

S6161-ME-FSE-010

REVISION 2

---

0910-LP-101-1230

# TECHNICAL MANUAL

FOR

ELECTRIC FOOD CUTTER, HOBART 8186 & 84186U;  
DESCRIPTION, OPERATION AND MAINTENANCE

“Distribution Statement “A”: Approved for public  
release; distribution is unlimited.”

DEPARTMENT OF THE NAVY  
NAVAL SEA SYSTEMS COMMAND

5 AUGUST 2002

  
0910-LP-101-1230



APPROVAL AND PROCUREMENT RECORD PAGE

APPROVAL DATA FOR: S6161-ME-FSE-010

TITLE: Technical Manual for Electric Food Cutter, Hobart Models 8186 & 84186;  
Description, Operation and Maintenance Manual

APPROVAL AUTHORITY: Not Required

CONTRACT OR PURCHASE ORDER	SHIP APPLICABILITY	QUANTITY OF MANUALS	QUANTITY OF EQUIPMENT	BUILDING SHIPYARD
4500089743	CVN69	1	1	Northrop Grumman- Newport News

REMARKS:

- 1) Distributed to CVN69 in accordance with Contract No. N00024-98-C-2107, CDRL Item No. B006.
- 2) This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause 252.227-7013 (DFARS Oct 1988).

CERTIFICATION: Not Required

Date: July 12, 2002

Hobart Corp.  
701 S. Ridge Avenue  
Troy, OH 45374-0001  
CAGE No. 28873



FOOD  
CUTTER



# INSTRUCTIONS

## MODELS 8186 & 84186<sup>U</sup> FOOD CUTTER

ML-33892      8186  
ML-33764      84186<sup>U</sup>

MARINE GALLEYS, LTD.  
353 BOTETOURT STREET  
NORFOLK, VA 23510  
(757)625-5444

a product of

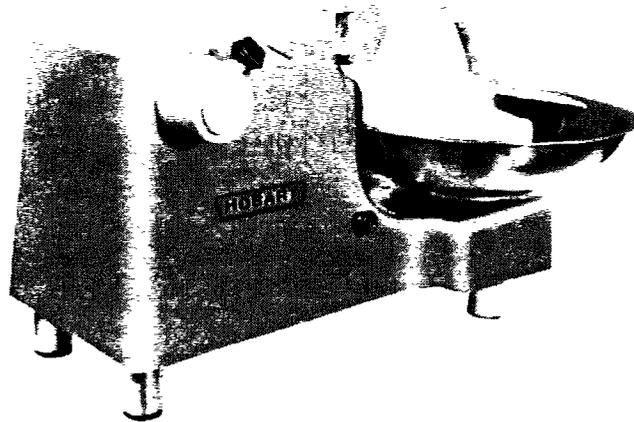


WORLD HEADQUARTERS  
TROY OHIO 45374



# Installation, Operation and Care of MODELS 8186 & 84186 FOOD CUTTER

## SAVE THESE INSTRUCTIONS



## GENERAL

The Models 8186 and 84186 Food Cutters are designed to cut and mix a wide variety of products. With products in the rotating 18" stainless steel bowl, rotating knives cut and mix them inside the bowl cover. Both models are powered by a 1 horsepower motor and are available for single- or three-phase electrical service.

The Model 84186 is furnished with a #12 attachment hub. Various attachments available for this model through Hobart include: Model 12 Meat and Food Chopper; Model 12 Vegetable Slicer; Model 12 Dicer/French Fry Cutter; and Model 12 Speed Drive (for use with Model 12 Vegetable Slicer only).

## INSTALLATION

### UNPACKING

Immediately after unpacking the machine, check it for possible shipping damage. If this machine is found to be damaged after unpacking, save the packing material and contact the carrier within 15 days of delivery.

Prior to installation, test the electrical service to assure that it agrees with the specifications on the machine data plate.

## **LOCATION**

With the legs installed, place the machine on a sturdy flat surface and level it by turning the adjustable feet as necessary.

## **ELECTRICAL CONNECTIONS**

**WARNING:** THE SUPPLY CORD ON THIS MACHINE IS PROVIDED WITH A THREE-PRONG OR FOUR-PRONG GROUNDING PLUG. IT IS IMPERATIVE THAT THIS PLUG BE CONNECTED TO A PROPERLY GROUNDED, MATING RECEPTACLE. IF THE RECEPTACLE IS NOT THE PROPER GROUNDING TYPE, AN ELECTRICIAN SHOULD BE CONTACTED.

It is important to check knife clearance before turning on the machine for the first time. Refer to MAINTENANCE for instructions.

## **CLEANING**

This machine must be cleaned after installation and before being put into service. Refer to OPERATION for instructions.



**WARRANTY  
and  
SERVICE CONTRACT  
Information**

Please use the most convenient way  
to register your new Hobart Product.

[www.hobartcorp.com/warranty](http://www.hobartcorp.com/warranty)

Fax to 1-937-332-2182

Cut along dotted lines and  
mail the attached card(s)

Thank you,  
HOBART CORPORATION  
PRODUCT SERVICE

# HOBART SALES AND SERVICE OFFICES

## ALABAMA

**Birmingham**  
205 985-9996  
**Florence**  
256 764-0536  
**Huntsville**  
256 536-0536  
**Mobile**  
251 343-1211  
**Montgomery**  
334 272-3500

## ALASKA

**Anchorage**  
907 563-3100  
**Juneau**  
907 789-3504

## ARIZONA

**Phoenix**  
602 437-5255  
**Tucson**  
520 622-4009

## ARKANSAS

**Ft. Smith**  
501 474-7965  
**Little Rock**  
501 455-0307

## CALIFORNIA

**Bakersfield**  
661 322-4445  
**Chico**  
530 342-9092  
**Fresno**  
559 237-2118  
**Garden Grove**  
714 636-5770  
**Los Angeles**  
213 260-7321  
**Oakland**  
925 460-5330  
**Sacramento**  
916 922-9621  
**Salinas**  
831 758-6646  
**San Bernardino**  
909 799-1123  
**San Diego**  
858 279-9500  
**San Francisco**  
800 700-0479  
**San Jose**  
925 460-5330  
**Santa Rosa**  
707 545-1822  
**Stockton**  
209 466-0827  
**Ventura**  
805 658-1533

## COLORADO

**Colorado Springs**  
719 471-2222  
**Denver**  
303 294-0784

## CONNECTICUT

**Bridgeport**  
203 333-0053  
**Hartford**  
860 653-5055

## DELAWARE

**Wilmington**  
302 322-3391

## DISTRICT OF COLUMBIA

**Washington, D.C.**  
301 210-5300

## FLORIDA

**Ft. Lauderdale**  
954 783-8800  
**Ft. Myers**  
941 694-1115  
**Jacksonville**  
904 695-2845  
**Miami**  
305 759-5702  
**Orlando**  
407 856-4000  
**Pensacola**  
850 477-9700  
**Sarasota**  
941 371-1300  
**Tallahassee**  
850 576-4730  
**Tampa**  
813 884-3466  
**W. Palm Beach**  
561 863-1300

## GEORGIA

**Albany**  
229 436-7105  
**Atlanta**  
770 458-2361  
**Augusta**  
706 733-0950  
**Columbus**  
706 327-7547  
**Macon**  
912 746-5365  
**Savannah**  
912 236-0004

## HAWAII

**Honolulu**  
808 487-8910

## IDAHO

**Boise**  
208 376-4300

## ILLINOIS

**Chicago**  
630 787-2500  
**Peoria**  
309 693-2200  
**Quincy**  
217 223-0900  
**Rockford**  
815 874-9415  
**Springfield**  
217 523-6553

## INDIANA

**Evansville**  
812 424-9248  
**Ft. Wayne**  
219 478-1656  
**Hammond**  
219 924-9564  
**Indianapolis**  
317 243-8506  
**South Bend**  
219 232-8751

## IOWA

**Davenport**  
563 326-3557  
**Des Moines**  
515 283-2119  
**Dubuque**  
319 556-8310  
**Sioux City**  
712 944-5285  
**Waterloo**  
319 233-9631

## KANSAS

**Hays**  
785 625-9028  
**Kansas City**  
913 469-9600  
**Topeka**  
785 354-1494  
**Wichita**  
316 522-8240

## KENTUCKY

**Lexington**  
859 268-0806  
**Louisville**  
502 585-4389

## LOUISIANA

**Baton Rouge**  
225 293-2414  
**Lafayette**  
337 232-6347  
**New Orleans**  
504 465-0490  
**Shreveport**  
318 631-8351

## MAINE

**Portland**  
207 797-3893

## MARYLAND

**Baltimore**  
410 574-7400  
**Hagerstown**  
301 733-6560  
**Salisbury**  
410 742-8406

## MASSACHUSETTS

**Boston**  
781 329-3340  
**Cape Cod**  
508 291-0377

## MICHIGAN

**Detroit**  
734 697-3070  
**Flint**  
810 742-7590  
**Grand Rapids**  
616 538-1470  
**Kalamazoo**  
616 349-6767  
**Lansing**  
517 323-2266  
**Marquette**  
906 475-9956  
**Saginaw**  
517 791-3131  
**Traverse City**  
231 946-7311

## MINNESOTA

**Duluth**  
218 720-5899  
**Minneapolis**  
612 379-7544  
**Rochester**  
507 289-2842

## MISSISSIPPI

**Jackson**  
601 939-7474  
**Tupelo**  
662 844-2326

## MISSOURI

**Cape Girardeau**  
573 334-5094  
**Columbia**  
573 474-2413  
**Joplin**  
417 624-1100

**St. Louis**  
636 343-1700  
**Springfield**  
417 863-1779

## MONTANA

**Billings**  
406 259-7935  
**Helena**  
406 227-5917

## NEBRASKA

**Grand Island**  
308 362-8170  
**Omaha**  
402 359-0550

## NEVADA

**Las Vegas**  
702 362-1723  
**Reno**  
775 359-2227

## NEW HAMPSHIRE

**Manchester**  
603 623-3622

## NEW JERSEY

**Atlantic City**  
609 646-4803  
**Neptune**  
732 222-1100  
**Newark**  
973 237-9265  
**S. Plainfield**  
908 753-7070

## NEW MEXICO

**Albuquerque**  
505 684-2224

## NEW YORK

**Albany**  
518 456-0100  
**Buffalo**  
716 826-8760  
**Elmira**  
607 732-9070  
**Long Island**  
631 864-3440  
**New York**  
718 545-2240  
**Newburgh**  
845 565-8955  
**Olean**  
716 372-6339  
**Rochester**  
716 427-9000  
**Syracuse**  
315 437-0368  
**Watertown**  
315 782-1510  
**White Plains**  
845 266-8800

## NORTH CAROLINA

**Asheville**  
828 654-9005  
**Charlotte**  
704 527-6381  
**Fayetteville**  
910 424-2210  
**Greensboro**  
336 372-1731  
**Kinston**  
252 523-3424  
**Raleigh**  
919 828-1257  
**Wilmington**  
910 791-5313  
**Winston-Salem**  
336 765-8950

## NORTH DAKOTA

**Bismarck**  
701 232-0450  
**Fargo**  
701 237-5240

## OHIO

**Akron**  
330 666-6756  
**Cincinnati**  
513 771-8833  
**Cleveland**  
216 941-6525  
**Columbus**  
614 273-8450  
**Dayton**  
937 222-4114  
**Lima**  
419 222-5976  
**Mansfield**  
419 526-5711  
**Toledo**  
419 729-5418  
**Youngstown**  
330 793-7900

## OKLAHOMA

**Oklahoma City**  
405 495-2700  
**Tulsa**  
918 252-0515

## OREGON

**Eugene**  
541 242-5875  
**Portland**  
503 655-9950

## PENNSYLVANIA

**Allentown**  
610 439-1504  
**Altoona**  
914 946-5436  
**Erie**  
814 853-4979  
**Greensburg**  
724 834-2015  
**Harrisburg**  
717 564-6202  
**Philadelphia**  
215 321-5400  
**Pittsburgh**  
412 221-8922  
**Wilkes-Barre**  
570 229-1300

## RHODE ISLAND

**Providence**  
401 434-3355

## SOUTH CAROLINA

**Charleston**  
843 552-1877  
**Columbia**  
803 799-5907

## SOUTH DAKOTA

**Rapid City**  
605 348-2680  
**Sioux Falls**  
605 332-6521

## TENNESSEE

**Bristol**  
423 764-3942  
**Chattanooga**  
423 999-3366  
**Knoxville**  
865 523-8410

**Memphis**  
901 366-5055  
**Nashville**  
615 244-6951

## TEXAS

**Austin**  
512 339-6616  
**Corpus Christi**  
361 851-1002  
**Dallas**  
972 915-3822  
**El Paso**  
915 771-8324  
**Houston**  
713 661-0505  
**Lubbock**  
806 747-4747  
**McAllen**  
956 618-1817  
**San Antonio**  
210 656-9100  
**Tyler**  
300 356-3942  
**Waco**  
300 356-3942

## UTAH

**Salt Lake City**  
801 487-9955

## VERMONT

**Rutland**  
802 773-7183

## VIRGINIA

**Fairfax**  
703 575-0262  
**Norfolk**  
757 424-5500  
**Richmond**  
804 353-1275  
**Roanoke**  
540 262-1633

## WASHINGTON

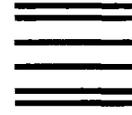
**Seattle**  
425 881-3111  
**Spokane**  
509 922-2123  
**Tacoma**  
253 584-9190

## WEST VIRGINIA

**Charleston**  
304 346-9643  
**Clarksburg**  
304 624-5962  
**Huntington**  
304 346-9643  
**Parkersburg**  
304 428-0751  
**Wheeling**  
740 695-3002

## WISCONSIN

**Appleton**  
920 739-9141  
**Madison**  
608 246-3100  
**Milwaukee**  
262 782-0100  
**Wausau**  
715 359-9481



**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO. 5 TROY OH

POSTAGE WILL BE PAID BY ADDRESSEE

PRODUCT SERVICE  
HOBART CORPORATION  
701 S RIDGE AVE  
TROY OH 45373-9914

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



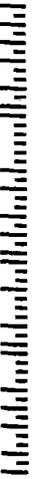
**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO. 5 TROY OH

POSTAGE WILL BE PAID BY ADDRESSEE

PRODUCT SERVICE  
HOBART CORPORATION  
701 S RIDGE AVE  
TROY OH 45373-9914

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES





# SERVICE CONTRACT

**That's the protection you get with a Hobart Service Contract.** A Hobart Service Contract is full time protection. That's why it's your best investment...whether your equipment is old, new, or in between. Look at the very real benefits of a Service Contract vs. paying for each service call as it comes:

- **Budget service costs to the penny**—it's a fixed cost for the full year with no surprises, easy budgeting.
- **Get tomorrow's service at today's cost**—you lock in the best price, even if labor and parts costs go up during the term of your contract.
- **Enjoy peace of mind**—you're fully covered, no matter what happens.
- **No charge**—for parts, or labor during regular business hours.
- **We'll write it**—tailored to your exact needs, one machine or several, one location or many.
- **We'll cover it**—Hobart, Vulcan, Adamatic, Baxler, Baker's Aid.
- **Best service**—rated first in the industry according to independent surveys.
- **At your service**—more than 1700 trained field service representatives in over 200 offices nationwide.

**CUT HERE AND MAIL THIS CARD**

**GIVE ME A QUOTE.** What would a Hobart Service Contract cost for the following equipment?

COMPANY NAME: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_ CITY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

TELEPHONE NO.: \_\_\_\_\_ CONTACT: \_\_\_\_\_

Type of Equipment					
Brand					
Model No.					
Serial No.					
Date Installed					

# WARRANTY

OF



WORLD HEADQUARTERS  
201 S. RIDGE AVENUE  
FRY, OHIO 45724 0001

Hobart Corporation ("Hobart") warrants new Hobart products and certain products sold by Hobart under other brand names to the original end user ("Owner") when installed within the United States, against defective material and workmanship for one (1) year from the date of original installation. Hobart will, during normal working hours, through one of its Branches or authorized servicing outlets repair or replace, at its option, including service and labor, all parts found to be defective and subject to this warranty.

Certain Hobart products or parts may be warranted for a period other than one (1) year and others may be subject to travel limitations. Certain Hobart parts, expendable by nature and that need to be replaced frequently, may not be covered. Service labor to perform certain adjustments on Hobart products may not be covered. Ask your authorized Hobart representative for information regarding these products and coverage exclusions.

This warranty is conditioned upon Hobart receiving notice of any defect subject to this warranty within thirty (30) days of its discovery by Owner. This warranty does not apply to damage resulting from fire, water, burglary, accident, abuse, misuse, acts of God, attempted repairs or improper installation by unauthorized persons. Failure to follow use, care, or maintenance instructions in your Instruction Manual may void this warranty.

THIS WARRANTY EXCLUDES ALL ORAL, STATUTORY, EXPRESS OR IMPLIED WARRANTIES WHICH MAY BE APPLICABLE TO HOBART, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE. Hobart shall have no obligation or liability of any kind or character, including any obligation or liability for consequential or special damages arising out of, or with respect to, the product, its sale, operation, use or repair. Hobart neither assumes nor authorizes anyone else to assume for it any obligation or liability in connection with the product, its sale, operation, or use, other than as stated herein.

**CUT HERE AND MAIL THIS CARD**

MAIL THIS CARD OR FAX TO 1-937-392-2182 IMMEDIATELY AFTER INSTALLATION

## WARRANTY REGISTRATION CARD

Please fill out this card to register your new Hobart product or use our on-line warranty registration

YOUR NAME: \_\_\_\_\_ LOCATION NAME/STORE NUMBER: \_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_ E MAIL: \_\_\_\_\_

MODEL: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_ DATE OF INSTALLATION: \_\_\_\_\_

# OPERATION

## SAFETY

SAFETY DEVICES INCORPORATED IN THIS MACHINE MUST BE IN THEIR CORRECT OPERATING POSITION ANYTIME THE FOOD CUTTER IS IN USE.

The *HAND KNOB* (Fig. 1) must be tightened snugly against the knife unit.

The *COMB* must be positioned on the locking adapter as shown in Fig. 1.

The *BOWL COVER* (Fig. 2) must be closed over the bowl and securely locked by pressing down on the locking handle and turning it 90°.

The *START-STOP* switch (Fig. 2) which controls power to the food cutter and the *BOWL COVER* are mechanically interlocked. The switch cannot be pulled to the *ON* position unless the bowl cover is locked in place and, with the switch in the *ON* position, the bowl cover cannot be unlocked.

Always **UNPLUG** the power cord before cleaning or moving the food cutter.

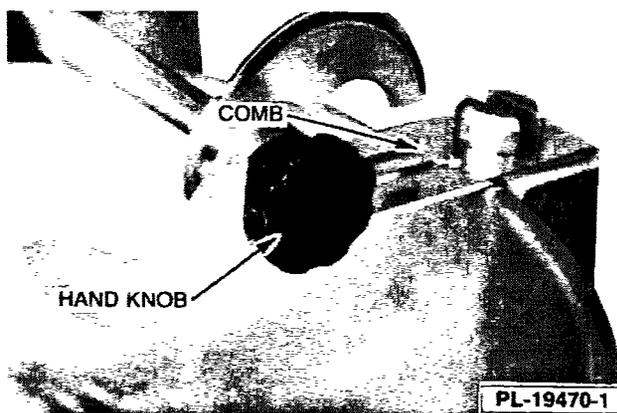


Fig. 1

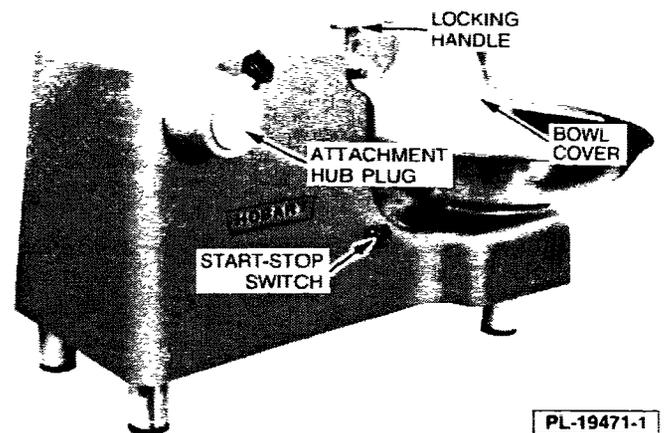


Fig. 2

## OPERATION

Start the machine by pulling the *START-STOP* switch (Fig. 2). Feed the product directly into the bowl as it rotates. The bowl cover is shaped to turn and mix products as the bowl rotates.

