SCREEN INTERVAL \_\_\_\_\_

YIELD 175

STATIC LEVEL 26'

PUMPING LEVEL 33'

PUMP TYPE VERTICAL TURBINE

MOTOR HP 20

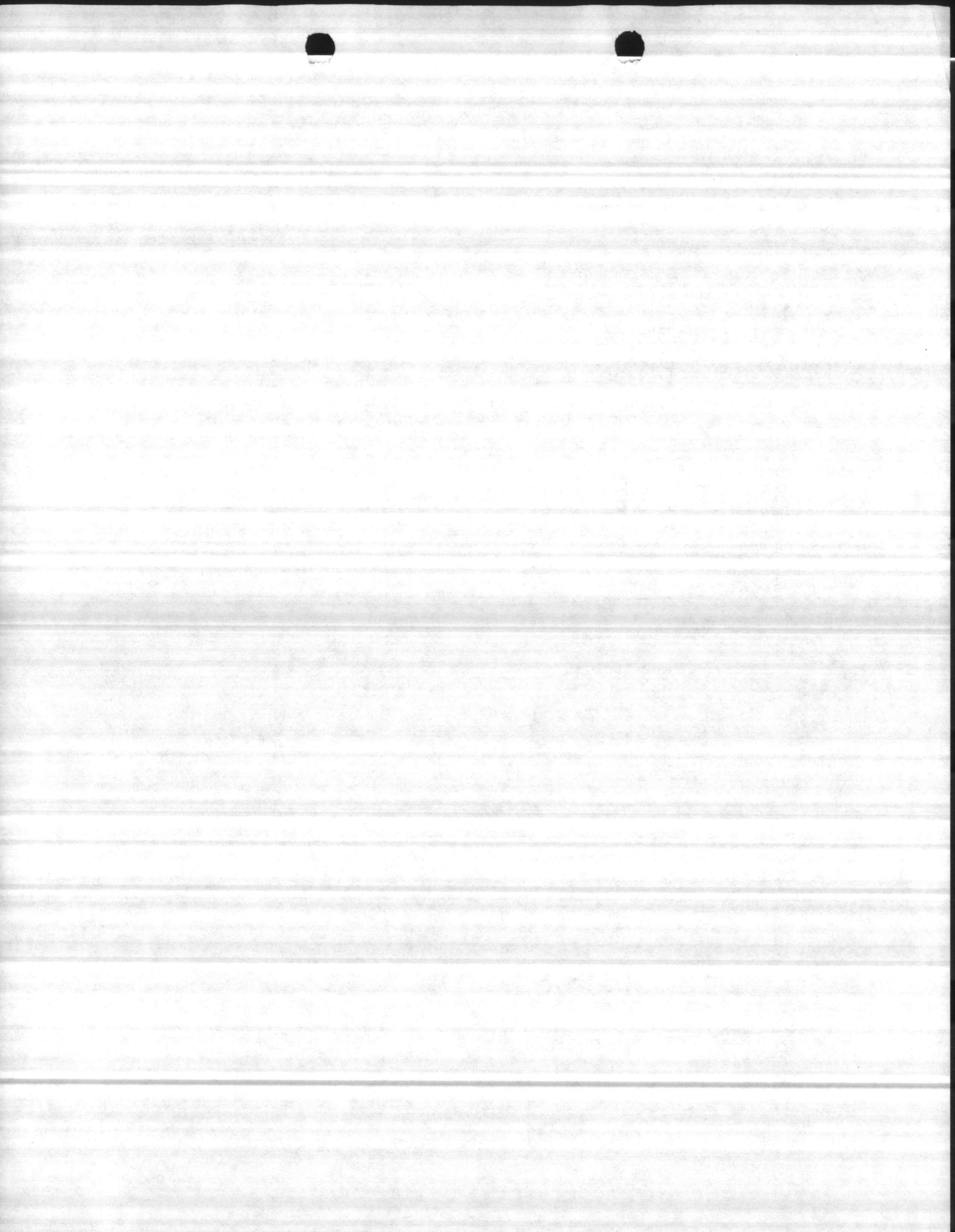
INTAKE DEPTH 70'

DESIGN CAPACITY 300

ACTUAL GPM 175

SIZE OF CONCRETE SLAB 12x12

HEIGHT OF CASING 12"



# SOURCE INFORMATION GROUND WATER

Date Form Completed

M M D D Y Y  
0 1 2 4 9 5

PWSID  
0467041

Owner Assigned  
source Code

Well Name (If purchase, name of system)

623 HADNOT POINT 623

Code

G

G=Ground  
W=Purchase/G  
Y=G w/direct influence  
Z=W w/direct influence

If Purchase, seller ID#

Source Begin Date

Source exempt—  
SWTR?

Direct Influence Date

Availability

Source Begin Date: M M Y Y  
Source exempt:  Y  N  
Direct Influence Date: M M D D Y Y

P

P=Permanent  
E=Emergency  
S=Seasonal  
I=Interim  
O=Other

Location of well within the system (If purchase, location of master meter)

SERVICE RD NORTH OF UTAH ST BM

Latitude (N)

Longitude (W)

How Determined

GPS Data

No. of Sats. Locked on

3 4 4 2 0 9 7

0 7 7 2 1 0 4 2

G  
G=GPS  
M=Map  
S=Surveyed

93 Q# or DOP #

4

(If purchase, use seller's primary source lat/long)

Vulnerable (VOCs)  Y  N

Assessment Date: M M D D Y Y

## ENTRY POINT INFORMATION

Use Code

Availability

Owner Assigned  
Entry Point Code

Entry Point Name

C=Ground/Permanent  
D=Ground/non-permanent

P=Year-round  
E=Emergency  
S=Seasonal  
I=Interim  
O=Other

100

HP 623 MC B HADNOT PT WTP

Location:

Well Site: Owned or controlled? Y (Y,N) Control Area (100' radius)? N (Y,N) If no, explain:

Sources of pollution/distance: Access rd (Alley) @ 20' - Houses @ 50'  
SAN SWR > 75'

Surface water within 200'?  Y  N If yes, actual distance      feet If yes, bact. samples collected?      (Y,N)

Adequate slope? Y (Y,N) Flooding? N (Y,N) Maintenance: OK

Well House: Free of stored materials? Y (Y,N) Properly drained? Y (Y,N) Locked? Y (Y,N)

Condition of house: OK Type of freeze protection: elec heat

Well: Diameter: 8" Type: SCREENED Yield (gpm): 190-300 Properly sealed? Y (Y,N)

Properly vented? Y (Y,N) Casing depth 50 ft. (If unknown, put 'UNK') Well depth: 197' Meter available? Y (Y,N)

Concrete slab adequate? Y (Y,N) If no, explain:      Size: 12x12

Size of blow-off: 4" (V) Sample tap: Before treatment? Y (Y,N) After treatment?      (Y,N)

Pumps: Capacity: GPM: 300-190 HP: 20 Pump intake depth: 197 Auxiliary Power? Y (Y,N)

Type pump: VERTICAL TURBINE Height above floor (pump/casing): 12"

Storage at well site: Elev:      Hydro:      Ground:     

If hydroautomatic, air volume control?      (Y,N) Safety valves?      (Y,N) Coded?      (Y,N)

High service pumps: 1.      gpm      hp 2.      gpm      hp 3.      gpm      hp Auxiliary Power?      (Y,N)

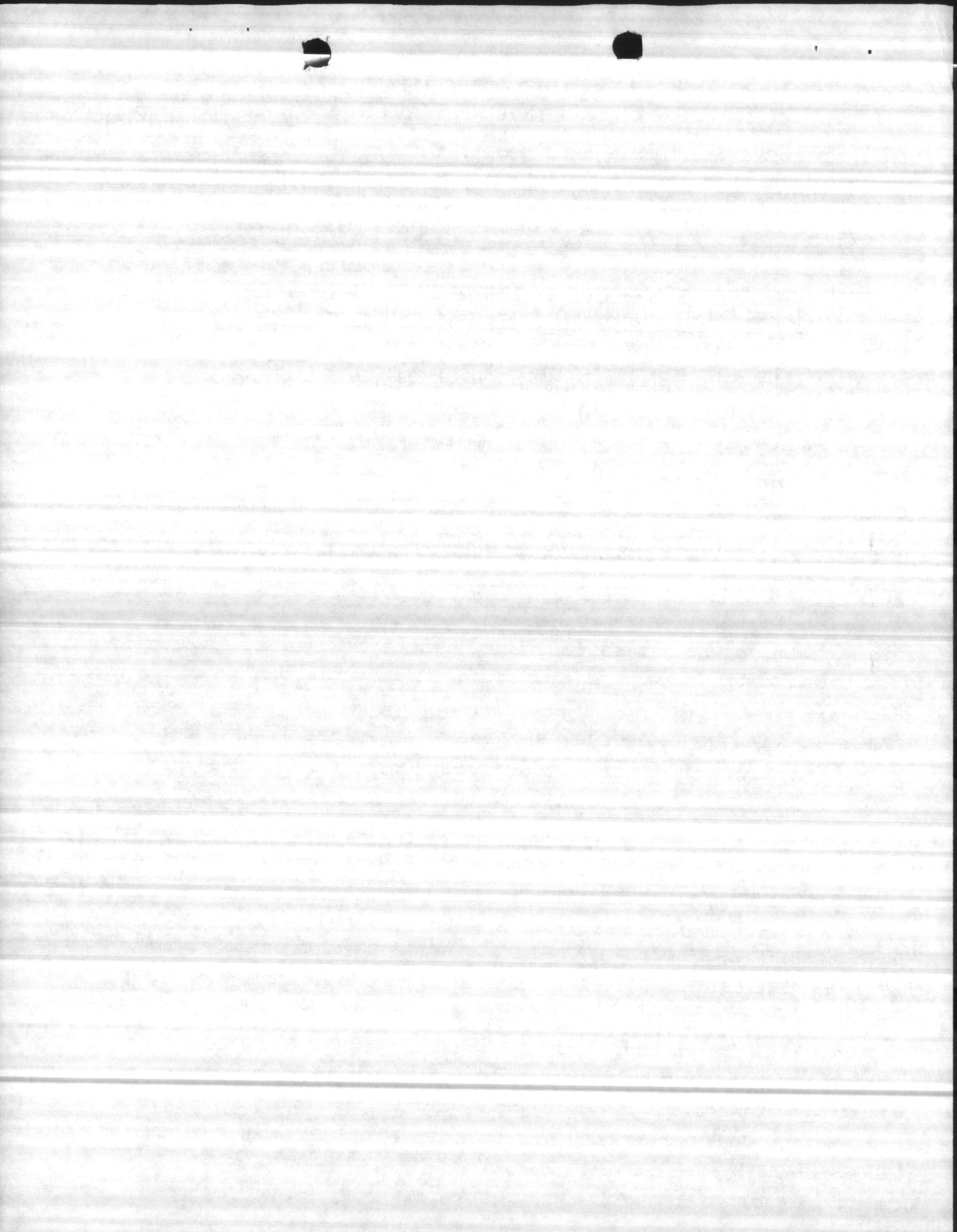
Is the water treated at this well?  Y  N If yes, complete back of form.

If other wells are treated here, which ones?      If treated elsewhere, where? HP-20 PLANT

If purchase, retreat?  Y  N If yes, complete back of form.

ⓐ spill cont for Aux gen set  
ⓑ well not in center of slab





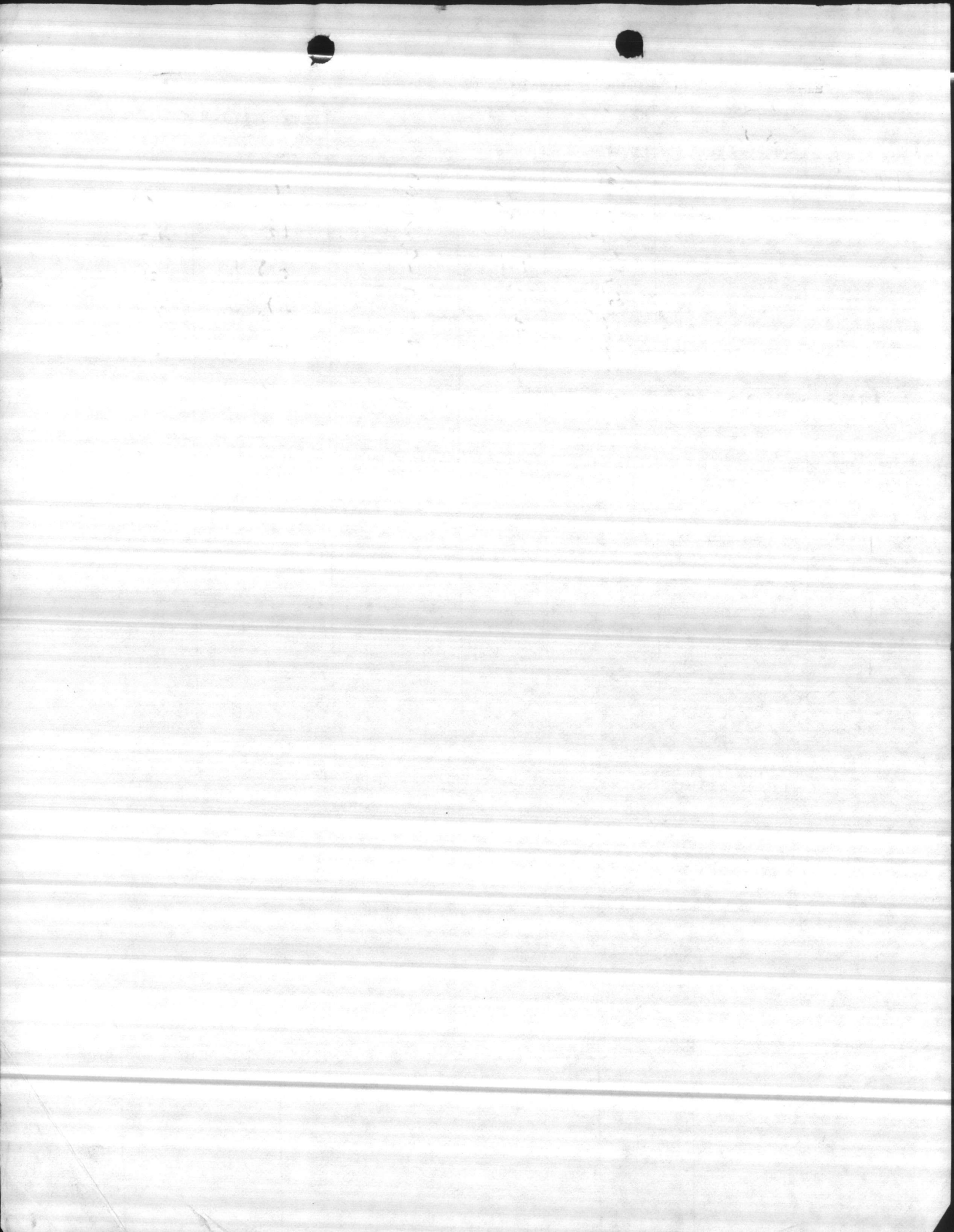




1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15  
16 17 18 19 20  
21 22 23 24 25  
26 27 28 29 30  
31 32 33 34 35  
36 37 38 39 40  
41 42 43 44 45  
46 47 48 49 50  
51 52 53 54 55  
56 57 58 59 60  
61 62 63 64 65  
66 67 68 69 70  
71 72 73 74 75  
76 77 78 79 80  
81 82 83 84 85  
86 87 88 89 90  
91 92 93 94 95  
96 97 98 99 100

