NOTE

THIS TECHNICAL MANUAL (TM) HAS BEEN DEVELOPED FROM AN INTELLIGENT ELECTRONIC SOURCE KNOWN AS STANDARD GENERALIZED MARKUP LANGUAGE (SGML). THERE IS NO LOEP. ALL CHANGES, IF APPLICABLE, ARE INCLUDED. THE PAGINATION IN THIS TM WILL NOT MATCH THE PAGINATION OF THE ORIGINAL PAPER TM; HOWEVER, THE CONTENT IS EXACTLY THE SAME. ANY CHANGES RECEIVED AFTER RECEIPT OF THIS TM WILL ONLY FIT IN THIS PAGINATED VERSION.

[*SGML Version - See Change Record*]

TECHNICAL MANUAL

MEAT TENDERIZER MODEL 403

PUBLISHED BY DIRECTION OF THE COMMANDER, NAVAL SEA SYSTEMS COMMAND

RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY

TABLE OF CONTENTS

**SPECIFICATIONS FOR #403 TENDERIZER
LISTED BY UNDERWRITERS' LABORATORIES, INC.
AND NATIONAL SANITATION FOUNDATION.**

MOTOR: 1/2 H.P. totally-enclosed fan-cooled, single-phase, capacitor-start, induction-run type. Furnished in electrical specification of 115-60-1. Also furnished as Model 403G (not U.L. listed) in electrical specification of 115-50-1 and 220-50-1. Not available in 3 phase or DC.

SWITCH: Underwriters' Laboratories listed, manual 2 pole type.

SAFETY SYSTEM:

(1) Safety Interlocks on Transparent Guard and Motor Housing. Remote electromagnetic sensing switches detect if Guard or Motor Housing are not in place and prevent operation. Switches cannot be mechanically blocked.

(2) Integral Safety Chute in Transparent Guard keeps hands at a safe distance from tenderizing knives.

(3) Pilot Light warns when machine switch is ON even though machine is inoperable because Transparent Guard or Motor Housing is not in place.

CORD AND PLUG: 6-foot U.L. listed 3-wire cord and plug for grounding. Plug not furnished on export models.

TRANSMISSION: Hardened Steel Worm drives forged bronze worm gear in fluid grease bath. Counter-rotation of tenderizing knives obtained through spur gears mounted on hardened and ground alloy steel stub shafts. Gears sealed in cast transmission case. Motor, worm and Gear Case are an integral unit for precision mount-in and easy cleaning. Bath lubricated needle and ball anti-friction bearings in transmission case. Grease-packed ball bearings in motor.

BLADES AND SHAFT: Blades and shafts are made of heavy duty stainless steel.

SPACERS: 40 stainless steel spacers, between the blades, provide scientific blade spacing on each roller.

CLEANING COMBS: Satin Finish stainless steel, easily removable. Combs guide meat between rollers, automatically prevent any accumulation of meat between knives.

LIFT-OUT UNIT FRAME: Cast aluminum with special bronze bearings. Contains set of stainless steel shafts and cleaning combs hinged to swing free from blades for unit cleaning - combs can be removed easily. Automatic Unit Lock holds assembly in place.

HOUSING: Housing consists of cast aluminum gear case and motor housing and high impact plastic transparent guard. Lift Out Unit nested by cast aluminum support on stainless steel tie bars and shield. Unit designed to be quickly and easily cleaned.

FINISH: Satin-polished aluminum and clear plastic.

WEIGHT AND DIMENSIONS: The net weight is 56 pounds; shipping weight 66 pounds, Height 19-1/8″, counter space 10-1/2″ x 19-5/8″. Feed throat opening 1-3/8″ x 8-1/4″.

STANDARD EQUIPMENT: Cleaning fork, cord and-plug.

