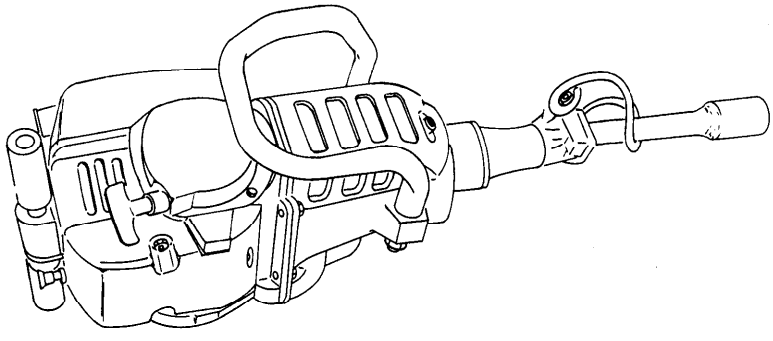
TECHNICAL MANUAL

OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



BREAKER, PAVING
MODEL 180-II
NSN 3820-01-326-7997

HEADQUARTERS, DEPARTMENT OF THE ARMY
11 FEBRUARY 1992

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas and when breathed deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or DEATH can result from severe exposure.

The following precautions MUST be followed to ensure personnel are safe whenever personnel heater or main or auxiliary engine is operated for any purpose.

- DO NOT operate paving breaker in an enclosed area without adequate ventilation.
- BE ALERT at all times during operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY EVACUATE AND VENTILATE the area. Affected personnel treatment shall be: expose to fresh air; keep warm, DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration as described in FM 12-11 and get medical attention.
- BE AWARE, neither the gas particulate filter unit nor field protection mask for nuclear-biological-chemical protection will protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.
- Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
- Clean fuel tank to purge any flammable liquid or vapors before welding, grinding, or using any heat producing device near the fuel tank.
- Post signs that read: "NO SMOKING WITHIN 50 FEET OF VEHICLES" when working with open fuel, fuel lines or fuel tanks.

WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501. Hearing loss occurs gradually but becomes permanent over time.

WARNING

NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

WARNING

The exhaust manifold can become hot during operation. Be careful not to touch the exhaust system, or allow body to come into contact with exhaust system. Exhaust system parts can become hot enough to cause serious burns

WARNING

Compressed air used for cleaning purposes with not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc.).

CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 4 May 1993

OPERATOR'S, UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

BREAKER, PAVING
MODEL 180-II
NSN 3820-01-326-7997

Current as of 8 December 1992

TM 5-3820-246-14&P, dated 11 February 1992, is changed as follows:

1. Remove old pages and insert new pages.
2. New or changed material is indicated by an asterisk or by a vertical bar in the margin of the page.

Remove Pages	Insert Pages
i and *ii*	*i and ii*
1-7 and 1-8	*1-7 and 1-8*
C-1 through C-5/(C-6 blank)	*C-1 through C-5/(C-6* blank)
F-1 through Figure 4	*F-1 through Figure 4*
6-1 through Figure 9	*6-1 through Figure 9*
10-1 through Figure 74	*10-1 through Figure 14*
15-1 through 16-1	*15-1 through 16-1*
I-1 through I-13	*I-1 through I-13*

3. File this change sheet in front of the publication for reference purposes.

Approved for public release; distribution is unlimited.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
04151

Distribution:

To be distributed in accordance with DA Form 12-25-E, Block 0509, requirements for TM 5-3820-246-14&P.

TECHNICAL MANUAL
No. 5-3820-246-l4&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., *11 February 1992*

OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS)

FOR

BREAKER, PAVING (3820-01-326-7997)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS.

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual, direct to: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

TABLE OF CONTENTS

Approved for public release; distribution is unlimited.

TABLE OF CONTENTS (CONT)

HOW TO USE THIS MANUAL

This manual is designed to help operate and maintain the Paving Breaker, NSN 3820-01-326-7997. Listed below are some of the special features that have been included to help locate and use the needed information.

A front cover Table of Contents is provided for quick reference to chapters and appendixes that will be used often.

Warning, caution and note headings, subject headings, and certain other essential information are printed in bold type to make them easier to see.

The maintenance tasks describe what must be done to the Paving Breaker before starting the task, and what must be done to return the Paving Breaker to operating condition after the task is finished.

The appendixes are located at the end of the manual. They contain a reference guide to other manuals, guidelines to reading the Maintenance Allocation Chart (MAC), a list of expendable supplies and materials, and other material for maintaining the Paving Breaker.

In addition to text, there are exploded-view illustrations showing you how to take the part off and to put it on. Cleaning and inspection procedures are also included, when required.

Chapters 1 and 2 of this manual are directed at the operator of the Paving Breaker. These chapters include an overall description of the Paving Breaker and discuss the controls and indicators, their location and use, instructions for operation of the Paving Breaker under different circumstances, and operator preventive maintenance checks and services.

Chapter 3 of this manual covers operator lubrication, basic troubleshooting, and operator maintenance.

Chapter 4 of this manual covers unit maintenance including troubleshooting and maintenance procedures.

Chapter 5 of this manual covers direct support maintenance including troubleshooting and maintenance procedures.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL

The operator must read through this manual and become familiar with the contents before attempting to operate the Paving Breaker.

Read all WARNINGS and CAUTIONS before performing any procedure.

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1 -1 . S C O P E.

This manual is an Operator's, Unit, and Direct Support Manual (including Repair Parts and Special Tools List) which provides operation, maintenance, and parts ordering information for the model 180-11 self-contained, gasoline-powered Paving Breaker (See Figure l-l and l-2) made by Skidril, Inc., Dorval, Quebec, Canada. The Paving Breaker is intended for use in all types of drilling small diameter holes in asphalt, concrete, and rock; driving stakes; breaking up asphalt and concrete; and tamping base soil.

The Paving Breaker described herein contains metric components and requires metric common tools; therefore, metric units in addition to English units will be used throughout this publication.

Repair procedures for the Paving Breaker are for use by MOS 62B Construction Equipment Repairer personnel.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Refer to TM 750-244-6, Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command).

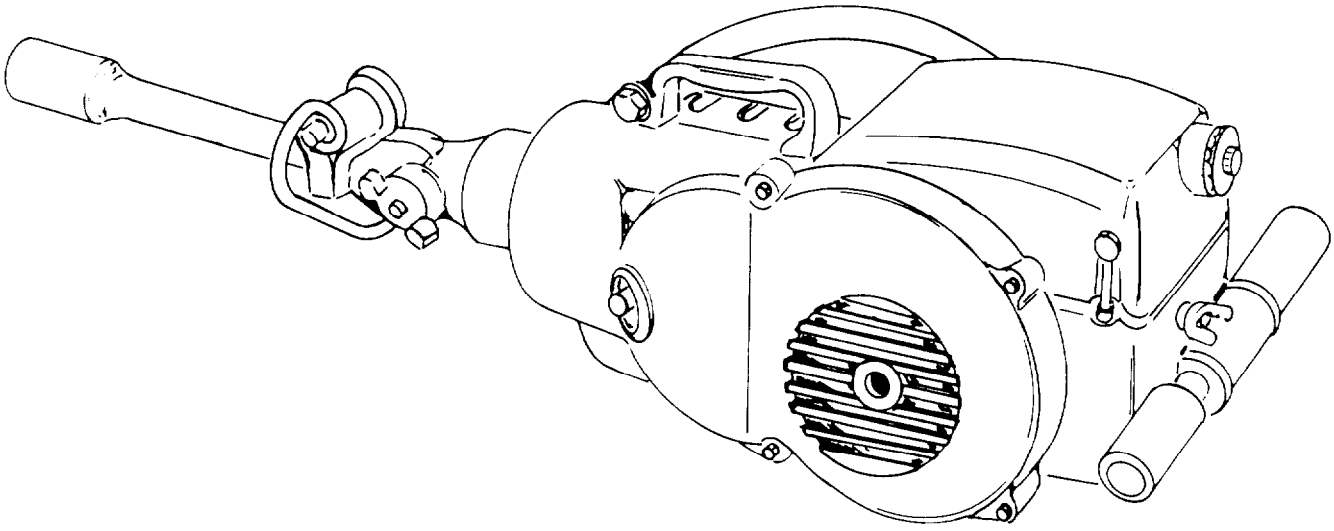


Figure 1-1. Paving Breaker, Flywheel View

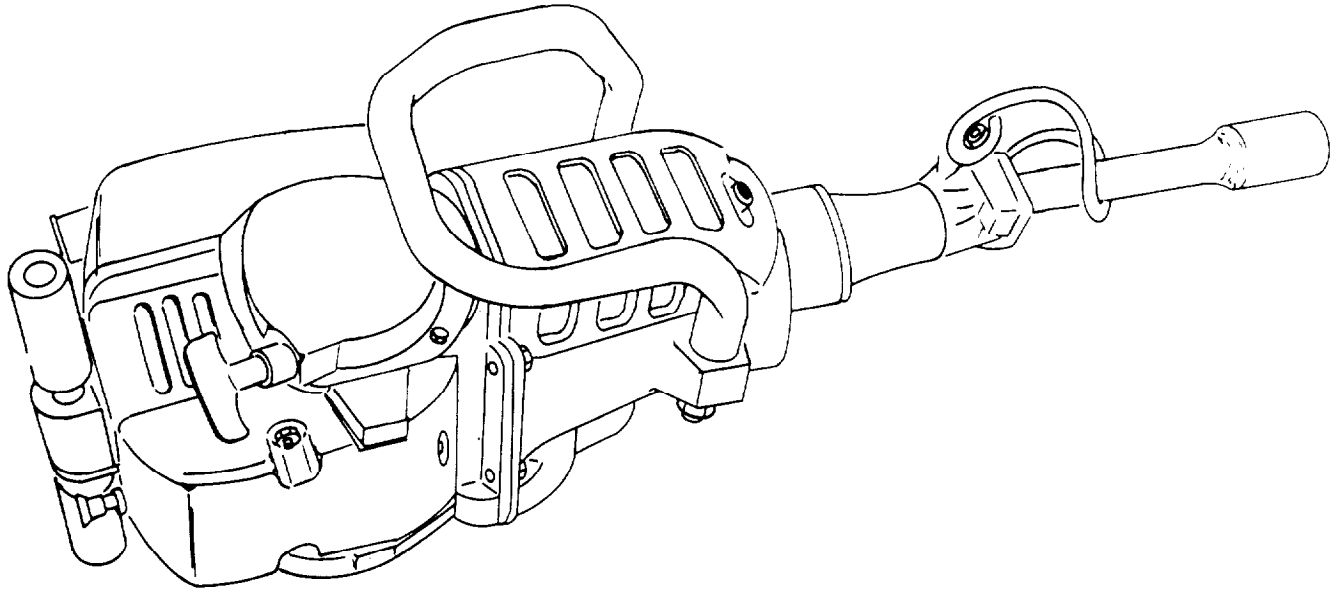


Figure 1-2. Paving Breaker, Starter View

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your Paving Breaker needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF368 (Product Quality Deficiency Report). Mail it to us at US Army TACOM, AMSTA-QRT, Warren, MI 48397-5000. We'll send you a reply.

1-5. PREPARATION FOR STORAGE OR SHIPMENT.

a. Remove fuel from fuel tank (para 3-5). Allow engine to run until fuel in fuel line is exhausted.

b. Clean entire exterior of machine (para 3-4).

c. Place machine with fuel tank facing upward in storage box.

1-6. NOMENCLATURE CROSS-REFERENCE LIST.

Not applicable.

1-7. LIST OF ABBREVIATIONS.

All abbreviations used in this manual conform to MIL STD-12 and its amendments.

AAL ..... Additional Authorization List
BII ..... Basic Issue Item
cm ..... Centimeter
COEI ..... Components of End Item
CTA ..... Common Table of Allowance
cu in ..... Cubic Inch
CCW ..... Counterclockwise
CW ..... Clockwise
DA ..... Department of the Army
dB ..... Decibels
DoD ..... Department of Defense
DECON ..... Decontamination
DS ..... Direct Support
EIR ..... Equipment Improvement Recommendation
ft ..... Foot
gal ..... Gallon
in. ..... Inch
Kg ..... Kilogram
kPa ..... Kilopascal
L ..... Liter
lb ..... Pound
lb-ft ..... Pound-foot
lb-in ..... Pound-inch
M ..... Meter

1-7. LIST OF ABBREVIATIONS (CONT).

MAC ..... Maintenance Allocation Chart
mm ..... Millimeter
NBC ..... Nuclear, Biological, Chemical
PMCS ..... Preventive Maintenance Checks and Services
psi ..... Pounds Per Square Inch
RPM ..... Revolutions Per Minute
RPSTL ..... Repair Parts and Special Tools List
TAMMS ..... The Army Maintenance Management System
TDA ..... Tables of Distribution and Allowance
TM ..... Technical Manual
TMDE ..... Test, Measurement, and Diagnostic Equipment
°C ..... Degree Celsius
°F ..... Degree Fahrenheit

Section II. EQUIPMENT DESCRIPTION

1-8. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Completely self-contained.

b. Gasoline powered two cycle.

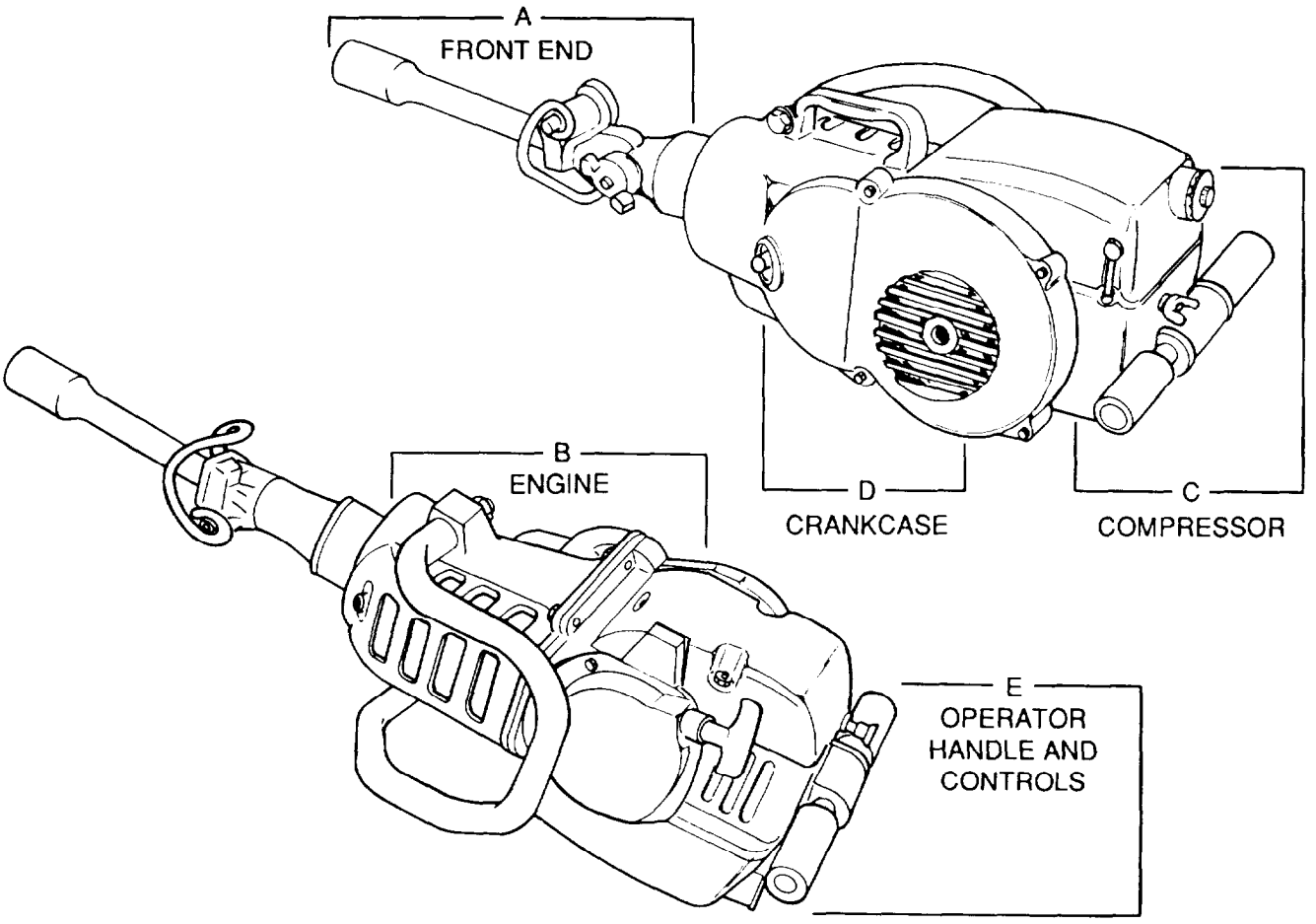
c. Easily transported.

d. Easily disassembled.

e. All weather operational.

f. Breaker and drill modes.

l-9. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



a. Front End. Transfers impact forces from engine piston to tool in impact mode. Converts engine piston impact forces in drill mode to rotary motion to turn tool. Tool retainer keeps tool secured inside the front end during use.

b. Engine. Two-cycle, single cylinder engine provides power to front end. Consists of fuel tank, carburetor, air cleaner, piston, cylinder, cylinder cover, and exhaust pipe.

c. Compressor. Provides air to blow stone chips out of hole being drilled. Consists of compressor piston, compressor cylinder, handle, and side cover.

d. Crankcase. Consists of crankshaft, flywheel, flywheel cover, starter, and bearings.

e. Operator Handle Controls. Consist of operator handle, throttle, fuel control, and fuel lank vent.

1-10 EQUIPMENT DATA.

Refer to Table l-l for Equipment Data.

Table 1-1 Equipment Data

Weights and Dimensions	
Length	28” (709 mm)
Width	14” (350 mm)
Weight	54 lbs (24 Kg)
Chucksize	7/8" x 4- 1/4" (22 x 108 cm)
Performance	
Maximum drill depth	20 ft. (6.1 M)
Drill rate (1” dia. bit in granite)	1 ft. per min. (0.3 M per min.)
Drill speed	…..250 revolutions per minute (RPM)
Maximum operation angle	…360 degrees
Impact rate	.2600 - 2800 blows per minute
Engine Specifications	
Engine displacement	11.2 Ci (187 cc)
Speed range	……2600-2800 RPM
Carburetor	..Fail safe, floatless needle valve (optional straight needle or straight diaphragm carburetor)
Ignition type	……Electronic, breakerless
Spark plug gap	…0.027-0.039 in. (0.7- 1.0 mm)
Fuel tank capacity	……..0.50 gal. (1.9 L)
Fuel mixture	….16 parts 80 or higher octane, leaded or unleaded gasoline and 1 part OE/HDO 40, MIL-L-2104 motor oil
Fuel Consumption	...0.47 gal. per hr. (1.8 L per hr.)

l-11. SAFETY, CARE, AND HANDLING.

a. Proper Operations and Daily Maintenance. Procedures are vital to safe, reliable use of this type of mechanical equipment.

b. NOTES, CAUTlONS, and WARNINGS. The procedures described in this manual contain **NOTES, *CAUTIONS, and WARNINGS*** that must be followed to prevent the possibility of improper usage.

c. Safety Guidelines.

(1) Do not use equipment in applications for which it is not intended.

(2) Do not use improperly trained personnel to operate equipment,

(3) Read and understand operating procedures before using equipment,

(4) Operate with safety devices in place and in working order.

(5) Do not smoke while operating machine.

(6) Do not leave machine running unattended.

(7) Be sure machine will not tip over, roll, slide, or fall while unattended.

(8) Do not refuel with engine hot or still running.

(9) Be careful not to spill fuel while refueling.

(10) Do not smoke while refueling.

(11) Do not refuel near open flame.

(12) Always wear protective clothing when operating (hard hats, eye protection, ear protectors, safety boots, and gloves).

(13) Always keep hands, feet, and clothing clear of moving parts.

(14) Perform maintenance checks as required per the PMCS Schedule.

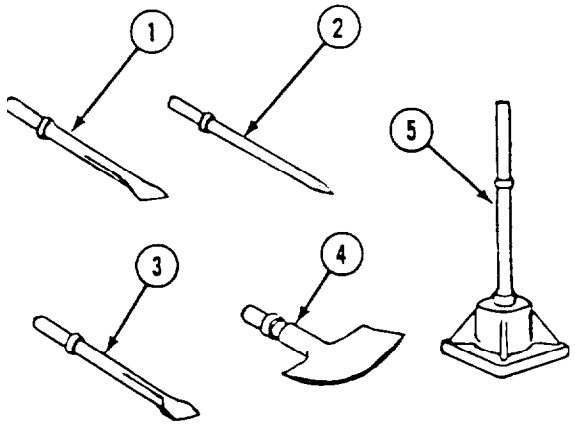
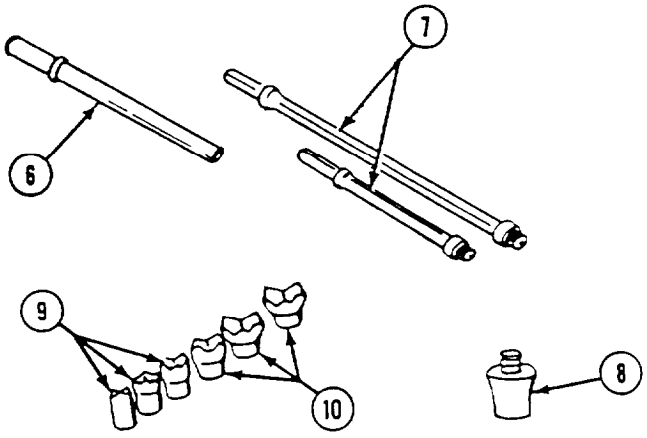
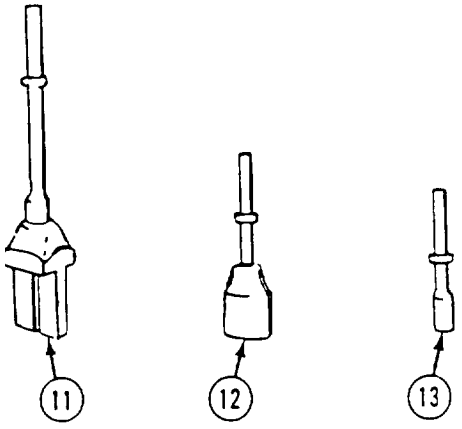
(15) If traveling a long distance between use of equipment, remove all fuel from fuel tank.

(16) Always handle with extreme care and follow all operating procedures as listed in this manual.

l-12. EQUIPMENT CONFIGURATION.

Refer to Table 1-2 for equipment configuration listings.

Table 1-2. Equipment Configuration

Item	Function	Description	Illustration
1	Breaking	*Narrow Chisel* 1 in. wide by 11 in. long.	
2		*Moil Point* 11 in. long.	
3		*Asphalt Chisel* 3 in. wide by 11 in. long.	
4		*Spade* 4 in. wide by 16 in. long.	
5	Tamping	*Tamping Rod and Pad* 6 in. long by 5 in. square.	
6	Drilling	*Integral Drill* 16 in. long (with tungsten carbide chisel insert).	
7		*Stee1 Drill Rods* lengths of 18 in., 30 in.	
8		*Adapter* "H" to "D" thread.	
9		*Detachable Rock Bits* l-1/2 in., l-5/8 in., and l-3/4 in dia. with carbide insert (with "H" thread).	
10		*Detachable Rock Bits* l-l/2 in., l-5/8 in., and l-3/4 in dia. without carbide insert (with "H" thread).	
11	Driving	*Driver Tool for U-Channel Post* 3-5/8 in. by 2 in. thick.	
12		*Stake and Pin Driver* 2 in. I.D. by 2 in. deep.	
13		*Ground* Rod Driver 1 in. I.D. by 2 in. deep.	

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-13. ENGINE OPERATION.

The engine is a two-stroke cycle engine that uses a mixture ratio 16:l of gasoline and OE/HDO 40 Oil, MIL-L-2104, (item 7, Appendix E) offering a high power output with less weight. It is reversed with the crankcase above and the engine cylinder below. The engine is directly connected to the drill/breaker.

The engine performs four functions with two strokes of the piston. On the first stroke (piston ascending), the scavenging port is replaced with a new charge from the crankcase. The exhaust port opens and exhaust flow starts. This in turn opens the scavenging port and the burned charge is removed from the power cylinder and replaced with a new charge.

On the second stroke (piston descending), a new charge (air and fuel) is taken through the carburetor and into the crankcase. With the scavenging port and the exhaust port closed, the charge in the power cylinder is compressed. It is then ignited by the spark plug and explodes at the end of the stroke.

1-14. AIR COMPRESSOR OPERATION.

The air compressor piston works in a opposing motion to the engine piston. When the engine piston is descending, the compressor piston takes in air from the air cleaner. At the descending of the engine piston, the compressor piston compresses and sends the air to a cushion chamber below the flange of the hammer piston. This step occurs when the hammer piston arrives at its original position. The air pressure keeps the hammer piston from descending before ignition. After ignition has taken place, the hammer piston impacts the drill rod. The air pressure in the cushion chamber is forced out and escapes around the drill rod clearing away stone fines.

1-15. HAMMER DRILL OPERATION.

The drill rod is rotated or driven by the hammer piston depending on the direction the selector switch is turned. In the drilling mode, the clutch wheel is locked on the ratchet wheel. This permits the clutch wheel to turn with the hammer piston which rotates the drill rod. In the hammering mode, the ratchet wheel remains attached to the lead spline of the hammer piston. The clutch wheel is unattached from the ratchet wheel, which causes the hammer piston to impact the rod only.

CHAPTER 2

OPERATING INSTRUCTIONS

Section 1 DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. INTRODUCTION.

This section shows the location and describes the use of controls and indicators used to operate the Paving Breaker.

2-2. LOCATION AND USE OF CONTROLS.

Know the location and proper use of every control before using the Paving Breaker. Refer to Table 2-1 for location and description of controls and indicators.

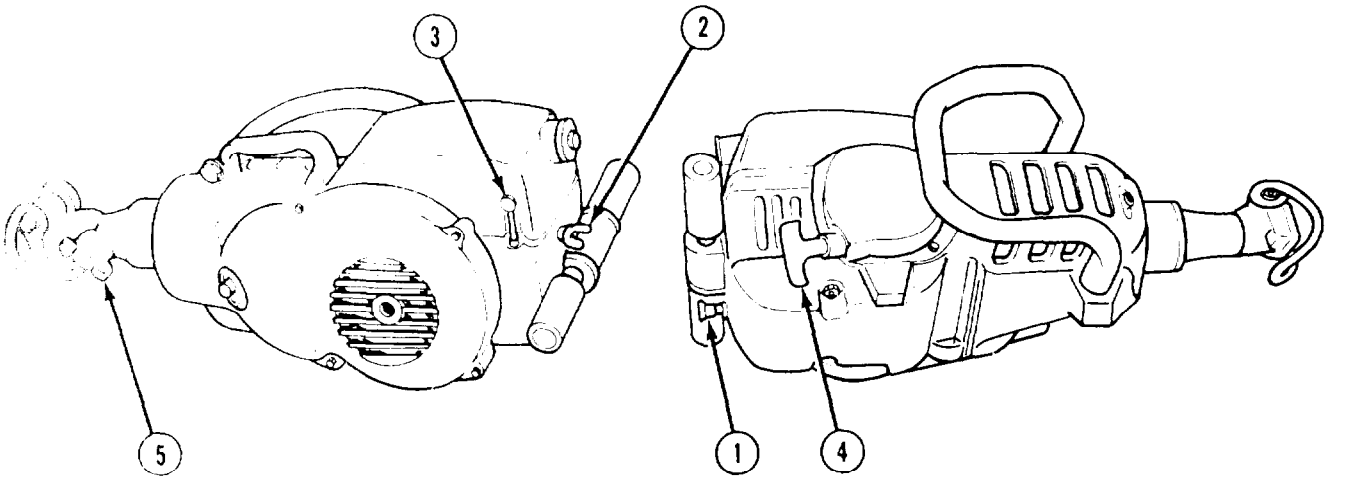


Table 2-1. Controls and Indicators

Key	Control or Indicator	Function
1	Throttle button	Press button to slow engine speed. Press button all the way in to stop engine.
2	Fuel Knob	Controls fuel to engine. Turn knob clockwise (CW) to stop, 10 shut down engine. Turn knob counterclockwise (CCW) to start engine.
3	Fuel Valve	Controls fuel flow from fuel tank. Turn valve handle CW to close valve and CCW to open valve.
4	Starter Rope	Pull rope to start engine.
5	Mode Selector	Turn selector so that "D" on selector tab is in the upright position for drill mode. Turn selector so that "B" on selector tab is in the upright position for impact (breaking) mode.

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. GENERAL.

To ensure that the Paving Breaker is ready for operation at all times, it must be inspected systematically so that defects mat be discovered and corrected before they result in serious damage or failure. Table 2-2 contains a tabulated listing of preventive maintenance checks and and services 10 be performed by the operator.

2-4. WARNINGS AND CAUTIONS.

Always observe the warnings and cautions appearing in the PMCS table. Warnings and cautions appear before applicable procedures. Warnings and cautions must be observed to prevent serious injury to yourself and others or prevent equipment from being damaged.

2-5. EXPLANATION OF TABLE ENTRIES.

a. Item Number Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that checks and services for the intervals listed must be done.

b. Interval Column. This column tells you when you must do the procedure in each procedure column. BEFORE procedures must be done before you operate or use the equipment for its intended mission. DURING procedures must be done during the time you are operating or using the equipment for its intended mission. AFTER procedures must be done immediately after you have operated or used the equipment.

c. Item to be inspected Column. This column provides the location and the item to be checked or serviced. The item location is underlined.

d. Procedure Column. This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

***e. Equipment is Not Ready/Available* if: Column.** Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If your check and service procedures show faults listed in this column, do not operate equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

f. Other Table Entries. Be sure to observe all special information and notes that appear in your table.

2-6. MAINTENANCE FORMS AND RECORDS.

The forms and records you fill out have several uses. They are a permanent record of the services, repairs and modifications made on your equipment. They are reports to unit maintenance and to your commander. They are also a checklist for you when you want to know what is wrong with the equipment after its last use and whether those faults have been fixed. For information on forms and records, see DA Pam 738-750.

2-7. PMCS INSTRUCTIONS.

a. Do your before (B) Preventive Maintenance just before you operate the unit. Pay attention to cautions and warnings.

b. Do your during (D) Preventive Maintenance during operation. (During operation means to monitor the unit while its actually being operated.)

c. Do your after (A) Preventive Maintenance right after operating the unit. Pay attention to cautions and warnings.

d. If something does not work, troubleshoot it with the instructions in this manual and notify your supervisor.

e. Always do your Preventive Maintenance in the same order so it gets to be a habit. Once you have had some practice, you'll spot anything wrong in a hurry.

f. If anything looks wrong and you can't fix it, write it on your DA Form 2404. If something is seriously wrong, report it to unit maintenance RIGHT NOW!

2-7. PMCS INSTRUCTIONS (CONT).

g. When you do your Preventive Maintenance, take the proper tools needed to make all checks. Always take clean rags with you.

h. Keep working area and tools clean. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use soap and water to clean as you work and as needed.

i. Check for loose, missing, bent or broken nuts and screws. Check for chipped paint, bare metal or rust around screw heads. Tighten loose screws or report it to unit maintenance if you are unable to tighten it.

i- Check for loose or chipped paint, rust or gaps where parts are welded together. Report bad welds to unit maintenance.

k Check for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connectors. Make sure wires are in good shape.

Table 2-2. Operator Preventive Maintenance Checks and Services

NOTE: Within designated interval, these checks are to be performed in the order listed.

B - Before **D - During** **A - After**

Item No.	Interval B	Interval D	Interval A	Item to Be Inspected	**Procedure: Check for and have repaired or adjusted as necessary**	**Equipment Is Not Ready/Available** If:
1	•			Body	a. Visually check for any structural damage that impairs security or operation of unit.	Unit is structurally damaged.
	•				b. Visually check for missing or loose nuts, screws, and washers. Tighten as necessary.	
2	•	•		Fuel System	Visually check for cracks, leaks, or dents in visible fuel components.	Any leakage of fuel is noted.
3	•	•		Front End Assembly	a. Install tool and operate tool holder to ensure it holds tools properly.	Tool holder not holding tool properly.
		•			b. Operate check mode selector to ensure it stays in the selected mode position.	Mode selector not staying in selected position.
					c. Install tool and try to rotate tool shaft CCW (as viewed from drive end).	Rod can be turned CCW.

Table 2-2. Operator Preventive Maintenance Checks and Services - CONT.

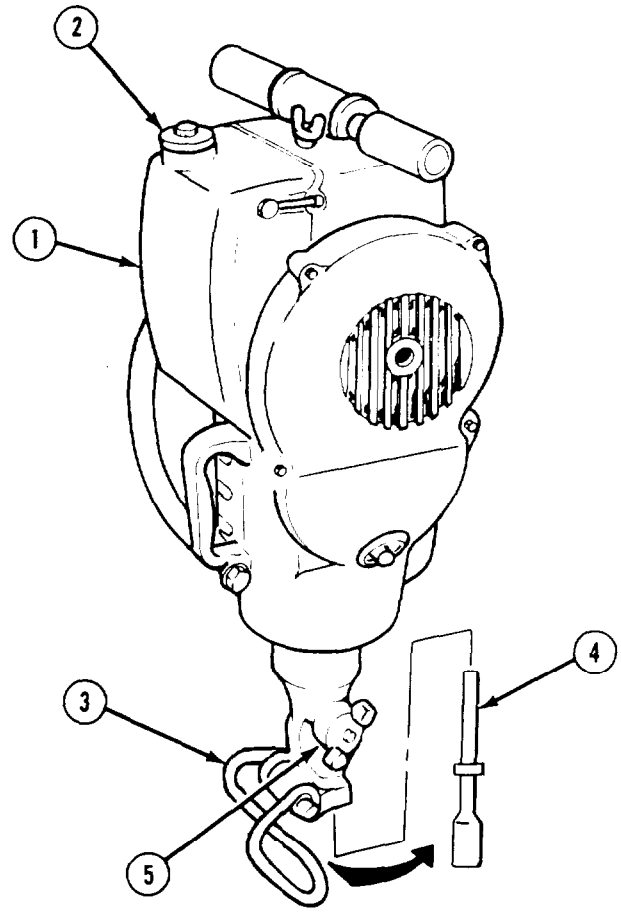
NOTE: Within designated interval, these checks are to be performed in the order listed.

B - Before **D - During** **A - After**

Item No.	Interval B	Interval D	Interval A	Item to Be Inspected	Procedure: Check for and have repaired or adjusted as necessary	Equipment Is Not Ready/Available If:
4	•			Starter	Check starter for proper operation.	Starter does not turn over motor or fully retract.
5		•		Controls	Check throttle button for proper operation. Engine should stop when throttle button is pushed in all the way. **WARNING** NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.	Throttle button does not operate properly.
6	•			Air Cleaner	Clean before each use according to para 2-12.	Air cleaner is missing or damaged.

Section III. OPERATION IN USUAL CONDITIONS

2-8. PREPARATION FOR USE.



a. ***Perform Operator PMCS.*** Perform operator PMCS per para 2-7.

b. ***Fill Fuel Tank.*** Fill fuel tank (1) with the proper fuel/oil mixture:

(1) In a suitable container near Paving Breaker, mix 16 parts 80 or higher octane, leaded or unleaded gasoline and 1 part OE/HDO 40, MIL-L-2104 motor oil (item 7, Appendix E).

(2) Remove fuel tank cap (2) and add proper fuel mixture to fuel tank (1).

c. Install Tool.

(1) Rotate tool holder (3) downward.

(2) Insert tool (4) in chuck.

(3) Rotate tool holder (3) upward. Make sure tool holder engages with flared part of tool shaft.

CAUTION

- Do not operate Paving Breaker with mode selector in an intermediate setting.
- Do not turn mode selector with engine running.

d. Select Operation Mode.

(1) For drill operation, turn selector (5) so that "D" on selector tab is in the upright position.

(2) For breaking, driving, tamping, and digging, turn selector (5) so that "B" on selector tab is in the upright position.

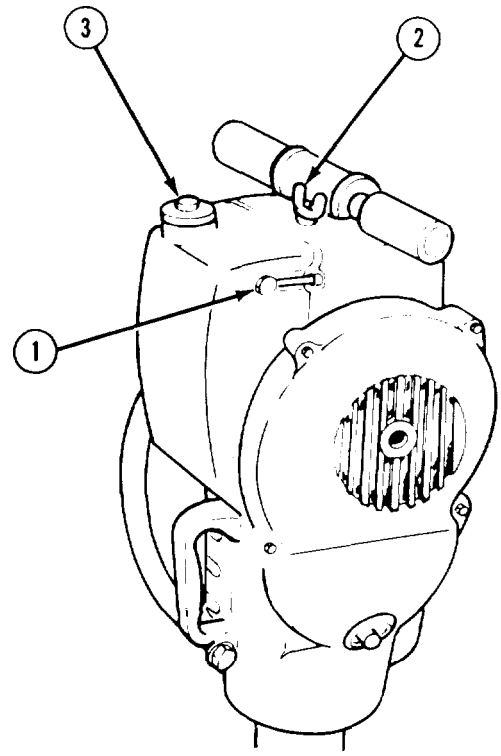
2-9. STARTING.

a. Cold Dry Machine.

(1) Open fuel valve (1).

(2) Turn fuel knob (2) fully CCW.

(3) Open fuel tank cap vent (3).



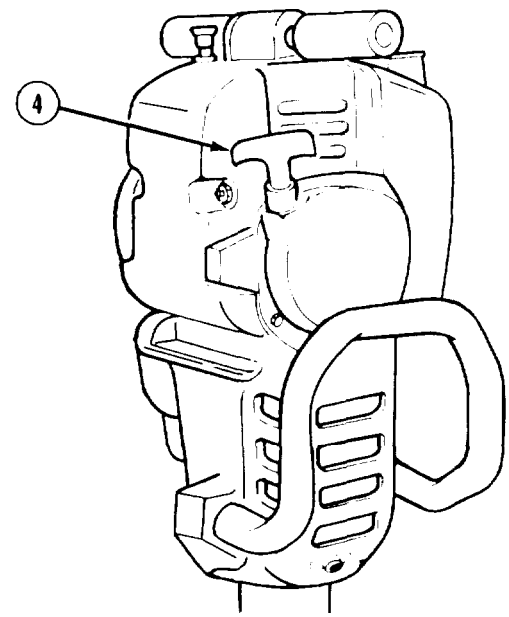
WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501. Hearing loss occurs gradually but becomes permanent over time.

NOTE

- When operating a new machine for the first time, pull the starter cord 5-10 times to prime the engine with fuel.
- Starter rope must be pulled rapidly to create adequate spark.

(4) Pull starter cord (4) until engine starts.



NOTE

Always turn fuel knob slowly when making adjustments because engine will react to new knob positions only after the previous mix has been expended.

(5) As engine runs up, turn fuel knob (2) CW until maximum speed is reached (without backfiring).

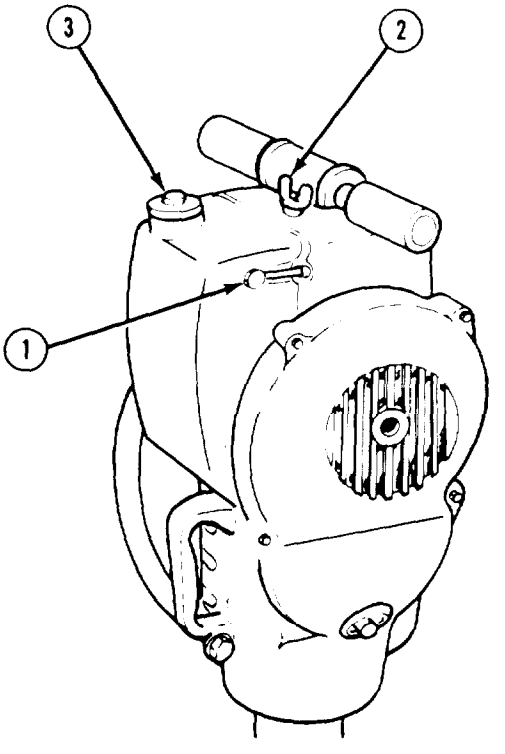
2-9. STARTING (CONT).

b. Hot Machine.

(1) Open fuel valve (1).

(2) Turn fuel knob (2) l/8 to l/4 turn CCW.

(3) Open fuel tank cap vent (3).



WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501. Hearing loss occurs gradually but becomes permanent over time.

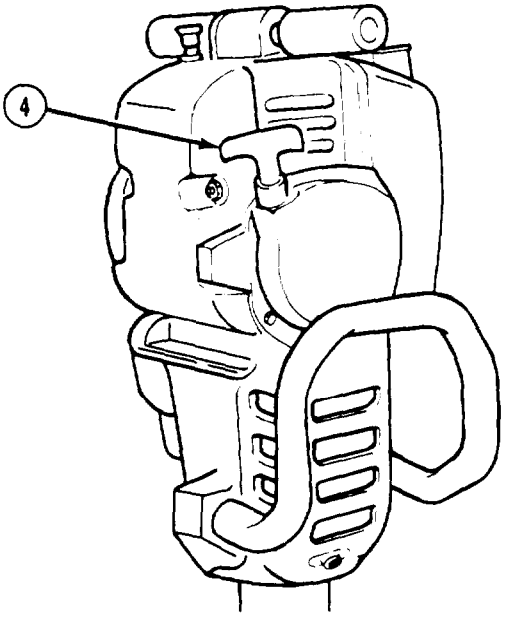
NOTE

Starter rope must be pulled rapidly to create adequate spark.

(4) Pull starter cord (4) until engine starts.

(5) If necessary, turn fuel knob (2) an extra l/8 to l/4 turn and allow engine to increase RPM.

(6) As engine runs up, turn fuel knob (2) CW until maximum speed is reached (without backfiring).



c. ***Flooded Machine.*** Check exhaust outlet for liquid. If it is wet:

(1) Turn fuel knob (1) CW to the stop (off).

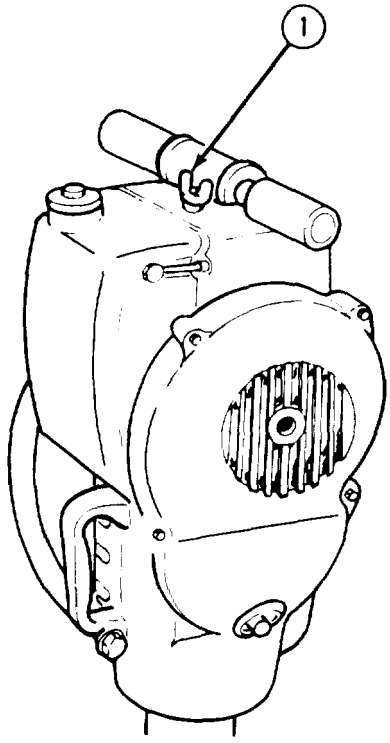
WARNING

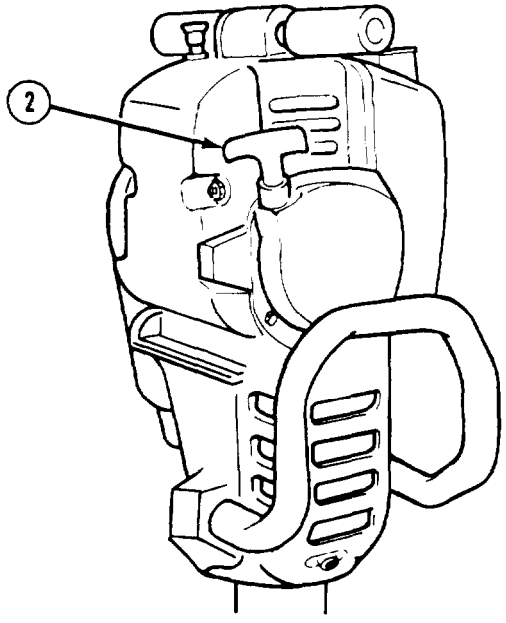
Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501. Hearing loss occurs gradually but becomes permanent over time.

