FILE FOLDER

DESCRIPTION ON TAB:

M.P. Well 142

☑ **Outside/inside of actual folder did not contain hand written information**

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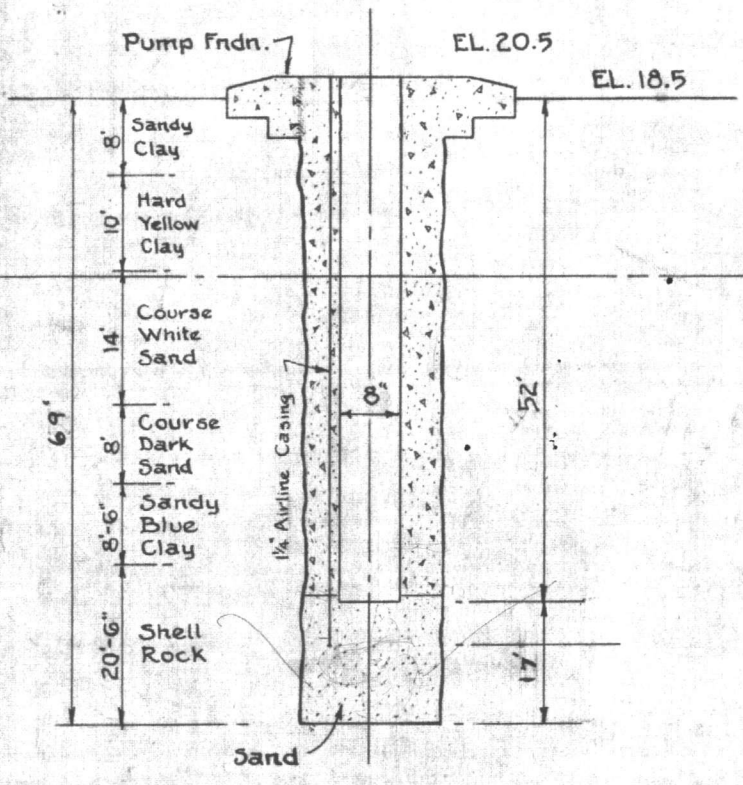
New Bern, NC
1-888-622-4425
9/08

100 G.P.M. - SINGLE DRIVE - 5 H.P.



MP 142

MONTFORD POINT WELL No. Z-1

DATE	WELL #	LINE PRESS	STATIC	PUMPING LEVEL	D.D.	G.P.M.	S.L.
7-11-67	Z-1	50	33.5	19'	14.5	84	-10.5
7-11-67	Z-1	48	33.5	17.5	16	88	-12
7-11-67	Z-1	46	33.5	16	17.5	92	-13.5
7-11-67	Z-1	(44)	33-5	14.5	19	98	-15
7-11-67	Z-1	42	33.5	13.	20.5	100	-16.5
7-11-67	Z-1	40	33.5	12	21.5	104	-17.5

11/21/75

Montford PT wells

Z-1 Bldg M142

Depth - 69'

GPM - 100 original. at present 50 GPM

TDH - 147

Casing 8"

STATIC - 16'

DD 27' PUMPING LEVEL 43'

airline = 55' + 20.5 - 34.5 sea level elv. 20.5" + 20.5 -

motor H.P. X 7.5 ✓

PUMP SIZE 6"

SETTING 50'

142 Static 29-33
32

DD 12

143 ST 36-40

DD - 3-12

628 ST. 29-34

DD - 9-12

168 ST 62

DD 29-35

197 ST 30
DD 10-14 airline 63'

MH2
10-15-85

AL	SL	PL	DD	PSI	GPM	TIME
51	11	35	24	40	100	

WELL NUMBER M 142		BY Thomas Brown			DATE 1-17-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1330
51'	→ 11	41	30	45	100	1340
	@ pet					

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

WELL # 2-1

PLACE - Montford Point DATE - 6 Dec 1956

ORIGINAL WELL CAPACITY G.P.M. 100

ORIGINAL WELL		TESTING	
Depth of Well	69'	Depth after Cleaning	69'
Pump Size		Test Pump Setting	55'
Pump Setting	55	Measured Static Water Level	16' 0"
Static Water Level	7.8 ele.	Depth of Air Line	55'

Static on gauge 21.5

CONDITION OF WELL - Existing pump broken . Pump from Well Z-5 used temporarily.

STATIC LEVEL ON GAUGE

Inches of water in dizometer tube	G.P.M.	30 Min.	45 Min.	60 Min.	1 Hour
50	50	PL	PL	PL	PL 32
	60	PL	PL	PL	PL 35
	70	PL	PL	PL	PL 36.5
	80	PL	PL	PL	PL 39
	90	PL	PL	PL	PL 40.5
	100	PL	PL	PL	PL 44
	110	PL	PL	PL	PL 47'
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL
		PL	PL	PL	PL

RECOVERY		
10 Sec.		28
20	PL	30
30	PL	30
40	PL	29
50	PL	28
60	PL	28
2 Min.	PL	27.5
4	PL	26
8	PL	26
16	PL	25
32	PL	24
45	PL	23.5

FORM A-4
(JUNE '66)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 19

1. AGENCY CODE	2. TYPE	3. LATITUDE	4. LONGITUDE	5.
MC	Q	° ' " N 34 43 47	° ' " W 77 24 30	

6. AGENCY STATION NO.	7. STATION NAME
M142	M178-Z1

8. DRAINAGE BASIN CODE No. Letter	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
06 N	32	133	ONSLOW

12. PERIOD OF RECORD Began Discontinued	Y ☐ Continuous Interruption Exceeds 1 Year	13.	14.
1945			

15. SITE

☐ 101 Stream
☐ 102 Canal
☐ 103 Lake
☐ 104 Reservoir
☐ 105 Estuary
☐ 106 Spring
☒ 107 Well
☐ 110 Other

16. FREQUENCY OF MEASUREMENT

☐ 201 Continuous Recorder
☐ 202 Telemetered
☐ 203 Daily
☐ 204 Weekly
☐ 205 Monthly
☐ 206 Quarterly
☐ 207 Seasonal
☐ 208 Annual
☐ 209 Other Periodic
☒ 210 Occasional

17. TYPES OF DATA AVAILABLE

Physical
☐ 311 Temperature
☐ 312 Specific Conductance
☐ 313 Turbidity
☐ 314 Color
☐ 315 Odor
☐ 316 Radioactivity
☐ 317 pH (field)
☒ 318 pH (lab)
☐ 319 Eh
☐ 320 Other

Chemical
☐ 331 Dissolved solids
☒ 332 Chlorides Only
☐ 333 Nutrients (Nitrogen and phosphorus compounds)
☐ 334 Common ions
☒ 335 Hardness
☐ 336 Radiochemical
☐ 337 Dissolved oxygen
☐ 338 Other Gases
☐ 339 Other

Organic
☐ 351 Pesticides (insecticides, herbicides, etc.)
☐ 352 Synthetic detergents
☐ 353 Other

Biologic
☐ 361 Coliforms
☐ 362 Other Micro-organisms
☐ 363 BOD
☐ 364 Other

Sediment
☐ 371 Concentration
☐ 372 Particle size
☐ 373 Other

18. SUPPLEMENTARY DATA FOR SITE

☐ 421 Surface Water Station
☐ 422 Ground Water Station
☐ 423 Water Stage or Level
☒ 424 Water discharge
☐ 425 Time of Travel
☐ 426 Drainage Area

19. STORAGE OF DATA

☐ 501 Periodic Report
☐ 502 Areal Report
☒ 503 Not Published
☐ 504 Data on Punchcard
☐ 505 Data on Magnetic Tape
☐ 506 Other

20. OFFICE AT WHICH DATA AVAILABLE

Office: BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION

Street No.: MARINE CORPS BASE,

City, State, Zip: CAMP LEJEUNE, N. C. 28542

City Code: 0735

21. OFFICE COMPLETING FORM

BASE MAINTENANCE DEPARTMENT

22. COMPILER'S NAME

F. E. TEW, JR.

23. DATE

Month: 09 Year 19: 66

December 11, 1956

Test run on well Z1 at Montford Point Starting Pump Level 21.6

GPM	10 Sec.	20 Sec.	30 Sec.	
50	32.00	32.00	32.00	Pumping Level
60	35.00	35.00	35.00	" "
70	36½	36½	36½	" "
80	39.00	39.00	39.00	" "
90	40½	40½	40½	" "
100	44.00	44.00	44.00	" "
110	46.00	47.00	47.00	" "
120	48.00	48.00	48½	49.00

RECOVERY

5 Sec.	35'
10 "	28.00
15 "	28.00
20 "	30.00
30 "	30.00
45.00 "	29.00
60 "	28.00
2 Min	27½
4 "	26.00
8 "	26.00
16 "	25.00
20 "	24½
25 "	24.00
30 "	24.00
35 "	23½
40 "	23.
60 "	22½

December 11, 1956

Test run on well 21 at Monkford Point Starting Pump Level 21.6

GPM	10 Sec.	20 Sec.	30 Sec.	
50	32.00	32.00	32.00	Pumping Level
60	35.00	35.00	35.00	"
70	36½	36½	36½	"
80	39.00	39.00	39.00	"
90	40½	40½	40½	"
100	44.00	44.00	44.00	"
110	46.00	47.00	47.00	"
120	48.00	48.00	48½	49.00

RECOVERY

5 Sec.	35'	
10 "	28.00	
15 "	28.00	
20 "	30.00	
30 "	30.00	
45 "	29.00	
60 "	28.00	
2 Min	27½	
4 "	26.00	
8 "	26.00	
16 "	25.00	
30 "	24½	
45 "	24.00	
60 "	24.00	
75 "	23½	
90 "	23.	
60 "	22½	

WELL NUMBER M142		BY THOMAS / RAYNOR			DATE 4-7-83	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME
51	11	35	24	50	100	0900
						1100

REMARKS pump set at 45' with 10' tail section - 4" Column
air line 51' 1" shaft

line pressure 35 PSI Discharge pressure
acid cleaned well - twice - cleaned with K-5, 30 gal
Chlorinated well surged + blew out

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE
Valley	15	6HMO-15	147	6" pump

Well # Z-1

Date	Line Ft.	G.P.M.	D.D. El.	Static El.	Shut Off Head	D.D. Ft.

New Pump. Started 5-2-57.
Johnston Pump. SER.# NCL-95.
Air Line. 51 ft - Static level. 16 ft from Pump Base.
" " 35 ft reading on Gage.
Pumping level. 10 ft. " " "
DD. 25 ft. -18.5 EL.

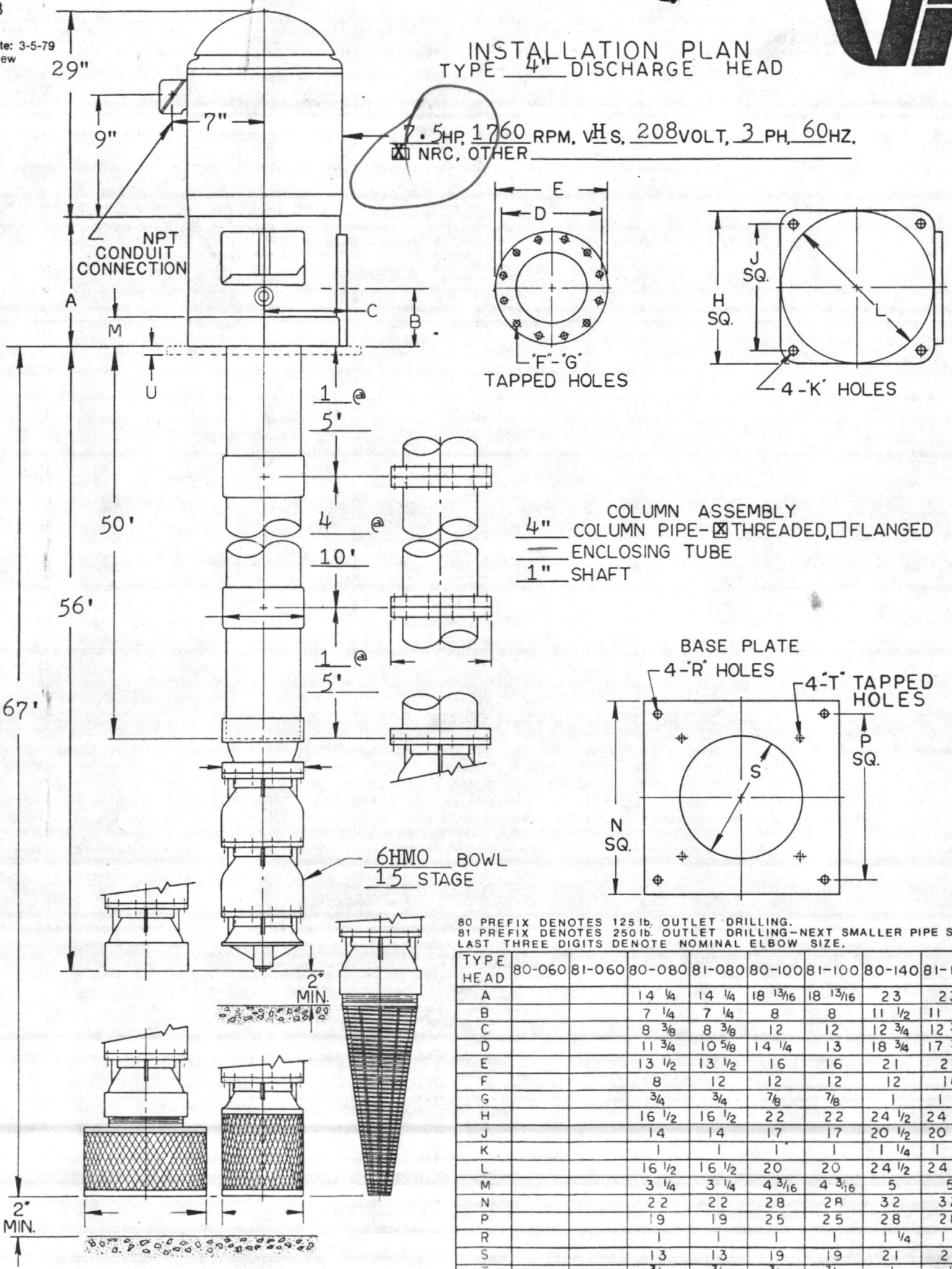
5-5-58 Static level 36 ft alt.

11-19-69 - BEARINGS REPLACED

Air Lime 51 ft. new, 5-2-57. Lowe. EL - 28.5 ?

INSTALLATION PLAN
TYPE 4" DISCHARGE HEAD

7.5 HP, 1760 RPM, VHS, 208 VOLT, 3 PH, 60 HZ.
☒ NRC, OTHER



COLUMN ASSEMBLY
4" COLUMN PIPE-☒THREADED,☐FLANGED
— ENCLOSING TUBE
1" SHAFT

80 PREFIX DENOTES 125 lb. OUTLET DRILLING.
81 PREFIX DENOTES 250 lb. OUTLET DRILLING—NEXT SMALLER PIPE SIZE.
LAST THREE DIGITS DENOTE NOMINAL ELBOW SIZE.

TYPE HEAD	80-060	81-060	80-080	81-080	80-100	81-100	80-140	81-140
A			14 1/4	14 1/4	18 13/16	18 13/16	23	23
B			7 1/4	7 1/4	8	8	11 1/2	11 1/2
C			8 3/8	8 3/8	12	12	12 3/4	12 3/4
D			11 3/4	10 5/8	14 1/4	13	18 3/4	17 3/4
E			13 1/2	13 1/2	16	16	21	21
F			8	12	12	12	12	16
G			3/4	3/4	7/8	7/8	1	1 1/8
H			16 1/2	16 1/2	22	22	24 1/2	24 1/2
J			14	14	17	17	20 1/2	20 1/2
K			1	1	1	1	1 1/4	1 1/4
L			16 1/2	16 1/2	20	20	24 1/2	24 1/2
M			3 1/4	3 1/4	4 3/16	4 3/16	5	5
N			22	22	28	28	32	32
P			19	19	25	25	28	28
R			1	1	1	1	1 1/4	1 1/4
S			13	13	19	19	21	21
T			3/4	3/4	3/4	3/4	1	1
U			1	1	1	1	1	1

DIMENSIONS ARE APPROXIMATE USE ONLY WHEN CERTIFIED.

CUSTOMER Camp Lejeune
LOCATION Camp Leueune, NC 28542
SPEC NO.
FOR APPROVAL CERTIFIED JWP

ITEM NO. GNC-109 G.P.M. 100
QUOTE NO. T.D.H. 147'
PUMP NO. 6HMO-15 R.P.M. 1760
DATE 03-14-83 B.H.P. 5.7

M-142

Lane - size 8 4 stage No. 63378
Type URHC - 1" shaft
5" column 4" tail sect.

WELL TEST DATA

Well No. Z-1 Date 25 JULY Tested By S.J. MORRIS

Elev. Pump Foundation 20.5' (a)

Length of Air Tube UNKOWN (b)

Elev. Bottom of Air Tube _____ (c)

Determination Static Water Level - (Pump should be cut off for at least 30 minutes)

Gauge Reading 15 p.s.i. x 2.31 = _____ feet _____ (d)

Elevation Static Water Level (c + d) _____ (e)

Flow Test Elev. of Gauge on discharge piping

Test No.	Time PM	Flow G.P.M.	Discharge Pressure ~~p.s.i.~~ FT	Well Gauge Reading p.s.i.	(f) Feet p.s.i. x 2.31	(g) Drawdown Elev. (e + d)	Drawdown Feet (d - g)	ORFICE HEAD INCHES D.D. per 100 gals.
1	1:50	153	60'	5'				13"
2	1:55	140	70'	5'				11"
3	2:00	132	80'	7				9½"
4	2:05	122	90'	8				8"
5	2:10	110	100'	9				6½"
6	2:15	BELOW CURVE	110'	10				4¼"
7								
8								

Make of Pump LAYNE. Serial No. 12449

Motor H.P. 7½. Volts _____. Amps. _____. KW _____.

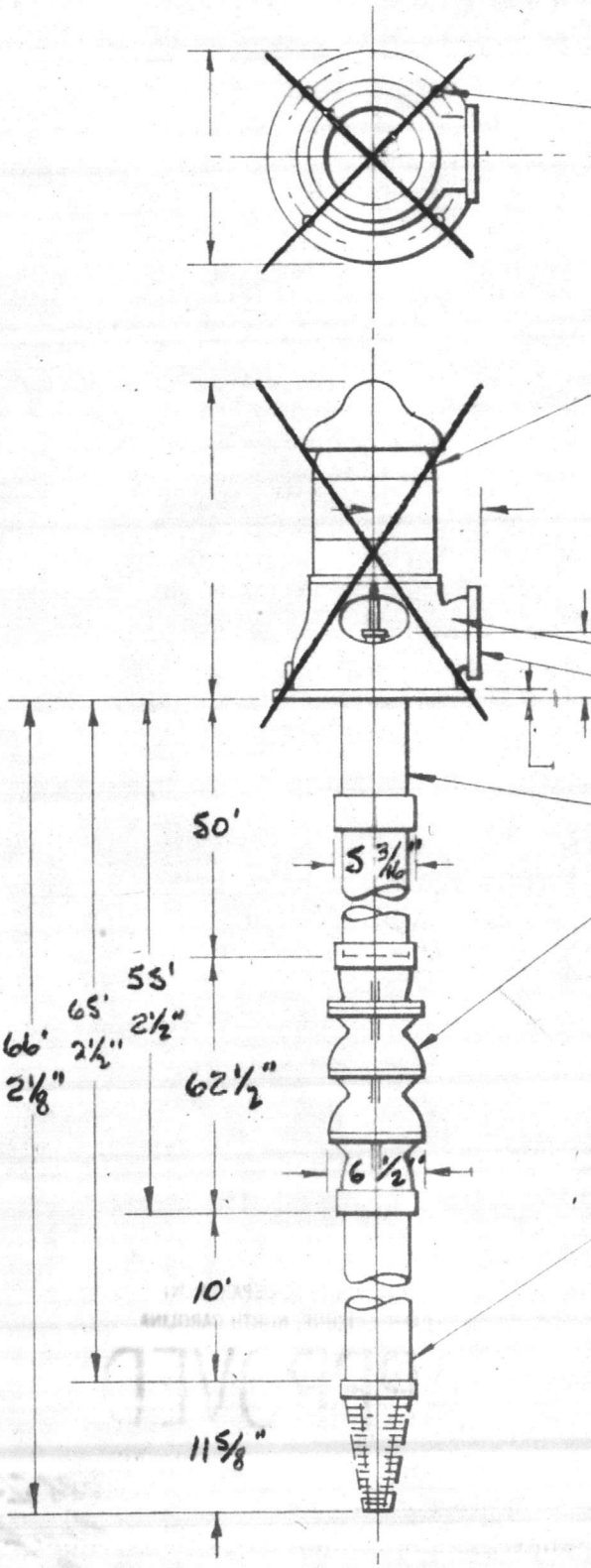
Depth of setting _____.

NOTE: WELL RECOVERS TO 11 PSI AFTER 7 MINUTES

Remarks: Pressure on supply main with well off 85'.

Cut off head on pump (Pressure on gauge with discharge valve closed) 165'.

JOHNSTON VERTICAL TURBINE PUMP



Furnished By Others
VERTICAL HOLLOW SHAFT MOTOR

HP PHASE CYCLE
VOLT RPM
ENCLOSURE

Furnished By Others
→ TYPE "A" DISCHARGE HEAD
" X 125# FLANGE

4" x 2" x 1 3/16" GWI COLUMN ASSEMBLY

9 STAGE X 7 BC BOWL ASSEMBLY

CONDITIONS:
100 USGPM
147 FT. TOTAL HEAD
LIQUID
SPEC. GRAV. @ °F PUMPING TEMP.

4" SUCTION PIPE 4" CONE STRAINER

CUSTOMER
PO#
DEALER Heater Well Co
PO#
JOHNSTON SERIAL # NCL-95
JOHNSTON QUOTATION #

NOTE: DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Pump # 2-1

JOHNSTON PUMP COMPANY
PASADENA, CALIFORNIA

H-1253-A

1-10079

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NO. 3885 SPEC. NO 3885/56

TITLE Repairs to Well Pumps, etc.

DATE: 6 May 57 W. J. Evans, Jr.
BY DIRECTION OF OFFICER
IN CHARGE OF CONSTRUCTION

HYDRAULIC PERFORMANCE IS CONTINGENT ON WELL BEING FURNISHING PUMP WITH CLEAR, FRESH NON-AERATED OR NON-GASEOUS WATER FREE FROM DETRITUS WITH NO SUCTION LIFT AND TEMPERATURE NOT TO EXCEED 85 DEGREES FAHRENHEIT

NOTE: ALL COLUMN LOSSES ARE INCLUDED

64701-1

CUSTOMER: _____

P.O.#

DEALER: Heater Well Co.

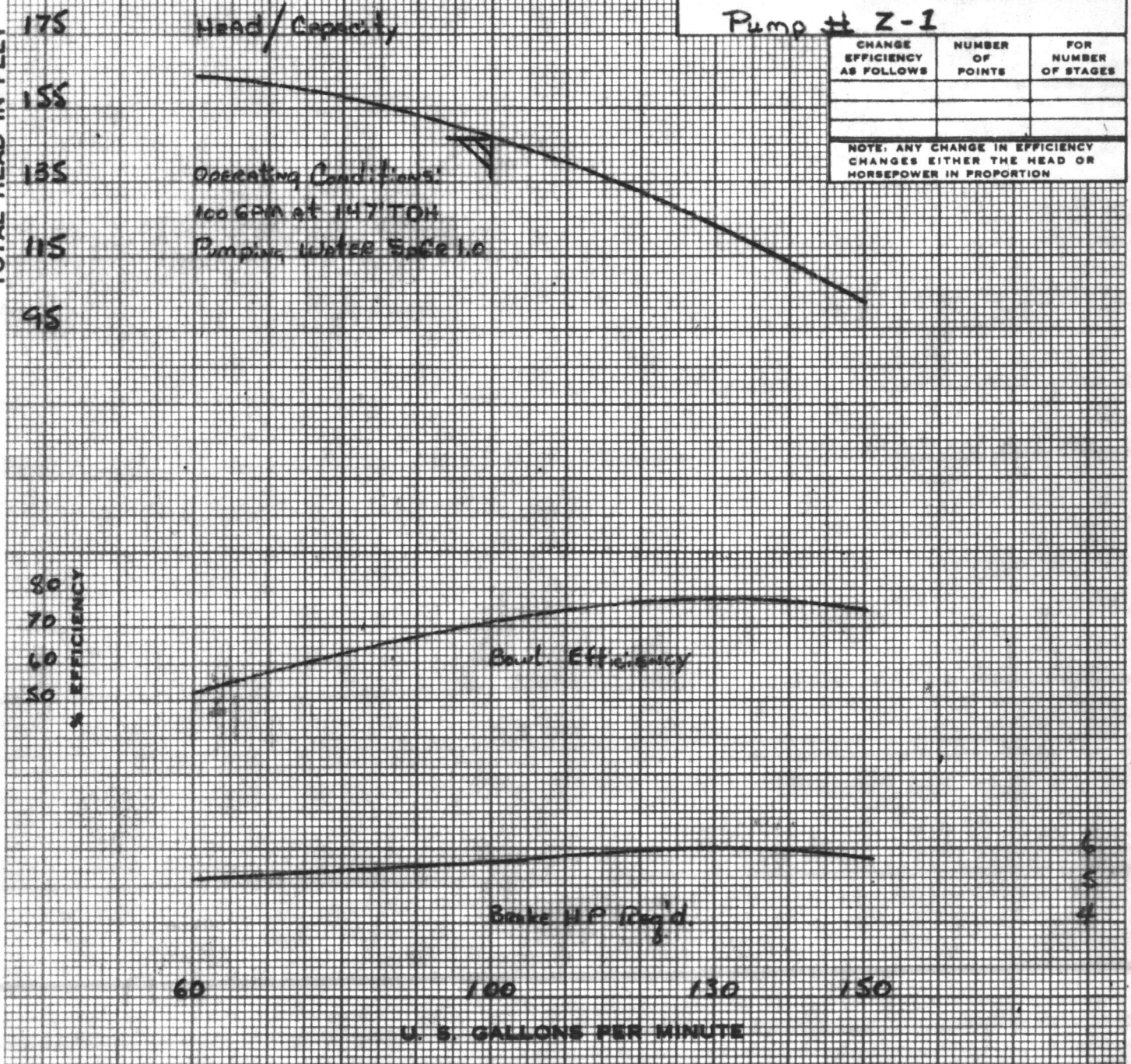
P.O.#

JOHNSTON SERIAL: NCL-95

Pump # Z-1

CHANGE EFFICIENCY AS FOLLOWS	NUMBER OF POINTS	FOR NUMBER OF STAGES

NOTE: ANY CHANGE IN EFFICIENCY CHANGES EITHER THE HEAD OR HORSEPOWER IN PROPORTION



IMPELLER Bez. 4 15/16 DIA.

DATE: 2-25-57 BY: JDM

JOHNSTON PUMP CO.

JOHNSTON

VERTICAL PUMPS

PASADENA · CALIFORNIA · USA

PERFORMANCE 9 STAGE

7 BC DEEP WELL TURBINE PUMP

1760 R. P. M.

CURVE SHEET No.

PUBLIC WORKS DEPARTMENT
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NO. 3885 SPEC. NO. 3885/56

TITLE Repairs to Well Pumps etc.

DATE: 6 Mar 57 W. J. Evans, Jr.

BY DIRECTION OF OFFICER IN CHARGE OF CONSTRUCTION

FILE FOLDER

DESCRIPTION ON TAB:

M.P. Well 168

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New Bern, NC
1-888-622-4425
9/08

FORM A-4
(JUNE '66)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 19

INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

1. AGENCY CODE	2. TYPE	3. LATITUDE	4. LONGITUDE	5.
MC	Q	° ' " N: 34 44 12	° ' " W: 77 24 38	

6. AGENCY STATION NO.	7. STATION NAME
M168	M178-26

8. DRAINAGE BASIN CODE (No. / Letter)	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
06 / N	32	133	ONSLOW

12. PERIOD OF RECORD (Began / Discontinued)	Y ☐ Continuous Interruption Exceeds 1 Year	13.	14.
1953			

15. SITE

- ☐ 101 Stream
- ☐ 102 Canal
- ☐ 103 Lake
- ☐ 104 Reservoir
- ☐ 105 Estuary
- ☐ 106 Spring
- ☑ 107 Well
- ☐ 110 Other

16. FREQUENCY OF MEASUREMENT

- ☐ 201 Continuous Recorder
- ☐ 202 Telemetered
- ☐ 203 Daily
- ☐ 204 Weekly
- ☐ 205 Monthly
- ☐ 206 Quarterly
- ☐ 207 Seasonal
- ☐ 208 Annual
- ☐ 209 Other Periodic
- ☒ 210 Occasional

17. TYPES OF DATA AVAILABLE

Physical
- ☐ 311 Temperature
- ☐ 312 Specific Conductance
- ☐ 313 Turbidity
- ☐ 314 Color
- ☐ 315 Odor
- ☐ 316 Radioactivity
- ☐ 317 pH (field)
- ☒ 318 pH (lab)
- ☐ 319 Eh
- ☐ 320 Other

Chemical
- ☐ 331 Dissolved solids
- ☒ 332 Chlorides Only
- ☐ 333 Nutrients (Nitrogen and phosphorus compounds)
- ☐ 334 Common ions
- ☑ 335 Hardness
- ☐ 336 Radiochemical
- ☐ 337 Dissolved oxygen
- ☐ 338 Other Gases
- ☐ 339 Other

Organic
- ☐ 351 Pesticides (insecticides, herbicides, etc.)
- ☐ 352 Synthetic detergents
- ☐ 353 Other

Biologic
- ☐ 361 Coliforms
- ☐ 362 Other Micro-organisms
- ☐ 363 BOD
- ☐ 364 Other

Sediment
- ☐ 371 Concentration
- ☐ 372 Particle size
- ☐ 373 Other

18. SUPPLEMENTARY DATA FOR SITE

- ☐ 421 Surface Water Station
- ☐ 422 Ground Water Station
- ☐ 423 Water Stage or Level
- ☒ 424 Water discharge
- ☐ 425 Time of Travel
- ☐ 426 Drainage Area

19. STORAGE OF DATA

- ☐ 501 Periodic Report
- ☐ 502 Areal Report
- ☑ 503 Not Published
- ☐ 504 Data on Punchcard
- ☐ 505 Data on Magnetic Tape
- ☐ 506 Other

20. OFFICE AT WHICH DATA AVAILABLE

Office BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION

Street No. MARINE CORPS BASE

City, State, Zip CAMP LEJEUNE, N. C. 28542 | City Code 0735

21. OFFICE COMPLETING FORM

BASE MAINTENANCE DEPARTMENT

22. COMPILER'S NAME	23. DATE (Month / Year)
F. F. TEW, JR.	09 / 19 66

DATE	WELL#	LINE PRESS	STATIC	PUMPING LEVEL	D.D.	G.P.M.	S.L.
7-11-67	Z-6	43	30'	15'	15'	68	
7-11-67	Z-6	40	30'	13'	17'	70	
7-11-67	Z-6	38	30'	10'	20'	72	
7-11-67	Z-6	36	30'	8.5	21.5	74	
7-11-67	Z-6	34	30'	7	23	76	

HEATER WELL COMPANY

INCORPORATED

Largest Well Drilling Organization in the Carolinas

TELEPHONE 2-4675 206 S. SALISBURY STREET

RALEIGH, NORTH CAROLINA

LOG OF WELL For Marine Barracks, Camp Lejeune, N. C. Driller: J. C. Hartsfield, Jr.

Located at Montford Point in Onslow County, State N. C.

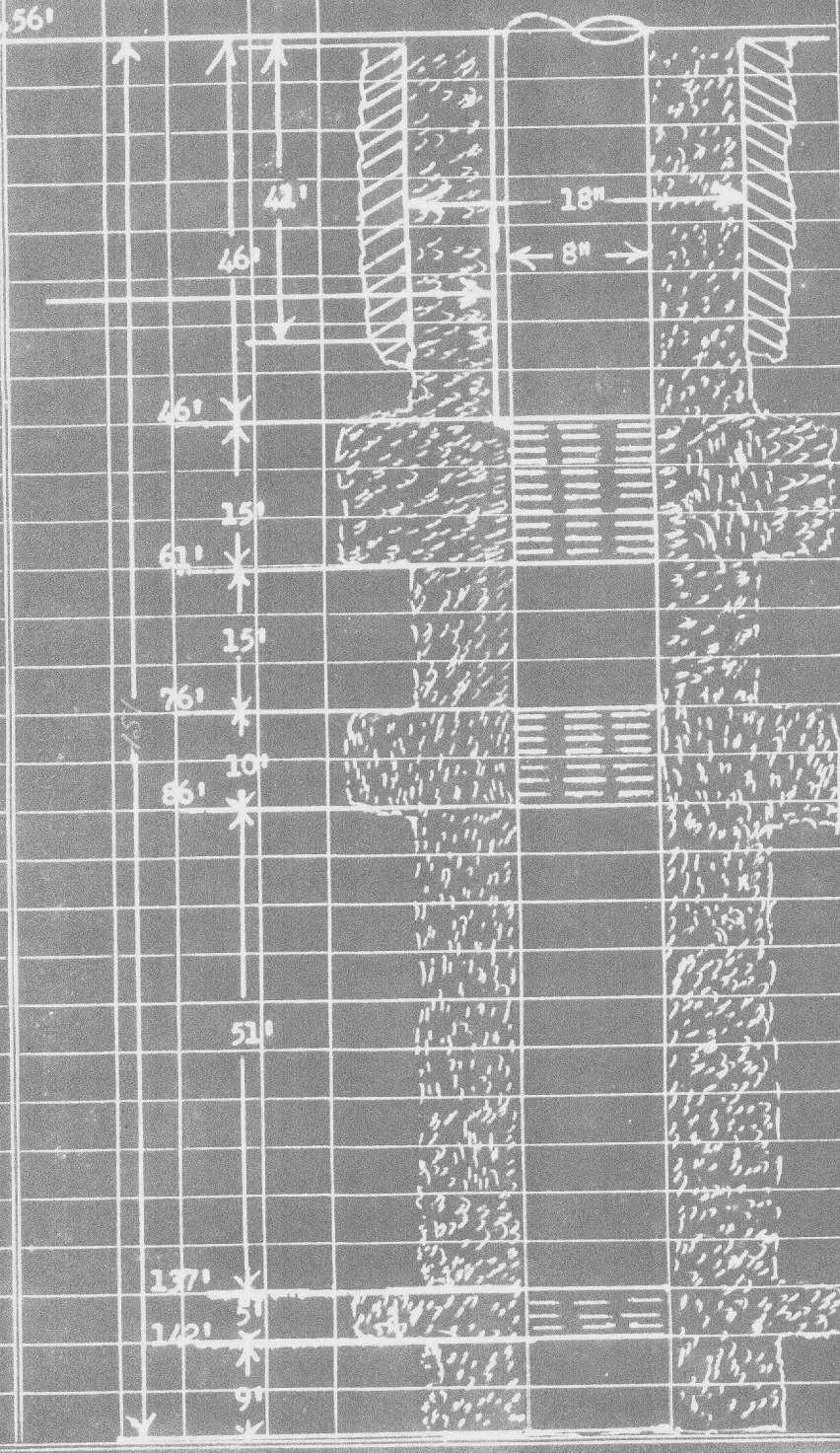
Date Drilling Started June 5, 1953 Date Started June 2, 1953

Finished Drilling June 18, 1953 Finished July 2, 1953

FORMATIONS AND DEPTH OF WELL

TOTAL DEPTH OF ALL STRATA FT.	IN.	DEPTH OF EACH STRATUM FT.	IN.	FORMATION FOUND AT EACH STRATUM
18		18		Clay, brown, changing to blue
34		16		Sand & streaks of blue clay
41		7		Soft shell rock & some sand
51		10		Shell rock and sand
58		7		Shell rock and sand
61		3		Soft clay streaks & fine sand
81		20		Fine sand & clay streaks
90		9		Predominately sand - some clay
101		11		Clay
121		20		Clay
134		13		Soft clay and fine sand
144		10		Fine sand and some clay
161		17		Clay
180		19		Clay
189		9		Soft sandstone & fine sand
201		12		Hard shell rock
225		24		Hard shell rock
235		10		Shell rock and fine sand

Elevation 21.56'



DIMENSIONS OF CASING AND SCREEN

TOTAL LENGTH OF ALL SCREENS and CASINGS FT.	IN.	LENGTH OF EACH SEC. OF SCREEN OR CASING FT.	IN.	SPECIFY SCREEN OR CASING	SIZE OF SCREEN OR CASING IN.	GAUGE OF SCREEN	
41		41		Casing	18	3/8	wrought iron
46		46		Casing	8	Std. wrought iron	
61		15		Screen	8	#7, Everdur	
76		15		Casing	8	Std. wrought iron	
86		10		Screen	8	#7, Everdur	
137		51		Casing	8	Std. wrought iron	
142		5		Screen	8	#7 Everdur	
151		9		Casing	8	Std. wrought iron	

WELL DATA:

Preliminary Test

Date Tested 19 Static Level

Production GPM Pumping Level

Permanent Test

Date Tested June 23, 19 53 Static Level 11.4'

Production 100 GPM Active St. Level

Drawdown 25' Pumping Level 36.4'

Remarks:

PUMP DATA:

Shop No. Type Lubr.

Type Head Size Suction

Depth Setting (BP to MB)

Size Column Length Suction

Type Bowl Length Air Line

No. Stages Discharge-

Cap'y and Head Pressure

MOTOR DATA:

Horsepower Voltage

RPM Phase

Type Cycles

Make Frame No.

PHYSICAL AND CHEMICAL ANALYSIS OF WATER

SAMPLE NO.: WW 9-2

FROM: (Station or unit): U.S. Marine Corps Air Facility, New River, Jacksonville, N. C.

DATE: 10 Sep 1956

TO: (Name and location of laboratory): District Public Works Office Sanitary Engineering Laboratory, Bldg L-29, Naval Base, NORVA

SAMPLE FROM (Location of sampling point): Well No. 3

COLLECTED BY	DATE	HOUR	SOURCE (Designate ground, surface, raw, treated)
Activity personnel	6 Aug 1956	-	Ground

REASON FOR EXAMINATION: To determine chemical characteristics

EXAMINATION REQUESTED BY: Activity personnel

NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.

I. FIELD ANALYSIS

1. pH	TEMPERATURE °F	TEMPERATURE °C
8.1		29.

ITEM	PPM
2. CARBON DIOXIDE (CO_2)	-
3. DISSOLVED OXYGEN (O_2)	
4. HYDROGEN SULFIDE (H_2S)	
5. CHLORINE DEMAND (Cl_2)	

FIELD ANALYSIS BY:

II. SPECIAL LABORATORY ANALYSES

Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.

(X)	ITEM	PPM
X	1. Aluminum (Al)	0.0
	2. Se	
	3. Pb	
	4. B	
	5. Cu	
	6. Zn	
	7. Cr (Hexavalent)	
	8. PO	
	9. Cd	
	10. CN	
	11. Phenolic Compounds (PPB)	
	12. Others (Specify)	
X	13. Total (Ca & Mg) hardness	46.
X	14. Total Solids	679.
X	15. Fixed Residue	508.
X	16. Volatile Solids	171.

III. ROUTINE LABORATORY ANALYSIS

(CHECK ONE)

X	REQUESTED		NOT REQUESTED

ITEM	PPM
1. COLOR	28.
2. TURBIDITY	
3. ALKALINITY ($CaCO_3$)	
P	0.0
MO	360.
4. TOTAL HARDNESS ($CaCO_3$)	47.
5. NON-CARBONATE HARDNESS ($CaCO_3$) (By Computation)	0.0
6. CARBONATE HARDNESS ($CaCO_3$) (By Computation)	
7. TOTAL DISSOLVED SOLIDS	
8. SPECIFIC CONDUCTANCE (Micromhos)	
9. CALCIUM (Ca)	10.3
10. MAGNESIUM (Mg)	5.
11. SODIUM (Na) AND POTASSIUM (K)	-
12. HYDROXIDE (OH)* as CaCO3	0.0
13. BICARBONATE (HCO_3)* as CaCO3	360.
14. CARBONATE (CO_3)* as CaCO3	0.0
15. SULFATE (SO_4)	-
16. CHLORIDE (Cl)	115.
17. NITRATE (NO_3)	-
18. IRON (Fe) TOTAL	0.2
19. MAGANESE (Mn)	0.0
20. SILICA (SiO_2)	20.
21. FLUORIDE (F)	1.8

*State whether determined or computed from P and MO alkalinity.

REMARKS (Such as unusual appearance, taste, odor, etc.)

*Computed from P and MO alkalinity.

LABORATORY ANALYSIS BY: Rupert L. Cox

DATE OF ANALYSIS: 7 Sep 1956

21 October 1942

MEMORANDUM

Wells: Permanent water supply, Reg. Area
By Layne Atlantic Co.

Location: 500' south of Highway 24 and 65' east of existing country rood from Piney Green

Date drilled: October 1942

Well No. 21

Drilling Equipment: Rotary Rig and Rotary Bits

States: 23" diameter hole reamed and cased with 18" pit casing to a depth of 24ft. Angular space around this was filled with cement grout. A 17" hole was then drilled to a depth of 80'.

Lay of Formation:
0 to 10' Red sandy clay
10' to 25' Fine white sand
25' to 30' Fine brown sand
30' to 37' Soft mucky blue clay
37' to 39' Shell rock
39' to 45' Sand
45' to 50' Blue clay
50' to 53' Shell rock
53' to 55' Sand
55' to 80' Sand and shell

Remarks: Due to the presence of sand in water bearing sand it was necessary to construct a gravel wall well.

Gravel Wall Construction: 57feet of 8" steel pipe with 20' of Armco Iron Screen on the bottom was placed inthe well. The angular space around this was filled with a special 1/4" washed gravel.

Air Line: 60 ft. of 1/4" tube

Static level: 20' below surface

Pumping: Well was pumped full several hours to clear of sand. Well pumps 200 G.P.M. with 22' dd from static, recovers to 11' from static in 3 minutes.

N. H. Kellam
Asst. Chem. Eng.

21 October 1942

MEMORANDUM

Field: Permanent water supply, Tex. Ares
By Layne Atlantic Co.

Location: 50' south of Highway 24 and 63' east of Gladding
county road Cross Plains Green

Date drilled: October 1942

Well No. 21

Drilling:
Equipment: Rotary Rig and Rotary Mixe

Casing: 21" diameter hole reamed and cased with 18" pvc casing to
a depth of 2478. Regular grave around this was filled
with cement grout. A 17" hole was then drilled to a
depth of 80'.

Log of
Formation: 0 to 10' Red sandy clay
10' to 25' Fine white sand
25' to 30' Fine brown sand
30' to 37' Sandy blue clay
37' to 39' Sand rock
39' to 45' Sand
45' to 50' Blue clay
50' to 53' Shell rock
53' to 57' Sand
57' to 60' Sand and shell

Remarks: Due to the presence of sand in water bearing sand it
was necessary to form 2" x 4" screen well.

Casing Used

Perforations: 72feet of 8" steel pipe with 80 of Layne Type Screen
on the bottom was plugged into the well. The aggregate
around this was filled with a special 1/4" washed gravel.

Air Lift: 40 ft. of 1 1/2" tube

Static Level: 20' below surface

Pumping: Well was pumped full capacity for 8 hours of sand.
Well pumps 300 G. P. M. with 22' of line shafting, requires
to 11' from starting to 5 minutes.

L. T. Hatton
Asst. Dists. Engr.

FORM A-4
(JUNE '66)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 1968

1. AGENCY CODE	2. TYPE	3. LATITUDE	4. LONGITUDE	5.
MC	Q	° ' " N: 34 34 55	° ' " W: 77 21 48	

6. AGENCY STATION NO.	7. STATION NAME
BRL3	BRL3-V

8. DRAINAGE BASIN CODE No.	Letter	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
6	N	32	133	ONSLOW

12. PERIOD OF RECORD
Began 1942
Discontinued
Y ☐ Continuous Interruption Exceeds 1 Year

13.

14.

15. SITE
- ☐ 101 Stream
- ☐ 102 Canal
- ☐ 103 Lake
- ☐ 104 Reservoir
- ☐ 105 Estuary
- ☐ 106 Spring
- ☒ 107 Well
- ☐ 110 Other

16. FREQUENCY OF MEASUREMENT
- ☐ 201 Continuous Recorder
- ☐ 202 Telemetered
- ☐ 203 Daily
- ☐ 204 Weekly
- ☐ 205 Monthly
- ☐ 206 Quarterly
- ☐ 207 Seasonal
- ☐ 208 Annual
- ☐ 209 Other Periodic
- ☒ 210 Occasional

17. TYPES OF DATA AVAILABLE

Physical
- ☐ 311 Temperature
- ☐ 312 Specific Conductance
- ☐ 313 Turbidity
- ☐ 314 Color
- ☐ 315 Odor
- ☐ 316 Radioactivity
- ☐ 317 pH (field)
- ☒ 318 pH (lab)
- ☐ 319 Eh
- ☐ 320 Other

Chemical
- ☐ 331 Dissolved solids
- ☒ 332 Chlorides Only
- ☐ 333 Nutrients (Nitrogen and phosphorus compounds)
- ☐ 334 Common ions
- ☒ 335 Hardness
- ☐ 336 Radiochemical
- ☐ 337 Dissolved oxygen
- ☐ 338 Other Gases
- ☐ 339 Other

Organic
- ☐ 351 Pesticides (insecticides, herbicides, etc.)
- ☐ 352 Synthetic detergents
- ☐ 353 Other

Biologic
- ☐ 361 Coliforms
- ☐ 362 Other Micro-organisms
- ☐ 363 BOD
- ☐ 364 Other

Sediment
- ☐ 371 Concentration
- ☐ 372 Particle size
- ☐ 373 Other

18. SUPPLEMENTARY DATA FOR SITE
- ☐ 421 Surface Water Station
- ☐ 422 Ground Water Station
- ☐ 423 Water Stage or Level
- ☒ 424 Water discharge
- ☐ 425 Time of Travel
- ☐ 426 Drainage Area

19. STORAGE OF DATA
- ☐ 501 Periodic Report
- ☐ 502 Areal Report
- ☒ 503 Not Published
- ☐ 504 Data on Punchcard
- ☐ 505 Data on Magnetic Tape
- ☐ 506 Other

20. OFFICE AT WHICH DATA AVAILABLE

Office: BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION

Street No.: MARINE CORPS BASE

City, State, Zip: CAMP LEJEUNE, N. C. 28542

City Code: 0735

21. OFFICE COMPLETING FORM

22. COMPILER'S NAME: BASE MAINTENANCE DEPARTMENT

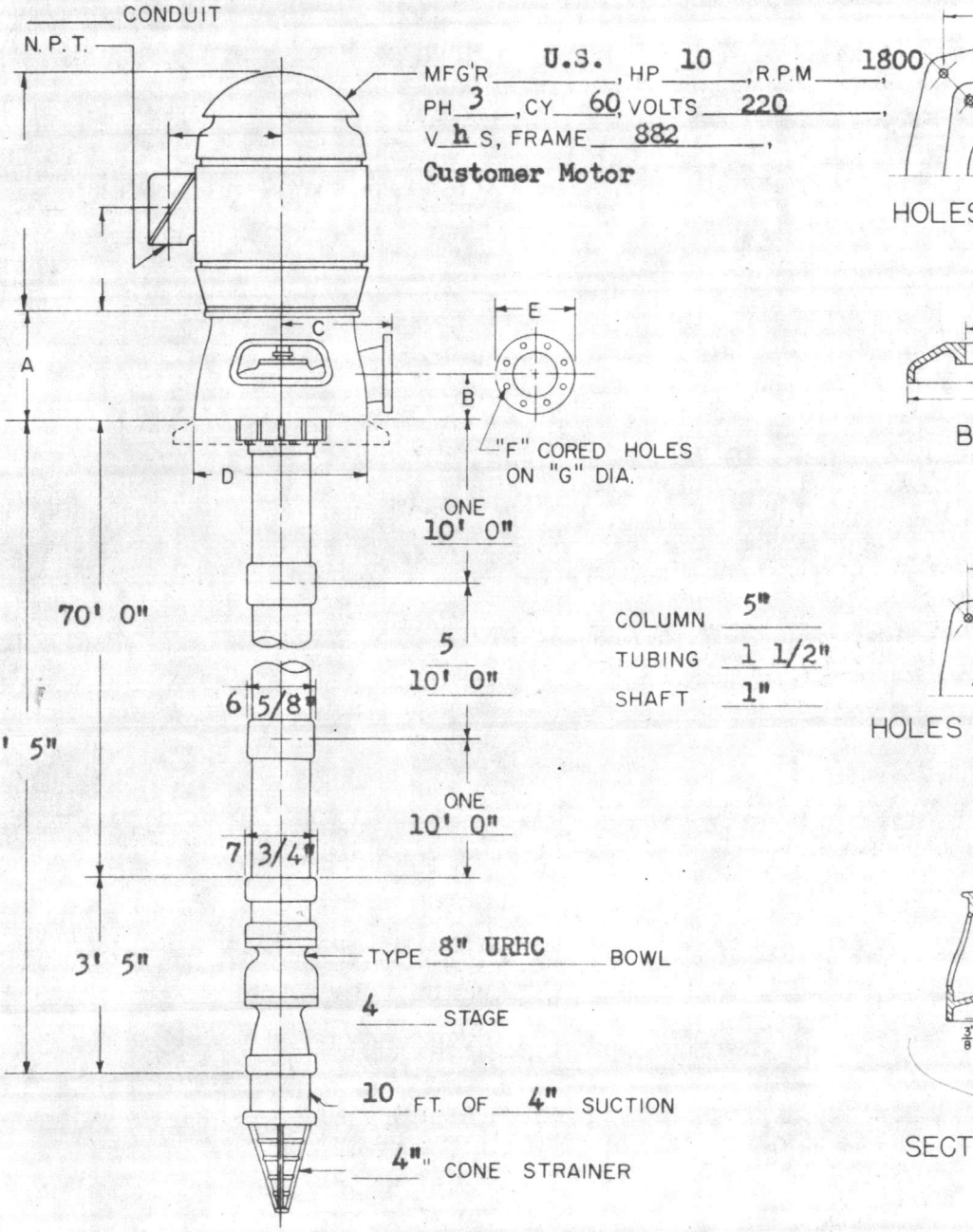
23. DATE
Month: 09
Year: 1966

Z-6
M-168

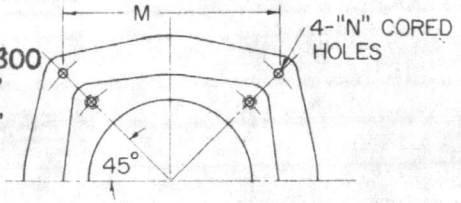
INSTALLATION PLAN

TYPE TF413 DISCHARGE HEAD

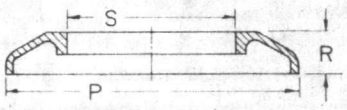
LAYNE & BOWLER INC. MEMPHIS, TENN.



USE THESE DIMENSIONS ONLY WHEN CERTIFIED BY FACTORY

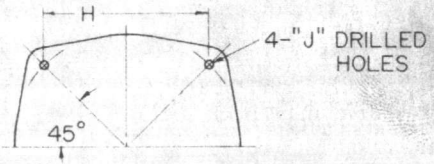


HOLES IN BASE PLATE

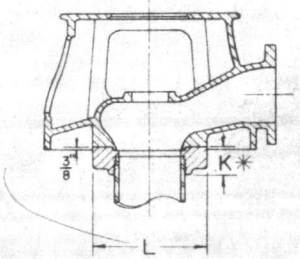


BASE PLATE

COLUMN 5"
TUBING 1 1/2"
SHAFT 1"



HOLES IN BASE OF HEAD



SECTION THRU HEAD

* FOR COLUMN SETTINGS OF 200' OR GREATER, "K"=11"

CUSTOMER: U. S. Marine Corps.	YOUR NO: N-73-70	G.P.M.	
LOCATION: Camp LeJeune, N. C.	OUR NO: 70D-2574	T.D.H.	
FOR APPROVAL:	PUMP NO. 63377	R.P.M.	
CERTIFIED: Tom Morrow	DATE: 6/2/70	B.H.P.	

HEAD	A	B	C	D	E	F	G	H	J	K*	L	M	N	P	R	S
TF413	13	6	11	18	9	8-3/4	7 1/2	14 1/8	11/16	2 13/16	10	16 15/16	7/8	21	2	17
TF613	14	6	11	18	11	8-7/8	9 1/2	14 1/8	11/16	2 7/8	11	16 15/16	7/8	21	2	17
TF418	13	6	14 1/4	23	9	8-3/4	7 1/2	17 5/16	13/16	2 13/16	10	20 1/16	7/8	26 1/2	2 3/4	21 3/4
TF618	15	6	14 1/4	23	11	8-7/8	9 1/2	17 5/16	13/16	2 7/8	12 1/2	20 1/16	7/8	26 1/2	2 3/4	21 3/4
TF818	18	7 3/32	14 1/4	23	13 1/2	8-7/8	11 3/4	17 5/16	13/16	3 1/16	13 1/2	20 1/16	7/8	26 1/2	2 3/4	21 3/4
TF1018	18	8 1/8	14 1/4	23	16	12-1	14 1/4	17 5/16	13/16	3 11/16	16	20 1/16	7/8	26 1/2	2 3/4	21 3/4
TF1218	20	9 5/8	16 1/4	26	19	12-1	17	19 5/8	13/16	3 11/16	19	23 11/16	7/8	32	3 1/4	24

HEAD	A	B	C	D	E	F	G	H	J	K*	L	M	N	P	R	S
TF625	15	8 1/8	18 1/4	31	11	8-7/8	9 1/2	23 11/16	13/16	2 7/8	12 1/2	29	1	38	3 3/4	29
TF825	20	8 1/8	18 1/4	31	13 1/2	8-7/8	11 3/4	23 11/16	13/16	3 1/16	13 1/2	29	1	38	3 3/4	29
TF1025	20	8 1/8	18 1/4	31	16	12-1	14 1/4	23 11/16	13/16	3 11/16	16	29	1	38	3 3/4	29
TF1225	21	9 5/8	18 1/4	31	19	12-1	17	23 11/16	13/16	3 11/16	19	29	1	38	3 3/4	29
TF1225I	21	9 5/8	18 1/4	31	19	12-1	17	23 11/16	13/16	4 7/16	21	29	1	38	3 3/4	29
TF1425	21	10 5/8	18 1/4	31	21	12-1 1/8	18 3/4	23 11/16	13/16	4 7/16	21	29	1	38	3 3/4	29
TF1227	24 1/2	9 3/4	21	36	19	12-1	17	27 5/8	13/16	3 11/16	19	33 3/8	1	45	4 1/4	33 7/8

VERTICAL CENTRIFUGAL PUMP

Installation of Pump Bowls and Column

Butt Joint Column

Enclosed Line Shaft

Derrick Installation of a Layne Pump requires a derrick 30 to 40 feet in height and a hand winch or power hoist of sufficient size to handle the total weight.

Foundation The concrete foundation for the pump base should be built in accordance with foundation plans furnished by the factory. Where a separate pump base plate is used it should be set in position in the concrete foundation before the pump bowls and column are installed but not grouted into position until the installation is completed.

Dimensions of Well Check the inside diameter of the well and the outside diameter of the pump bowls and column flanges or couplings to be sure that the pump and column will go in the well with ample clearance. The well casing must be straight and without obstructions that might bend the line shaft. Measure the static level of the water in the well to determine if the pump has been furnished with the proper depth of setting. The pump bowls should be submerged when the pump is operating and we do not recommend or guarantee satisfactory operation with a suction lift.

Check Material Check all parts of the pump against the packing list to find out whether all parts have been received. If any parts are missing claim should be made at once to the railroad company.

Clean All Joints All threads and flanged couplings of the discharge pipe and protective tubing should be carefully cleaned and at the time of installation coated with L A Y N C O T E. Care should be taken that there be absolutely no sand or grit between flanges or couplings when making up the joints.

Suction If a basket suction is used it should be lowered into the well first and held by pipe clamps. The suction pipe is picked up and screwed into the coupling at top of basket suction. The basket suction and suction pipe are then lowered into the well until about 18 inches of suction pipe extend above the well casing. The suction pipe is clamped in this position with pipe clamps. When the suction pipe has only threads at the top end care should be taken to place the clamps under the small lug welded on the pipe.

Pump Bowls The pump bowls should be carefully inspected before placing in the well. Rotate impeller shaft several times by hand to be sure that it does not bind at any point. The impeller shaft should have about ¼-inch or more end play. DO NOT STRAIN SHAFT IN ANY WAY THAT MIGHT BEND IT AND DO NOT LIFT PUMP BOWLS BY THE SHAFT. The pump bowls can best be handled by a pair of pipe clamps. The bowls should be lifted into position and screwed or bolted to the suction pipe. The clamps on the suction pipe are then removed and the bowls and suction pipe lowered into the well until the top of the discharge nozzle is about 18 inches above the well casing or top of foundation. The bowls are then supported at this point by pipe clamps.

