APPENDIX A

TOOLS AND RECORDS

The Lease Pumper's Handbook

Appendix A
Tools and Records

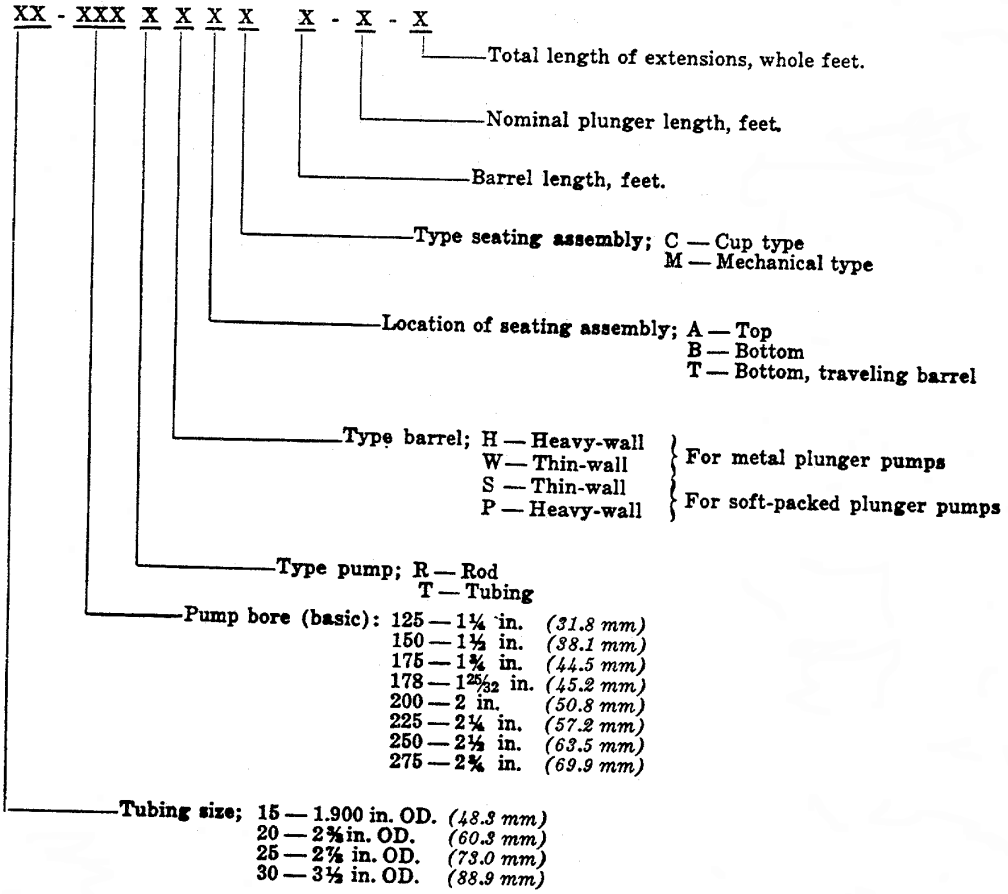
Section 1

API PUMP DESIGNATIONS

6.7.1 The basic types of pumps and letter designation covered by this specificiation are as follows:

Type of Pump	Letter Designation			
	Metal Plunger Pumps		Soft-packed Plunger Pumps	
	Heavy-Wall Barrel	Thin-Wall Barrel	Heavy-Wall Barrel	Thin-Wall Barrel
Rod Pumps				
Stationary Barrel, Top Anchor	RHA	RWA	.....	RSA
Stationary Barrel, Bottom Anchor	RHB	RWB	.....	RSB
Traveling Barrel, Bottom Anchor	RHT	RWT	.....	RST
Tubing Pumps	TH	.....	TP	.....

6.7.2 Complete pump designations include: (1) nominal tubing size, (2) basic bore diameter, (3) type of pump, including type of barrel and location and type of seating assembly, (4) barrel length, (5) plunger length, and (6) total length of extensions when used, as follows:



(courtesy of Harbison Fischer)

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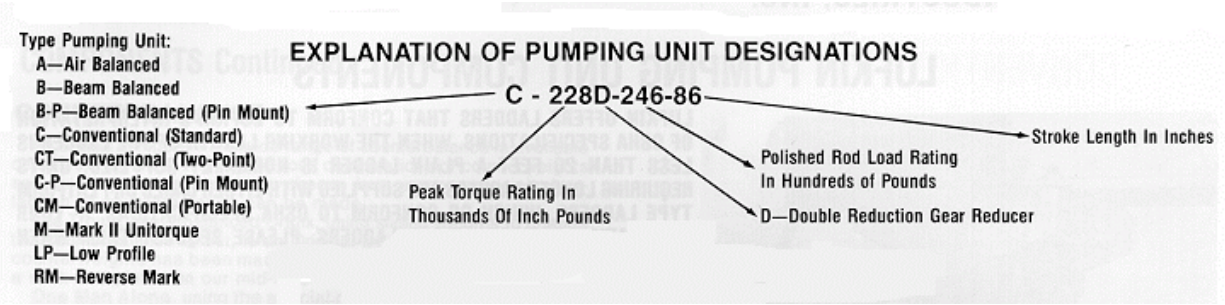
Section 2

API SIZES OF PUMPING UNIT DESIGNATIONS



Pumping Unit Size Designations.

Pumping unit sizes and the load that can be suspended safely from the sucker rods are reduced to 5 designations that can be written on one line. A permanent metal plate is attached to the gearbox with these identifying numbers printed on them. These designations in order are:

1. Type of Pumping Unit.
   - A Air Balanced.
   - B Beam Balanced
   - B-P Beam Balanced (Pin Mount)
   - C Conventional (Standard)
   - CT Conventional (Two Point)
   - C-P Conventional (Pin Mounted)
   - C-M Conventional (Portable)
   - M Mark II Unitorque
   - LP Low Profile
   - RM Reverse Mark

2. Peak Torque Rating in Thousands of Inch Pounds.

3. D Double Reduction Gear Reducer.

4. Polished Rod Load Rating in Hundreds of Pounds.

5. Stroke Length in Inches.

The Lease Pumper's Handbook

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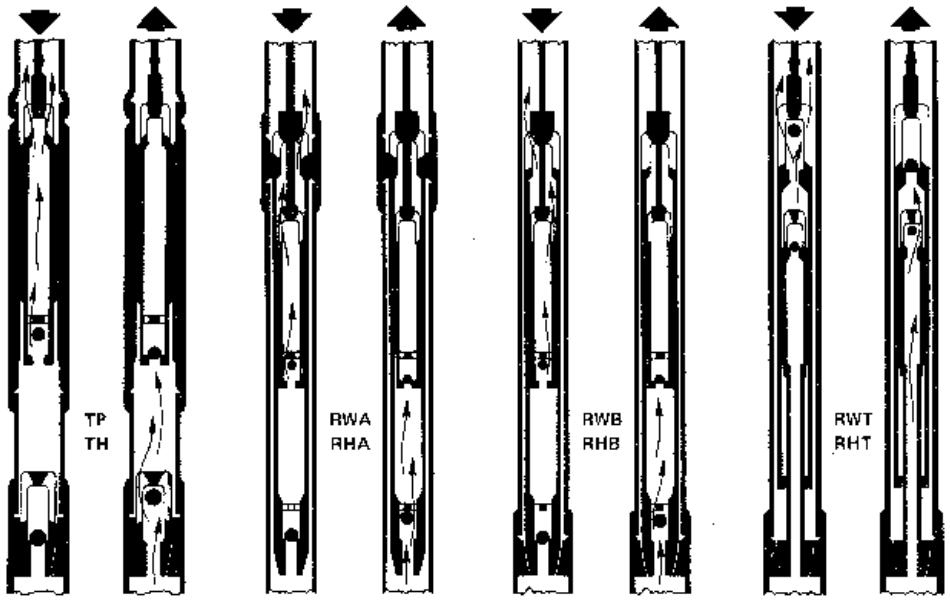
Section 3

PUMP ABBREVIATIONS



PUMP TYPE ABBREVIATIONS

FULL BARREL	FULL BARREL HEAVY WALL	
TP	**TH**	Tubing type
RWA	**RHA**	Rod type, stationary barrel with top holddown
RWB	**RHB**	Rod type, stationary barrel with bottom holddown

LETTER DESIGNATION

1st Letter		
T	=	Tubing type, barrel run on tubing
R	=	Rod type, complete pump inserted into tubing on sucker rods
2nd Letter		
H	=	Heavy-wall barrel wherein wearing and sealing surface for plunger is integral with the barrel
W	=	Full barrel wherein wearing and sealing surface for plunger is integral with the barrel
3rd Letter		
A	=	Top holddown with reference to rod type stationary barrel pumps
B	=	Bottom holddown pertaining to rod type stationary barrel pumps
T	=	Traveling barrel rod type pump (bottom holddown)

(courtesy of Trico Industries, Inc.)

