

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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OPERATOR'S ORGANIZATIONAL  
DS AND GS MAINTENANCE MANUAL  
INCLUDING  
REPAIR PARTS AND SPECIAL TOOL LISTS

PUMP,CENTRIFUGAL  
GASOLINE ENGINE DRIVEN (MIL STD), 600 GPM  
(E. C. SCHLEYER PUMP (O. MODEL 36M-SPS3011G-T)  
FSN 4320-935-1619

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HEADQUARTERS, DEPARTMENT OF THE ARMY  
SEPTEMBER 1969

## **SAFETY PRECAUTIONS AND WARNINGS**

### **BEFORE OPERATION**

Do not operate the pumping assembly in an enclosed area unless the exhaust gases are piped to the outside. The exhaust contains carbon monoxide which is a colorless, odorless, and poisonous gas.

The electrolyte for the battery is an acid and precautions must be taken to prevent spilling on clothing, pump, or engine. If it comes in contact with the skin, severe burns may occur. Use rubber gloves when filling the battery. If any electrolyte is spilled, immediately flush it away with water. Do not smoke while servicing the battery. Batteries generate hydrogen which is a highly explosive gas.

Smoking must not be permitted while fueling the engine. Maintain metal to metal contact between the tank and the filling apparatus to avoid a spark being generated.

Do not use a lifting device with a capacity of less than 1500 lbs. Do not allow the pump assembly to swing back and forth while it is suspended in the air. Failure to observe this warning may result in damage to the unit or injury to personnel.

### **DURING OPERATION**

Do not fill the fuel tank while the engine is running.

Do not tow trailer over 30 nmph on surfaced roads.

Use extreme care when working near the engine to avoid hot exhaust and rotating parts.

Avoid contact with electrical terminals on the unit.

Avoid breathing exhaust fumes.

The pump has been designed for handling clear fresh water. If the pump is used for handling other liquids, there shall be variations in performance and the possibility that some of the internal parts may become damaged or corroded.

The unit operating life will be very much shortened through abuse.

Carefully follow installation and operation instructions.

### **AFTER OPERATION**

Do not smoke while fueling the engine. Maintain metal to metal contact between the filling apparatus & fuel tank to prevent a spark being generated.

**Changes In Force: C1, C2, C3, C4, C5, and C6.**

**CHANGE**

**NO. 6**

**HEADQUARTERS,  
DEPARTMENT OF THE ARMY  
WASHINGTON, D. C., 25 JULY 1990**

**Operator's, Organizational, Direct Support and General Support  
Maintenance Manual  
(including Repair Parts and Special Tools List)  
Pump, Centrifugal, Gasoline Engine Driven, (MIL-STD) 600 GPM  
(E.C. Schleyer Pump Co. Model 36M-SPS3011G-T)  
NSN 4320-00-935-1619**

**Approved for public release; distribution is unlimited.**

TM 5-4320-254-14, 12 September 1969, is changed as follows:

Page 6, paragraph 2-5, step 8, add note:

**NOTE**

Use electrolyte with a specific gravity of 1.280. Do not use tropical electrolyte, which will reduce battery reserve capacity.

Page 9, paragraph 2-13, add (c):

- c. Battery - Increase battery PMCS frequency. Use distilled water or a good grade drinking water (excluding mineral water).

Page 13, Figure 3-1, Item 8, add note:

**NOTE**

Use distilled water or a good grade drinking water (excluding mineral water).

Page D-17. Appendix D, Repair Parts and Special Tools List, Column (1), line 6, change SMR code PO to XD.

**By Order of the Secretary of the Army:**

**CARL E. VUONO**  
*General, United States Army  
Chief of Staff*

**Official:**

**THOMAS F. SIKORA**  
*Brigadier General, United States  
The Adjutant General*

**DISTRIBUTION:**

Changes in force C 1, C 2, C 3, C 4, and C 5

CHANGE

No. 5

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 14 April 1988

**Operator's, Organizational, Direct Support and General Support Maintenance  
Manual, Including Repair Parts and Special Tools Lists  
PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN, (MIL-STD)600 GPM  
(E.C.SCHLEYER PUMP CO. MODEL 36M-SPS3O11G-T)  
NSN 4320-00-935-1619**

Current as of 23 April 1976

TM 5-4320-254-14, 12 September 1969, is changed as follows:

Page 6. Chapter 2, Installation and Operation Instructions, paragraph 2-1, add:

"a. Placement of equipment in administrative storage should be for short periods of time when a shortage of maintenance effort exists. Items should be in mission readiness within 24 hours or within the time factors as determined by the directing authority. During the storage period appropriate maintenance records will be kept.

b. Before placing equipment in administrative storage, current maintenance services and equipment serviceable criteria (ESC) evaluations should be completed, shortcomings and deficiencies should be corrected, and all modification work orders (MWO's) should be applied .

c. Storage site selection. Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, conex containers and other containers may be used ."

Page A-1. Appendix A, References, line 32, delete TB 740-90-1 Administrative Storage of Equipment.

Page B-5, Appendix B, Section II, Basic Issue Items, SMR CODE (1), delete "PC."

Page B-5, Appendix B, Section II, Basic Issue Items, Federal Stock Number (2), delete "4210-555-8834 ."

Page B-5, Appendix B, Section II, Basic Issue Items, Description (3), delete "EXTINGUISHER, FIRE: Monobromotrifluoromethane changed, hand type, 2-3/4 lb. cap., shatterable cylinder, penetrating seal type valve, L/bracket, MIL-E-52031."

Page B-5, Appendix B, Section II, Basic Issue Items, Unit of Measure (4), delete "EA "

Page B-5, Appendix B, Section II, Basic Issue Items, QTY FURN WITH EQUIP (6), delete "1."

**By Order of the Secretary of the Army:**

**CARL E. VUONO**  
*General, United States Army*  
*Chief of Staff*

**Official:**

**R. L. DILWORTH**  
*Brigadier General, United States Army*  
*The Adjutant General*

**DISTRIBUTION:**

To be distributed in accordance with DA Form 12-25A, Operator's, Unit, Direct Support and General Support Maintenance requirements for Pump, Centrifugal, Gas Driven, 600 GPM (36M-SPS3011G-T).

Changes in force C 1, C 2, C 3, and C 4

CHANGE }  
No.4 }

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HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 23 April 1976

**Operator's, Organizational, Direct Support and General Support Maintenance Manual, Including Repair Parts and Special Tools Usts PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN, (MIL-STD) 600 GPM (E. C. SCHLEYER PUMP CO. MODEL 36M-SPS3011G-T) NSN 4320-00-935-1619**  
Current as of 22 January 1976

TM 5320-254-14, 12 September 1969, is changed as follows:

Page 1. Figure 1-1, after "L. H. thd. this side R.H. thd. opposite side" add the following:  
'(serial No. H-2262 thru H-2331)".

Page 4. Paragraph 1-4 is superseded as follows:

**1-4. Differences In Models**

This manual covers only the SCHLEYER Model No. 36M-SPS3011G-T pumping assembly. The only known differences exist between pumps with serial

numbers in the H series and serial numbers in the N series.

Page 5. Paragraph 1-5A1, line 6, add, "and 1975".

Line 8, add, "and DSA700-72-C-9181".

Paragraph 1-5B1, line 4, add, "N354 thru N-419".

Paragraph 1-5.B.4, line 6, add "700-15, 8 ply for serial No. N-354 thru N419".

Page 8. Legend for figure 2-2. Add "(Serial No. H-2262 thru H-2331)".

Page 8. Figure 2-2A is added as follows.

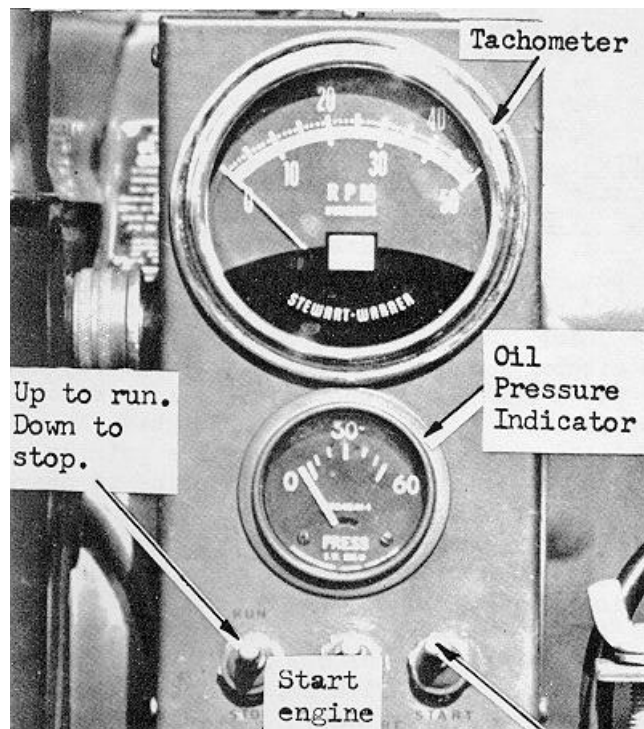


Figure 2-2A, Control Panel (serial No. N-354 thru N-419)

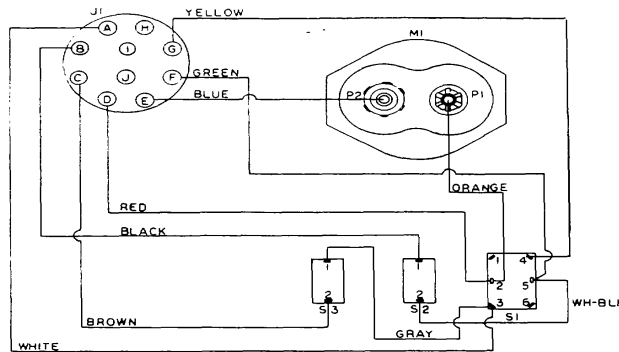
Page 9. Paragraph 2-11.2 is superseded as follows:

2. Check engine speed. (applicable to serial No. H-2262 thru H-2331 only). Normal reading is 3200 RPM, but can be adjusted within the limits of the performance curve to suit conditions. Refer to TM

5-2805-259-14 for adjustment of engine speed.

Page 15. Legend for figure 3-2, add, "(serial No. H-2262 thru H-2331)".

Figure 3-2A is added as follows.



**REFERENCE DESIGNATIONS**

- |                          |                       |                         |
|--------------------------|-----------------------|-------------------------|
| M1 -- PRESSURE INDICATOR | S1 - MS3306g23 SWITCH | J1 - AMPHENOL CONNECTOR |
| P1 - PLUG B505M36        | S2 - MS, 58-29 SWITCH |                         |
| P2 -- PLUG B504M36       | S3 - MS3505830 SWITCH |                         |

Figure 3-2A, Wiring Diagram (serial No. NV-54 thru N-419)

Page 16. Legend for figure 3-3, add the following, "(serial No. H-2262 thru H-2331)"

Figure 3-3A is added as follows:

Legend for figure 3-3., add the following, "(serial No. H-2262 thru H-2331)"

Figure 3-4A is added as follows.

Figure 3-5. Legend for figure 3-5, add the following, "(serial No. H-2262 thru H-2331)"

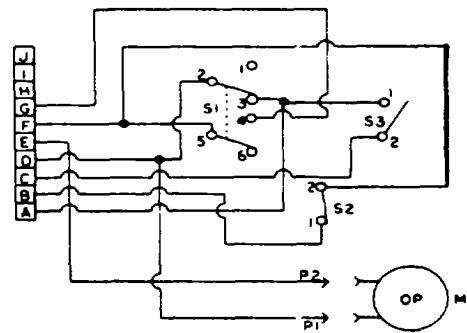


Figure 3-3A. Electrical Schematic Diagram (serial No. N-354 thru N-419)

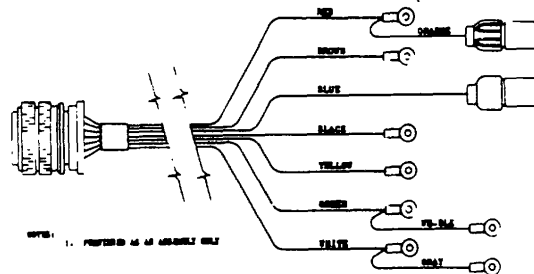


Figure 3-4A. Wiring Harness (serial No. N-354 thru N-419)

Figure 3-5A is added as follows;  
 Page 18. Paragraph 3-13Cd1, add the following to the note:

(Applicable to serial No. H-2262 thru H-2331 only)  
 Page 22. Paragraph 3-16Da2 is superseded as follows:  
 2. The lug nuts on the muffler side of the unit are -- removed by turning them clockwise (applicable to serial No. H-2262 through H-2331 only).

Paragraph 3-16Da, after 4, add the following:

**NOTE**

Serial No. H-2262 thru H-2331 utilize both left and right hand threads on the lug nuts, whereas serial no. N-354 thru N-419 utilize R.H. threads only (fCC'V removal).

Page 23. Add "(serial No. H-2262 thru H-2331)" to the title of Figure 3-12.

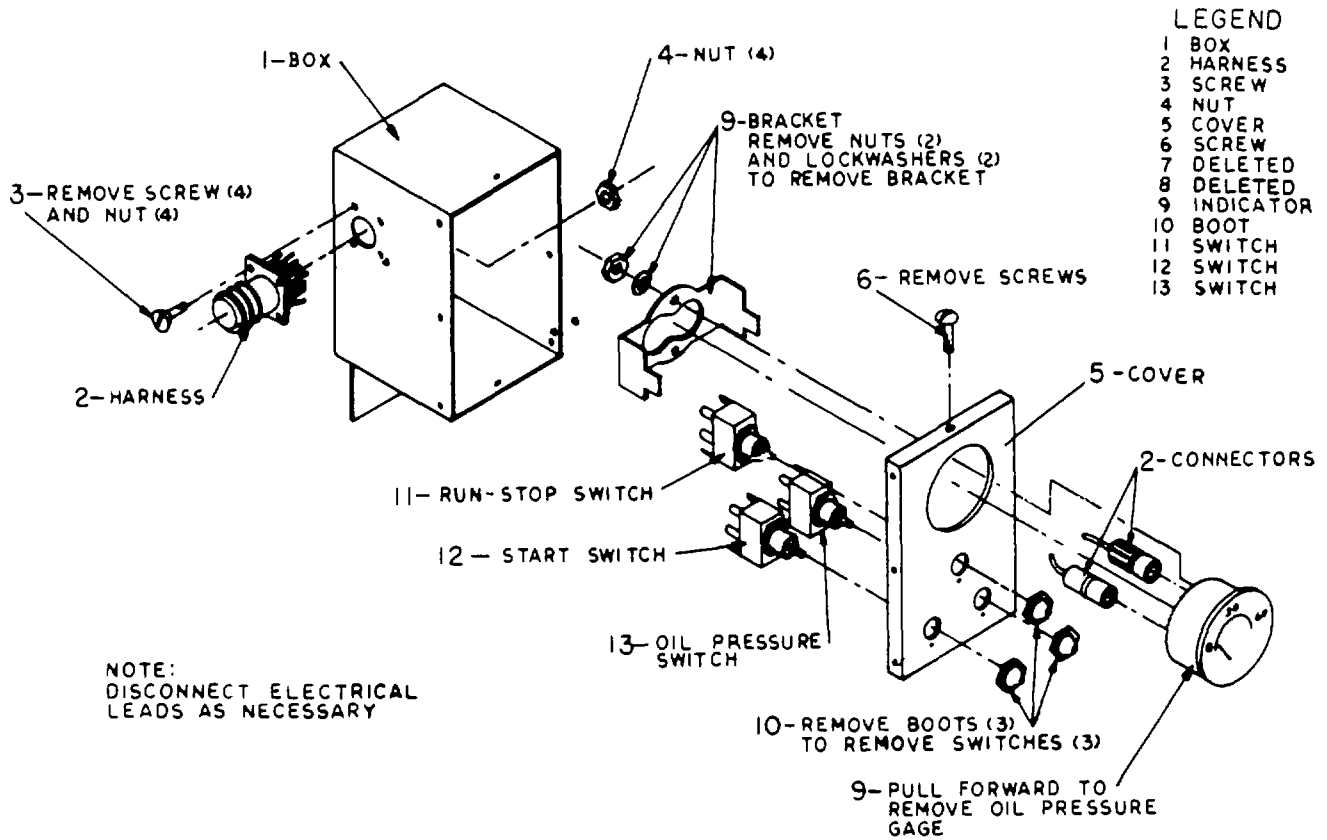


Figure 3-5A. Control Panel-Disassembly and Reassembly (serial No. N-354 thru N-419)

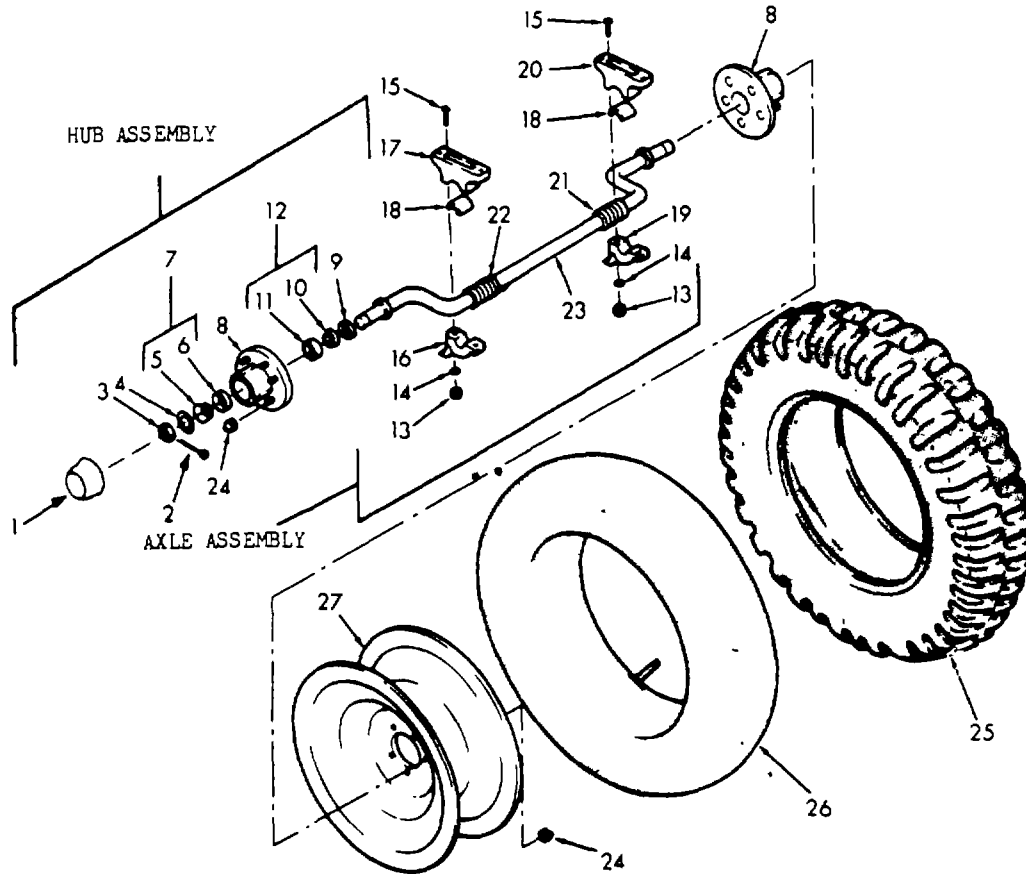


Figure 3-12A is added as follows:  
 Page D-5, paragraph D-4. Subparagraph e is added as follows:

e. Usable on codes are shown in the description column. Uncoded items are applicable to all models. Identification of the usable on codes used in this publication are:

Code	Used on
A	Serial No. H-2262 thru H-2331
B	Serial No. N354 thru N419

Page D-7. Add Federal Supply Codes for the following manufacturers:  
 Timken Roller Bearing Co. - Code 60038.  
 Section III, and V, change, add, or delete as shown on the following pages.



LEGEND

- |                 |                    |             |             |           |
|-----------------|--------------------|-------------|-------------|-----------|
| 1. CAP          | 7. BEARING ASSY    | 13. NUT     | 19. BRACKET | 25. TIRE  |
| 2. COTTER PIN   | 8. HUB & BOLT ASSY | 14. WASHER  | 20. BRACKET | 26. TUBE  |
| 3. NUT          | 9. GREASE SEAL     | 15. BOLT    | 21. SPRING  | 27. WHEEL |
| 4. WASHER       | 10. BEARING CONE   | 16. BRACKET | 22. SPRING  |           |
| 5. BEARING CORE | 11. BEARING CUP    | 17. BRACKET | 23. AXLE    |           |
| 6. BEARING CUP  | 12. BEARING ASSY   | 18. INSERT  | 24. LUG NUT |           |

NOTE: DO NOT REMOVE BEARING CUPS (6, 11) UNLESS DAMAGED OR WORN. WHEN INSTALLING NEW CUPS, EXERCISE CARE NOT TO BURR OR DAMAGE CUPS.

Figure 3-12A, Axle Assembly (serial No. N-354 thru N-419)

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D-10	1	Add usable on code & note	X20	4320-00-117-0793	SECTION III -REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE GROUP 06 -ELECTRICAL SYSTEM CONTROL PANEL ASSEMBLYA B500M36 (78086) NOTE: When entire Control Panel Assembly is being re- placed, use "B" Control Panel Assembly.	EA	1				3-	5		
D-10	2	Add usable on code	X20	BOX, CONTROL PANEL	BS01M36 (78086)	A	EA	1					3- 5	1
D-10	3	Add usable on code	PO	432000-119-0533	HARNES, WIRING- B500AM36 (78086)	A	EA	1	*	*	*	*	3- 5	2
D-10	6	Add usable on code	PO	4320-00-116-6821	COVER, CONTROL PANEL A B502M36 (78086)	EA	1	*	*	*	*	3-	5 5	
D-10	7	Add usable on code	0	5305-00-855-0972	SCREW: Cover Mtg. MS24629-23 (96906)	A	EA	8					3- 5	6
D-11	1	Add usable on code	X20		PLUG, HOLE P562 (28520)	A	EA	1					3- 5	8
D-11	18	Add usable on code	0	5305-00-119-1640	SCREW, CAP, HEXAGON HEAD B915M36 (78086)	A	EA	2					3- 7	11
D-10	1	Add the following	X20		CONTROL, PANEL ASSEMBLY B600M36 (78086) (Components same as Control Panel Assembly, FSN 4320- 117-0793, except where Individual components are annotated.)	B	EA	1					3- 5A	
D-10	2	Add	X20		BOX, CONTROL PANEL B601M36 (78086)	B	EA	1					3- 5A	1
D-10	3	Add	PO		HARNES, WIRING B600AM36 (78086)	B	EA	1					3- 5A	2
D-10	6	Add	PO		COVRK, CONTROL PANELB EA B6C2M36 (78086)	1					3-	5 5A		
D-10	7	Add	O	5305-00-855-0972	SCREW: Cover Mtg. MS24629-23 (96906)	B	EA	6					3- 5A	6
D-11	18	Add	O		SCREW, CAP, HEXAGON HEAD MS90725-62 (96906)	B	EA	2					3-7	11
D-12	1	Add to column 3			GROUP II-REAR AXLE NOTE Rear axle "B" may be used on "A" trailer if "B" Wheels & Tires (Group 1 3) are used.									
D-12	1	Add-usable on code	0	5305-00-269-3211	SCREW, CAP, HEXAGON HEAD. Grease Cap Mtg. MS90725-60 (96906)	A	EA	12					3- 12	1

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D-12	2	Add usable on code	0	531000-637-9541	WASHER, LOCK MS 35338-46 (96906)	A	EA	12					3- 12	2
D-12	3	Add usable on code	PO	1055-00-033-6209	CAP, GREASE 7735821 (00000)	A	EA	2	*	*	*	*	3-12	3
D-12	4	Add usable on code	PO	2530-00-737-1109	GASKET, GREASE CAP 7371109 (00000)	A	EA	2	*	*	*	*	3-12	4
D-12	5	Add usable on code	0	5310-0-737-1106	NUT, LOCK, WHEEL BEARING 7371106(00000)	A	EA	2					3- 12	5
D-12	6	Add usable on code	0	531000-769-6521	WASHER, NUT, LOCK 7696521(00000)	A	EA	2					3- 12	6
D-12	7	Add usable on code	0	531000-737-1106	NUT. LOCK, WHEEL BEARING 7371106 (00000)	A	EA	2					3- 12	7
D-12	8	Add usable on code	0	531000-769-6520	WASHER, LOCK. WHEEL BEARING 7696520 (00000)	A	EA	2					3- 12	8
D-12	9	Add usable on code	PO	311000-183-9946	BEARING MS 19081-58 (96906)	A	EA	4	*	*	*	*	2 12	3-11
D-12	10	Add usable on code	PO	2530-00-133-0791	HUB, RIGHT HAND THREAD A B402AM36 (78086)	EA	1	*	*	*	3-		12 12	
D-12	11	Add usable on code	X20		SEAL: Wheel Hub MS51020-21 (96906)	A	EA	2					3- 12	15
D-12	16	Add usable on code	PO	5310-00-523-2405	NUT, LUG: RH 7328369(19206)	A	EA	5	*	*	*	2	3- 12	27 12
D-12	17	Add usable on code	X20	253000-133-0789	HUB, LEFT HAND THREAD A B402M36 (78086) 7328368(19206)	EA	1		*	*	*	3- 2	28 3-	
D-12	3	Add	PO		CAP, GREASE 46749 (33116)	B	EA	2			12		3- 12A	1
D-12	4	Add	O		PIN, COTTER 18X1144CP(99024)	B	EA	2					3- 12A	2
D-12	5	Add	O		NUT. HX. CASTELLATED 31-16-5931 (99024)	B	EA	2					3- 12A	3
D-12	6	Add	PO		WASHER, KEYED, WHEEL BEARING 31-16-5538 (99024)	B	EA	2					3- 12A	4
D-12	9	Add	PO		BEARING, ROLLER, TAPERED: Outer L44610/L44649 (60038)	B	EA	2					3- 12A	7
D-1	10	Add	PO		HUB, CUP, & BOLT ASSY. 44-56888SW (99024)	B	EA	2					3- 12A	8
D-12	11	Add	X2	0	SEAL, GREASE: Wheel Hub 58846 (33116)	EA	2				3-		9 12A	