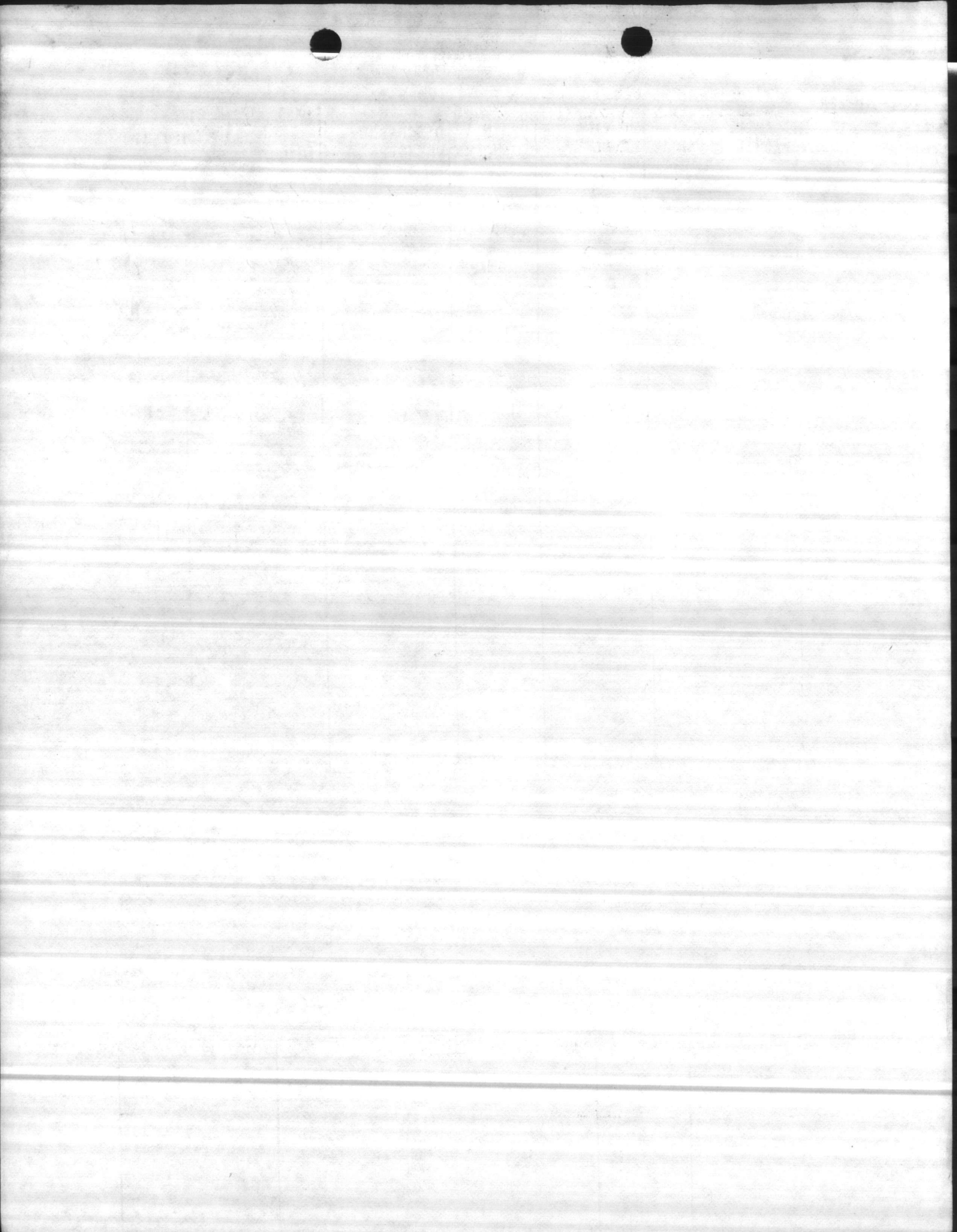




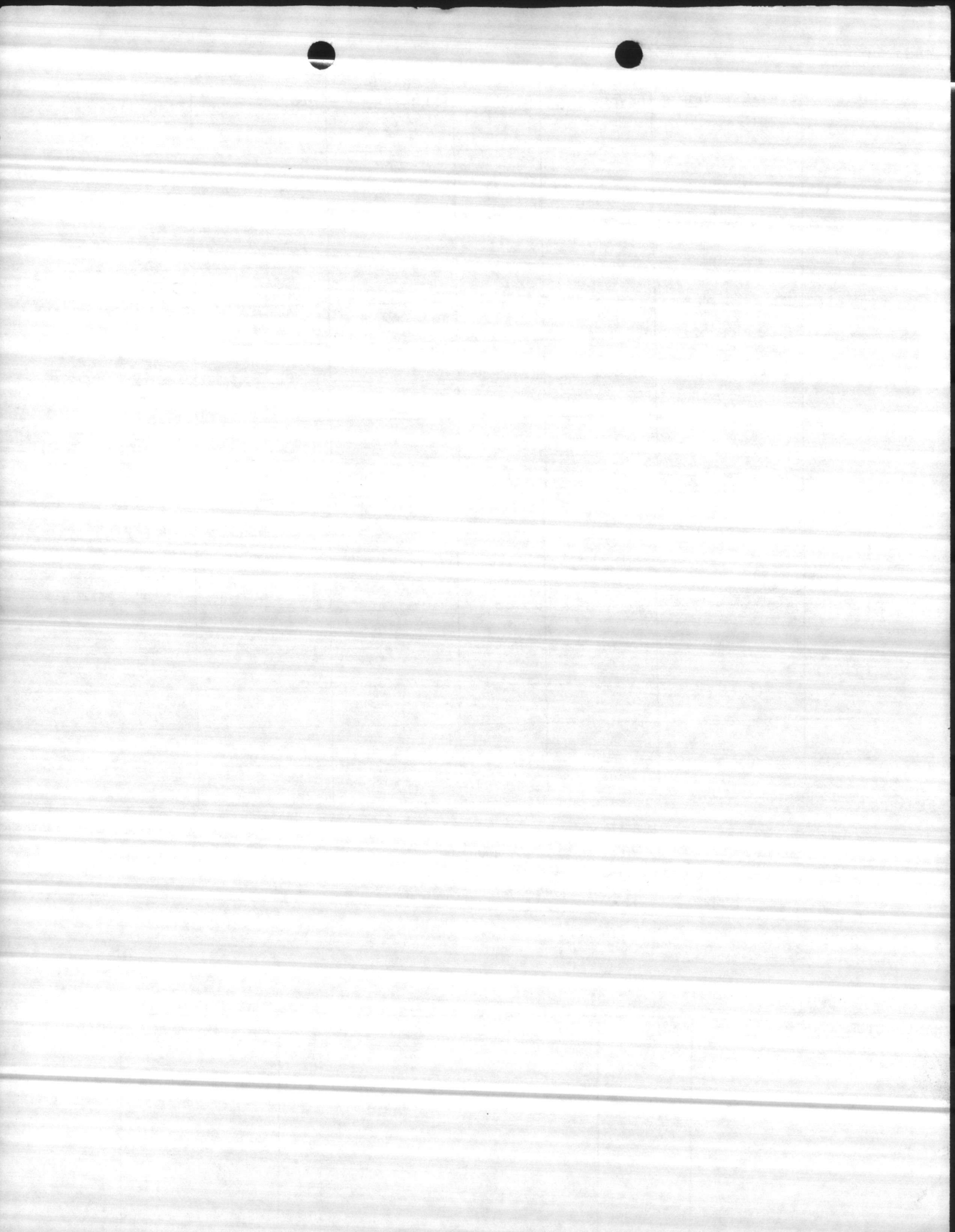






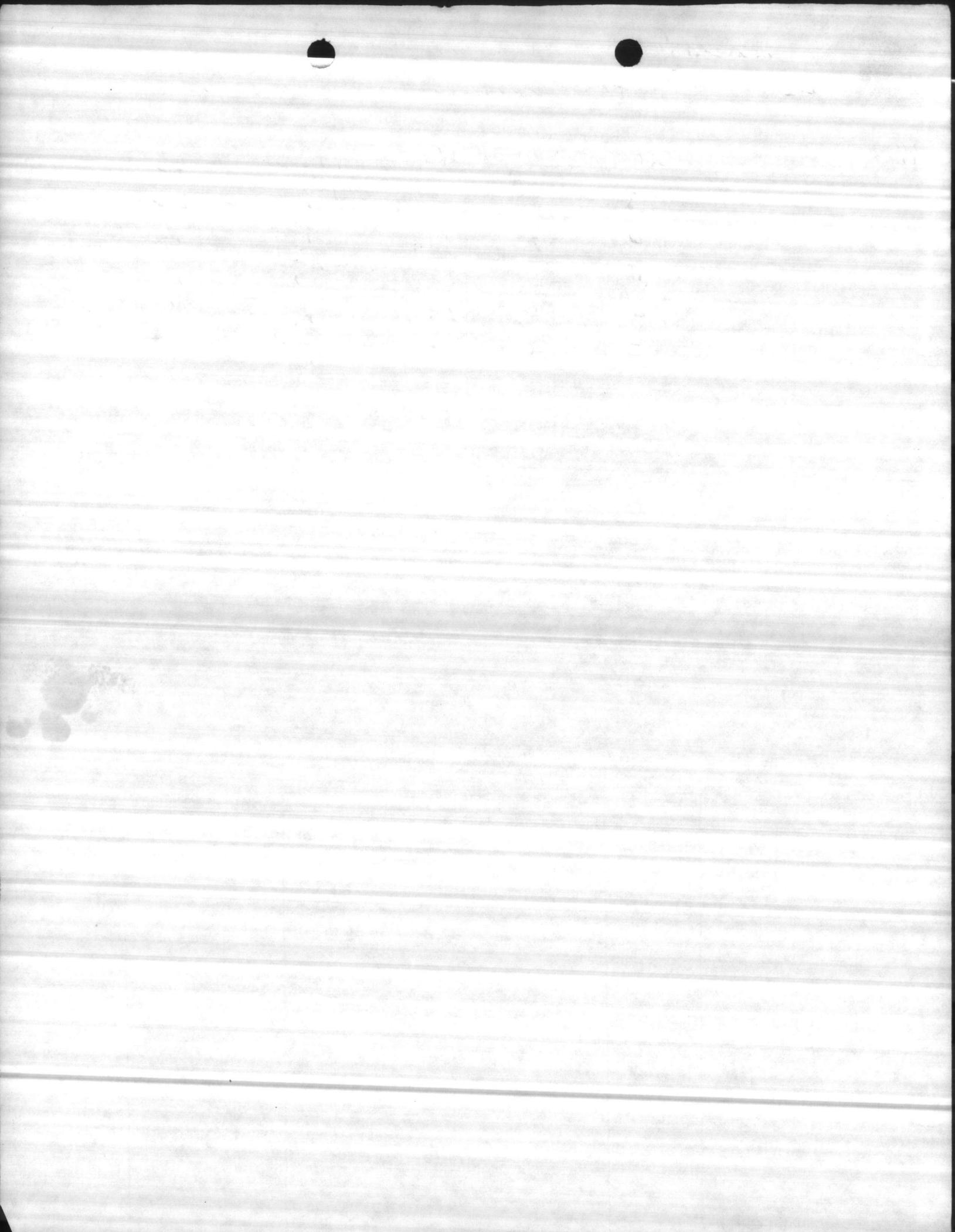














8 WATER WELLS - MARINE CORP BASE - CAMP LEJEUNE NC

No	LOCATION	Pump Data		Motor HP	Gravel Dia	6" Dia	4" Dia	1st Screen Setting	2nd Screen Setting	3rd Screen Setting	4th Screen Setting	5th Screen Setting	Air Line	FT. TO WATER LEVELS		PUMP Rate GPM	Initials	Date
		Model	Size											Static	Dynamic			
611	Berkley Manor	8ms	8	20	20	70	45	65-75	115-135	182-197	-	-	35	49	300			
614	Stone Street	8ms	8	20	20	80	44*	106-120	150-170	217-227	-	-	15	80	300			
LGH 4006	MIDWAY PARK	8HL	8	30	40	80	42	90-114	116-134	-	-	-	100	25	70	450		
621	PINEY GREEN RD	8ms	6	15	20	70	40	60-70	125-135	160-170	220-230	-	18'-2"	54'-9"	200			
627	SNEEDS FERRY RD	8ms	6	15	20	70	40	50-65	87-102	125-135	-	-	14	44	175			
RR 227	RIPLE RANGE	8HL	8	25	40	80	35	190-210	223-233	242-247	-	-	100	23	58	300		
TT 638	TARAWA TERRACE	8ms	6	15	20	85	35	70-95	132-142	-	-	-	27	63	160			
639	SNEEDS FERRY RD	8ms	6	15	20	70	42	121-131	134-146	185-195	215-220	225-230	4	96	200			





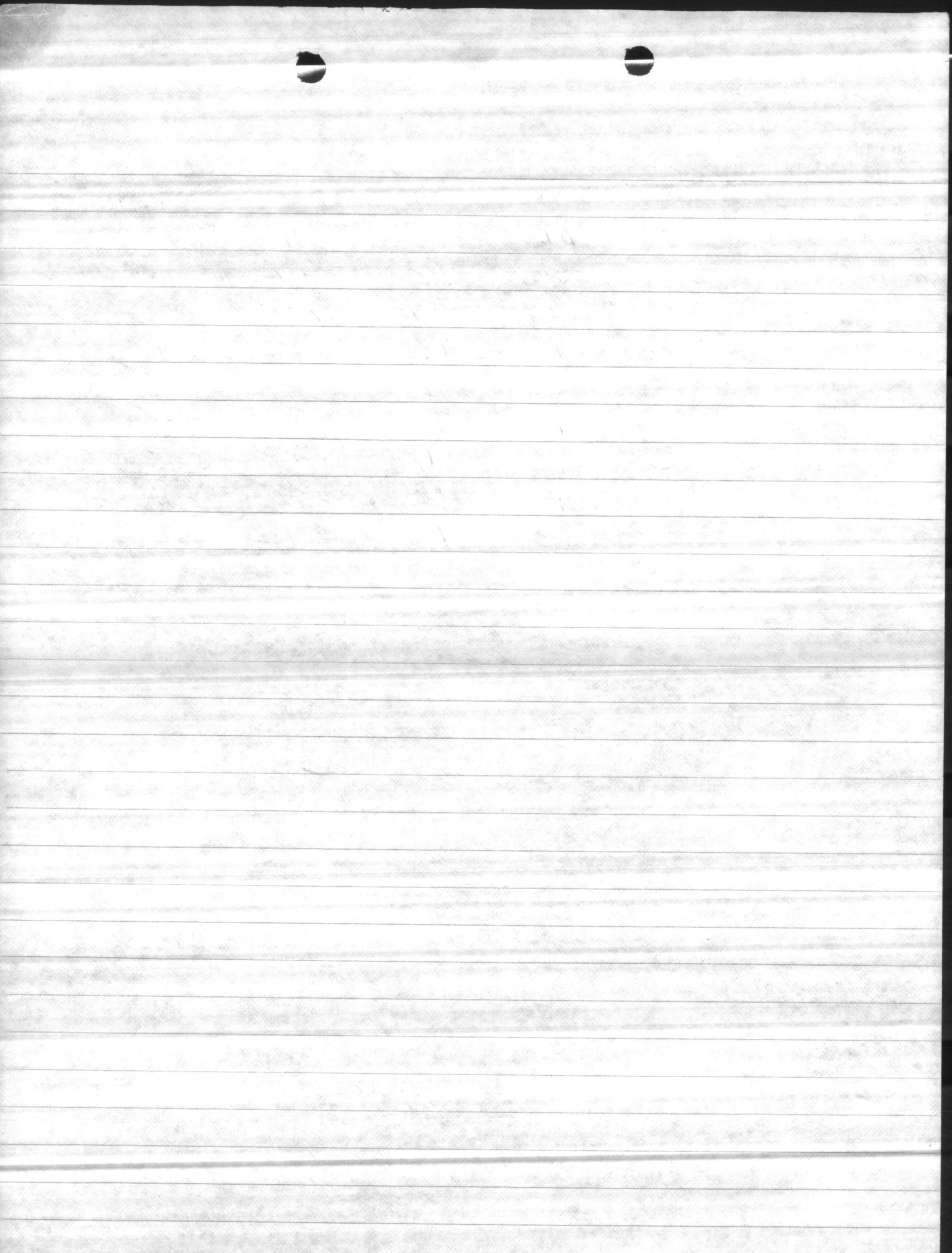
611

9-5-85

~~#051~~

AL	SL	PL	PD	PSI	GPM	Time
115	23	30	7	60	110	1330
		32	9	54	126	15
		34	11	46	150	15
		35	12	40	172	15
		37	14	34	192	15
		39	16	28	207	15
		41	18	19	225	15
		43	20	11	242	15

