

# Layne

## PUMP RECORD

# 3 WELL

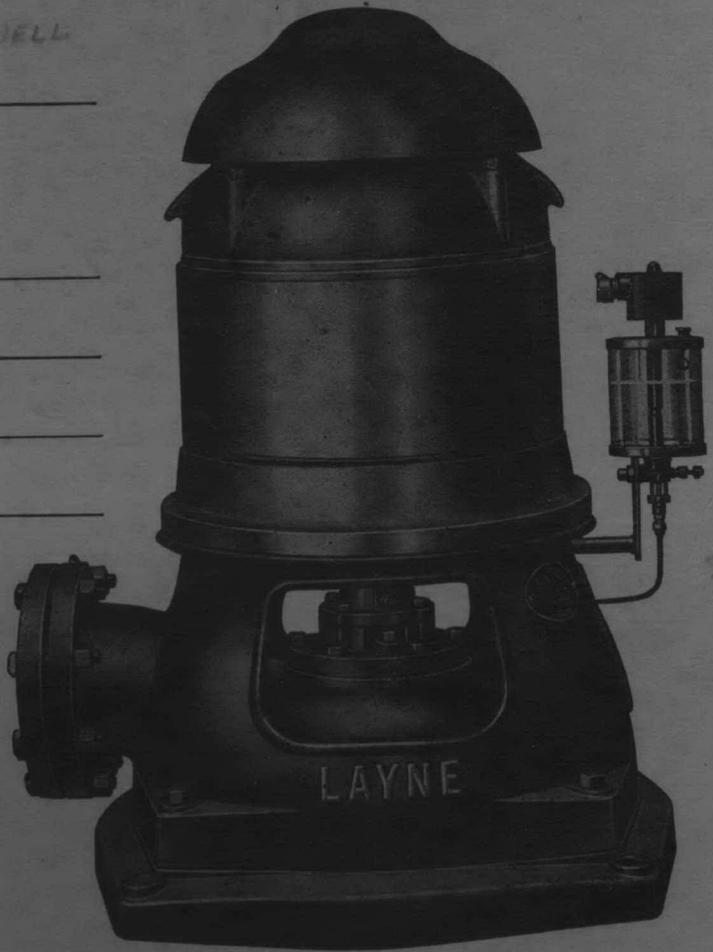
PUMP No. 29048

For MARINE CORPS. AIR FACILITY

Peterfield Point

Jacksonville, North Carolina

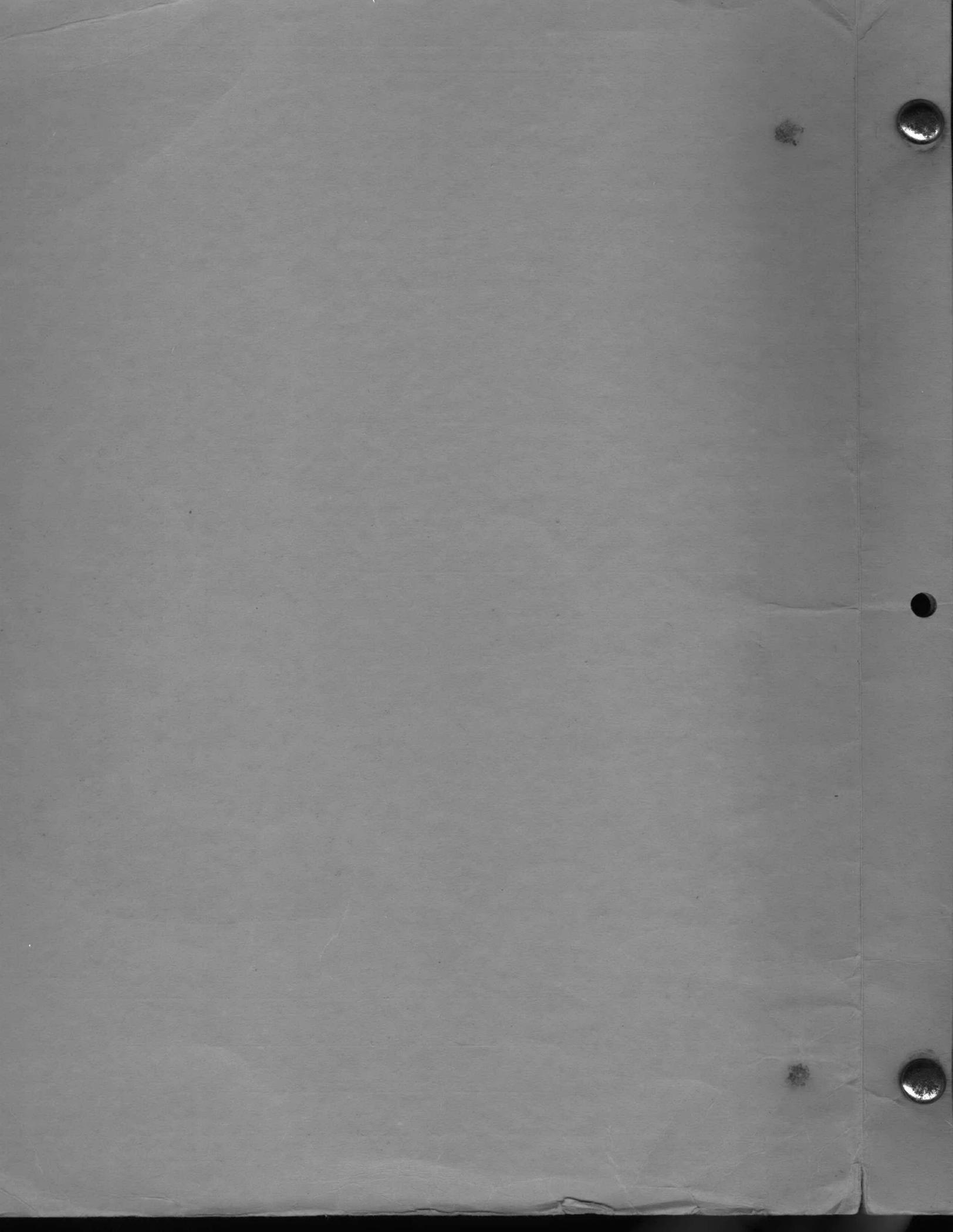
Date August 13, 1954



Layne Atlantic Company

Norfolk,

Virginia



Well      Air Line

B - NONE

D -

E - 61'-2"

F - 53'-4"

G - 61'-2"

H -

J - 62'

K -

L - 63'

M -

N - 80'

O - 80'

P - 80'

Q - 80'

R - 80'

4 - 77'-6"

7 -

8 -

10 -

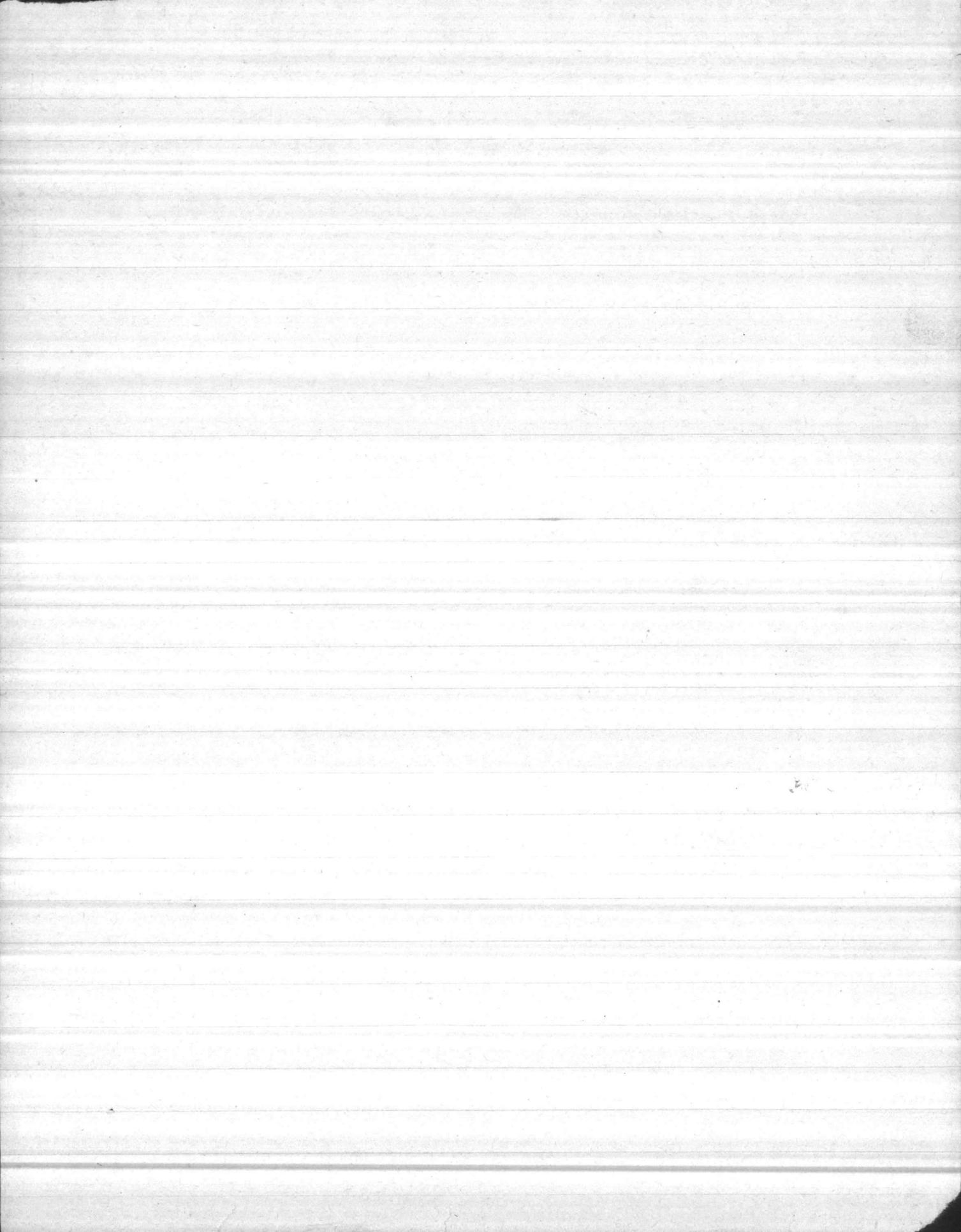
11 -

5 -

6 -

2 - OUT

3 - OUT



# HEATER WELL COMPANY

INCORPORATED

Largest Well Drilling Organization in the Carolinas

TELEPHONE 2-4675

206 S. SALISBURY STREET

By-3735, Well #6

RALEIGH, NORTH CAROLINA

Driller: J. P. Prine

LOG OF WELL For U. S. Marine Corps Air Facility, Peterfield Point, New River

Located at Jacksonville in Onslow County, State North Carolina

Date Drilling Started June 21, 1957, 19 Date Started June 18, 1957, 19

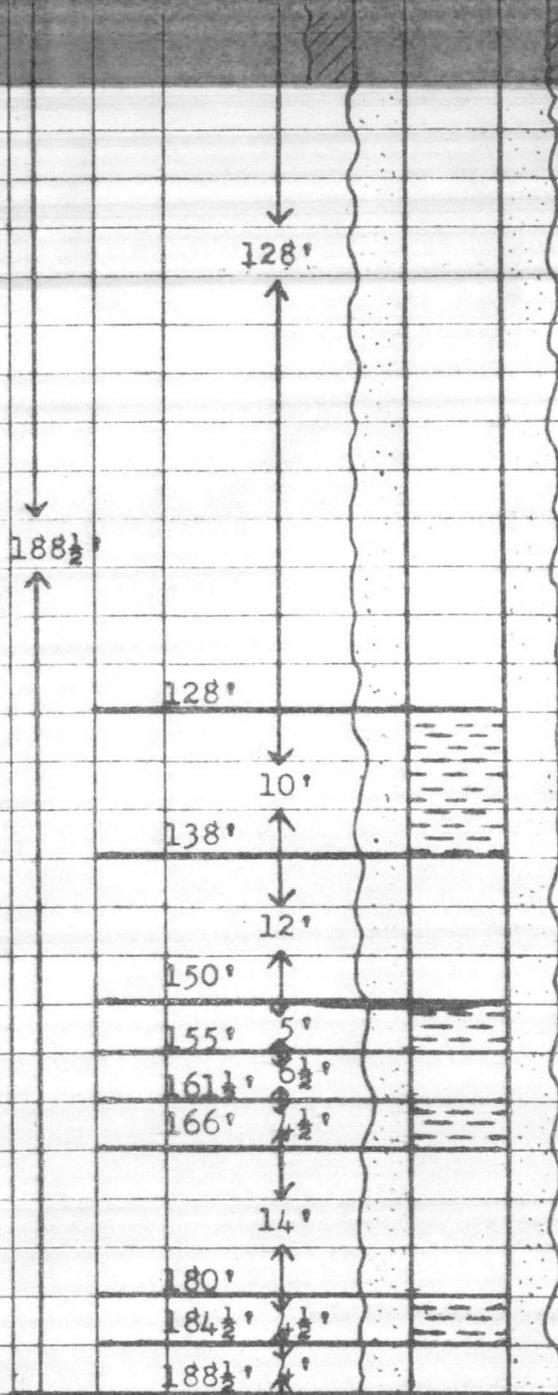
Finished Drilling June 27, 1957, 19 Finished July 3, 1957, 19

FORMATIONS AND DEPTH OF WELL					DIMENSIONS OF CASING AND SCREEN						
TOTAL DEPTH OF ALL STRATA		DEPTH OF EACH STRATUM		FORMATION FOUND AT EACH STRATUM	TOTAL LENGTH OF ALL SCREENS and CASINGS		LENGTH OF EACH SEC. OF SCREEN OR CASING		SPECIFY SCREEN OR CASING	SIZE OF SCREEN OR CASING	GAUGE OF SCREEN
FT.	IN.	FT.	IN.		FT.	IN.	FT.	IN.			
											3/8
8		8		Clay, yellow, hard	40		40		Pit Casing	18	
18		10		Sand, white, soft	130		130		Casing	8	Wrought iron
19		1		Clay, gray, soft	135		5		Screen	8	Bronze
37		18		Sand, white, soft	152		17		Casing	8	Wrought iron
56		19		Shellrock, gray, soft	162		10		Screen	8	Bronze
62		6		Sand, fine, gray, soft	168		6		Casing	8	Wrought iron
82		20		Sand & shells, gray, soft	173		5		Screen	8	Bronze
99		17		Streaks of rock & sand, gray, soft	177		4		Casing	8	Wrought iron
107		8		Clay, blue, soft	51				Airline	1	
122		15		Shellrock, gray, very hard							
182		60		Shellrock, gray, hard							
200		18		Shellrock, gray, soft							
				Soft streaks of fine shell fragments from 122 to 200.	80	bags of cement					
					15	tons of gravel					