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D-12	11	Add	PO		BEARING, ROLLER, TAPERED: Inner L-6811 1/L-68149 (60038)	B	EA	2					3- 12A	12
D-12	12	Add	O	5310-00-732-558	NUT, PLAIN, HEXAGON. Bracket Mtg. MS51967-8 (96906)	EA		4					3- 12A	13
D-12	13	Add	O	5310-00-637-9541	WASHER, LOCK: Bracket Mtg.EA MS3533846 (96906)			4				3- 12A	14	
D-12	14	Add	O		BOLT, MACHINE Bracket Mtg.EA 13216E8336 (97403)			4				3- 12A	15	
D-12	15	Add	PO	2530-00-656-7542	INSERT: Bracket 31-69030 (99024)	EA		2				3- 12A	18	
D-12	16	Add	O		NUT, LUG 44-X1023R (99024)	B	EA	10				3- 12A	24	
					GROUP 13-WHEELS AND TRACKS									
D-12	1	Add usable on code	P O	1450-00-945-7878	WHEEL K33995 (33116)	A	EA	2	*	*	*	*	3- 12	31
D-12	2	Add usable on code	PO	261000-678-1363	TIRE MS35388-93 (96906)	A	EA	2	*	*	*	*	3- 12	32
D-12	3	Add usable on code	PO	261000-269-7332	TUBE MS35392-8 (96906)	A	EA	2	*	*	*	2	3- 12	33
D-12	1	Add	PO		WHEEL, PNEUMATIC TIRE B 82551 (33116)	EA		2				3- 12A	27	
D-12	2	Add	PO		TIRE, PNEUMATIC MS35388-90 (96906)	B	EA	2				3- 12A	25	
D-12	3	Add	PO		TUBE MS35392-157 (96906)	B	EA	2				3- 12A	26	

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations	
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.
					SECTION V- REPAIR PARTS FOR DS AND GS MAINTENANCE GROUP06 -ELECTRICAL SYSTEM								
D-17	1	Add usable on code & add note to column 3	X20	4320-00-117-0793	CONTROL PANEL ASSEMBLYA B500M36 (78086) NOTE: When entire Control Panel Assembly is being replaced, use "B" Control Panel Assembly.	EA	1					3-5	
D-17	2	Add usable on code	X20		BOX, CONTROL PANEL B501M36 (78086)	A EA	1					3-5	1
D-17	3	Add usable on code &	PO	4320-00-119-0533	HARNESS, WIRING BSOOAM36 (78086) change P/N	A EA	1	*	*	*	*	5	3-52
D-17	6	Add usable on code	PO	4320-00-116-6821	COVER, CONTROL PANEL A B502M36 (78086)	EA	1	*	*	*		5	3-55
D-17	7	Add usable on code	0	5305-00-855-0972	SCREW: Cover Mg. MS24629-23 (96906)	A EA	8					3-5	6
D-17	8	Add usable on code	X20		PLUG, HOLE P562 (28520)	A EA	1					3-5	8
D-18	6	Add usable on code	0	5305-00-119-1640	SCREW, CAP, HEXAGON HEAD B915M36 (78086)	A EA	2					3-7	11
D-17	1	Add the following	X20		CONTROL PANEL ASSY B600-M36 (78086) (Components same as Control Panel Assy, FSN 4320- 117-0793, except where individual com- ponents are annotated.)	B EA	1					3- 5A	
D-17	2	Add	X20		BOX, CONTROL PANEL B60 IM36 (78086)	B EA	1					3-	1 5A
D-17	3	Add	PO		HARNESS, WIRING B600AM36 (78086)	B EA	1					3-	2 5A
D-17	6	Add	PO		COVER, CONTROL PANEL B B602M36 (7808b)	EA	1					3-	5
D-17	7	Add	0	5305-00-855-0972	SCREAW: Cover Mig. MS24629-23 (96906)	B EA	6					3- 5A	6
D-18	6	Add	0		SCREW, CAP, HEXAGON HEAD MS90725-62 (96906)	B EA	2					3-7	11
					GROUP 11-REAR AXLE <b>NOTE</b> Rear Axle "B" may be used on "A" trailer if "B" Wheels & Tires (Group 13) are used.								

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D-18	1	Add usable on code	O	53PS0269-3211	SCREW, CAP, HEXAGONHEAD: Grease Cap Mtg. MS90725-60 (96906)	A	EA	12					3- 12	1
D-18	2	Add usable on code	O	5310-00-637-9541	WASHER, LOCK MS3533846 (96906)	A	EA	12					3- 12	2
D-18	3	Add usable on code	PO	1055-00-033-6209	CAP, GREASE 7735821 (00000)	A	EA	2	*	*	2	2	6 12	3-3
D-18	4	Add usable on code	PO	253(00-737-1109	GASKET, GREASE CAP 7371109 (00000)	A	EA	2	*	*	2	2	6 12	3-4
D-18	5	Add usable on code	O	5310-00-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)	A	EA	2					12	3-5
D18	6	Add usable on code	O	5310-00-769-6521	WASHER, NUT, LOCK 7696521 (00000)	A	EA	2					12	3-6
D-18	7	Add usable on code	O	5310-00-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)	A	EA	2					12	3-7
D-18	8	Add usable on code		531000-769-6520	WASHER, LOCK, WHEEL BEARING 7696520 (00000)	A	EA	2					12	3-8
D18	9	Add usable on code	PO	3110-00-183-9946	BEARING MS19081-58 (96906)	A	EA	4	*	2	2	2	12 12	3-11
D-18	10	Add usable on code	PO	2530-00-133-0791	HUB, RIGHT HANDTHREAD A B402AM36 (78086)	EA	1	*	*	*	*	4	3-12 12	
D-18	11	Add usable on code	X20		SEAL: Wheel Hub MS51020-21 (96906)	A	EA	2					12	3-15
D-19	1	Add usable on code	PF	2530-00-133-0788	AXLE ASSEMBLY B400M36 (78086)	A	EA	1	*	*	*	2	2	
D-19	5	Change de- scription & P/N in Col. 3	PF	2530-00-019-8658	BRACKET, TOP, Lower Right Block 31-72-804 (99024)	RH:	EA	1	*	*	*	3	3- 12	19
D-19	6	Change de- scription & P/N in Col. 3	PF	2530-00-656-7539	BRACKET, BASE, LH: Right Base Bracket 31-72-801 (99024)	EA	1	*	*	*	*	3	3- 12	20
D-19	7	Change P/N in Col. 3	PO	2530-00-656-7542	INSERT: Bracket 31-69-030 (99C:4:)	EA	2	*	*	2	*	6	3- 12	21
D-19	8	Change de- scription & P/N in Col. 3	PF	2530-00-019-8657	BRACKET, TOP, LH: Lower Left Block 31-72-803 (99024)	EA	1	*	*	*	*	3	3- 12	22
D-19	9	Change de- scription & P/N in Col. 3	PF	2530-00-656-7540	BRACKET, BASE, RH: Left Base Bracket 31-72-802(99024)	EA	1	*	*	*	*	3	3- 12	23
D-19	10	Change de- scription & PIN in Col. 3	PF	5340-00-246-6568	SPRING, RH- Left Spring 31-69-499 (99024)	EA	1	*	*	*	*	5	3-	24 12

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations	
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.
D-19	11	Change de- scription & P/N in Col. 3	PF	5340-00-656-7541	SPRING, LH. Right Spring 31-69-500 (99024)	EA	1	*	*	*	*	5 12	3-25
D19	12	Add usable on code	X2F	25300119-9874	AXLE L2-36-10-1 (99024)	A EA	1					3- 12	26
D-19	13	Add usable on code	PO	5310-00-523-2405	NUT, LUG: RH 7328369(19206)	A EA	5	*	2	2	*	3- 12	27
D-19	14	Add usable on code	X20	2530-00-133-0789	HUB, LEFTHANDTHREAD A B402M36 (78086)	EA	1					12	3-28
D-19	15	Add usable on code	PO	5310-00-523-2404	NUT, LUG: LH 7328368 (19206)	A EA	5	*	2	2	*	3- 12	29
D-19	16	Add usable on code	X1		CUP 68643 (99024)	A EA	2					3- 12	30
D-19	3	Add	PO		CAP, GREASE 46749(33116)	B EA	2					3- 12A	1
D-19	4	Add	O		PIN, COTTER 18X1 144CP (99024)	B EA	2					12A	3-
D-18	5	Add	O		NUT, HEX, CASTELLATED 31-16-5931 (99024)	B EA	2					3- 12A	3
D-18	6	Add	PO	WASHER, KEYED	Wheel B Bearing 31-16-5538 (99024)	B EA	2					3- 12A	4
D-18	9	Add	PO		BEARING, ROLLER TAPERED: Outer 446i0/L-4649 (60038)	B EA	2					3- 12A	7
D-18	10	Add	X2	0	HUB, CUP, AND BOLT ASSY B 44-56888SW (99024)	EA	2					3- 12A	9
D-18	11	Add	X2	0	SEAL, GREASE: Wheel Hub B 58846(33116)	EA	2					3- 12A	9
D-18	1	Add	PO		BEARING, ROLLER TAPERED: Inner L-811 I/68149 (60038)	B EA	2					3- 12A	12
D-19	1	Add	PF		AXLE ASSEMBLY B B700-M36 (78086)	EA	1						
D-19	2	Add	O		NUT, PLAIN, HEXAGON Bracket Mtg. MS51967-8 (96906)	EA	4					3- 12A	13
D-19	3	Add	O		5310-0637-9541WASHER, LOCK: BWacket Mtg. MS35338-46 (96906)	EA	4					3- 12A	14
D-19	4	Add	O		BOLT, MACHINE: Bracket Mtg.EA 13216E8336(97403)	4						3- 12A	15
D-19	5	Add	PF		BRACKET, TOP, RH: Lower Right Block 31-72-804 (99024)	EA	1					3- 12A	16
D-19	6	Add		PF	BRACKET, BASE, LH: Right Base Bracket 31-72-801 (99024)	EA	1					3- 12A	17
D-19	7	Add	PF	25300-656-7542	INSERT: Bracket 31 -69-030 (99024)	EA	2					3- 12A	18

1 Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations	
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.
D-19	8	Add	PF		BRACKET, TOP, LIP' Lower Left Block 31-72-803 (99024)	EA	1					3- 12A	19
D-19	9	Add	PF		BRACKET, BASE, RH: Left Base Bracket 31-72-802 (99024)	EA	1					3- 12A	20
D-19	10	Add	PF	534000-246-6568	SPRING, RH Left Spring 31-69499 (99024)	EA	1				3-	21 12A	
D-19	11	Add	PF	5340-00-656-7541	SPRING, LH. Right Spring 31-69-500 (99024)	EA	1				3-	22 12A	
D-19	12	Add	X2F		AXLE 23684F (99024)	B EA	1					3- 12A	23
D-19	13	Add	PO		NUT, LUG 44-X1023R (99024)	B EA	10					3- 12A	24
D-191		Add usable	PO	1450-00-945-7878	GROUP 13 - WHEELS AND TRACKS WHEEL on codeK33995 (33116)	A EA	2	*	*	2	*	3- 12	31
D-19	2	Add usable	PO	261000-678-1363	TIRE on codeMS35388-93 (96906)	A EA	2	*	*	*	*	12	3-32
D-19	3	Add usable	PO	261000-269-7332	TUBE on codeMS35392-8 (96906)	A EA	2	*	2	2		2 12	3-33
D-19	1	Add	PO		WHEEL, PNEUMATIC TIRE B 82551 (33116)	EA	2					3- 12A	
D-19	2	Add	PO		TIRE, PNEUMATIC MS35388-90 (96906)	B EA	2					3- 1	25 12A
D-19	3	Add	PO		TUBE MS35392-157 (96906)	B EA	2					3- 12A	26



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To be distributed in accordance with DA Form 12-25 A, (qty rqr block No. 242) Organizational Maintenance requirements for Pump, Fresh Water.

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Changes in Force: C 1, C 2 and C S

Change }  
No. 3 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 30 May 1974

**Operator's Organizational, Direct and General  
Support Maintenance Manual,  
Including Repair Parts and Special Tool Lists  
PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN  
(MIL-STD) 600 GPM  
(E. C. SCHLEYER PUMP CO. MODEL 36M-SP3011G-T)  
FSN 4320-935-1619**

Current as of 14 March 1974

TM 5-4320-254-14, 12 September 1969, is changed as follows:  
Inside cover. Add the following warnings:

**WARNING**

Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

**WARNING**

Dry cleaning solvent, P-D-80, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100°F.  
- 138°F.

Page BS, Appendix B, line item 4 change column 2 to read 4210-5554887.  
All changes, additions, or deletions of Federal stock number or Manufacturers part numbers within this change should be appropriately reflected in the index.

By Order of the Secretary of the Army:

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GPO 906-467

008484-003

Changes In Force: C 1 and C 2

Change }  
No. 2 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D. C. 28 June 1973

**Operator's Organizational, Direct and General  
Support Maintenance Manual,  
Including Repair Parts and Special Tool Lists  
PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN,  
(MIL-STD) 600 GPM  
(E. C. SCHLEYER PUMP CO. MODEL 36M-SPS3011G-T)  
FSN 4320-935-1619**

TM 5-4320-254-14, 12 September 1969, is changed as follows:

Page B-1. Appendix B is superseded as follows:

**APPENDIX B  
BASIC ISSUE-ITEMS-LIST-AND ITEMS TROOP  
INSTALLED OR AUTHORIZED LIST**

**Section I. INTRODUCTION**

**B-1. Scope**

This appendix lists items required by the operator for operation of the pump.

**B-2. General**

This list is divided into the following sections:

- a. *Basic Issue Items List - Section II.* Not applicable.
- b. *Items Troop Installed or Authorized List - Section III.* A list of items in alphabetical sequence, which at the discretion of the unit commander may accompany the pump. These items are NOT SUBJECT TO TURN-IN with the pump when evacuated.

**B-3. Explanation of Columns**

The following provides an explanation of columns in the tabular list of Basic Issue Items List, Section II, and Items Troop Installed or Authorized List, Section III.

a. *Source, Maintenance and Recoverability Code (s) (SMR).* (Not applicable).

b. *Federal Stock Number.* This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. *Description.* This column indicates the Federal item name and any additional description of the item required.

d. *Unit of Measure (U/M).* A two character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. *Quantity Furnished with Equipment (BILL).* (Not applicable).

f. *Quantity Authorized (Items Troop Installed or Authorized).* This column indicates the quantity of the item authorized to be used with the equipment.

**Section III ITEMS TROOP INSTALLED OR AUTHORIZED LIST**

(1)	(2)	(3) Description	(4) Unit of Meas	(5) Qty Auth
SMR Code	Federal Stock Number	Ref no. & mfr Code	Usable on code	
	7520-559-9618	Case, Maintenance	EA	1
	4210-555-837	Extinguisher, Fire	EA	1
	2995-961-3692	Rope, Starting	EA	1

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Change }  
No. 1 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D.C. 28 May 1970

**Operator's, Organizational, Direct and General Support Maintenance  
Manual, Including Repair Parts and Special Tool Lists**

**PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN, (MIL-STD) 600 GPM  
(E.C. SCHLEYER PUMP CO. MDL 36M-SPS3011G-T)  
FSN 4320-935-1619**

TM 5-4320-254-14, 12 September 1969, is changed as follows:

Cover page is changed as shown above.

*Page 9.* Paragraph 2-13A, 2-14B, 2-15A, 2-16B, 2-17B, change TM 5-2805-259-14 to LO 5-2805-259-12.

*Page 10.* Paragraph, 2-17B, change TM 5-2805-259-14 to LO 5-2805-259-12.

*Page 11.* Paragraph, 3-2A, change TM 5-2805-259-14 to LO 5-2805-259-12.

*Page 17.* Paragraph 3-1SB, *a* and *b* are superseded as follows:

*a.* The electrical sending unit, item 14, Figure 3-5 and the tachometer item 7, Figure 3-5 are not essential to the operation of this end item and are not to be replaced when failures occur.

*b.* When the electrical sending unit and tachometer become inoperative, they are to remain in place on the

end item

*Page B-5.* Section II, Basic Issue Items. Delete all reference to ROPE STARTING.

Section II, Basic Issue Items, Group 31, add the following:

DEPARTMENT OF THE ARMY  
LUBRICATION ORDER LO 5-2805-259-12

*Page D-8.* Section II, Group 06, delete all reference to sender unit.

All changes, additions, or deletions of Federal Stock No. or manufacturers part numbers within these changes should be appropriately reflected in the index.

*Section III, and V,* change, add, or delete as shown on the following pages:

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Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D-11	7	Delete		6680-125-8541	Sender Unit 811532  (5773)									

Page	Line	Action	(1) SMR Code	(2) National Stock No.	(3) Description  Reference No. & MFR Code	(4) Unit of Issue	(5) Qty inc in unit	(6) 15-Day organizational maint allowances				(7) Illustrations		
								(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) Figure No.	(b) Item Or Symbol No.	
D17	14	Delete		6680-125-8541	Sender Unit 811532  (57733)									

By Order of the Secretary of the Army:

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*Major General, United States Army,  
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To be distributed in accordance with DA Form 1225, Section 1, (qty rqr block no. 242) organizational maintenance requirements for Pump, Centrifugal, Fresh Water.

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TECHNICAL MANUAL

NO. 5-4320-254-14



HEADQUARTERS,

DEPARTMENT OF THE ARMY

WASHINGTON, D. C., 12 SEPTEMBER 1969

OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT  
 MAINTENANCE MANUAL, INCLUDING REPAIR PARTS  
 AND SPECIAL TOOL LISTS

PUMP, CENTRIFUGAL, GASOLINE ENGINE DRIVEN (MIL STD)  
 600 GPM (E. C. SCHLEYER PUMP CO. MODEL 36M-SPS3011G-T)  
 FSN 4320-935-1619

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## CHAPTER 1

### INTRODUCTION

#### 1-1. SCOPE

In this manual will be found the suggested procedures for the operation of the pump, recommendations for preventative maintenance, general service, and repair. This manual covers only those parts that are assembled and/or installed by the manufacturer. TM 5-2805-259-14, is furnished for maintenance instructions of the engine.

#### 1-2. DESCRIPTION

A. GENERAL - The SCHLEYER pumping assembly, Model No. 36M-SPS3011G-T (Fig. 1-1 and 1-2) is a self-contained, trailer mounted, self-priming unit. This pumping unit is for pumping water, with performances in the range as shown on the plate atop the battery box. The unit has 4" NPT inlet and 4" NPT outlet with a rated capacity of 600 GPM at 50 ft TDH. The unit is powered by a four-cylinder gasoline engine directly coupled to the pumping assembly. Instruments and controls necessary for operation of the unit are mounted on the control panel (Fig. 2-2).

B. ENGINE - Refer to TM 5-2805-259-14 for a description of the Military Standard engine, Model No. 4A084-III.

C. PUMP ASSEMBLY - The pump assembly (Fig. 1-1) is a four inch conventional type self-priming centrifugal pump designed to deliver 600 GPM at 50 ft. TDH.

D. TRAILER - The trailer (Fig. 1-1) is constructed of welded steel members and is equipped with two wheels with pneumatic tires and an axle for towing at speeds up to 30 MLPH on surfaced roads. A collapsible support leg (fig. 1-1) is provided at rear of the trailer to support the unit during operation. The trailer is equipped with a removable drawbar for towing.

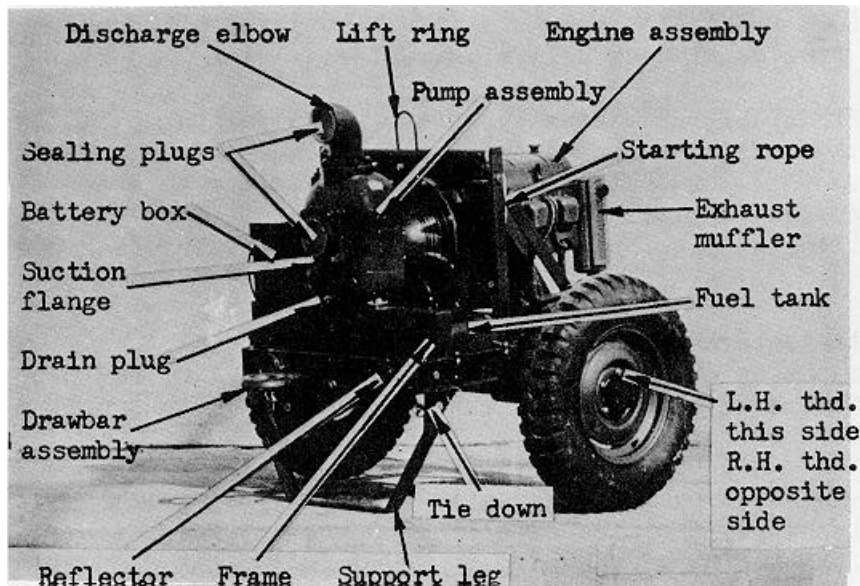


FIGURE 1-1. PUMPING, ASSEMBLY, LEFT REAR 3/4 VIEW

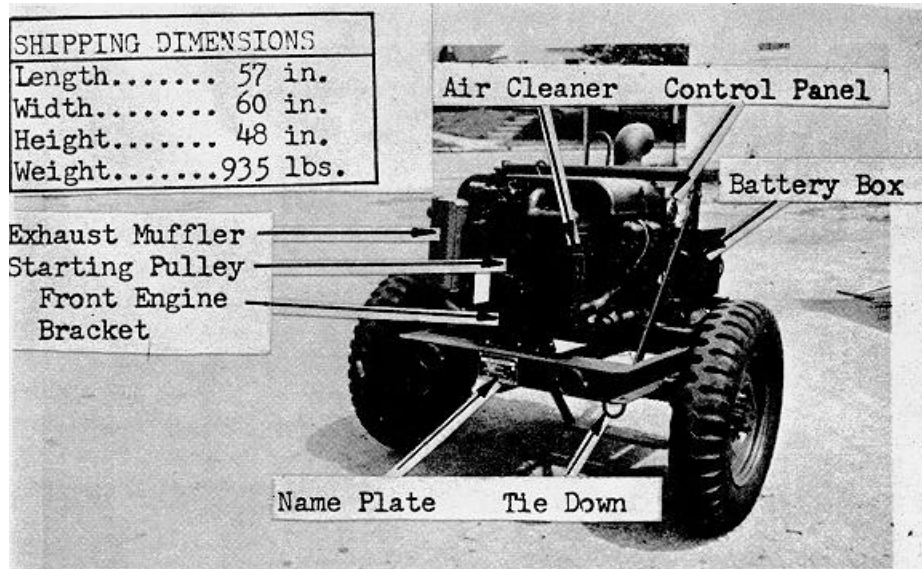


FIGURE 1-2. PUMPING ASSEMBLY, RIGHT FRONT 3/4 VIEW

### 1-3. EXPLANATION OF TERMS AND ABBREVIATIONS

There are certain terms and abbreviations specifically used for the installation, operation, and maintenance of these self-priming centrifugal pumps; therefore, an explanation of such terms and abbreviations will aid in clarifying their use and avoid possible confusion.

#### A. TERMS

**AIR-BIND or AIR-LOCK** - A condition where air accumulates or is entrapped. This can prevent the pump from priming or delivering water.

**AIR-TIGHT or COMPLETELY TIGHT** - Usually referring to Joints or fittings on the suction (inlet) side of the pump and the suction line. If any Joint, fitting, or line on the suction side of the pump should allow any air to enter the pump during the priming cycle, the pump will not become primed, and after the pump has been primed the air will slow down or even stop the flow of water from the discharge of the pump.

**BREAK-SUCTION** - Air entering pump during the operating cycle will interrupt the flow of solid water to the inlet. Usually caused by suction line not properly submerged and/or a vortex at the water source or through an inadequate supply of water for the suction line (low water level).

**DISCHARGE** - That in which pump discharge is involved, the spilling of water from the end of the discharge line, the expelling of air or water, the flow of water or flow rate. Also the outlet of the pump.

**FREE-FLOW** - The unrestricted, free flowing delivery from the discharge of the pump or discharge line. The ability of air or water to freely move out of the discharge line without any humps, kinks, or other restrictions.

**KINK** - Any restriction or "knotty" or kinky condition preventing the free flow of air and/or water.

LINE SLOPE - The desired gradual slope of the suction line downward to the water source, and the desired gradual slope of the discharge line upward from the pump to the point where the water is delivered.

LINE, DISCHARGE or DISCHARGE LINE - Hose or Pipe connecting to the pump outlet and directing water away from the pump. When lines are not vertical, it is preferable that they slope upward away from the pump.

LINE, SUCTION or SUCTION LINE - Hose or Pipe connecting to the pump inlet and running to the water source. When the line is not vertical, it is preferable that it slope downward to the water source. All fittings, joints, and connections on the inlet side of the pump must be completely air-tight. PRIME or PRIMING - Filling the pump casing with water. The function of the pump evacuating suction line.

STARTING PRIME or INITIAL PRIME or FIRST PRIME - The pump must be filled with water the first time the engine is started or whenever the pump is moved from one operating site to another site or whenever the suction lines are changed or when the water evaporates to lower the level in the casing. This is the function of filling the pump casing with water before the engine is started.