Discharge Column Pipe Check the enclosed chart to determine the correct spacing of the spiders in the discharge column. If the discharge pipe screws into the pump bowl be sure to have the coupling at the top end of the first section either with the spider or without the spider as shown on the chart. If the lower section of discharge pipe has a special flange to connect to the pump bowls be sure to arrange the pipe with this flange at the lower end.

Protective Tubing and Shaft The shaft and protective tubing are shipped assembled in 20-ft. or 10-ft. lengths and packed with sufficient lubricant to prevent rusting. A 20-ft. length or 10-ft. length of shaft and tubing is required for each 20-ft. or 10-ft. length of pipe. Remove the protecting cap only from the top end of the tubing, which is the end fitted with the bronze shaft bearing and tubing coupling. Slide the assembled tubing and shafting into the discharge column pipe, making sure that the bronze bearing end of the assembly will be on top.

Installing Discharge Column Pull the tubing about six inches below the lower end of the discharge pipe and tie them together in this position with a piece of rope by taking several half hitches around the pipe and then the tubing.

Raise the assembled section of pipe, tubing and shafting until it is hanging vertically in the derrick with the lower end of the tubing about one inch above a board placed on the foundation. Remove the lower plug from the tubing to release the shaft. Raise the discharge pipe about six inches and take several half hitches around the shaft. This method avoids straining the shaft as the column is swung under the derrick. Swing the discharge pipe into position over the pump bowls and screw the shaft into the shaft coupling until it butts aginst the impeller shaft.

THE THREADS AND THE ENDS OF THE SHAFTING AND THE SHAFT COUPLINGS MUST BE PERFECTLY CLEAN.

Lower the discharge pipe and tubing and screw the tubing onto the main bearing box about 3 or 4 threads Then coat the threads on the bronze box with L A Y N C O T E and screw the tubing on the box until it butts. The discharge pipe is then bolted or screwed to the pump bowls.

Remove the clamps from the pump bowls and lower the pump bowls with the section of discharge column until the column extends about 18 inches above the well casing or foundation. Clamp the discharge column in this position.

Remove the bronze shaft bearing and tubing coupling and pour about one pint of oil into the tubing. The oil used should be a good grade of mineral oil free from grit and foreign matter, with a viscosity rating approximately SAE 10 and having a relatively low cold pour point.

When the next section of discharge column is in position in the derrick replace the bronze bearing, screwing it into the tubing about 3 or 4 threads. After the spider and spider bushing or aligning ring have been installed (as described below) and the shaft connection is made, lower the discharge pipe and tubing and screw the tubing onto the bronze bearing about 3 or 4 threads. Then coat the threads of the bearing with L A Y N C O T E and screw the tubing on the bearing until the ends butt tightly together. IT IS VERY IMPORTANT THAT EVERY TUBING JOINT BE TIGHT AND to form a seal the ends of the tubing must be smooth and square. While handling and installing the tubing use care to keep from scoring or damaging the ends in any way.

When flanged column is used, slip a bronze spider or aligning ring over the top of the tubing and fit it into the recess in the flange. (Refer to spider spacing chart to determine whether a flange or aligning ring should be used at the joint in question). When screw coupled column is used the spider is cast integral with the coupling. The rubber spider bushings are installed in the spiders before shipment from the factory.

Each section of discharge column is installed as described above. When screw couplings are used care should be taken in starting the pipe in the coupling. The pipe should start by hand and screw by hand to within 5 or 6 threads of butting. If the thread appears tighter than this check carefully for a damaged thread as the pipe should not be forced into the coupling. The last 5 or 6 threads should be made up with a chain tong, making sure that the joint is tight with the pipe butting against the shoulder in the coupling or against the end of the pipe in the coupling as the case might be.

When the line shaft connects to the motor drive shaft below the tension assembly, the motor drive shaft should be attached to the line shaft in the top section of tubing before the top length of discharge column is installed.

The top length of discharge pipe will usually have a special flange or special threads to connect to the bottom of the discharge ell and the top length of shaft will be of special length.

In case the discharge column does not check out within reasonable limits notify the factory to furnish the correct lengths.

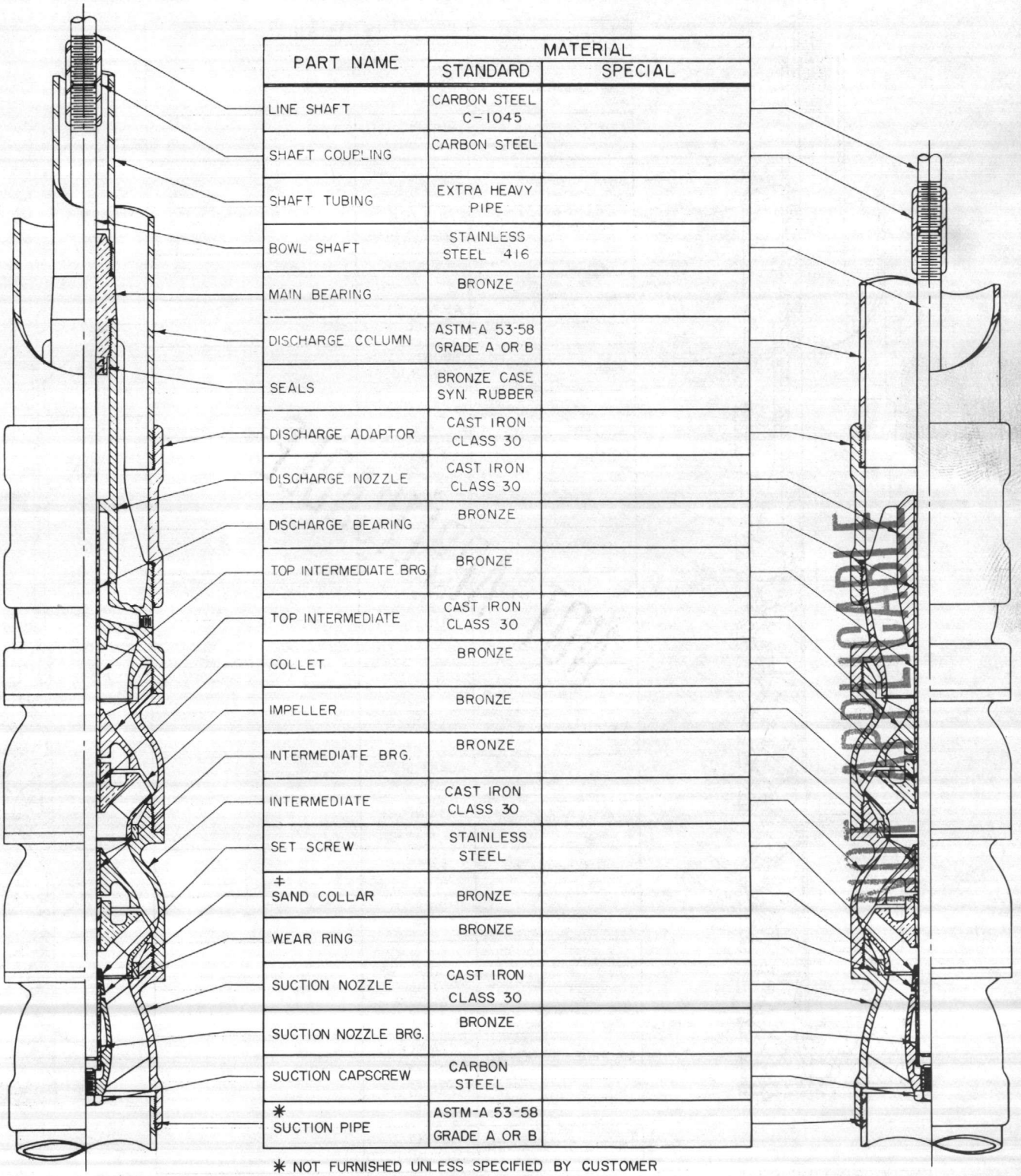
PRINTED IN U S A

VERTICAL TURBINE PUMP

DEEP WELL

LAYNE & BOWLER, INC. MEMPHIS, TENNESSEE

8" B, DR, PR, RK, T, UR - 10" RK, T, U - 12" T, UR



PART NAME	MATERIAL	
	STANDARD	SPECIAL
LINE SHAFT	CARBON STEEL C-1045	
SHAFT COUPLING	CARBON STEEL	
SHAFT TUBING	EXTRA HEAVY PIPE	
BOWL SHAFT	STAINLESS STEEL 416	
MAIN BEARING	BRONZE	
DISCHARGE COLUMN	ASTM-A 53-58 GRADE A OR B	
SEALS	BRONZE CASE SYN. RUBBER	
DISCHARGE ADAPTOR	CAST IRON CLASS 30	
DISCHARGE NOZZLE	CAST IRON CLASS 30	
DISCHARGE BEARING	BRONZE	
TOP INTERMEDIATE BRG.	BRONZE	
TOP INTERMEDIATE	CAST IRON CLASS 30	
COLLET	BRONZE	
IMPELLER	BRONZE	
INTERMEDIATE BRG.	BRONZE	
INTERMEDIATE	CAST IRON CLASS 30	
SET SCREW	STAINLESS STEEL	
± SAND COLLAR	BRONZE	
WEAR RING	BRONZE	
SUCTION NOZZLE	CAST IRON CLASS 30	
SUCTION NOZZLE BRG.	BRONZE	
SUCTION CAPSCREW	CARBON STEEL	
* SUCTION PIPE	ASTM-A 53-58 GRADE A OR B	

* NOT FURNISHED UNLESS SPECIFIED BY CUSTOMER

± HARD RUBBER USED ON 8" BOWLS

ENCLOSED LINE SHAFT ☐ ☐ OPEN LINE SHAFT

PRINTED IN U.S.A.

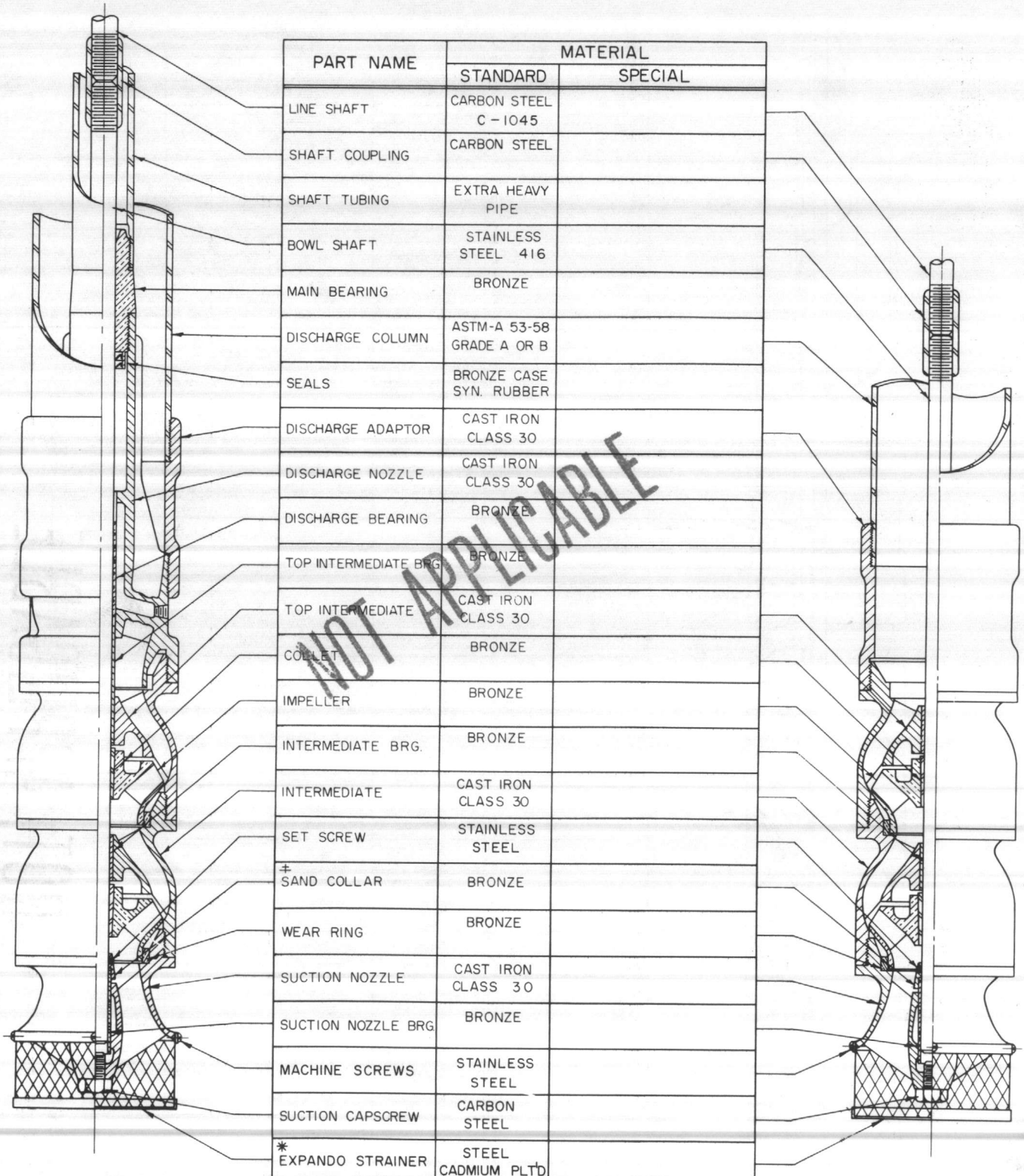
REVISED 3-26-68
SUPERSEDES ORIGINAL PRICE BOOK ISSUE

VERTICAL TURBINE PUMP

SHORT COUPLED

LAYNE & BOWLER, INC. MEMPHIS, TENNESSEE

8" B, DR, PR, RK, T, UR – 10" RK, T, U – 12" T, UR



PART NAME	MATERIAL	
	STANDARD	SPECIAL
LINE SHAFT	CARBON STEEL C – 1045	
SHAFT COUPLING	CARBON STEEL	
SHAFT TUBING	EXTRA HEAVY PIPE	
BOWL SHAFT	STAINLESS STEEL 416	
MAIN BEARING	BRONZE	
DISCHARGE COLUMN	ASTM-A 53-58 GRADE A OR B	
SEALS	BRONZE CASE SYN. RUBBER	
DISCHARGE ADAPTOR	CAST IRON CLASS 30	
DISCHARGE NOZZLE	CAST IRON CLASS 30	
DISCHARGE BEARING	BRONZE	
TOP INTERMEDIATE BRG.	BRONZE	
TOP INTERMEDIATE	CAST IRON CLASS 30	
COLLET	BRONZE	
IMPELLER	BRONZE	
INTERMEDIATE BRG.	BRONZE	
INTERMEDIATE	CAST IRON CLASS 30	
SET SCREW	STAINLESS STEEL	
‡ SAND COLLAR	BRONZE	
WEAR RING	BRONZE	
SUCTION NOZZLE	CAST IRON CLASS 30	
SUCTION NOZZLE BRG.	BRONZE	
MACHINE SCREWS	STAINLESS STEEL	
SUCTION CAPSCREW	CARBON STEEL	
* EXPANDO STRAINER	STEEL CADMIUM PLT'D	

NOT APPLICABLE

ENCLOSED LINE SHAFT ☐

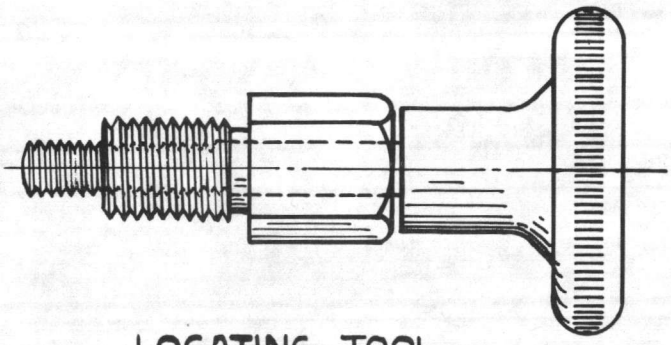
* NOT FURNISHED UNLESS SPECIFIED BY CUSTOMER
‡ HARD RUBBER USED ON 8" BOWLS

☐ OPEN LINE SHAFT

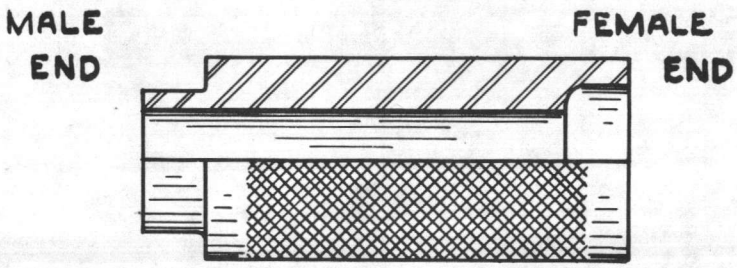
PRINTED IN U. S. A.

REVISED 3-26-68
SUPERSEDES ORIGINAL PRICE BOOK ISSUE

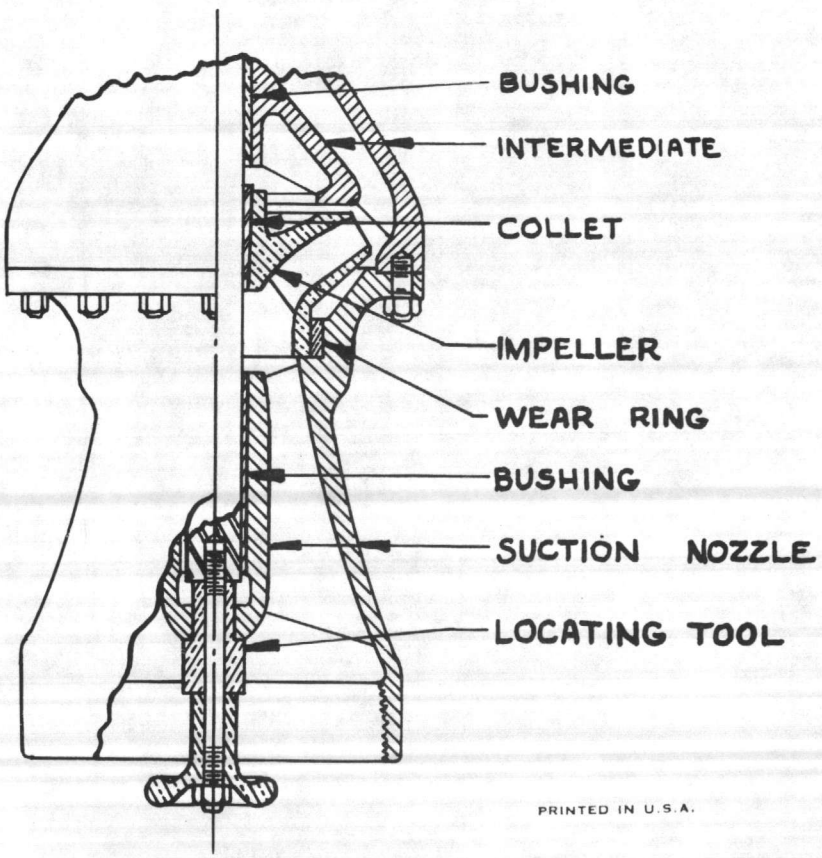
INSTRUCTIONS FOR ASSEMBLYING AND DISMANTLING PUMP BOWLS WITH COLLETS



LOCATING TOOL



COLLET DRIVER



TO ASSEMBLE BOWL

1. Remove cap screw from the bottom of the suction nozzle.
2. Screw locating tool into bottom end of suction nozzle hub.
3. Insert impeller shaft into suction nozzle bearing and turn handwheel of locating tool until impeller shaft is pulled down tight against the shoulder of the tool.
4. Place the impeller over the shaft. Slip the collet over the shaft with the small end first. (A screw driver can be used to spread collet for ease in slipping over shaft). Hold the impeller firmly into the wear ring recess and drive the collet into place with the male end of the collet driver.
5. Remove collet driver and assemble first intermediate stage. Place the next impeller over the shaft and continue to assemble as explained above.
6. When the bowl is completely assembled remove locating tool and replace cap screw in suction nozzle.

TO DISMANTLE BOWL

1. Remove discharge nozzle. Place collet driver over shaft with the female end first and while holding the impeller out of the wear ring recess, drive the impeller off of the collet. Remove the collet and impeller.
2. Remove the intermediate shell and drive the impeller off of the next collet. Continue to dismantle in like manner.

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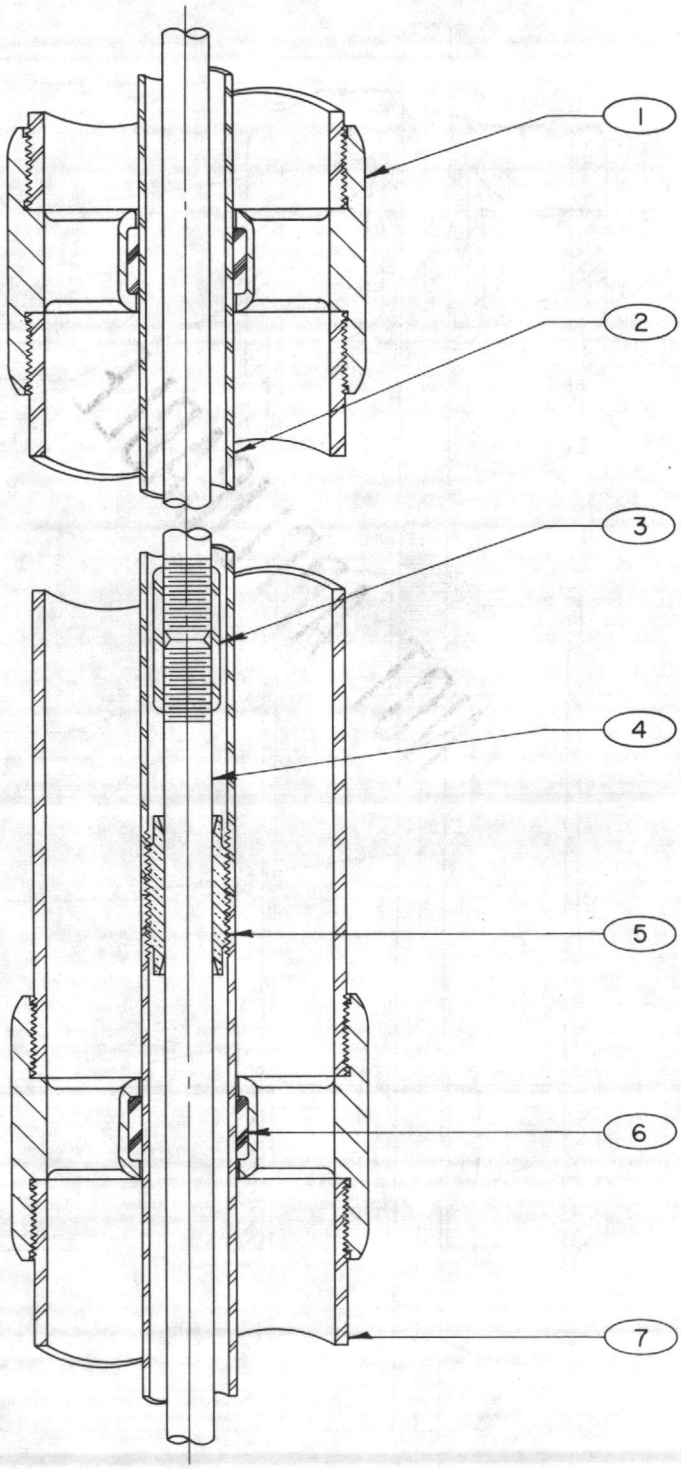
DISCHARGE COLUMN ASSEMBLY

SCREWED TYPE - ENCLOSED LINE SHAFT

LAYNE & BOWLER INC. — MEMPHIS, TENNESSEE



ITEM NO.		DESCRIPTION
1		COMBINATION COUPLING
2		SHAFT TUBING
3		SHAFT COUPLING
4		LINE SHAFT

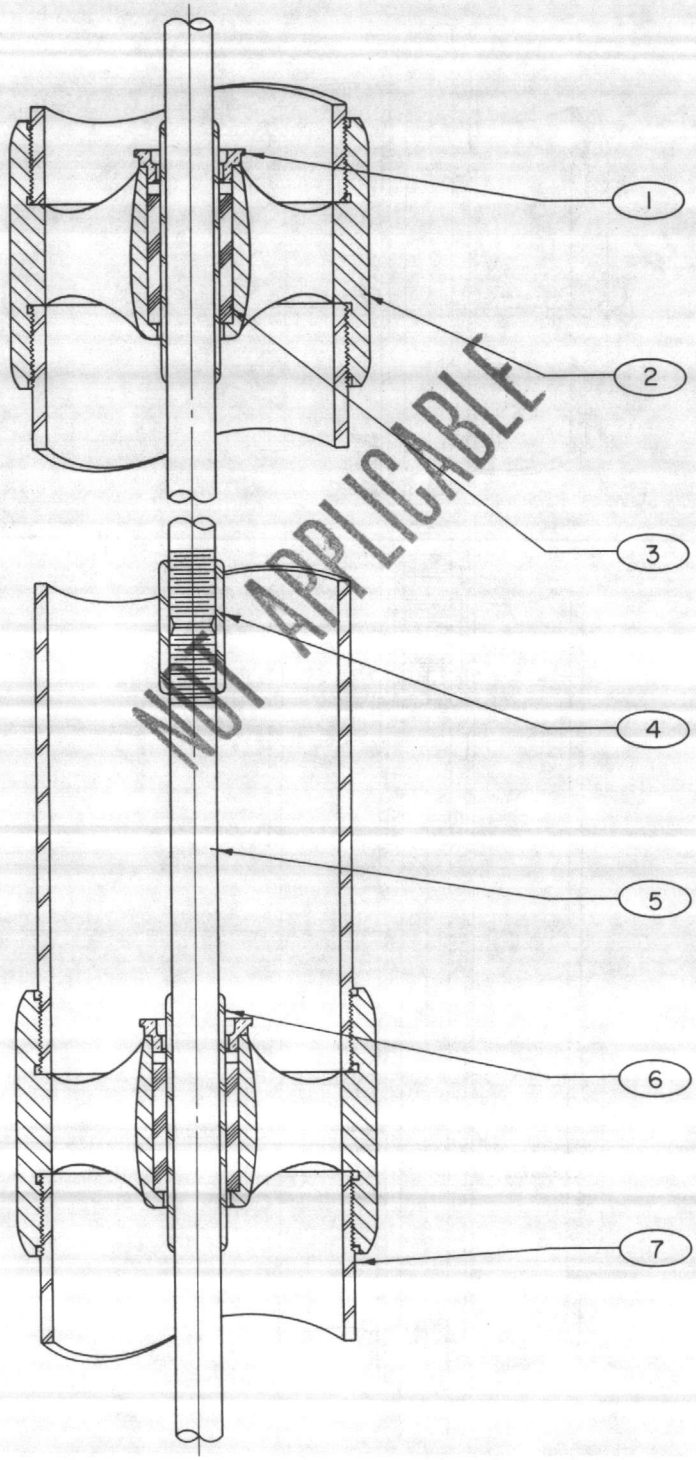
ITEM NO.		DESCRIPTION
5		SHAFT BOX
6		RUBBER BEARING
7		COLUMN PIPE

IN ORDERING REPLACEMENT PARTS, SPECIFY PART DESCRIPTION & PUMP SERIAL NO.

DISCHARGE COLUMN ASSEMBLY

SCREWED COUPLED - OPEN LINE SHAFT

LAYNE & BOWLER INC. - MEMPHIS, TENNESSEE



ITEM NO.		DESCRIPTION
1		LOCK RING
2		COMBINATION COUPLING
3		RUBBER BEARING
4		SHAFT COUPLING

ITEM NO.		DESCRIPTION
5		LINE SHAFT
6		MONEL SLEEVE
7		COLUMN PIPE

IN ORDERING REPLACEMENT PARTS, SPECIFY PART DESCRIPTION & PUMP SERIAL NO.

PRINTED IN U. S. A.

VERTICAL CENTRIFUGAL PUMP-INSTALLATION OF PUMP HEADS WITH STYLE 60 STUFFING BOX
HOLLOW SHAFT-MOTOR DRIVEN BUTT-JOINT TOP COLUMN FLANGE

DISASSEMBLE AND CLEAN Before installation, the pump head should be disassembled and all parts thoroughly cleaned with kerosene. Remove the stuffing box from the discharge ell.

MOUNT DISCHARGE ELL With the style 60 packing box a butt-joint, top-column flange is used. Therefore, no adjustment is necessary. Clean the face of the top flange and the bottom flange of the discharge ell and coat with Layncote. Note condition of top of the projecting tubing and remove with a file any burrs or sharp edges that might cut the O ring when it is installed. Bolt discharge ell and column together.

PACKING BOX Clean the tension bearing and stuffing box thoroughly before continuing with installation. Insert the stuffing box first, having the "O" ring in place (a light coat of oil should be given the "O" ring). The tension bearing can now be installed, the threaded portion being coated with Layncote. Slip bearing over shaft and screw into tubing until the bearing flange butts the stuffing box. (This should be a hand tight snug fit). The bearing is now ready to take the tension.

TENSION The amount of tension should be based on 1/8" tube travel per 100 ft. of setting, this is put in terms of No. of turns of the tension bearing in the table below:

SIZE TUBING	NUMBER THREADS	NUMBER OF TURNS PER 100 FEET OF SETTING
1 1/4"	16	2
1 1/2"	12	1 1/2
2"	10	1 1/4
2 1/2", 3" & 3 1/2"	8 OLD STD.	1
2 1/2", 3" & 3 1/2"	10 NEW STD.	1 1/4
4" & UP	10	1 1/4

ALIGNMENT The pump shaft MUST now be in the exact center of the pump head and exactly perpendicular to the machined surface of the discharge ell. This can be checked with a stright edge, square, and pair of calipers. The discharge ell can be shaifted slightly on the concrete foundation or tilted with shims until the shaft is properly aligned.

MOTOR MOUNT Lower the hollow shaft motor over the drive shaft, taking care not to disturb the alignment. To insure proper operation of the pump it is necessary that the motor be centered exactly, so great care should be taken in this operation. Bolt motor to discharge ell or motor stand with cap screws.

When a hollow shaft motor is used the drive shaft is keyed to a removable motor coupling. Screw on and tighten the drive shaft nut, lifting the shaft until the impellers are drawn against the top of the pump bowl. In this position the shaft cannot be rotated. The nut should then be loosened 1/4 to 1/2 turn or until the shaft turns freely. A gib key is then inserted to prevent the drive shaft nut from working loose.

GROUT BASE AND CONNECT DISCHARGE Grout the discharge ell in position, being careful not to disturb the alignment of the pump head. In case the discharge nipple is to be connected to a water main, a Dresser Coupling should be used. The main should be placed as nearly as possible in line with the discharge nipple. The Dresser Coupling prevents throwing any strain on the pump head if the discharge nipple and main are not exactly in line.

LUBRICATING SYSTEM Connect the hand oil pump, drip feed lubricator or automatic solenoid lubricator to the oil connection in the tension bushing. When first connected allow about one cup full oil to enter the tubing. Then adjust the drip cup or automatic lubricator to allow the following quantity of oil to enter the tubing:

For setting up to 50 feet - 5 drops per minute
For setting up to 100 feet - 10 drops per minute
For setting up to 150 feet - 15 drops per minute
For setting up to 200 feet - 20 drops per minute
For setting up to 250 feet - 25 drops per minute
For setting up to 300 feet - 30 drops per minute

When using a force feed oil pump inject about one cup full of oil for each 24 hours of operation.

The oil should be of a good grade of mineral oil free from grit or foreign matter, with a viscosity rating of approximately S.A.E. 10 and having a relatively low cold pour point.

STARTING PUMP CHECK DIRECTION OF MOTOR ROTATION very carefully before applying power. The pump must operate in a left hand or counter clock-wise direction.

Open pet cock located adjacent to packing box to release air from discharge column, and close as soon as water discharges from pet cock.

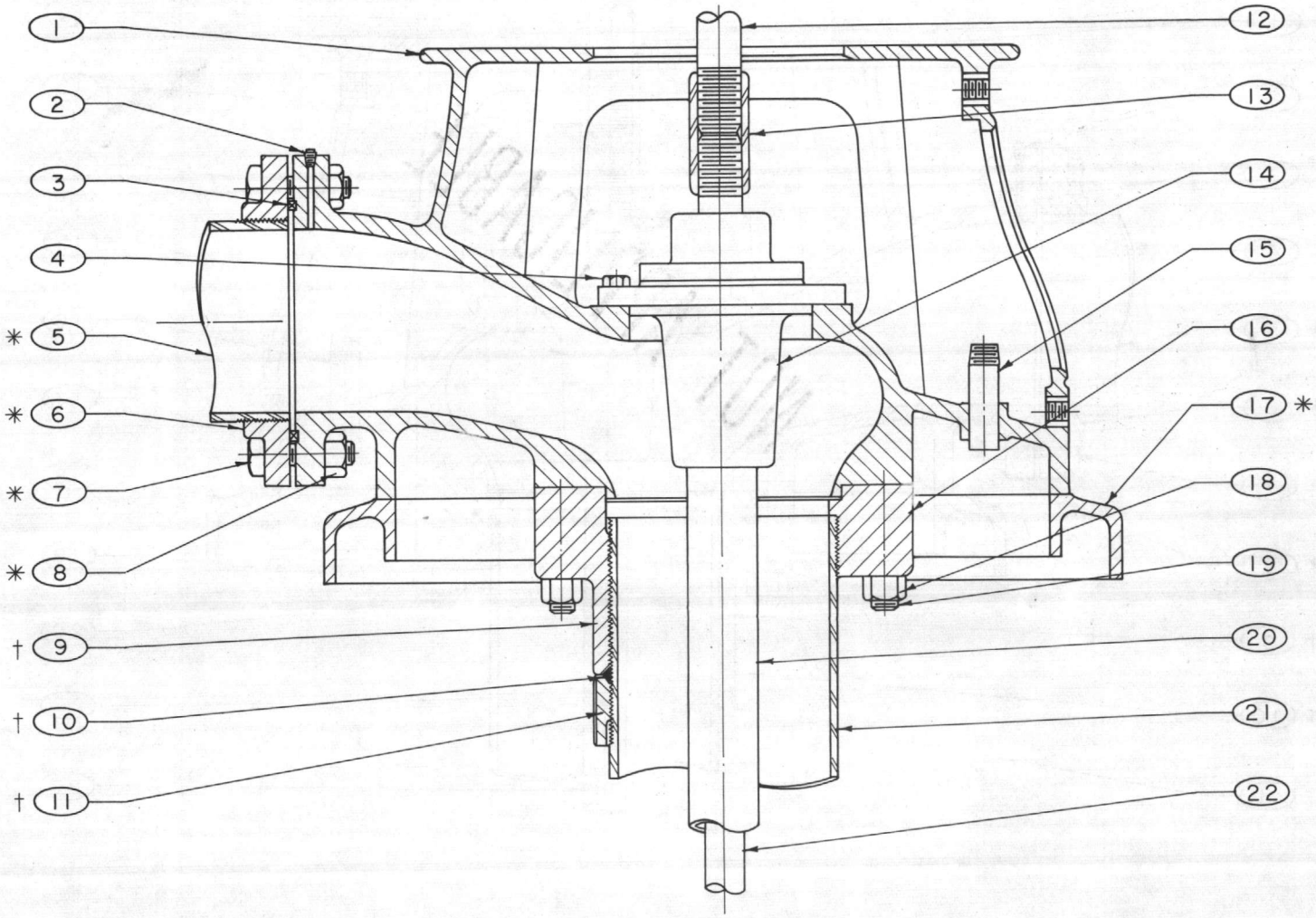
After the pump has been in operation a few hours, shut down and check the adjustment of the pump runners. The pump shaft may have been screwed up tighter by the power applied and thereby shortened.

PRINTED IN U. S. A.

TYPE TF DISCHARGE HEAD

ENCLOSED LINE SHAFT

LAYNE & BOWLER INC. – MEMPHIS TENNESSEE



*NOT FURNISHED UNLESS SPECIFIED BY CUSTOMER

ITEM NO.		DESCRIPTION
1		DISCHARGE HEAD
2		PIPE PLUG, PRESSURE GAUGE
3		PACKING, COMPANION FLANGE
4		CAPSCREW (STUFFING BOX)
5		DISCHARGE PIPE
6		COMPANION FLANGE
7		MACHINE BOLT, COMPANION FLG.
8		HEX NUT, COMPANION FLANGE
9		ADJ. TOP COLUMN FLANGE
10		PACKING
11		PACKING RING

†USED FOR SETTINGS GREATER THAN 200 FT.

ITEM NO.		DESCRIPTION
12		MOTOR DRIVE SHAFT
13		HEAD COUPLING
14		STUFFING BOX (ASSEMBLY)
15		PIPE NIPPLE (AUXILIARY OPN'G)
16		TOP COLUMN FLANGE
17		BASE PLATE
18		HEX NUT
19		STUD
20		TUBING
21		TOP COLUMN PIPE
22		LINE SHAFT, TOP PIECE

IN ORDERING REPLACEMENT PARTS, SPECIFY PART DESCRIPTION & PUMP SERIAL NO.

REVISED 10-1-67

SUPERSEDES ORIGINAL PRICE BOOK ISSUE

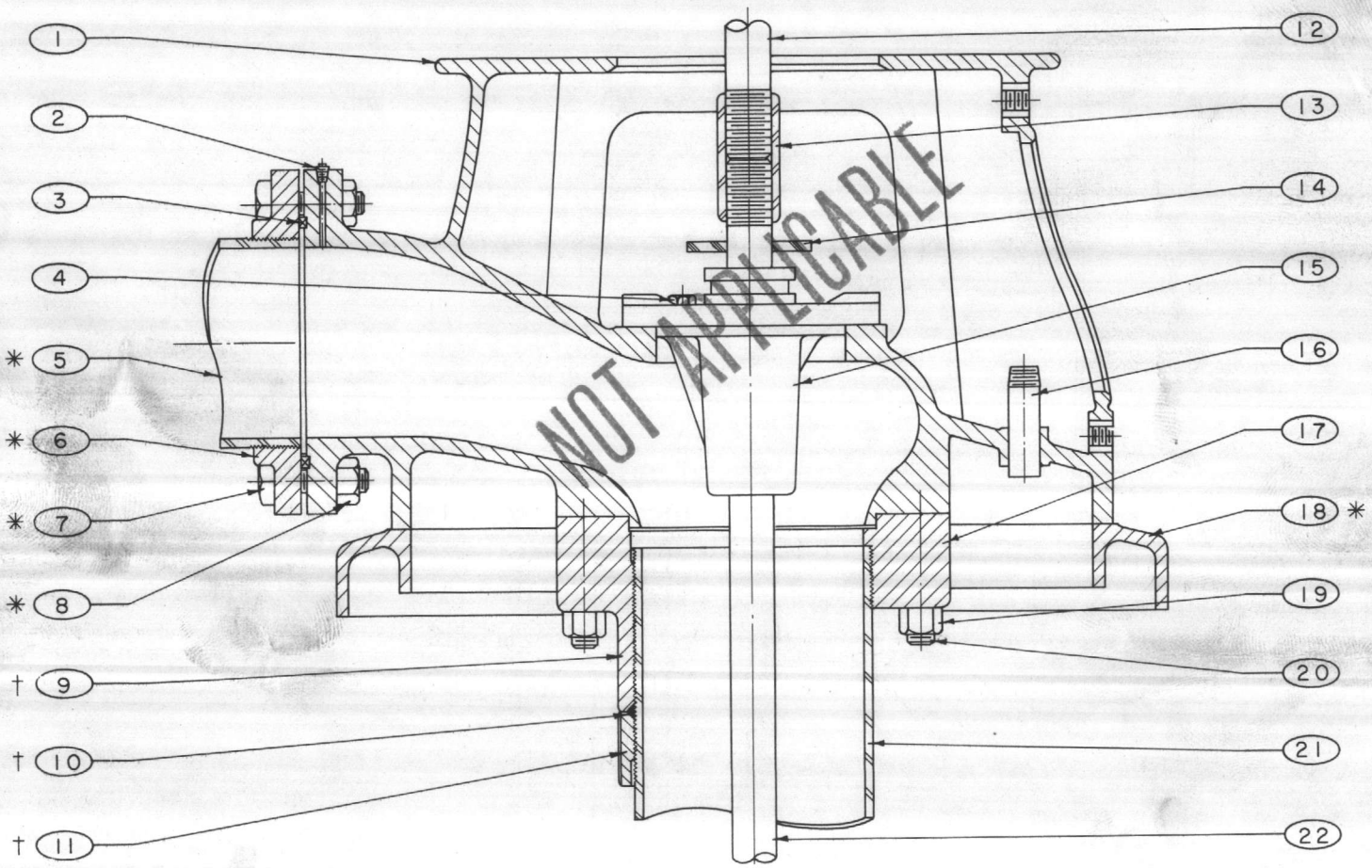
PBS 193

PRINTED IN U.S.A

TYPE TF DISCHARGE HEAD

OPEN LINE SHAFT

LAYNE & BOWLER INC. - MEMPHIS TENNESSEE



* NOT FURNISHED UNLESS SPECIFIED BY CUSTOMER

ITEM NO.		DESCRIPTION
1		DISCHARGE HEAD
2		PIPE PLUG, PRESSURE GAUGE
3		PACKING, COMPANION FLANGE
4		CAPSCREW (STUFFING BOX)
5		DISCHARGE PIPE
6		COMPANION FLANGE
7		MACHINE BOLT, COMPANION FLG.
8		HEX NUT, COMPANION FLANGE
9		ADJ. TOP COLUMN FLANGE
10		PACKING
11		PACKING RING

† USED FOR SETTINGS GREATER THAN 200 FT.

ITEM NO.		DESCRIPTION
12		MOTOR DRIVE SHAFT
13		HEAD COUPLING
14		WATER SLINGER
15		STUFFING BOX (ASSEMBLY)
16		PIPE NIPPLE (AUXILIARY OPN'G)
17		TOP COLUMN FLANGE
18		BASE PLATE
19		HEX NUT
20		STUD
21		TOP COLUMN PIPE
22		LINE SHAFT, TOP PIECE

IN ORDERING REPLACEMENT PARTS, SPECIFY PART DESCRIPTION & PUMP SERIAL NO.

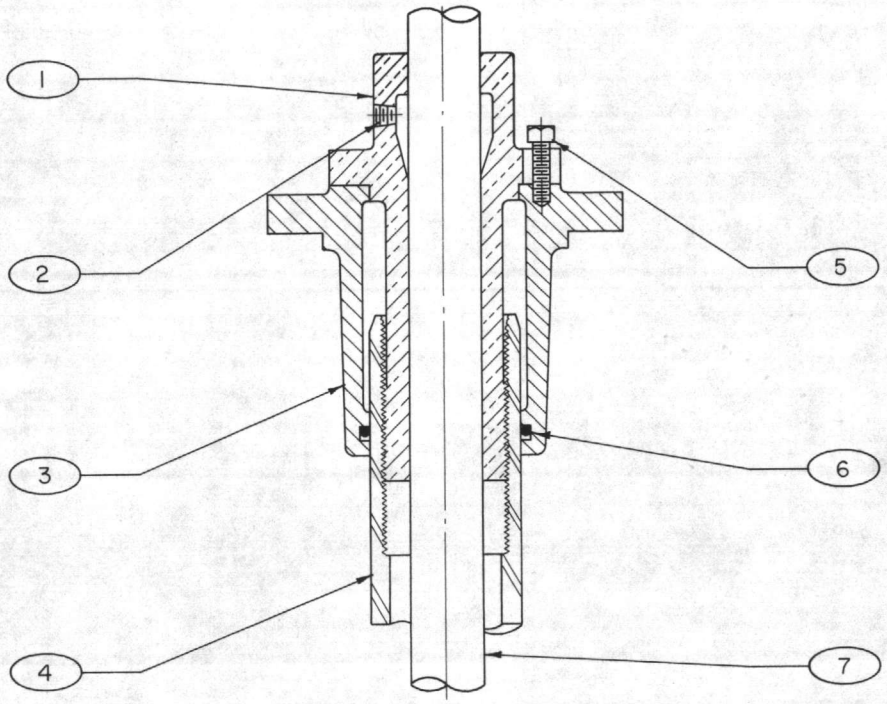
REVISED - 10-1-67
SUPERSEDES ORIGINAL PRICE BOOK ISSUE

PRINTED IN U.S.A.

STYLE 60 STUFFING BOX

OIL LUBRICATION

LAYNE & BOWLER, INC. - MEMPHIS, TENNESSEE



ITEM NO.		DESCRIPTION
1		TENSION BEARING
2		OIL INLET
3		STUFFING BOX
4		TUBING

ITEM NO.		DESCRIPTION
5		LOCK SCREW
6		'O' RING SEAL
7		PUMP SHAFT

IN ORDERING REPLACEMENT PARTS, SPECIFY PARTS DESCRIPTION AND PUMP SERIAL NO.

ASSEMBLY INSTRUCTIONS

STEP 1. CLEAN THE TENSION BEARING AND STUFFING BOX THOROUGHLY BEFORE CONTINUING WITH INSTALLATION.

STEP 2. INSERT THE STUFFING BOX FIRST, HAVING THE 'O' RING IN PLACE (A LIGHT COAT OF OIL SHOULD BE GIVEN THE 'O' RING).

STEP 3. THE TENSION BEARING CAN NOW BE INSTALLED, THE THREAD PORTION BEING COATED WITH OIL. SLIP BEARING OVER SHAFT AND SCREW INTO TUBING UNTIL THE BEARING FLANGE BUTTS THE STUFFING BOX. (THIS SHOULD BE A HAND TIGHT SNUG FIT).

TENSION

STEP 4. THE AMOUNT OF TENSION SHOULD BE BASED ON $\frac{1}{8}$" TUBE TRAVEL PER 100 FEET OF SETTING, THIS IS PUT IN TERMS OF NO. OF TURNS OF THE TENSION BEARING IN THE TABLE BELOW.

SIZE TUBING	1¼"	1½"	2"	2½" 3"	3½"	4" & UP
NO. OF THDS/IN.	16	12	10	10	8	10
NO. OF TURNS PER 100' SETTING	2	1½	1¼	NEW STD. 1¼	OLD STD. 1	1¼

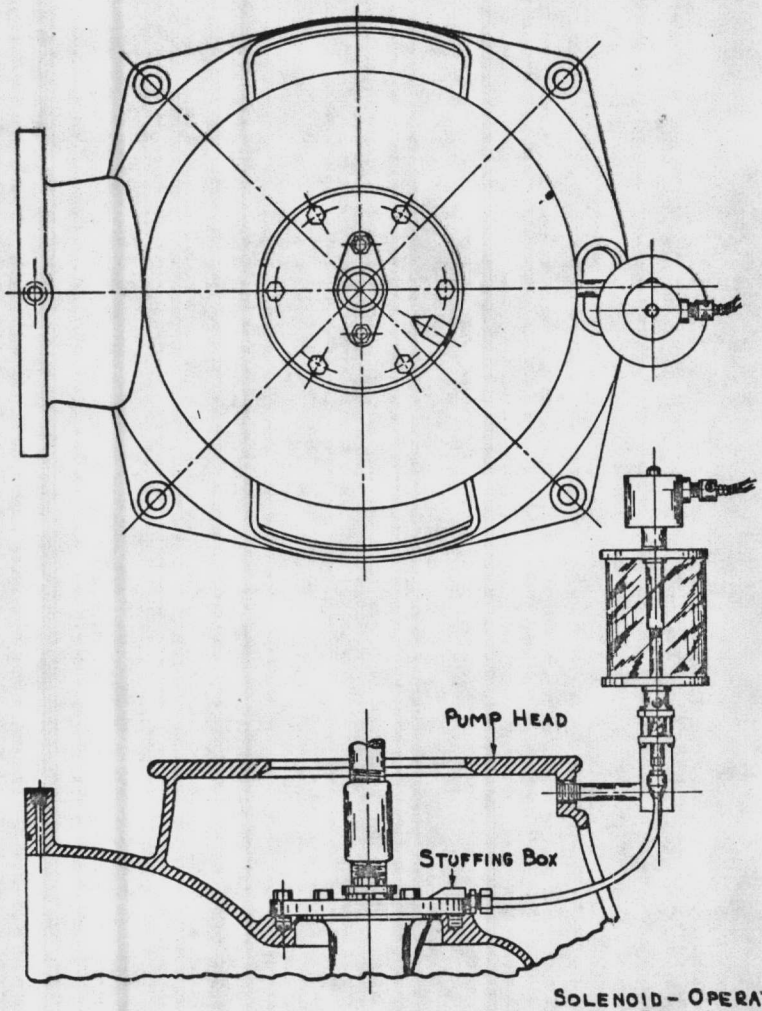
LUBRICATING

STEP 5. CONNECT THE LUBRICATOR TO THE OIL CONNECTION IN THE TENSION BEARING. WHEN FIRST CONNECTED ALLOW ABOUT ONE CUP FULL OF OIL TO ENTER THE TUBING. THEN ADJUST THE FEED TO ALLOW A FLOW OF ONE DROP PER MINUTE PER 10 FOOT OF TUBING.

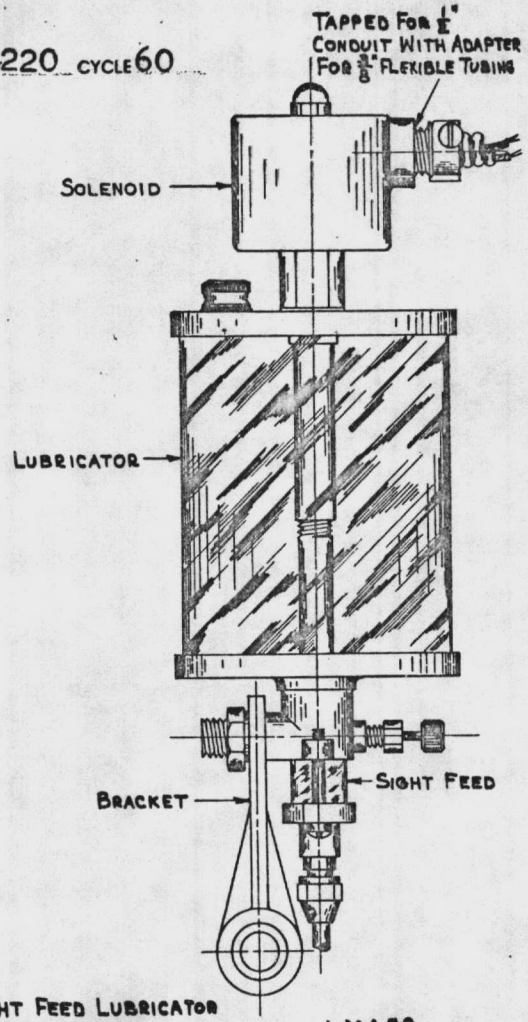
STEP 6. WHEN USING A FORCE FEED OIL PUMP INJECT ABOUT ONE CUP FULL OF OIL FOR EACH 24 HOURS OF OPERATION.

STEP 7. THE OIL SHOULD BE OF A GOOD GRADE MINERAL OIL WITH A VISCOSITY OF APPROXIMATELY S.A.E. 10.

REVISED- 6-1-67
SUPERSEDES ORIGINAL PRICE BOOK ISSUE



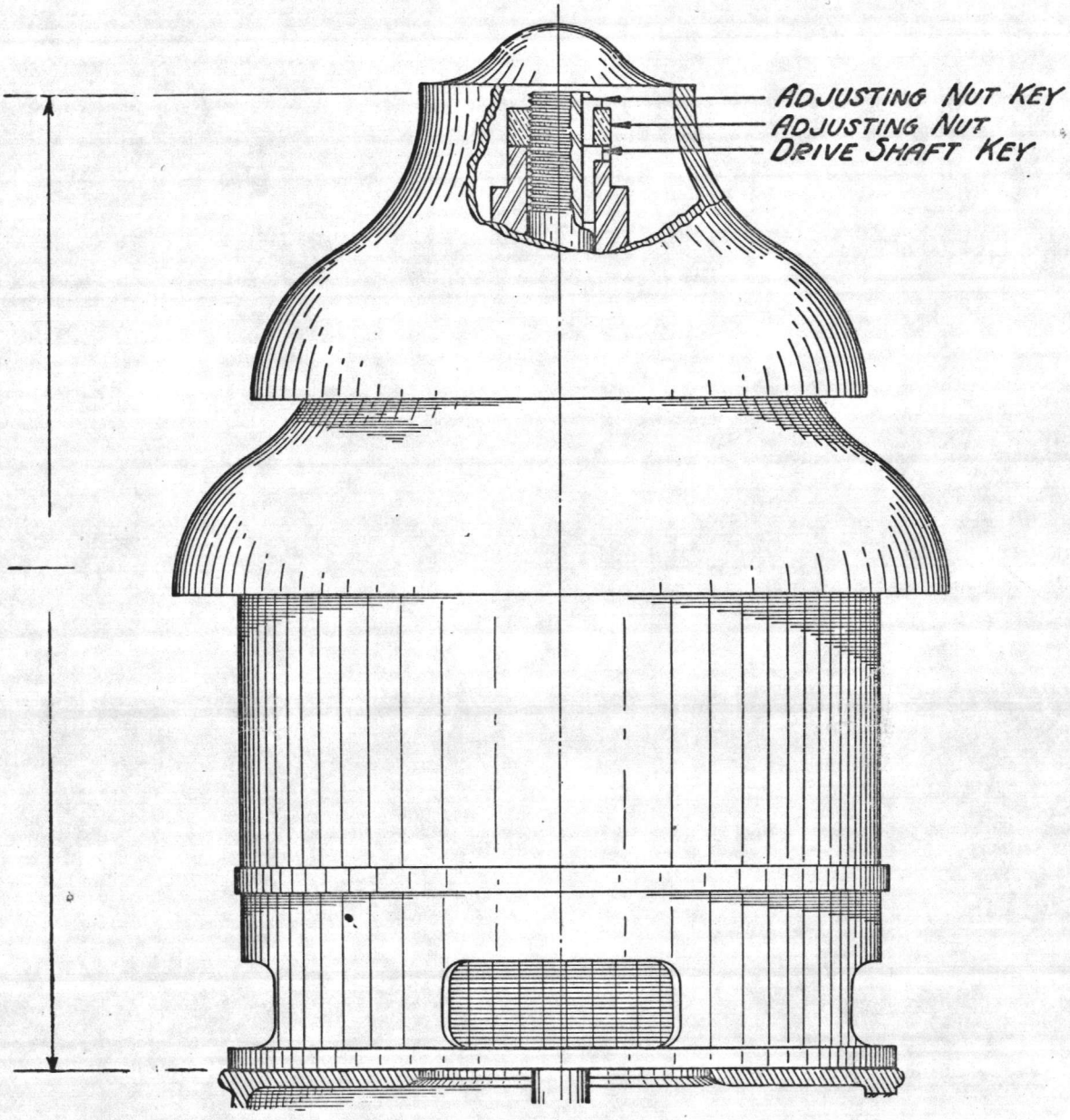
VOLT 220 CYCLE 60



SOLENOID - OPERATED SIGHT FEED LUBRICATOR FOR AUTOMATIC OPERATION

LMA99

PRINTED IN U.S.A.



MOTOR

Make U. S.

10 HP 1800 RPM

220 Volts 3 Phase

60 Cycles

Frame No. 882

NOTICE

To insure prompt service on repairs for motor Be Sure to Furnish the Manufacturer with the motor Serial Number and Complete Name Plate Data.

PART LIST

Part No.	Part Name
F272	Adjusting Nut Key
AN1K	Adjusting Nut
F278	Drive Shaft Key

MA584T

PRINTED IN U. S. A.

5-5-58

#6. well Pump
Static. 16 LB.
#2 air line No Good
Z-5
Z-4
Z-3
Z-2
Z-1

Static
16 LB PRESS

4 ft. DIRECT
36 ft. ALT
41 ft ALT
40 ft alt
36 ft. alt

8-22-69 - REPLACED BOLTS IN IMPELLER UNIT
" GEAR HEAD SHAFT + BEARINGS

4-22-71 Replaced oil seal and cleaned

FILE FOLDER

DESCRIPTION ON TAB:

M.P. Well 197

☑ **Outside/inside of actual folder did not contain hand written information**

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

MW 197
10-24-85

A/L	S/L	B/L	D/D	PSI	GPM	Time
70	33	56	23	40	100	15

CAROLINA WELL AND PUMP COMPANY, INC.

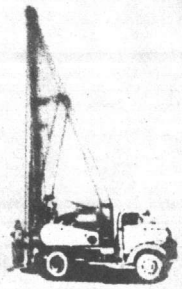
Complete Well and Pump Service

N.W.W.A.

N.C.W.W.A.

P.O. BOX 28
SANFORD, N. C.

TELEPHONE 776-3415



DRILLERS LOG

MONTFORD POINT

0-1	Top Soil
1-8	Clay
8-10	Sandy Clay
10-15	Clay
15-25	Sand & Clay
25-35	Sand (White)
35-50	Lime Stone (Soft)
50-65	Rock (Hard)
65-73	Rock (Medium)
73-74	Rock (Hard)
74-92	Rock (Medium)
92-110	Clay
110-118	Sand & Clay
118-150	Sand
150-165	Sand & Clay
165-191	Clay
191-203	Sand & Clay with Hard Streaks
203-	Rock (Hard)

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

8-4-3-71

Well 36-14 Completed in 1971

Ft. Gauge = 25.1'
or Level = 22.33

Ground Level = 21.8

Length of Air Line = 86.8

54' of Pipe

4'

On Oct. 29 Oct. 10 when the 24 hr. Earthquake Sumpter test was started the Static Level was 0.5 Elev.