(2) Pull starter cord (2) until machine runs, allow to run until all excess fuel is burnt and engine stops.

(3) Turn fuel knob (1) CCW approximately l/2 turn.

(4) Pull starter cord (2) immediately and make any final adjustments to bring the operating speed to its maximum.

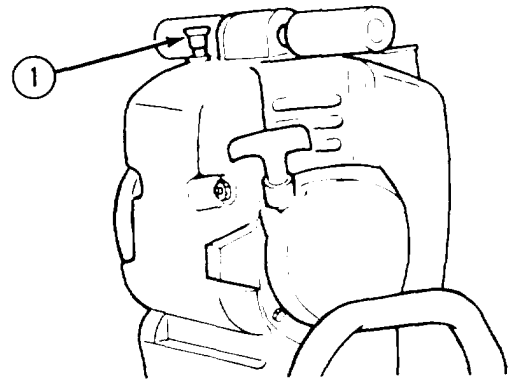




2-10. DRILLING.

WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB (A) or greater. Wear approved hearing protection devices when working in high noise level areas. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501. Hearing loss occurs gradually but becomes permanent over time.



a. To start drilling, push throttle button (1) to obtain minimum RPM for ease in making a starting hole.

b. Once drill bit is well started, release throttle button (1) to increase speed for drilling, making sure that drill does not jump out of the hole.

c. When drilling, apply moderate pressure only. Greater pressure will not increase drilling speed, and may place excessive strain on the drill rod.

d. If drill bit catches in cracks of rocks, engine speed will increase, and there will be a tendency for the body of the Paving Breaker to rotate. To free the bit, lift the Paving Breaker slightly while running or turn it off and use a wrench.

e. In soft-rock drilling, bit rotation may be impeded. Simply raise drill momentarily and continue drilling.

f. Drilling in clay will be facilitated by flushing the hole with water.

CAUTION

In extremely sandy conditions perform step g. every hour or damage may result.

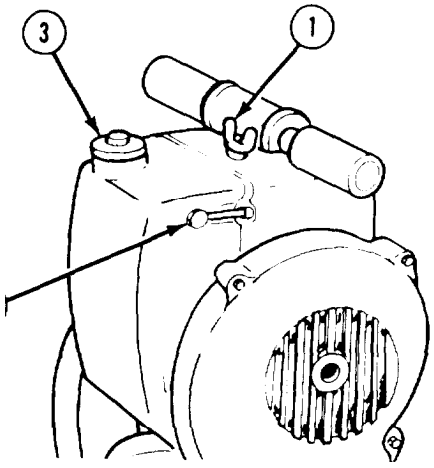
g. When drilling in sandy or dusty conditions:

(1) Do not run Paving Breaker more than 10 hours without checking fuel tank and air cleaner element for debris and cleaning as necessary (para 2-12).

(2) Clean out front end before storing.

2-11. SHUTDOWN.

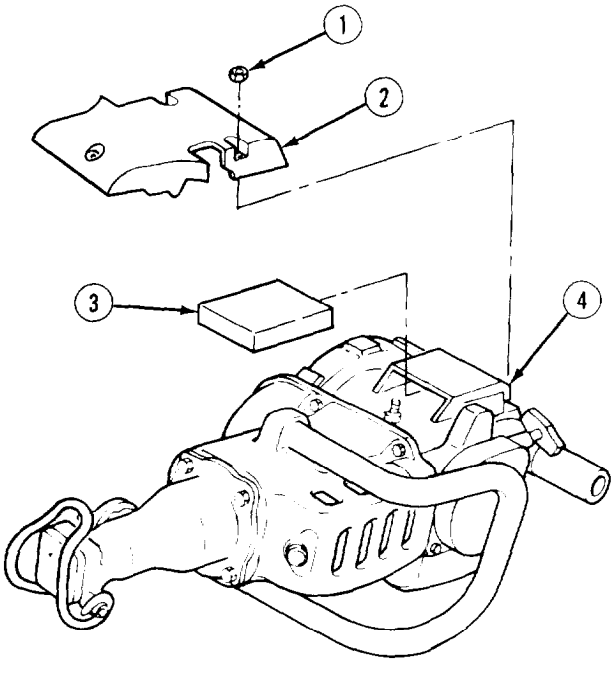
To shut down, turn fuel knob (1) fully CW, close fuel valve (2) and close fuel tank cap vent (3).



2-12. AIR CLEANER ELEMENT CLEANING.

WARNING

NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.



a. ***Removal.***

(1) Remove three nuts (1) using 10 mm wrench and cover (2).

(2) Slide filter element (3) from element ***case (4).***

2-12. AIR CLEANER ELEMENT CLEANING (CONT).

b. ***Cleaning/Inspection.***

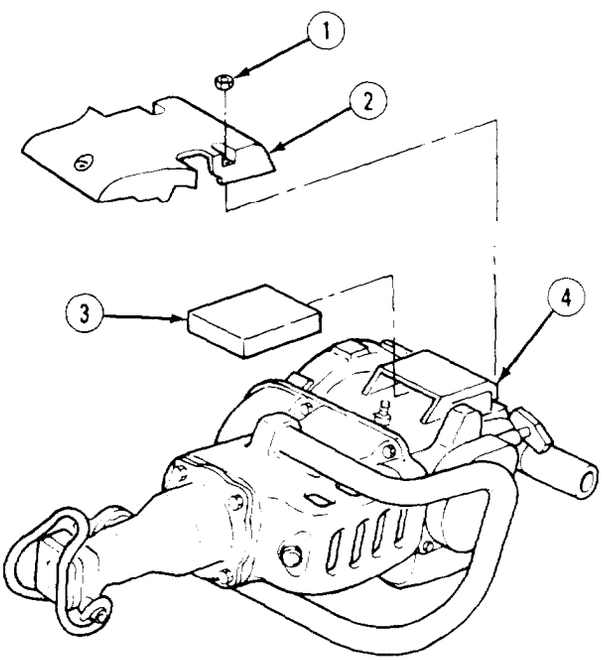
(1) Clean element (3) in soapy water (item 3, Appendix E) and wring dry by hand.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc).

(2) Completely dry element (3) with compressed air.

(3) Use a clean rag (item 8, Appendix E) to wipe any debris from element case (4).



c. ***Installation.***

(1) Lightly coat filter element (3) with oil (item 7, Appendix E).

(2) Install filter element (3) in element case (4).

(3) Install cover (2) with three nuts (1).

2-13. DECALS AND INSTRUCTION PLATES.

For information on decals and data plates refer to Figure 2-1.

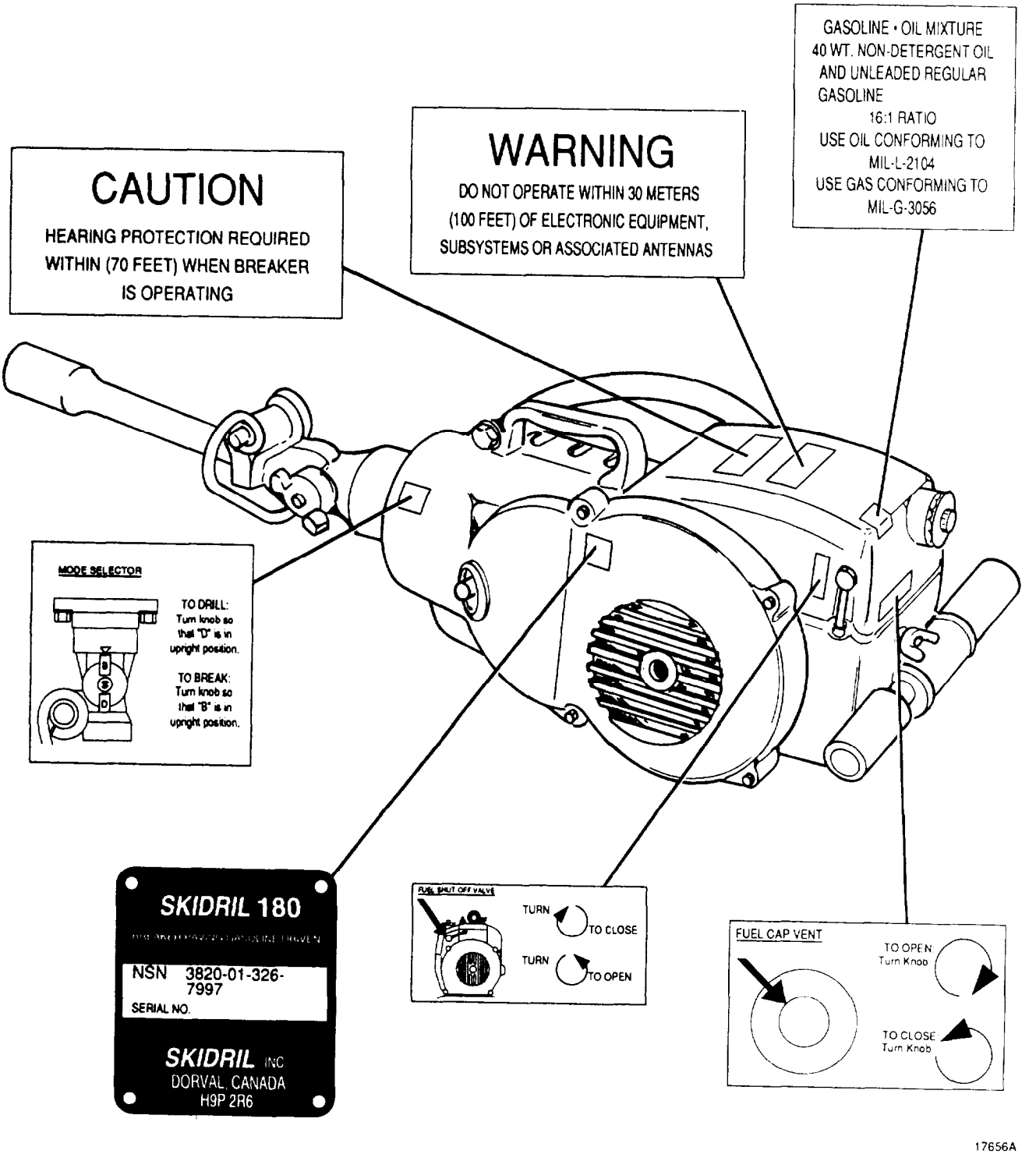


Figure 2-1 Decals and Instruction Plates (Sheet 1 of 2)

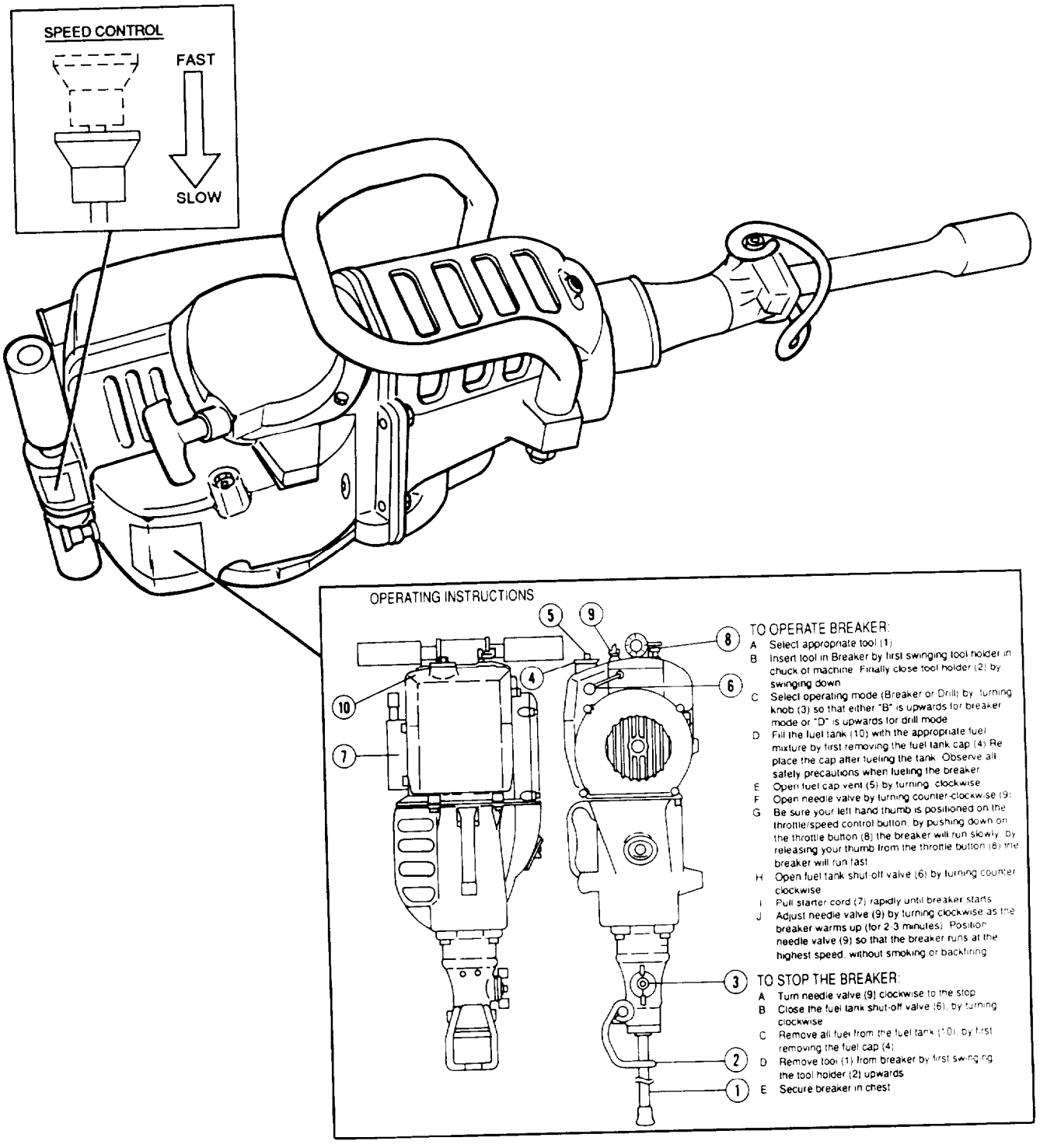
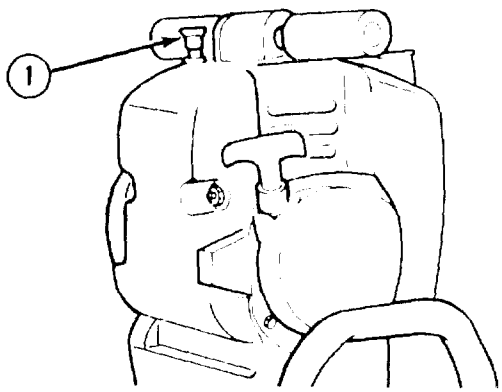


Figure 2-1. Decals and Instruction Plates (Sheet 2 of 2)

2-14. EMERGENCY PROCEDURES.

Press throttle button (1) completely down for emergency stop of engine.



2-15. NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES.

a. If an attack is known or suspected, put the NBC gas mask on immediately and continue mission. If inside, stay there if possible.

b. If outside, brush fallout from skin, clothing, and equipment with available brushes and rags before going inside. Wash skin and have a radiation check made as soon as tactical situation permits.

c. Do not unmask until told to do so.

d. Detailed DECON procedures can be found in: FM 3-87, FM 21-40, and FM 21-41.

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION

3-1. LUBRICATION INSTRUCTIONS.

a. General. Keep all lubricants in closed containers and store in a clean, dry place away from external heat. Keep container covers clean and allow no dust, dirt, or other foreign material to mix with lubricants. Keep all lubrication equipment clean and ready for use.

b. Cleaning. Keep all external parts, not requiring lubrication, free of lubricants. Before lubricating equipment, wipe all lubrication points free of dirt and grease. Clean all lubrication points after servicing to prevent accumulation of foreign matter.

c. Lubrication. The Paving Breaker is equipped with a two stroke engine which uses a gas/oil mixture for fuel. The mixture is a 16:l ratio - 16 parts gasoline to 1 part oil. Use OE/HDO 40, MIL-L-2104 oil (item 7, Appendix E). Gasoline must be 80 octane or higher and may be leaded or unleaded.

Section II. OPERATOR TROUBLESHOOTING PROCEDURES

3-2. GENERAL.

a. The troubleshooting System Symptom Index (Table 3-1) lists common malfunctions which could be found during operation of the Paving Breaker. Table 3-2 lists the malfunctions and is followed by a list of tests or inspections which will help to determine corrective action to be taken. These tests, inspections and corrective actions should be performed in the order listed. Operation of a deadline unit without a preliminary examination can cause further damage to a disabled component and possible injury to personnel. By careful inspection and troubleshooting, such damage and injury can be avoided. In addition, cause of faulty operation of a unit can often be determined without extensive disassembly.

b. This manual cannot list all malfunctions that may occur, or all tests, inspections, and corrective actions. If a malfunction is not corrected by the listed corrective actions, notify your supervisor.

3-3. TROUBLESHOOTING.

Table 3-1. System Symptom Index

Table 3-2. Operator Troubleshooting Procedures

Malfunction
Test or Inspection
Corrective Action

1. ENGINE WILL NOT START.

Step 1. Visually check fuel tank to determine if fuel is present.

Add proper fuel mixture (16 parts 80 or higher octane leaded or unleaded gasoline and 1 part OE/HDO 40, MIL-L-2104 motor oil).

Step 2. Check fuel valve to determine it is open (para 2-9).

Open fuel valve (para 2-9).

Step 3. Check fuel knob to determine it is in the on position (para 2-9).

Place fuel knob in the on position (para 2-9).

Step 4. Check fuel tank cap vent to make sure it is unclogged and open.

Open fuel tank cap vent (para 2-9).

Remove debris from fuel tank cap vent.

Step 5. Check spark plug wire to determine if it is attached to spark plug.

Attach spark plug wire to spark plug.

Table 3-2. Operator Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action
1. ENGINE WILL NOT START (CONT). **WARNING** Fuel is very flammable and can explode easily. To avoid serious injury or death: • Keep fuel away from open flame or any spark (ignition source). • Keep at least a B-C fire extinguisher within easy reach when working with fuel. • Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine. • Post signs that read: "NO SMOKING WITHIN 50 FEET OF VEHICLES" when working with open fuel or fuel tanks. Step 6. Drain fuel (para 3-5) and refill with proper fuel mixture (para 2-8b). If problem persists notify unit maintenance.
2. ENGINE FALTERS OR DIES. Step 1. Visually check fuel tank for fuel. Add the proper fuel mixture (para 2-8b). Step 2. Check fuel valve to ensure it is open (para 2-9). Step 3. Drain fuel (para 3-5) and refill with proper fuel mixture (para 2-8b). If problem persists notify unit maintenance,
3. ENGINE STARTS, BUT DOES NOT REACH NORMAL RUNNING SPEED. **WARNING** NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel. Check air cleaner element to determine if it is dirty. Clean air cleaner element (para 2-12).

Table 3-2. Operator Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Correctlve Action
4. ENGINE RUNS BUT TOOL ACTION IS WEAK.
Step 1. Make sure tool shaft is properly installed (para 2-8c).
Step 2. Check tip of tool for wear or bluntness.
If problem persists notify unit maintenance.
5. ENGINE RUNS NORMALLY BUT DRILL ROD DOES NOT TURN.
Step 1. Make sure proper operation mode has been selected (para 2-8d)
Step 2. Make sure tool shaft is properly installed (para 2-8c).
Step 3. Check that tool shaft can not be turned easily CCW.
If tool shaft can be turned easily CCW, the ratchet mechanism is damaged. Turn in to DS maintenance.

Section III. OPERATOR MAINTENANCE PROCEDURES

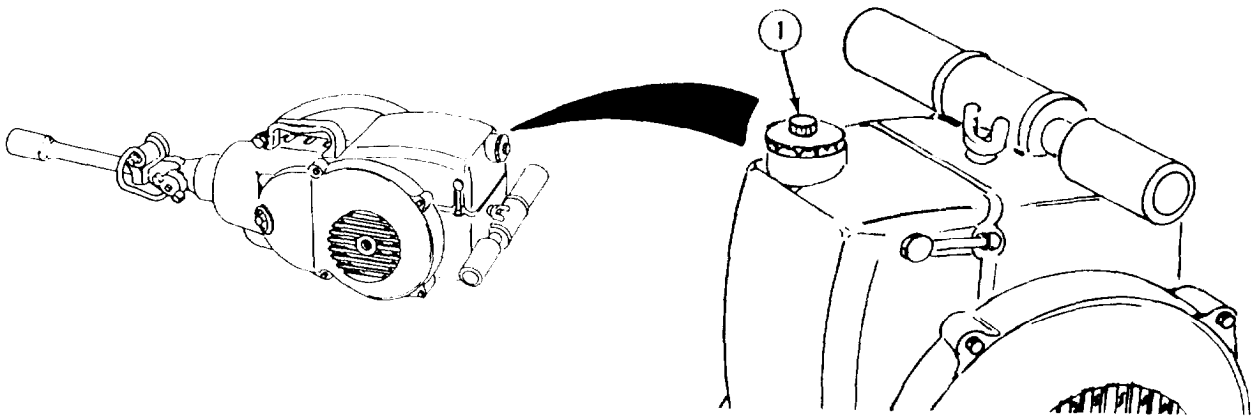
3-4. CLEANING EXTERIOR.

a. Use a clean rag (item 8, Appendix E) to remove any buildup of grease and dirt.

b. Use a small brush (item 1, Appendix E), mild detergent (item 3, Appendix E), and water to clean unit.

c. Allow to dry.

3-5. DRAIN FUEL TANK.



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel.
- Do not work on fuel system when engine is hot; fuel can he ignited by a hot engine.
- Post signs that read: “NO SMOKING WITHIN 50 FEET OF VEHICLES” when working with open fuel or fuel tanks.

NOTE

Fuel capacity is 0.50 gal (1.9 L).

a. Place a suitable container near Paving Breaker.

b. Remove fuel tank gas cap (1).

c. Pour fuel into suitable container and dispose of fuel in accordance with local regulations.

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-2. SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT.

No special tools, TMDE or support equipment are required for maintenance of the Paving Breaker.

4-3. REPAIR PARTS.

See Appendix F for repair parts information.

Section II. SERVICE UPON RECEIPT

4-4. UNPACKING AND INSPECTION.

*a. **Unpacking.*** Unlock two front latches, open lid, and remove Paving Breaker.

b. Checking Unpacked Equipment.

(1) Inspect equipment for damage incurred during shipping. If equipment has been damaged, report the damage on DD Form 6, Packing Improvement Report.

(2) Check equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA-PAM 738-750.

Section III. UNIT MAINTENANCE PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-5. GENERAL UNIT PMCS.

To be sure that the Paving Breaker is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. Table 4-l contains a tabulated listing of preventive maintenance checks and services to be performed by unit maintenance personnel. All deficiencies and shortcomings will be recorded on DA Form 2404.

4-6. WARNINGS AND CAUTIONS.

Always observe the warnings and cautions appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these warnings and cautions to prevent serious injury to yourself and others or prevent your equipment from being damaged.

4-7. EXPLANATION OF TABLE ENTRIES

*a. **Item Number Column.*** Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must do checks and services for the intervals listed.

*b. **Interval Column.*** This column tells you when you must do the procedure in the procedure column. QUARTERLY procedures must he done every three months you operate or use the equipment for its intended mission. SEMI-ANNUALLY procedures must be done every six months you are operating or using the equipment for its intended mission. ANNUALLY procedures must be done every year you have operated or used the equipment.

*c. **Location, Check/Service Column.*** This column provides the location and the item to be checked or serviced. The item location is underlined.

*d, **Procedure Column.*** This column gives the procedure you must do to check or service the item listed in the Check/Service column to know if the equipment is ready or available for its intended mission or for operation. You must do the procedure at the time stated in the interval column.

e. ***Other Table Entries.*** Be sure to observe all special information and notes that appear in your table.

4-8. INSTRUCTIONS.

a. Item numbers of table 4-l indicate the sequence of the PMCS. Perform at the intervals shown below:

(1) Do your (Q) Preventive Maintenance once every 3 months.

(3) Do your (S) Preventive Maintenance once every 6 months.

(3) Do your (A) Preventive Maintenance once every year.

b. If something doesn't work, troubleshoot it with the instructions in this manual or notify your supervisor.

c. Always do your preventive maintenance in the same order, so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry.

d. If anything looks wrong and you can't fix it, write it down on your DA Form 2404. If you find something seriously wrong, report it to DS Maintenance as soon as possible.

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

e. Keep it clean: Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (item 9, Appendix E) to clean metal surfaces. Use soap (item 3, Appendix E) and water when you clean rubber or plastic material.

f. Screws and nuts: Check that they are not loose, missing, bent or broken. Look for chipped paint, bare metal, or rust around screw heads. Tighten any that are loose.

g. Welds: Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to DS maintenance.

h. Electric wires and connectors: Look for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connections and make sure wires are in good condition.

Table 4-1. Unit Preventive Maintenance Checks and Services

Q - Quarterly **S - Semiannually** **A - Annually**

Item No.	Interval Q	S	A	Item to Be Inspected	Procedure
1	•			Body	a. Check for dents, cracks, and general damage that would impair operation.
	•				b. Check for missing or loose nuts, screws, and washers, tighten as necessary.
2	•			Fuel System	a. Check for cracks, leaks, missing parts, and dents in fuel tank.
	•				b. Check for cracks, leaks, and dents in fuel tubes, fuel fittings, joints, and valves.
	•				c. Use hooked wire to pull fuel tube from tank and check fuel filter, filter should be clean.
3	•			Air Lines and Fittings	a. Check air lines for kinks, cracks, and dents.
	•				b. Check hose joints and air guide for cracks or leaks in gasket at air joint.
4	•			Air Cleaner	a. Remove air cleaner cover (para 4-18) and check for cracks and dents in the air cleaner element case.
	•				b. Check for deteriorated rubber, cracks or holes. **WARNING** NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.
	•				c. Check air cleaner element to make sure it is clean and in good condition. Clean per para 2-12.

Table 4-7. Unit Preventive Maintenance Checks and Services - CONT.

Q - Quarterly **S - Semiannually** **A - Annually**

Item No.	Interval Q	S	A	Item to Be Inspected	Procedure
5	•			Front End Assembly	a. Install tool and operate tool holder to ensure it holds tools properly (para 2-8c).
	•				b. Operate check mode selector to ensure it stays in the selected mode position (para 2-8d).
	•				c. Install tool and try to rotate tool shaft CCW (as viewed from tool end). If it can be moved easily, report it to DS maintenance.
6	•			Starter	Check starter rope for fraying by operating starter (para 2-9) and observing rope.
7	•			Controls	a. Check throttle button for proper operation. The engine should stop when the throttle button is pushed completely in.
	•				b. Check fuel knob to be sure it will shut off fuel. Disconnect fuel line at tank. Place catch basin under valve and operate valve top ensure it is operating. Reconnect.
8	•			Spark Plug	Check spark plug for fouling and proper gap (0.027-0.039 in. [0.7-1.0 mm]). Clean if necessary or replace.
9	•			Flywheel	a. Check magneto nuts and screws for 10 lb-ft (14 N·m) tightness. Tighten as necessary (para 4-20).
	•				b. Check magneto for cracks, chips, or missing fins.
	•				c. Check magneto housing for security.
10	•			Handle	a. Check for cracked or missing handle grips.
	•				b. Check for cracked or missing handle bushings.

Section IV. UNIT TROUBLESHOOTING PROCEDURES

4-9. GENERAL UNIT TROUBLESHOOTING PROCEDURES.

a. The troubleshooting System Symptom Index (Table 4-2) lists common malfunctions which could be found during operation of the Paving Breaker. Table 4-3 lists the malfunctions and is followed by a list of tests or inspections which will help to determine corrective action to be taken. These tests, inspections and corrective actions should be performed in the order listed. Operation of a deadline unit without a preliminary examination can cause further damage to a disabled component and possible injury to personnel. By careful inspection and troubleshooting, such damage and injury can be avoided. In addition, cause of faulty operation of a unit can often be determined without extensive disassembly.

b. This manual cannot list all malfunctions that may occur, or all tests, inspections, and corrective actions. If a malfunction is not corrected by the listed corrective actions, notify your supervisor.

Table 4-2. System Symptom Index

Table 4-3. Unit Troubleshooting Procedures

Malfunction Test or Inspection Corrective Action

ENGINE

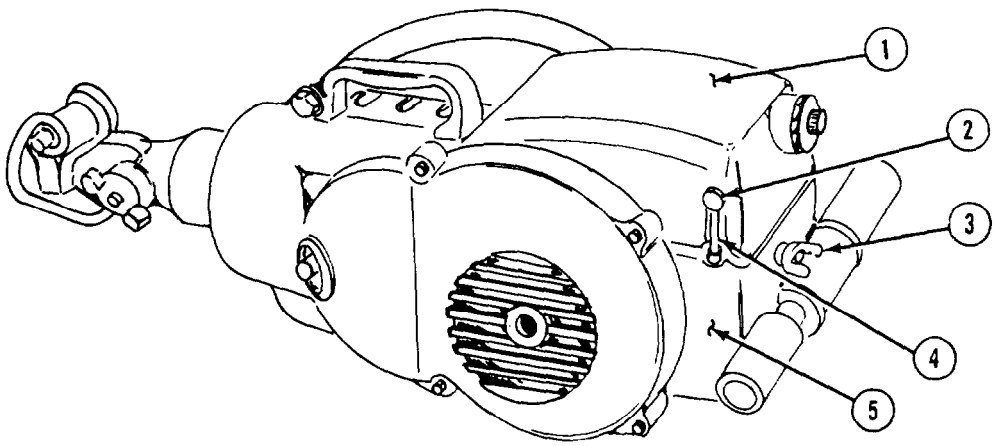
1. ENGINE WILL NOT START.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.
- Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
- Clean fuel tank to purge any flammable liquid or vapors before welding, grinding, or using any heat producing device near the fuel tank.

Post signs that read: "NO SMOKING WITHIN 50 FEET OF VEHICLES" when working with open fuel, fuel lines or fuel tanks.



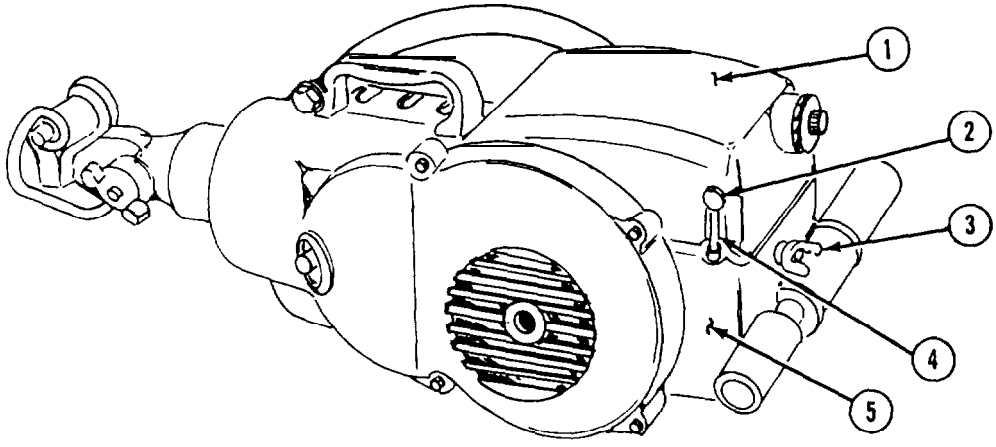
Step 1. Visually check fuel tank (1) for fuel.

Step 2. Check fuel valve (2) to see if it is open (para 2-9a).

Step 3. Check fuel knob (3) to see if it is in the proper position (para 2-9a).

Table 4-3. Unit Troubleshooting Procedures CONT.

Malfunction Test or inspection Corrective Action
ENGINE (CONT)
1. **ENGINE WILL NOT START (CONT).**



Step 4. Check visible fuel tube (4) between carburetor box (5) and fuel tank (1). Pull starter several times to see if fuel becomes visible in the hose.

If no fuel is visible check for plugged fuel tube and replace (para 4-19) or clear tube as necessary.

If fuel tube is ok but fuel is still not visible, go to step 7.

Step 5. Check for excessive fuel/flooding conditions (para 2-9c).

NOTE

Flooding conditions are indicated by black smoke or raw fuel running from exhaust pipe.

Close fuel knob and pull starter repeatedly until engine starts.

If engine does not start go to step 8.

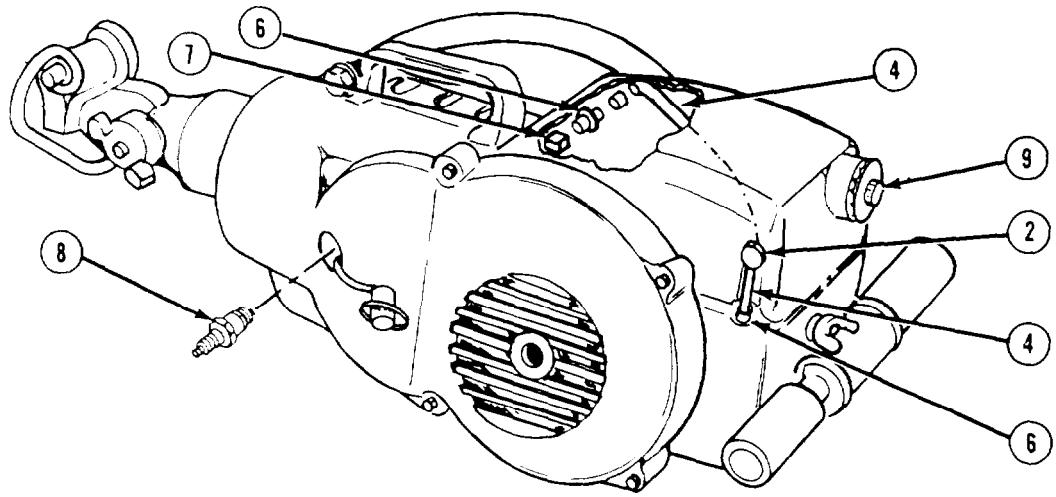
If flooding condition persists, go to step 10.

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

1. ENGINE WILL NOT START (CONT).



Step 7. Check spark plug (8) for 0.027-0.039 in. (0.7-1.0 mm) gap with gage. Visually check for fouling, and spark by removing spark plug from unit, reconnecting spark plug wire and pulling starter while observing for spark.

If no spark is present, retest with known good spark plug.

Step 8. If no spark is present, check spark plug wire for breaks.

Ifwire is broken replace coil assembly (para 4-21).

If still no spark, replace TCI unit and recheck for spark (para 4-21).

If still no spark, replace coil assembly (para 4-21).

Step 9. Check fuel cap valve (9). If valve is open visually check for debris.

Table 4-3. Unit Troubleshooting Procedures - CONT.

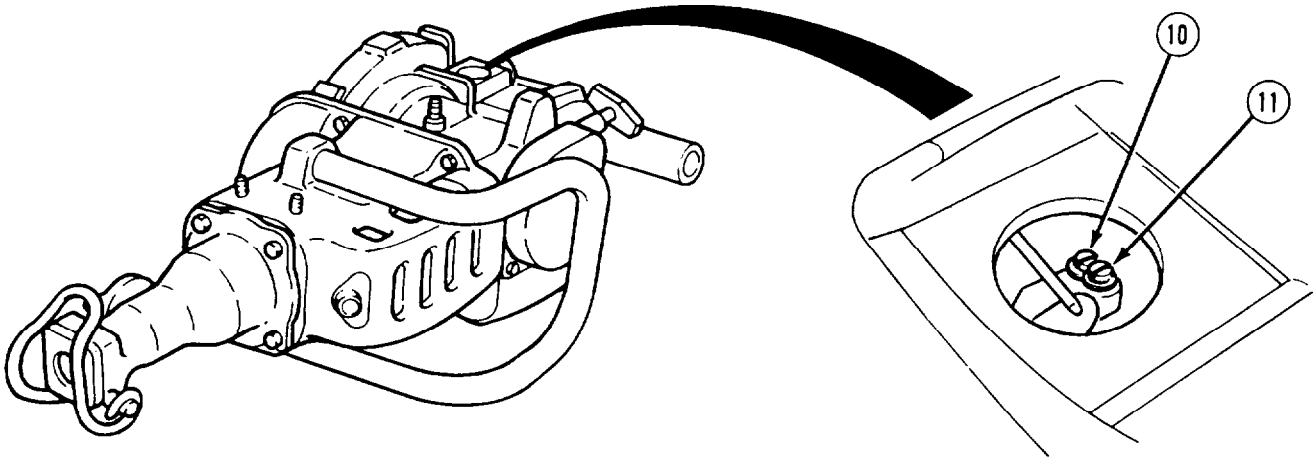
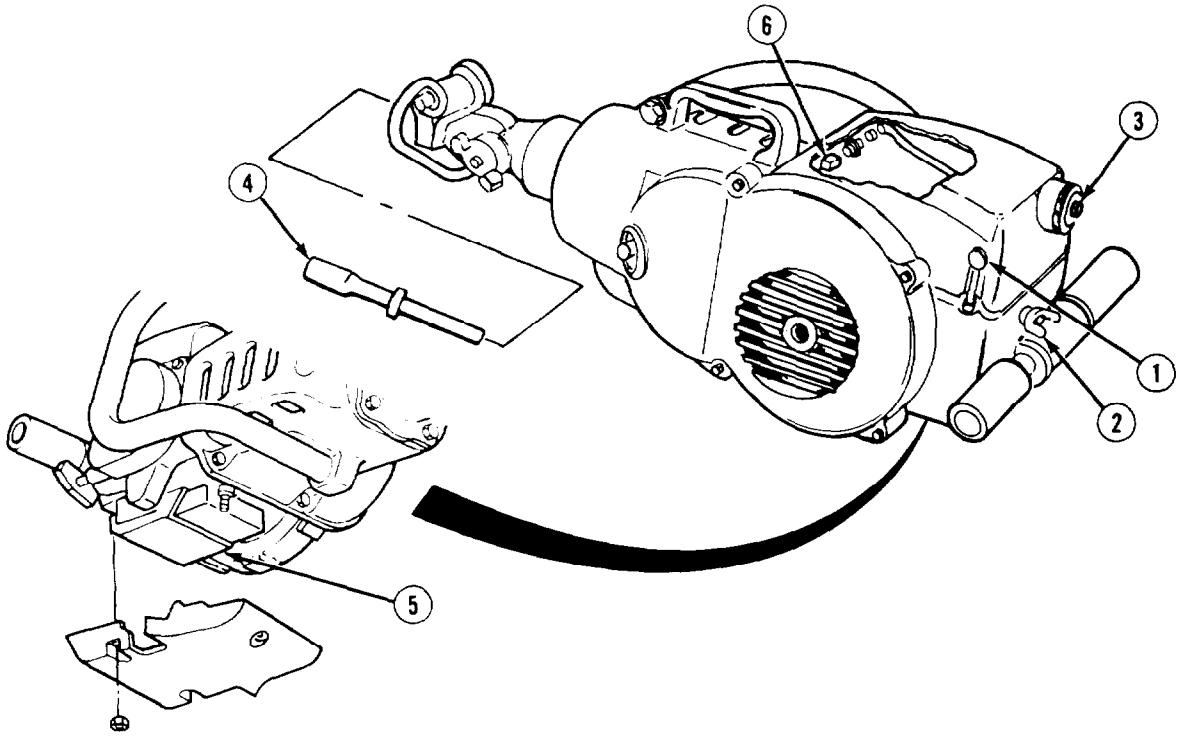
Malfunction Test or lnspection Corrective Action
ENGINE (CONT)
1. ENGINE WILL NOT START (CONT).

Step 10. Check fuel adjustments (para 4-17a). Ensure high speed needle (10) and idle needle (11) are properly adjusted. If problem persists notify DS maintenance.

Table 4-3. Unit Troubleshooting Procedures - Cont.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

2. ENGINE STARTS BUT FALTERS OR DIES.



Step 1. Check to see if fuel valve (1) is open (para 2-9).

Step 2. Check to see if fuel knob (2) is open (para 2-9).

Step 3. Check to see if fuel tank cap vent (3) is clogged.

Step 4. Check to see if center hole of drill rod (4) is plugged.

Clean as necessary using compressed air or probe.

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

2. ENGINE STARTS BUT FALTERS OR DIES (CONT).

WARNING

NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

Step 5. Check for clogged air cleaner element (5).

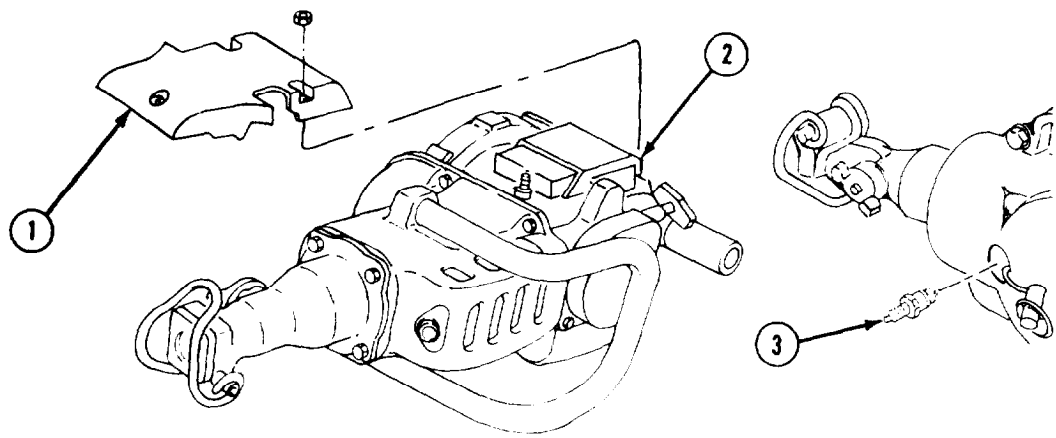
Clean as necessary (para 2-12).

Step 6. Check to see if fuel filter (6) is clogged or damaged.

Replace fuel filter (para 4-19).

If problem persists notify DS maintenance.

3. ENGINE DOES NOT REACH NORMAL RUNNING SPEED.



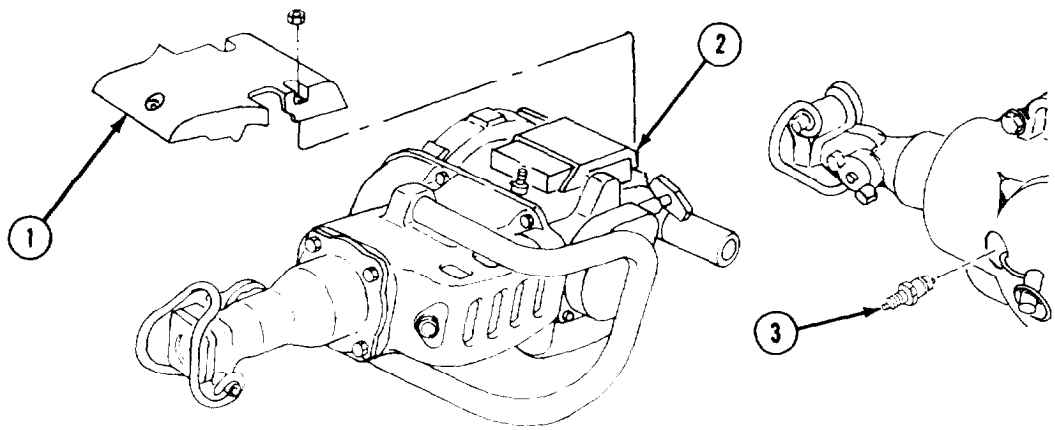
Step 1. Remove air cleaner cover (1) (para 4-18).

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

3. ENGINE DOES NOT REACH NORMAL RUNNING SPEED (CONT).



WARNING

NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM4 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

Step 2. Check air cleaner element (2).