SUBMERGENCE - Primarily the suction line being sufficiently into the water source so vortexing or air cannot enter into the suction line.

VORTEX - An action at the lower end of the suction line when it is not sufficiently submerged in the water source, frequently visible as a whirlpool or heard as a slurping or gulping sound.

## B. PARTS

CASING - Part surrounding the impeller and having the suction (inlet) and the discharge (outlet) openings of the pump. Sometime referred to as the VOLUTE.

FLAPPER - A type of check-valve built in the inlet opening of the pump casing.

IMPELLER - Main rotating part of pump & attached to the shaft end at the casing.

IMPELLER FACE - Front side of the impeller.

IMPETTER SHROUD - Back side of the impeller.

MECHANICAL SEAL - An assembly part to prevent entry of air or exit of water around the pump shaft.

SEAL BODY - That part of the mechanical seal containing the spring.

SEAL COLLAR - That part of the mechanical seal having a lapped metal or ceramic face.

## C. ABBREVIATIONS

BHP - Brake horse power.

GPM - Gallons per minute.

NPT - National Pipe Thread.

PSI - Pounds per square inch.

RPM - Revolutions per minute.

Sp Gr - Specific gravity.

TOH - Total dynamic head, and equals total of lift and discharge head measured in feet.

**1-4. DIFFERENCES IN MODELS**

This manual covers only the SCHLEYER Model No. 36M-SPS3011G-T pumping assembly. No known differences exist for the model covered by this manual.



**1-5. IDENTIFICATION AND TABULATED DATA**

A. IDENTIFICATION - The pumping assembly has three identification plates. The information on these plates is listed below.

1. IDENTIFICATION PLATE

Title..... U. S. MILITARY PROPERTY  
Nomenclature..... PUMP, CENTRIFUGAL, WATER  
Model..... 36M-SPS3011G-T  
Capacity..... 600 GPM at 50 ft. 'DH  
Serial No.....  
Year of Manufacture..... 1968  
FSN..... 4320-935-1619  
Contract N..... DAAKOI-67-C-AO10  
Ship wt..... 935 lb. Gross wt..... 915 lb.  
O.A. Height..... 54 in. Width..... 59 in. Length..... 56 in.  
Manufactured by..... E. C. SCKILYER PUMP CO., INC.

2. PERFORMANCE PLATE

The performance plate provides performance characteristics of the pump.

3. ENGINE PLATE

NOTE: Engine is Military Standard; refer to TM 5-2805-259-14.

B. TABULATED DATA

1. PUMPING ASSEMBLY

Manufacturer..... E. C. SCHIZLER PUMP CO., INC.  
Model..... 36M-SPS3011G-T  
Type..... Self-priming, centrifugal, trailer mounted  
Serial..... H-2262 through H-2331  
Rated flow..... 600 GPM  
Rated total dynamic head..... 50 ft.  
Suction size..... 4 in.  
Discharge size..... 4 in.

2. CAPACITIES

Fuel tank..... 10 gal.

3. NUT AND BOLT TORQUE DATA

Size	Foot pounds
1/4 - 20	6-8
5/16 - 18	11-13
3/8 - 16	20-22
1/2 - 13	45-47
5/8-11	104-106

4. DIMENSIONS AND WEIGHTS (OPERATING CONFIGURATION)

Length..... 56 in.  
Width..... 59 in.  
Height..... 54 in.  
Weight..... 915 lb.  
Volume..... 103 cu. ft.  
Tire size..... 700 x 16, 6 ply  
Tire pressure..... 25-30 PSI

5. ENGINE AND ENGINE ACCESSORIES

NOTE: Engine is Military Standard; refer to TM 5-2805-259-14.

## CHAPTER 2

### INSTALLATION AND OPERATION INSTRUCTIONS

#### **Section I - SERVICE UPON RECEIPT OF EQUIPMENT**

**2-1. UNLOADING** - Remove any tiedowns and blocks that secure the pumping assembly to the carrier. Remove the unit from the carrier using a suitable lifting device or tow it off using a sturdy ramp. **WARNING:** Do not use a lifting device with a capacity of less than 1500 lbs. Do not allow the pump assembly to swing back and forth while it is suspended in the air.

**2-2. UNPACKING** - Cut the metal banding which holds the plywood cap (crate) in place. Lift or pry the cap off, taking care not to damage the unit.

**2-3. INSPECTION FOR IN-SHIPMENT DAMAGE** - Inspect for obvious damage which might have occurred during shipment. Inspect for loose or missing nuts, bolts, and other attaching hardware. Check the suction and discharge ports for damaged threads. Set the stop-run switch in the stop position and manually rotate the starting pulley of the engine several times to assure that the engine has not seized and that the pump impeller rotates freely without binding or scraping.

#### **2-4. ASSEMBLY OF SEPARATELY PACIED COMPONENTS**

Refer to Fig. 1-1 and 1-2. Studying these photographs will familiarize you with the unit as it is intended to be when completely assembled. Discharge elbow—Plastic sealing plugs are used in the suction and discharge ports for shipping purposes. The plugs may be saved for future use in transport or storage of the unit. Remove the plastic sealing plug from the discharge port. The discharge elbow is attached to the intermediate housing with a strand of wire; cut the wire. remove the elbow and install it at the discharge port. Use a pipe sealing compound or waterproof grease, turn clockwise, and tighten securely. Lift Ring—Remove the lift ring from the lifting bail and install in the crosspiece.

**2-5. DEPRESERVATION AND INITIAL SERVICING** - Depreservation is required the first time the unit is operated after shipment from the factory or after storage.

1. Drain all preservatives from the crankcase, fuel tank, pump assembly, and air cleaner.
2. Using an approved cleaning solvent, wipe preservatives from the control wires, linkage, and all other parts covered by a preservative material.
3. Remove pressure sensitive tape from gages and meters on the control panel, air cleaner, and muffler openings.
4. Lubricate trailer in accordance with lubrication chart (para. 3-2). Refer to TM 5-2805-259-14 for engine lubrication.
5. Perform all depreservation and daily preventative services for the engine as described in TM 5-2805-259-14
6. Refer to Fig. 3-1 and perform daily preventative maintenance service on the pump and trailer.
7. The pump has been tested prior to shipment. Since gaskets have a tendency to dry and shrink after testing, make sure that all bolts on the gasket Joints are tight in order to prevent leakage.
8. The battery is a lead-acid, dry-charge type. Electrolyte is initially added per filling instructions found attached to battery cable. Electrolyte should be 3/8 inch above the plates, and Sp Gr must be 1.250 or higher (check with a hydrometer).

## Section II - PREOPERATIVE INSTRUCTIONS

### 2-6. SELECTION OF SITE

1. Keep the unit close to water source, with a vertical suction lift of 25 feet or less.
2. Avoid a muddy, dusty, or sandy site. If it is necessary to install the unit on soft ground, arrange a foundation of planking, logs, or concrete.
3. Lock the support leg in the down position.
4. Keep the unit as level as possible.
5. Securely chock wheels to obtain maximum rigidity.

**WARNING:** Provide adequate ventilation or pipe the exhaust gases to the outside if operating unit in a closed area.

### 2-7. ATTACHMENT OF HOSE

A. **SUCTION LINE - CAUTION:** Attach a suitable strainer before operating pump. The pump inlet connection is a 4 in. NPT. Use 4 in. reinforced noncollapsible suction hose of rigid plastic, aluminum or steel pipe. Clean all threads and coat them with a pipe Joint compound or water-proof grease. Plastic sealing plugs are used in the suction and discharge ports for shipping purposes, and may be saved for future use. Remove sealing plugs and insert suction line into suction flange (fig. 2-1). All fittings and joints must be fully tightened and air tight. If suction line is not completely air-tight, the pump will not properly complete the priming cycle and deliver water. Install suction strainer at lower end of suction line to prevent debris and abrasive liquids from entering pump. Provide a settling bed to prevent sand from entering pump during surf operations. Slope line downward into water course without any kinks or humps to trap air. Submerge lower end of suction line in water source being careful to avoid any obstruction of the suction line or vortex because of insufficient submergence.

B. **DISCHARGE LINE -** The discharge connection (both the flange and elbow) is 4" NPT. Clean all threads & coat them with a pipe Joint compound or water-proof grease. Remove sealing plug and insert the discharge line (4" hose or pipe) into the discharge elbow (Fig. 2-1) and tighten securely. Avoid kinks so as to allow free upward escape of air being expelled during the priming cycle. Do not restrict any point of the discharge line while the pump is in the priming cycle.

2-8. **PRIMING OF PUMP** - Priming must be done before starting the engine, or the mechanical seal will be damaged or destroyed, preventing operation of the unit. Although the pump is generally referred to as a "self-priming" pump, it will only prime when the pump casing has a proper internal water level. To prime the pump, fill the casing with water after removal of the pipe plug atop the casing (Fig. 2-1). After the casing is at least 2/3 full replace the pipe plug and tighten completely.

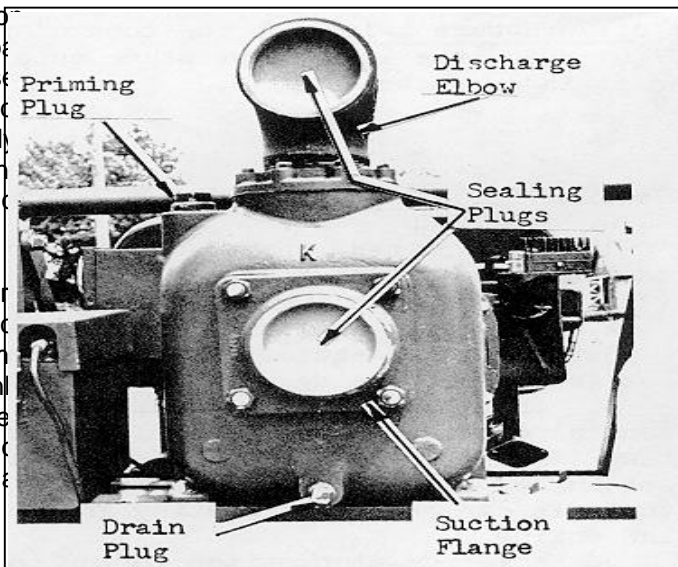


FIGURE 2-1. PRIMING & ATTACHMENT OF HOSE

## 2-9. CONTROLS AND INSTRUMENTS

The controls and instruments for the pumping assembly are all contained in the control panel (fig. 2-2). The tachometer monitors the engine speed and should normally read 3200 rpm. The oil pressure gauge illustrates the oil pressure of the engine and has a normal reading of 40-50 psi. The start switch engages the starter when it is pressed down. The engine is equipped with a magneto, therefore, no electric current is required from the battery or alternator to energize the ignition to run the engine. With the run-stop switch in the run position and the oil pressure switch depressed, the magneto has a complete circuit and can energize the ignition system. With the run-stop switch in the stop position, the magneto is grounded and cannot energize the ignition system. The engine is equipped a low oil pressure shutoff switch which performs the function of stopping the engine. If the oil pressure falls below 20 psi and will not allow the engine to start until it has produced 25 lbs. oil pressure. The oil pressure switch on the control panel will override the low oil pressure cutoff when it is depressed.

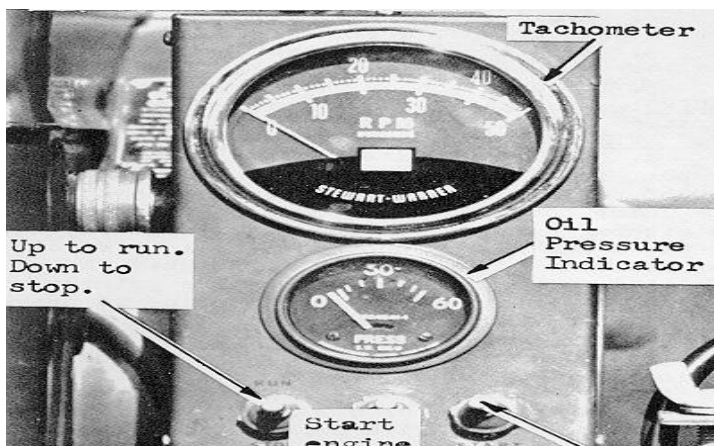


FIGURE 2-2. CONTROL PANEL

## Section III - OPERATION OF EQUIPMENT

### 2-10. STARTING

1. Perform necessary daily preventative maintenance services for the pumping assembly (Fig. 3-1) and the engine (TM 5-2805-259-14).
2. Open vent on inside of fuel tank cap.
3. Move fuel shutoff to proper position for fuel source being used (Fig. 2-3).
4. Check air cleaner inlet temperature control and oil baffle control for proper setting (TM 5-2805-259-14), Improper setting of inlet temperature and oil baffle controls can cause overheating and damage to the engine.
5. Move run-stop switch to run position.
6. Depress oil pressure switch and start switch.

NOTE: If the engine does not start after approx. 20 seconds, release switch and allow unit to stand for a 10 minute cooling off period. If unit does not then start, refer to TM 5-2805-259-14 to determine cause.

NOTE: The governor has been preset to 3200 RPM, making additional adjustment unnecessary. FIGURE 2-3 FUEL SHUT-OFF VALVE The choke is located at the front of the engine & is electrically operated, making manual choking unnecessary.

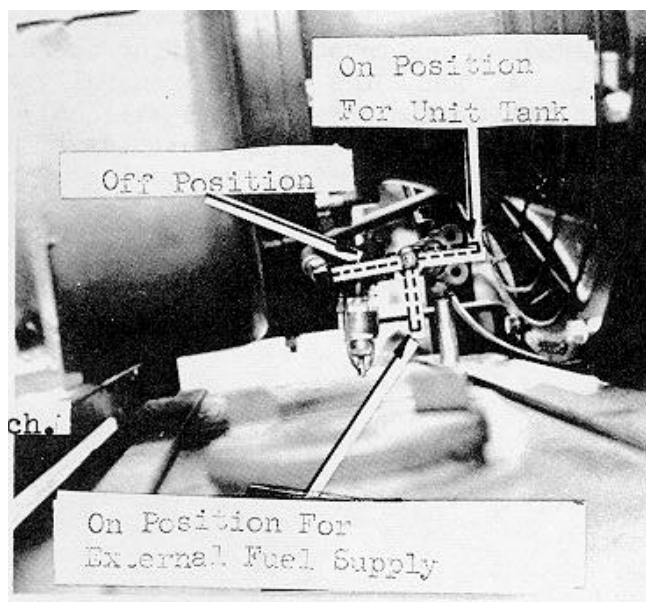


FIGURE 2-3. FUEL SHUT-OFF VALVE

**2-11. AFTER STARTING**

1. Check oil pressure indicator for normal reading.
2. Check engine speed (normal reading is 3200 RPM, but this can be adjusted, within the limits of the performance curve, to suit condition. To adjust engine speed, refer to 2M 5-2805-259-14 for adjustment of the governor.).
3. If the suction line has been properly installed, with adequate submergence at the suction end, the pump initially primed, the engine operating at sufficient speed (high speed is best for priming period), and 25' or less suction lift, the unit will begin pumping in 1 to 3 minutes.

**2-12. STOPPING**

1. Move the run-stop switch to the stop position.
2. Allow the unit to cool and perform daily preventative maintenance.

CAUTION: Reduce engine speed to 700 or 800 rpm with governor speed control to prevent back firing.

**Section IV - OPERATION UNDER ADVERSE OR ABNORMAL CONDITIONS**

**2-13. OPERATION IN EXTREME HEAT**

- A. Lubricate trailer in accordance with lubrication chart (para. 3-2). Refer to TM 5-2805-259-14 for engine lubrication.
- B. Fuel system - Do not overfill fuel tank and allow room for fuel expansion. Make sure fuel tank cap is tight and the cap vent open.

**2-14. OPERATION IN EXTREME COLD**

- A. When possible provide shelter.
- B. Lubricate trailer in accordance with lubrication chart (para. 3-2). Refer to TM 5-2805-259-14 for engine lubrication.
- C. Fuel system - Keep the fuel tank full at all times to prevent condensation. Remove all ice crystals from the fuel tank strainer immediately before filling the fuel tank. Service the fuel filter frequently.
- D. After starting, allow the engine to warm up by manually adjusting governor control to approximately 1500 rpm.
- E. Electrical system - Do not disturb electrical leads or wiring in extreme cold unless repair is necessary.

**WARNING:** When pumping unit is to be shut down for extended periods at temperatures below freezing (32 F), the pump casing, suction and discharge lines shall be completely drained.

**2-15. OPERATION IN DUSTY OR SANDY AREAS**

- A. Keep the unit covered when not in use. Take advantage of natural barriers, or provide shelter when possible. Refer to IM 5-2805-259-14 for engine lubrication and to para. 3-2 for lubrication of trailer. Clean all lubrication points before applying lubricants. Wipe spilled lubricants from the unit to avoid collecting dust and sand. Clean area around the oil fill cap before checking or adding lubricants.
- B. Fuel system - Use care when adding fuel, to prevent dust or sand from entering the fuel system. Keep fuel cap tight at all times. Service the air cleaner and fuel filter daily (refer to 12M 5-2805-259-14). Wipe the unit frequently to prevent accumulation of dust and sand.
- C. Instrument system - Check for loose or broken lenses which might permit entry of dust or sand.

**2-16. OPERATION IN RAINY OR HUMID AREA**

- A. When possible, erect a suitable shelter or cover when not in use. During dry periods, remove cover to allow unit to dry out.
- B. Refer to TM 5-2805-259-14 for engine lubrication and to para. 3-2 for lubrication of trailer. Keep oil fill cap tight to prevent moisture from entering the crankcase. Keep rain from entering the system during lubrication.

- C. Fuel system - Keep the fuel tank full at all times to prevent condensation. Keep fuel tank cap tight at all times. Service the fuel filter daily.
- D. Electrical system - Keep electrical leads and magneto wiped dry. Check electrical leads for cracked or frayed insulation. Inspect gages for loose or broken lenses which might permit entry of moisture. Repair or tape lenses to prevent entry of moisture.

**2-17. OPERATION IN SALT WATER AREAS**

- A. Salt water causes corrosive action on metals. Rinse the unit frequently with fresh clean water.
- B. Lubrication - Steam clean the entire unit, if possible, before lubricating. Clean and dry all fittings before lubricating. Refer to TM 5-2805-259-14 for engine lubrication and to para. 3-2 for lubrication of trailer.
- C. Fuel system - Keep the fuel tank cap tight at all times. Service the fuel filter daily.
- D. Electrical system - Clean and dry all electrical terminals and check for corrosion. Check all gages for loose or broken lenses which might permit entry of moisture. Repair or tape lenses to prevent entry of moisture.
- E. Paint all exposed, nonpolished surfaces. Coat all exposed, polished surfaces with rust proofing material or a light coat of grease.

**2-18. OPERATION (STARTING) WITH A WEAK OR DEAD BATTERY**

- A. Unit can be hand started when the battery is weak or dead.
  - 1. Remove starting rope from the lifting bail and wrap it clockwise around the pulley at the front of the engine.
  - 2. Put the run-stop switch in the run position (para. 2-10).
  - 3. Depress the oil pressure switch (para. 2-9).
  - 4. Hold choke in OUT position while pulling rope to start engine.

**Section V - OPERATION AT A NEW SITE**

**2-19. BEFORE MOVING**

- 1. Remove drain plug (Fig. 2-1) and drain pump casing, replacing drain plug after pump is drained.
- 2. Remove suction and discharge lines from the pump inlet and outlet.
- 3. Again remove drain plug, flush the pump casing with fresh clear water so that it is cleaned of all mud or sludge. Replace drain plug and insert sealing plugs in the suction and discharge openings.
- 4. Remove ground cable on battery to prevent accidental starting of the engine.
- 5. Clean mud and dirt from exterior of pump and wipe greasy deposits from pump and engine with an approved cleaning solvent.
- 6. Hook drawbar of trailer to vehicle being used for towing.
- 7. Lock support leg in the up position and unit is ready to be moved.

**2-20. AFTER MOVING**

Follow the instructions in paragraphs 2-6, 2-7, and 2-8 for the reinstallation operation at a new site.

## CHAPTER 3

### MAINTENANCE INSTRUCTIONS

#### **Section I - GENERAL MAINTENANCE INFORMATION**

**3-1. SPECIAL TOOLS AND EQUIPMENT** - No special tools are required for the pumping units covered by this manual. Maintenance can be performed with the tools normally found in any maintenance tool box.

#### **3-2. LUBRICATION**

- A. Engine - Refer to TM 5-2805-259-14 for lubrication of the engine.
- B. Pump - The pump requires no lubrication as the ball bearing is sealed with sufficient grease for the life of the bearings.
- C. Trailer - The wheel bearings are the only item on the trailer that requires lubrication. Unless subjected to severe or unusual service, wheel bearings should be lubricated every 6 months. If unit is frequently moved, the wheel bearings will require more frequent lubrication. During inactive periods, sufficient lubrication must be performed for adequate preservation. Relubricate wheel bearings after washing or fording. Refer to para. 3-16. D and 3-16. E, for detailed disassembly-assembly and lubrication instructions. Use grease conforming to IL-G-23527.

#### **Section II - PREVENTIVE MAINTENANCE SERVICES**

**3-3. GENERAL** - To insure that the pumping assembly is ready for operation at all times, it must be inspected systematically so that the defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in para. 3-5 and 3-6. Defects discovered during operation of the unit shall be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noticed which would damage the equipment if operation continues.

#### **3-4. FREQUENCY OF SERVICE**

A. Keep in mind that daily and quarterly maintenance schedules can only serve as a guide to the frequency of maintenance services. Frequency will be determined by the field service conditions. The following guidelines will prove helpful in avoiding loss of efficiency or damage to the unit through neglect.

- 1. If the unit is towed frequently or is subjected to conditions that induce excessive vibration, fasteners will require more frequent tightening.
- 2. Avoid mud or sludge build-up in the pump casing, as this will cause loss of efficiency and increase wear.
- 3. Air entering the pump through the suction line can cause the pump to stop delivering water.
- 4. The impeller requires running clearances of .008 - .015 on the face and .015 - .035 on the shroud. Any appreciable variances in the running clearances will change the performance of the pump. Greater clearances will reduce the flow rate and discharge head and will also effect the priming, and if sufficiently great, the pump will not deliver any water. Reduced clearance may cause unnecessary wear and require added horsepower. The shaft of the pump, with its ball bearings, operate in a fixed position; but, this position of the impeller can be adjusted by installing or removing shims between the hub of the impeller and the shoulder of the shaft.
- 5. The mechanical seal is in the pump to prevent leakage of air or water around the shaft, which may cause the unit to stop pumping.

6. The pump is fitted with a flapper (check) valve to prevent water from completely draining from the suction line. Any damage to the flapper face or seat will allow the suction line to drain each time the pump is stopped, and debris or dirt on the face or seat will also allow the suction line to drain.
7. The drive spline is a precision unit for transmitting power of the engine to the pump shaft. Dirt, dust, or rust can impair the serviceability of the drive spline and coupling unit.
8. Frequent running of the unit for short periods of time does not allow the alternator to keep the battery at full strength.
9. During operation observe for leaks and any unusual noise or vibration.

**3-5. DAILY PREVENTIVE MAINTENANCE SERVICES** - Items 1 through 8, illustrated on Fig. 3-1, list the daily maintenance services which must be performed by the operator.

**3-6. QUARTERLY PREVENTIVE MAINTENANCE SERVICES** - Items 1 through 15, illustrated on Fig. 3-1, list the maintenance services which must be performed by the operator at quarterly intervals. A quarterly interval is equal to 3 calendar months or 250 hours of operation, whichever occurs first.

