

INSTRUCTIONS  
FOR  
CARE & MAINTENANCE

DIESEL LUB. OIL PURIFIER PUMP  
Size 4500-10-V2051

U.S.S. TAMBOR	)	The Sharples Corporation
U.S.S. TAUTOG	)	Order No. 97983
U.S.S. THRESHER	)	Northern Pump Company
	)	Order No. 31689
U.S.S. GAR	)	The Sharples Corporation
U.S.S. GRAMPUS	)	Order No. 2255
U.S.S. GRAYBACK	)	Northern Pump Company
	)	Order No. 33656 & 7

MANUFACTURED BY  
NORTHERN PUMP COMPANY  
MINNEAPOLIS, MINN.

## GENERAL DESCRIPTION

### P A R T 1

- (A) This pump is of the positive displacement rotary gear type. The pump and motor are connected to one another by means of an end bell and the pump drive shaft and motor shaft are connected by a Northern Flexible Coupling.

#### (B) Pump Characteristics

G. P. H.	300
Pressure	25#
R. P. M.	1150
Liquid	Navy Oil
Viscosity	180-500 SSU
Temperature Range	35-180° F.
Mechanical Efficiency	29%
B. H. P.	.71
Suction Lift	15" HG

#### (C) Motor Characteristics

H. P.	1
Frame	224
R. P. M.	1150
Volts	250
Bearings	Ball
Duty	Continuous
Range	175-325

- (A) Care should be taken to see that the motor and pump are in perfect alignment. Any distortion will cause a vibration in the whole unit.
- (B) All pipe connections to the pump should be made so that there will not be any undue strains imposed on pump.
- (C) It is very important when installing packing that the rings are cut to the exact lengths. The joints should be alternated so that they do not come in line with each other and the gland should be set up in small increments in order to permit the packing to adjust itself to the shaft gradually. Excessive tightening of the packing gland will increase the horsepower and overload the motor.
- (D) Be sure that the pump rotates as indicated by arrow.
- (E) Pump should pump liquid as originally intended and no other.
- (F) The pump pressure should not exceed that which is specified in order or shown on nameplate.
- (G) Care should be exercised in keeping the liquid being pumped free from all foreign matter such as grit, etc., because of the close clearances maintained within the pump.
- (H) If trouble is experienced in starting the flow of liquid from pump, inspect the suction line and connections for air leakage.
- (I) If pump is noisy, check for air leaks in the suction line.

P A R T    I I I    CARE & MAINTENANCE

- (A) When the capacity of the pump drops off after an extended period of operation, the cause is most likely due to wear in the bearings and pump gears. These can be replaced by following the routine listed below. For reference to parts, see cross sectional drawing 4500-10-V2051.
- (B) (1) Remove electric motor from end bell mounting (5).  
(2) Next, remove pump coupling half (4).  
(3) Now, nuts (28), rear end plate (27), relief valve plate (26), thrust plate (24), pin (22), thrust washer (23) and rear bearing plate (15) are removed.  
(4) Drive shaft (16) and driven shaft (20) are now free to be removed.  
(5) Lastly, remove front bearing plate (15) from pump support (5).  
The pump is now dis-assembled for inspection.
- (C) In reassembling pump, the reverse order of dis-assembly can be followed. All plates should be thoroughly cleaned and given a coat of white shellac before assembling. A clearance of .0015" should be maintained on each side of pump gears. All parts should run freely except for a slight drag caused by the stuffing box.
- (D) When the pump is completely assembled, it should be given a hydrostatic test of 37-1/2# pressure to determine whether there are any leaks at the joints.
- (E) In case of leakage at the stuffing box, the glands should be tightened only enough to stop leakage. Excessive tightening of the glands will increase the horsepower and overload the motor.