# 6 well



# 5 well



**WELL DATA:**

**Preliminary Test**

Date Tested 19      Static Level  
 Production              GPM Pumping Level

**Permanent Test**

Date Tested 6-19- 19 57 Static Level 23'  
 Production 250      GPM Active St. Level  
 Drawdown 4'7"      Pumping Level 27'7"

Remarks:

**PUMP DATA:**

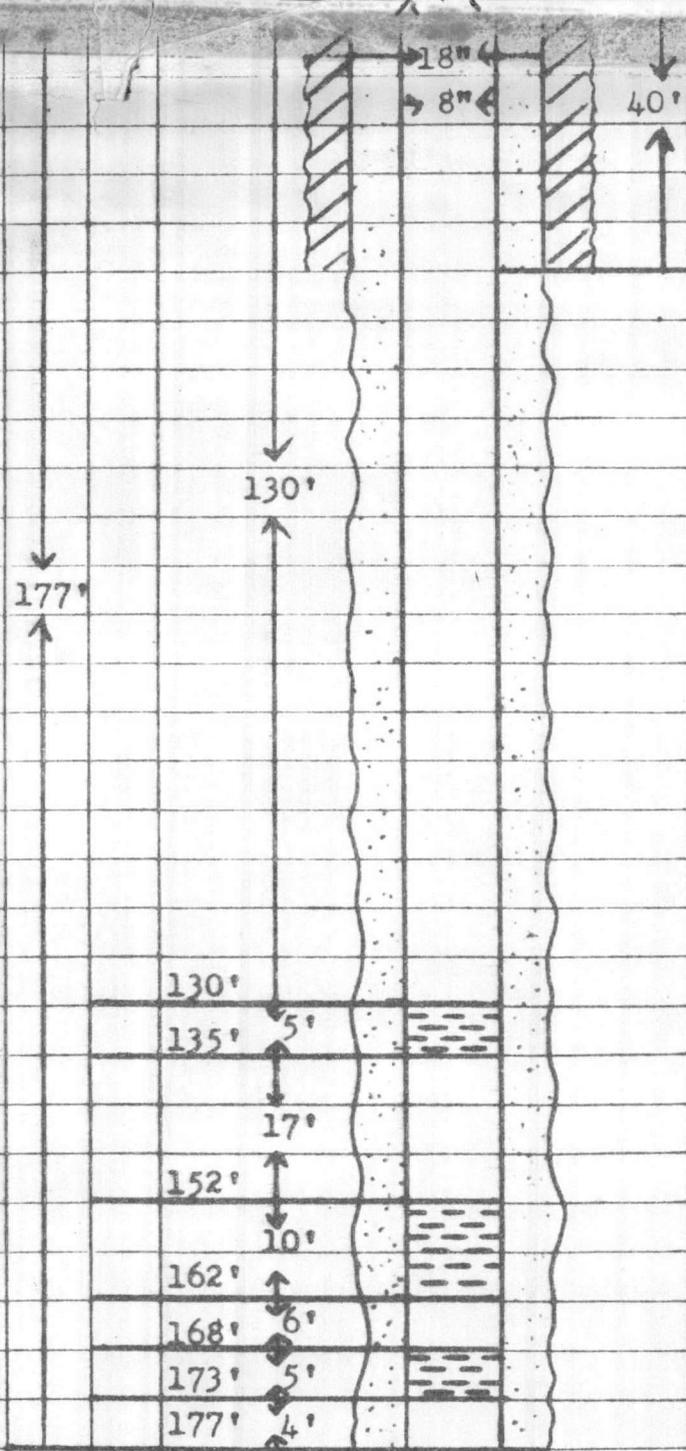
Shop No.              Type Lubr.  
 Type Head              Size Suction  
 Depth Setting      (BP to MB)  
 Size Column              Length Suction  
 Type Bowl              Length Air Line  
 No. Stages              Discharge-  
 Cap'y and Head              Pressure

**MOTOR DATA:**

Horsepower              Voltage  
 RPM              Phase  
 Type              Cycles  
 Make              Frame No.

Well #5, M.C.A.F., New River, N. C.





**WELL DATA:**

**Preliminary Test**

Date Tested 19      Static Level  
 Production              GPM Pumping Level

**Permanent Test**

Date Tested 7-3-1957      Static Level 23'  
 Production 250              GPM Active St. Level  
 Drawdown 5'4"              Pumping Level 28'4"

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.



U. S. MARINE CORPS AIR FACILITY  
PETERFIELD POINT, CAMP LEJEUNE  
JACKSONVILLE, NORTH CAROLINA

Test No. 4  
Layne Atlantic test No. 3  
9/13/54  
T. A. Loving Co.  
Res. 25  
Pot. 10

20'

40'

60'

80'

100'

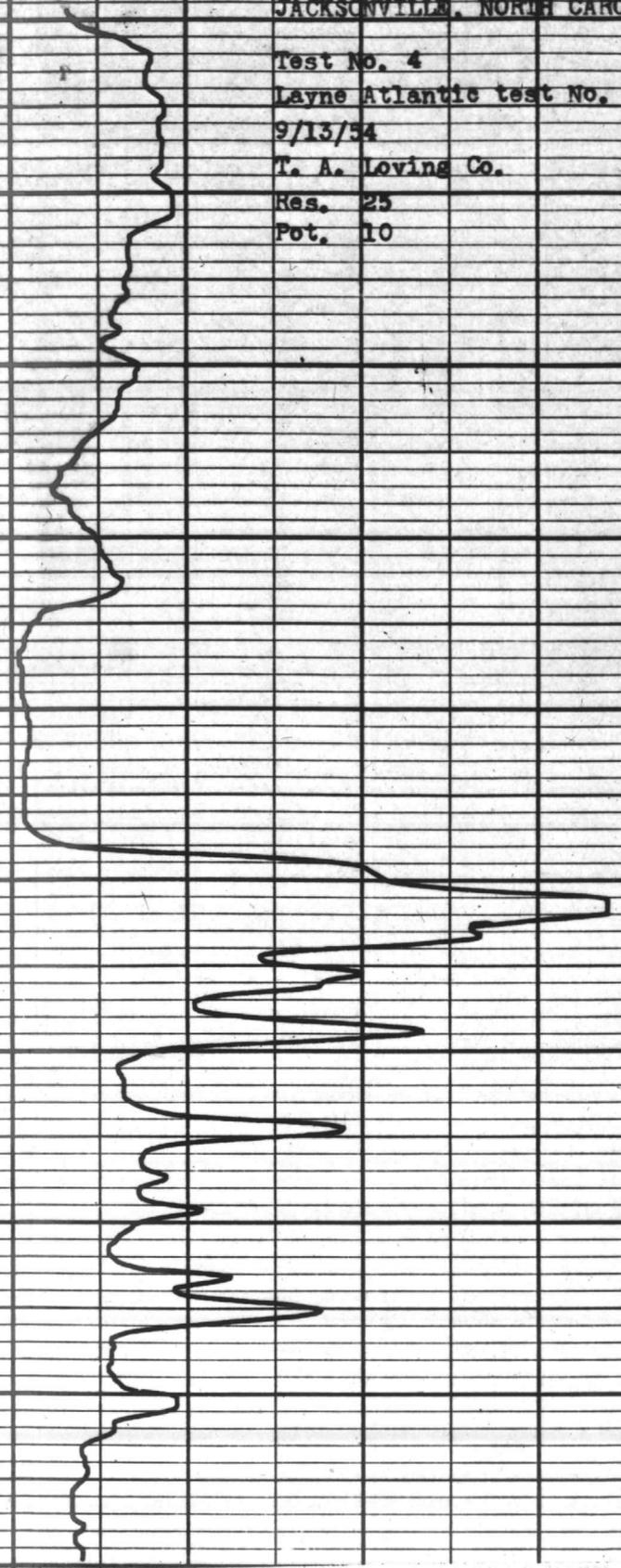
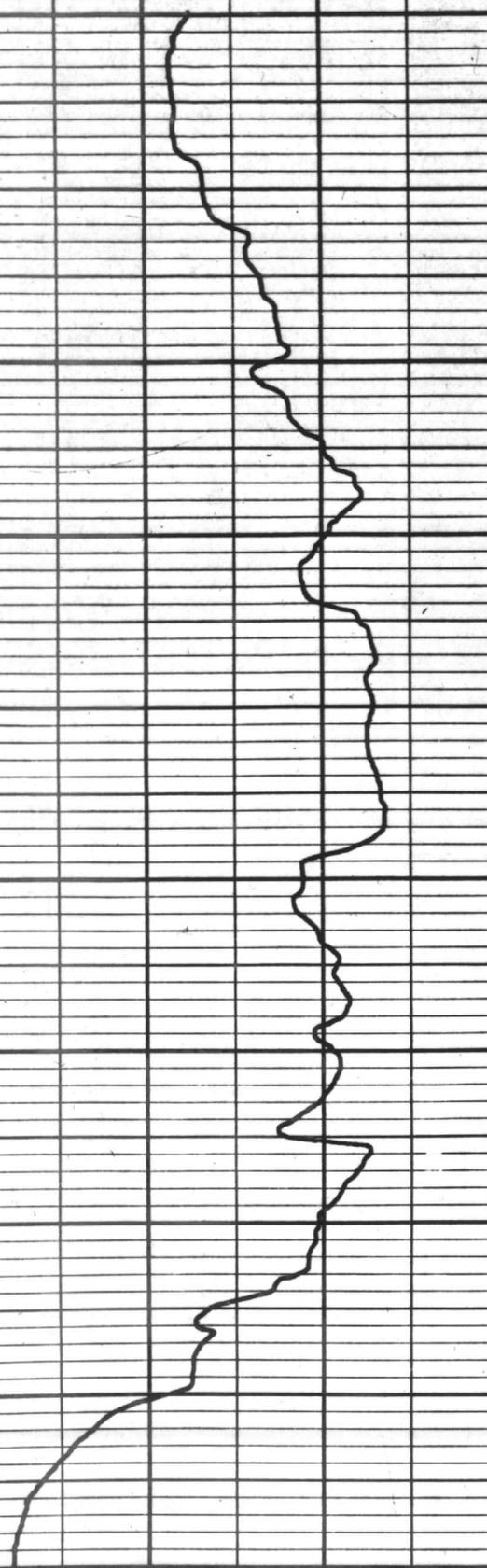
120'

140'

160'

180'

200'





DEPTH

U. S. MARINE CORPS AIR FACILITY  
PETERFIELD POINT, CAMP LEJEUNE  
JACKSONVILLE, NORTH CAROLINA

Test No. 1

7/26/54

T. A. Loving Col

Res. 25

Pot. 20

0

20

40

60

80

100

120

140

160

180

199

LOUNE ATLANTIC COMPANY

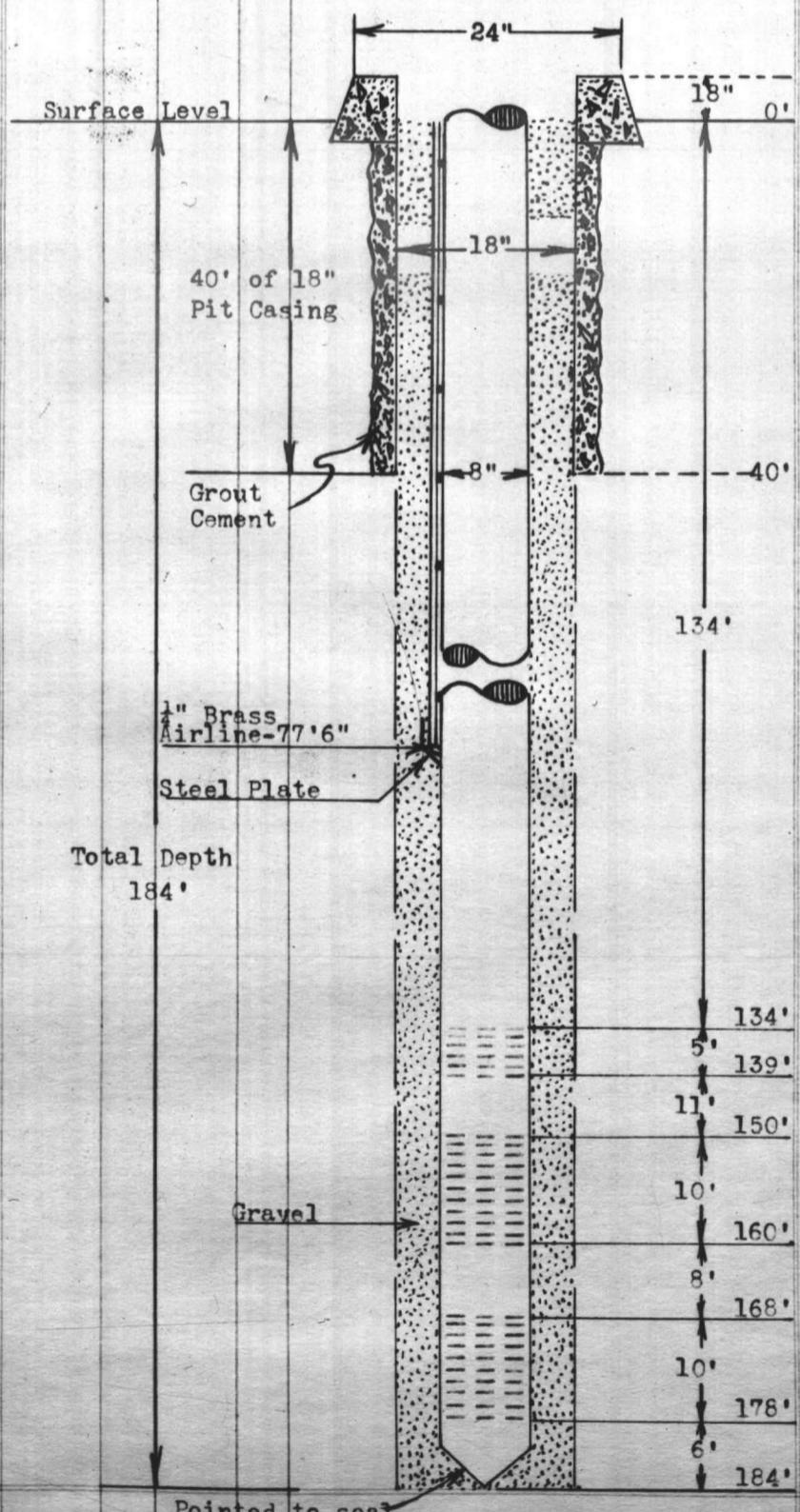


# LAYNE ATLANTIC COMPANY

NORFOLK, VA.