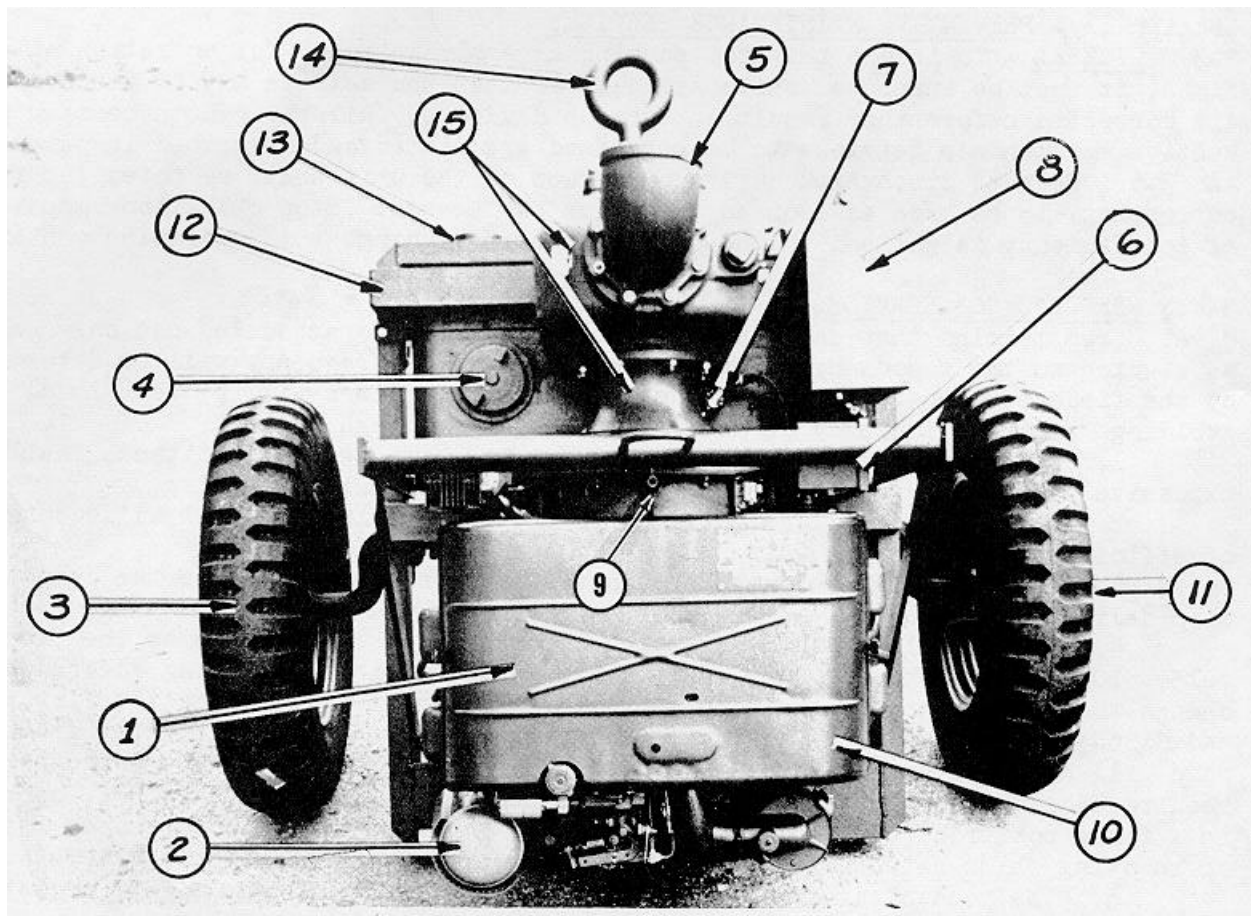


FIGURE 3-1. PREVENTIVE MAINTENANCE SERVICES



FIGURE 3-1. PREVENTIVE MAINTENANCE SERVICES

ITEM	PARA.	REF.
DAILY MAINTENANCE SERVICES		
1. ENGINE - Refer to 9M 5-2805-259-14 for daily maintenance services.		
2. MUFFLER - Check for cracks, holes, rust, leaking gaskets, and insecure mounting.	3-14	
3. TIRES - Check and adjust inflation to 25-30 PSI. Inspect for cuts, breaks, blisters, and flat spots. Inspect valve stems for leaks. Replace missing valve caps.	3-16.	D
4. FUEL TANK - Check fuel level. Inspect for leaks. Inspect strainer for damage.	3-15	
5. HOSE CONNECTIONS AND SEALING PLUGS - Inspect hoses for secure connection. Inspect for leaks in suction line. When hoses are disconnected, make sure that sealing plugs are installed.	2-7	
6. CONTROLS AND INSTRUMENTS - Inspect for damage and insecure mounting. Inspect for defective wiring and loose or leaking connections. With unit operating, inspect for proper operation of gages and switches.	2-9 3-13.	& A
7. FUEL STRAINER (SEDIMENT BOWL) - Inspect for loose mounting, leaks, and cracks in bowl. Drain water & dirt from the bowl (Weekly).3-15		
8. BATTERY - Tighten loose cables and mounting. Remove corrosion. Fill to 3/8 inch above battery plates. In freezing weather, run engine a minimum of one hour after adding water. Clean vent holes in filler caps (Weekly).	3-13.	C
9. Remove drain plug (item 33, fig. 4-1) from intermediate housing and flash entire pump with fresh water. A daily increase in amount of drainage from intermediate housing indicates a defective seal (AOO4-M36) and seal must be replaced.		
QUARTERLY PREVENTIVE MAINTENANCE SERVICES		
10. ENGINE - Refer to TIM 5-2805-259-14 for quarterly maintenance services.		
11. WHEELS - Inspect for loose or missing lug nuts and for leaking grease seals. Check wheel bearings for proper adjustment. Inspect rims for damage.	3-16. 3-16.	D & E
12. TRAILER FRAME AND MOUNTING HARDWARE - Inspect for damage. Tighten all loose components and mounting hardware.	3-16	
13. REFLECTORS - Inspect for broken lenses and insecure mounting.	3-16.	B
14. DRAWBAR - Inspect for broken welds and lost or damaged parts.	3-16.	B
15. PUMP - Thoroughly flush casing with clean water. Inspect for damage or leaks. Drain intermediate housing. If it fills with water frequently, the seal is defective and must be replaced.	3-4	

### **Section III - TROUBLESHOOTING**

**3-7. GENERAL** - This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the centrifugal pump and its components. Each trouble symptom stated is followed by a list of probable causes, with the possible remedy listed opposite.

**NOTE:** Refer to TM 5-2805-259-14 for engine troubleshooting instructions.

#### **3-8. PUMP ASSEMBLY FAILS TO START**

<u>Probable Cause</u>	<u>Possible Remedy</u>
Battery weak or dead	Service & recharge or replace battery (para. 3-13. C)
Engine defective	Refer to DM1 5-2805-259-14
Impeller frozen	Clean or replace impeller (para. 4-2 & 4-3.E)
Impeller clogged or Jammed	Disassemble & clean (para. 4-2)

#### **3-9. PUMP ASSEMBLY FAILS TO PRIME OR FAILS TO DELIVER CAPACITY**

<u>Probable Cause</u>	<u>Possible Remedy</u>
No initial prime charge	Prime pump (para. 2-8)
Check valve defective	Replace check valve (para. 4-4)
Leak in lines or connections	Tighten or replace hose or piping
Suction line or strainer clogged	Clean suction line and strainer
Liner of suction hose collapsed	Replace suction hose
Suction lift too high	Move pump closer to water source level
Discharge head too high	Reduce total head
Engine speed too low	Increase engine speed (TM 5-2805-259-14)
Leakage through shaft seal	Replace shaft seal (para. 4-3)
Improper impeller clearance	Adjust impeller clearance (para. 4-3)
Impeller broken, damaged, or worn	Replace impeller (para. 4-2 & 4-3. E)

#### **3-10. NOISY PUMP OPERATION**

<u>Probable Cause</u>	<u>Possible Remedy</u>
Clogged suction strainer	Remove and clean strainer
Vortex	Move suction line further into water source
Impeller loose, broken, or damaged	Tighten or replace impeller (para. 4-2 & 4-3. E)
Intermediate bearing defective	Replace bearing (para. 4-3)

#### **3-11. PUMP ASSEMBLY LEAKS**

<u>Probable Cause</u>	<u>Possible Remedy</u>
Suction or discharge connections loose	Tighten connections
Bolts on gasketed joints loose	Tighten bolts
Gaskets defective	Replace gaskets (para. 4-4. D & 4-4. E)
Seal defective	Replace seal (para. 4-3)
Pump body defective	Repair or replace pump (para. 4-2)

### **Section IV - REPAIR AND PARTS REPLACEMENT**

#### **3-12. SCOPE**

This section covers only those parts that are assembled and/or installed by the manufacturer. TM 5-2805-259-14, covers repair and parts replacement for the Military Standard engine.

### 3-13. ELECTRICAL SYSTEM

#### A. CONTROL PANEL

a. General - The control panel provides controls & instruments for starting, stopping, and monitoring operation of the engine. Para. 2-9 describes the function of the controls and instruments contained in the control panel. The wiring diagram is shown in Fig. 3-2. The electrical schematic diagram is shown in Fig. 3-3. The wiring harness, which is serviced as an assembly, is shown in Fig. 3-4.

#### REFERENCE DESIGNATIONS

M1-PRESSURE INDICATOR  
M2-TACHOMETER  
P1-PLUG B504-M36  
P2-PLUG B504-M36  
S1-MS 35059-23 SWITCH  
S2-MS 35058-29 SWITCH  
S3-MS 35058-30 SWITCH  
J1-AMPHENOL CONNECTOR

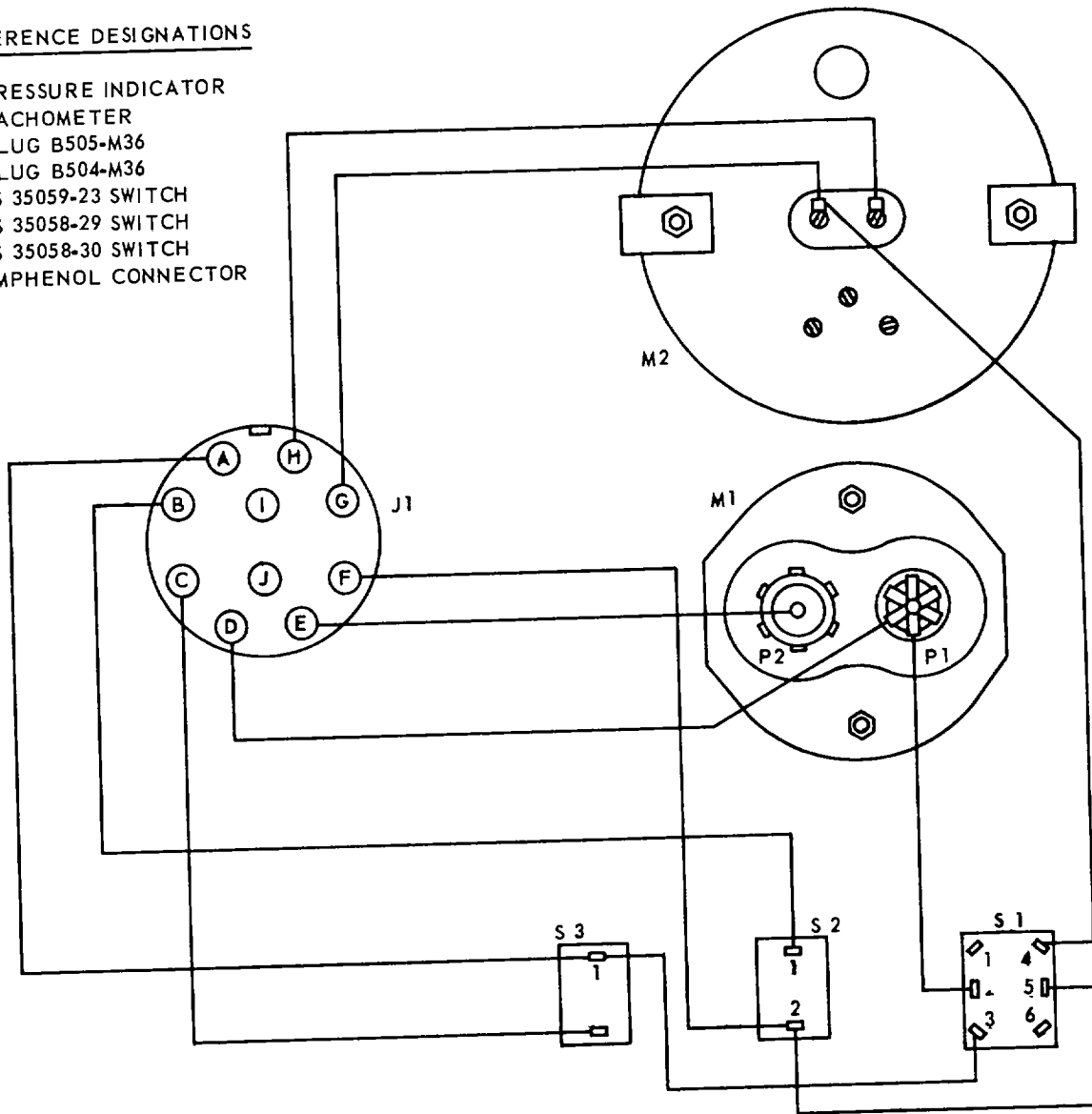
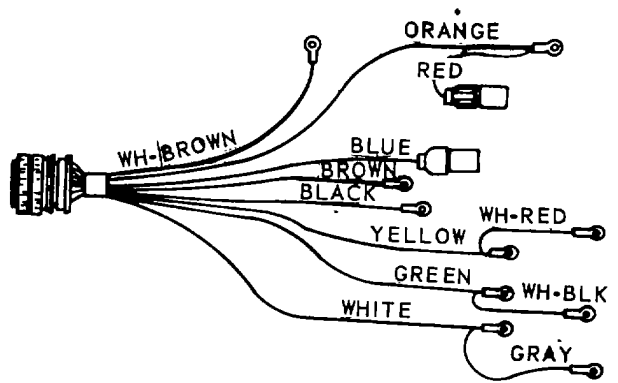
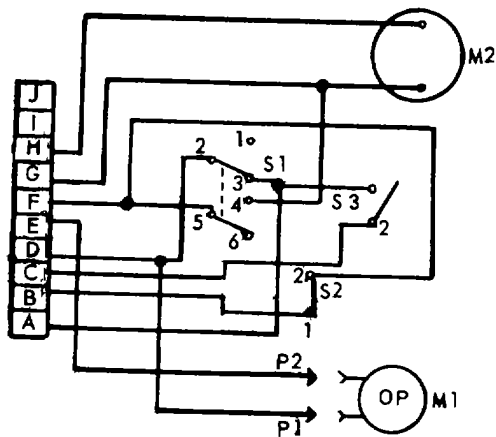


FIGURE 3-2. WIRING DIAGRAM



NOTES:

1. FURNISHED AS AN ASSEMBLY ONLY

FIGURE 3-4.

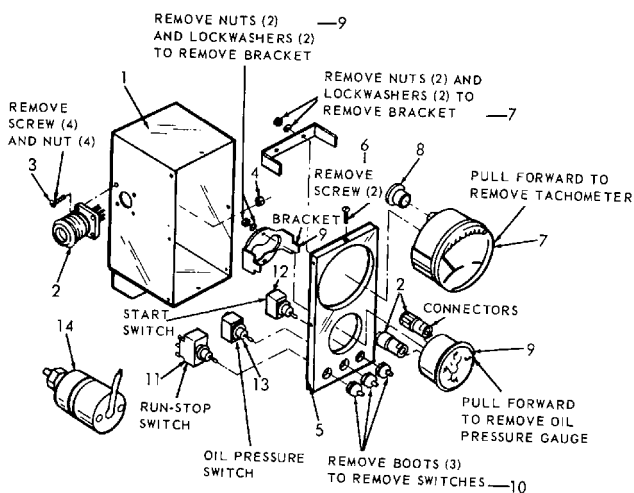
WIRING HARNESS

REFERENCE DESIGNATIONS

- M1-PRESSURE INDICATOR
- M2-TACHOMETER
- P1-PLUG B505-M36
- P2-PLUG B504-M 36
- S1-MS 35059-23 SWITCH
- S2-M5 35058-29 SWITCH
- S3-MS 35058-30 SWITCH
- J 1-AMPHENOL CONNECTOR

FIGURE 3-3.

ELECTRICAL SCHEMATIC DIAGRAM



NOTE:

DISCONNECT ELECTRICAL LEADS AS NECESSARY

LEGEND

1. Box
2. Harness
3. Screw
4. Nut
5. Cover
6. Screw
7. Deleted
8. Plug
9. indicator
10. Boot
11. Switch
12. Switch
13. Switch
14. Sender Unit

FIGURE 3-5.

CONTROL PANEL-DISASSEMBLY AND REASSEMBLY

b. Removal and disassembly

1. Remove the two cap screws securing the control panel bracket to the intermediate housing.
2. Disconnect electrical connector by turning its sleeve counterclockwise.
3. Refer to Fig. 3-5 and disassemble the control panel as necessary to replace the defective parts.

c. Cleaning and Inspection

1. Clean all parts with an approved cleaning solvent. Dry thoroughly.
2. Inspect for damaged wire insulation, and worn, burnt, or loose terminals.
3. Check switches for proper continuity.
4. Check gages for cracked dial glass, discolored or illegible dials, or other damage.
5. Repair or replace damaged parts. NOTE: Wiring harness is serviced as an assembly.

d. Reassembly and Installation

1. The reassembly and installation procedure is the reverse of the removal and disassembly procedure.

**B. ELECTRICAL SENDING UNIT**

a. General - The electrical sender constantly monitors the engine speed and sends electrical impulses to the tachometer mounted on the control panel. NOTE: The terminal on the sending unit cover screw is for a ground wire, which is not necessary in this installation because the sending unit grounds itself.

b. Removal - Refer to Fig. 3-6 and remove the electrical sending unit.

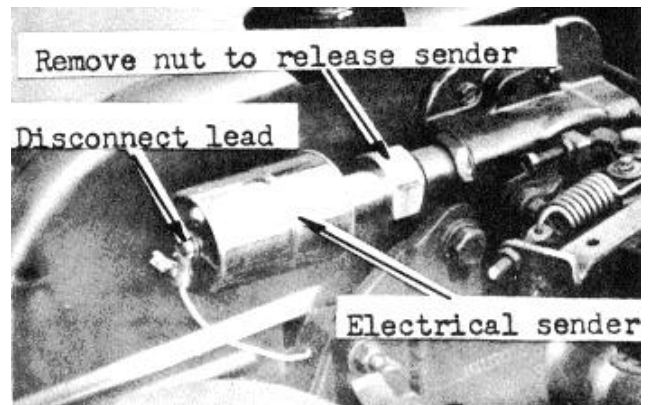


FIGURE 3-6. ELECTRICAL SENDING UNIT

c. Cleaning and Inspection

1. Clean the sending unit with an approved cleaning solvent. Dry thoroughly.
2. Inspect for cracks, breaks, defective insulation, and other damage.
3. Manually turn the shaft of the sender. It should rotate easily, without binding or catching.
4. Replace a damaged sender.

d. Installation

1. Refer to Fig. 3-6.
2. Insert squared end of the drive tip into the sending unit.
3. Mount the sending unit on the tachometer drive and tighten nut.
4. Connect the terminal to the center of the sending unit cover.

**C. BATTERY AND BATTERY BOX**

a. General- The battery supplies the electrical power necessary to operate the starter to start the engine. It is a 2-volt, lead-acid type, and it is mounted in a covered battery box which is secured to the support on the trailer frame. The negative battery terminal is connected to the frame with a ground strap. The positive battery terminal connects to a terminal on the starter by means of a battery cable.

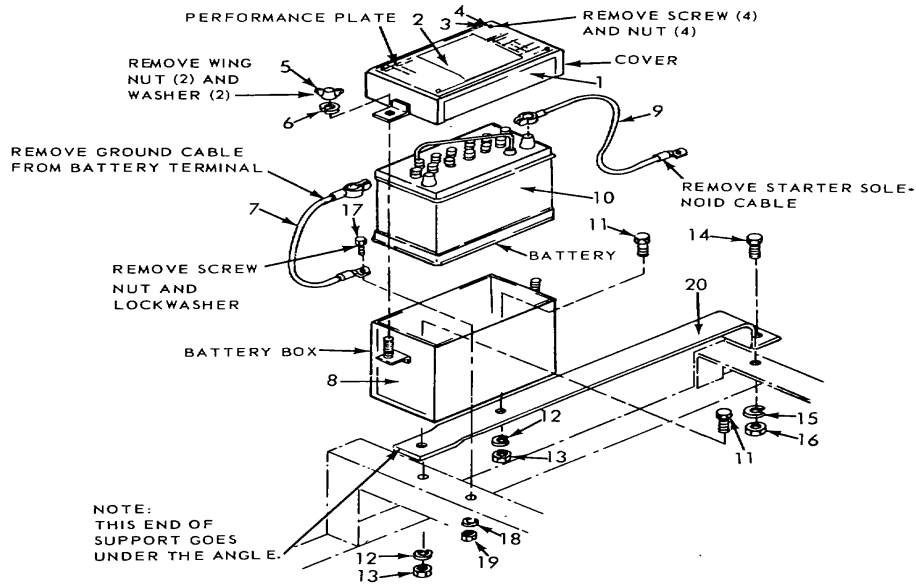
b. Removal and disassembly-  
Refer to Fig.3-7. Remove battery and disassemble the battery box as necessary to replace defective components.

- c. Cleaning and Inspection -
1. Clean the battery box, battery terminals, and cables, and cover them with a mild bicarbonate of soda solution to remove loose corrosion.
  2. Remove loose paint from bare spots and repaint.
  3. Inspect battery cables for damaged insulation.
  4. Inspect battery for cracks, leaking, loose terminals, or other damage.
  5. Inspect battery box for rusting due to corrosion.
  6. Replace damaged parts as necessary.

d. Reassembly & Installation -

1. Refer to figure 3-7 and reinstall the battery box and battery.

Notes The two cap screws with the special thin heads go inside the battery box.



LEGEND			
1. Cover	6. Washer	11. Screw	16. Nut
2. Plate	7. Cable	12. Washer	17. Screw
3. Screw	8. Box	13. Nut	18. Washer
4. Nut	9. Cable	14. Screw	19. Nut
5. Nut	10. Battery	15. Washer	20. Support

FIGURE 3-7. BATTERY BOX-DISASSEMBLY AND ASSEMBLY

### 3-14. EXHAUST SYSTEM

A. GENERAL - The exhaust system consists of a muffler which connects to the manifold piping of the engine. This system tends to equalize the pressures at which the exhaust is released, resulting in a noise reduction. The muffler consists of a sheet-metal cylinder which contains baffles around which exhaust gases must circulate before they are dispelled to atmosphere. The muffler is held in place with 2 cap screws, with 4 lock washers and 2 nuts. There is a gasket on each side of the spacer - spacer located between the manifold flange & the muffler flange (Fig. 3-8).

#### B. REMOVAL

Refer to Fig. 3-8, and remove muffler.

#### C. CLEANING AND INSPECTION

1. Inspect for holes, rust, and other damage.
2. Remove rust and loose paint.
3. Repaint bare surfaces with a heat resisting paint.
4. Replace defective parts as necessary.

#### D. INSTALLATION

1. Always install new gaskets.
2. Refer to Fig. 3-8 and reinstall.

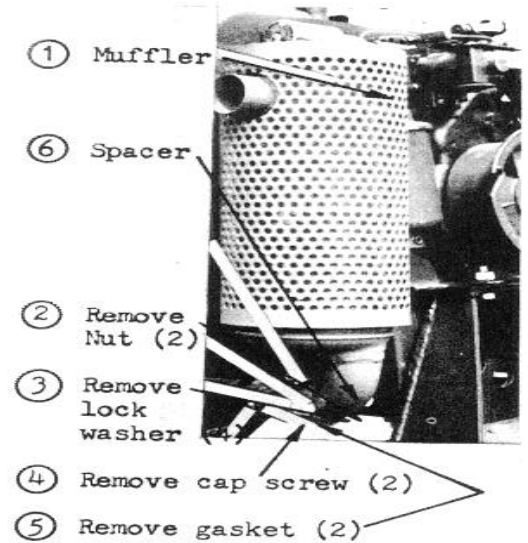


FIGURE 3-8. MUFFLER REMOVAL AND INSTALLATION

### 3-15. FUEL SYSTEM

A. GENERAL - Refer to TM 5-2805-259-14 for a description of the engine fuel system. The components furnished and for installed by the end item manufacturer are covered below.

#### B. FUEL TANK, SHUT-OFF COCK, AND FUEL LINE

a. Removal - Refer to para. 3-18 and remove pump with engine. Refer to Fig. 3-9 and remove the fuel tank lines, and fittings.

#### b. Cleaning and Inspection

1. Wash all parts with an approved cleaning solvent. Dry thoroughly.
2. Inspect for breaks, cracks, dents, loose or missing mounting hardware, damaged threads, or other defects.
3. Replace a damaged or defective tank, fuel lines or fittings.

#### c. Installation

1. Refer to Fig. 3-9 and install the fuel tank, lines, and fittings.

#### C. FUEL FILTER

a. Removal and Disassembly - Refer to Fig. 3-9 and remove the fuel filter.

Refer to TM 5-2805-259-14. and disassemble the fuel filter.

b. Clear and Inspection - Refer to TM 5-2805-259-14.

c. Reassembly and Installation - Refer to TM 5-2805-259-14 and reassemble the fuel filter. Refer to Fig. 3-9 and reinstall the fuel filter.

Refer to fig. 3-7 & remove battery box & support.  
 Refer to para. 3-18 & remove pump with engine.

Refer to fig. 3-7 & remove battery box & support.  
 Refer to para. 3-18 & remove pump with engine.

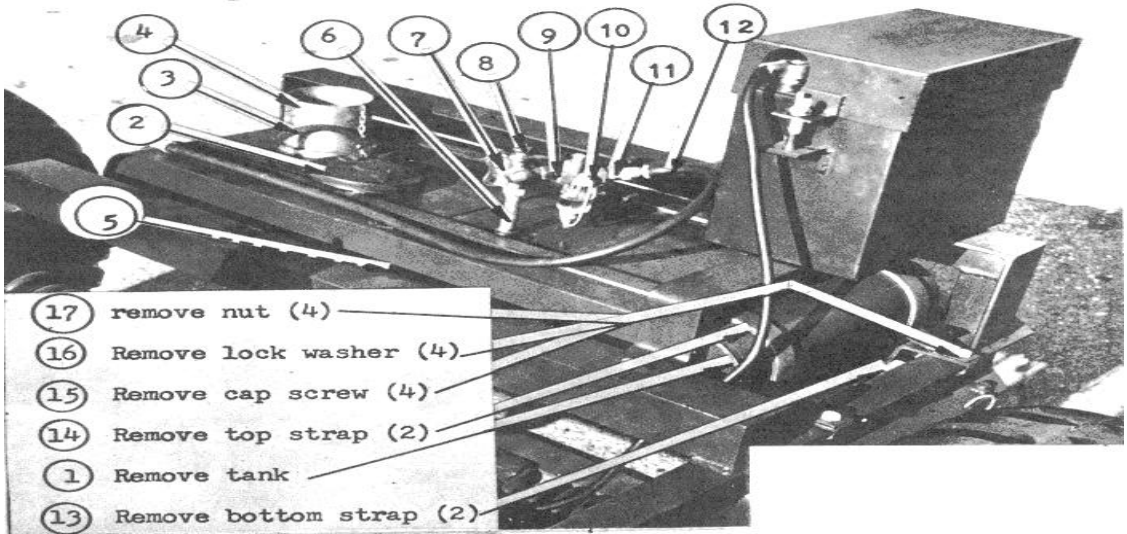


Figure 3-9. FUEL SYSTEM 2 R OVAL AND INSTALLATION

**3-16. TRAILER** - Fig. C-1 illustrates those items that are considered a part of the trailer.

**A. LIFTING BAIL**

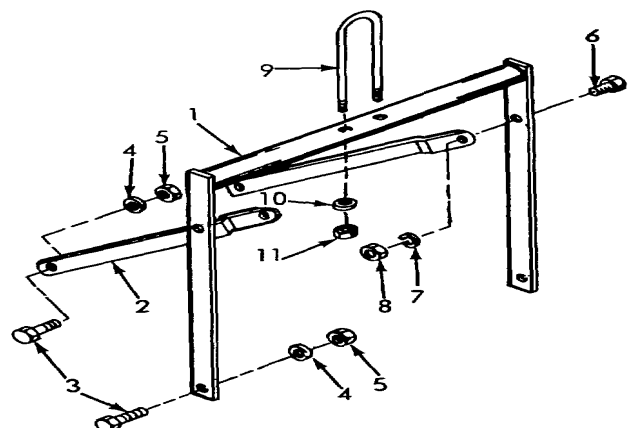
a. Removal & Disassembly - Refer to Fig. 3-10 for removal and disassembly of the lifting bail.

b. Inspection

1. Inspect for damaged threads.
2. Inspect for weak welds.
3. Repair or replace parts as necessary.

c. Reassembly & Installation -

Refer to par. 3-18 and fig. 3-10 and reassemble and install the lifting bail.