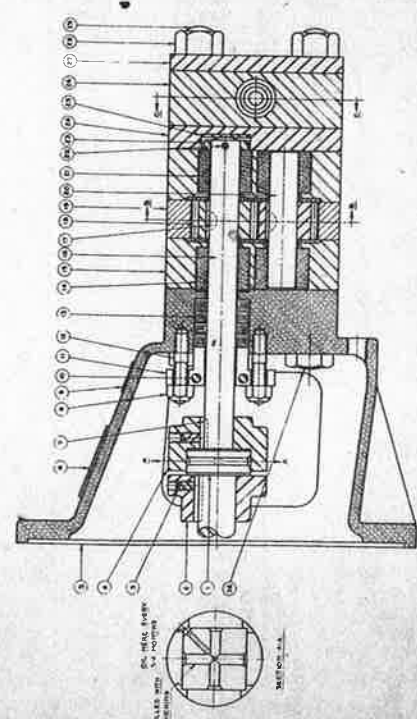
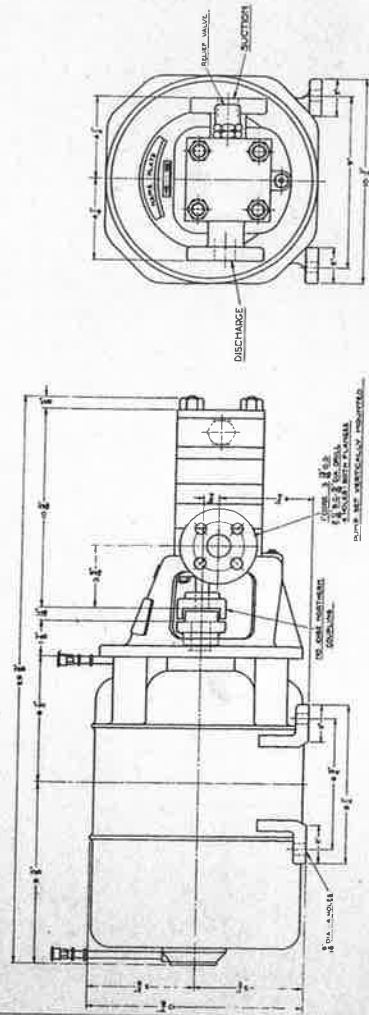


**LIST OF SPARE PARTS AND TOOLS**  
 NAME AND NUMBER OF VESSEL, BY WHOM ORDERED, AND DATE OF ORDER  
 APPLICATION: DIESEL LUBE OIL PUMP  
 ANY CONTRACT OR SUPPLEMENTARY ORDER NO. FROM MANUFACTURER, IF APPLICABLE

NO.	NAME OF PART OR TOOL	QUANTITY	UNIT	REMARKS
1	COVER PLATE	1	PC	
2	KEY	1	PC	
3	KEY	1	PC	
4	KEY	1	PC	
5	KEY	1	PC	
6	KEY	1	PC	
7	KEY	1	PC	
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96	KEY	1	PC	
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99	KEY	1	PC	
100	KEY	1	PC	

**LIST OF MATERIAL**  
 NAME OF VESSEL, BY WHOM ORDERED, AND DATE OF ORDER  
 APPLICATION: DIESEL LUBE OIL PUMP  
 ANY CONTRACT OR SUPPLEMENTARY ORDER NO. FROM MANUFACTURER, IF APPLICABLE