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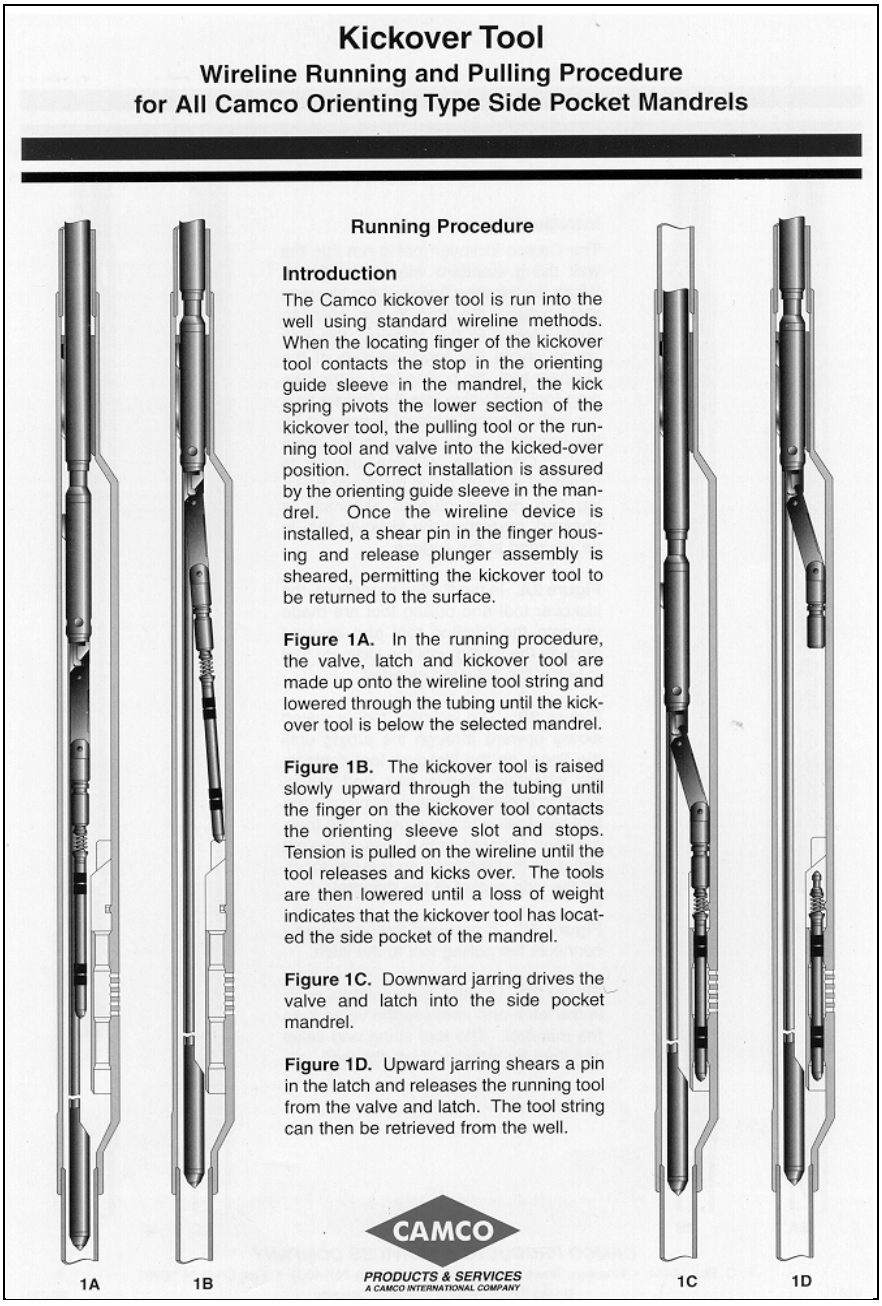
Section 4

KICKOVER TOOLS FOR RUNNING GAS LIFT VALVES



(courtesy of CAMCO Products and Services)

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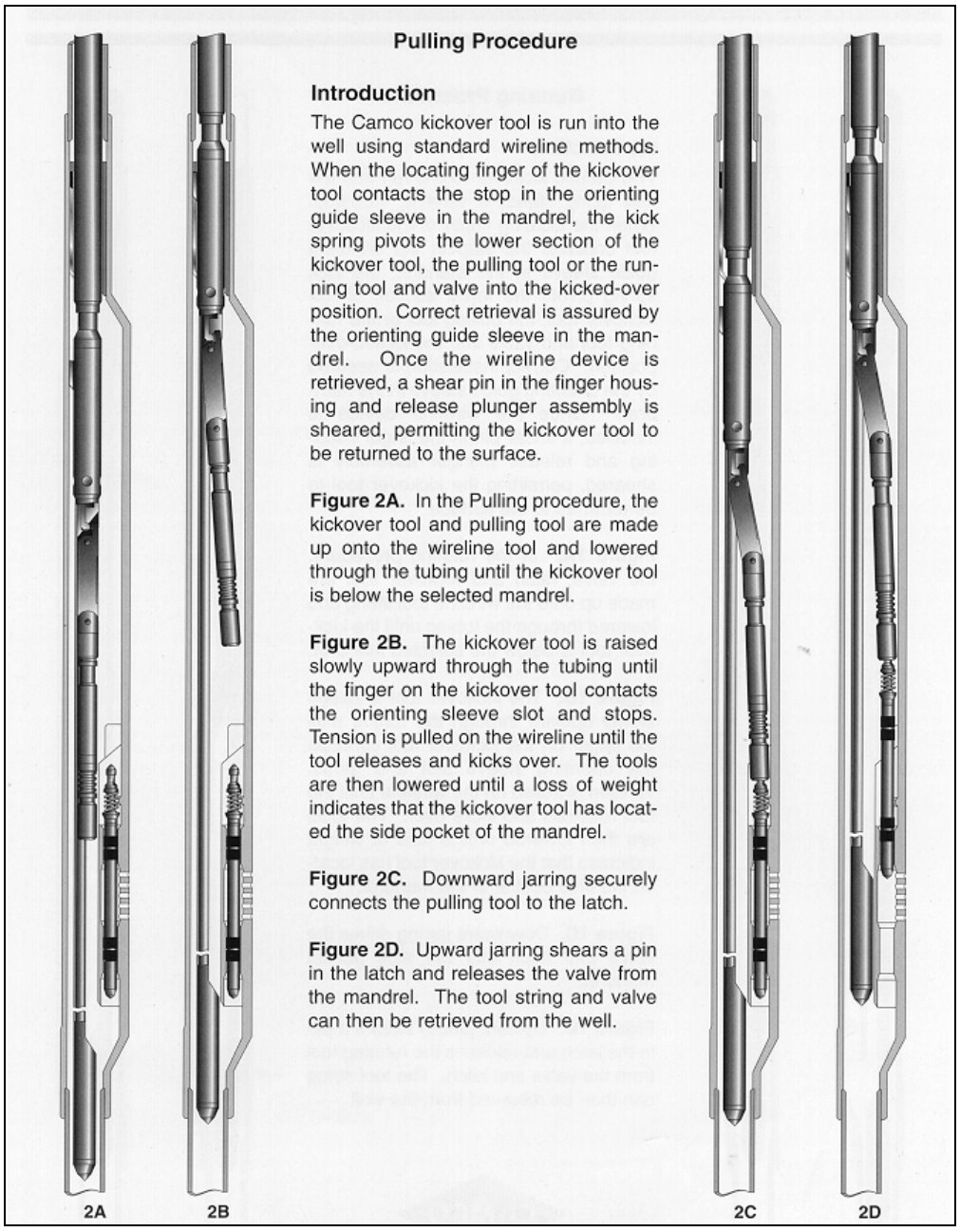
Section 5
KICKOVER TOOL FOR PULLING GAS LIFT VALVES