10' of Screen

The well set idle until Jan. 7, at which time the well was put in service Static Level in new & old wells was 11.5 Elev.

12' of Pipe

80

16' of Screen

100

Open Space in 8" Casing

32' of Pipe

120

Bottom of bottom Screen at Elev. -124.5

5' of Screen

7' of Pipe

14 9' of Screen

12' of Pipe

40' of 8" Screen &
117' " " Pipe
157'

Elev. -136.4

160

180

P = 50

200'

K = 10

197

DATE	LENGTH OF AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAW DOWN	DISCHARGE PRESSURE	CAP. PER FOOT DRAW DOWN	TOTAL GPM
~~9-22-82~~	~~70'~~	~~20'~~			Start Time		1315
10-22-82	70'	20'	45	25	41	100	1325
			50	30	38	111	1340
		—	54	34	35	119	1400
			57	37	31	128	1415
			61	41	28	133	1430

REMARKS:

Pump 1 head
Run 13P

Light set at 35 PSI 119 GPM

M-197

AMARILLO 9-1-82

RIGHT ANGLE PUMP DRIVE
SN. JRL 20 71187
RATIO DRIVE 1 PUMP 1
H.P. 20 AT 1760 RPM OF PUMP
ROTATION: DRIVE R-H PUMP L-H

CLUTCH = 724
PINS = 741 + 790
ALLEN SCREW = 791 & 794

PUMP INFO. 10-7-82

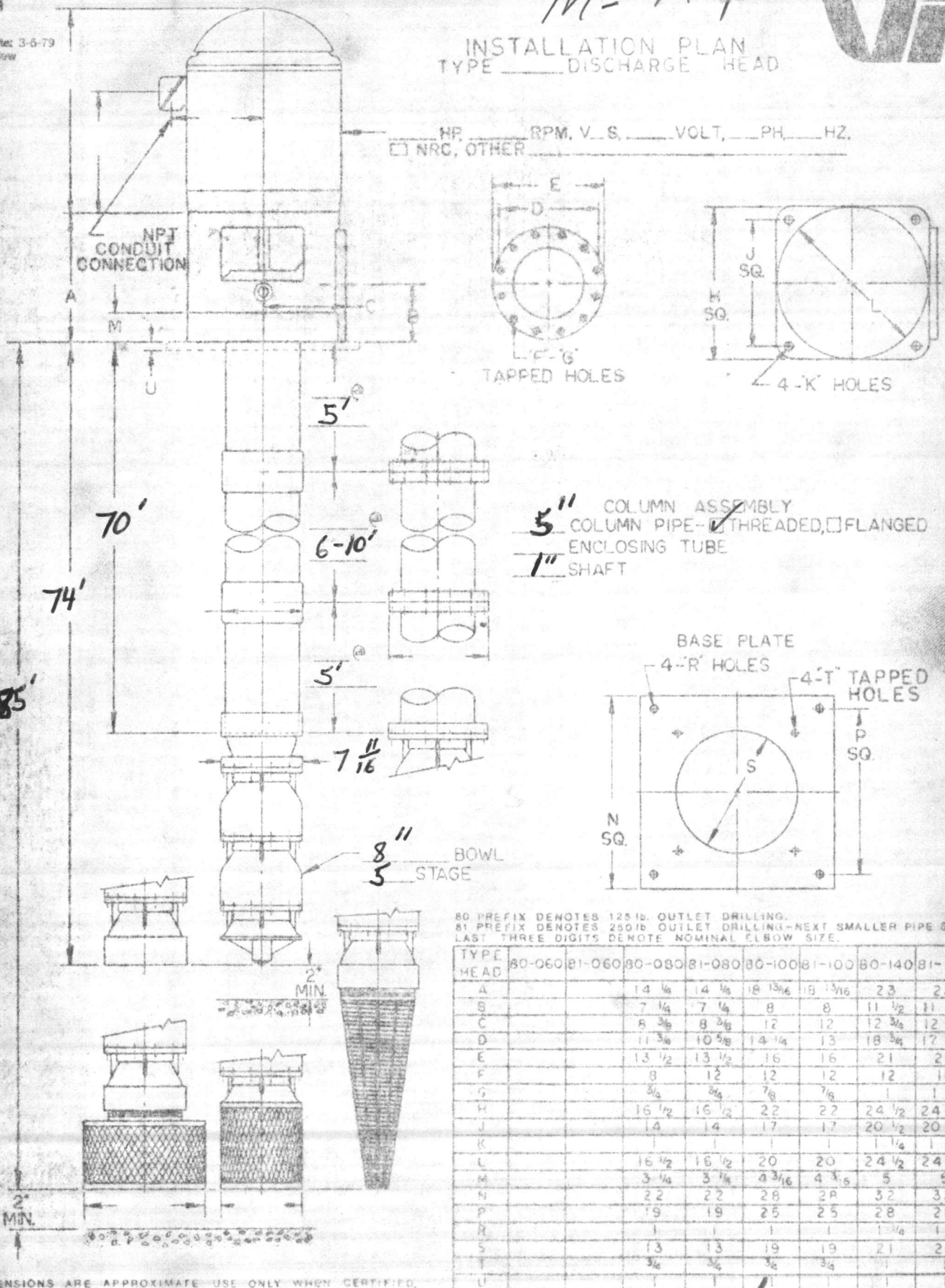
VALLEY
MODEL - AMMO-6
SN - GNC-108
GPM - 150
HEAD - 135
RPM - 1760
CODE - 8-24-82

M-197

INSTALLATION PLAN

TYPE _____ DISCHARGE HEAD

HP, _____ RPM, V_S, _____ VOLT, ___ PH, ___ HZ,
☐ NRC, OTHER _____



5" COLUMN ASSEMBLY
5" COLUMN PIPE- ☑ THREADED, ☐ FLANGED
1" ENCLOSING TUBE
1" SHAFT

80 PREFIX DENOTES 125 lb. OUTLET DRILLING.
81 PREFIX DENOTES 250 lb. OUTLET DRILLING-NEXT SMALLER PIPE SIZE.
LAST THREE DIGITS DENOTE NOMINAL ELBOW SIZE.

TYPE HEAD	80-060	81-060	80-080	81-080	80-100	81-100	80-140	81-140
A			14 1/8	14 1/8	18 13/16	18 13/16	23	23
B			7 1/4	7 1/4	8	8	11 1/2	11 1/2
C			8 3/8	8 3/8	12	12	12 3/4	12 3/4
D			11 3/8	10 5/8	14 1/4	13	18 3/4	17 3/4
E			13 1/2	13 1/2	16	16	21	21
F			8	12	12	12	12	16
G			3/4	3/4	7/8	7/8	1	1 1/8
H			16 1/2	16 1/2	22	22	24 1/2	24 1/2
J			14	14	17	17	20 1/2	20 1/2
K			1	1	1	1	1 1/4	1 1/8
L			16 1/2	16 1/2	20	20	24 1/2	24 1/2
M			3 1/4	3 1/8	4 3/16	4 3/16	5	5
N			22	22	28	28	32	32
P			19	19	25	25	28	28
R			1	1	1	1	1 1/8	1 1/4
S			13	13	19	19	21	21
T			3/4	3/4	3/4	3/4	1	1
U			1	1	1	1	1	1

DIMENSIONS ARE APPROXIMATE USE ONLY WHEN CERTIFIED

CUSTOMER _____
LOCATION _____
SPEC NO. _____
FOR APPROVAL _____ CERTIFIED _____

ITEM NO. GNC 106 GPM 150
QUOTE NO _____ T.D.H. 135
PUMP NO. 8MMO-5 R.P.M. 1760
DATE _____ B.H.P. 7.85

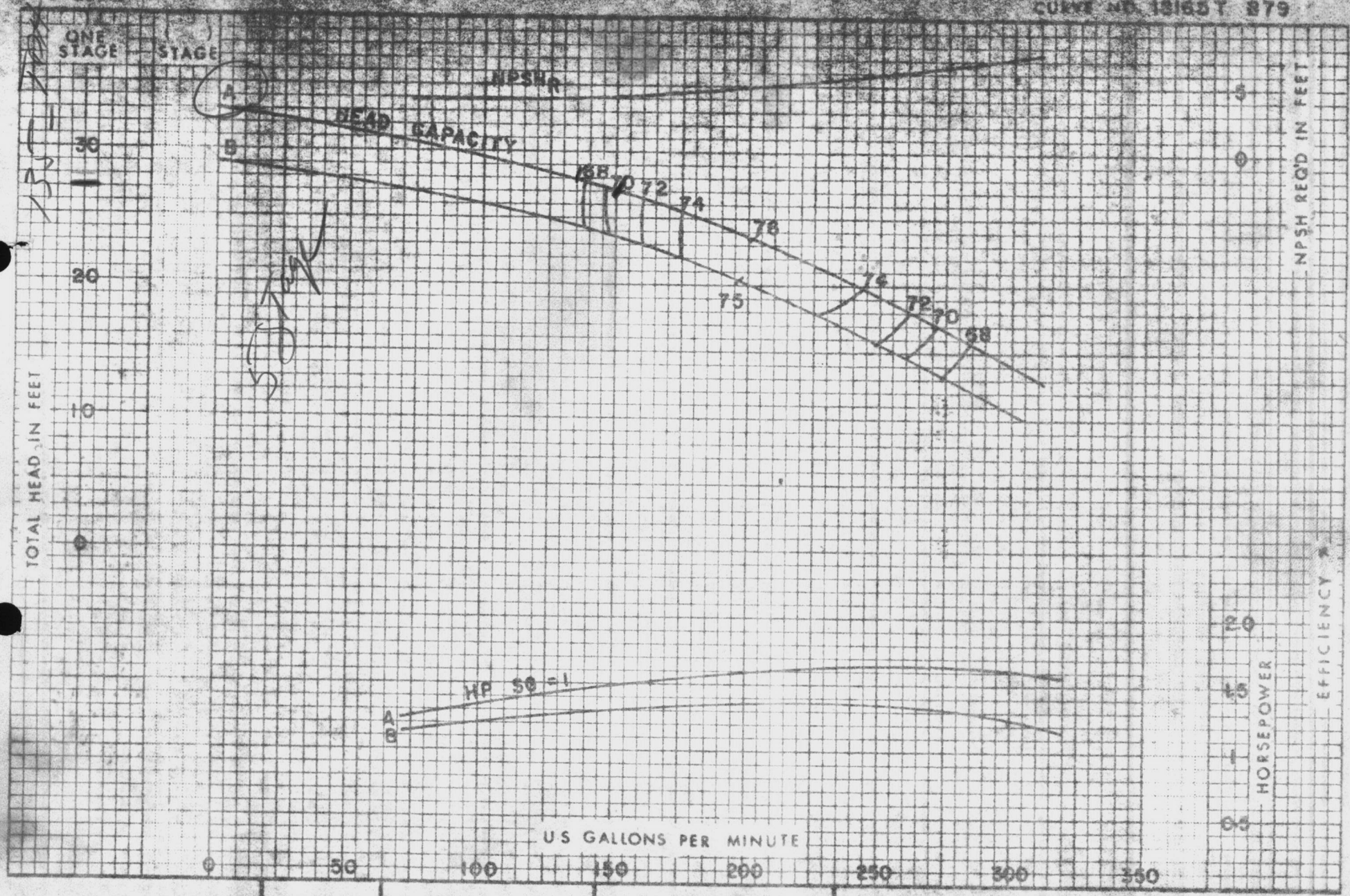
WELL NUMBER M197		BY Thomas - Brown			DATE 1-18-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0830
170'	25	40	15	40	100	0840
		46	21	35	115	0850
					115	0900
						0910

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

6-29-A

CURVE NO. 18165 T 279



VALLEY/AERMOTOR
A DIVISION OF VALLEY INDUSTRIES, INC.
CONWAY, ARKANSAS

8"

8 MMO
ENAMELED

1760 RPM

SEE REVERSE SIDE FOR DETAILED INFORMATION

M 197 June 18, 1981

air line	static	pumping level	drawdown	pressure	GPMs
70'	32'	60'	32'	36 LB	111
		63'	35'	33 LB	115
		66'	38	30 LBS	119

FORM A–4
(MAY '70)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

O.M.B. No. 42-1485
Approval Expires June 30, 1979
This report is authorized by O.M.B. Circular A-67. While organizations other than Federal agencies are not required to respond, their cooperation is needed to make the results of this inventory complete.

1. AGENCY CODE	2. TYPE	3. LATITUDE	4. LONGITUDE	5.
MC	Q	34° 43' 58" N	77° 24' 38" W	

6. AGENCY STATION NO.	7. STATION NAME
MP-197	MP-178-197

8. DRAINAGE BASIN CODE No.	Letter	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
06	N	32	133	Onslow

12. PERIOD OF RECORD — Began: 1971 — Discontinued: — Y ☐ Continuous Interruption Exceeds 1 Year

13.

14.

15. SITE

☐ 101 Stream ☐ 104 Reservoir ☒ 107 Well
☐ 102 Canal ☐ 105 Estuarine zone ☐ 108 Drain
☐ 103 Lake ☐ 106 Spring ☐ 109 Other

16. TYPES OF DATA AVAILABLE AND FREQUENCY OF MEASUREMENT (Enter appropriate number (1–8) beside each parameter to indicate frequency of measurement. For parameters telemetered, enter "T".)

1 Continuous
2 Seasonal
3 Daily
4 Weekly
5 Monthly
6 Quarterly
7 Annual
8 Other Periodic

Physical

311 ___ Temperature
312 ___ Specific conductance
313 ___ Turbidity
314 ___ Color
315 ___ Odor
316 ___ pH (field)
317 8 pH (lab)
318 ___ Eh
319 ___ Suspended solids
320 ___ Other

Chemical

331 ___ Dissolved solids
332 8 Chloride
333 ___ Nutrients (nitrogen)
334 ___ Nutrients (phosphorus)
335 ___ Common ions
336 8 Hardness
337 ___ Radiochemical
338 ___ Dissolved oxygen
339 ___ Other gases
340 ___ Minor elements
341 ___ Pesticides (insecticides, herbicides, etc.)
342 ___ Detergents – MBS
343 ___ Biochemical oxygen demand
344 ___ Carbon (total, dissolved, etc.)

Biologic

361 ___ Coliforms
362 ___ Other micro-organisms (Benthic organism, phytoplankton, etc.)
363 ___ Other

Sediment

371 ___ Concentration (suspended)
372 ___ Particle size (suspended)
373 ___ Particle size (bed load material)
374 ___ Other

17. SUPPLEMENTARY DATA AVAILABLE FOR STATION

☐ 421 Surface water station ☐ 423 Water stage or level ☐ 425 Time of travel
☒ 422 Ground water station ☐ 424 Water discharge ☐ 426 Drainage area

18. STORAGE OF DATA

☐ 501 Published ☐ 503 Data on punchcard ☐ 505 Other
☒ 502 Not published ☐ 504 Data on magnetic tape, disc, data cell, etc.

19. INQUIRIES ABOUT DATA SHOULD BE SENT TO:

Office: Base Maintenance Department, Utilities Department
Street No.: Marine Corps Base
City, State, Zip: Camp Lejeune, North Carolina 28542
City Code: 0735

20. DATA ARE AVAILABLE TO PUBLIC ON REQUEST ☒ Yes ☐ No

21. OFFICE COMPLETING FORM

BASE MAINTENANCE DEPARTMENT

22. COMPILER'S NAME

BOB WILSON

23. DATE — Month: 12 — Year: 19 76

PHYSICAL AND CHEMICAL ANALYSIS OF WATER

SAMPLE NO. 01

FROM: (Station or unit) Water treatment Branch, Base maintenance Dept

DATE 4 NOV 76

TO: (Name and location of laboratory) Quality control lab

SAMPLE FROM (Location of sampling point) M629

COLLECTED BY	DATE	HOUR	SOURCE (Designate ground, surface, raw, treated)
MSG FRAZELLE	4 NOV 76		ground, Raw, Well

REASON FOR EXAMINATION	EXAMINATION REQUESTED BY
Iron content	Water plant

NOTE: All results reported in parts per million unless otherwise noted except for pH, temperature, and specific conductance. One liter of potable water is assumed to weigh one kilogram.

I. FIELD ANALYSIS

1. pH	TEMPERATURE °F	TEMPERATURE °C

ITEM	PPM
2. CARBON DIOXIDE (CO_2)	
3. DISSOLVED OXYGEN (O_2)	
4. HYDROGEN SULFIDE (H_2S)	
5. CHLORINE DEMAND (Cl_2)	

FIELD ANALYSIS BY

DATE OF ANALYSIS

II. SPECIAL LABORATORY ANALYSES

Check (X) individual items to be included in the Special Analyses. Request determination only of those substances suspected of being present in significant amounts.

(X)	ITEM	PPM
	1. As	
	2. Se	
	3. Pb	
	4. B	
	5. Cu	
	6. Zn	
	7. Cr (Hexavalent)	
	8. PO	
	9. Cd	
	10. CN	
	11. Phenolic Compounds (PPB)	
	12. Others (Specify)	
	13.	
	14.	
	15.	
	16.	

III. ROUTINE LABORATORY ANALYSIS

(CHECK ONE)

	REQUESTED		NOT REQUESTED

ITEM	PPM
1. COLOR	
2. TURBIDITY	
3. ALKALINITY ($CaCO_3$) P	MO
4. TOTAL HARDNESS ($CaCO_3$)	
5. NON-CARBONATE HARDNESS ($CaCO_3$) (By Computation)	
6. CARBONATE HARDNESS ($CaCO_3$) (By Computation)	
7. TOTAL DISSOLVED SOLIDS	
8. SPECIFIC CONDUCTANCE (Micromhos)	
9. CALCIUM (Ca)	
10. MAGNESIUM (Mg)	
11. SODIUM (Na) AND POTASSIUM (K)	
12. HYDROXIDE (OH)*	
13. BICARBONATE (HCO_3)*	
14. CARBONATE (CO_3)*	
15. SULFATE (SO_4)	
16. CHLORIDE (Cl)	
17. NITRATE (NO_3)	
18. IRON (Fe) TOTAL	37
19. MAGANESE (Mn)	
20. SILICA (SiO_2)	
21. FLUORIDE (F)	

*State whether determined or computed from P and MO alkalinity.

REMARKS (Such as unusual appearance, taste, odor, etc.)

Reddish in color

LABORATORY ANALYSIS BY [signature]

DATE OF ANALYSIS 5 NOV 76

DD FORM 1 APR 53 710 REPLACES WD AGO FORM 8-125, 1 APR 45, WHICH MAY BE USED.

D35467

NORTH CAROLINA DEPARTMENT OF HUMAN RESOU

CHEMICAL ANALYSIS OF WATER

Division of Health Services, Laboratory Section
P. O. Box 28047, Raleigh, North Carolina 27611

Complete all items above Heavy line
(see instructions on reverse side)

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Name of Owner or Supply: CAMP LEJEUNE MARINE BASE

Address: JACKSONVILLE, N. C.

MONTFORD POINT TEST WELL Well No. M-627

County: ONSLOW

Report to: WORTH F. PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

Collected by: RALPH W. HARRISON

Date Collected: 1/29/76 Time: 4:30 p.m.

Remarks:

63' - 78'

SAMPLE #3

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Blend
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
[ ] 2-House Tap
[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
[ ] 2-Treated

Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
[ ] 2-Fluoridated
[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (15 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	8	units	Ph	(00.0) 7.8

Results in Parts per Million

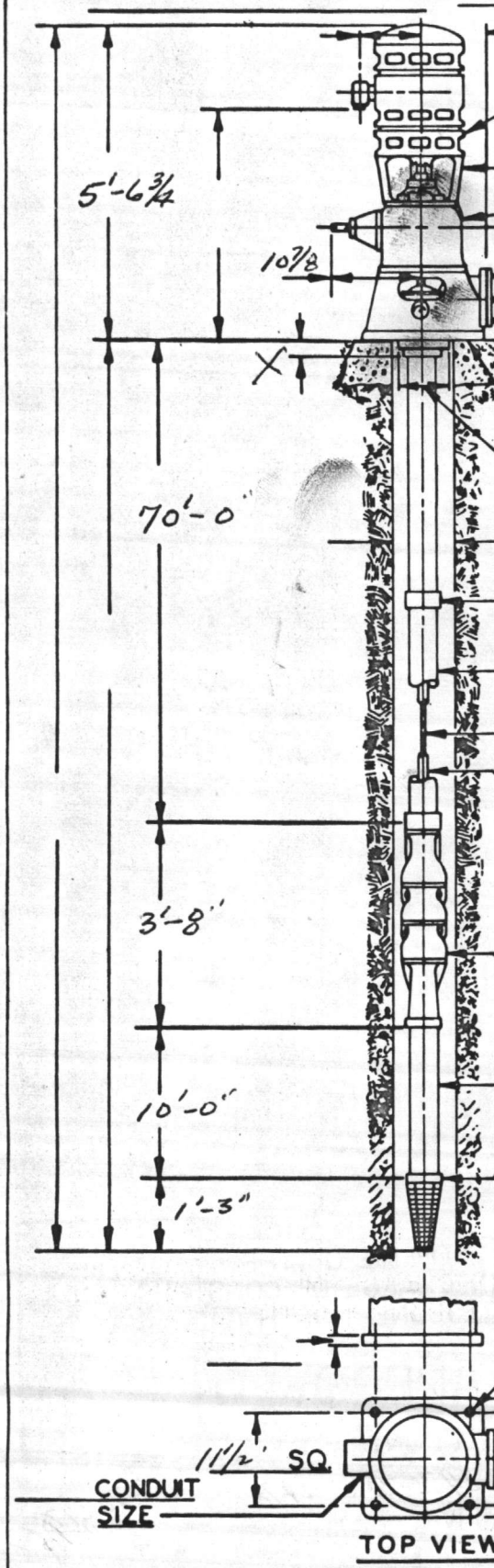
Alkalinity $CaCO_3$	(000)	175		Fluoride	(0.00) 0.16
Total Hardness	(000)	183		Arsenic	(*0.[illegible]) < 0.01
Iron	(*00.00)	2.30		Cadmium	(*0.[illegible]) < 0.01
Manganese	(*00.00)	< 0.03		Chromium $^{+6}$	(*0.[illegible]) < 0.05
Turbidity SiO_2	(000)	16		Copper	(*00.[illegible]) < 0.05
Acidity $CaCO_3$	(000)	6		Lead	(*0.[illegible]) < 0.05
Chloride	(000)	9		Zinc	(*00.00) < 0.05
Sodium	(000)	9		Calcium	70.6
Potassium	(00.0)	1.4		Magnesium	1.7

Date received [illegible], 76 Date reported Feb. [illegible], 19[illegible] 057

FORM NO. 2829004

PEERLESS PUMP

COMBINATION DRIVE
SURFACE DISCHARGE



6⅞¢ TO FACE OF FLANGE

MOTOR: WESTINGHOUSE MFR. WPI TYPE 10 HP. 60 CY.
208 VOLTS 1800 R.P.M. 3 PH. 256UP FRAME

YOKE:

GEARHEAD: AMARILLO MFR.
MODEL JRL 20 GEAR RATIO 1:1

19¾ BASE TO ¢ OF SHAFT

6¼ BASE TO ¢ OF DISCHARGE

DISCHARGE COMPANION FLANGE FOR:
4" – 125#

4X6X12 DISCHARGE HEAD

9¾" O.D. TOP COL. FLANGE

I.D. OF WELL

5 3/32 O.D. OF COUPLING

4" COLUMN

1" SHAFT

1½ TUBE

BOWL UNIT:

8LB ASSEMBLY

5 STAGE

7 9/16 O.D. OF BOWLS

4" SUCTION PIPE

STRAINER:

4 SIZE 4 O.D.

GALV TYPE

11/2" DIA. 4 HOLES

13½" SQ.

PUMP RATING

G.P.M. 155

FT. FIELD HD. 135

S.O. NO

SOLD TO:

ORDER NO.

USER:

ITEM NO.

PUMP IDENTIFICATION:

THIS CERTIFIED PRINT

☒ FOR APPROVAL

BY RLC DATE 10/29/70

☐ FOR CONSTRUCTION

BY _____ DATE _____

HYDRODYNAMICS DIVISION
PEERLESS PUMP
Los Angeles 31, Calif. • Indianapolis 8, Ind.

DRN. BY: CHK'D BY: DATE:

PUMP NO.

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

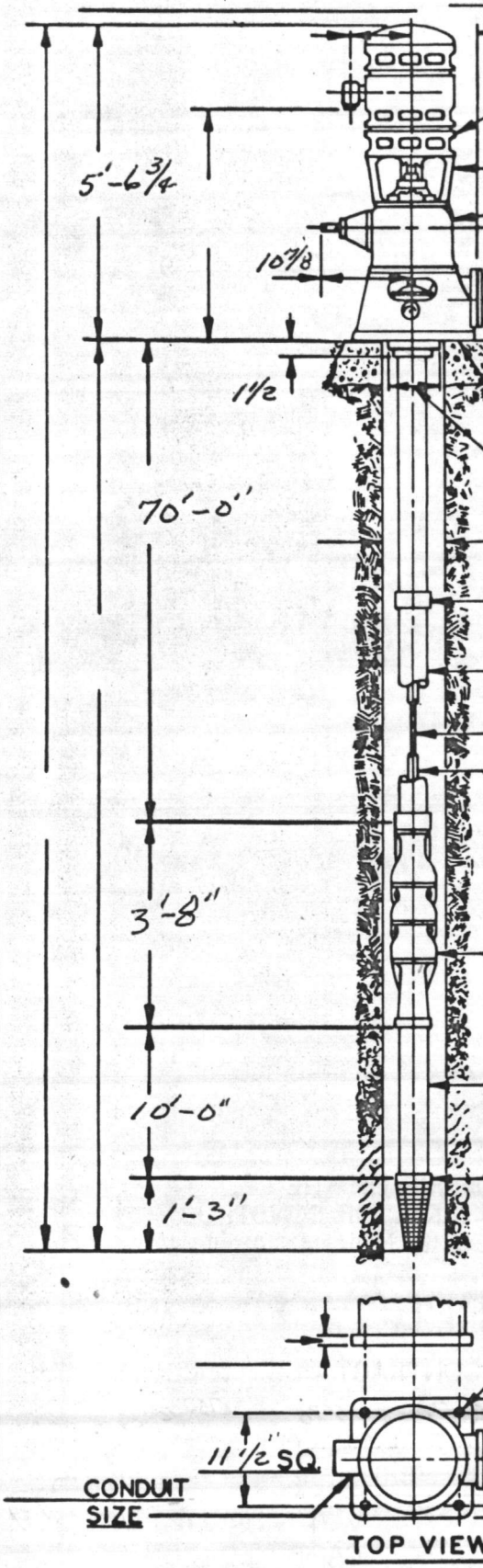
CONTRACT N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

FORM NO. 2829004

PEERLESS PUMP COMBINATION DRIVE SURFACE DISCHARGE



6 7/8 ℄ TO FACE OF FLANGE

MOTOR: NEWMAN MFR. H.P. 1 TYPE 10 HP. 60 CY. 208 VOLTS 1800 R.P.M. 3 PH. 256UF FRAME

YOKE:

GEARHEAD: AMARILLO MFR.

MODEL JRL20 GEAR RATIO 1:1

19 3/4" BASE TO ℄ OF SHAFT

6 1/4" BASE TO ℄ OF DISCHARGE

DISCHARGE COMPANION FLANGE FOR: 4"-125# 4X6X12 DISCHARGE HEAD

9 3/4" O.D. TOP COL. FLANGE

I.D. OF WELL

6 5/16" O.D. OF COUPLING

5" COLUMN

1 3/16 SHAFT

2 TUBE

BOWL UNIT:

8LB ASSEMBLY

5 STAGE

7 9/16" O.D. OF BOWLS

5 SUCTION PIPE

STRAINER:

5 SIZE 5 O.D.

GALV TYPE

1 1/16" DIA. 4 HOLES

PUMP RATING

G.P.M. 155

FT. FIELD HD. 135

S.O. NO

SOLD TO: CAROLINA WELL & PUMP

ORDER NO.

USER: CAMP LEJEUNE

ITEM NO.

PUMP IDENTIFICATION:

THIS CERTIFIED PRINT

☒ FOR APPROVAL

BY RLL DATE 4/29/70

☐ FOR CONSTRUCTION

BY _____ DATE _____

HYDRODYNAMICS DIVISION
PEERLESS PUMP
Los Angeles 31, Calif. • Indianapolis 6, Ind.

DRN. BY: CHK'D BY: DATE:

PUMP NO.

8429 1271

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT ~~NBy~~ N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

Bulletin No. 18

1,243,878

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT NBy N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

SWING CHECK VALVES

STANDARD
•
INCREASING
•
PLAIN
LEVER AND WEIGHT
LEVER AND SPRING
•
IRON BODY
BRONZE MOUNTED
FULL OPENING

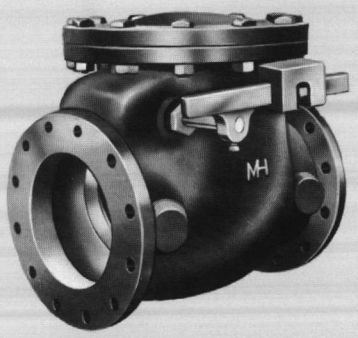


Figure 50—Flanged end with Lever and Weight.

Figure 60—Flanged end, Plain.

Figure 60-SL—Flanged end with Lever and Spring.

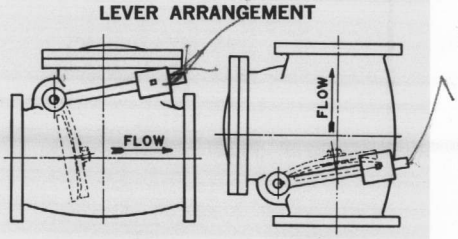
M & H VALVE AND FITTINGS COMPANY • ANNISTON, ALABAMA

ONE OF THE DRESSER INDUSTRIES

DRESSER INDUSTRIES, INC.

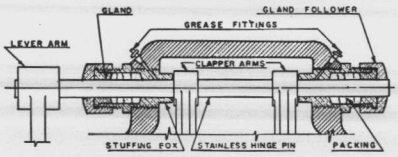
FULL OPENING—HIGH FLOW EFFICIENCY

LEVER ARRANGEMENT

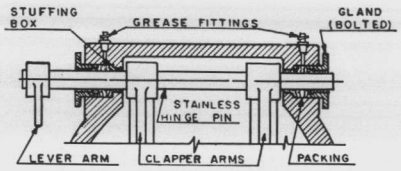


Horizontal Installation — Vertical Installation

EXTENDED HINGE PIN



Sizes 4″—14″



Sizes 16″—24″

M&H Swing Check Valves are an important product in the M&H line of valves, popular with engineers and operating personnel. They are well proportioned and sturdily constructed.

The valve clapper swings completely clear of the waterway when the valve opens, permitting a "full flow" through the valve equal to the nominal diameter of the pipe. The clapper operates freely and opens or closes in accordance with the line pressure. Clappers for valves 5″ and larger are cast iron, bronze-faced. Sizes 2″ through 16″ are available with rubber-faced clappers.

Four types of M&H Check Valves are manufactured: (1) Plain Swing Check Valve which operates by line pressure, closing when line pressure drops or reverses direction, (2) outside lever and weight and (3) outside spring and lever. (The latter two types are desirable for quicker closing and for elimination of slamming under conditions of rapid flow reversal.) The other type (4) is the Increasing, which is available plain or with lever and weight or spring and lever.

Either lever-and-weight or outside spring-and-lever designs should be used for vertical installation. Lever-and-weight type check valves for horizontal installation require the lever arm parallel to the run of the pipe and the weight on the downstream side of the clapper for quick and quiet closing. The arm can be reversed 180 degrees to assist in opening when minimum pressures are encountered. For vertical installation, the lever arm is moved to a position parallel to the clapper seat and extending towards the bottom of the body, to assist in closing. (See sketch at left.)

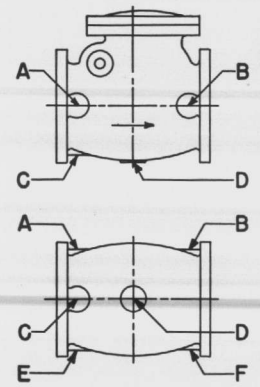
Either lever-and-weight or spring-and-lever check valves are adjustable. Both types require field adjustment to meet particular operating conditions. Unless otherwise ordered, the lever and weight or the spring and lever is placed on the right hand side when facing the valve inlet. Under conditions of extreme rapid flow reversal check valves with dual lever arms can be supplied.

Stainless steel hinge pins are featured in all sizes. Lever-and-weight or spring-and-lever type check valves, sizes 4″-14″ are supplied with hinge pin extending through bronze bushings, and outside packed glands. Sizes 16″ and larger are regularly supplied with hinge pin extending through bronze bushings, and outside packed glands. Alemite fittings for lubrication of bronze bushings in all sizes can be included when so ordered. Both of these designs are detailed at the left.

Screwed-type by-passes can be furnished on check valves, sizes 14″ and smaller. Larger sizes are supplied with flange type by-passes. All check valves have bosses on sides and bottom which may be tapped for draining or used for by-pass. When tapping is required, boss designation and size of tap should be stated, as shown below.

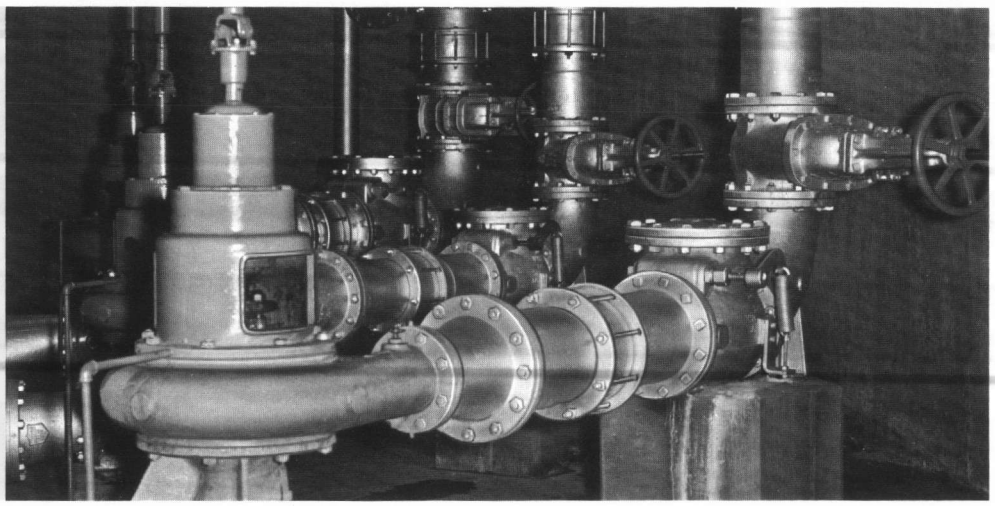
M&H Check Valves, sizes 2½″-14″ inclusive, for fire protection systems, are listed and approved by Underwriters Laboratories and Associated Factory Mutuals and are so marked.

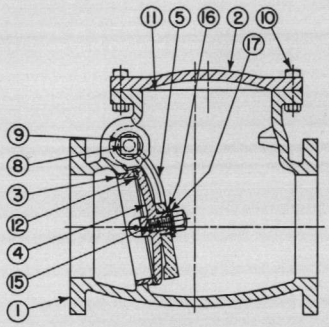
TAPPING BOSSES



Maximum Size Tap	
Size Valve	Size Tap
2½	¾
3	¾
4	1
5	1
6	1¼
8	2
10	2
12	2
14	2

Dimensions in Inches

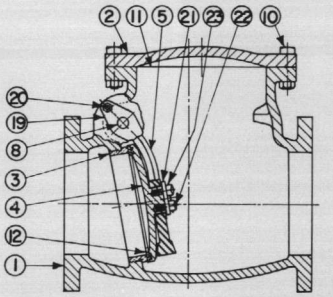




M&H Bronze faced check valves—
5″ through 14″.

PARTS LIST — TABLE 1

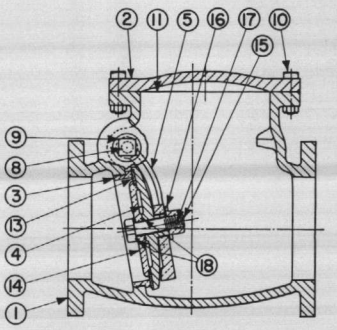
Part No.	Part	No. Re,'d	Material
1	Body	1	Cast Iron
2	Cover	1	Cast Iron
3	Body Ring	1	Bronze
4	Clapper	1	Cast Iron
5	Clapper Arm	1	Bronze
8	Hinge Pin	1	Stainless Steel
9	Side Plug	2	Bronze
10	Cover Bolt and Nut	—	Steel
11	Cover Gasket	1	Asbestos
12	Clapper Ring	1	Bronze
15	Cap Screw	1	Bronze
16	Cut Washer	1	Galv. Steel
17	Lock Washer	1	Galv. Steel



M&H Bronze faced check valves—
16″ and up.

PARTS LIST — TABLE 2

Part No.	Part	No. Re,'d	Material
1	Body	1	Cast Iron
2	Cover	1	Cast Iron
3	Body Ring	1	Bronze
4	Clapper	1	Cast Iron
5	Clapper Arm	1	Bronze or Cast Steel
8	Hinge Pin	1	Stainless Steel
10	Cover Bolt and Nut	—	Steel
11	Cover Gasket	1	Asbestos
12	Clapper Ring	1	Bronze
19	Gland (Bronze Bushed)	2	Cast Iron
20	Gland Stub and Nut	4	Steel
21	Clapper Cap Plate	1	Cast Iron
22	Cap Screw	—	Steel
23	Lock Wire	1	Steel



M&H Rubber faced check valves—
4″ through 16″.

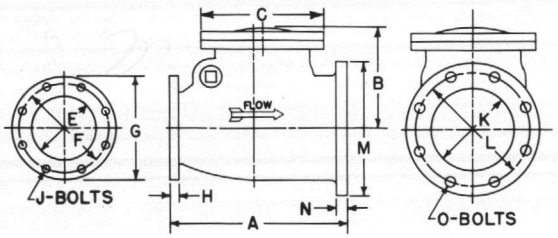
PARTS LIST — TABLE 3

Part No.	Part	No. Re,'d	Material
1	Body	1	Cast Iron
2	Cover	1	Cast Iron
3	Body Ring	1	Bronze
4	Clapper	1	Cast Iron
5	Clapper Arm	1	Bronze
8	Hinge Plug	1	Stainless Steel
9	Side Plug	2	Bronze
10	Cover Bolt and Nut	—	Steel
11	Cover Gasket	1	Asbestos
13	Disc Ring	1	Rubber
14	Clamp	1	Bronze
15	Clapper Bolt	1	Bronze
16	Clapper Nut	1	Bronze
17	Cotter (Split Pin)	1	Bronze
18	Gasket	2	Copper-Asbestos

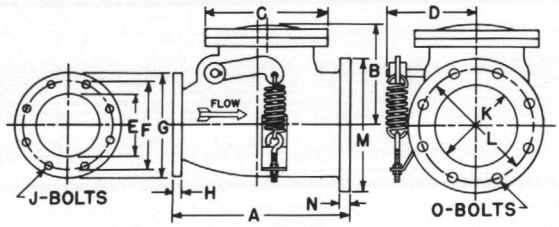
Increasing Check Valves

1 Save space in tight piping layouts

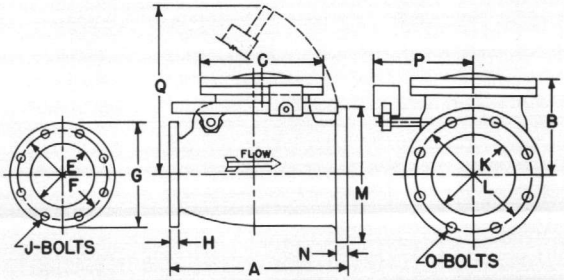
2 Eliminate need and cost of increasing fittings



INCREASING CHECK VALVE



INCREASING CHECK VALVE



INCREASING CHECK VALVE

INCREASING CHECK VALVE— Dimensions in Inches

Valve Size	3″x4″	4″x6″	4″x8″	5″x6″	5″x8″	6″x8″	6″x10″	8″x10″	8″x12″
A	11	13½	15	15¼	16	17	17½	20	21
B	6½	7¾	7¾	9½	9½	9¾	9¾	12	12
C	7⅜	9¼	9¼	10¾	10¾	12¼	12¼	14¾	14¾
D	6	6½	6½	7⅞	7⅞	8 5/16	8 5/16	10¼	10¼
E	3	4	4	5	5	6	6	8	8
F	6	7½	7½	8½	8½	9½	9½	11¾	11¾
G	7½	9	9	10	10	11	11	13½	13½
H	¾	1 5/16	1 5/16	1 5/16	1 5/16	1	1	1⅛	1⅛
J	4-⅝	8-⅝	8-⅝	8-¾	8-¾	8-¾	8-¾	8-¾	8-¾
K	4	6	8	6	8	8	10	10	12
L	7½	9½	11¾	9½	11¾	11¾	14¼	14¼	17
M	9	11	13½	11	13½	13½	16	16	19
N	1 5/16	1	1⅛	1	1⅛	1⅛	1 3/16	1 3/16	1¼
O	8-⅝	8-¾	8-¾	8-¾	8-¾	8-¾	12-⅞	12-⅞	12-⅞
P	6⅝	7½	7½	8⅞	8⅞	9½	9½	11¼	11¼
Q	10⅜	13	13	16½	16½	16½	16½	20	20

Larger Sizes Available on Request

MH Check Valves

IRON BODY

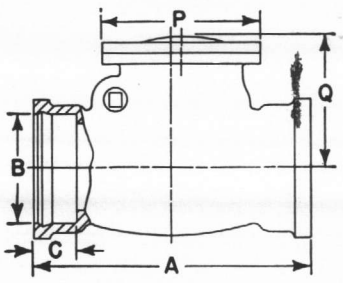


Figure 61—Hub End.

BRONZE MOUNTED

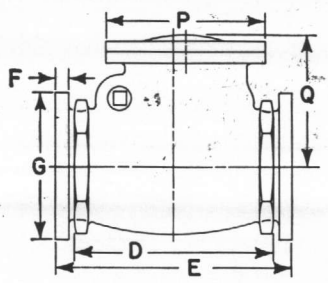


Figure 59—Screwed End.
Figure 60—Flanged End.

FULL OPENING

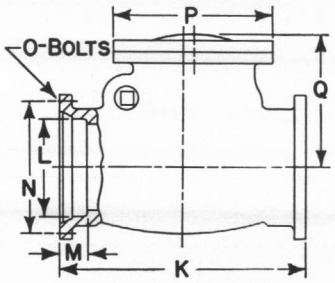


Figure 62-M—Mechanical Joint End.

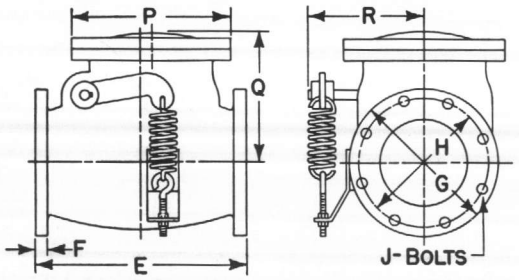


Figure 60-SL—Flanged End with Spring and Lever.

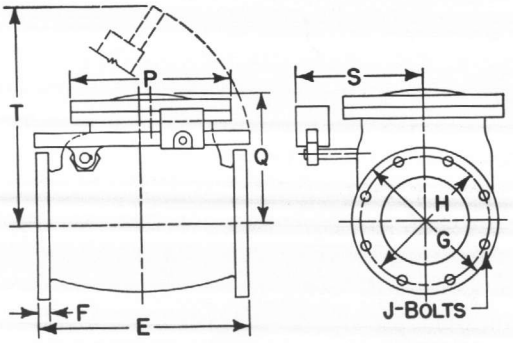
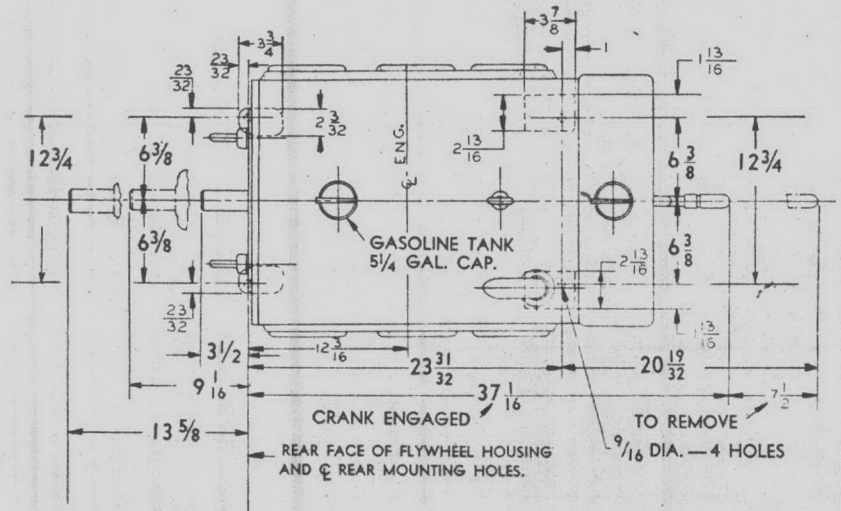


Figure 50—Flanged End with Lever and Weight.

TABLE 14—DIMENSIONS IN INCHES

	Size Valve	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	30
A	End to End Hub	—	—	16¼	18⅝	18½	22	25½	27⅝	31¼	35¼	35	36½	37⅝	46	—
B	Inside Diameter of Hub	—	—	4.76	5.80	6.70	7.90	10.10	12.20	14.30	16.45	18.80	20.92	23.06	27.32	—
C	Depth of Hub	—	—	3½	4	4	4	4	4	4	4	4	4	4	4	—
D	End to End Screwed	6½	10	10¼	12⅝	14¾	15 11/16	18¼	—	—	—	—	—	—	—	—
E	End to End Flanged	8	10	10¼	13	15	16	19	22	26	30	35	36½	37⅝	44	49½
F	Flange Thickness	⅝	11/16	¾	15/16	15/16	1	1⅛	1 3/16	1¼	1⅜	1 7/16	1 15/16	1 11/16	1⅞	2⅛
G	Flange Diameter	6	7	7½	9	10	11	13½	16	19	21	23½	25	27½	32	38¾
H	Bolt Circle	4¾	5½	6	7½	8½	9½	11¾	14¼	17	18¾	21¼	22¾	25	29½	36
J	Number & Dia. Bolts	4-⅝	4-⅝	4-⅝	8-⅝	8-¾	8-¾	8-¾	12-⅞	12-⅞	12-1	16-1	16-1⅛	20-1⅛	20-1¼	28-1¼
K	End to End Mech. Joint	—	—	13½	16½	—	22	22½	24⅝	28¾	34¼	34¼	—	—	—	—
L	I. D. Hub Mech. Joint	—	—	4.06	5.00	—	7.09	9.25	11.20	13.40	15.59	17.69	—	—	—	—
M	Depth Hub Mech. Joint	—	—	2½	2½	—	2½	2½	2½	2½	3½	3½	—	—	—	—
N	Bolt Circle Mech. Joint	—	—	6 3/16	7½	—	9½	11¾	14	16¼	18¾	21	—	—	—	—
O	No. & Dia. T-Head Bolt	—	—	4-⅝	4-¾	—	6-¾	6-¾	8-¾	8-¾	10-¾	12-¾	—	—	—	—
P	Diameter Cover	6¼	6¾	7⅜	9¼	10¾	12¼	14¾	19	21	23½	27¾	27½	32	38¾	43¾
Q	Center Valve To Top Cover	5 3/16	5 15/16	6½	7¾	9½	9¾	12	14¼	16 7/16	18¾	21⅝	23 3/16	24½	28	33⅛
							LEVER AND SPRING									
R	Center Valve To End Hinge Pin	4⅜	5¼	6	6½	7⅞	8 9/16	10¼	13¼	13⅞	15½	17¾	18 9/16	19	22½	25
							LEVER AND WEIGHT									
S	Center Valve To Outside Weight	4⅝	5¾	6⅝	7½	8⅞	9½	11¼	14½	15¼	17	19⅛	20 9/16	21	28½	27
T	Center Valve To End Lever, Valve Open	7½	—	10⅜	13	—	16½	20	23½	31	32½	34½	—	42	—	—

PY112 650



S.S. — STUB SHAFT. — FURNISHED WHEN ORDERED. STUB SHAFT TO BE USED ONLY FOR DIRECT CONNECTED DRIVE THROUGH FLEXIBLE COUPLING.

1,243,878

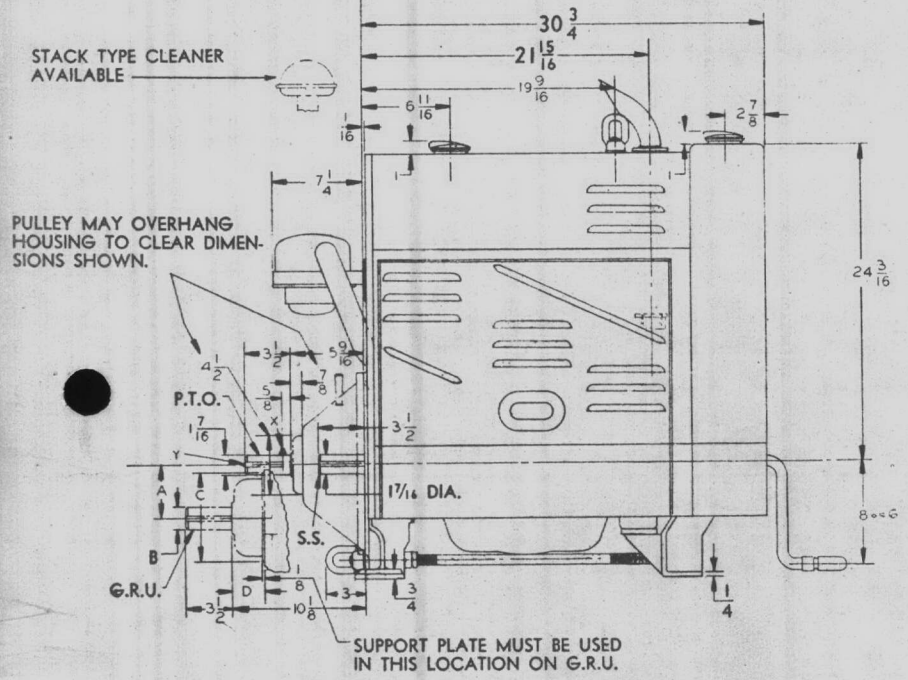
P.T.O. — POWER TAKE-OFF. — FURNISHED WHEN ORDERED.

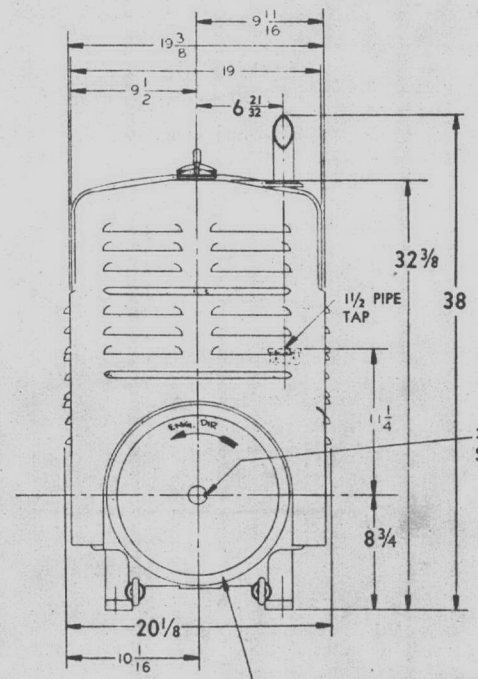
	DRIVE	GREASE FITTING
ALL UNITS	DIRECT	X
	BELT	Y

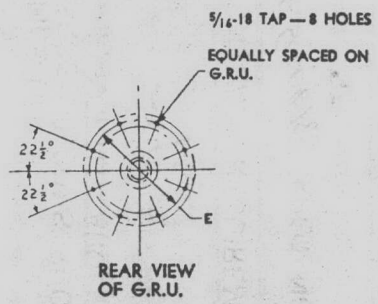
SPECIAL TAIL SHAFTS MAY BE OBTAINED TO SUIT REQUIREMENTS. DIRECT DRIVE POWER TAKE-OFFS ARE TO BE USED ONLY FOR DIRECT CONNECTED DRIVE THROUGH FLEXIBLE COUPLING. BELT DRIVE POWER TAKE-OFFS TO BE USED FOR BELT, CHAIN AND SIMILAR DRIVES.

G.R.U. — GEAR REDUCTION UNIT — FURNISHED WHEN ORDERED.

		RATIO	A	B	C	D	E	KEYWAY
ALL UNITS	ENGINE DIRECTION	2.5:1 3.6:1	2 7/16	1 1/2	9 3/8	2 7/16	10 1/8	3/8 x 3/16
		4.9:1	3 3/16	1 3/4				7/16 x 7/32
	ANTI-ENGINE DIRECTION	2.5:1 3.9:1	4	1 1/2	6 3/4	2 5/16	7 5/8	3/8 x 3/16







MODEL Y-400 SERIES
INDUSTRIAL

GASOLINE L-HEAD ENGINES
CLOSED POWER UNIT

Y-69 — 4 Cyl. — 2½ x 3½ 69 cu. in. Displ.
Y-91 — 4 Cyl. — 2⅞ x 3½ 91 cu. in. Displ.
Y-112 — 4 Cyl. — 3 3/16 x 3½ 112 cu. in. Displ.

Continental Motors Corporation
MUSKEGON, MICHIGAN

4-8-53

12 A 650

S.S. — STUB SHAFT — FURNISHED WHEN ORDERED. STUB SHAFT TO BE USED ONLY FOR DIRECT CONNECTED DRIVE THROUGH FLEXIBLE COUPLING.

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE JAN 4 1971

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

L-HEAD MODEL	Y-69	Y-91	Y-112
NUMBER of Cylinders	4	4	4
BORE and STROKE	2½ x 3½	2⅞ x 3½	3-3/16 x 3½
DISPLACEMENT in cubic inches	68.7	90.9	111.7
S.A.E. rated H.P.	10.0	13.2	16.3
H.P. for 80 B.M.E.P. at 1000 ft./min. PISTON speed	11.8	15.6	19.2
R.P.M. at 1000 ft./min. PISTON speed	1714	1714	1714
GOVERNED speed — maximum	2400	2400	2400
SPARE ENGINE H.P. at Governed R.P.M.	21.4	28.5	32
Torque — Max. in Lbs. Ft.	47.5	67.1	81.4
B.M.E.P. — maximum	103.	111.	110.
COMP. RATIO — Fuel Oil	3.7-1	4.5-1	5.9-1
75 Octane Gasoline	6.6-1	6.6-1	6.6-1
Natural Gas and Butane	7.2-1	8.9-1	7.2-1
NUMBER of Crankshaft MAIN Bearings	3	3	3
Main Bearing DIAMETER	1¾	1¾	1¾
Main Bearing LENGTH — FRONT (1) (including fillets)	1⅜	1⅜	1⅜
CENTER (1) (including fillets)	1-23/32	1 23/32	1-23/32
REAR (1) (including fillets)	1-25/32	1-25/32	1-25/32
NUMBER of Camshaft Bearings	3	3	3
Camshaft Bearings DIA. and LENGTH — FRONT	1-13/16 x 15/16	1-13/16 x 15 16	1-13/16 x 15/16
2nd	1¾ x ⅞	1¾ x ⅞	1¾ x ⅞
REAR	1¼ x 1 5/32	1¼ x 1-5/32	1¼ x 1-5/32
Connecting ROD LENGTH (center to center)	5¾	5¾	5¾
Bearing DIAMETER	1½	1½	1½
LENGTH (including fillets)	1-3/16	1 3/16	1-3/16
Piston LENGTH	2⅞	2⅞	2⅞
Pin Bushing DIAMETER	45/64	45/64	45/64
LENGTH (in rod)	15/16	15/16	1-3/32
NUMBER — Piston Rings	3	3	3
Piston Ring WIDTH — Compression (2)	3/32	3/32	3/32
Oil Control (1)	¼	¼	5/32
Valves — INTAKE — DIAMETER — HEAD	1-13/64	1-13/64	1-13/64
THROAT	1-1/16	1-1/16	1-1/16
LIFT	19/64	19/64	19/64
Seat ANGLE	30°	30°	30°
Valves — EXHAUST — DIAMETER — HEAD	1.02	1.02	1.02
THROAT	⅞	⅞	⅞
LIFT	9/32	9/32	9/32
Seat ANGLE	45°	45°	45°
WEIGHT of Std. Engine (incl. Flywheel, Housing and Manifolds)	*265/290	*265/290	*265/290
Power Plant (incl. Electrical Accessories)	370	370	370
With Stub Shaft add	6	6	6
Skid — C. L. shipment	30	30	30
Crate — L. C. L. shipment	70	70	70
EXPORT shipment, 20 cu. ft.	140	140	140
WEIGHT of OPEN POWER UNIT (incl. Electrical Accessories)	480	480	480
WEIGHT of CLOSED POWER UNIT (incl. Electrical Accessories)	540	540	540
Skid Cradle — C. L. shipment	30	30	30
Crate — L. C. L. shipment	100	100	100
EXPORT shipment, 22 cu. ft.	145	145	145

NOTE: Main and Rod bearing LENGTHS shown include fillets. For WEIGHT with heavy duty Clutch and Power Take-off add 41 lbs.; with Cast Iron Base type Oil Pan add 85 lbs., with Slide Rails add 24 lbs.