Replace if necessary (para 4-18).

Step 3. Check spark plug (3) for 0.027-0.039 in. (O-7-1.0 mm) gap with gage.

Clean or replace as necessary.

Table 4-3. Unit Troubleshooting Procedures - CONT.

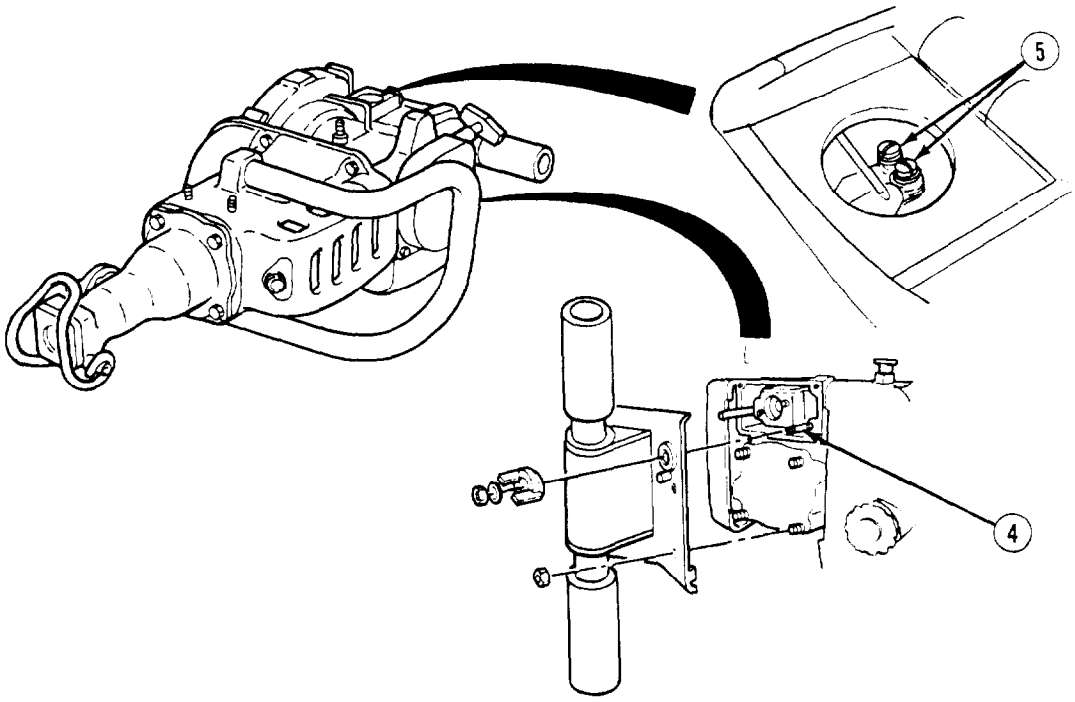
Malfunction Test or inspection Corrective Action
ENGINE (CONT)
3. ENGINE DOES NOT REACH NORMAL RUNNING SPEED (CONT).

Step 4. Make sure needle screw (4) is fully seated.
Step 5. Check carburetor adjustments (5) (para 4-17a).
If problem persists notify DS maintenance.

Table 4-3. Unit Troubleshooting Procedures - CONT.

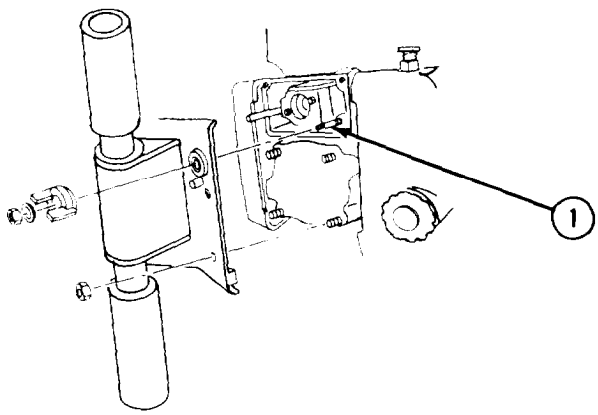
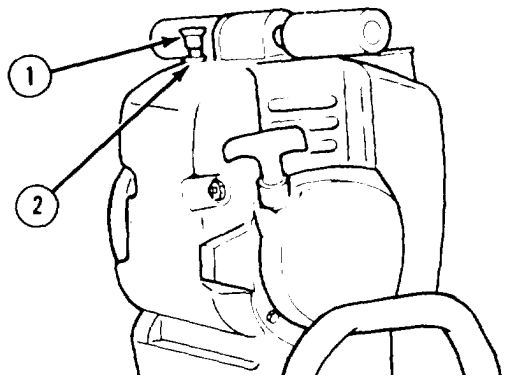
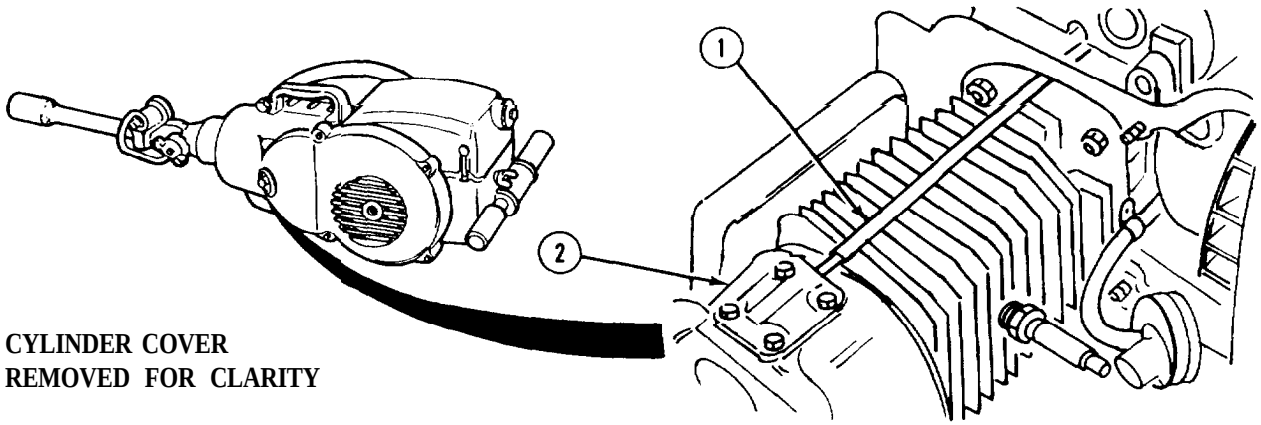
Malfunction Test or Inspection Corrective Action
ENGINE (CONT)
4. ENGINE WILL NOT STOP BY TURNING OFF FUEL KNOB.
   Make sure needle screw (1) is fully seated. Be careful not to overtighten needle screw (para 4-16d). If problem persists notify DS maintenance.
5. ENGINE WILL NOT STOP BY PUSHING THROTTLE BUTTON COMPLETELY DOWN.
   Ensure bottom of throttle button (1) rests flush against rubber seal (2) when depressed. Tighten if necessary (para 4-16d).

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or inspection Corrective Action

ENGINE (CONT)

6. SUDDEN INCREASE IN ENGINE SPEED.



CYLINDER COVER
REMOVED FOR CLARITY

Step 1. Check for overload due to bit catching in cracks in stone.

Step 2. Check for damaged air hose (1) or air guide (2).

Replace air hose or air guide (para 4-15).

Step 3. Visually check tool for bent or cracked shaft.

Replace tool (para 2-8c).

Step 4. Drain fuel tank (para 3-5) and refill with proper fuel mix (para 2-8b).

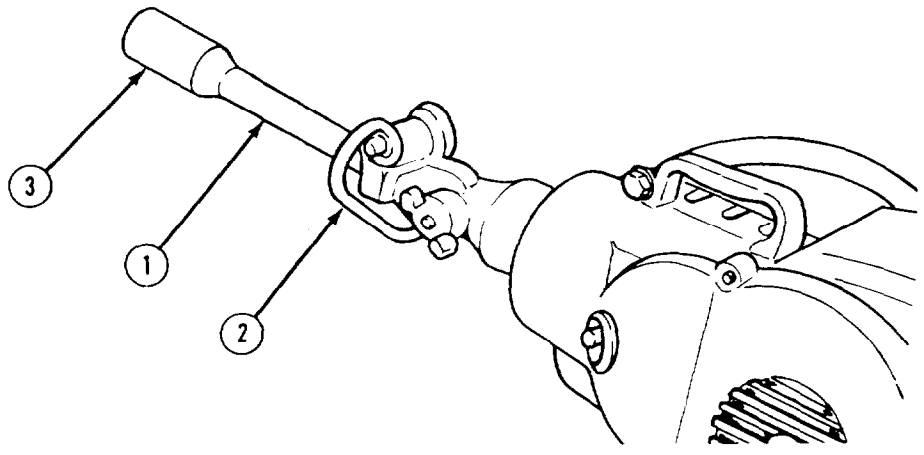
If problem persists notify DS maintenance.

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

7 . ENGINE RUNS BUT TOOL ACTION IS WEAK.



Step 1. Check that tool shaft (1) is properly engaged with tool holder (2) (para 2-8c).

Step 2. Visually check tip of tool (3) for wear or bluntness.

Replace tool (para 2-8c~).

Step 3. Visually check tool for bent or cracked shaft.

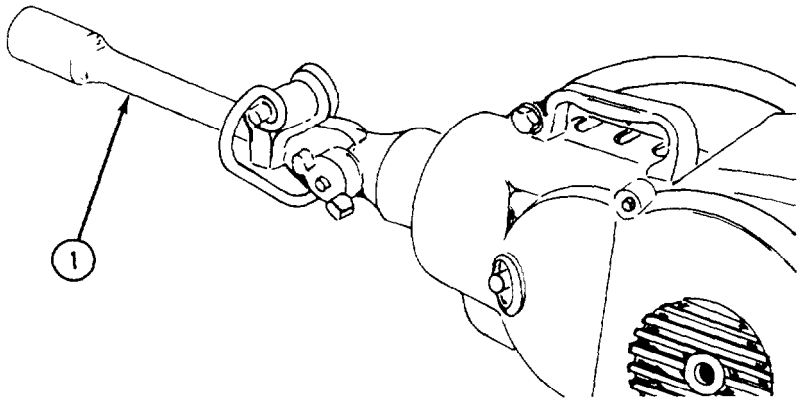
Replace tool (para 2-8c~).

Table 4-3. Unit Troubleshooting Procedures - CONT.

Malfunction Test or Inspection Corrective Action

ENGINE (CONT)

8. ENGINE RUNS NORMALLY BUT DRILL ROD DOES NOT TURN.



Step 1. Make sure drill mode is selected (para 2-8d).

Step 2. Make sure that tool shaft (1) has been attached properly (para 2-8d).

Step 3. Check that tool shaft can not be turned easily CCW.

If tool shaft can be turned easily CCW, the ratchet mechanism is damaged. Turn in to DS maintenance.

If problem persists notify DS maintenance.

Table 4-3. Unit Troubleshooting Procedures - CONT.

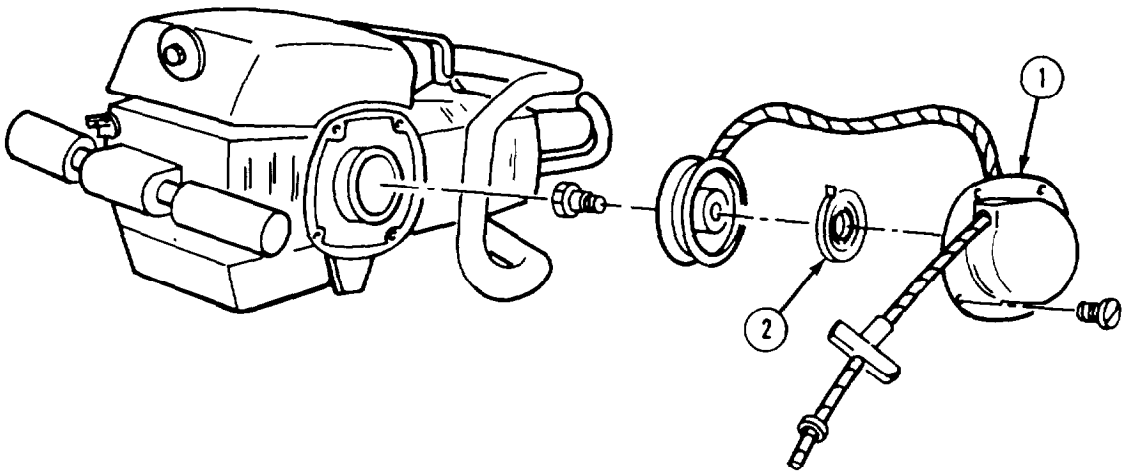
Malfunction
Test or Inspection
Corrective Action

STARTER

1. STARTER ROPE WILL NOT RETRACT.

WARNING

Starter spring is under extreme pressure and can cause injury.



Remove starter assembly (1) and check for broken spring (2) (para 4-13).

Replace spring (para 4-13).

2. STARTER WILL NOT TURN OVER ENGINE.

WARNING

Starter spring is under extreme pressure and can cause injury.

Remove starter assembly (1) and check for broken spring (2) or other parts (para 4-13).

If springs or parts are broken repair or replace (para 4-13).

Section V. UNIT MAINTENANCE PROCEDURES

4-10. GENERAL UNIT MAINTENANCE.

This section provides detailed, illustrated maintenance procedures which are the responsibility of Unit Maintenance activities as authorized by the Maintenance Allocation Chart and the assigned Source, Maintenance and Recovery codes. A tool kit is provided with each individual Paving Breaker and may be used in place of standard issue tool kits.

4-11. CYLINDER COVER.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Locknuts (4)

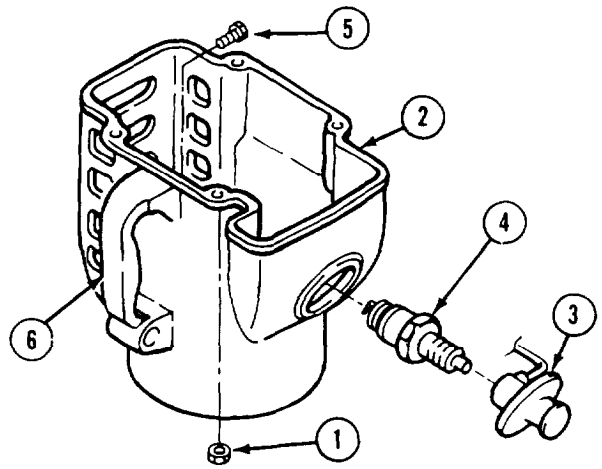
Equipment Condition
TM or Para — *Condition Description*
Para 4-18 — Air cleaner cover removed (part of air cleaner removal).

a. Removal.

(1) Remove four locknuts (1) on cylinder cover (2) using a 10 mm wrench. Discard locknuts.

(2) Remove spark plug cap (3). Push cap inside cylinder cover (2) above spark plug (4).

(3) Remove cylinder cover (2).



b. Disassembly.

(1) Remove two screws (5) using 13 mm wrench.

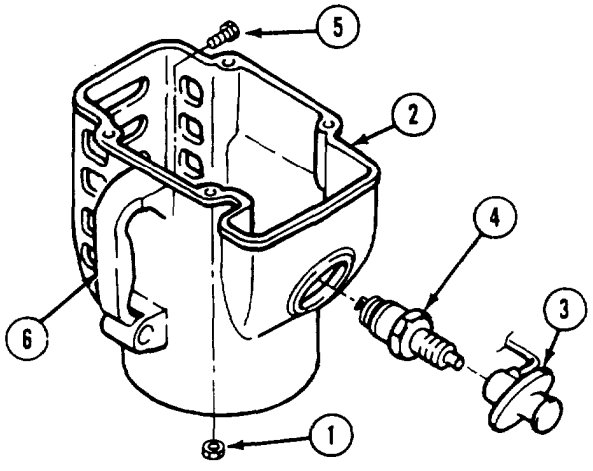
(2) Remove lift handle (6).

c. Cleaning/Inspection.

(1) Brush off all dirt and debris.

(2) Inspect cover and handle for cracks and other damage. Replace damaged parts.

4-11. CYLINDER COVER (CONT).



d. Assembly- Install lift handle (6) and two screws (5). Tighten screws 26 lb-ft (35 N-m).

e. Installation.

(1) Install cylinder cover (2) and pull spark plug cap (3) through cylinder cover. Install spark plug cap on spark plug (4).

(2) Install four locknuts (1). Tighten locknuts 84 lb-in (10 N.m).

NOTE

Follow-on maintenance: Install air cleaner cover (para 4-18).

END OF TASK

4-12. SIDE HANDLE.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Equipment Condition

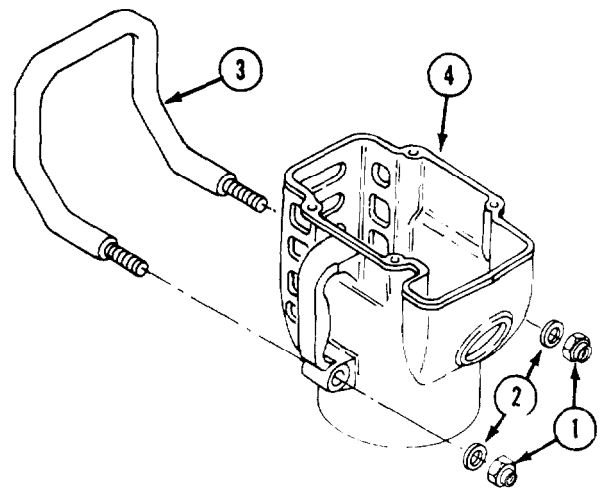
TM or Para	*Condition Description*
Para 4-l 1	Cylinder cover removed.

Materials/Parts
Locknuts (2)

a. Removal.

(1) Remove two locknuts (1) and two washers (2) using a 22 mm wrench. Discard locknuts.

(2) Remove side handle (3) from cylinder cover (4).



b. Installation.

(1) Install side handle (3).

(2) Install two washers (2) and two locknuts (1). Tighten locknuts 140 lb-ft (190 N-m).

NOTE

Follow-on maintenance: Install cylinder cover (para 4-11).

END OF TASK

4-13. STARTER.

This task covers:

a. Removal
b. Disassembly
c. Cleaning and Inspection
d. Assembly
e. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Grease, ball and roller bearing: item 4, Appendix E
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-20	Magneto cover removed (part of magneto removal).

General Safety Instructions
Use extreme caution when removing recoil spring; recoil spring is under extreme tension. Wear eye protection and gloves.

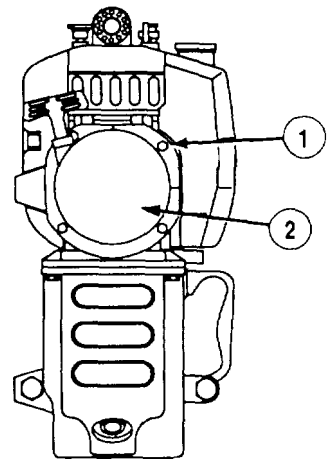
a. Removal.

WARNING

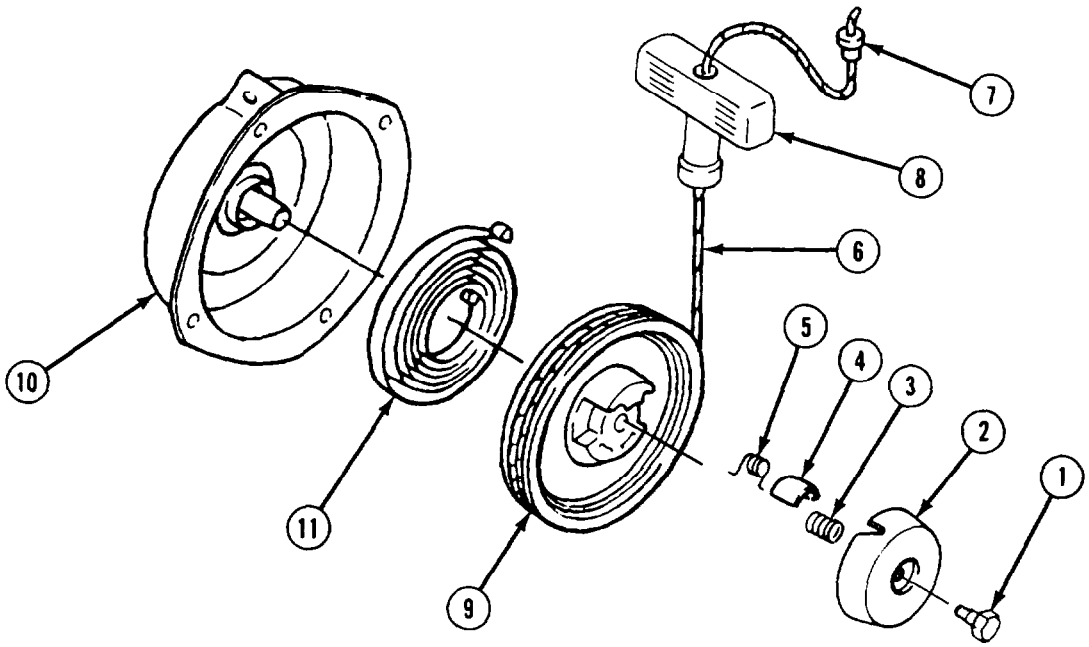
Use extreme caution when disassembling starter assembly; recoil spring is under extreme tension. Wear eye protection, and gloves, Personal injury may result.

(1) Remove four screws (1) using 10 mm wrench.

(2) Remove starter assembly (2).



b. Disassembly.



NOTE

- Mark and note location of springs, dog, and retainer prior to disassembly.
- Mark direction of pulley rotation before disassembling.

(1) Remove center screw (1) with 10 mm wrench, retainer (2), retainer spring (3), dog (4), and dog spring (5).

(2) Remove or cut knot off starter rope (6) at grip **end** and remove stopper (7) and grip (8).

WARNING

Use extreme caution when removing recoil spring; recoil spring is under extreme tension. Wear eye protection and gloves. Personal injury may result.

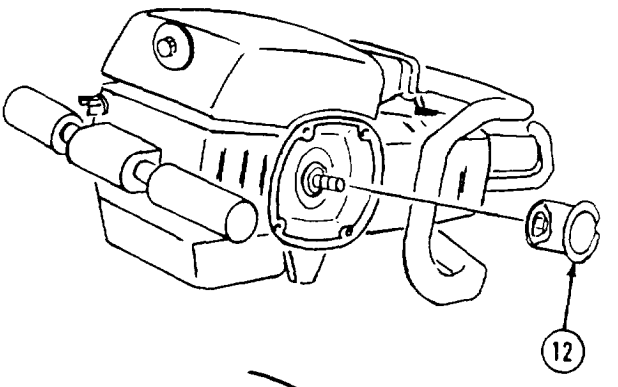
(3) Remove starter pulley (9) from starter case (10).

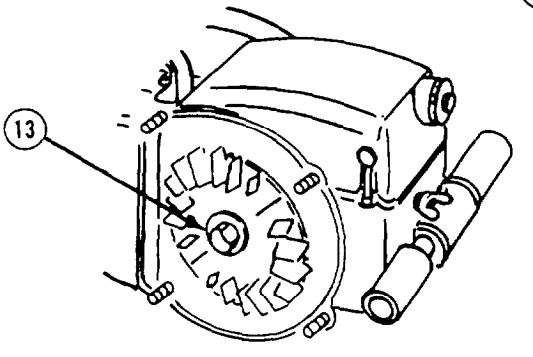
(4) Remove or cut off knot at pulley end of starter rope (6) and remove starter rope from starter pulley (9).

(5) Carefully remove recoil spring (11) from starter pulley (9). Note location of spring ends in pulley and starter case (10).

4-13. STARTER (CONT).

(6) Place a 19 mm socket on integral nut of crank pulley (12). Place a 22 mm wrench on magneto nut (13). Loosen crank pulley integral nut completely and remove crank pulley.





c. Cleaning/Inspection.

WARNING

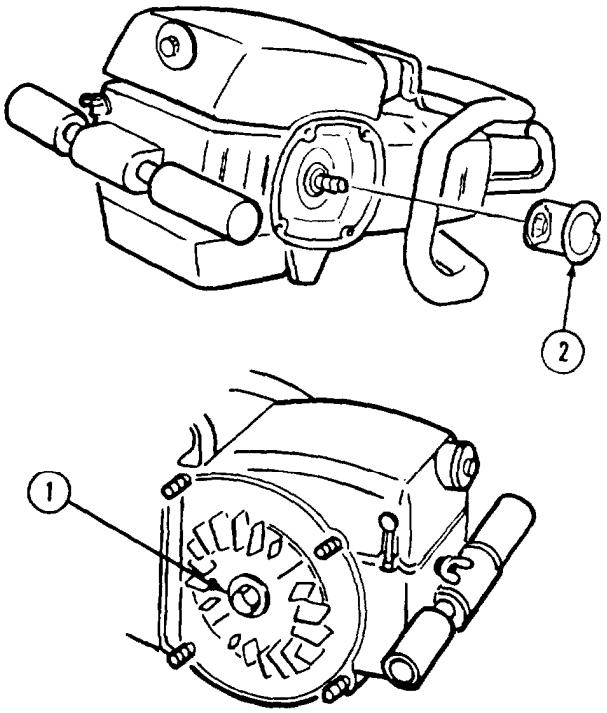
Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

(1) Clean all parts with dry cleaning solvent P-D-680 and dry with rag.

(2) Inspect all parts for wear and other damage. Replace damaged parts.

d. Assembly.

(1) While holding magneto nut (l), install and tighten crank pulley (2) 26 lb-ft (35 N-m).

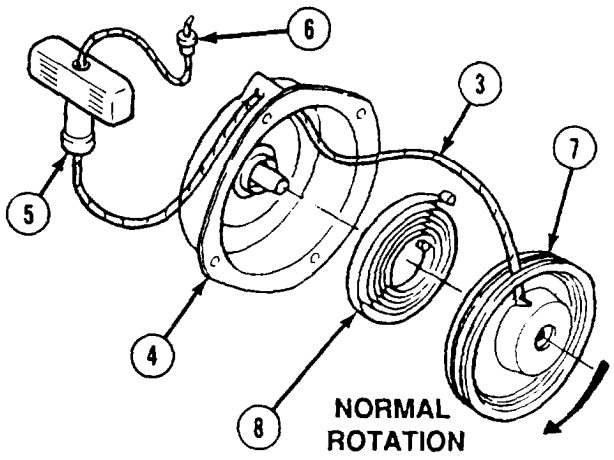


(2) Insert one end of starter rope (3) through guide in starter case (4), starter grip (5), and stopper (6). Tie a knot in rope after stopper.

(3) Thread opposite end of starter rope (3) through hole in starter pulley (7). Tie a knot in end of rope.

(4) Wind rope (3) CCW (opposite normal rotation) around starter pulley (7).

(5) Grease stem in starter case (4).



NOTE

Several attempts may be required to seat spring ends in starter case (4) and pulley (7).

(6) Install recoil spring (8) in starter case (4) making sure to engage spring end in starter case as noted during disassembly.

(7) Engage spring (8) in starter pulley (7) as noted during disassembly.

4-13. STARTER (CONT).

WARNING

The starter spring will develop extreme tension during winding. Use extreme caution. Wear eye protection and gloves. Personal injury may result.

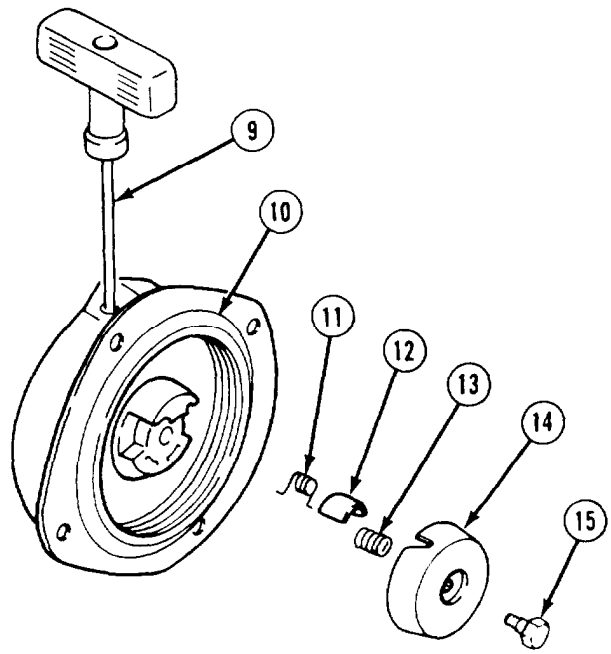
NOTE

There is enough clearance between starter pulley and starter case to permit unwinding of undesired turns of starter rope.

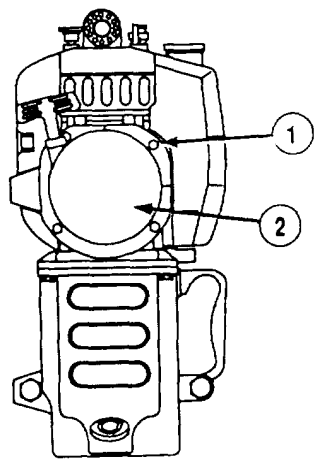
(8) Pull starter rope (9) all the way out and adjust tension by turning pulley (10) one or two turns CCW without winding rope. Hold pulley in position.

(9) Install dog spring (11) and dog (12) as noted during disassembly.

(10) Install retainer spring (13) and retainer (14) so slot in retainer fits over dog (12). Install center screw (1.5).



e. Installation. Install starter assembly (2) with screws (1). Tighten screws 26 lb-ft (35 N.m).



NOTE

Follow-on Maintenance: Install magneto cover (para 4-20).

END OF TASK

4-14. EXHAUST PIPE.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Lockwashers (3)
Locknuts (3)
Gasket (1)

Equipment Condition

TM or Para	*Condition Description*
Para 4-11	Cylinder cover removed.

General Safety Instructions
Exhaust pipe retains extreme heat in operation. Allow time for cooling before performing procedure.

a. Removal.

(1) Remove and discard three locknuts (1) using 13 mm wrench.

(2) Remove and discard three lockwashers (2).

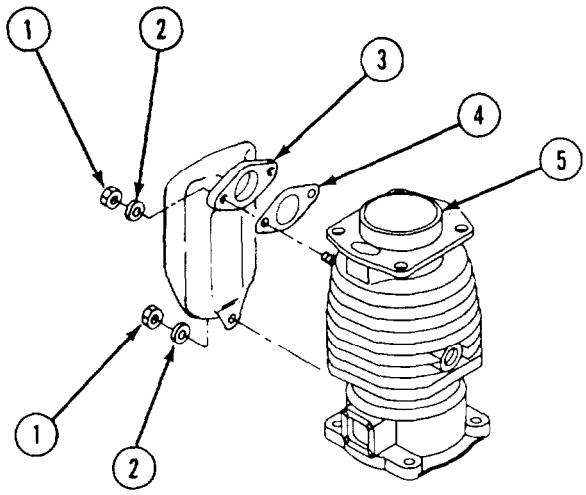
(3) Remove exhaust pipe (3) and gasket (4). Remove and discard all gasket material.

b. Installation.

(1) Install gasket (4).

(2) Install exhaust pipe (3).

(3) Install three lo&washers (2) and three locknuts (1). Tighten 26 lb-ft (35 N-m).



NOTE

Follow-on maintenance: Install cylinder cover (para 4-11).

END OF TASK

4-15. AIR HOSE.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Gasket (1)
Lockwashers (4)

Equipment Condition

TM or Para	*Condition Description*
Para 4- 19	Fuel tank removed.
Para 4- 11	Cylinder cover removed.

General Safety Instructions
Engine retains extreme heat in operation. Allow time for cooling before performing procedure.

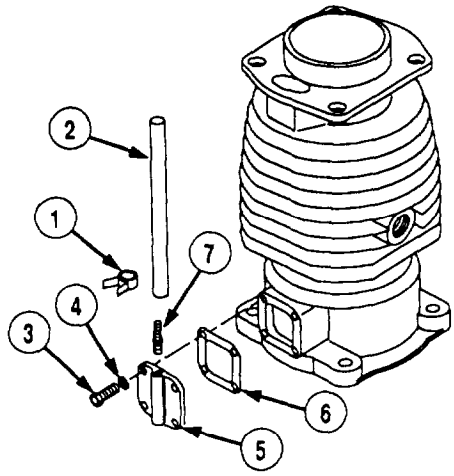
a. Removal.

(1) Remove two hose clips (1) and air hose (2).

(2) Remove four screws (3) and four lo&washers (4) using 8 mm wrench. Discard lockwashers.

(3) Remove air guide (5) and gasket (6). Discard gasket.

(4) Remove hose fitting (7) from air guide (5).



b. Installation.

(1) Install hose fitting (7) on air guide (5).

(2) Install gasket (6), air guide (5), four lo&washers (4) and four screws (3). Tighten screws 72 lb-in (8.5 N-m).

(3) Install air hose (2) and two hose clips (1).

NOTE

Follow-on maintenance:

- Install cylinder cover (para 4-11).
- Install fuel tank (para 4-19).

END OF TASK

4-16. OPERATORS HANDLE.

This task covers:

a. Removal
b. Disassembly
c. Assembly
d. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque Wrench

Materials/Parts
Lockwasher (1)
Rubber seals (2)
Rubber packing (1)
Gaskets (4)
Handle grips (2)
Bushing (1)
Compound, Sealing: item 2, Appendix E

Equipment Condition
TM or ***Para***
Para 4-18

Condition Desciption
Air cleaner cover removed (part of air cleaner removal).

a. Removal.

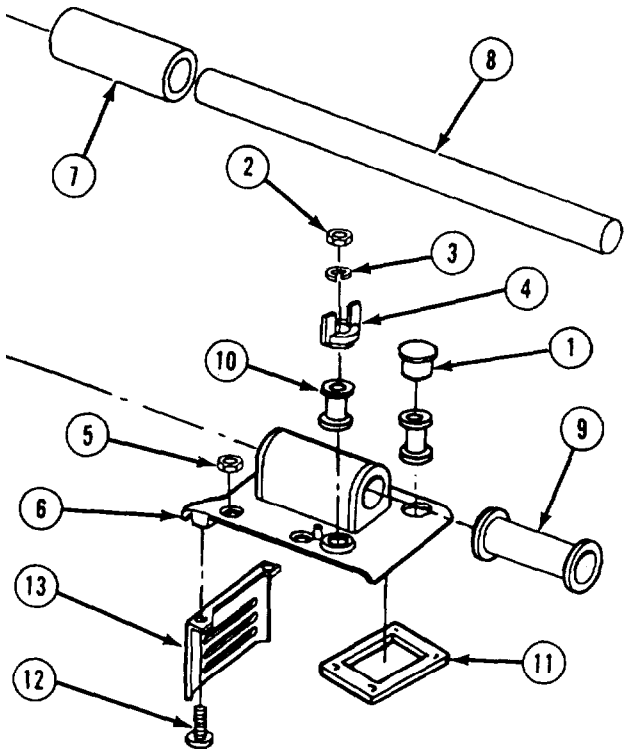
(1) Loosen setscrew using 2 mm socket head screw **key** and remove throttle knob (1).

(2) Remove nut (2) using 8 mm wrench.

(3) Remove lo&washer (3), and fuel knob (4) Discard lock-washer.

(4) Remove nuts (5) using 13 mm socket.

(5) Remove handle boss assembly (6).



b. Disassembly.

NOTE

Remove handle grips or bushing only if they are found to require replacement after inspection.

(1) If necessary, remove two handle grips (7) and handle pipe (8). Discard grips.

(2) If necessary, remove bushing (9) from handle boss (6). Discard bushing.

4-16. OPERATORS HANDLE (CONT).

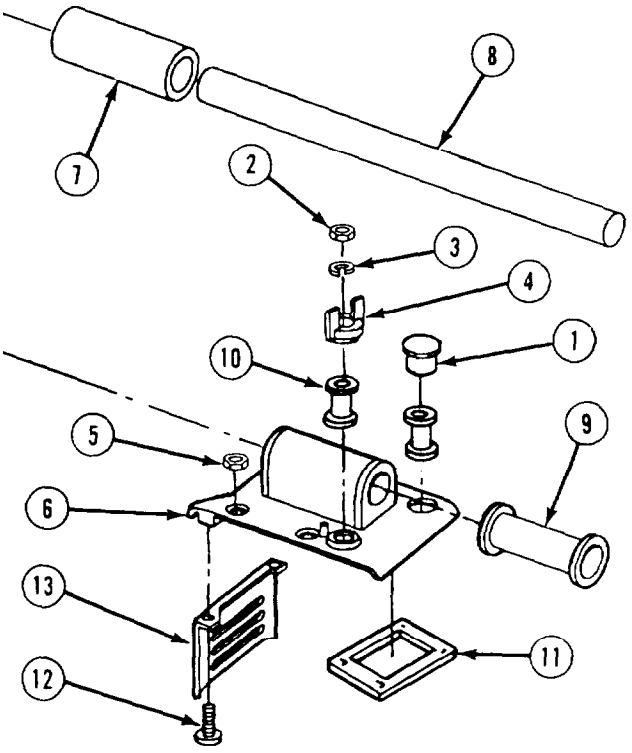
NOTE

Remove rubber seals and packing only if replacement is needed.

(3) If necessary, remove and discard two rubber seals (10) and rubber packing (11).

(4) Remove two screws (12) using 4 mm wrench.

(5) Remove side cover (13).



c. Assembly.

(1) Install side cover (13) and two screws (12). Tighten screws 72 lb-in (8.5 N.m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

(2) If removed, install rubber packing (11) with sealing compound.

(3) If removed, install two rubber seals (10).

(4) Install bushing (9), handle pipe (8) and handle grips (7).

d. Installation.

(1) Install handle boss assembly (6) with four nuts (5). Tighten nuts 72 lb-in (8.5 N-m).

(2) Turn fuel knob stem (4) CW until it just seats.

(3) Position fuel knob (4) on stop so that wing of fuel knob contacts stop and that CCW rotation is permitted.

(4) Install lockwasher (3), and nut (2). Tighten nut 72 lb-in (8.5 N-m).

(5) Install throttle knob (1) using 2 mm socket head screw key.

NOTE

Follow-on maintenance: Install air cleaner cover (para 4-18).

END OF TASK

4-17. CARBURETOR ADJUSTMENT.

This task covers:

Adjustment

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Tachometer

Equipment Condition

TM or Para	*Condition Description*
Para 4-18	Air cleaner removed.

WARNING

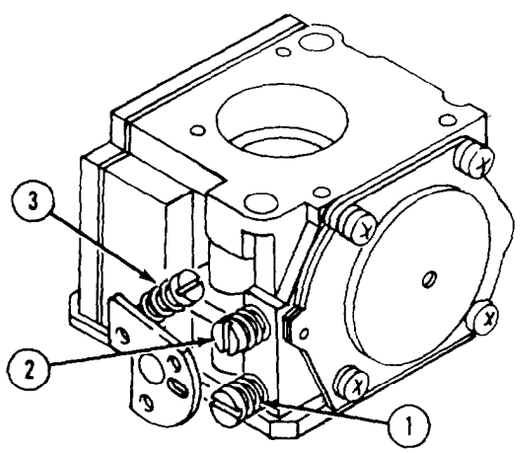
Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.
- Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
- Clean fuel tank to purge any flammable liquid or vapors before welding, grinding, or using any heat producing device near the fuel tank.
- Post signs that read: "NO SMOKING WITHIN SO FEET OF VEHICLES" when working with open fuel, fuel lines or fuel tanks.

Adjustment.

CAUTION

Do not overtighten needles marked L or H, damage will result.



(1) Turn needle marked L (1) CW (inward) until it is fully seated. This is the idle fuel control needle.

(2) Turn needle marked H (2) CW (inward) until it is fully seated. This is the high speed needle.

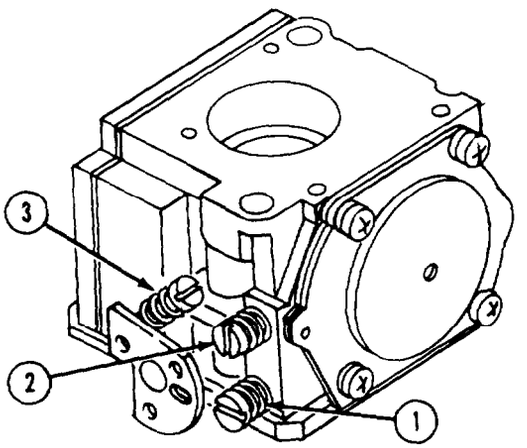
(3) Open needle L (1) l/2 turn (CCW). Open needle H (2) one full turn (CCW).

(4) Start engine (para 2-9). Allow to warm up. Run engine at idle. Turn needle L (1) CW (inward) until engine slows. Open needle L l/4 to l/2 turn for smooth operation.

4-17. CARBURETOR ADJUSTMENT (CONT).

(5) Run engine at operating speed. Turn needle H (2) **CW** until engine slows. Open needle H (2) l/4 to 1/2 turn for proper operating speed.

(6) Allow engine to return to IDLE speed then turn idle adjustment screw (3) until proper idle speed is maintained (2000+ 100 RPM). Measure idle speed with hand held tachometer.



NOTE

Follow-on maintenance: Install air cleaner (para 4-18).

END OF TASK

4-18. AIR CLEANER.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

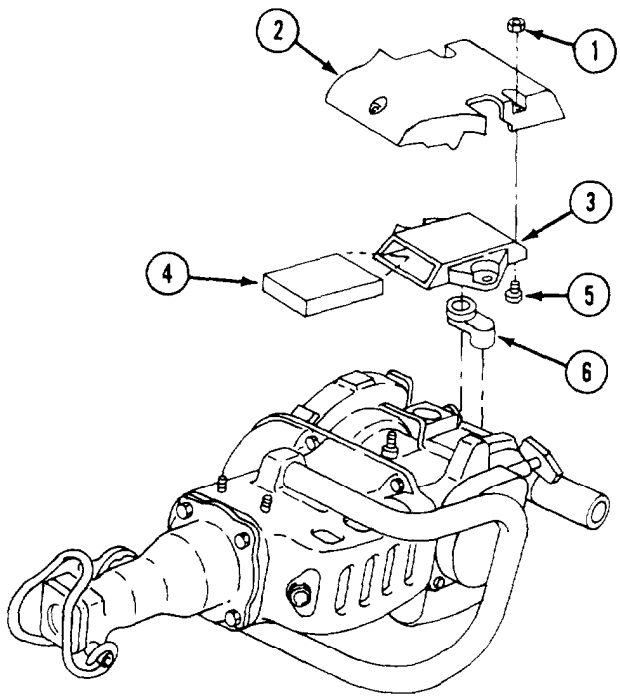
Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials
Rag, wiping: item 4, Appendix E

a. Removal.

(1) Using 10 mm wrench, remove three nuts (1) from air cleaner cover (2).

(2) Remove air cleaner cover (2) by lifting upward and gently prying with a flat blade screwdriver, if necessary.



b. Disassembly.

(1) Remove element case (3).

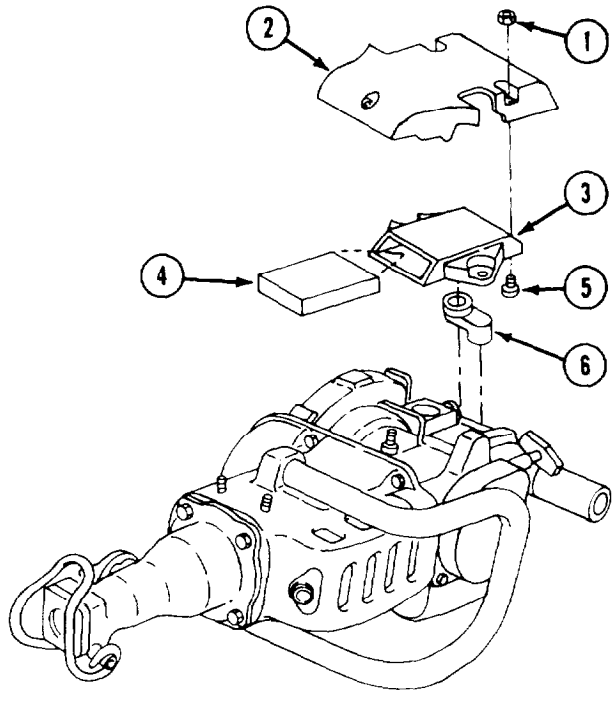
WARNING

NBC-contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5) are followed. The local unit SOP is responsible for final disposal of contaminated air filters. Failure to comply may cause severe injury or death to personnel.