(courtesy of CAMCO Products and Services)

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Section 6

55-GALLON DRUM MEASUREMENTS

Drum Horizontal		Measured Depth		Drum Vertical	
Gallons	m^3	Inches	mm	Gallons	m^3
0.90	0.003	1	25	1.72	0.007
2.51	0.010	2	51	3.45	0.013
4.54	0.017	3	76	5.17	0.020
6.88	0.026	4	102	6.90	0.026
9.47	0.036	5	127	8.62	0.033
12.26	0.046	6	152	10.34	0.039
15.19	0.058	7	178	12.07	0.046
18.25	0.069	8	203	13.79	0.052
21.39	0.081	9	229	15.58	0.059
24.59	0.093	10	254	17.24	0.065
27.82	0.105	11	279	18.97	0.072
31.06	0.118	12	305	20.69	0.078
34.28	0.130	13	330	22.41	0.085
37.46	0.142	14	356	24.14	0.091
40.56	0.154	15	381	25.86	0.098
43.56	0.165	16	406	28.59	0.108
46.43	0.176	17	432	29.31	0.111
49.12	0.186	18	457	31.03	0.118
51.60	0.195	19	483	32.76	0.124
53.81	0.204	20	508	34.48	0.131
55.66	0.211	21	533	36.21	0.137
57.00	0.216	22	559	37.93	0.144
		23	584	39.65	0.150
		24	610	41.38	0.157
		25	635	43.10	0.163
		26	660	44.83	0.170
		27	685	46.55	0.176
		28	711	48.25	0.183
Calculations based on:		29	737	50.00	0.189
		30	762	51.72	0.196
Drum height = 33.35 inches or 845 mm		31	787	53.45	0.202
		32	813	55.17	0.209
Drum capacity = 57.325 gals. or 0.217 m^3		33	838	56.89	0.215
		33.25	845	57.33	0.217

THE BARREL CHART

The barrel chart is handy for calculating how much chemical is on hand. This is especially important at the end of the month in determining how much chemical is on hand, what types, and whether a waiting period for delivery is required. Most chemicals used to treat crude oil, clean tank bottoms, treat injection water, inject as a casing preservative, treat scale accumulation, or other purposes on the lease are custom blended. If chemicals are not ordered until the supplies are deplete, the lease pumper may run out of required chemicals before they can be blended and delivered. This may result in a lot of difficult-to-treat crude oil accumulating.

The barrel chart allows the amount of chemical in a barrel to be computed whether the barrel is standing vertically or lying on its side. Although the chart is in 1 inch increments, it is easy to interpolate to the nearest quarter-inch if required. If a barrel is used for short time tests on wells, this chart is extremely useful.

The chemical record should be updated in the **lease information and performance handbook** every month. This gives the lease pumper an instant reference of monthly use of every chemical stocked, and consumption and restock dates are easily projected long in advance of running out. It also allows the computation of the amount of chemical consumed per hundred barrels of oil sold. These figures can help the lease pumper determine whether chemical consumption is appropriate for production needs and results.

The chemical records will also correctly identify the contents of every barrel of liquid held on the lease and the amount on hand. If the contents of a barrel are unknown, a company must pay to have the chemical analyzed and identified so that it can be disposed of properly to meet environmental regulations. If accurate records are kept, a great deal of money can be saved. Thus, the lease pumper should keep good records and never allow the lease to accumulate even one barrel of unknown liquids.

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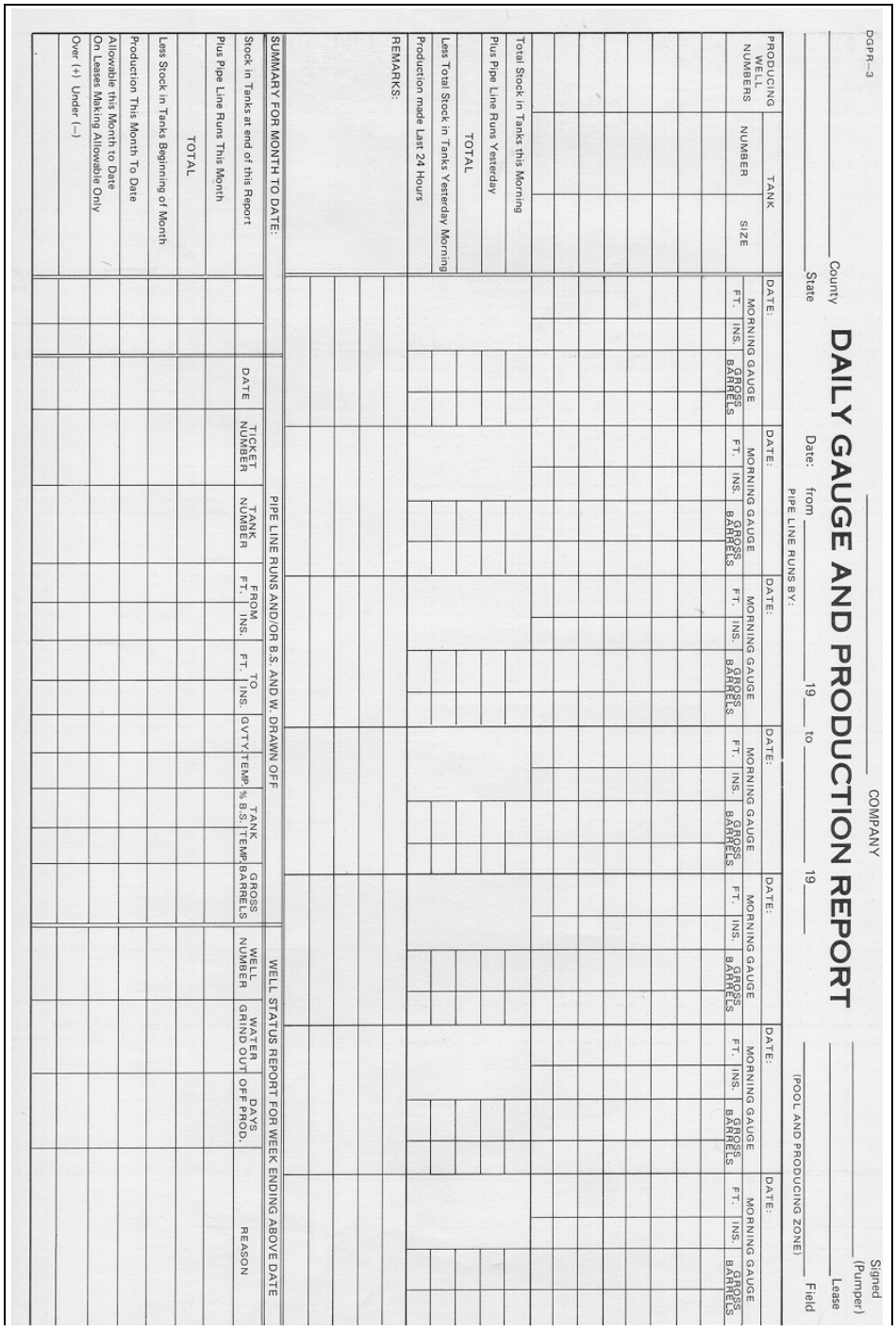
Section 7

THE 7-DAY DAILY GAUGE REPORT



DGPR—3

COMPANY

DAILY GAUGE AND PRODUCTION REPORT

Signed
(Pumper)