**The 1st weight is for Std. Engine WITHOUT the Flywheel Housing but with a Rear End Plate as used in farm tractors; the 2nd weight is for the Std. Engine WITH the Flywheel Housing.*

AIR CLEANER — Oil bath, low speed type standard. Combination air cleaner and silencer available. Precleaner type also available. Air outlet 1½" O.D.

CARBURETOR — Up-draft — 1" S.A.E. flange standard. Air horn 1½" O.D.

CLUTCH — Twin disc — heavy duty — one 6½" disc — No. 5 Bell standard. Stub, direct or belt drive shaft 1-7/16" dia. — Keyway ⅜" x 3/16".

COOLING SYSTEM — Thermo-Syphon standard. Radiator — sheet metal — Integral core with brass tanks, copper tubes and fins. Capacity of whole system 15 quarts. Leak-proof water pump and by-pass available. Thermostat available. Tropical radiator also available.

CHOKE — Automatic

CONNECTING RODS — Drop forged and heat treated. Bearings, replaceable, steel backed and babbitt lined. Bushings phosphor bronze.

CAMSHAFT — Drop forged and heat treated. 3 bearings — replaceable — steel backed, babbitt lined.

CRANKSHAFT — Drop forged, heat treated, counterweighted and dynamically balanced. 3 main bearings, replaceable, steel backed, babbitt lined.

CRANKCASE VENTILATION — Fan draft tube standard. Donaldson valve installation available.

CYLINDERS — En-block with crankcase and made of properly normalized cast iron.

COMPRESSION RATIOS for Fuel oil, straight Natural Gas and Butane are available.

ENGINE — L-head design with a 3-gear front end standard.

EXHAUST MANIFOLD — Front up-take for flanged gooseneck standard having 1½" female pipe thread outlet. Water cooled exhaust manifold available.

FAN — 4 blades 15" dia. — Speed 1.3 engine — single ¾" "V" belt standard. 6 blades 16" diameter available.

FLYWHEEL HOUSING — No. 5 S.A.E. shallow foot type standard. No. 4 S.A.E. foot or pad type available on open units only. No. 5 or 4 S.A.E. drum type available with C. I. base oil pans. Special end plates can be installed when no flywheel housing is required.

FLYWHEEL — with ring gear standard. Weight 45 lbs. 1082 WR2 value.

FRONT SUPPORT — Foot type combination radiator and engine base standard. Engine mounted on single rubber biscuit.

FUEL PUMP — Mechanical, diaphragm type available, driven off camshaft.

FUEL TANK — 5-gallon capacity, under hood, gravity feed standard.

GAUGES — Oil level and pressure gauges standard. Water and oil temperature as well as fuel level gauges available. Ammeter is furnished with starting and lighting equipment.

GENERATOR — Sealed from dust, 6 volt standard with cut-out. Adjustable bracket mounting. Single ¾" "V" belt drive at 1.4 engine speed. Manual rheostat available. Voltage regulator available.

GOVERNOR — Mechanical, 10% reg. standard. Closer regulation special. Variable speed control available.

HOURMETER — Mechanical or electric available.

IGNITION — Firing order 1-3-4-2. Magneto (fixed spark type) with impulse coupling standard. Distributor with automatic spark advance and S.A.E. type B mounting on cylinder head available when overhead fuel tank is not used. Magneto type battery ignition with automatic spark advance available for overhead fuel tank. Ignition switch standard.

OIL FILTER — ½-qt. capacity with renewable cotton or paper disc element.

OIL PAN — Pressed steel of 3½-quart capacity standard. Extra oil to be added for filter. Cast Iron Base type oil pan available — capacity 11 quarts.

OIL PUMP — Submerged gear type — 30 to 40 lbs. normal pressure.

PISTONS — Cast Iron — tin plated or granosealed — std. Aluminum available. Full floating pins 45/64" diameter. 2 compression rings — 1 oil control ring. Chrome top ring available.

POWER TAKE-OFF — Heavy duty type available with or without clutch.

RADIO SHIELDING — available.

REAR END PLATE — available.

REDUCTION GEARS — with or without clutch available. Enginewise reductions 2.5 to 1, 3.6 to 1 and 4.9 to 1. Anti-enginewise reductions 2.5 to 1 and 3.9 to 1.

SAFETY SWITCHES — Available to automatically stop engine due to high water temperature or low oil pressure.

SLIDE RAILS—are available to adjust belt drive tension.

STARTER — 6 volt with No. 1 S.A.E. flange mounting standard with Solenoid starting switch.

STARTING BATTERY — must be obtained locally. 6 volt 130 ampere hour 17 plate battery recommended.

STARTING CRANK — Furnished with engine.

SPARK PLUGS — 18 mm. No. 8 Commercial Champion or equivalent for Normal or Heavy Duty. No. 5 Commercial Champion or equivalent for dry fuels.

SPECIAL CONTROLS — are available to automatically start and stop engine as conditions prescribe.

TAPPETS — Barrel type pressure lubricated, removable from above.

TIMING GEARS — Three — helical type — ¾" wide face.

TOOLS — Tappet wrenches std. Grease gun furnished with power take-offs.

TOP OILER — Necessary when fuel is natural gas or butane to lubricate valve stems and top piston rings.

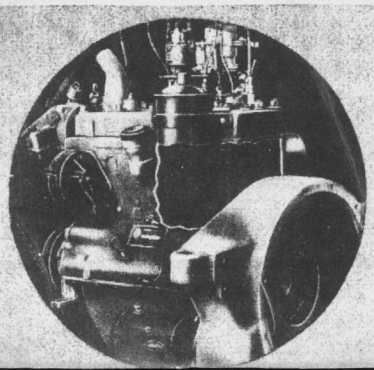
VALVES — Intake, alloy steel. Exhaust, Austenitic steel. Free roto or positive rotating valves available. Special ALLOY exhaust valve inserts available.

WATER INLET — For 1¾" I. D. hose — Thermo syphon.

WATER OUTLET — For 1¾" I. D. hose—Thermo syphon.

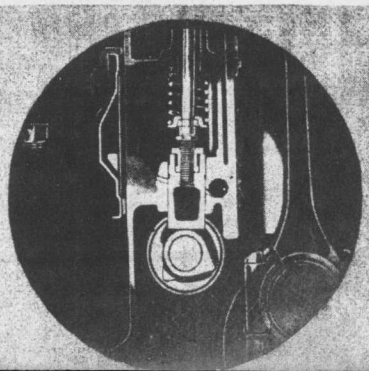
WATER PUMP — Leak-proof — 19 G.P.M. at 1200 and 29 G.P.M. at 1800 R.P.M. — available. Single ¾" "V" belt drive at 1.3 engine speed.

NOTE: We reserve the right to change or modify the design or equipment specifications as herein set forth without incurring any obligation with respect to engines either previously sold or in process of construction. Specific recommendations, dimensional prints and certified h.p. curves will be supplied upon request.



FULL LENGTH WATER JACKETS

Water in jackets full length of the piston travel and between all cylinder bores produces uniform cooling which results in less distortion and closer piston fits. This assures lower oil consumption, less blow-by and consequently a minimum of sludge which is so detrimental to the life of any engine.



REMOVABLE TAPPETS

On "L" head engines large, barrel shaped, pressure lubricated tappets are used which are so designed that by removing the adjusting screw the main body can be lifted out and replaced from above through the valve chamber. This overcomes the costly service operation of dropping the oil pan and pulling the camshaft. Locking of the adjustment is simple and effective.

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

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CONTRACT ~~NBY~~ N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE JAN 4 1971

W. F. RUSSELL, JR.
CAPT. CEC. USN
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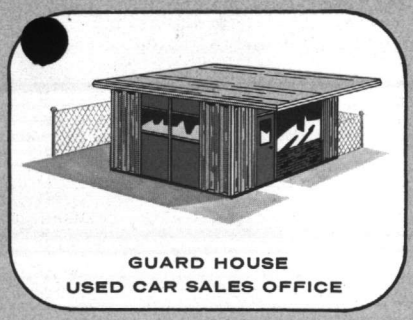
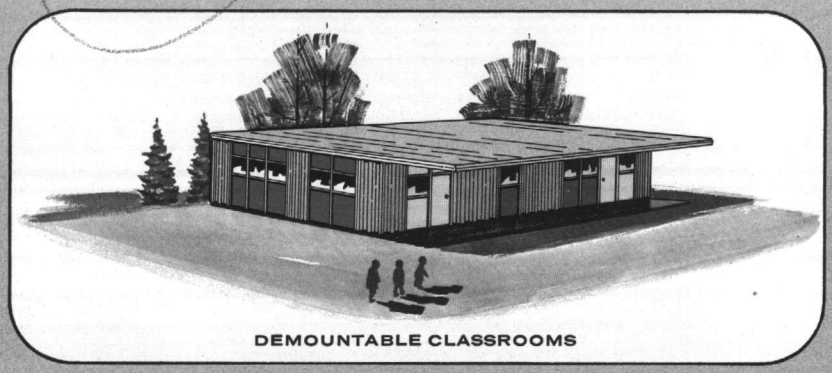
HOME WORKSHOP



GUARD HOUSE
USED CAR SALES OFFICE



DEMOUNTABLE CLASSROOMS

GOLF COURSE SHOP–STORAGE

modest size buildings of matchless value

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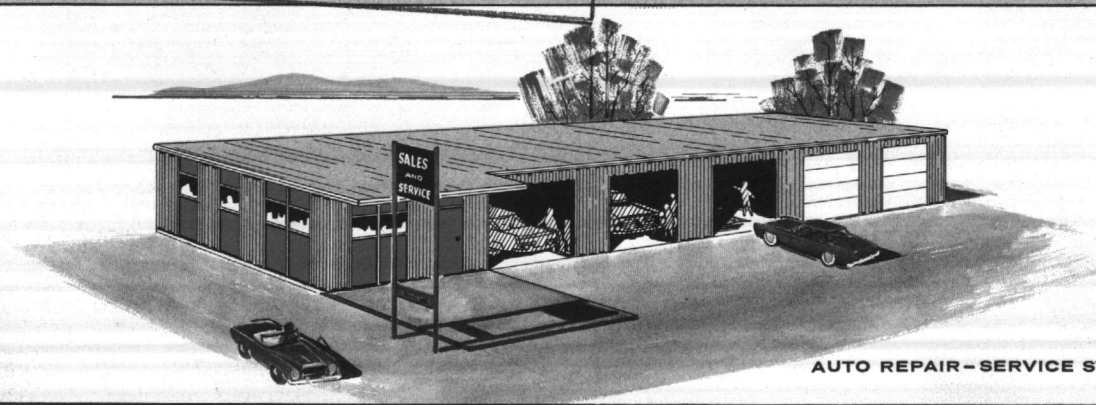
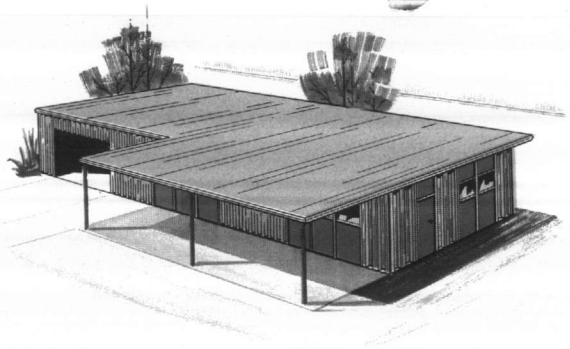
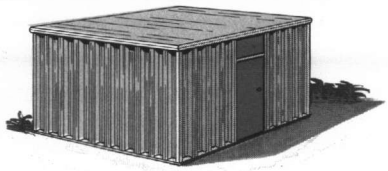
BUTLER
PANL-FRAME®
M 36



AUTO REPAIR–SERVICE STATION



SALES AND SERVICE – RENTAL EQUIPMENT

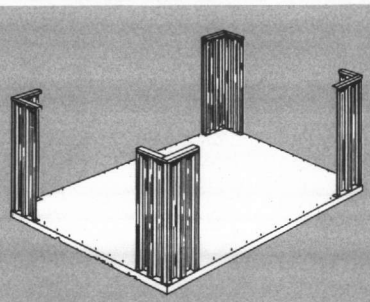


design the UTILITY BUILDING PANL-FRAME

to meet your needs

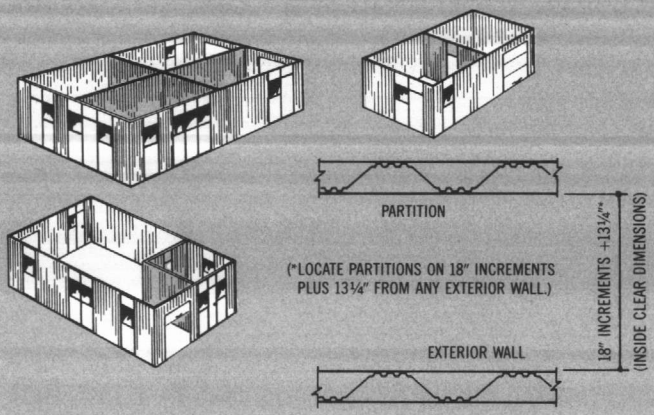
Panl-Frame M-36 is the ideal building for many types of activities. It may be a 6 ft. by 9 ft. utility building of handsome simplicity or a 24 ft. by 60 ft. sales and service building with a high degree of finish. Design your building using a 3 ft. module for widths between 6 ft. and 24 ft. and for lengths from 9 ft. to 3 times building width. Longer lengths may require cross partions or braces. Walls may be 8, 10 or 12 ft. high. You have freedom to locate entrances, windows and other features except in the first 3 ft. from corners of your building. Function and appearance may be improved with a roof overhang to one or both sides. Design exterior and interior treatment and you are ready to plan materials for your M-36 building.

plan your M-36 BUILDING with these basic guides



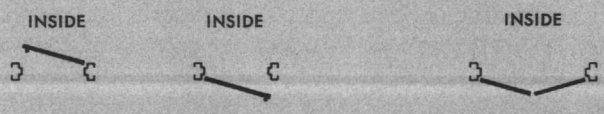
CORNERS

The first step of your plan is to include one full width M-36 wall panel on each side of all four corners. Wall areas immediately adjacent to corners must be solid panels (see sketch above) and all entrances, windows and other accessories must be at least 3 ft. from corners of the building.



PARTITIONS

Interior partitions may be included in your plan using M-36 panels as shown above and in the diagram to the right. Doorways, windows and other accessories may be used in partitions but they must be located at least 3 ft. from exterior walls.



SINGLE SWING DOORS
Doors are 2'10" or 3'4" wide, 6'8" high, 1⅜" thick.

DOUBLE SWING DOORS
Plain metal doors each 2'10" wide, center post removable for total opening of 5'8" by 6'8".

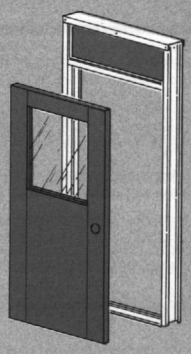
DOORWAYS

Plan doorways to meet your requirements and locate openings at least 3 ft. from corners of the building. Single doors may be plain or open for glazing and may swing either in or out as shown above. Plain double doors only swing out and the center post is removable.

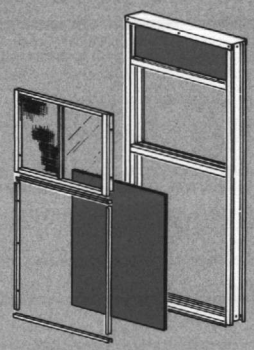
Add Doors, Windows And Accent Panels With Steel Framing Units

Window wall and door units with accent panels are available in 3 and 6 ft. widths or 9 ft. combinations, and furnished in full length steel framing 8, 10 or 12 ft. high. Windows are 2 ft. 10 inch by 2 ft. 4½ inch aluminum framed horizontal slide, complete with factory installed glass and screen.

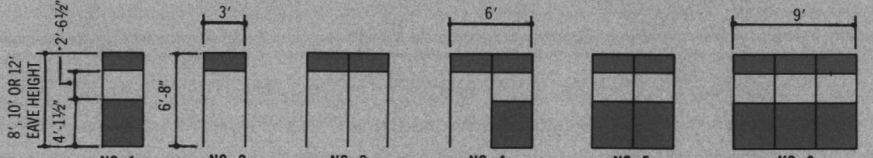
Metal doors are 6 ft. 8 inches high by 1⅜ inches thick and available in 2 ft. 10 inch or 3 ft. 4 inch widths, plain or open for glazing. Units are available in the eleven panels or combinations shown below. Note 3 ft. 4 inch doors only available in units numbered 4 and 8. All combinations may be reversed and arranged to meet your requirements.



TYPICAL HOLLOW METAL DOOR AND ACCENT PANEL UNIT



TYPICAL SLIDE WINDOW AND ACCENT PANEL UNIT



NO. 1 SINGLE WINDOW UNIT

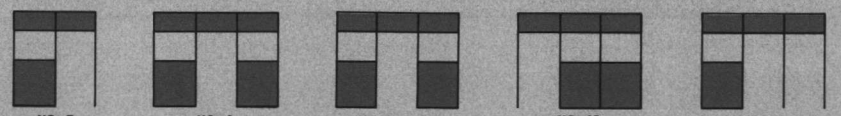
NO. 2 SINGLE 2'10" DOOR UNIT

NO. 3 DOUBLE 2'10" DOOR UNIT

NO. 4 FIXED WINDOW AND 3'4" DOOR UNIT

NO. 5 DOUBLE WINDOW UNIT

NO. 6 TRIPLE WINDOW UNIT



NO. 7 WINDOW AND 2'10" DOOR UNIT

NO. 8 WINDOWS AND 3'4" DOOR UNIT

NO. 9 WINDOWS AND 2'10" DOOR UNIT

NO. 10 DOUBLE WINDOW AND 2'10" DOOR UNIT

NO. 11 WINDOW AND DOUBLE 2'10" DOOR UNIT

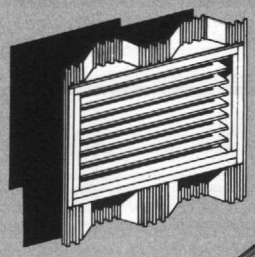
Other Accessories Easily Installed

Ventilator is 30 inches long with 4 inch throat and built-in damper. Installs in field cut opening of roof panel.

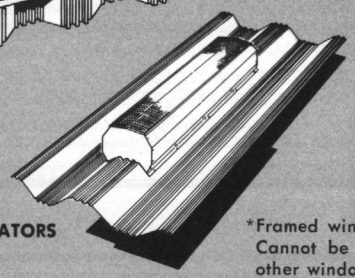
Adjustable wall louver is 2 ft. 9 inches by 2 ft. high, installs in window wall unit or framed wall opening.

Overhead door openings are nominal 9 ft. wide by 7 ft. high, available in all buildings; 9 ft. by 9 ft. openings in buildings with 10 ft. and 12 ft. high sidewalls and 9 ft. by 11 ft. openings only in buildings with 12 ft. sidewalls. Low headroom type overhead doors are required for openings with heights 1 ft. less than that of building, i.e., 9' high overhead doors in 10' high building.

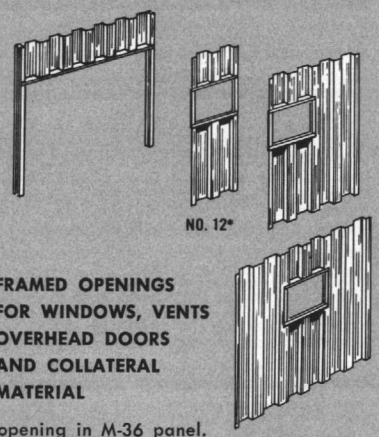
Framed wall opening for aluminum slide glass window, louver, etc. has M-36 wall panels above and below frame.



LOUVERS



VENTILATORS

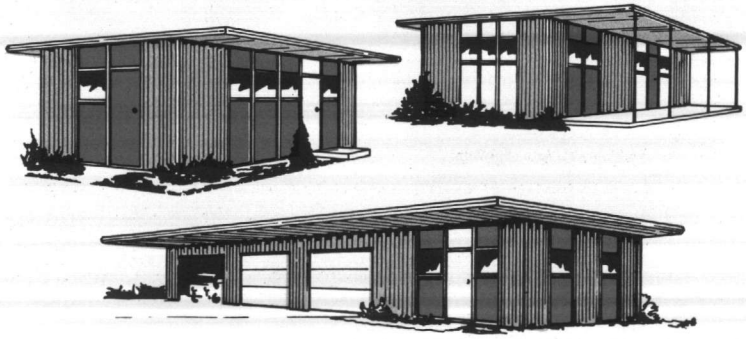


NO. 12*

FRAMED OPENINGS FOR WINDOWS, VENTS OVERHEAD DOORS AND COLLATERAL MATERIAL

*Framed window opening in M-36 panel. Cannot be used in multiple or next to other window or door units.

Overhangs Provide A Custom-Designed Appearance For Beauty And Protection



Overhangs are easily provided beyond one or both sidewalls by including longer roof panels in your building plan. Roof panels are available in lengths from 6 ft. 11 inches to 30 ft. 11 inches in 3 ft. increments. Plan roof panel lengths to provide up to 6 ft. projection beyond the sidewalls of your building. Overhangs greater than 3 ft. beyond the sidewalls may require support at the outer edge to meet live load (snow) requirements.

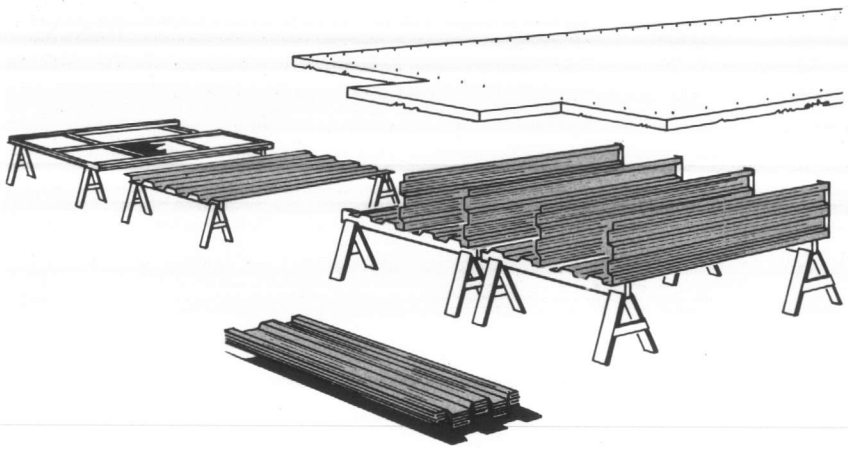
An 18 inch overhang may be field installed in the ends (length) of your building by planning for one additional roof panel and using wall mounted brackets and a support member at the outer edge of both roof ends. Brackets and support members are not supplied with the building. Panel holes for overhangs require field drilling at the time of installation.

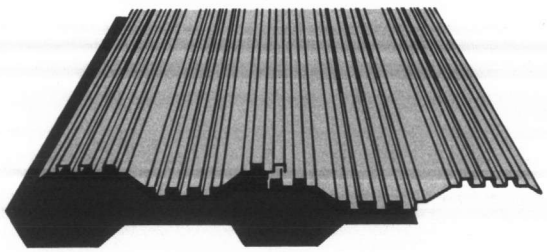
The M-36 breaks all records for fast, precise construction because the PANEL IS the BUILDING!

The *panel is* the *building* in this new concept of modern construction. It is different from typical buildings with their wooden rafters and studs or heavy steel beams and columns and a covering that forms roof and walls. In Panl-Frame, Butler has combined both framework and covering in one part—the M-36 panel —with amazing results.

As a result of material and production economies, Panl-Frame is a matchless value for buyers of modest size buildings. Every part is lightweight enough to set up by hand. Because M-36 panels are factory-cut to length and virtually all bolt holes factory-punched, construction has been simplified to the point that it may be an easy, fast do-it-yourself project. Panels are available factory-finished both sides in color or plain galvanized.

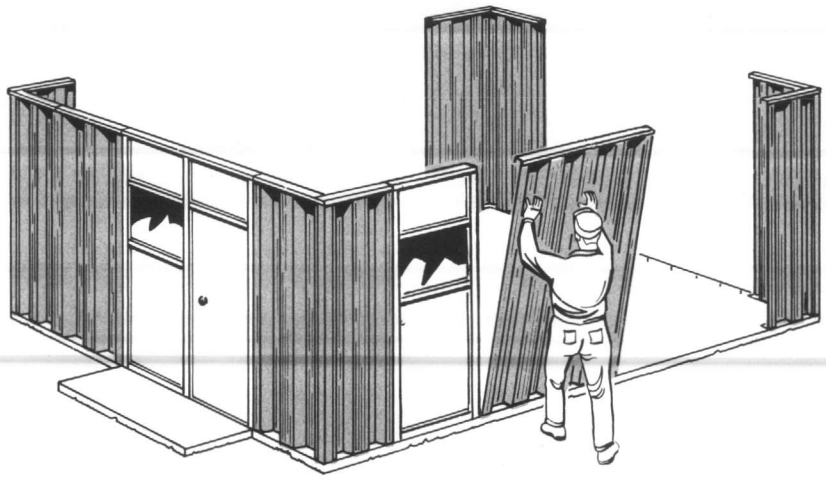
Basic M-36 building parts can be counted on the fingers of one hand—base angles, panels, top and support channels, trim and fasteners. Once the foundations are in, two men with hand tools and ladders can put up a Panl-Frame M-36 in days. Here are five basic steps to follow:

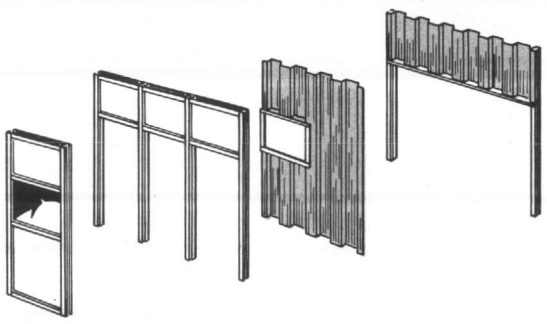




1.

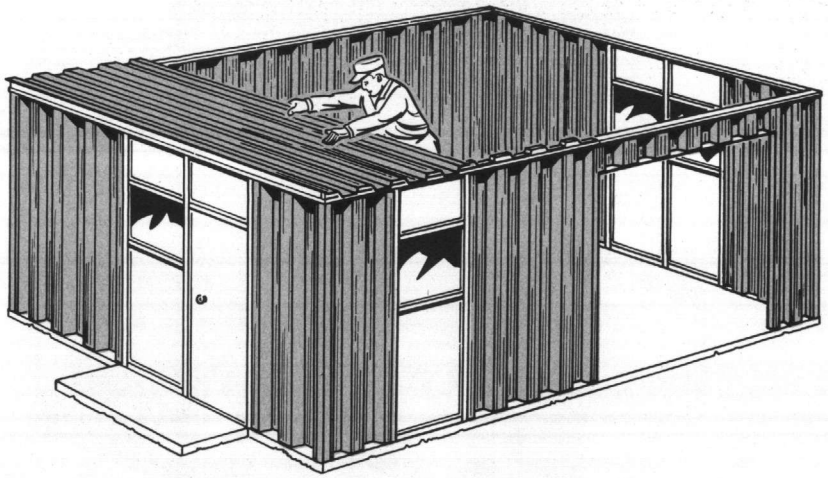
Pre-assemble all four corners on the ground. Wall sections may also be pre-assembled by matching panel holes to those in the base angle and top channel and bolting together.

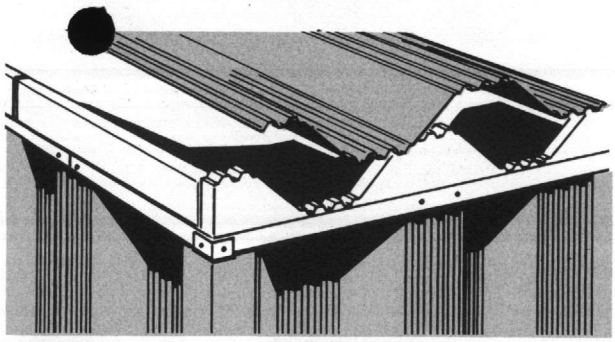




2.

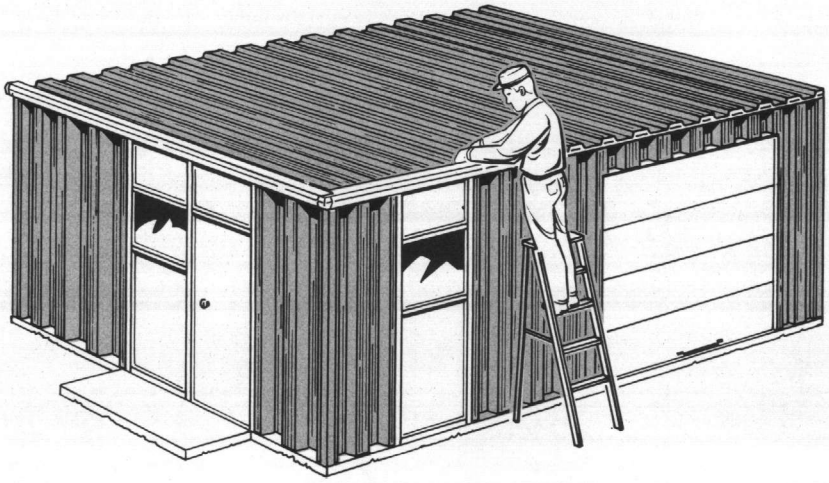
Tilt up pre-assembled corners into position over anchor bolts and brace to hold while filling in wall sections. Tighten anchor bolts and remove braces.

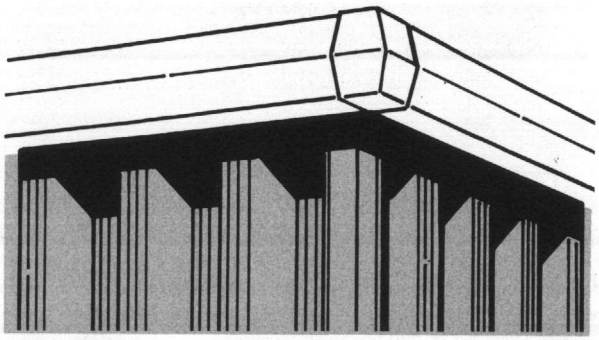




3.

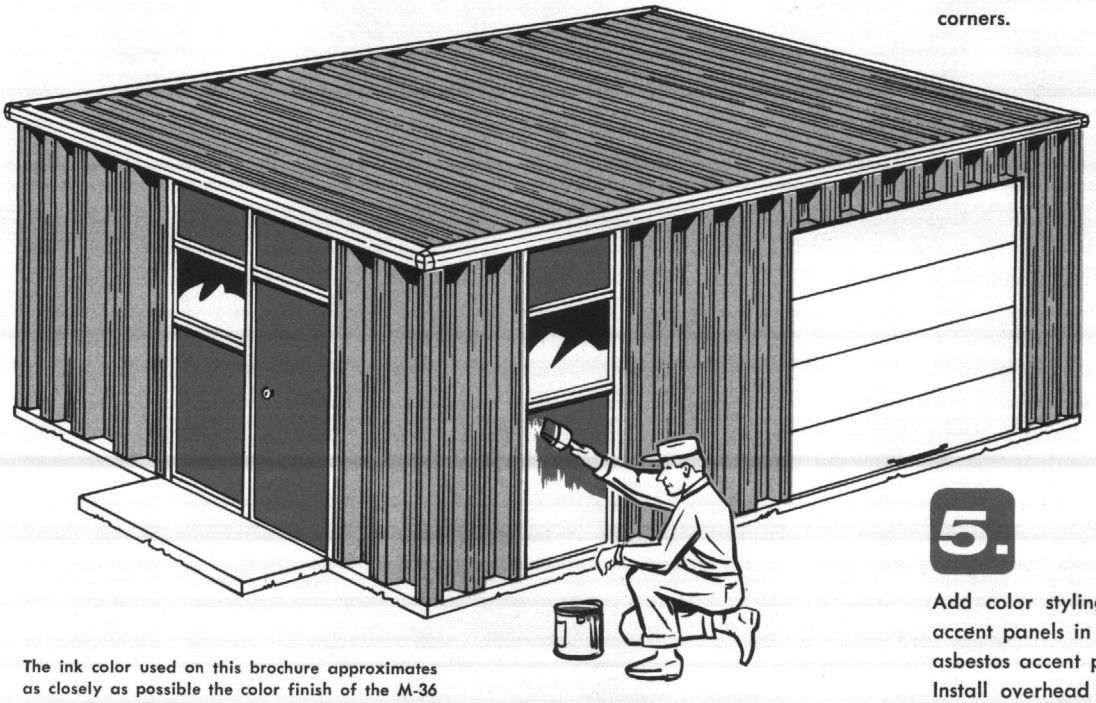
Install channel supports, sealants and foam closures on top of walls. Position panel supports (on 18 ft. through 24 ft. wide buildings only), and then roof panels with overlap away from direction of prevailing wind, match up holes and bolt together and to wall sections.





4.

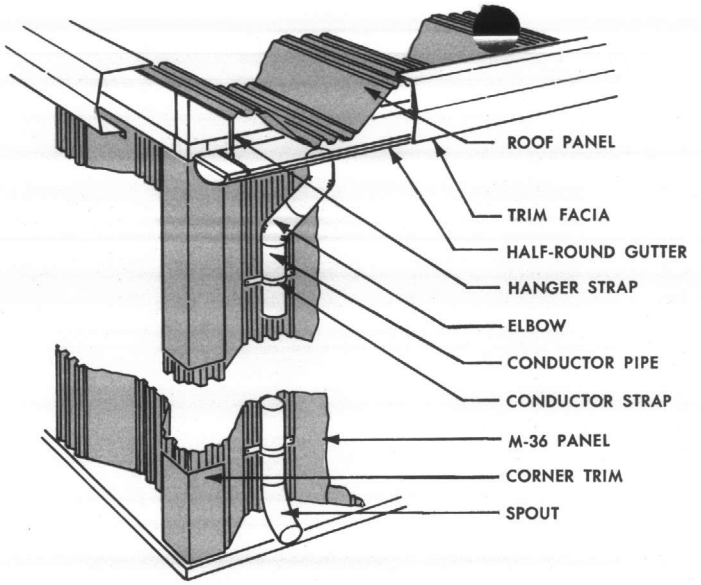
Install trim sections to ends of building. Then install trim to sides of building roof and complete with white roof trim corners. Install corner trim to all building corners.

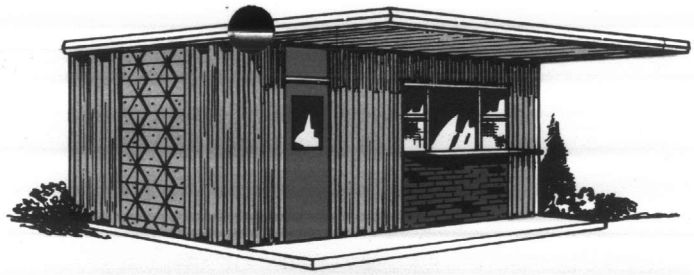


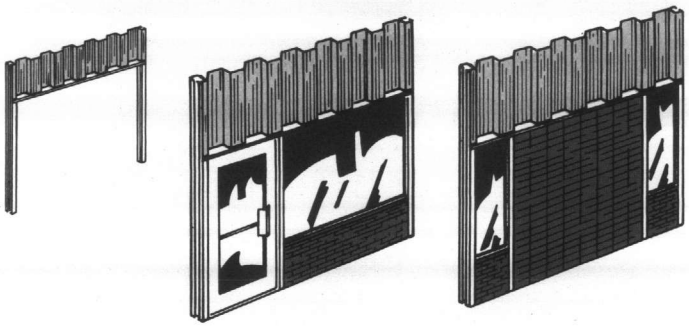
5.

Add color styling by painting the window and door accent panels in colors of your choice. Factory cement-asbestos accent panels have pre-finished white exterior. Install overhead doors, glazing and other locally furnished materials.

The ink color used on this brochure approximates as closely as possible the color finish of the M-36 panel. Poppy Red is a recommended accent color.







GUTTER AND DOWNSPOUTS

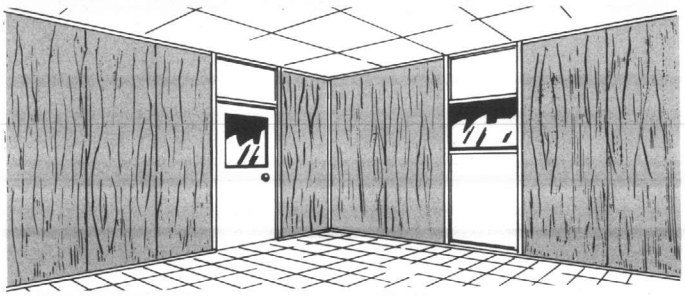
M-36 trim and panel configuration was designed to accommodate economical half-round gutter and round downspout which is readily available from local sources everywhere.

COLLATERAL MATERIALS

Wood, masonry, glass and other locally available materials may be easily installed in the fully framed openings to custom finish the M-36 building to suit your taste.

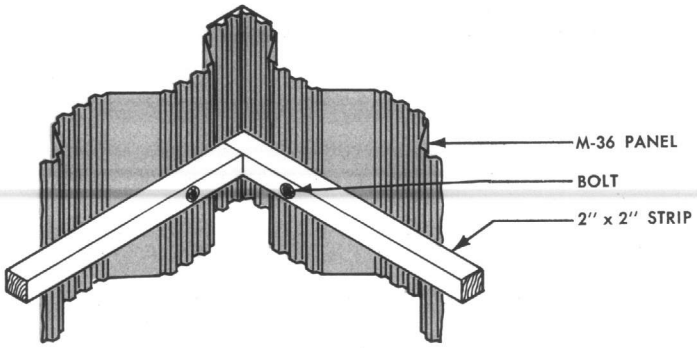
Finish Your M-36 Building To Suit Your Needs

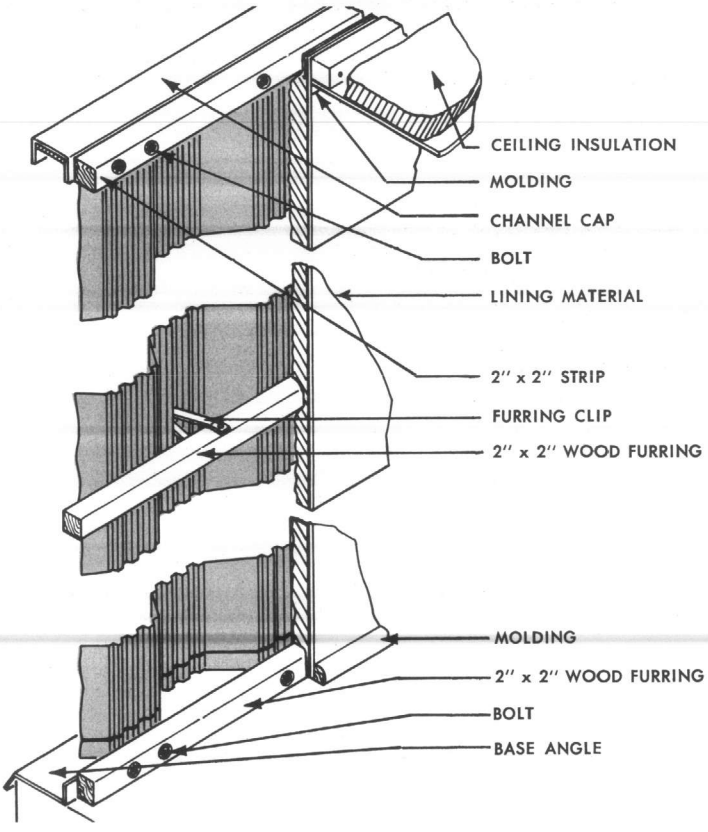
Your Panl-Frame M-36 can be anything you want it to be and finished to any degree. Decorate with collateral materials; collect and control rainwater run-off and insulate and line the walls of your M-36 to give you a building with fantastic integrity. Your use of local materials can make the M-36 extra handsome and cooler or warmer than three thicknesses of concrete block. It's a matchless value.



INSULATION AND INTERIOR LINING

Any standard insulation and lining material may be installed in your M-36 building. Interior wall finishing and insulating are easy when 2" by 2" wood furring strips are used as shown.





SPECIFICATIONS

I. GENERAL

A. M-36 Panl-Frame building shall be self-framing, utilizing a galvanized steel, deep rib panel for both structural support and exterior wall and roof cover.

B. The roof shall be clear span, level type.

C. Building nominal dimensional range shall be:
Width: 6 ft. minimum to 24 ft. maximum in 3 ft. increments.
Length: Varies in 3 ft. increments.
Height: 8 ft., 10 ft. and 12 ft.

D. Building actual dimensions shall be:

1. Outside overall dimensions: Width and length nominal dimensions plus 3 inches and nominal height dimensions plus approximately 3⅞ inches.
2. Inside clear dimensions: Width and length nominal dimensions less 4¾ inches. Height—same as nominal dimensions for buildings through 15' in width. For wider buildings with roof panel support, nominal height less approximately 5¾ inches.

E. All materials shall be furnished in accordance with this specification.

1. All parts shall be furnished for the complete building, roof and walls, specified accessory items, with all necessary closures and fasteners, unless otherwise specified.
2. Parts shall be identified and erection drawings furnished to simplify the assembly of all members and erection of the building.
3. All drawings shall carry the seal of a registered professional engineer.

F. Foundations shall be of reinforced concrete or other suitable materials properly designed to support the dead, live and wind loads.

1. Anchor bolts shall be furnished by others unless otherwise specified.
2. Complete information on the construction of a concrete foundation on a level site with a 2,500 p.s.f. allowable soil pressure shall be furnished by Butler Manufacturing Company.
3. Specifications and use of drive or drilled-in anchorage shall be the responsibility of others, unless otherwise specified.

II. DESIGN

A. Steel load bearing members shall be designed in strict accordance with the latest supplement or revision of the American Iron and Steel Institute's "Specification for the Design of Light Gauge Cold-Formed Steel Structural Members" or the American Institute of Steel Construction's "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" as may be applicable.

B. Welding shall be done in accordance with the American Welding Society Code for Building Construction.

C. Standard design loadings shall be:
12 p.s.f. Live load plus dead load or dead load plus 15 p.s.f. wind load.
20 p.s.f. Live load plus dead load or dead load plus 25 p.s.f. wind load.
30 p.s.f. Live load plus dead load plus 20 p.s.f. wind load.

D. All buildings shall have a minimum of one full width M-36 solid panel on each side at the corners of the building to transmit the wind force to the foundation.

E. Buildings with lengths exceeding 3 times the width may require bracing or partitions, depending on local conditions.

III. ROOF AND WALL COVERING

A. Wall panels shall be one piece from base to eaves and provide 36 inch width coverage.

1. Wall panels shall be 26 gauge galvanized steel (ASTM Galvanize Specification A525).
2. Wall panels shall have a hot dipped galvanized finish or factory applied enamel over treated galvanized coating as specified.
   a. Exterior—Silicon coating.
   b. Interior—Alkyd coating.
3. Wall panels shall attach to galvanized base and eave members formed to provide a weatherseal without need of closures or field caulking.
4. Wall panels shall have structural properties capable of serving as load bearing wall and transmitting wind forces to the foundation.

B. Roof panels shall be one piece providing 36 inch width coverage, and span the entire width of the building without end laps.

1. Roof panel seams (side laps) shall be 3¾ inches above the water draining plane of the roof to assure weathertightness.
2. Roof panels to be 26 gauge galvanized steel (ASTM Galvanized Specification A 525).
   a. Roof panels for 15 ft. wide buildings only shall be 24 gauge galvanized steel.
3. Roof panels shall have hot dipped galvanized finish or factory applied enamel over treated galvanized coating as specified.
   a. Exterior—Silicon coating.
   b. Interior—Alkyd coating.
4. Special formed closures to match the shape of the roof panel shall provide a weathertight seal between the roof and wall.

IV. FASTENERS

A. Standard fasteners shall be:

1. Panel to structural—¼" x 1¼" hex. machine screws and hex. nuts.
2. Panel to panel—¼" x ¾" hex. machine screws and hex. nuts.

B. Metal backed neoprene washers shall be used with fasteners on the roof.

V. SEALANTS

A. Butler Sealing Compound No. 770 shall be used under the base angle, under the foam closure and around the perimeter of accent panels and the ventilator.

B. Butler Panlastic shall be used on all roof panels as a sidelap sealant and between the foam closure and the roof panels.

C. Butler butyl tape sealant shall be used at door or window wall unit and wall panel sidelap connections.

VI. CORNER TRIM AND ROOF TRIM

A. Corner trim shall be standard for all corners and shall match the color of the wall.

B. Roof trim shall be standard for all walls.

VII. ACCESSORIES

A. Metal door leaf shall be 1⅜" thick and 6'-8" long.

1. Single doors shall be furnished plain or open for glazing, in 2'-10" and 3'-4" widths in right-hand and left-hand reverse bevel.
2. Double doors shall be plain 2'-10" plain leafs with removable center post.
3. Metal door units shall be furnished in full length framing units to building eave heights.
   a. Single 2'-10" door in 3 ft. wide unit.
   b. Single 3'-4" and double 2'-10" doors in 6 ft. wide unit.

B. Standard aluminum window shall be 2'-10" by 2'-4½" horizontal sliding complete with glazing and screen.

1. Single window shall be framed in one panel width opening with standard wall panels above and below.
2. Single or multiple windows shall be installed in 3 ft., 6 ft. and 9 ft. wide steel framing units furnished in full eave height lengths.

C. Accent panels shall be ¼ inch thick asbestos-cement board, prefinished white one side and pre-cut to fill openings in door and window wall units.

D. Wall louver shall be 2'-9" x 2' manual adjustable and installed in standard wall opening.

E. Standard wall opening shall be framed to provide a 2'-10" by 2'-4½" opening as required for louver or aluminum window and shall have above and below opening, standard wall panels.

F. Ventilators shall be continuous 30 inches long with 4 inch throat, built in damper, manually adjustable and complete with screen.

1. Ventilator shall be field installed in 5⅛" x 30" field cutout in roof panel. Maximum of one ventilator to a panel.
2. Ventilator shall not be installed in the adjacent roof panel to a panel containing a ventilator.

G. Roof overhang shall extend beyond one or both sidewalls by 3 ft. or a maximum of 6 ft.

1. Maximum overhang of 6 ft. may require support at the outer edge depending on live load requirements.
2. Maximum of 18 inches endwall overhang shall be possible when field installed with supporting wall brackets.

H. Standard 4 inch round eaves through and 3 inch round conductor pipe shall be furnished by others and installed in accordance with recommended details provided.

I. A metal furring clip shall be made available for use with furring strips and conventional insulation and liner furnished by others.

SHORT FORM SPECIFICATIONS

I. GENERAL

The building shall utilize a galvanized steel panel of sufficient strength and configuration to serve as both structural support and exterior cover without need of an independent structural framing system.

II. PANEL

The panel thickness shall be not less than that recommended by the Metal Buildings Manufacturers' Association and shall be capable of spanning 12 feet in simple span with a design loading of 30 p.s.f. plus panel dead loading without exceeding a deflection to span ratio of 1/180.

III. DESIGN

Steel, load bearing members shall be designed in strict accordance with the latest supplement or revision of the American Iron and Steel Institute's "Specification for the Design of Light Gauge Cold-Formed Steel Structural Members" or the American Institute of Steel Construction's "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" as may be applicable.

IV. ACCESSORIES

Accessories shall be building manufacturer's standards in sizes and finishes nearest to those as shown on drawings or as specified.

Your PANL-FRAME M-36 Is In Stock And Available For Immediate Delivery. Ask Your Butler Builder.

Your nearby Butler Builder can furnish factory color-finish Panl-Frame M-36 buildings from stocks conveniently located throughout the United States and ready for immediate delivery.* Call today and have your M-36 building up and in use before other ways to build could start construction. For complete details, sales and service, see or call your Butler Builder listed in the Yellow Pages under "Buildings" or "Buildings-Metal."

*Plain galvanized buildings are available on an extended delivery from factory.

BUTLER®

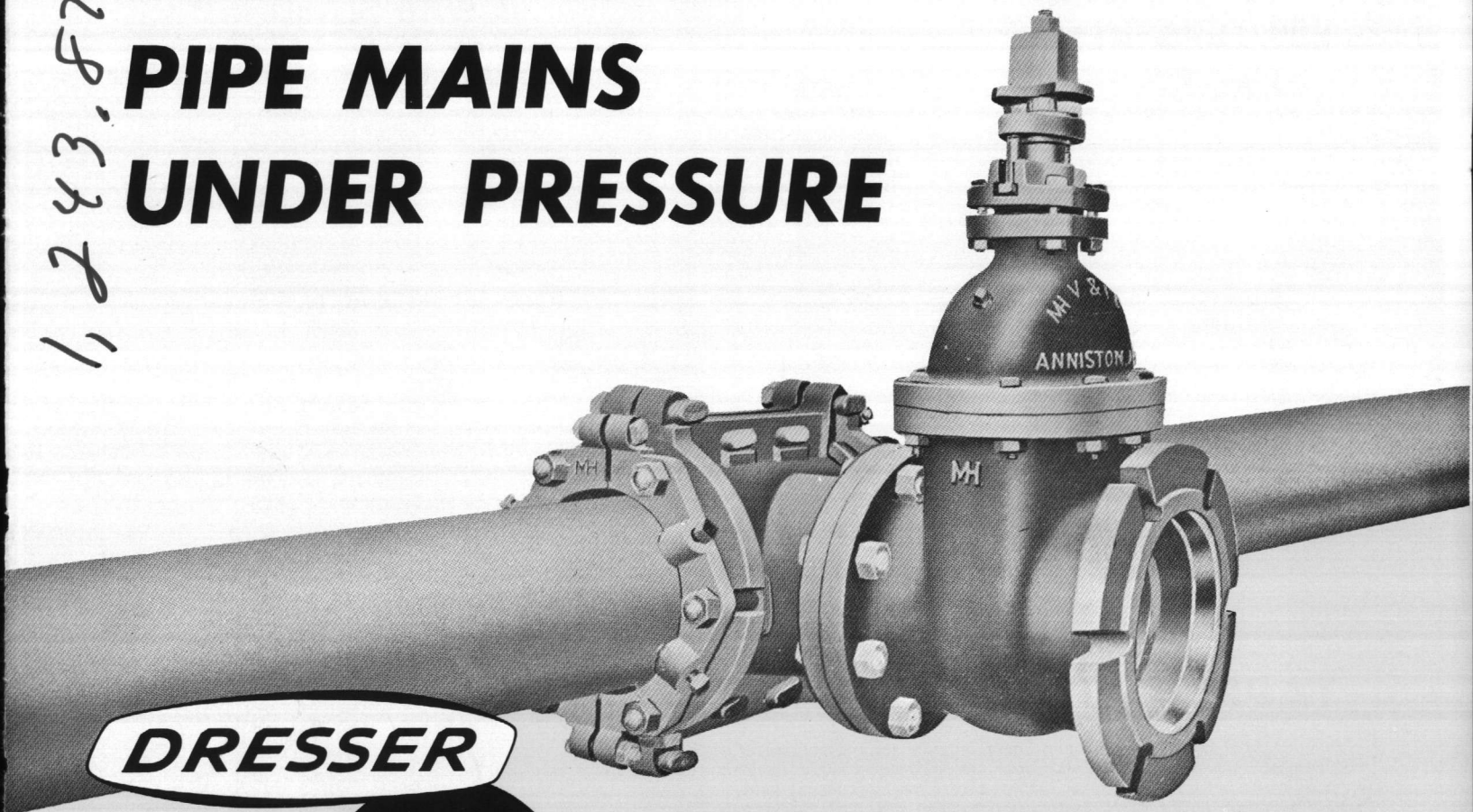
BUTLER MANUFACTURING COMPANY
7400 East 13th Street, Kansas City, Missouri 64126

Form 2697R2-8-68

Printed in U.S.A.

1,243,828

FOR TAPPING PIPE MAINS UNDER PRESSURE



DRESSER

MH

TAPPING VALVE AND TAPPING SLEEVE

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT ~~NBy~~ N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge

CIRCULAR NO. 12

MECHANICAL JOINT, HUB, FLUID-TITE*, RING-TITE*

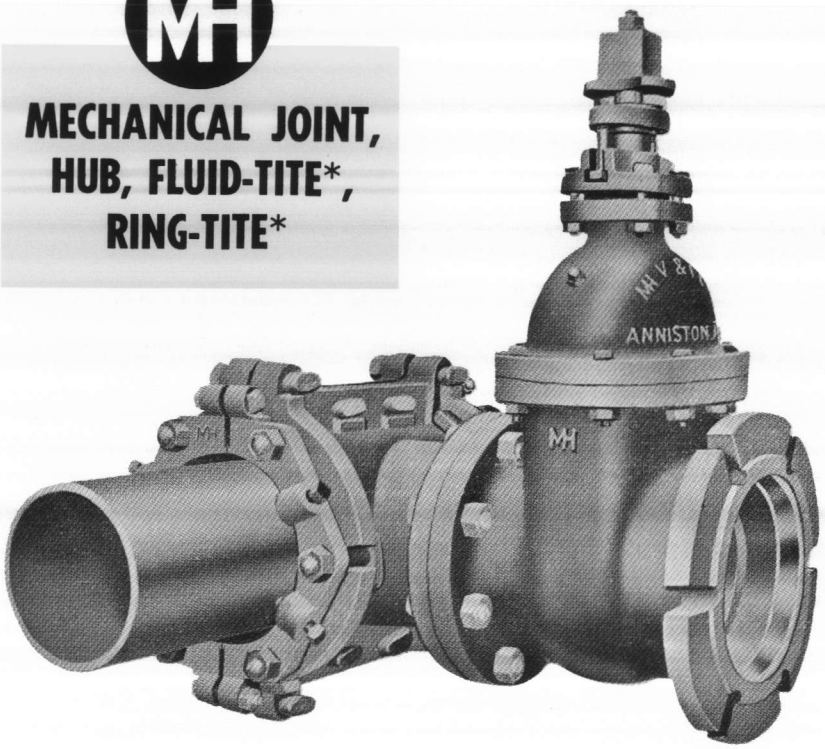


Figure 74-M—75-M—Mechanical Joint Tapping Sleeve and Mechanical Joint Tapping Valve

HOW TO INSTALL MECHANICAL JOINT SLEEVES

1. Clean the pipe where the sleeve is to be used.
2. Remove end glands from sleeve.
3. Remove side bolts but do not disturb rubber gaskets. Place sleeve halves over pipe and bolt together evenly, moving from one bolt to another and alternating from side to side.
4. Place split end gaskets over pipe and push into position.
5. Remove bolts holding glands together and place glands in position on the pipe. Bolt gland halves together and make up tight. Bolt T-Heads should be located on sleeve side. Be careful to tighten all bolts evenly.
6. Tighten cup-point set screws and carefully block under the throat half of the sleeve.

TAPPING SLEEVE AND VALVE

The practice of tapping into a main under pressure for the purpose of taking off a branch (larger than a corporation cock size) can be handled either by using a tapping sleeve with hub ends (Figure 74) or tapping sleeve with mechanical joint ends (Figure 74-M). Mechanical joint tapping sleeves are supplied with split gaskets and two-piece gland followers. The throat flange of the sleeve and mating flange of the tapping valve in sizes 12″ and smaller are supplied in accordance with Manufacturers Standardization Society Specification SP-60 unless otherwise ordered. Larger sizes are in accordance with individual manufacturer's standard. The raised face and matching recess serves to insure proper alignment between the tapping valve and the tapping sleeve. The valve outlet flange will fit any standard tapping machine.

Mechanical joint sleeves are regularly supplied with split end gaskets for either Classes AB or CD pit cast pipe, or Classes 100, 150, 200 and 250 Centrifugally cast pipe. When ordering, specify Class of pipe in use. Unless otherwise specified, we will supply end gaskets for Classes CD pipe. Glands are designed with cup point set screws.

Mechanical joint tapping sleeves also have longitudinal compound rubber gaskets which fit against the end gaskets thus effecting a totally enclosed rubber, water tight seal. Side and end bolts are steel tee-head design ASTM A-307 cadmium plated. Throat half of all sleeves is designed to prevent bolts from turning. Both hub and mechanical joint sleeves are regularly supplied with centering rings to assure alignment on the pipe.

Hub end tapping sleeves are available for use with asbestos cement pipe in sizes 16″ and smaller.

Tapping valves have a flange on one end for bolting to the tapping sleeve and can be supplied with hub (Figure 75), mechanical joint (Figure 75-M) and Ring-Tite or Fluid-Tite (Figure 75-R) on the outlet. Separate tapping machine adapters are needed for hub and mechanical joint outlets. Use hub end adapters with Ring-Tite or Fluid-Tite tapping valves.