(2) Remove air cleaner element (4).

(3) Remove air fitting (5) and suction pipe (6).

4-18. AIR CLEANER (CONT).



c. Cleaning/Inspection.

(1) Wipe debris off cover (3). Inspect for cracks or other damage.

(2) Clean air cleaner element (4) (para 2-12).

(3) Inspect all parts for wear, obstructions, or other damage. Replace damaged parts.

(4) Wipe off air fitting (5) and suction pipe (6) with a dry rag.

d. Assembly.

(1) Install suction pipe (6) and air fitting (5) on element case (3).

(2) Install air cleaner element (4) in element case (3).

(3) Install element case (3).

NOTE

Insure that the suction pipe and air fitting are fully seated in the air cleaner element case.

e. **Installation.**

(1) Install air cleaner cover (2) by pushing down firmly on mounting studs.

(2) Install three nuts (1). Tighten 36 lb-in (4.1 N-m).

END OF TASK

4-19. FUEL TANK.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Lockwashers (4)
Lockwasher (1)
Spring washer (1)
Cap gasket (1)
Packing (2)
Packing (1)
Packing (1)
Rag, wiping: item 5, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 2-11	Engine shut off.
Para 3-5	Drain engine fuel.

General Safety Instructions
If equipment is hot, allow time for engine to cool before performing procedure. Keep fire extinguisher within reach.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.

a. Removal.

(1) Close valve (1) by turning CW.

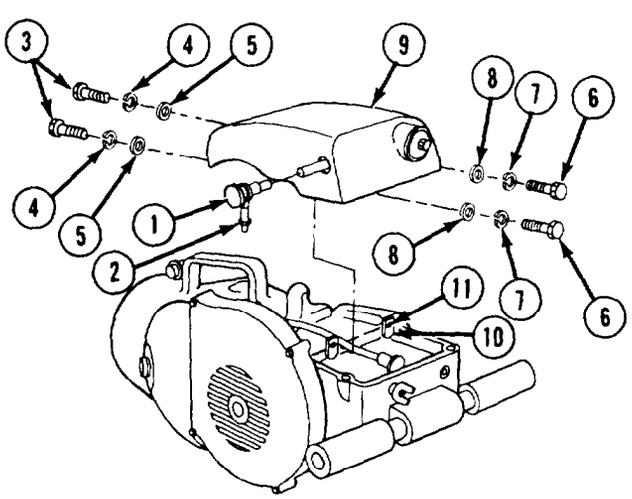
(2) Disconnect fuel line (2) from carburetor by pulling up.

(3) Remove two outer screws (3), lo&washers (4), and flat washers (5) using 10 mm socket. Discard lockwashers.

(4) Remove two inner screws (6), lockwashers (7), and flat washers (8) using 10 mm **socket.** Discard lo&washers.

(5) Remove fuel tank assembly (9).

(6) If necessary, remove two brackets (10) and screws (11).



4-19. FUEL TANK (CONT).

6. Disassembly.

(1) Remove tank cap assembly (1) from fuel tank (2) and disassemble as follows:

(a) Remove and discard cap gasket (3).

(b) Remove nut (4), lockwasher (5), plug (6), and packing (7) using 7 mm wrench. Discard lo&washer and packing.

(4) Remove valve cap (8), spring washer (9), and washer (10) from cap (11). Discard spring washer.

(2) Pull filter (12), fitting (13), and fuel line (14) out of tank (2) using a hooked wire.

(3) Pull to remove fuel line (14) from tank (2).

(4) Separate fuel line (14), fitting (13) and filter (12).

(5) Remove fuel valve assembly (15) using 13 mm wrench.

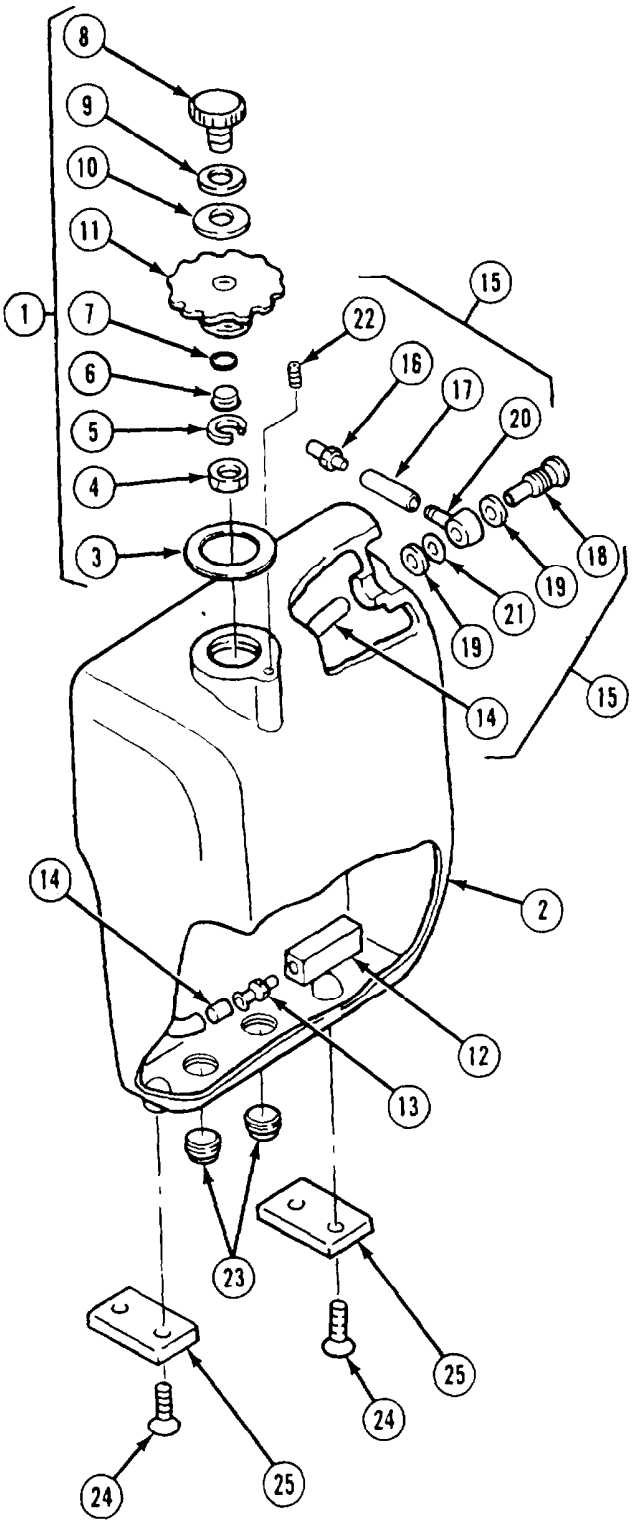
(6) Remove fitting (16) from fuel line (17).

(7) Remove fuel valve (18), two packings (19), and hose nipple (20). Discard packings.

(8) Remove packing (21) from hose nipple (20). Discard packing.

(9) Do not remove socket screw (22) or plugs (23).

(10) If necessary, remove two screws (24) and brackets (25) from tank (2).



c. Cleaning/Inspection.

(1) Inspect filter (12) for dirt or blockage. Replace if necessary.

(2) Inspect all fuel lines (14 and 17) and fittings (13, 16, and 20) for dirt or blockage.

(3) Clean exterior of fuel tank (2) with a clean dry rag.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi. Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc).

(4) Clean interior of fuel tank (2) with compressed air.

d. Assembly.

(1) If removed, install two screws (24) and brackets (25) on tank (2).

(2) Install packing (21) on fuel valve (18).

(3) Install fuel line (17) and fitting (16) on hose nipple (20).

(4) Install two packings (19), hose nipple (20), and fuel valve (18).

(5) Install filter (12) and fitting (13) on fuel line (14).

(6) Install fuel line (14) on fuel valve assembly (15) and install in fuel tank (2).

(7) Assemble tank cap (1) as follows:

(a) Install spring washer (9), washer (10), and valve cap (8) on cap (11).

(b) Install packing (7), plug (6), lockwasher (5), and nut (4). Tighten nut 17 lb-in (1.9 N-m).

(c) Install cap gasket (3).

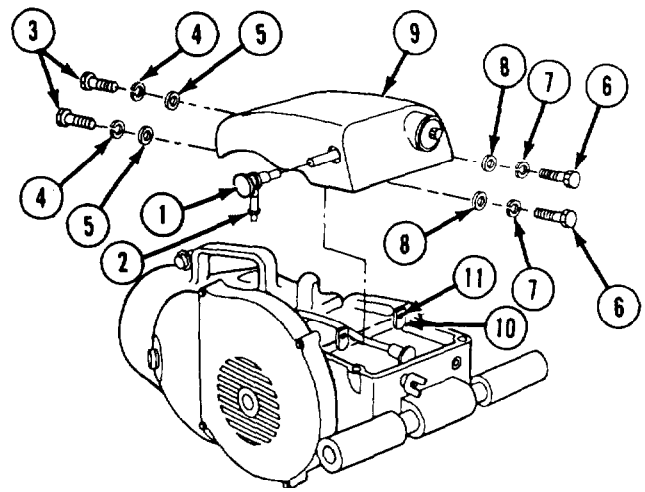
(d) Install tank cap assembly (1) on fuel tank (2).

e. Installation.

(1) If removed, install two brackets (10) with screws (11).

(2) Place fuel tank assembly (9) in position and install two flat washers (8), lockwashers (7) and inner screws (6) using a 10 mm socket. Tighten screws 10 lb-ft (14 N-m).

(3) Install two flat washers (5), lockwashers (4) and outer screws (3). Using a 10 mm socket. Tighten screws 10 lb-ft (14 N.m).



(4) Install fuel line (2) on carburetor by pushing down,

(5) Open valve (1) by turning CCW.

NOTE

Follow-on Maintenance: Fill fuel tank (para 2-8b)

END OF TASK

4-20. MAGNETO/FLYWHEEL

This task covers:

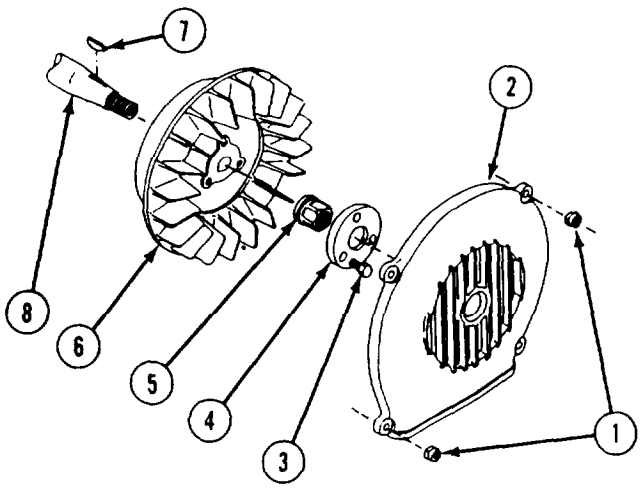
a. Removal b. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Locknuts (4)

a. Removal.



(1) Remove four locknuts (1) and magneto cover (2) using a 10 mm wrench. Discard locknuts.

(2) Loosen three magneto plate screws (3) evenly using a 10 mm wrench.

(3) While carefully holding magneto (6), loosen magneto nut (5) against plate (4) using a **22** mm socket.

(4) Tighten three screws (3) evenly against plate (4) on magneto nut (5).

(5) Remove magneto nut (5) and magneto (6).

(6) Remove key (7) from crankshaft (8).

(7) Remove three screws (3), plate (4), and magneto nut (5) from magneto (6).

b. Installation.

(1) Install magneto key (7) in slot in crankshaft (8). Replace magneto key, if damaged in removal.

(2) Install magneto (6) on crankshaft (8). Ensure slot in magneto is aligned with magneto key.

(3) While holding magneto (6) install magneto nut (5) and tighten to 99 lb-ft (135 N-m).

NOTE

Make certain that magneto is fully seated on crankshaft.

(4) Install plate (4) and three screws (3). Tighten screws to 10 lb-ft (14 N.m).

(5) Install magneto cover (2) and four locknuts (1). Tighten locknuts 120 lb-in (14 N-m).

END OF TASK

4-21 IGNITION SYSTEM.

This task covers:

a. Removal
b. Cleaning/Inspection
c. Testing
d. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Tool Kit, Automotive and Electrical System Repair
Torque wrench

Materials/Parts
Lockwashers (2)
Lockwasher (1)
Rag, wiping: item 8, Appendix E
Strap, tiedown: item 10, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-20	Magneto removed.

a. Removal.

(1) Remove two screws (1) and two clamps (2) using cross-tip screwdriver.

(2) Remove connecting wire (3) from TCI unit (4).

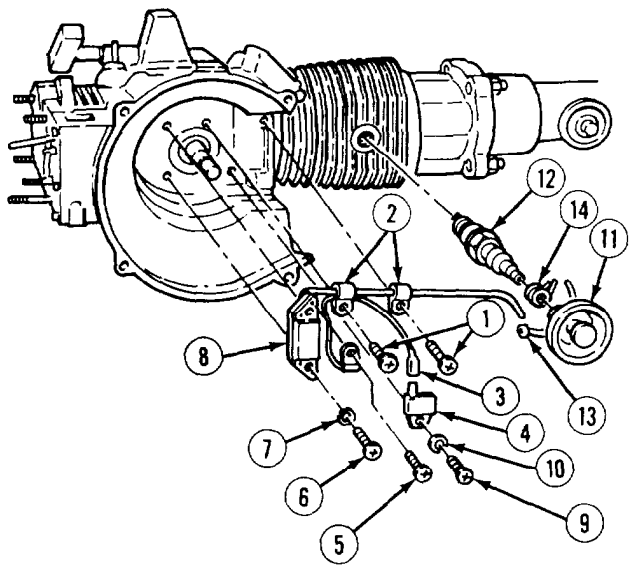
(3) Remove screw (5) and connecting wire (3) using cross-tip screwdriver.

(4) Remove two screws (6), two lockwashers (7), and ignition coil (8) using cross-tip screwdriver. Discard lockwashers.

(5) Remove screw (9), lockwasher (10), and TCI unit (4) using cross-tip screwdriver. Discard lockwasher.

(6) Remove spark plug cap (11) and spark Plug (12).

(7) If necessary, remove tiedown strap (13) and grip (14) from spark plug cap (11).



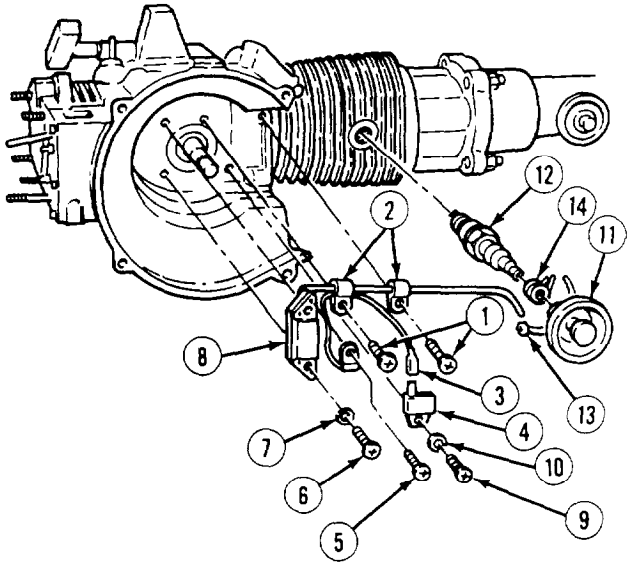
b. Cleaning/Inspection.

(1) Rcmovc: dust and dirt from all parts.

(2) Inspect all parts for wear, chafing, and other damage. Replace damaged parts.

4-21. IGNITION SYSTEM (CONT).

C. Testing. Test continuity of connecting wire (3) and ensure that grip (14) is in good electrical contact with coil wire. Replace any part failing test.



d. Installation.

(1) If removed, install grip (14) in spark plug cap (11) and secure with tiedown strap (13).

(2) Install TCI unit (4) lockwasher (10), and screw (9).

(3) Install ignition coil (8), with shoulder down, two lockwashers (7), and two screws (6). Tighten screws 72 lb-in (8.5 N-m).

(4) Install connecting wire (3) to ignition coil (8) with screw (5).

(5) Connect spade connector end of connecting wire (3) to TCI unit (4).

NOTE

Make sure connecting wire is secured by a clamp.

(6) Install two clamps (2) and two *screws* (1). Tighten screws 36 lb-in (4.1 N-m).

(7) Install spark plug (12) and spark plug cap (11).

NOTE

Follow-on maintenance: Install magneto (para 4-20).

END OF TASK

4-22. FRONT END.

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Torque wrench

Materials/Parts
Lockwashers (4)
Locknuts (4)

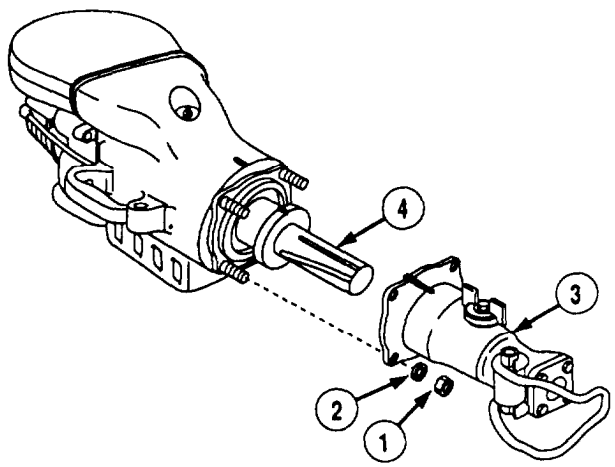
a. Removal.

NOTE

Matchmark cylinder cover and front end before removal.

(1) With unit laying on muffler side, remove four locknuts (1) and four lockwashers (2) using a 13 mm wrench. Discard locknuts and lockwashers.

(2) Remove front end assembly (3) from hammer piston (4).



b. Installation.

(1) Align hammer piston (4) to front end assembly (3) using matchmarks.

(2) Install front end assembly (3).

CAUTION

- Both the locknuts and lockwashers should be replaced **as** damage can result to cylinder if they become loose.
- Be sure both the cylinder flange and front end flange are clean and smooth before tightening locknuts.

(3) Install four lockwashers (2) and four locknuts (1). Tighten locknuts alternately 216 lb-in (25 N-m).

END OF TASK

Section VI. PREPARATION FOR STORAGE OR SHIPMENT

4-23. REMOVING EQUIPMENT FROM SERVICE.

a. Turn fuel knob and fuel valve clockwise to off position (para 2-11).

b. Remove drill rod (para 2-8c) and place in storage box.

c. Perform (Q) PMCS (Table 4-1).

d. Place unit in storage box with fuel tank facing upright.

4-24. STORAGE.

a. Turn fuel valve clockwise to off position (para 2-11) and allow engine to run until fuel in fuel line is **exhausted**

b. Remove all fuel from fuel tank (para 3-5).

c. Remove drill rod (para 2-8c) and place in storage box.

d. Clean exterior of unit (para 3-4).

e. Perform (Q) PMCS (Table 4-1).

f. Place unit in storage box with fuel tank facing upright.

g. Take an inventory of End Item Components, and BII (see Appendix C). Report any shortages 10 your supervisor.

CHAPTER 5

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

5-1. COMMON TOOLS AND EQUIPMENT.

For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

5-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools, TMDE, or support equipment are required for maintenance of the Paving Breaker.

5-3. REPAIR PARTS.

Repair parts are listed and illustrated in Appendix F covering Unit and Direct Support maintenance on the Paving Breaker.

Section II. DIRECT SUPPORT TROUBLESHOOTING PROCEDURES

5-4. GENERAL.

a. The troubleshooting System Symptom Index (Table 5-l) lists common malfunctions which could be found during operation of the Paving Breaker. Table 5-2 lists the malfunctions and is followed by a list of tests or inspections which will help to determine corrective action to be taken. These tests, inspections and corrective actions should be performed in the order listed. Operation of a deadline unit without a preliminary examination can cause further damage to a disabled component and possible injury to personnel. By careful inspection and troubleshooting, such damage and injury can be avoided. In addition, cause of faulty operation of a unit can often be determined without extensive disassembly.

b. This manual cannot list all malfunctions that may occur, or all tests, inspections, and corrective actions. If a malfunction is not corrected by the listed corrective actions, notify your supervisor.

NOTE

Before using the troubleshooting procedures of Table 5-2, ensure that the applicable troubleshooting procedures of Table 4-3 were completed.

Table 5-7. System Symptom Index

Table 5-2. Direct Support Troubleshooting Procedures

Malfunction Test or Inspection Corrective Action
1. ENGINE STARTS BUT DOES NOT REACH NORMAL RUNNING SPEED.
Disassemble engine cylinder (para 5-7) and **check** for damaged or excessive wear of hammer piston rings or engine piston rings (para 5-8). Replace damaged, worn, or broken engine piston rings (para 5-7) or hammer piston rings (para 5-8).
2. SUDDEN INCREASE IN ENGINE SPEED.
Step 1. Check tool shank length and width. Verify shank is straight. Replace tool if improper dimensions.
Step 2. Remove hammer piston (para 5-8). Check if the head is reddish purple. If it is, check for distortion of the piston by using a straight edge. Replace the hammer piston and rings if distorted.
3. ENGINE RUNS NORMALLY BUT THE DRILL ROD DOES NOT TURN.
Check if ratchet mechanism is damaged. Damage has occurred if ratchet can be easily turned CCW. Remove front end assembly (para 4-22). Replace trigger spring if damaged (para 5-11). Replace triggers if damaged (para 5-11). Replace ratchet gear if damaged (para 5-11).
4. ENGINE RUNS NORMALLY BUT TOOL ACTION IS WEAK.
Step 1. Remove hammer piston and check if damaged or worn (para 5-8). Replace hammer piston and rings if damaged, worn, or distorted (para 5-8).
Step 2. If tool can be turned easily CCW check for defective ratchet wheel, internal shaft, or hammer piston. If wear on straight and lead splines of the ratchet wheel, internal shaft, or hammer piston exceed 0.04 in. (1.0 mm) replace the defective part (para 5-l 1) or (para 5-8). If wear on the hexagonal bore of the internal shaft exceeds 0.92 in. (23.3 mm) across the flats replace hammer piston (para 5-8).

Section Ill. DIRECT SUPPORT MAINTENANCE PROCEDURES

5-5. GENERAL.

This section contains detailed, illustrated maintenance procedures which are the responsibility of Direct Support Maintenance activities as authorized by the Maintenance Allocation Chart and the assigned Source, Maintenance and Recoverability codes. This section will refer to Unit Maintenance instructions where procedures can be performed at that level.

5-6. CRANKCASE.

This task covers:

a. Disassembly b. Cleaning/Inspection c. Assembly

INITIAL SETUP

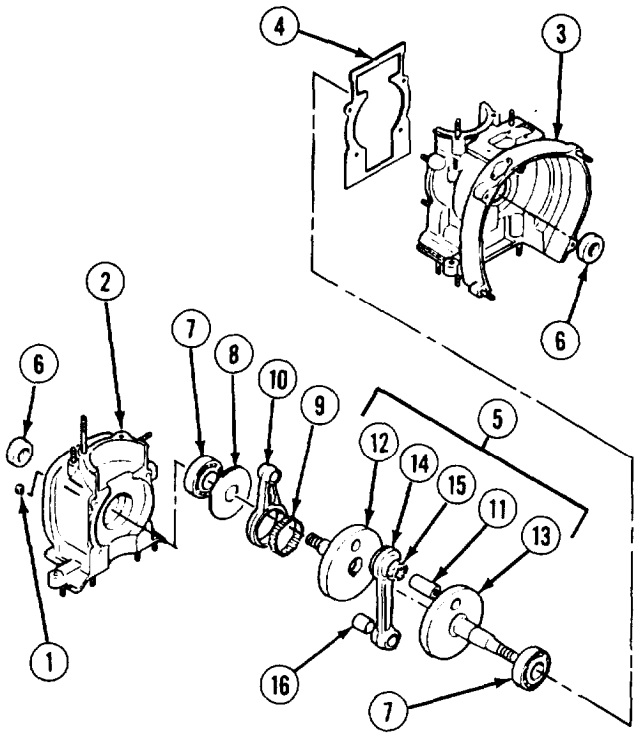
Tools
Tool Kit, Master Mechanic's
Shop Equipment, Automotive Maintenance and Repair; Organizational Maintenance, Common No. 1, Less Power
Torque wrench

Materials/Parts
Gasket (1)
Locknuts (4)
Oil seals (2)
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-13	Starter removed.
Para 4- 18	Air cleaner removed.
Para 4-19	Fuel tank removed.
Para 4-20	Magneto Removed.
Para 4-21	Ignition Removed.
Para 4-16	Operator Handle removed.
Para 4-11	Cylinder cover removed.
Para 4-15	Air hose removed.
Para 5-7	Engine cylinder removed.
Para 5-9	Compressor cylinder removed.

General Safety Instructions
Engine assembly retains extreme heat during operation. Allow cooling time before performing any of the following procedures.



CAUTION

Never use a steel hammer to disassemble crankcase or crankshaft. Damage will result. Use a babbitt hammer or a rubber mallet to prevent damage.

a. Disassembly.

(1) Remove and discard four locknuts (1) from crankcase half (2) using 10 mm wrench.

(2) Separate crankcase halves (2 and 3) using a puller.

(3) Remove and discard gasket (4).

(4) Remove crankshaft assembly (5).

(5) Remove two oil seals (6) from crankcase halves (2 and 3) using a small flat tip screwdriver. Discard seals.

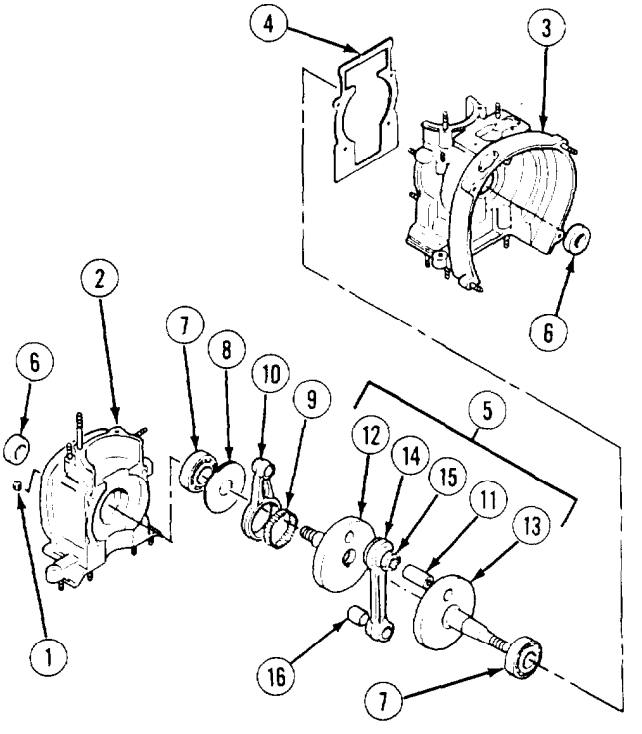
CAUTION

- Do not overheat bearings or damage will result to bearings and crankcase halves.
- Use gloves when handling heated bearings and crankcase halves.

(6) Heat crankcase halves (2 and 3) using a propane torch.

(7) Remove two bearings (7) from crankcase halves (2 and 3).

5-6. CRANKCASE (CONT).



CAUTION

Compressor rod contains 50 needle rollers. Use care not to spill rollers when removing starter side of crankcase. Damage could result to rollers.

(8) Note position and remove thrust washer (8), needle rollers (9), and compressor rod (10).

(9) Disassemble crankshaft assembly (5) as follows:

(a) Press out crank pin (11) and separate crankshaft halves (12 and 13).

(b) Remove piston rod (14).

(c) Remove two needle bearings (15) and piston pin (16) from piston rod (14).

b. Cleaning/Inspection.

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not USC near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

CAUTION

Do not attempt to spin dry bearings. Bearings may fly out of casing and become damaged

(1) Clean all parts with dry cleaning solvent P-D-680 and dry with rag.

(2) Inspect bearings. Replace if rough, discolored, or binding.

(3) Inspect remaining parts for cracks, warpage, and other signs of wear or damage. Replace damagcd parts.

c. Assembly.

(1) Assemble crankshaft assembly (5) as follows:

(a) Install two needle bearings (15) and piston pin (16) in piston rod (14).

(b) Install crank pin (11) in piston rod (14).

(c) Using a press install crankshaft halves (12 and 13) on crank pin (11).

(2) Install compressor rod (10), needle rollers (9), and thrust washer (8) with lip facing away from crankshaft Ensure all 50 needle rollers are in place.

CAUTION

- Do not overheat bearings or damage will result to bearings and crankcase halves.
- Use gloves when handling heated bearings and crankcase halves.

(3) Heat bearing bosses in crankcase halves (2 and 3) with propane torch.

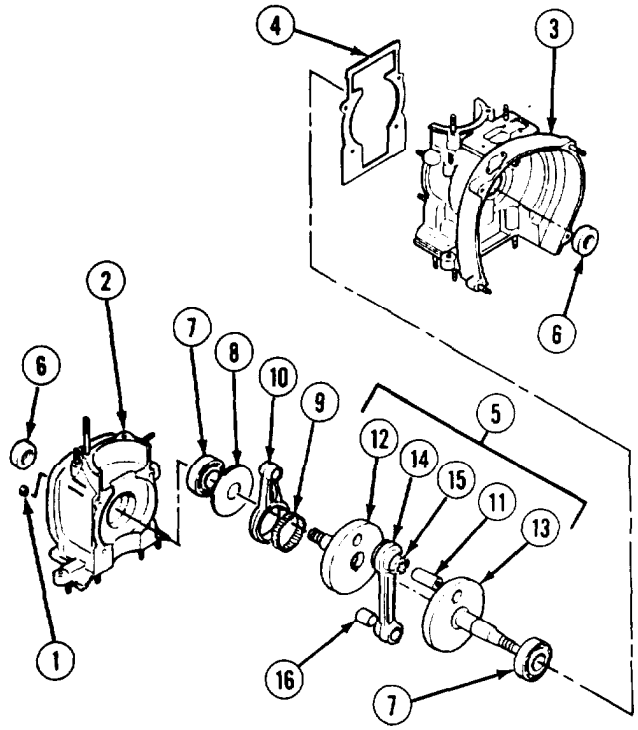
(4) Install two bearings (7) in crankcase halves (2 and 3).

NOTE

Before installing oil seals, allow time for crankcase halves to cool down.

(5) Install two oil seals (6) in crankcase halves (2 and 3).

5-6. CRANKCASE (CONT).



(6) Install crankshaft assembly (5) in crankcase (2).

(7) Install gasket (4) on crankcase (3).

NOTE

Ensure piston and compressor rods are facing out of crankcase assembly correctly.

(8) Using a press, assemble crankcase halves (2 and 3). Install four locknuts (1). Tighten locknuts in a crisscross pattern 120 lb-in (14 N-m).

NOTE

Follow-on maintenance:

- Install compressor cylinder (para 5-9).
- Install engine cylinder (para 5-7).
- Install air hose (para 4-15).
- Install cylinder cover (para 4-11).
- Install operator handle (para-16).
- Install ignition (para 4-21).
- Install magneto (para 4-20).
- Install fuel tank (para 4-19).
- Install air cleaner (para 4-18).
- Install starter (para 4-13).

END OF TASK

5-7. ENGINE CYLINDER AND PISTON.

This task covers:

a. Removal b.Cleaning/Inspection c. Installation

INITIAL SETUP

Tools
Tool Kit, Master Mechanics
Torque wrench

Materials/Parts
Lockwashers (4)
Gasket (1)
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-18	Air cleaner cover removed (part of air cleaner removal).
Para 4-11	Cylinder cover removed.
Para 4-14	Exhaust pipe removed.
Para 4-15	Air hose removed.
Para 4-22	Front end removed.
Para 5-8	Hammer piston removed.

NOTE

Matchmark cylinder and crankcase for ease of installation.

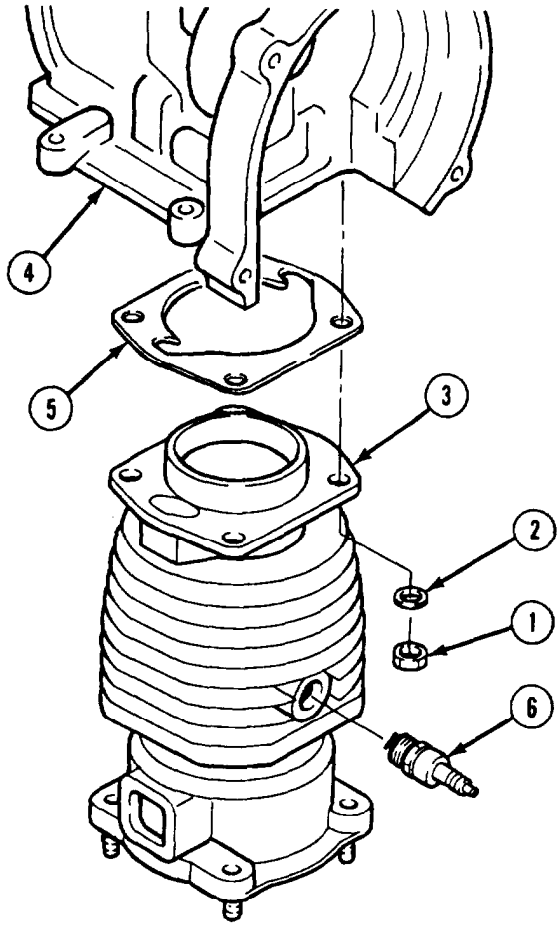
a. Removal.

(1) Remove four nuts (1) using a 13 mm wrench and four lo&washers (2). Discard lo&washers.

(2) Remove engine cylinder (3) from crankcase (4).

(3) Remove and discard gasket (5).

(4) Remove spark plug (6).



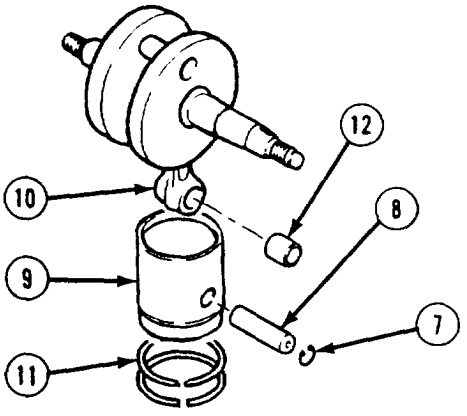
5-7. ENGINE AND CYLINDER PISTON (CONT).

(5) Remove two retaining rings (7).

(6) Remove pin (8) with a suitable rod or punch.

(7) Remove engine piston (9) from connecting rod (10).

(8) Remove two piston rings (11) using a piston ring expander.



NOTE

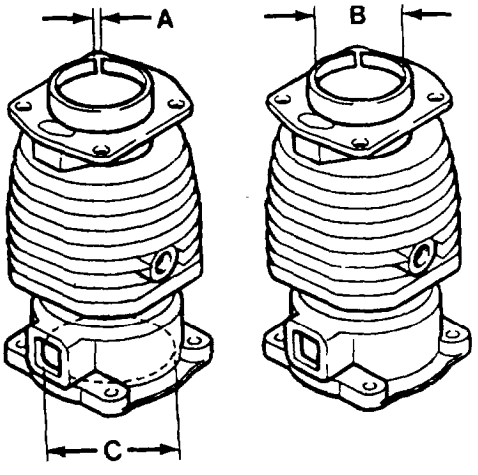
Do not press out bushing unless inspection shows need for replacement.

(9) If necessary, press bushing (12) out of connecting rod (10).

b. Cleaning/Inspection.

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid, If contact with eyes is made, wash your eyes with water and get medical aid immediately.



(1) Clean all parts with dry cleaning solvent P-D-680 and dry with rag.

(2) Measure piston ring gaps in cylinder at position A. Normal gap is between 0.0098 in. to 0.0177 in. (0.25 mm to 0.45 mm). Replace if greater than 0.03937 in. (1.0 mm).

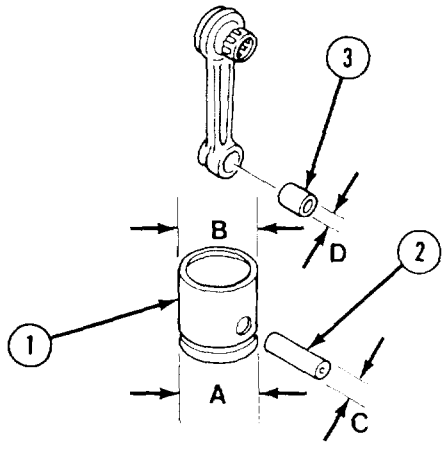
(3) Measure engine cylinder dimension B at top and bottom of bore. Normal bore is between 2.4409 in. to 2.4417 in. (62.00 mm to 62.019 mm). Replace if greater than 2.4448 in. (62.1 mm).

(4) Measure engine cylinder bore at position C. Normal bore is between 3.3465 in. to 3.3472 in. (85.00 mm to 85.019 mm). Replace if greater than 3.3495 in. (85.08 mm).

(5) Measure engine piston (1) diameter at position A, Normal diameter is between 2.4326 in. to 2.4334 in. (61.79 mm to 61.81 mm). Replace if less than 2.4307 in. **(61.74** mm).

(6) Measure engine piston (1) diameter at position B. Normal diameter is between 2.4366 in. to 2.4373 in. (61.89 mm to 61.91 mm). Replace if less than 2.4346 in. (61.84 mm).

(7) Measure piston pin (2) diameter at position C. Normal diameter is between 0.5905 in. to 0.5910 in. (15.001 mm to 15.012 mm). Replace if less than 0.5897 in. (14.98 mm).



(8) Measure inside diameter of bushing (3) at position D. Normal diameter is between 0.5911 in. to 0.5916 in (15.016 mm to 15.027 mm). Replace if more than 0.5925 in. (15.05 mm).

(9) Clean any gasket material and sealant from cylinder and crankcase mating surfaces.

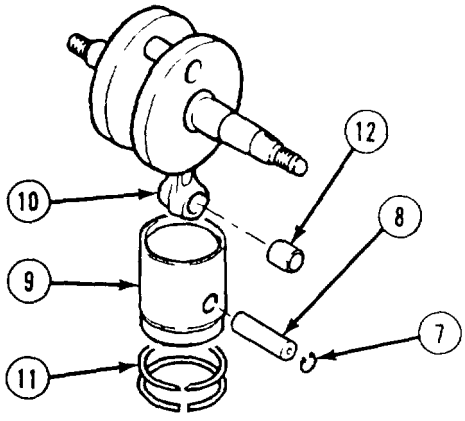
c. Installation.

(1) If removed, install bushing (12) in connecting rod (10) using a press.

(2) Install two piston rings (11). Ensure ring gaps line up with positioning pins in ring grooves.

(3) Install engine piston (9) and pin (8) through piston and connecting rod (10).

(4) Install two retaining rings (7) in recessed grooves.

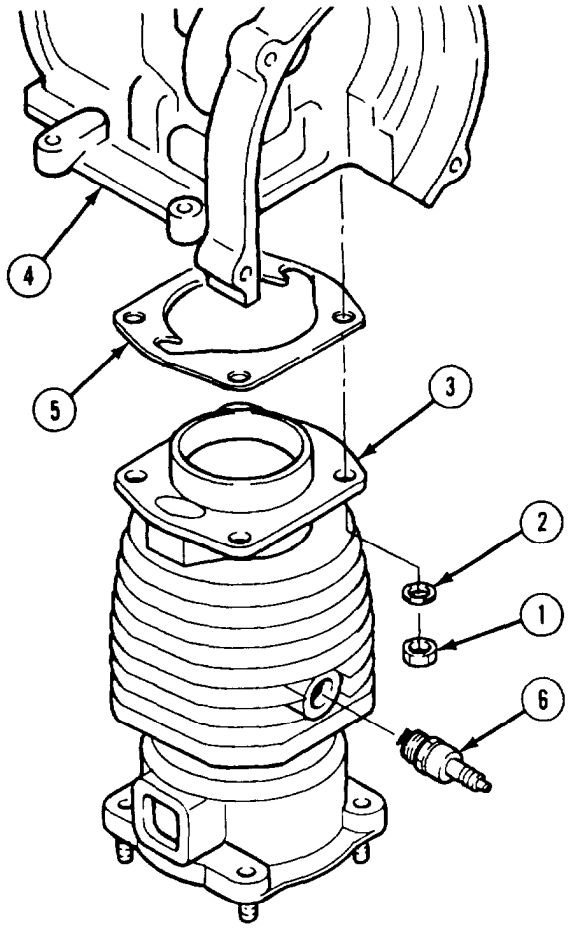


5-7. ENGINE AND CYLINDER PISTON (CONT).

(5) Install gasket (5) over studs on crankcase body (4).

(6) Install cylinder (3) with four lo&washers (2) and four nuts (1). Tighten nuts 26 lb-ft (35 N-m).

(7) Install spark plug (6).



NOTE

Follow-on maintenance:

- Install hammer piston (para 5-8).
- Install front end (para 4-22.
- Install air hose (para 4-15).
- Install exhaust pipe (para 4-14).
- Install cylinder cover (para 4-l 1).
- Install air cleaner cover (para 4-18).

END OF TASK

5-8. HAMMER PISTON.

This task covers:

a. Removal b. Cleaning/Inspection c. Installation

INITIAL SETUP

Tools
Tool Kit, General Mechanic's: Automotive
Shop Equipment, Automotive Maintenance and Repair Organizational Maintenance Common *No. 2*, Less Power

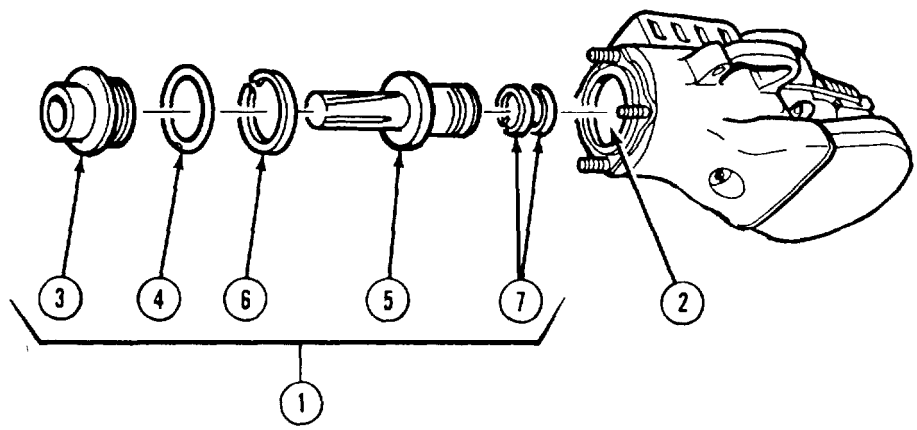
Materials/Parts
Packing (1)
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-22	Front end removed.

General Safety Instructions
Engine cylinder and pistons become extremely hot during operation. Allow time for cooling before performing procedure.

a. Removal.



CAUTION

Use care when removing distance piece and hammer piston from cylinder to avoid damaging bushing.

(1) Remove hammer piston assembly (1) from cylinder (2).

(2) Remove distance piece (3) and packing (4) from hammer piston (5).

(3) Remove and discard packing (4) from distance piece (3).

(4) Remove large piston ring (6) and two small piston rings (7).