County _____ Date: from _____ 19___ to _____ 19____ Lease

State _____ PIPE LINE RUNS BY: _____ (POOL AND PRODUCING ZONE) Field

PRODUCING WELL NUMBERS

TANK NUMBER / SIZE

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

DATE: MORNING GAUGE FT. INS. GROSS BARRELS

Total Stock in Tanks this Morning

Plus Pipe Line Runs Yesterday

TOTAL

Less Total Stock in Tanks Yesterday Morning

Production made Last 24 Hours

REMARKS:

SUMMARY FOR MONTH TO DATE:

Stock in Tanks at end of this Report	
Plus Pipe Line Runs This Month	
TOTAL	
Less Stock in Tanks Beginning of Month	
Production This Month To Date	
Allowable this Month to Date On Leases Making Allowable Only	
Over (+) Under (–)	

PIPE LINE RUNS AND/OR B.S. AND W. DRAWN OFF

DATE	TICKET NUMBER	TANK NUMBER	FROM FT.	FROM INS.	TO FT.	TO INS.	GVTY.	TEMP.	% B.S.	TANK TEMP.	GROSS BARRELS

WELL STATUS REPORT FOR WEEK ENDING ABOVE DATE

WELL NUMBER	WATER	GRIND OUT	DAYS OFF PROD.	REASON

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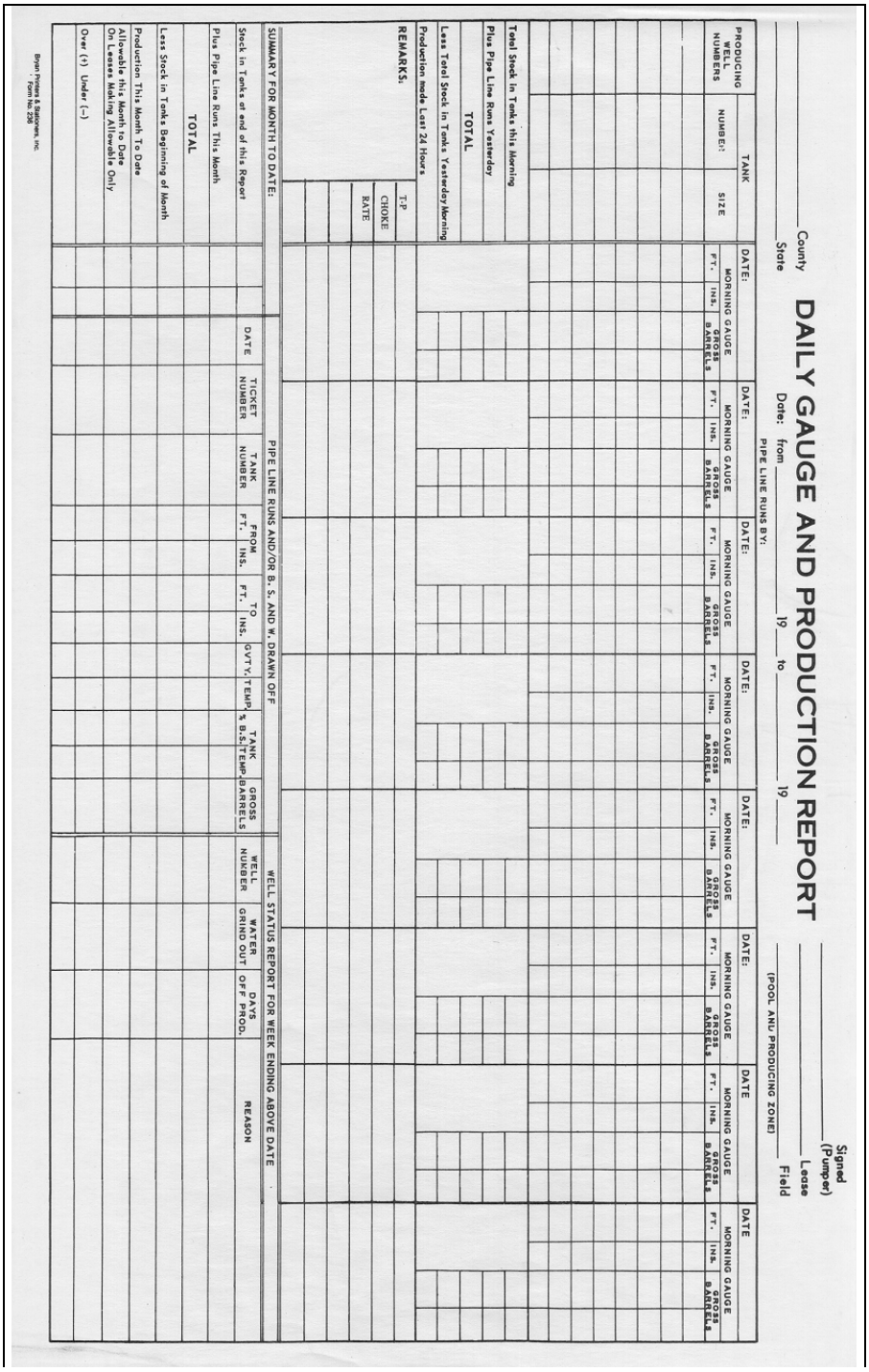
Section 8

THE 8-DAY DAILY GAUGE REPORT



DAILY GAUGE AND PRODUCTION REPORT

County _____ Signed (Pumper)
State _____ Lease
Date: from _____ 19__ to _____ 19____ Field
(POOL AND PRODUCING ZONE)

PIPE LINE RUNS BY:

PRODUCING WELL NUMBERS | TANK NUMBER: SIZE | DATE: MORNING GAUGE FT. INS. GROSS BARRELS | DATE: MORNING GAUGE FT. INS. GROSS BARRELS | DATE: MORNING GAUGE FT. INS. GROSS BARRELS | DATE: MORNING GAUGE FT. INS. GROSS BARRELS | DATE: MORNING GAUGE FT. INS. GROSS BARRELS | DATE MORNING GAUGE FT. INS. GROSS BARRELS | DATE MORNING GAUGE FT. INS. GROSS BARRELS

Total Stock in Tanks this Morning
Plus Pipe Line Runs Yesterday
TOTAL
Less Total Stock in Tanks Yesterday Morning
Production made Last 24 Hours — T.P. / CHOKE RATE

REMARKS:

SUMMARY FOR MONTH TO DATE:

	DATE	TICKET NUMBER	GROSS BARRELS
Stock in Tanks at end of this Report			
Plus Pipe Line Runs This Month			
TOTAL			
Less Stock in Tanks Beginning of Month			
Production This Month To Date			
Allowable this Month to Date On Leases Making Allowable Only			
Over (+) Under (–)			