**WARNING:** HANDS MUST NEVER BE INSERTED UNDER THE BOWL COVER DURING OPERATION OF THE MACHINE AS SHARP ROTATING KNIVES ARE LOCATED UNDER THE BOWL COVER.

If additional mixing is desired, use a spatula (or similar utensil) to turn the product as it rotates past the bowl opening.

To unload the bowl, use a spatula to scrape the product into a bowl or pan from the bowl opening. This may be done while the bowl rotates or you may turn the machine on and off to rotate the product to the bowl opening.

## ATTACHMENTS

To install an attachment, loosen the thumb screw and remove the plug (Fig. 2) from the attachment hub. Make sure the attachment shaft lines up with the square attachment hub socket and insert the attachment with a slight twist to seat the attachment pin in the alignment hole in the hub. Tighten the thumb screw to secure the attachment.

Use the machine *START-STOP* switch to operate the attachment.

The Speed Drive attachment is for use only with the Vegetable Slicer attachment to increase its speed of operation. DO NOT use the Speed Drive with any other attachment.

## **CLEANING**

The food cutter should be wiped with a clean damp cloth and dried daily.

The bowl, knives, and attachments should be removed and washed after each use.

Unlock and raise the bowl cover. Remove the comb.

Carefully turn the knife shaft so the knives are in a horizontal position. Remove the hand knob and CAREFULLY slide the knife unit off of the shaft. **WARNING: KNIVES ARE SHARP. EXERCISE EXTREME CAUTION WHEN HANDLING KNIVES.**

Remove the bowl by rotating it clockwise to its stop and lifting it from the bowl support.

Thoroughly wash and rinse these items in a sink. The knife unit should not be disassembled for cleaning.

Reassembly is a reversal of disassembly. When reinstalling the knife unit, make sure the slot in the knife hub is mated to the notch in the knife shaft and the hand knob is tightened securely.

# MAINTENANCE

**WARNING:** UNPLUG MACHINE POWER CORD BEFORE BEGINNING ANY MAINTENANCE PROCEDURE.

## LUBRICATION

The motor has grease-packed bearings and requires no lubrication maintenance.

The attachment hub gear case (Model 84186 only) and the bowl drive gear case (all models) should be checked occasionally. Contact your local Hobart Service Office.

## KNIFE ADJUSTMENT

**WARNING:** KNIVES ARE SHARP. EXERCISE EXTREME CAUTION WHEN HANDLING KNIVES.

The clearance between either knife and the bowl should be .010" to .050". To check clearance or make an adjustment, **UNPLUG POWER CORD.**

Unlock and raise bowl cover and remove the comb. With knives in a vertical position, check each knife individually at several points around the bowl.

If an adjustment is required, loosen the hand knob (Fig. 3), but do not remove it from the shaft. Hold a 1-7/16" open end wrench on the knife retaining bushing (Fig. 3) and loosen the locking collar (Fig. 3) with a second wrench. Gently tap the heel of knife (Fig. 3) until proper clearance is reached. If clearance is too small, pull knife upward and repeat procedure. Adjust clearance of second knife as necessary. Retighten the locking collar and hand knob.

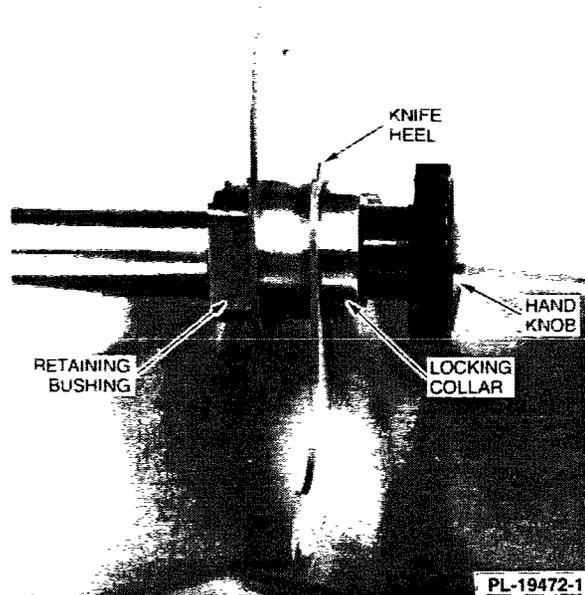


Fig. 3

It is very important to check the clearance of each knife at several points around bowl before running machine after an adjustment.

## KNIFE SHARPENING

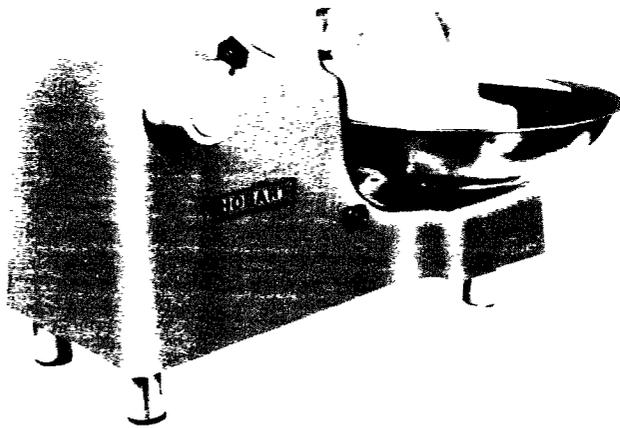
To sharpen knives, remove the unit from its shaft by removing the hand knob. It is not necessary to disassemble the knife unit. Use an ordinary carborundum (oil) stone to sharpen knives.



**HOBART**

# SERVICE MANUAL

MARINE GALLEYS, LTD.  
353 BOTETOURT STREET  
NORFOLK, VA 23510  
(757)625-5444



MODEL 84186 SHOWN

## FOOD CUTTERS

MODEL 8186 ML-33892  
MODEL 84186 ML-33764

**- NOTICE -**

This Manual is prepared for the use of trained Hobart Service Technicians and should not be used by those not properly qualified. If you have attended a Hobart Service School for this product, you may be qualified to perform all the procedures described in this manual.

This manual is not intended to be all encompassing. If you have not attended a Hobart Service School for this product, you should read, in its entirety, the repair procedure you wish to perform to determine if you have the necessary tools, instruments and skills required to perform the procedure. Procedures for which you do not have the necessary tools, instruments and skills should be performed by a trained Hobart Service Technician.

Reproduction or other use of this Manual, without the express written consent of Hobart Corporation, is prohibited. Form 24830

## TABLE OF CONTENTS

Safety .....	2
Section 1 - General .....	3
Special Tools Required .....	3
Installation and Cleaning Procedures .....	3
Safety Features .....	3
Lubrication .....	4
Operational Information .....	5
Section 2 - Removal and Replacement of Parts .....	6
1. Bowl Cover .....	6
2. Knife Shaft Insert .....	6
3. Knives .....	7
4. Bowl .....	9
5. Motor and Pulley Assembly .....	9
6. Knife Shaft and Bearings .....	12
7. Round Belt and Flexa-Gear Belt .....	15
8. Bowl Drive Assembly .....	17
9. Switches and Interlock Assembly .....	21
10. Attachment Hub and Bearing Assembly .....	24
Section 3 - Adjustments .....	26
Section 4 - Electrical Operation .....	31
Section 5 - Testing .....	32
Section 6 - Troubleshooting .....	34

## SAFETY

The 8186 and 84186 Food Cutter utilizes safety interlocks between the bowl cover and the On and Off switch. The bowl cover must be closed and locked before you can start the unit. Once the unit is started you cannot unlock the bowl cover until the unit is turned off.

IF YOU ARE ON A CALL WHERE THE SAFETY INTERLOCKS ARE NOT WORKING OR IF YOU SUSPECT THAT THE INTERLOCKS HAVE BEEN TAMPERED WITH, IT IS IMPORTANT THAT YOU PROCEED AS FOLLOWS.

FIRST, TELL THE CUSTOMER THAT THE INTERLOCKS ARE NOT WORKING AND NOTE THE CONDITION OF THE INTERLOCKS ON THE SERVICE TICKET ALONG WITH THE FACT THAT YOU NOTIFIED THE CUSTOMER.

SECOND, DO NOT PERFORM ANY SERVICE UNTIL THE CUSTOMER AGREES TO HAVE THE INTERLOCKS REPAIRED AND, DO NOT PERFORM THE SERVICE FOR WHICH YOU WERE CALLED UNTIL YOU HAVE REPAIRED THE INTERLOCKS.

THIRD, IF THE CUSTOMER REFUSES TO LET YOU FIX THE INTERLOCKS, TELL THEM THAT HOBART WILL NOT LET YOU SERVICE ANY EQUIPMENT WHERE THE SAFETY DEVICES ARE NOT OPERATING PROPERLY. MAKE SURE THAT YOU RECORD ON THE SERVICE TICKET THAT YOU HAVE SO INFORMED THE CUSTOMER.

FOURTH, IF YOU CANNOT FIX THE INTERLOCKS, MAKE A NOTE ON THE SERVICE TICKET TO THAT EFFECT. SECURE THE MODEL NUMBER AND SERIAL NUMBER OF THE UNIT. INFORM THE CUSTOMER THAT HOBART WILL NOT LET YOU PERFORM ANY FURTHER SERVICE ON THE MACHINE AND CONTACT YOUR SUPERVISOR IMMEDIATELY. YOUR SUPERVISOR WILL TAKE IT FROM THERE.

## SECTION 1

## INTRODUCTION

The Food Cutter, Model 8186 without attachment hub and 84186 with attachment hub is designed to cut a food product or with the attachment hub and Hobart standard No. 12 attachments to dice, cut, slice or grind.

## SPECIAL TOOLS

1. Two 1-7/16" open end wrenches used to remove the knives. (TL-526566).

## INSTALLATION AND CLEANING PROCEDURES

1. Electrical Installation.
  - A. A cord and plug is supplied with this machine according to the electrical specifications either 1 phase or 3 phase.
  - B. If the cord and plug is not used, the electrical connections should be made by qualified people who will observe all applicable Safety Codes and the National Electrical Code.
  - C. Check the specifications on the nameplate (mounted on the rear of the housing) to make sure they agree with those of your electrical service.
  - D. Connect a three-phase machine so that the bowl will turn in a clockwise direction. If the bowl rotates counterclockwise, disconnect power; reverse any two line leads; reapply power; and check for proper rotation.
2. Cleaning Procedures.
  - A. Unplug the electrical supply cord.
  - B. Remove the bowl cover.
  - C. Remove the knife assembly and comb.
  - D. Remove the bowl (turn clockwise).
  - E. Wash in a noncorrosive cleaning solution. Wipe the housing with a damp cloth. Dry with a clean soft cloth.

## SAFETY FEATURES

1. Bowl Cover Interlock.
  - A. Electrical.
    - (1) There is a normally closed switch in the control circuit that is held open anytime the bowl cover is not locked. As long as this switch (1LS) is open the motor will not run.
  - B. Mechanical.
    - (1) The bowl cover must be locked down before the On/Off switch can be moved to the "On" position.
    - (2) While the switch is in the "On" position the bowl cover cannot be raised.
    - (3) The interlock between the bowl cover and switch is a mechanical locking arrangement.

LUBRICATION

	LUBRICANT	AMOUNT	RECOMMENDED RATE OF CHANGE
Attachment Hub	Marfak #0	6 Oz.	Annually
Bowl Drive Gear Case	Gearep 140	5 Oz.	Annually

1. To Change Lubrication.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

A. Attachment hub (84186) units only.

- (1) Refer to attachment hub and bearing assembly removal to remove the attachment hub.
- (2) Remove the grease and clean out the attachment hub cavity.
- (3) Install new grease and reassemble in the reverse order of disassembly.

B. Bowl drive gear case.

- (1) Lift up the bowl cover and remove it from the hinge pins.
- (2) Remove the comb and knife assembly.
- (3) Remove the bowl.
- (4) Using a support so the electrical cord will not be damaged, lay the machine on its back.
- (5) Remove the bottom cover and leg assembly from the bottom of the housing.
- (6) Remove the drain plug and drain the oil.
- (7) Install new oil and reassemble in the reverse order of disassembly.

## OPERATIONAL INFORMATION

## 1. Operator Controls.

WARNING: DO NOT REACH UNDER THE BOWL COVER FOR ANY REASON WHILE THE MACHINE IS OPERATING.

## A. "On" - "Off" knob.

- (1) The "On" - "Off" knob is connected to a control rod that operates the On/Off switch.
- (2) The switch is mechanically interlocked with the bowl cover.

- (6) Remove the product while the bowl is rotating with a bowl scraper or spatula.
- (7) Push the "On" - "Off" knob to stop the machine.
- (8) Clean the machine.

## 2. Operating Instructions.

## B. Attachment Hub.

## A. Food Cutter.

- (1) Check that the comb is in place and the knife assembly is properly mounted and tightened on the shaft.
- (2) Lock down the bowl cover.
- (3) Pull the "On" - "Off" knob to operate the machine.
- (4) Feed the product (boned meats, vegetables, fruits, nut meats, natural cheese, bread, cake) into the rotating bowl. The food product should be chilled but not frozen.
- (5) The bowl cover will roll the product providing a mixing action. The longer the machine operates the finer the cut of the product will be.

- (1) Install the proper accessory (No. 12) on the attachment hub.
- (2) Pull the "On" - "Off" knob to operate the machine.
- (3) Feed the product into the accessory unit.
- (4) Push the "On" - "Off" knob to stop the machine.
- (5) Remove the accessory unit, disassemble and clean.

## SECTION 2

## REMOVAL AND REPLACEMENT OF PARTS

## 1. Bowl Cover.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

## A. Removal.

- (1) Push the "On-Off" switch (1, Fig. 2-1) to the "Off" position.
- (2) Turn the locking knob (2, Fig. 2-1) 90°.
- (3) Lift the bowl cover (3, Fig. 2-1) and remove it from the hinge pins.
- (4) Remove the locking knob from the bowl cover by driving the Groov-Pin out of the base of the locking knob.

## B. Replacement.

- (1) Locate the locking knob on the interlock bolt and align the holes.
- (2) Drive in the Groov-Pin.
- (3) Locate the bowl cover on the hinge pins and lower the cover over the bowl.

## 2. Knife Shaft Insert.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

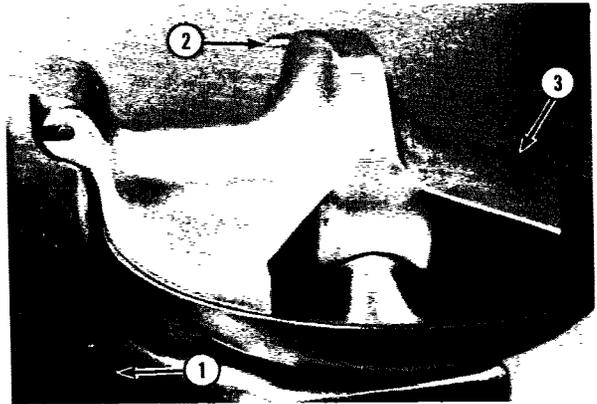


Fig. 2-1

## A. Removal.

- (1) Raise the bowl cover.
- (2) Remove the fluted knob (1, Fig. 2-2) and slide the knife assembly (2, Fig. 2-2) off the shaft.
- (3) Remove the bowl.

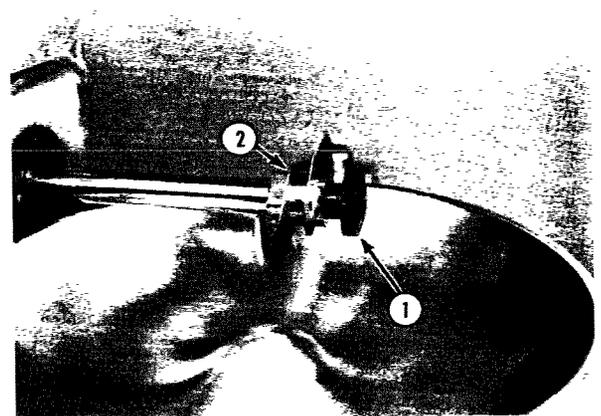


Fig. 2-2

- (4) Place a wrench on the knife shaft (1, Fig. 2-3).
- (5) Place another wrench on the insert (2, Fig. 2-3) and turn counterclockwise to remove.

B. Replacement.

- (1) Place a wrench on the knife shaft (1, Fig. 2-4).
- (2) Place another wrench on the insert (2, Fig. 2-4) and turn clockwise to tighten.
- (3) Install the bowl.
- (4) Install the knife assembly and fluted knob.
- (5) Install the bowl cover.

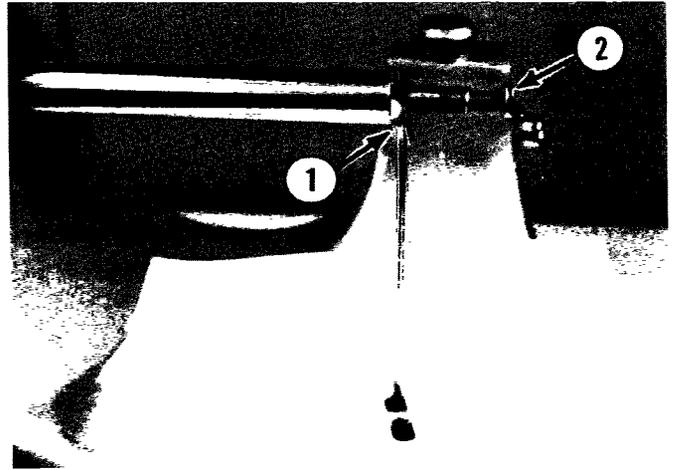


Fig. 2-3

3. Knives.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

A. Removal.

- (1) Raise the bowl cover.
- (2) Remove the fluted knob (1, Fig. 2-2).
- (3) Slide the knife assembly (2, Fig. 2-2) off the shaft.

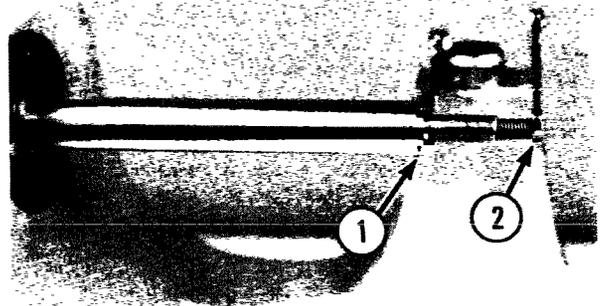


Fig. 2-4

B. Disassembly.

NOTE: The flat wrenches used are special tool TL-526566.

- (1) Disassemble the knife assembly while it is mounted on the shaft.
- (2) Loosen the fluted knob but do not remove.
- (3) Keep the sleeve from turning by holding a flat wrench on the flats of the bushing (1, Fig. 2-5).
- (4) Loosen the locking collar with a second wrench (2, Fig. 2-5) by tapping counterclockwise with a plastic mallet.
- (5) Remove the knives, locking collar and bushing.

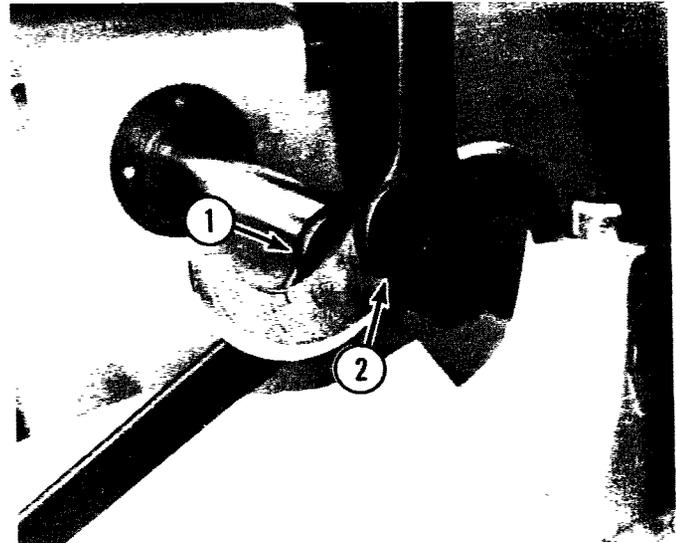


Fig. 2-5

C. Reassembly.

- (1) Assemble the bushing, knives and locking collar on the shaft.

NOTE: The leader knife (beveled on one side only) is on the side next to the motor. The knives are located opposite each other and are set to cut downward at the center of the bowl when viewed from the fluted knob.

- (2) Hold a flat wrench on the flats of the bushing (1, Fig. 2-6) and tighten the locking collar with a second wrench (2, Fig. 2-6).