CHAPTER 1

INSTRUCTION MANUAL
WITH REPLACEMENT PARTS
MODELS 403 & 403U TENDERIZERS

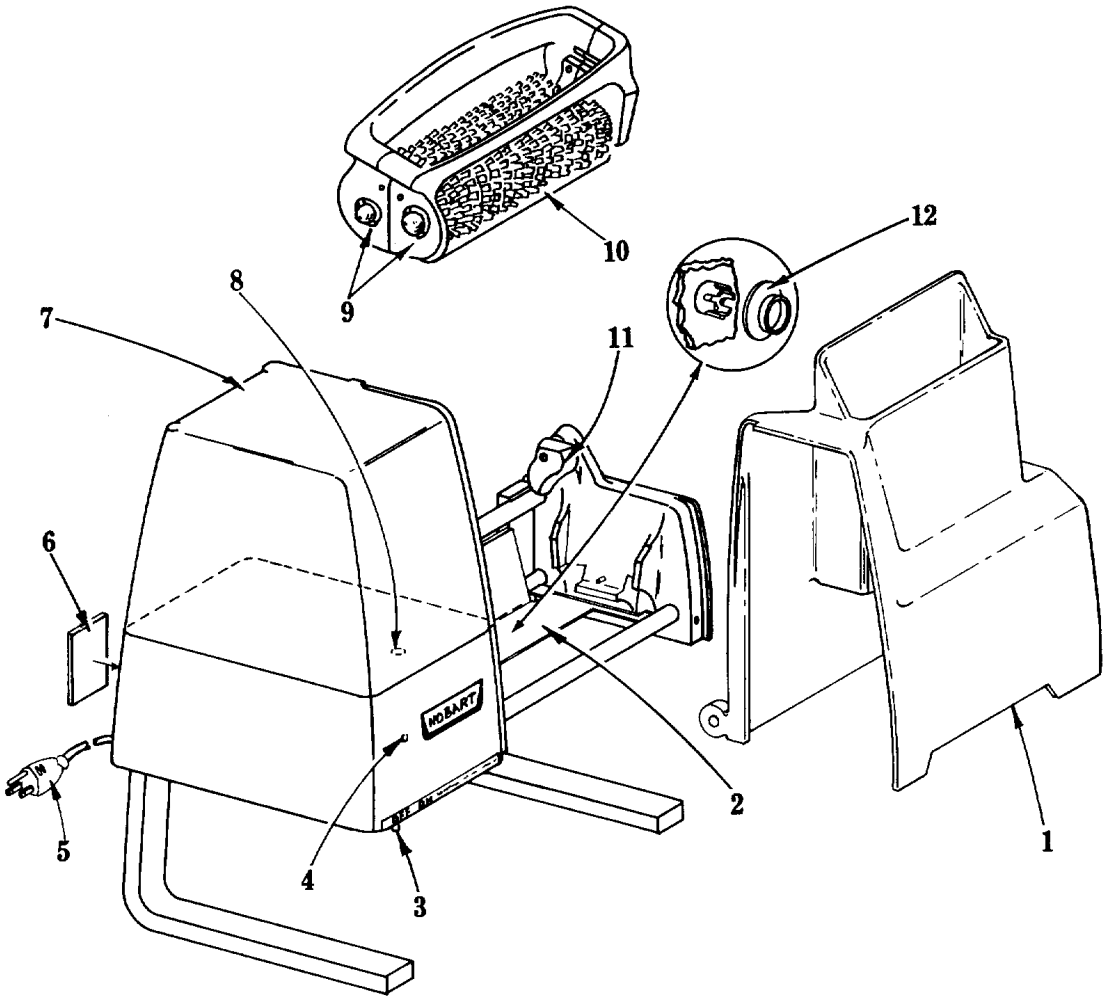


Figure 1

SECTION

INSTRUCTIONS FOR OPERATION AND CARE OF
MODELS 403 & 403U TENDERIZERS

GENERAL:

The straight ″drop-through″ feature makes this tenderizer extremely easy for the operator to use.

A shield (2, Fig. 1), sealed and locked into place, protects an operator’s hand from touching the revolving knives in the discharge area of the machine. This shield also deflects particles of meat from the transparent guard.

SAFETY:

This tenderizer has a special magnetic safety interlock system that makes the machine inoperative if either the transparent guard (1, Fig. 1) or the motor housing (7, Fig. 1) is lifted or removed.

When the guard or motor housing (with magnets in place) is not in position the interlock (reed) switch opens breaking the electrical circuit making the tenderizer inoperative.

WARNING

Do not tamper with or attempt to adjust or in any manner alter this system or its components. Contact your local Hobart Service Technician if the safety interlock system needs attention for any reason.

INSTALLATION:

Before operating machine for the first time pull ″Vent″ tag to remove sealing tape from vent hole (8, Fig. 1). Insert dipstick in vent hole.

CONNECTIONS:

Each machine is furnished with a three conductor cord and plug (5, Fig. 1) to be used in a properly grounded receptacle. Before plugging into socket, be sure the line current available is the same as specified on the machine serial data plate (6, Fig. 1).

If cord and plug is not used with this machine, electrical connections should be made by qualified workmen who will observe all applicable Safety Codes and the National Electrical Code.

OPERATION:

Turn on the switch (3, Fig. 1) at the underside of the tenderizer. A pilot light (4, Fig. 1) will then glow indicating when switch is in the ″on″ position (even though the transparent guard or the motor housing are either in or out of position).

Only boneless meats should be used. Various combinations with different kinds of meats may be blended together. To do this, feed the different meats through separately to tenderize them, then feed through together creating a firmly knit steak. Large slices should be under 3/4″ thick. Choice or tender cuts of meat should be run through two to four times at different angles. Less tender cuts should be run through from three to six times as desired, to increase tenderness. Pull out excess sinews to save operations and also improve tenderness.

CAUTION

Observe all safety rules with this machine that would apply to any razor-edged tool.

CLEANING & SANITIZING:

When an abnormal amount of sticking and glazing onto the knives and spacers occurs, it is recommended that the lift-out unit be power driven and that the cleaning fork be used, before washing and sanitizing these parts.