PIPE LINE RUNS AND/OR B. S. AND W. DRAWN OFF

TANK NUMBER	FROM FT.	FROM INS.	TO FT.	TO INS.	GVTY.	TEMP.	TANK % B.S.	TEMP.	GROSS BARRELS

WELL STATUS REPORT FOR WEEK ENDING ABOVE DATE

WELL NUMBER	WATER GRIND OUT	DAYS OFF PROD.	REASON

Bryan Printers & Stationers, Inc. Form No. 228

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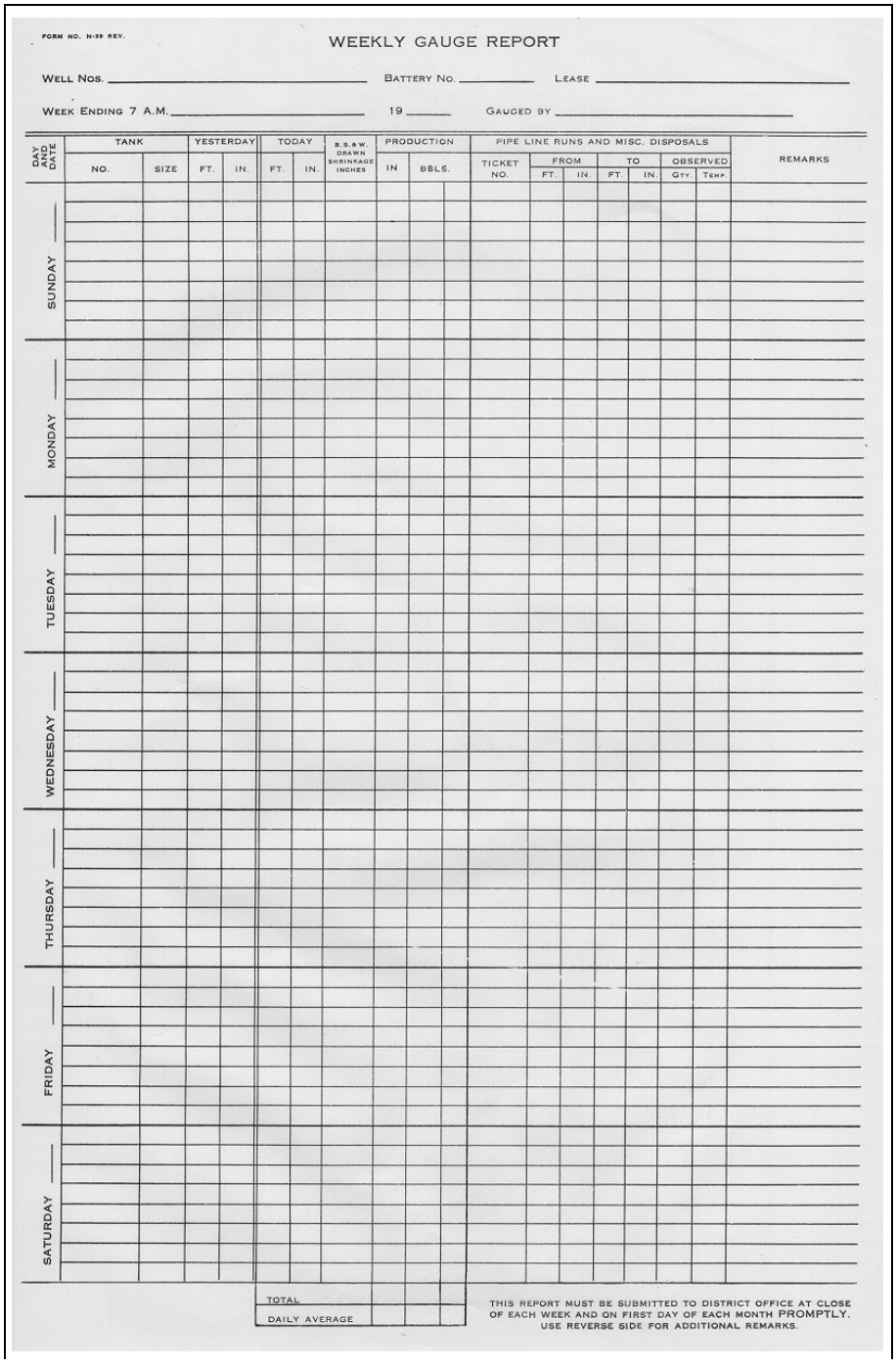
Section 9

THE WEEKLY GAUGE REPORT (VERTICAL)



FORM NO. N-39 REV.

WEEKLY GAUGE REPORT

WELL NOS. _____ BATTERY NO. _____ LEASE _____

WEEK ENDING 7 A.M. _____ 19____ GAUGED BY _____

DAY AND DATE	TANK NO.	TANK SIZE	YESTERDAY FT.	YESTERDAY IN.	TODAY FT.	TODAY IN.	B.S.&W. DRAWN SHRINKAGE INCHES	PRODUCTION IN.	PRODUCTION BBLS.	PIPE LINE RUNS AND MISC. DISPOSALS TICKET NO.	FROM FT.	FROM IN.	TO FT.	TO IN.	OBSERVED QTY.	OBSERVED TEMP.	REMARKS
SUNDAY ____																	
MONDAY ____																	
TUESDAY ____																	
WEDNESDAY ____																	
THURSDAY ____																	
FRIDAY ____																	
SATURDAY ____																	
					TOTAL												
					DAILY AVERAGE												

THIS REPORT MUST BE SUBMITTED TO DISTRICT OFFICE AT CLOSE OF EACH WEEK AND ON FIRST DAY OF EACH MONTH PROMPTLY. USE REVERSE SIDE FOR ADDITIONAL REMARKS.

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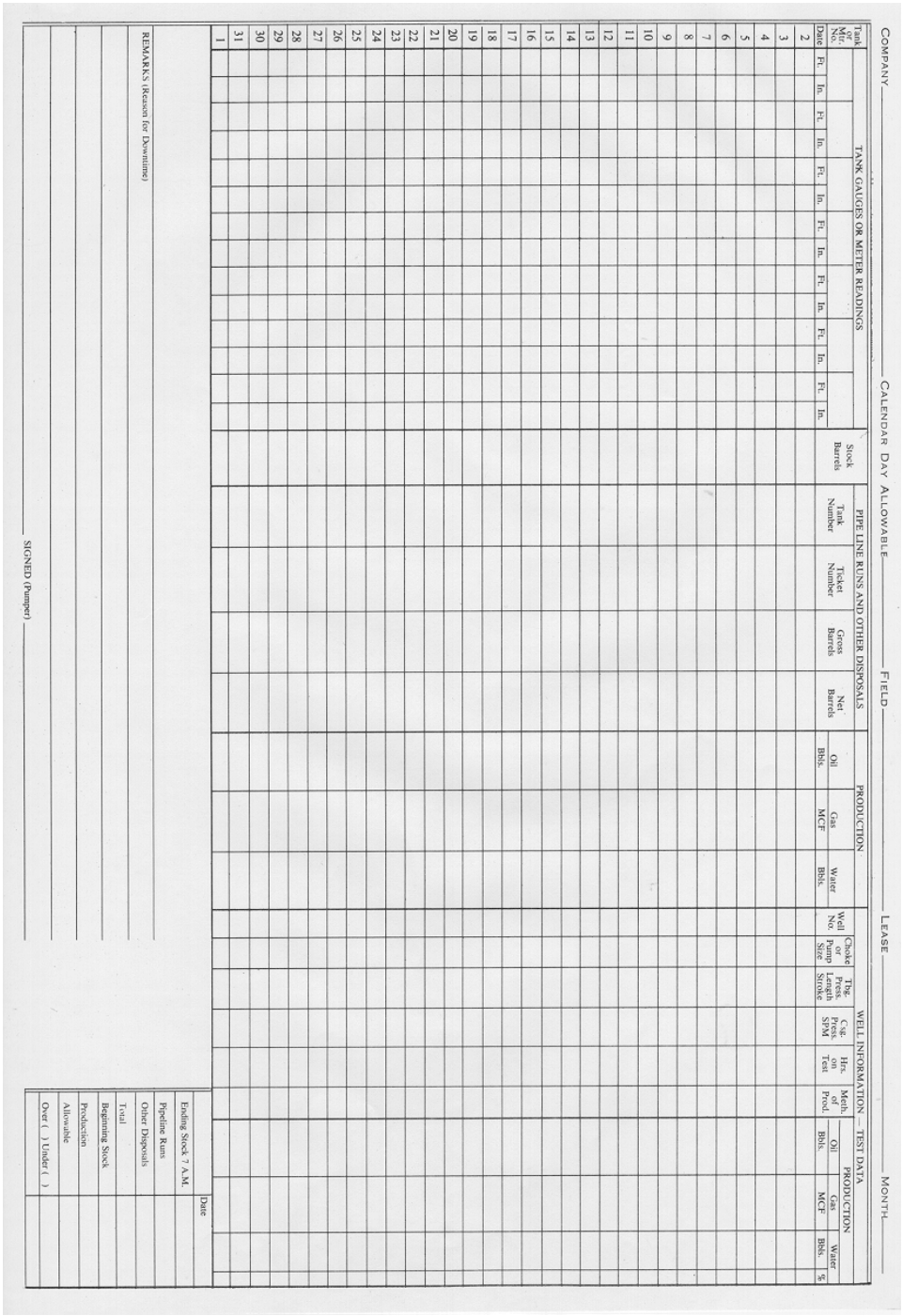
Section 10