LOG OF WELL For MARINE CORPS, AIR FACILITY (Camp LeJeune) Driller: A. A. Layne  
 Located at Peterfield Point in Jacksonville County, State North Carolina  
 Date Drilling Started July 21, 19 54 Date Started July 19, 19 54  
 Finished Drilling August 26, 19 54 Finished October 19 54

FORMATIONS AND DEPTH OF WELL				DIMENSIONS OF CASING AND SCREEN							
TOTAL DEPTH OF ALL STRATA		DEPTH OF EACH STRATUM		FORMATION FOUND AT EACH STRATUM	TOTAL LENGTH OF ALL SCREENS and CASINGS		LENGTH OF EACH SEC. OF SCREEN OR CASING	SPECIFY SCREEN OR CASING	SIZE OF SCREEN OR CASING	GAUGE OF SCREEN	
FT.	IN.	FT.	IN.		FT.	IN.					FT.
Their well # 3											
Well No. 1											
0		33		Fine sandy clay	40		40		Casing	18	Pit
44		11		Fine sand & shell, trace limestone	8" casing commences at surface level						
64		20		Shellrock, traces of limestone	134		134		Casing	8	
85		21		Shellrock, fine sand	139		5		Screen	8	#6 Opening Everdur
105		20		Coarse shell, signs of clay	150		11		Casing	8	
126		21		Blue clay	160		10		Screen	8	#6 Opening Everdur
146		20		Limestone, (trent)	168		8		Casing	8	
151		5		Soft clay	178		10		Screen	8	#6 Opening Everdur
154		3		Limestone, hard	184		6		Casing	8	
159		5		Fine white sand, packed							
167		8		Limestone, some fine sand							
187		20		Limestone							
208		21		Fine white sand, streaks limestone							



**WELL DATA:**

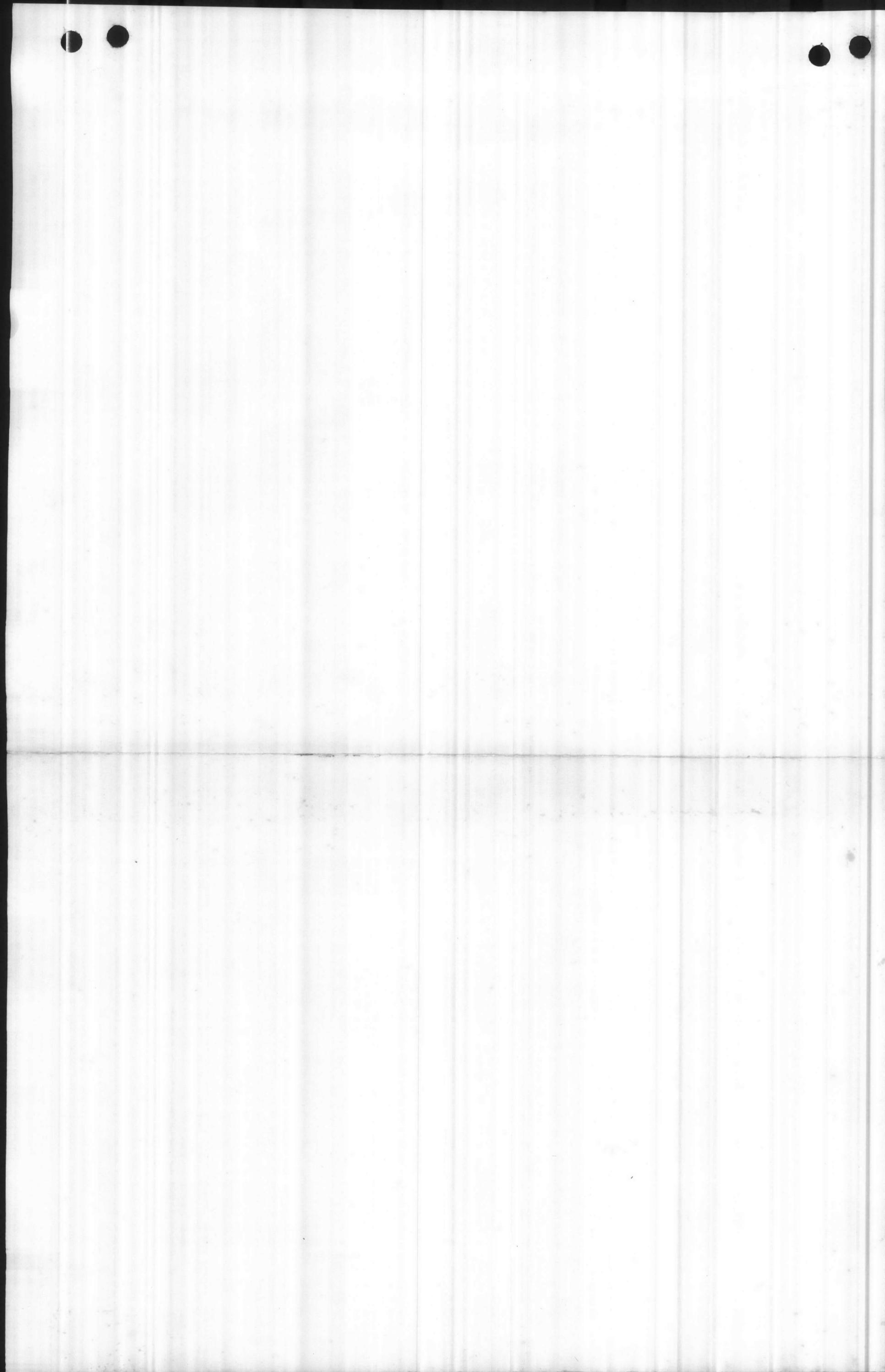
**Preliminary Test**  
 Date Tested 1954 Static Level  
 Production GPM Pumping Level  
**Permanent Test**  
 Date Tested 9/1 1954 Static Level 10'  
 Production 224 GPM Active St. Level  
 Drawdown 14' Pumping Level 24'  
 Remarks: 24 Hour Test. 24# Pressure

**PUMP DATA:**

Shop No. 29048 Type Lubr. 220 Volt Solenoid  
 Type Head TF613 Size Suction 4"  
 Depth Setting 50' (BP to MB)  
 Size Column 5" X 1 1/2" X 1" Length Suction 20'  
 Type Bowl 8" DRHC Length Air Line 77'6" of 1/4" Brass  
 No. Stages 5 Discharge- 6"  
 Cap'y and Head Pressure

**MOTOR DATA:**

Horsepower 15 Voltage 208/416  
 RPM 1800 Phase 3  
 Type SCU Cycles 60  
 Make U. S. Frame No. 326P

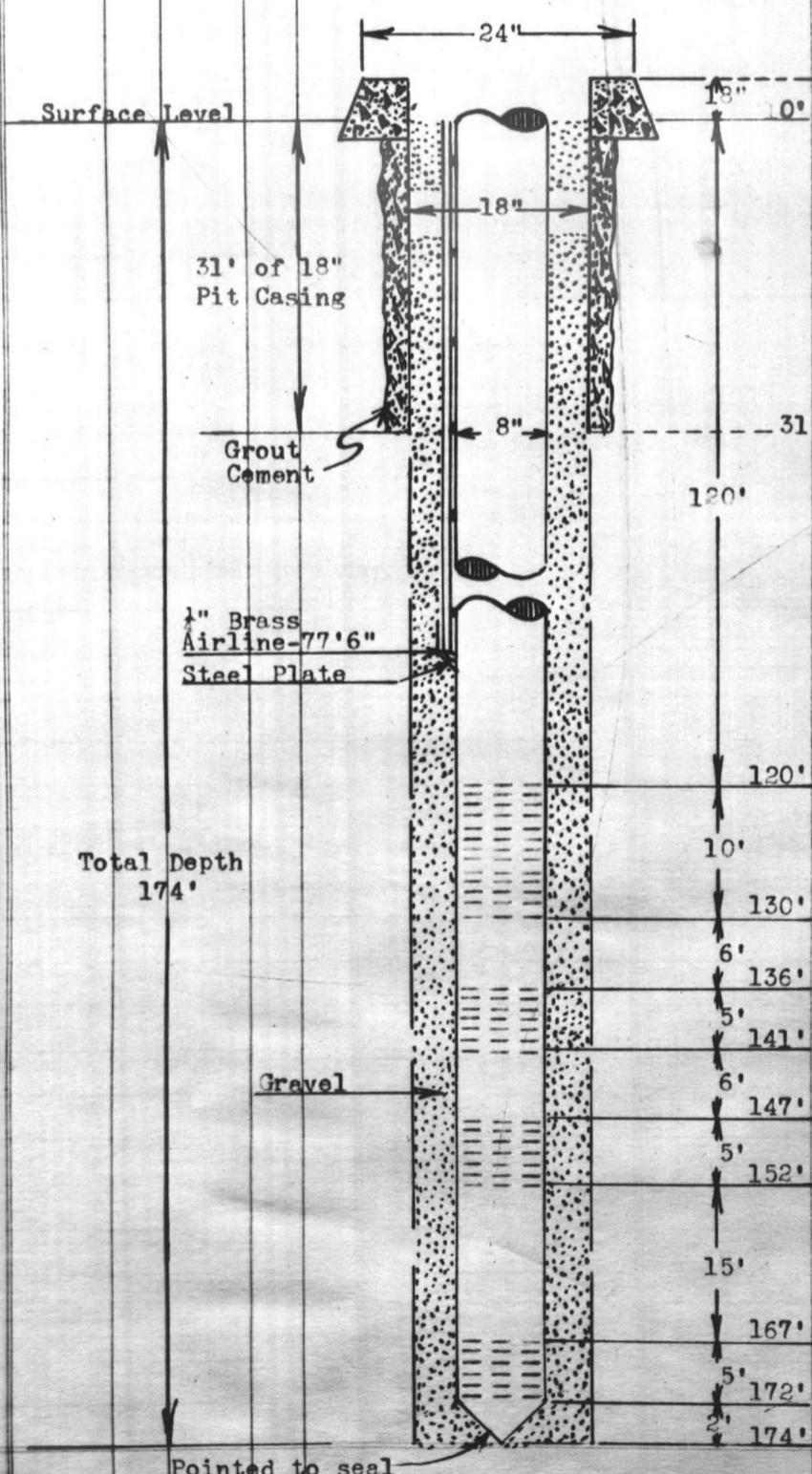


# LAYNE ATLANTIC COMPANY

## NORFOLK, VA.

LOG OF WELL For MARINE CORPS, AIR FACILITY Driller: Elwood Hurdle  
 Located at Peterfield Point in Jacksonville, County, State North Carolina  
 Date Drilling Started July 29, 19 54 Date Started July 19, 19 54  
 Finished Drilling September 14, 19 54 Finished October 19 54