NO.	NAME OF MATERIAL	QUANTITY	UNIT	REMARKS
1	COVER PLATE	1	PC	
2	KEY	1	PC	
3	KEY	1	PC	
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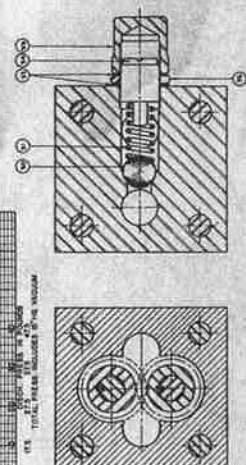
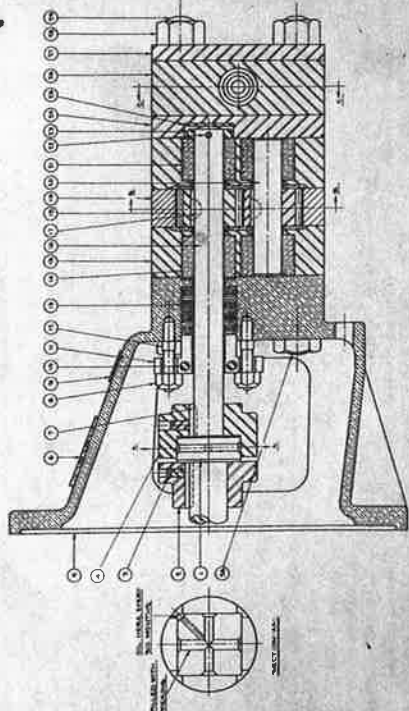
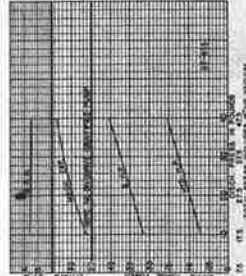
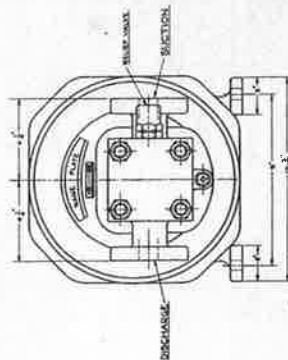


NOTE: 1. DIMENSIONS ARE GIVEN IN INCHES AND DECIMALS THEREOF. 2. DIMENSIONS ARE GIVEN IN MILLIMETERS AND DECIMALS THEREOF. 3. DIMENSIONS ARE GIVEN IN METERS AND DECIMALS THEREOF. 4. DIMENSIONS ARE GIVEN IN FEET AND DECIMALS THEREOF. 5. DIMENSIONS ARE GIVEN IN YARDS AND DECIMALS THEREOF. 6. DIMENSIONS ARE GIVEN IN MILES AND DECIMALS THEREOF. 7. DIMENSIONS ARE GIVEN IN KILOMETERS AND DECIMALS THEREOF. 8. DIMENSIONS ARE GIVEN IN HOURS AND DECIMALS THEREOF. 9. DIMENSIONS ARE GIVEN IN MINUTES AND DECIMALS THEREOF. 10. DIMENSIONS ARE GIVEN IN SECONDS AND DECIMALS THEREOF. 11. DIMENSIONS ARE GIVEN IN DAYS AND DECIMALS THEREOF. 12. DIMENSIONS ARE GIVEN IN WEEKS AND DECIMALS THEREOF. 13. DIMENSIONS ARE GIVEN IN MONTHS AND DECIMALS THEREOF. 14. DIMENSIONS ARE GIVEN IN YEARS AND DECIMALS THEREOF. 15. DIMENSIONS ARE GIVEN IN DECADES AND DECIMALS THEREOF. 16. DIMENSIONS ARE GIVEN IN CENTURIES AND DECIMALS THEREOF. 17. DIMENSIONS ARE GIVEN IN MILLENNIA AND DECIMALS THEREOF. 18. 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**DESEL LUBE OIL PURIFIER PUMP**  
**OUTLINE & SECTIONAL ASSEMBLIES**  
**& SPARE PARTS LIST**

SCALE: 1" = 1" (1:1)  
 DRAWING NO. 4000-10-V2001  
 SHEET NO. 1 OF 1  
 DATE: 10/1/58  
 DESIGNED BY: J. E. HARRIS  
 CHECKED BY: J. E. HARRIS  
 APPROVED BY: J. E. HARRIS  
 CONTRACTOR: J. E. HARRIS  
 MATERIALS: J. E. HARRIS  
 MANUFACTURER: J. E. HARRIS  
 4000-10-V2001  
 4000-10-V2001