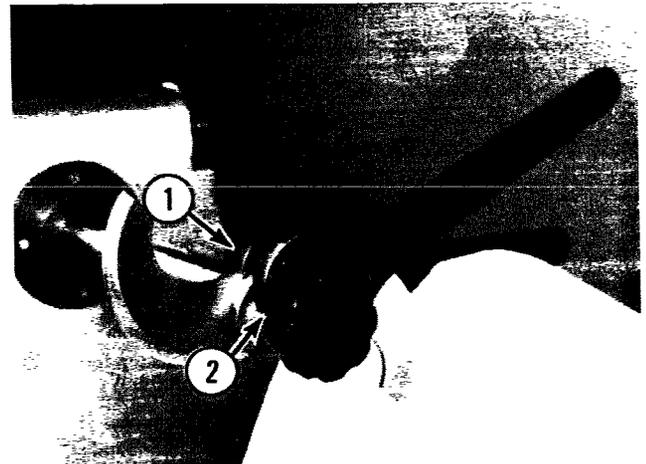


Fig. 2-6

NOTE: See Section "Adjustments" for knife to bowl adjustment.

D. Replacement.

- (1) Install the knife assembly on the knife shaft and tighten the fluted knob.

## 4. Bowl.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

## A. Removal.

- (1) Raise the bowl cover.
- (2) Remove the comb and knife assembly.
- (3) Rotate the bowl clockwise until it stops then lift it off the bowl support.

## B. Replacement.

- (1) Install the bowl on the bowl support and turn it counter-clockwise until it locks.
- (2) Install the comb and knife assembly.
- (3) Lower the bowl cover.

## 5. Motor and Pulley Assembly.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

## A. Removal.

- (1) Lift the bowl cover and remove it from the hinge pins.
- (2) Remove the comb and knife assembly.
- (3) Remove the bowl.

- (4) Using a support so the electrical cord will not be damaged, lay the machine on its back (Fig. 2-7).

- (5) Remove the bottom cover and leg assembly (1, Fig. 2-7) from the bottom of the housing.

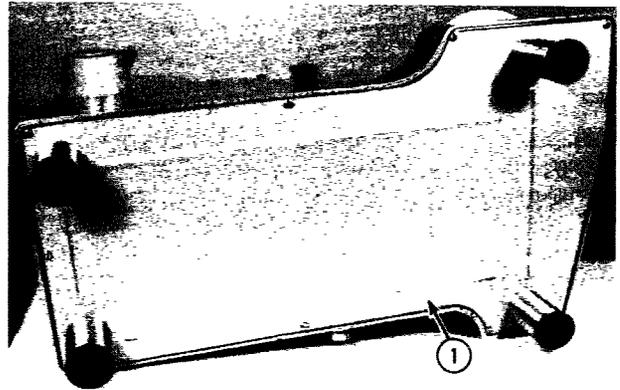


Fig. 2-7

- (6) Remove two screws (1, Fig. 2-8) and remove the electrical plate.

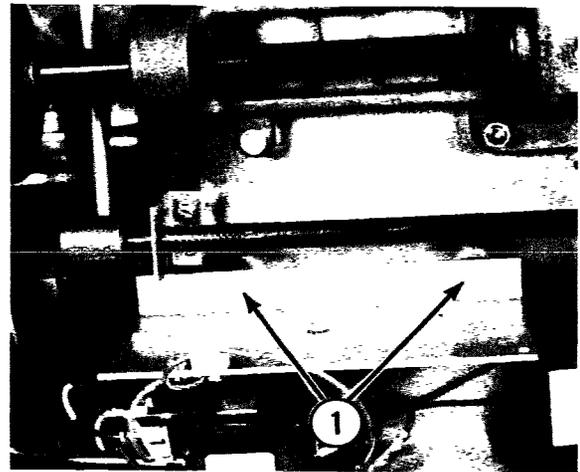


Fig. 2-8

- (7) Disconnect the motor leads from the terminals of the contactor.
- (8) Remove the nuts and lock-washers from the motor mounting studs (1, Fig. 2-9). Remove the Flexa-Gear belt from the motor drive pulley.

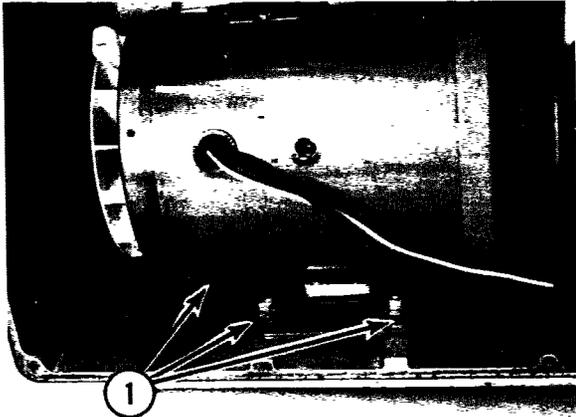


Fig. 2-9

- (9) Remove the motor from the housing.

B. Disassembly.

- (1) Remove the retaining ring and fan (1, Fig. 2-10).
- (2) Remove the jam nut, lock-washer (1, Fig. 2-11) flanges, gear pulley and key (2, Fig. 2-11).
- (3) Mark the two bearing brackets and the stator for alignment during reassembly. (1, Fig. 2-12).

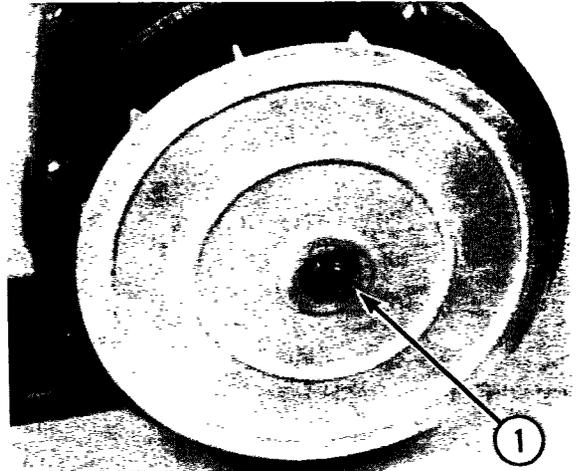


Fig. 2-10

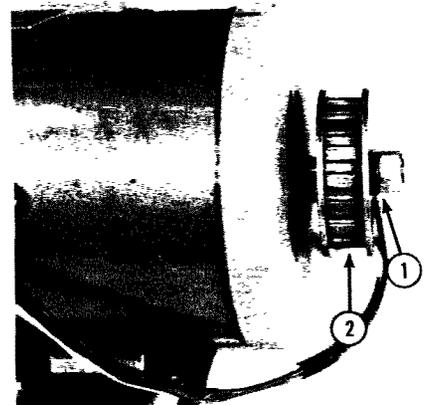


Fig. 2-11

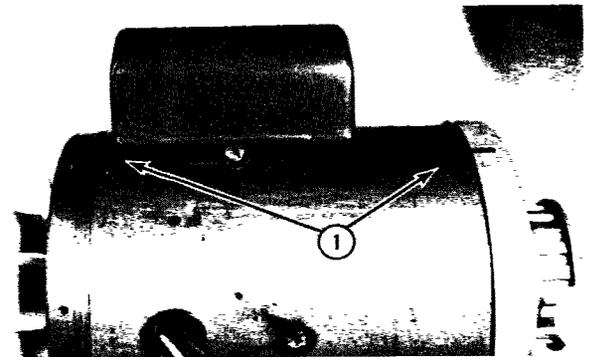


Fig. 2-12

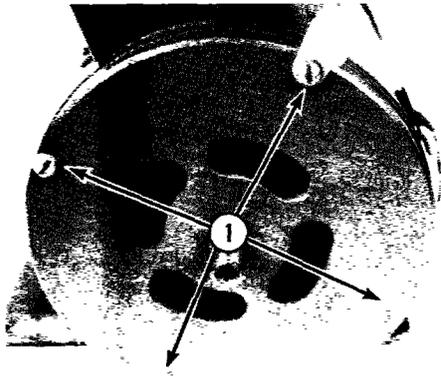


Fig. 2-13

- (4) Remove the four bolts (1, Fig. 2-13) holding the bearing brackets together.
- (5) Separate the bearing brackets and the stator. Disconnect the leads to the stationary part of the start switch (1, Fig. 2-14). (For single phase motors only).
- (6) Pull the rotor out of the stator.
- (7) Remove the starting switch from the bearing bracket (2, Fig. 2-14). (For single phase motors only).

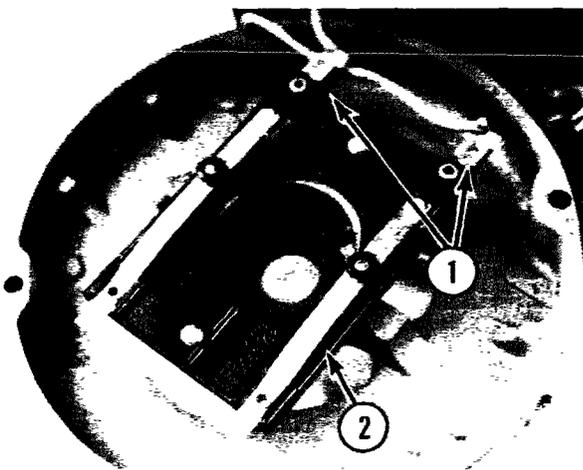


Fig. 2-14

- (8) Use a bearing puller and remove both bearings from the rotor (1, Fig. 2-15).

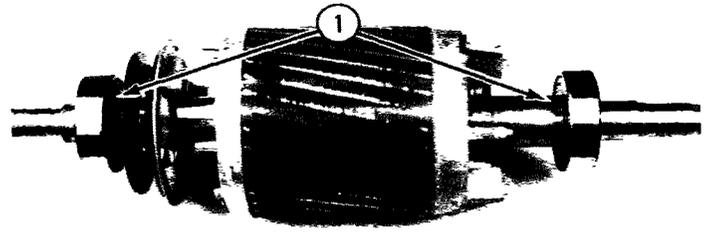


Fig. 2-15

C. Reassembly.

- (1) Install new bearings. NOTE: IF EITHER BEARING IS NOISY OR SHOWS SIGNS OF WEAR, REPLACE BOTH BEARINGS. Locate in the same position as the old set of bearings. Use a driving sleeve of a size that touches only the inner race of the bearing.
- (2) Install a new starting switch in the bearing bracket if the old one was defective. (For single phase motors only).
- (3) Install the rotor in the stator. Connect the motor leads to the start switch (for single phase motors only) and assemble both bearing brackets and the stator using the alignment marks.
- (4) Install the fan and retaining ring.
- (5) Install the flanges, gear pulley and key.

D. Replacement.

- (1) Install the motor and bracket assembly on the motor mounting studs.
- (2) Install the washers and nuts on the studs with the nuts finger tight.

- (3) Install the Flexa-Gear belt on the motor pulley.
- (4) Tighten the Flexa-Gear belt by pulling down on the motor. When tight enough tighten the nuts on the motor mounting studs.

NOTE: See Section "Adjustments" for correct Flexa-Gear belt adjustment.

- (5) Continue to reassemble in the reverse order of disassembly.

#### 6. Knife Shaft and Bearings.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

##### A. Removal.

- (1) Remove the attachment hub. (Refer to Attachment Hub and Bearing Removal).
- (2) Lift the bowl cover and remove it from the hinge pins.
- (3) Remove the comb and knife assembly.
- (4) Remove the bowl.
- (5) Using a support so the electrical cord will not be damaged, lay the machine on its back.
- (6) Remove the bottom cover and leg assembly from the bottom of the housing.

- (7) Remove the nuts and lock-washers from the motor mounting studs. Remove the motor assembly and lay it to the side of the housing.
- (8) Remove the round belt from the bowl drive pulley (1, Fig. 2-16).

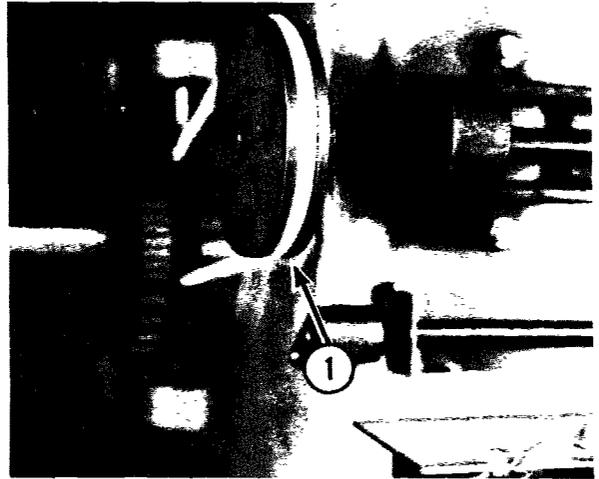


Fig. 2-16

- (9) Loosen the set screws (1, Fig. 2-17) on the collar of the large gear pulley.
- (10) Slide the gear pulley off the key and remove the key from the shaft.

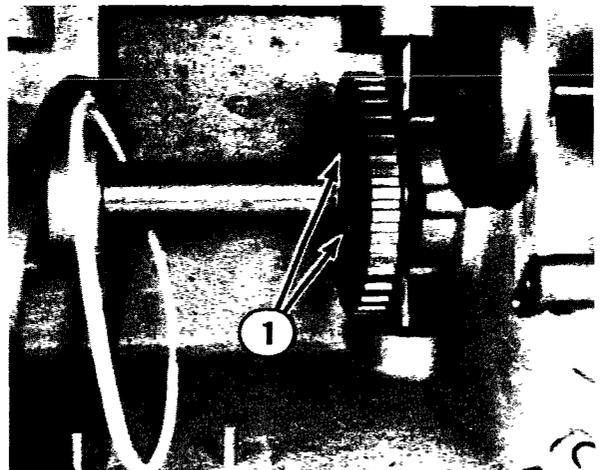


Fig. 2-17

- (11) Remove the screws holding the end cap to the outside of the housing. Remove the end cap (1, Fig. 2-18).

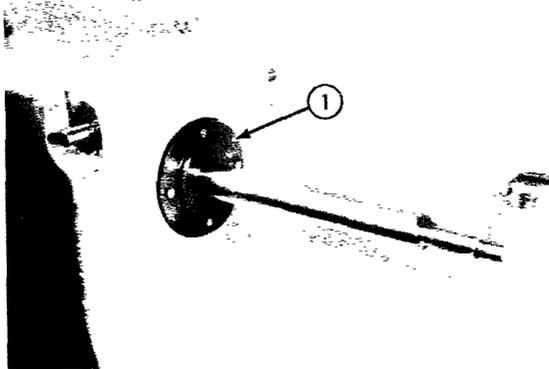


Fig. 2-18

- (12) Remove lockwasher (1, Fig. 2-19) and locknut (2, Fig. 2-19).

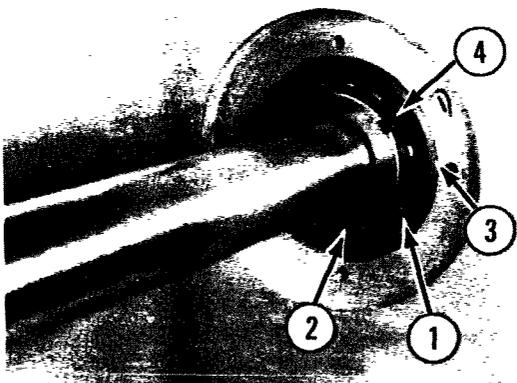


Fig. 2-19

- (13) Using a block of wood against the knife assembly (Fig. 2-20) drive the shaft toward the knife end until the opposite end of shaft has cleared the attachment drive (Fig. 2-21).

- (14) Remove the bearing (3, Fig. 2-19) then slide the shaft through the bottom of the casing (Fig. 2-22).

- (15) Use a bearing puller and remove the bearing from the end of the shaft (1, Fig. 2-23).



Fig. 2-20

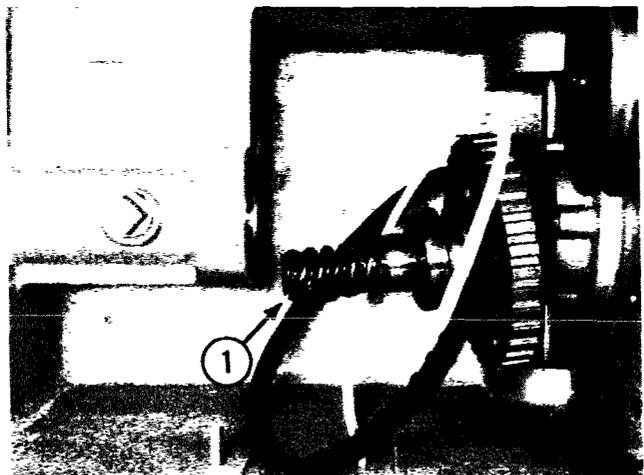


Fig. 2-21

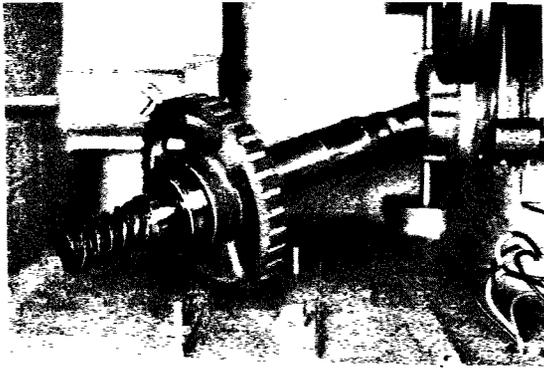


Fig. 2-22

- (16) Remove the knife shaft pulley.

B. Replacement.

- (1) Install the knife shaft pulley with round groove toward the knife end (2, Fig. 2-23).
- (2) Use a long driving sleeve to drive the bearing (1, Fig. 2-23) on the knife shaft. The sleeve should touch only the inner race of the bearing.

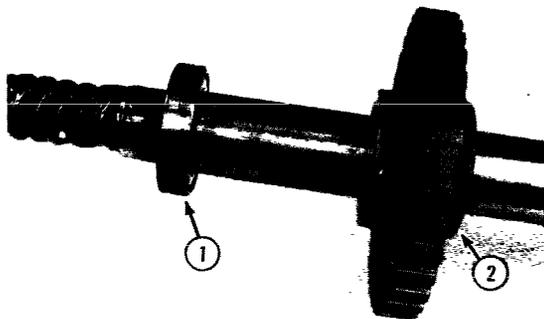


Fig. 2-23

- (3) Slip the belts over the shaft.
- (4) Install the knife shaft through the housing.

- (5) Install the bearing (3, Fig. 2-19), lockwasher (1, Fig. 2-19) and locknut (2, Fig. 2-19).
- (6) Apply a slight amount of grease to the shaft (1, Fig. 2-21) then slide the shaft into the attachment drive being careful not to damage the seal.
- (7) Tighten the locknut (2, Fig. 2-19) to (300 in./lbs.). Bend one of the locking washer tabs to hold the locknut (4, Fig. 2-19).
- (8) Install the end cap.
- (9) Install the key (1, Fig. 2-24). Push the knife shaft pulley against the shoulder on the shaft and tighten the set screws.
- (10) Install the round belt on the knife shaft pulley and the bowl drive pulley.
- (11) Install the motor and adjust the belt tension. (See the Section "Adjustments").
- (12) Install the bottom cover and leg assembly.
- (13) Install the attachment hub.

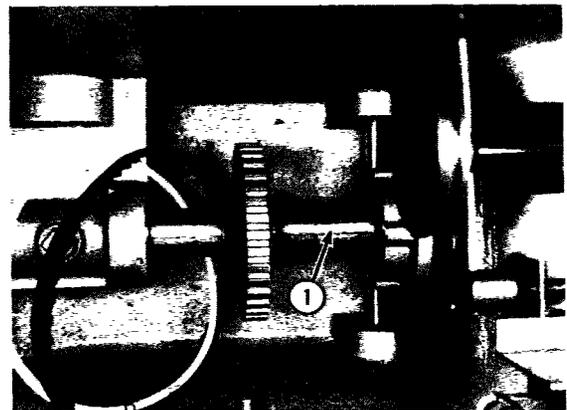


Fig. 2-24

7. Round Belt (Bowl Drive) and Flexa-Gear Belt (Knife Shaft).

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

A. Removal.

- (1) Remove the attachment hub. (Refer to Attachment Hub and Bearing Removal).
- (2) Lift the bowl cover and remove it from the hinge pin.
- (3) Remove the comb and knife assembly.
- (4) Remove the bowl.
- (5) Using a support so the electrical cord will not be damaged, lay the machine on its back.
- (6) Remove the bottom cover and leg assembly from the bottom of the housing.
- (7) Loosen the four nuts on the motor mounting studs and remove the Flexa-Gear belt from the motor pulley.
- (8) Remove the round belt from the bowl drive pulley (1, Fig. 2-25).
- (9) Loosen the set screws (1, Fig. 2-26) on the collar of the large gear pulley.
- (10) Slide the gear pulley off the key and remove the key from the shaft.
- (11) Remove the screws holding the end cap to the outside of the housing. Remove the end cap (1, Fig. 27).