5-8. HAMMER PISTON (CONT).

b. Cleaning/Inspection.

WARNING

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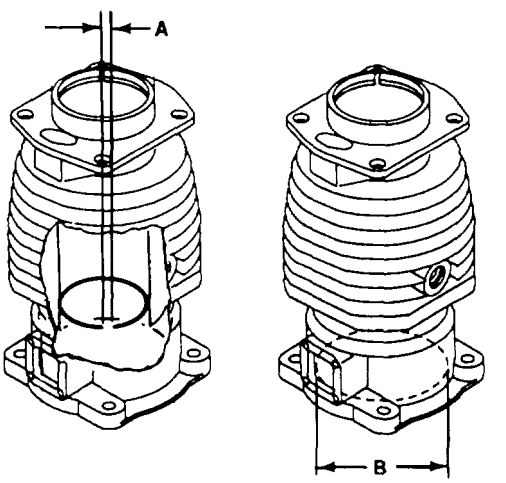
(1) Clean all metal parts with dry cleaning solvent P-D-680 and dry with rag.

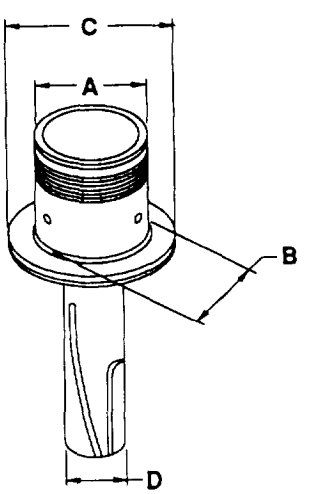
(2) Measure small hammer piston rings gap (position A) and large hammer piston ring gap (position B) installed in cylinder. Normal gap is between 0.0098 in. to 0.0177 in. (0.25 mm to 0.45 mm). Replace if gap is greater than .03937 in. (1.0 mm).



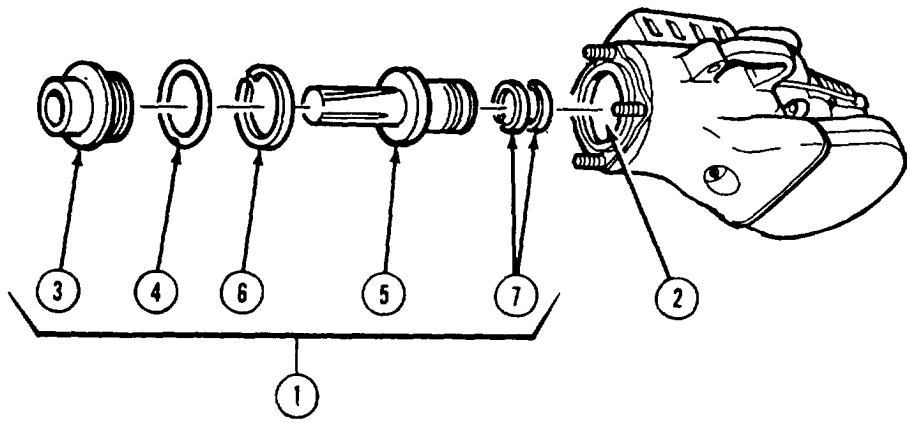
(3) Measure hammer piston diameter at position A. Normal diameter is between 2.4358 in. to 2.4370 in. (61.87 mm to 61.90 mm). Replace if less than 2.4318 in. (61.77 mm).

(4) Measure hammer piston diameter at position B. Normal diameter is between 2.4385 in, to 2.4397 in. (61.94 mm to 61.97 mm). Replace if less than 2.4346 in. (61.84 mm).

(5) Measure hammer piston diameter at position C. Normal diameter is between 3.3427 in. to 3.3436 in. (84.906 mm to 84.928 mm). Replace if less than 3.3415 in. (84.876 mm).



(6) Measure hammer piston diameter at position D. Normal diameter is between 1.2594 in. to 1.2598 in. (31.989 mm to 32.00 mm). Replace if less than 1.2586 in. (31.97 mm).



c. Installation.

(1) Install two small piston rings (7) with ring gaps 180º apart on hammer piston (5).

(2) Install large piston ring (4) on hammer piston (5).

(3) Install packing (4) on distance piece (3).

(4) Install distance piece (3) on hammer piston (5).

(5) Install hammer piston assembly (1) in cylinder (2).

NOTE

Follow-on maintenance: Install front end (para 4-22).

END OF TASK

5-9. COMPRESSOR CYLINDER AND PISTON.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

Tools
Tool Kit, Master Mechanics

Materials/Parts
Lockwashers (6)
Gaskets (4)
Cylinder head gasket (1)
Cylinder gasket (1)
Valve body gasket (1)
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-16	Operator handle removed.
Para 4-19	Fuel tank removed.
Para 4-18	Air cleaner cover removed (part of air cleaner removal).
Para 5-10	Carburetor removed.

General Safety Instructions
Engine retains extreme heat in operation. Allow cooling time before performing procedure.

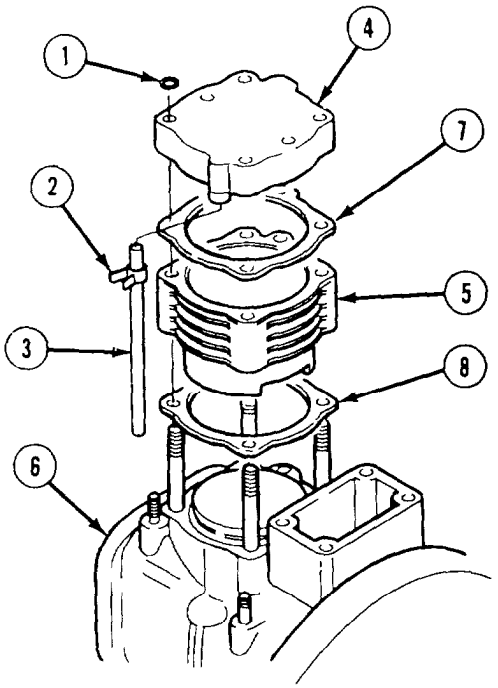
a. Removal.

(1) Remove and discard four gaskets (1).

(2) Disconnect hose clip (2) and remove air hose (3).

(3) Matchmark positions of cylinder head (4), compressor cylinder (5), and crankcase (6).

(4) Remove cylinder head (4), head gasket (7), compressor cylinder (5), and cylinder gasket (8). Discard gaskets.



b. Disassembly.

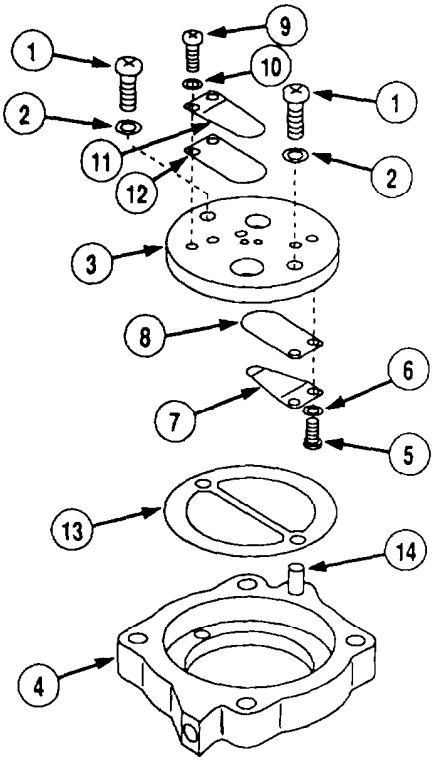
(1) Remove two screws (1) using a cross-tip screwdriver and two lockwashers (2). Discard lockwashers.

(2) Remove compressor valve body (3) from cylinder head (4).

(3) Remove two screws (5) using a cross-tip screwdriver, two lockwashers (6), retainer (7), and reed valve (8). Discard lockwashers.

(4) Remove two screws (9) using a cross-tip screwdriver, two lockwashers (10), retainer (11), and reed valve (12). Discard lockwashers.

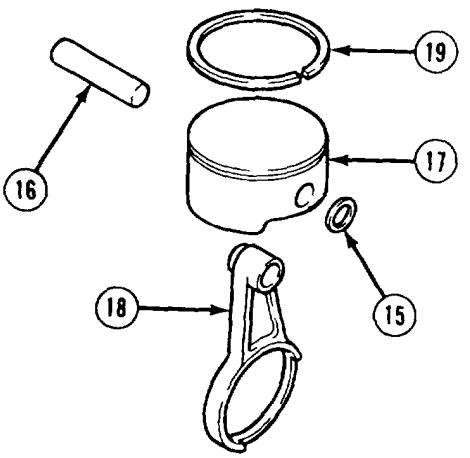
(5) Remove valve body gasket (13) and hose joint (14). Discard gasket.



(6) Remove two retaining rings (15) and piston pin (16).

(7) Remove compressor piston (17) from connecting rod (18).

(8) Remove piston ring (19) with a piston ring expander.



5-9. COMPRESSOR CYLINDER AND PISTON (CONT).

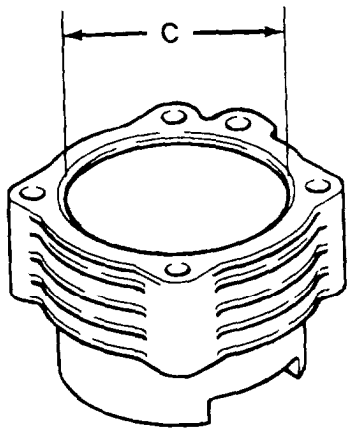
c. Cleaning/Inspection.

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 -140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

(1) Clean all metal parts with dry cleaning solvent P-D-680 and dry with rag.

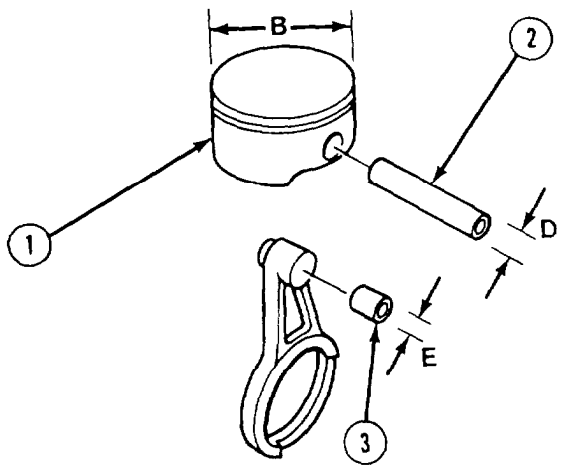
(2) Measure inside of cylinder bore at position C. Normal diameter is between 2.7559 in. to 2.7570 in. (70.00 mm to 70.03 mm). Replace if greater than 2.7598 in. (70.1 mm).



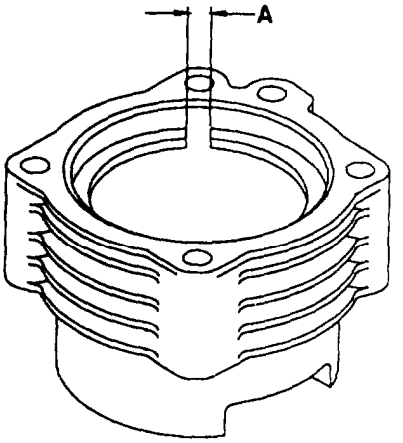
(3) Measure compressor piston (1) diameter at position B. Normal diameter is between 2.7523 in. to 2.7535 in. (69.91 mm to 69.94 mm), Replace if diameter is less than 2.7503 in. (69.86 mm).

(4) Measure piston pin (2) diameter at position D. Normal diameter is between 0.4724 in. to 0.4729 in. (12.001 mm to 12.012 mm). Replace if less than 0.4716 in. (11.98 mm).

(5) Measure inside diameter of bushing (3) at position E. Normal diameter is between 0.4730 in. to 0.4735 in. (12.016 mm to 12.027 mm). Replace if more than 0.4744 in. (12.05 mm).



(6) Measure piston ring gap while inside of cylinder as shown on position A Normal gap is between 0.0098 in. to 0.0177 in. (0.25 mm and 0.45 mm). Replace piston ring if gap greater than 0.03937 in. (1.0 mm).



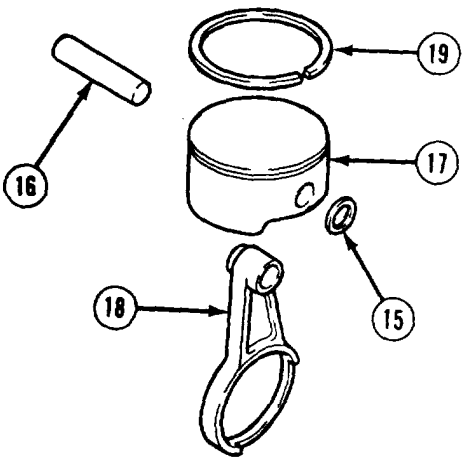
(7) Clean gasket material from compressor cylinder and mating surface on crankcase to prevent leaks.

d. Assembly.

(1) Install piston ring (19).

(2) Install compressor piston (17) on connecting rod (18).

(3) Install piston pin (16) and two retaining rings (15).



5-9. COMPRESSOR CYLINDER AND PISTON (CONT).

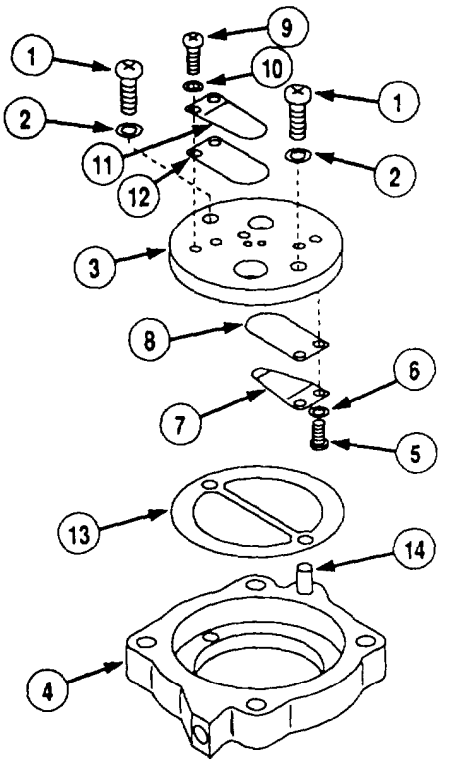
(4) Install hose joint (14) and valve body gasket (13).

(5) Install reed valve (12), retainer (11), two lockwashers (10) and two screws (9). Gap between reed valve and retainer should be between 0.0787 in. and 0.098 in. (2.0 mm and 2.5 mm).

(6) Install reed valve (8), retainer (7), two lockwashers (6), and two screws (5). Gap between reed valve and retainer should be between 0.0787 in. and 0.098 in. (2.0 mm and 2.5 mm).

(7) Install compressor valve body (3) on cylinder head (4).

(8) Install two lockwashers (2) and two screws (1).



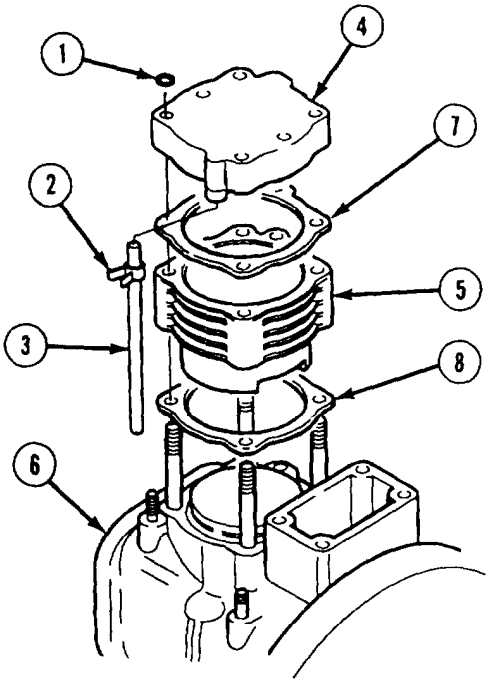
e. Installation.

(1) Install cylinder gasket (8) and cylinder (5) on crankcase (6). Align hole on compressor cylinder with hole on crankcase.

(2) Install head gasket (7) and cylinder head (4) on compressor cylinder (5).

(3) Install air hose (3) and hose clip (2).

(4) Install four gaskets (1).



NOTE

Follow-on maintenance:

- Install carburetor (para 5-10).
- Install air cleaner cover (para 4-18).
- Install fuel tank (para 4-19).
- Install operator handle (para 4-16).

END OF TASK

5-10. CARBURETOR.

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

Tools
Tool Kit, Master Mechanics
Torque wrench

Materials/Parts
Pump gasket (1)
Inlet screen (1)
Carburetor gasket (1)
Carburetor box gaskets (2)
Diaphragm gasket (1)
Locknuts (2)

Materials/Parts
Locknuts (3)
Spacer (1)
Collars (3)
Rag, wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-18	Air cleaner removed.
Para 4-16	Handle assembly removed.

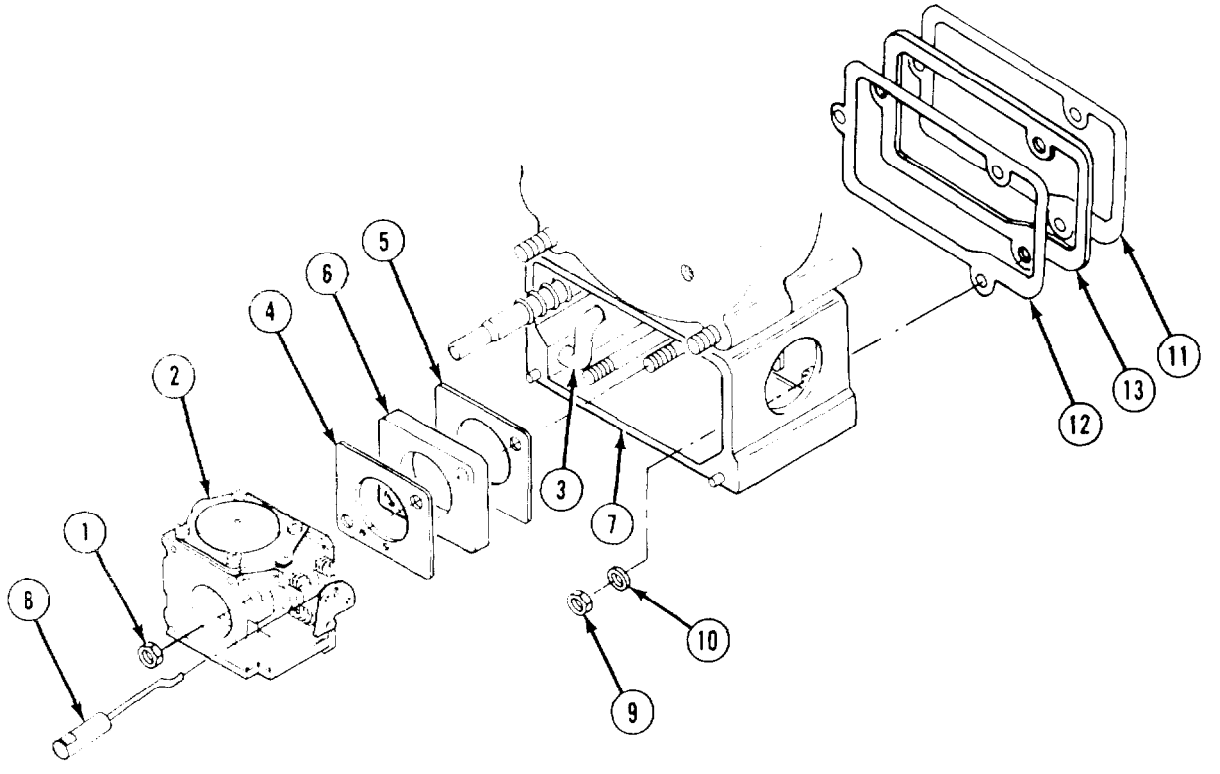
WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death:

- Keep fuel away from open flame or any spark (ignition source).
- Keep at least a B-C fire extinguisher within easy reach when working with fuel or on a fuel system.
- Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
- Post signs that read: "NO SMOKING WITHIN 50 FEET OF VEHICLES" when working with open fuel, fuel lines or fuel tanks.

5-10 CARBURETOR (CONT).

a. Removal.



(1) Remove and discard two locknuts (1) using 8 mm wrench.

(2) Remove carburetor (2), pipe joint (3), gaskets (4 and 5), and spacer (6) from carburetor box (7). Discard gaskets and spacer.

(3) Remove throttle rod (8) from carburetor (2).

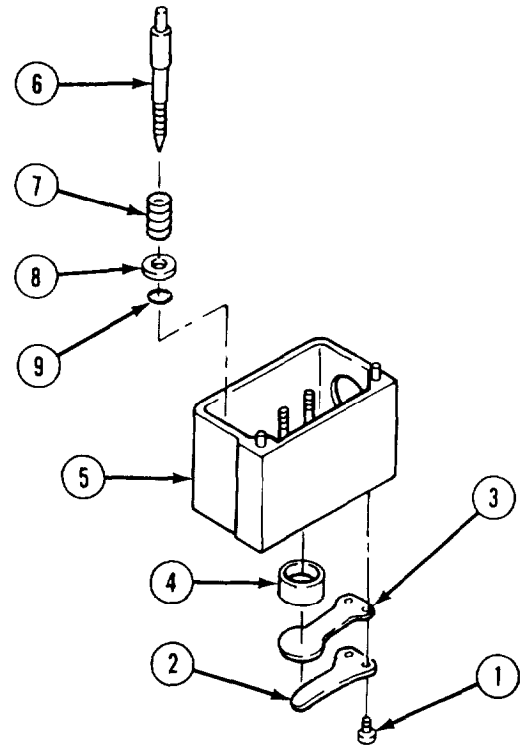
(4) Remove three locknuts (9), three collars (10) and carburetor box (7) using 8 mm wrench, Discard locknuts and collars.

(5) Remove carburetor gaskets (11 and 12), and plate (13). Discard gaskets.

b. Disassembly.

(1) Remove two screws (l), retainer (2), reed valve (3) and valve seat (4) from carburetor box (5) using a flat tip screwdriver.

(2) Remove needle screw (6), spring (7), washer (8), and packing (9) using 7 mm wrench. Discard packing.

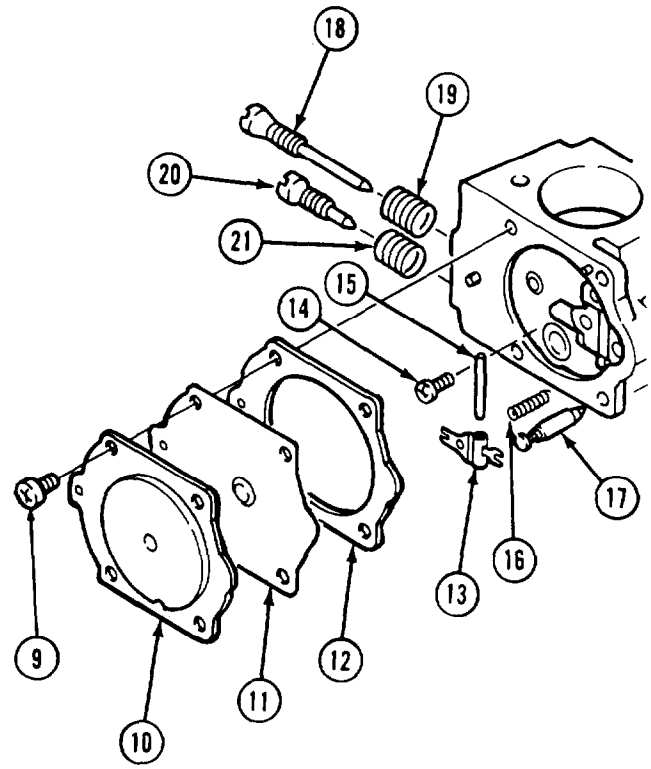


(3) Remove four assembled screws (9) and diaphragm cover (10) using hex-head screwdriver.

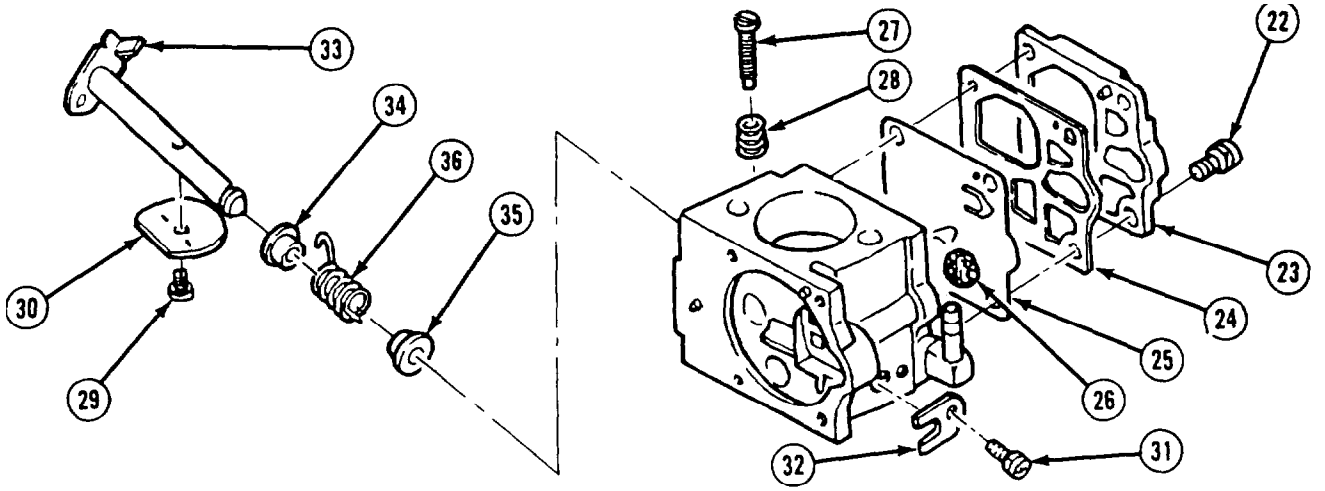
(4) Remove diaphragm (11) and gasket (12) from metering lever (13). Discard gasket.

(5) Remove lever pin screw (14), metering lever (13), pin (15), metering spring (16), and needle valve (17) using hex-head screwdriver.

(6) Remove high speed needle (18), needle spring (19), idle speed needle (20), and needle spring (21) using flat tip screwdriver.



5-10. CARBURETOR (CONT).



(7) Remove four assembled screws (22) using cross-tip screwdriver.

(8) Remove pump cover (23), pump gasket (24) pump diaphragm (25), and inlet screen (26). Discard gasket and screen.

(9) Remove idle adjustment screw (27) and spring (28) using flat lip screwdriver.

(10) Remove screw (29) and throttle valve (30) using flat tip screwdriver.

(11) Remove screw (31) and throttle clip (32) from end of throttle shaft (33) using cross-tip screwdriver.

NOTE

Only remove throttle shaft if cleaning is necessary. Throttle bushings, throttle shaft, and throttle return spring are not available as service parts.

(12) Remove throttle shaft (33), two throttle bushings (34 and 35), and throttle return spring (36).

c. Cleaning/Inspection.

WARNING

Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

(1) Clean all parts using dry cleaning solvent P-D-680 and dry with rag.

(2) Inspect diaphragms. Replace any which are cracked or distorted.

(3) Inspect needle screw. Replace if tip is scored or damaged.

d. Assembly.

(1) Install throttle bushing (34), throttle return spring (36), and throttle bushing (35) on throttle shaft (33).

(2) Install throttle shaft (33), throttle clip (32) and screw (31).

(3) Install throttle valve (30) and screw (29). Adjust throttle lever so throttle valve is wide open when throttle lever is over throttle stop.

(4) Install spring (28) and idle adjustment screw (27).

(5) Install inlet screen (26), pump diaphragm (25), gasket (24) and pump cover (23).

(6) Install four assembled screws (22).

(7) Install needle spring (21) and low speed needle (20) in hole marked "L." Install needle spring (19) and high speed needle (18) in hole marked "H"

NOTE

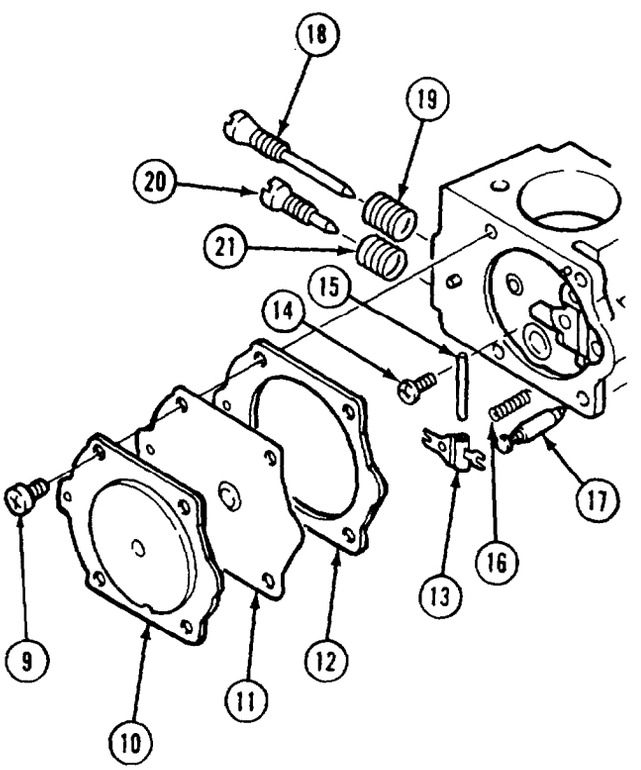
Slot in metering lever (13) must engage with top of needle valve (17).

(8) Install needle valve (17) and metering spring (16). Assemble and install pin (15) and metering lever (13).

(9) Install lever pin screw (14).

(10) Install gasket (12) and diaphragm (11). Align pin on diaphragm to engage slot on fully seated metering lever (13). Ensure that diaphragm is flush with carburetor.

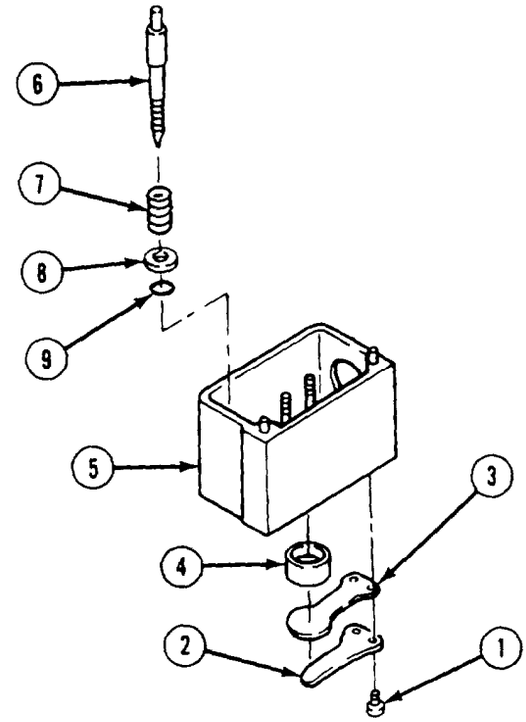
(11) Install diaphragm cover (10) with four assembled screws (9).



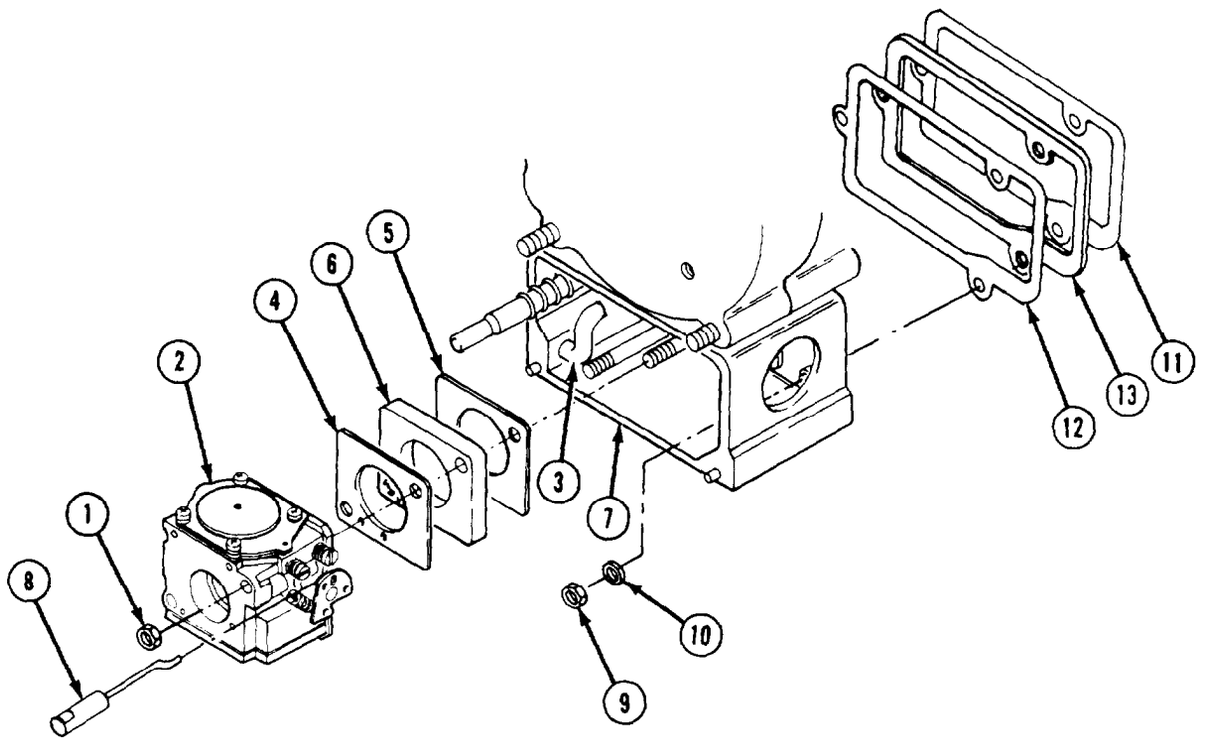
5-10. CARBURETOR (CONT).

(12) Install packing (9), washer (8), spring (7), and needle screw (6) in carburetor box (5) using 7 mm wrench.

(13) Install valve seat (4), reed valve (3), retainer (2), and two screws and washers (1) in carburetor box (5). The gap between retainer and reed valve must be between 0.0787 and 0.098 in. (2.0 and 2.5 mm).



e. Installation.



(1) Install carburetor gasket (12), plate (13), and carburetor gasket (11).

(2) Install carburetor box (7), three collars (10) and three locknuts (9).

(3) Install throttle rod (8) on carburetor (2).

NOTE

Align holes in gaskets and spacer with holes in carburetor box.

(4) Install gasket (5), spacer (6), gasket (4), and pipe joint (3) on carburetor box (7).

(5) Install carburetor (2) and attach pipe joint (3) to carburetor,

(6) Install two locknuts (1) and tighten to 14 lb-in (1.6 N.m).

NOTE

Follow-on maintenance:

- Install operator handle (para 4-16).
- Install air cleaner (para 4-18).
- Perform carburetor adjustments (para 4-17).

END OF TASK

5-11. FRONT END ASSEMBLY.

This task covers:

a. Disassembly b. Cleaning/Inspection c. Assembly

INITIAL SETUP

Tools
Tool Kit, Master Mechanics
Shop Equipment, Automotive Maintenance and Repair; Organizational Maintenance, Common No. 1, Less Power
Torque wrench

Materials/Parts
Thrust washer (1)
Air seal (1)

Materials/Parts
Lockwashers (4)
Loctite: item 6, Appendix E
Rag, Wiping: item 8, Appendix E
Solvent, dry cleaning: item 9, Appendix E

Equipment Condition

TM or Para	*Condition Description*
Para 4-22	Front end removed.

NOTE

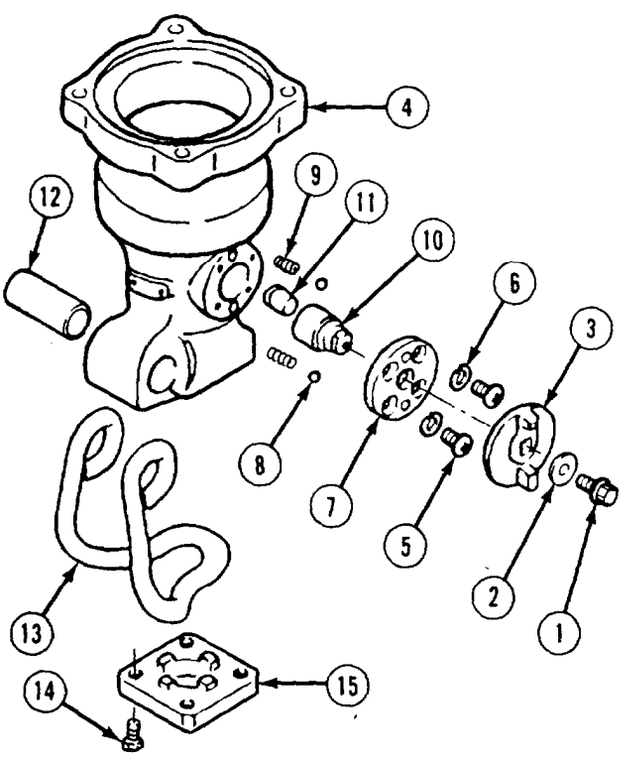
If replacing triggers or trigger spring, go to c. Assembly (4).

a. Disassembly.

(1) Remove screw and washer assembly (l), retaining plate (2), and mode selector (3) from front end (4) using 5 mm socket head screw key.

CAUTION

Heat may be required to remove screws, use care not to overheat. Use adequate hand protection when handling heated material.



(2) Remove four screws (5) and four lockwashers (6) using 4 mm key socket wrench. Discard lockwashers.

(3) Remove stopper plate (7), two balls (8), two springs (9), rotor (10), and selector pin (11).

(4) Remove spring pin (12) and tool holder (13).

(5) Remove four screws (14) and end plate (15) using 5 mm socket head screw key.

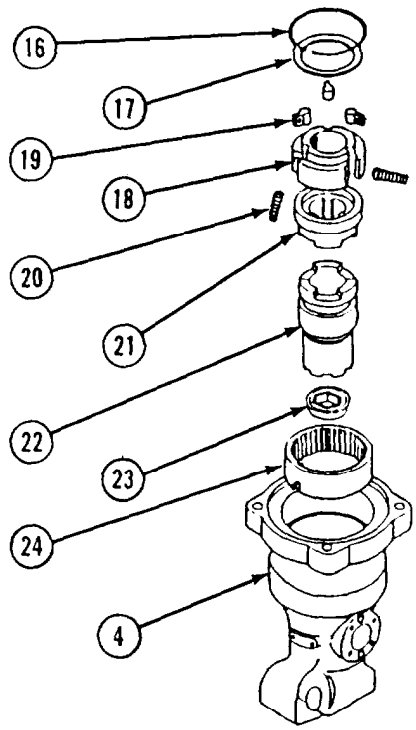
(6) Remove retaining ring (16) and thrust washer (17) with screwdriver. Discard thrust washer.

CAUTION

Remove ratchet wheel assembly carefully. Damage may result to assembly if dropped.

(7) Remove ratchet wheel (18), three ratchet triggers (19), three trigger springs (20). clutch wheel (21) and internal shaft (22).

(8) Remove air seal (23) from internal shaft (22) using a screwdriver. Discard air seal.



CAUTION

Do not overheat front end. Damage may result. Use adequate hand protection when removing ratchet gear.

(9) Warm front end (4) with a propane torch and remove ratchet gear (24).

b. Cleaning/Inspection.

WARNING

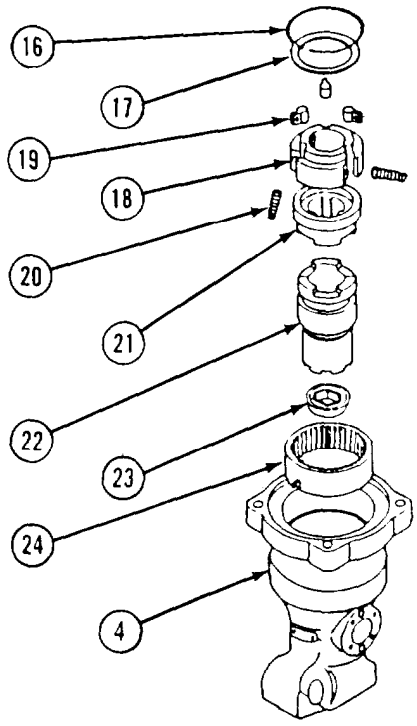
Dry cleaning solvent P-D-680 is TOXIC and flammable. Wear protective goggles and gloves and use in well ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Do not use near open flame or excessive heat. The flashpoint 100 - 140 degrees F (38 - 60 degrees C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

(1) Clean all metal parts with dry cleaning solvent P-D-680 and dry with rag.

(2) Inspect all parts for wear and damage. Replace damaged parts.

5-11. FRONT END ASSEMBLY (CONT).

c. Assembly.



CAUTION

Never force ratchet gear in front end: apply additional heat until it can be inserted smoothly. Do not overheat. Damage may result.

(1) Heat front end (4) opening and install ratchet gear (24).

(2) Install air seal (23) into internal shaft (22).

(3) Install internal shaft (22) and clutch wheel (21).

NOTE

Small end of trigger springs seat in dimple on ratchet triggers.

(4) Install three trigger springs (20) and three ratchet triggers (19) in ratchet wheel (18).

(5) Install ratchet wheel (18).

(6) Install retaining ring (16) and thrust washer (17)

(7) Install end plate (15) and four screws (14).

(8) Install tool holder (13) and spring pin (12).

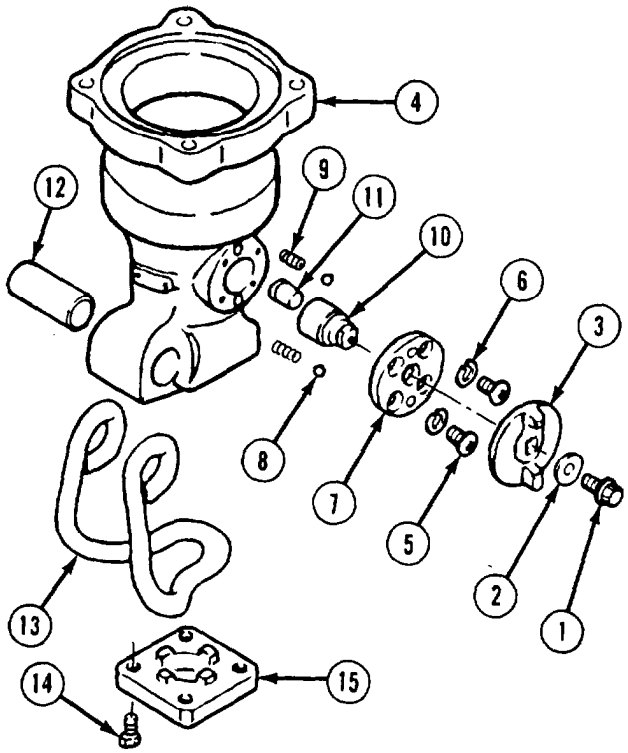
(9) Install selector pin (11) and rotor (10) using a small amount of grease to hold in front end (4).

NOTE

Check to ensure that selector pin engages groove in internal shaft before proceeding.

(10) Install two springs (9) in front end (4).

(11) Install two balls (8) in stopper plate (7).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Ensure balls and springs are aligned.

(12) Apply loctite to four screws (5) and install stopper plate (7) with four lockwashers (6) and four screws. Tighten to 120 lb-in (14 N.m).

NOTE

Mode selector and front end must be aligned so that internal shaft is engaged with notches in end plate when "B" on selector mode is up.

(13) Install mode selector (3), retaining plate (2), and screw and washer (1) with 6 mm socket head screw key.

NOTE

Follow-on maintenance: Install front end (para 4-22).

END OF TASK

APPENDIX A

REFERENCES

A-1. SCOPE.