used direct reading gage

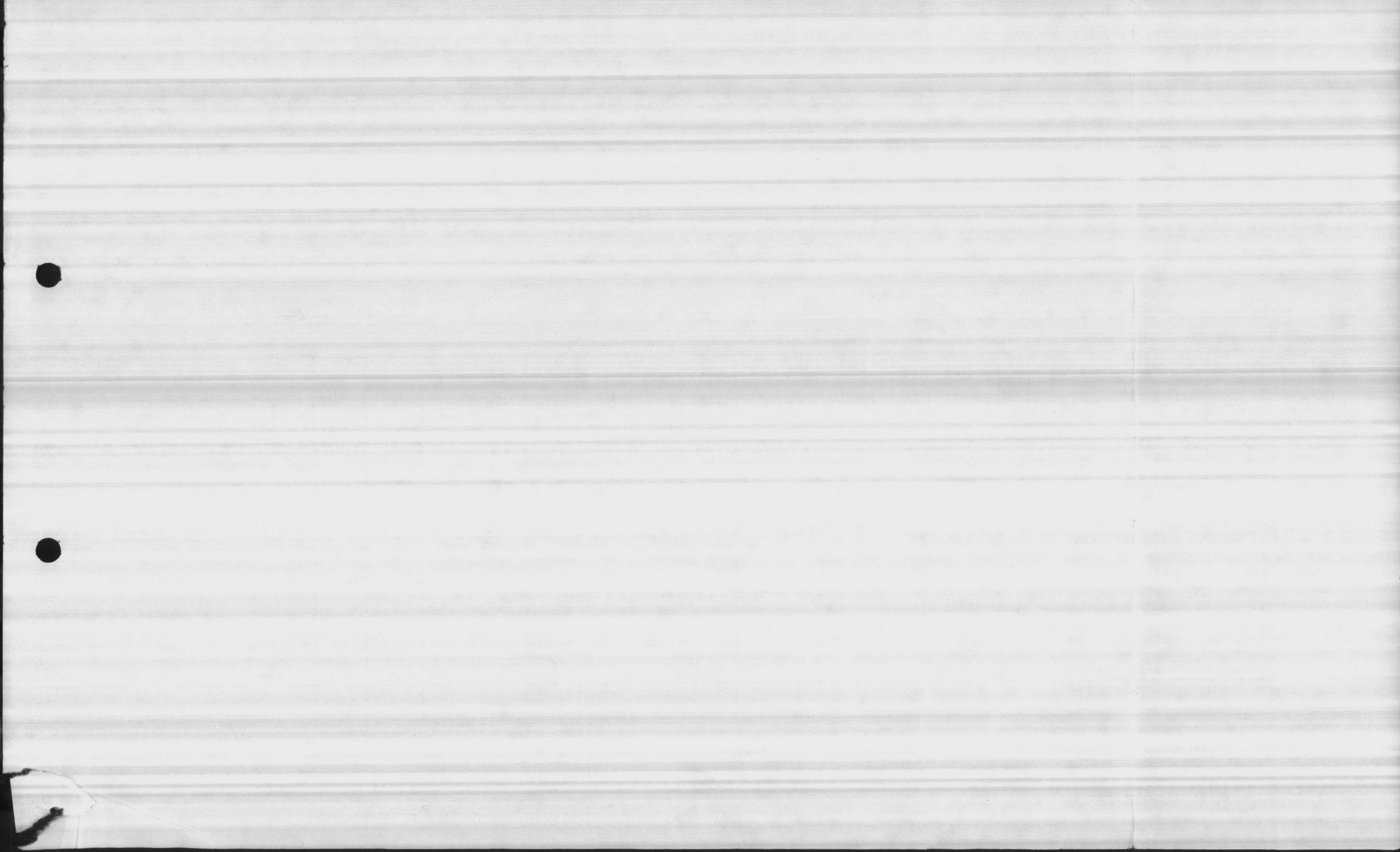




8 WATER WELLS - MARINE CORP BASE - CAMP LAJOLLE NC

WELL #	LOCATION	Pump Data		Motor HP	Casing Dia	Casing Depth	V. Depth	1st Screen Setting	2nd Screen Setting	3rd Screen Setting	4th Screen Setting	5th Screen Setting	L/Air Line	Ft. to WATER LEVELS		PUMP Rate GPM	Initials	Date
		Model	Stats											Static	Dynamic			
611	Berkley Manor	8ms	8	20	20	70	45	65-75	115-135	182-197	-	-		35	49	300		
614	Stone Street	8ms	8	20	20	80	44	106-120	150-170	217-227	-	-		15	80	300		
IGH 4006	MIDWAY PARK	8HL	8	30	40	80	42	90-114	116-134	-	-	-	100	25	70	450		
621	Piney Green Rd	8ms	6	15	20	70	40	60-70	125-135	160-170	220-230	-		18'-2"	54'-9"	200		
627	Sneeds Ferry Rd	8ms	6	15	20	70	40	50-65	87-102	125-135	-	-		14	44	175		
PR 227	RIPLE RANGE	8HL	8	25	40	80	35	190-210	223-235	242-247	-	-	100	23	58	300		
TT 638	TARAWA TERRACE	8ms	6	15	20	85	35	70-95	132-142	-	-	-		27	63	160		
639	Sneeds Ferry Rd	8ms	6	15	20	70	42	121-131	134-146	185-195	215-220	225-230		4	96	200		

↓  
 Review these wells — 10-10-84





# CONSOLIDATED PUMP & EQUIPMENT, INC.

DISTRIBUTORS AND MANUFACTURER REPRESENTATIVES • WATER & WASTE WATER TREATMENT  
POST OFFICE BOX 3188 • ROCK HILL, SOUTH CAROLINA 29730 • 803/328-1891

March 28, 1983

## SUBMITTAL DATA

JOB:

Replace Water Wells  
Camp Lejeune, N. C.

Engineer:

Peirson & Whitman, -Inc.

Contractor:

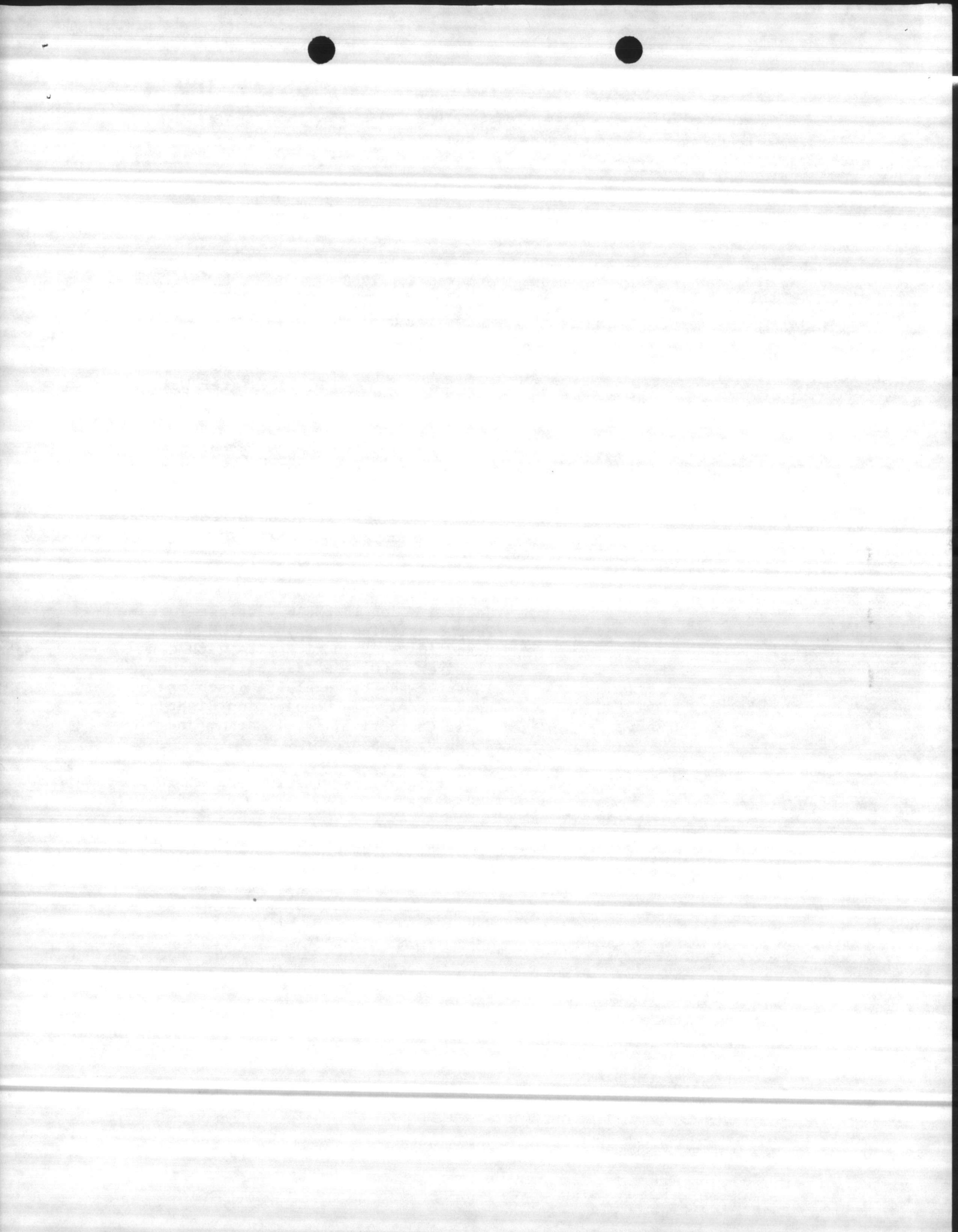
East Coast Construction Co.

Material Submitted:

- 8 - Jacuzzi Model 15-SMSA6 Verticle Turbine Pump consisting of 6 stage SMS pump head, 10' - 6" suction pipe with cone strainer, 100' - 6" discharge column, 1" drive shaft, model L6A discharge head, model S-20 Combination Right Angle Gear Drive, 1 : 1 Ratio, and 15 HP V. H. S. motor.

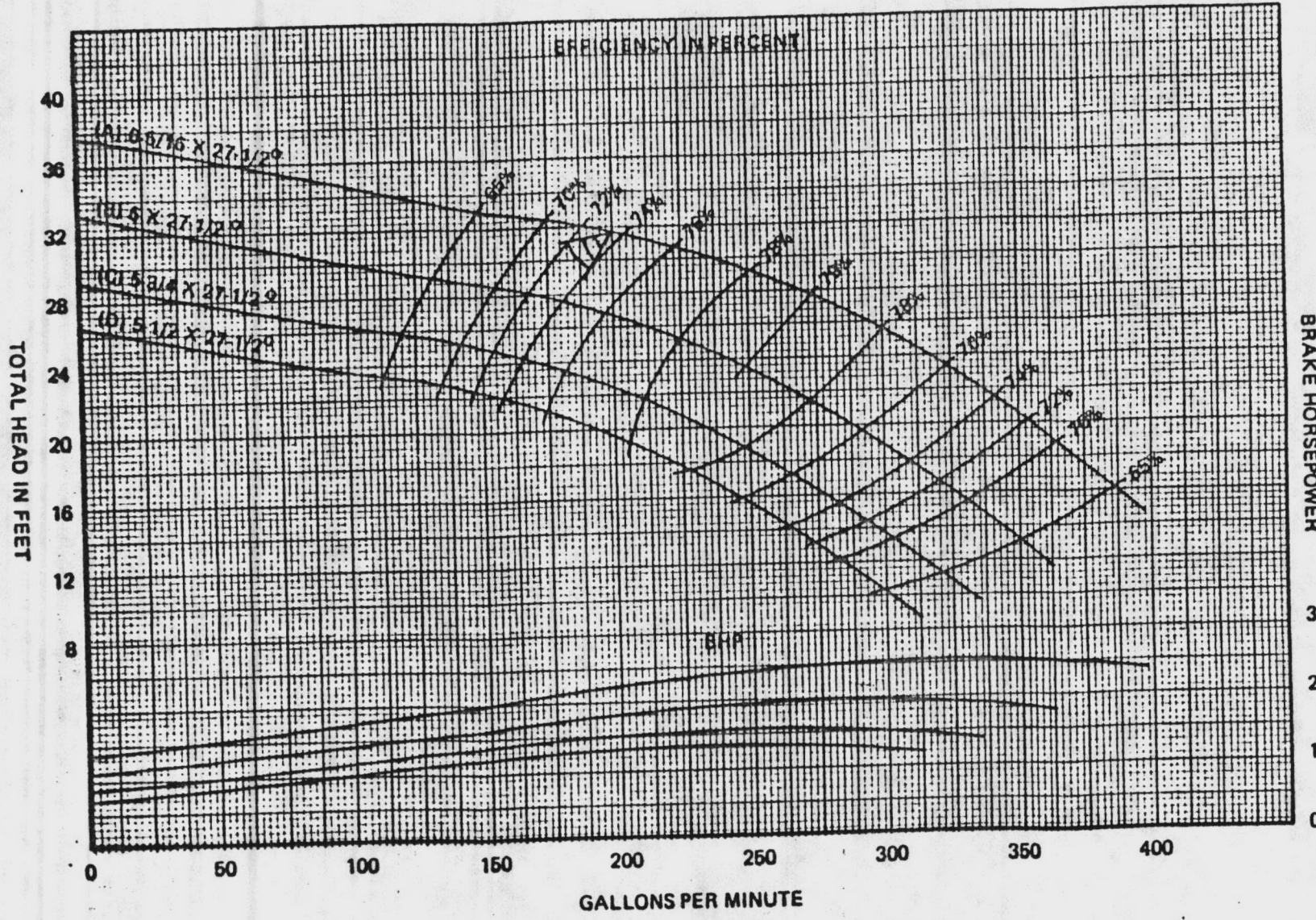
Conditions of service 200 GPM @ 190.5' TDH





# TURBINE PUMP CURVE

**8MS**  
SECTION  
2120  
MAY 15, 1970



NUMBER OF BOWLS	CHANGE EFFICIENCY AS FOLLOWS
1	-4
2	-3
3	-2
4	-1

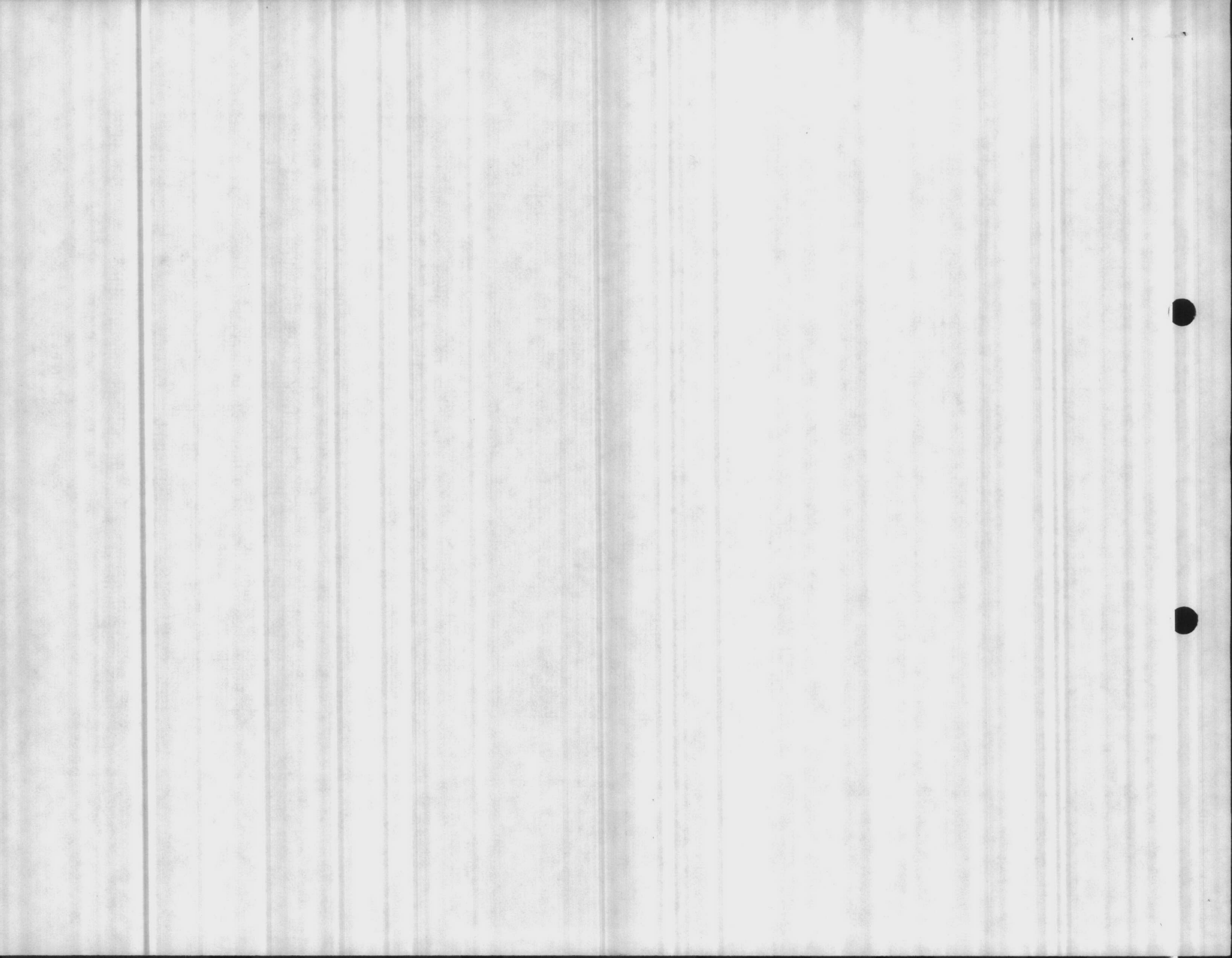
Change in efficiency may affect both head and horsepower

Bowl Dia. 7-1/2 In.  
Bowl No. 3691-S, C.I., ENAM.  
Impeller No. 3690, BRONZE  
Eye Area 6.6 Sq. In.  
Imp. Type SEMI-OPEN  
K = 4.28