A. Power Cleaning Rollers:

A.1 Remove strippers from roller assemblies (see Par. B.2.3, B.2.4, B.2.5, B.2.6).

A.2 Replace transparent guard (1, Fig. 1), actuating safety interlock.

A.3 Connect electrical power supply and turn switch to ″On″.

A.4 Use cleaning fork to clean front set of knives and spacers (Fig. 2).

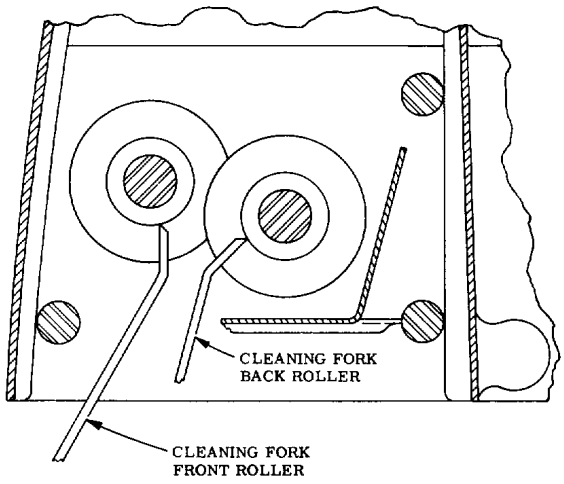


Figure 2

A.5 Reverse cleaning fork and clean rear set of knives and spacers (Fig. 2).

B. Sanitizing and Normal Cleaning:

B.1 Materials required:

B.1.1 A small nylon bristled brush.

B.1.2 Small plastic two compartment pail.

B.1.3 Clean cloths.

B.1.4 ″Soilax″ All Purpose Cleaner.

B.1.5 ″Mikro-Klene″ Iodophor Sanitizer.

B.1.6 Plastic Spray Bottle.

B.2 Procedure (Using ″Soilax″ and ″Mikro-Klene″):

B.2.1 Add two ounces of ″Soilax″ to one gallon of hot water in wash side of two compartment pail.

B.2.2 Mix two teaspoons of ″Mikro-Klene″ in one gallon of cool water in rinse side of pail.

B.2.3 Disconnect the machine from its connection to electric power, then lift off transparent guard (1, Fig. 1).

B.2.4 Release hanger lock (11, Fig. 1) and remove the lift-out unit assy. (9, Fig. 1).

B.2.5 Grasp hanger handle in each hand and swing front and rear hanger assemblies apart.

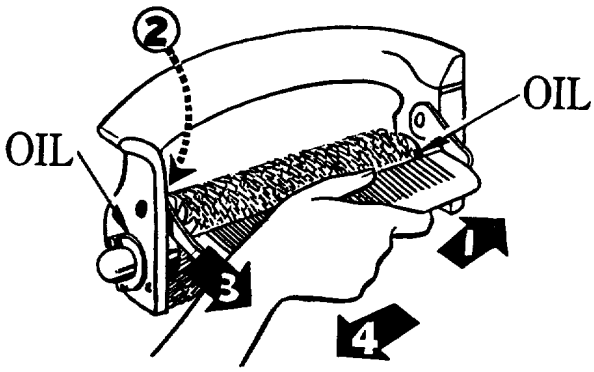


Figure 3

B.2.6 Remove strippers (10, Fig. 1) from roller assemblies.

B.2.6.1 Push stripper in direction of arrow (1, Fig. 3) until stripper pivot screw (2, Fig. 3) clears hanger. Swing stripper in direction of arrow (3, Fig. 3). Remove by pulling in direction of arrow (4, Fig. 3). Remove meat from stripper by hand. Use the nylon brush (or cleaning fork) to loosen meat particles. Use hanger handle to hold roller assembly, thus avoiding contact with sharpened blades.

B.2.7 Wash and clean the lift-out parts in a sink. After washing, apply three drops of mineral oil at bearings.

B.2.8 Clean and wash transparent guard in sink.

NOTE

The transparent guard is to be washed in warm water (not over 140°F.) with mild soap suds. Do NOT use water above this temperature, also do NOT use abrasive soaps or detergents as this will mar the finish.

B.2.9 Brush-wash the drop area of the tenderizer and all other meat contact surfaces (shield, tie bar shafts, etc.). Wash entire outside surface of unit.

B.2.10 Rinsing and sanitizing can be done in one of two ways:

(a) Go over all cleaned surfaces with a cloth, soaking wet with ″Mikro-Klene″ rinse solution.

(b) Rinse the cleaned surfaces with fresh water and apply the ″Mikro-Klene″ sanitizer via plastic spray bottle.

B.2.11 Allow all surfaces to drain dry. Replace lift-out unit and plastic cover.

B.2.12 Rinse nylon brush thoroughly under running water. Next, dip nylon brush in ″Mikro-Klene″ solution and allow to drain dry in covered container or wrapped in a freshly laundered towel. Cloth used for rinsing should be sent to laundry, or discarded. Wash out pails.