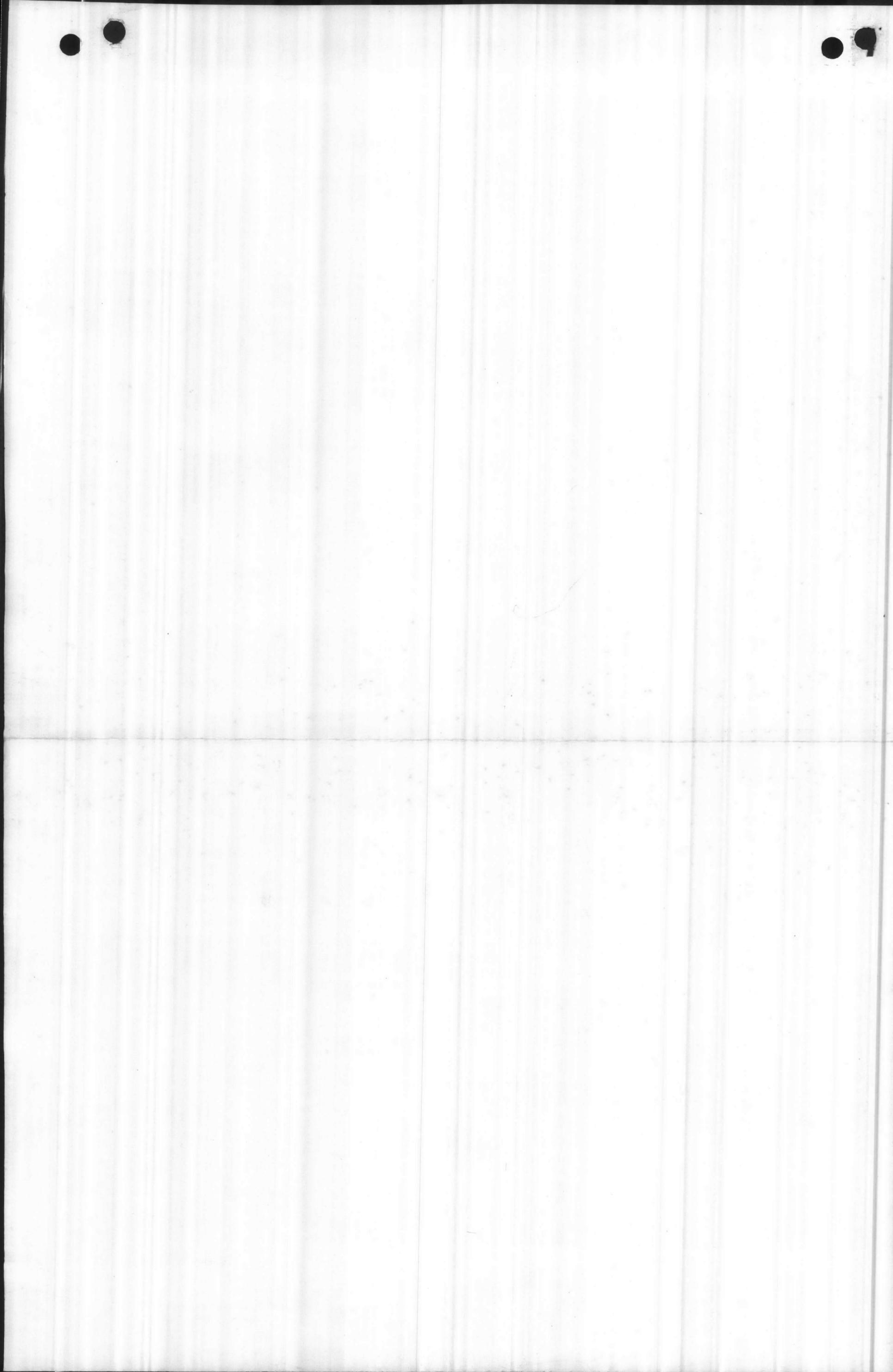
FORMATIONS AND DEPTH OF WELL				DIMENSIONS OF CASING AND SCREEN						
TOTAL DEPTH OF ALL STRATA		DEPTH OF EACH STRATUM		FORMATION FOUND AT EACH STRATUM	TOTAL LENGTH OF ALL SCREENS and CASINGS		LENGTH OF EACH SEC. OF SCREEN OR CASING	SPECIFY SCREEN OR CASING	SIZE OF SCREEN OR CASING	GAUGE OF SCREEN
				Their well No. 4						
				Well No. 2						
0		15		Surface sand and yellow clay	31		31	Casing	18	Pit
18		3		Medium sand	8" casing commences at surface level					
24		6		Mixed clay	120		120	Casing	8	
43		19		Shellrock	130		10	Screen	8	6
64		21		Shellrock and streaks of sand	136		6	Casing	8	
74		10		Shellrock and streaks of sand	141		5	Screen	8	6
84		10		Shellrock & streaks coarse sand	147		6	Casing	8	
105		21		Blue clay	152		5	Screen	8	6
121		16		Blue clay, some soft shell	167		15	Casing	8	
129		8		Limestone, hard	172		5	Screen	8	6
146		17		Limestone, soft	174		2	Casing	8	
178		32		Limestone, Hard						
195		17		Limestone, soft						
200		5		Limestone and streaks of sand						
208		8		Soft blue clay						



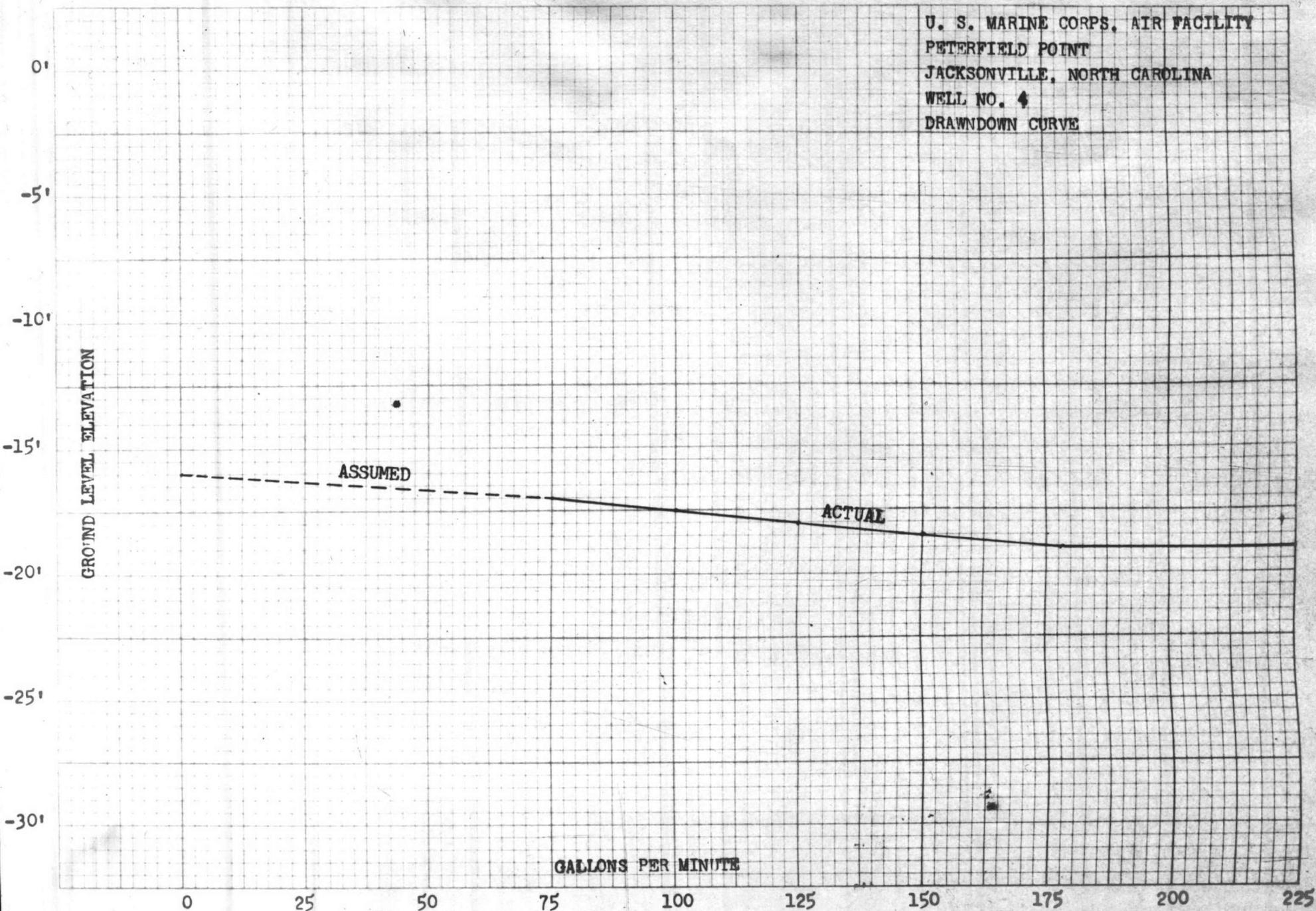
**WELL DATA:**  
**Preliminary Test**  
 Date Tested 10/3 1954 Static Level 15'9"  
 Production 75 GPM Pumping Level 17'  
**Permanent Test**  
 Date Tested 10/4 1954 Static Level 16'  
 Production 178 GPM Active St. Level  
 Drawdown 3' Pumping Level 19'  
 Remarks: 24 Hour test.

**PUMP DATA:**  
 Shop No. 29049 Type Lubr. 220 Volt Solenoid  
 Type Head TF613 Size Suction 4"  
 Depth Setting 50' (BP to MB)  
 Size Column 5" X 1 1/4" X 1" Length Suction 20'  
 Type Bowl 8" DRHC Length Air Line 77'6"  
 No. Stages 5 Discharge- 6"  
 Cap'y and Head Pressure

**MOTOR DATA:**  
 Horsepower 15 Voltage 208/416  
 RPM 1800 Phase 3  
 Type SCU Cycles 60  
 Make U.S. Frame No. 326P

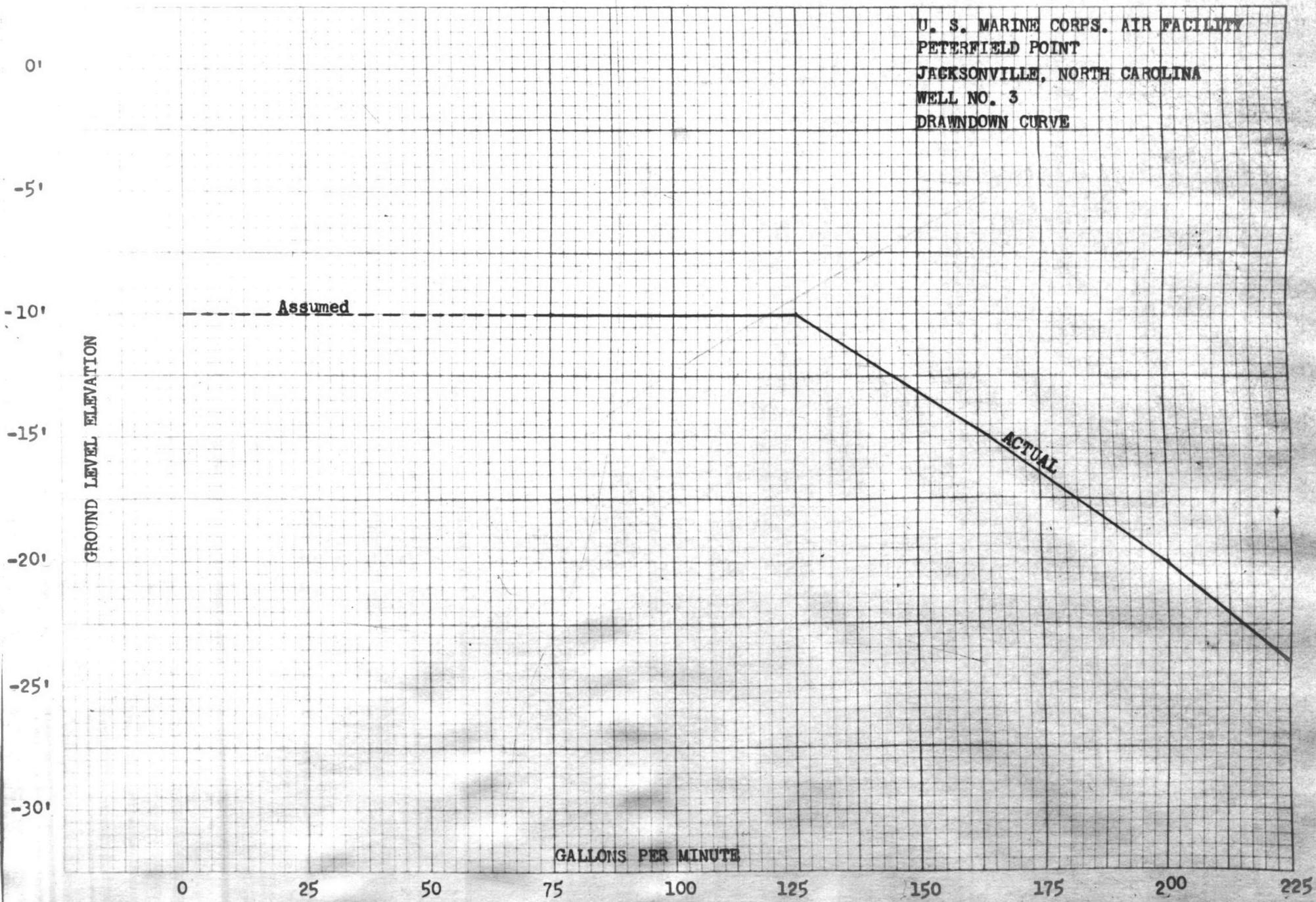


U. S. MARINE CORPS, AIR FACILITY  
PETERFIELD POINT  
JACKSONVILLE, NORTH CAROLINA  
WELL NO. 4  
DRAWDOWN CURVE





U. S. MARINE CORPS. AIR FACILITY  
PETERFIELD POINT  
JACKSONVILLE, NORTH CAROLINA  
WELL NO. 3  
DRAWNDOWN CURVE



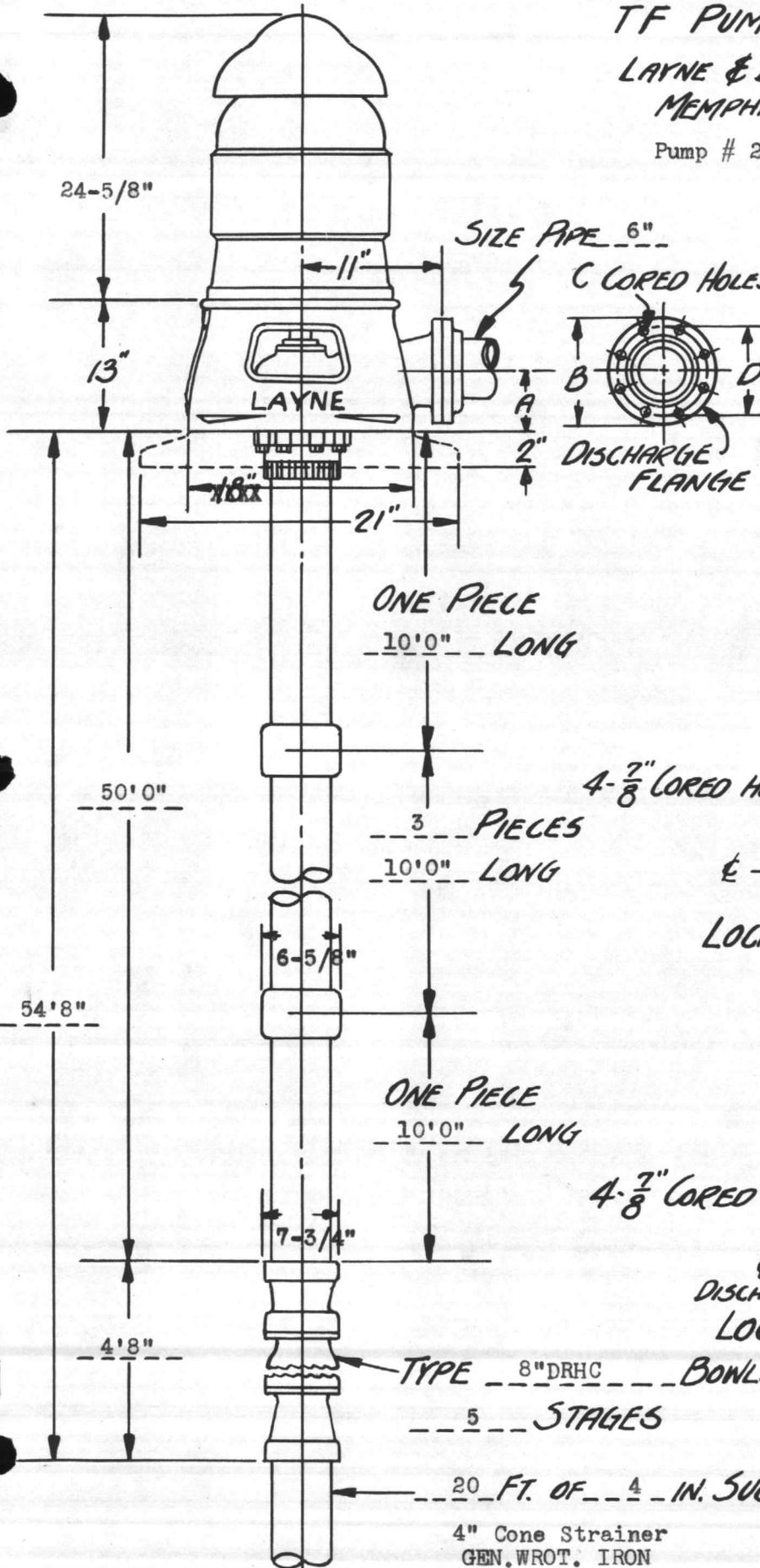


# INSTALLATION PLAN TF PUMP HEAD

LAYNE & BOWLER INC.