STAGE PERFORMANCE	
Curve No.	8M-172
R. P. M.	1780
Bowl	8MS

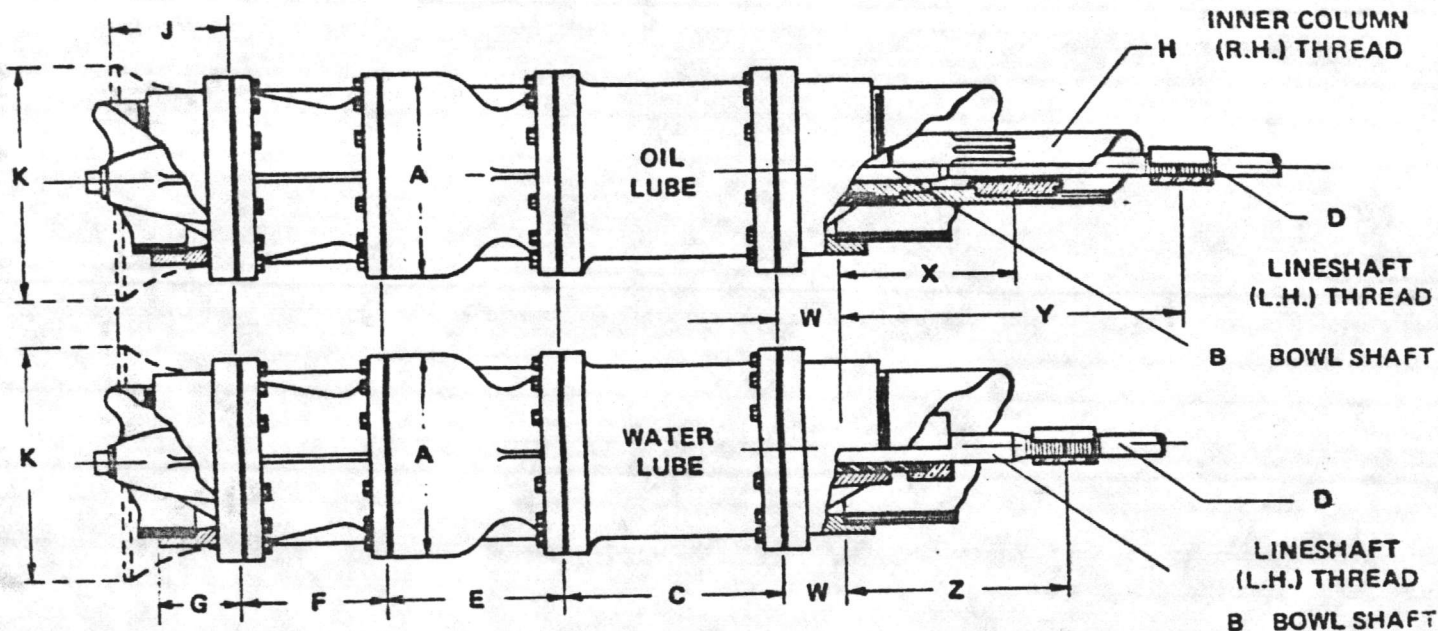
Performance based on pumping clear, fresh water at a temperature not over 85°F., and free of gas, air or abrasives, and with bowls properly adjusted and submerged.

BRAKE HORSEPOWER  
3  
2  
1  
0





## Turbine Bowl

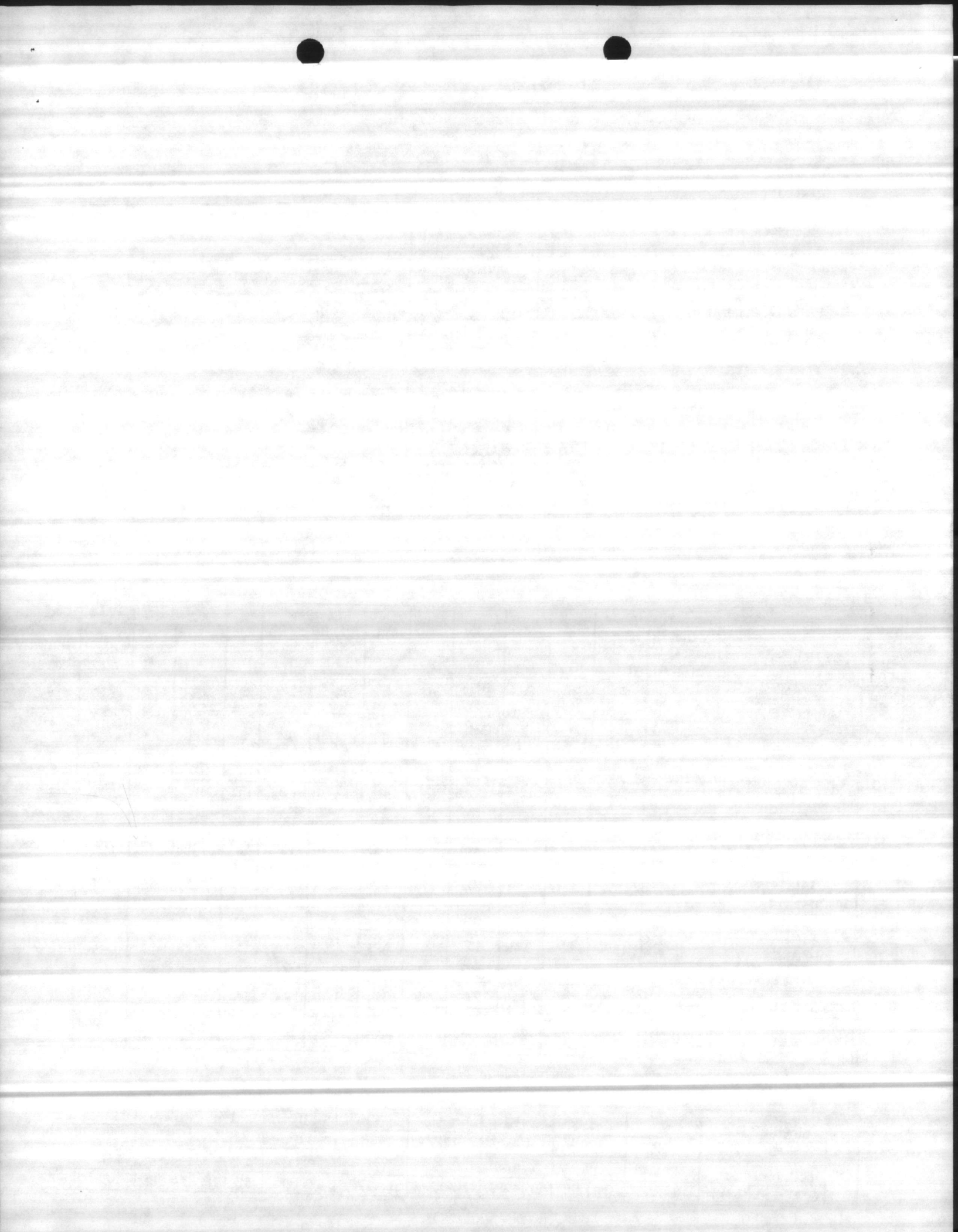


ALL DIMENSIONS IN INCHES.

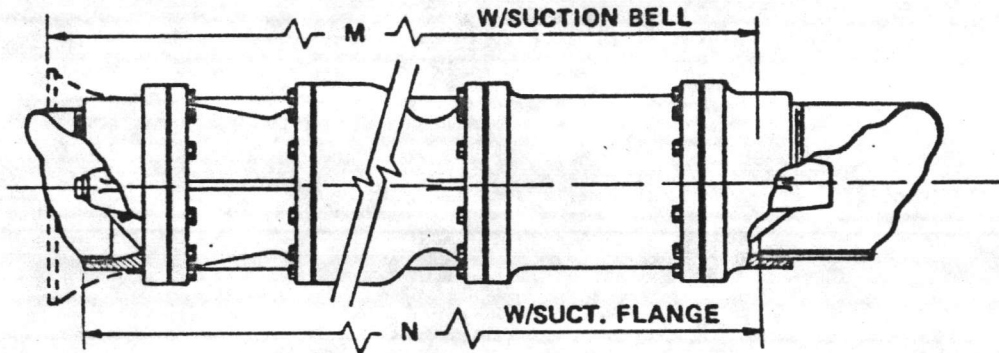
Nom. Bowl Size	Bowl Figure Number	Bowl Dia. Max. O.D. STD. A	Bowl Dia. Turned ALT. A	B	C	E	F	Max. G	Suction Bell		W	O.L.		W.L.	Available Outer Column and Suction Pipe
									J	K		X	Y		
6	6J,6L	5 5/8		3/8	4 1/2	3 1/2	3 1/2	5	4	7 1/2	3	9 1/2	22	7 1/2	3, 4, 5
	1			4 1/4		4, 5, 6									
8	8J, 8L, 8K, 8M, 8H	7 7/8	7 1/2	1	6	5 1/2	4	5	4 1/2	9 1/4	3	9 1/2	22	7 1/2	4, 5, 6
	8Y	7 1/2		1 1/8		7 1/2									
10	10L, 10M, 10H	9 1/2	9 1/4	1 1/2	8	7	6	4 1/8	5 1/4	11 1/4	3	9 1/2	22	7 1/2	4, 5, 6, 8
10	10W, 10Y, 10Z	9 3/4	9 1/2	1 1/8	8 1/2	8 1/2	6 1/2	5 1/8	7	14 1/4	3	9 1/2	22	7 1/2	6, 8, 10
12	12L, 12M, 12H, 12X	11 1/8	11 1/4	1 1/8	9	10 1/2	5 1/2	3 3/4	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
12	12W	12 1/8	12	1 1/8	9	11 1/4	5 1/2	3 3/4	6	13 1/4	3	9 1/2	22	7 1/2	6, 8, 10
14	14L, 14M 14H, 14X	13 1/2	13 1/4	1 1/8	9 1/8	12 1/2	7 1/2	5 1/8	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
14	14W	14 1/8	13 3/4	1 1/8	9 1/8	13 1/4	7 1/2	5 1/8	8	15 1/4	3	9 1/2	22	7 1/2	8, 10, 12
16	ALL	15 1/2	15 1/4	1 1/8	9 1/8	15	8	6 1/8	10	22	3	9 1/2	22	7 1/2	10, 12, 14
20	ALL	19 1/4	19 1/4	1 1/8	14	18	12	6 1/8	12 1/2	27	3	9 1/2	22	7 1/2	12, 14, 16
24	ALL	23 1/2	23 1/2	2 1/8	20	21	14	3 3/8	14	32	1	16 1/2	29	14 1/2	12, 14, 16, 18
28	ALL	27	27	2 1/8	24	24	15	3 3/8	16	38	1	16 1/2	29	14 1/2	14, 16, 18, 20, 22

\* Note: Maximum Diameter for 24" Bowl is Discharge Column Flange at 25" and for 28" is 27 1/2".

D	Lineshaft Dia. & Pitch (L.H.)	3/8	1	1 1/8	1 1/2	1 3/4	1 7/8	2 1/8	2 1/4	2 3/8	2 1/2
		16P.	12P.	12P.	12P.	12P.	12P.	12P.	8P.	8P.	8P.
H	O.L. Inner Col. & Thread (R.H.)	1 1/4	1 1/2	2	2 1/2	3	3 1/4	3 1/2	4	5	5 1/2
		1 1/4-12P.	1 1/2-12P.	2-12P.	2 1/2-12P.	3-12P.	3 1/4-12P.	3 1/2-12P.	4-8P.	5-8P.	5-8P.