B.2.13 Remove the seals (12, Fig. 1) from the stub shafts and clean behind them. Wash and replace the seals.

B.2.14 Occasionally remove the motor housing (7, Fig. 1) by pulling straight up and wipe around the motor and fan.

CAUTION

Aluminum parts will discolor if allowed to soak overnight in either the ″Soilax″ or ″Mikro-Klene″ solutions.

ROLLER ASSEMBLY:

Due to the close relationship between the front and back rollers, any replacement of more than six blades or six spacers or a combination of the two, should NOT be serviced in the field. Always re-assemble blades and spacers in their same order as originally assembled.

BLADE SHARPENING:

If blades need sharpening, replace with spares.

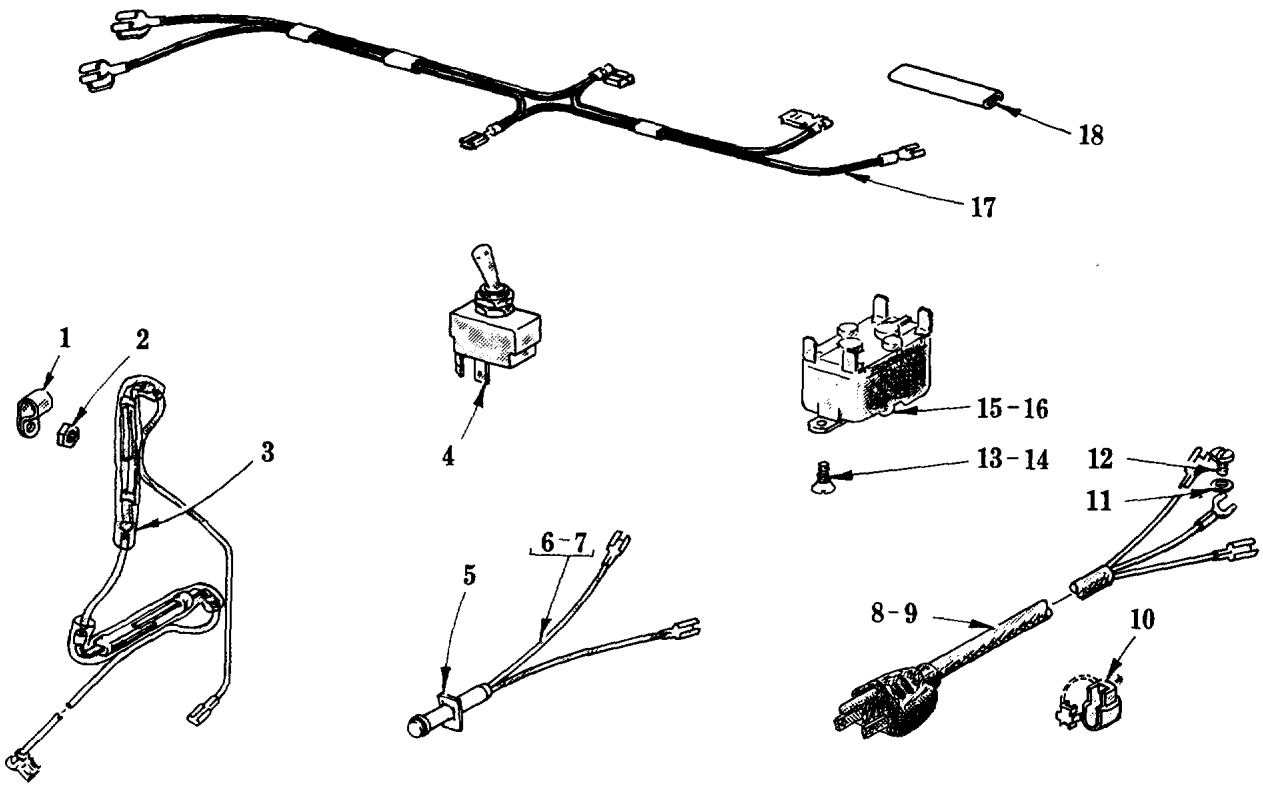
MOTOR:

The motor housing (7, Fig. 1) is held in place by friction split type pins. Remove transparent guard from over the knives, then lift the motor housing straight up. No lubrication or maintenance is required for this motor.

LUBRICATION:

A special lubricant is used in the gear case. Use the dipstick in the vent hole (8, Fig. 1) to check lubricant level annually. Add lubricant as required to maintain level BETWEEN lines on dipstick.

Alternate Lub. MIL-L-17331 Symbol 2190-TEP.