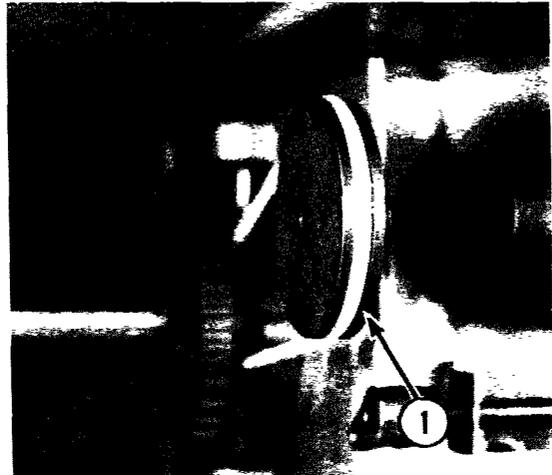


Fig. 2-25

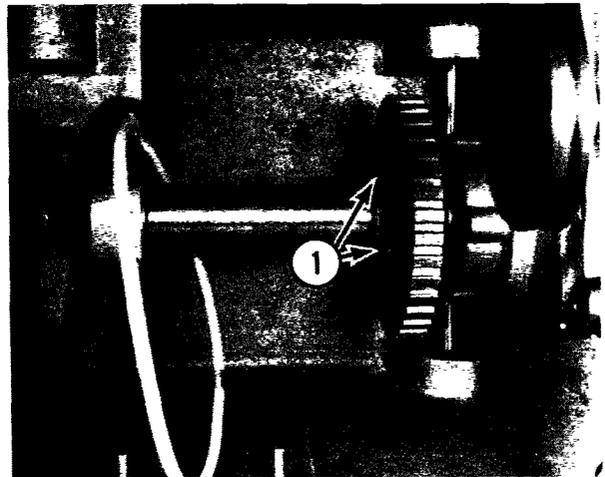


Fig. 2-26

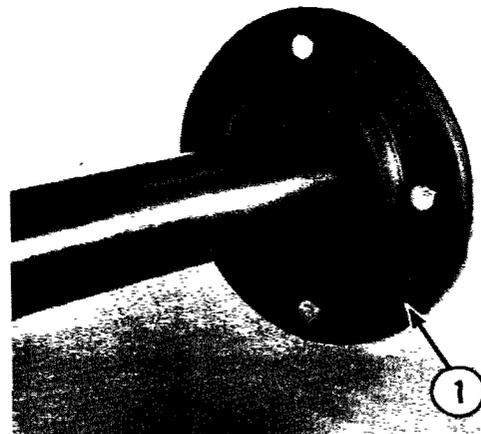


Fig. 2-27

- (12) Using a block of wood against the knife assembly (Fig. 2-28)) drive the shaft toward the knife end until the opposite end of shaft has cleared the attachment drive.



Fig. 2-28

- (13) Slip the belts over the end of the shaft (Fig. 2-29).

B. Replacement.

- (1) Slip the new belts over the end of the shaft.
- (2) Slide the knife shaft back into the attachment drive being careful not to damage the seal.
- (3) Install the end cap.
- (4) Install the key and push the knife shaft pulley against the collar and tighten the set screws.
- (5) Install the round belt on the knife shaft pulley and the bowl drive pulley.
- (6) Install the Flexa-Gear belt and tighten the nuts holding the motor mounting plate. See the Section "Adjustments" for belt tension.
- (7) Install the bottom cover and leg assembly.
- (8) Install the attachment hub.

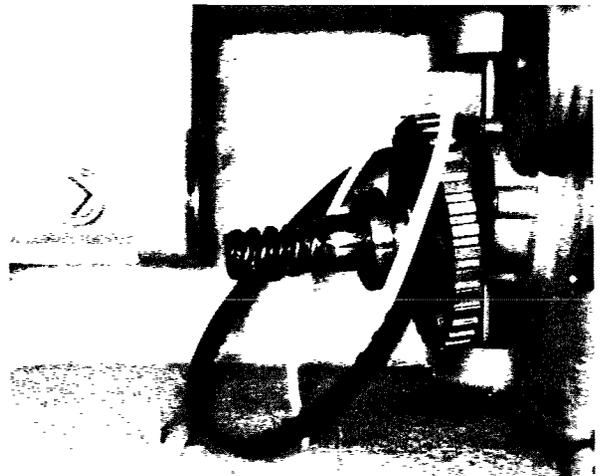


Fig. 2-29

## 8. Bowl Drive Assembly.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE POWL HAS STOPPED ROTATING.

## A. Removal.

- (1) Lift the bowl cover and remove it from the hinge pins.
- (2) Remove the comb and knife assembly.
- (3) Remove the bowl.
- (4) Using a support so the electrical cord will not be damaged, lay the machine on its back.
- (5) Remove the bottom cover and leg assembly from the bottom of the housing.
- (6) Remove the bowl drive belt (1, Fig. 2-30) from the bowl drive pulley.
- (7) Remove the plug (2, Fig. 2-30) on the bottom of the gear case and drain the oil.
- (8) Remove two bolts and six nuts and lockwashers (3, Fig. 2-30) holding the gearcase to the housing. Remove the gear case.

NOTE: The gear case is sealed with Permatex #2.

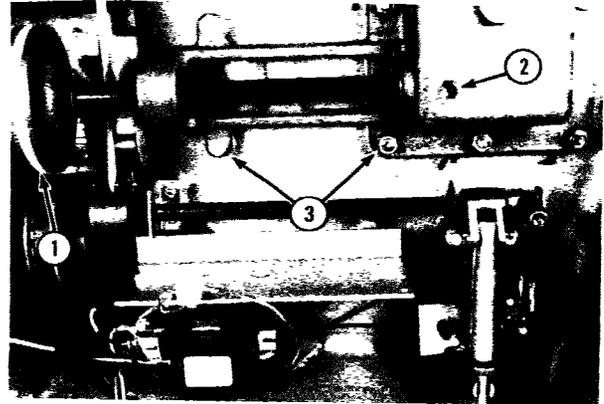


Fig. 2-30

- (9) Drive the rollpin (1, Fig. 2-31) out of the bowl drive worm and through the oil drain hole in the gear case.
- (10) Drive the rollpin out of the drive pulley and remove the pulley from the shaft (2, Fig. 2-31).
- (11) Remove the bearing retaining ring (3, Fig. 2-31).
- (12) Remove the shaft and bearing from the transmission case.

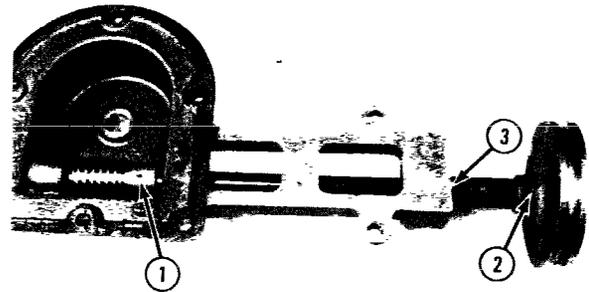


Fig. 2-31

- (13) Remove the bowl drive worm (1, Fig. 2-32).

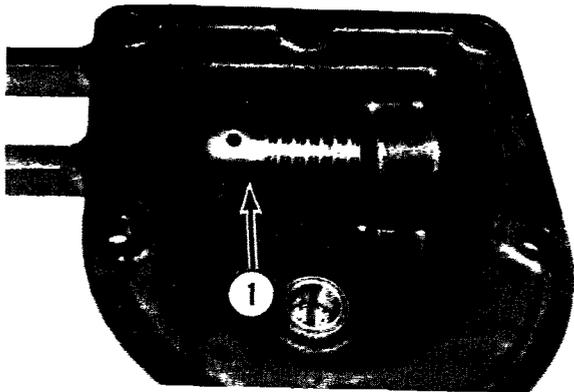


Fig. 2-32

- (14) Remove the retaining ring (1, Fig. 2-33) and use a bearing puller to remove the bearing (2, Fig. 2-33) from the shaft.

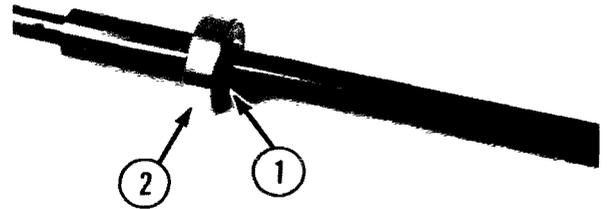


Fig. 2-33

- (15) To remove the needle bearing (1, Fig. 2-34) place a flat washer the size of a penny on the backside and drive out with a brass punch and hammer.

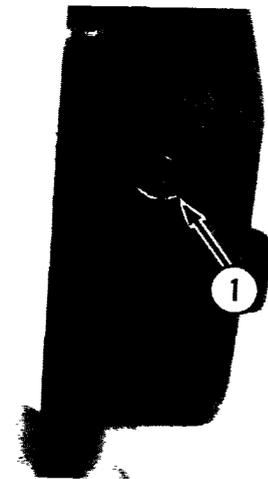


Fig. 2-34

NOTE: DO NOT REMOVE THIS BEARING UNLESS IT IS TO BE REPLACED.

- (16) Pull the oil seal (1, Fig. 2-35) out of the transmission case.

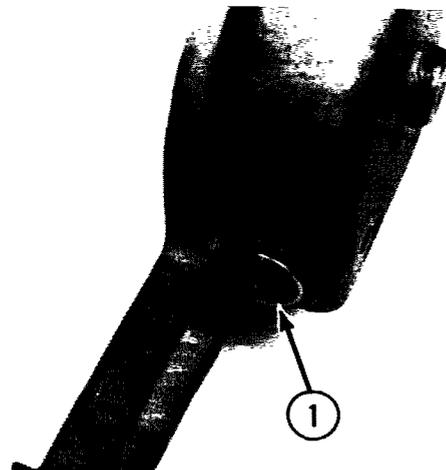


Fig. 2-35

- (17) Carefully pry up the bowl support cover located on the center of the bowl support without distorting it.

- (18) Remove the three screws (1, Fig. 2-36) holding the bowl support to the bowl support shaft and remove the bowl support. Note the shims under the support.
- (19) Remove the three bowl retaining clamps (2, Fig. 2-36). Note the clamp shims.

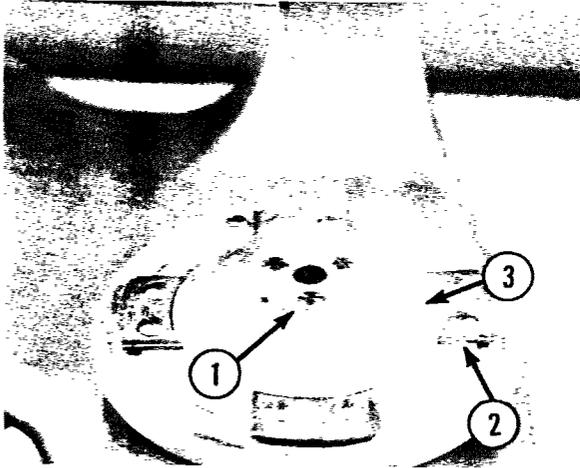


Fig. 2-36

- (20) Remove the retaining ring, washers, bowl drive gear key and spacer (1, Fig. 2-37).
- (21) Remove the vertical bowl drive shaft (1, Fig. 2-38).
- (22) Remove the upper bearing from the top of the housing and the lower bearing from the bottom.

#### B. Replacement.

- (1) Check for the upper and lower retaining rings being installed (1, Fig. 2-39).
- (2) Install the upper bearing in the casing.
- (3) Install the bowl support shaft in the casing.
- (4) Press the lower bearing (2, Fig. 2-38) on the shaft until it is seated.

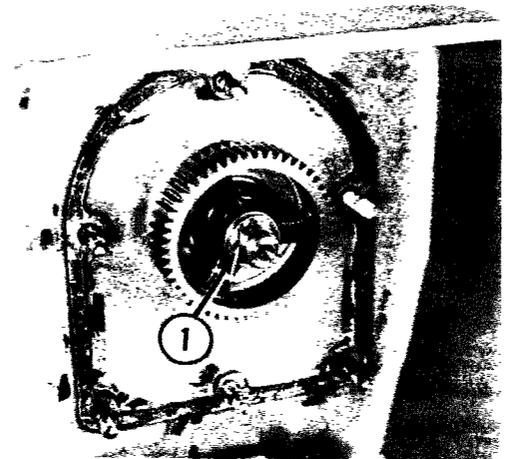


Fig. 2-37

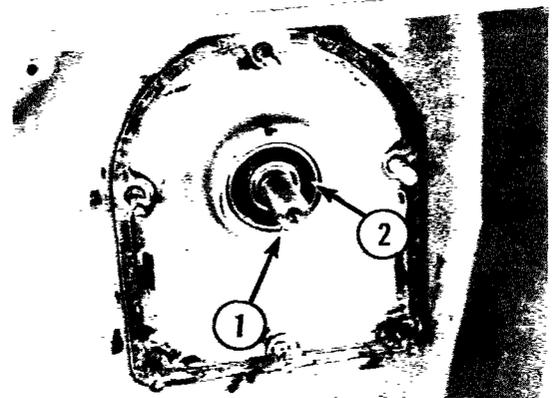


Fig. 2-38

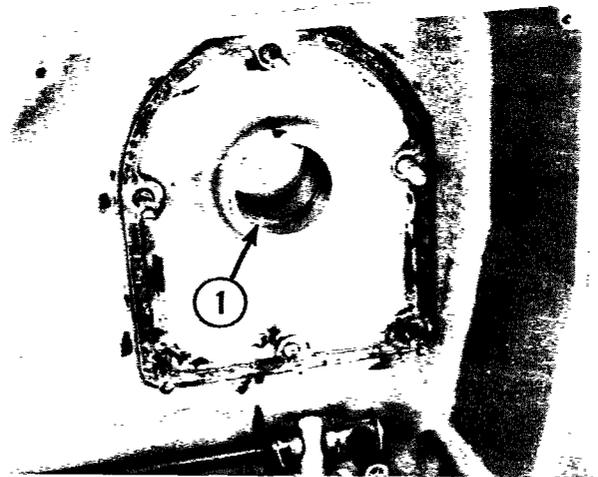


Fig. 2-39

- (5) Install the spacer, key and bowl drive gear on the shaft.
- (6) Install the washers and retaining ring.
- (7) Install the bowl support (3, Fig. 2-36). Note the shims under the support.
- (8) Install the three bowl retaining clamps (2, Fig. 2-36). Note the clamp shims.
- (9) Apply a small amount of RTV to the center of the bowl support and press the bowl support cover into position.
- (10) Install the needle bearing in the gear case to the same position as before.  
  
NOTE: THIS BEARING SHOULD BE REMOVED ONLY IF IT IS TO BE REPLACED.
- (11) Install the oil seal (1, Fig. 2-35) in the transmission case.
- (12) Use a long driving sleeve to seat the bearing (2, Fig. 2-33). Install the retaining ring (1, Fig. 2-33).
- (13) Install the worm (1, Fig. 2-32) in the gear case. Install the shaft and bearing assembly in the gear case. NOTE: The end of the shaft passes through the worm and is located in the needle bearing. Care should be taken that the oil seal is not damaged while installing the shaft.
- (14) Align the holes in the worm and shaft. Drive in the rollpin.  
  
NOTE: Support the worm and shaft (through the drain hole) during this procedure to protect the bearings.
- (15) Install the bearing retaining ring (3, Fig. 2-31).
- (16) Install the drive pulley on the shaft. Drive the rollpin into the pulley and peg it to the shaft.
- (17) Clean all sealing surfaces on the transmission case and the bottom of the housing.
- (18) Use Permatex #2 as a sealant and install the transmission case on the housing. Tighten all bolts and nuts evenly.
- (19) Fill the gear case with 5 oz. of Gearep 140.
- (20) Install the bottom cover and leg support.

## 9. Switches and Interlock Assembly.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

## A. Switch rod removal (1, Fig. 2-40).

- (1) Lift the bowl cover and remove it from the hinge pin.
- (2) Remove the comb and knife assembly.
- (3) Remove the bowl.
- (4) Using a support so the electrical cord will not be damaged, lay the machine on its back.
- (5) Remove the bottom cover and leg assembly from the bottom of the housing.
- (6) Remove the cotter pin and clevis pin (2, Fig. 2-40). Remove the rod.
- (7) Reassemble in the reverse order of removal.
- (8) Test for correct interlock operation.

## B. Interlock pin bar removal (1, Fig. 2-41).

- (1) Follow switch rod removal steps A. (1) through A. (5).
- (2) Remove the cotter pin and clevis pin (2, Fig. 2-41). Remove the bar.
- (3) Reassemble in the reverse order of removal.
- (4) Test for correct interlock operation.

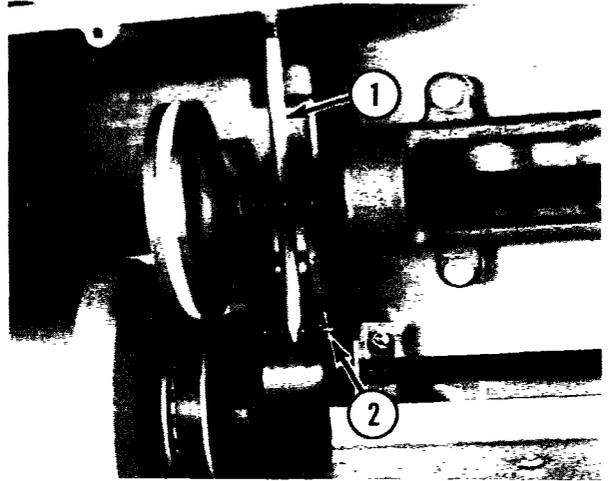


Fig. 2-40

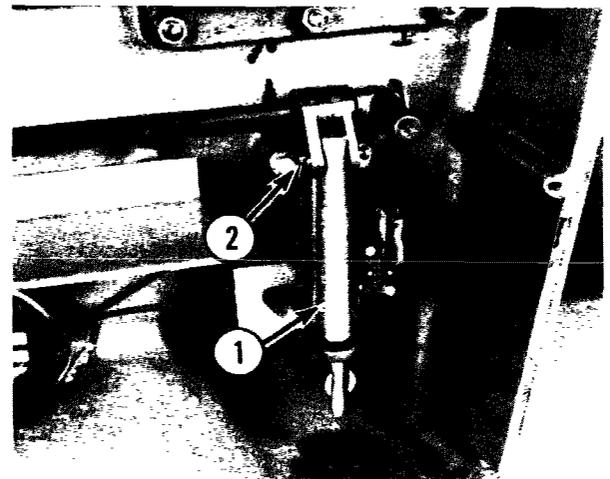


Fig. 2-41

C. Switch control shaft removal (1, Fig. 2-42).

- (1) Remove switch rod (step A) and interlock pin bar (step B).
- (2) Remove the set screw, ball detent spring and ball (2, Fig. 2-42).
- (3) Remove the screw and washer (3, Fig. 2-42).
- (4) Remove two screws and spacer (4, Fig. 2-42) and remove the shaft by sliding it out of the switch interlock frame (5, Fig. 2-42).
- (5) Reassemble in the reverse order of removal.
- (6) Test for correct interlock operation.

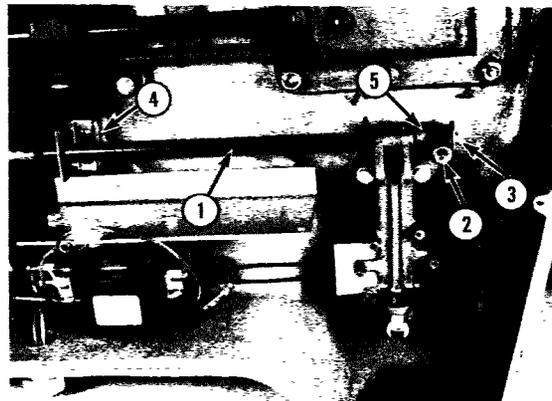


Fig. 2-42

D. On/Off switch removal (1, Fig. 2-43).

- (1) Follow switch rod removal steps A. (1) through A. (5).
- (2) Disconnect the leads to the switch.
- (3) Remove two screws and remove the switch.
- (4) Reassemble in the reverse order of removal. See Section (Adjustments) for switch adjustment. Wire switch according to the wiring diagram on the machine. (Wires are branded).
- (5) Test for correct interlock operation.