**LEGEND FIGURE 3-10**

- |               |              |
|---------------|--------------|
| 1. Frame      | 7. Washer    |
| 2. Crosspiece | 8. Nut       |
| 3. Screw      | 9. Lift Ring |
| 4. Washer     | 10. Nut      |
| 5. Nut        | 11. Nut      |
| 6. Screw      |              |

FIGURE 3-10. LIFTING BAIL



## B. SUPPORT LEG, DRAWBAR, AND REFLECTORS

- a. Removal - Refer to Fig. 3-11 and remove the support leg, drawbar, and the four reflectors.
- b. Inspection - Inspect and replace damaged or missing components as necessary.
- c. Installation - Refer to Fig. 3-11 and reinstall the support leg, drawbar, and the four reflectors.

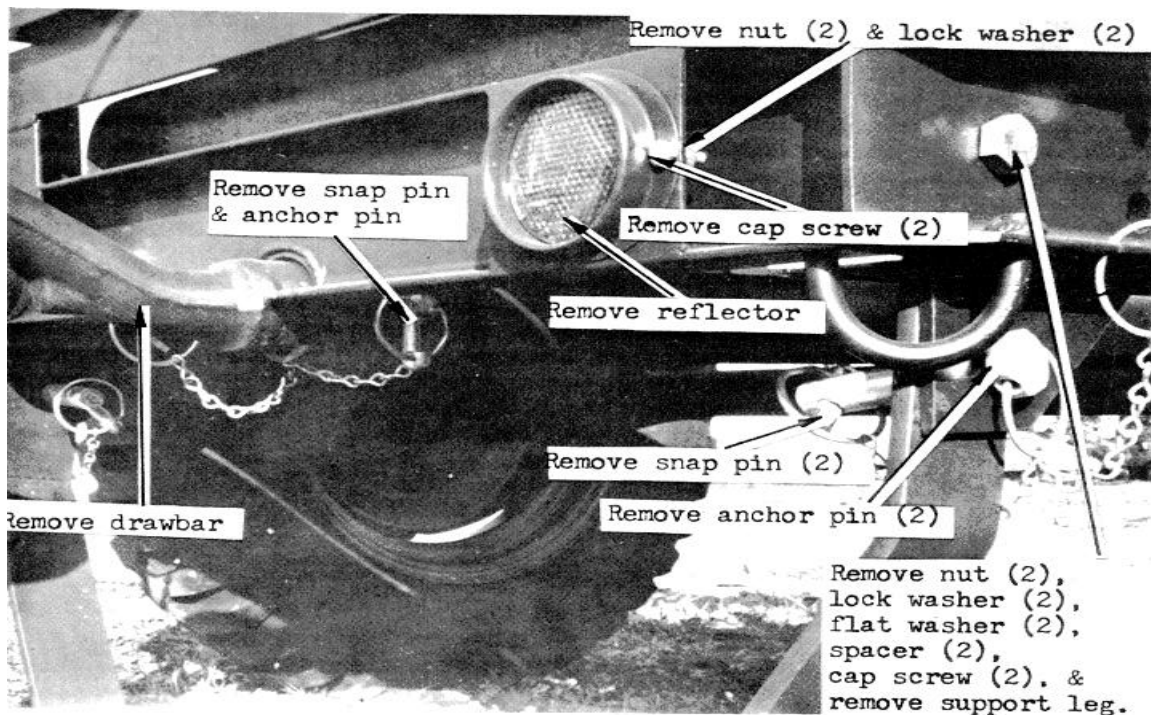


FIGURE 3-11. SUPPORT LEG, DRAWBAR, AND REFLECTORS

## C. FRONT ENGINE BRACKET

- a. Removal - Refer to Fig. 3-13 and remove the engine. Remove the three cap screws, six lock washers, and three nuts which secure the front engine bracket to the frame.
- b. Inspection - Inspect for broken or weak welds. Repair or replace as necessary.
- c. Installation - The installation procedure is the reverse of the removal procedure.

NOTE: The two lock washers are installed with one lock washer under the head of the cap screw and one lock washer under the head of the nut.

## **D. WRTA AND TIRES**

### **a. Removal**

1. Block up or provide other support for the pumping assembly.
2. The lug nuts on the muffler side of the unit are removed by turning them clockwise.
3. The lug nuts on the battery side are removed by turning them counterclockwise.
4. Remove both wheels.

b. **Inspection** - Inspect wheels & tires, & repair or replace any defective parts.

c. **Installation** - This procedure is the reverse of the removal procedure.

## **E. AXIS ASSEMBLY**

### **a. Removal and Disassembly**

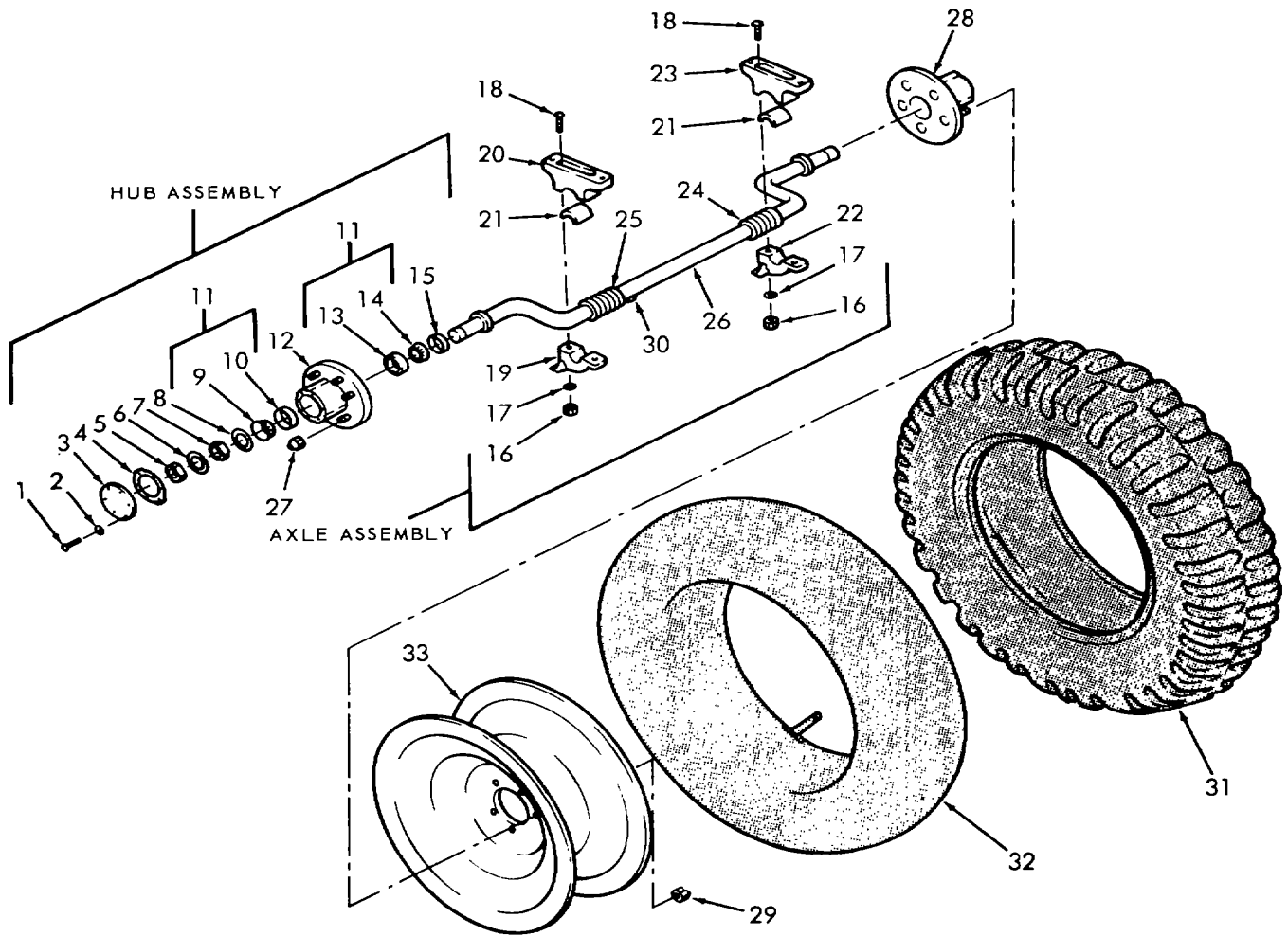
1. Block up or provide other support for the pumping assembly.
2. Remove wheels and tires (para. 3-16. D).
3. Refer to Fig. 3-12 and remove and disassemble the axle in the numerical sequence indicated.

### **b. Cleaning and Inspection**

1. Clean all parts with an approved cleaning solvent. Dry thoroughly.
2. Inspect inserts for pitting, grooving, and excessive wear. Inspect springs for cracks, breaks, and loss of tension.
  3. Inspect brackets and axle for cracks, breaks and other damage. Replace damaged and missing hardware. Replace any defective parts.

### **c. Reassembly and Installation**

1. Refer to Fig. 3-12, and reassemble and install the axle assembly.
2. Install the wheels and tires (para. 3-16. D).
3. Remove blocking or other support.



- |           |             |             |            |
|-----------|-------------|-------------|------------|
| 1. Screw  | 9. Deleted  | 21. Insert  | 25. Spring |
| 2. Cap    | 10. Bearing | 22. Block   | 26. Axle   |
| 3. Cap    | 11. Bearing | 23. Bracket | 27. Nut    |
| 4. Gasket | 12. Hub     | 24. Spring  | 28. Hub    |
| 5. Nut    | 13. Deleted | 17. Washer  | 29. Nut    |
| 6. Washer | 14. Deleted | 18. Bolt    | 30. Clip   |
| 7. Nut    | 15. Seal    | 19. Block   | 31. Wheel  |
| 8. Washer | 16. Nut     | 20. Bracket | 32. Tire   |
|           |             |             | 33. Tube   |

FIGURE 3-12. AXLE ASSEMBLY

## Section V - REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

**3-17. GENERAL** - This section provides information for removing the pump and engine from, and installing them on, the trailer frame.

### 3-18. ENGINE AND PUMP

A. GENERAL - The pump is directly coupled to the engine, and the pump impeller is driven by a splined shaft and coupling, the latter of which is bolted to the engine flywheel. When removing the pump or engine, the pump and engine are removed from the trailer frame as a unit, and then separated as required.

#### B. REMOVAL

1. Remove the lifting bail (para. 3-16. A).
2. Disconnect the fuel line (Fig. 3-13).
3. Connect a suitable lifting device in threaded hole on top intermediate housing and block.
4. Disconnect battery cables from the engine.
5. Refer to Fig. 3-13, remove the mounting hardware, and lift the engine and pump assembly from the trailer.

NOTE: To separate the engine and pumping assembly, refer to para. 4-2.

#### C. INSTALLATION

1. Position the engine and pump assembly on the trailer frame, and install the mounting hardware as shown in Fig. 3-13.
2. Remove the lifting device from the pump and engine assembly.
3. Connect battery cables to the engine.
4. Connect the fuel line (Fig. 3-13).
5. Install the lifting bail (para. 3-16. A).

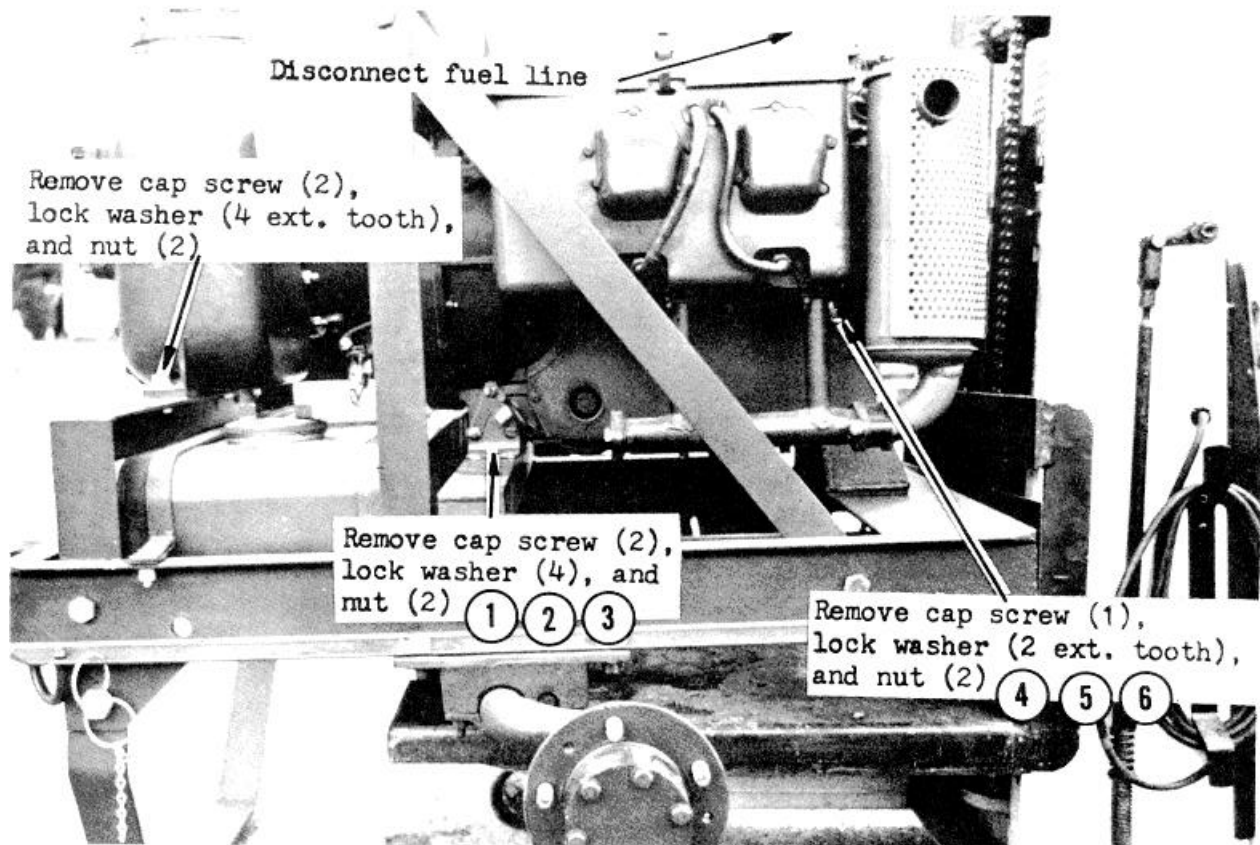


FIGURE 3-13. REMOVAL OF MAJOR COMPONENTS

## CHAPTER 4

### OVERHAUL INSTRUCTIONS

**4-1. SCOPE** This section contains instructions for overhauling the pumping assembly. Refer to NM 5-2805-259-14- for engine overhauling instructions.

**4-2. ENGINE AND PUMP ASSEMBLY SEPARATION (Fig. 4-1)**

A. Remove the engine and pump assembly (para. 3-18).

B. Remove the eight nuts (44) securing the volute casing (28) to the intermediate housing (31). Remove the volute casing from the intermediate housing. Remove the housing gasket (24).

**CAUTION:** Carefully maintain alignment when separating the volute casing (28) from the intermediate housing (31). Damage to the impeller (19) will result if the volute casing is allowed to sway or turn during removal.

C. Insert a piece of wood between any two ribs of the impeller (19) and strike the wood with a mallet in such a manner as to turn the trailing edge of the impeller blades counterclockwise. This will break the contact between the thread in the impeller and the thread of the impeller shaft (38).

**NOTE:** If the edges of the impeller ribs are chipped or damaged, the impeller will be thrown out of balance. To correct this condition, it is necessary to file the edges of the impeller ribs so that they are all alike.

D. Unscrew and remove the impeller (19), the spacer shims (20), the shaft sleeve (26) with the seal rotary elements (22) from the impeller shaft (38). **CAUTION:** If the original impeller (19), shaft sleeve (26), seal plate (25), intermediate housing (31). and impeller shaft (38) are to be used on reassembly, use of the original spacer shims (20) in the same quantity and thickness will assure proper impeller spacing at reassembly.

E. Remove the seal plate (25) from the intermediate housing (31). Remove the seal stationary elements (23) from the seal plate (25).

F. Remove the eight cap screws (46) and lock washers (47) securing the intermediate housing (31) to the engine and remove the intermediate housing (31) and the intermediate guard (45).

**4-3. INTERMEDIATE HOUSING (Fig. 4-1)**

A. **REMOVAL** - Refer to para. 4-2 and remove the intermediate housing.

B. **DISASSEMBLY**

1. Remove snapping (37). pull out impeller shaft (38). Remove oil seal (32), and bearing retainer (36) from shaft (38).

2. Remove retaining rings (34) and bearing (35) from impeller shaft (38).

3. Remove oil seal (32) from intermediate housing (31).

4. Remove the four screws (40) and lock washers (41) securing the spline coupling (42) to the engine flywheel and remove the spline coupling. Remove the pilot bushing (43) from the spline coupling.

C. **CLEANING, INSPECTION, AND REPAIR**

1. Clean all parts with an approved cleaning solvent. Dry thoroughly.

2. Inspect parts for cracks, breaks, damaged threads, and other damage. Inspect bearing for free and smooth rotation.

3. Replace bearing if any roughness is detected, replace oil seals.

4. Rechase threads or replace hardware as needed.

5. Inspect the shaft and coupling splines and the pilot bushing bore. Replace all components that are worn, chipped or damaged.

#### D. REASSEMBLY

1. Install the pilot bushing (43) in the spline coupling (42). Install the spline coupling on the engine flywheel and secure with four lock washers (41) and screws (40).
2. Install oil seals (32) in intermediate housing (31) and bearing retainer (36) respectively.
3. Position bearing (35) on impeller shaft (38), install retaining rings (34). Install bearing retainer (36) on impeller shaft (38).

**CAUTION:** Lubricate bearing with grease conforming to MIL-G-23827 prior to assembly. Apply grease lightly to impeller shaft surfaces before installation.

4. Install impeller shaft (38) into intermediate housing (31). Secure with retaining ring (37).

#### E. INSTALLATION

1. Aline and install the intermediate housing (31) and intermediate guard (45) on the engine and secure with eight lock washers (47) and cap screws (46).
2. Install the stationary element (23) into the seal cavity of the seal plate (25).  
**CAUTION:** The seal plate should be clean and the seal cavity bore lightly lubricated in its entirety with oil MIL-L-2104 grade 10. The stationary element should be installed in the seal plate with the lapped face towards the pump. Extreme care should be used to make sure the lapped face is not marred when installing. Care should also be used to make sure that the stationary seal element is installed into the complete depth of the cavity bore. If this is not done, or the lapped surface is marred or dirty, the seal will leak when the pump is placed back in service.
3. Install seal plate (25) on intermediate housing (31).  
**CAUTION:** Use care not to displace the seal stationary component when placing seal plate over shaft (38).
4. Lubricate with oil MIL-L-2104 grade 10 the internal diameter of the rubber sleeve portion of the seal rotary element (22) and insert shaft sleeve (26) (so that the internally beveled end will be towards engine) into rubber sleeve bore until sleeve end is approx. even with lapped face of seal rotary element.
5. Install the shaft sleeve (26) on shaft (38) so that lapped surface of seal rotary element and beveled end of sleeve is toward shaft intermediate housing (31). Push shaft sleeve until it seats on shaft shoulder.  
**CAUTION:** Before this operation, be sure that lapped surfaces of the seal rotary and stationary components are free of dust and foreign material and are lightly lubricated with MIL-L-2104 grade 10 oil.
6. Install shim set (20) on shaft (38). Refer to para. 4-2. D CAUTION remark.  
**CAUTION:** The total thickness of shims should allow an initial clearance of 0.015 - .020 inches between the face of the seal plate and the adjacent face of the impeller when the impeller is tightly screwed on the shaft.
7. Screw impeller (19) onto impeller shaft (38).

#### 4-4. VOLUTE CASING (Fig. 4-1)

A. REMOVAL - Refer to para. 4-2 and remove the volute casing.

#### B. DISASSEMBLY

1. Remove the four nuts (2) and remove the suction adapter (3) and the check valve assembly (4).
2. Remove the two nuts (10) and lock washers (11), and remove the wear plate (18).
3. Remove the discharge elbow (13), eight nuts (14), discharge flange (15), and gasket (16).
4. Remove the drain plug (29), priming plug (12), four studs (27), sixteen studs (17), if necessary, from the volute casing (28).

#### C. CLEANING, INSPECTION, AND REPAIR

1. Clean all parts with an approved cleaning solvent. Dry thoroughly.
2. Inspect parts for cracks, breaks, damaged threads, and- other damage.

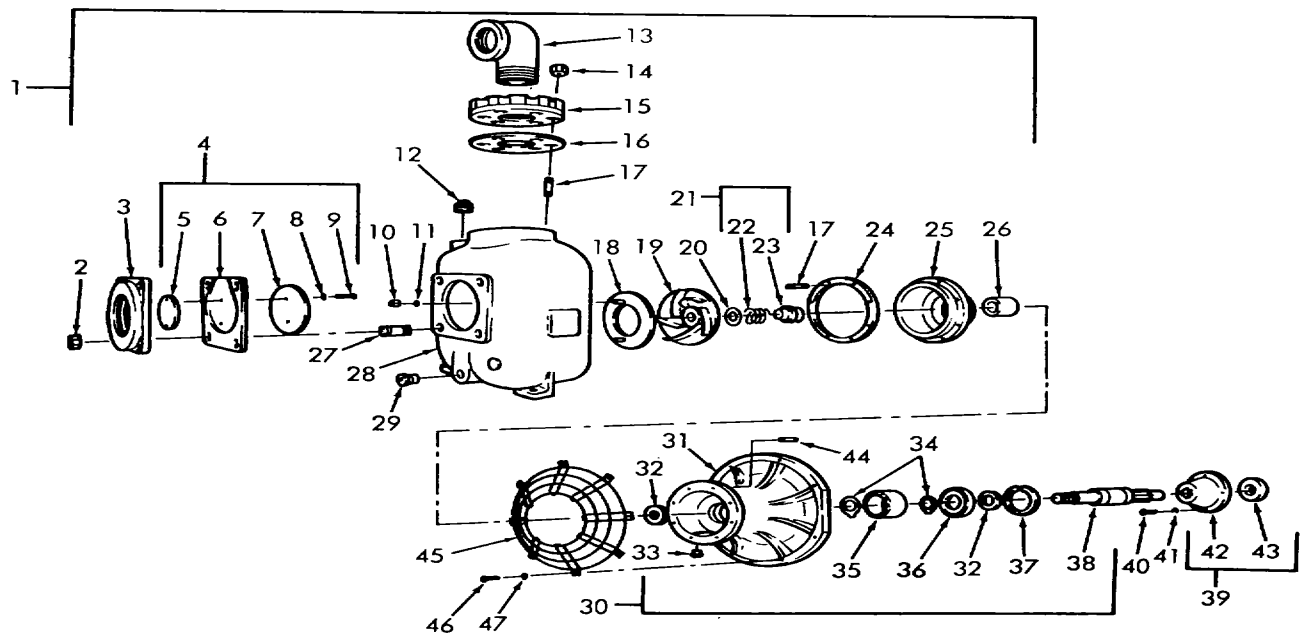
3. Replace gaskets.
4. Inspect all threads for damage. Rechase threads or replace as necessary.

#### D. REASSEMBLY

1. Install the sixteen studs (17), four studs (27), priming plug (12), and drain plug (29) on the volute casing (28).
2. Install gasket (16), discharge flange (15), eight nuts (14), and discharge elbow (13). Tighten securely.
3. Install the wear plate (18) and secure the two lock washers (11) and nuts (10).
4. Install the check valve assembly (4) and the suction adapter (3), secure with four nuts (2) to the volute casing (28).  
**CAUTION:** When tightening suction flange, be sure the gasket is properly aligned with no sagging. Check flapper for free operation.

#### E. INSTALLATION

1. Position gasket (24) on the volute casing (28).
2. Aline the volute casing (28) against the intermediate housing (31) carefully. Do not damage the gasket (24), impeller (19), or studs (17).
3. Secure the volute casing to the intermediate housing with eight nuts (44).  
**CAUTION:** When tightening the first two nuts, rotate the impeller shaft to determine the possibility of the impeller rubbing on wear plate. With all nuts tight, clearance between impeller face and wear plate face should be approx. .008 - .015 inches. If rubbing occurs, two housing gaskets (24) will be required and additional shims (20) must be added between impeller (19) and sleeve (26) to get proper clearance (.008-.015) between impeller face and wear plate face.
4. Install the engine and pump assembly (para. 3-18).