MEMPHIS, TENN.

Pump # 29048

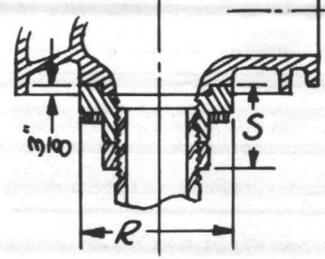
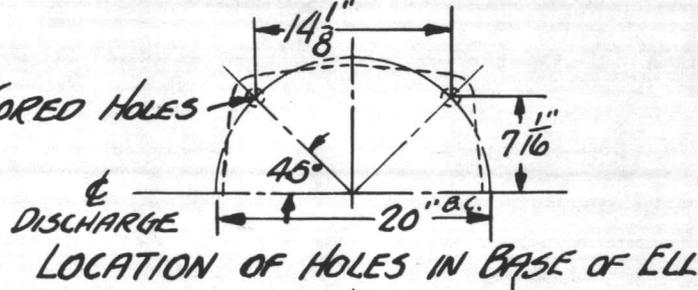
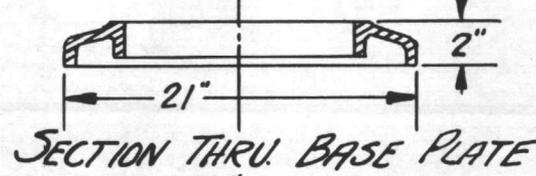
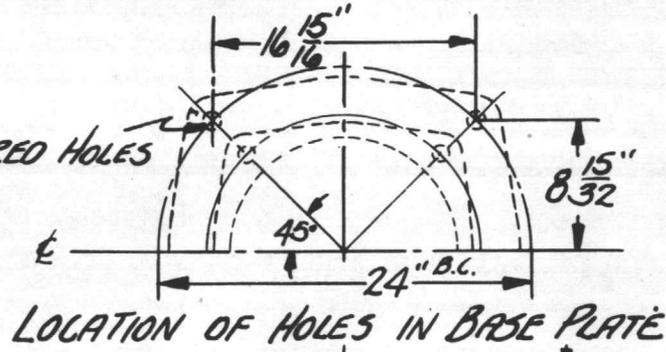


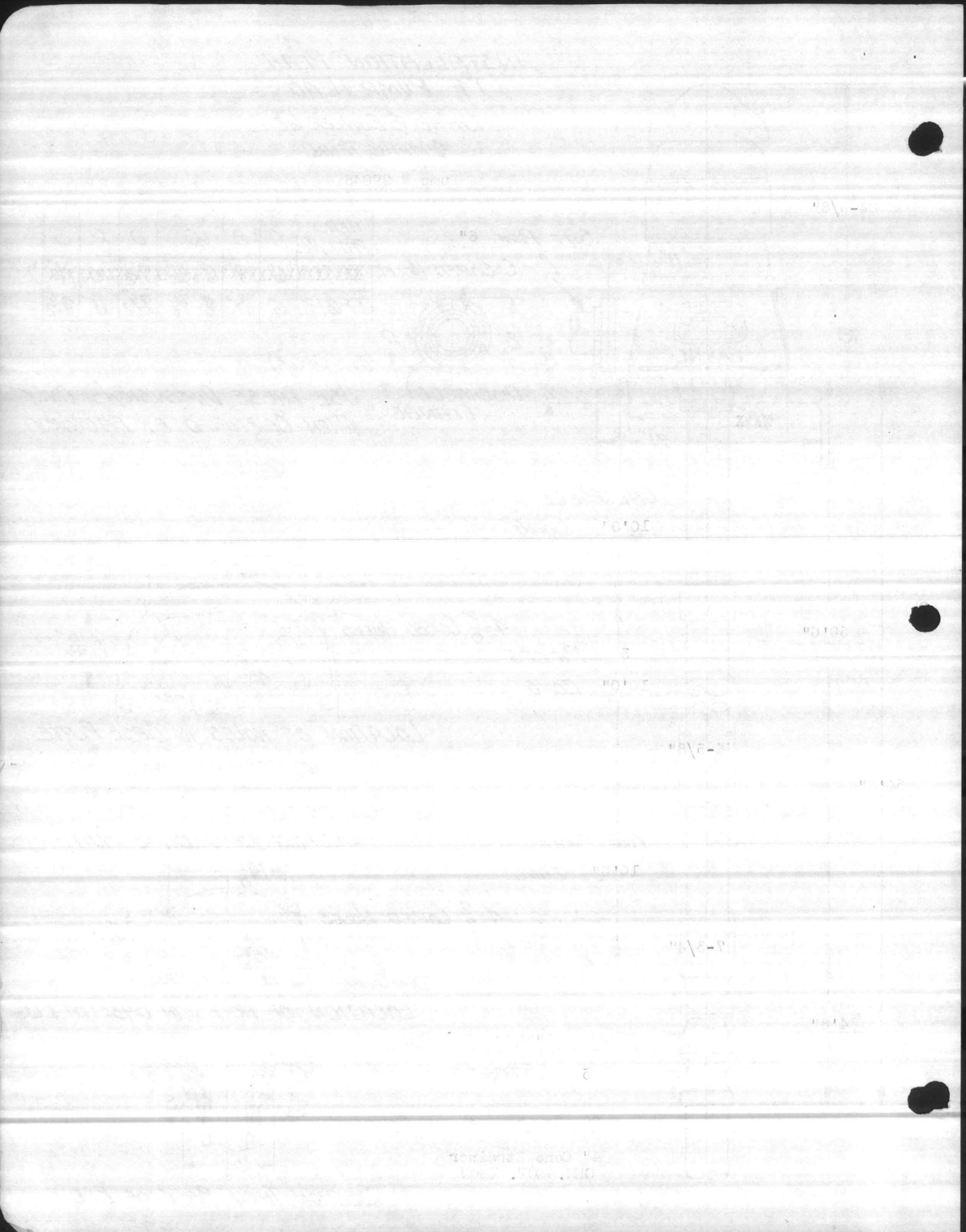
HEAD PATT. NO.	A	B	C	D	R	S
TF 413	6"	9"	8-7/8"	7 1/2"	10"	9 1/2"
TF 613	6"	11"	8-7/8"	9 1/2"	11"	9 1/2"



(BOLT CIRCLE)

USE THESE DIMENSIONS ONLY  
WHEN CERTIFIED BY FACTORY.





# LAYNE 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 a mixture of red lead and shellac. 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  $\frac{1}{4}$ -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 against 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 the mixture of red lead and shellac 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 the mixture of red lead and shellac 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.

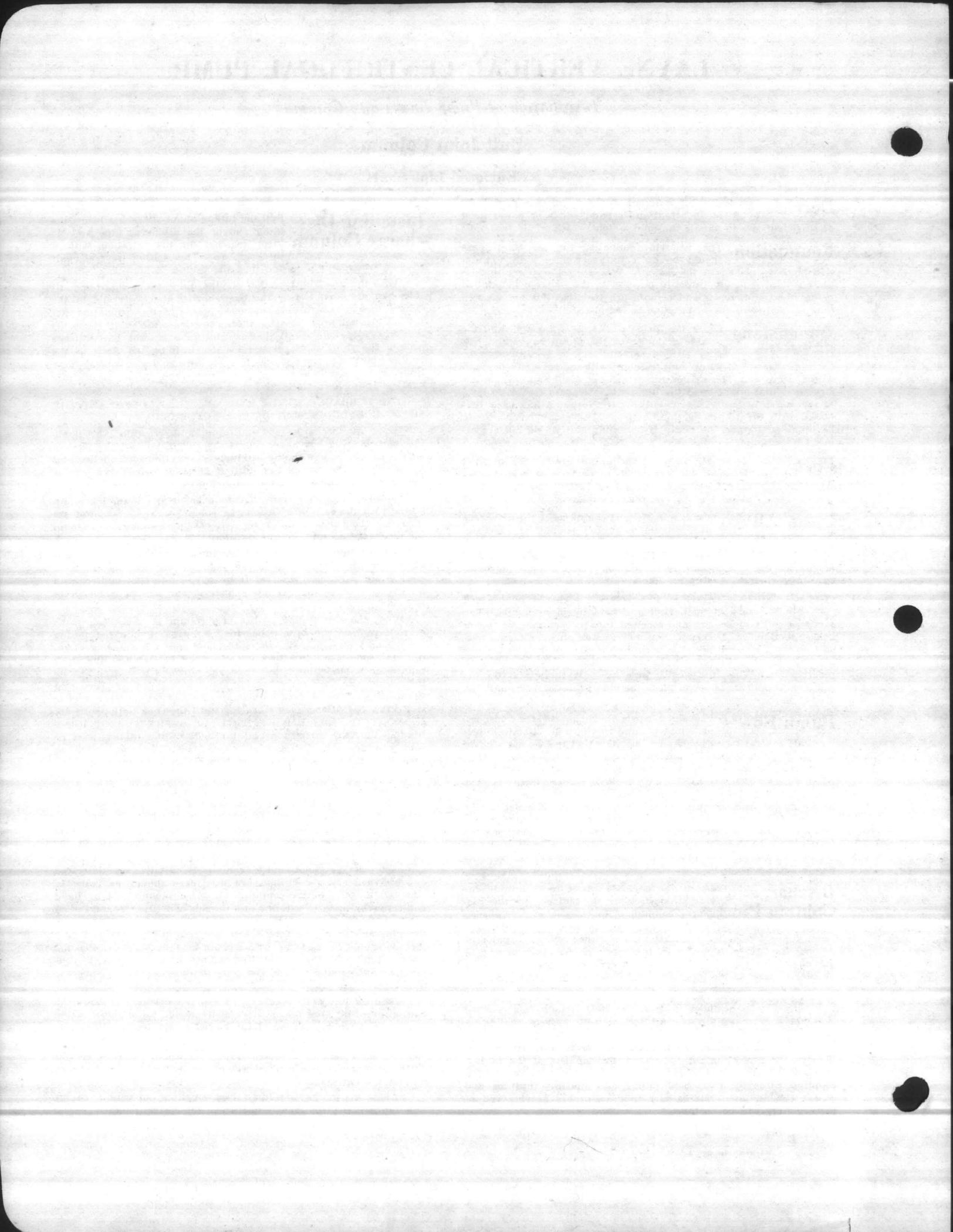
When flanged column is used, slip a bronze spider or aligning ring over the top of the tubing and fit it into the recess in the flange. (Refer to spider spacing chart to determine whether a flange or aligning ring should be used at the joint in question). When screw coupled column is used the spider 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.

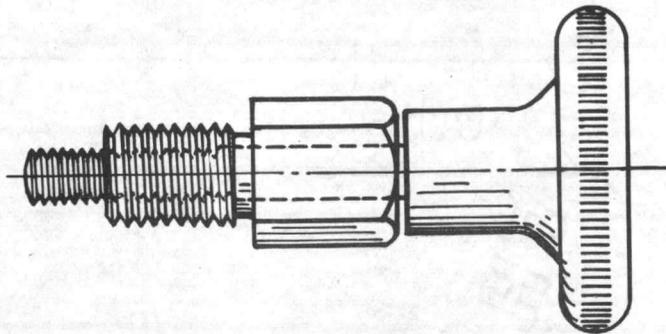
When the line shaft connects to the motor drive shaft below the tension assembly, the motor drive shaft should be attached to the line shaft in the top section of tubing before the top length of discharge column is installed.

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.

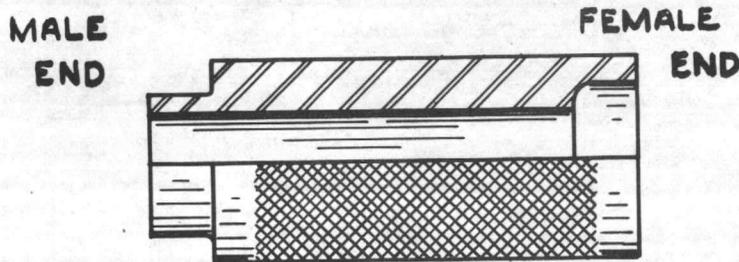
In case the discharge column does not check out within reasonable limits notify the factory to furnish the correct lengths.