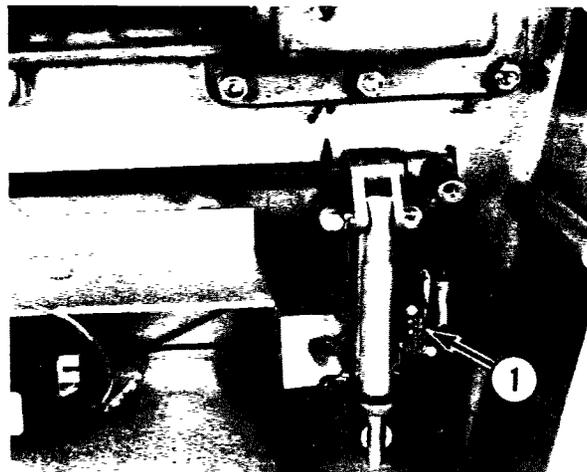


Fig. 2-43

E. Switch interlock frame removal (1, Fig. 2-44).

- (1) Remove switch rod (step A), interlock pin bar (step B), switch control shaft (step C) and On/Off switch (step D).
- (2) NOTE: Care must be taken to insure that the roller on the interlock switch does not catch on the lip of the interlock shaft. Remove two screws (2, Fig. 2-44) and remove the frame.

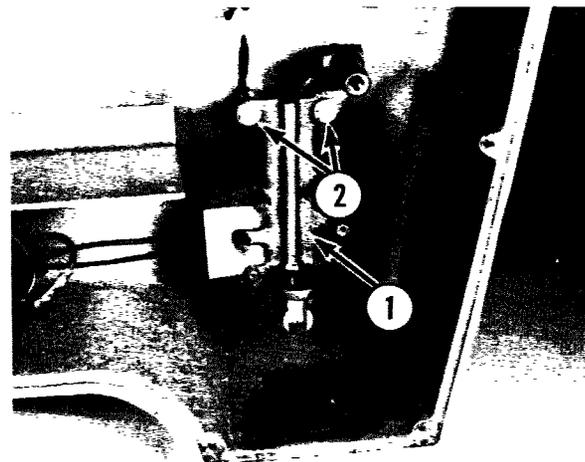


Fig. 2-44

- (3) Remove bowl interlock switch and insulator (1, Fig. 2-45).
- (4) Reassemble in the reverse order of removal.
- (5) Test for correct interlock operation.

**NOTE:** The interlock switch roller must be pushed up in order to slip it over the interlock control shaft.

**F. Bowl interlock switch removal (1, Fig. 2-45).**

- (1) Remove switch rod (step A), interlock pin bar (step B), switch control shaft (step C), On/Off switch (step D) and switch interlock frame (step E).
- (2) Disconnect the leads to the switch.
- (3) Remove two screws and remove the switch and insulator.
- (4) Reassemble in the reverse order of removal. Connect the electrical leads according to the wiring diagram on the machine. (Wires are branded).
- (5) Test for correct interlock operation.

**G. Interlock control shaft (1, Fig. 2-46) and locking adapter (2, Fig. 2-46) removal.**

- (1) Removal.
  - a. Lift the bowl cover and remove it from the hinge pin.
  - b. Remove the comb and knife assembly.
  - c. Remove the bowl.
  - d. Using a support so the electrical cord will not be damaged, lay the machine on its back.
  - e. Remove the bottom cover and leg assembly from the bottom of the housing.

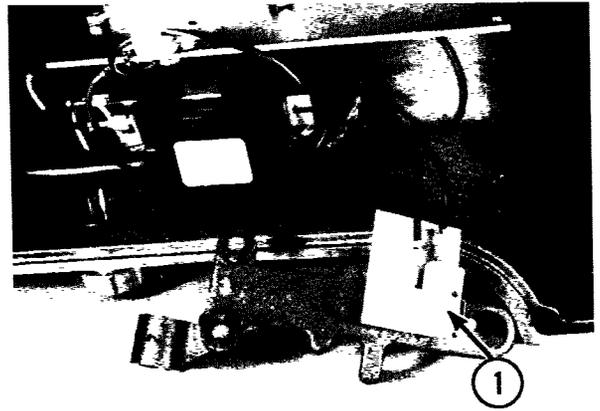


Fig. 2-45

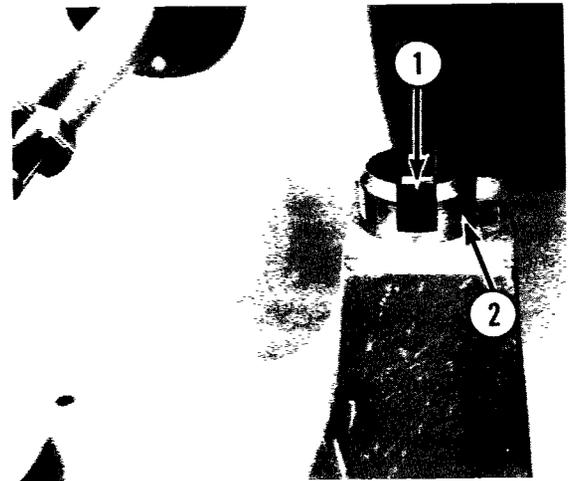


Fig. 2-46



Fig. 2-47

- f. Remove the set screw, ball and ball detent spring from the top hole (1, Fig. 2-47).
- g. Remove the set screw from the lower hole (2, Fig. 2-47).

- h. Remove the interlock control shaft and locking adapter.
- i. Separate the interlock control shaft and locking adapter (Fig. 2-48).
- j. Remove the "O" ring (1, Fig. 2-48) from the interlock control shaft. Remove the "O" ring (3, Fig. 2-48) from the locking adapter.
- k. Drive the rollpin (2, Fig. 2-48) out of the interlock control shaft and separate the two parts of the assembly.

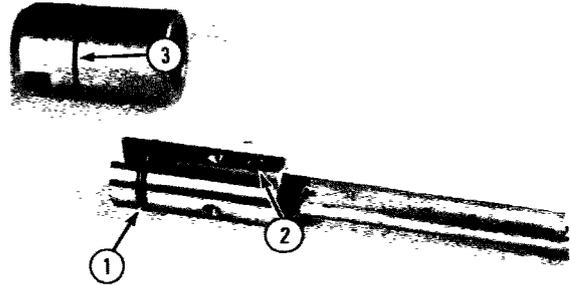


Fig. 2-48

(2) Replacement.

- a. Assemble the upper and lower parts of the interlock control shaft using the rollpin.
- b. Install the "O" ring on the interlock control shaft and locking adapter.
- c. Assemble the interlock control shaft and locking adapter and install in the housing.
- d. Install the set screw in the lower hole in the housing (2, Fig. 2-47). Install the screw as far as it will go. Install the ball, ball detent spring and set screw in the top hole (1, Fig. 2-47). Set the screw flush with the housing.
- e. Continue reassembly in reverse order of removal.
- f. Test for correct interlock operation.

10. Attachment Hub and Bearing Assembly. (84186) Units Only.

WARNING: UNPLUG THE UNIT BEFORE SERVICING OR DISCONNECT THE ELECTRICAL POWER TO THE MACHINE AT THE MAIN CIRCUIT BOX. PLACE A TAG ON THE CIRCUIT BOX INDICATING THE CIRCUIT IS BEING WORKED ON. DO NOT UNLOCK OR LIFT THE BOWL COVER UNTIL THE KNIVES HAVE STOPPED TURNING AND THE BOWL HAS STOPPED ROTATING.

A. Removal.

- (1) Remove the thumb screw (1, Fig. 2-49) and remove the trim cap and attachment plug (2, Fig. 2-49).

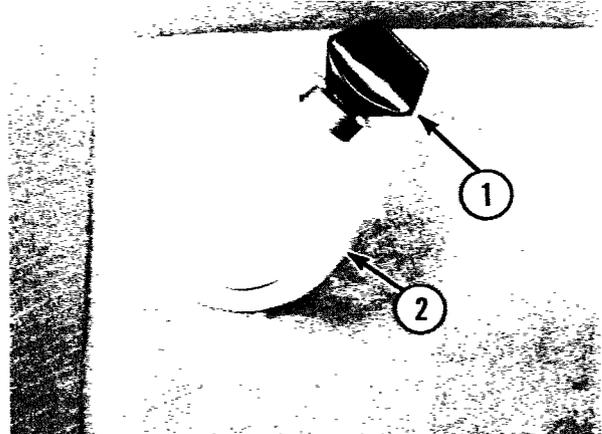


Fig. 2-49

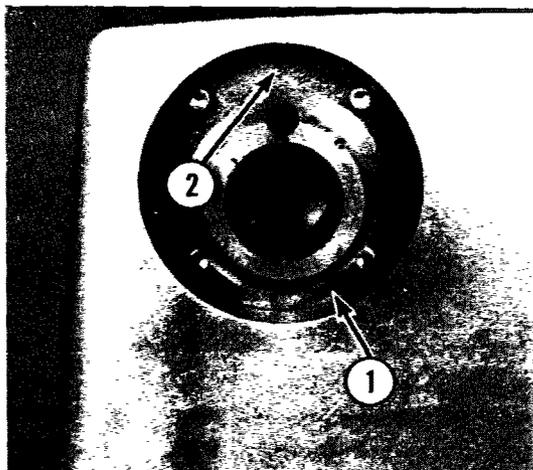


Fig. 2-50

- (2) Remove four screws and remove the attachment hub and bearing assembly (1, Fig. 2-50).

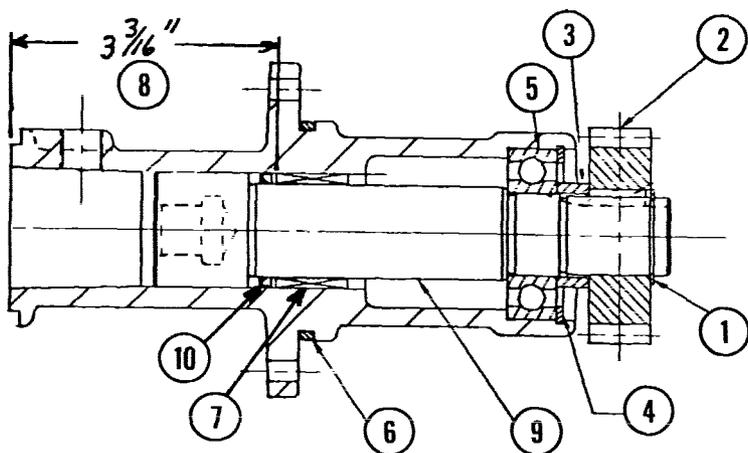


Fig. 2-51

#### B. Disassembly.

- (1) NOTE: Mark the attachment hub gear before removing so that it may be reinstalled the same way.

Remove the retaining ring (1, Fig. 2-51), gear (2, Fig. 2-51) and spacer (3, Fig. 2-51).

- (2) Remove the retaining ring (4, Fig. 2-51) and drive the attachment hub shaft out the front of the assembly.
- (3) Remove the bearing (5, Fig. 2-51) out the rear of the assembly.
- (4) Remove the "O" ring (6, Fig. 2-51).
- (5) Remove the oil seal (10, Fig. 2-51).
- (6) If the powdered metal bearing (7, Fig. 2-51) has been damaged, use a hammer and punch to remove.

#### C. Reassembly.

- (1) Lightly oil the bore of the attachment hub and the outside of the powdered metal bearing. Use the shaft (9, Fig. 2-51) as a driver and seat the bearing in the hub to a depth of 3-3/16" (8, Fig. 2-51).
- (2) Install the oil seal (10, Fig. 2-51) and seat against the bearing. Use the shaft to seat the seal.
- (3) Install the shaft (9, Fig. 2-51) in the hub from the front.
- (4) Block the shaft. Install the bearing (5, Fig. 2-51) in the recess of the attachment hub.
- (5) Install the retaining ring (4, Fig. 2-51) and gear spacer (3, Fig. 2-51).
- (6) Install the key and attachment hub gear (2, Fig. 2-51).
- (7) Install the retaining ring.
- (8) Install the "O" ring (6, Fig. 2-51).

D. Replacement.

- (1) Make sure the attachment hub gear case (1, Fig. 2-52) contains 6 oz. of Marfak #0 grease.
- (2) Align the vent hole in the hub assembly (2, Fig. 2-50) with the vent hole in the housing (2, Fig. 2-52).
- (3) Install the hub assembly (1, Fig. 2-50) and tighten the four screws evenly.
- (4) Test the machine for proper operation.
- (5) Install the trimcap, attachment plug and thumbscrew.

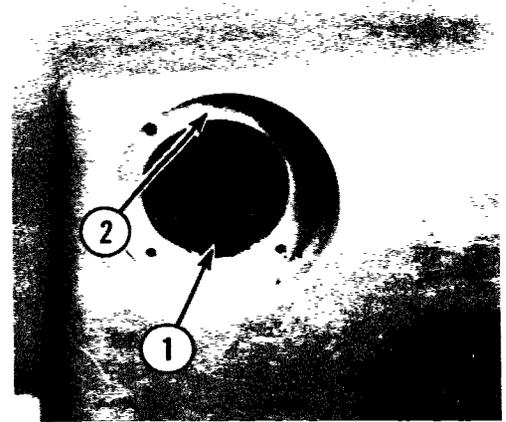


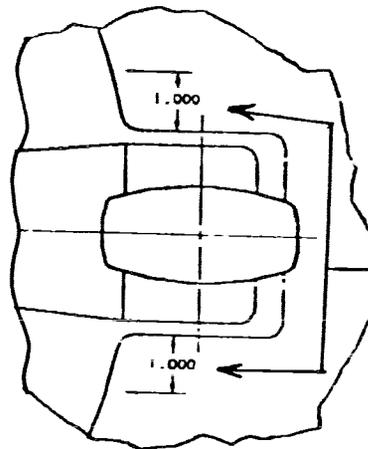
Fig. 2-52

SECTION 3

ADJUSTMENTS

1. Gear Belt.

- A. Install the motor and bracket assembly on the motor mounting studs.
- B. Install the washers and nuts on the studs with the nuts finger tight.
- C. Install the Flexa-Gear belt on the motor pulley and the knife shaft pulley.
- D. Tighten the Flexa-Gear belt by pulling the motor towards the bottom of the unit.
  - (1) Belt tightness is correct if the belt will just move (left or right) on the motor pulley when finger pressure is applied to the side of the belt at the pulley.
- E. Adjust the motor mount to the left or right on the studs to track the Flexa-Gear belt toward the center of the motor pulley.



CLEARANCE BETWEEN BOWL AND BOWL COVER TO BE .005 TO .015 OVER THIS LENGTH

Fig. 3-1

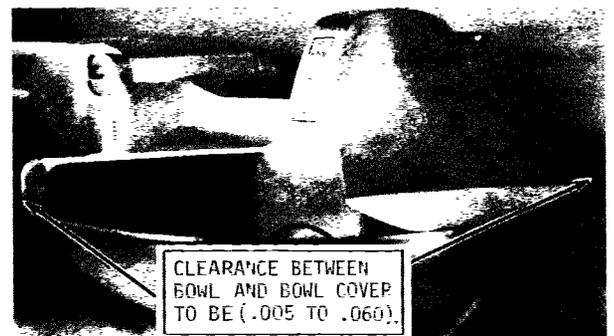


Fig. 3-2

2. Bowl Drive Belt.

A. There is no adjustment for this belt. The belt is prestretched and the pulleys have no adjustment.

3. Cover to Bowl Adjustment.

NOTE: ANYTIME THE COVER TO BOWL ADJUSTMENT IS MADE YOU MUST CHECK THE KNIFE TO BOWL ADJUSTMENT.

The clearance between the top edge of the bowl and the bottom edge of the bowl cover should be as shown in (Fig. 3-1) and (Fig. 3-2). Use a feeler gauge to check the clearance.

A. Remove the bowl cover, knife assembly, comb and bowl.

B. Remove the bowl support cover and the three screws holding the bowl support in place (1, Fig. 3-3).

C. Remove the bowl support and check for shims on top of the vertical bowl drive shaft (1, Fig. 3-4).

D. Check the bottom of the bowl support for shims (1, Fig. 3-5).

NOTE: Some food cutters may not have shims.

E. Remove or add shims as needed to obtain clearance.

NOTE: The shims come in six different colors. Each color represents a different thickness.

COLOR	THICKNESS
Amber	.001"
Red	.002"
Green	.003"
Blue	.005"
Brown	.010"
Yellow	.020"

F. Reassemble in reverse order of disassembly.

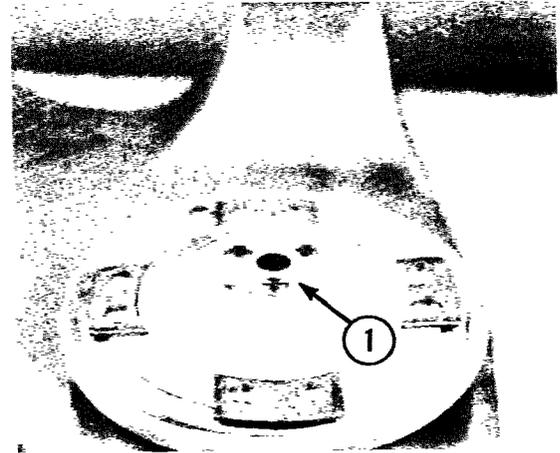


Fig. 3-3

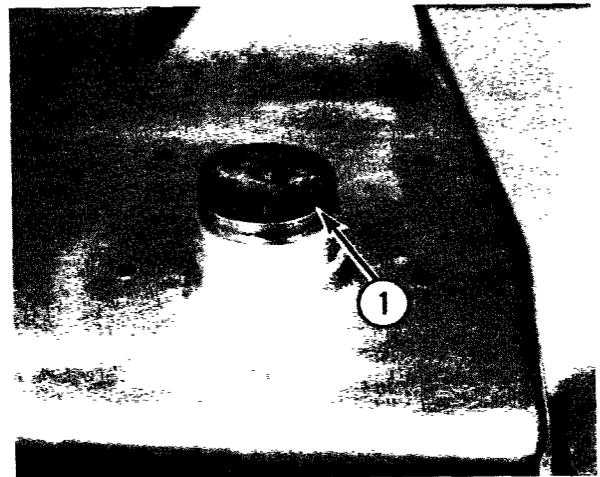


Fig. 3-4

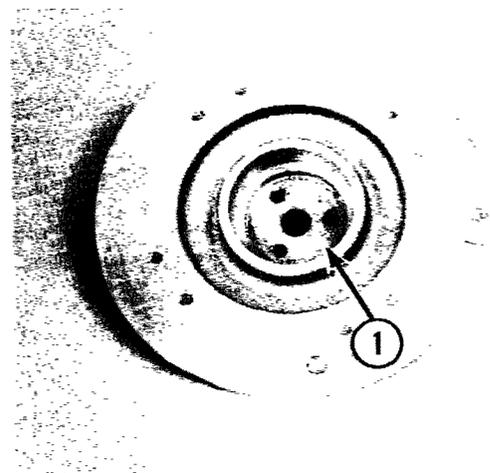


Fig. 3-5

4. Knife to Bowl Adjustment.

NOTE: ANYTIME THE COVER TO BOWL ADJUSTMENT IS MADE YOU MUST CHECK THE KNIFE TO BOWL ADJUSTMENT.

Wrenches used on the knives are special tool TL-526566.

- A. Remove the bowl cover, comb and bowl.
- B. Place a shop rag over the base of the food cutter.
- C. Place a 1-7/16 inch wrench on the inside knife retaining bushing and push it forward until it rests on the base of the machine (1, Fig. 3-6).
- D. Place another wrench on the outside locking collar. Tap the wrench counterclockwise with a rubber mallet.
- E. Slide both knife blades toward the collar and tighten the locking collar finger tight.
- F. Turn the bowl bottom up and mark one of the four cutouts on the bottom of the bowl with a piece of masking tape (1, Fig. 3-7).
- G. Install the bowl with the marked cutout at the front. Turn the bowl counterclockwise and lock in place.
- H. Rotate the knife shaft until the knives are straight up and down. Place a .050 inch Allen wrench in the bowl, under the knife (1, Fig. 3-8).
- I. Tap the knife gently with a rubber mallet until the knife just touches the Allen wrench.
- J. Turn the knife shaft until the other blade is directly over the Allen wrench and tap the knife gently with a rubber mallet until the knife just touches the Allen wrench. At this time snug the locking collar so the knives will not move.