**REFERENCE PLANE**  
 TITLE: DIESEL LUBE OIL PURIFIER PUMP  
 SCALE: 1" = 1" (1:1)  
 DRAWING NO. 4000-10-V2001  
 SHEET NO. 1 OF 1  
 DATE: 10/1/58  
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 CONTRACTOR: J. E. HARRIS  
 MATERIALS: J. E. HARRIS  
 MANUFACTURER: J. E. HARRIS  
 4000-10-V2001  
 4000-10-V2001

[illegible]

LIST OF MATERIAL		QUANTITIES FOR ONE UNIT		2 UNITS PER SHIP	
ITEM NO.	NAME OF ITEM	QTY	UNIT	QTY	UNIT
1	100% COTTON SHIRT	1	PC	2	PC
2	100% COTTON SHIRT	1	PC	2	PC
3	100% COTTON SHIRT	1	PC	2	PC
4	100% COTTON SHIRT	1	PC	2	PC
5	100% COTTON SHIRT	1	PC	2	PC
6	100% COTTON SHIRT	1	PC	2	PC
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66	100% COTTON SHIRT	1	PC	2	PC
67	100% COTTON SHIRT	1	PC	2	PC
68	100% COTTON SHIRT	1	PC	2	PC
69	100% COTTON SHIRT	1	PC	2	PC

CALCULATED WEIGHTS (kg/lbs)	
NO.	DESCRIPTION
1	PROTEIN
2	GLUCOSE
3	PROTEIN, mg. per g.
4	GLUCOSE, mg. per g.
5	TOTAL, mg. IMPURITY
6	AD. LAB.
7	250.000
8	AD. LAB.
9	250.000

MOTOR CHARACTERISTICS	
W	1
80000	2000
10000	2500
15000	3000
20000	3500
25000	4000
30000	4500
35000	5000
40000	5500
45000	6000
50000	6500
55000	7000
60000	7500
65000	8000
70000	8500
75000	9000
80000	9500
85000	10000
90000	10500
95000	11000
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265000	28000
270000	28500
275000	29000
280000	29500
285000	30000
290000	30500
295000	31000
300000	31500
305000	32000
310000	32500
315000	33000
320000	33500
325000	34000
330000	34500
335000	35000
340000	35500
345000	36000
350000	36500
355000	37000
360000	37500
365000	38000
370000	38500
375000	39000
380000	39500
385000	40000
390000	40500
395000	41000
400000	41500
405000	42000
410000	42500
415000	43000
420000	43500
425000	44000
430000	44500
435000	45000
440000	45500
445000	46000
450000	46500
455000	47000
460000	47500
465000	48000
470000	48500
475000	49000
480000	49500
485000	50000
490000	50500
495000	51000
500000	51500
505000	52000
510000	52500
515000	53000
520000	53500
525000	54000
530000	54500
535000	55000
540000	55500
545000	56000
550000	56500
555000	57000
560000	57500
565000	58000
570000	58500
575000	59000
580000	59500
585000	60000
590000	60500
595000	61000
600000	61500
605000	62000
610000	62500
615000	63000
620000	63500
625000	64000
630000	64500
635000	65000
640000	65500
645000	66000
650000	66500
655000	67000
660000	67500
665000	68000
670000	68500
675000	69000
680000	69500

PUMP CHARACTERISTICS	
Q, GPM	3000
HEAD, FEET	85*
W.P., P.S.I.	1100
W.P., P.S.I.	1000
W.P., P.S.I.	900
W.P., P.S.I.	800
W.P., P.S.I.	700
W.P., P.S.I.	600
W.P., P.S.I.	500
W.P., P.S.I.	400
W.P., P.S.I.	300
W.P., P.S.I.	200
W.P., P.S.I.	100
W.P., P.S.I.	0

REFERENCE PLANS			
TITLE	SECTION	DATE	BY
CONCRETE & STEEL FRAME, 4-BUILDING			
SECTION			

[illegible][illegible][illegible]