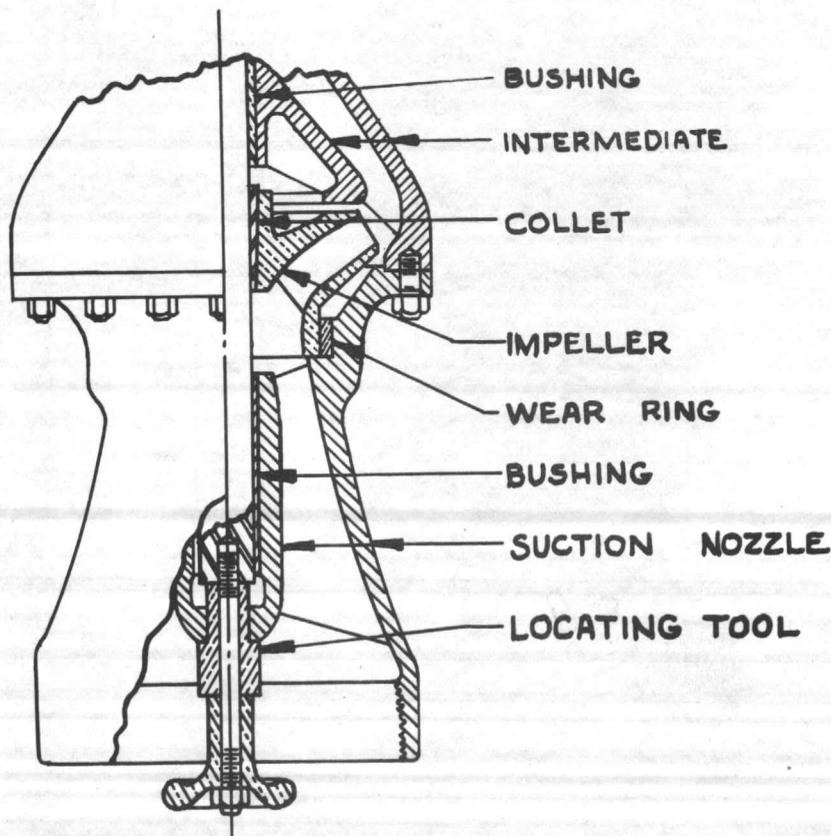
## INSTRUCTIONS FOR ASSEMBLING AND DISMANTLING PUMP BOWLS WITH COLLETS



**LOCATING TOOL**



**COLLET DRIVER**



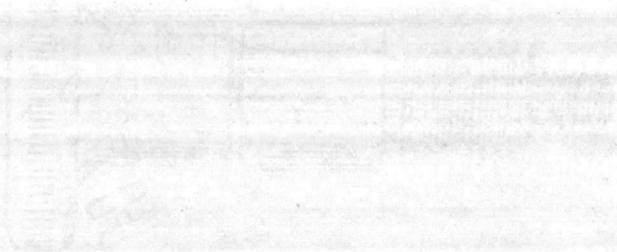
### **TO ASSEMBLE BOWL**

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 hand-wheel 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.

THE BOSTON PUBLIC LIBRARY



LIBRARY OF THE BOSTON PUBLIC LIBRARY

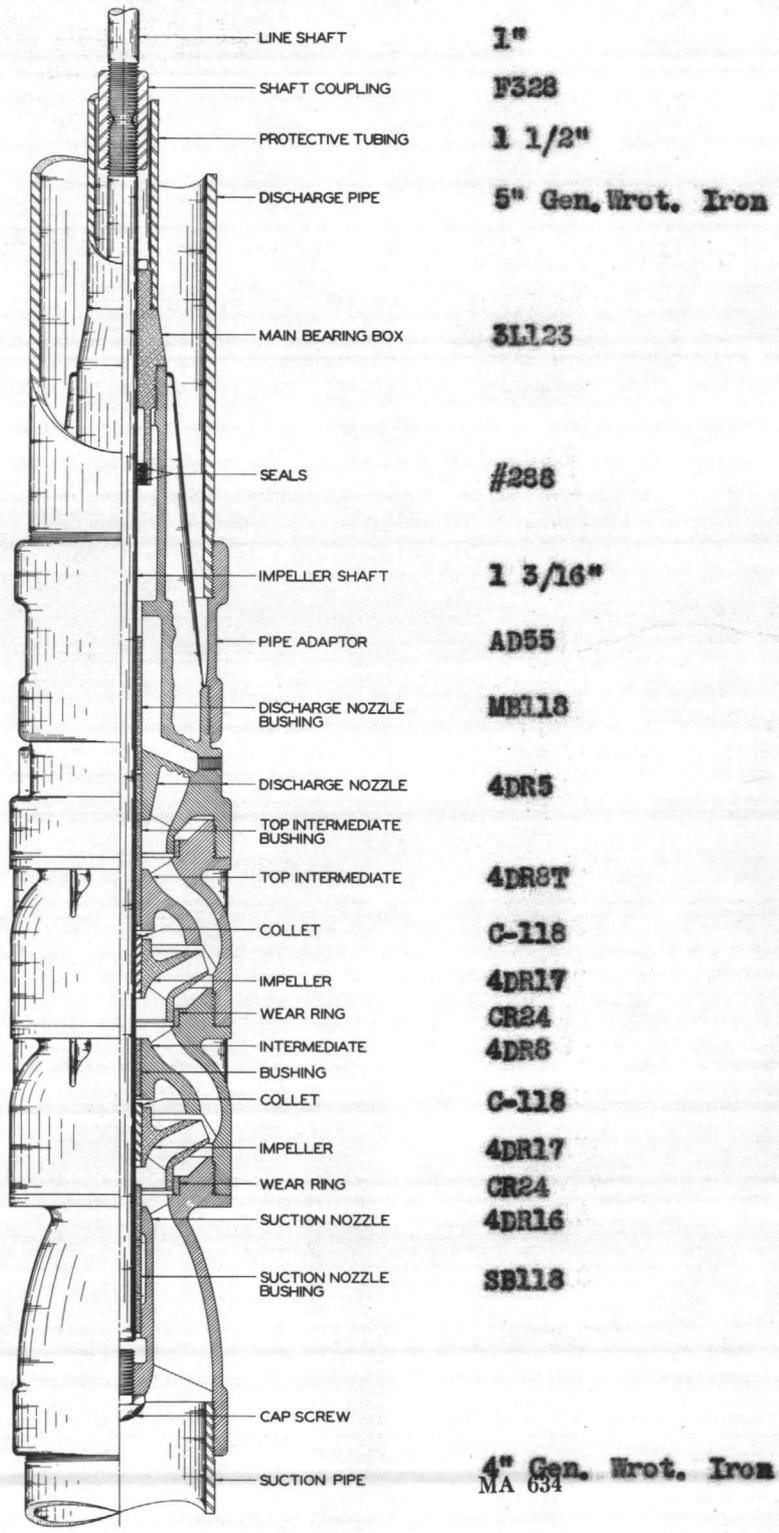
1877

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Pump # 29048

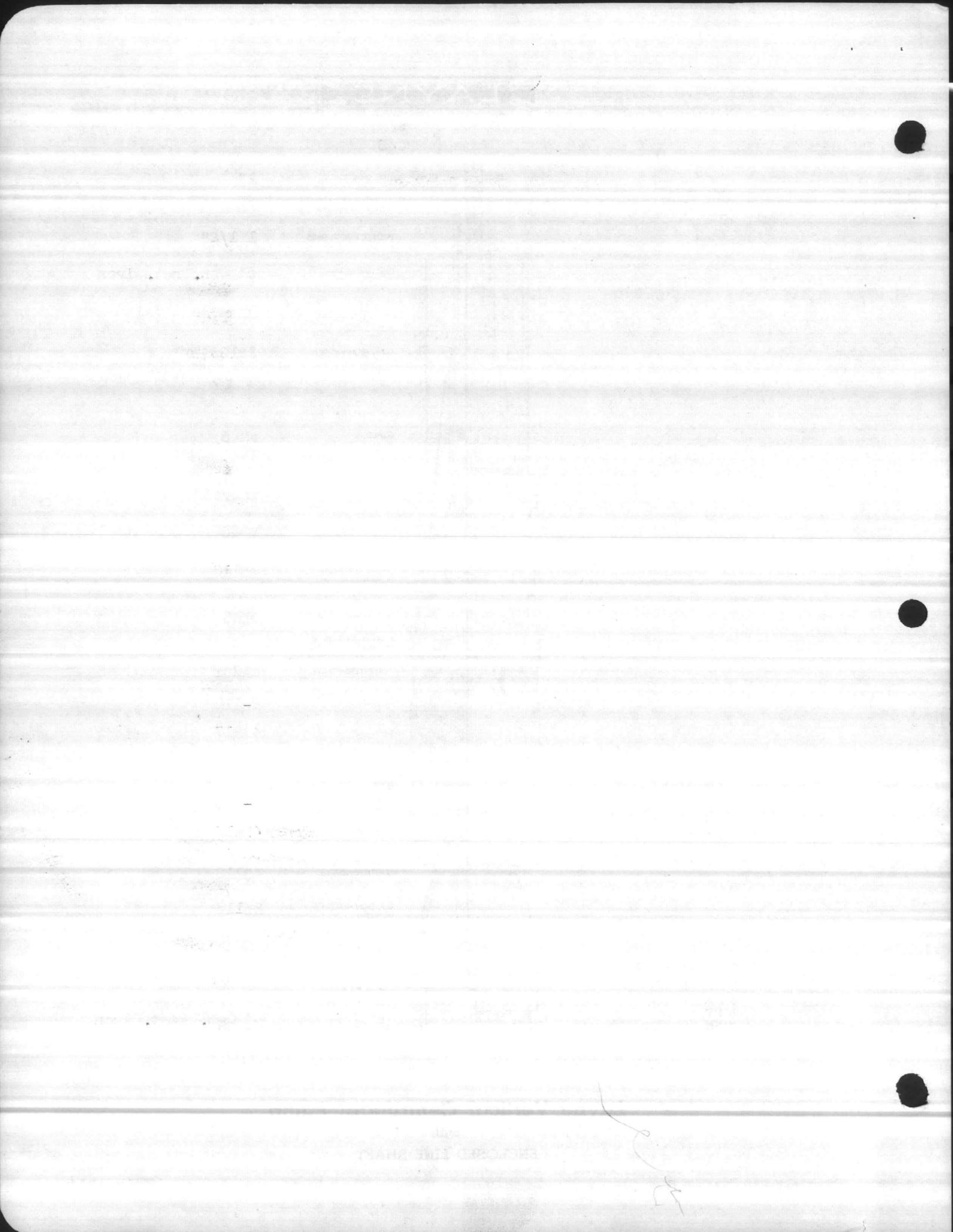


- LINE SHAFT 1"
- SHAFT COUPLING F328
- PROTECTIVE TUBING 1 1/2"
- DISCHARGE PIPE 5" Gen. Wrot. Iron
- MAIN BEARING BOX 3L123
- SEALS #288
- IMPELLER SHAFT 1 3/16"
- PIPE ADAPTOR AD55
- DISCHARGE NOZZLE BUSHING MB118
- DISCHARGE NOZZLE 4DR5
- TOP INTERMEDIATE BUSHING
- TOP INTERMEDIATE 4DR8T
- COLLET C-118
- IMPELLER 4DR17
- WEAR RING CR24
- INTERMEDIATE BUSHING 4DR8
- COLLET C-118
- IMPELLER 4DR17
- WEAR RING CR24
- SUCTION NOZZLE 4DR16
- SUCTION NOZZLE BUSHING SB118
- CAP SCREW
- SUCTION PIPE 4" Gen. Wrot. Iron  
MA 634