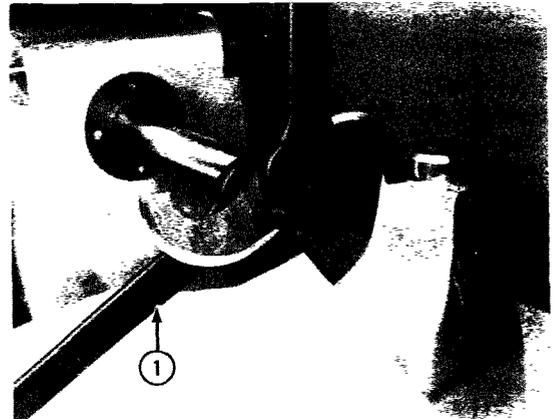


Fig. 3-6

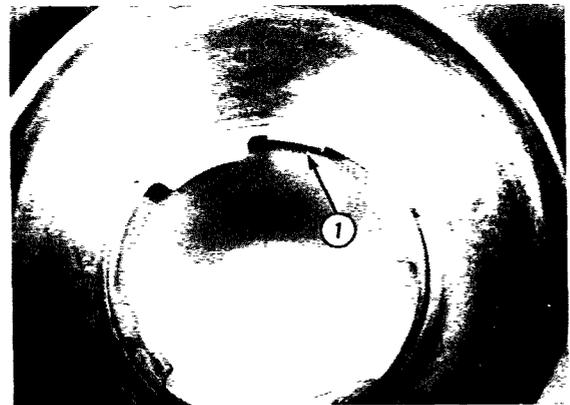


Fig. 3-7

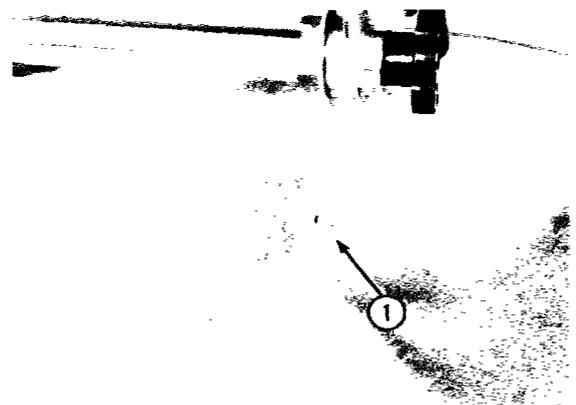


Fig. 3-8

- K. Remove the Allen wrench and mark a spot on the bowl using a small piece of masking tape (1, Fig. 3-9).
- L. Turn the knife shaft until the bowl has made one complete revolution. Use the marked spot as a reference point.

**NOTE:** The knives should not contact the bowl at any point. If they do, readjust the knives to the high spot on the bowl. However, if the bowl has a severe dent, it should be replaced.

- M. Remove the knife assembly and bowl.
- N. Mark one of the unmarked cutouts on the bowl bottom (1, Fig. 3-10) and place the newly-marked cutout toward the front.
- O. Replace the bowl and knife assembly.
- P. Turn the knife shaft until the bowl has made one complete revolution.

**NOTE:** If the knives contact the bowl at anytime, stop and readjust the knives.

- Q. Repeat steps (M) through (P) until the clearance has been checked at all four bowl settings.
- R. Remove the knife assembly and bowl.
- S. Replace the knife assembly and the fluted knob.
- T. Place a shop rag over the base of the food cutter.

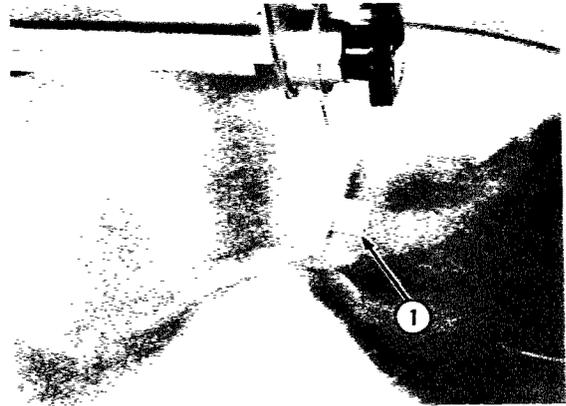


Fig. 3-9



Fig. 3-10

- U. Place the wrenches on the locking collars (Fig. 3-11) and turn the wrench clockwise.

**NOTE:** The knife assembly must be very tight.



- V. Remove the wrenches, shop rag and knife assembly.
- W. Remove the tape from the cutouts on the bottom of the bowl.
- X. Install the bowl, knife assembly, comb and bowl cover.

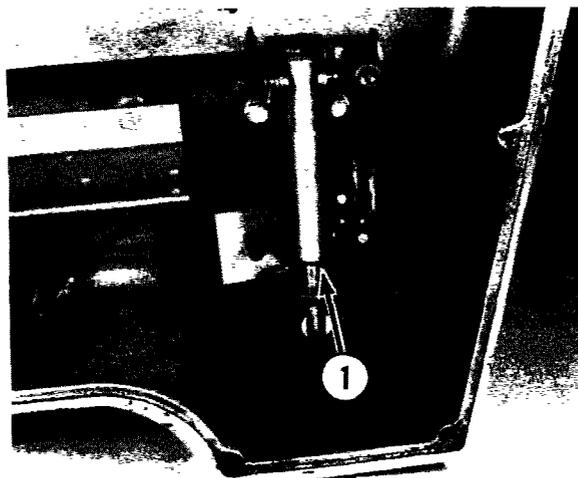


Fig. 3-12

5. On/Off Switch.

- A. The switch should close when the switch arm is  $3/4$  of the way up the bevel (1, Fig. 3-12) of the interlock bar pin.
- B. With the interlock bar pin in the full locked position, the switch arm (1, Fig. 3-13) should not be bottomed against the switch.  
To adjust: Form the switch arm.

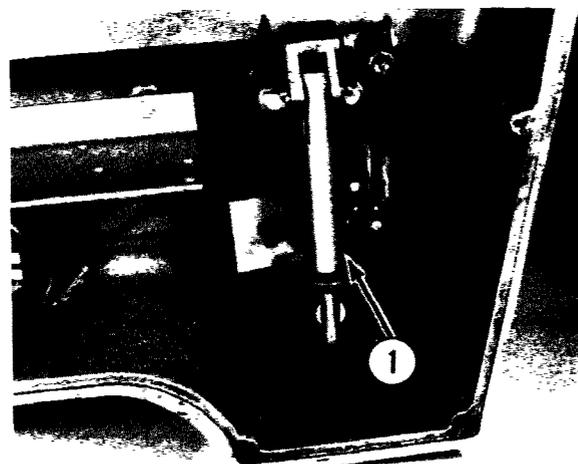


Fig. 3-13

6. Bowl Interlock Switch.

- A. The switch should close when the arm (1, Fig. 3-14) is in the low of the shaft (2, Fig. 3-14). The switch will open when the arm is on the high of the shaft.
- B. To adjust form the switch arm.

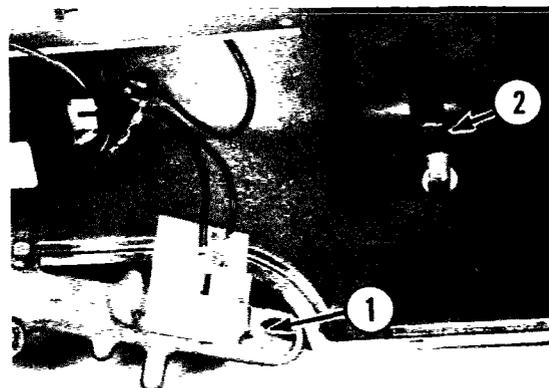


Fig. 3-14

SECTION 4

ELECTRICAL OPERATION

1. Operating Controls.

2. Circuit Operation (Fig. 4-1).

A. Bowl interlock switch (ILS).

The bowl interlock switch is a normally closed switch. The switch is held open anytime the bowl cover is not locked down. Anytime this switch is open the motor cannot run.

With the bowl cover down and locked, switch (ILS) will be closed. By pulling the On/Off knob to the On position, switch (IS) will close allowing current to the contactor coil energizing the coil, closing their contacts and allow the motor to run.

B. On/Off switch (IS).

The On/Off switch is operated through mechanical linkage by pulling or pushing the On/Off knob on the front of the machine. When the bowl cover is not locked down you cannot pull the knob to make the switch. Once you pull the knob and make the switch you cannot unlock the bowl cover until you push the knob and open the switch.

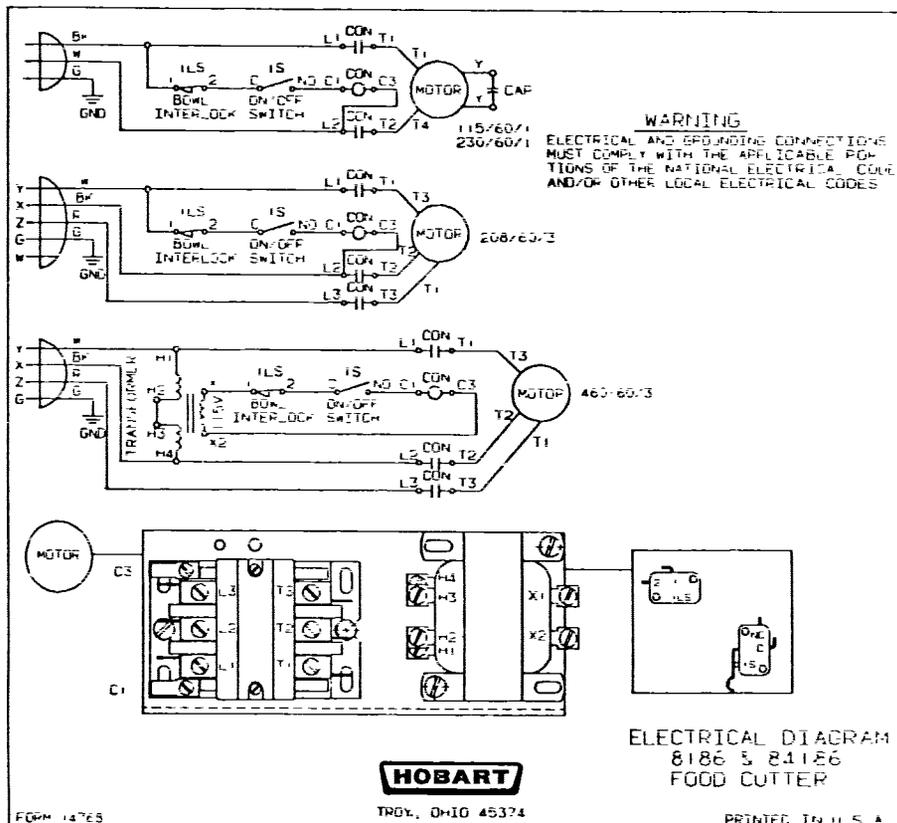


Fig. 4-1

SECTION 5

TESTING

1. Testing the Capacitor.

WARNING: TO AVOID ELECTRICAL SHOCK  
UNPLUG UNIT BEFORE SERVICING.

CAUTION: ALWAYS DISCHARGE THE CAPACITOR  
BEFORE DISCONNECTING THE LEADS.

A. Check the capacitor by substituting a known good capacitor in its place or disconnect the leads and check with an ohmmeter as follows:

B. Analog. (Model 630H or 60H).

- (1) Set the ohmmeter on the RX1000 range.
- (2) While watching the meter, connect the meter leads across the two capacitor terminals.
- (3) If the capacitor is good, the meter indicator should deflect rapidly at first then slowly return.
- (4) If the capacitor is shorted, the meter indicator will deflect and remain in that position.
- (5) If the capacitor is open, the meter indicator will not deflect at all.

C. Digital. (Model 3400H or equivalent).

- (1) Set the meter on the RX1000 range. The meter will display the numerical value (1).
- (2) While watching the meter, connect the meter leads across the two capacitor terminals.

(3) If the capacitor is good, the meter indicator will start at a low ohm reading and increase to the limit of the setting.

(4) If the capacitor is shorted, the meter indicator will read all zero's.

(5) If the capacitor is open, the meter indicator will not change, and display the numerical value (1).

2. Testing the Motor Stator Windings.

WARNING: TO AVOID ELECTRICAL SHOCK  
UNPLUG UNIT BEFORE SERVICING.

A. Disconnect all stator leads.

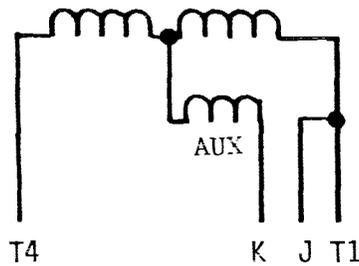
B. With all motor leads disconnected and the ohmmeter set on RX1 range, check each winding for continuity (Fig. 5-1). A reading less than stated indicates a shorted stator. If there is no meter reading, the stator is open.

C. Set the ohmmeter on RX100,000 and check for a grounded motor. Check any stator lead to chassis. Generally, if the motor is not grounded, the meter will indicate infinity. However, any reading above 500,000 ohms is acceptable.

D. If the windings are shorted, open or grounded, replace the stator.

230/60/1

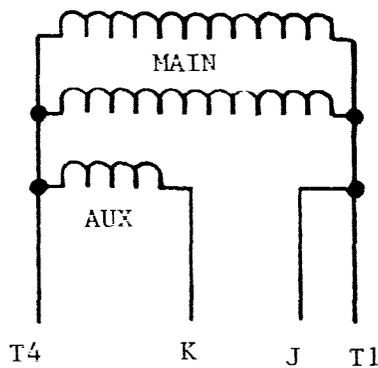
MAIN



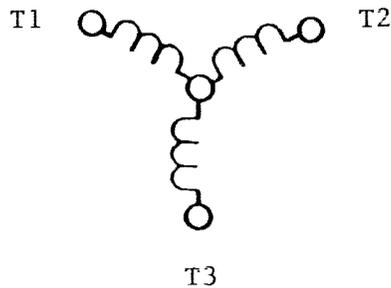
T4 to K - 3.0 OHMS  
 T1 to K - 3.0 OHMS  
 T4 to T1 - 1.6 OHMS

115/60/1

MAIN



T4 to K - 2.2 OHMS  
 T4 to T1 - 0.4 OHMS



208/60/3 T1 to T2 - 5.5 OHMS  
 T2 to T3 - 5.5 OHMS  
 T3 to T1 - 5.5 OHMS  
 460/60/3 T1 to T2 - 23 OHMS  
 T2 to T3 - 23 OHMS  
 T3 to T1 - 23 OHMS

Fig. 5-1

SECTION 6

TROUBLESHOOTING

SYMPTOMS	POSSIBLE CAUSES
1. Motor runs in start windings. (Single phase units).	A. Contacts on stationary part of starting switch shorted. B. Rotating part of start switch not far enough onto the shaft. Prevents contacts of stationary part from opening.
2. Machine will not start.	A. Incorrect voltage to the machine. B. Plug not in the receptacle. C. "On/Off" switch inoperative. D. Coil on contactor open. E. Capacitor inoperative (single phase only). F. Motor stator shorted or open. G. Rotating part of starting switch inoperative. (single phase only). H. Bowl interlock switch inoperative.
3. Motor runs backwards. (3 phase units).	A. L1, L2, L3 legs are switched. B. Blown fuse.
4. Motor runs but bowl does not turn.	A. Bowl drive belt broken. B. Bowl to cover clearance not enough. C. Bowl drive transmission frozen. D. Flexa-Gear belt broken.
5. Motor runs but knife shaft does not turn.	A. Flexa-Gear belt broken. B. Knife shaft bearing frozen.
6. Oil leaking from bottom of unit.	A. Seal defective in bowl drive transmission assembly.
7. Noise from motor.	A. Rough or corroded bearings. B. Incorrect voltage.
8. Attachment hub will not turn.	A. Attachment hub gear teeth sheared.
9. Flexa-Gear belt noisy.	A. Belt too tight. B. Belt too loose.

NOTES





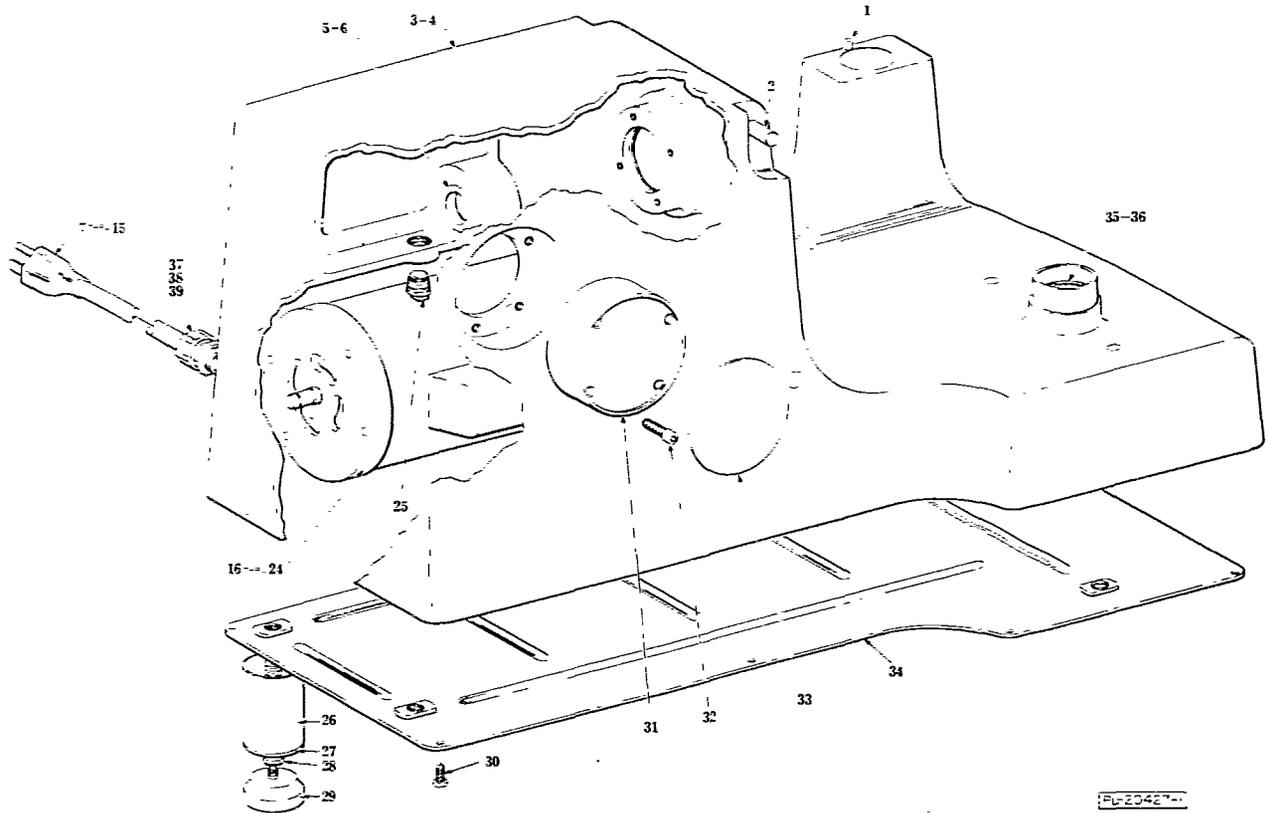
# CATALOG OF REPLACEMENT PARTS

MARINE GALLEYS, LTD.  
353 BOTETOURT STREET  
NORFOLK, VA 23510  
(757)625-5444

## MODELS 8186 & 84186<sup>U</sup> FOOD CUTTERS

(INCLUDES MOTOR PARTS)

ML-33892 — 8186  
ML-33764 — 84186<sup>U</sup>  
ML-38753 — 8186  
ML-38752 — 84186