Indexes should be consulted frequently for latest changes or revisions of references given in this appendix and for new publications relating to material covered in this publication.

Military Publications Indexes.

Consolidated Index of Army Publications and Forms ..... DA PAM 310-1

A-2. FORMS

Refer to DA PAM 738-750, the Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the paving breaker.

A-3. FIELD MANUALS.

The following publications contain information pertinent to the paving breaker material.

Camouflage ..... FM 5-20
Operation and Maintenance of Ordinance Material in Cold Weather 0°F to -65°F ..... FM 9-207
Nuclear, Biological, and Chemical Defense ..... FM 21-40
Nuclear, Biological, and Chemical (NBC) Reconnaissance and Decontamination Operations (How to Fight) ..... FM 387 (HTF)

A-4. TECHNICAL MANUALS.

Chemical, Biological, and Radiological (CBR) Decontamination ..... TM 3-220
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordinance Material and Related Materials Including Chemicals ..... TM 9-247

A-5. MISCELLANEOUS PUBLICATIONS.

Description, Use, Bonding Techniques, and Properties of Adhesives . . . . TB ORD1032

APPENDIX B

MAINTENANCE ALLOCATION CHART (MAC)

PAVING BREAKER

Section I. INTRODUCTION

B-1. GENERAL

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

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels.

c. Section III lists the tools and test equipment required for each maintenance function as referenced from section II.

B-2. MAINTENANCE FUNCTIONS.

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of 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.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of placing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

i. Repair. The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUMNS IN SECTION II.

a. Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00".

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s) the level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work time figures will be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

C Operator or Crew	H General Support Maintenance
O Unit Maintenance	D Depot Maintenance
F Direct Support	

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, Tool Kit. The national stock number of the tool or test equipment.

Section II. MAINTENANCE ALLOCATION CHART

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
01	ENGINE								
0100	Engine Assembly:	Inspect	0.1						
		Service	0.2						
		Adjust		0.5					
		Replace			2.0			1, 3	
		Repair			4.0			1, 3	
0101	Crankcase, Block, Cylinder Head:								
	Crankcase	Replace			1.0			1, 3	
		Repair			1.0			1, 3	
	Engine Cylinder	Replace			1.0			1	
		Repair			0.5			1	
0102	Crankshaft Assembly:	Replace			2.0			1, 3	
		Repair			2.0			1, 3	
0104	Piston, Connecting Rod:	Replace			2.0			1	
		Repair			2.0			1	
0107	Engine Starting System:	Inspect	0.1						
		Replace		0.5				5	
		Repair		0.1				5	
03	FUEL SYSTEM								
0301	Carburetor:	Adjust		0.5				5	
		Replace			1.0			1	
		Repair			1.5			1	
0304	Air Cleaner:	Inspect	0.1						
		Service	0.3					5	
		Replace	0.3					5	
0306	Tank, Lines and Fittings, Manifold:								
	Fuel Tank Assembly	Inspect	0.1						
		Service	0.3					5	
		Replace		1.0				5	
		Repair		0.5				5	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0605	Ignition Components								
	Magneto/Flywheel Assembly	Inspect Test Replace		0.3 0.5 0.5				2 5	
22	BODY CHASSIS OR HULL, AND ACCESSORY ITEMS								
2210	Data Plates and Instruction Holders								
	Data Plates and Instruction Holders	Replace		0.3					
73	CONCRETE AND ASPHALT EQUIPMENT COMPONENTS								
7303	Controls:								
	Handle Assembly	Replace		1.5				5	
7314	Tampers and Tamper Drive:								
	Front End Assembly and Piston	Replace Repair		1.5	 2.0			5 1, 3, 4	

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

Table B-2. Tool and Test Equipment Requirements

Tool or Test Equipment Ref Code	Maintenance Level	Nomenclature	Tool Kit Stock Number
1	F	Tool Kit, Master Mechanic's	5180-00-699-5273
2	0,F	Tool Kit, Automotive and Electrical System Repair	5180-00-754-0655
3	0	Shop Equipment, Automotive Maintenance and Repair; Organizational Maintenance, Common No. 1, Less Power	4910-00-754-0654
4	0	Shop Equipment, Automotive Maintenance and Repair Organizational Maintenance Common No. 2, Less Power	4910-00-754-0650
5	0	Tool Kit, General Mechanic's: Automotive	5180-00-177-7033

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

C-l. SCOPE.

This appendix lists components of end item and basic issue items for the paving breaker to help you inventory items required for safe and efficient operation.

C-2. GENERAL.

The Components of End Item and Basic Issue Items are divided into the following sections:

a. ***Section ll Components of End Item.*** This listing is for information purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. ***Section Ill-Basic issue Items.*** These are the items which are provided with the paving breaker to operate and perform repairs. BII must be with the paving breaker during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard to identity items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings.

a. ***Column (1) illustration Number.*** This column indicates the number of the illustration on which the item is shown.

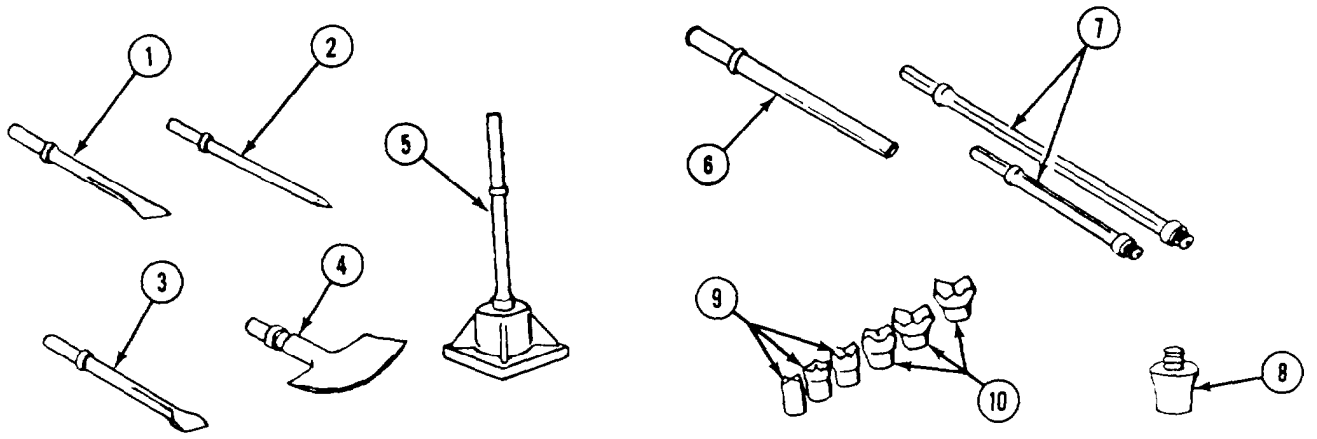
b. ***Column (2) National Stock Number.*** Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

c. ***Column (3) Description.*** Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the CAGE (in parentheses) followed by the part number. The "Useablc On Code" heading is not applicable for this manual.

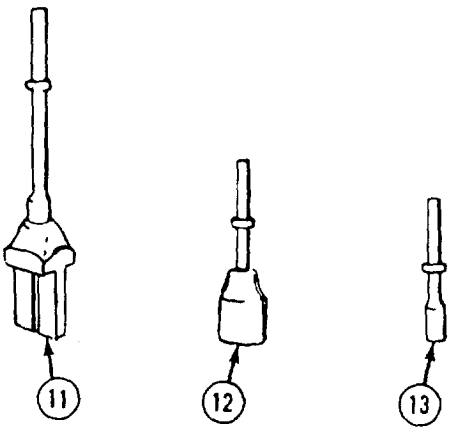
f. ***Column (4) Unit of Measure.*** Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two character alphabetical abbreviation (e.g., ea, in, pr).

e. ***Column (5) Quantity required.*** Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

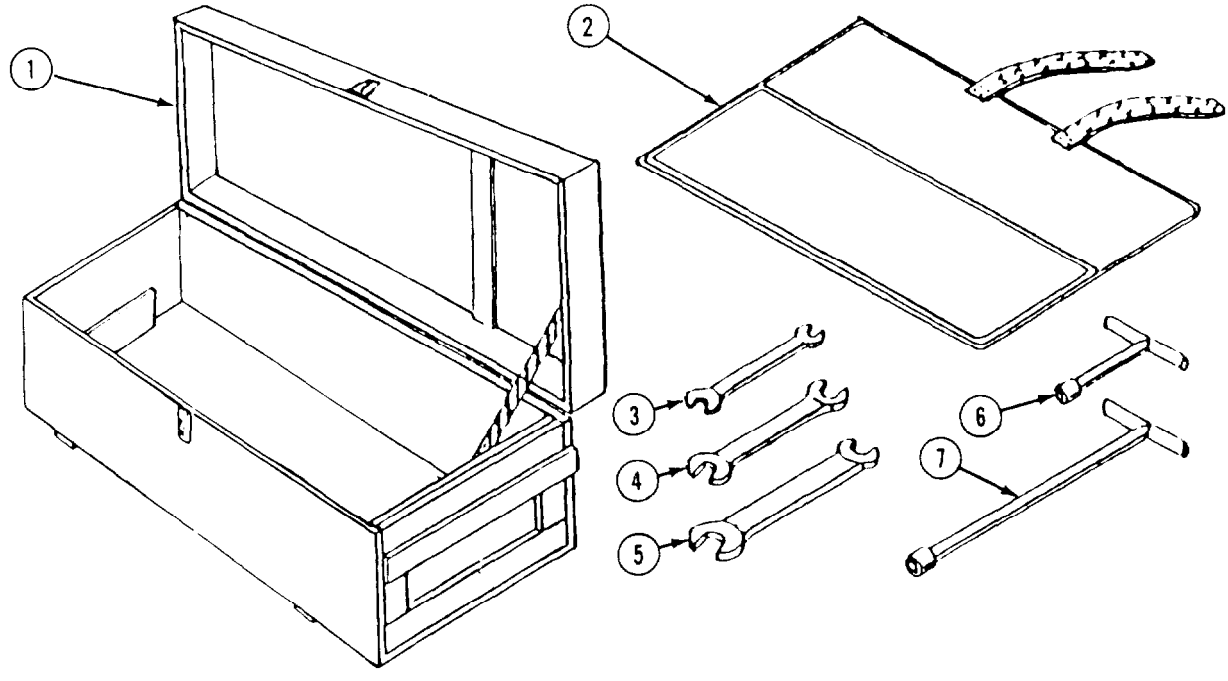


(1) Illus. No.	(2) National Stock Number	(3) Description CAGE and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
1	3820-01-348-1409	CHISEL, NARROW 1" W x 11" L (3AA65) 100-0134		EA	1
2	3820-01-348-3718	MOIL POINT 11" L (3AA65) 100-0214		EA	1
3	3820-01-348-3716	CHISEL, ASPHALT, 3" W x 11" L (3AA65) 100-2214		EA	1
4	3820-01-339-4186	SPADE, 5" W x 11" L (3AA65) 100-3205		EA	1
5	3820-01-339-1597	ROD AND PAD, TAMPING, 5" W x 6" L (3AA65) 100-5106		EA	1
6	3820-01-348-3717	DRILL, INTEGRAL w/INSERT, 16" L (3AA65) 800-0434-65		SE	1
7	3820-01-338-5764 3820-01-338-3590	DRILL ROD, STEEL, H-THREAD, 18" L, 30" L (3AA65) 1000-02, 1000-04		SE	1
8	3820-01-348-1876	ADAPTER, "H" TO "D" THREAD (3AA65) 1000~00A		EA	1
9	3820-01-338-3591 3820-01-338-3592 3820-01-338-3593	ROCK BITS, DETACHABLE, l-1/2" Dia, l-5/8" Dia, l-3/4" Dia, w/CARBIDE INSERT, H THREAD (3AA65) 1010-02,1010-03,1010-04		SE	1
10	3820-01-338-3594 3820-01-338-3595 3820-01-338-3596	ROCK BITS, DETACHABLE, l-1/2" Dia, l-5/8" Dia, 1-3/4" Dia, wo/CARBIDE INSERT, H THREAD (3AA65), 1020-02, 1020-03, 1020-04		SE	1

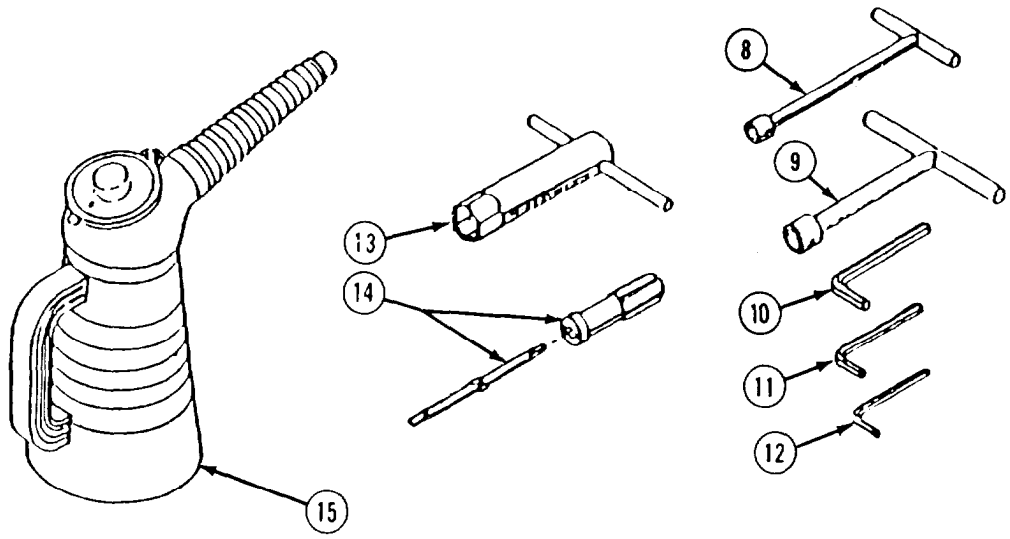


(1) Illus. No.	National Stock Number	(3) Description CAGE and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
11	3820-01-348-1877	DRIVER, TOOL, For U-Channel, 3-5/8" x 2" Thick (3AA65)700-099		EA	1
12	3820-01-348-1878	DRIVER, STAKE AND PIN, 2" ID x 2" Deep Cut (3AA65)300-5520		SE	1
13	3820-01-348-1879	DRIVER, GROUND ROD, 1" ID x 2" Deep (3AA65)200-5510		EA	1

Section III. BASIC ISSUE ITEMS



(1) Illus. No.	National Stock Number	(3) Description CAGE and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
1	2540-01-339-7847	BREAKER CONTAINER (3AA65) 1044-901		EA	1
2	5140-01-346-2520	TOOL BAG (3AA65) 1044-902		EA	1
3	5120-01-346-2515	WRENCH, DOUBLE ENDED 5.5 x 7 mm (3AA65) YS-5507		EA	1
4	5120-01-193-5031	WRENCH, DOUBLE ENDED 10 x 13 mm (96272) 1118		EA	1
5	5120-01-102-4472	WRENCH, DOUBLE ENDED 19 x 22 mm (55719) VOM1922		EA	1
6	5120-01-346-2511	WRENCH, SOCKET 8 mm (3AA65) YB-08		EA	1
7	5120-01-346-2512	WRENCH, SOCKET 10 mm (3AA65) YB-10		EA	1



(1) Illus. No.	(2) National Stock Number	(3) Description CAGE and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
8	5120-01-346-2513	WRENCH, SOCKET 13 mm. (3AA65) YB-13		EA	1
9	5120-01-346-2514	WRENCH, SOCKET 19 mm. (3AA65) YB-19		EA	1
10		KEY, SOCKET HEAD SCREW 6 mm. (3AA65) YL-05		EA	1
11	5120-01-045-4889	KEY, SOCKET HEAD SCREW 4 mm. (74445) 57124		EA	1
12	5120-01-045-4886	KEY, SOCKET HEAD SCREW 2 mm. (74445) 57118		EA	1
13	5120-01-346-3087	WRENCH, SPARK PLUG SOCKET (3AA65) YZ-001		EA	1
14	5120-01-346-3099	SCREWDRIVER, DOUBLE USE (3AA65) YK-1		EA	1
15	7240-01-355-3804	CAN, UTILITY (3AA65) 1044-903		EA	1

APPENDIX E

EXPENDABLE/DURABLE SUPPLIES AND MATERIAL LIST

Section I. INTRODUCTION

E-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the Paving Breaker. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items).

E-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item . This number is assigned to the entry in the listing is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. E").

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed items.

C - Operator/Crew
O - Unit Maintenance
F - Direct Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIAL LIST

Table E-7. Expendable Supplies and Material List

(1) item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	C	7920-00- 132-7772	Brush, Cleaning: MIL-B-43871	ea
2	F	8030-01-171-7628	Compound, Sealing	oz
3	C	7930-00-282-9699	Detergent: Non sudsing, general purpose, liquid (80244) MILD-16791 type 1, 1 gal container	gl
4	0	9150-00-190-0907	Grease, Bali and Roller Bearing, MIL-G-18709	lb
5	C	9150-00-445-7819	Grease, Medium Silicone MIL-G-46886 2-1/4 oz tube	oz
6	0	8030-01-171-7628	Loctite	oz
7	C	9150-01-235-5431	Oil, Lubricating Engine: OE/HDO 40 (81349j MILL-2104 1 qt can	qt
8	C	7920-00-148-9666	Rag, Wiping:.Cotton and cotton-synthetic (58356) A-A-531	bale
9	0	6850-00-664-5685 6850X10-274-5421	Solvent, Dry Cleaning: SD (P-D-680) (81348) lqt can 5-gal can	qt gl
10	0	5975-O-727-5153	Strap, Tiedown: electrical components MS3367-4-9	ea
11	0	5970-00-644-3167	Tape, Insulation Electrical: 3/4" by 82.5 ft roll, MILT-50886	rl

APPENDIX F

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

Section I. INTRODUCTION

F-l. SCOPE.

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of unit and direct support maintenance of the paving breaker. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

F-2. GENERAL

In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. ***Section II. Repair Parts List.*** A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts Lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed by item name in FIG BULK at the end of the section. Repair parts kits or sets are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in the section.

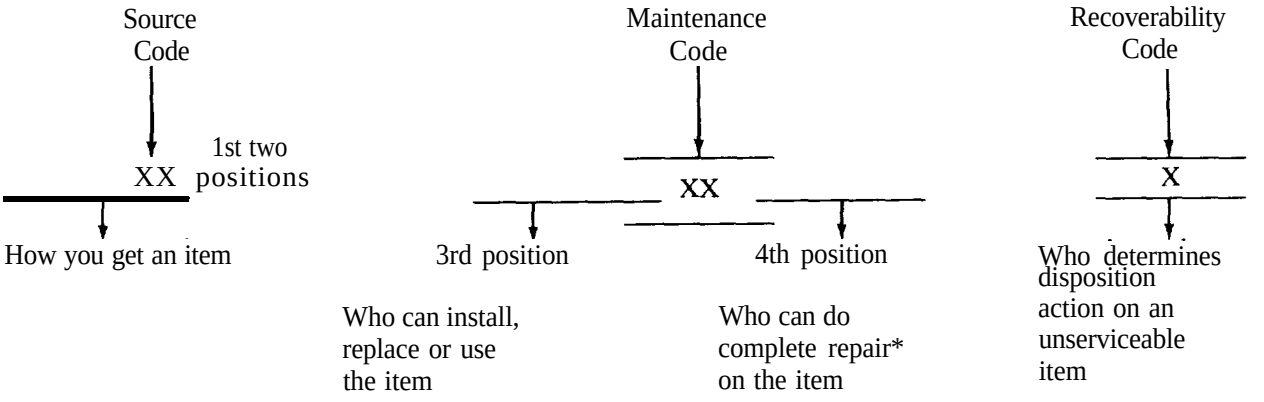
b ***Section*** **lll. Special** ***Tools List.*** A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE (UOC) column) for the performance of maintenance.

c ***Section IV. National Stock Number and Part Number Index.*** A list, in National item identification number (NSN) sequence, of all National stock numbered items appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance. The figure and item number index lists figure and item numbers in alphanumeric sequence and cross-references NSN, CAGE, and part numbers.

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III).

a. ***ITEM NO. (Column*** **(7)).** Indicates the number used to identify items called out in the illustration.

b. ***SMR CODE (Column*** **(2)).** The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



* Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks for the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. The are part of a kit which is authorized to the maintenance category indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO- (Made at org Level) MF- (Made at DS Level) MH- (Made at GS Level) ML- (Made at Specialized Repair Act (SRA)) MD- (Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.

Code	Explanation
AO- (Assembled by org Level) AF- (Assembled by DS Level) AH- (Assembled by GS Level) AL- (Assembled by SRA AD- (Assembled by Depot)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position code of the SMR code authorizes you to replace the item, but the source code indicated the item is assembled at a higher level, order the item from the higher level of maintenance.

XA- Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)

XB- If an "XB" item is not available from salvage, order it using the CAGE and part number given.

XC- Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

XD- Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGE and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA".

(2) Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following levels of maintenance.

Code		Application/Explanation
C	-	Crew or operator maintenance done within organizational maintenance
O	-	Organizational can remove, replace, and use the item,
F	-	Direct support level can remove, replace, and use the item.
H	-	General support level can remove, replace, and use the item.
L	-	Specialized repair activity can remove, replace, and use the item.
D	-	Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes:

Code		Application/Explanation
O	-	Organizational is the lowest level that can do complete repair of the item.
F	-	Direct support is the lowest level that can do complete repair of the item.
H	-	General support is the lowest level that can do complete repair of the item.
L	-	Specialized repair activity is the lowest level that can do complete repair of the item.
D	-	Depot is the lowest level that can do complete repair of the item.
Z	-	Nonrepairable. No repair is authorized.
B	-	No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B"-coded item.) However, the item may be reconditioned by adjusting, lubrication, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable~items. The recoverability code **is** entered in the fifth position of the SMR Code as follows:

Code		Application/Explanation
Z	-	Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the 3rd position of SMR Code.
0	-	Repairable item. When uneconomically Repairable, condemn and dispose of the item at organizational level.
F	-	Repairable item. When uneconomically Repairable, condemn and dispose of the item at the direct support level.
H	-	Repairable item. When uneconomically Repairable, condemn and dispose of the item at the general support level.
D	-	Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	-	Repairable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	-	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The Commercial and Government Entity (CAGE) Code (C) is a 5-digit alphanumeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. PART NUMBER (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

NOTE

When you use a NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column **(5)).** This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identity the item.

(2) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(3) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the BOI, the total authorization is increased proportionately.

(4) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section III.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

F-4. EXPLANATION OF COLUMNS (SECTION IV).

a. NATIONAL STOCK NUMBER (NSN) INDEX.

(1) STOCK NUMBER column. This column lists the NSN by National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN i.e.

NSN i.e. (5305-01-574-1467).
NSN / NIIN

When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) FIG. column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section-III.

(3) ITEM column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) CAGEC column. The Commercial and Government Entity (CAGE) Code (C) is a 5-digit alphanumeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(2) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, and inspection requirements to identify an item or range of items.

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and CAGEC column to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located in Sections II and III.

(5) ITEM column. This item number is the number assigned to the item as it appears in the figure referenced in adjacent figure number column.

c. FIGURE AND ITEM NUMBER INDEX.

(1) FIG. column. This column lists the number of the figure where the item is identified/located in Section II and III.

(2) ITEM column. This item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

(3) STOCK NUMBER column. This column lists the NSN for the item.

(4) CAGEC column. The Commercial and Government Entity (CAGE) Code (C) is a 5-digit alphanumeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(5) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

F-5. SPECIAL INFORMATION.

a. USABLE ON CODE. The usable on code appears in the lower left corner of the Description column heading. Usable on codes are shown as "UOC..." in the Description Column (justified left) on the last line applicable item description/nomenclature. Uncoded items are applicable to all models. Identification of the usable code used in this publication is:

Code	Used On
CCC	Model 180-II

F-6. HOW TO LOCATE REPAIR PARTS.

a. When **National** *Stock Number or Part Number is NOT Known.*

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and use the Figure and Item Number Index to fiid the NSN.

b. When National Stock Number or Part Number is Known.

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NSN) sequence (see paragraph F&.(l)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see paragraph F-4b.). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you are looking for, then locate the item number in the repair parts list for the figure.

F-7. ABBREVIATIONS.

Abbreviations used in this manual are listed in MIL-STD-12.

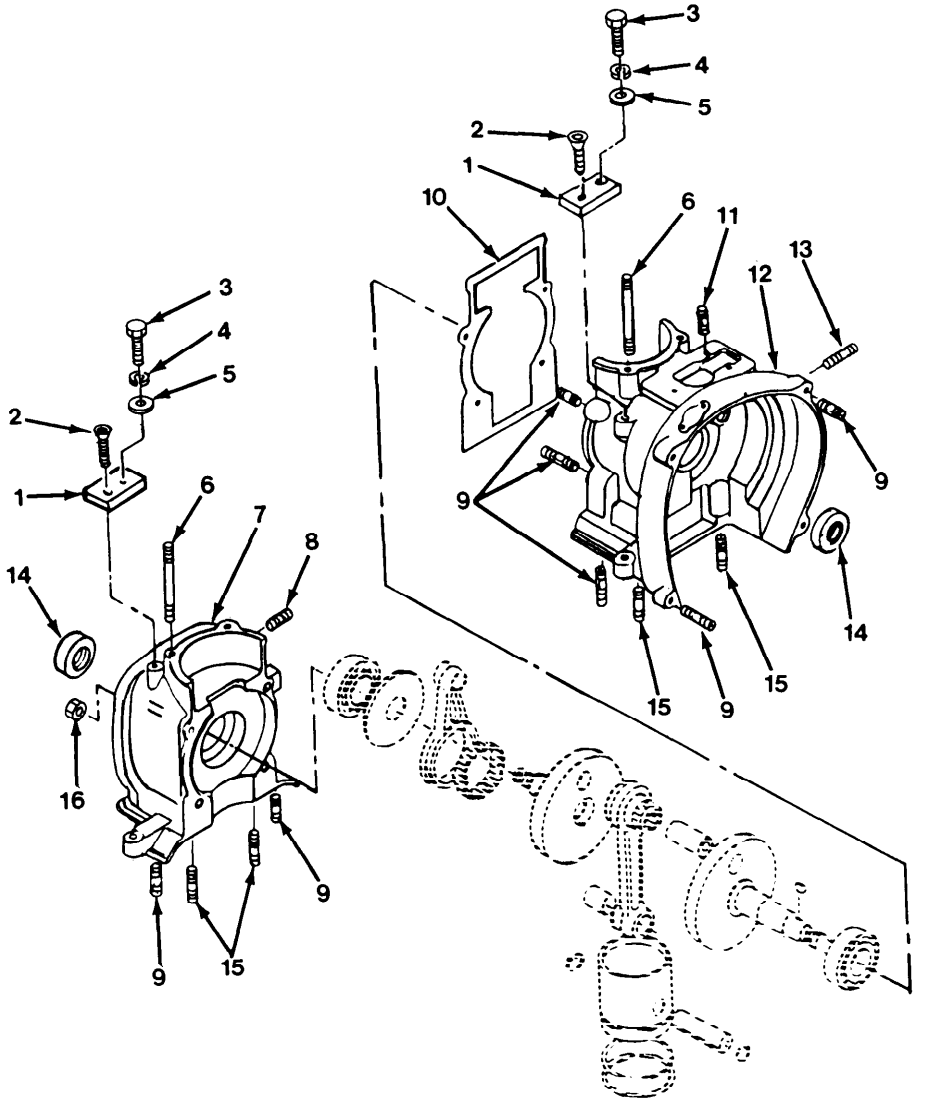


Figure 1. Engine Block

GROUP 01-ENGINE

GROUP 0101-CRANKCASE, BLOCK, CYLINER HEAD

FIGURE 1-ENGINE BLOCK

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1	PFOZZ	3AA65	1045-907	BRACKET, MOUNTING.	2
2	PAOZZ	3AA65	CS-0614	SCREW, MACHINE M6 14.	2
3	PAOZZ	3AA65	BT-0616	BOLT M6X16.	2
4	PAOZZ	3AA65	LW-06	WASHER, SPRING TENSI 6.	2
5	PAOZZ	3AA65	WF-06	WASHER, FLAT 6.	2
6	PFOZZ	3AA65	BS-08781212	STUD, PLAIN M8X78, =12 S=12.	4
7	PFFZZ	3AA65	1044-103	ENGINE BLOCK, GASOLI.	1
* 8	PFOZZ	3AA65	BS-06161212	STUD, PLAIN M6X25, T=12 S=12.	2
9	PFOZZ	3AA65	BS-06161212	STUD, PLAIN M6X16, =12 S=12.	12
10	PAFZZ	3AA65	1044-104	GASKET.	1
11	PFOZZ	3AA65	BS-05200912(SUS)	STUD, PLAIN M5X20, =9 S=12.	3
12	PFFZZ	3AA65	1044-102-01	ENGINE BLOCK,GASOLI SIDE.	1
13	PFOZZ	3AA65	BS-06161012	STUD, PLAIN M6X16, =10 S=12.	1
*14	PAFZZ	3AA65	OS-AC1013AQ	PACKING MATERIAL.	2
15	PFOZZ	3AA65	BS-08201514	STUD, PLAIN M8X20, =15 S=14.	4
16	PAFZZ	3AA65	NL-06	NUT, SELF-LOCKING HE M6.	4

END OF FIGURE

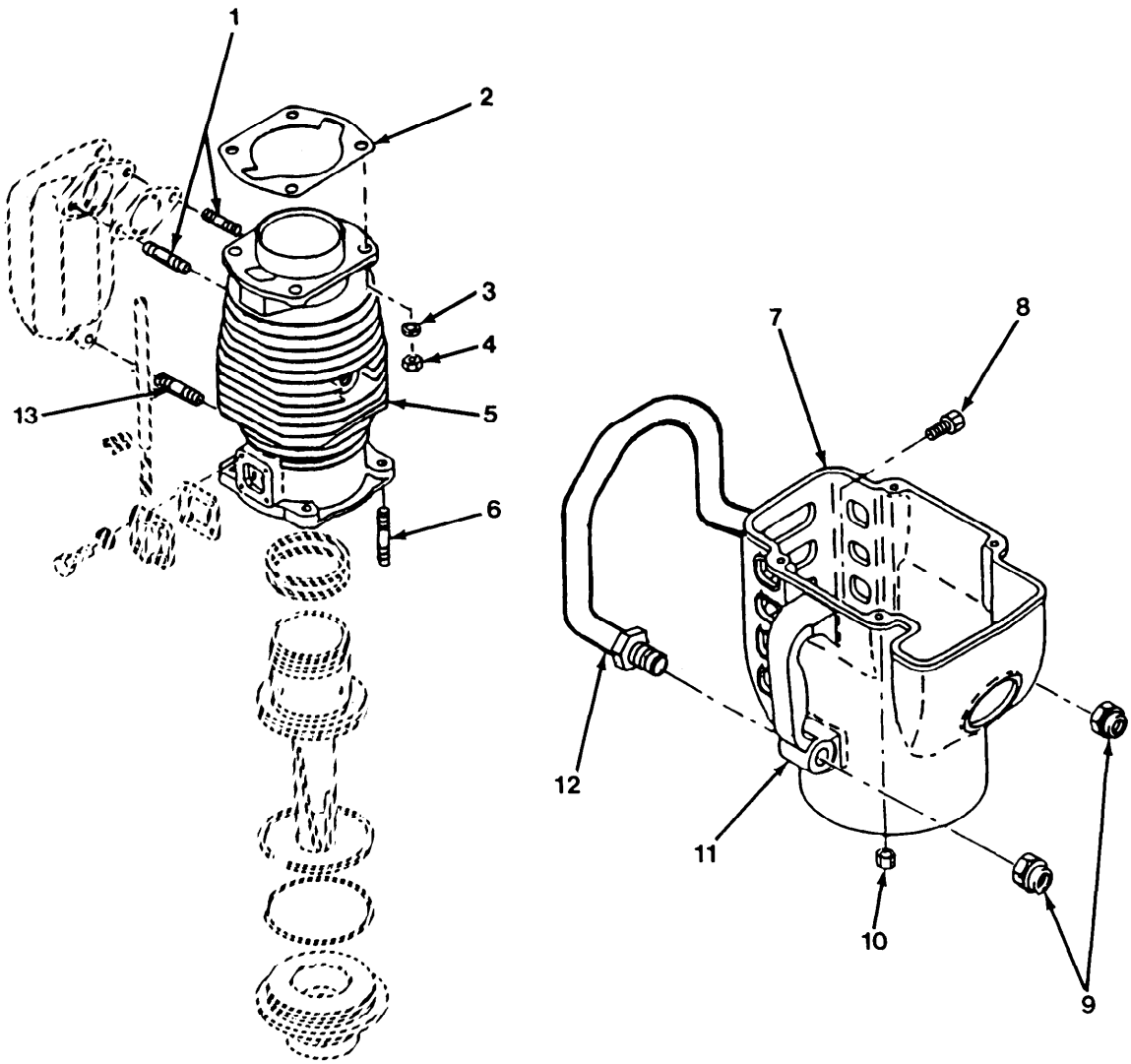


Figure 2. Engine Cylinder

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0101-CRANKCASE, BLOCK CYLINDER HEAD	
				FIGURE 2-ENGINE CYLINDER	
1	PFOZZ	3AA65	BS-08221514	STUD, PLAIN M8X22, =15 S=14.....	3
2	PAFZZ	3AA65	1044-602	GASKET.....	1
3	PAFZZ	3AA65	SW-08	WASHER, LOCK 8.....	4
4	PAOZZ	64678	000934008010	NUT, PLAIN, HEXAGON M8.....	4
5	PAFFF	3AA65	1044-601	CYLINDER, ENGINE, GAS.....	1
6	PFOZZ	3AA65	BS-08211012	STUD, PLAIN M8X21.....	4
* 7	PFOZZ	OR2B2	1044-612-01	COVER, ACCESS.....	1
8	PFOZZ	3AA65	BT-0812	BOLT, MACHINE M8X12.....	2
9	PAOZZ	64678	913004014002	NUT, SELF-LOCKING, HE M14.....	2
10	PAOZZ	3AA65	NL-06	NUT,SELF-LOCKING HE M6.....	4
* 11	PFOZZ	OR2B2	1044-613	HANDLE, BOW.....	1
* 12	PFOZZ	OR2B2	1044-617	HANDLE, MANUAL CONTR.....	1
13	PFFZZ	3AA65	BS-08190914	STUD, PLAIN M8X19, =9 S=14.....	1
				END OF FIGURE	

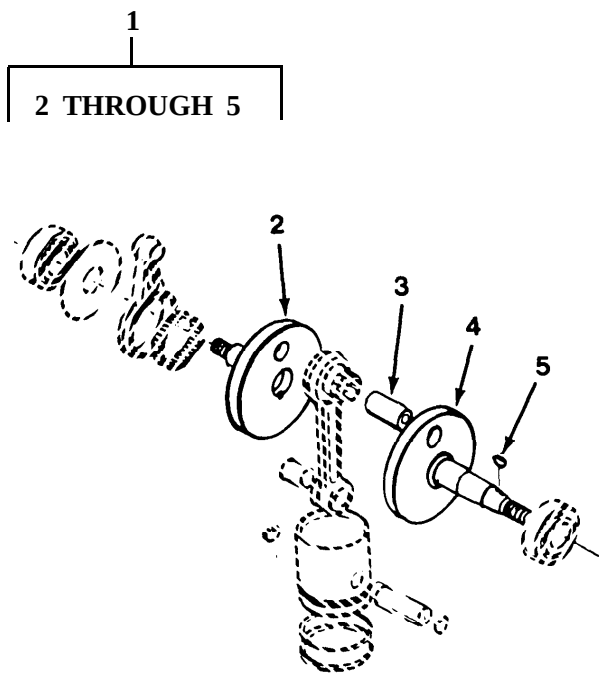


Figure 3. Crankshaft

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0102-CRANKSHAFT	
				FIGURE 3-CRANKSHAFT	
1	PFFZZ	3AA65	1044-011-01	CRANKSHAFT, ENGINE.	1
2	PFFZZ	3AA65	1044-107	•CRANKSHAFT, ENGINE START SIDE.	1
* 3	PFFZZ	OR2B2	1044-110	•PIN, HOLLOW.	1
4	PFFZZ	3AA65	1044-106	•CRANKSHAFT, ENGINE MAGNETO SIDE. . . .	1
5	PFFZZ	3AA65	1014-108	•KEY, WOODRUFF.	1
				END OF FIGURE	

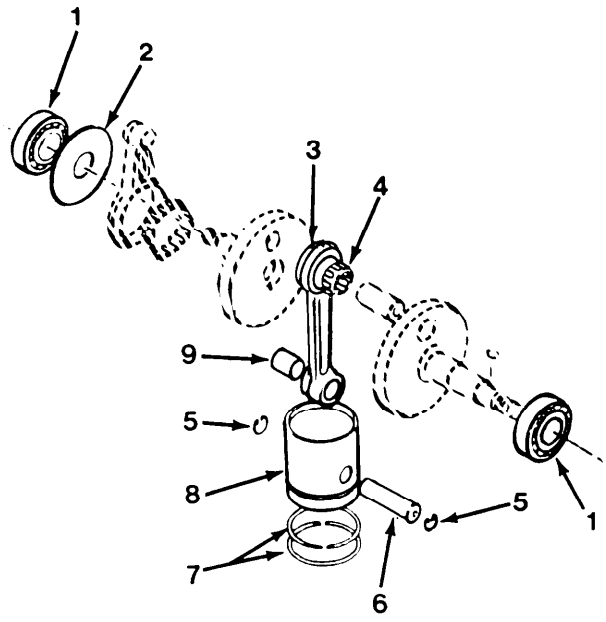


Figure 4. Piston and Connecting Rod

(1) ITEM NC	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UCC)	(6) QTY
				GROUP 0104-PSITONS, CONNECTING RODS	
				FIGURE 4-PISTON AND CONNECTING ROD	
1	PFFZZ	3AA65	BR-630C4	BEARING, BALL, ANNULA.	2
2	PFFZZ	3AA65	1044-115	BEARING, WASHER THRU.	1
3	PFFZZ	3AA65	1044-111	CONNECTING ROD, PIST.	1
4	PFFZZ	3AA65	KT-182412EG	BEARING, ROLLER,NEED.	2
5	PFFZZ	3AA65	1044-112	RING, RETAINING.	2
6	PFFZZ	3AA65	1044-116	PIN, PISTON.	1
7	PFFZZ	3AA65	1044-117	RING, PISTON.	2
8	PFFZZ	3AA65	1044-113	PISTON, INTERNAL COM.	1
9	PFFZZ	3AA65	1044-118	BUSHING, SLEEVE.	1
				END OF FIGURE	

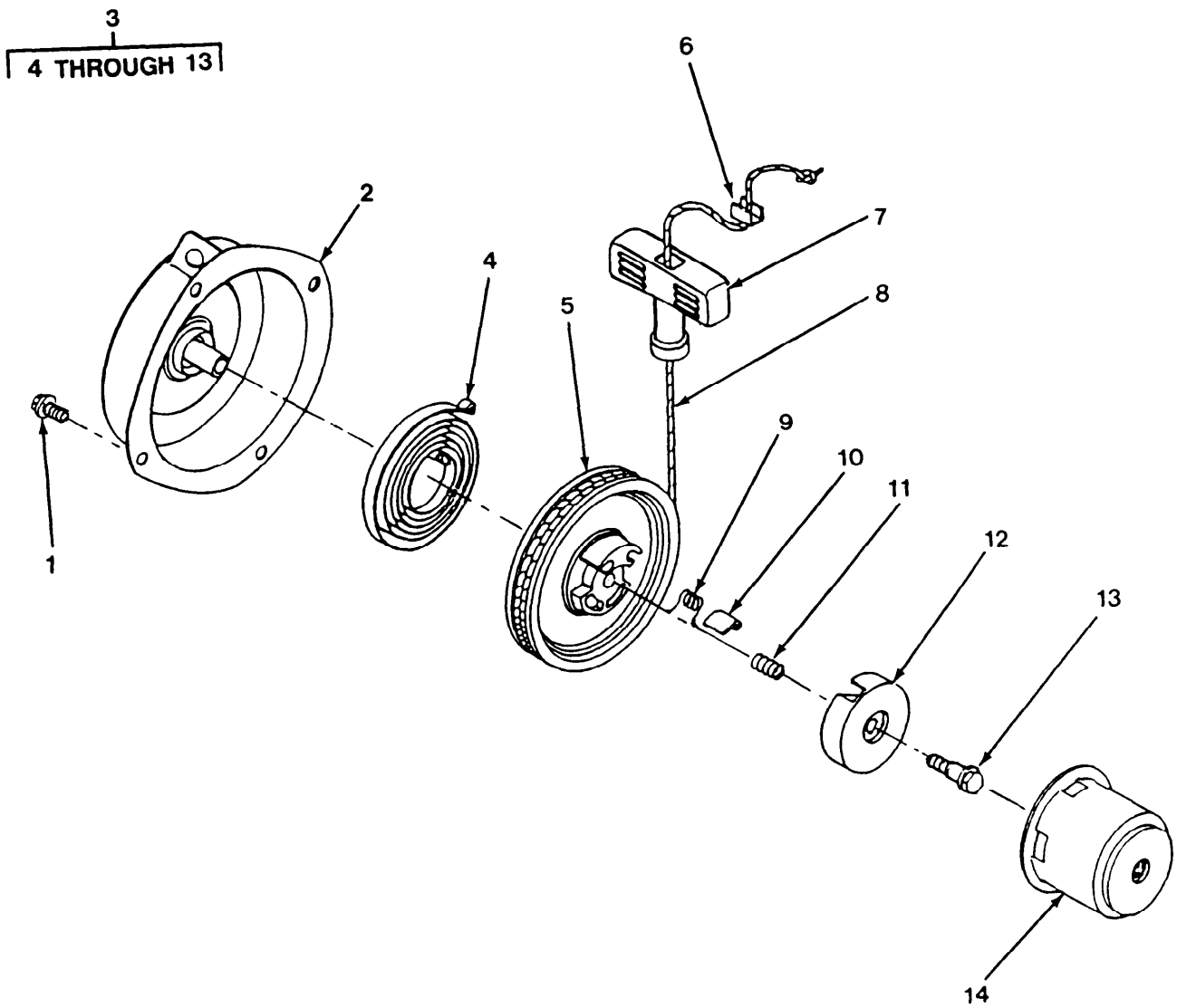


Figure 5. Engine Starting System

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE CODES(UCC)	(6) QTY
				GROUP 0107-ENGINE STARTING SYSTEMS	
				FIGURE 5-ENGINE STARTING SYSTEM	
1	PFOZZ	3AA65	BF-0612	BOLT, MACHINE M6X12.	4
2	PFOZZ	3AA65	1044-501	HOUSING, ELECTRICAL.	1
3	PAOOO	3AA65	1044-051	STARTER, ENGINE,HAND.	1
4	PAOZZ	3AA65	1044-502	• SPRING, SPIRAL,TORSI.	1
5	PFOZZ	3AA65	1044-503	• PULLEY, ENGINE START.	1
6	PFOZZ	3AA65	1044-511	• LEVER, MANUAL CONTRO.	1
7	PAOZZ	3AA65	1044-510	• GRIP, HANDLE.	1
8	PAOZZ	3AA65	1044-509	• STARTER, ROPE, ENGINE.	1
9	PAOZZ	3AA65	1044-504	• SPRING, SPIRAL, TORSI.	1
10	PAOZZ	3AA65	1044-505	• DETENT PLATE.	1
11	PAOZZ	3AA65	1044-506	• SPRING, HELICAL TORS.	1
12	PAOZZ	3AA65	1044-507	• RING, RETAINING.	1
13	PFOZZ	3AA65	1044-508	• BOLT, SHOULDER.	1
14	PFOZZ	3AA65	1044-512	PULLEY, FLAT.	1