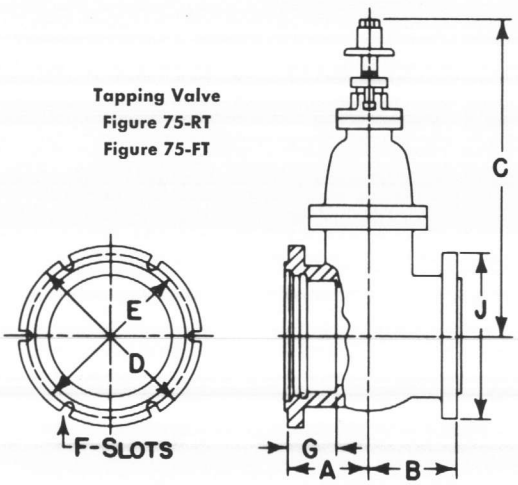
Tapping valves in the larger sizes can be supplied with rollers, tracks, and scrapers for horizontal installation, also can be supplied with gears and gear cases where desirable. In addition, tapping valves can be furnished in outside screw and yoke design for use in pit or manhole. In all cases, tapping valves 12″ and smaller are rated 200# W.W.P., 350# test. In sizes 14″ and larger 150# W.W.P., 300# test. Nonrising stem tapping valves may be furnished with O-Ring seal plate instead of the more conventional stuffing box.

Tapping valves for fire protection service can be furnished for use with an indicator post.

*Ring-Tite is a trademark of Johns-Manville.

*Fluid-Tite is a trademark of Keasbey-Mattison.

Tapping Valve
Figure 75-RT
Figure 75-FT



RING-TITE OR FLUID-TITE TABLE OF DIMENSIONS IN INCHES

Size Valve	A	B	C	D	E	F	G	J
4	5⅞	4½	18	10	8⅞	6¾	3¾	9
6	6¾₁₆	5½	21	12	10¾	6⅞	3¾	11
8	6⅝	7	25	14¾	13¼	6⅞	3⅞	13½

MECHANICAL JOINT

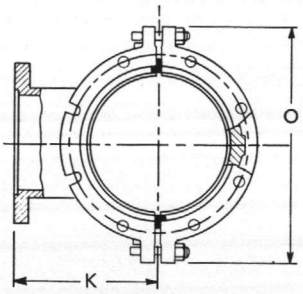


Figure 74-M—Mechanical Joint Tapping Sleeve.

ALL JOINTS MECHANICAL.
NO LEAD OR JUTE.
NO CALKING.
RATCHET WRENCH ONLY TOOL.
USE UNSKILLED WORKMEN.
WET TRENCH NO PROBLEM.
LESS ASSEMBLY TIME.
PERMANENT INSTALLATION.

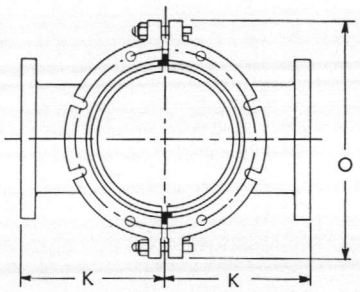


Figure 74-MC—Mechanical Joint Tapping Cross.

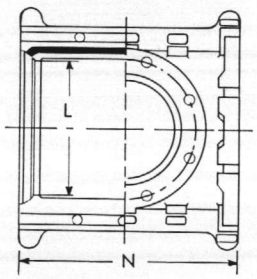


Figure 74-M—Mechanical Joint Tapping Sleeve.

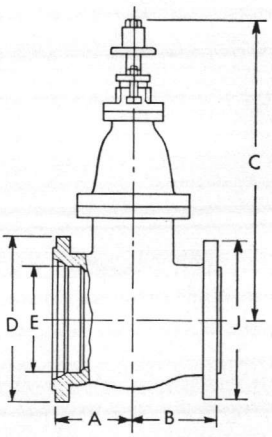


Figure 75-M—Mechanical Joint Tapping Valve.

SIZES AND DIMENSIONS IN INCHES

TAPPING SLEEVE AND CROSS

Size	K	O	L	N	Size	K	O	L	N	Size	K	O	L	N
4x2	6¾	10	5⅛	10½	10x10	11	20	11 17/32	17½	16x3	15	26½	17 15/16	15¾
3	7	10	5⅛	10½	12x2	10¾	20	13⅝	18¾	4	15	26½	17 15/16	15¾
4	7 9/16	10	5⅛	10½	3	11¾	20	13⅝	18¾	6	15¼	26½	17 15/16	15¾
6x2	7⅜	14¾	7 7/32	13	4	11⅞	20	13⅝	18¾	8	15⅝	26½	17 15/16	21¾
3	7¾	14¾	7 7/32	13	6	12½	20	13⅝	18¾	10	16⅛	26½	17 15/16	21¾
4	8⅜	14¾	7 7/32	13	8	12¾	20	13⅝	18¾	12	16⅛	26½	17 15/16	21¾
6	8⅜	14¾	7 7/32	13	10	12⅛	20	13⅝	21	14	17	26½	17 15/16	25¾
8x2	8¼	14½	9 7/16	14¼	12	11¾	20	13⅝	21	16	17	26½	17 15/16	25¾
3	9	14½	9 7/16	14¼	14x2	12⅛	24	15 25/32	15¼	18x3	14½	26 7/16	20.10	14
4	10	14½	9 7/16	14¼	3	12½	24	15 25/32	15¼	4	15¼	26 7/16	20.10	14
6	10½	14½	9 7/16	14¼	4	13⅜	24	15 25/32	15¼	6	15¼	26 7/16	20.10	14
8	10½	14½	9 7/16	16½	6	13⅝	24	15 25/32	15¼	8	15½	26 3/16	20.10	22
10x2	10	20	11 17/32	13 9/16	8	14⅛	24	15 25/32	15¼	10	16½	26 3/16	20.10	22
3	10½	20	11 17/32	13 9/16	10	14⅝	24	15 25/32	24¼	12	16½	26 3/16	20.10	22
4	11	20	11 17/32	13 9/16	12	14⅝	24	15 25/32	24¼	14	17¼	26 3/16	20.10	28
6	11½	20	11 17/32	13 9/16	14	15½	24	15 25/32	24¼	16	17½	26 3/16	20.10	28
8	11	20	11 17/32	17½	16x2	13¾	26½	17 15/16	15¾	18	18	26 3/16	20.10	28

TAPPING VALVE

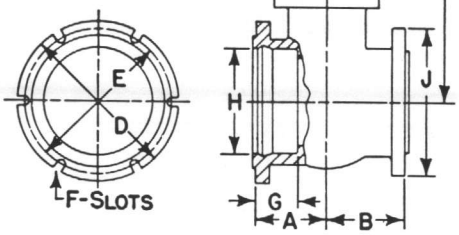
Valve Size	A	B	C	D	E	J
2	4⅛	3⅝	11	6⅝	2.82	6
3	4¾	5	15⅝	7½	4 31/32	7½
4	5¼	4½	18	9	4⅞	9
6	6	5½	21	11⅛	6 31/32	11
8	6 5/16	7	25	13⅜	9.15	13½
10	7½	6½	31	15¾	11.25	16
12	7⅞	6 15/16	33½	18	13.31	19
14	7 3/16	8	39	20¼	15.59	21
16	8⅝	8	43	22½	17.54	23½
18	10⅛	12 5/16	47	24¾	19.79	25
20	12 7/16	10⅛	50½	27	21.74	27½
24	12⅛	12⅛	58¼	31½	26.09	32

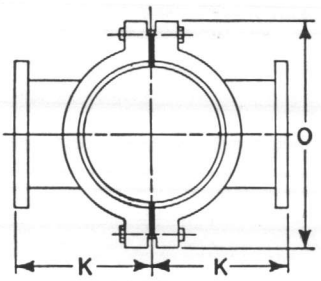
OTHER M & H PRODUCTS INCLUDE:

- FIRE HYDRANTS
- GATE VALVES
- CHECK VALVES
- FLOOR STANDS
- EXTENSION STEMS
- SHEAR GATES
- MUD VALVES
- VALVE BOXES
- FLAP VALVES

MH HUB ENDS

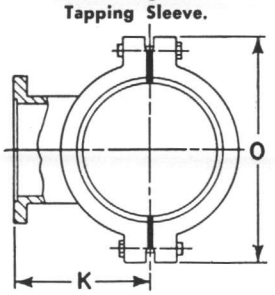
Below: Figure 75
Tapping Valve.





Above: Figure 74-C
Tapping Cross.

Below: Figure 74
Tapping Sleeve.



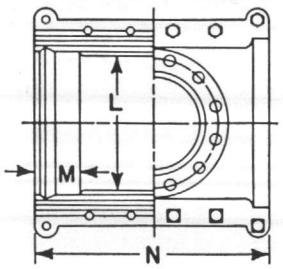


Figure 74
Tapping Sleeve.

TAPPING VALVE DIMENSIONS IN INCHES

Size Valve	2	3	4	6	8	10	12	14	16	18	20	24
A	4	4 5/16	5 3/4	6	6 1/2	7 1/2	7 11/16	8 5/8	8 5/8	8 7/8	9	12 5/8
B	3 5/16	5	4 1/2	5 1/2	7	6 1/2	6 15/16	8	8	9 1/4	10 1/8	12 1/8
C	11	14	18	21	25	31	33 1/2	39	43	49	52	58 1/4
D	6 5/8	8	10	12	14 3/4	17 3/8	19	22	24 1/2	27	30	33 3/4
E	5 1/2	6 3/4	8 7/8	10 3/4	13 1/4	15 7/16	17 3/4	20	22 3/4	24 3/4	27 1/2	31 3/4
F	6-3/4	6-7/8	6-3/4	6-7/8	6-7/8	8-1	10-1	12-7/8	14-1	14-1	14-1	16-1
G	2 5/8	3 1/2	3 3/4	4	3 11/16	4 1/2	4 9/16	5 1/8	4 3/4	4	4	4
H	3 5/8	4 5/8	5 5/8	7 7/8	9 13/16	12	14.20	16 1/2	18 7/8	21 5/32	23 1/4	27 17/32
J	6	7 1/2	9	11	13 1/2	16	19	21	23 1/2	25	27 1/2	32

TAPPING SLEEVE AND CROSS DIMENSIONS IN INCHES

Size	K	L	M	N	O
2x2	4 3/4	2 7/8	2 7/8	11	7 7/8
3x2	5 1/2	4 1/4	3 1/2	11 1/2	10
3	5 1/2	4 1/4	3 1/2	11 1/2	10
4x2	6 1/4	5 5/16	4	13 1/2	10 7/8
3	6 1/4	5 5/16	4	13 1/2	10 7/8
4	7	5 5/16	4	13 1/2	10 7/8
6x2	7 1/2	7 7/16	4	15 1/2	13 3/8
3	8	7 7/16	4	15 1/2	13 3/8
4	8 1/2	7 7/16	4	15 1/2	13 3/8
6	8 1/2	7 7/16	4	15 1/2	13 3/8
8x2	8 5/8	9 5/8	4	15 1/2	16 1/8
3	8 3/4	9 5/8	4	15 1/2	16 1/8
4	9 5/8	9 5/8	4	15 1/2	16 1/8
6	9 7/8	9 5/8	4	15 1/2	16 1/8
8	10	9 5/8	4	17 1/2	16 1/8
10x2	9 3/4	11 3/4	4	15 1/2	18 1/2
3	10	11 3/4	4	15 1/2	18 1/2
4	10 3/4	11 3/4	4	15 1/2	18 1/2
10x6	11	11 3/4	4	15 1/2	18 1/2
8	11	11 3/4	4	19 1/2	18 1/2
10	11	11 3/4	4	19 1/2	18 1/2
12x2	10 3/4	13 7/8	4	15 1/2	20 7/8
3	11 1/4	13 7/8	4	15 1/2	20 7/8
4	11 7/8	13 7/8	4	15 1/2	20 7/8
6	12 1/4	13 7/8	4	15 1/2	20 7/8
8	12 1/2	13 7/8	4	21 1/2	20 7/8
10	12 1/8	13 7/8	4	21 1/2	20 7/8
12	11 3/4	13 7/8	4	21 1/2	20 7/8
14x2	12	16	4	15 1/4	23 1/4
3	12 1/4	16	4	15 1/4	23 1/4
4	13	16	4	15 1/4	23 1/4
6	13 1/4	16	4	15 1/4	23 1/4
8	13 3/4	16	4	19 1/2	23 1/4
10	14 1/2	16	4	19 1/2	23 1/4
12	14 1/8	16	4	23 1/2	23 1/4
14	14 3/4	16	4	23 1/2	23 1/4
16x2	13 3/4	18 1/16	4	15 5/8	27 1/8
3	15	18 1/16	4	15 5/8	27 1/8
4	15	18 1/16	4	15 5/8	27 1/8
6	15 1/4	18 1/16	4	15 5/8	27 1/8
8	15 5/8	18 1/16	4	22 1/2	27 1/8
10	16 1/8	18 1/16	4	22 1/2	27 1/8
12	16 1/8	18 1/16	4	22 1/2	27 1/8
14	17	18 1/16	4	25 15/16	27 1/8
16	17	18 1/16	4	25 15/16	27 1/8
18x2	14 1/2	20 7/16	4	15	30 5/8
3	15	20 7/16	4	15	30 5/8
4	15 1/2	20 7/16	4	15	30 5/8
6	15 7/8	20 7/16	4	15	30 5/8
8	16 3/8	20 7/16	4	21	30 5/8
10	16 7/8	20 7/16	4	21	30 5/8
12	16 7/8	20 7/16	4	21	30 5/8
14	17 5/8	20 7/16	4	27	30 5/8
16	17 5/8	20 7/16	4	27	30 5/8
18	18	20 7/16	4	27	30 5/8
20x2	15 1/2	22 1/2	4	15 1/2	33
3	16	22 1/2	4	15 1/2	33
4	16 1/2	22 1/2	4	15 1/2	33
6	16 3/4	22 1/2	4	15 1/2	33
8	17 1/4	22 1/2	4	22	33
10	17 3/4	22 1/2	4	22	33
12	17 3/4	22 1/2	4	22	33
14	18 1/2	22 1/2	4	25 1/4	33
16	18 1/2	22 1/2	4	25 1/4	33
18	19 1/8	22 1/2	4	31 3/4	33
20	19 1/2	22 1/2	4	31 3/4	33
24x2	18 1/2	26 7/8	4	18	36 3/8
3	18 1/2	26 7/8	4	18	36 3/8
4	19	26 7/8	4	18	36 3/8
6	19 1/4	26 7/8	4	18	36 3/8
8	19 7/8	26 7/8	4	18	36 3/8
10	20 1/2	26 7/8	4	22 1/4	36 3/8
12	20 1/2	26 7/8	4	22 1/4	36 3/8
14	21	26 7/8	4	32	39
16	21	26 7/8	4	32	39
18	21 3/4	26 7/8	4	32	39
20	22	26 7/8	4	32	39
24	22	26 7/8	4	36	37 1/2
30x2	21 3/4	33 1/4	4 1/2	18 1/2	47
3	22	33 1/4	4 1/2	18 1/2	47
4	22 1/2	33 1/4	4 1/2	18 1/2	47
6	22 3/4	33 1/4	4 1/2	18 1/2	47
8	23	33 1/4	4 1/2	18 1/2	47
10	23 1/2	33 1/4	4 1/2	27 1/2	47
12	23 1/2	33 1/4	4 1/2	27 1/2	47
14	24 1/2	33 1/4	4 1/2	27 1/2	47
16	24 1/2	33 1/4	4 1/2	27 1/2	47
18	25 1/2	33 1/4	4 1/2	36	47
20	25 1/4	33 1/4	4 1/2	36	47
24	26 1/4	33 1/4	4 1/2	36	47
36x2	24 1/2	39 3/4	4 1/2	16	55
3	25	39 3/4	4 1/2	16	55
4	25 1/2	39 3/4	4 1/2	16	55
6	26	39 3/4	4 1/2	16	55
8	26 1/2	39 3/4	4 1/2	22	55
10	27	39 3/4	4 1/2	22	55
12	27	39 3/4	4 1/2	22	55
14	27 1/2	39 3/4	4 1/2	31 1/2	55
16	27 1/2	39 3/4	4 1/2	31 1/2	55
18	28 1/2	39 3/4	4 1/2	31 1/2	55
20	29	39 3/4	4 1/2	31 1/2	55
24	29 1/2	39 3/4	4 1/2	42	55
42x2	28 1/2	46 1/2	5	19	59 1/2
3	29	46 1/2	5	19	59 1/2
4	29 1/2	46 1/2	5	19	59 1/2
6	29 3/4	46 1/2	5	19	59 1/2
8	30 1/4	46 1/2	5	19	59 1/2
10	31	46 1/2	5	26 3/4	59 1/2
12	31	46 1/2	5	26 3/4	59 1/2
14	31 1/2	46 1/2	5	26 3/4	59 1/2
16	31 1/2	46 1/2	5	36	59 1/2
18	32 1/2	46 1/2	5	36	59 1/2
20	33	46 1/2	5	36	59 1/2

1,343,828

GATE VALVES

A.W.W.A. CLASS C NRS or OS & Y

THE RIGHT VALVE FOR THE JOB!

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT ~~NBY~~ N62470-70-C-0478 SPEC. NO. 05-70-0478

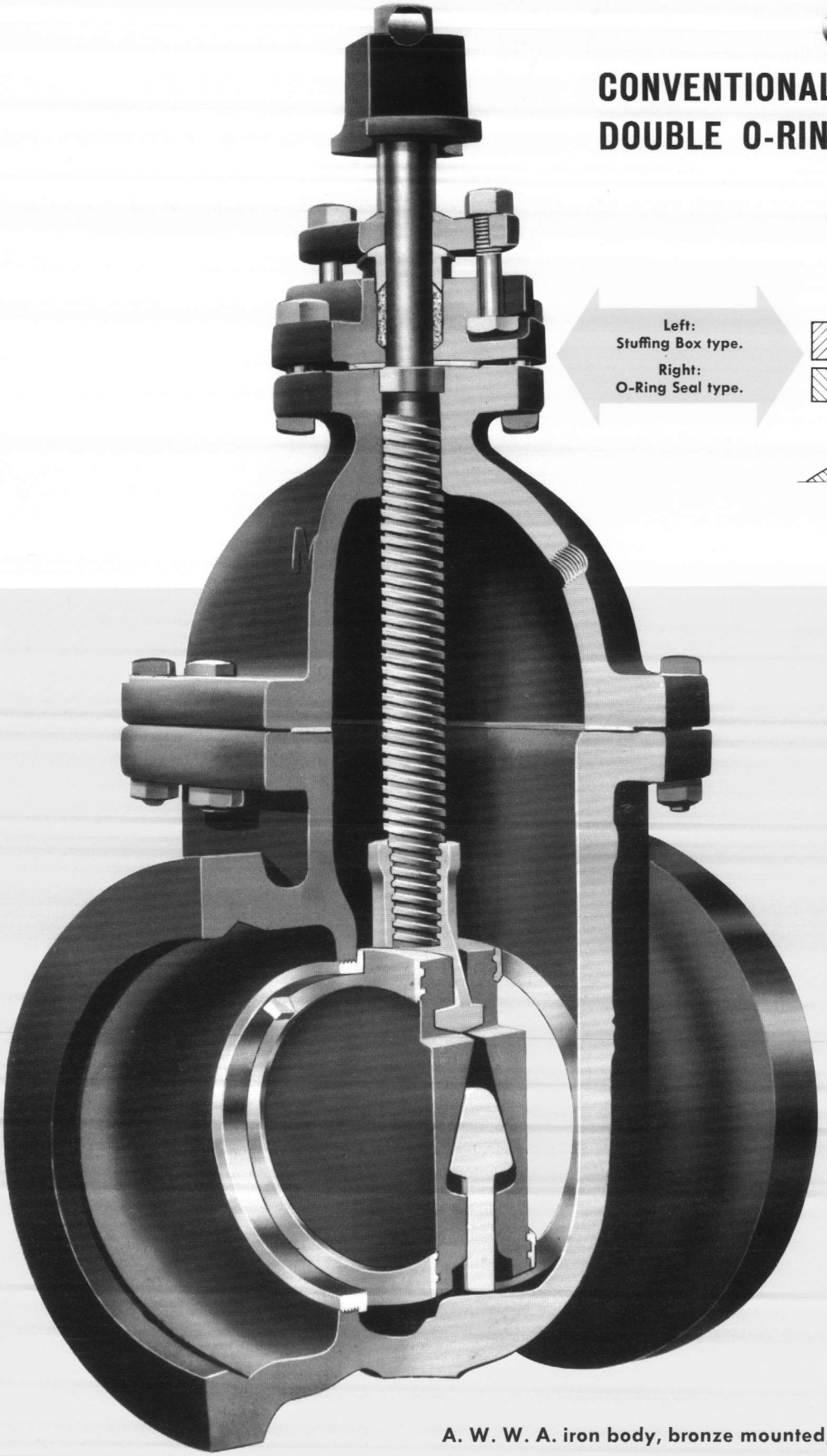
DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

Figure 67-M
Mechanical Joint Valve with
Bolts, Glands and Gaskets.

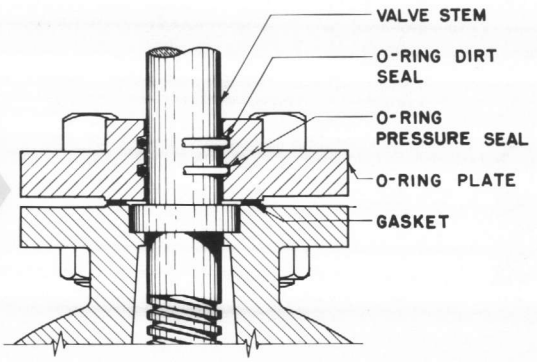
CIRCULAR NO. 14

CONVENTIONAL PACKING or with DOUBLE O-RING SEAL PLATE



Left:
Stuffing Box type.

Right:
O-Ring Seal type.



"M & H NRS gate valves, AWWA, Class "C," are furnished with o-ring stem seals as shown above or with stuffing box and packing as shown at left.

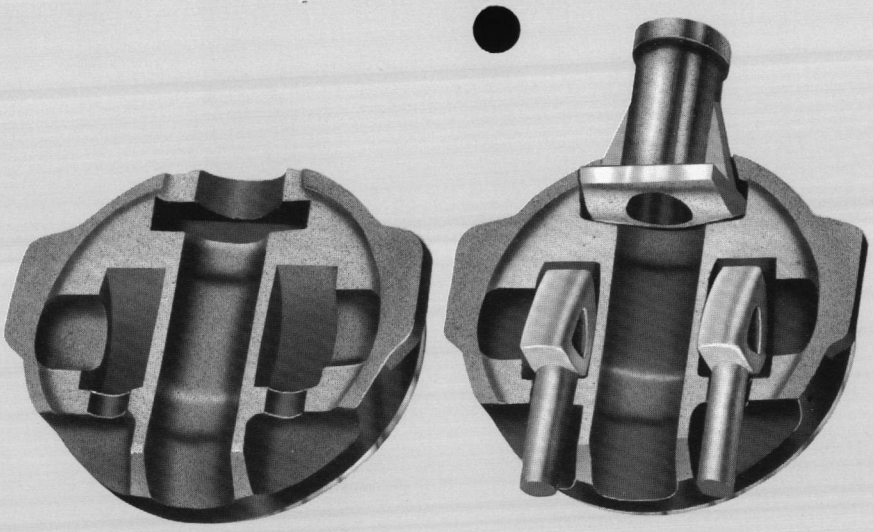
The o-ring seal plate embraces two molded rubber o-rings, one of which acts as a pressure seal and the other as a dirt seal. This o-ring seal design is leak-proof and requires little or no maintenance. Both rings are specially compounded rubber which does not deteriorate, however, if it should become necessary, replacement of the o-rings is an easy operation. An important feature of this design provides for the o-ring groove machined into the seal plate and not into the stem.

This design has become so popular within the waterworks field that we have adopted it as our standard. We particularly recommend use for underground services. Bronze-lined seal plates or all bronze seal plates are available when so ordered.

The older conventional type stuffing box gland is bronze with cast iron follower in sizes 3"-12" and cast iron bronze-bushed in sizes 14" and larger."

A. W. W. A. iron body, bronze mounted, double disc, parallel seat.
2"-12"—200 lbs. working pressure, 350 lbs. hydrostatic test.
14"-42"—150 lbs. working pressure, 300 lbs. hydrostatic test.

Figure 67—Hub Ends.



Inside view of Gate Assembly showing 3 spreaders.

RUGGEDLY DESIGNED DISCS with DIRECT-ACTING DISC SPREADERS

The simplicity of design and rugged construction of the gate assembly in M&H Valves are widely recognized as outstanding features. The double-disc gate assembly has only 5 parts: 2 bronze-faced discs; 1 combination bronze stem-nut and spreader, and 2 direct-acting bronze spreaders or wedges, as shown above.

When the valve in vertical position is opened, the stem-nut-spreader eases immediately and the two bottom spreaders release simultaneously, thus allowing the discs to move away laterally from the seats and the entire gate assembly to move upward easily and without scraping. When the valve is closed, the stem-nut-spreader action is reversed as the two bottom spreaders contact the bosses located at the bottom of the valve body, thus pressing the discs laterally against the seats without scraping. Each spreader acts independently of the other to open or seat the gate discs from three separate and distinct contact points at the top and sides. There is no sliding action of the discs on the seat. This design is equally effective for valves installed in a horizontal position. In M&H Square Bottom Valve design, the travel of the gate in opening and closing is further controlled by bronze shoes, located on either side of each disc, which ride stainless steel tracks located on either side of the body. Additional bonnet tracks provide an accurate bearing at that point and are usually of bronze.

M & H VALVE and FITTINGS COMPANY
ANNISTON, ALABAMA

Points of Superiority

- Double-disc mechanism works equally well with pressure against either side of the discs.
- Stem nut permits stem to operate discs without the stem binding, springing or bending out of alignment.
- In operating valve, discs move laterally away from seats BEFORE upward motion starts. In closing, the lateral motion wedges the discs against seats AFTER downward motion stops. Thus M&H valves operate without dragging the gate discs across the seat rings at any point. This results in easy operation.
- When closed, discs are wedged laterally against seats with pressure exerted from three separate points to form a perfect leak-proof seat. The spreaders function independently of each other.
- Valves may be re-packed while under pressure, either in closed or open positions.
- Bronze parts are extremely liberal in size and cross section. Wider faced seat and disc rings are important features.

Other Features

- Valve designed and manufactured in accordance with latest specifications of American Water Works Association. Iron body, bronze mounted. High factor of safety. Cast iron used in accordance with A.S.T.M. Specification A-126, Class B, having 31,000 psi tensile strength. Bronze Spreaders, Stem Nuts, Body Rings, Gland and Bonnet Bushings in accordance with A.S.T.M. Specification B-62, having 30,000 psi tensile strength. Stems are of manganese bronze, A.S.T.M. B-132, Classes A or B, 60,000-80,000 lbs. tensile strength. Special bronze available where required to meet extraordinary water conditions.
- All standard types of end connections are available on M&H valves, including Hub, Flanged, Mechanical Joint, Screwed, Universal, Ring-Tite, Fluid-Tite, and Concrete.
- Accessories include gearing, by-passes, double square-bottom; rollers, tracks and scrapers; hydraulic and motor operation, indicators, clean-outs, chain wheels; floor stands; extension stems, etc.
- M&H Class C, A. W. W. A. valves can be supplied in solid wedge type instead of double disc, if so desired.

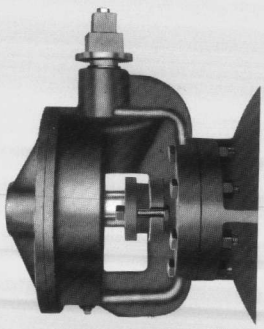
A.W.W.A. NRS or OS &Y

END STYLES AND SIZE RANGES

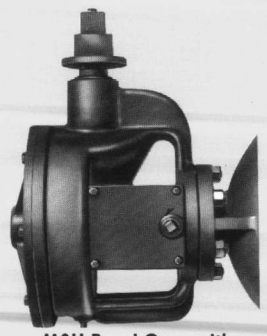
FIGURE NUMBERS, CLASS C, NRS		Sizes
67	Both ends Hub	2″-42″
67-M	Both ends Mechanical Joint	2″-42″
67-F	Both ends Flanged	2″-42″
67-U	Both ends Universal	2″-20″
67-RT	Both ends Ring-Tite	3″-16″
67-FT	Both ends Fluid-Tite	3″-16″
67-S	Both ends Screwed	2″- 6″
67-C	Both ends Concrete	12″-42″
67-HF	One end Hub, other end Flanged	x x x
67-FM	One end Flanged, other end Mechanical Joint	x x x
67-HS	One end Hub, other end Spigot	x x x

FIGURE NUMBERS, CLASS C, OS&Y		Sizes
68	Both ends Hub	2″-42″
68-M	Both ends Mechanical Joint	2″-42″
68-F	Both ends Flanged	2″-42″
68-U	Both ends Universal	2″-20″
68-RT	Both ends Ring-Tite	3″-16″
68-FT	Both ends Fluid-Tite	3″-16″
68-S	Both ends Screwed	2″- 6″
68-C	Both ends Concrete	12″-42″
68-HF	One end Hub, other end Flanged	x x x
68-FM	One end Flanged, other end Mechanical Joint	x x x
68-HS	One end Hub, other end Spigot	x x x

Figure 68-F—Outside Screw and Yoke, Flanged.



M&H Bevel Gear with outside-packed case.



M&H Bevel Gear with outside-packed case and gland enclosure.

ACCESSORIES

Geared Valves
Bevel or spur steel-cut gears with enclosed outside packed gear cases, and with or without gland enclosure — w/Conventional or O-Ring packing.

By-Passes
Furnished when specified for 12 [illegible] inch valves in accordance with A. W. W. A. specifications. Built-up type by-passes available in the smaller sizes.

Indicators
Needle-and-slot ("Universal" type) for NRS valves, or barrel type indicators for geared valves.

Double Square Bottom Valve
Gate disc movement guided by shoes and tracks. Recommended for valves when installed in horizontal position in vertical line and valves used for throttling services. Body tracks are stainless steel.

Electric Motor Operated Valve
For frequent operation or where valves are located in remote or inaccessible places.

Cylinder Operation
Either seamless brass tubing or cast iron brass-lined cylinders for operating valve by water, oil or air pressure. Totally enclosed bronze cylinders available.

Rollers, Tracks and Scrapers
Rollers are very desirable to assist in carrying the weight of the discs and otherwise relieve wear. Used when valves are installed in a horizontal position in a horizontal line more especially in the larger sizes. Tracks are either bronze or hard babbit securely fastened in dovetail grooves. Scrapers remove sediment and other accumulation on the track by traveling the tracks ahead of the disc during both the opening and closing operation.

Chain Wheels
For manually operating valves out of reach.

Cleanouts
Furnished when specified, on one or both sides of body to facilitate removal of sediment or other accumulation from bottom of valves.

Floor Stands
Adapted for non-rising stem, outside screw and yoke or sliding stem valves.

Extension Stems—Adjustable Stem Guides

HEAVY DUTY SAFETY SWITCHES — VISIBLE BLADES SAFETY HANDLE

GENERAL PURPOSE — RAINTIGHT — SPECIAL PURPOSE ENCLOSURES

240 VOLT

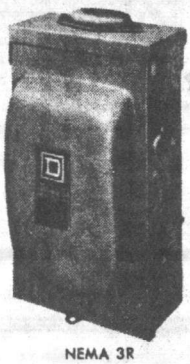
General Purpose and Raintight Visible Blade Heavy Duty Safety Switches are designed for application where performance and continuity of service are required. They meet Federal Specification W-S-865c for Heavy Duty Switches and are UL listed: File E2875. This line meets NEMA KS1-1957 for Type ND. The NEMA 4 and 5 and NEMA 12 devices meet NEMA KS1-1969 for Type HD.

SINGLE THROW FUSIBLE

Systems	Amps.	NEMA 1 Indoor		NEMA 3R Rain-tight Type RB		VISIBLE BLADE NEMA 4 and 5 Dust-tight, Water-tight D-Cast Enclosure DS-Stainless Steel		NEMA 12 JIC-Mill & Foundry Type Single Stroke Cover Sealing			Horsepower Ratings 240 V. AC Std. 1φ	240 V. AC Std. 3φ	240 V. AC Max. 1φ	240 V. AC Max. 3φ	DC 250 V. Std.	DC 250 V. Max.	Amps.
		Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	With Knockouts Cat. No.	Without Knockouts Cat. No.	Price							
2 POLE, 240 VOLTS AC — 250 VOLTS DC																	
	30	◐45251	$ 22.00	.....	.....	.....	....	.....	.....	.....	1½	..	3	..	5	5	30
	30	H221	22.00	H221RB	$ 42.00	H221D or DS	$169.00	H221A	H221AWK	$ 42.00	1½	..	3	..	5	5	30
	30	✱H221-2	38.00	.....	.....	.....	....	✱H221-2A	✱H221-2AWK	51.00	1½	..	3	..	5	5	30
	60	H222	43.00	H222RB	78.00	H222D or DS	294.00	H222A	H222AWK	88.00	3	..	10	..	10	10	60
	100	H223	68.00	H223RB	108.00	H223D or DS	447.00	H223A	H223AWK	83.00	7½	..	15	..	20	20	100
	200	H224	128.00	H224RB	144.00	H224D or DS	614.00	H224A	H224AWK	138.00	15	..	..	..	40	40	200
	400	H225	247.00	H225NR	262.00	H225DS	1247.00	H225A	H225AWK	311.00	..	..	..	..	60	60	400
	600	H226	492.00	H226NR	660.00	H226WP	1790.00	✚H226A	✚H226AWK	644.00	..	..	..	..	..	..	600
	800	●H227	761.00	●H227R	1100.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
	1200	●H228	1063.00	●H228R	1500.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
3 WIRE S/N (2 BLADES 2 FUSES) 240 VOLTS AC — 125/250 VOLTS DC																	
	30	H221N	$ 22.00	H221NRB	$ 42.00	H221ND or NDS	$176.00	H221NA	H221NAWK	$ 46.00	1½	3	3	7½	5	5	30
	60	H222N	43.00	H222NRB	78.00	H222ND or NDS	212.00	H222NA	H222NAWK	81.00	3	7½	10	15	10	10	60
	100	H223N	68.00	H223NRB	108.00	H223ND or NDS	461.00	H223NA	H223NAWK	98.00	7½	15	15	30	20	20	100
	200	H224N	128.00	H224NRB	144.00	H224ND or NDS	633.00	H224NA	H224NAWK	163.00	15	25	..	50	40	40	200
	400	H225N	281.00	H225NR	262.00	H225NDS	1274.00	H225NA	H225NAWK	346.00	..	50	60	100	60	60	400
	600	H226N	626.00	H226NR	660.00	H226NWP	1815.00	✚H226NA	✚H226NAWK	676.00	..	..	..	..	..	..	600
	800	●H227N	826.00	●H227NR	1100.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
	1200	●H228N	1118.00	●H228NR	1500.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
3 POLE, 240 VOLTS AC																	
	30	◐45351	$ 28.00	.....	.....	.....	....	.....	.....	.....	..	3	..	7½	..	..	30
	30	H321	28.00	H321RB	$ 61.00	H321D or DS	$179.00	H321A	H321AWK	$ 61.00	..	3	..	7½	..	..	30
	30	✱H321-2	46.00	.....	.....	.....	....	✱H321-2A	✱H321-2AWK	81.00	..	3	..	7½	..	..	30
	60	H322	49.00	H322RB	92.00	H322D or DS	220.00	H322A	H322AWK	78.00	..	7½	..	15	..	..	60
	100	H323	78.00	H323RB	118.00	H323D or DS	470.00	H323A	H323AWK	112.00	..	15	..	30	..	..	100
	200	H324	134.00	H324RB	162.00	H324D or DS	661.00	H324A	H324AWK	187.00	..	25	..	60	..	..	200
	400	H325	818.00	H325R	880.00	H325DS	1287.00	H325A	H325AWK	367.00	..	50	..	100	..	..	400
	600	H326	569.00	H326R	751.00	H326WP	1843.00	✚H326A	✚H326AWK	618.00	..	75	..	100	..	..	600
	800	●H327	1033.00	●H327R	1402.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
	1200	●H328	1314.00	●H328R	1800.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
4 WIRE S/N (3 BLADES 3 FUSES) 240 VOLTS AC																	
	30	H321N	$ 28.00	H321NRB	$ 61.00	H321ND or NDS	$186.00	H321NA	H321NAWK	$ 68.00	..	3	..	7½	..	..	30
	60	H322N	49.00	H322NRB	92.00	H322ND or NDS	228.00	H322NA	H322NAWK	78.00	..	7½	..	15	..	..	60
	100	H323N	78.00	H323NRB	118.00	H323ND or NDS	486.00	H323NA	H323NAWK	126.00	..	15	..	30	..	..	100
	200	H324N	134.00	H324NRB	162.00	H324ND or NDS	678.00	H324NA	H324NAWK	181.00	..	25	..	60	..	..	200
	400	H325N	344.00	H325NR	382.00	H325NDS	1287.00	H325NA	H325NAWK	408.00	..	50	..	100	..	..	400
	600	H326N	591.00	H326NR	783.00	H326NWP	1843.00	✚H326NA	✚H326NAWK	644.00	..	75	..	100	..	..	600
	800	●H327N	1088.00	●H327NR	1402.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
	1200	●H328N	1383.00	●H328NR	1800.00	.....	....	.....	.....	....	..	..	..	..	..	..	....
4 POLE, 240 VOLTS AC												2φ		2φ			
	30	✱H421-2	$ 86.00	.....	....	.....	....	✱H421-2A	✱H421-2AWK	$ 73.00	..	3	..	10	..	..	30
	60	H422	76.00	.....	....	.....	....	H422A	H422AWK	88.00	..	7½	..	20	..	..	60
	100	H423	120.00	.....	....	.....	....	H423A	H423AWK	146.00	..	15	..	30	..	..	100
	200	H424	216.00	.....	....	.....	....	H424A	H424AWK	254.00	..	30	..	50	..	..	200
	400	H425	412.00	.....	....	.....	....	H425A	H425AWK	488.00	..	50	..	100	..	..	400
	600	H426	730.00	.....	....	.....	....	✚H426A	✚H426AWK	839.00	..	..	..	..	..	..	600

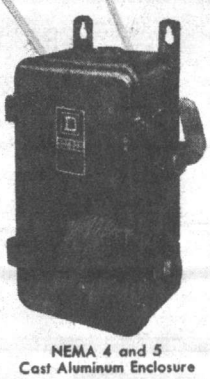
(Refer to Page 31 for footnotes.) ●Use Class L fuse. Not U/L listed for DC.

NEMA 1

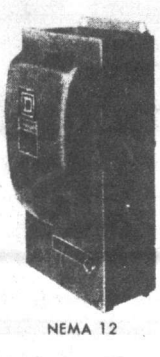


NEMA 3R

NEMA 4 and 5 Stainless Steel



NEMA 4 and 5 Cast Aluminum Enclosure



NEMA 12

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED **"AS NOTED"**

SUBJECT TO CONTRACT REQUIREMENTS

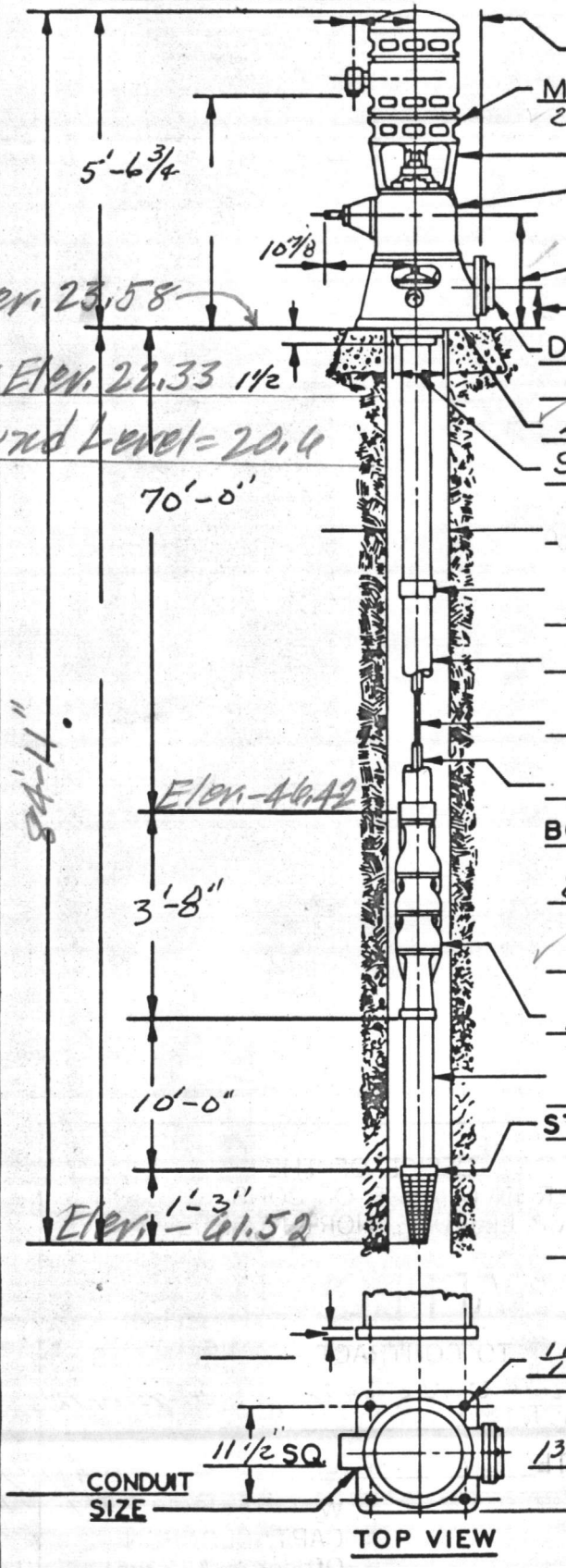
CONTRACT ~~NBY~~ N62470-70-C-0478 SPEC. NO. 05-70-0478

DATE FEB 23 1971 Y N.C.

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

FORM. NO. 2829004 Well M-141 Completed 12-1971

PEERLESS PUMP COMBINATION DRIVE
SURFACE DISCHARGE



6 7/8 ¢ TO FACE OF FLANGE
MOTOR: NEWMAN MFR. KP.1 TYPE V10 HP. 60 CY.
208 VOLTS 1800 R.P.M. 3 PH. 256UP FRAME
YOKE:
GEARHEAD: AMARILLO MFR.
MODEL JRL 20 HP GEAR RATIO 1:1
19 3/4" BASE TO ¢ OF SHAFT
6 1/4" BASE TO ¢ OF DISCHARGE
DISCHARGE COMPANION FLANGE FOR:
4"- 125# 4X6X12 DISCHARGE HEAD
9 3/4" O.D. TOP COL. FLANGE
8" I.D. OF WELL
6 5/16" O.D. OF COUPLING
5" COLUMN
1 3/16 SHAFT
2 TUBE
BOWL UNIT:
8LB ASSEMBLY
5 STAGE
7 9/16" O.D. OF BOWLS
5 SUCTION PIPE
STRAINER:
5 SIZE 5 O.D.
GALV TYPE
1 1/16" DIA. 4-HOLES

PUMP RATING
G.P.M. 155
FT. FIELD HD. 135

S.O. NO
SOLD TO: CAROLINA WELL & PUMP
ORDER NO.
USER: CAMP LEJEUNE
ITEM NO.
PUMP IDENTIFICATION:

THIS CERTIFIED PRINT
☒ FOR APPROVAL
BY RLC DATE 10/29/70
☐ FOR CONSTRUCTION
BY _____ DATE _____

HYDRODYNAMICS DIVISION
PEERLESS PUMP
Los Angeles 31, Calif. • Indianapolis 6, Ind.

DRN. BY: CHK'D BY: DATE:

PUMP NO. T-10876

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT ~~NBy~~ N6247O-70-C-0478 SPEC. NO. 05-70-0478

DATE NOV 4 1970

W. F. RUSSELL, JR.
CAPT. CEC. USN
Officer in Charge
of Construction

FILE FOLDER

DESCRIPTION ON TAB:

M-207

☐ **Outside/inside of actual folder did not contain hand written information**

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Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
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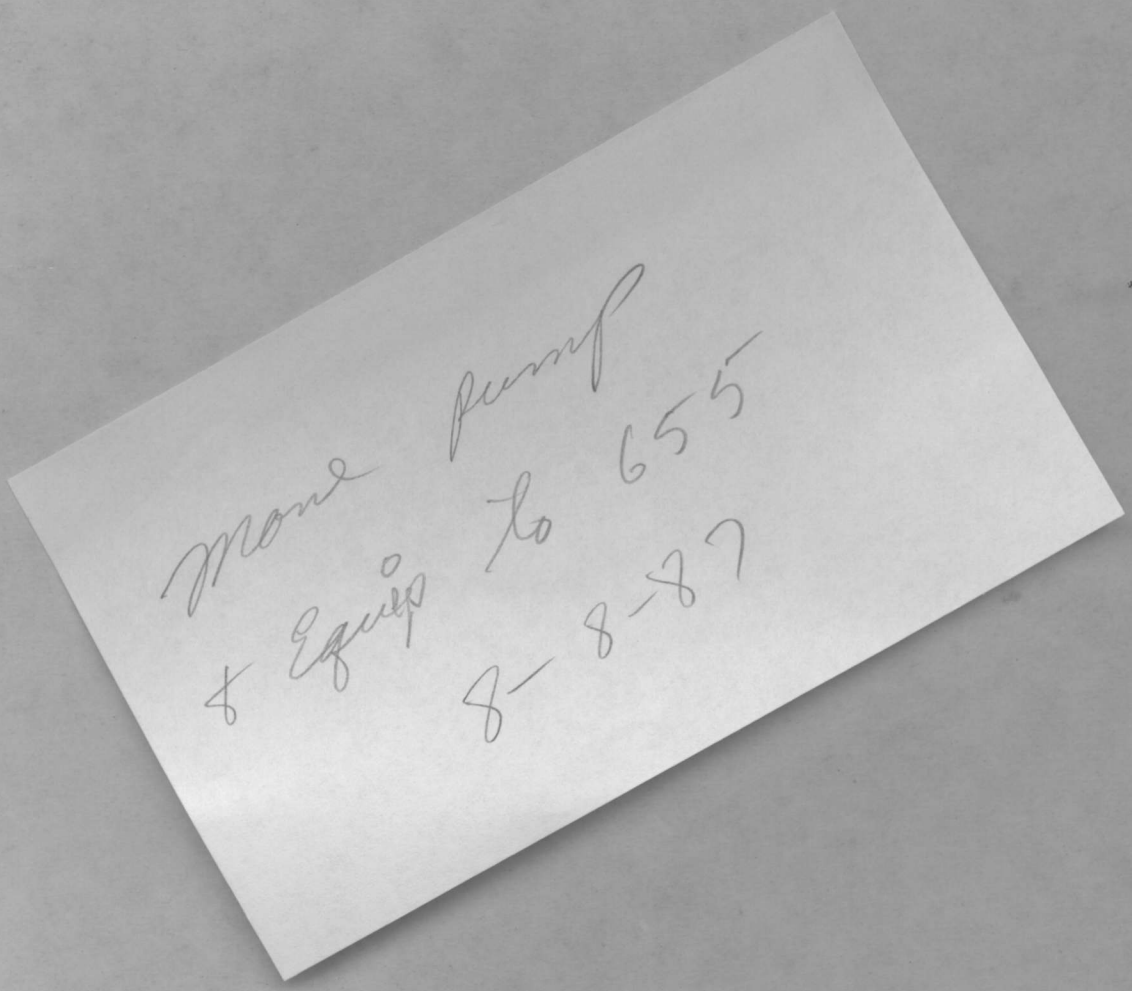

Move pump
& Equip to 655
8-8-87

ELECTRIC LOG BY

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

JOHNSON-KECK™ DR-61 ELECTRICAL LOGGING SYSTEM

Well Montford Point #M-267 Owner Camp Lejeune NC

~~Location~~ Contract N62470-79-C-4476 Date

Borehole depth 240 ft. dia. 8 in. Casing depth 12 ft. dia. 8 in.

Mud resistivity ____ temperature ____ F

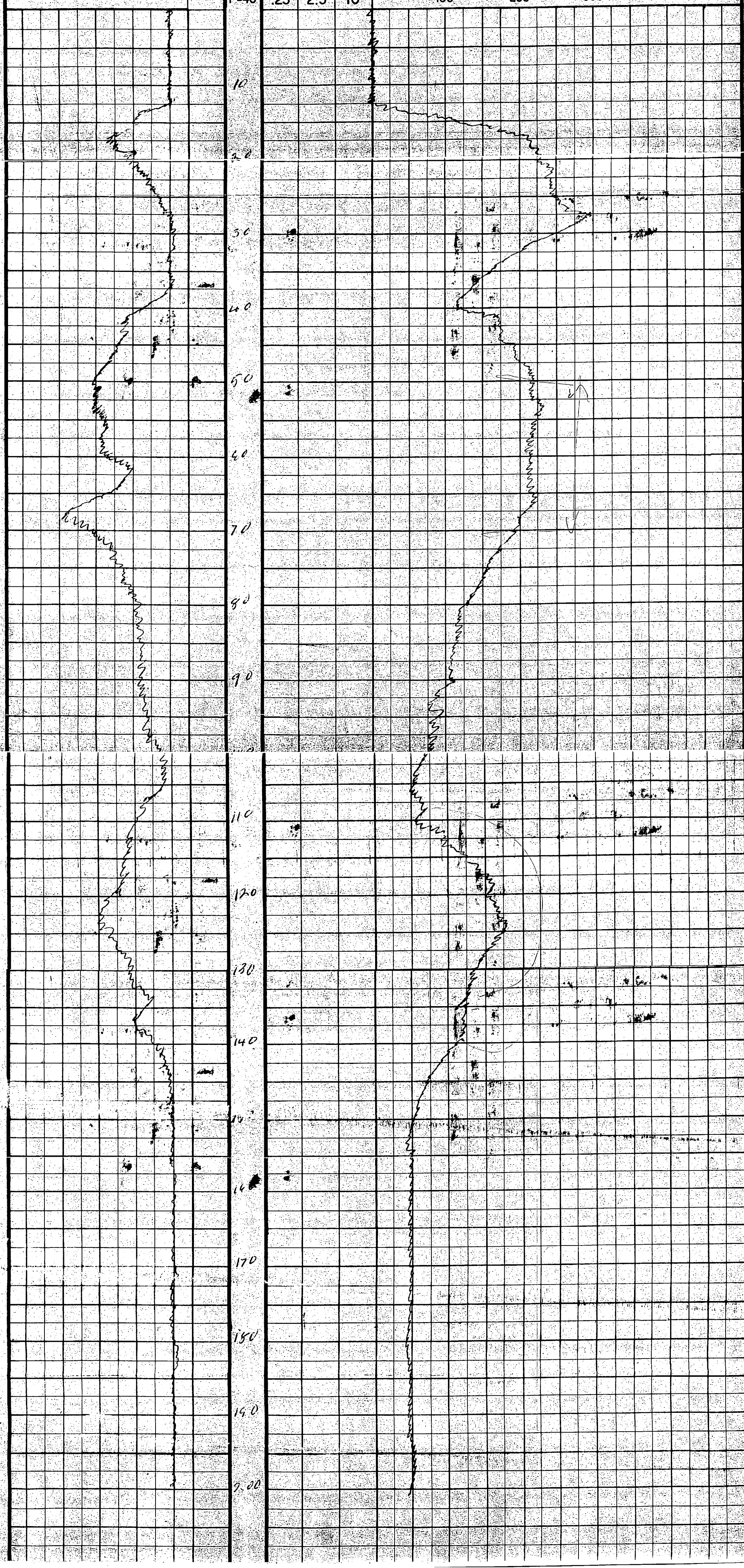
viscosity ____ sec weight ____ lb/gal type ____

Measuring point ____ ft. above/below ground level

Fluid level in hole ____ ft. Other logs ____

Driller John Murchison E-log operator Worth Pickard

Spontaneous Potential (millivolts)						Depth (ft)	Resistivity (ohm-ft)					
-400	-200			200	400	1"=10'	(Circle one)		8000	16000	24000	32000
-100	-50	0		50	100	1"=20'	Normal - Lateral	0	2000	4000	6000	8000
					SP	1"=40'	.25	2.5	10	200	400	600	800	1000	2000	3000	4000
										100	200	300	400	500	1000	1500	2000



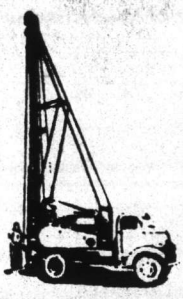
CAROLINA WELL AND PUMP COMPANY, INC.

Complete Well and Pump Service

P. O. BOX 1085 TELEPHONE 776-3415

SANFORD, NORTH CAROLINA 27330

N.W.W.A.
N.C.W.W.A.



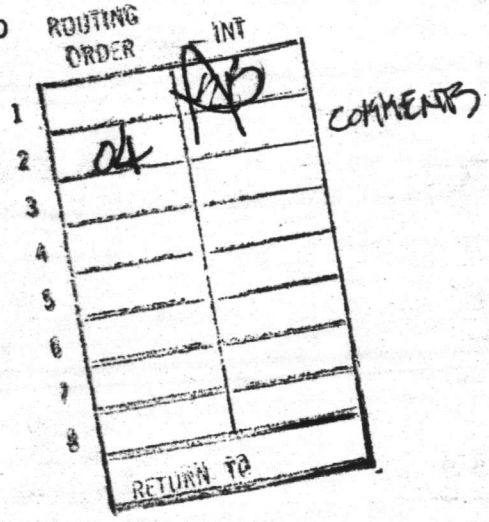
Fort Johnson Test Well

0.0-6.0	Tan Fine to Medium SAND
6.0-25.0	Tan Silty Fine SAND With Clay Layers
25.0-35.0	Tan Gray Fine to Medium Sandy Silty CLAY
35.0-47.0	Gray Silty Sand With Shell & Clay Layers
47.0-54.0	Gray Cemented SAND & SHELLS
54.0-58.0	VOID
58.0-107.0	Gray Slightly Cemented SAND & SHELLS
107.0-119.0	Gray Clayey Fine to Medium SAND With Some Shell Fragments
119.0-149.0	Gray Fine to Medium SAND & Some Shells
149.0-189.0	Gray Silty CLAY
189.0-199.0	Gray Cemented Silty Fine SAND and SHELL
199.0-200.0	Gray Silty CLAY

* Note- 4" Casing to 20'
3" Casing to 60'

Replace Four Water Wells, MCB
Camp LeJeune, N.C.
N62470-79-C-4476

EAST COAST CONSTRUCTION COMPANY, INC.
GENERAL CONTRACTORS
Post Office Box 5004
JACKSONVILLE, NORTH CAROLINA 28540



June 26, 1981

Officer in Charge of Construction
Building 1005, Marine Corps Base
Camp LeJeune, N.C. 28542

Ref: Contract N62470-79-C-4476
Replace Water Wells, MCB
Camp LeJeune, N.C.

Gentlemen:

We are enclosing five (5) copies each of Electric Log, Drillers Log, and Gamma Log on Well No. M267 (relocated) at Montford Point.

We recommend to set 40 feet of pit casing grouted in place and to drill the hole to 100'-0" level. A line of stainless steel screens to be set at 50'-60' level, and from 70'-90' level, with the bottom of the well at 100'. We wish to bring to your attention that during the drilling of the test hole we lost circulation at the 50'-58' level and had to set a line of 3" pipe to 60' level in order to drill the remainder of the test hole. This indicates to us that the most water is at this level. The Electric Log will not show the upper portion of the well; however, the Gamma Log indicates the best formation to be at that level. We estimate this well will produce between 125 and 175 GPM.

Please advise if you wish us to proceed with developing this well.

Yours very truly,

EAST COAST CONSTRUCTION CO., INC.

W. H. Myers/ck

W. H. Myers

WHM/ck

Enclosures

ELECTRIC LOG
M-267 (RELOCATED)
MCB CAMP LEJEUNE, NC
FORT JOHNSON
6-24-81
DRILLED BY: SOIL & MATERIAL ENGINEERS
LOGGED BY: SOIL & MATERIAL ENGINEERS
DON CATON

CAL

60
70
80
90
100
110
120
130
140
150
160
170
180
190
197

CAL

CAL

LS=20 FT/MIN
R=100

GAMMA Log
WELL M267 (Montana Pt)
6/24/81 MCB -
Comp Tejeda

Cal

Fort Johnson
6-24-81

Drilled by:
Soil + Material Eng

Logged by:
Soil + Material Eng

0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
194

0-20' - 4" Casing

0-60' - 3" Casing

All water lost @

Water level of void @
24 hrs. 19.8'

Cal

WELL NUMBER M267		BY Thomas-Brown			DATE 1-17-95	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1240
70	48	49	1	35	100	1250
		52	4	30	115	1300

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

Air Line - M. 267 - 70'

Perm. well depth 100 ft

CAROLINA WELL AND PUMP COMPANY, INC.

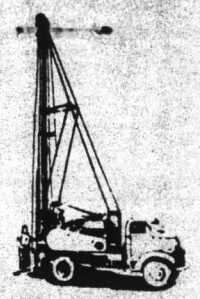
Complete Well and Pump Service

P. O. BOX 1085

TELEPHONE 776-3415

SANFORD, NORTH CAROLINA 27330

N.W.W.A.
N.C.W.W.A.