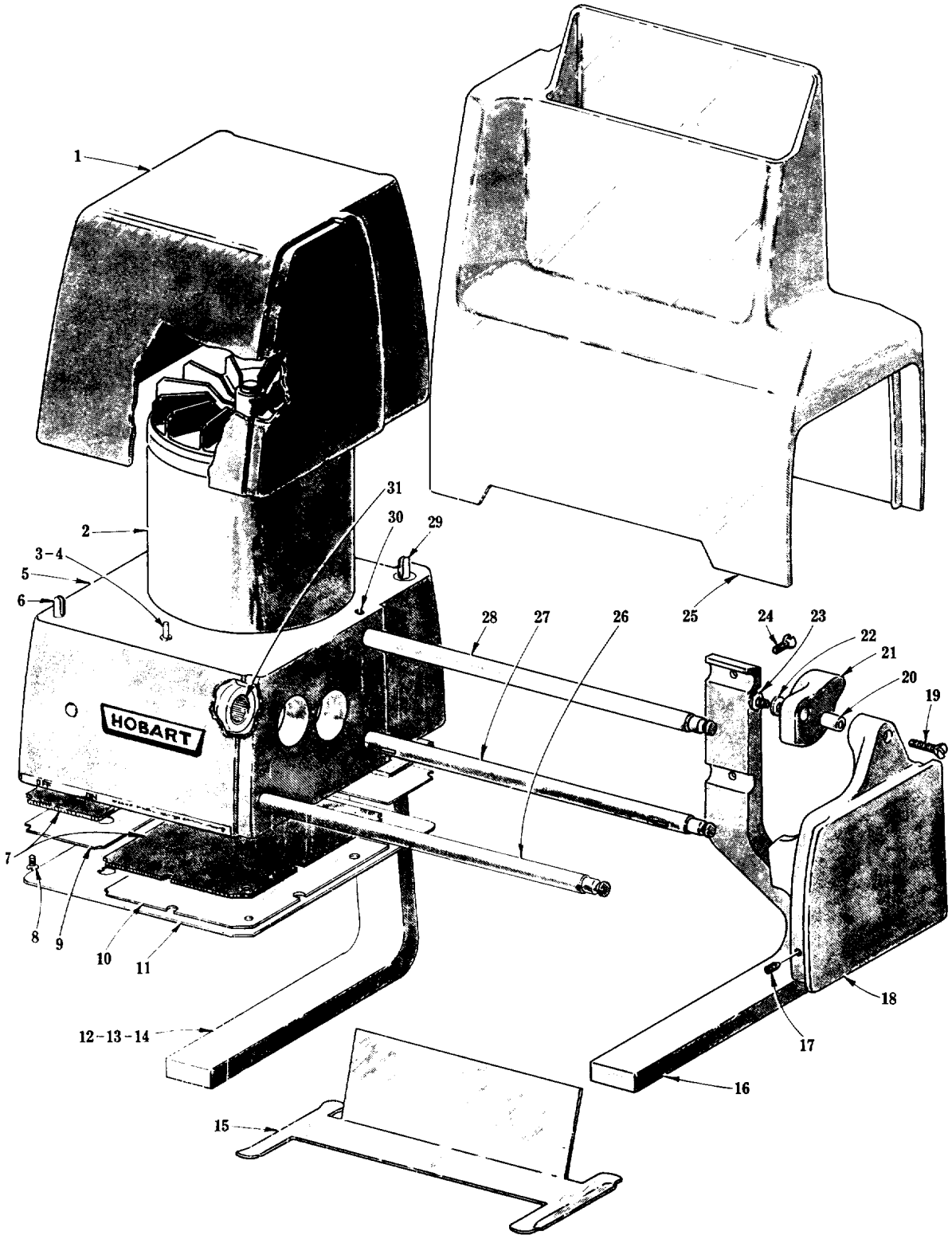
ELECTRICAL UNIT

ELECTRICAL UNIT

ILLUS. PL-13823	PART NO.	NAME OF PART	AMT.
1	M-69193-4	Clip - Cord	2
2	NS-9-7	Mach. Nut - #6-32 Hex	2
3	B-69377	Reed Switch Assy.	1
4	B-87711-129-1	Switch (Incls. Nuts)	1
5	A-69360-3	Push Nut	1
6	A-69360-1	Pilot Light (115 V.) (Incls. item #5)	1
7	A-69360-2	Pilot Light (230 V.) (Incls. item #5)	1
8	B-117542-21	Cord and Plug Assy. (3 Cond. under 150 V.)	1
9	A-76854	Cord Only (Less Plug) (3 Cond.)	1
10	FE-15-5	Strain Relief	1
11	WL-6-7	Lock Washer - #10 x.062″ x.047″	1