BASE UNIT

## BASE UNIT

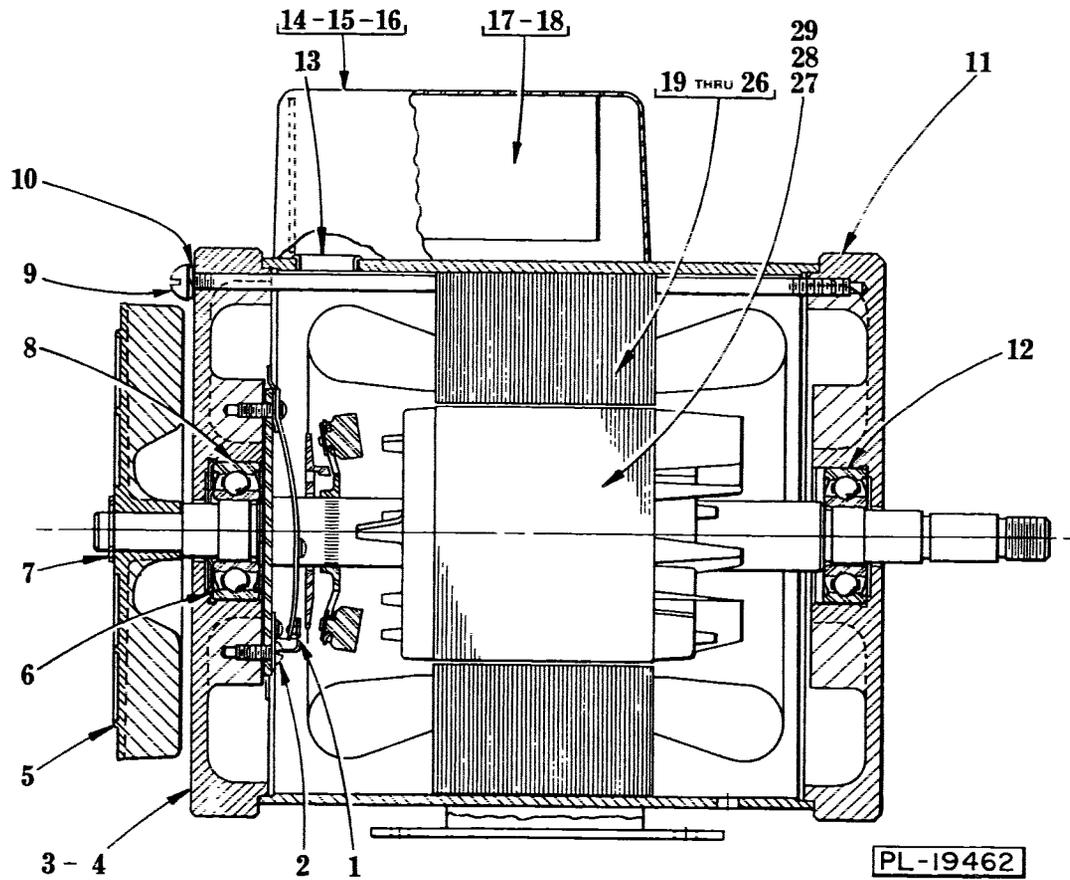
ILLUS. PL-20427-1	PART NO.	NAME OF PART <sup>22</sup>	AMT.
1	11800-242	Dowel	1
2	116644-2	Pin - Bowl Cover Hinge	1
3	291766	Base, Bearings & Interlock Control Shaft Assy. (84186)	1
4	291766-2	Base, Bearings & Interlock Control Shaft Assy. (8186)	1
5	291701	Insert (Pulley End)	1
6	291692	Seal - Knife Shaft (84186)	1
7	117542-21	Cord & Plug (115 V., 60 Hz., 1 Ph.)	1
8	117542-22	Cord & Plug (230 V., 60 Hz., 1 Ph.)	1
9	117613-6	Cord & Plug (200 V., 50/60 Hz., 3 Ph.)	1
10	117542-18	Cord & Plug (220/240 V., 50 Hz., 1 Ph.)	1
11	122292-3	Cord & Plug (208 V., 60 Hz., 3 Ph.)	1
12	117612-7	Cord & Plug (460 V., 60 Hz., 3 Ph.)	1
13	117613-24	Cord Assy. (I.E.C.) (380 V., 50 Hz., 3 Ph.)	1
14	SD-24-1	Self-Tapping Screw 10-24 x $\frac{3}{8}$ Pan Hd., Type TT (Ground)	1
15	WL-8-13	Lockwasher 10 Int. Shakeproof	1
16	— — —	Hobart Built Motor Assy	1
17	293922-1	Other than Hobart Built Motor Assy. (115-230 V., 60 Hz., 1 Ph.)	1
18	293922-2	Other than Hobart Built Motor Assy. (220/240 V., 50 Hz. 1 Ph.)	1
19	293923	Other than Hobart Built Motor Assy. (208/200/460 V., 60 Hz., 3 Ph.) & (200/380/415 V., 50 Hz., 3 Ph.)	1
20	SC-41-15	Cap Screw $\frac{5}{16}$ -18 x $1\frac{1}{4}$ Hex Hd	2
21	WS-5-32	Washer	2
22	291284	Washer - Toothed	4
23	WL-3-44	Lock Washer $\frac{5}{16}$ Medium	4
24	NS-13-14	Mach. Nut $\frac{5}{16}$ -18 Hex	4
25	FP-28-18	Plug - Pipe $\frac{3}{4}$ (84186)	1
26	TTTT2-2	Leg	4
27	64814	Cap - Leg End	4
28	290061-3	Stud - Leg	4
29	83681	Foot - Rubber	4
30	SD-24-44	Self-Tapping Screw 10-24 x $\frac{1}{2}$ Phil., Pan Hd., Type TT	10
31	292032-1	Plug - Attachment Hub (8186)	1
32	SC-89-4	Cap Screw $\frac{1}{4}$ -20 x 1 Hex Hd. (8186)	4
33	292068	Disc - Trim (8186)	1
34	291684	Bottom Cover Assy	1
35	RR-7-7	Retaining Ring	2
36	BB-5-34	Ball Bearing - Hoover #NSK6204DDUCE1VS3	2
37	FE-8-20	Connector - Strain Relief (Single Phase)	1
38	FE-8-21	Connector - Strain Relief (Three Phase, Domestic)	1
39	FE-15-38	Connector - Strain Relief (Three Phase, Export)	1
	290574	Leg Kit (Incls. items 26 thru 29)	1

\*Hobart Built Motor Assy. Discontinued. To replace order:

270431-1 (60 Hz., 1 Ph.)

270431-2 (50 Hz., 1 Ph.)

270431-3 (3 Ph.).



HOBART BUILT MOTOR PARTS

## HOBART BUILT MOTOR PARTS

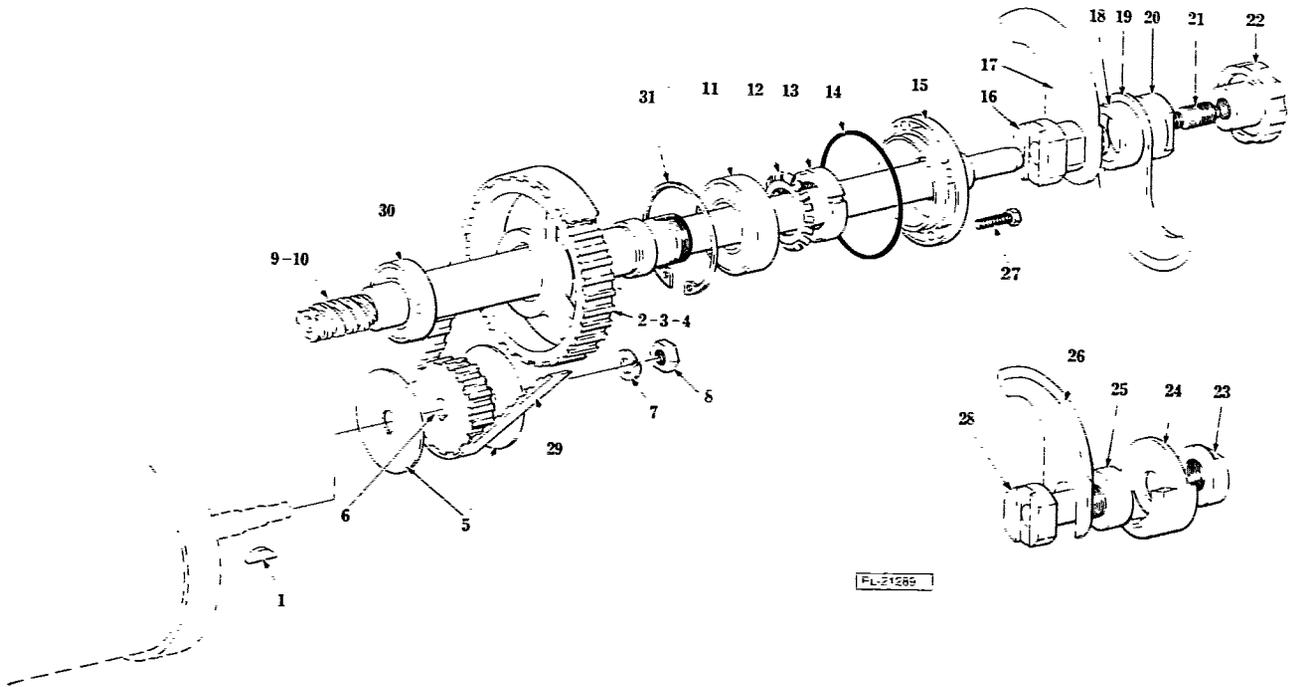
ILLUS. PL-19462	PART NO.	NAME OF PARTs	AMT.
1	119858-2	Switch - Starting (Stationary Part) . . . . .	1
*2	SC-9-49	Mach. Screw 6-32 x $\frac{3}{8}$ Rd. Hd . . . . .	2
*3	114379-3	Bracket - Bearing (Fan End) . . . . .	1
**4	114379-2	Bracket - Bearing (Fan End) . . . . .	1
5	292466-1	Fan - Ventilating . . . . .	1
6	SL-2-4	Loading Spring - N.D #S-17 . . . . .	1
7	RR-4-17	Retaining Ring . . . . .	1
8	BB-5-30	Ball Bearing - N.D. #Z99503 . . . . .	1
9	SC-60-68	Mach. Screw 10-24 x 7 $\frac{1}{2}$ Rd. Hd . . . . .	4
10	WL-8-13	Lock Washer 10 Int. Shakeproof . . . . .	4
11	114379-4	Bracket - Bearing (Pulley End) . . . . .	1
12	BB-5-30	Ball Bearing - N.D. #Z99503 . . . . .	1
*13	80369	Bushing - Snap (Field Ring) . . . . .	1
*14	104725	Capacitor Cover & Insulator Assy . . . . .	1
*15	SD-15-3	Self-Tapping Screw 10-24 x $\frac{1}{4}$ Pan Hd., Type TT . . . . .	2
*16	WS-2-15	Washer (Shims Screws to Prevent Bottoming) . . . . .	2
*17	89258	Retainer - Capacitor . . . . .	1
*18	70487-6	Capacitor . . . . .	1
19	65477-158-1	Stator Assy. (115 V., 60 Hz., 1 Ph.) . . . . .	1
20	65477-158-2	Stator Assy. (230 V., 60 Hz., 1 Ph.) . . . . .	1
21	65477-158-3	Stator Assy. (220/240 V., 50 Hz., 1 Ph.) . . . . .	1
22	65478-179-1	Stator Assy. (200/208 V., 60 Hz., 3 Ph.) . . . . .	1
23	65478-179-2	Stator Assy. (200/220 V., 50 Hz., 3 Ph.) . . . . .	1
24	65478-179-3	Stator Assy. (460 V., 60 Hz., 3 Ph.) . . . . .	1
25	65478-179-4	Stator Assy. (380 V., 50 Hz., 3 Ph.) . . . . .	1
26	79118	Bushing - Snap (Field Ring) . . . . .	1
*27	22275-182	Rotor Assy. (60 Hz.) . . . . .	1
*28	22275-183	Rotor Assy. (50 Hz.) . . . . .	1
**29	15747-279	Rotor Assy . . . . .	1

\*1 Ph.

\*\*3 Ph.

Above motor parts are for Hobart built motors Only.

Components parts for Other than Hobart Built Motors are not available from Hobart.

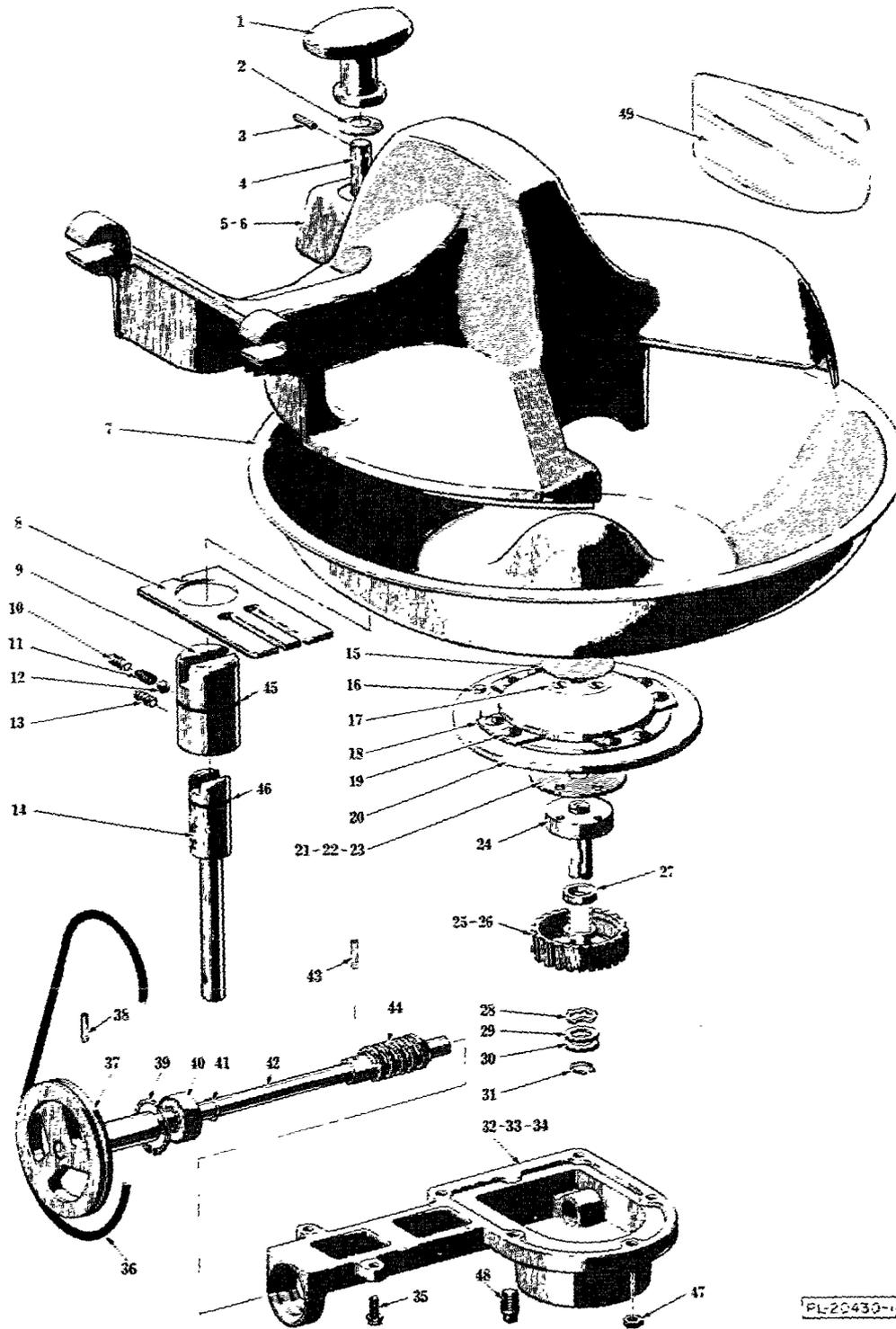


**KNIFE DRIVE UNIT**

## KNIFE DRIVE UNIT

ILLUS. PL-21289	PART NO.	NAME OF PART <sup>36</sup>	AMT.
1	KW-3-10	Key - #606 Woodruff .....	1
2	291634-2	Gear - Driven (36T) .....	1
3	12430-142	Key - 1/4 x 1/4 x 1 .....	1
4	SC-110-99	Set Screw 3/16-18 x 3/8 Hds., Oval Pt .....	2
5	77358	Flange - Flexa-Gear .....	2
6	77357	Gear - Drive (18T) .....	1
7	WL-4-13	Lock Washer - 1/2 Medium .....	1
8	NS-13-35	Full Nut 1/2-10 Hex Fin .....	1
9	270856	Shaft - Knife (84186) .....	1
10	274303	Shaft - Knife (8186) .....	1
11	BB-7-39	Ball Bearing - N.D. #Z99507XR .....	1
12	WL-12-8	Lock Washer N.D.#W-07 .....	1
13	NS-47-12	Lock Nut N.D. #N-07 .....	1
14	67500-115	"O" Ring .....	1
15	291705	Cap - End (Knife End) .....	1
16	71313	Bushing - Knife Retaining .....	1
17	77372	Knife - Leader .....	1
18	71312	Collar - Knife Retainer Bushing .....	1
19	77373	Knife - Follower .....	1
20	71311	Collar - Locking .....	1
21	78398	Insert - Knife Shaft .....	1
22	77371	Knob - Fluted .....	1
*23	103904	Collar - Locking .....	1
*24	118150	Balance & Pin Assy .....	1
*25	103903	Collar - Knife Retaining Bushing .....	1
*26	117675	Knife - Rotary (Follower) .....	1
27	SC-67-8	Mach. Screw 10-24 x 7/8 Hex Hd .....	4
*28	7157	Bushing - Knife Retaining .....	1
29	77370	Flexa-Gear .....	1
30	BB-15-22	Ball Bearing - Fafnir #9107KDD .....	1
31	RR-4-24	Retaining Ring .....	1
	101790	Knife Assy. (Incls. items 16 thru 20) .....	1
	117677	*Single Following Knife Assy. (Incls. items 23 thru 28) .....	1

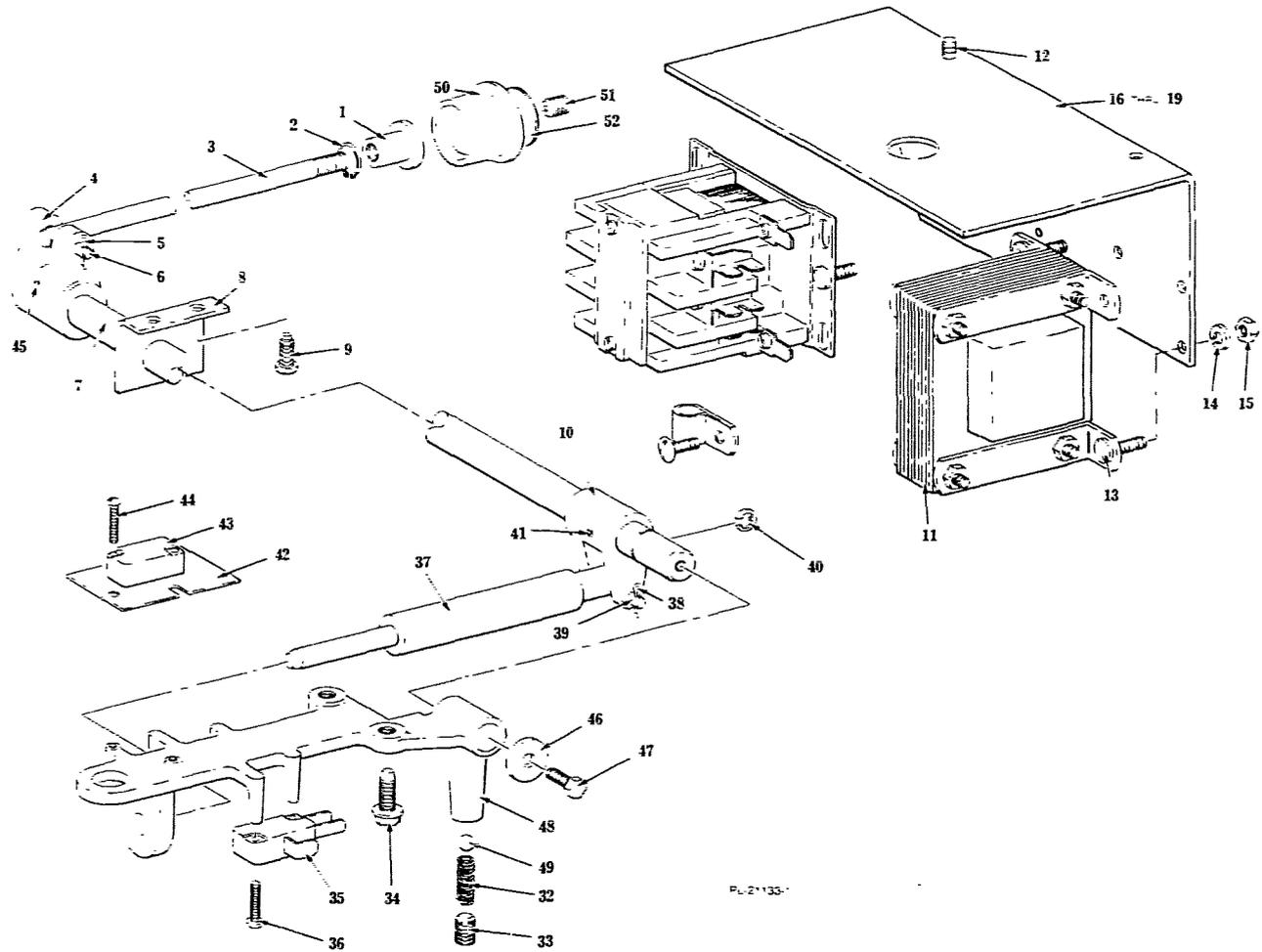
\*Not NSF Approved.