THE MONTHLY GAUGE REPORT



COMPANY _____ CALENDAR DAY ALLOWABLE _____ FIELD _____ LEASE _____ MONTH _____

Tank Size or No.	TANK GAUGES OR METER READINGS																PIPE LINE RUNS AND OTHER DISPOSALS				PRODUCTION			WELL INFORMATION					TEST DATA – PRODUCTION		
Date		Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Stock Barrels	Tank Number	Ticket Number	Gross Barrels	Net Barrels	Oil Bbls.	Gas MCF	Water Bbls.	Well No.	Choke or Pump Size	Tbg. Press. Length of Stroke	Csg. Press. SPM	Hrs. on Test	Meth. of Prod.	Oil Bbls.	Gas MCF	Water Bbls. %
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
12																																
13																																
14																																
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25																																
26																																
27																																
28																																
29																																
30																																
31																																
1																																

REMARKS (Reason for Downtime)

	Date
Ending Stock 7 A.M.	
Pipeline Runs	
Other Disposals	
Total	
Beginning Stock	
Production	
Allowable	
Over ( ) Under ( )	

SIGNED (Pumper) _____

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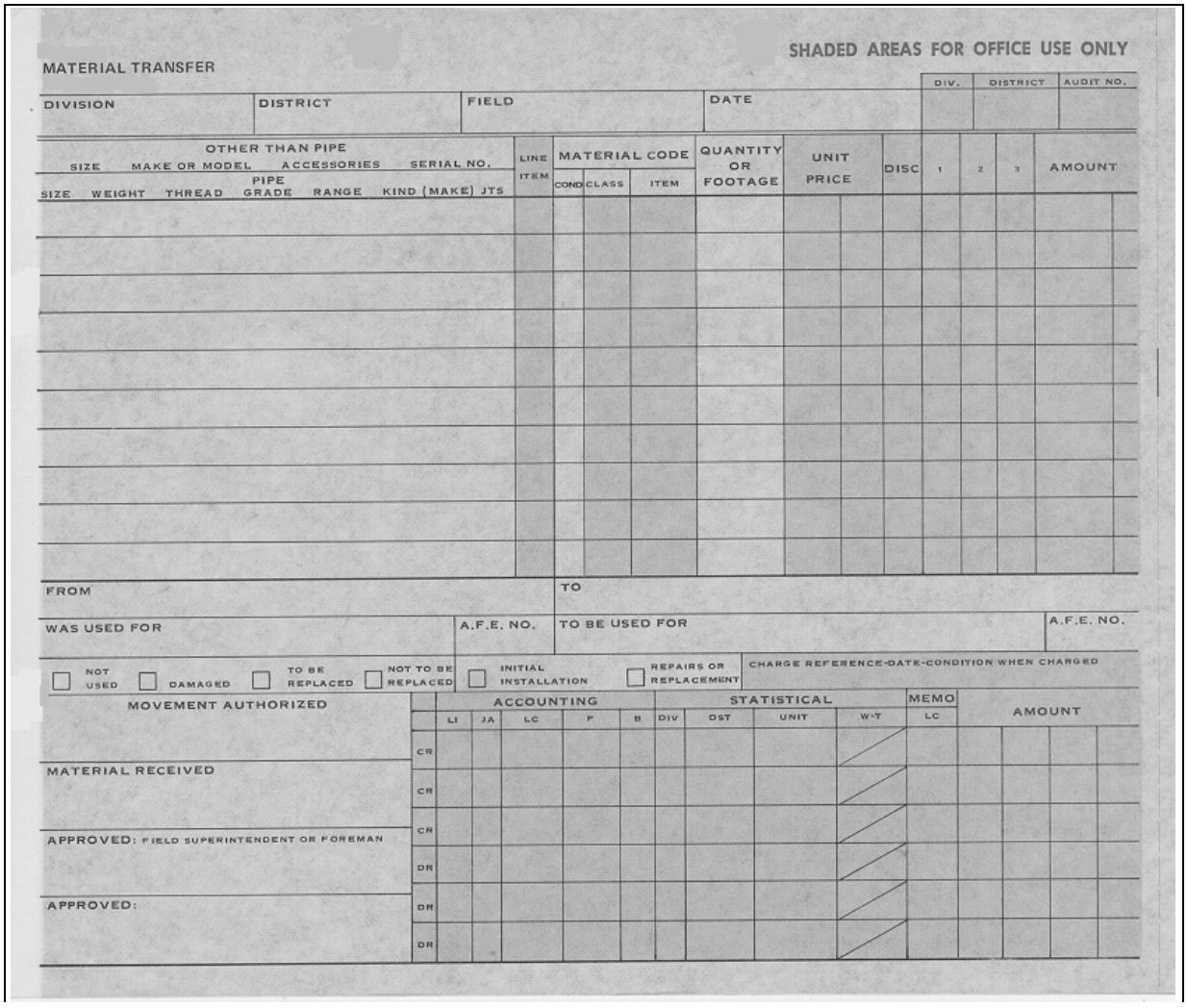
Section 11

MATERIALS TRANSFER RECORD



MATERIAL TRANSFER

SHADED AREAS FOR OFFICE USE ONLY

DIVISION	DISTRICT	FIELD	DATE	DIV.	DISTRICT	AUDIT NO.

OTHER THAN PIPE: SIZE / MAKE OR MODEL / ACCESSORIES / SERIAL NO. — PIPE: SIZE / WEIGHT / THREAD / GRADE / RANGE / KIND (MAKE) JTS	LINE ITEM	MATERIAL CODE: COND	CLASS	ITEM	QUANTITY OR FOOTAGE	UNIT PRICE		DISC	1	2	3	AMOUNT	

FROM — TO

WAS USED FOR — A.F.E. NO. — TO BE USED FOR — A.F.E. NO.

☐ NOT USED ☐ DAMAGED ☐ TO BE REPLACED ☐ NOT TO BE REPLACED ☐ INITIAL INSTALLATION ☐ REPAIRS OR REPLACEMENT — CHARGE REFERENCE-DATE-CONDITION WHEN CHARGED

MOVEMENT AUTHORIZED		ACCOUNTING: LI	JA	LC	F	B	STATISTICAL: DIV	DST	UNIT	W-T	MEMO: LC	AMOUNT			
	CR														
MATERIAL RECEIVED	CR														
APPROVED: FIELD SUPERINTENDENT OR FOREMAN	CR														
	DR														
APPROVED:	DR														
	DR														