**8" DRHC**  
Screw Coupled Type

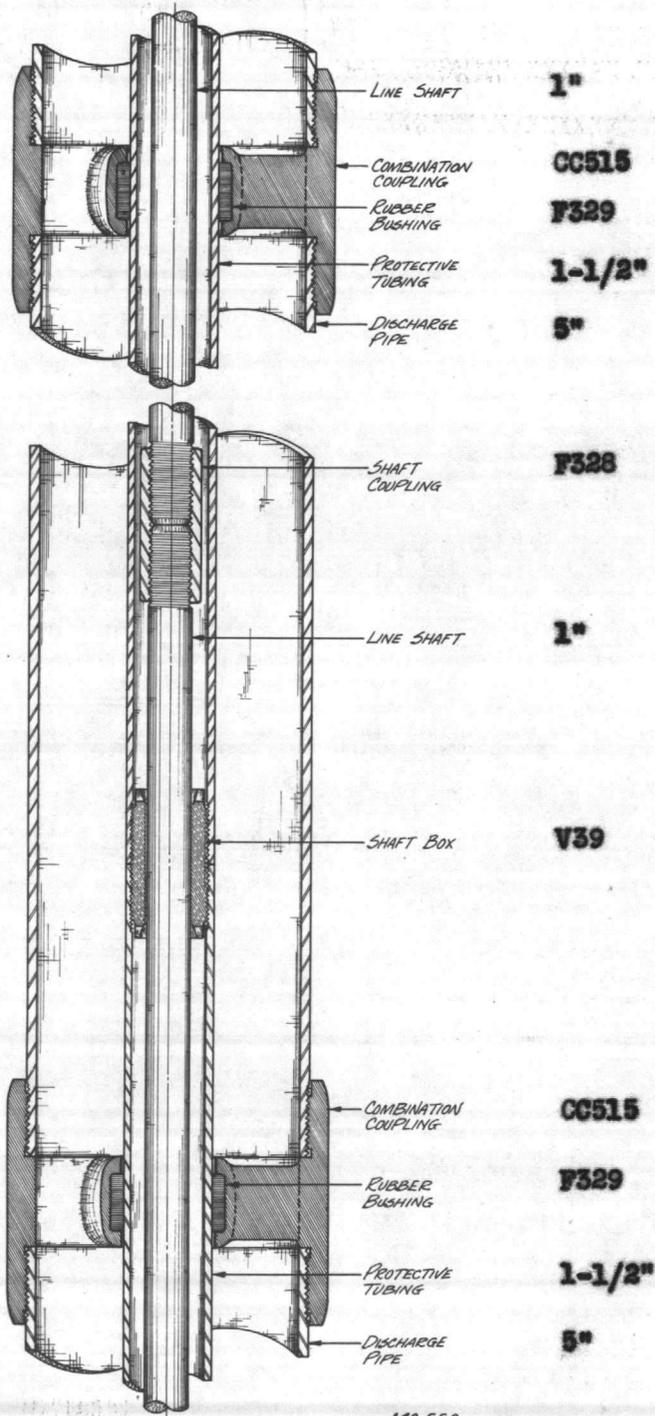
8"DR	10"RK
8"RK	10"SK
8"PR	
8"SK	

**Layne Vertical Centrifugal Pump**  
with  
**ENCLOSED LINE SHAFT**



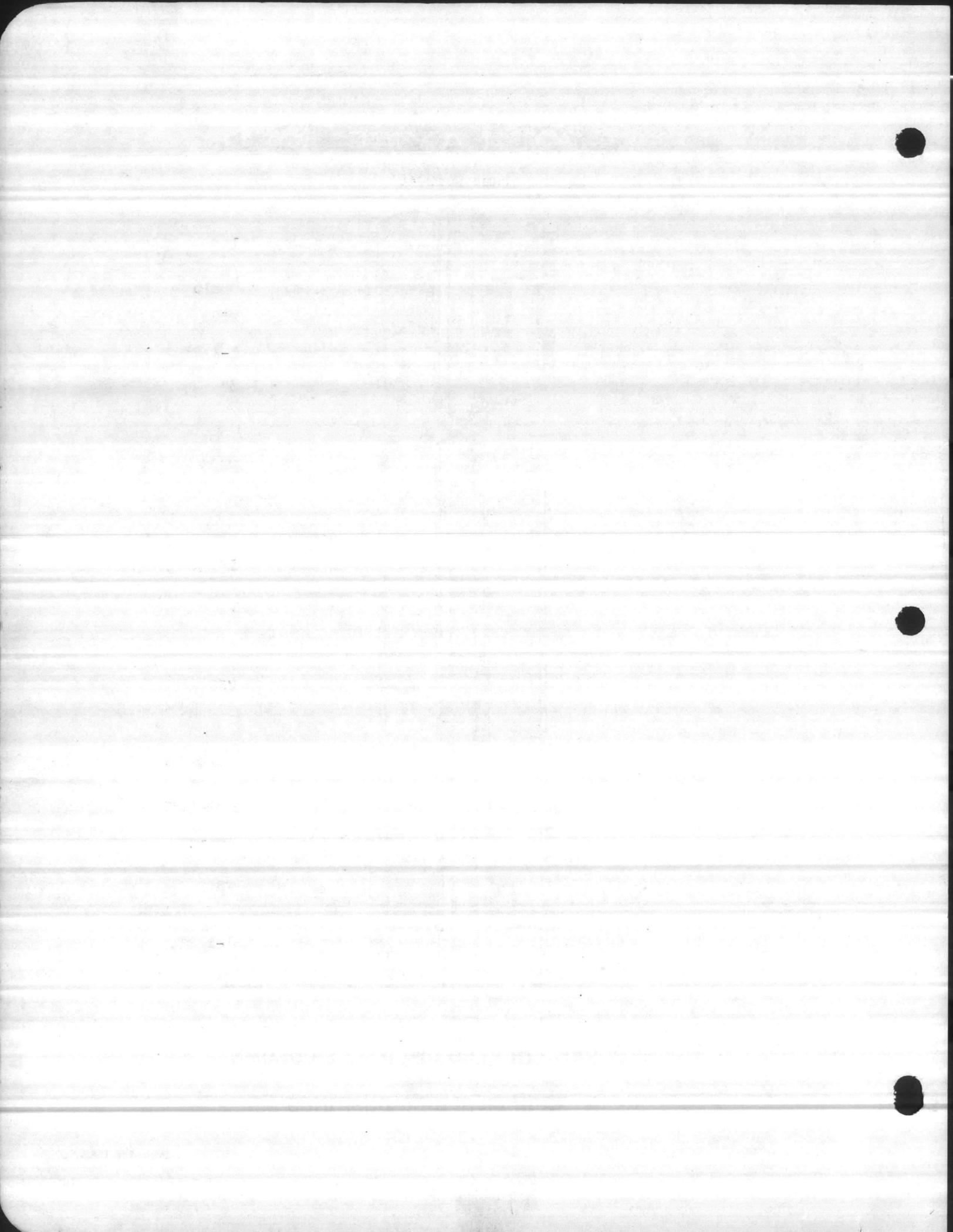


Pump # 29048



MA 550

**SCREW COUPLED DISCHARGE COLUMN  
WITH  
RUBBER SPIDER BUSHINGS**



# LAYNE VERTICAL CENTRIFUGAL PUMP

## Installation of Pump Heads with Butt Joint Stuffing Box Hollow Shaft, Motor Driven

### 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

The top length of discharge pipe is machined with an extra long outside thread on the top end and in most cases is fitted with a special adjustable flange and cast iron packing ring to fit the bottom of the discharge ell. (When 3" casing is used there is a short piece of pipe with inside and outside threads which screws on the top length of casing). Screw the cast iron packing ring down on the piece of pipe as far as possible. Clean the face of the adjustable flange and the bottom flange of the discharge ell and coat with Layncote. Likewise clean the threads on the top piece of pipe and the threads in the adjustable flange or discharge ell and paint with Layncote. Bolt the flange to the discharge ell and/or screw the discharge ell down on the column pipe to the proper location so that the packing box can be installed and tightened to a butt joint connection with the tubing before backing the ell up to take tension. TAKE CARE NOT TO PLACE ANY STRAIN ON THE SHAFT as the danger of bending is great, and any deformation, however slight, will give trouble in operation.

### Packing Box

Remove the split packing gland before installing the packing box. Remove the threaded brass bushing from the bottom of the packing box. Clean the threads on this bushing, the threads in the packing box, the threads in the top end of the tubing and paint with Layncote. Screw the brass bushing into the stuffing box and lower the assembly over the drive shaft and screw the bushing into the top end of the tubing. Use the special wrench furnished and tighten the packing box as much as possible. (The protective tubing is made with butt joints throughout from the discharge nozzle of the bowls to the packing box.)

### Tension

Clean the flanged faces of the discharge ell and packing box and coat with Layncote. With the special wrench hold the packing box while the discharge ell is raised by backing off on the discharge pipe. Raise the discharge ell in this manner until the packing box and discharge ell flanged faces make a tight joint and the cap screw holes in the packing box match up with the tapped holes in the discharge ell. Be sure when the tightening is complete that the oil cup connection on the packing box is opposite a door in the discharge ell. When an automatic solenoid lubricator is used, the oil cup connection in the packing box should be opposite the side of the discharge ell having a tapped hole to accommodate the lubricator bracket. When properly located bolt the packing box down tightly with the cap screws.

The threaded portion of the discharge ell or adjustable flange is chamfered to receive lamp wick packing. After tension has been applied to the assembly, generously fill the chamfer with lamp wick packing which has been coated with Layncote. Wind the packing around the pipe in the proper direction to tighten when the packing ring is screwed into place. The packing ring, which is also chamfered, should then be tightened to make a metal to metal joint with the discharge ell. The filling with lamp wick packing of the interstice formed by the chamfers in ell and packing ring is essential to insure a water tight joint. The entire pump should then be lowered until the discharge ell rests on the foundation built before starting the installation of the pump.

### 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 straight edge, square, and pair of calipers. The discharge ell can be shifted slightly on the concrete foundation or tilted with shims until the shaft is properly aligned.

### Packing

Use a good grade of packing and cut enough rings to fill the packing box to within  $\frac{1}{8}$ " of the top. Be sure to have each ring long enough to go around the shaft and butt solidly together. Each ring of packing should have its joint placed on the opposite side of the shaft from the point in the packing underneath. Tamp down each ring of packing as it is installed and draw down the packing gland just enough to put a little pressure on the packing. After the pump is started, draw down on the packing enough to prevent excessive leakage, but do not make final adjustment of packing pressure until the pump has been operated several hours. Then draw down the packing gland until the leakage is very slight—just enough to keep the packing moist. The matter of packing is very important and should be watched carefully for the first few days operation.

When the lubrication of the line shaft is by gravity, the tubing is relieved of pressure at the pump discharge nozzle and the packing gland should only be drawn sufficiently tight to prevent dirt from entering the tubing assembly.

### 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  $\frac{1}{4}$  to  $\frac{1}{2}$  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 packing box. When first connected allow about one cup full of 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 min.
" " " "	100 feet—	10 " " "
" " " "	150 feet—	15 " " "
" " " "	200 feet—	20 " " "
" " " "	250 feet—	25 " " "
" " " "	300 feet—	30 " " "

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

The oil should be 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.

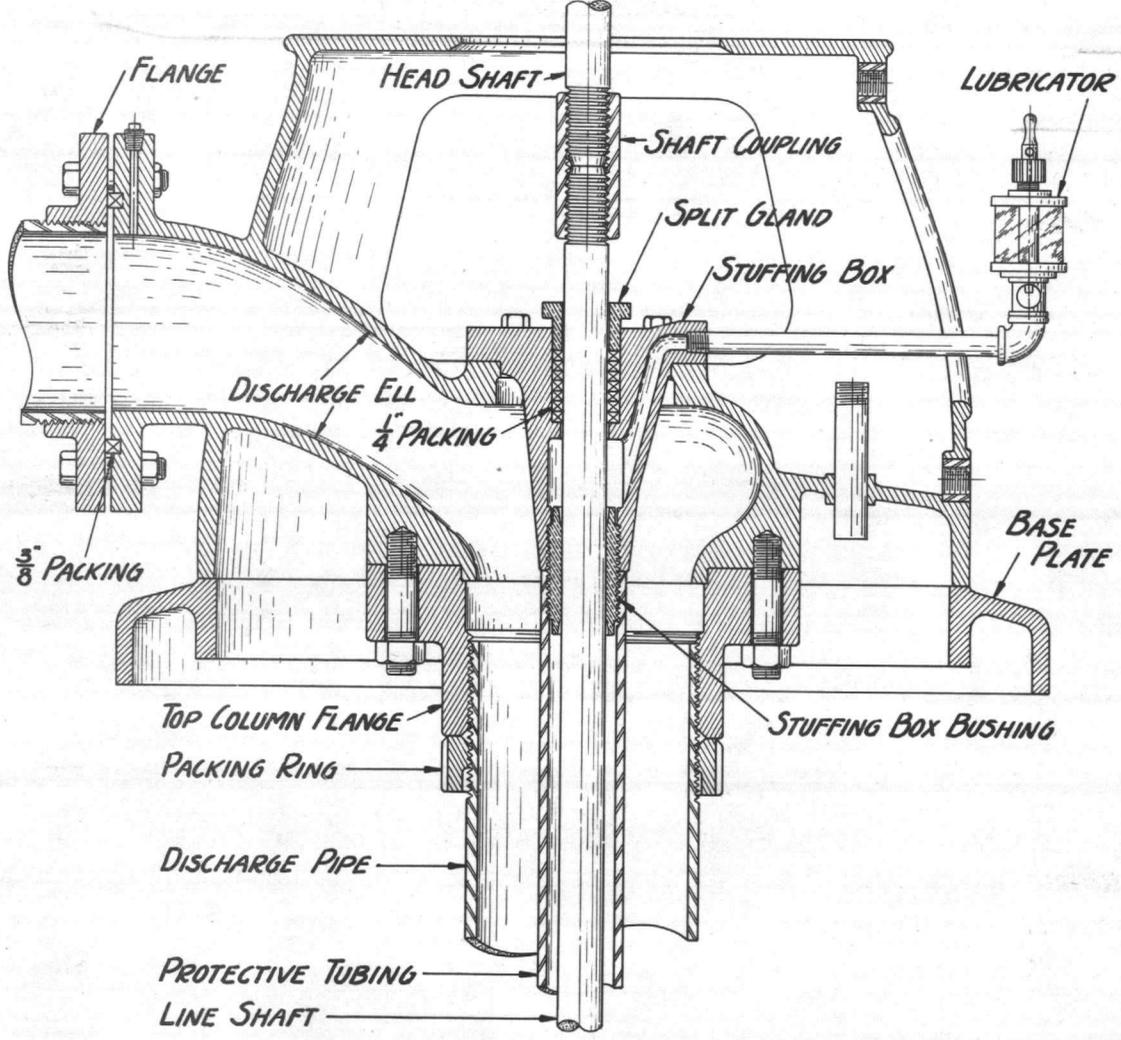
After the pump has been in operation a few hours, shut down and check the adjustment of the pump runners. The pump shaft may have been screwed up tighter by the power applied and thereby shortened.