Camp Lejeune, N. C.
Montford Point M-267
Drillers Log
Driller - John Murchison
December 17, 1980
N62470-79-C-4476

0	-	2	Top Soil Brown
2	-	8	Brown Sandy Clay
8	-	18	Brown Sand
18	-	40	White Sand with Shell
40	-	86	Rock
86	-	112	Clay
112	-	140	Sand with Shell Rock
140	-	156	Clay with Sand
156	-	200	Clay

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

(803) 479-4639

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: November 29, 1980

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Date Analyzed: 10/29/80

Sample Number: Camp Lejuene
Top Sample

Analysis Results--Parts Per Million Well M-267
M-62470-79-C-4976

Determination		Determination	
pH	6.8	Carbon Dioxide (CO_2)	4
Iron (Fe)	0.1	Total Acidity ($CaCO_3$)	2
Nitrate (NO_3)	Trace	Calcium Hardness ($CaCO_3$)	153
Fluoride (F)	0.2	Magnesium Hardness ($CaCO_3$))	34
Manganese (Mn)	Trace	Carbonate Hardness ($CaCO_3$)	187
Total Hardness ($CaCO_3$)	187	Noncarbonate Hardness ($CaCO_3$)	0
Chlorides (Cl)	16	Alkalinity (Phenolphthalein) ($CaCO_3$)	0
Sulfate (SO_4)	12.8	Carbonate Alkalinity ($CaCO_3$)	0
Phosphate (PO_4)	0	Bicarbonate Alkalinity ($CaCO_3$)	200
Magnesium (Mg)	8.4	Total Alkalinity ($CaCO_3$)	200
Calcium (Ca)	60.2	Total Dissolved Solids	276
Carbonate (CO_3)	0	Specific Conductance (micromhos at 25°c)	390
Bicarbonate (HCO_3)	264	Appearance When Analyzed	Slightly Hazy
Hydroxide (OH)	0	Odor When Analyzed	Not Objectionable

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

SIGNED: Walter E. Lyle Director
802 Hamlet Highway
Bennettsville, South Carolina 29512
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER.' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES.' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

10-15-85

M-~~627~~
267

A/L	SL	P/L	O/D	PSI	GPM	Time
70	48	50	2	40	60	15
		52	4	35	100	15

adj impellers

P/L	O/D	PSI	GPM
63	15	45	175

"Hello Analysis, Goodbye Worry"

WATER ANALYSIS LABORATORY
802 HAMLET HIGHWAY
BENNETTSVILLE, SOUTH CAROLINA
29512

(803) 479-4639

CONSULTANTS FOR:
INDUSTRY
MUNICIPALITIES
HOME OWNERS
DEVELOPERS
IRRIGATION
OTHERS

DATE: November 28, 1980

Report To: Carolina Well & Pump Co.
Sanford, N. C.

Mayford Point
Date Analyzed: 10/29/80
Sample Number: Camp Lejuene
Bottom Sample

Analysis Results--Parts Per Million

Well M-267
146280-29-C-4976

Determination		Determination	
pH	6.8	Carbon Dioxide (CO_2)	5
Iron (Fe)	0.45	Total Acidity ($CaCO_3$)	2
Nitrate (NO_3)	Trace	Calcium Hardness ($CaCO_3$)	156
Fluoride (F)	0.2	Magnesium Hardness ($CaCO_3$))	36
Manganese (Mn)	Trace	Carbonate Hardness ($CaCO_3$)	192
Total Hardness ($CaCO_3$)	192	Noncarbonate Hardness ($CaCO_3$)	0
Chlorides (Cl)	20	Alkalinity (Phenolphthalein) ($CaCO_3$)	0
Sulfate (SO_4)	14.2	Carbonate Alkalinity ($CaCO_3$)	0
Phosphate (PO_4)	0	Bicarbonate Alkalinity ($CaCO_3$)	220
Magnesium (Mg)	9.0	Total Alkalinity ($CaCO_3$)	220
Calcium (Ca)	60.4	Total Dissolved Solids	224
Carbonate (CO_3)	0	Specific Conductance (micromhos at 25°)	320
Bicarbonate (HCO_3)	266	Appearance When Analyzed	Clear
Hydroxide (OH)	0	Odor When Analyzed	Not Objectionable

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Water Analysis Laboratory
802 Hamlet Highway
Bennettsville, South Carolina 29512

SIGNED _____
LABORATORY DIRECTOR

ANALYTICAL METHODS REFERENCES: 'STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE-WATER,' APHA, AWWA AND WPCF AND 'METHODS FOR COLLECTION AND ANALYSIS OF WATER SAMPLES,' WATER SUPPLY PAPER 1454 (1960), U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

BASE MAINTENANCE DEPARTMENT
Marine Corps Base
Camp Lejeune, North Carolina 28542

MAIN/TH/rn
11330
7 July 1981

From: Base Maintenance Officer
To: Public Works Officer

Subj: Contract N62470-79-C-4476, Replace Water Wells, MCB, Camp Lejeune

Ref: (a) 24-hour Pumping Test, Well No. HP655
(b) Electric Log, Drillers Log, and Gamma Log, Well No. M267 } attached

1. Reference (a) has been reviewed and it is recommended that the contractor be allowed to proceed with completion of the well base, well house, and supporting features.

2. A review of the test results contained in reference (b) has been made, and it is recommended that the contractor be allowed to proceed with the permanent well installation with screens to be set at the 50'-60' and 70'-90' levels.

T. Hatcher

T. HATCHER, P.E.
By direction

FILE FOLDER

DESCRIPTION ON TAB:

M.P. Well 628

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New Bern, NC
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FORM A-4
(JUNE '66)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF WATER DATA COORDINATION
INVENTORY OF HYDROLOGIC DATA STATIONS
QUALITY OF WATER

APPROVED.
Budget Bureau No. 42-R1485
Approval Expires June 30, 1968

1. AGENCY CODE	TYPE	3. LATITUDE	4. LONGITUDE	5.
NC	Q	34° 44' 10" N	77° 24' 17" W	

6. AGENCY STATION NO.	7. STATION NAME
M628	M178-25

8. DRAINAGE BASIN CODE	9. STATE CODE	10. COUNTY CODE	11. COUNTY NAME
No. 06 Letter N	32	133	ONSLOW

12. PERIOD OF RECORD		13.	14.
Began 1957	Discontinued	Y ☐ Continuous Interruption Exceeds 1 Year	

15. SITE

- ☐ 101 Stream
- ☐ 102 Canal
- ☐ 103 Lake
- ☐ 104 Reservoir
- ☐ 105 Estuary
- ☐ 106 Spring
- ☒ 107 Well
- ☐ 110 Other

16. FREQUENCY OF MEASUREMENT

- ☐ 201 Continuous Recorder
- ☐ 202 Telemetered
- ☐ 203 Daily
- ☐ 204 Weekly
- ☐ 205 Monthly
- ☐ 206 Quarterly
- ☐ 207 Seasonal
- ☐ 208 Annual
- ☐ 209 Other Periodic
- ☒ 210 Occasional

17. TYPES OF DATA AVAILABLE

Physical
- ☐ 311 Temperature
- ☐ 312 Specific Conductance
- ☐ 313 Turbidity
- ☐ 314 Color
- ☐ 315 Odor
- ☐ 316 Radioactivity
- ☐ 317 pH (field)
- ☒ 318 pH (lab)
- ☐ 319 Eh
- ☐ 320 Other

Chemical
- ☐ 331 Dissolved solids
- ☒ 332 Chlorides Only
- ☐ 333 Nutrients (Nitrogen and phosphorus compounds)
- ☐ 334 Common ions
- ☒ 335 Hardness
- ☐ 336 Radiochemical
- ☐ 337 Dissolved oxygen
- ☐ 338 Other Gases
- ☐ 339 Other

Organic
- ☐ 351 Pesticides (insecticides, herbicides, etc.)
- ☐ 352 Synthetic detergents
- ☐ 353 Other

Biologic
- ☐ 361 Coliforms
- ☐ 362 Other Micro-organisms
- ☐ 363 BOD
- ☐ 364 Other

Sediment
- ☐ 371 Concentration
- ☐ 372 Particle size
- ☐ 373 Other

18. SUPPLEMENTARY DATA FOR SITE

- ☐ 421 Surface Water Station
- ☐ 422 Ground Water Station
- ☐ 423 Water Stage or Level
- ☒ 424 Water discharge
- ☐ 425 Time of Travel
- ☐ 426 Drainage Area

19. STORAGE OF DATA

- ☐ 501 Periodic Report
- ☐ 502 Areal Report
- ☒ 503 Not Published
- ☐ 504 Data on Punchcard
- ☐ 505 Data on Magnetic Tape
- ☐ 506 Other

20. OFFICE AT WHICH DATA AVAILABLE

Office: BASE MAINTENANCE DEPARTMENT, UTILITIES DIVISION

Street No.: MARINE CORPS BASE

City, State, Zip: CAMP LEJEUNE, N. C. 28542

City Code: 0735

21. OFFICE COMPLETING FORM

BASE MAINTENANCE DEPARTMENT

22. COMPILER'S NAME

F. E. TEW, JR.

23. DATE

Month: 09 Year: 19 66

WELL NUMBER M628		BY Thomas-Brown			DATE 1-18-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 0945
41	17	34	17	40	100	1000

REMARKS By meter 50 gpm @ 40 psi
By GPM 4" @ 40 psi

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

Bldg M 628

1 - Crane Deming Model M6 Vertical Turbine Pump

7.5HP 1800 RPM, 208 Volt, 3 Phase US Motor, VHS,WP1

Model SD44-10 Discharge Head with packing type seal, 6" companion flange discharge.

50' - 4" pump column with 3/4" drive shaft, water lubricated bearings, galvanized column.

10' - 4" suction pipe, galvanized.

4" bronze suction strainer.

1/2" steel foundation plate, 17" square.

Conditions of Service 130 GPM @ 140' TDH

83% Eff. at design point, 5.54 BHP

OFFICE OF THE
OFFICER IN CHARGE OF CONSTRUCTION
CAMP LEJEUNE, NORTH CAROLINA

APPROVED

SUBJECT TO CONTRACT REQUIREMENTS

CONTRACT N62470-83-C-5842

DATE 10/19/83

P. E. CARLSON
CEC, USN
Officer in Charge
of Construction

CRANE - DEMING PUMPS
CRANE CO.
SALEM, OHIO, U.S.A.

TS CATALOG - SECTION C - 1750 RPM
VERTICAL TURBINE PUMP CURVES
PERFORMANCE PER STAGE

SIZE M6 — **SINGLE STAGE PERFORMANCE** — **1770 R.P.M.**

EFFICIENCY CHANGE:

4	STAGE DEDUCT	0	POINTS
3	STAGE DEDUCT	1	POINTS
2	STAGE DEDUCT	3	POINTS
1	STAGE DEDUCT	6	POINTS

ENAMELED BOWLS

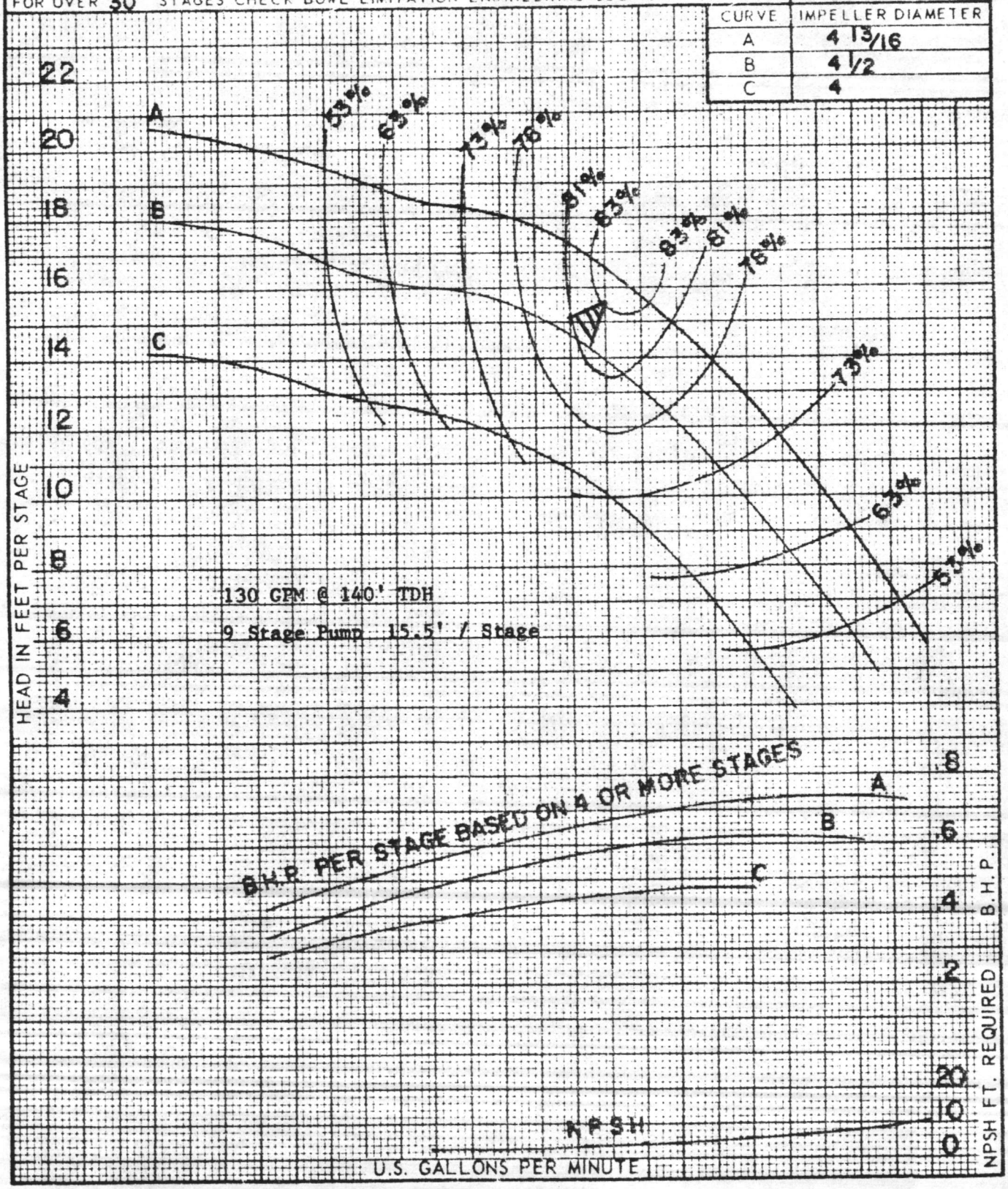
DIMENSIONS	FIG. 4700	FIG. 4750
BOWL DIAMETER	5 3/4	5 3/4
IMPELLER SHAFT DIA.	3/4	3/4
LENGTH FIRST STAGE	17 1/8	20 1/8
ADDITIONAL STAGE	6 1/2	6 1/2
THRUST FACTOR =	3.9	3.9

SUCTION - I.D. PIPE SIZE 3 OR 4" SIZE COLUMN ADAPTER 3 " " OR 4 "

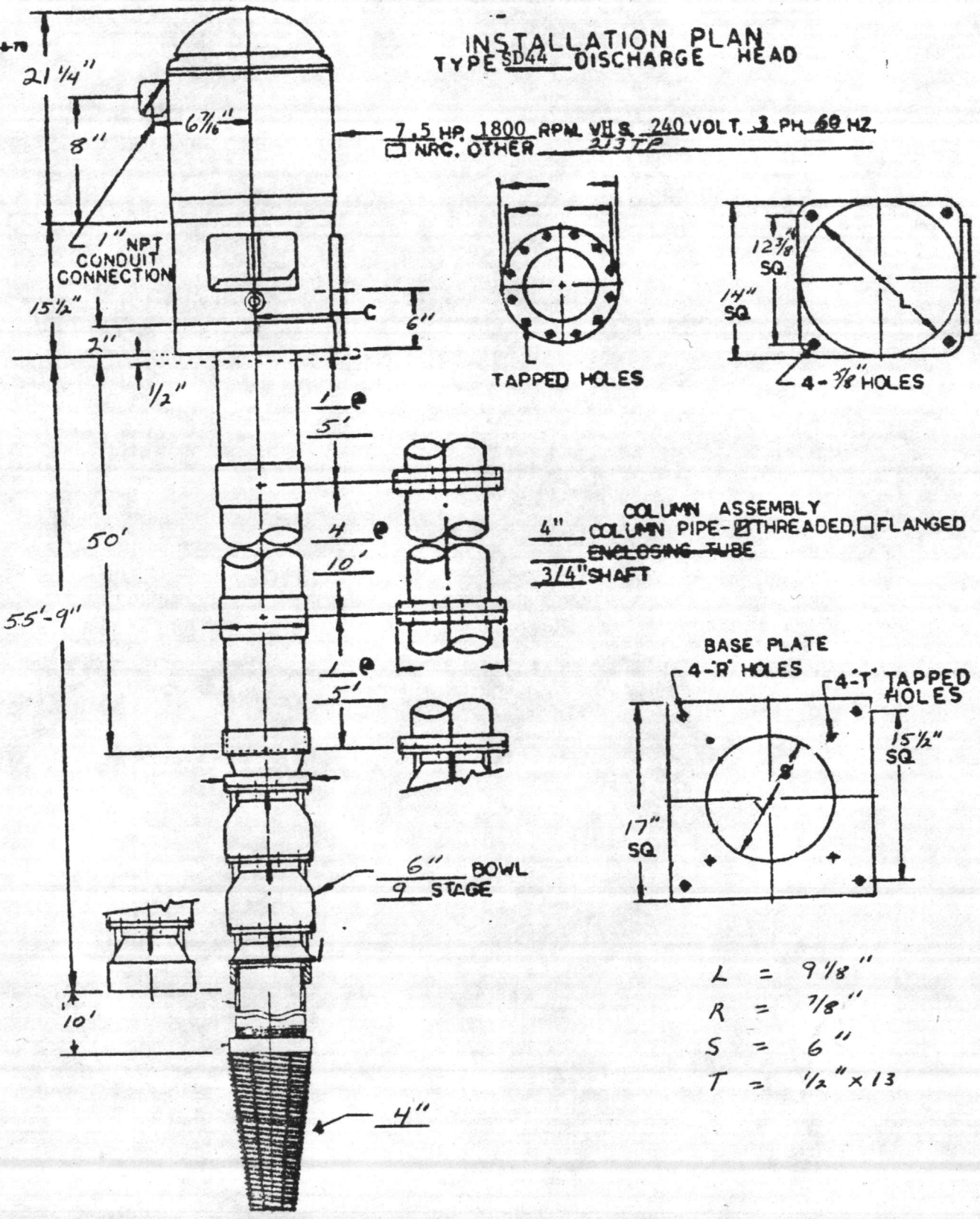
FOR OVER 30 STAGES CHECK BOWL LIMITATION ENGINEERING SECTION

SEMI-ENC IMPELLER NO 22750

CURVE	IMPELLER DIAMETER
A	4 13/16
B	4 1/2
C	4



INSTALLATION PLAN
TYPE SD44 DISCHARGE HEAD

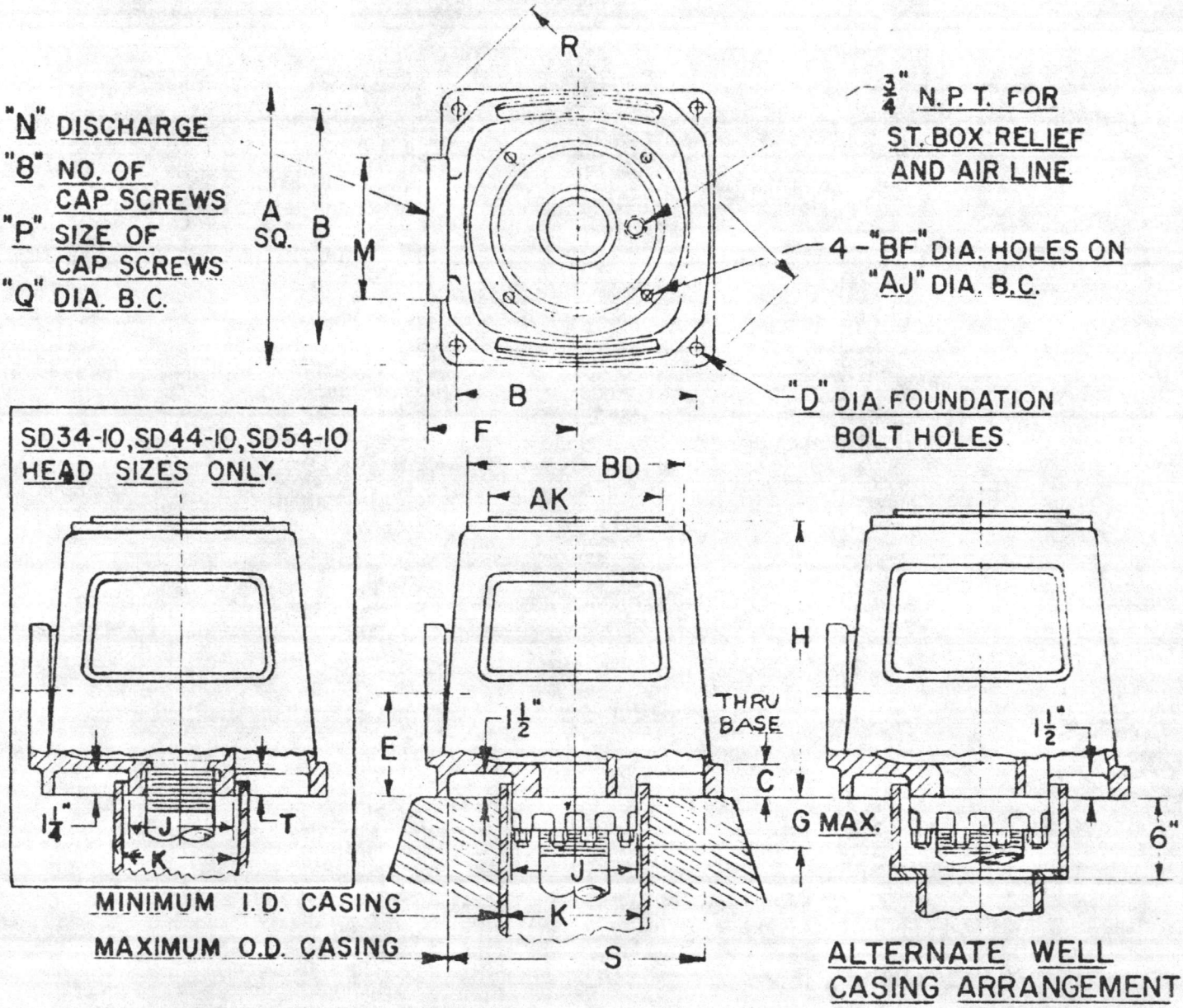


L = 9 1/8"
R = 7/8"
S = 6"
T = 1/2" x 13

DIMENSIONS ARE APPROXIMATE USE ONLY WHEN CERTIFIED

CUSTOMER East Coast Construction Co.	ITEM NO. Bldg. M628	G.P.M. 130
LOCATION Camp Lejuene, N. C.	QUOTE NO.	T.D.H. 140'
SPEC NO.	PUMP NO. M6	R.P.M. 1800
FOR APPROVAL X CERTIFIED	DATE 9/28/83	B.H.P. 7.5

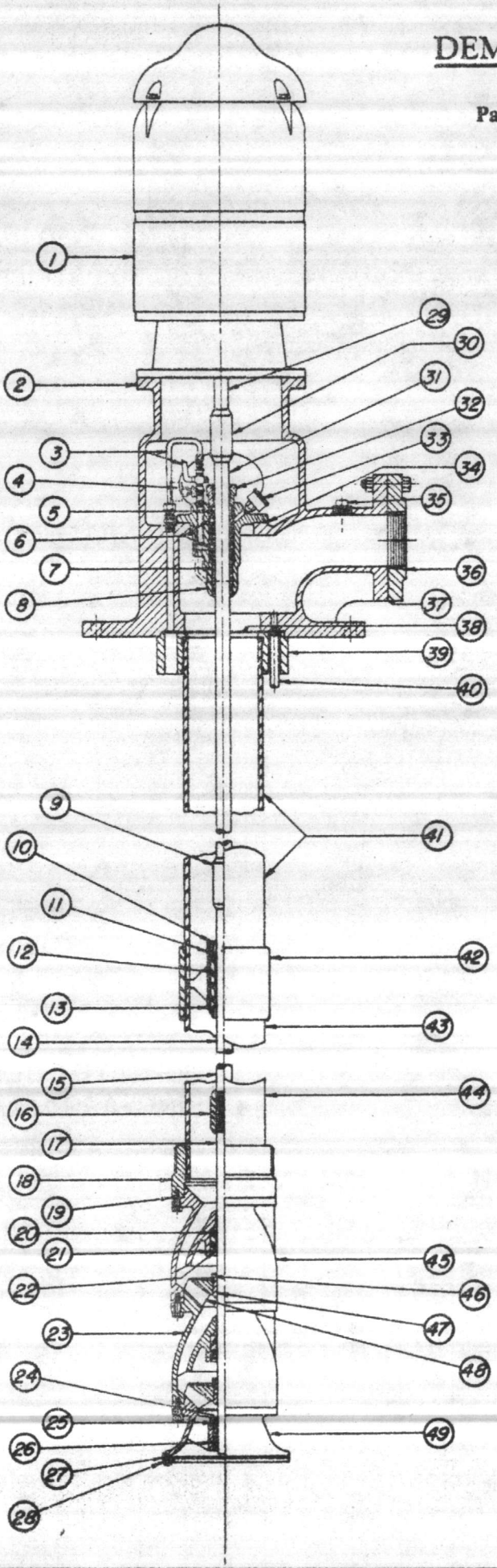
DIMENSIONS OF TYPE SD DISCHARGE HEADS



HEAD SIZE	SYMBOL	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	BF	AJ	AK	BD	T
SD34-10	34027	14	12 3/8	2	5/8	6	7 1/2	0	15 1/2	5 5/8	6	9	4	5/8	7 1/2	19 1/8	12 3/4	7/16	9 1/8	8 1/4	10	1 3/4
SD44-10	34028									5 5/8	6											1 3/4
SD54-10	34029									6 1/2	7											1 5/8
SD66-12	33715	17	14 1/2	2	7/8	6 1/2	9	3 3/4	15 1/2	9 7/8	10	11	6	3/4	9 1/2	23	15	7/16	9 1/8	8 1/4	12	
SD88-12	33716	17	14 1/2	2 1/8	7/8	7 3/4	9	4 1/4	16 1/2	12 3/4	13 1/4	13 1/2	8	3/4	11 3/4	23	15	7/16	9 1/8	8 1/4	12	
SD88-16 1/2	33717	20	17 11/16	2 1/8	7/8	7 3/4	10 1/2	4 1/4	16 1/2	12 3/4	13 1/4	13 1/2	8	3/4	11 3/4	27 3/8	18	11/16	14 3/4	13 1/2	16 1/2	

DEMING VERTICAL TURBINE PUMPS

Parts List No. 57G - Fig. 4700G Pumps With Stuffing Box



Item No.	Name of Part
1.	Vertical Hollowshaft Motor
2.	Discharge Head
3.	Stuffing Box Relief Assembly
4.	Grease Cup (To St. Box Bearing)
5.	Stuffing Box Packing
6.	Lantern Rings
7.	Stuffing Box Bearing
8.	Stuffing Box
9.	Shaft Coupling
10.	Bearing Retaining Cup
11.	Rivets
12.	Column Bearing
13.	Bearing Housing
14.	Intermediate Shaft
15.	Bottom Shaft
16.	Impeller Shaft Coupling
17.	Impeller Shaft
18.	Column Adapter
19.	Bowl Gaskets
20.	Bowl Bearing
21.	Snap Ring
22.	Cover Plate
23.	Intermediate Bowl
24.	Suction Bowl Cover Plate
25.	Suction Bowl Snap Ring
26.	Suction Bowl Bearing
27.	Wire Mesh Strainer
28.	Strainer Clamping Ring
29.	Motor Shaft
30.	Motor Shaft Coupling
31.	Stuffing Box Shaft
32.	Stuffing Box Gland (Split)
33.	Grease Cup (To Upper Lantern Ring)
34.	Stuffing Box Gasket
35.	Pipe Plug
36.	Discharge Flange
37.	Discharge Flange Gasket
38.	Top Column Flange Gasket
39.	Top Column Flange
40.	By-Pass Nipple With Orifice
41.	Top Column
42.	Column Coupling
43.	Intermediate Column
44.	Bottom Column
45.	Top Bowl
46.	Impeller Nut
47.	Impeller Sleeve
48.	Impeller
49.	Suction Bowl

NOTE - Specify pump serial number when ordering parts. This number will be found on the nameplate attached to the discharge head.

CUSTOMER NAME			
CUST. ORD. NO.			
U.S. ORD. NO.			
MARK:			
QTY. HP	FRAME	PHASE	
HERTZ R.P.M.	VOLTS		

Vertical Motors

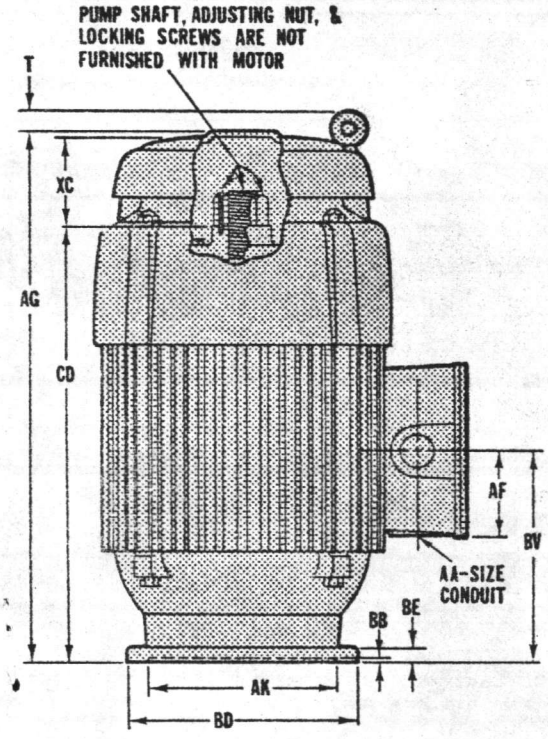
Section 505
Page 1

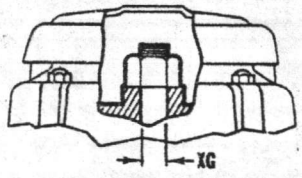
WPI-TYPE AU
FRAMES 182 THRU 256TPA

HIGH THRUST VERTICAL HOLLOSHAFT
NEMA P BASE

DIMENSIONS

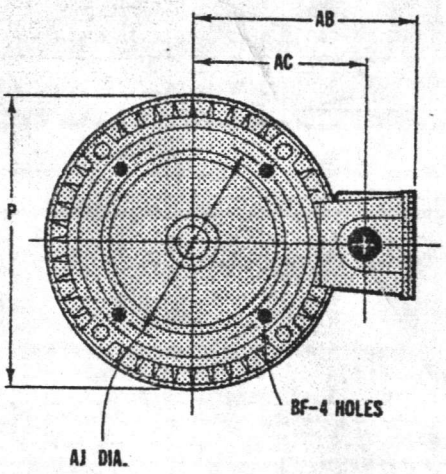
FEATURES:





HOLLOW SHAFT BORE

Conduit opening may be located in steps of 90°. Standard as shown with conduit down.



ALL DIMENSIONS ARE IN INCHES

FRAME	P*	T	AA	AB	AC	AF	AG	AJ DIA.	AK −.003	BB	BD	BE	BF TAP SIZE	BV	CD	XC	XG	UNIMOUNT BRKT. P/N
182TP 184TP	12-7/8	1-1/2	1	6-5/16	5-3/8	2-5/8	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
213TP 215TP	12-7/8	1-1/2	1	7-9/16	6-7/16	3-5/16	21-1/4	9-1/8	8-1/4	3/16	10	3/4	7/16	8	17-9/16	3-11/32	1-1/16	682186
254TP 256TP	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	10	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347107
254TPH 256TPH	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	9-1/8	8-1/4	1/4	12	15/16	7/16	11-7/16	23-7/16	3-3/8	1-1/4	347109
254TPA 256TPA	14	–	1-1/4	8-15/16	7-3/4	3-19/32	26-13/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	11-7/16	23-7/16	3-3/8	1-1/4	347111
284TP 286TP	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	10	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347107
284TPA 286TPA	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	9-1/8	8-1/4	1/4	12	15/16	7/16	12-1/4	24-13/16	3-3/8	1-1/4	347109
284TPH 286TPH	14	–	1-1/2	9-3/16	7-5/8	4-7/16	28-3/16	14-3/4	13-1/2	1/4	16-1/2	15/16	11/16	12-1/4	24-13/16	3-3/8	1-1/4	347111

All rough casting dimensions may vary by 1/4" due to casting variations.

* Largest Motor Diameter

TOLERANCES: "AK" Dimension: +.003, Face Runout: .004 F.I.R.
Permissible Eccentricity of Mounting Rabbet: .004 F.I.R.

All tapped holes are Unified National Course, right hand thread.

U. S. ELECTRICAL MOTORS DIVISION
EMERSON ELECTRIC CO.
EMERSON®
PRINTED IN U.S.A.

Effective: MAY 18, 1980
Supersedes: FEBRUARY 3, 1980

If properly endorsed this print is correct for frame & assembly positions indicated.
By_____ Date_____

3 PHASE 60 CYCLES
230,460,575 VOLTS
40°C. AMBIENT-C.RISE WP-1

HOLLOSHAFT & SOLIDSHAFT MOTORS
OPERATING CHARACTERISTICS

ENGINEERING DATA

HP	RPM		% EFFICIENCY			% POWER FACTOR			CURRENT IN AMPHERES 460 VOLTS		TORQUE AT FULL VOLTAGE			NEMA CODE
	NO LOAD	FULL LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	3/4 LOAD	1/2 LOAD	FULL LOAD	LOCKED (STARTING	FULL LOAD TORQUE AT FULL LOAD SPEED (LB.FT.)	LOCKED (STARTING) PERCENT OF FULL LOAD	PULL OUT (BREAKDOWN) PERCENT OF FULL LOAD	
2	900	860	75.0	74.5	70.0	68.0	60.0	47.5	3.9	18.0	12.2	130	210	J
	1800	1720	80.0	79.5	75.5	81.0	72.5	59.5	4.4	32.0	9.2	215	250	K
3	1200	1155	78.5	78.0	75.0	69.0	61.0	49.0	5.4	23.0	13.6	155	230	G
	900	860	78.5	79.0	75.5	67.5	59.0	46.0	5.8	30.5	18.3	130	205	K
	3600	3480	81.0	82.0	80.5	86.0	80.5	69.5	6.9	45.0	7.5	150	215	H
5	1800	1725	81.5	82.0	79.5	84.0	76.5	63.5	7.0	47.0	15.2	185	225	J
	1200	1160	81.0	81.0	78.0	71.0	62.5	50.0	8.5	40.0	22.6	150	215	G
	900	875	80.5	80.0	77.0	72.0	64.0	51.0	8.2	44.0	30.0	130	205	H
	3600	3460	84.0	85.0	84.0	88.0	84.0	75.5	9.8	63.0	11.4	140	200	H
7-1/2	1800	1740	83.5	84.0	82.5	84.0	80.0	71.5	10.4	63.5	22.6	175	215	H
	1200	1170	83.0	83.5	81.0	80.5	74.0	61.5	10.5	63.0	33.7	150	205	H
	900	875	80.5	80.5	77.5	71.5	63.0	50.5	12.5	63.0	45.0	125	200	K
	3600	3500	83.5	84.0	83.0	87.0	84.0	76.5	13.4	79.0	15.0	135	200	H
10	1800	1740	86.5	87.0	85.5	81.0	75.0	64.0	13.3	82.0	30.2	165	200	H
	1200	1165	82.5	82.5	80.0	78.5	70.0	57.0	14.0	80.0	45.1	150	200	H
	900	875	86.0	86.5	84.5	72.0	65.0	53.0	15.5	81.0	60.0	125	200	H
	3600	3485	85.0	86.5	86.0	88.5	87.0	82.0	19.5	112.0	22.6	130	200	G
15	1800	1765	85.5	86.5	85.0	81.0	73.5	61.5	20.5	112.0	44.5	160	200	G
	1200	1160	87.5	89.0	89.0	85.0	82.0	74.5	19.4	115.0	68.0	140	200	G
	900	870	86.0	87.5	86.5	75.5	69.5	58.5	22.5	116.0	90.6	125	200	G
	3600	3515	85.5	87.0	87.0	89.0	87.5	82.5	25.4	145.0	29.9	130	200	G
20	1800	1765	88.0	89.0	89.0	85.0	82.5	75.0	26.0	143.0	59.5	150	200	G
	1200	1160	88.0	89.5	89.0	85.0	81.5	74.0	25.8	145.0	90.5	135	200	G
	900	880	85.0	86.5	86.0	74.5	69.0	57.0	30.5	140.0	120.0	125	200	G
	3600	3510	89.0	90.0	89.0	88.5	87.0	81.0	30.4	172.0	37.4	130	200	F
25	1800	1755	88.5	90.0	89.5	83.0	78.5	68.5	32.5	180.0	74.8	150	200	G
	1200	1180	85.5	87.0	86.5	84.0	79.0	68.0	33.5	193.0	111.5	135	200	G
	900	880	86.0	88.0	87.5	77.0	72.0	61.0	36.5	175.0	150.0	125	200	G
	3600	3510	89.5	90.5	89.5	87.5	85.0	78.0	37.0	218.0	44.9	130	200	G
30	1800	1755	89.0	90.0	89.5	80.5	75.0	63.5	40.0	217.0	89.8	150	200	G
	1200	1175	86.5	88.5	89.5	86.0	84.0	78.0	38.5	215.0	134.0	135	200	G
	900	880	88.0	89.5	89.5	75.0	70.0	59.5	43.5	205.0	179.0	125	200	G
	3600	3515	90.0	91.0	90.0	86.5	83.0	75.0	48.5	310.0	59.8	125	200	G
40	1800	1770	88.0	89.5	89.0	86.0	82.0	73.0	51.0	292.5	119.0	140	200	G
	1200	1175	87.5	89.5	90.0	84.5	81.0	72.0	52.0	292.0	179.0	135	200	G
	900	875	88.0	90.0	90.0	76.0	71.5	61.0	57.5	280.0	240.0	125	200	F
	3600	3540	88.0	89.5	89.0	87.0	84.5	78.0	63.0	350.0	74.2	120	200	G
50	1800	1765	89.0	90.5	90.5	84.5	81.0	72.0	64.0	339.5	150.0	140	200	G
	1200	1170	88.0	90.5	91.0	85.0	83.0	76.5	64.0	370.0	224.5	135	200	G
	900	875	88.5	90.0	90.0	80.0	76.0	67.0	68.0	325.0	300.0	125	200	G
	3600	3540	89.5	91.0	91.0	89.0	89.0	86.0	72.5	410.0	89.0	120	200	G
60	1800	1770	90.0	91.0	91.0	86.0	83.0	75.0	75.0	454.5	178.0	140	200	G
	1200	1175	88.5	90.0	89.5	85.5	82.0	72.5	76.0	460.0	268.0	135	200	G
	900	875	89.0	90.5	90.5	80.5	77.0	68.0	80.5	410.0	360.0	125	200	G

See Page 2 for higher horsepowers and notes.

→ Utilities For Info pr

Fred Cone

copy to Fred Cone 2/15/84

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO.	TRANSMITTAL NO.	DATE
83-C-5842	6	2/15/84

FROM CONTRACTOR: EAST COAST CONSTRUCTION CO. INC

TO: ROICC

PROJECT TITLE AND LOCATION: Repair water wells Bldg 610 & M-628 MCB Camp Lejeune

CONTRACTOR USE ONLY

*List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☐ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-3.5	24 hour Pumping Test Well No M-628 Montford Point	6		

CONTRACTOR'S COMMENTS

24 hour Pumping Test Well # M-628

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE *(Signature)*

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

$37,500.

Ray Hunt inspector

(Com McKenney)

RECEIVED FEB 21 12 PM '84 ROICC JACKSONVILLE

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson
Well Owner: U. S. Marine Corps. Address:
Pumped Well No.: M-628 Location: County:
Observation Well Locations:
Airline Lengths: Pumped Well 50-60-70-72 Observation Wells
Remarks:

Pumping rate measured with: 2½ x 4 orfice Water levels measured with: Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
2-1-84	9:45 AM						
10:00	5 Min.	Started				14' 7"	
10:05	5	4½	50			23'11"	
10:10	10	"	50			25'	
10:15	15	"	50			25' 4"	
10:20	20	"	50			25' 4"	
10:25	25	"	50			25' 8"	
10:30	30	"	50			25' 9"	
10:35	35	"	50			25'10"	
10:40	40	"	50			26' 2"	
10:45	45	"	50			26' 2"	
10:50	50	"	50			26' 2"	
10:55	55	"	50			26' 2"	
11:00	60	"	50			26' 2"	
11:05	65	"	50			26' 2"	
11:10	70	"	50			26' 2"	
11:15	75	"	50			26' 2"	
11:20	80	"	50			26' 2"	
11:25	85	"	50			26' 2"	
11:30	90	"	50			26' 2"	
11:35	95	"	50			26' 2"	
11:40	100	"	50			26' 2"	
11:45	105	"	50			26' 2"	
11:50	110	"	50			26' 2"	
11:55	115	"	50			26' 2"	
12:00	120	"	50			26' 2"	
12:10	130	6½	60			28' 8"	
12:20	140	"	60			28' 8"	
12:30	150	"	60			28' 8"	
12:40	160	"	60			28' 8"	
12:50	170	"	60			29' 5"	
1:00	180	"	60			29' 5"	
1:10	190	8½	70			31'	
1:20	200	"	70			31'	
1:30	210	"	70			32'	
1:40	220	"	70			32'	
1:50	230	"	70			32'	
2:00	240	"	70			32'	
3:00	300	9	72			33'	
4:00	360	9	72			33'	
5:00	420	9	72			38'	

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson
Well Owner: U. S. Marine Corp. Address:
Pumped Well No.: M-628 Location: County:
Observation Well Locations:
Airline Lengths: Pumped Well 50-60-70-72 Observation Wells
Remarks:

Pumping rate measured with: 2½ x 4 orfice Water levels measured with: Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
2-1-84							
6:00	480	9	72				
7:00	540	"	72			38'	
8:00	600	"	72			38'	
9:00	660	"	72			38'	
10:00	720	"	72			38'	
11:00	780	"	72			38'	
12:00	840	"	72			38'	
1:00	900	"	72			38'	
2:00	960	"	72			38'	
3:00	1020	"	72			38'	
4:00	1080	"	72			38'	
5:00	1140	"	72			38'	
6:00	1200	"	72			38'	
7:00	1260	"	72			38'	
8:00	1320	"	72			38'	
9:00	1380	"	72			38'	
10:00	1440	"	72			38'	
			RECOVERY				
10:05	5					33'	
10:10	10					31'	
10:15	15					15' 4½"	
10:20	20					15' 4½"	
10:25	25					15' 6"	
10:30	30					15'	
10:35	35					15'	
10:40	40					15'	
10:45	45					14' 6"	
10:50	50					14' 7"	
10:55	55					"	
11:00	60					"	
11:05	65					"	
11:10	70					"	
11:15	75					"	
11:20	80					"	
11:25	85					"	
11:30	90					"	
11:35	95					"	
11:40	100					"	
11:45	105					"	
11:50	110					"	

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson
Well Owner: U. S. Marine Corps. Address:
Pumped Well No.: M-628 Location: County:
Observation Well Locations:
Airline Lengths: Pumped Well 50-60-70-72 Observation Wells
Remarks:

Pumping rate measured with: 2½ x 4 orfice Water levels measured with: Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
11:55	115					14' 7"	
12:00	120					"	
			END RECOVERY				

CONTRACTOR'S SUBMITTAL TRANSMITTAL

LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO.	TRANSMITTAL NO.	DATE
83-C-5842	6	2/15/84

FROM CONTRACTOR: East Coast Construction Co. Inc

TO: ROICC

PROJECT TITLE AND LOCATION: Repair Water Wells Bldg 610 & M-628 MCB Camp Lejeune

CONTRACTOR USE ONLY	REVIEWER USE ONLY
*List only one specification division per form. List only one of the following categories on each transmittal form, and indicate which is being submitted ☐ Contractor Approved ☐ OICC Approval ☐ Deviation/Substitution For OICC Approval	**ACTION CODES A-Approved D-Disapproved AN-Approved as noted RA-Receipt acknowledged. C-Comments R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	15201-3.5	24 hour Pumping Test Well No M-628 Montford Point	6		

CONTRACTOR'S COMMENTS

24 hour Pumping Test Well # M-628

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC

CONTRACTOR REPRESENTATIVE *(Signature)*

DATE RECEIVED BY REVIEWER	FROM (Reviewer)	TO

☐ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

COPIES TO: ROICC (2) LANTDIV (1) A-E (1)	DATE	SIGNATURE

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson

Well Owner: U. S. Marine Corps. Address:

Pumped Well No.: M-628 Location: County:

Observation Well Locations:

Airline Lengths: Pumped Well 50-60-70-72 Observation Wells

Remarks:

Pumping rate measured with: 2½ x 4 orfice Water levels measured with: Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
2-1-84	9:45 AM						
10:00	5 Min.	Started				14' 7"	
10:05	5	4½	50			23'11"	
10:10	10	"	50			25'	
10:15	15	"	50			25' 4"	
10:20	20	"	50			25' 4"	
10:25	25	"	50			25' 8"	
10:30	30	"	50			25' 9"	
10:35	35	"	50			25'10"	
10:40	40	"	50			26' 2"	
10:45	45	"	50			26' 2"	
10:50	50	"	50			26' 2"	
10:55	55	"	50			26' 2"	
11:00	60	"	50			26' 2"	
11:05	65	"	50			26' 2"	
11:10	70	"	50			26' 2"	
11:15	75	"	50			26' 2"	
11:20	80	"	50			26' 2"	
11:25	85	"	50			26' 2"	
11:30	90	"	50			26' 2"	
11:35	95	"	50			26' 2"	
11:40	100	"	50			26' 2"	
11:45	105	"	50			26' 2"	
11:50	110	"	50			26' 2"	
11:55	115	"	50			26' 2"	
12:00	120	"	50			26' 2"	
12:10	130	6½	60			28' 8"	
12:20	140	"	60			28' 8"	
12:30	150	"	60			28' 8"	
12:40	160	"	60			28' 8"	
12:50	170	"	60			29' 5"	
1:00	180	"	60			29' 5"	
1:10	190	8½	70			31'	
1:20	200	"	70			31'	
1:30	210	"	70			32'	
1:40	220	"	70			32'	
1:50	230	"	70			32'	
2:00	240	"	70			32'	
3:00	300	9	72			33'	
4:00	360	9	72			33'	
5:00	420	9	72			38'	

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson
Well Owner: U. S. Marine Corp. Address:
Pumped Well No.: M-628 Location: County:
Observation Well Locations:
Airline Lengths: Pumped Well 50-60-70-72 Observation Wells
Remarks:

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Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
2-1-84							
6:00	480	9	72				
7:00	540	"	72				
8:00	600	"	72			38'	
9:00	660	"	72			38'	
10:00	720	"	72			38'	
11:00	780	"	72			38'	
12:00	840	"	72			38'	
1:00	900	"	72			38'	
2:00	960	"	72			38'	
3:00	1020	"	72			38'	
4:00	1080	"	72			38'	
5:00	1140	"	72			38'	
6:00	1200	"	72			38'	
7:00	1260	"	72			38'	
8:00	1320	"	72			38'	
9:00	1380	"	72			38'	
10:00	1440	"	72			38'	
			RECOVERY				
10:05	5					33'	
10:10	10					31'	
10:15	15					15' 4½"	
10:20	20					15' 4½"	
10:25	25					15' 6"	
10:30	30					15'	
10:35	35					15'	
10:40	40					15'	
10:45	45					14' 6"	
10:50	50					14' 7"	
10:55	55					"	
11:00	60					"	
11:05	65					"	
11:10	70					"	
11:15	75					"	
11:20	80					"	
11:25	85					"	
11:30	90					"	
11:35	95					"	
11:40	100					"	
11:45	105					"	
11:50	110					"	

PUMPING TEST DATA

Test conducted by: Roger Thomas & Ronald Patterson
Well Owner: U. S. Marine Corps. Address:
Pumped Well No.: M-628 Location: County:
Observation Well Locations:
Airline Lengths: Pumped Well 50-60-70-72 Observation Wells
Remarks:

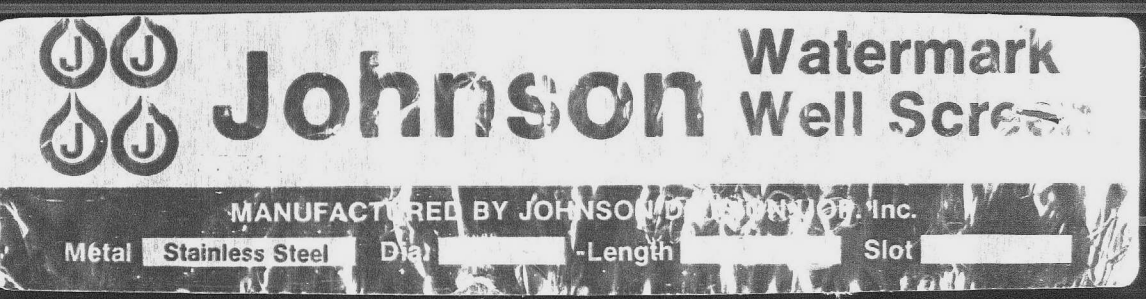
Pumping rate measured with: 2½ x 4 orfice Water levels measured with: Tape

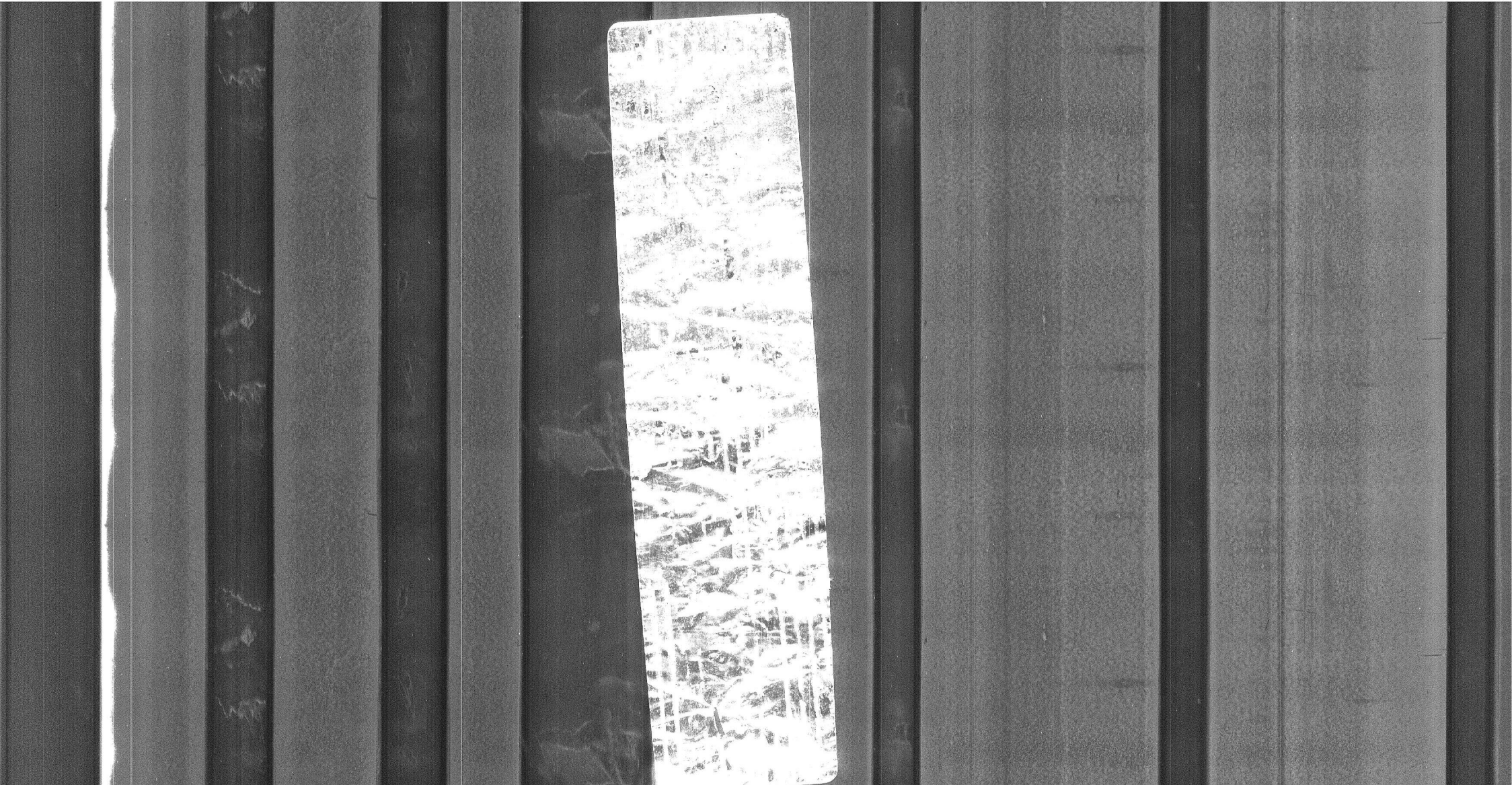
Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks
11:55	115					14' 7"	
12:00	120					"	
			END RECOVERY				

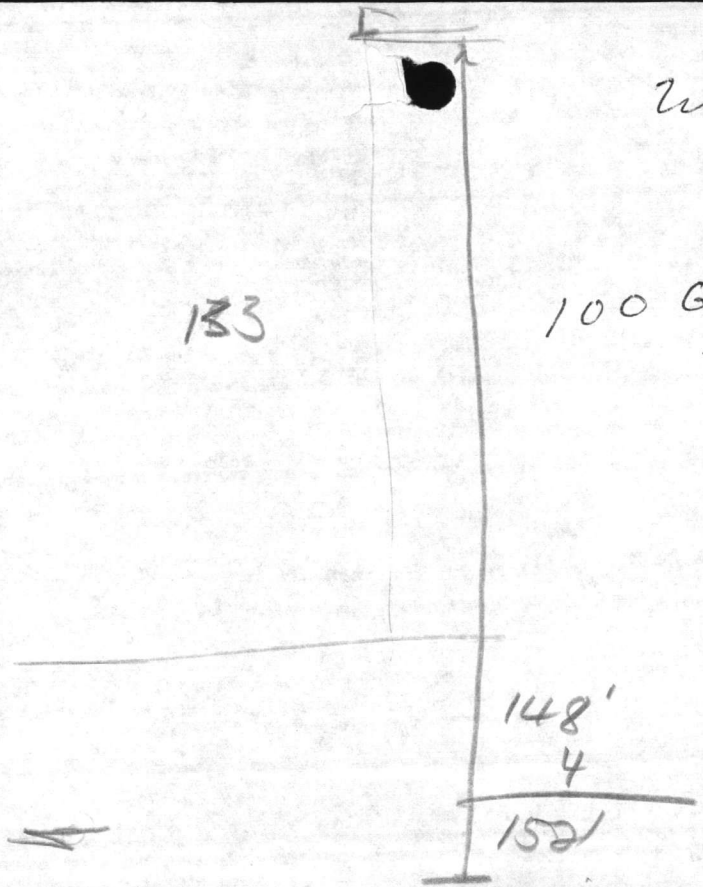
Well M-628 10-27-82

T. V. inspection of well
~~and~~ show screens to be worn
considerable allowing sand and
gravel to enter well.
Screen location: 43 FT TO 66 FT


Johnson
Watermark
MANUFACTURED BY JOHNSON DRILLING CO., Inc.
Metal Stainless Steel
Dia
-Length
Slot



DATE	WELL #	LINE PRESS	STATIC	PUMPING LEVEL	D.D.	G.P.M.	S.L.
7-6-67	Z-5	46		15.5		75	
7-6-67	Z-5	44		14		79	
7-6-67	Z-5	(42)		12.5		82	
7-6-67	Z-5	40		11		85	
7-6-67	Z-5	38		10		88	
			40'				



well [redacted]-5

7-6-62

100 G.P.M. at 150 FT. H.D.

total H.D.

133

21 +

148'

4

152'

-150

Montford Point well Z-5 Bldg M-628
Depth -
Casing -
~~Pump~~ pump size - motor H.P.
setting -
GPM - 130 original
TDH -
Pumping level -
static -
D.D. -
airline -

FILE FOLDER

DESCRIPTION ON TAB:

M 6029

☑ **Outside/inside of actual folder did not contain hand written information**

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

m 629

5 10 FT JOINTS
1 5 FT JOINT

FAIRBANKS MORSE
SIZE 7M INCH
FIGURE 7000
STAGE 4
GPM 150
TOTAL HEAD 80.23 FT
RPM 1740
IMP DIA 4.76
SERIAL K3A2-079538-1

COLT INDUSTRIES
PUMP DIVISON
KANSAS CITY
KANSAS 66110

M 629
10-15-85

A/L	S/L	P/L Psi	D/D	GPM	Time
50	00	34 45	14	115	15

Capillary

WELL NUMBER M 629		BY Thomas - BROWN			DATE 1-15-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1430
46	20	32	12	46	100	1440
		36	16	42	115	1450

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

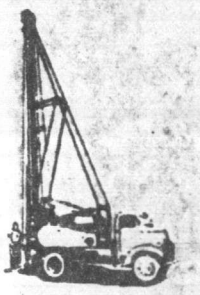
CAROLINA WELL AND PUMP COMPANY, INC.