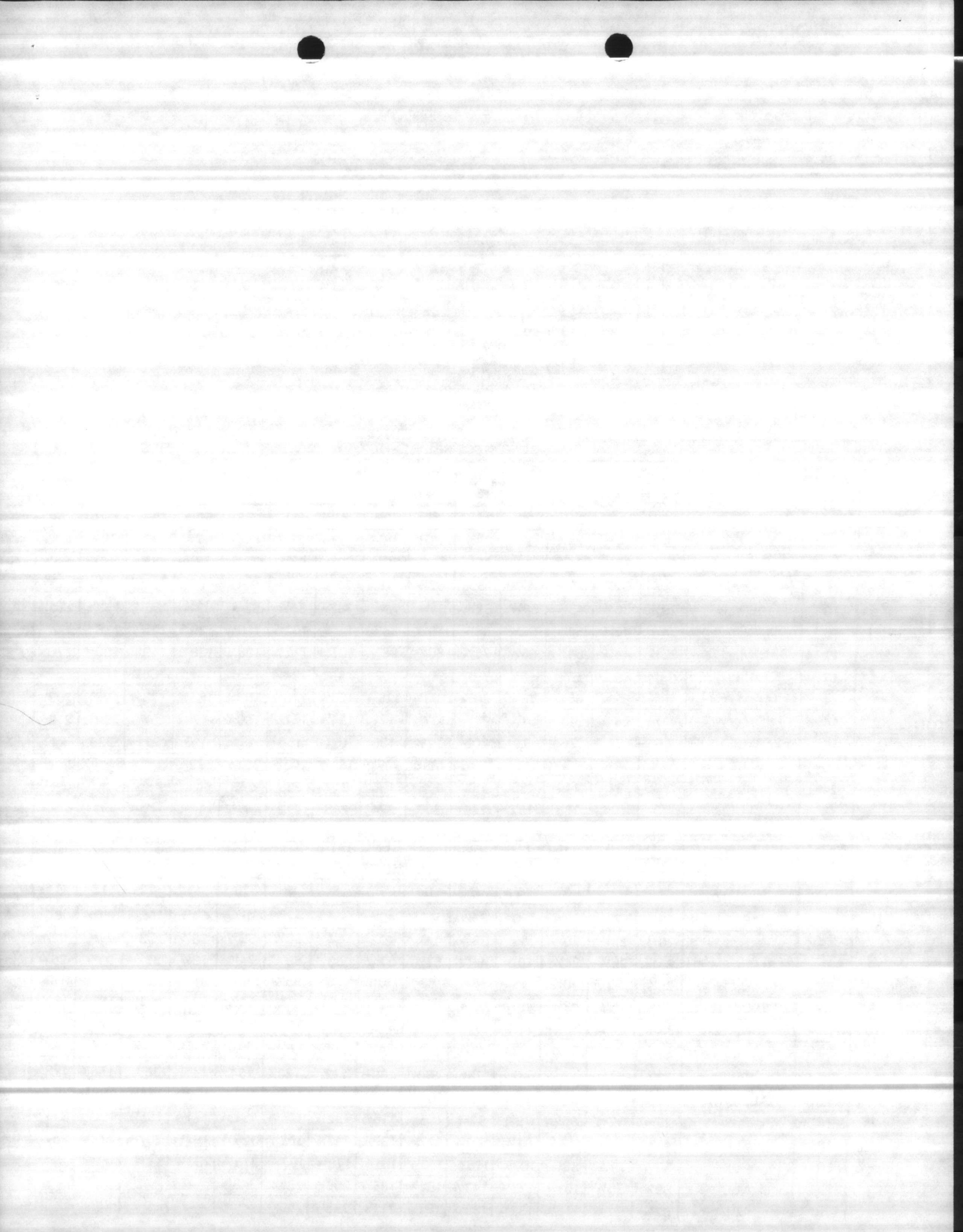
### Turbine Bowl



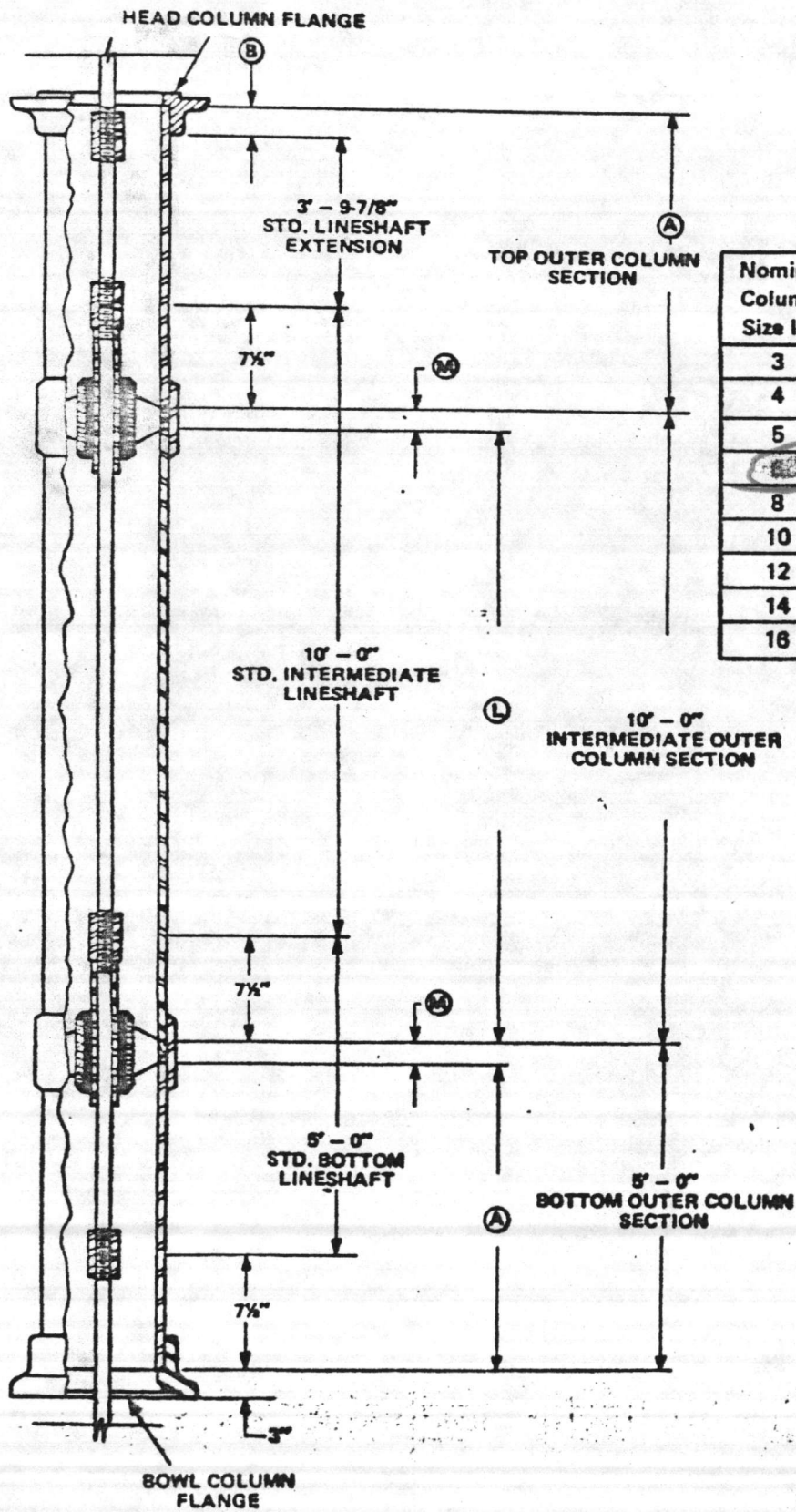
Nom. Bowl Size	Bowl Figure Number	(M) = BOWL ASSEMBLY LENGTH W/SUCTION BELL - INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	18½	22	25½	29	32½	36	39½	43	46½	50	53½	57	60½	64
	6M,H,X,W,Y	19½	24½	29½	34	38½	43½	48½	53	57½	62½	67½	72	76½	81½
	8J,8L,8K,8M,8H	23½	28½	34½	40	45½	51½	56½	62½	68½	73½	79½	85	90½	96½
8	8Y	25	32½	40	47½	55	62½	70	77½	85	92½	100	107½	115	122½
10	10L,M,H	29½	36½	43½	50½	57½	64½	71½	78½	85½	92½	99½	106½	113½	120½
10	10W,Y,Z	34½	42½	51½	59½	68½	76½	85½	93½	102½	110½	119½	127½	136½	144½
12	12L, M, H, X	33½	44½	54½	65½	75½	86½	96½	107½	117½	128½	138½	149½	159½	170½
12	12W	34½	45½	57	68½	79½	90½	102	113½	124½	135½	147	158½	169½	180½
14	14L,M,H,X	40½	53½	65½	78½	90½	103½	115½	128½	140½	153½	165½	178½	190½	203½
14	14W	41½	54½	68	81½	94½	107½	121	134½	157½	160½	174	187½	200½	213½
16	ALL	46	61	76	91	106	121	136	151	166	181	196	211	226	241
20	ALL	59½	77½	95½	113½	131½	149½	167½	185½	203½	221½	239½			
24	ALL	70	91	112	133	154	175	196	217	238	259				
28	ALL	80	104	128	152	176	200	224	248	272					

Nom. Bowl Size	Bowl Figure Number	(N) = BOWL ASSEMBLY LENGTH W/SUCTION FLANGE - INCHES													
		NUMBER OF BOWLS													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
6	6L	19½	23	26½	30	33½	37	40½	44	47½	51	54½	58	61½	65
	6M,H,X,W	20½	25½	30½	35	39½	44½	49½	54	58½	63½	68½	73	77½	82½
8	8J,8L,8K,8M,8H	23½	29½	34½	40½	46½	51½	57½	63	68½	74½	79½	85½	91½	96½
8	8Y	25½	33	40½	48	55½	63	70½	78	85½	93	100½	108	115½	123
10	10L,M,H	28½	35½	42½	49½	56½	63½	70½	77½	84½	91½	98½	105½	112½	119½
10	10W,Y,Z	33½	41½	50½	58½	67½	75½	84½	92½	101½	109½	118½	126½	135½	143½
12	12L, M, H, X	31½	42	52½	63	73½	84	94½	105	115½	126	136½	147	157½	168
12	12W	32½	44½	55½	67	78½	89½	100½	112	123½	134½	145½	157	168½	179½
14	14L,M,H,X	38½	51½	63½	76½	88½	101½	113½	126½	138½	151½	163½	176½	188½	201½
14	14W	39½	52½	65½	79½	92½	105½	118½	132½	145½	158½	171½	185½	198½	211½
16	ALL	42½	57½	72½	87½	102½	117½	132½	147½	162½	177½	192½	207½	222½	237½
20	ALL	53½	71½	89½	107½	125½	143½	161½	179½	197½	215½	233½			
24	ALL	59½	80½	101½	122½	143½	164½	185½	206½	227½	248½				
28	ALL	67½	91½	115½	139½	163½	187½	211½	235½	259½					





# Turbine Column – Water-Lube, Butt Joint



Nominal Column Size in.	A	B	L	M
3	4'11 1/2"	6 1/2"	9'11 1/2"	1/2"
4				
5	4'11 1/2"	5 1/4"	9'11 1/2"	1/2"
8				
10				
12				
14				
16				

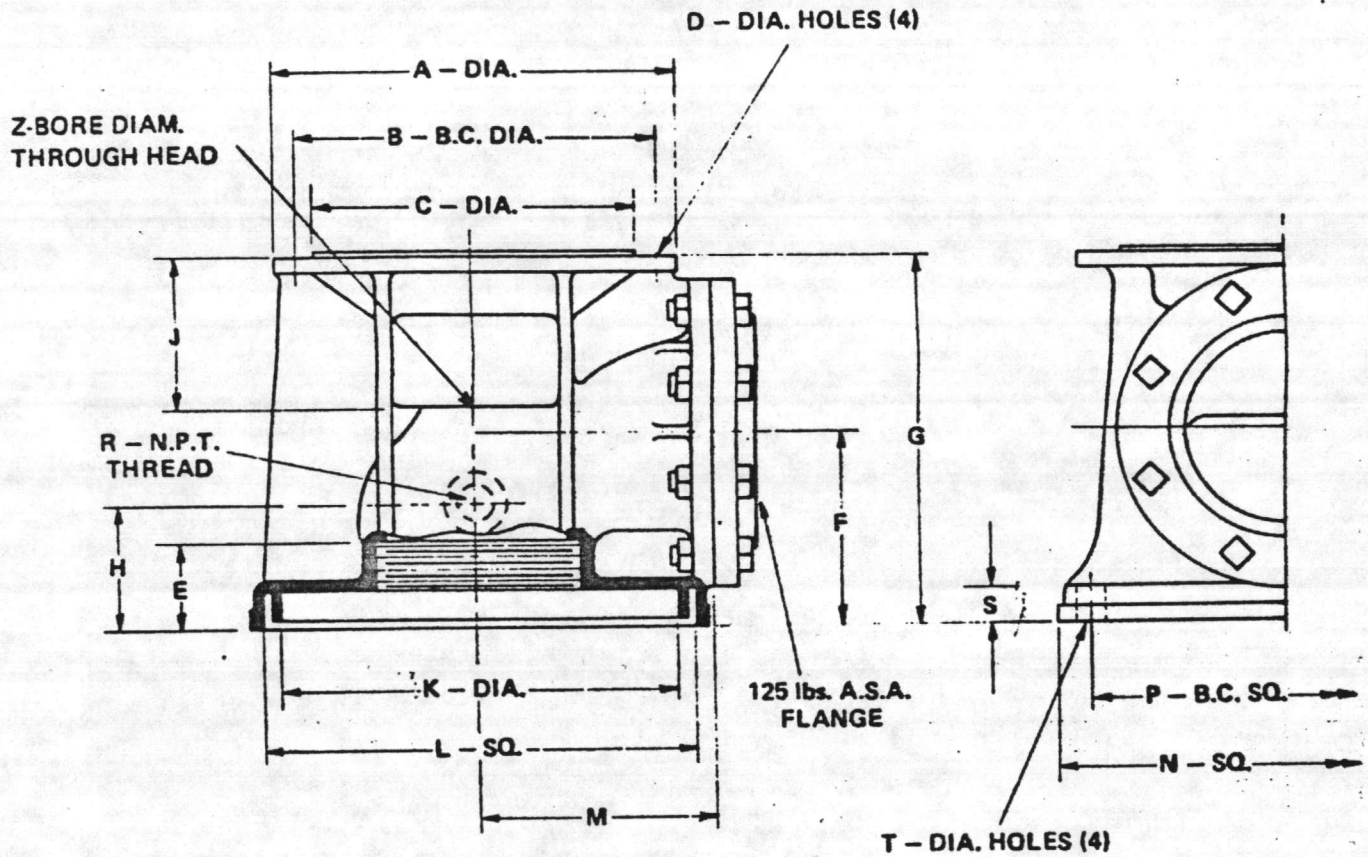




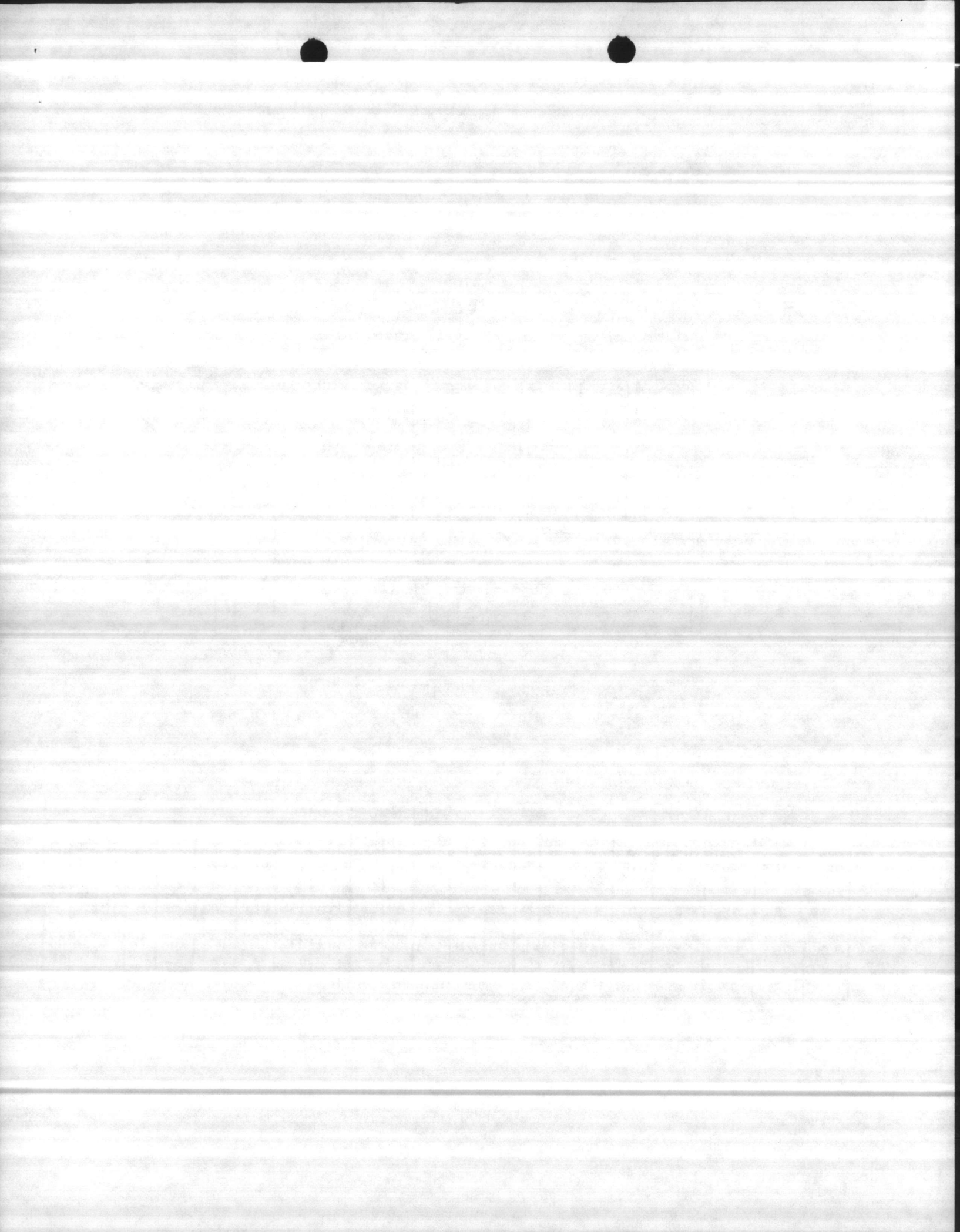
JACUZZI

DIMENSIONS

## Cast, Standard Discharge Heads



Head Fig. No.	Max. Size (In.) Disch.	Inner Col. (In.)	Outer Col. (In.)	DIMENSIONS INCHES																	
				A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	Z
L5A L5AB	6	1½	5	10	9¾	8¾	¾	¾	8¾	15¾	4	6	14¾	14¾	8¾	15¾	13¾	1	1½	¾	2¾
L6A L6AB	6	1½	6	10	9¾	8¾	¾	¾	8¾	15¾	4	6	14¾	14¾	8¾	15¾	13¾	1	1½	¾	2¾
L8C L8CD	8	2	8	16¾	14¾	13¾	¾	¾	7	15¾	4	6	16¾	17	9	18	15	1	1½	1	3
L10C	10	2½	10	16¾	14¾	13¾	¾	¾	9	18¾	5½	6	16¾	18	10	19	16	1	1½	1	3