**LEGEND**

- |                   |                           |                       |
|-------------------|---------------------------|-----------------------|
| 1. Pump           | 17. Stud                  | 32. Seal              |
| 2. Nut            | 18. Wear Plate Assembly   | 33. Plug              |
| 3. Flange         | 19. Impeller              | 34. Ring              |
| 4. Valve Assembly | 20. Shim Set              | 35. Bearing           |
| 5. Weight         | 21. Deleted               | 36. Retainer          |
| 6. Gasket         | 22. Seal                  | 37. Ring              |
| 7. Weight         | 23. Deleted               | 38. Shaft             |
| 8. Washer         | 24. Gasket                | 39. Coupling Assembly |
| 9. Screw          | 25. Plate                 | 40. Screw             |
| 10. Nut           | 26. Sleeve                | 41. Washer            |
| 11. Washer        | 27. Stud                  | 42. Coupling          |
| 12. Plug          | 28. Volute                | 43. Bushing           |
| 13. Elbow         | 29. Plug                  | 44. Nut               |
| 14. Nut           | 30. Intermediate Assembly | 45. Guard             |
| 15. Flange        | 31. Housing               | 46. Bolt              |
| 16. Gasket        |                           | 47. Washer            |

FIGURE 4-1. PUMP ASSEMBLY, EXPLODED VIEW



## APPENDIX A

### REFERENCES

A-1. Fire Protection

TB 5-4200-200-10

Hand Portable Fire Extinguishers -for Army Users

A-2. Lubrication

C 9100 IL

Fuels, Lubricants, Oils and Waxes

LO 5-2805-259-12

Engine, Gasoline: Military Standard, 20 hp, Model 4Ao84-3

A-3. Painting

TM 9-213

Painting Instructions for Field Use

A-4. Maintenance

TM 38-750

Army Equipment Record Procedure

TM 5-2805-259-14

Operator, Organizational, Direct and General Support Maintenance Manual: Engine, Gasoline, 20 hp, Military Standard Model 4A084-3

TM 5-2805-259-24P

Organizational, Direct and General Support Maintenance Repair Parts and Special Tools List: Engine, Gasoline, 20 hp, Military. Standard Model 4Ao84-3

A-5. Shipment and Storage

TB 740-93-2

Preservation of USAMECOM Mechanical Equipment for Shipment and Storage

TB 740-90-1

Administrative Storage of Equipment

## APPENDIX B

### BASIC ISSUE ITEMS LIST

#### Section 1. INTRODUCTION

##### B-1. Scope

This appendix lists items which accompany the pump or are required for installation, operation, or operator's maintenance.

##### B-2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items—Section II. A list of item which accompany the pump and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies—Section III. A listing of maintenance and operating supplies required for initial operation.

##### B-3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items, Section II.

a. Source, Maintenance, and Recoverability Codes (SIR), Column I:

(1) Source code, indicates the selection status and source for the listed item. Source codes are:

Code	Explanation
P	Applied to repair parts which are stocked in or supplied from GSA/DSA or Army supply system, and authorized for use at indicated maintenance categories.
M	Applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance levels.
A	Applied to assemblies which are not procured or stocked as such, but are made up of two or more units, each of which carry individual stock numbers and descriptions and are procured and stocked separately and can be assembled by units at indicated maintenance categories.

Code	Explanation
X	Applied to parts and assemblies which are not procured or stocked, the mortality of which is normally below that of the applicable end item or component, and the failure of which should result in retirement of the end item from the supply system.
X1	Applied to repair parts which are not procured or stocked, the requirement for which will be filled by use of the next higher assembly or component.
X2	Applied to repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
G	Applied to major assemblies that are procured with PEMA (Procurement Equipment Missiles Army) funds for initial issue only to be used as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS or GS level or returned to depot supply level.

(2) Maintenance code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code is:

Code	Explanation
C	Operator/crew.

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code	Explanation
R	Applied to repair parts (assemblies and components) which are considered economically repairable at direct and general support maintenance levels. When the maintenance capability to repair these items does not exist, they are normally disposed of at the GS level. When supply considerations dictate, some of these repair parts may be listed <b>for</b> automatic return to supply for depot level repair as set forth in AR 710-50. When so listed, they will be replaced by supply on an exchange basis.

Code	Explanation
S	Applied to repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	Applied to high dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts are normally repaired or overhauled at depot maintenance activities.
U	Applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high dollar value reusable casings or castings.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name, and any additional description of the item required. The abbreviation "w/e", when used as a part of the nomenclature, indicates the Federal stock number includes all armament, equipment accessories, and repair parts issued with the item. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parenthesis. The physical security classification of the item is indicated by the parenthetical entry. Repair parts quantities included in kits, sets, and assemblies are shown in front of the repair part name.

d. Unit of Measure (U/m), Column 4. A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft. ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the functional group or the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be in-indicated (e.g., shims, spacers, etc.).

f. Quantity Furnished With Equipment, Column 6. This column indicates the quantity of an item furnished with the equipment.

g. Illustration, Column 7. This column is divided as follows:

(1) Figure Number, Column 7a. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number, Column 7b. Indicates the callout number used to reference the item in the illustration.

B-4. Explanation of Columns in the Tabular List of Maintenance and Operating supplies -- Section III.

a. Component Application Column 1. This column identifies the component application of each maintenance or operating supply item.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the item name and brief description.

d. Quantity Required for Initial Operation, Column 4. This column indicates the quantity of each maintenance or operating supply item required for initial operation of the equipment.

e. Quantity Required for 8 Hours Operation, Column 5. This column indicates the estimated quantities required for an average 8 hours of operation.

f. Notes, Column 6. This column indicates informative notes keyed to data appearing in a preceding column.

B-5. Special Information (Not applicable).

B-6. Abbreviations (Not applicable).

B-7. Federal Supply Code for Manufacturers (Not applicable).

**Section II. BASIC ISSUE ITEMS**

(1) SMR Code	(2) Federal Stock Number	(3) Description		(4) Unit of Meas	(5) Qty inc in Unit	(6) Qty furn with equip	(7) Illustration	
		Ref no. & mfr Code	Usable on code				(A) Fig no.	(B) Item No.
PC	2995-961-3692	Group 31 - Basic Issue Items MFR or Depot In- stalled						
			Rope, Starting	EA		1		
			DEPARTMENT OF THE ARMY Operator, Organizational, Direct and General Support Maintenance Manual TM 5-2805-259-14	EA		1		
PC	7520-559-9618	DEPARTMENT OF THE ARMY Operator, Organizational, Direct and General Support Maintenance Manual, TM 5-4320-254-14		EA		1		
		Group 32 - Basic Issue Items Troop Installed or Authorized						
PC	4210-555-8834	CASE: Operation and Mainten ance Manuals, Cotton duck, water repellent, mildew resistant, MIL-B-11743B		EA		1		
PC	4210-555-8834	EXTINGUISHER, FIRE: Monobromotrifluoromethane charged, hand type, 2 3/4 lb. cap., shatterable cylin- der, penetrating seal type valve, L/bracket, MIL-E- 52031		EA		1		

**SECTION III**

**MAINTENANCE AND OPERATING SUPPLIES**

<b>(1) ITEM</b>	<b>(2) COMPONENT APPLICATION</b>	<b>(3) FEDERAL STOCK NUMBER</b>	<b>(4) DESCRIPTION</b>	<b>(5) QUANTITY REQUIRED F/INITIAL OPERATION</b>	<b>(6) QUANTITY REQUIRED F/8 HRS OPERATION</b>	<b>(7) NOTES</b>
1	0306 Fuel Tank	9130-160-1818	Gasoline, Automotive, Com- bat, Bulk  B-6	2 <sup>1</sup> / <sub>2</sub> Gal,	20 Gal.	

## APPENDIX C

### MAINTENANCE ALLOCATION CHART

#### Section I. INTRODUCTION

##### C-1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III (Special tools and test equipment) Not applicable.

d. Section IV contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

##### C-2. Explanation of Columns in Section II

a. Group Number. Column 1. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1, Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

b. Functional Group. Column 2. This column contains a brief description of the components of each functional group.

c. Maintenance Functions. Column 3. This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designations for the various maintenance categories are as follows:

- C - Operator or crew
- O - Organizational maintenance
- F - Direct support maintenance
- H - General support maintenance



## D - Depot maintenance

The maintenance functions are defined as follows:

- A - INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.
- B - TEST. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.
- C - SERVICE. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.
- D - ADJUST. To rectify to the extent necessary to bring into proper operating range.
- E - ALIGN. To adjust specified variable elements of an item to bring to optimum performance.
- F - CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.
- G - INSTALL. To set up for use in an operational environment such as an emplacement, site, or vehicle.
- H - REPL&CE. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.
- I - REPAIR. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.
- J - OVERHAUL. To restore an item to a completely serviceable condition as prescribed by maintenance serviceability standards using the Inspect and Repair Only as Necessary (IROAN) technique.
- K - REBUILD. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, re-

pair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

d. Tools and Equipment. Column 4. This column is provided for referencing by code the special tools and test equipment, (Section III) required to perform the maintenance functions (Section II).

e. Remarks. Column 5. This column is provided for referencing by code the remarks (Section IV) pertinent to the maintenance functions.

**C-3. Explanation of Columns in Section III (Not applicable).**

**C-4. Explanation of Columns in Section IV**

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to Section II. The first letter references column 5 , nd the second letter references a maintenance function, column 3, A through K.

b. Remarks. This column lists information pertinent to the maintenance function being performed, as indicated on the MAC, Section II.

**SECTION II - MAINTENANCE ALLOCATION CHART**

(1)  GROUP NO.	(2)  FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS											(4)  TOOLS AND EQUIPMENT	(5)  REMARKS		
		A	B	C	D	E	F	G	H	I	J	K				
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD				
01	ENGINE															
0100	Engine Assembly: Engine, Gasoline	C	O	C					F	F	H					Reference TM 5-2805-259-14
03	FUEL SYSTEM															
0306	Tanks, Lines, Fittings Tank Lines, Fitting	O		O					F O	F						
04	EXHAUST SYSTEM															
0401	Muffler and Pipes								O							
06	ELECTRICAL SYSTEM															
0607	Control Panel								O	O						
0612	Batteries, Storage	C		O					O							
11	REAR AXLE															
1100	Rear Axle Assembly								F	O						

**SECTION II - MAINTENANCE ALLOCATION CHART**

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS	
		A	B	C	D	E	F	G	H	I	J	K			
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD			
13	WHEEL AND TRACKS														
1311	Wheel Assembly			0					0	0					
1313	Tires, Tubes	C		0					0	0					
15	FRAME, TOWING ATTACHMENTS AND DRAWBAR														
1501	Frame								F	F					
1503	Drawbar								0	0					
22	BIDMK CHASSIS OR HULL AND ACCESSORY ITEMS														
2202	Reflectors	C							0						
2210	Data Plates								0						
55	PUMPS														
5500	Pump Assembly	C		C	F	F	F								

SME Form 1568-1  
1 Aug 67 Replaces SV Form 1568-1, 1 Nov 66, which may be used.

**SECTION II - MAINTENANCE ALLOCATION CHART**

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS											(4) TOOLS AND EQUIPMENT	(5) REMARKS	
		A	B	C	D	E	F	G	H	I	J	K			
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD			
5501	Shafts, Impellers, Bearings, Seals				F				F	F					
5505	Suction and Discharge Assembly:								O	O	O				
5507	Pump Drive Intermediate Housing Coupling Spline			O					O	O					
<b>SME Form 1568-1</b> I Aug 67 Replaces 5V Form 1568-1, 1 Nov 66, which may be used.								C-6							

SECTION IV

MAINTENANCE ALLOCATION CHART

FOR: Pump, Centrifugal, 600GPM

DATE \_\_\_\_\_

FSN 4320-935-1619

PAGE 1 OF 1

REFERENCE CODE	REMARKS
A - I	Repair by welding or straightening.
B - D	Adjust impeller clearance with shims.

## APPENDIX D.

### REPAIR PARTS 'ND SPECIAL TOOLS LIST

#### Section I. INTRODUCTION

##### D-1. Scope

This appendix lists repair parts, special tools, test and support equipment required for the performance of organizational, direct and general support maintenance of the centrifugal pump.

##### D-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Prescribed Load Allowance (PLA) Section II. A composite listing of repair parts, special tools, test and support equipment having quantitative allowance for initial stockage at the organizational level.

b. Repair Parts - Section III. A list of repair parts authorized for the performance of maintenance at the organizational level in group number sequence.

c. Special Tools, Test and Support Equipment - Section IV.  
Not applicable.

d. Repair Parts - Section V. A list of repair parts authorized for the performance of maintenance at the direct support and general support levels in group number sequence.

e. Special Tools, Test and Support Equipment - Section VI. Not applicable.

f. Federal Stock Number and Reference Number Index - Section VII. A list of Federal stock numbers in ascending numerical sequence, followed by a list of reference numbers appearing in all of the list-listing, in ascending alpha-numeric sequence, cross-referenced to the illustration figure number and item number.

##### D-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists.

Note: Common hardware items known to be readily available in Army supply channels are assigned Maintenance codes only. Source codes, Recoverability Codes, and Maintenance Allowances are not assigned this category.

a. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source Code. Indicates the selection status and source for the listed item. Source coded used are:

Code	Explanation
P	Applied to repair parts which are stocked in or supplied from DSA/GSA or Army supply system, and authorized for use at indicated maintenance categories.
M	Applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance categories.
A	Applied to assemblies which are not procured or stocked as such but are made up of two or more units, each of which carry individual stock numbers and descriptions and are procured and stocked and can be assembled by units at indicated maintenance categories.
X	Applied to parts and assemblies which are not procured or stocked; the mortality of which normally is below that of the applicable end item; and the failure of which should result in retirement of the end item from the supply system.
X1	Applied to repair parts which are not procured or stocked, the requirement for which will be supplied by use of the next higher assembly or component.
X2	Applied to repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
G	Applied to major assemblies that are procured with PAMA (Procurement Equipment Missile Army) funds for initial issue only to be used as exchange assemblies at DSU and GSU maintenance levels. These assemblies will not be stocked above DSU and GSU level or returned to depot level.

(2) Maintenance code. Indicates the lowest category of maintenance authorized to install the listed item. The maintenance codes are:



Code	Explanation
0	Organizational maintenance
F	Direct support maintenance
H	General support maintenance

(3) Recoverability Code. Indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code	Explanation
R	Applied to repair parts (assemblies and components) which are considered economically repairable at direct and general support maintenance levels. When the maintenance capability to repair these items does not exist, they are normally disposed of at the GS level. When supply considerations dictate, some of these repair parts may be listed for automatic return to supply for depot level repair as set forth in AR 710-50. When so listed, they will be replaced by supply on an exchange basis.
S	Applied to repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T	Applied to high dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts are normally repaired or overhauled at depot maintenance activities.
U	Applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, high dollar value reusable casings or castings.

b. Federal Stock Number. Indicates the Federal Stock Number assigned to the item and will be used for requisitioning purposes.

c. Description. Indicates the Federal item name and any additional description of the item required. The abbreviation "w/e" when used as a part of the nomenclature, indicates the Federal stock number includes all armament, equipment, accessories, and repair parts issued with the item. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parenthesis. Repair parts quantities included in kits and sets are shown in front of the repair part name.

d. Unit of Measure (U/M). A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit. Indicates the quantity of the item used in the functional group or the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.)-

f. 15-Day Organizational Maintenance Allowance.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of the items authorized it the number item of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 of these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example, authorized allowance for 51-100 equipments is 12; for 140 equipments multiply 12 by 1.40 or 16.80 rounded off to 17 parts required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to the U.S. Army Mobility Equipment Command for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the U.S. Army Mobility Equipment Command based upon engineering experience, demand data, or TAERS information.

g. 30-Day DS/GS Maintenance Allowances.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each

item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use a required but not for initial stockage are identified with an asterisk, in the allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example, authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

h. 1-year Allowance Per 100 Equipments/Contingency Planning Purposes. Indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year. Subsequent appearances of the same item will have letters "REF" in the allowance column.

i. Illustration.

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. Indicates the callout number used to reference the item in the illustration.

D-4. Special Information

a. Repair parts mortality has been based on 3000 hours operation per year.

b. Parts which require manufacture or assembly at a category higher than that authorized for installation will indicate in the source column the higher category.

c. For end items authorized mandatory stockage of repair parts by the Department of the Army, on a case by case basis, the mandatory stockage items are indicated by a plus "+" sign as the first character in the end item density column of both the Repair Parts List and the Prescribed Load Allowance for each such authorized allowance quantity.

d. Action change codes indicated in the left hand margin of the listing page denote the following:

N - Indicates an added item not included in previous publications.

C - Indicates a change in data.

F - Indicates a change in FSN only.

#### **D-5. How to Locate Repair Parts**

a. When Federal stock number or reference number is unknown:

(1) First. Using the table of contents determine the functional group, functional subgroup, or assembly group, i.e., engine, engine assembly, transmission, transmission assembly, within which the repair parts belong. This is necessary since illustrations are prepared for functional groups, functional sub-groups, or assembly groups, and listings are divided into the same groups.

(2) Second. Find the illustration covering the functional group, functional subgroup, or assembly group to which the repair part belongs.

(3) Third. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) Fourth. Using the Repair Parts Listing, find the functional group, functional subgroup, or assembly group to which the repair part belongs and locate the illustration figure and item number noted on the illustration.

b. When Federal stock number or reference number is known:

(1) First. Using the Index of Federal Stock Numbers and Reference Numbers find the pertinent Federal Stock Number or reference number. This index is in ascending FSN sequence followed by a list of reference numbers in alpha-numeric sequence, cross-referenced to the illustration figure number and item number.

(2) Second. Using the Repair Part Listing, find the functional group, functional subgroup, or assembly group of the repair part and the illustration figure number and item number referenced in the Index of Federal Stock Numbers and Reference numbers.

#### **D-6. Abbreviations**

Abbreviations	Explanation
ea	each
lh	left hand
rh	right hand
thk	thick
in	inch(es)
thd	thread(s)
mtg	mounting

## D-7. Federal Supply Codes for Manufacturers

Code	Manufacturers
00000	Ordnance Corps
00501	Ford Motor Co. Tractor & Implement Div.
19206	Watervliet Arsenal
28520	Heyman Mfg. Co.
31356	J-B-T Instruments, Inc.
33116	Kelsey-Hays Co.
43334	General Motors Corp., New Departure Div.
45681	Parker-Hannifin Corp.
48873	Prestolite Battery Co., Inc.
57733	Stewart-Warner Copr.
71724	Crane Packing Co.
76700	Nelson Muffler Corp.
78086	E. C. Schleyer pump Co.
79136	Waldes Kohinoor Inc.
79150	Victor Mfg. & Gasket Co.
81349	Military Specifications, Standardization Div.
82666	Stockham Valve & Fittings Inc.
88044	Aeronautical Standards, Group.
96906	Military Standards, Standardization Div.
97403	Mobility Engineering Research and Development Center
99024	Prior Products, Inc.

**SECTION II PRESCRIBED LOAD ALLOWANCE**

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION  useable on code	(3) 15-DAY ORG MAINT. ALW			
		(A)	(B)	(C)	(D)
		1-5	6-20	21-50	51-100
	GROUP 03 FUEL SYSTEM				
5330-684-7851	Gasket, cap MS35643 - 1(96906)				2
	GROUP 04 EXHAUST SYSTEM				
2990-132-4729	Muffler, Exhaust T9726 (76700)				2
5330-116-1549	Gasket, Muffler 5214K4 (76700)			2	2
5330-116-1558	Spacer, Muffler C902M36 (78086)				2
	GROUP 06 ELECTRICAL SYSTEM				
5930-655-1522	Switch, Toggle 5830 (31356)				2
5930-655-1582	Switch, Toggle 59230 (31356)				2
6140-059-3528	Battery, Storage US4HN (48873)				2
6140-129-5852	Cable Battery B306M36 (78086)				2
6680-125-8541	Sender Unit 811532 (57733)				2
	GROUP 11 REAR AXILE				
3110-183-9946	Bearing, Hub MS19081-58 (96906)				2
5310-523-2404	Rut, Lug 7328368 (19206)				2

**SECTION II PRESCRIBED LOAD ALLOWANCE**

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION  useable on code	(3) 15-DAY ORG MAINT. ALW			
		(A)	(B)	(C)	(D)
		1-5	6-20	21-50	51-100
5310-523-2405	Nut, Lug 7328369 (19206)  GROUP 13 WHEELS AND TRACKS				2
2610-269-7332	Tube, Tire MS35392-8 (96906)  GROUP 15 FRAME, TOWING ATTACHMENT AND DRAWBARS				2
5340-115-6331	Pin, Anchor 2N574-2N575 (00501)				2
5340-116-1519	Spacer, Leg B909M36 (78086)  GROUP 22 ACCESSORY ITEMS				2
9905-202-3639	Reflector, Amber MS35387-2 (96906)				2
9905-205-2795	Reflector, Red MS35387-1 (96906)  GROUP 55 PUMPS				2
5307-116-7812	Stud, Flange A905M36 (78086)				2
5330-121-7721	Gasket, Flange A01OM36 (78086)				2

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUS- TRATION	
					(a)	(b)	(c)	(d)	(a)	(b)
					1-5	6-20	21-50	51-100	FIG. NO.	ITEM NO.
		SECTION III - REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE GROUP 03 - FUEL SYSTEM								
X20	2910-132-4731	TANK, FUEL B201M36 (78086)	EA	1					3-9	1
P 0	2910-141-9758	CAP, TANK MS35615-1 (96906)	EA	1*	*	*	*		3-9	2
P 0	5330-684-7851	GASKET, CAP MS35643-1 (96906)	EA	1*	*	*		2	3-9	3
P 0	2910-893-2592	STRAINER TANK MS35964-1 (96906)	EA	1	*	*	*	*	3-9	4
P 0	4730-06-9848	PLUG, PIPE A91036 (78086)	EA	1	*	*	*	*	3-9	5
P 0	4020-639-9224	COCK, DRAIN MS35932-2 (96906)	EA	1	*	*	*	*	3-9	7
P 0	4730-122-0522	PLUG, PIPE B207M36 (78086)	EA	1	*	*	*	*	3-9	8
X20		REDUCER, PIPE 216PS4-2 (45681)	EA	1					3-9	9
P 0	4730-203-3012	ELOW, PIPE 5CTX5 (45681)	EA	1	*	*	*	*	3-9	11
P 0	2910-132-473	NOSE ASSEMBLY B204M36 (78086)	EA	1	*	*	*	*	3-9	12
P 0	2990-132-4729	GROUP 04 - EXHAUST SYSTEM MUFFLER, EXHAUST T9726 (76700)	EA	1	*	*	*	2	3-8	1
0	5310-732-0558	NUT, PLAIN, HEXAGON MUFFLER MTG MS51967-8 (96906)	EA	2					3-8	2
0	5310-637-9541	WASHER, LOCK: MUFFLER MTG MS35338-46 (96906)	EA	4					3-8	3
0	5305-269-3217	SCREW, CAP, HEXAGON HEAD: MUFFLER MTG MS90725-67 (96906)	EA	2					3-8	4
P 0	5330-116-1549	GASKET:MUFFLER MTG 5218K4, (79150)	EA	2	*	*	2	2	3-8	5
P 0	5340-116-1558	SPACER, MUFFLER C902M36 (78086)	EA	1	*	*	*	2	3-8	6
X20	4320-117-0793	GROUP 06 - ELECTRICAL SYSTEM CONTROL PANEL ASSEMBLY B500M36 (78086)	EA	1					3-5	
X20		BOX, CONTROL PANEL 5001M36 (78086)	EA	1					3-5	1
P 0	4320-119-0533	HARNES, WIRING 500AM36 (78086)	EA	1	*	*	*	*	3-5	2
0	5305-637-163	SCREW: CONNECTOR MTG AN116930 (88044)	EA	4					3-5	3
0	5310-081-8087	NUT: CONNECTOR MTG MS21044N06 (96906)	EA	4					3-5	4
P 0	4320-116-6821	COVER, CONTROL PANEL B502M36 (78086)	EA	1	*	*	*	*	3-5	5
0	5305-855-0972	SCREW: COVER MTG SG24629-23 (96906)	EA	8					3-5	6