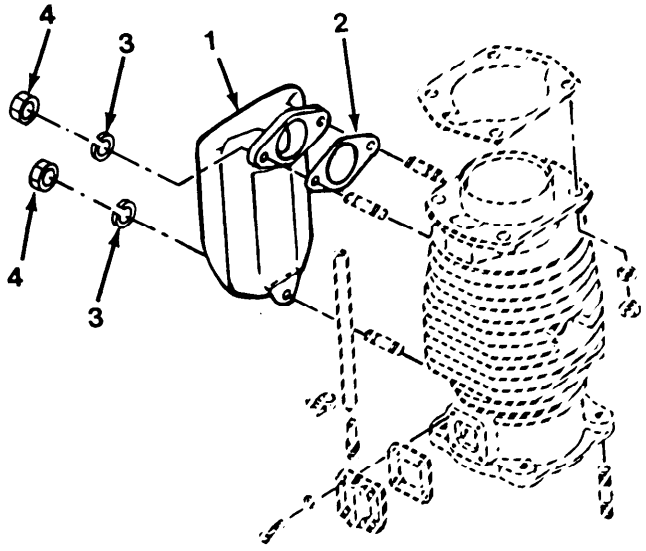


Figure 6. Exhaust

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0108-MANIFOLDS	
				FIGURE 6 EXHAUST	
1	PAOZZ	3AA65	1044-603	EXHAUST SYSTEM,ENGI.	1
* 2	PAOZZ	0R2B2	1044-606	GASKET.	1
3	PAOZZ	3AA65	SW-08(SUS)	WASHER,LOCK 8.	3
4	PAOZZ	64678	000934008010	NUT,PLAIN,HEXAGON M8.	3
				END OF FIGURE	

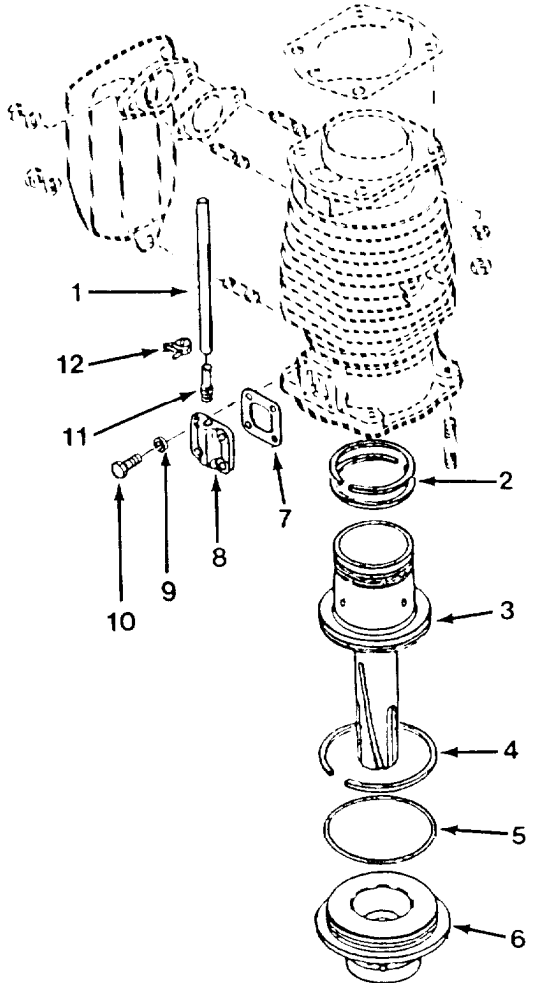


Figure 7. Compressor Assembly

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0121-COMPRESSOR ASSEMBLY	
				FIGURE 7-COMPRESSOR ASSEMBLY	
1	PAOZZ	3AA65	1044-607	HOSE,AIR DUCT.	1
2	PAFZZ	3AA65	1044-615	RING,PISTON.	2
3	PFFZZ	3AA65	1044-609	PISTON,INTERNAL COM.	1
4	PAFZZ	3AA65	1044-616	RING,PISTON.	1
* 5	PAFZZ	0R2B	4DG-80	PACKING,PREFORMED G80.	1
6	PFFZZ	3AA65	1044-653	PLUG,MACHINE THREAD.	1
7	PAOZZ	3AA65	1044-611	GASKET.	1
8	PFOZZ	3AA65	1044-608-01	SLIDE,DIRECTIONAL C.	1
* 9	PAOZZ	0R2B2	SW-05	WASHER,LOCK.	1
10	PFOZZ	3AA65	BT-0515	BOLT,MACHINE M5X15.	4
11	PFOZZ	3AA65	1044-618-01	ADAPTER,STRAIGHT,PI.	4
12	PFOZZ	3AA65	TS-0730600	CLAMP,HOSE.	1
					2

END OF FIGURE

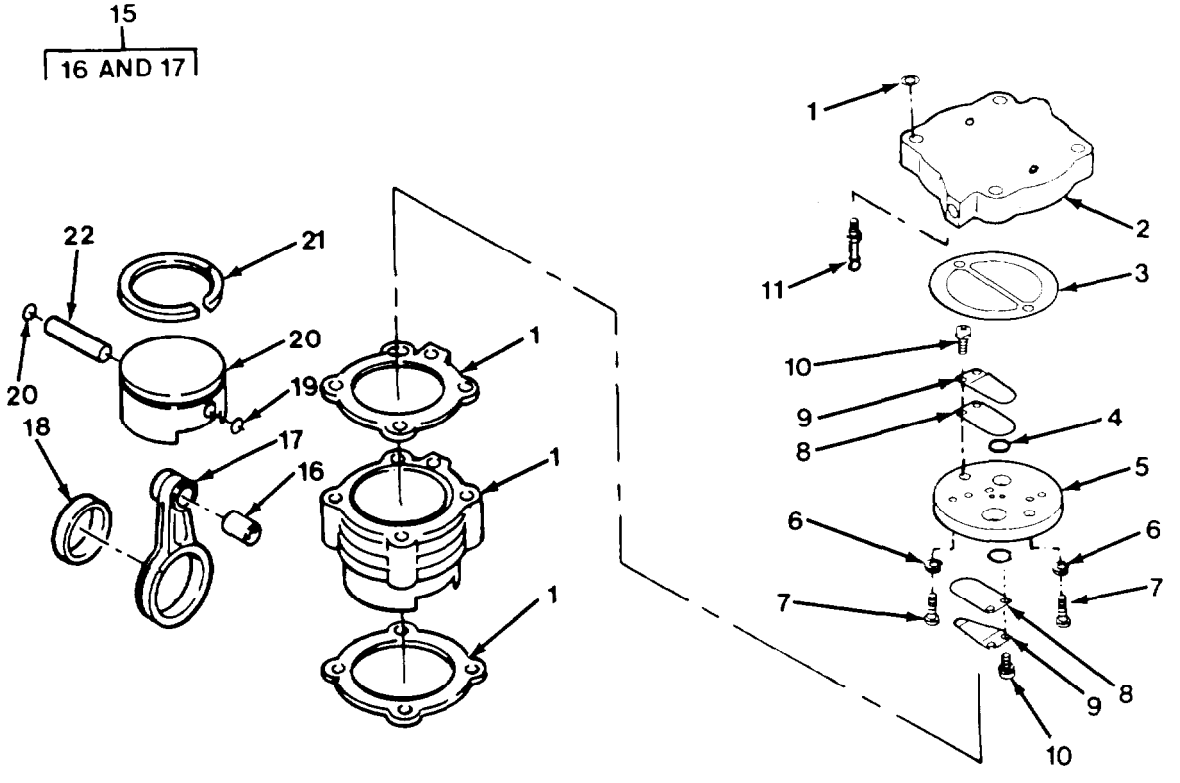


Figure 8. Compressor Head

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0121-COMPRESSOR ASSEMBLY	
				FIGURE 8-COMPRESSOR HEAD	
1	PAOZZ	3AA65	1044-822	PACKING,PREFORMED.	4
2	PFFZZ	3AA65	1044-810-01	CYLINDER HEAD,COMPR.	1
* 3	PAFZZ	0R2B2	1044-809	GASKET.	1
4	PAFZZ	3AA65	1044-806	SEAT,VALVE.	2
5	PFFZZ	3AA65	1044-805	BODY,VALVE.	1
6	PAFZZ	3AA65	LW-C06	WASHER,LOCK 6 W/TEETH.	2
* 7	PFFZZ	0R2B2	SS-0618	SCREW,MACHINE M6X18.	2
8	PAFZZ	3AA65	1044-808	REED STRIP,VALVE.	2
9	PFFZZ	3AA65	1044-807	RETAINER,DISK,VALVE.	2
10	PFFZZ	3AA65	MS-0308	SCREW,ASSEMBLED WAS.	4
11	PFFZZ	3AA65	1044-618-01	ADAPTER,STRAIGHT HO.	1
* 12	PAFZZ	0R2B2	1044-804	GASKET.	1
13	PFFFF	3AA65	1044-803	CYLINER HEAD,COMPR.	1
14	PAFZZ	3AA65	1044-811	GASKET.	1
15	PFFFF	3AA65	1044-082	CONNECTING ROD,PIST.	1
* 16	PFFZZ	0R2B2	1034-817	.BUSHING,SLEEVE.	1
17	PFFZZ	3AA65	1044-801	.CONNECTING ROD,PIST.	1
* 18	PFFZZ	0R2B2	SK-0398	BEARING,ROLLER,NEED.	51
19	PFFZZ	3AA65	1014-112	RING,RETAINING.	2
20	PAFZZ	3AA65	1044-802	PISTON,COMPRESSOR.	1
21	PAFZZ	3AA65	1044-816	RING,PISTON.	1
22	PFFZZ	3AA65	1044-818	PIN,PISTON.	1

END OF FIGURE

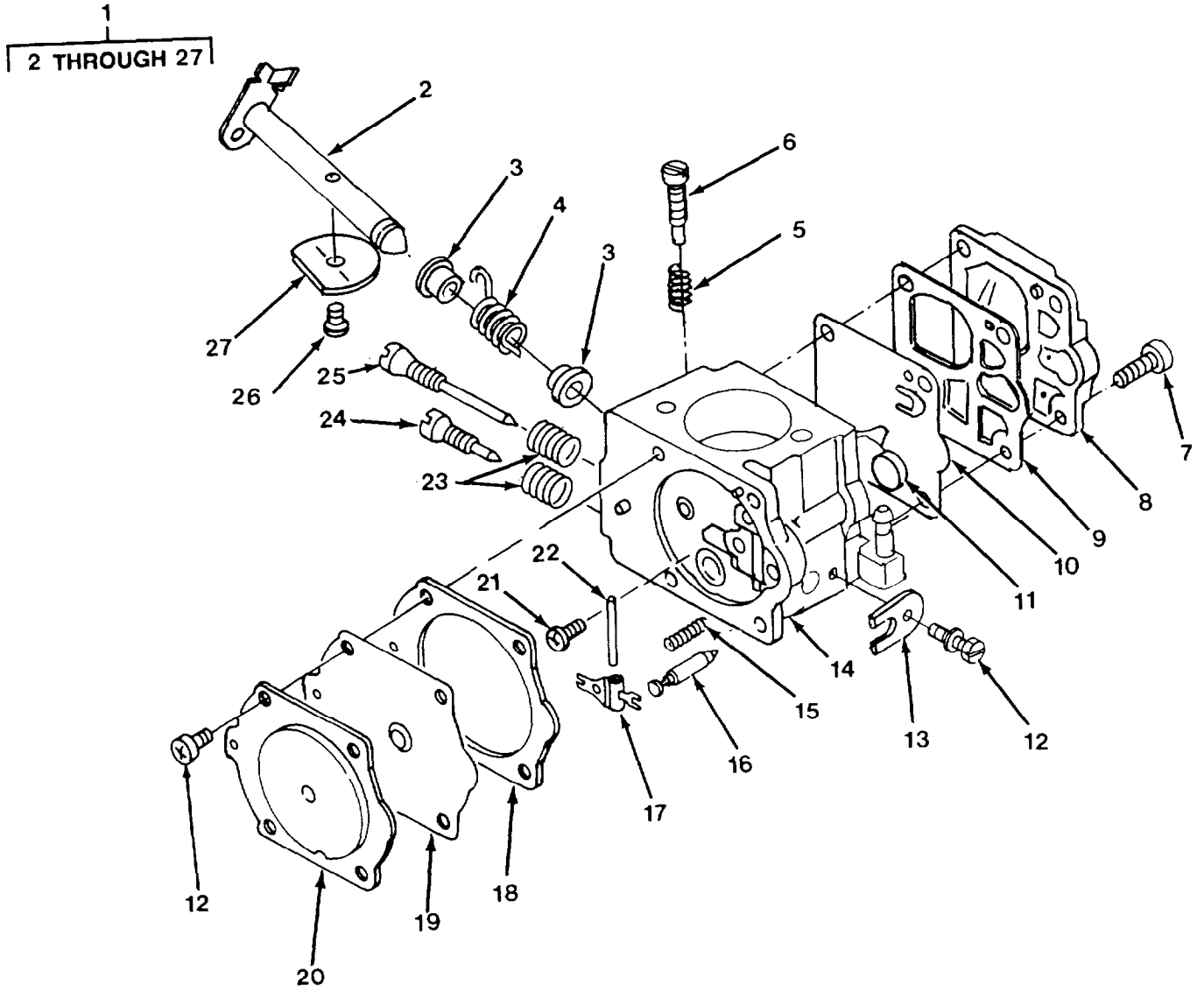


Figure 9. Carburetor

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USAGE ON CODES(UCC)	(6) QTY
				GROUP 03-FUEL SYSTEM)	
				GROUP 0301-CARBURETOR, FUEL INJECTOR	
				FIGURE 9-CARBURETOR	
1	PAFFF	70650	WJ-15	CARBURETOR ASSEMBLY.	1
2	XAFZZ	70650	WJ-15-14	.LEVER,MANUAL CONTO.	1
3	XAFZZ	70650	WJ-15-16	.BUSHING,SLEEVE.	2
4	XAFZZ	70650	WJ-15-15	.SPRING,HELICAL,COMP.	1
5	PFFZZ	70650	WJ-15-19	.SPRING,HELICAL,COMP.	1
6	PFFZZ	70650	WJ-15-20	.SCREW,MACHINE.	1
7	PFFZZ	70650	WJ-15-18	.SCREW,MACHINE.	4
8	PAFZZ	70650	WJ-15-02	.COVER,HYDRAULIC,PUM.	1
9	PFFZZ	70650	WJ-15-03	.GASKET.	1
10	PAFZZ	70650	WJ-15-04	.DIAPHRAGM,PUMP,SPEC.	1
11	PAFZZ	70650	WJ-15-05	.STRAINER, ELEMENT,SE.	1
12	PFFZZ	70650	WJ-15-21	.SCREW,ASSEMBLED WAS.	5
13	XAFZZ	70650	WJ-15-25	.CLIP,SPRING TENSION.	1
14	XAFZZ	70650	WJ-15-01	.BODY ASSY,CARBURETO.	1
15	PAFZZ	70650	WJ-15-13	.STEM,NEEDLE VALVE.	1
16	PFFZZ	70650	WJ-15-06	.VALVE,FUEL SYSTEM.	1
17	PFFZZ	70650	WJ-15-11	.LEVER,METERING.	1
18	PAFZZ	70650	WJ-15-07	.GASKET.	1
19	PAFZZ	70650	WJ-15-08	.DIAPHRAGM,VALVE,FLA.	1
20	PFFZZ	70650	WJ-15-09	.COVER,ACCESS.	1
21	PFFZZ	70650	WJ-15-12	.SCREW,SHOULDER.	1
22	PFFZZ	70650	WJ-15-10	.PIN,STRAIGHT,HEADLE.	1
23	PFFZZ	70650	WJ-15-22	.SPRING,HELICAL,COMP.	2
24	PFFZZ	70650	WJ-15-24	.STEM,NEEDLE VALVE.	1
25	PFFZZ	70650	WJ-15-23	.STEM,NEEDLE VALVE.	1
26	PFFZZ	70650	WJ-15-17	.SCREW,MACHINE.	1
27	XAFZZ	70650	WJ-15-16	.VALVE,THROTTLE.	1
				END OF FIGURE	

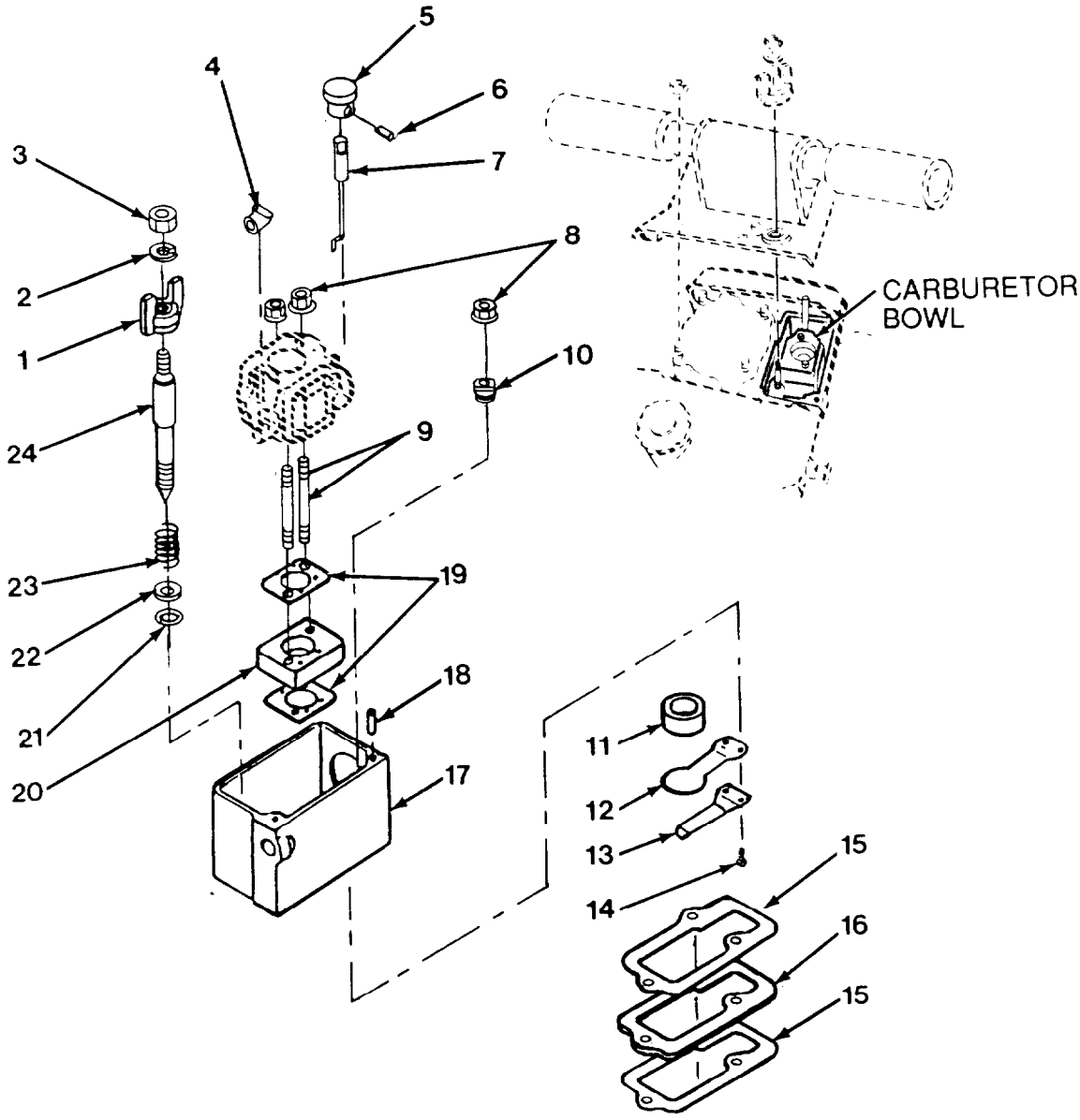


Figure 10. Carburetor Bowl

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0301-CARBURETOR, FUEL INJECTOR	
				FIGURE 10-CARBURETOR BOWL	
1	PFFZZ	3AA65	1044-309	KNOB.	1
* 2	PAFZZ	0R2B2	SW-05	WASHER,LOCK 5.	1
3	PAFZZ	3AA65	NT-05	NUT,PLAIN,HEXAGON M5.	1
4	PFFZZ	3AA65	1044-312	BUSHING,PIPE.	1
5	PFFZZ	3AA65	1044-311	KNOB.	1
6	PFFZZ	3AA65	NH-0406	SCREW,CAP,SOCKET HE M4 6.	1
7	PFFZZ	3AA65	1044-310-02	LEVER,MANUAL CONTRO.	1
8	PAFZZ	3AA65	NN-05	NUT,SELF-LOCKING,EX M5.	5
* 9	PFFZZ	0R2B2	BS-05540912(SUS)	STUD,PLAIN M5 54, =9 =12.	2
10	PAFZZ	3AA65	1044-323	COLLAR,SHAFT.	3
11	PFFZZ	3AA65	1044-302	SEAT,VALVE.	1
12	PFFZZ	3AA65	1044-303	VALVE,REED.	1
13	PFFZZ	3AA65	1044-304	RETAINER,DISK,VALVE.	1
* 14	PFFZZ	0R2B2	MS-0308	SCREW,ASSEMBLED WAS M3 8.	2
* 15	PAFZZ	0R2B2	1044-305-01	GASKET.	2
16	PAFZZ	3AA65	1044-313	SPACER,PLATE.	1
17	PFFZZ	3AA65	1044-301-03	HOUSING,FUEL CONTRO.	1
18	PFFZZ	3AA65	PN-04138	PIN,SPRING.	2
19	PAFZZ	3AA65	1044-307	GASKET.	2
20	PAFZZ	3AA65	1044-322-01	SPACER,PLATE.	1
21	PAFZZ	3AA65	OR-P5	PACKING,PREFORMED.	1
22	PAFZZ	3AA65	KW-05	WASHER,FLAT 5.	6
23	PFFZZ	3AA65	1044-308	SPRING,HELICAL,COMP.	1
24	PFFZZ	3AA65	1044-306	STEM,NEEDLE VALVE.	1

END OF FIGURE

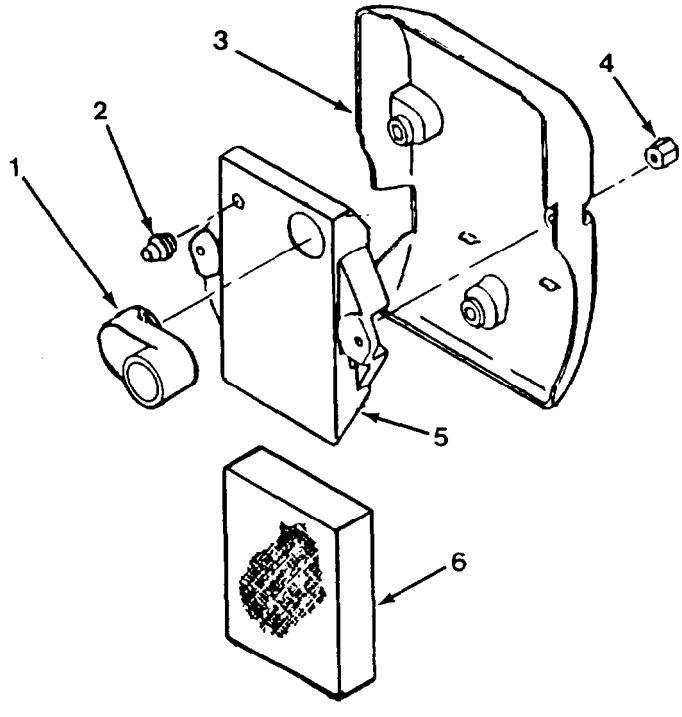


Figure 11. Air Cleaner

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE CODES(UCC)	(6) QTY
				GROUP 0304-AIR CLEANER	
				FIGURE 11-AIR CLEANER	
1	PFOZZ	3AA65	1044-317	AIR CLEANER,INTAKE.	1
2	PFOZZ	3AA65	1044-318	ADAPTER,BUSHING.	1
3	PFOZZ	3AA65	1044-319	COVER,ACCESS.	1
4	PFOZZ	3AA65	1044-320	NUT,PLAIN HEXAGON H.	3
5	PFOZZ	3AA65	1044-315	CAP ASSEMBLY,AIR CL.	1
6	PAOZZ	3AA65	1044-316	FILTER ELEMENT,INTA.	1
				END OF FIGURE	

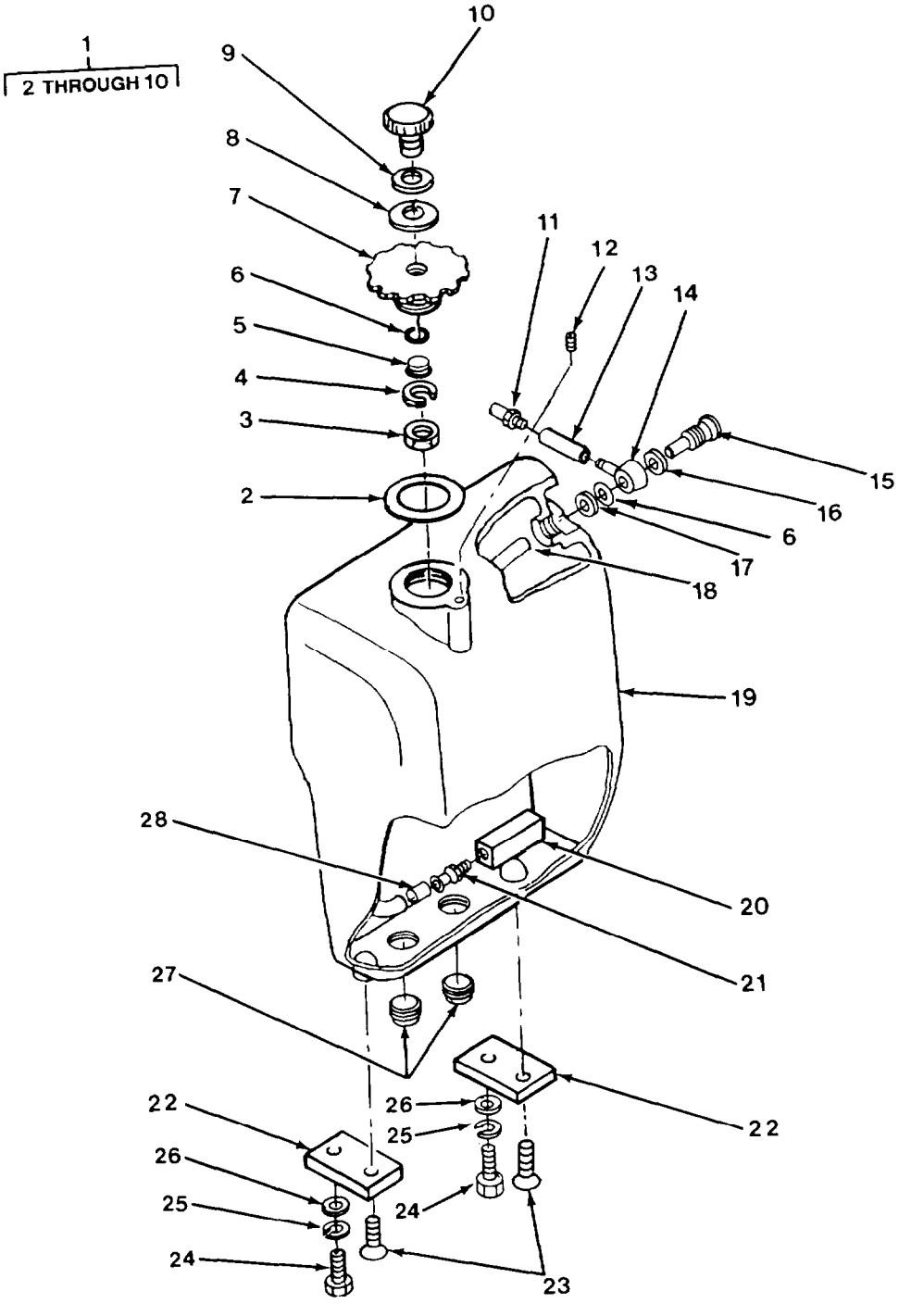


Figure 12. Fuel Tank

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 0306-TANKS, LINES, FITTINGS, HEADERS	
				FIGURE 12-FUEL TANK	
1	PAOZZ	3AA65	1044-021-01	CAP,FILLER OPENING.	1
2	PAOZZ	3AA65	1014-203	.GASKET.	1
3	PAOZZ	3AA65	NT-04	.NUT,PLAIN HEXAGON 4.5M.	1
* 4	PAOZZ	0R2B2	SW-05	.WASHER,LOCK 5.	1
5	PAOZZ	3AA65	1045-903	.BUSHING,RUBBER.	1
6	PAOZZ	3AA65	OR-P7	.PACKING,PREFORMED.	1
* 7	PAOZZ	0R2B2	1045-900	.CAP,FILLER OPENING.	1
8	PAOZZ	3AA65	1045-902	.WASHER,FLAT.	1
9	PAOZZ	3AA65	SW-04	.WASHER,LOCK.	1
10	PAOZZ	3AA65	1045-901	.VALVE,VENT.	1
11	PAOZZ	3AA65	1044-215	CONNECTOR,AIR HOSE.	1
* 12	PFOZZ	0R2B2	NH-0406	SCREW,CAP,SOCKET HE.	1
13	PAOZZ	3AA65	1044-209	TUBE,METALLIC.	1
14	PAOZZ	3AA65	1044-212	NIPPLE,HOSE.	1
15	PAOZZ	3AA65	1044-210-01	VALVE,FUEL,SYSTEM.	1
16	PAOZZ	3AA65	1044-213	PACKING,PREFORMED.	1
17	PAOZZ	3AA65	1044-214	PACKING,PREFORMED.	1
18	PAOZZ	3AA65	1044-210	TUBE,METALLIC.	1
19	PFOZZ	3AA65	1044-201	TANK,FUEL,ENGINE.	1
20	PAOZZ	3AA65	1044-208	FILTER,FLUID.	1
21	PAOZZ	3AA65	1014-217	CONNECTOR,AIR HOSE.	2
* 22	PFOZZ	0R2B2	1045-906	PLATE,MENDING.	2
23	PAOZZ	3AA65	CS-0614	SCREW,MACHINER M6 14.	2
24	PAOZZ	3AA65	BT-0616	BOLT M6 16.	2
25	PAOZZ	3AA65	LW-06	WASHER,SPRING TENSI 6.	2
26	PAOZZ	3AA65	WF-06	WASHER,FLAT 6.	2
27	PAOZZ	3AA65	PT-1/2	PLUG,MACHINE THREAD.	2
28	PAOZZ	3AA65	84-558	VALVE,CHECK.	1
				END OF FIGURE	

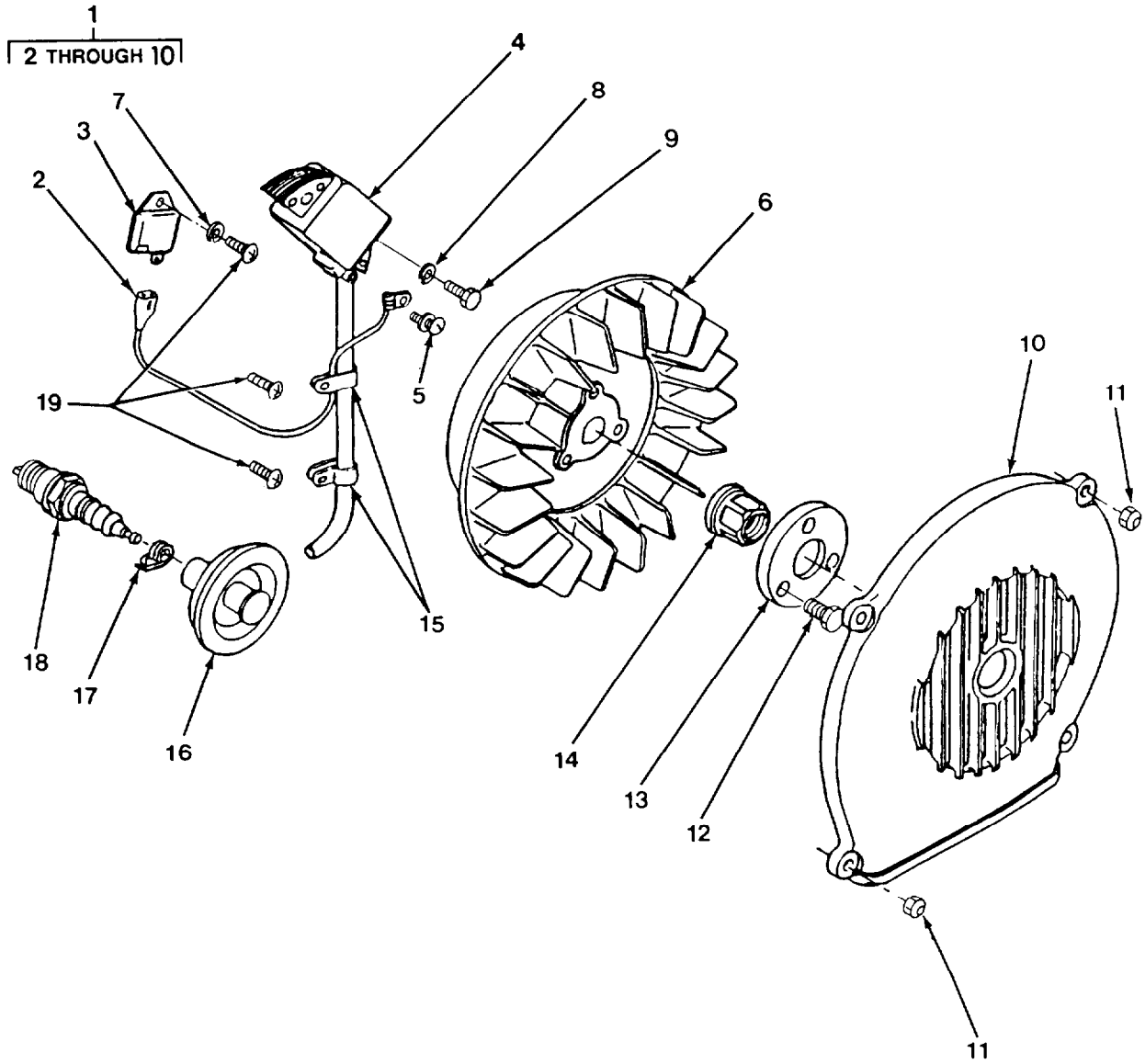


Figure 13. Ignition Components

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 06-ELECTRICAL SYSTEM	
				GROUP 0605-IGNITION COMPONENTS	
				FIGURE 13-IGNITION COMPONENTS	
1	PAOOO	3AA65	1044-041	MAGNETO,IGNITION.	1
2	PAOZZ	3AA65	1024-411	.CORD ASSEMBLY,ELECT.	1
3	PAOZZ	3AA65	1024-407	.CONTROL,IDLE SPEED.	1
4	PAOZZ	3AA65	1014-406	.COIL,IGNITION.	1
5	PFOZZ	3AA65	MS-0305	.SCREW,ASSEMBLED WAS M3 5.	1
6	PFOZZ	3AA65	1044-402	.FLYWHEEL,ENGINE.	1
7	PAOZZ	3AA65	SW-04	.WASHER,LOCK 4.	4
* 8	PAOZZ	0R2B2	SW-05	.WASHER,LOCK 5.	2
9	PFOZZ	3AA65	NS-0530	.SCREW,MACHINE M5X30.	2
10	PFOZZ	3AA65	1044-401-01	.COVER,MAGNETO COIL.	1
* 11	PAOZZ	3AA65	NL-06	NUT,SELF-LOCKING HE M6.	4
* 12	PFOZZ	0R2B2	BT-0615	BOLT,MACHINE M6 15.	3
13	PFOZZ	3AA65	1034-416	PLATE,MOUNTING,FLAT.	1
14	PFOZZ	3AA65	1034-415	NUT,PLAIN,EXTENDED.	1
15	PFOZZ	3AA65	NK-5N	CLAMP,LOOP.	2
16	PAOZZ	3AA65	1024-414	CAP,ELECTRICAL.	1
17	PAOZZ	3AA65	1014-413	GRIP,CABLE,JAW.	1
18	PAOZZ	3AA65	B-4H	SPARK PLUG.	1
19	PFOZZ	3AA65	NS-0406	SCREW,MACHINE M4 6.	3

END OF FIGURE

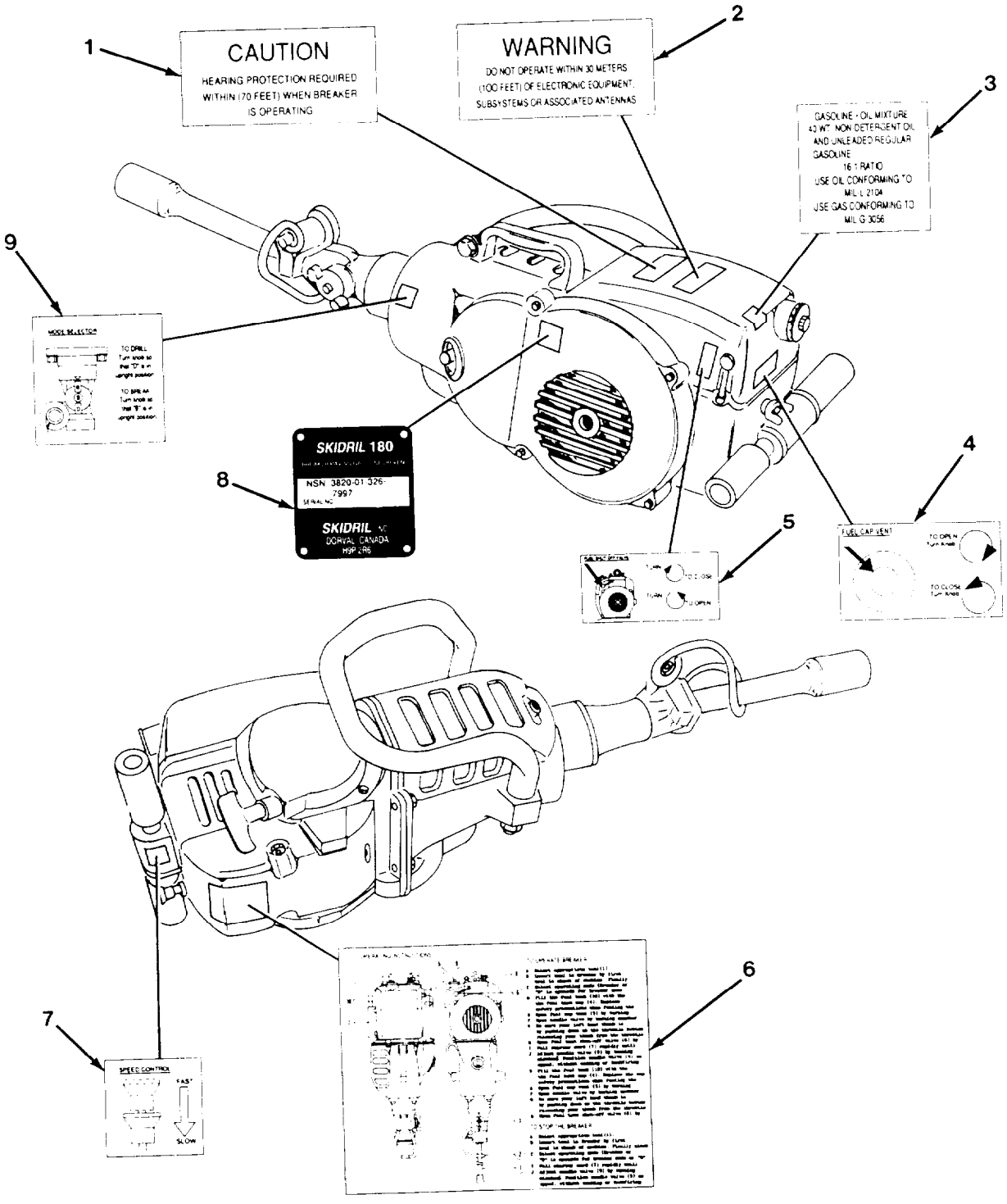


Figure 14. Data Plates and Instruction Holders

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UCC)	(6) QTY
				GROUP 22 - BODY, CHASSIS, AND HULL ACCESSORY ITEMS	
				GROUP 2210 - DATA PLATES AND INSTRUCTION HOLDERS	
				FIGURE 14 -DATA PLATES AND INSTRUCTION HOLDERS	
1	PFOZZ	3AA65	MIL6	PLATE,INSTRUCTION	1
2	PFOZZ	3AA65	MIL7	PLATE,INSTRUCTION	1
3	PFOZZ	3AA65	MIL3	PLATE,INSTRUCTION	1
4	PFOZZ	3AA65	MIL1	PLATE,INSTRUCTION	1
5	PFOZZ	3AA65	MIL2	PLATE,INSTRUCTION	1
6	PFOZZ	3AA65	MIL9	PLATE,INSTRUCTION	1
7	PFOZZ	3AA6 5	MIL4	PLATE,INSTRUCTION	1
8	PFOZZ	3AA65	MIL8	PLATE,IDENTIFICATION.	1
9	PFOZZ	3AA65	MIL5	PLATE,INSTRUCTION	1
				END OF FIGURE	

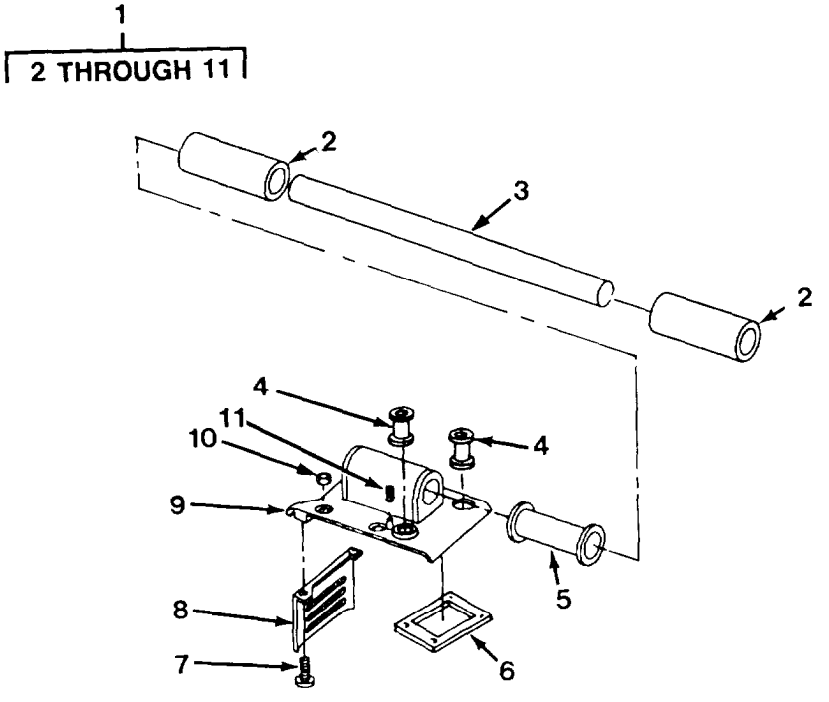


Figure 15. Handle Assembly

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 73 - CONCRETE AND ASPHALT EQUIPMENT COMPONENTS	
				GROUP 7303 - CONTROLS	
				FIGURE 15 - HANDLE ASSEMBLY	
1	PFOOO	3AA65	1044-081	HANDLE,DOOR.	1
2	PAOZZ	3AA65	1044-821	.GRIP,HANDLE.	2
3	PFOZZ	3AA65	1044-820	.HANDLE,MANUAL CONTR.	1
* 4	PFOZZ	0R2B2	1044-814	.SEAL,PLAIN.	2
5	PFOZZ	3AA65	1044-819	.BUSHING,SLEEVE.	1
* 6	PAOZZ	0R2B2	1044-815	.SEAL,NONMETALLIC ST.	1
* 7	PFOZZ	0R2B2	BC-0510	.SCREW,MACHINE M5X10.	2
8	PFOZZ	3AA65	1044-813	.COVER,ACCESS.	1
9	PFOZZ	3AA65	1044-812	.OUTLET,BOSS.	1
10	XDOZZ	3AA65	NU-08	.NUT,PLAIN HEXAGON M8.	4
11	PFOZZ	3AA65	PN-04138	.PIN,SPRING 4X13.8.	1