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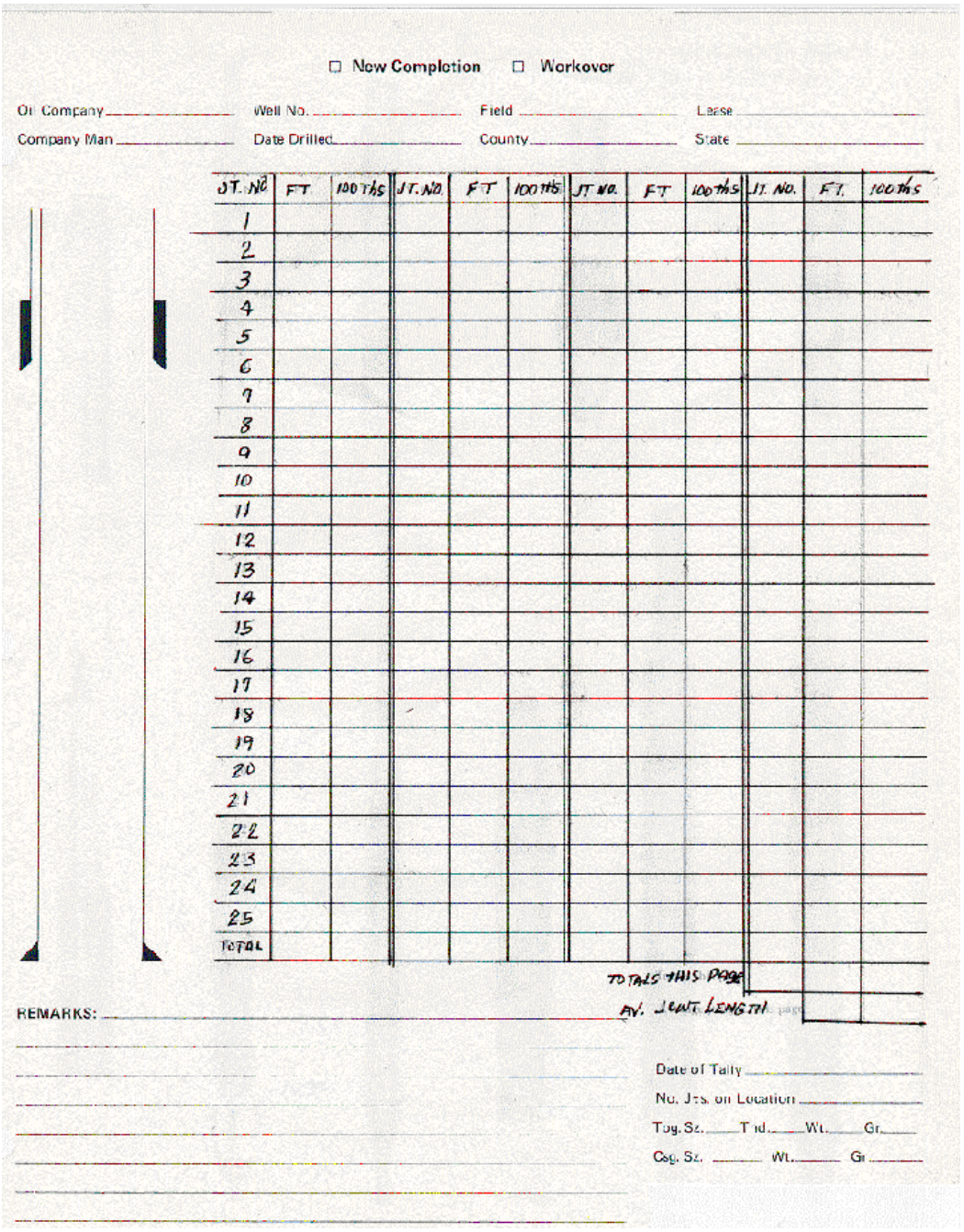
Section 12

PIPE TALLY SHEET



☐ New Completion ☐ Workover

Oil Company _____ Well No. _____ Field _____ Lease _____

Company Man _____ Date Drilled _____ County _____ State _____

JT. NO	FT.	100THS	JT. NO.	FT.	100THS	JT. NO.	FT.	100THS	JT. NO.	FT.	100THS
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
TOTAL											

TOTALS THIS PAGE

AV. JOINT LENGTH

REMARKS: _____

Date of Tally _____

No. Jts. on Location _____

Tbg. Sz. ____ Thd. ____ Wt. ____ Gr. ____

Csg. Sz. ____ Wt. ____ Gr. ____

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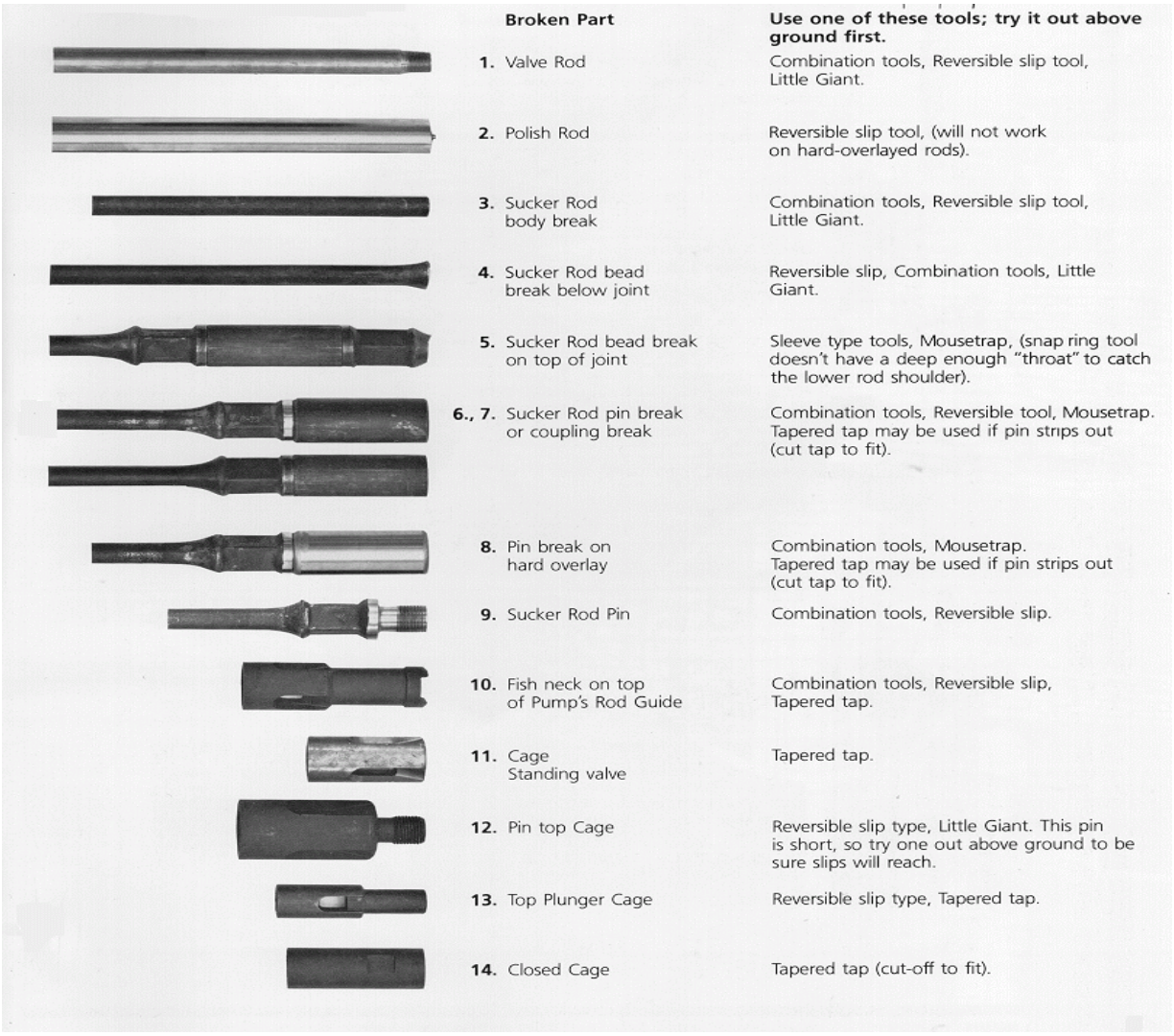
Section 13

FISHING RODS



Broken Part	Use one of these tools; try it out above ground first.
1. Valve Rod	Combination tools, Reversible slip tool, Little Giant.
2. Polish Rod	Reversible slip tool, (will not work on hard-overlayed rods).
3. Sucker Rod body break	Combination tools, Reversible slip tool, Little Giant.
4. Sucker Rod bead break below joint	Reversible slip, Combination tools, Little Giant.
5. Sucker Rod bead break on top of joint	Sleeve type tools, Mousetrap, (snap ring tool doesn't have a deep enough "throat" to catch the lower rod shoulder).
6., 7. Sucker Rod pin break or coupling break	Combination tools, Reversible tool, Mousetrap. Tapered tap may be used if pin strips out (cut tap to fit).
8. Pin break on hard overlay	Combination tools, Mousetrap. Tapered tap may be used if pin strips out (cut tap to fit).
9. Sucker Rod Pin	Combination tools, Reversible slip.
10. Fish neck on top of Pump's Rod Guide	Combination tools, Reversible slip, Tapered tap.
11. Cage Standing valve	Tapered tap.
12. Pin top Cage	Reversible slip type, Little Giant. This pin is short, so try one out above ground to be sure slips will reach.
13. Top Plunger Cage	Reversible slip type, Tapered tap.
14. Closed Cage	Tapered tap (cut-off to fit).