(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) UNIT OF MEAS  USABLE ON CODE	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUS- TRATION	
					(a)	(b)	(c)	(d)	(a)	(b)
					1-5	6-20	21-50	51-100	FIG. NO.	ITEM NO.
X20		PLUG, HOLE P562 (28520)	EA	1					3-5	8
P O	6620-514-5492	INDICATOR, PRESSURE 505W (57733)	EA	1	*	*	*	*	3-5	9
X20	5930-246-8626	BOOT, DUST MILB542312TYPE (81349)	EA	3					3-5	10
P O	5930-655-1582	SWITCH, TOGGLE 59230 (31356)	EA	1	*	*	*	2	3-5	11
P O	5930-655-1522	SWITCH, TOGGLE 5830 (31356)	EA	1	*	*	*	2	3-5	12
P O	5930-655-1521	SWITCH, TOGGLE 5829 (31356)	EA	1	*	*	*	*	3-5	13
P O	6680-125-8541	SENDER UNIT 811532 (57733)	EA	1	*	*	*	2	3-5	14
P O	6140-129-5853	COVER, BATTERY BOX B302M36 (78086)	EA	1	*	*	*	*	3-7	1
X20		IDENTIFICATION PLATE, PERFORMANCE D002M36 (78086)	EA	1					3-7	2
O	5305-984-6191	SCREW, MACHINE: PLATE MTG MS35206-243 (96906)	EA	4					3-7	3
O	5310-558-2994	NUT, PLAIN, HEXAGON: PLATE MTG MS35649-82 (96906)	EA	4					3-7	4
O	5310-889-2606	NUT, WING: BATTERY BOX COVER MTG MS35425-42 (96906)	EA	2					3-7	5
O	5310-637-9541	WASHER, LOCK: BATTERY BOX COVER MTG MS35338-46 (96906)	EA	2					3-7	6
P O	6140-129-5852	CABLE B306M36 (78086)	EA	1	*	*	*	2	3-7	7
X20		BOX, BATTERY B301M36 (78086)	EA	1					3-7	8
X20		CABLE B305M36 (78086)	EA	1					3-7	9
P O	6140-059-3528	BATTERY, STORAGE U54HN (48873)	EA	1	*	*	*	2	3-7	10
O	5305-119-1640	SCREW, CAP, HEXAGON HEAD B915M36 (78086)	EA	2					3-7	11
O	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	2					3-7	12
O	5310-732-0558	NUT, PLAIN, HEXAGON MS51967-8 (96906)	EA	2					3-7	13
O	5305-269-3213	SCREW, CAP MS90725-62 (96906)	EA	1					3-7	14
O	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	1					3-7	15
O	5310-732-0558	NUT, HEXAGON MS51967-8 (96906)	EA	1					3-7	16
O	5305-269-3211	SCREW, CAP, HEXAGON HEAD: BATTERY GROUND CABLE TO FRAME MS90725-60 (96906)	EA	1					3-7	17
O	5310-637-9541	WASHER, LOCK: BATTERY GROUND CABLE TO FRAME MS35338-46 (96906)	EA	1					3-7	18
O	5310-732-0558	NUT, PLAIN, HEXAGON: BATTERY GROUND CABLE TO FRAME MS51967-8 (96906)	EA	1					3-7	19
P O	6140-119-0952	SUPPORT, BATTERY BOX B303M36 (78086)	EA	1	*	*	*	*	3-7	20

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) USABLE ON CODE	(5) UNIT OF MEAS  QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUS- TRATION	
					(a)	(b)	(c)	(d)	(a)	(b)
					1-5	6-20	21-50	51-100	FIG. NO.	ITEM NO.
		GROUP 11 - REAR AXLE								
O	5305-269-3211	SCREW, CAP, HEXAGON HEAD: GREASE CAP MTG MS90725-60 (96906)		EA 12					3-12	1
O	5310-637-9541	WASHER, LOCK MS35338-46 (96906)		EA 12					3-12	2
P O	1055-033-6209	CAP, GREASE 7735821 (00000)		EA 2	*	*	*	*	3-12	3
P O	2530-737-1109	GASKET, GREASE CAP 7371109 (00000)		EA 2	*	*	*	*	3-12	4
O	5310-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)		EA 2					3-12	5
O	5310-769-6521	WASHER, NUT, LOCK 7696521 (00000)		EA 2					3-12	6
O	5310-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)		EA 2					3-12	7
O	5310-769-6520	WASHER, LOCK, WHEEL BEARING 7696520 (00000)		EA 2					3-12	8
P O	3110-183-9946	BEARING MS19081-58 (96906)		EA 4	*	*	*	2	3-12	11
P O	2530-133-0791	HUB, RIGHT HAND THREAD 8402AM36 (78086)		EA 1	*	*	*	*	3-12	12
X20		SEAL: WHEEL HUB MS51020-21 (96906)		EA 2					3-12	15
O	5310-732-0558	NUT, PLAIN, HEXAGON: BRACKET MTG MS51967-8 (96906)		EA 4					3-12	16
O	5310-637-9541	WASHER, LOCK: BRACKET MTG MS35338-46 (96906)		EA 4					3-12	17
O		BOLT, MACHINE: BRACKET MTG 13216E8336 (97403)		EA 4					3-12	18
P O	2530-656-7542	INSERT: BRACKET 69-030 (99024)		EA 2	*	*	*	*	3-12	21
P O	5310-523-2405	NUT, LUG: RH 7328369 (19206)		EA 5	*	*	*	2	3-12	27
X20	2530-133-0789	HUB, LEFT HAND THREAD 8402M36 (78086)		EA 1					3-12	28
P O	5310-523-2404	NUT, LUG: LH 7328368 (19206)		EA 5	*	*	*	2	3-12	29
		GROUP 13 - WHEELS AND TRACKS								
P O	1450-945-7678	WHEEL K33995 (33116)		EA 2	*	*	*	*	3-12	31
P O	2610-678-1363	TIRE MS35388-93 (96906)		EA 2	*	*	*	*	3-12	32
P O	2610-269-7332	TUBE MS35392-8 (96906)		EA 2	*	*	*	2	3-12	33
		GROUP 15 - FRAME, TOWING ATTACHMENTS, AND DRAWBARS								
X20	2540-119-0660	DRAWBAR, EXTENDING 8002M36 (78086)		EA 1					D1	2
X20	2590-119-3836	SUPPORT, LEG 8009M36 (78086)		EA 1					D1	3

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) USABLE ON CODE	(5) UNIT OF MEAS	(6) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUS- TRATION	
						(a)	(b)	(c)	(d)	(a)	(b)
						1-5	6-20	21-50	51-100	FIG. NO.	ITEM NO.
X20	4110-116-4124	PIN, ANCHOR: SUPPORT LEG B003M36 (78086)		EA	3					D1	4
O	5305-727-3804	SCREW, CAP, HEXAGON HEAD: SUPPORT LEG MS90725-165 (96906)		EA	2					D1	5
O	5310-820-6653	WASHER, LOCK: SUPPORT LEG MS35338-50 (96906)		EA	2					D1	6
O	5310-823-8803	WASHER, FLAT: SUPPORT LEG MS27183-21 (96906)		EA	2					D1	7
P O	5340-116-1519	SPACER: SUPPORT LEG B909M36 (78086)		EA	2	*	*	*	2	D1	8
O	5310-763-8920	NUT, PLAIN, HEXAGON: SUPPORT LEG MS51967-20 (96906)		EA	2					D1	9
X20		CHAIN: SUPPORT LEG B003AM36 (78086)		EA	3					D1	10
X1		RING: SUPPORT LEG CHAIN B003BM36 (78086)		EA	3					D1	11
P O	5340-115-6331	PIN, ANCHOR: SUPPORT LEG 2N574-2N575 (00501)		EA	3	*	*	*	2	D1	12
P O	2805-118-5405	BRACKET, FRONT ENGINE B006M36 (78086)		EA	1	*	*	*	*	D1	13
O	5305-269-3213	SCREW, CAP, HEXAGON HEAD: ENGINE BRACKET MTG MS90725-62 (96906)		EA	3					D1	14
O	5310-637-9541	WASHER, LOCK: ENGINE BRACKET MTG MS35338-46 (96906)		EA	6					D1	15
O	5310-732-0558	NUT, PLAIN, HEXAGON: ENGINE BRACKET MTG MS51967-8 (96906)		EA	3					D1	16
O	5305-016-6417	SCREW, CAP, HEXAGON HEAD: LIFTING FRAME MTG MS90725-113 (96906)		EA	4					D1	36
X20	5340-116-1557	SPACER: LIFTING FRAME B907M36 (78086)		EA	4					D1	37
O	5310-584-5272	WASHER, LOCK: LIFTING FRAME MTG MS35338-48 (96906)		EA	4					D1	38
O	5310-768-0318	NUT, PLAIN, HEXAGON: LIFTING FRAME MTG MS51967-14 (96906)		EA	4					D1	39
X20		FRAME, LIFTING B101M36 (78086)		EA	1					3-10	1
X20		CROSSPIECE, LIFTING FRAME B102M36 (78086)		EA	2					3-10	2
O	5305-051-0827	SCREW, CAP: LIFTING FRAME MTG MS90725-164 (96906)		EA	4					3-10	3
O	5310-820-6653	WASHER, LOCK: LIFTING FRAME MTG MS35338-50 (96906)		EA	4					3-10	4
O	5310-763-8920	NUT, PLAIN, HEXAGON: LIFTING FRAME MTG MS51967-20 (96906)		EA	4					3-10	5
O	5310-724-5910	SCREW, CAP, HEXAGON HEAD: LIFTING FRAME MTG MS90725-162 (96906)		EA	2					3-10	6
O	5310-820-6653	WASHER, LOCK: LIFTING FRAME MTG MS35338-50 (96906)		EA	2					3-10	7
O	5310-763-8920	NUT, PLAIN, HEXAGON: LIFTING FRAME MTG MS51967-20 (96906)		EA	2					3-10	8
X20		LIFT RING B103M36 (78086)		EA	1					3-10	9

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) USABLE ON CODE	(5) UNIT OF MEAS	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW	(7) ILLUS- TRATION					
						(6)				(a)	(b)
						(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG. NO.	(b) ITEM NO.
O	5310-768-0318	NUT, HEXAGON: LIFTING MTG MS51967-14 (96906)		EA	2					3-10	10
O	5310-834-8732	NUT, JAM: LIFTING MS35691-33 (96906)		EA	2					3-10	11
		GROUP 22 - ACCESSORY ITEMS									
P O	9905-205-2795	REFLECTOR, RED MS35387-1 (96906)		EA	2	*	*	*	2	D1	26
O	5305-068-0502	SCREW, CAP, HEXAGON HEAD: REFLECTOR MTG MS90725-6 (96906)		EA	4					D1	27
O	5310-582-5965	WASHER, LOCK: REFLECTOR MTG MS35338-44 (96906)		EA	4					D1	28
O	5310-761-6882	NUT, PLAIN, HEXAGON: REFLECTOR MTG MS51967-2 (96906)		EA	4					D1	29
P O	9905-202-3639	REFLECTOR, AMBER MS35387-2 (96906)		EA	2	*	*	*	2	D1	30
O	5305-068-0502	SCREW, CAP, HEXAGON HEAD: REFLECTOR MTG MS90725-6 (96906)		EA	4					D1	31
O	5310-582-5965	WASHER, LOCK: REFLECTOR MTG MS35338-42 (96906)		EA	4					D1	32
O	5310-761-6882	NUT, PLAIN, HEXAGON: REFLECTOR MTG MS51967-2 (96906)		EA	4					D1	33
X20		IDENTIFICATION PLATE D001M36 (78086)		EA	1					D1	34
O	5305-253-5614	SCREW, DRIVE: IDENTIFICATION PLATE MTG D901M36 (78086)		EA	1					D1	35
		GROUP 55 - PUMPS									
O	5310-763-8920	NUT, PLAIN, HEXAGON: FLANGE MTG MS51967-20 (96906)		EA	4					4-1	2
P O	4320-117-0806	FLANGE, SUCTION A007M36 (78086)		EA	1	*	*	*	*	4-1	3
P O	4320-117-0807	CHECK VALVE ASSEMBLY A006M36 (78086)		EA	1	*	*	*	*	4-1	4
X1		WEIGHT, CHECK VALVE A006AM36 (78086)		EA	1					4-1	5
X1		GASKET, CHECK VALVE A006CM36 (78086)		EA	1					4-1	6
X1		WEIGHT, CHECK VALVE A006BM36 (78086)		EA	1					4-1	7
X1	5310-582-5965	WASHER, LOCK MS35338-44 (96906)		EA	2					4-1	8
X1	5305-068-0502	SCREW, CAP, HEXAGON HEAD MS90725-6 (96906)		EA	2					4-1	9
P O	4730-203-0549	PLUG, PIPE A909M36 (78086)		EA	1	*	*	*	*	4-1	12
X20		ELBOW: 4 NPT, 90 DEGREES, STREET 57-613 (82666)		EA	1					4-1	13
O	5310-732-9541	NUT, PLAIN, HEXAGON: DISCHARGE FLANGE MTG, 3/8-16 THD MS51967-8 (96906)		EA	8					4-1	14
P O	4320-117-0808	FLANGE, DISCHARGE A008M36 (78086)		EA	1	*	*	*	*	4-1	15
P O	5330-121-7721	GASKET, DISCHARGE FLANGE A011M36 (78086)		EA	1	*	*	*	2	4-1	16

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) USABLE ON CODE	(5) UNIT OF MEAS	(6) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUS- TRATION	
						(a)	(b)	(c)	(d)	(a)	(b)
						1-5	6-20	21-50	51-100	FIG. NO.	ITEM NO.
P O	5307-116-7812	STUD: INTAKE, FLANGE MTO A905M36 (78086)		EA	4	*	*	*	2	4-1	27
P O	4730-287-0019	PLUG, PIPE: DRAIN A908M36 (78086)		EA	1	*	*	*	*	4-1	29
P O	4730-289-8228	PLUG B201CM36 (78086)		EA	1	*	*	*	*	4-1	33

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
		SECTION V - REPAIR PARTS FOR DS AND GS MAINTENANCE											
		GROUP 01 - ENGINE											
P F T	2805-872-5972	ENGINE, GASOLINE MILSTDMDL4A084111 (97403)	EA	1	*	*	2	*	*	2	6		
F	5305-269-3213	SCREW, CAP, HEXAGON HEAD: ENGINE MTO MS90725-62 (96906)	EA	2								D1	17
F	5310-637-9541	WASHER, LOCK: ENGINE MTO MS35338-46 (96906)	EA	4								D1	18
F	5310-732-0558	NUT, PLAIN, HEXAGON: ENGINE MTO MS51967-14 (96906)	EA	1								D1	19
F	5305-042-0417	SCREW, CAP, HEXAGON HEAD: ENGINE MTO MS90725-113 (96906)	EA	1								D1	20
F	5310-209-5116	WASHER, LOCK: ENGINE MTO MS35335-37 (96906)	EA	2								D1	21
F	5310-768-0318	NUT, PLAIN, HEXAGON: ENGINE MTO MS51967-14 (96906)	EA	1								D1	22
		GROUP 03 - FUEL SYSTEM											
X20	2910-132-4731	TANK, FUEL B201M36 (78086)	EA	1								3-9	1
P O	2910-141-9758	CAP, TANK MS35645-1 (96906)	EA	1	*	*	2	*	*	2	9	3-9	2
P O	5330-684-7851	GASKET, CAP MS35643-1 (96906)	EA	1	*	2	2	*	2	2	18	3-9	3
P O	2910-893-2592	STRAINER, TANK MS35644-1 (96906)	EA	1	*	*	2	*	*	2	6	3-9	4
P O	4730-806-9848	PLUG, PIPE A910M36 (78086)	EA	1	*	*	2	*	*	2	6	3-9	5
P F	4730-188-1857	NIPPLE, PIPE B205M36 (78086)	EA	1	*	*	2	*	*	2	6	3-9	6
P O	4820-639-9224	COCK, DRAIN MS35932-2 (96906)	EA	1	*	*	2	*	*	2	6	3-9	7
P O	4730-122-0522	PLUG, PIPE B207M36 (78086)	EA	1	*	*	2	*	*	2	6	3-9	8
X20		REDUCER, PIPE 216PS4-2 (45681)	EA	1								3-9	9
P O	4730-203-3012	ELBOW, PIPE 5CTX5 (45681)	EA	1	*	*	2	*	*	2	6	3-9	11
P O	2910-132-4730	HOSE ASSEMBLY B204M36 (78086)	EA	1	*	*	2	*	*	2	6	3-9	12
X2F		STRAP, TANK B202M36 (78086)	EA	2								3-9	13
X2F		STRAP B203M36 (78086)	EA	2								3-9	14
F	5305-269-3213	SCREW, CAP, HEXAGON HEAD MS90725-62 (96906)	EA	4								3-9	15
F	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	4								3-9	16
F	5310-732-0558	NUT, PLAIN, HEXAGON MS51967-8 (96906)	EA	4								3-9	17

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE  REF NUMBER & MFR CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
		GROUP 04 - EXHAUST SYSTEM											
P O	2990-132-4729	MUFFLER, EXHAUST T9726 (76700)	EA	1	*	2	2	*	2	2	12	3-8	1
O	5310-732-0558	NUT, PLAIN, HEXAGON: MUFFLER MTO MS51967-8 (96906)	EA	2								3-8	2
O	5310-637-9541	WASHER, LOCK: MUFFLER MTO MS35338-46 (96906)	EA	4								3-8	3
O	5305-269-3217	SCREW, CAP, HEXAGON HEAD: MUFFLER MTO MS90725-67 (96906)	EA	2								3-8	4
P O	5330-116-1549	GASKET: MUFFLER MTO 5218K4 (79150)	EA	2	2	2	3	2	2	3	30	3-8	5
P O	5340-116-1558	SPACER, MUFFLER C902M36 (78086)	EA	1	*	2	2	*	2	2	15	3-8	6
		GROUP 06 - ELECTRICAL SYSTEM											
X20	4320-117-0793	CONTROL PANEL ASSEMBLY B500M36 (78086)	EA	1								3-5	
X20		BOX, CONTROL PANEL B501M36 (78086)	EA	1								3-5	1
P O	4320-119-0533	HARNES, WIRING 500AM36 (78086)	EA	1	*	*	*	*	*	*	5	3-5	2
O	5305-637-8163	SCREW: CONNECTOR MTO AN116930 (88044)	EA	4								3-5	3
O	5310-081-8087	NUT: CONNECTOR MTO MS21044N06 (96906)	EA	4								3-5	4
P O	4320-116-6821	COVER, CONTROL PANEL B502M36 (78086)	EA	1	*	*	*	*	*	*	5	3-5	5
O	5305-855-0972	SCREW: COVER MTO MS24629-23 (96906)	EA	8								3-5	6
X20		PLUG, HOLE P562 (28520)	EA	1								3-5	8
P O	6620-514-5492	INDICATOR, PRESSURE 505W (57733)	EA	1	*	*	2	*	*	2	6	3-5	9
X20	5930-246-8626	BOOT, DUST M1LB542312TYPE (81349)	EA	3								3-5	10
P O	5930-655-1582	SWITCH, TOGGLE 59230 (31356)	EA	1	*	2	2	*	2	2	12	3-5	11
P O	5930-655-1522	SWITCH, TOGGLE 5830 (31356)	EA	1	*	2	2	*	2	2	12	3-5	12
P O	5930-655-1521	SWITCH, TOGGLE 5829 (31356)	EA	1	*	*	2	*	*	2	6	3-5	13
P O	6680-125-8541	SENDER UNIT 811532 (57733)	EA	1	*	2	2	*	2	2	12	3-5	14
P O	6140-129-5853	COVER, BATTERY BOX B302M36 (78086)	EA	1	*	*	*	*	*	*	5	3-7	1
X20		IDENTIFICATION PLATE, PERFORMANCE D002M36 (78086)	EA	1								3-7	2
O	5305-984-6191	SCREW, MACHINE: PLATE MTO MS35206-243 (96906)	EA	4								3-7	3
O	5310-558-2994	NUT, PLAIN, HEXAGON: PLATE MTO MS35649-82 (96906)	EA	4								3-7	4
O	5310-889-2606	NUT, WING: BATTERY BOX COVER MTO MS35425-42 (96906)	EA	2								3-7	5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
0	5310-637-9541	WASHER, LOCK: BATTERY BOX COVER MTO MS35338-46 (96906)	EA	2								3-7	6
P O	6140-129-5852	CABLE B306M36 (78086)	EA	1	*	2	2	*	2	2	12	3-7	7
X20		BOX, BATTERY B301M36 (78086)	EA	1								3-7	8
X20		CABLE B305M36 (78086)	EA	1								3-7	9
P O	6140-059-3528	BATTERY, STORAGE U54HN (48873)	EA	1	*	2	2	*	2	2	12	3-7	10
0	5305-119-1640	SCREW, CAP, HEXAGON HEAD B915M36 (78086)	EA	2								3-7	11
0	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	2								3-7	12
0	5310-732-0558	NUT, PLAIN, HEXAGON MS51967-8 (96906)	EA	2								3-7	13
0	5305-269-3213	SCREW, CAP MS90725-62 (96906)	EA	1								3-7	14
0	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	1								3-7	15
0	5310-732-0558	NUT, HEXAGON MS51967-8 (96906)	EA	1								3-7	16
0	5305-269-3211	SCREW, CAP, HEXAGON HEAD: BATTERY GROUND CABLE TO FRAME MS90725-60 (96906)	EA	1								3-7	17
0	5310-637-9541	WASHER, LOCK: BATTERY GROUND CABLE TO FRAME MS35338-46 (96906)	EA	1								3-7	18
0	5310-732-0558	NUT, PLAIN, HEXAGON: BATTERY GROUND CABLE TO FRAME MS51967-8 (96906)	EA	1								3-7	19
P O	6140-119-0952	SUPPORT, BATTERY BOX B303M36 (78086)	EA	1	*	*	2	*	*	2	6	3-7	20
		GROUP 11 - REAR AXLE											
0	5305-269-3211	SCREW, CAP, HEXAGON HEAD: GREASE CAP MTO MS90725-60 (96906)	EA	12								3-12	1
0	5310-637-9541	WASHER, LOCK MS35338-46 (96906)	EA	12								3-12	2
P O	1055-033-6209	CAP, GREASE 7735821 (00000)	EA	2	*	*	2	*	*	2	6	3-12	3
P O	2530-737-1109	GASKET, GREASE CAP 7371109 (00000)	EA	2	*	*	2	*	*	2	6	3-12	4
0	5310-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)	EA	2								3-12	5
0	5310-769-6521	WASHER, NUT, LOCK 7696521 (00000)	EA	2								3-12	6
0	5310-737-1106	NUT, LOCK, WHEEL BEARING 7371106 (00000)	EA	2								3-12	7
0	5310-769-6520	WASHER, LOCK, WHEEL BEARING 7696520 (00000)	EA	2								3-12	8
P O	3110-183-9946	BEARING MS19081-58 (96906)	EA	4	*	2	2	*	2	2	12	3-12	11
P O	2530-133-0791	HUB, RIGHT HAND THREAD B402AM36 (78086)	EA	1	*	*	*	*	*	*	4	3-12	12
X20		SEAL: WHEEL HUB MS51020-21 (96906)	EA	2								3-12	15



(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
P F	2530-133-0788	AXLE ASSEMBLY B400M36 (78086)	EA	1	*	*	*	*	*	*	2		
O	5310-732-0558	NUT, PLAIN, HEXAGON: BRACKET MTG MS51967-8 (96906)	EA	4								3-12	16
O	5310-637-9541	WASHER, LOCK: BRACKET MTG MS35338-46 (96906)	EA	4								3-12	17
O		BOLT, MACHINE: BRACKET MTG 13216E8336 (97403)	EA	4								3-12	18
P F	2530-019-8658	BLOCK, LOWER RIGHT 72-824 (99024)	EA	1	*	*	*	*	*	*	3	3-12	19
P F	2530-656-7539	BRACKET, BASE, RIGHT 72-802 (99024)	EA	1	*	*	*	*	*	*	3	3-12	20
P O	2530-656-7542	INSERT: BRACKET 69-030 (99024)	EA	2	*	*	2	*	*	2	6	3-12	21
P F	2530-019-8657	BLOCK, LOWER LEFT 72-823 (99024)	EA	1	*	*	*	*	*	*	3	3-12	22
P F	2530-656-7540	BRACKET, BASE, LEFT 72-801 (99024)	EA	1	*	*	*	*	*	*	3	3-12	23
P F	5340-246-6568	SPRING, LEFT 69-499 (99024)	EA	1	*	*	*	*	*	*	5	3-12	24
P F	5340-656-7541	SPRING, RIGHT 69-500 (99024)	EA	1	*	*	*	*	*	*	5	3-12	25
X2F	2530-119-9874	AXLE L2-36-10-1 (99024)	EA	1								3-12	26
P O	5310-523-2405	NUT, LUG: RH 7328369 (19206)	EA	5	*	2	2	*	2	2	20	3-12	27
X20	2530-133-0789	HUB, LEFT HAND THREAD B402M36 (78086)	EA	1								3-12	28
P O	5310-523-2404	NUT, LUG: LH 7328368 (19206)	EA	5	*	2	2	*	2	2	20	3-12	29
X1		CLIP 68643 (99024)	EA	2								3-12	30
		GROUP 13 - WHEELS AND TRACKS											
P O	1450-945-7878	WHEEL K33995 (33116)	EA	2	*	*	2	*	*	2	6	3-12	31
P O	2610-678-1363	TIRE MS35388-93 (96906)	EA	2	*	*	*	*	*	*	12	3-12	32
P O	2610-269-7332	TUBE MS35392-8 (96906)	EA	2	*	2	2	*	2	2	18	3-12	33
		GROUP 15 - FRAME, TOWING ATTACHMENTS, AND DRAWBARS											
X2F		FRAME ASSEMBLY, TRAILER B000M36 (78086)	EA	1									D1
X2F		FRAME, TRAILER B001M36 (78086)	EA	1									D1 1
X20	2540-119-0660	DRAWBAR, EXTENDING B002M36 (78086)	EA	1									D1 2
X20	2590-119-3836	SUPPORT, LEG B009M36 (78086)	EA	1									D1 3
X20	4110-116-4124	PIN, ANCHOR: SUPPORT LEG B003M36 (78086)	EA	3									D1 4
O	5305-727-3804	SCREW, CAP, HEXAGON HEAD: SUPPORT LEG MS90725-165 (96906)	EA	2									D1 5