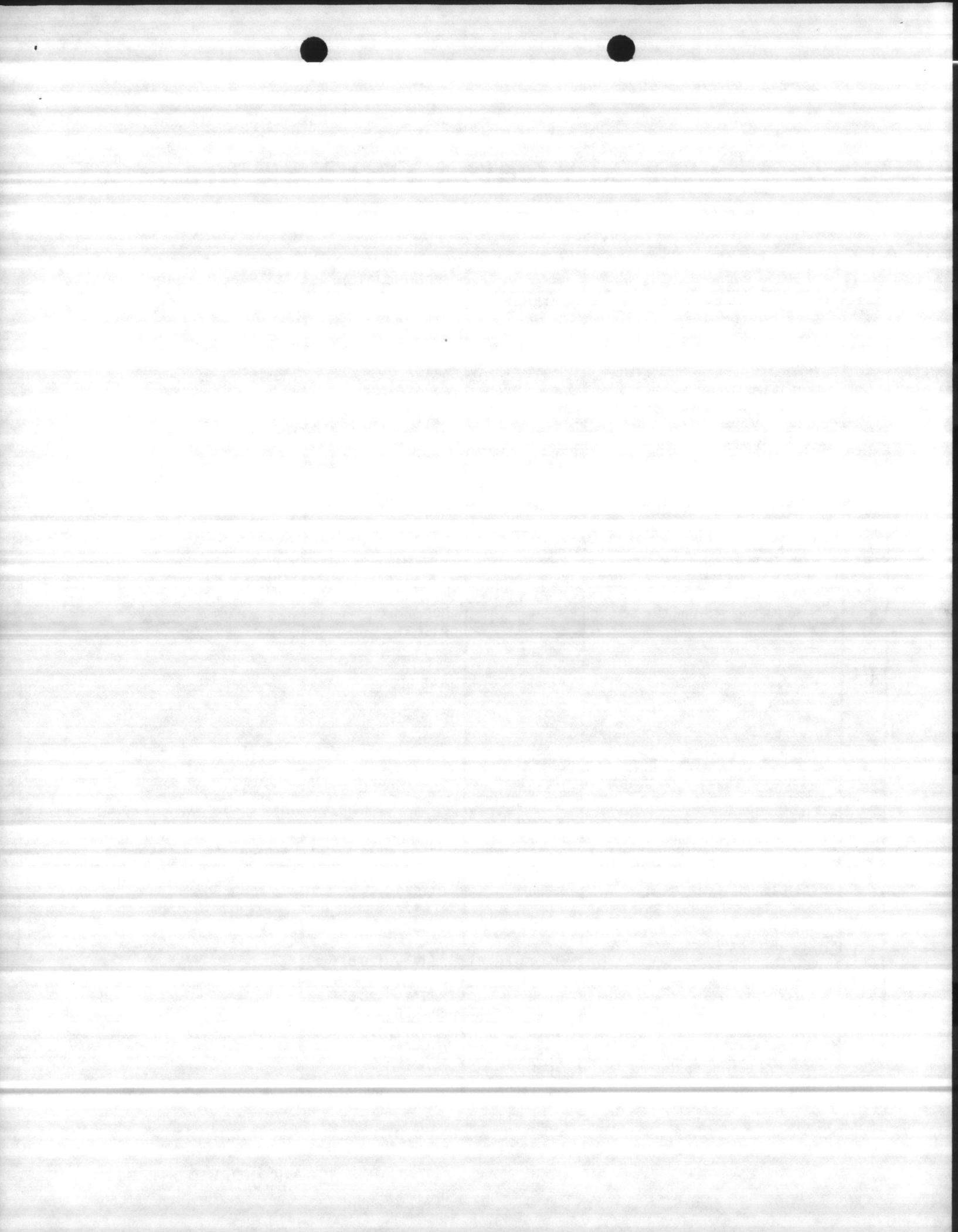


# Water Lubricated Turbine Pump

## MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
1	Discharge Head	Cast Iron	ASTM A48 CL.30	
2	Head Column Flange	Cast Iron	ASTM A48 CL.30	
3	Head Column Flange Gasket	Asbestos		
4	Studs (Hd. Column Flange Assy)	Steel	C1137	
5	Nuts (Used W/Key No. 4 Head Column Flange Assy)	Low Carbon Steel	ASTM A-307	
6	Head Discharge Flange	Cast Iron	ASTM A-126	
7	Head Discharge Flange Gasket	Asbestos		
8	Discharge Flg. Assy. Cap Scr.	Steel	ASTM A-301	
9	Discharge Flg. Assy. Nuts (Used with Key No. 8)	Low Carbon Steel	ASTM A-307	
10	Head Dsch. Flg. Assy. Studs	Steel	C1137	
11	Head Dsch. Flg. Assy. Nuts (Used With Key No. 10)	Low Carbon Steel	ASTM A-307	
14	Head Packing Housing W/Brg. Includes Key No. 32	Cast Iron (Pkg. Hsg.)	ASTM A48 CL.30	
15	"O" Ring	Buna-N		
16	Head Packing Housing Cap Scr.	S. Steel	300 Series	
18	W/L Headshaft	S. Steel	AISI 316	
19	Headshaft Flinger	Neoprene		
20	Headshaft Adj. Nut	Steel	C-1213	
21	Hd. Pkg. Hsg. Sand Shield	Bronze	SAE 660	
22	Packing (Set)	Asbestos		
23	Packing Follower	Bronze	SAE 40	
25	Hd. Pkg. Housing Grease Fittings	Steel		
26	Packing Follower Studs	S. Steel	AISI 416	
27	Packing Follower Retn. Nuts	S. Steel	300 Series	
28	Adapter Flange	Cast Iron	ASTM A48 CL45	
29	Adapter Flange O-Ring	Buna-N		
30	Adapter Flg. Assy. Cap Screws	S. Steel	300 Series	
32	W/L Headshaft Bearing	Bronze	SAE 660	
33	Headshaft Gib Key	Steel		
34	Adj. Nut Machine Screw	S. Plated		
67	Shaft Coupling (Hd. Shaft, Line Shaft, Bowl Shaf.)	Steel	C1137	
68	Shaft Adapter Coupling Hd/Sht, L/Sht., Bowl/Sht	Steel	C1137	
69	O/C Coupling	Blk. Steel	ASTM A-120-57T Grade B	
76	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
77	W/L O/C Section	Black Steel	ASTM A-120-57T Grade B	
78	W/L L/S Bearing Spider	Brass		
79	W/L L/S Bearing	Rubber		

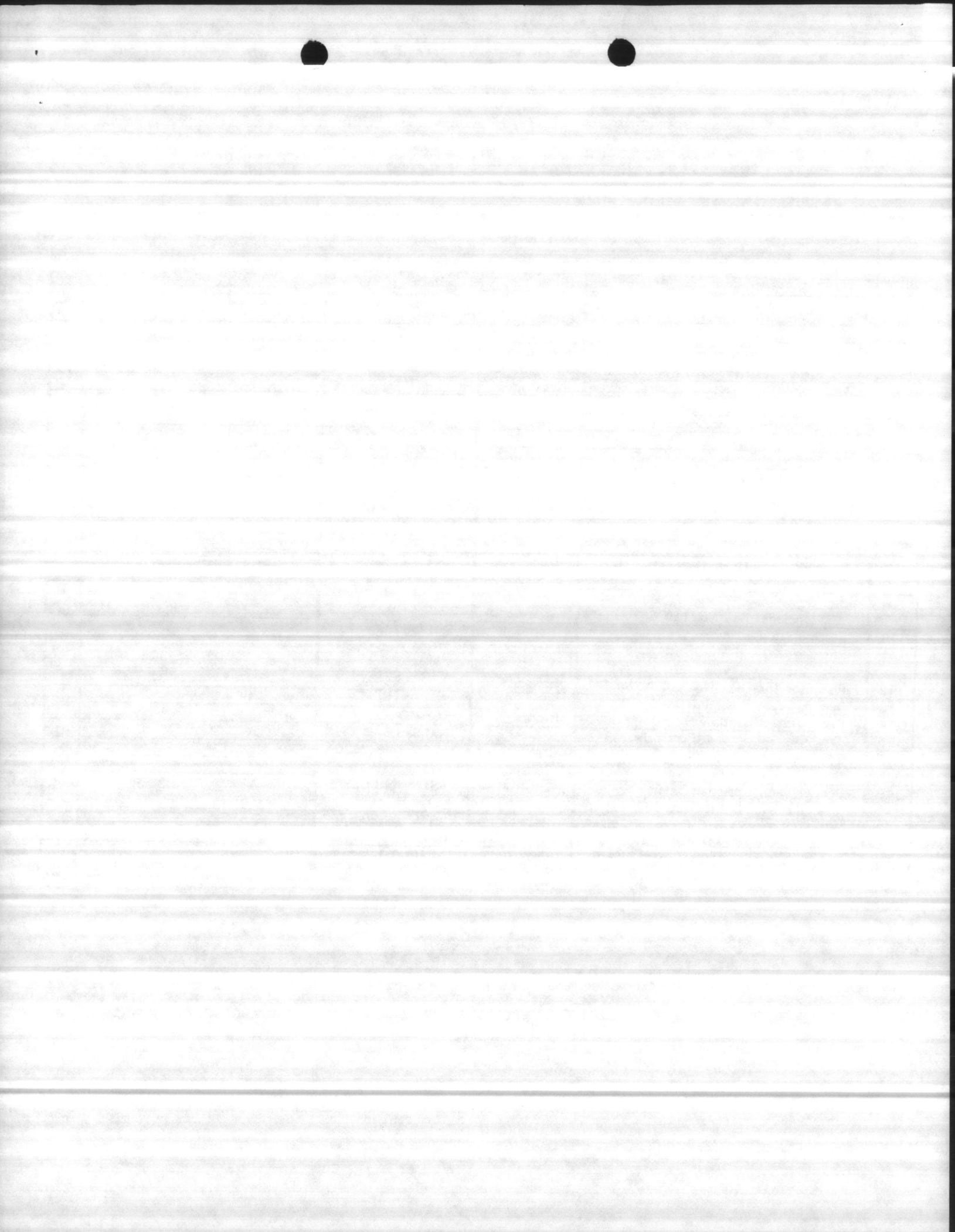




# Water Lubricated Turbine Pump

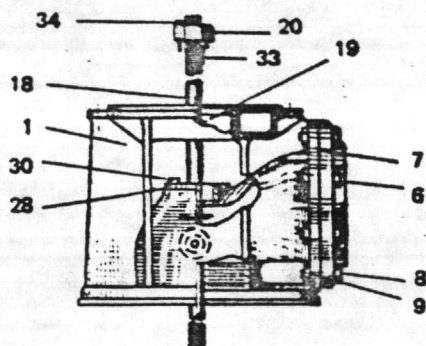
## MATERIAL SPECIFICATIONS OF STANDARD CONSTRUCTION

KEY NO.	DESCRIPTION	MATERIAL	SPECIFICATION IF APPLICABLE	PART ORDER NUMBER
80	W/L S/S Sleeve	S. Steel	304	
81	W/L L/S Extension 3' - 9 7/8" Lg.	Steel	C-1045	
82	W/S L/S Section (5' - 0" Lg.)	Steel	C-1045	
83	W/L L/S Section 10' - 0" Lg.	Steel	C-1045	
84	W/L Bowl Shaft	S. Steel	AISI 416	
90	W/L Discharge Housing Assy (Includes Key No. 91 & No. 92)	Cast Iron	ASTM A48 CL30	
91	W/L Upper Disch. Hsg. Brg.	Neoprene		
92	W/L Lower Disch. Hsg. Brg.	Neoprene		
93	W/L Disch. Hsg. Brg. Sand Cap	Bronze	SAE 40	
94	Sand Cap Set Screws (For K. No. 93)	S. Steel	300 Series	
103	Bowl Assy. (Closed Type) Includes Key No. 104	Cast Iron	ASTM A48 CL 30	
104	Bowl Bearing	Bronze	SAE 794	
105	Bowl Assy. (Semi-Open Type) Includes Key No. 104	Cast Iron	ASTM A48 CL30	
106	Impeller (Closed Type)	Bronze	SAE 40	
107	Impeller (Semi-Open Type)	Bronze	SAE 40	
108	Taper Lock	S. Steel	416 SS	
109	Brg. Stage Assy. (Closed Type) Includes Key No. 110	Cast Iron	ASTM A48 CL30	
110	Bearing Stg. Bearing	Bronze	SAE 660	
111	Brg. Stg. Assy. (Semi-Open) Includes Key No. 110	Cast Iron	ASTM A48 CL30	
112	Pipe Plug (For Key No. 109 & No. 111)	Galv. Steel		
113	Bearing Stage End Plug	Galv. Steel		
114	Bearing Stage Sand Cap	Bronze	SAE 40	
115	Sand Cap Set Screws (For K. No. 114)	S. Steel	300 Series	
116	Bowl Suction Flange	Cast Iron	ASTM A48 CL30	
117	Bowl Assy. Cap Screws	S. Steel	300 Series	
119	Suction Bell (Optional; Delete Key No. 116 if Suct. Bell is Used)	Cast Iron	ASTM A48 CL30	
152	W/L O/C Assy. T & C (Nom. 5' Lg.) (Assy of Key No. 69 & No. 76)	Black Steel	ASTM A-120-57T Grade B	
153	W/L O/C Assy T & C (Nom. 10' Lg.) (Assy of Key No. 69 & No. 77)	Black Steel	ASTM A-120-57T Grade B	

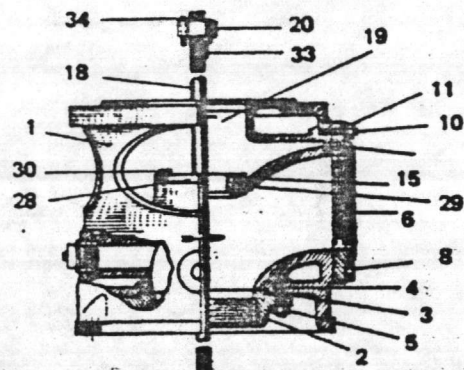
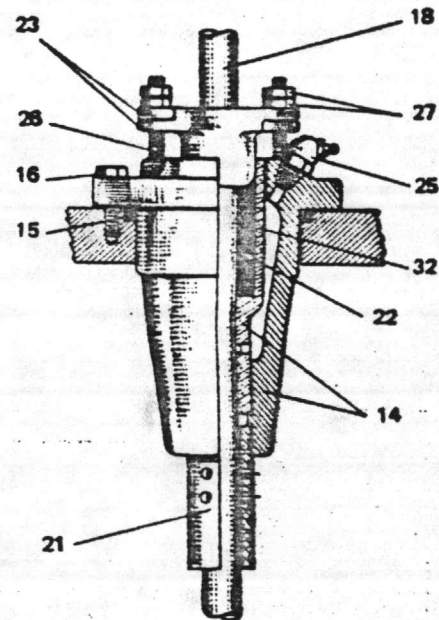




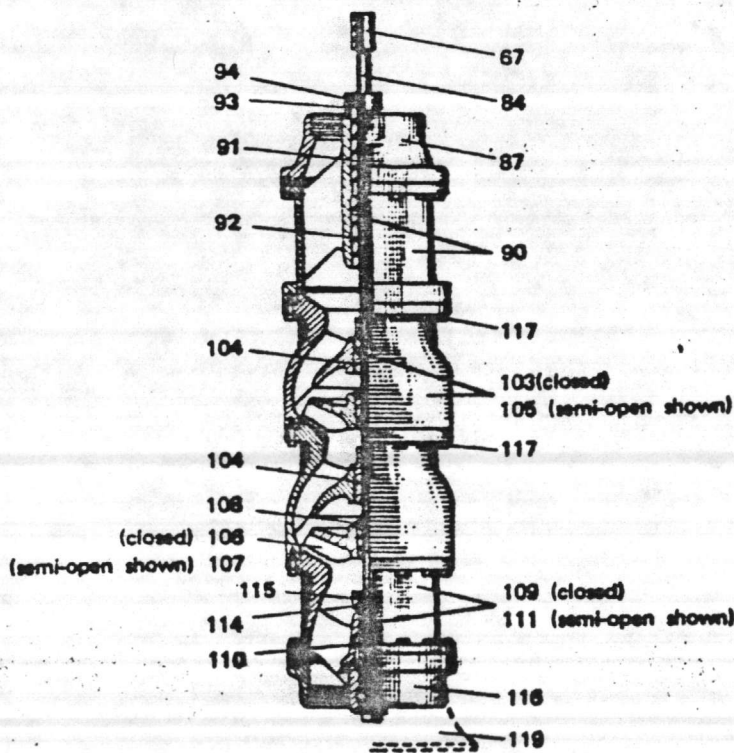
WATER LUBRICATED TURBINE PUMP PARTS DIAGRAM



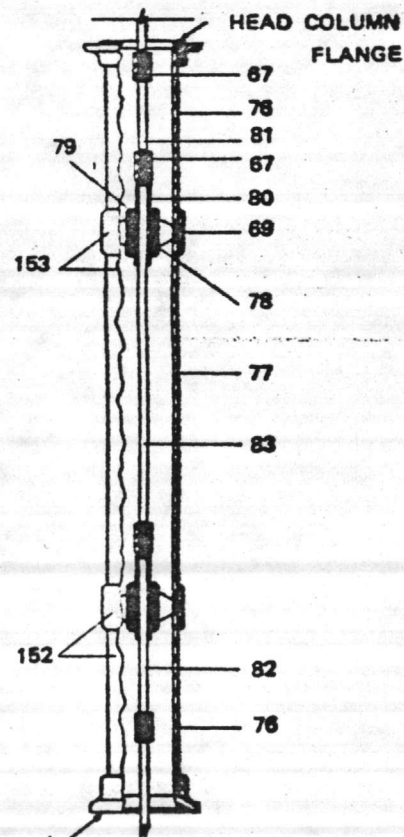
TYPICAL STANDARD HEAD



TYPICAL HEAVY DUTY HEAD



BOWL ASSEMBLY



BOWL COLUMN FLANGE



TABLE 3

NOTE: Drives that are rated at 1760 RPM vertical speed ARE NOT LIMITED to 1760 RPM. See Table 1.