ELECTRICAL UNIT - Continued

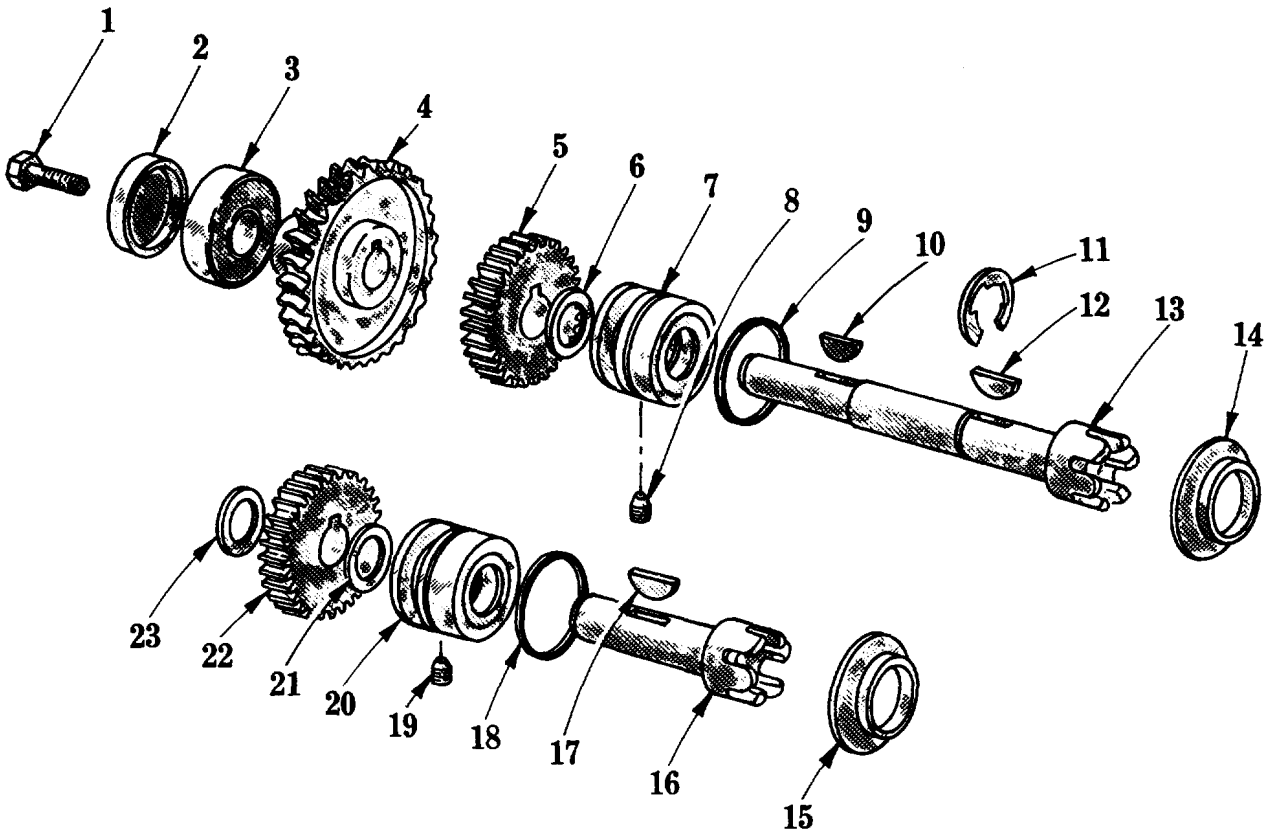
ILLUS. PL-13823	PART NO.	NAME OF PART	AMT.
12	SD-24-1	Self Tapping Screw - #10-24 x 3/8″ Pan Hd., ″Taptite″	1
13	SC-22-66	Mach. Screw - #6-32 x 5/16″ Flat Hd.	2
14	NS-9-7	Mach. Nut - #6-32 Hex	2
15	B-76850-1	Relay (115 V., 50/60 Hz, 1 Ph.)	1
16	B-76850-2	Relay (230 V., 50/60 Hz, 1 Ph.)	1
17	B-76773	Harness - Wiring	1
18	C-65890-29	Connector - Splice	2



HOUSING UNIT

HOUSING UNIT

ILLUS. PL-14515	PART NO.	NAME OF PART	AMT.
1	A-69390	Motor Housing Assy. (Incls. item A-768)	1
2	---	Motor (See Separate Motor Parts Sheet)	1
3	B-76994	Dipstick	1
4	RR-10-21	Retaining Ring	1
5	B-76991-1	Gear Case Sub-Assy. (Incls. items #6, 29 & 31)	1
6	A-69387	Stud	1
7	C-69396-1	Gasket Set	1
8	SD-24-16	Self-Tapping Screw - #10-24 x 1/2″ Flat Hd. ″Taptite″	12
9	C-69380-2	Cover - Electrical	1
10	C-69380-3	Cover - Gear	1
11	C-69379	Cover - Over	1
12	C-69345	Leg - Left	1
13	A-69366	Nut - Special	2
14	WS-5-37	Washer (3/8″ I.D. x 1/32″ Thk.) (Use to shim item #12)	As Reqd.
15	C-69354	Shield	1
16	C-69346	Leg - Right	1
17	SC-47-2	Set Screw - #10-24 x 1/4″ Soc. Hdls., Cup Pt.	5
18	A-69365	Support Assy.	1
19	SC-22-80	Mach. Screw - #10-24 x 1-1/4″ Flat Hd.	1
20	A-546	Ferrule - Hanger Lock	1
21	A-414	Lock - Hanger	1
22	WS-19-2	Washer	1
23	SC-53-48	Mach. Screw - #10-24 x 3/16″ Truss Hd.	1
24	SC-22-43	Mach. Screw - 5/16″-18 x 1/2″ Flat Hd.	2
25	E-120339	Guard - Transparent	1
26	A-69353-2	Tie Bar - Front	1
27	A-69353-1	Tie Bar - Lower Rear	1
28	A-69353-3	Tie Bar - Upper Rear	1
29	A-69395	Stud & Base Assy.	1
30	SC-63-22	Set Screw - #10-24 x 1/2″ Hdls., Cup Pt.	1
31	A-69323-1	Bearing - Needle	1
	A-768	Magnet (Use with item #1) (Not Shown)	1