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
0	5310-820-6653	WASHER, LOCK: SUPPORT LEG MS35338-50 (96906)	EA	2								D1	6
0	5310-823-8803	WASHER, FLAT: SUPPORT LEG MS27183-21 (96906)	EA	2								D1	7
P 0	5310-116-1519	SPACER: SUPPORT LEG B909M36 (78086)	EA	2	*	2	2	*	2	2	24	D1	8
0	5310-763-8920	NUT, PLAIN, HEXAGON: SUPPORT LEG MS51967-20 (96906)	EA	2								D1	9
X20		CHAIN: SUPPORT LEG B003AM36 (78086)	EA	3								D1	10
X1		RING: SUPPORT LEG CHAIN B003BM36 (78086)	EA	3								D1	11
P 0	5310-115-6331	PIN, ANCHOR: SUPPORT LEG 2N574-2N575 (00501)	EA	3	*	2	2	*	2	2	12	D1	12
P 0	2805-118-5405	BRACKET, FRONT ENGINE B006M36 (78086)	EA	1	*	*	*	*	*	*	3	D1	13
0	5305-269-3213	SCREW, CAP, HEXAGON HEAD: ENGINE BRACKET MTR MS90725-62 (96906)	EA	3								D1	14
0	5310-637-9541	WASHER, LOCK: ENGINE BRACKET MTR MS35338-46 (96906)	EA	6								D1	15
0	5310-732-0558	NUT, PLAIN, HEXAGON: ENGINE BRACKET MTR MS51967-8 (96906)	EA	3								D1	16
0	5305-016-6417	SCREW, CAP, HEXAGON HEAD: LIFTING FRAME MTR MS90725-113 (96906)	EA	4								D1	36
X20	5310-116-1557	SPACER: LIFTING FRAME B907M36 (78086)	EA	4								D1	37
0	5310-584-5272	WASHER, LOCK: LIFTING FRAME MTR MS35338-48 (96906)	EA	4								D1	38
0	5310-768-0318	NUT, PLAIN, HEXAGON: LIFTING FRAME MTR MS51967-14 (96906)	EA	4								D1	39
X20		FRAME, LIFTING B101M36 (78086)	EA	1								3-10	1
X20		CROSSPIECE, LIFTING FRAME B102M36 (78086)	EA	2								3-10	2
0	5305-051-0827	SCREW, CAP: LIFTING FRAME MTR MS90725-164 (96906)	EA	4								3-10	3
0	5310-820-6653	WASHER, LOCK: LIFTING FRAME MTR MS35338-50 (96906)	EA	4								3-10	4
0	5310-763-8920	NUT, PLAIN, HEXAGON: LIFTING FRAME MTR MS51967-20 (96906)	EA	4								3-10	5
0	5310-724-5910	SCREW, CAP, HEXAGON HEAD: LIFTING FRAME MTR MS90725-162 (96906)	EA	2								3-10	6
0	5310-820-6653	WASHER, LOCK: LIFTING FRAME MTR MS35338-50 (96906)	EA	2								3-10	7
0	5310-763-8920	NUT, PLAIN, HEXAGON: LIFTING FRAME MTR MS51967-20 (96906)	EA	2								3-10	8
X20		LIFT RING B103M36 (78086)	EA	1								3-10	9
0	5310-768-0318	NUT, HEXAGON: LIFTING MTR MS51967-14 (96906)	EA	2								3-10	10
0	5310-834-8732	NUT, JAM: LIFTING MS35691-33 (96906)	EA	2								3-10	11

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) USABLE ON CODE	(5) UNIT OF MEAS	(6) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
						(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
						1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
		GROUP 22 - ACCESSORY ITEMS												
P O	9905-205-2795	REFLECTOR, RED MS35387-1 (96906)		EA	2	*	2	2	*	2	2	12	D1	26
O	5305-068-0502	SCREW, CAP, HEXAGON HEAD: REFLECTOR MTG MS90725-6 (96906)		EA	4								D1	27
O	5310-582-5965	WASHER, LOCK: REFLECTOR MTG MS35338-44 (96906)		EA	4								D1	28
O	5310-761-6882	NUT, PLAIN, HEXAGON: REFLECTOR MTG MS51967-2 (96906)		EA	4								D1	29
P O	9905-202-3639	REFLECTOR, AMBER MS35387-2 (96906)		EA	2	*	2	2	*	2	2	12	D1	30
O	5305-068-0502	SCREW, CAP, HEXAGON HEAD: REFLECTOR MTG MS90725-6 (96906)		EA	4								D1	31
O	5310-582-5965	WASHER, LOCK: REFLECTOR MTG MS35338-42 (96906)		EA	4								D1	32
O	5310-761-6882	NUT, PLAIN, HEXAGON: REFLECTOR MTG MS51967-2 (96906)		EA	4								D1	33
X20		IDENTIFICATION PLATE D001M36 (78086)		EA	1								D1	34
O	5305-253-5614	SCREW, DRIVE: IDENTIFICATION PLATE MTG D901M36 (78086)		EA	1								D1	35
		GROUP 55 - PUMPS												
A F R		PUMP ASSEMBLY A000M36 (78086)		EA	1								4-1	
A F R		PUMP, END A050M36 (78086)		EA	1								4-1	1
O	5310-763-8920	NUT, PLAIN, HEXAGON: FLANGE MTG MS51967-20 (96906)		EA	4								4-1	2
P O	4320-117-0806	FLANGE, SUCTION A007M36 (78086)		EA	1	*	*	*	*	*	*	4	4-1	3
P O	4320-117-0807	CHECK VALVE ASSEMBLY A006M36 (78086)		EA	1	*	2	2	*	2	2	18	4-1	4
X1		WEIGHT, CHECK VALVE A006AM36 (78086)		EA	1								4-1	5
X1		GASKET, CHECK VALVE A006CM36 (78086)		EA	1								4-1	6
X1		WEIGHT, CHECK VALVE A006BM36 (78086)		EA	1								4-1	7
X1	5310-582-5965	WASHER, LOCK MS35338-44 (96906)		EA	2								4-1	8
X1	5305-068-0502	SCREW, CAP, HEXAGON HEAD MS90725-6 (96906)		EA	2								4-1	9
F	5310-732-0558	NUT, PLAIN, HEXAGON MS51967-8 (96906)		EA	2								4-1	10
F	5310-637-9541	WASHER, LOCK MS35338-46 (96906)		EA	2								4-1	11
P O	4730-203-0549	PLUG, PIPE A909M36 (78086)		EA	1	*	2	2	*	2	2	6	4-1	12
X20		ELBOW: 4 NPT, 90 DEGREES, STREET 57-613 (82666)		EA	1								4-1	13
O	5310-732-9541	NUT, PLAIN, HEXAGON: DISCHARGE FLANGE MTG, 3/8-16 THD MS51967-8 (96906)		EA	8								4-1	14

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
P O	4320-117-0808	FLANGE, DISCHARGE A008M36 (78086)	EA	1	*	*	*	*	*	*	4	4-1	15
P O	5330-121-7721	GASKET, DISCHARGE FLANGE A011M36 (78086)	EA	1	*	2	2	*	2	2	24	4-1	16
P F	5307-116-7811	STUD: DISCHARGE FLANGE MTO A904M36 (78086)	EA	16	2	2	3	2	2	3	32	4-1	17
P F	4320-117-0801	WEAR PLATE ASSEMBLY A005M36 (78086)	EA	1	*	*	2	*	*	2	9	4-1	18
P F	4320-118-5190	IMPELLER A002M36 (78086)	EA	1	*	*	2	*	*	2	6	4-1	19
P F	5340-116-1556	SHIM SET, IMPELLER, ADJUSTING A907M36 (78086)	EA	1	2	2	2	2	2	2	24	4-1	20
P F	5330-115-6330	SEAL: IMPELLER SHAFT BP171 (71724)	EA	1	*	2	2	*	2	2	24	4-1	22
P F	5330-116-7735	GASKET, HOUSING A010M36 (78086)	EA	1	*	*	2	*	*	2	9	4-1	24
P F	4320-117-0809	PLATE, SEAL A009M36 (78086)	EA	1	*	*	*	*	*	*	5	4-1	25
P F	5340-116-1520	SLEEVE, SHAFT A003M36 (78086)	EA	1	*	2	2	*	2	2	12	4-1	26
P O	5307-116-7812	STUD: INTAKE, FLANGE MTO A905M36 (78086)	EA	4	*	2	2	*	2	2	12	4-1	27
P F	4320-117-0800	VOLUTE A001M36 (78086)	EA	1	*	*	*	*	*	*	5	4-1	28
P O	4730-287-0019	PLUG, PIPE: DRAIN A908M36 (78086)	EA	1	*	*	2	*	*	2	6	4-1	29
AFF R		INTERMEDIATE ASSEMBLY A100M36 (78086)	EA	1								4-1	30
P F	4320-117-0810	HOUSING, INTERMEDIATE A101M36 (78086)	EA	1	*	*	*	*	*	*	4	4-1	31
X2F		SEAL MS51001-19 (96906)	EA	2								4-1	32
P O	4730-289-8228	PLUG B201CM36 (78086)	EA	1	*	*	2	*	*	2	6	4-1	33
P F	5340-803-9978	RING, SNAP 5100-137 (79136)	EA	2	*	2	2	*	2	2	12	4-1	34
X2F	3110-018-4684	BEARING ND5307W (43334)	EA	1								4-1	35
P F	3110-116-5787	RETAINER, BEARING A104M36 (78086)	EA	1	*	2	2	*	2	2	12	4-1	36
P F	5340-081-1376	RING, SNAP M5002-315 (79136)	EA	1	*	2	2	*	2	2	12	4-1	37
P F	4320-117-0814	SHAFT, IMPELLER A103M36 (78086)	EA	1	*	*	2	*	*	2	9	4-1	38
P F	4320-117-0815	COUPLING ASSEMBLY, SPLINE A200M36 (78086)	EA	1	*	*	2	*	*	2	6	4-1	39
F		SCREW, CAP MS35763-19 (96906)	EA	4								4-1	40
F	5310-407-9566	WASHER, LOCK MS35338-26 (96906)	EA	4								4-1	41
X1		COUPLING, SPLINE A201M36 (78086)	EA	1								4-1	42
P F	5310-143-6370	BUSHING, PILOT A202M36 (78086)	EA	1	*	*	2	*	*	2	9	4-1	43
F	5310-732-0558	NUT, PLAIN, HEXAGON: SEAL PLATE MTO MS1967-8 (96906)	EA	8								4-1	44

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION  REF NUMBER & MFR CODE	(4) USABLE ON CODE	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1-YR ALW PER 100 EQUIP CNTGY	(9) ILLUS- TRATION	
					(a)	(b)	(c)	(a)	(b)	(c)		(a)	(b)
					1-20	21-50	51-100	1-20	21-50	51-100		FIG. NO.	ITEM NO.
P F	4320-117-0813	GUARD, INTERMEDIATE C101M36 (78086)	EA	1	*	*	*	*	*	*	4	4-1	45
F	5306-225-8504	BOLT, MACHINE: GUARD MTR MS90725-40 (96906)	EA	8								4-1	46
F	5310-407-9566	WASHER, LOCK: GUARD MTR MS35338-26 (96906)	EA	8								4-1	47
F	5305-016-6117	SCREW, CAP, HEXAGON HEAD: PUMP MTR MS90725-113 (96906)	EA	2								D1	23
F	5310-209-5116	WASHER, LOCK: PUMP MTR MS35335-37 (96906)	EA	4								D1	24
F	5310-768-0318	NUT, PLAIN, HEXAGON: PUMP MTR MS51967-14 (96906)	EA	2								D1	25

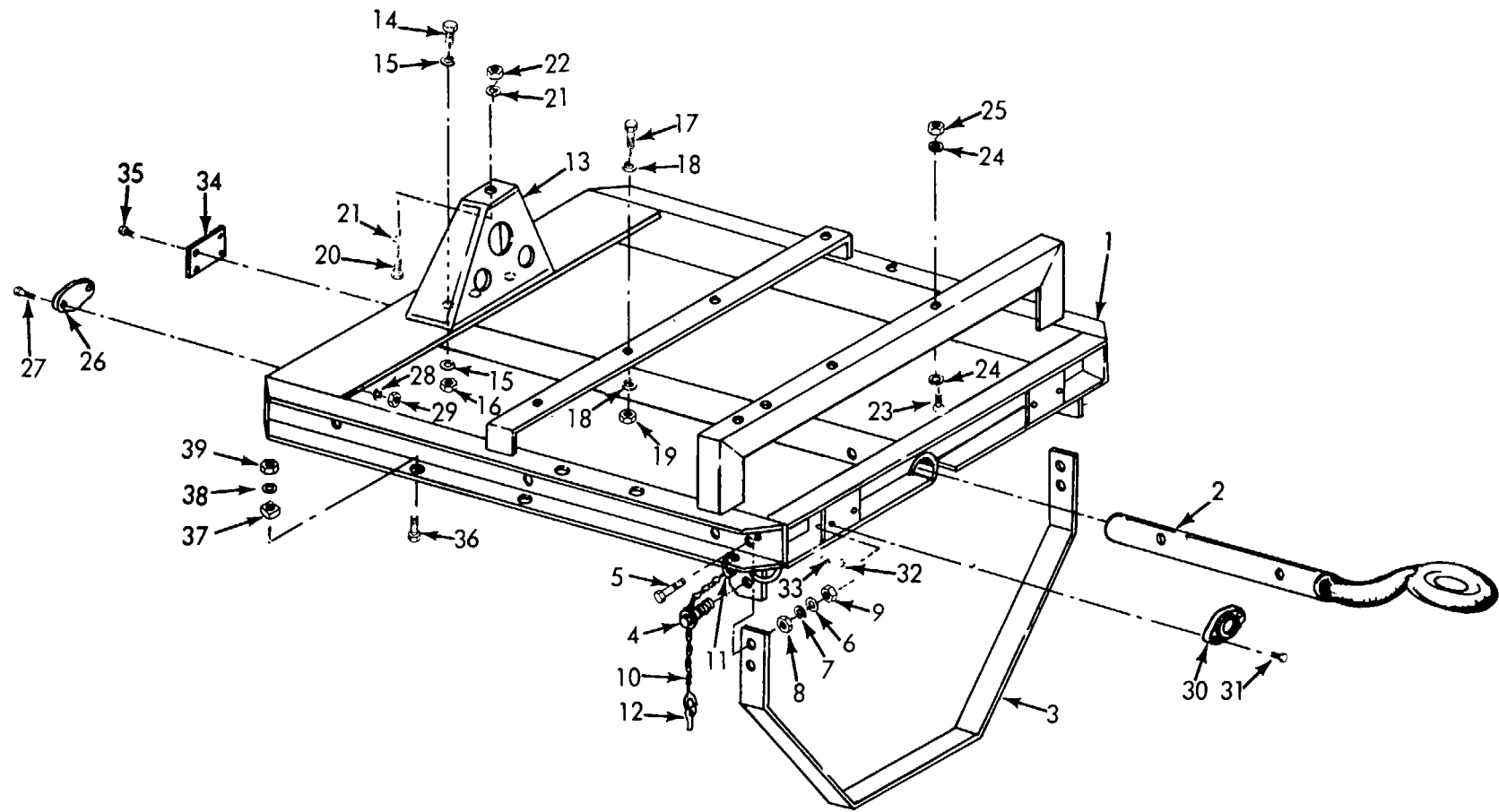


FIGURE D-1

SECTION VII. INDEX - FEDERAL STOCK NUMBER AND REFERENCE NUMBER  
 CROSS - REFERENCE TO FIGURE AND ITEM NUMBER

<u>REFERENCE NO.</u>	<u>MFR CODE</u>	<u>FIG. NO</u>	<u>ITEM NO</u>	<u>REFERENCE NO</u>	<u>MFR. CODE</u>	<u>FIG. NO</u>	<u>ITEM NO.</u>
AN116930	88044	3-5	3	MS35338-42	96906	D1	32
A000M36	78086	4-1		MS35338-44	96906	D1	28
A00136	78086	4-1	28			4-1	8
A002M36	78086	4-1	19	MS353386-46	96906	D1	15
A003M36	78086	4-1	26			D1	18
A005M36	78086	4-1	18			3-7	6
A006AM36	78086	4-1	5			3-7	12
A006BM36	78086	4-1	7			3-7	15
A006CM36	78086	4-1	6			3-7	18
A006M36	78086	4-1	4			3-8	3
A007M36	78086	4-1	3			3-9	16
A008M36	78086	4-1	15			3-12	2
A009M36	78086	4-1	25			3-12	17
A010M36	78086	4-1	24			4-1	11
A011M36	78086	4-1	16	MS35338-48	96906	D1	38
A050M36	78086	4-1	1	MS35338-50	96906	D1	6
A100M36	78086	4-1	30			3-10	4
A101M36	78086	4-1	31			3-10	7
A103M36	78086	4-1	38	MS35387-1	96906	D1	26
A104M36	78086	4-1	36	MS35387-2	96906	D1	30
A200M36	78086	4-1	39	MS35388-93	96906	3-12	32
A201M36	78086	4-1	42	MS35392-8	96906	3-12	33
A202M36	78086	4-1	43	MS35425-42	96906	3-7	5
A904M36	78086	4-1	17	MS35643-1	96906	3-9	3
A905M36	78086	4-1	27	MS35644-1	96906	3-9	4
A907M36	78086	4-1	20	MS35645-1	96906	3-9	2
A908M36	78086	4-1	29	MS35649-82	96906	3-7	4
A909M36	78086	4-1	12	MS3591-33	96906	3-10	11
A910M36	78086	3-9	5	MS35763-19	96906	4-1	40
BP171	71724	4-1	22	MS35932-2	96906	3-9	7
B000M36	78086	D1		MS51001-19	96906	4-1	32
B001M36	78086	D1	1	MS51020-21	96906	3-12	15
B002M36	78086	D1	2	MS51967-14	96906	D1	19
B003AM36	78086	D1	10			D1	22
B003BM36	78086	D1	11			D1	25
B003M36	78086	D1	4			D1	39
B006M36	78086	D1	13			3-10	10
B009M36	78086	D1	3	MS51967-2	96906	D1	29
B101M36	78086	3-10	1			D1	33
B102M36	78086	3-10	2	MS51967-20	96906	D1	9
B103M36	78086	3-10	9			3-10	5
B201CM36	78086	4-1	33			3-10	8
B201M36	78086	3-9	1			4-1	3
B202M36	78086	3-9	13	MS51967-8	96906	D1	16
B203M36	78086	3-9	14		96906	3-7	13
B204M36	78086	3-9	12			3-7	16
B205M36	78086	3-9	6			3-7	19
B207M36	78086	3-9	8			3-8	2
B301M36	78086	3-7	8			3-9	17
B302M36	78086	3-7	1			3-12	16
B303M36	78086	3-7	20			4-1	10
B305M36	78086	3-7	9			4-1	14
B306M36	78086	3-7	7			4-1	44
B400M36	78086			MS90725-113	96906	D1	20
B402AM36	78086	3-12	12			D1	23
B402M36	78086	3-12	28			D1	36
B500M36	78086	3-5		MS90725-162	96906	3-10	6
B501M36	78086	3-5	1	MS90725-164	96906	3-10	3
B502M36	78086	3-5	5	MS90725-165	96906	D1	5
B907M36	78086	D1	37	MS90725-40	96906	4-1	46
B909M36	78086	D1	8	MS90725-6	96906	D1	27
B915M36	78086	3-7	11		96906	D1	31
C101M36	78086	4-1	45		96906	4-1	9
C902M36	78086	3-8	6	MS90725-60	96906	3-7	17
D001M36	78086	D1	34		96906	3-12	1
D002M36	78086	3-7	2	MS90725-62	96906	3-10	14
D901M36	78086	D1	35		96906	D1	17
K33995	33116	3-12	31		96906	D1	14
L2-36-10-1	99024	3-12	26		96906	3-9	15
MILB542312TYPE	81349	3-5	10	MS90725-67	96906	3-8	4
MILSTDMDL4A084111	97403			ND5307W	4334	4-1	35
MS19081-58	96906	3-12	11	N5002-315	79136	4-1	37
MS21044N06	96906	3-5	4	P562	28520	3-5	8
MS24629-23	96906	3-5	6	T9726	786700	3-8	1
MS27183-21	96906	D1	7	U54HN	48873	3-7	10
MS35206-243	96906	3-7	3	13216E8336	97403	3-12	18
MS35335-37	96906	D1	21	2N574-2N575	00501	D1	12
		D1	24	216PS4-2	45681	3-9	9
MS35338-26	96906	4-1	41	5CTX5	45681	3-9	11
		4-1	47	500AM36	78086	3-5	2

**SECTION VII. INDEX - FEDERAL STOCK NUMBER AND REFERENCE NUMBER  
CROSS - REFERENCE TO FIGURE AND ITEM NUMBER**

<u>REFERENCE NO.</u>	<u>MFR CODE</u>	<u>FIG. NO</u>	<u>ITEM NO</u>
505w	57733	3-5	9
5100-137	79135	4-1	34
5218k4	79150	3-8	5
57-613	82666	4-1	13
5829	31356	3-5	13
5830	31356	3-5	12
59230	31356	3-5	11
68643	99024	3-12	30
69-030	99024	3-12	21
69-499	99024	3-12	24
69-500	90024	3-12	25
72-801	99024	3-12	23
72-802	99024	3-12	20
72-823	99024	3-12	22
72-824	99024	3-12	19
7328368	19206	3-12	19
7328369	19203	3-12	29
7371106	00000	3-12	5
		3-12	7
7371109	00000	3-12	4
7696520	00000	3-12	8
7696521	00000	3-12	6
7735821	00000	3-12	3
811532	57733	3-5	14



**SECTION VII. INDEX - FEDERAL STOCK NUMBER AND REFERENCE NUMBER  
CROSS - REFERENCE TO FIGURE AND ITEM NUMBER**

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
1055-033-6209	3-12	3	5310-523-2404	3-12	29
1450-945-7878	3-12	31	5310-523-2405	3-12	27
2530-019-8657	3-12	22	5310-558-2994	3-7	4
2530-019-8658	3-12	19	5310-582-5965	D1	28
2530-119-9874	3-12		26	D1	32
2530-133-0788				4-1	8
2530-133-0789	3-12	28	5310-584-5272	D1	38
2530-133-0791	3-12	12		D1	15
2530-656-7539	3-12	20		D1	18
2530-656-7540	3-12	23		3-7	6
2530-656-7542	3-12	21		3-7	12
2530-737-1109	3-12	4		3-7	15
2540-119-0660	D1	2		3-7	18
2590-119-3836	D1	3		3-8	3
2610-269-7332	3-12	33		3-9	16
2610-678-1303	3-12	32		3-12	2
3805-118-5405	D1	13		3-12	17
2805-872-5972				4-1	11
2910-132-4730	3-9	12	5310-724-5910	3-10	6
2910-132-4731	3-9	1	5310-732-0558	D1	16
2910-141-9758	3-9	2		D1	19
2910-893-2592	3-9	4		3-7	13
2990-132-4729	3-8	1		3-7	16
3110-018-4684	4-1	35		3-7	19
3110-116-5787	4-1	36		3-8	2
3100-183-9946	3-12	11		3-7	17
4110-116-4124	D1	4		3-12	16
4320-116-6821	3-5	5		4-1	10
4320-117-0793	3-5			4-1	44
4320-117-0800	4-1	28	5310-732-9541	4-1	14-
4320-117-0801	4-1	18	5310-737-1106	3-12	5
4320-117-0806	4-1	3		3-12	7
4320-117-0807	4-1	4	5310-761-6881	D1	29
4320-117-0808	4-1	15		D1	33
4320-117-0809	4-1	25	5310-763-8920	D1	9
4320-117-0810	4-1	31		3-10	5
4320-117-0813	4-1	45		3-10	8
4320-117-0814	4-1	38		4-1	2
4320-117-0815	4-1	39	5310-768-0318	D1	22
4320-118-5190	4-1	19		D1	25
4320-119-0533	3-5	2		D1	39
4730-122-0522	3-9	8		3-10	10
4730-188-1857	3-9	6	5310-769-6520	3-12	8
4730-203-0549	4-1	12	5310-469-6521	3-12	6
4730-203-3012	3-9	11	5310-820-6653	D1	6
4730-287-00019	4-1	29		3-10	4
4730-289-8228	4-1	33		3-10	7
4730-806-9848	3-9	5	5310-823-8803	D1	7
4820-639-9224	3-9	7	5310-834-8732	3-10	11
5305-016-6417	D1	36	5310-889-2606	3-7	5
	D1	23	5330-115-6330	4-1	22
5305-042-6417	D1	20	5330-116-1549	3-8	5
5305-051-0827	3-10	3	5330-116-1558	3-8	6
5305-068-0502	D1	27	5330-116-7735	4-1	24
	D1	31	5330-121-7721	4-1	16
	4-1	9	5330-684-7851	3-9	3
5305-119-1640	3-7	11	5340-081-1376	4-1	37
5305-253-5614	D1	3	5-5340-115-6331	D1	12
5305-269-3211	3-7	17	5340-116-1519	D1	8
	3-12	1	5340-116-1520	4-1	26
5305-269-3213	D1	14	5340-116-1556	4-1	20
	D1	17	5340-116-1557	D1	37
	3-7	14	5340-246-6568	3-12	24
	3-9	15	5340-656-7541	3-12	25
5305-269-3217	3-8	4	5340-803-9978	4-1	34
5305-637-8163	3-5	3	5930-246-8626	3-5	10
5305-727-3804	D1	5	5930-655-1521	3-5	13
5305-855-0972	3-5	6	5930-655-1522	3-5	12
5305-984-6191	3-7	3	5930-655-1582	3-5	11
5306-225-8504	4-1	46	6140-059-3528	3-7	10
5307-116-7811	4-1	17	6140-119-0952	3-7	20
5307-116-7812	4-1	27	6140-129-5852	3-7	7
5310-081-8087	3-5	4	6140-129-5853	3-7	1
5310-143-6370	4-1	43	6620-514-5492	3-5	9
5310-209-5116	D1	21	6680-125-8541	3-5	14
	D1	24	9905-202-3639	D1	30
5310-407-9566	4-1	41	9905-205-2795	D1	26
	4-1	47			

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