THE VERTICAL CHLORIDE JUMP



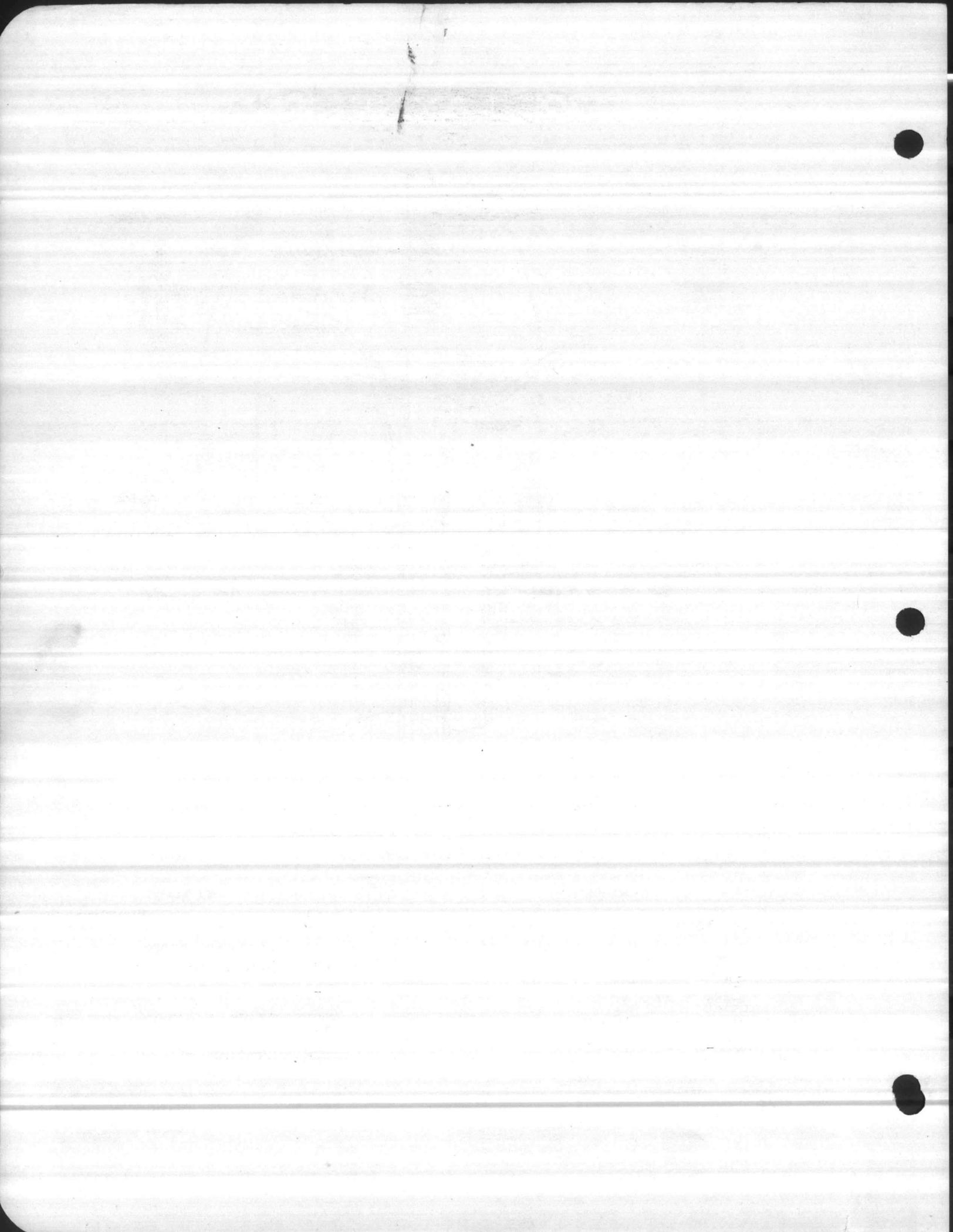
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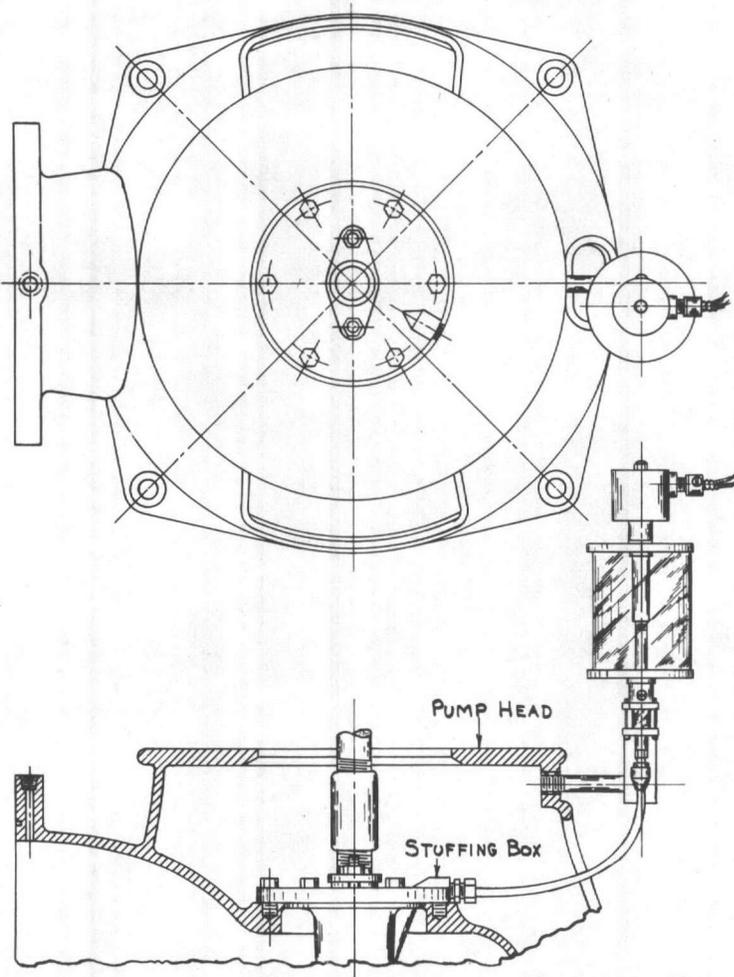
**LAYNE**  
Pump # 29048



**TF613**  
TYPE.....PUMP HEAD  
WITH STUFFING BOX

Part No.	PART LIST	Part No.	PART LIST
	Part Name		Part Name
<b>TF613</b>	Combination Discharge Ell and Motor Stand	<b>V85</b>	Top Column Flange
<b>OF6</b>	Head Flange	<b>5"</b>	Packing Ring
<b>1"</b>	Head Shaft	<b>1-1/2"</b>	Discharge Pipe
<b>T227</b>	Split Packing Gland	<b>F328</b>	Tubing
<b>T282</b>	Stuffing Box	<b>1"</b>	Shaft Coupling
<b>V39-8</b>	Stuffing Box Bush	<b>H84</b>	Line Shaft
			Base Plate

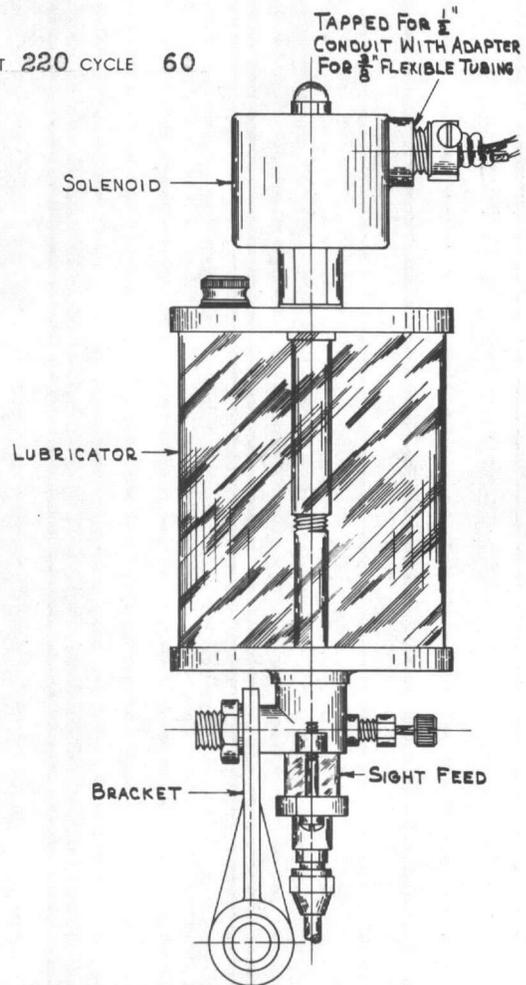




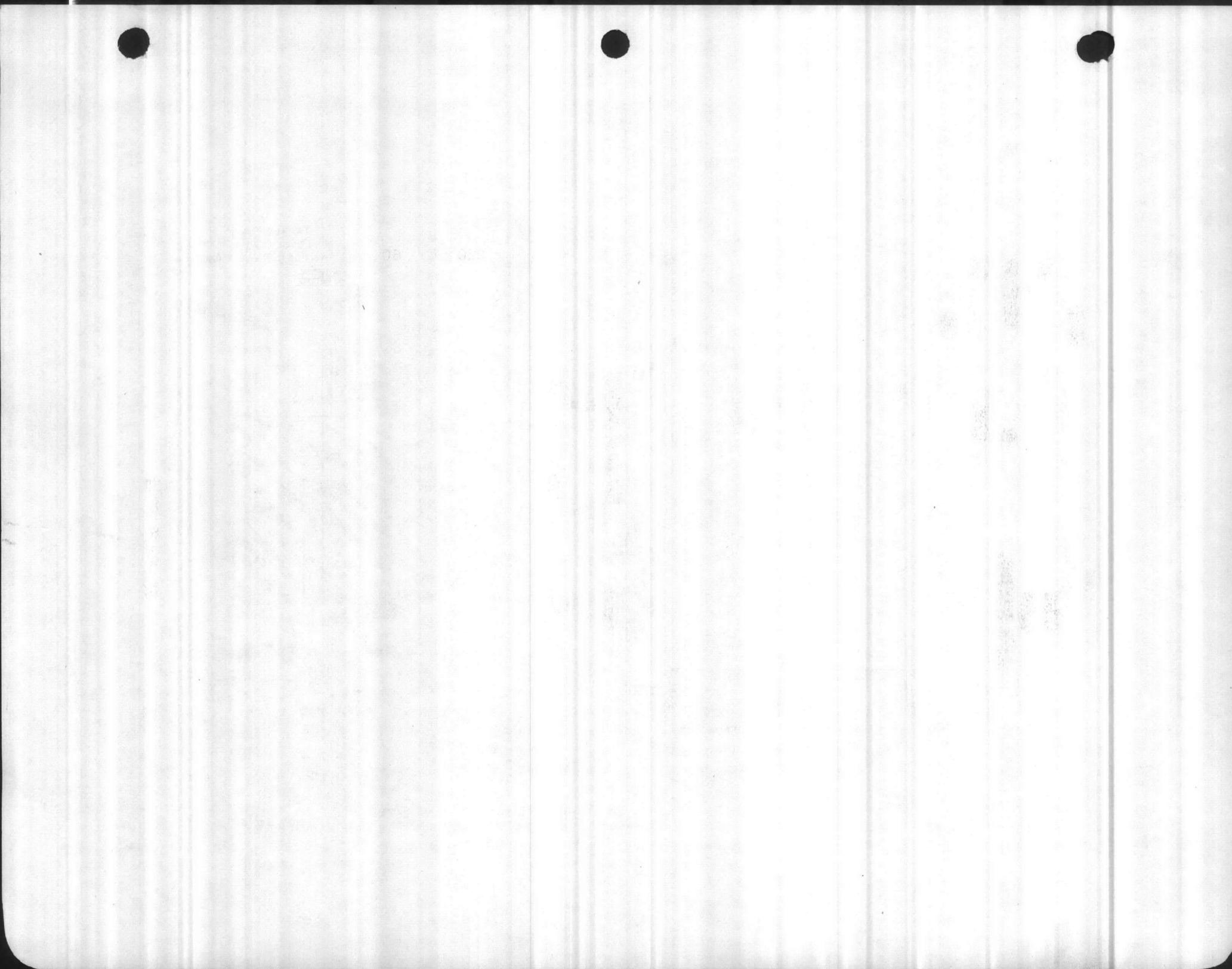
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SOLENOID-OPERATED SIGHT FEED LUBRICATOR  
FOR AUTOMATIC OPERATION

VOLT 220 CYCLE 60

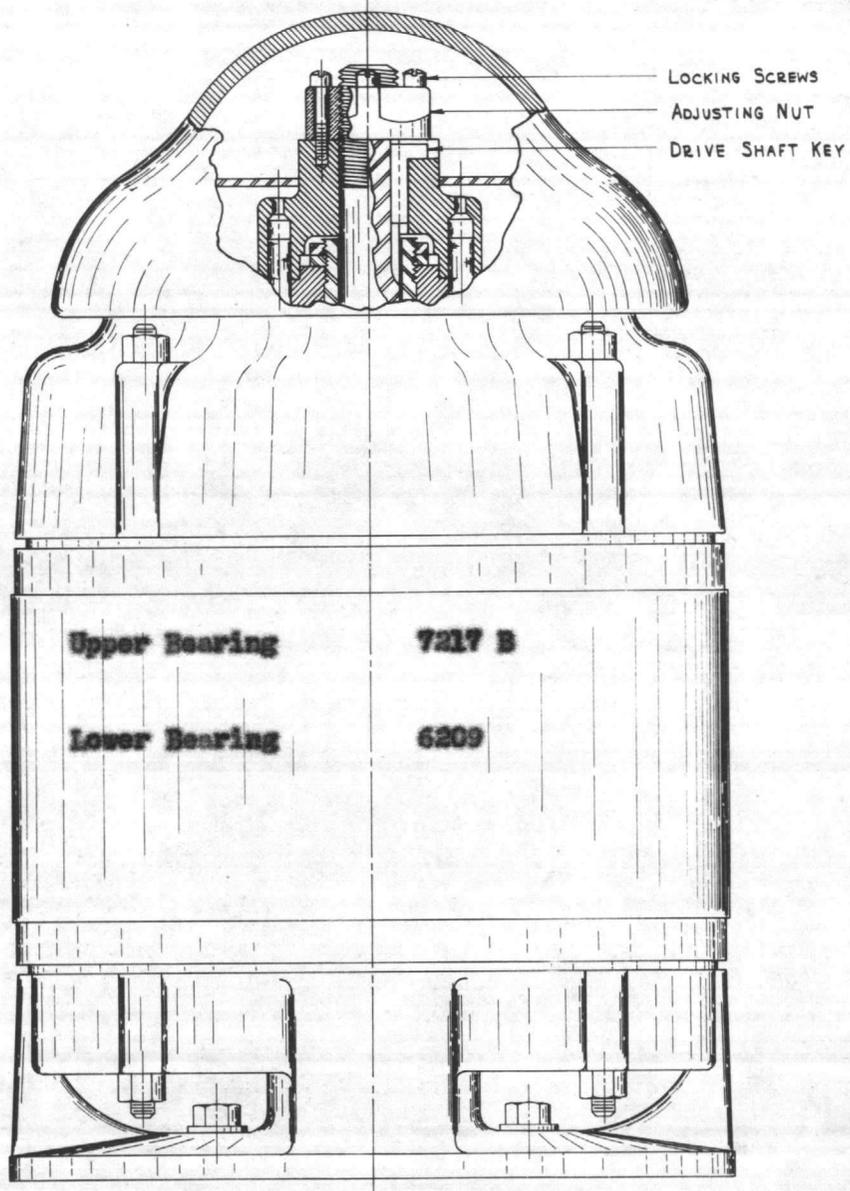


LMA 99



# LAYNE

Pump # 29048



**MOTOR**

Make US  
15 HP 1800 RPM  
208/416 Volts 3 Phase  
60 Cycles  
 Frame No. 326P

**PART LIST**

Part No.	Part Name
10632-2 1/4"	Locking Screws
AN75	Adjusting Nut
F365	Drive Shaft Key

MA630

**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.