Complete Well and Pump Service

P. O. BOX 1085 TELEPHONE 776-3415

SANFORD, NORTH CAROLINA 27330

N.W.W.A.
N.C.W.W.A



M-627

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Drillers Log
Montford Pruett
Ralph Harrison

0 - 5	Top soil brown sand
5 - 15	Tan sand
15 - 43	White sand
43 - 45	Sand and light gray clay
45 - 52	Sand
52 - 65	White rock
65 - 70	Sand and shell
70 - 75	Gray sand
75 - 80	Gray clay
80 - 85	Shell and clay
85 - 90	Gray shell
90 - 110	Gray sand shell
110 - 140	Gray sand
140 - 185	Gray clay


RECEIVED
19 FEB 1976
MARINE CORPS BASE
CAMP LEJEUNE, N. C.

EAST COAST CONSTRUCTION CO. INC.
P O BOX 5004
JACKSONVILLE, N. C. 28540

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES
CHEMICAL ANALYSIS OF WATER
Division of Health Services, Laboratory Section
P. O. Box 28047, Raleigh, North Carolina 27611

Complete all Items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supply: CAMP LEJEUNE MARINE BASE

Address: JACKSONVILLE, N. C.

MONTFORD POINT Well No. TEST WELL M-627

County: ONSLOW

Report to: WORTH F. PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

Collected by: RALPH W. HARRISON

Date Collected: 1/28/76 Time: 6:00 p.m.

Remarks:

84' - 99'

SAMPLE NO. 2

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
[ ] 2-House Tap
[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
[ ] 2-Treated

Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
[ ] 2-Fluoridated
[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (18 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	3	units	Ph	(00.0)	7.9

Results in Parts per Million

Alkalinity $CaCO_3$	(000)	235		Fluoride	(0.00)	0.16
Total Hardness	(000)	217		Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.46		Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	< 0.03		Chromium^{+6}	(*0.00)	< 0.05
Turbidity SiO_2	(000)	3.5		Copper	(*00.00)	< 0.05
Acidity $CaCO_3$	(000)	8		Lead	(*0.00)	< 0.05
Chloride	(000)	10		Zinc	(*00.00)	< 0.05
Sodium	(000)	19		Calcium		82.5
Potassium	(00.0)	3.6		Magnesium		.6

Date received Feb. 2, 1976 Date reported Feb. 4, 1976

05 52

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services, Laboratory Section

P. O. Box 28047, Raleigh, North Carolina 27611

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Complete all items above Heavy Line
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Address: JACKSONVILLE, N. C.

MONTFORD POINT Well No. TEST WELL M-627

County: ONSLOW

Report to: WORTH F. PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

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Date Collected: 1/28/76 Time: 6:00 p.m.

Remarks:

84' - 99'

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Results in Parts per Million

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Total Hardness	(000)	217		Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.46		Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	< 0.03		Chromium +6	(*0.00)	< 0.05
Turbidity SiO_2	(000)	3.5		Copper	(*00.00)	< 0.05
Acidity $CaCO_3$	(000)	8		Lead	(*0.00)	< 0.05
Chloride	(000)	10		Zinc	(*00.00)	< 0.05
Sodium	(000)	19		Calcium		82.5
Potassium	(00.0)	3.5		Magnesium		6

Feb. 2, 1976

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services, Laboratory Section

P. O. Box 28047, Raleigh, North Carolina 27611

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Complete all items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supply: CAMP LEJEUNE MARINE BASE

Address: JACKSONVILLE, N. C.

MONTFORD POINT Well No. TEST WELL M-627

County: ONSLOW

Report to: WORTH F. PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

Collected by: RALPH W. HARRISON

Date Collected: 1/28/76 Time: 6:00 p.m.

Remarks:

84' - 99'

SAMPLE NO. 2

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
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[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
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[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
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Type of Treatment:
[x] 0-None
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[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (18 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	3	units	Ph	(00.0)	7.9

Results in Parts per Million

Alkalinity $CaCO_3$	(000)	235	Fluoride	(0.00)	0.16
Total Hardness	(000)	217	Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.46	Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	< 0.03	Chromium^{+6}	(*0.00)	< 0.05
Turbidity SiO_2	(000)	3.5	Copper	(*00.00)	< 0.05
Acidity $CaCO_3$	(000)	8	Lead	(*0.00)	< 0.05
Chloride	(000)	10	Zinc	(*00.00)	< 0.05
Sodium	(000)	19	Calcium		82.5
Potassium	(00.0)	3.6	Magnesium		2.6

Date received Feb. 2, 1976 Date reported Feb 4, 1976

05752

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services, Laboratory Section
P. O. Box 28047, Raleigh, North Carolina 27611

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Complete all items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supply: CAMP LEJEUNE MARINE BASE

Address: JACKSONVILLE, N. C.

MONTFORD POINT Well No. TEST WELL ~~M-627~~ 629

County: ONSLOW

Report to: WORTH PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

Collected by: RALPH W. HARRISON

Date Collected: 1/27/76 Time: 9:00 pm

Remarks:

117' - 132'

SAMPLE #1

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
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Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
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[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (13 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

olor	(000)	18	units	Ph (00.0)	8.6

Results in Parts per Million

lkalinity $CaCO_3$	(000)	415		Fluoride (0.00)	0.59
Hardness	(000)	129		Arsenic (*0.00)	< 0.01
	(*00.00)	0.28		Cadmium (*0.00)	< 0.01
se	(*00.00)	< 0.03		Chromium^{+6} (*0.00)	< 0.05
idity SiO_2	(000)	10		Copper (*00.00)	< 0.05
ty $CaCO_3$	(000)	0		Lead (*0.00)	< 0.05
ride	(000)	27		Zinc (*00.00)	2.42
ium	(000)	145		Calcium	22.8
tassium	(00.0)	4.5		Magnesium	17.5

Date received: Feb. 2, 197- Reported: Feb. 4, 19-

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services, Laboratory Section

P. O. Box 28047, Raleigh, North Carolina 27611

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Complete all items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supply: CAMP LEJEUNE MARINE BASE

Address: JACKSONVILLE, N. C.

MONTFORD POINT Well No. TEST WELL M-627

County: ONSLOW

Report to: WORTH F. PICKARD

Address: BOX 1085

SANFORD, N. C. 27330

Collected by: RALPH W. HARRISON

Date Collected: 1/28/76 Time: 6:00 p.m.

Remarks:

84' - 99'

SAMPLE NO. 2

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
[ ] 2-House Tap
[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
[ ] 2-Treated

Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
[ ] 2-Fluoridated
[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (18 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	3	units	Ph	(00.0)	7.9

Results in Parts per Million

Alkalinity $CaCO_3$	(000)	235	Fluoride	(0.00)	0.16
Total Hardness	(000)	217	Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.46	Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	< 0.03	Chromium $^{+6}$	(*0.00)	< 0.05
Turbidity SiO_2	(000)	3.5	Copper	(*00.00)	< 0.05
Acidity $CaCO_3$	(000)	8	Lead	(*0.00)	< 0.05
Chloride	(000)	10	Zinc	(*00.00)	< 0.05
Sodium	(000)	19	Calcium		82.5
Potassium	(00.0)	3.6	Magnesium		2.5

Date received Feb. 2, 1976 Date reported Feb. 4, 1976

13752

Dimensions Model DWT (VIT-CT)

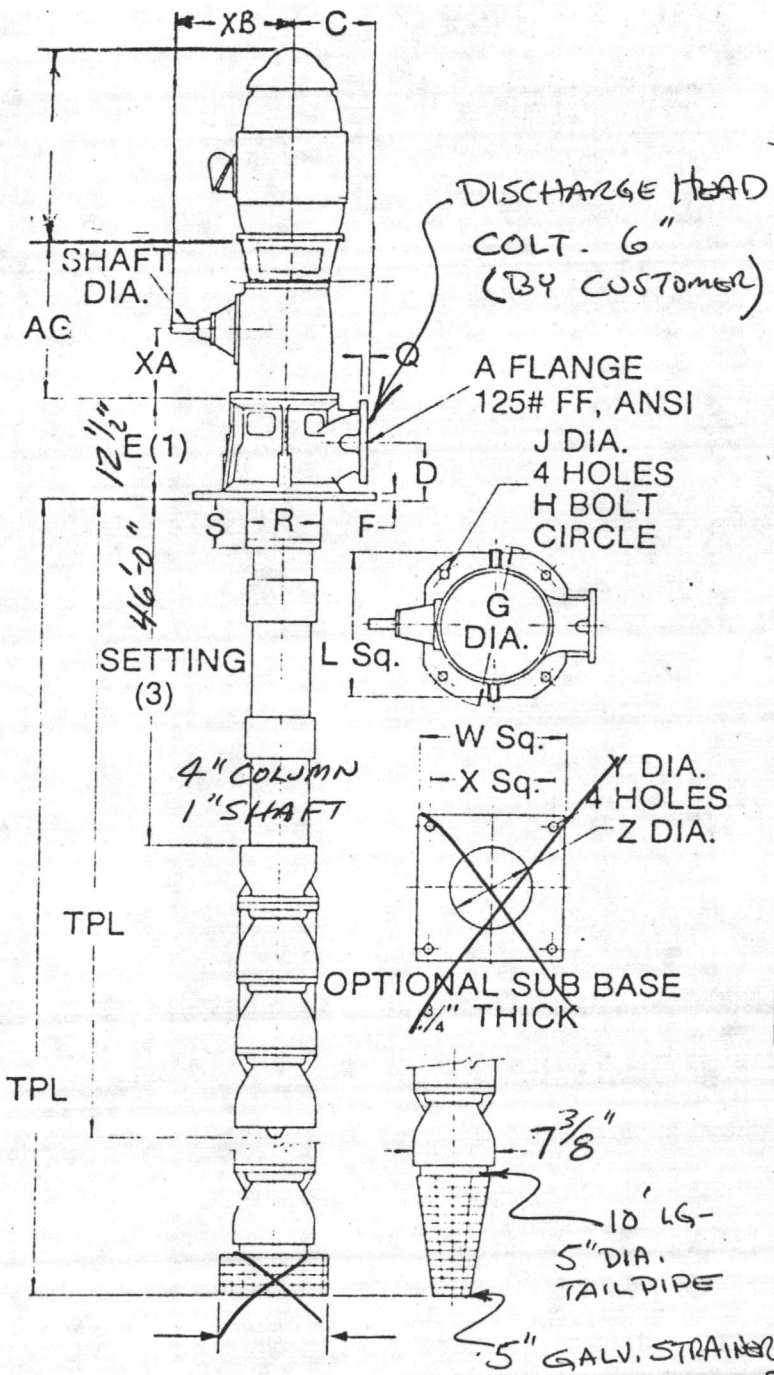
All Dimensions are in inches.

M-629

2A.10X

December 1, 1976

GOULDS PUMPS
VERTICAL PUMP DIVISION



Pump Data

Size 8JLO/5 STAGE (7⅜" O.D.)
WATER LUBRICATED
DWT DISCHARGE HEADS

Disch. HD & Col. Size A	Motor BD	Discharge Head C	D	E'	F	G	H	J	L	Q	R	S	Optional Sub Base W	X	Y	Z
4	10	9	5	10	⅝	15	14	⅞		¼	6⅝	5	18	16	⅝	12
6	12 16½	12	6¾	12½	⅞	23½	21¼	¾	20	⅞	8	4½	24	22	⅞	14
8	12 16½ 20	13	7¼	14½	1	23½	21¼	¾	20	1	10¼	5	24	22	⅞	16
10	16½ 20	14	9¼	16	1⅛	25	22¾	¾	21	1	12½	6	26	23	⅞	17
12	24½	16	10¾	20	1¼	32	30	⅞	28	1¼	14	4¼	34	31	1	24

[1]Hollowshaft driver, one piece headshaft, no coupling above stuff. box.
[2]Round base plate.
[3]Unless TPL is specified, column lengths will be std. uncut 5, 10 or 20 ft. sections resulting in settings equal to multiple of these lengths, plus approx. 1 ft. for the adjusting nipple (i.e., 26 ft., 51 ft., 151 ft. etc.).

GEAR DATA - BY CUSTOMER

Gear Mfgr. AMARILLO
Model C-20 VHS ✓ VSS ____
Rotation Fig. # ____ Gear Ratio ____
H.P. ____ Pumpshaft RPM ____
Thrust ____ BD ____

GEAR APPROXIMATE DIMENSIONS—INCHES						
Gear Mfgr.	Gear Model	AG	XA	XB	Shaft Dia.	Key

Motor Data - (BY CUSTOMER)

Motor Mfgr. G.E.
H.P. 7½ RPM 1745
Phase ____ Cycle ____ Volts ____
VHS ✓ VSS ____ Thrust ____
Frame 213TP10 Encl. ____ BD 10

Proposal No. ____
Customer USMC CAMP LEJEUNE
Project M67001-80-M-8911
Inquiry No. ____
Item No. WELL No M-629
Service ____

NEW BOWL ASSY., COLUMN, SHAFT, TAILPIPE, STRAINER, AND HEAD SHAFT BY GOULDS PUMPS.

Submitted by R.W.T.
Date 9-26-80

TENCARVA MACHINERY CO.
P. O. BOX 3407
WILMINGTON, N. C. 28406
PHONE (919) 799-8800

Form A 248-VPX
PRINTED IN USA

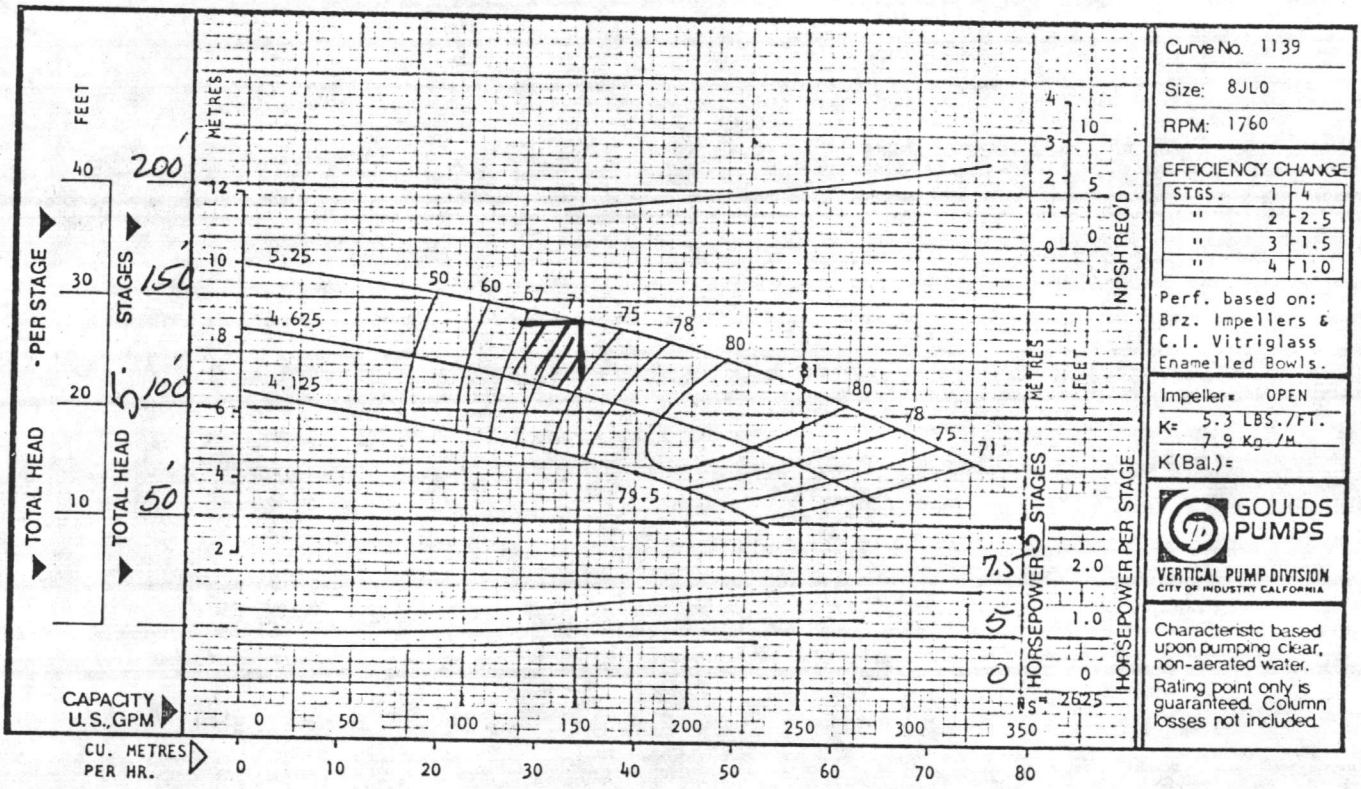
GOULDS PROPOSAL NO	GOULDS S.O. NO.	CUST. INQUIRY NO	CUSTOMER P.O. NO.	P.O. DATE	ITEM NO	PAGE
			M67001-80-M-8911	9/8/80		5C17

CUSTOMER: USMC - CAMP LEJEUNE, N.C.

PROJECT:

DATE: 5/25/77

SERVICE:	GPM CAPACITY:	FT. TDH:	% EFFICENCY:	RPM:	SUPERSEDES
WELL-M-629	150	140	72%	1745	12/1/76



Curve No. 1139
Size: 8JLO
RPM: 1760

EFFICIENCY CHANGE

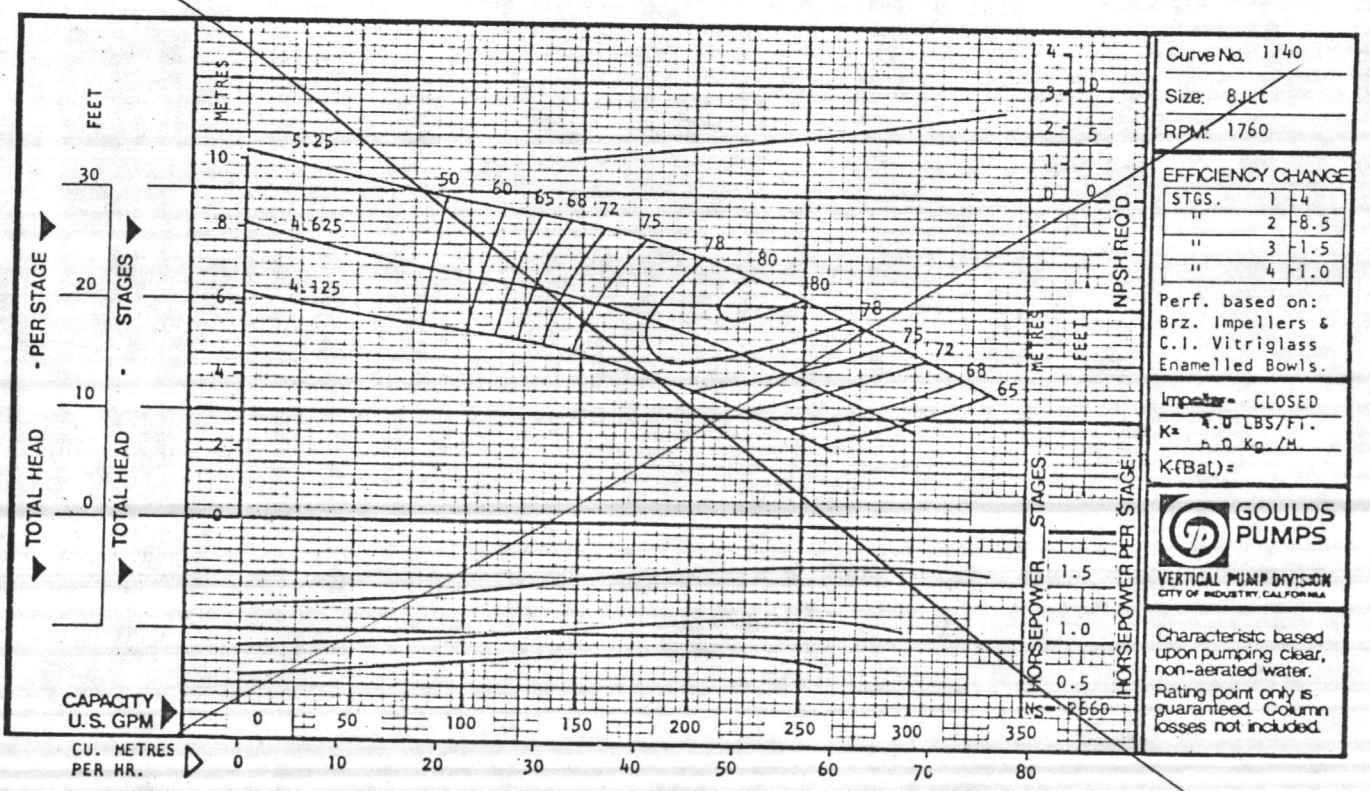
STGS.		
"	2	-2.5
"	3	-1.5
"	4	-1.0

Perf. based on: Brz. Impellers & C.I. Vitriglass Enamelled Bowls.

Impeller = OPEN
K= 5.3 LBS./FT.
7.9 Kg./M
K(Bal.)=

GOULDS PUMPS
VERTICAL PUMP DIVISION
CITY OF INDUSTRY CALIFORNIA

Characteristic based upon pumping clear, non-aerated water.
Rating point only is guaranteed. Column losses not included.



Curve No. 1140
Size: 8JLC
RPM: 1760

EFFICIENCY CHANGE

STGS.		
"	2	-8.5
"	3	-1.5
"	4	-1.0

Perf. based on: Brz. Impellers & C.I. Vitriglass Enamelled Bowls.

Impeller = CLOSED
K= 4.0 LBS/FT.
6.0 Kg./M
K(Bal.)=

GOULDS PUMPS
VERTICAL PUMP DIVISION
CITY OF INDUSTRY, CALIFORNIA

Characteristic based upon pumping clear, non-aerated water.
Rating point only is guaranteed. Column losses not included.

Field (Boards)

DEPARTMENT OF THE NAVY
RESIDENT OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
43-510:HH: mec
N62470-75-C-5109
23 February 1976

Henry
East Coast Construction Company, Inc.
Post Office Box 5004
Jacksonville, North Carolina 28540

Re: Contract N62470-75-C-5109, Replace Water Wells, Montford Point, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

We are returning * herewith ___ under separate cover, the following shop drawings or data sheets with action indicated.

No of Dwgs.	Dwg.No.	Description	Action
1 *	Sheet	JOHNSON-KECK, Electric Log, Test Well M-627 (Relocated)	
1	Sheet	CAROLINA WELL AND PUMP CO., INC., Drillers Log, Test Well M-627 (Relocated)	APPROVED*, subject to contract requirements
lea.	Sheets	N. C. DEPARTMENT OF HUMAN RESOURCES, Samples #1, #2 and #3, Chemical Analysis of Water, Test Well M-627 (Relocated)	

*It is recommended that the Contractor develop a production well at this location, including all three levels (63-78, 84-99 and 117-132). It is understood that on this basis, a delivery of 200 GPM may be expected. Please forward pumping test results and final water analysis when the well has been completed.

Copies:
Field (w/1 cy. encl.)
File (w/1 cy. encl.)
Records (w/1 cy. encl.)
Daily

Sincerely yours,

K. W. MEEKS
LCDR, CEC, USN
Assistant Officer in Charge
of Construction

* Only Cy. is in 5,0 Files

MCBCL 11000/16

HOOF GOVERNORS
MURPHY SWITCHES
ROCKFORD P.T.O.'S

Ford Industrial Power Products

THE TURBINES ARE COMING

TRIANGLE FORD INDUSTRIAL ENGINES

P. O. BOX 1246
DURHAM, N. C. 27702

PHONE 682-9336 PHONE 682-9337

October 23, 1975

Mr. Worth Pickard
Carolina Well + Pump Company
P.O. Box 1085
Sanford, N.C. 27330

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

Re: Your letter of October 2, 1975

Contract N62470-75-C-5109
Addition to Water Wells M-244 and M-627, Camp Lejeune, N. C.

Dear Worth:

In reference to your letter of October 2, 1975 concerning the compliance to Mil-Spec. of the proposed engines for Camp Lejeune, N.C.. I have reviewed military specifications number Mil-P-52029 and can verify that the 172 CID gasoline engine conforms to all of the requirements.

Also in your letter you have requested other information which I will answer below.

Type of fuel required: gasoline 83M/91R Octane
Engine gauges: Low oil pressure and high temperature safety shut down gauges with override switch which will allow engine to be started until oil pressure rises.

I hope this will answer all of your questions if any additional information is needed please let me know

Sincerely,

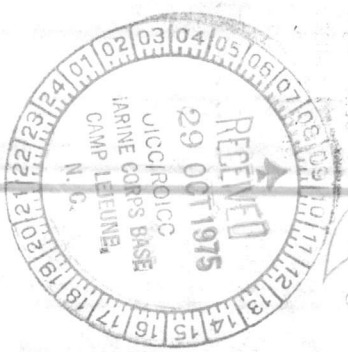
J.S Howard
Vice President

JSH/law

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT N62470-75-C-5109
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.
A. W. WALTON
RADM, CEC, USN
COMLANTNAVFACENGCOM
Date 10-27-75
Checked by J.S.H.

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511
OT (8-66)

Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina


RECEIVED
29 OCT 1975
MARINE CORPS BASE
CAMP LEJEUNE,
N. C.

Fwd (Baath)

DEPARTMENT OF THE NAVY
RESIDENT OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
43-510:HH: mec
N62470-75-C-5109
23 September 1975

East Coast Construction Company, Inc.
Post Office Box 5004
Jacksonville, North Carolina 28540

Re: Contract N62470-75-C-5109, Replace Water Wells, M-627 and M-244, Montford Point, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

We are returning 4 herewith ___ under separate cover, the following shop drawings or data sheets with action indicated.

No of Dwgs.	Dwg.No.	Description	Action
4	Sheets, 2	SQUARE D CO., Panelboard Schedule	APPROVED, subject to contract requirements
4	Cuts, 2 sheets	TRIANGLE CONDUIT & CABLE CO., INC., Galvanized Conduit	
4	Cuts, 2 sheets	SQUARE D CO., AC Combination Starters (Note 1)	Approved, AS NOTED (Notes 1 and 2) subject to contract requirements
4	Cuts, 2 sheets	HALO, Light Fixtures (Note 2)	
7	Cuts, 2 sheets	MARTIN, Heavy Duty Unit Heaters	DISAPPROVED (Note 3)

1. Approved with the inclusion of control transformer and cover mounted H-O-A Switch as specified.
2. Approved with the inclusion of wire guard.
3. Disapproved - Size and type not as specified.

Sincerely yours,

K. W. MEEKS
LCDR, CEC, USN
Assistant Officer in Charge of Construction

Copies:
Field (w/1 cy. app. encl.)
File (w/1 cy. encl.)
Records (w/1 cy. app. encl.)
Daily

MCBCL 11000/16

PANELBOARD SCHEDULE

PAGE ___ OF ___

PANEL MARKING ___

QUANTITY 2

DWG. NO. PBA 129

TYPE NQOB

SERVICE VOLTAGE 1φ3W 120/240

BOX DIMENSIONS		
H	W	D
26	20	5 3/4

MOUNTING FLUSH ☐ SURF. ☒

GUTTERS			
TOP	BOT.	RIGHT	LEFT

EQUIPMENT GROUND BAR ☒

MAINS

MAIN BREAKER	LUGS ONLY	FUSIBLE SWITCH
☒	☐	☐

AMPERE RATING 50

FRAME AIB

*U.L. AIC 10,000

CONDUCTORS MAX. SIZE 1/0 Al or Cu

LOCATION TOP ☒ BOT. ☐

BRANCHES

Quan.	Amps	Pole	Frame	*U.L. AIC
2	15	1	QOB	10K
2	20	1	"	"
1	20	2	"	"
1	40	2	"	"

SPACE ONLY

2		2		
1		1		

PANEL MARKING ___

QUANTITY ___

DWG. NO. ___

TYPE ___

SERVICE VOLTAGE ___

BOX DIMENSIONS		
H	W	D

MOUNTING FLUSH ☐ SURF. ☐

GUTTERS			
TOP	BOT.	RIGHT	LEFT

EQUIPMENT GROUND BAR ☐

MAINS

MAIN BREAKER	LUGS ONLY	FUSIBLE SWITCH
☐	☐	☐

AMPERE RATING ___

FRAME ___

*U.L. AIC ___

CONDUCTORS MAX. SIZE ___ Al or Cu

LOCATION TOP ☐ BOT. ☐

BRANCHES

Quan.	Amps	Pole	Frame	*U.L. AIC

SPACE ONLY

PANEL MARKING ___

QUANTITY ___

DWG. NO. ___

TYPE ___

SERVICE VOLTAGE ___

BOX DIMENSIONS		
H	W	D

MOUNTING FLUSH ☐ SURF. ☐

GUTTERS			
TOP	BOT.	RIGHT	LEFT

EQUIPMENT GROUND BAR ☐

MAINS

MAIN BREAKER	LUGS ONLY	FUSIBLE SWITCH
☐	☐	☐

AMPERE RATING ___

FRAME ___

*U.L. AIC ___

CONDUCTORS MAX. SIZE ___ Al or Cu

LOCATION TOP ☐ BOT. ☐

BRANCHES

Quan.	Amps	Pole	Frame	*U.L. AIC

SPACE ONLY

OT (8-66)

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT N62470-75-C-5109
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY — THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC. AS REQUIRED.

A. W. WABTON, JR.
RADM, CEC, USN
COMLANTNAVFACENGCOM

Date SEP 22 1975

Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina

Checked by: R.D. McEACHEN

Date SEP 22 1975

NOTES:

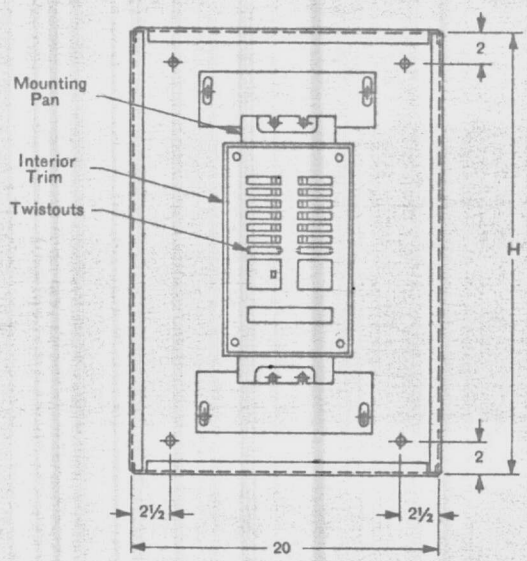
item #1

PBA - PS

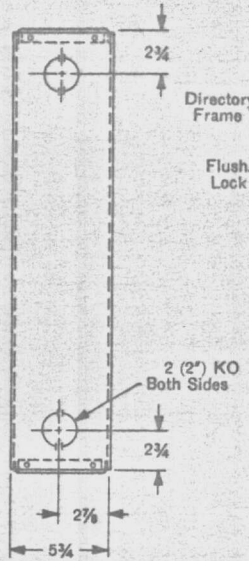
*U.L. LISTED INTERRUPTING CAPACITY AT SERVICE VOLTAGE (RMS SYM. AMPERES)

3-1-70

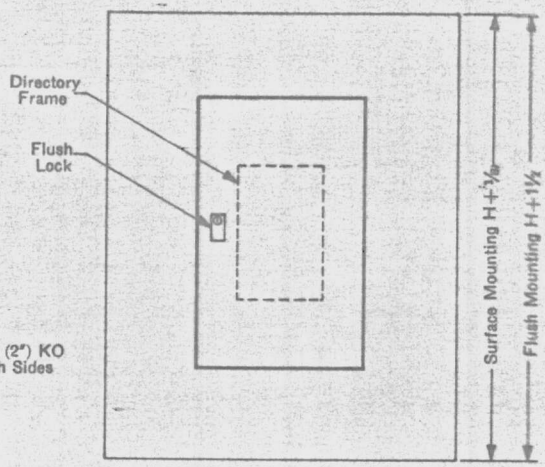
TAB SETTINGS: 13, 18, 23, 26, 32, 43, 48, 53, 56, 62, 73, 78, 83, 86, 92



TYPICAL BOX WITH INTERIOR



TYPICAL BOX SIDE VIEW



TYPICAL FRONT

NOTES

Refer to panelboard schedule for top or bottom feed, service, and lug size.

MAINS: Main breaker, A1, E Frame. Gutters suitable for copper or aluminum wire.

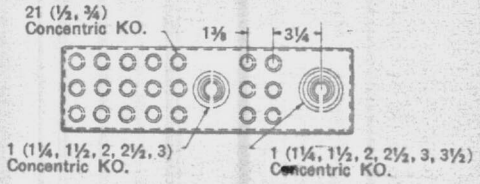
BRANCHES: Square D QOB and Q1B bolted, thermal - magnetic circuit breakers, Class CTL.

BOX: Code gauge galvanized steel.

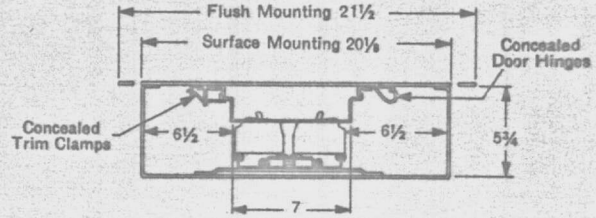
FRONT: MONO-FLAT code gauge full finished steel with rust inhibiting primer and gray baked enamel finish. Fully concealed trim clamps and door hinges. Front non-removable with door locked.

LOCK: Brushed, stainless steel flush lock with SR-251 key change.

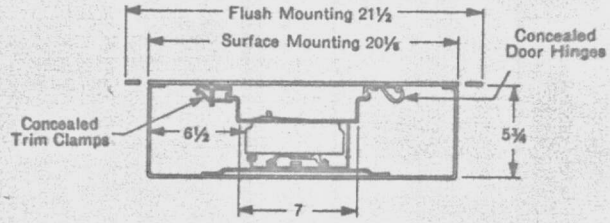
GUTTERS: Side—6½"
End—5" Minimum



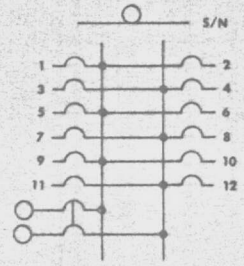
TYPICAL ENDWALL



TYPICAL MOUNTING OF QOB BREAKERS

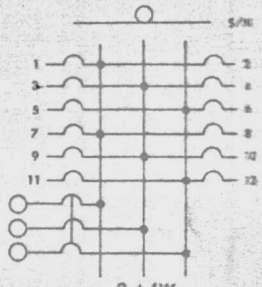


TYPICAL MOUNTING OF Q1B BREAKERS



1 ϕ 3W
50 OR 100 AMPERE MAIN BREAKER

1Ø 3W, 120/240V.
1Ø 2W, 240V. (OMIT S/N)
3Ø 3W, GR. BØ



3 ϕ 4W
50 OR 100 AMPERE MAIN BREAKER

3Ø 4W, 120/208V.
3Ø 3W, 240V. (OMIT S/N)

TYPICAL WIRING DIAGRAMS

NO.	KEY	REVISIONS	BY	DATE

TYPE

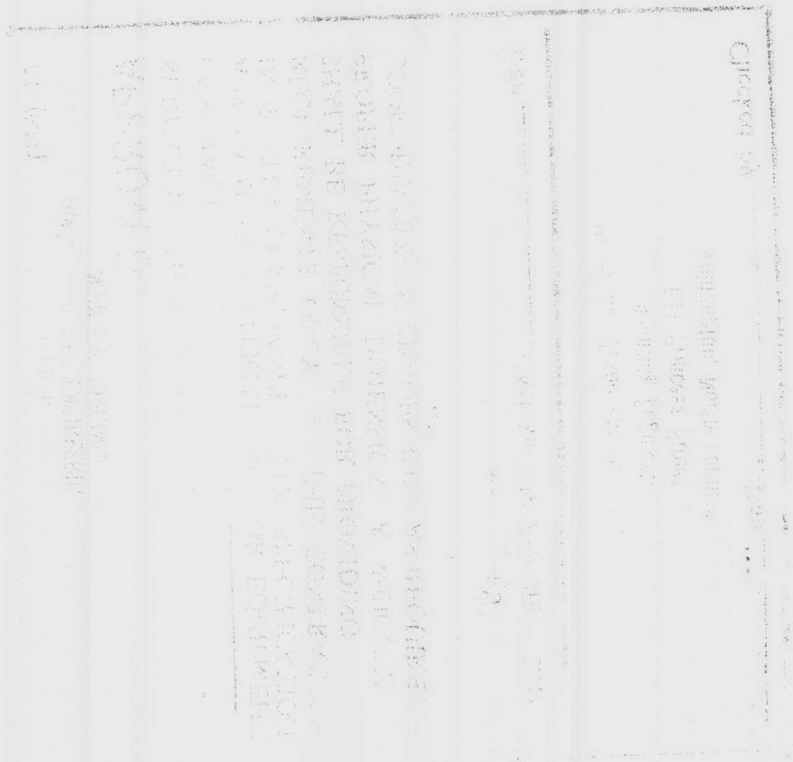
NQOB PANELBOARD

1Ø OR 3Ø 100 AMP. MAXIMUM MAIN BREAKER

SQUARE D COMPANY
DISTRIBUTION EQUIPMENT DIVISION

DWG. NO. PBA-129

8-70 Replaces PBA-129 dated 4-1-66




RECEIVED
23 SEP 1975
MARINE CORPS BASE
CAMP LEJEUNE,
N. C.

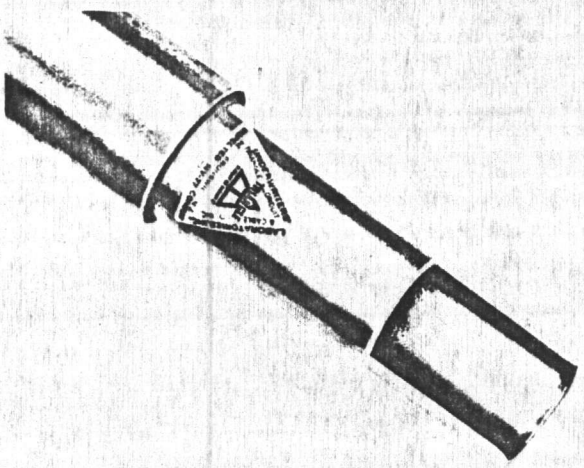
TRIANGLE CONDUIT & CABLE CO. INC.

NEW BRUNSWICK, NEW JERSEY

"It MUST Be Right!"

CONDUIT GALVANIZED RIGID STEEL

Hot-Dipped Galvanized Rigid Steel



application

Triangle **hot-dipped galvanized rigid conduit** provides permanent protection for conductors against physical damage in locations where operating conditions are unusually severe. It can be used either indoors or outdoors, and underground beneath fill when protected by non-cinder concrete at least two inches thick, or without protection of concrete if at least eighteen inches under the fill.

The excellent corrosion resistance of Triangle **hot-dipped galvanized rigid conduit** permits its use where exposed to salt fog; acid atmospheres found in paper mills and other process industries; and alkali atmospheres in plating rooms and other metal cleaning and metal treating plants.

Triangle **hot-dipped galvanized rigid steel conduit** is also unexcelled for operations where excessive moisture and humidity are present. Every foot is quenched in a specially formulated bichromate solution which prevents oxidation or "white rust". This feature, coupled with the interior and exterior coatings of pure zinc gives it dual protection inside and outside against the destructive effect of condensation so that it out-lasts other types of conduit.

item #5

specifications

tube

Tube is of mild steel, circular in cross section, of uniform wall thickness, sufficiently accurate to cut clean true threads.

galvanizing

Prior to hot-dip galvanizing, all scale, rust, dirt and other foreign matter is thoroughly removed from inside and outside of tubing. The Zinc coating is such that it will not show a fixed deposit of copper after four one-minute immersions in a standard copper sulphate solution.

finish

A bichromate finish is applied to the inside and outside of each length of conduit after galvanizing.

threads

Elbows, bends, nipples and lengths of conduit are threaded on both ends after galvanizing, and ends are chamfered to remove burrs and sharp edges. Pipe and coupling threads are zinc coated. Additional corrosion protection is given threads after cutting and chamfering.

fittings

Each length of conduit has a coupling on one end and a thread protector on the other.

compliance

Triangle hot-dipped rigid conduit complies with the Underwriters' Laboratories Standard UL 6, Federal Specification WW.C-581-D, and with American Standards Association C80-1.

identification

Each length of Triangle hot-dipped galvanized rigid conduit bears an Underwriters' Laboratories label. For convenient identification of sizes in smaller diameters, color-coded thread protectors are supplied as follows:

½", 1½", 2½" diameters—black
¾", 1¼" diameters—red
1", 2" diameters—blue

suggested specifications for architects and consulting engineers

"Conduit and Couplings shall be Hot-Dipped Galvanized Rigid Steel with zinc coated threads and an outer coating of zinc bichromate, in accordance with Triangle Conduit and Cable Company's specification or approved equal."

Conduit shall be installed as shown on the plans and in an approved manner. Hangers and fastners shall be of the type appropriate in design and in dimensions for the particular application and shall be securely fastened in place. All joints shall be securely and tightly made. Elbows, offsets and bends shall be uniform and symmetrical; runs shall be straight and true. Connectors, couplings and fittings shall be of an improved and high quality type specifically designed for the purpose. They shall be installed in a professional, expert and workman-like manner to provide a firm mechanical assembly with good electrical conductivity throughout.


RECEIVED
29 AUG 1945
MARINE CORPS BASE
CAMP LEJEUNE
N. C.

description

Triangle hot-dipped galvanized rigid steel conduit is produced from high grade raw steel pipe which has been scoured and pickled in alkali and acid baths. It is completely protected from any possibility of corrosion by the following precautions:

1. The interior as well as the exterior are coated with a solid, unbroken layer of 99% pure, virgin zinc.
2. Even the threads on both conduit and coupling are zinc coated.
3. The conduit is coated with a durable bichromate finish which prevents oxidation and white rust.

Since the conduit is completely protected from end to end including couplings, there is no place for corrosion to get started.

Triangle Hot-Dipped Galvanized Rigid Steel Conduit is completely free of burrs and projections which might cause damage to the wire or make the conduit difficult to handle.

Independent laboratory tests run on samples of Triangle hot-dipped galvanized rigid steel conduit have proven the superiority of hot-dipped galvanizing. Random samples, checked for amount of zinc deposited, show uniform coatings inside and out.

Triangle conduit is easy to work with. Top grade steel pipe bends easily, cuts and threads cleanly. The factory-cut thread couples quickly and grips tightly. Ends are color coded for quick size identification.

STANDARD SIZES AND ELBOWS

conduit									elbows and bends			couplings	
trade size of conduit	inside diameter, inches,	outside diameter, inches	wall thickness, inches	length feet & inches	approx. weight per 10 lengths with couplings,	pieces per bundle	feet per bundle	threads per inch	minimum radius to tube center, inches	minimum straight length, each end, inches	weight approx. per 100 pieces	minimum length, inches	approx. weight per 100 pier
½	.622	.840	.109	9'-11¼"	79	10	100	14	4	1½	82	1 9/16	1
¾	.824	1.050	.113	9'-11¼"	105	5	50	14	4½	1½	109	1⅝	20.
1	1.049	1.315	.133	9'-11"	153	5	50	11½	5¾	1⅞	201	2	34.3
1¼	1.380	1.660	.140	9'-11"	201	3	30	11½	7¼	2	313	2 1/16	53.5
1½	1.610	1.900	.145	9'-11"	249	3	30	11½	8¼	2	441	2 1/16	74.3
2	2.067	2.375	.154	9'-11"	334	1	10	11½	9½	2	707	2⅛	120.8
2½	2.469	2.875	.203	9'-10½"	527	1	10	8	10½	3	1411	3⅛	172.0
3	3.068	3.500	.216	9'-10½"	690	1	10	8	13	3⅛	1850	3¼	249.8
3½	3.548	4.000	.226	9'-10¼"	831	1	10	8	15	3¼	2979	3⅜	424.1
4	4.026	4.500	.237	9'-10¼"	982	1	10	8	16	3⅜	3528	3½	474.1
5	5.047	5.563	.258	9'-10"	1344	1	10	8	24	3⅝	6575	3¾	700.0
6	6.065	6.625	.280	9'-10"	1770	1	10	8	30	3¾	9645	4	750.0

OT (8-66) ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT N62470-75-C-5109
APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY — THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROPER PHYSICAL DIMENSIONS & WEIGHTS, COORDINATION OF TRADES, ETC., AS REQUIRED.

A. W. WALTON, JR.
RADM, CEC, USN
COMLANTNAVFACENGCOM

Date SEP 22 1975

Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina

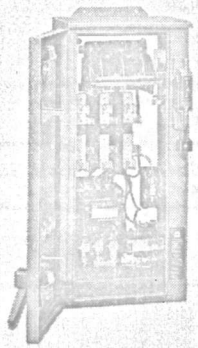
Checked by R.D. McFADYEN Date SEP 22 1975

SM-1165

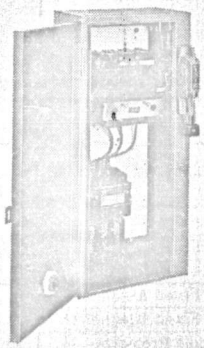
CLASS 8538 8539

With minor exceptions, the National Electrical Code requires a disconnecting means for every motor. Combination starters provide the disconnect to meet this requirement and also provide a Class 8536 magnetic starter all in one enclosure.

A combination starter provides many advantages over a separate disconnect and starter. The single device takes up less room, makes a neater installation, is quicker to install and provides greater safety for operating personnel. Square D offers both switch and circuit breaker versions, either reversing or non-reversing. The application data on pages 135 and 136 is applicable to all classes of combination starters as listed below.



Fusible Combination Starter with Control Transformer in NEMA 12 Enclosure



Circuit Breaker Combination Starter in NEMA Type 1 Enclosure

Class 8538 — Disconnect Switch Type, Non-reversing — Pages 137 and 138
Class 8539 — Circuit Breaker Type, Non-reversing — Page 142
Class 8738 — Disconnect Switch Type, Reversing — Page 177
Class 8739 — Circuit Breaker Type, Reversing — Page 179

RATINGS

Poles — Three pole disconnect and starter for polyphase applications. For single phase applications, use standard three pole combination and reconnect for single phase.

Voltage — 600 volts ac maximum.

Frequency — Coils available for application on 50 or 60 hertz. Contacts can be applied at any hertz.

Magnetic Coils — Are designed to operate satisfactorily on line voltages of 85% to 110% of rated voltage.

Horsepower Ratings — All starters are rated in accordance with NEMA Standards. For complete data on contact ratings, refer to the Class 8536 Application Data Section, Page 117.

TERMINALS

NEMA Size	Type	Line Terminals On Disconnect: Type of Lug	Line Terminals On Disconnect: Wire Size Min.—Max. Switch	Line Terminals On Disconnect: Wire Size Min.—Max. Circuit Breaker	Power Terminals On Magnetic Starter: Type of Lug	Power Terminals On Magnetic Starter: Wire Size Min.—Max.	Control Terminals On Magnetic Starter: Type of Lug	Control Terminals On Magnetic Starter: Wire Size Min.—Max.
0 & 1	SB & SC	Screw Lug	#14—#2 Copper #10—#2 Aluminum	#14—#8 Copper #12—#8 Aluminum	Clamp	#14—#8 Copper	Clamp	#16—#12 Copper
2	SD	Screw Lug	#14—#2 Copper #12—#2 Aluminum	#8—#1/0 Copper or Aluminum	Screw Lug	#14—#2 Copper	Clamp	#16—#12 Copper
3	SE	Screw Lug	#10—#0 Copper #8—#0 Aluminum	#8—300 MCM Copper or Aluminum	Screw Lug	#6—#0 Copper	Clamp	#16—#12 Copper
4	SF	Screw Lug	#6—350 MCM Copper or Aluminum	#6—350 MCM Copper or Aluminum	Screw Lug	#4—250 MCM Copper	Clamp	#16—#12 Copper
5	SG	Screw Lug	One #3/0—500 MCM Copper	#6—350 MCM Copper	Screw Lug	#4—250 MCM Copper	Clamp	#16—#12 Copper
6	SH	Screw Lug	....	#3/0—500 MCM Copper or Aluminum	Clamp	250—350 MCM Copper◐	Clamp	#14—#12 Copper
7	J Series A	Screw Lug	....	#3/0—500 MCM Copper or Aluminum	Clamp	350—500 MCM Copper	Clamp	#16—#12 Copper
8	K Series A	Screw Lug	....	#3/0—750 MCM Copper or Aluminum	Clamp	350—500 MCM Copper	Clamp	#16—#12 Copper

◐Order Class 9999 Type SAL-16 parts kit to convert power terminals to accept sizes 1/0-300 MCM wire.

MAGNETIC STARTERS

The basic magnetic starters used in combination starters are 3 pole Class 8536 (for non-reversing) and 3 pole Class 8736 (for reversing) devices.

Complete application data is given in the Class 8536 and 8736 sections.

MAINTENANCE OF EQUIPMENT

The appropriate Service Bulletin listed below are included with each starter. Additional copies are available.

NEMA Size	Type	Service Bulletin Number: Starter	Service Bulletin Number: Disconnect Switch	Service Bulletin Number: Circuit Breaker	Starter Contact Parts Kit: Class 9998, Type
0	SB	277AS	281AS	284AS	SL-2
1	SC	278AS	281AS	284AS	SL-3
2	SD	279AS	282AS	284AS	SL-4
3	SE	305AS	314AS	313AS	SL-7
4	SF	306AS	315AS	313AS	SL-9
5	SG	328AS	Instruction Sheet #30072-310-46	316AS	SL-11
6	SH	342AS	—	317AS	SL-26
7	J Series A	8502-2	—	—	JA-81
8	K Series A	8502-3	—	—	KA-81

OT (8.66)
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511
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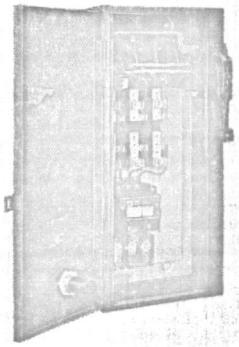
A. W. WALTON, JR.
RADM, CEC, USN
Date SEP 22 1975
COMLANTNAVFACENGCOM
Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina
Checked by RJW
R. D. MCFADDEN
Date SEP 22 1975

item #2

FUSIBLE DISCONNECT SWITCH TYPE — AC COMBINATION STARTERS

CLASS 8538



Fusible Combination Starter in NEMA 1 Enclosure

The disconnect switch type combination starter design utilizes a flange operated visible blade switch. Interchangeable fuse clips, straight through wiring, three overloads as standard, space for a fused control transformer with additional capacity and provisions for adding a disconnect switch electrical interlock are key features of this starter.

w/ cover mtd H-O-A sw.

LINE VOLTAGE TYPE, NON-REVERSING WITH THREE MELTING ALLOY OVERLOAD RELAYS

3 POLE — 600 VOLTS MAX. — 50-60 HERTZ

Ratings				General Purpose Enclosure NEMA Type 1		Watertight and Dusttight Enclosure Stainless Steel NEMA Type 4		Dusttight and Driptight Industrial Use Enclosure NEMA Type 12 (Type 3 and 3R)◐		
								With External Reset	Without External Reset	
Motor Voltage (Starter Voltage)	Max. HP Poly-phase	NEMA Size	Fuse Clip Size Amps	Type	Price*	Type	Price*	Type	Type	Price*
200 (208)	3	0	30	SBG-12	$ 188.	SBW-12	$ 380.	SBA-22	SBA-12	$ 236.
	5	1	30	SCG-12	198.	SCW-12	390.	SCA-22	SCA-12	246.
	7½		60	SCG-13	202.	SCW-13	394.	SCA-23	SCA-13	250.
	10	2	60	SDG-12	312.	SDW-12	608.	SDA-22	SDA-12	380.
	20	3	100	SEG-15	526.	SEW-15	1042.	SEA-25	SEA-15	614.
	25		200	SEG-12	570.	SEW-12	1086.	SEA-22	SEA-12	658.
	40	4	200	SFG-15	1010.	SFW-15	1670.	SFA-25	SFA-15	1254.
	75	5	400	SGG-15	2263.	SGW-15	3947.	SGA-25	SGA-15	2855.
230 (240)	3	0	30	SBG-12	188.	SBW-12	380.	SBA-22	SBA-12	236.
	5	1	30	SCG-12	198.	SCW-12	390.	SCA-22	SCA-12	246.
	7½		60	SCG-13	202.	SCW-13	394.	SCA-23	SCA-13	250.
	15	2	60	SDG-12	312.	SDW-12	608.	SDA-22	SDA-12	380.
	25	3	100	SEG-15	526.	SEW-15	1042.	SEA-25	SEA-15	614.
	30		200	SEG-12	570.	SEW-12	1086.	SEA-22	SEA-12	658.
	50	4	200	SFG-15	1010.	SFW-15	1670.	SFA-25	SFA-15	1254.
	100	5	400	SGG-15	2263.	SGW-15	3947.	SGA-25	SGA-15	2855.
460-575 (480-600)	5	0	30	SBG-13	192.	SBW-13	384.	SBA-23	SBA-13	240.
	10	1	30	SCG-14	202.	SCW-14	394.	SCA-24	SCA-14	250.
	15	2	30	SDG-16	314.	SDW-16	610.	SDA-26	SDA-16	382.
	25		60	SDG-14	318.	SDW-14	614.	SDA-24	SDA-14	386.
	50	3	100	SEG-13	536.	SEW-13	1052.	SEA-23	SEA-13	624.
	100	4	200	SFG-13	1018.	SFW-13	1678.	SFA-23	SFA-13	1262.
	200	5	400	SGG-13	2263.	SGW-13	3947.	SGA-23	SGA-13	2855.

***Prices do not include thermal units. For selection, see below.**

◐NEMA Type 12 enclosures may be field modified for outdoor applications. For details refer to page 12.

ORDERING INFORMATION REQUIRED

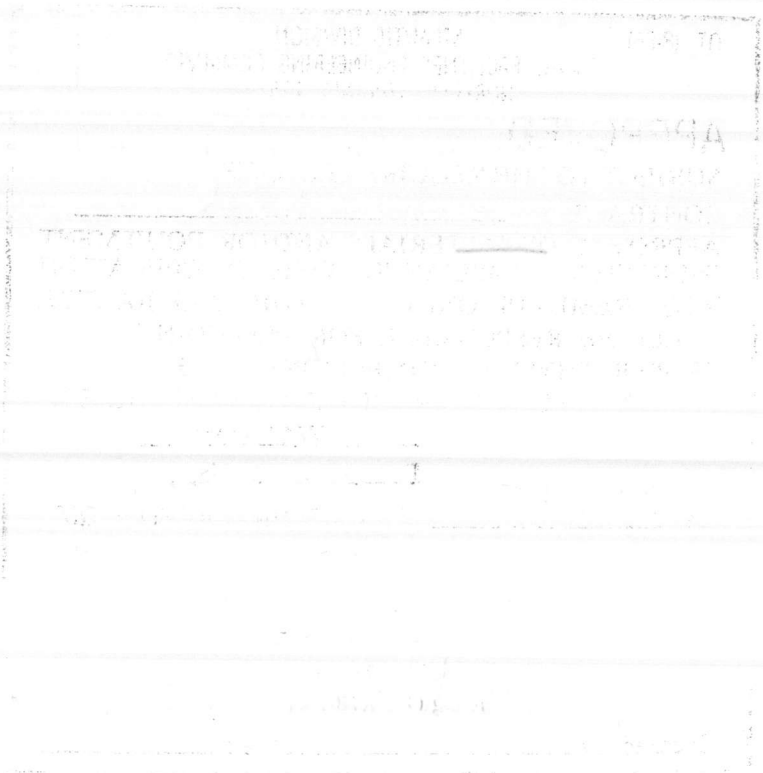
1. Class and type number.
2. Horsepower, voltage, phase, frequency and full load current of motor.
3. Control voltage and frequency if different from line voltage.
4. Any special features required, see Pages 13-24.