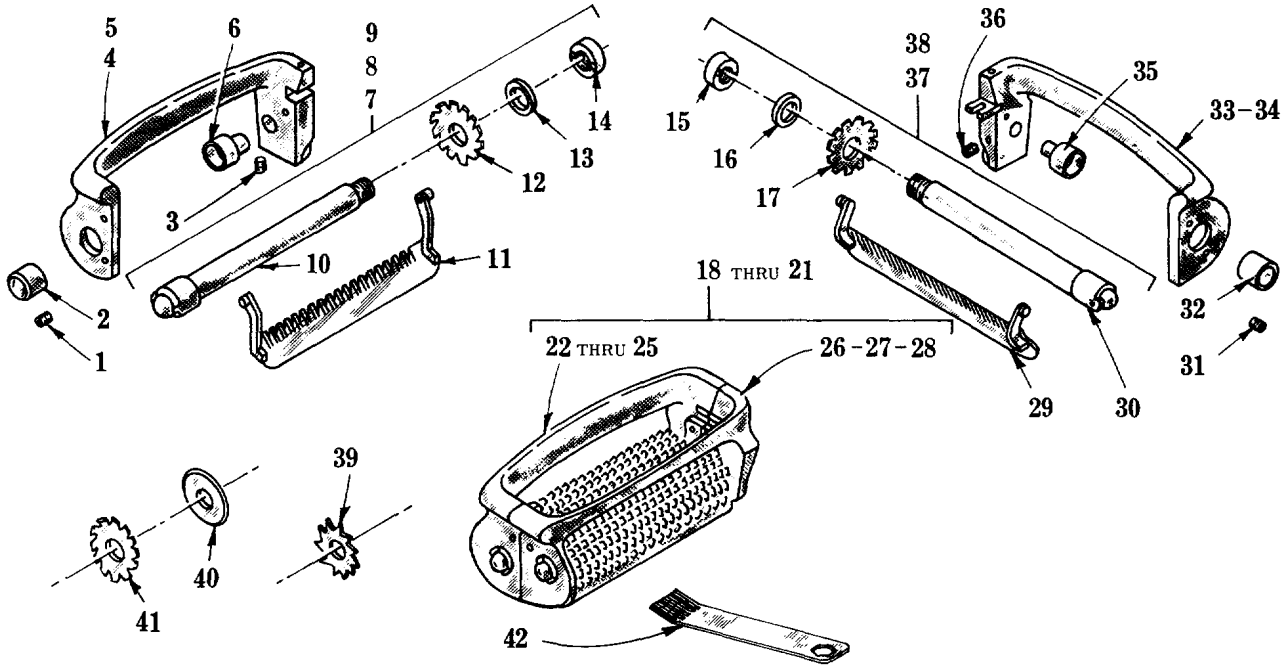
DRIVE UNIT

DRIVE UNIT

ILLUS. PL-13825	PART NO.	NAME OF PART	AMT.
1	SC-41-1	Fin. Bolt - 1/4″-20 x 3/4″ Hex Hd.	1
2	A-69338	Pusher - Bearing	1
3	BB-20-20	Ball Bearing - Fafnir #203K	1
4	B-69349	Gear - Worm (29T)	1
5	B-76855	Gear (32T)	1
6	WS-11-43	Washer	1
7	A-69359	Bearing Assy. (Incls. item #9)	1
8	SC-88-46	Set Screw - #10-24 x 3/8″ Soc. Hdls., Cup Pt.	1
9	D-67500-69	″O″ Ring	1
10	KW-3-10	Key - #606 Woodruff	1
11	RR-6-9	Retaining Ring	1
12	KW-3-3	Key - #404 Woodruff	1
13	B-69361	Shaft - Back Stub	1
14	A-69337	Seal - Face	1
15	A-69337	Seal - Face	1

DRIVE UNIT - Continued

ILLUS. PL-13825	PART NO.	NAME OF PART	AMT.
16	A-69362	Shaft - Front Stub	1
17	KW-3-3	Key - #404 Woodruff	1
18	D-67500-69	″O″ Ring	1
19	SC-88-46	Set Screw - #10-24 x 3/8″ Soc. Hdls., Cup Pt.	1
20	A-69359	Bearing Assy. (Incls. item #18)	1
21	WS-11-43	Washer	1
22	B-76855	Gear (32T)	1
23	WS-11-43	Washer	1