(courtesy of Trico Industries)

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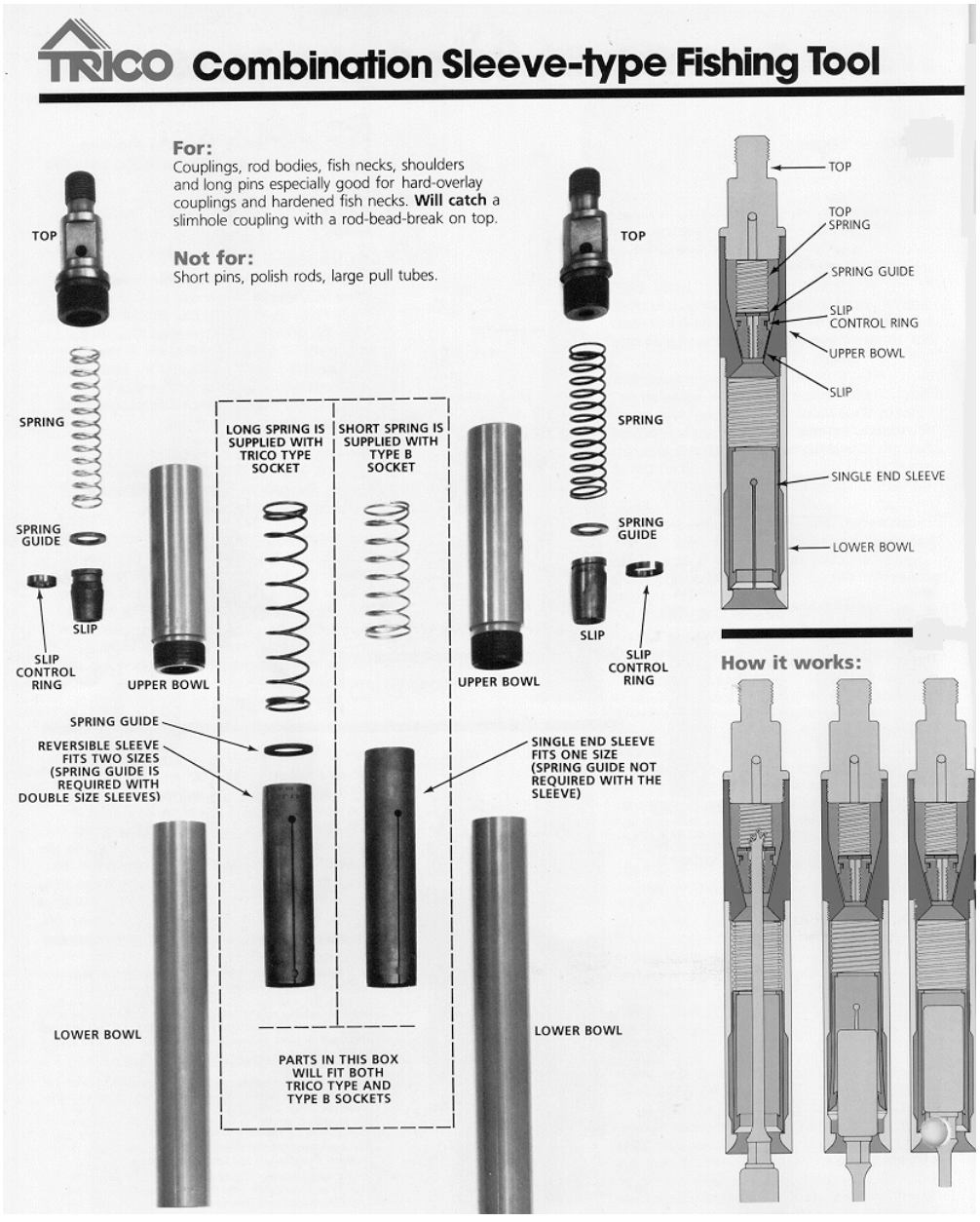
Section 14

ROD FISHING TOOLS



(courtesy of Trico Industries)

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Appendix A
Tools and Records

Section 15

LEASE INFORMATION RECORD

LEASE INFORMATION

Name of Lease _____
Location of Lease _____
Well Number_____ Depth of Well_____ Date Drilled_____

PUMPING UNIT INFORMATION

Date Installed_____
Manufacturer_____ Style of Unit_____
Size_____ Serial No._____ Direction of Rotation_____
Stroke Lengths Available_____ Length in Use_____
Gear Ratio_____ Strokes Per Minute Now_____
Pumping Unit Sheave Diameter_____ Number of Grooves_____
Belt Width _____ Number and Size of Belts_____
Shaft Size_____ Keyway_____ Maximum Size _____
Style of Pumping Unit Skid_____ Style of Base_____
Gearbox Oil_____ Capacity_____ Bearing Grease_____
Rod Lubricator Oil _____ Stuffing Box Lubrication_____
Prime Mover_____ Strokes Per Minute_____
Remarks_____

BELT DRIVE INFORMATION

Number of Belts_____ Size_____ Length_____ Type_____
Belt Capacity: Prime Mover_____ Pumping Unit_____
Sheave Description: Prime Mover: Diameter_____ Shaft Size_____Keyway_____
Pumping Unit: Diameter_____ Shaft Size_____ Keyway_____
Prime Mover Adjustment Available (Inches)
Toward Unit_____ Away from Unit_____
How Will This Affect Belt Guard?_____

WELLHEAD INFORMATION

Lease_____ Well No._____ Date Listed_____
Polished Rod: Thread Up_____ Thread Down_____ Length_____
Polished Rod Liner: I.D._____ O.D._____ Length_____ Gasket Size_____
Lift Pony on Top of Polished Rod _____X_____X_____
Lubricator Brand _____Pad Description_____ Oil Used_____
Stuffing Box Brand._____ I.D. of Packing_____
Packing Brand _____Inserts Needed (Describe)_____
_____ Packing Quality or Info._____
Polished Rod Clamp Bolts: How Many? _____ Diameter_____ Length_____
Pumping Tee_____ Bleeder Valve _____
Wing Valve_____ Wing Check Valve_____
Casing Valve_____ Casing Check Valve _____
Other (Rotators, Misc.)_____
_____

CASING RECORDS

Depth from Wellhead to Perforations _____
Description of Perforations _____
Open Hole Below Perforations _____

PIPE AND TUBING

Type of Tubing. (Check One) H-40_____ J-55_____ C-75_____ N-80_____ P-105_____
Other (Describe) _____
Threads: 8 Round _____ Other than 8 Rd._____
Average Joint Length _____ Pipe Measured: Threads Off_____ Overall_____
Packer or Holddown. To Set_____
To Release_____ Tension Pulled_____Pounds

COMMENTS:

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Appendix A
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Section 16

MOTOR/ENGINE RECORDS

Electrical Motor Information

Manufacturer _____ Type of Frame_____
Horsepower _____ Volts Required_____
Amperage _____ RPM _____
Shaft Diameter _____ Keyway_____
Sheave Diameter_____ Style_____ Grooves_____
Can Voltage Be Changed? (Yes/No)_____ If Yes, describe_____
_____
Mounting Bracket: Width_____ Length_____

Engine Information

Field _____ Lease_____ Location _____
Type of Installation_____
Make of Engine_____ Model_____ Serial No._____
Number of Cylinders_____ Rings_____ Bearings _____
Valve Clearances: Intake_____ Exhaust_____
Spark Plugs_____ Magneto _____ Magneto Rotation_____
Coil _____ Distributor _____
Carburetor_____
Battery size_____ Date Installed_____
Starter _____ Generator_____
Oil: Capacity_____ Brand_____ Weight_____
Oil Filter _____ Change Schedule_____
Radiator: Capacity_____ Quarts Antifreeze_____ Freeze point_____
Radiator Hose Sizes: Upper_____ Lower_____ Water pump_____
Fan belt _____ Clutch_____
Shaft Diameter _____ Keyway_____
Sheave Style _____ Diameter_____ Number of grooves_____
Drive Belt Size and Length _____
Date Engine Was Installed_____ Date Overhauled_____
Gas Log and Scrubber Information _____
Maintenance Notes _____
_____