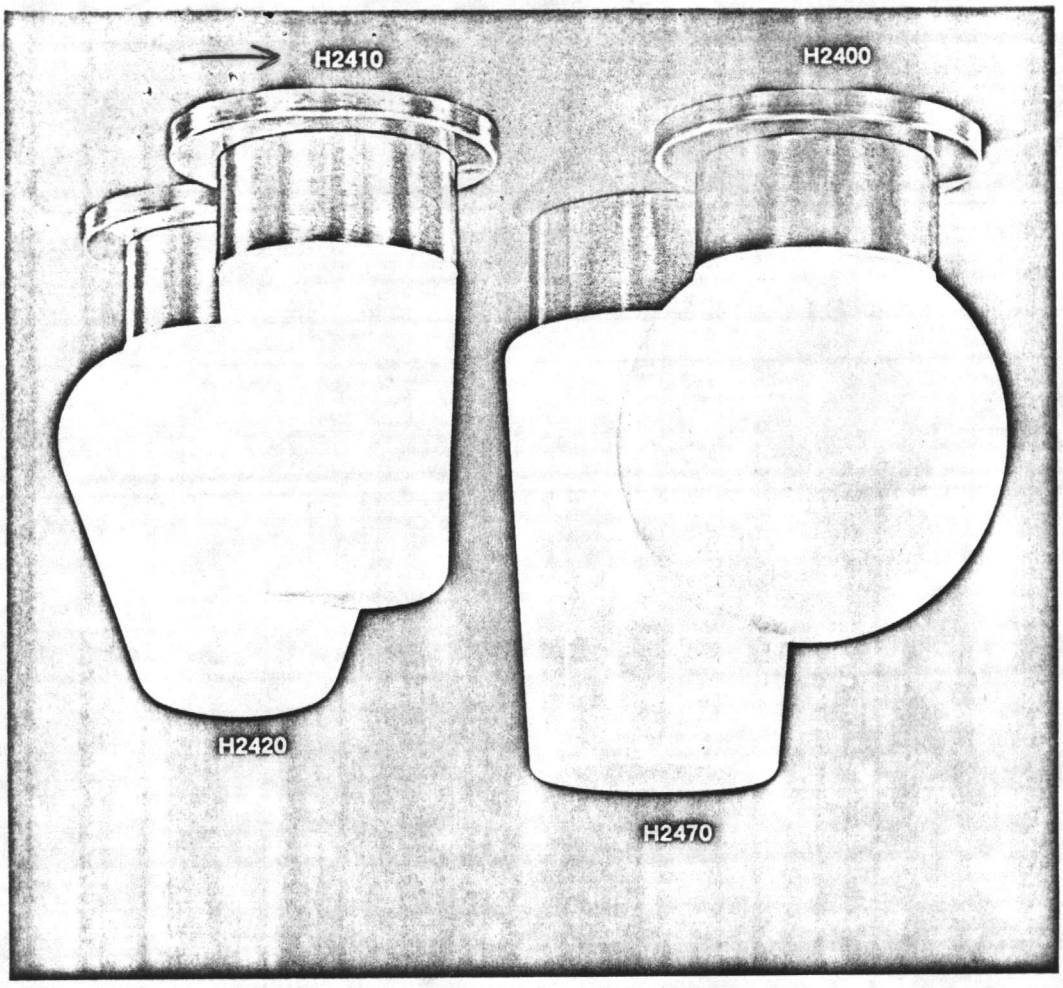
THERMAL UNITS

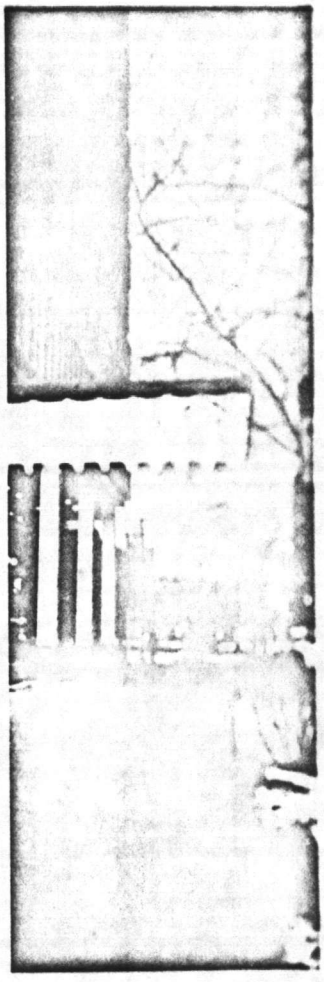
Thermal units should be ordered separately. For selection of thermal units, refer to the Catalog Digest or Bulletin SM-416, entitled "Application and Selection of Overload Relays". Standard trip thermal units are priced at $3.00 each. All devices listed above require three thermal units.

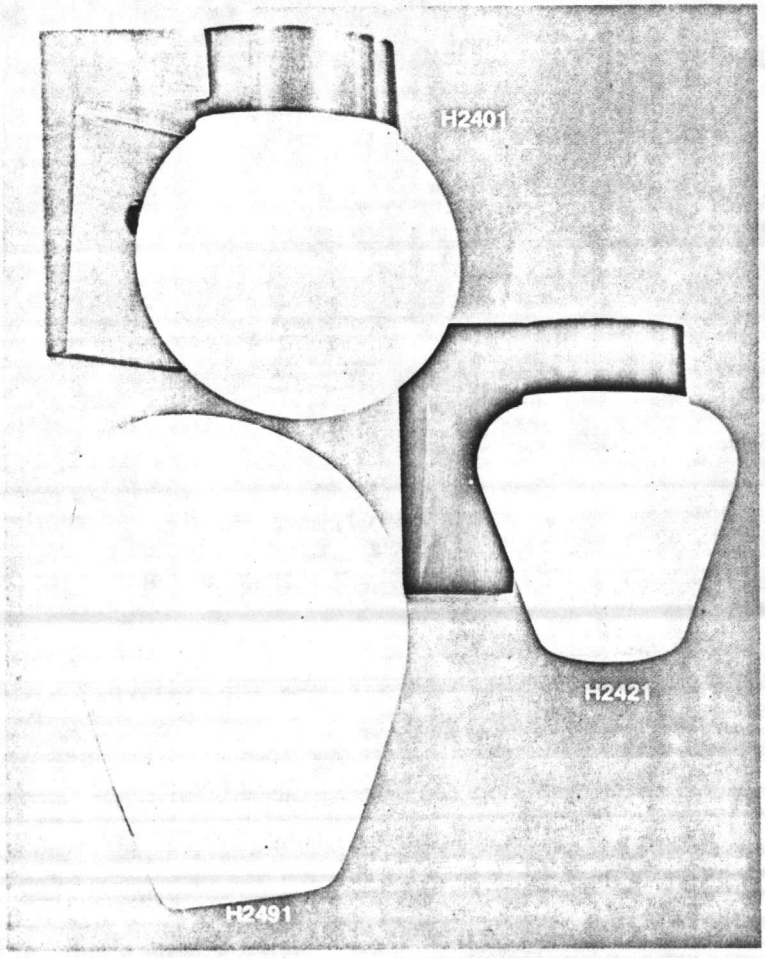
FIELD MODIFICATION KITS

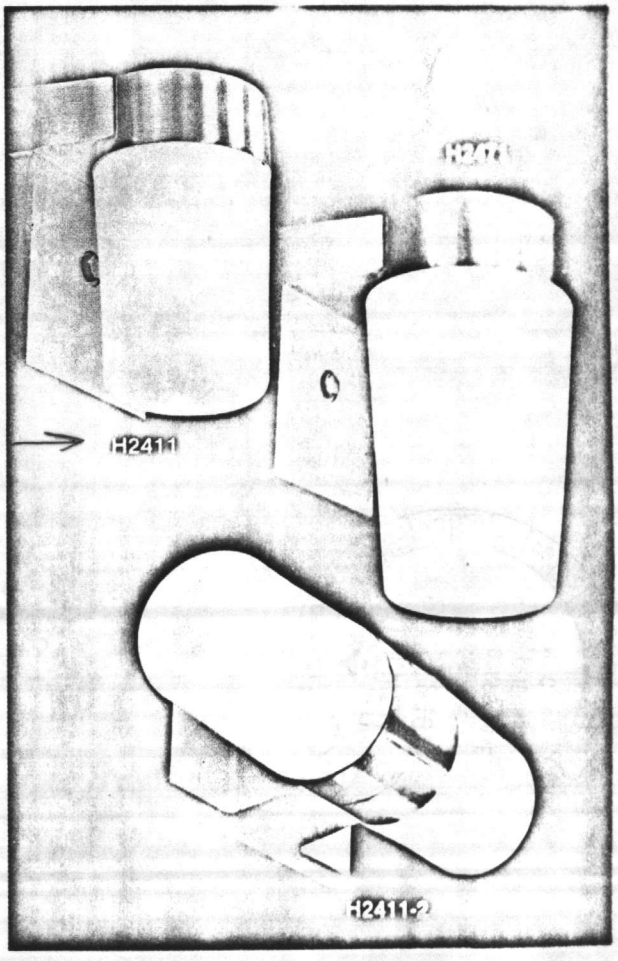
Refer to Pages 140-141 and Class 9999 Section.











item # 4


RECEIVED
29 AUG 1975
MARINE CORPS BASE
CAMP LEJEUNE,
N. C.


RECEIVED
23 SEP 1975
ARINE CORPS BASE
CAMP LEJEUNE,
N. C.

CAST WALL AND CEILING BRACKETS

Opal glass in simple classic shapes blend handsomely with contemporary settings. Pleasantly diffused lighting for either indoors or outdoors in a variety of cast aluminum mountings. Water-tight, heat-resistant neoprene gasket provided for each fixture. (No. H2491 for indoor use only.) For general service lamps.

FINISHES: Satin aluminum is standard. No's. H2401, H2411 and H2421 also available in matte black (add "MB" to catalog number).

STYLE	CAT. NO.	DESCRIPTION	WATTS
CEILING	H2400	Sphere	150W
	H2410	Cylinder	100W
	H2420	Acorn	150W
	H2470	Large Cylinder	200W
WALL	H2401	Sphere	150W
	H2411	Cylinder	100W
	H2421	Acorn	150W
	H2471	Large Cylinder	200W
	H2491	Half Spheroid	100W
	H2411-2	Twin Cylinder	2/100W

OT (8-66) ATLANTIC DIVISION
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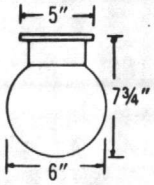
SEP
22 1975 A. W. WALTON, JR.
RADM, CEC, USN
Date COMLANTNAVFACENGCOM

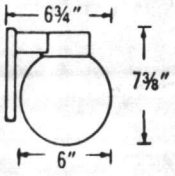
Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina

Checked by R. D. McFADYEN Date SEP 22 1975

WG 11 WIRE GUARD for use with H2410, H2411 & H2411-2.
WG 71 WIRE GUARD for use with H2470 and H2471.
Grounded convenience outlet and/or switch available for H2401, H2411, H2421, H2471 and H2411-2. Specify "CO" and/or "SW" after catalog number.



H2400



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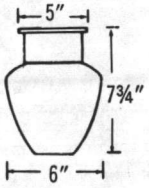

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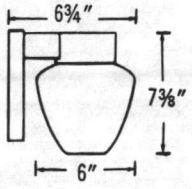

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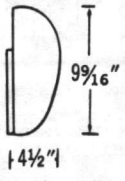

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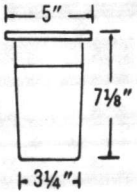

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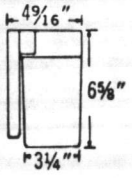

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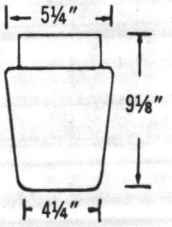

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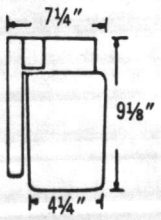
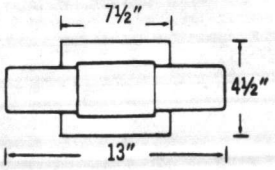


H2471



H2411-2

Dimensions Model DWT (VIT-CT)

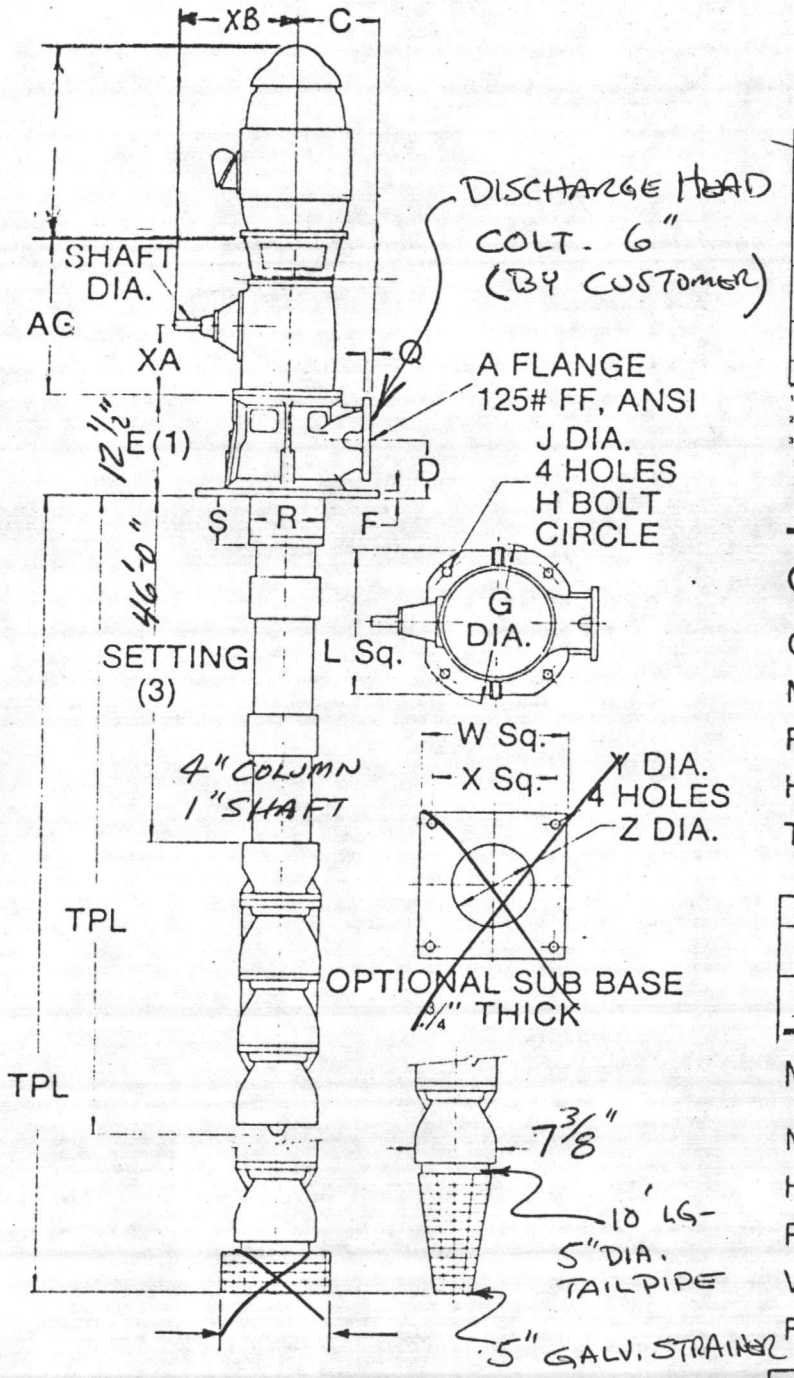
All Dimensions are in inches.

M-629 INSTALLED 11/6/80

2A.10X

December 1, 1976

GOULDS PUMPS
VERTICAL PUMP DIVISION



Pump Data

Size 8JLO/5 STAGE (7⅜" O.D.)
WATER LUBRICATED
DWT DISCHARGE HEADS

Disch. HD & Col. Size A	Motor BD	Discharge Head C	D	E¹	F	G	H	J	L	O	R	S	Optional Sub Base W	X	Y	Z
4	10	9	5	10	⅛	15	14	⅞	–	¾	6⅝	5	18	16	⅝	12
6	12 16½	12	6¾	12½	⅛	23½	21¼	¾	20	⅛	8	4½	24	22	⅛	14
8	12 16½ 20	13	7⅛	14½	1	23½	21¼	¾	20	1	10½	5	24	22	⅛	16
10	16½ 20	14	9¼	16	1⅛	25	22¾	¾	21	1	12½	6	26	23	⅛	17
12	24½	16	10¾	20	1¼	32	30	⅛	28	1¼	14	4¼	34	31	1	24

¹Hollowshaft driver, one piece headshaft, no coupling above stuff. box.
²Round base plate.
³Unless TPL is specified, column lengths will be std. uncut 5, 10 or 20 ft. sections resulting in settings equal to multiple of these lengths, plus approx. 1 ft. for the adjusting nipple (i.e., 26 ft., 51 ft., 151 ft. etc.).

GEAR DATA – BY CUSTOMER

Gear Mfgr. AMARILLO
Model C-20 VHS ✓ VSS ____
Rotation Fig. # ____ Gear Ratio ____
H.P. ____ Pumpshaft RPM ____
Thrust ____ BD ____

GEAR APPROXIMATE DIMENSIONS—INCHES						
Gear Mfgr.	Gear Model	AG	XA	XB	Shaft Dia.	Key

Motor Data – (BY CUSTOMER)

Motor Mfgr. G.E.
H.P. 7½ RPM 1745
Phase ____ Cycle ____ Volts ____
VHS ✓ VSS ____ Thrust ____
Frame 213TP10 Encl. ____ BD 10

NEW BOWL ASSY., COLUMN, SHAFT, TAILPIPE, STRAINER, AND HEAD SHAFT BY GOULDS PUMPS.

Proposal No. ____
Customer USMC CAMP LEJEUNE
Project M67001-80-M-8911
Inquiry No. ____
Item No. WELL No. M-629
Service ____

Submitted by R.W.T.
Date 9-26-80

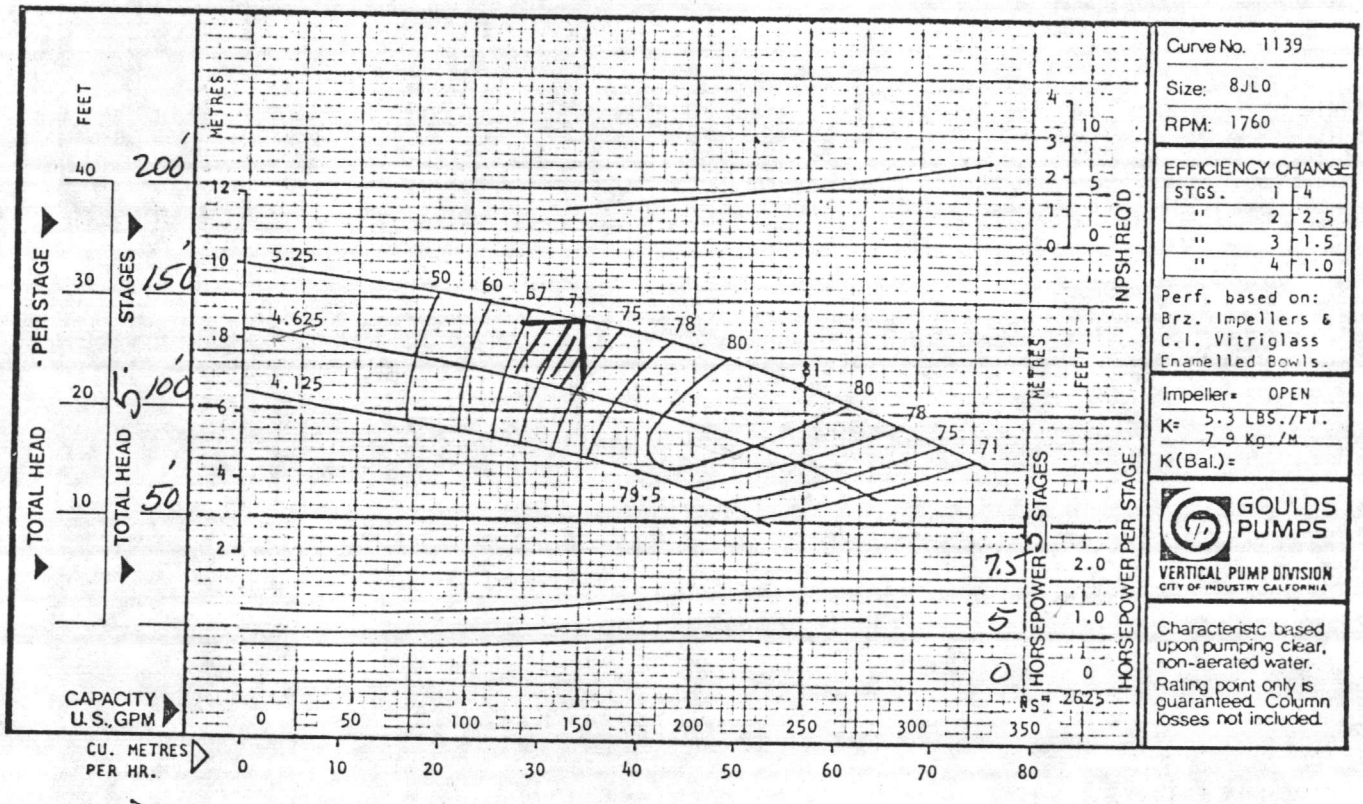
TENCARVA MACHINERY CO.
P. O. BOX 3407
WILMINGTON, N. C. 28406
PHONE (919) 799-8800

Form A 248-VPX
PRINTED IN USA

GOULDS PROPOSAL NO	GOULDS S.O. NO.	CUST INQUIRY NO	CUSTOMER P.O. NO.	P.O. DATE	ITEM NO	PAGE
			M67001-80-M-8911	9/18/80		5C17

CUSTOMER	DATE
USMC - CAMP LEJEUNE, N.C.	5/25/77
PROJECT:	SUPERSEDES 12/1/76

SERVICE:	GPM CAPACITY:	FT. TDH:	% EFFICENCY:	RPM:
WELL-M-629	150	140	72%	1745



Curve No. 1139
Size: 8JLO
RPM: 1760

EFFICIENCY CHANGE

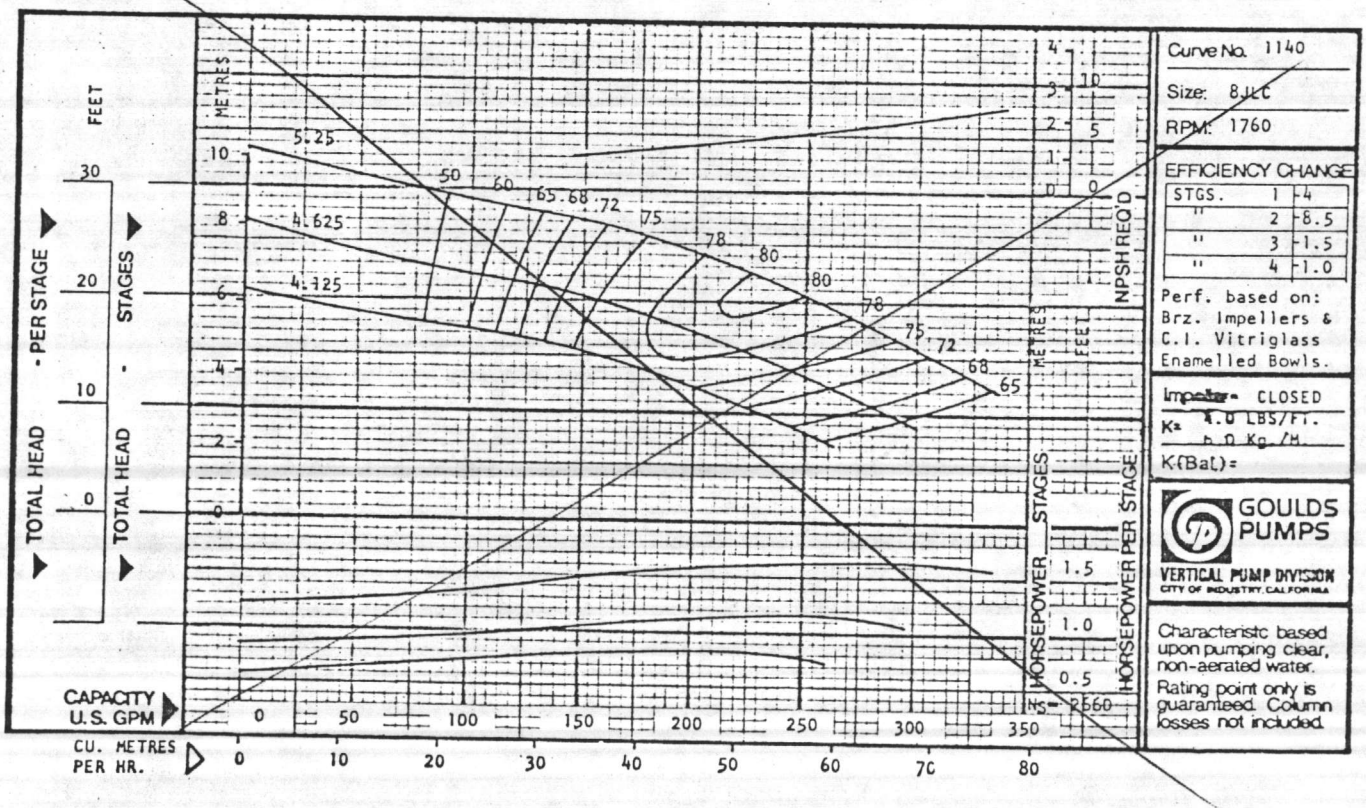
STGS.	1	4
"	2	2.5
"	3	1.5
"	4	1.0

Perf. based on: Brz. Impellers & C.I. Vitriglass Enamelled Bowls.

Impeller = OPEN
K = 5.3 LBS./FT. 7.9 Kg./M.
K(Bal.) =

GOULDS PUMPS
VERTICAL PUMP DIVISION
CITY OF INDUSTRY CALIFORNIA

Characteristic based upon pumping clear, non-aerated water. Rating point only is guaranteed. Column losses not included.



Curve No. 1140
Size: 8JLC
RPM: 1760

EFFICIENCY CHANGE

STGS.	1	4
"	2	8.5
"	3	1.5
"	4	1.0

Perf. based on: Brz. Impellers & C.I. Vitriglass Enamelled Bowls.

Impeller = CLOSED
K = 4.0 LBS/FT. 6.0 Kg./M.
K(Bal.) =

GOULDS PUMPS
VERTICAL PUMP DIVISION
CITY OF INDUSTRY, CALIFORNIA

Characteristic based upon pumping clear, non-aerated water. Rating point only is guaranteed. Column losses not included.

TENCARVA
MACHINERY COMPANY
P. O. Box 3407 • 902 South College Road
Wilmington, N.C. 28406 • (919) 799-8800

October 10, 1980

U. S. Marine Corps Base
Utilities Division
Maintenance Department
Camp LeJeune, N. C. 28542

Attn: Mr. Willard Price
Water Treatment Plant

Subject: P. O. M67001-80-M-8911
Well M-629

Dear Willard:

We are pleased to enclose drawings and performance curves on the Goulds Model DWT turbine pump size 8JLO/5 stage water lubricated pump being furnished for the subject well.

We also enclose 2 copies of installation, operation and maintenance instructions for DWT pumps.

This order covering a new bowl assembly, column, shaft and tail pipe is scheduled for shipment October 13, 1980 from Goulds Pumps, Inc., Orlando, warehouse.

We thank you for this order and hope this information will assist you and remain

Very truly yours,

R. W. Tayloe

RWT/md
Enclosure

Field (Boats)

DEPARTMENT OF THE NAVY
RESIDENT OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
43-510:HH:mec
N62470-75-C-5109
17 November 1975

East Coast Construction Company, Inc.
Post Office Box 5004
Jacksonville, North Carolina 28540

Re: Contract N62470-75-C-5109, Replace Water Wells, M-627 and M-244, Montford Point, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

We are returning x herewith ___ under separate cover, the following shop drawings or data sheets with action indicated.

No of Dwgs.	Dwg.No.	Description	Action
3	Letter	TRIANGLE FORD INDUSTRIAL ENGINES, Verification of 172 CID gasoline engine and identification of type of fuel system and gauges used.	APPROVED, subject to contract requirements
4	Cut	HUNTER, Hide-Away Heater (Resubmittal)	APPROVED, subject to contract requirements

Sincerely yours,

K. W. MEEKS
LCDR, CEC, USN
Assistant Officer in Charge
of Construction

Copies:
Field (w/1 cy/encl.)
File (w/1 cy. encl.)
Records (w/2 cys. encl.)
Daily

MCBCL 11000/16

Hunter Hide-Away Heater

APPROVED FOR USE ON

APPROVAL OF MATERIALS AND/OR EQUIPMENT INDICATES COMPLIANCE WITH SPECIFICATION REQUIREMENTS ONLY AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PROVIDE PROPER PHYSICAL DIMENSIONS, CLEARANCES, WEIGHTS, CAPACITIES, PERFORMANCE, COORDINATION WITH OTHER TRADES OR THEIR RESPONSIBILITY TO PROVIDE THE SYSTEM AND/OR EQUIPMENT COMPLETE IN PLACE AND READY FOR USE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

HENRY VON OESEN AND ASSOCIATES
611 PRINCESS STREET
WILMINGTON, NORTH CAROLINA

DATE

BY

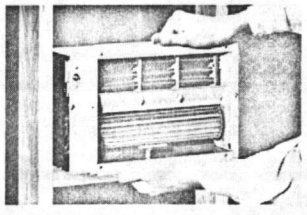
OT (8-66) ...ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

APPROVED:
SUBJECT TO THE REQUIREMENTS OF
CONTRACT N62470-75-C-5109
APPROVAL OF MATERIALS AND/OR EQUIPMENT
INDICATES COMPLIANCE WITH SPECIFICATION
REQUIREMENTS ONLY. THE CONTRACTOR
SHALL BE RESPONSIBLE FOR PROVIDING
PROPER PHYSICAL DIMENSIONS & WEIGHTS,
COORDINATION OF TRADES, ETC., AS REQUIRED.
A. W. WALTON, JR.
RADM, CEC, USN
Date NOV 07 1975 COMLANTNAVFACENGCOM

Henry von Oesen and Associates
Consulting Engineers
611 Princess Street
Wilmington, North Carolina

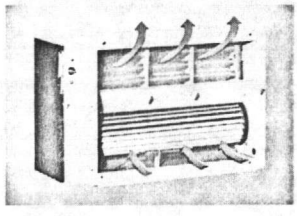
Checked by R D McFadyen Date NOV 07 1975
R D McFADYEN

Fits Between Studs
Four Wattages
1500, 2000, 2500 and 3000 Watts.



Slips into rough-in box mounted between standard wall studs 16" on center. Or can be surface-mounted using accessory kit.

Aluminum cross-flow blower pulls air into lower vent and over heating element, then discharges it through upper vent.



ORDER HEATERS AND ROUGH-IN BOXES SEPARATELY

†WITHOUT THERMOSTAT (HEATERS LESS ROUGH-IN BOX)

Model Nos. 240V	Model Nos. 208V	Watts	BTU/H	Shpg. Wt. Lbs.
33058	33059*	1500	5120	12¼
33060	33061*	2000	6826	12¼
33062	33063*	2500	8533	12¼
33456	—	3000	10239	12¼
WITH THERMOSTAT (HEATERS LESS ROUGH-IN BOX)				
33064	33065	1500	5120	12¾
33066	33067	2000	6826	12¾
33068	33069	2500	8533	12¾
33457	—	3000	10239	12¾
CHROME BATHROOM HEATER WITH THERMOSTAT (LESS ROUGH-IN BOX)				
120V	**240V**			
33070	—	1250	4266	12¾
—	33420	1500	5120	12¾

ROUGH-IN BOX ONLY FOR ALL HIDE-AWAY HEATERS

Model No.	Rough-In Box Dimensions	Standard Packing	Shpg. Wt. Lbs.
33071	14¼"x8x4¼"	6 per ctn.	21½

ACCESSORY KIT FOR HIDE-AWAY HEATERS

33072	Surface Mounting Adapter Kit 15¼"x8¾"x4¾"	4

† See Separate Listing For Wall-Mounted Thermostats
*Will Not Be Available After Present Stock Is Exhausted
Note: 208V Not Available In 3000 Watt Models

WORKS BEST INSTALLED ON AN OUTSIDE WALL.

The Hunter Hide-Away was the industry's first between-the-studs heater to give a choice of four wattages in one unit size with motors matched to wattage to give the right air movement automatically. Quiet operation at full power and grille stays cool at high heat (30° cooler on the average than competitive heaters). Budget priced, economical to operate, easy to install. Fan motor is wired in series with heating element for lifetime service. Choose wall or built-in thermostat (accurate hydraulic bulb-type line voltage with quick-break snap-action). Rough-in size is 14⅜" x 8¼" x 4¼". Beige grille is 15¼" x 9". Bathroom models have polished chrome grilles.

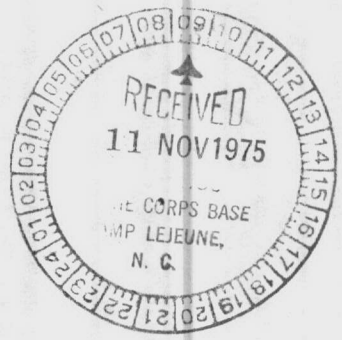
EAST COAST CONSTRUCTION CO. INC.

P. O. BOX 5004

JACKSONVILLE, N. C. 28540

See guarantees on **Hunter®** electric heat Back Cover

Contract #N62470-75-C-5109
Replace Water Wells
M-627 and M-244
Camp Lejeune N.C.
Item #3


RECEIVED
11 NOV1975
CORPS BASE
MP LEJEUNE,
N. C.


RECEIVED
3 NOV1975
CORPS BASE
AMP LEJEUNE,
N. C.

FILE FOLDER

DESCRIPTION ON TAB:

M.P. Well 630

☑ **Outside/inside of actual folder did not contain hand written information**

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

MP630

10-11-85 Brown

A-L	S-L	P-L	D-D	Psi	Gpm	Time
60'	20'	36	16	56	104	15
		39	19	53	119	15
		40	20	50	125	15
		42	22	45	130	15
		44	24	40	140	15
		set @	Psi 40 - 140 gpm			

WELL NUMBER 430		BY Thomas - Brown			DATE 1-16-85	
AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAIN DOWN	DISCHARGE PRESSURE	GPM	START TIME 1300
60	20	27	7	65	100	1310
		32	12	60	125	1320
		35	15	55	133	1330
		38	18	50	149	1340
		40	20	45	162	1350
		42	22	40	170	1400
						1410

set @

REMARKS

MANUFACTURER	STAGE	S.N.	TOTAL HEAD	SIZE

Static Level 22 ft Well 630 60 ft air line

Line Lb. Pres	DD	GPM	
35	34	152½	13¾
30	40	170	16½
43	~~42~~	122	8"
45	43	104	5"

PUMP INFO.

GOULD 2-3-82

aug 11, 1981

M-630

static 78'
well depth 84'

Colum O.K. needs shaft

Head shaft 8' $10\frac{1}{2}$" X 1"
cut keys from 0 - $5\frac{1}{4}$"
$\frac{1}{4}$" key $24\frac{3}{4}$" - 34"

4 1" X 10' sections of shaft

4 shaft retainer rings or rubber Bushings

5763

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services. Laboratory Section
P. O. Box 28047. Raleigh. North Carolina 27611

Complete all items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supplier: MONTFORD POINT

Address: CAMP LEJEUNE, N.C.

Well No. TEST WELL M-294

County: ONSLOW

Report to: WORTH F. PICKARD

Address: P. O. BOX 1085
SANFORD, N.C. 27330

Collected by: RALPH HARRISON

Date Collected: 8/27/75 Time: 7:00 p.m.

Remarks: SAMPLE NO TWO - 55'

Type of Supplier:
- [x] 1-Municipal
- [ ] 2-Sanitary District
- [ ] 3-Mobile Home Park
- [ ] 4-Community
- [ ] 5-Association
- [ ] 6-Industrial
- [ ] 7-Institution
- [ ] 8-Private
- [ ] 9-Other

Source of Water:
- [x] 1-Ground
- [ ] 2-Surface
- [ ] 3-Both
- [ ] 4-Purchased

Source of Sample:
- [ ] 2-House Tap
- [x] 1-Well tap
- [ ] 3-Distribution Tap

Type of Sample:
- [x] 1-Raw
- [ ] 2-Treated

Type of Treatment:
- [x] 0-None
- [ ] 1-Chlorinated
- [ ] 2-Fluoridated
- [ ] 3-Filtered
- [ ] 4-Alum
- [ ] 5-Lime
- [ ] 6-Soda Ash
- [ ] 7-Polyphosphate
- [ ] 8-Water Softener
- [ ] 9-Other

Analysis Desired:
- [x] 1-Complete analysis (18 tests)
- [ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	0 units	Ph	(00.0)	8.0

Results in Parts per Million

Alkalinity, $CaCO_3$	(000)	240	Fluoride	(0.00)	0.12
Total Hardness	(000)	287	Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.48	Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	0.03	Chromium ^{6}	(*0.00)	< 0.05
Turbidity SiO_2	(000)	2.0	Copper	(*00.00)	< 0.05
Acidity, $CaCO_3$	(000)	5	Lead	(*0.00)	< 0.05
Chloride	(000)	17	Zinc	(*00.00)	< 0.05
Sodium	(000)	8	Calcium		111.5
Potassium	(00.0)	1.1	Magnesium		2.1

Date received: August 29, 1975 Date reported: Sept. 9, 1975

00366

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services. Laboratory Section
P. O. Box 28047. Raleigh, North Carolina 27611

Complete all Items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supply: MONTFORD POINT
CAMP LEJEUNE, N.C.
Address:
Well No. M-249
County: ONSLOW
Report to: WORTH F. PICKARD
Address: P. O. BOX 1085
SANFORD, N.C. 27330
Collected by: RALPH HARRISON
Date Collected: 8/26/75 Time: 7:00 p.m.
Remarks: SAMPLE NO 1 - 75'

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitary District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
[ ] 2-House Tap
[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
[ ] 2-Treated

Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
[ ] 2-Fluoridated
[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (18 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	0	units	Ph	(00.0)	8.1

Results in Parts per Million

Alkalinity $CaCO_3$	(000)	240	Fluoride	(0.00)	0.16
Total Hardness	(000)	284	Arsenic	(*0.00)	< 0.01
Iron	(*00.00)	0.20	Cadmium	(*0.00)	< 0.01
Manganese	(*00.00)	0.03	Chromium +6	(*0.00)	< 0.05
Turbidity SiO_2	(000)	1.5	Copper	(*00.00)	< 0.05
Acidity $CaCO_3$	(000)	2	Lead	(*0.00)	< 0.05
Chlorides	(000)	28	Zinc	(*00.00)	< 0.05
Sodium	(000)	13	Calcium		110.0
Potassium	(00.0)	2.6	Magnesium		2.3

Date Tests Made: August 29, 1975 Date reported: Sept. 9, 1975

00365

M.630 Thomas + Raynor 4" pipe 3" orifice

DATE	LENGTH OF AIR LINE	STATIC LEVEL	PUMPING LEVEL	DRAW DOWN	DISCHARGE PRESSURE	CAP. PER FOOT OF DRAW DOWN 21 PM	TIME
Feb 4, 82	60'	19'	36'	17'	57 LB	122	1055
			38'	19'	54 LB	130	1115
			40'	21'	51 LB	137	1125
			42'	23'	49 LB	143	1135
			43'	24'	46 LB	149	1145
			44'	25'	43 LB	157	1155
			46	27'	40 LB	164	1205

REMARKS: Hillside Group — Dirt Recording

Depth 80'

pump set at 50'

pump used produce 250 GPM at 0 pressure

Booth Field

DEPARTMENT OF THE NAVY
RESIDENT OFFICER IN CHARGE
NAVAL FACILITIES ENGINEERING COMMAND CONTRACTS
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO:
43-510:HH: mec
N62470-75-C-5109
7 May 1976

East Coast Construction Company, Inc.
Post Office Box 5004
Jacksonville, North Carolina 28540

Re: Contract N62470-75-C-5109, Replace Water Wells M-627 and M-244, Montford Point, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

We are returning x herewith ___ under separate cover, the following shop drawings or data sheets with action indicated.

No of Dwgs.	Dwg.No.	Description	Action
2	Submittal data, 2 sheets	CAROLINA WELL AND PUMP CO., INC., Pumping Test Data, Well No. M-267-Relocated	APPROVED, subject to contract requirements

Sincerely yours,

K. W. MEEKS
LCDR, CEC, USN
Assistant Officer in Charge
of Construction

✓Copies:
Field (w/1 cy. encl.)
File (w/1 cy. encl.)
Records (w/2 cys. encl.)
Daily

MCBCL 11000/16

PUMPING TEST DATA

Test conducted by: Carolina Well and Pump Company, Inc. By: Worth F. Pickard
Well Owner: Camp Lejune, North Carolina Address: Jacksonville, North Carolina
Pumped Well No. M-268-R Location: County: Onslow
Observation Well Locations: New well at 244
Airline Lengths: Pumped Well Observation Wells New Well
Remarks: Old pump at new well running at start of test. Well on other road at tennis courts running.
Pumping rate measured with: 3 X 4 Orifice Water levels measured with: Electric Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks Observation
4-22-76						16.2	22.7
12:15		6½	111				
12:16	1	6½	111			26.10	
12:17	2	6½	111			36.0	
12:18	3	6½	111			36.4	
12:19	4	6½	111			36.11	
12:20	5	6½	111			37.4	
12:21	6	6½	111			37.7	
12:22	7	6½	111			37.11	
12:23	8	6½	111			38.2	
12:24	9	6½	111			38.2	
12:25	10	6½	111			38.4	
12:26	11	6½	111			38.4	
12:27	12	6½	111			38.6	
12:28	13	6½	111			38.8	
12:29	14	6½	111			38.8	
12:30	15	6½	111			38.10	
12:45	30	6½	111			39.3	
1:00	45	6½	111			39.10	
1:15	60	6½	111			40.1	
1:30	75	6½	111			40.2	
1:45	90	6½	111			40.2	23.2
2:00	105	6½	111			40.2	
2:15	120	6½	111			40.1	
2:30	135	6½	111			40.1	
3:00	165	6½	111			40.2	17.2
3:30	195	9½	130			40.2	
3:45	210	9½	130			44.6	
4:00	225	9½	130			45.10	
4:15	240	9½	130			46.4	
4:30	255	9½	130			47.3	
5:30	315	9½	130			49.2	
6:30	375	9½	130			49.4	
7:30	435	9½	130			49.10	
8:30	495	9½	130			50.7	
9:30	555	9½	130			50.6	
10:30	615	9½	130			50.4	
11:30	675	9½	130			50.2	
12:30	735	9½	130			50.2	18.8
1:30	795	OTHER PUMP OFF 1:30 - 3:30				50.2	18.9
2:30	855	9½	130			49.11	
3:30	915	9½	130			49.2	18.2
4:30	975	9½	130			48.11	18.3½
5:30	1035	9½	130			48.7	
6:30	1095	9½	130			51.1	18.4

PUMPING TEST DATA

Test conducted by: Carolina Well and Pump Company, Inc. By: Worth F. Pickard
Well Owner: Camp Lejeune, North Carolina Address: Jacksonville, North Carolina
Pumped Well No.: 245 Location: County: Onslow
Observation Well Locations: New well at 244
Airline Lengths: Pumped Well Observation Wells New well
Remarks: Old pump at new well running at start of test. Well on other road at tennis courts running.
Pumping rate measured with: 3 X 4 Orifice Water levels measured with: Electric Tape

Pump Well Data

Date and Time	Elapsed Time Min.	Piezometer Tube Reading Inches	Pumping Rate GPM	Pump Discharge Pressure	Altitude Gauge Reading Feet	Feet to Water	Remarks Observation
7:30	1155	9½	130			50.6	
8:30	1215	10	133			50.8	18.5
9:30	1275	10	133			50.10	
10:30	1335	10	133			50.11	
11:30	1395	10	133			50.9	
12:30	1455	10	133			50.9	
1:30	1515	10	133			50.9	
2:30	1575	10	133			50.9	
		STOP UP TO 150 GPM					
2:35	1580	13	151			54.9	
2:45	1590	13	151			54.8	
3:00	1605	13	151			54.8	
3:30	1635	13	151			54.8	18.10
	Recovery						
3:31						23.7	
3:32						23.0	
3:33						21.5	
3:34						21.4	
3:35						20.10	
3:36						20.10	
3:37						20.10	
3:38						20.10	
3:39						20.10	
3:40						20.10	
3:45						20.10	
4:00						20.2	17.7
4:30						19.6	

Filed (Booth).

43-60:KWM:mec
N62470-75-C-5109
17 October 1975

East Coast Construction Company, Inc.
Post Office Box 5004
Jacksonville, North Carolina 28540

Re: Contract N62470-75-C-5109, Replace Water Wells M-627 and M-244, Montford Point, Marine Corps Base, Camp Lejeune, North Carolina

Gentlemen:

We are returning submittal data for Well No. M-244 which is approved, We are also returning the data for Well No. M-627 which is not approved due to the poor yield indicated by the test well.

You have previously been asked for a cost proposal to relocate M-627.

Sincerely yours,

K. W. MEEKS
LCDR, CEC, USN
Assistant Resident Officer
in Charge of Construction

Encl:
(1) Submittal data, Well No. M-244, Approved subject to contract requirements. Filed Shop dwgs
(2) Submittal data, Well No. M-627, Not Approved. - Pending File Box

Copies:
60
Field

Southern Products & Silica Company, Inc.

P. O. Box 38
Hoffman, North Carolina 28347
Telephone (919) 281-3664 or (919) 281-3189

Customer's Order No. _____ Date Sept 2 19 75

Sold To CAROLINA WELL & PUMP

Address _____

Shipped To EAST COAST CONST. CO.

Address JACKSONVILLE, N.C.

SOLD BY	CASH	CHARGE	BAGGED	BULK	SHIPPED BY

QUAN.	DESCRIPTION	PRICE	AMOUNT
	SIEVE ANALYSIS – WELL PACKING SAND		
	CONTRACT #62470-75-C-3109		

US / TYLER #	% RET.
4 4	0
6 6	3
8 8	36
12 10	47
16 14	10
20 20	2
30 28	1
40 35	1
50 48	

Received By _____


RECEIVED
9 SEP 1975
RINE CORPS BASE
CAMP LEJEUNE,
N. C.

QUOTATION

M-630

JOHNSTON PUMP COMPANY
GLENDORA, CALIFORNIA 91740

TO: Marine Corp Base
Camp Lejeune, N.C.
Attn: Mr. Harris - Purchasing Department
REFERENCE: Verbal Inquiry
ITEM NO.: Pump "B"

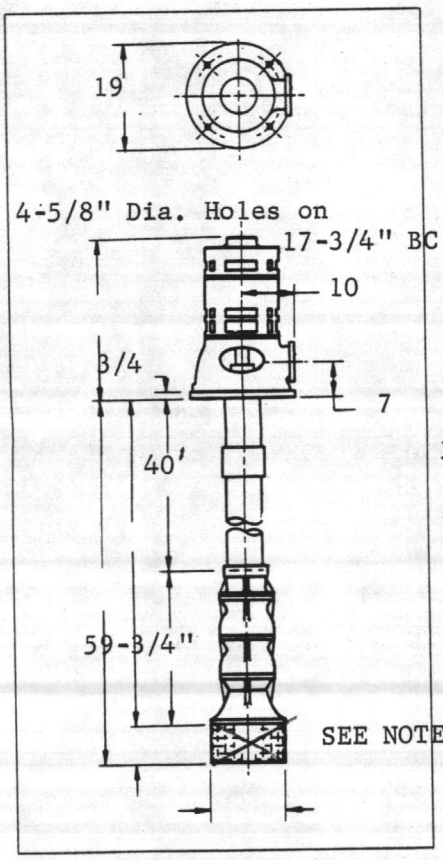
QUOTATION NO.: 81-1088
DATE: 9-15-81 PAGE: Rev. 9-28-81
NUMBER OF UNITS: 1
SERVICE: Well

DESIGN CONDITIONS

LIQUID: Well Water GPM: 150 SUBMERGENCE:
DISCHARGE PRESSURE: DESIGN HEAD IN FEET: 145
SPECIFIC GRAVITY: 1.0 VISCOSITY: TEMPERATURE: Atm
NPSH REQUIRED/AVAILABLE:

PUMP SPECIFICATIONS

BOWL ASSEMBLY MODEL: 7CC NO. OF STAGES: 8 RPM: 1750
EFFICIENCY: 75 BHP AT DESIGN: 7.4 MAXIMUM HORSEPOWER: 7.5
PERFORMANCE CURVE: EC-0464 DISCHARGE 6 "× 125 # ASA FLG.



MATERIAL SPECIFICATIONS

DRIVER: 7-1/2 HP VERTICAL Hollow SHAFT ELECTRIC MOTOR
VOLTS PHASE CYCLE ENCLOSURE
Motor and Amarillo Combination Drive Model C20 By Others

DISCHARGE HEAD: "A" Cast Iron, 12x6 (10x6)
COLUMN PIPE: 4" Steel, Threaded
LINESHAFT: 1" stainless, water lubricated
LINESHAFT BEARINGS: Rubber on not more than 10' centers
LINESHAFT BEARING RETAINER: Bronze
BOWLS: Cl Class 30 or Better
IMPELLERS: Bronze
IMPELLER WEAR RINGS: ~~XXXXXX~~ Aluminum Bronze
BOWL SHAFT: Stainless
BOWL BEARINGS: Combination Rubber & Bronze
~~XXMECHANICAL XXSEAL~~/PACKING BOX: Soft Packing
COUPLING: Standard for combination drive
SUCTION STRAINER: Galvanized Steel, Cone Type

NET COST $ 7534.00 each FOB factories, Mobile, Ala.
SHIPMENT: 4 weeks after complete information and approval to proceed.

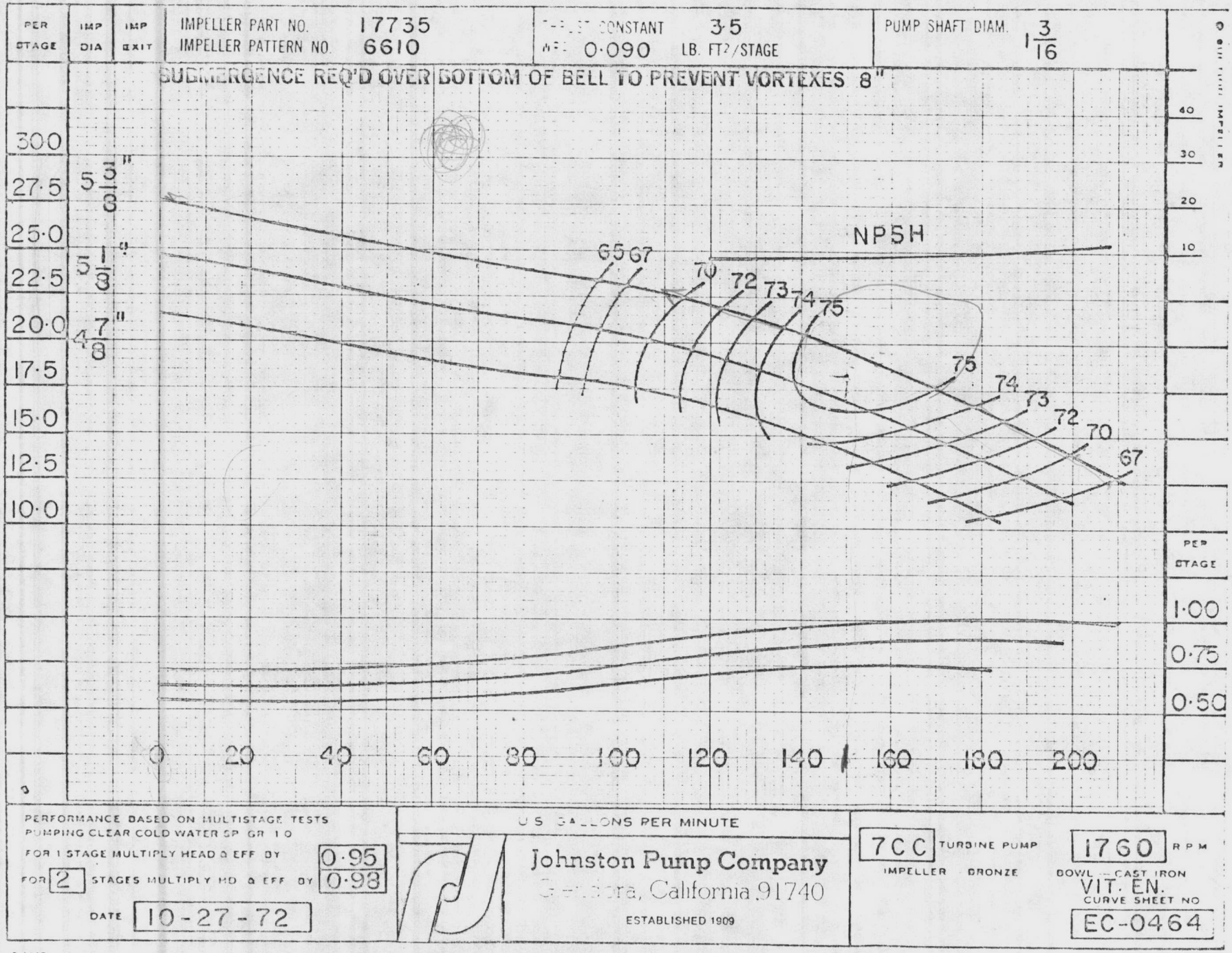
REMARKS: Pump will have 4" x 10' steel suction pipe with cone strainer all for well 7-7/8" I.D.

SIGNED: A. G. Seelke, Jr.
THE GEORGE SEELKE COMPANY

MEMBER HYDRAULIC INSTITUTE U.S.A.

FORM JP 297-A

The Terms and Conditions on the back hereof are part of this quotation


PER STAGE
IMP DIA
IMP EXIT
IMPELLER PART NO. 17735
IMPELLER PATTERN NO. 6610
THRUST CONSTANT 3.5
WR² 0.090 LB. FT²/STAGE
PUMP SHAFT DIAM. 1 3/16
SUBMERGENCE REQ'D OVER BOTTOM OF BELL TO PREVENT VORTEXES 8"
FEET TOTAL BOWL HEAD
300
27.5
25.0
22.5
20.0
17.5
15.0
12.5
10.0
5 3/8"
5 1/8"
4 7/8"
NPSH
65 67 70 72 73 74 75
75 74 73 72 70 67
0 20 40 60 80 100 120 140 160 180 200
U.S. GALLONS PER MINUTE
PER STAGE
1.00
0.75
0.50
40
30
20
10
PERFORMANCE BASED ON MULTISTAGE TESTS
PUMPING CLEAR COLD WATER SP GR 1.0
FOR 1 STAGE MULTIPLY HEAD & EFF BY 0.95
FOR 2 STAGES MULTIPLY HD & EFF BY 0.98
DATE 10-27-72
Johnston Pump Company
Glendora, California 91740
ESTABLISHED 1909
7CC TURBINE PUMP
1760 R.P.M.
IMPELLER BRONZE
BOWL — CAST IRON
VIT. EN.
CURVE SHEET NO
EC-0464

EAST COAST CONSTRUCTION CO. INC.
P. O. BOX 5004
JACKSONVILLE, N. C. 28540

NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES

CHEMICAL ANALYSIS OF WATER

Division of Health Services. Laboratory Section
P. O. Box 28047. Raleigh. North Carolina 27611

Complete all items above Heavy Line
(see instructions on reverse side)

Name of Owner or Supplier: MONTFORD POINT

Address: CAMP LEJEUNE, N.C.

Well No. TEST WELL M-244

County: ONSLOW

Report to: WORTH F. PICKARD

Address: P. O. BOX 1085
SANFORD, N.C. 27330

Collected by: RALPH HARRISON

Date Collected: 8/27/75 Time: 7:00 p.m.

Remarks: SAMPLE NO TWO - 55'

Type of Supplier:
[x] 1-Municipal
[ ] 2-Sanitar, District
[ ] 3-Mobile Home Park
[ ] 4-Community
[ ] 5-Association
[ ] 6-Industrial
[ ] 7-Institution
[ ] 8-Private
[ ] 9-Other

Source of Water:
[x] 1-Ground
[ ] 2-Surface
[ ] 3-Both
[ ] 4-Purchased

Source of Sample:
[x] 1-Well tap
[ ] 2-House Tap
[ ] 3-Distribution Tap

Type of Sample:
[x] 1-Raw
[ ] 2-Treated

Type of Treatment:
[x] 0-None
[ ] 1-Chlorinated
[ ] 2-Fluoridated
[ ] 3-Filtered
[ ] 4-Alum
[ ] 5-Lime
[ ] 6-Soda Ash
[ ] 7-Polyphosphate
[ ] 8-Water Softener
[ ] 9-Other

Analysis Desired:
[x] 1-Complete analysis (18 tests)
[ ] 2-Partial analysis (9 tests)

ANALYSIS

Color	(000)	0	units	Ph	(00.0)	8.0

Results in Parts per Million

Alkalinity $CaCO_3$	(000)	240	Fluoride	(0.00)	0.12
Total Hardness	(000)	287	Arsenic	(0.00)	< 0.01
Iron	(00.00)	0.48	Cadmium	(0.00)	< 0.01
Manganese	(00.00)	0.03	Chromium $^{+6}$	(0.00)	< 0.05
Turbidity SiO_2	(000)	2.0	Copper	(00.00)	< 0.05
Acidity $CaCO_3$	(000)	5	Lead	(0.00)	< 0.05
Chloride	(000)	17	Zinc	(00.00)	< 0.05
Sodium	(000)	8	Calcium		111.5
Potassium	(00.0)	1.1	Magnesium		2.1

Date received: August 29, 1975 Sept. 9, 1975

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