**BOWL AND BOWL DRIVE UNIT**

## BOWL AND BOWL DRIVE UNIT

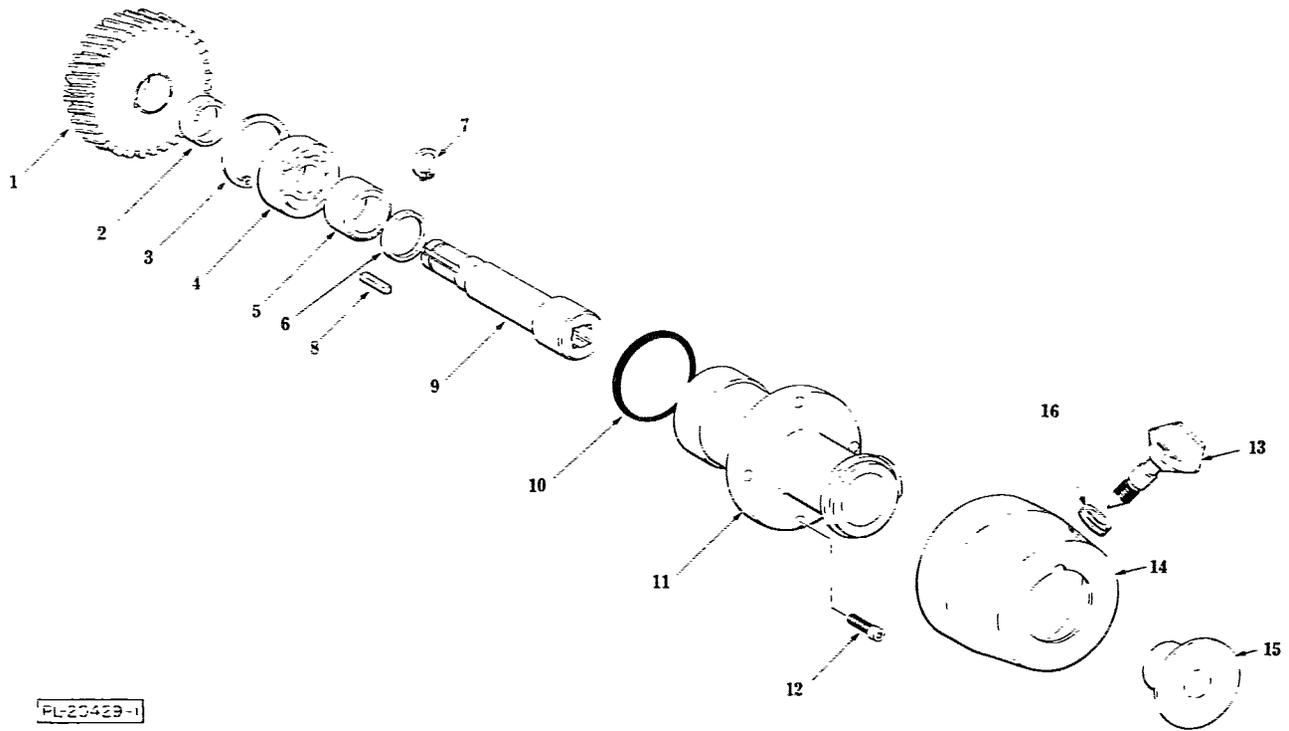
ILLUS. PL-20430-1	PART NO.	NAME OF PART <sup>22</sup>	AMT.
1	116814	Handle Locking	1
2	77374	Washer - Belleville	1
3	PG-3-27	Groov-Pin - Type A. $\frac{3}{16}$ x $\frac{7}{8}$	1
4	117168	Bolt - Interlock	1
5	290570	Bowl Cover & Caution Plate Assy. (60 Hz.)	1
6	124739-2	Cover - Bowl (50 Hz.)	1
7	290239	Bowl & Adapter Assy	1
8	123934	Comb	1
9	77376	Adapter - Locking	1
10	SC-64-23	Set Screw - $\frac{5}{16}$ -18 x $\frac{3}{8}$ Soc. Hdls.. Oval Pt. "Nylok"	1
11	77381	Spring - Ball Detent	1
12	BA-2-10	Ball - $\frac{1}{4}$ Dia	1
13	SC-64-13	Set Screw - $\frac{5}{16}$ -18 x $\frac{3}{4}$ Soc. Hdls.. Cup Pt. "Nylok"	1
14	291776	Interlock Control Shaft Assy	1
15	116651	Cover - Bowl Support	1
16	88417	Pin - Bowl Stop	1
17	SC-22-32	Mach. Screw $\frac{1}{4}$ -20 x $\frac{1}{2}$ Flat Hd	3
18	78061	Clamp - Bowl Support	4
19	SC-53-9	Mach. Screw - $\frac{1}{4}$ -28 x $\frac{1}{2}$ Truss Hd	8
20	291587-2	Support - Bowl	1
21	116654-1	Shim - Bowl Adjusting (.003 Thk., Green)	AR
22	116654-2	Shim - Bowl Adjusting (.005 Thk., Blue)	AR
23	116654-3	Shim - Bowl Adjusting (.010 Thk., Brown)	AR
24	291773	Shaft - Vertical Bowl Drive	1
25	291693-2	Gear - Vertical Bowl Drive (51T)	1
26	12430-47	Key - $\frac{3}{16}$ x $\frac{3}{16}$ x $\frac{11}{16}$	1
27	116647	Spacer - Bowl Drive	1
28	SL-3-2	Spring - Loading	1
29	WS-10-20	Washer	AR
30	WS-11-1	Washer	1
31	RR-4-20	Retaining Ring	1
32	291785	Case - Gear (Incls. items 33 & 34)	1
33	BN-2-9	Needle Bearing	1
34	291686	Seal - Bowl Drive Gear	1
35	SD-15-25	Self-Tapping Screw $\frac{1}{4}$ -20 x $\frac{5}{8}$ Hex Washer Hd.. Type TT	2
36	291704	Belt - Round	1
37	291789-2	Pulley - Horizontal Bowl Drive	1
38	RP-3-14	Roll Pin $\frac{3}{16}$ Dia. x $\frac{7}{8}$ Lg	1
39	RR-7-8	Retaining Ring	1
40	BB-5-30	Ball Bearing - N.D. #Z99503XR	1
41	RR-4-18	Retaining Ring	1
42	291688	Shaft - Horizontal Bowl Drive	1
43	RP-3-14	Roll Pin $\frac{3}{16}$ Dia. x $\frac{7}{8}$ Lg	1
44	77349	Worm - Horizontal Bowl Drive Shaft (1T)	1
45	67500-14	"O" Ring	1
46	67500-10	"O" Ring	1
47	NS-13-14	Mach. Nut $\frac{5}{16}$ -18 Hex	6
48	FP-28-42	Pipe Plug $\frac{1}{8}$ Sq. Hd	1
49	118801	Scraper - Bowl	1
	290910-1	Bowl Cover & Locking Knob Assy. (60 Hz.) (Incls. item 1 thru 5)	1
	290910-2	Bowl Cover & Locking Knob Assy. (50 Hz.) (Incls. item 1, 2, 3, 4 & 6)	1
	291786	Shaft - Horizontal Bowl Drive Assy. (Incls. items 37, 38, 40, 41 & 42)	1
5	290570-2	Bowl Cover & Caution Plate Assy. (60 Hz.) USDA	1



**SWITCH UNIT**

## SWITCH UNIT

ILLUS. PL-21133-1	PART NO.	NAME OF PART <sup>36</sup>	AMT.
1	117705	Bushing - Switch Rod	1
2	RR-4-17	Retaining Ring	1
3	291697	Rod - On/Off	1
4	116713	Clevis	1
5	PC-3-23	Cotter Pin $\frac{1}{16}$ x $\frac{1}{2}$	1
6	77390	Pin - Clevis	1
7	291698	Shaft - Switch Control	1
8	117633	Bracket - Switch Control Rod	1
9	SD-15-4	Self-Tapping Screw 10-24 x $\frac{1}{2}$ Pan Hd., Type TT	2
10	291780-1	Clevis - Switch End	1
11	101935	Transformer - Step Down (VA-50) (380 V., 50 Hz., 3 Ph.; 460 V., 60 Hz., 3 Ph.)	1
12	SD-15-4	Self-Tapping Screw 10-24 x $\frac{1}{2}$ Pan Hd., Type TT	2
13	SC-18-1	Mach. Screw 10-24 x $\frac{3}{8}$ Pan Hd	2
14	WL-3-24	Lock Washer 10 Medium	2
15	NS-9-22	Mach. Nut 10-24 Hex	2
16	270532	Bracket - Electrical	1
17	SC-27-30	Mach. Screw 8-32 x $\frac{1}{2}$ Rd. Hd. (Common Ground)	1
18	WL-8-13	Lock Washer 10 Int. Shakeproof	1
19	NS-9-12	Mach. Nut 8-32 Hex	1
20	SC-18-1	Mach. Screw 10-24 x $\frac{3}{8}$ Pan Hd	2
21	WL-3-24	Lock Washer 10 Medium	2
22	NS-9-22	Mach. Nut 10-24 Hex	2
23	87713-38-2	Contactor 2 Pole (115 Volt Coil)	1
24	87713-38-1	Contactor 2 Pole (220 Volt Coil)	1
25	87713-40-2	Contactor 3 Pole (115 Volt Coil)	1
26	87713-40-1	Contactor 3 Pole (220 Volt Coil)	1
27	87713-74-1	Contactor 4 Pole (115 Volt Coil)	1
28	87713-74-3	Contactor 4 Pole (240 Volt Coil)	1
29	87713-74-2	Contactor 4 Pole (220 Volt Coil)	1
30	88196-12-4	Overload Relay (2.4A - 4.0A)	1
31	88196-12-6	Overload Relay (6.0A - 10.0A)	1
32	77381	Spring - Ball Detent	1
33	SC-64-23	Set Screw $\frac{5}{16}$ -18 x $\frac{3}{8}$ Hdls., Oval Pt	1
34	SD-15-25	Self-Tapping Screw $\frac{1}{4}$ -20 x $\frac{5}{8}$ Hex Washer Hd., Type TT	2
35	87711-202-1	Switch - Miniature	AR
36	SC-60-40	Mach. Screw 4-40 x $\frac{5}{8}$ Rd. Hd	AR
37	291757	Pin - Interlock Bar	1
38	PC-3-23	Cotter Pin $\frac{1}{16}$ x $\frac{1}{2}$	1
39	77390	Pin - Clevis	1
40	RR-4-25	Retaining Ring	1
41	RR-2-36	Roll Pin $\frac{1}{8}$ Dia. x 1 Lg	1
42	291805	Insulator - Snap Switch	1
43	87711-201-2	Switch	1
44	SC-60-40	Mach. Screw 4-40 x $\frac{5}{8}$ Rd. Hd	2
45	RP-2-36	Roll Pin $\frac{1}{8}$ Dia. x 1 Lg	1
46	WS-23-19	Washer	1
47	SC-68-7	Mach. Screw 10-24 x $\frac{3}{8}$ Hex Hd	1
48	291700-2	Frame - Switch Interlock	1
49	BA-2-10	Bail $\frac{1}{4}$ Dia	1
50	120126	Pull Knob & Label Assy. (Incls. items 51 & 52)	1
51	SC-47-95	Set Screw $\frac{3}{16}$ -18 x $\frac{1}{4}$ Soc. Hdls., Cup Pt	1
52	119601	Label - Knob (Start/Stop)	1
53	78752-12	Clamp $\frac{1}{4}$	1
54	SC-8-10	Mach. Screw 10-24 x $\frac{1}{2}$ Rd. Hd.	1
55	WL-8-13	Lock Washer 10 Int. Shakeproof	1
56	NS-9-22	Mach. Nut 10-24 Hex	1



PL-20429-1

**ATTACHMENT DRIVE UNIT**

ILLUS.	PART NO.	NAME OF PART <sup>22</sup>	AMT.
1	291703	Gear - Attachment Hub (20T) .....	1
2	292031	Spacer - Attachment Hub .....	1
3	RR-6-2	Retaining Ring .....	1
4	BB-7-52	Ball Bearing Fafnir 2205KDD .....	1
5	83440	Bearing (Oil-less) .....	1
6	70090	Seal - Oil .....	1
7	RR-4-9	Retaining Ring .....	1
8	12430-47	Key - Attachment Hub .....	1
9	291689	Shaft - Attachment Hub .....	1
10	67500-54	"O" Ring - Attachment Hub .....	1
11	291635	#12 Attachment Hub & Bearing (Incls. items 5 & 6) .....	1
12	SC-89-4	Cap Screw 1/4-20 x 1 Hex Hd .....	4
13	291702	Thumb Screw Assy .....	1
14	292908	Cap - Trim .....	1
15	114824-1	Plug - Attachment Hole .....	1
16	79537	Grommet - Thumb Screw .....	1

\*Previous Trim Cap did not require grommet. To replace order item 14 Trim Cap & item 16 Grommet.

## MOTOR CHARACTERISTICS & PERFORMANCE DATA

MANUFACTURER	Hobart Corp.
MASTER DRAWING	ML-33896
CERTIFICATION DATA	Motor Part #293923
AUXILIARY	
EQUIPMENT MODEL NO.	84186U
QUANTITY	460/60/3
RATING (HP, VOLTS, PHASE)	Motor Rating 208/380-460/60/50/3
INSULATION	B
WEIGHT	
CYCLES	60/50
DESIGN	B
TORQUE-STARTING FULL LOAD	85 Oz Ft 24 Oz Ft
AMPERS-STARTING FULL LOAD	13.3 @ 480 VAC 1.4 @ 48 VAC
POWER FACTOR	
F.L.	0.80
3/4	0.74
1/2	0.68
LOCKED	0.64
ENCLOSURE	Totally Enclosed
SERVICE	
DUTY	CONTINUOUS
TYPE	AC Inducted
AMBIENT DEGREE C	40°C
F.L. KW	0.88 @ 480VAC
MOTOR FRAME	56Z
EQUIPMENT SPECIFICATION	
EFFICIENCY	86% @ Rated Load
SYMBOL NUMBER	



**CONTROLLER DATA**

<b>MANUFACTURER</b>	Furnas Electric Co.
<b>MASTER DRAWING</b>	00-087713-040-2
<b>CERTIFICATION DATA</b>	00-87713-040-02
<b>RATING (VOLTS, PHASE, HP)</b>	10 HP, 480 VAC, 3 PHASE
<b>SIZE</b>	
<b>OPERATION</b>	Auto
<b>TYPE</b>	Across the Line
<b>FUNCTION</b>	Starting
<b>DUTY</b>	Continous
<b>LOW, VOLTAGE FEATURE</b>	N/A
<b>OVERLOAD RELAY</b>	
HEATER CATALOG NO.	N/A
TYPE	N/A
EMERGENCY RUN (YES/NO)	NO
<b>AMBIENT DEGREE C</b>	65°C
<b>ENCLOSURE</b>	DP - Style Connector
<b>WEIGHT</b>	1 lb
<b>EQUIPMENT SPECIFICATION</b>	N/A
<b>LOCATION</b>	N/A
<b>QUANTITY</b>	1
	<b>SYMBOL NUMBER</b> _____



**ELECTRICAL SPECIFICATIONS FOR HOBART MODEL: 84186**

VOLTAGE (VOLTS AC)	AMPERAGE (AMPS)	MAX POWER (KW)	FREQUENCY (Hz)	PHASE
480	13.3	7.1	60	3



## NAVSEA/SPAWAR TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)

**STRUCTION:** Continue on 8 1/2" x 11" paper if additional space is needed.

Use this report to indicate deficiencies, problems, and recommendations relating to a publication.

2. For CLASSIFIED TMDERs see OPNAVINST 5510H for mailing classified TMDERs.
3. Print clearly and carefully.
4. Submit TMDERs at web site <http://nsdsa.phdnswc.navy.mil> or mail to address on reverse.

1. PUBLICATION NO.	2. VOL/PART	3. REV/DATE or CHG/DATE	4. SYSTEM/EQUIPMENT ID
--------------------	-------------	----------------------------	------------------------

5. TITLE OF PUBLICATION	6. REPORT CONTROL NUMBER (6 digit UIC-YY-any four: xxxxxx-01- xxxx)
-------------------------	---

**7. RECOMMENDED CHANGES TO PUBLICATION**

7a Page #	7b Para #	7c RECOMMENDED CHANGES AND REASONS

8. ORIGINATOR'S NAME and WORK CENTER	9. DATE	10. PHONES Commercial/DSN/FAX Include extensions	11. TMMA of manual (NSDSA will complete)
---	---------	---	---

12. Ship or Activity Name and Address (Include UIC/CAGE/HULL)	13. ORIGINATOR'S E-MAIL ADDRESS
--	---------------------------------

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE

INCLUDE COMPLETE ADDRESS

USE  
PROPER  
POSTAGE

FOR OFFICIAL USE ONLY

**COMMANDER  
CODE 5E30DP BLDG 1388  
NAVSURFWARCENDIV NSDSA  
4363 MISSILE WAY  
PORT HUENEME CA 93043-4307**

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE

## NAVSEA/SPAWAR TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)

**STRUCTION:** Continue on 8 1/2" x 11" paper if additional space is needed.

Use this report to indicate deficiencies, problems, and recommendations relating to a publication.

2. For CLASSIFIED TMDERs see OPNAVINST 5510H for mailing classified TMDERs.
3. Print clearly and carefully.
4. Submit TMDERs at web site <http://nsdsa.phdnswc.navy.mil> or mail to address on reverse.

1. PUBLICATION NO.	2. VOL/PART	3. REV/DATE or CHG/DATE	4. SYSTEM/EQUIPMENT ID
--------------------	-------------	----------------------------	------------------------

5. TITLE OF PUBLICATION	6. REPORT CONTROL NUMBER (6 digit UIC-YY-any four: xxxxxx-01-xxxx)
-------------------------	---

**7. RECOMMENDED CHANGES TO PUBLICATION**

7a Page #	7b Para #	7c RECOMMENDED CHANGES AND REASONS

8. ORIGINATOR'S NAME and WORK CENTER	9. DATE	10. PHONES Commercial/DSN/FAX Include extensions	11. TMMA of manual (NSDSA will complete)
---	---------	---	---

12. Ship or Activity Name and Address (Include UIC/CAGE/HULL)	13. ORIGINATOR'S E-MAIL ADDRESS
--	---------------------------------

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE

---

INCLUDE COMPLETE ADDRESS

USE  
PROPER  
POSTAGE

FOR OFFICIAL USE ONLY

**COMMANDER  
CODE 5E30DP BLDG 1388  
NAVSURFWARCENDIV NSDSA  
4363 MISSILE WAY  
PORT HUENEME CA 93043-4307**

---

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE

## NAVSEA/SPAWAR TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)

**STRUCTION:** Continue on 8 1/2" x 11" paper if additional space is needed.

Use this report to indicate deficiencies, problems, and recommendations relating to a publication.

2. For **CLASSIFIED** TMDERs see OPNAVINST 5510H for mailing classified TMDERs.
3. Print clearly and carefully.
4. Submit TMDERs at web site <http://nsdsa.phdnswc.navy.mil> or mail to address on reverse.

1. PUBLICATION NO.	2. VOL/PART	3. REV/DATE or CHG/DATE	4. SYSTEM/EQUIPMENT ID
--------------------	-------------	----------------------------	------------------------

5. TITLE OF PUBLICATION	6. REPORT CONTROL NUMBER (6 digit UIC-YY-any four: xxxxxx-01-xxxx)
-------------------------	---

**7. RECOMMENDED CHANGES TO PUBLICATION**

7a Page #	7b Para #	7c RECOMMENDED CHANGES AND REASONS

8. ORIGINATOR'S NAME and WORK CENTER	9. DATE	10. PHONES Commercial/DSN/FAX Include extensions	11. TMMA of manual (NSDSA will complete)
---	---------	---	---

12. Ship or Activity Name and Address (Include UIC/CAGE/HULL)	13. ORIGINATOR'S E-MAIL ADDRESS
--	---------------------------------

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE

INCLUDE COMPLETE ADDRESS

USE  
PROPER  
POSTAGE

FOR OFFICIAL USE ONLY

**COMMANDER  
CODE 5E30DP BLDG 1388  
NAVSURFWARCENDIV NSDSA  
4363 MISSILE WAY  
PORT HUENEME CA 93043-4307**

FOLD HERE AND TAPE SECURELY  
PLEASE DO NOT STAPLE