MODEL	Vertical Shaft RPM	H.P. Rating	DOWNTHRUST CAPACITY IN POUNDS													
			HOLLOW SHAFT						SOLID SHAFT						COMB.	
			Type SL		Type S		Type SH		Type SSL		Type SS		Type SSH		Type C	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
20	1160	15	0	978	797	2358	797	3680	0	978	0	2358			0	2358
	1460	18	0	901	760	2173	760	3392	0	901	0	2173			0	2173
	1760	20	0	850	700	2050	700	3200	0	850	0	2050			0	2050
	3460	30	0	680	534	1640	534	2560	0	680	0	1640			0	1640
40	1160	30	0	1495	1138	3565	1138	5520	0	1495	0	3565			0	3565
	1460	35	0	1378	1055	3286	1055	5088	0	1378	0	3286			0	3286
	1760	40	0	1300	1000	3100	1000	4800	0	1300	0	3100			0	3100
60	960	39	0	2074	1490	5002	1490	7320	0	2074	0	5002			0	5002
	1160	45	0	1955	1422	4715	1422	6900	0	1955	0	4715			0	4715
	1460	53	0	1802	1331	4346	1331	6360	0	1802	0	4346			0	4346
	1760	60	0	1700	1250	4100	1250	6000	0	1700	0	4100			0	4100
80	960	52	0	3904	2085	6954	2085	11224	0	3904	0	6954			0	6954
	1160	60	0	3680	1991	6555	1991	10580	0	3680	0	6555			0	6555
	1460	70	0	3392	1846	6042	1846	9752	0	3392	0	6042			0	6042
	1760	80	0	3200	1750	5700	1750	9200	0	3200	0	5700			0	5700
100	960	66	0	3904	2101	7198	2101	11224	0	3904	0	7198			0	7198
	1160	75	0	3680	1991	6785	1991	10580	0	3680	0	6785			0	6785
	1460	88	0	3392	1856	6254	1856	9752	0	3392	0	6254			0	6254
	1760	100	0	3200	1750	5900	1750	9200	0	3200	0	5900			0	5900
125	720	68	0	5535	3135	7965	3135	12420	0	5535	0	7965			0	7965
	960	83	0	5002	2722	7198	2722	11224	0	5002	0	7198			0	7198
	1160	94	0	4715	2560	6781	2560	10580	0	4715	0	6781			0	6781
	1460	110	0	4346	2387	6254	2387	9752	0	4346	0	6254			0	6254
150	720	80	0	6750	3520	9180	3520	14243	0	6750	0	9180	0	14243	0	9180
	960	98	0	6100	3234	8296	3234	12871	0	6100	0	8296	0	12871	0	8296
	1160	112	0	5750	3059	7820	3059	12133	0	5750	0	7820	0	12133	0	7820
	1460	132	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
200	720	107	0	6750	3531	9180	3531	14243	0	6750	0	9180	0	14243	0	9180
	960	131	0	6100	3242	8296	3242	12871	0	6100	0	8296	0	12871	0	8296
	1160	150	0	5750	3072	7820	3072	12133	0	5750	0	7820	0	12133	0	7820
	1460	176	0	5300	2864	7208	2864	11183	0	5300	0	7208	0	11183	0	7208
275	720	147	0	8100	3920	17213	3920	25650	0	8100	0	13973	3920	25650		
	960	180	0	7320	3600	15555	3600	23180	0	7320	0	12627	3600	23180		
	1160	206	0	6900	3410	14663	3410	21850	0	6900	0	11903	3410	21850		CONSULT
	1460	241	0	6360	3169	13515	3169	20140	0	6360	0	10971	3169	20140		FACTORY
375	720	172	0	8700	4871	27550	4871	36250	0	8700	0	15008	4871	27550		
	960	201	0	8100	4586	25650	4586	33750	0	8100	0	13973	4586	25650		
	1160	246	0	7320	4209	23180	4209	30500	0	7320	0	12627	4209	23180		CONSULT
	1460	281	0	6900	3979	21850	3979	28750	0	6900	0	11903	3979	21850		FACTORY
450	720	207	0	8700	5583	27550	5583	36250	0	8700	0	15008	5583	27550		
	960	241	0	8100	5236	25650	5236	33750	0	8100	0	13973	5236	25650		
	1160	295	0	7320	4807	23180	4807	30500	0	7320	0	12627	4807	23180		CONSULT
	1460	337	0	6900	4545	21850	4545	28750	0	6900	0	11903	4545	21850		FACTORY
600	720	275	0	11600	6259	36250			0	11600	0	15008	6259	36250		
	960	321	0	10800	5885	33750			0	10800	0	13973	5885	33750		
	1160	367	0	10080	5568	31500			0	10080	0	13041	5568	31500		CONSULT
	1460	449	0	9200	5109	28750			0	9200	0	11903	5109	28750		FACTORY
750	720	344	0	11310	6959	36250			0	11310	0	15008	6259	36250		
	960	401	0	10530	6535	33750			0	10530	0	13973	5885	33750		
	1160	458	0	9828	6177	31500			0	9828	0	13041	5568	31500		CONSULT
	1460	561	0	9516	6001	30500			0	9516	0	12627	5404	30500		FACTORY

Please see pages 13 and 14 for all information on Model 1200 Drives.



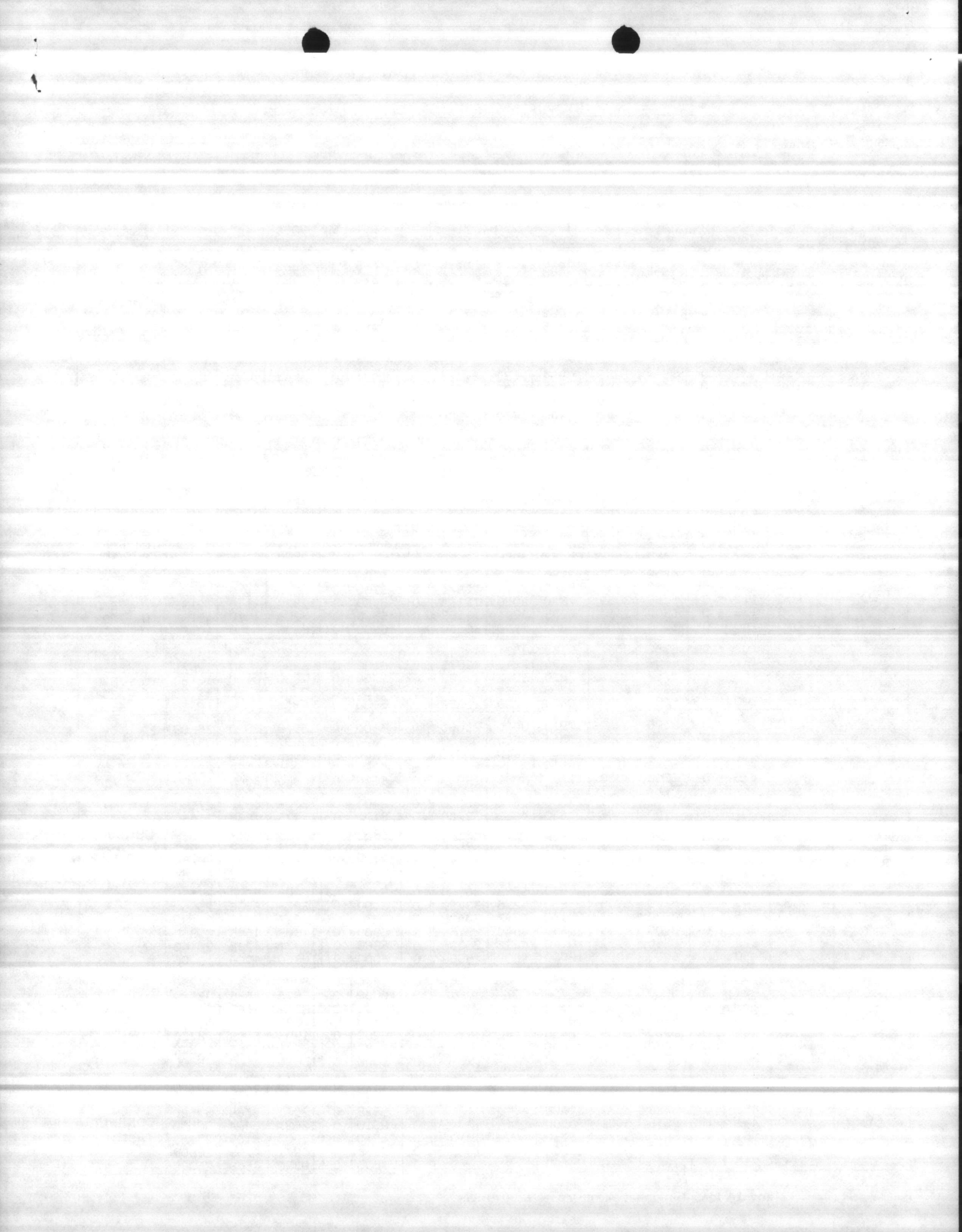


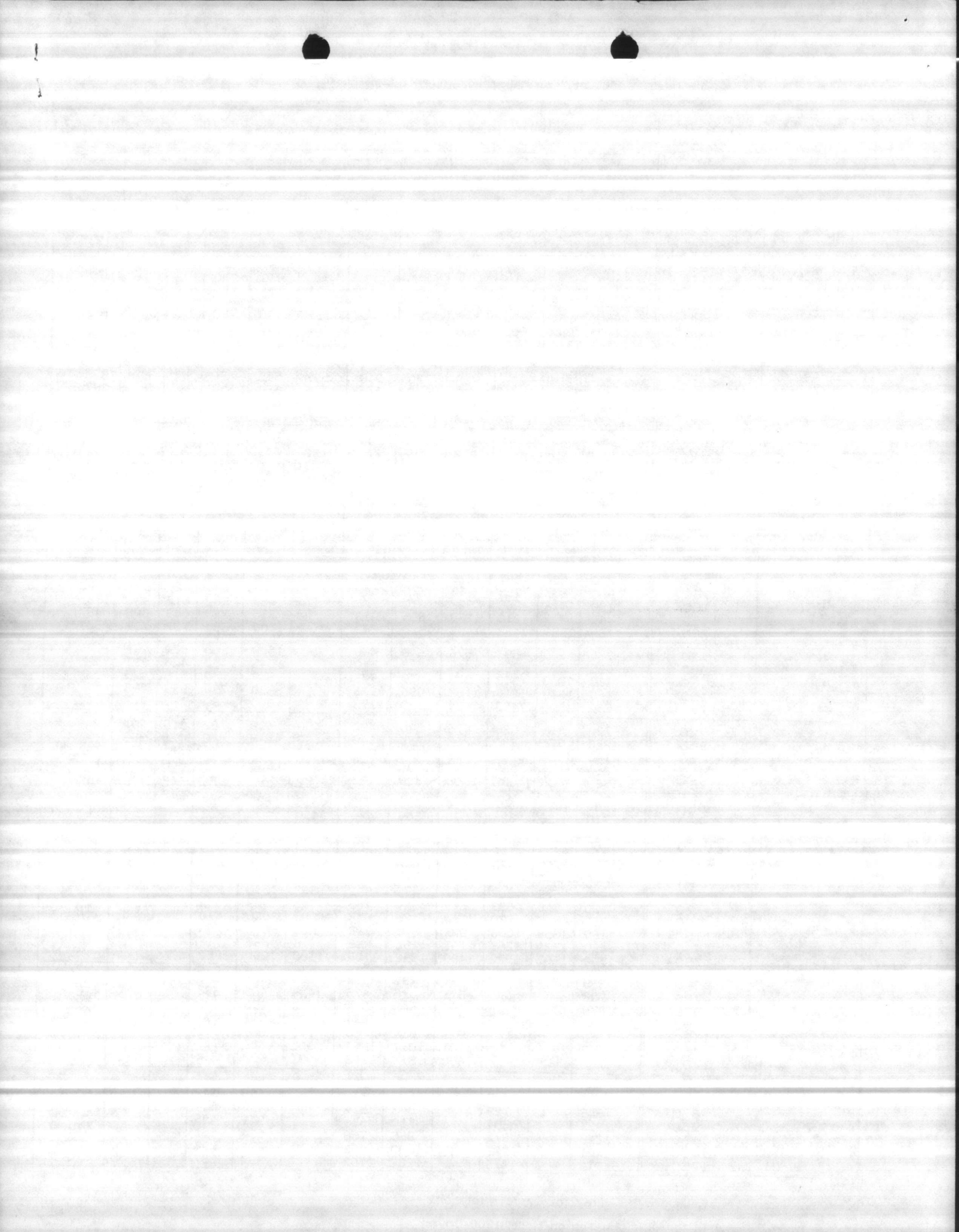
TABLE 4

NOTE: Drives that are rated at 1760 RPM vertical speed ARE NOT LIMITED to 1760 RPM. See Table 1.

MODEL	VERTICAL SHAFT RPM	ENGINE RPM											
		1:1	10:11	5:6	4:5	3:4	2:3	5:8	4:7	1:2	4:9	2:5	1:3*
20	1160	1160		967		870	773			580			387
	1460	1460		1217		1095	973			730			487
	1760	1760		1467		1320	1173			880			587
	3460	3460		2883		2595	2307			1730			1153
40	1160	1160		967		870	773		667	580			387
	1460	1460		1217		1095	973		840	730			487
	1760	1760		1467		1320	1173		1012	880			587
60	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
80	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
100	960	960	864	800	768	720	640	597	545	480		398	320
	1160	1160	1044	967	928	870	773	721	659	580		481	387
	1460	1460	1314	1217	1168	1095	973	908	830	730		605	487
	1760	1760	1584	1467	1408	1320	1173	1094	1000	880		730	587
125	720	720	650	600	576	540	480						
	960	960	867	800	768	720	640						
	1160	1160	1048	967	928	870	773						
	1460	1460	1319	1217	1168	1095	973						
1760	1760	1590	1467	1408	1320	1173							
150	720	720	650	597	576	540	480		409	360	320	293	240
	960	960	867	796	768	720	640		545	480	426	391	320
	1160	1160	1048	960	928	870	773		659	580	516	473	387
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	487
1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	587	
200	720	720	650	597	576	540	480		409	360	320	293	240
	960	960	867	796	768	720	640		545	480	426	391	320
	1160	1160	1048	960	928	870	773		659	580	516	473	387
	1460	1460	1319	1210	1168	1095	973		830	730	649	595	487
1760	1760	1590	1458	1408	1320	1173		1000	880	782	717	587	
275	720	720	656	623	576	540	480	450	409	352	318	291	CONSULT FACTORY
	960	960	875	830	768	720	640	600	546	470	425	388	CONSULT FACTORY
	1160	1160	1058	1003	928	870	773	725	660	568	513	468	CONSULT FACTORY
	1460	1460	1331	1263	1168	1095	973	913	830	715	646	590	CONSULT FACTORY
1760	1760	1605	1522	1408	1320	1173	1100	1000	862	778	711	CONSULT FACTORY	
375	580	580	529	502	464	439	392	363	330	284			CONSULT FACTORY
	720	720	656	623	576	545	486	450	409	352			CONSULT FACTORY
	960	960	875	830	768	726	648	600	546	470			CONSULT FACTORY
	1160	1160	1058	1003	928	875	783	725	660	568			CONSULT FACTORY
1460	1460	1331	1263	1168	1105	985	913	830	715			CONSULT FACTORY	
1760	1760	1605	1522	1408	1332	1188	1100	1000	862			CONSULT FACTORY	
450	580	580	529	502	461	439	392	363	330	284			CONSULT FACTORY
	720	720	656	623	573	545	486	450	409	352			CONSULT FACTORY
	960	960	875	830	764	726	648	600	546	470			CONSULT FACTORY
	1160	1160	1058	1003	923	878	783	725	660	568			CONSULT FACTORY
1460	1460	1331	1263	1161	1105	985	913	830	715			CONSULT FACTORY	
1760	1760	1605	1522	1400	1392	1188	1100	1000	862			CONSULT FACTORY	
600	580	580			461	432	383	360	327	285			CONSULT FACTORY
	720	720			573	536	475	447	406	353			CONSULT FACTORY
	870	870			692	648	574	539	490	427			CONSULT FACTORY
	960	960			764	715	634	595	541	471			CONSULT FACTORY
1160	1160			923	864	766	719	654	569			CONSULT FACTORY	
1460	1460			1161	1087	964	905	823	717			CONSULT FACTORY	
1760	1760			1400	1311	1162	1091	992	864			CONSULT FACTORY	
750	580	565		486		429	383		327	276			CONSULT FACTORY
	720	700		603		533	475		406	342			CONSULT FACTORY
	870	846		729		643	574		490	414			CONSULT FACTORY
	960	933		804		710	634		541	456			CONSULT FACTORY
1160	1128		972		858	766		654	551			CONSULT FACTORY	
1460	1421		1223		1080	963		823	694			CONSULT FACTORY	
1760	1712		1475		1302	1162		992	837			CONSULT FACTORY	

\*Model 20 1:3 ratio not available with Figure 2 or Figure 3 rotation.