END Of FIGURE

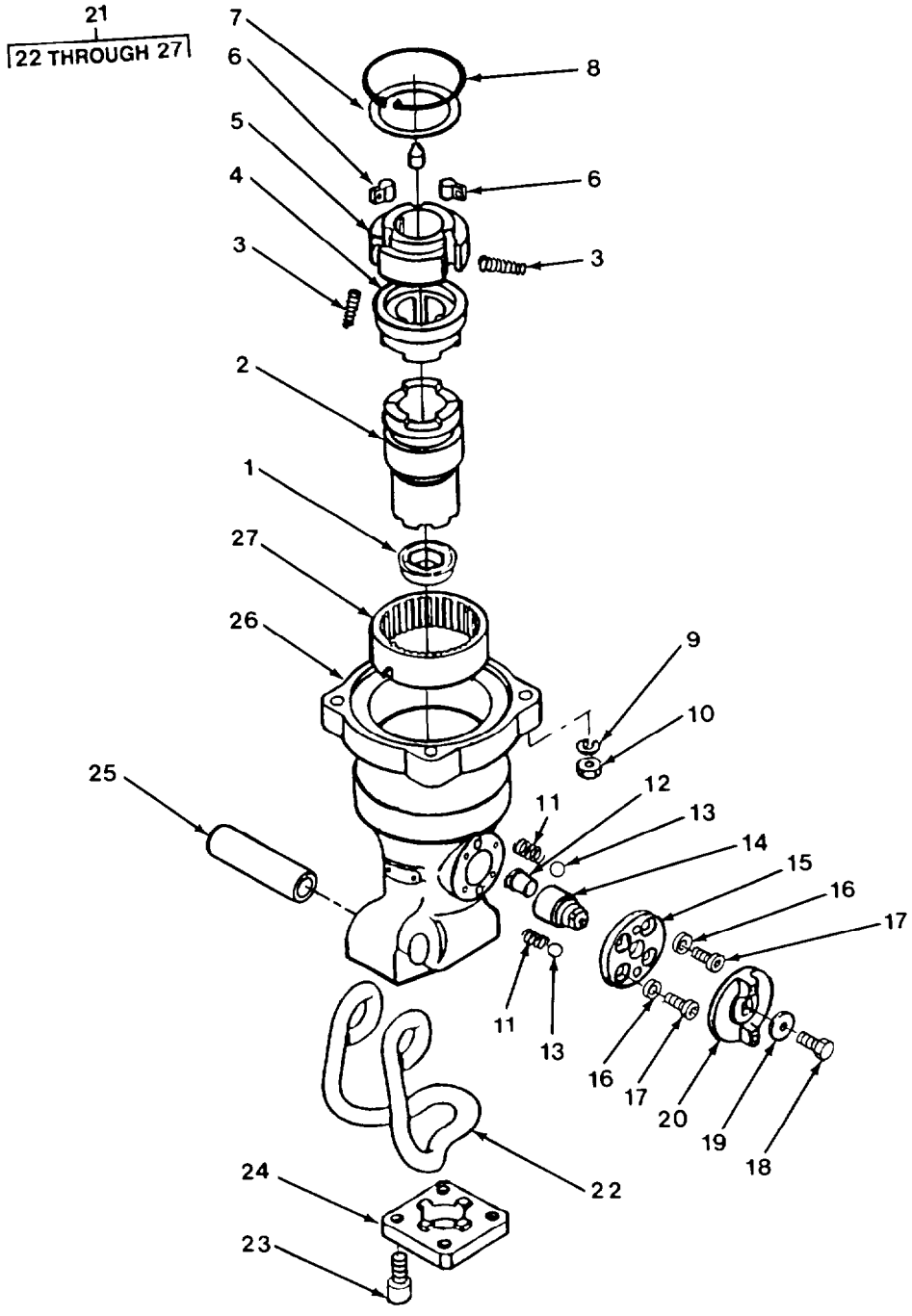


Figure 16. Tampers and Tamper Drive

(1) ITEM ND	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 7314 - TAMPERS AND TAMPER DRIVE	
				FIGURE 16 - TAMPER AND TAMPER DRIVE	
1	PAFZZ	3AA65	1034-710	SEAL,PLAIN	1
2	PAFZZ	3AA65	1044-709-01	SHAFT,SHOULDERED	1
3	PAFZZ	3AA65	1034-707	SPRING,HELICAL,COMP	3
4	PAFZZ	3AA65	1024-720	DISK,CLUTCH	1
5	PAFZZ	3AA65	1034-705	RATCHET,WHEEL	1
6	PAFZZ	3AA65	1034-706	PAWL	3
7	PFFZZ	3AA65	1034-704	BEARING.WASHER.THRU	1
8	PFFZZ	3AA65	1034-708	RING,RETAINING	1
9	PAOZZ	3AA65	SW-08	WASHER,LOCK 8	4
* 10	PAOZZ	64678	000934008010	NUT,PLAIN,HEXAGON M8	4
11	PFFZZ	3AA65	1014-716-01	SPRING,HELICAL,COMP	2
12	PFFZZ	3AA65	1034-712	PIN.GROOVED.HEADED	1
13	PFFZZ	3AA65	SB-1/4	BALL,CHECK	2
14	PFFZZ	3AA65	1014-713-02	ROTOR,ENGINE POPPET	1
15	PFFZZ	3AA65	1014-714-02	RING,RETAINING	1
16	PAFZZ	3AA65	LW-C06	WASHER,LOCK 6 W/TEETH	4
17	PFFZZ	3AA65	CS-0614	SCREW,MACHINE M6X14	4
* 18	PFFZZ	0R262	GT-0615	SCREW,MACHINE M6X15	1
19	PFFZZ	3AA65	1014-717	SPACER,PLATE	1
20	PFFZZ	3AA65	1014-715-02	SWITCH,ROTARY	1
21	PFOFF	3AA65	1044-072	HOUSING,MECHANICAL	1
22	PAOZZ	3AA65	1044-719	.FINGER,MECHANICAL	1
* 23	PFOZZ	0R262	BC-0814	.BOLT,MACHINE	4
24	PFOZZ	3AA65	1044-711-01	.COVER,ACCESS	1
* 25	PAOZZ	0R282	SP-2085	.PIN,QUICK RELEASE	1
26	PFFZZ	3AA65	1044-730	.HOUSING,MECHANICAL	1
27	PAFZZ	3AA65	1034-702	.GEAR,INTERNAL	1

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-238-3201	2	9	3040-01-338-7545	10	7
5310-01-241-6345	2	4	2901-01-339-0104	9	17
	6	4	5330-01-339-0139	9	9
	16	10	5330-01-339-0140	9	18
5315-01-338-0219	16	12	2805-01-339-0365	4	6
5340-01-338-0361	16	24	2805-01-339-0471	1	12
4730-01-338-1889	12	14	2805-01-339-0472	1	7
2910-01-338-3795	12	19	2805-01-339-0474	3	1
4820-01-338-3953	12	10	3040-01-339-0477	16	26
4710-01-338-4070	12	13	3020-01-339-0499	16	27
4710-01-338-4071	12	18	5310-01-339-0660	12	3
3040-01-338-4435	16	2	5315-01-339-0672	9	22
2901-01-338-4497	12	15	5306-01-339-0744	5	13
2910-01-338-4511	10	17	5310-01-339-0746	1	16
3040-01-338-4516	16	21		2	10
3020-01-338-4522	16	5		13	11
3040-01-338-4603	16	6	3120-01-339-0783	4	2
5305-01-338-5589	9	21	5340-01-339-1541	9	20
4730-01-338-5860	7	12	2990-01-339-1598	5	3
2805-01-338-6057	4	3	2990-01-339-1606	6	1
2805-01-338-6058	16	14	2805-01-339-1607	10	12
5306-01-338-6290	2	8	2805-01-339-1610	2	5
5306-01-338-6291	7	10	4730-01-339-2004	12	21
5360-01-338-6296	16	3	2990-01-339-2026	5	8
5360-01-338-6297	16	11	4730-01-339-2032	12	11
5360-01-338-6299	5	4	4820-01-339-2036	10	24
5360-01-338-6300	5	11	4810-01-339-2041	10	13
5330-01-338-6314	1	10	4730-01-339-2153	7	11
5305-01-338-6326	1	2		8	11
	12	23	3020-01-339-2304	5	5
	16	17	4820-01-339-4130	12	28
5305-01-338-6327	13	19	4720-01-339-4213	7	1
5310-01-338-6345	12	8	2805-01-339-4217	4	7
5310-01-338-6348	12	9	2815-01-339-4218	7	4
	13	7	4310-01-339-4225	8	22
5310-01-338-6349	2	3	3040-01-339-4305	10	10
	16	9	2920-01-339-4450	13	4
5310-01-338-6350	6	3	4310-01-339-4488	8	15
5307-01-338-6353	1	6	4810-01-339-4502	9	19
5307-01-338-6354	1	15	4730-01-339-4522	10	4
5307-01-338-6355	1	11	4730-01-339-4523	11	2
5307-01-338-6356	2	6	4820-01-339-6436	10	11
5307-01-338-6357	2	1	4820-01-339-6437	8	4
5307-01-338-6358	2	13	4730-01-339-6752	15	9
3040-01-338-6539	5	10	4820-01-339-6839	9	25
5365-01-338-6690	5	12	4820-01-339-6840	9	24
5365-01-338-6691	16	8	2920-01-339-7882	13	1
5365-01-338-6692	16	15	5355-01-339-8190	10	1
5365-01-338-6748	16	19	4320-01-339-8295	9	8
5365-01-338-6762	12	5	2805-01-339-8540	7	2

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
2920-01-339-8551	13	18	5360-01-349-0673	5	9
2805-01-339-8600	3	4	5330-01-349-0674	16	1
2805-01-339-8601	3	2	5330-01-349-0678	12	6
2815-01-339-8606	7	8	5330-01-349-0679	12	16
2805-01-339-8607	11	1	5330-01-349-0680	12	17
2910-01-339-8610	12	20	5330-01-349-0681	10	21
2940-01-339-8614	11	6	5330-01-349-0682	7	5
2520-01-339-8656	16	4	5330-01-349-0686	2	2
2805-01-339-8667	4	8	5330-01-349-0687	7	7
2805-01-339-8668	7	3	5330-01-349-0688	8	14
4310-01-339-8669	8	17	5330-01-349-0689	8	1
5360-01-339-8823	9	5	5310-01-349-0693	13	14
5360-01-339-8824	9	23	5305-01-349-0694	13	9
5305-01-339-8868	9	26	5365-01-349-0695	8	19
5305-01-339-8869	9	7	5315-01-349-0696	10	18
5305-01-339-8870	9	6		15	11
5305-01-339-8875	9	12	5315-01-349-0697	16	25
3120-01-339-8899	15	5	5340-01-349-0698	12	22
4310-01-340-0325	8	21	3120-01-349-0701	4	9
4810-01-340-0374	8	9	3120-01-349-0704	16	7
4310-01-340-0378	8	8	5310-01-349-0705	10	22
2990-01-340-0383	13	3	5310-01-349-0706	7	9
2910-01-340-0386	9	1		10	2
4820-01-340-0388	16	13		12	4
2920-01-340-0391	13	10		13	8
4310-01-340-0394	8	13	5310-01-349-0707	8	6
4310-01-340-0395	8	2		16	16
4310-01-340-0439	8	20	5307-01-349-0708	1	8
2940-01-340-0510	11	5	5307-01-349-0709	1	9
5999-01-340-1843	13	16	5315-01-349-0710	3	3
5360-01-340-2030	9	15	5340-01-349-0712	2	11
2910-01-340-2306	9	16	5365-01-349-0714	10	16
4730-01-340-2318	9	11	5365-01-349-0715	10	20
2990-01-340-4947	5	7	5310-01-349-0716	10	8
2990-01-340-7099	5	2	5310-01-349-0717	11	3
4310-01-341-1683	9	10	5340-01-349-0718	2	7
5355-01-341-4777	10	5	5340-01-349-0719	15	8
5355-01-341-4780	16	20	5340-01-349-0720	12	1
5307-01-341-6547	1	13	5340-01-349-0721	1	1
5340-01-342-0180	5	14	5340-01-349-0723	13	13
2910-01-342-2943	8	5	5340-01-349-6100	5	6
2805-01-342-3170	13	6	5340-01-349-6101	13	15
5120-01-346-2509	16	22	5330-01-349-8742	1	14
3110-01-349-0664	4	1	5330-01-349-8744	10	19
3110-01-349-0665	4	4	5305-01-349-9329	13	5
5306-01-349-0666	5	1	5315-01-350-4177	3	5
5310-01-349-0667	11	4	5365-01-351-1460	7	6
5310-01-349-0668	10	3	5310-01-352-5784	1	5
5365-01-349-0670	12	27		12	26
5360-01-349-0671	10	23	5310-01-352-7585	1	4

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-352-7585	12	25			
6150-01-353-0890	13	2			
2920-01-353-9981	13	17			
9905-01-354-2343	14	4			
9905-01-354-2358	14	5			
9905-01-354-2359	14	7			
9905-01-354-3490	14	2			
9905-01-354-3491	14	8			
9905-01-354-3495	14	9			
9905-01-354-3496	14	1			
9905-01-354-3497	14	6			
9905-01-354-6238	14	3			
5340-01-354-7682	15	2			
3110-01-356-4770	8	18			
5306-01-356-4771	13	12			
5306-01-356-4772	16	23			
5330-01-356-4774	15	4			
5330-01-356-4775	10	15			
5330-01-356-4776	6	2			
5330-01-356-4777	8	12			
5330-01-356-4778	8	3			
5305-01-356-4779	16	18			
5305-01-356-4780	15	7			
5305-01-356-4781	8	7			
5305-01-356-4782	8	10			
	10	14			
3120-01-356-4784	8	16			
5307-01-356-4786	10	9			
5305-01-356-4787	10	6			
	12	12			
5340-01-356-4788	12	7			
5340-01-356-4789	2	12			
5330-01-356-4790	15	6			
5365-01-356-4792	4	5			
5330-21-904-5733	12	2			
5340-21-908-3271	15	3			
5340-21-908-3327	15	1			

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
3AA65	B-4H	2920-01-339-8551	13	18
0R2B2	BC-0510	5305-01-356-4780	15	7
0R2B2	BC-0814	5306-01-356-4772	16	23
3AA65	BF-0612	5306-01-349-0666	5	1
3AA65	BR-6304C4	3110-01-349-0664	4	1
3AA65	BS-05200912 (SUS)	5307-01-338-6355	1	11
0R2B2	BS-05540912 (SUS)	5307-01-356-4786	10	9
3AA65	BS-06161012	5307-01-341-6547	1	13
3AA65	BS-06161212	5307-01-349-0709	1	9
3AA65	BS-06251212	5307-01-349-0708	1	8
3AA65	BS-08190914	5307-01-338-6358	2	13
3AA65	BS-08201514	5307-01-338-6354	1	15
3AA65	BS-08211012	5307-01-338-6356	2	6
3AA65	BS-08221514	5307-01-338-6357	2	1
3AA65	BS-08781212	5307-01-338-6353	1	6
3AA65	BT-0515	5306-01-338-6291	7	10
0R2B2	BT-0615	5306-01-338-4771	13	12
3AA65	BT-0616		1	3
			12	24
3AA65	BT-0812	5306-01-338-6290	2	8
3AA65	CS-0614	5305-01-338-6326	1	2
			12	23
			16	17
0R2B2	GT-0615	5305-01-356-4779	16	18
3AA65	KT-182412EG	3110-01-349-0665	4	4
3AA65	KW-05	5310-01-349-0705	10	22
3AA65	LW-C06	5310-01-349-0707	8	6
			16	16
3AA65	LW-06	5310-01-352-7585	1	4
			12	25
3AA65	MIL1	9905-01-354-2343	14	4
3AA65	MIL2	9905-01-354-2358	14	5
3AA65	MIL3	9905-01-354-6238	14	3
3AA65	MIL4	9905-01-354-2359	14	7
3AA65	MIL5	9905-01-354-3495	14	9
3AA65	MIL6	9905-01-354-3496	14	1
3AA65	MIL7	9905-01-354-3490	14	2
3AA65	MIL8	9905-01-354-3491	14	8
3AA65	MIL9	9905-01-354-3497	14	6
3AA65	MS-0305	5305-01-349-9329	13	5
3AA65	MS-0308	5305-01-356-4782	8	10
			10	14
3AA65	NH-0406	5305-01-356-4787	10	6
			12	12
3AA65	NK-5N	5340-01-349-6101	13	15
3AA65	NL-06	5310-01-339-0746	1	16
			2	10
			13	11
3AA65	NN-05	5310-01-349-0716	10	8
3AA65	NS-0406	5305-01-338-6327	13	19
3AA65	NS-0530	5305-01-349-0694	13	9

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
3AA65	NT-04	5310-01-339-0660	12	3
3AA65	NT-05	6310-01-349-0668	10	3
3AA65	NU-08		15	10
3AA65	OR-P5	5330-01-349-0681	10	21
3AA65	OR-P7	5330-01-349-0678	12	6
3AA65	OS-AC1013AQ	5330-01-349-8742	1	14
3AA65	PN-04138	5315-01-349-0696	10	18
			15	11
3AA65	PT-1/2	5365-01-349-0670	12	27
3AA65	SB-1/4	4820-01-340-0388	16	13
0R2B2	SK-0398	3110-01-356-4770	8	18
0R2B2	SP-2085	5315-01-349-0697	16	25
0R2B2	SS-0618	5305-01-356-4781	8	7
3AA65	SW-04	5310-01-338-6348	12	9
			13	7
0R2B2	SW-05	5310-01-349-0706	7	9
			10	2
			12	4
			13	8
3AA65	SW-08	5310-01-338-6349	2	3
			16	9
3AA65	SW-08 (SUS)	5310-01-338-6350	6	3
3AA65	TS-0730600	4730-01-338-5860	7	12
3AA65	WF-06	5310-01-352-5784	1	5
			12	26
70650	WJ-15	2910-01-340-0386	9	1
70650	WJ-15-01		9	14
70650	WJ-15-02	4320-01-339-8295	9	8
70650	WJ-15-03	5330-01-339-0139	9	9
70650	WJ-15-04	4310-01-341-1683	9	10
70650	WJ-15-05	4730-01-340-2318	9	11
70650	WJ-15-06	2910-01-340-2306	9	16
70650	WJ-15-07	5330-01-339-0140	9	18
70650	WJ-15-08	4810-01-339-4502	9	19
70650	WJ-15-09	5340-01-339-1541	9	20
70650	WJ-15-10	5315-01-339-0672	9	22
70650	WJ-15-11	2910-01-339-0104	9	17
70650	WJ-15-12	5305-01-338-5589	9	21
70650	WJ-15-13	5360-01-340-2030	9	15
70650	WJ-15-14		9	2
70650	WJ-15-15		9	4
70650	WJ-15-16		9	27
70650	WJ-15-17	5305-01-339-8868	9	26
70650	WJ-15-18	5305-01-339-8869	9	7
70650	WJ-15-19	5360-01-339-8823	9	5
70650	WJ-15-20	5305-01-339-8870	9	6
70650	WJ-15-21	5305-01-339-8875	9	12
70650	WJ-15-22	5360-01-339-8824	9	23
70650	WJ-15-23	4820-01-339-6839	9	25
70650	WJ-15-24	4820-01-339-6840	9	24
70650	WJ-15-25		9	13

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
70650	WJ-15-26		9	3
64678	000934008010	5310-01-241-6345	2	3
			6	4
			16	10
3AA65	1014-108	5315-01-350-4177	3	5
3AA65	1014-112	5365-01-349-0695	8	19
3AA65	1014-203	5330-21-904-5733	12	2
3AA65	1014-217	4730-01-339-2004	12	21
3AA65	1014-406	2920-01-339-4450	13	4
3AA65	1014-413	2920-01-353-9981	13	17
3AA65	1014-713-02	2805-01-338-6058	16	14
3AA65	1014-714-02	5365-01-338-6692	16	15
3AA65	1014-715-02	5355-01-341-4780	16	20
3AA65	1014-716-01	5360-01-338-6297	16	11
3AA65	1014-717	5365-01-338-6748	16	19
3AA65	1024-407	2990-01-340-0383	13	3
3AA65	1024-411	6150-01-353-0890	13	2
3AA65	1024-414	5999-01-340-1843	13	16
3AA65	1024-720	2520-01-339-8656	16	4
3AA65	1034-415	5310-01-349-0693	13	14
3AA65	1034-416	5340-01-349-0723	13	13
3AA65	1034-702	3020-01-339-0499	16	27
3AA65	1034-704	3120-01-349-0704	16	7
3AA65	1034-705	3020-01-338-4522	16	5
3AA65	1034-706	3040-01-338-4603	16	6
3AA65	1034-707	5360-01-338-6296	16	3
3AA65	1034-708	5365-01-338-6691	16	8
3AA65	1034-710	5330-01-349-3674	16	1
3AA65	1034-712	5315-01-338-0219	16	12
0R2B2	1034-817	3120-01-356-4784	8	16
3AA65	1044-011-01	2805-01-339-0474	3	1
3AA65	1044-021-01	5340-01-349-0720	12	1
3AA65	1044-041	2920-01-339-7882	13	1
3AA65	1044-051	2990-01-339-1598	5	3
3AA65	1044-072	3040-01-338-4516	16	21
3AA65	1044-081	5340-21-908-3327	15	1
3AA65	1044-082	4310-01-339-4488	8	15
3AA65	1044-102-01	2805-01-339-0471	1	12
3AA65	1044-103	2805-01-339-0472	1	7
3AA65	1044-104	5330-01-338-6314	1	10
3AA65	1044-106	2805-01-339-8600	3	4
3AA65	1044-107	2805-01-339-8601	3	2
0R2B2	1044-110	5315-01-349-0710	3	3
3AA65	1044-111	2805-01-338-6057	4	3
0R2B2	1044-112	5365-01-356-4792	4	5
3AA65	1044-113	2805-01-339-8667	4	8
3AA65	1044-115	3120-01-339-0783	4	2
3AA65	1044-116	2805-01-339-0365	4	6
3AA65	1044-117	2805-01-339-4217	4	7
3AA65	1044-118	3120-01-349-0701	4	9
3AA65	1044-201	2910-01-338-3795	12	19

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
3AA65	1044-208	2910-01-339-8610	12	20
3AA65	1044-209	4701-01-338-4070	12	13
3AA65	1044-210	4710-01-338-4071	12	18
3AA65	1044-210-01	2910-01-338-4497	12	15
3AA65	1044-212	4730-01-338-1889	12	14
3AA65	1044-213	5330-01-349-0679	12	16
3AA65	1044-214	5330-01-349-0680	12	17
3AA65	1044-215	4730-01-339-2032	12	11
3AA65	1044-301-03	2910-01-338-4511	10	17
3AA65	1044-302	4820-01-339-6436	10	11
3AA65	1044-303	2805-01-339-1607	10	12
3AA65	1044-304	4810-01-339-2041	10	13
0R2B2	1044-305-01	5330-01-356-4775	10	15
3AA65	1044-306	4820-01-339-2036	10	24
3AA65	1044-307	5330-01-349-8744	10	19
3AA65	1044-308	5360-01-349-0671	10	23
3AA65	1044-309	5355-01-339-8190	10	1
3AA65	1044-310-02	3040-01-338-7545	10	7
3AA65	1044-311	5355-01-341-4777	10	5
3AA65	1044-312	4730-01-339-4522	10	4
3AA65	1044-313	5365-01-349-0714	10	16
3AA65	1044-315	2940-01-340-0510	11	5
3AA65	1044-316	2940-01-339-8614	11	6
3AA65	1044-317	2805-01-339-8607	11	1
3AA65	1044-318	4730-01-339-4523	11	2
3AA65	1044-319	5340-01-349-0717	11	3
3AA65	1044-320	5310-07-349-0667	11	4
3AA65	1044-322-01	5365-01-349-0715	10	20
3AA65	1044-323	3040-01-339-4305	10	10
3AA65	1044-401-01	2920-01-340-0391	13	10
3AA65	1044-402	2805-01-342-3170	13	6
3AA65	1044-501	2990-01-340-7099	5	2
3AA65	1044-502	5360-01-338-6299	5	4
3AA65	1044-503	3020-01-339-2304	5	5
3AA65	1044-504	5360-01-349-0673	5	9
3AA65	1044-505	3040-01-338-6539	5	10
3AA65	1044-506	5360-01-338-6300	5	11
3AA65	1044-507	5365-01-338-6690	5	12
3AA65	1044-508	5306-01-339-0744	5	13
3AA65	1044-509	2990-01-339-2026	5	8
3AA65	1044-510	2990-01-340-4947	5	7
3AA65	1044-511	5340-01-349-6100	5	6
3AA65	1044-512	5340-01-342-0180	5	14
3AA65	1044-601	2805-01-339-1610	2	5
3AA65	1044-602	5330-01-349-0686	2	2
3AA65	1044-603	2990-01-339-1606	6	1
0R3B2	1044-606	5330-01-356-4776	6	2
3AA65	1044-607	4720-01-339-4213	7	1
3AA65	1044-608-01	2815-01-339-8606	7	8
3AA65	1044-609	2805-01-339-8668	7	3
3AA65	1044-611	5330-01-349-0687	7	7

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
0R2B2	1044-612-01	5340-01-349-0718	2	7
0R2B2	1044-613	5340-01-349-0712	2	11
3AA65	1044-615	2805-01-339-8540	7	2
3AA65	1044-616	2815-01-339-4218	7	4
0R2B2	1044-617	5340-01-356-4789	2	12
3AA65	1044-618-01	4730-01-339-2153	7	11
			8	11
3AA65	1044-653	5365-01-351-1460	7	6
3AA65	1044-709-01	3040-01-338-4435	16	2
3AA65	1044-711-01	5340-01-338-0361	16	24
3AA65	1044-719	5120-01-346-2509	16	22
3AA65	1044-730	3040-01-339-0477	16	26
3AA65	1044-801	4310-01-339-8669	8	17
3AA65	1044-802	4310-01-340-0439	8	20
3AA65	1044-803	4310-01-340-0394	8	13
0R2B2	1044-804	5330-01-356-4777	8	12
3AA65	1044-805	2910-01-342-2943	8	5
3AA65	1044-806	4820-01-339-6437	8	4
3AA65	1044-807	4810-01-340-0374	8	9
3AA65	1044-808	4310-01-340-0378	8	8
0R2B2	1044-809	5330-01-356-4778	8	3
3AA65	1044-810-01	4310-01-340-0395	8	2
3AA65	1044-811	5330-01-349-0688	8	14
3AA65	1044-812	4730-01-339-6752	15	9
3AA65	1044-813	5340-01-349-0719	15	8
0R2B2	1044-814	5330-01-356-4774	15	4
0R2B2	1044-815	5330-01-356-4790	15	6
3AA65	1044-816	4310-01-340-0325	8	21
3AA65	1044-818	4310-01-339-4225	8	22
3AA65	1044-819	3120-01-339-8899	15	5
3AA65	1044-820	5340-21-908-3271	15	3
3AA65	1044-821	5340-01-354-7682	15	2
3AA65	1044-822	5330-01-349-0689	8	1
0R2B2	1044-900	5340-01-356-4788	12	7
3AA65	1044-901	4820-01-338-3953	12	10
3AA65	1044-902	5310-01-338-6345	12	8
3AA65	1044-903	5365-01-338-6762	12	5
0R2B2	1044-906	5340-01-349-0698	12	22
3AA65	1044-907	5340-01-349-0721	1	1
0R2B2	4DG-80	5330-01-349-0682	7	5
3AA65	84-558	4820-01-339-4130	12	28
64678	913004014002	5310-01-238-3201	2	9

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
1	1	5340-01-349-0721	3AA65	1045-907
1	2	5305-01-338-6326	3AA65	CS-0614
1	3		3AA65	BT-0616
1	4	5310-01-352-7585	3AA65	LW-06
1	5	5310-01-352-5784	3AA65	WF-06
1	6	5307-01-338-6353	3AA65	BS-08781212
1	7	2805-01-339-0472	3AA65	1044-103
1	8	5307-01-349-0708	3AA65	BS-06251212
1	9	5307-01-349-0709	3AA65	BS-06161212
1	10	5330-01-338-6314	3AA65	1044-104
1	11	5307-01-338-6355	3AA65	BS-05200912 (SUS)
1	12	2805-01-339-0471	3AA65	1044-102-01
1	13	5307-01-341-6547	3AA65	BS-06161012
1	14	5330-01-349-8742	3AA65	OS-AC1013AQ
1	15	5307-01-338-6354	3AA65	BS-08201514
1	16	5310-01-339-0746	3AA65	NL-06
2	1	5307-01-338-6357	3AA65	BS-08221514
2	2	5330-01-349-0686	3AA65	1044-602
2	3	5310-01-338-6349	3AA65	SW-08
2	4	5310-01-241-6345	64678	000934008010
2	5	2805-01-339-1610	3AA65	1044-601
2	6	5307-01-338-6356	3AA65	BS-08211012
2	7	5340-01-349-0718	0R2B3	1044-612-01
2	8	5306-01-338-6290	3AA65	BT-0812
2	9	5310-01-238-3201	64678	913004014002
2	10	5310-01-339-0746	3AA65	NL-06
2	11	5340-01-349-0712	0R2B2	1044-613
2	12	5340-01-356-4789	0R2B2	1044-617
2	13	5307-01-338-6358	3AA65	BS-08190914
3	1	2805-01-339-0474	3AA65	1044-011-01
3	2	2805-01-339-8601	3AA65	1044-107
3	3	5315-01-349-0710	0R2B2	1044-110
3	4	2805-01-339-8600	3AA65	1044-106
3	5	5315-01-350-4177	3AA65	1014-108
4	1	3110-01-349-0664	3AA65	BR-6304C4
4	2	3120-01-339-0783	3AA65	1044-115
4	3	2805-01-338-6057	3AA65	1044-111
4	4	3110-01-349-0665	3AA65	KT-182412EG
4	5	5365-01-356-4792	0R2B2	1044-112
4	6	2805-01-339-0365	3AA65	1044-116
4	7	2805-01-339-4217	3AA65	1044-117
4	8	2805-01-339-8667	3AA65	1044-113
4	9	3120-01-349-0701	3AA65	1044-118
5	1	5306-01-349-0666	3AA65	BF-0612
5	2	2990-01-340-7099	3AA65	1044-501
5	3	2990-01-339-1598	3AA65	1044-051
5	4	5360-01-338-6299	3AA65	1044-502
5	5	3020-01-339-2304	3AA65	1044-503
5	6	5340-01-349-6100	3AA65	1044-511
5	7	2990-01-340-4947	3AA65	1044-510
5	8	2990-01-339-2026	3AA65	1044-509

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
5	9	5360-01-349-0673	3AA65	1044-504
5	10	3040-01-338-6539	3AA65	1044-505
5	11	5360-01-338-6300	3AA65	1044-506
5	12	5365-01-338-6690	3AA65	1044-507
5	13	5306-01-339-0744	3AA65	1044-508
5	14	5340-01-342-0180	3AA65	1044-512
6	1	2990-01-339-1606	3AA65	1044-603
6	2	5330-01-356-4776	0R2B2	1044-606
6	3	5310-01-338-6350	3AA65	SW-08 (SUS)
6	4	5310-01-241-6345	64678	000934008010
7	1	4720-01-339-4213	3AA65	1044-607
7	2	2805-01-339-8540	3AA65	1044-615
7	3	2805-01-339-8668	3AA65	1044-609
7	4	2815-01-339-4218	3AA65	1044-616
7	5	5330-01-349-0682	0R2B2	4DG-80
7	6	5365-01-351-1460	3AA65	1044-653
7	7	5330-01-349-0687	3AA65	1044-611
7	8	2815-01-339-8606	3AA65	1044-608-01
7	9	5310-01-349-0706	0R2B2	SW-05
7	10	5306-01-338-6291	3AA65	BT-0515
7	11	4730-01-339-2153	3AA65	1044-618-01
7	12	4730-01-338-5860	3AA65	TS-0730600
8	1	5330-01-349-0689	3AA65	1044-822
8	2	4310-01-340-0395	3AA65	1044-810-01
8	3	5330-01-356-4778	0R2B2	1044-809
8	4	4820-01-339-6437	3AA65	1044-806
8	5	2910-01-342-2943	3AA65	1044-805
8	6	5310-01-349-0707	3AA65	LW-C06
8	7	5305-01-356-4781	0R2B2	SS-0618
8	8	4310-01-340-0378	3AA65	1044-808
8	9	4810-01-340-0374	3AA65	1044-807
8	10	5305-01-356-4782	3AA65	MS-0308
8	11	4730-01-339-2153	3AA65	1044-618-01
8	12	5330-01-356-4777	0R2B2	1044-804
8	13	4310-01-340-0394	3AA65	1044-803
8	14	5330-01-349-0688	3AA65	1044-811
8	15	4310-01-339-4488	3AA65	1044-082
8	16	3120-01-356-4784	0R2B2	1034-817
8	17	4310-01-339-8669	3AA65	1044-801
8	18	3110-01-356-4770	0R2B2	SK-0398
8	19	5365-01-349-0695	3AA65	1014-112
8	20	4310-01-340-0439	3AA65	1044-802
8	21	4310-01-340-0325	3AA65	1044-816
8	22	4310-01-339-4225	3AA65	1044-818
9	1	2910-01-340-0386	70650	WJ-15
9	2		70650	WJ-15-14
9	3		70650	WJ-15-26
9	4		70650	WJ-15-15
9	5	5360-01-339-8823	70650	WJ-15-19
9	6	5305-01-339-8870	70650	WJ-15-20
9	7	5305-01-339-8869	70650	WJ-15-18

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
9	8	4320-01-339-8295	70650	WJ-15-02
9	9	5330-01-339-0139	70650	WJ-15-03
9	10	4310-01-341-1683	70650	WJ-15-04
9	11	4730-01-340-2318	70650	WJ-15-05
9	12	5305-01-339-8875	70650	WJ-15-21
9	13		70650	WJ-15-25
9	14		70650	WJ-15-01
9	15	5360-01-340-2030	70650	WJ-15-13
9	16	2910-01-340-2306	70650	WJ-15-06
9	17	2910-01-339-0104	70650	WJ-15-11
9	18	5330-01-339-0140	70650	WJ-15-07
9	19	4810-01-339-4502	70650	WJ-15-08
9	20	5340-01-339-1541	70650	WJ-15-09
9	21	5305-01-338-5589	70650	WJ-15-12
9	22	5315-01-339-0672	70650	WJ-15-10
9	23	5360-01-339-8824	70650	WJ-15-22
9	24	4820-01-339-6840	70650	WJ-15-24
9	25	4820-01-339-6839	70650	WJ-15-23
9	26	5305-01-339-8868	70650	WJ-15-17
9	27		70650	WJ-15-16
10	1	5355-01-339-8190	3AA65	1044-309
10	2	5310-01-349-0706	OR2B2	SW-05
10	3	5310-01-349-0668	3AA65	NT-05
10	4	4730-01-339-4522	3AA65	1044-312
10	5	5355-01-341-4777	3AA65	1044-311
10	6	5305-01-356-4787	3AA65	NH-0406
10	7	3040-01-338-7545	3AA65	1044-310-02
10	8	5310-01-349-0716	3AA65	NN-05
10	9	5307-01-356-4786	OR2B2	BS-05540912 (SUS)
10	10	3040-01-339-4305	3AA65	1044-323
10	11	4820-01-339-6436	3AA65	1044-302
10	12	2805-01-339-1607	3AA65	1044-303
10	13	4810-01-339-2041	3AA65	1044-304
10	14	5305-01-356-4782	OR2B2	MS-0308
10	15	5330-01-356-4775	OR2B2	1044-305-01
10	16	5365-01-349-0714	3AA65	1044-313
10	17	2910-01-338-4511	3AA65	1044-301-03
10	18	5315-01-349-0696	3AA65	PN-04138
10	19	5330-01-349-8744	3AA65	1044-307
10	20	5365-01-349-0715	3AA65	1044-322-01
10	21	5330-01-349-0681	3AA65	OR-P5
10	22	5310-01-349-0705	3AA65	KW-05
10	23	5360-01-349-0671	3AA65	1044-308
10	24	4820-01-339-2036	3AA65	1044-306
11	1	2805-01-339-8607	3AA65	1044-317
11	2	4730-01-339-4523	3AA65	1044-318
11	3	5340-01-349-0717	3AA65	1044-319
11	4	5310-01-349-0667	3AA65	1044-320
11	5	2940-01-340-0510	3AA65	1044-315
11	6	2940-01-339-8614	3AA65	1044-316
12	1	5340-01-349-0720	3AA65	1044-021-01

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
12	2	5330-21-904-5733	3AA65	1014-203
12	3	5310-01-339-0660	3AA65	NT-04
12	4	5310-01-349-0706	0R2B2	SW-05
12	5	5365-01-338-6762	3AA65	1045-903
12	6	5330-01-349-0678	3AA65	OR-P7
12	7	5340-01-356-4788	0R2B2	1045-900
12	8	5310-01-338-6345	3AA65	1045-902
12	9	5310-01-338-6348	3AA65	SW-04
12	10	4820-01-338-3953	3AA65	1045-901
12	11	4730-01-339-2032	3AA65	1044-215
12	12	5305-01-356-4787	0R2B2	NH-0406
12	13	4710-01-338-4070	3AA65	1044-209
12	14	4730-01-338-1889	3AA65	1044-212
12	15	2910-01-338-4497	3AA65	1044-210-01
12	16	5330-01-349-0679	3AA65	1044-213
12	17	5330-01-349-0680	3AA65	1044-214
12	18	4710-01-338-4071	3AA65	1044-210
12	19	2910-01-338-3795	3AA65	1044-201
12	20	2910-01-339-8610	3AA65	1044-208
12	21	4730-01-339-2004	3AA65	1014-217
12	22	5340-01-349-0698	0R2B2	1045-906
12	23	5305-01-338-6326	3AA65	CS-0614
12	24		3AA65	BT-0616
12	25	5310-01-352-7585	3AA65	LW-06
12	26	5310-01-352-5784	3AA65	WF-06
12	27	5365-01-349-0670	3AA65	PT-1/2
12	28	4820-01-339-1430	3AA65	84-558
13	1	2920-01-339-7882	3AA65	1044-041
13	2	6150-01-353-0890	3AA65	1024-411
13	3	2990-01-340-0383	3AA65	1024-407
13	4	2920-01-339-4450	3AA65	1014-406
13	5	5305-01-349-9329	3AA65	MS-0305
13	6	2805-01-342-3170	3AA65	1044-402
13	7	5310-01-338-6348	3AA65	SW-04
13	8	5310-01-349-0706	0R2B2	SW-05
13	9	5305-01-349-0694	3AA65	NS-0530
13	10	2920-01-340-0391	3AA65	1044-401-01
13	11	5310-01-339-0746	3AA65	NL-06
13	12	5306-01-356-4771	0R2B2	BT-0615
13	13	5340-01-349-0723	3AA65	1034-416
13	14	5310-01-349-0693	3AA65	1034-415
13	15	5340-01-349-6101	3AA65	NK-5N
13	16	5999-01-340-1843	3AA65	1024-414
13	17	2920-01-353-9981	3AA65	1014-413
13	18	2920-01-339-8551	3AA65	B-4H
13	19	5305-01-338-6327	3AA65	NS-0406
14	1	9905-01-354-3496	3AA65	MIL6
14	2	9905-01-345-3490	3AA65	MIL7
14	3	9905-01-354-6238	3AA65	MIL3
14	4	9905-01-354-2343	3AA65	MIL1
14	5	9905-01-354-2358	3AA65	MIL2

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
14	6	9905-01-354-3497	3AA65	MIL9
14	7	9905-01-354-2359	3AA65	MIL4
14	8	9905-01-354-3491	3AA65	MIL8
14	9	9905-01-354-3495	3AA65	MIL5
15	1	5340-21-908-3327	3AA65	1044-081
15	2	5340-01-354-7682	3AA65	1044-821
15	3	5340-21-908-3271	3AA65	1044-820
15	4	5330-01-356-4774	0R2B2	1044-814
15	5	3120-01-339-8899	3AA65	1044-819
15	6	5330-01-356-4790	0R2B2	1044-815
15	7	5305-01-356-4780	0R2B2	BC-0510
15	8	5340-01-349-0719	3AA65	1044-813
15	9	4730-01-339-6752	3AA65	1044-812
15	10		3AA65	NU-08
15	11	5315-01-349-0696	3AA65	PN-04138
16	1	5330-01-349-0674	3AA65	1034-710
16	2	3040-01-338-4435	3AA65	1044-709-01
16	3	5360-01-338-6296	3AA65	1034-707
16	4	2520-01-339-8656	3AA65	1024-720
16	5	3020-01-338-4522	3AA65	1034-705
16	6	3040-01-338-4603	3AA65	1034-706
16	7	3120-01-349-0704	3AA65	1034-704
16	8	5365-01-338-6691	3AA65	1034-708
16	9	5310-01-338-6349	3AA65	SW-08
16	10	5310-01-241-6345	64678	000934008010
16	11	5360-01-338-6297	3AA65	1014-716-01
16	12	5315-01-338-0219	3AA65	1034-712
16	13	4820-01-340-0388	3AA65	SB-1/4
16	14	2805-01-338-6058	3AA65	1014-713-02
16	15	5365-01-338-6692	3AA65	1014-714-02
16	16	5310-01-349-0707	3AA65	LW-C06
16	17	5305-01-338-6326	3AA65	CS-0614
16	18	5305-01-356-4779	0R2B2	GT-0615
16	19	5365-01-338-6748	3AA65	1014-717
16	20	5355-01-341-4780	3AA65	1014-715-02
16	21	3040-01-338-4516	3AA65	1044-072
16	22	5120-01-346-2509	3AA65	1044-719
16	23	5306-01-356-4772	0R2B3	BC-0814
16	24	5340-01-338-0361	3AA65	1044-711-01
16	25	5315-01-349-0697	0R2B2	SP-2085
16	26	3010-01-339-0477	3AA65	1044-730
16	27	3020-01-339-0499	3AA65	1034-702

APPENDIX G
ILLUSTRATED LIST OF MANUFACTURED ITEMS

There is no manufactured items for the Paving Breaker.

ALPHABETICAL INDEX

Subject, Para

Subject, Para

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative *Assistant to the*
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BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
3		2		Item 10. Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.
109		51		Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.
2-8			2-1	Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.
12	1-6a			Since there are both 20- and 30- round magazines for this rifle, data on both should be listed.

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

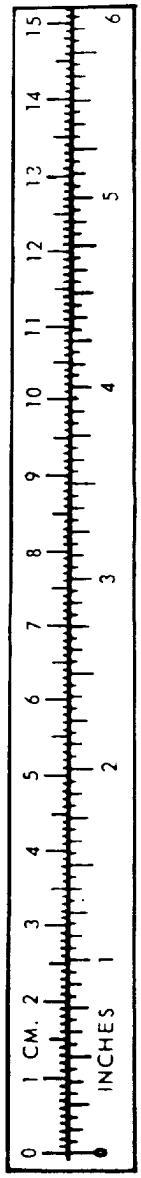
TEMPERATURE

$5/9\ (^0F - 32) = {}^0C$
212^0 Fahrenheit is equivalent to 100^0 Celsius
90^0 Fahrenheit is equivalent to 32.2^0 Celsius
32^0 Fahrenheit is equivalent to 0^0 Celsius
$9/5\ C^0 + 32 = F^0$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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