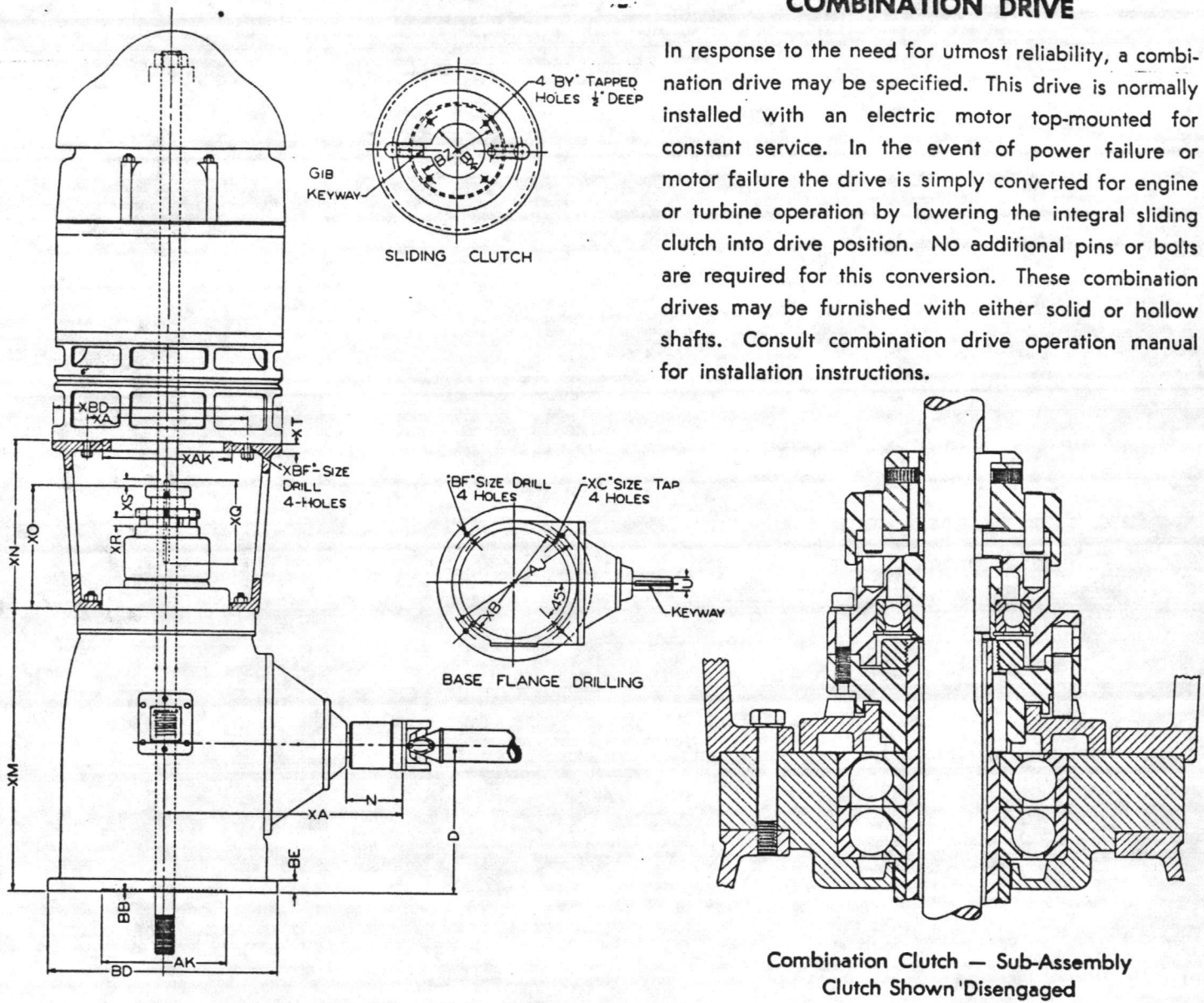
Please see pages 13 and 14 for all information on Model 1200 Drives.





# COMBINATION DRIVE

In response to the need for utmost reliability, a combination drive may be specified. This drive is normally installed with an electric motor top-mounted for constant service. In the event of power failure or motor failure the drive is simply converted for engine or turbine operation by lowering the integral sliding clutch into drive position. No additional pins or bolts are required for this conversion. These combination drives may be furnished with either solid or hollow shafts. Consult combination drive operation manual for installation instructions.



Combination Clutch — Sub-Assembly  
Clutch Shown 'Disengaged'

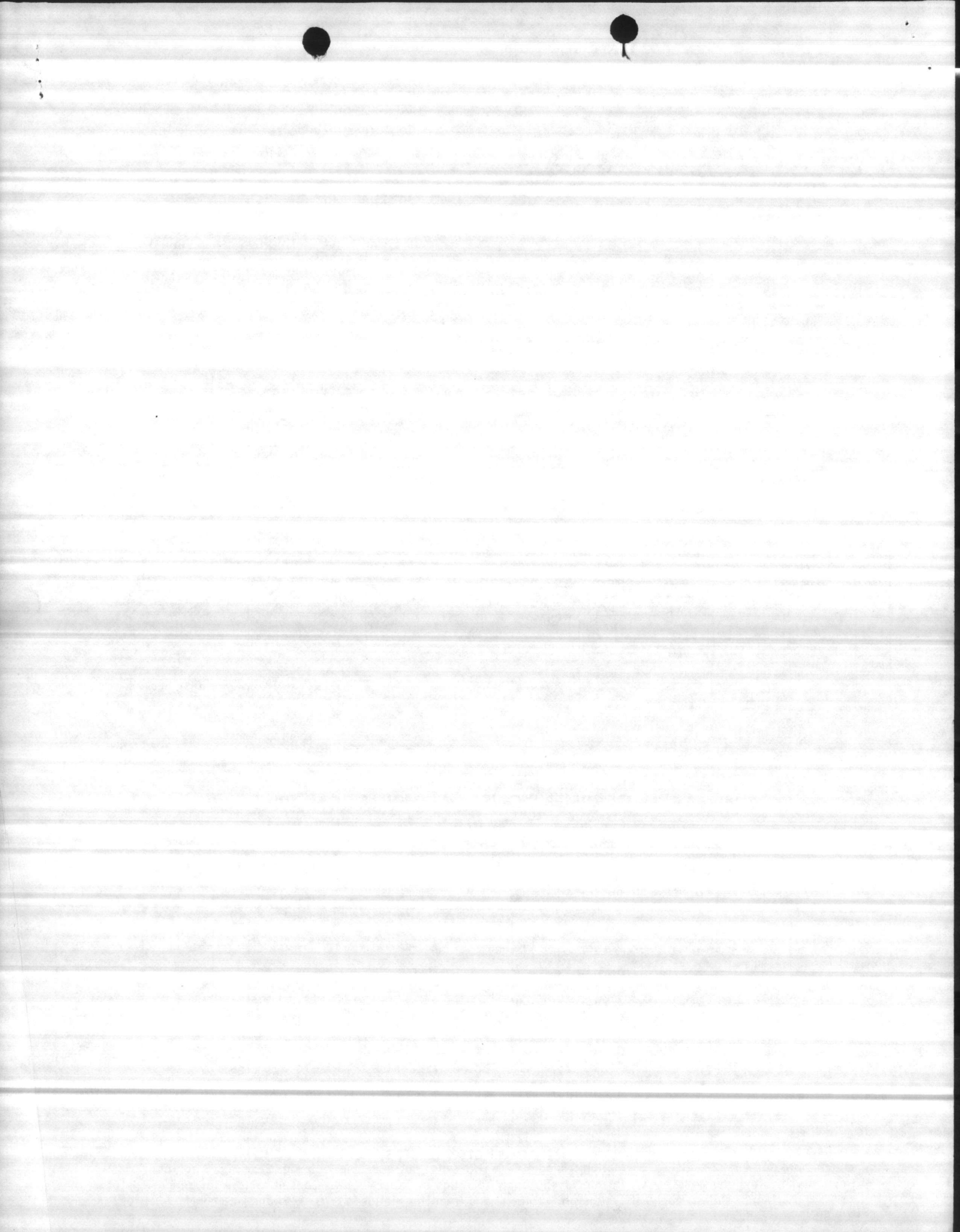
TABLE OF DIMENSIONS — COMBINATION DRIVE  
TABLE 7

MODEL	D	N	HORIZONTAL SHAFT U			AJ	AK	BB	BD	BE	BF	XA	XB	XC	XL	XM	XN	XO	XQ	XR	XS	XT	XAJ	XAK	XBD	XBF	BX BORE
			NOMINAL	ACTUAL	KEYWAY																						MAXIMUM
C20	6 <sup>3</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	1.249	5 <sup>5</sup> / <sub>16</sub> X 3 <sup>5</sup> / <sub>32</sub>	9 <sup>9</sup> / <sub>8</sub>	8.250	3 <sup>5</sup> / <sub>16</sub>	10	5 <sup>8</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	10 <sup>7</sup> / <sub>8</sub>			9 <sup>9</sup> / <sub>32</sub>	12 <sup>4</sup> / <sub>8</sub>	12 <sup>2</sup> / <sub>8</sub>	5 <sup>2</sup> / <sub>8</sub>	5 <sup>4</sup> / <sub>8</sub>	1 <sup>2</sup> / <sub>2</sub>	1 <sup>2</sup> / <sub>2</sub>	7 <sup>16</sup> / <sub>16</sub>					1 *
C40A	8 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1.499	3 <sup>8</sup> / <sub>8</sub> X 3 <sup>16</sup> / <sub>16</sub>	9 <sup>9</sup> / <sub>8</sub>	8.250	1 <sup>4</sup> / <sub>4</sub>	12	13 <sup>13</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>8</sub>			9 <sup>9</sup> / <sub>32</sub>	16 <sup>16</sup> / <sub>16</sub>	16	6 <sup>2</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	2 <sup>2</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>					1 <sup>4</sup> / <sub>4</sub>
C40B	8 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	1.499	3 <sup>8</sup> / <sub>8</sub> X 3 <sup>16</sup> / <sub>16</sub>	14 <sup>3</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	16 <sup>2</sup> / <sub>2</sub>	13 <sup>13</sup> / <sub>16</sub>	11 <sup>11</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>8</sub>			9 <sup>9</sup> / <sub>32</sub>	16 <sup>16</sup> / <sub>16</sub>	16	6 <sup>2</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>	2 <sup>2</sup> / <sub>8</sub>	5 <sup>5</sup> / <sub>8</sub>					1 <sup>4</sup> / <sub>4</sub>
C60	11 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1.499	3 <sup>8</sup> / <sub>8</sub> X 3 <sup>16</sup> / <sub>16</sub>	14 <sup>3</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	16 <sup>2</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>4</sub>	11 <sup>11</sup> / <sub>16</sub>	16 <sup>3</sup> / <sub>4</sub>			9 <sup>9</sup> / <sub>32</sub>	20 <sup>20</sup> / <sub>16</sub>	18	7 <sup>13</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>4</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>					1 <sup>2</sup> / <sub>2</sub>
C80	11 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>7</sup> / <sub>8</sub>	1.874	3 <sup>8</sup> / <sub>8</sub> X 3 <sup>16</sup> / <sub>16</sub>	14 <sup>3</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	16 <sup>2</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>4</sub>	11 <sup>11</sup> / <sub>16</sub>	16 <sup>3</sup> / <sub>4</sub>			9 <sup>9</sup> / <sub>32</sub>	20 <sup>20</sup> / <sub>16</sub>	18	7 <sup>13</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>4</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>					1 <sup>2</sup> / <sub>2</sub>
C100	11 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>7</sup> / <sub>8</sub>	1.874	3 <sup>8</sup> / <sub>8</sub> X 3 <sup>16</sup> / <sub>16</sub>	14 <sup>3</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	16 <sup>2</sup> / <sub>2</sub>	3 <sup>4</sup> / <sub>4</sub>	11 <sup>11</sup> / <sub>16</sub>	16 <sup>3</sup> / <sub>4</sub>			9 <sup>9</sup> / <sub>32</sub>	20 <sup>20</sup> / <sub>16</sub>	18	7 <sup>13</sup> / <sub>16</sub>	7 <sup>7</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>4</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>					1 <sup>2</sup> / <sub>2</sub>
C125	11 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>16</sub>	2.436	5 <sup>8</sup> / <sub>8</sub> X 5 <sup>16</sup> / <sub>16</sub>	14 <sup>3</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	16 <sup>2</sup> / <sub>2</sub>	5 <sup>5</sup> / <sub>4</sub>	11 <sup>11</sup> / <sub>16</sub>	18 <sup>3</sup> / <sub>4</sub>			9 <sup>9</sup> / <sub>32</sub>	21 <sup>21</sup> / <sub>8</sub>	18	7 <sup>7</sup> / <sub>2</sub>	9 <sup>9</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>4</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>					1 <sup>11</sup> / <sub>16</sub>
C150	13 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	2 <sup>7</sup> / <sub>16</sub>	2.436	5 <sup>8</sup> / <sub>8</sub> X 5 <sup>16</sup> / <sub>16</sub>	18 <sup>1</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	20	1 <sup>18</sup> / <sub>16</sub>	11 <sup>11</sup> / <sub>16</sub>	20 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>	25 <sup>5</sup> / <sub>8</sub>	20	9	10	7 <sup>7</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>					2 *
C200	13 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	2 <sup>7</sup> / <sub>16</sub>	2.436	5 <sup>8</sup> / <sub>8</sub> X 5 <sup>16</sup> / <sub>16</sub>	18 <sup>1</sup> / <sub>4</sub>	13.500	1 <sup>4</sup> / <sub>4</sub>	20	1 <sup>18</sup> / <sub>16</sub>	11 <sup>11</sup> / <sub>16</sub>	20 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>	25 <sup>5</sup> / <sub>8</sub>	20	9	10	7 <sup>7</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>2</sub>	7 <sup>7</sup> / <sub>8</sub>					2
C275	16	6	2 <sup>15</sup> / <sub>16</sub>	2.936	3 <sup>4</sup> / <sub>8</sub> X 3 <sup>8</sup> / <sub>8</sub>	23	13.500	1 <sup>4</sup> / <sub>4</sub>	24 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	13 <sup>13</sup> / <sub>16</sub>	25 <sup>2</sup> / <sub>2</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>		27	12 <sup>2</sup> / <sub>2</sub>	11 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	3 <sup>2</sup> / <sub>2</sub>	1					2 <sup>16</sup> / <sub>16</sub>
C375	16	6	2 <sup>15</sup> / <sub>16</sub>	2.936	3 <sup>4</sup> / <sub>8</sub> X 3 <sup>8</sup> / <sub>8</sub>	23	13.500	1 <sup>4</sup> / <sub>4</sub>	24 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	13 <sup>13</sup> / <sub>16</sub>	25 <sup>2</sup> / <sub>2</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>		27	12 <sup>2</sup> / <sub>2</sub>	11 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	3 <sup>2</sup> / <sub>2</sub>	1					2 <sup>16</sup> / <sub>16</sub>
C450	16	6	3 <sup>3</sup> / <sub>4</sub>	3.749	7 <sup>8</sup> / <sub>8</sub> X 7 <sup>16</sup> / <sub>16</sub>	23	13.500	1 <sup>4</sup> / <sub>4</sub>	24 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	13 <sup>13</sup> / <sub>16</sub>	25 <sup>2</sup> / <sub>2</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>		27	12 <sup>2</sup> / <sub>2</sub>	11 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	3 <sup>2</sup> / <sub>2</sub>	1					2 <sup>16</sup> / <sub>16</sub>
C600	18	6	3 <sup>3</sup> / <sub>4</sub>	3.749	7 <sup>8</sup> / <sub>8</sub> X 7 <sup>16</sup> / <sub>16</sub>	23	13.500	1 <sup>4</sup> / <sub>4</sub>	24 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	13 <sup>13</sup> / <sub>16</sub>	26 <sup>3</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>8</sub>	5 <sup>11</sup> / <sub>8</sub> -11-NC	9 <sup>9</sup> / <sub>32</sub>		27	12 <sup>2</sup> / <sub>2</sub>	11 <sup>2</sup> / <sub>2</sub>	1 <sup>18</sup> / <sub>16</sub>	3 <sup>2</sup> / <sub>2</sub>	1					2 <sup>16</sup> / <sub>16</sub>
C750	21	8	4	3.998	1 X 2	28 <sup>2</sup> / <sub>2</sub>	22.000	4	30 <sup>2</sup> / <sub>2</sub>	1 <sup>14</sup> / <sub>16</sub>	13 <sup>13</sup> / <sub>16</sub>	36 <sup>3</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>2</sub>	3 <sup>10</sup> / <sub>16</sub> -10-NC	7 <sup>9</sup> / <sub>16</sub>		30	16 <sup>4</sup> / <sub>4</sub>	15	1 <sup>13</sup> / <sub>16</sub>	4	1 <sup>4</sup> / <sub>4</sub>					2 <sup>15</sup> / <sub>16</sub>

\* Model C20, ratio 1:3, maximum clutch bore 7/8"; Model C150, ratio 1:3, maximum 1-11/16". Consult factory for maximum clutch bore for Fig. 2 and Fig. 3 rotation. Model C20, 1:3 ratio, not available with Fig. 2 or Fig. 3 rotation.

\*\* Horizontal shaft dimensions shown for Model 450 apply to ratios in Table 4 only. Consult factory for dimensions of all others.

10† "XA" dimensions shown apply to ratios in Table 4 and reducing ratios 11:10, 6:5 and 4:3 only. Consult factory for dimensions of all others.



New WELL Replacement ~~613~~

(623)