LIFT-OUT UNIT

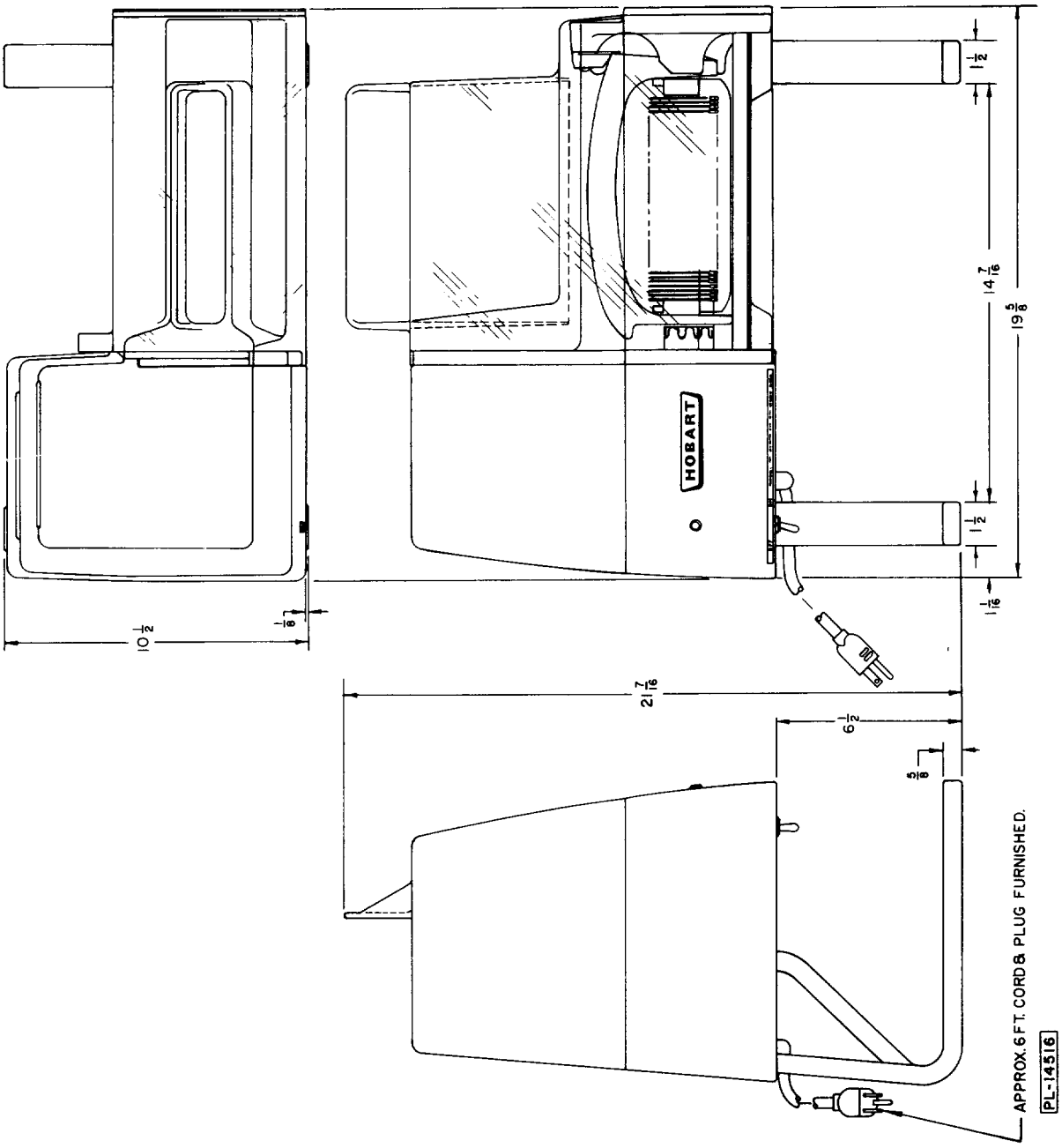
LIFT-OUT UNIT

ILLUS. PL-13826	PART NO.	NAME OF PART	AMT.
1	A-559	Set Screw - Special	1
2	A-536	Bearing - Left Back	1
3	A-559	Set Screw - Special	1
4	C-541	Back Hanger Assy.	1
5	C-76846	Back Hanger Assy. (403U)	1
6	A-535	Bearing - Right	1
7	A-532	Back Roller Assy. (Std. & 403U) (Incls. items #10, 12, 13 & 14)	1

LIFT-OUT UNIT - Continued

ILLUS. PL-13826	PART NO.	NAME OF PART	AMT.
8	A-754	Back Roller Assy. (Star Blade) (Incls. items #10, 13, 14 & 39)	1
9	A-714	Back Roller Assy. (No Knit) (Incls. items #10, 13, 14, 40 & 41)	1
10	B-528	Back Blade Shaft Assy.	1
11	A-538	Back Stripper Assy	1
12	A-101-1	Blade (Std.)	41
13	A-574	Spacer	40
14	A-530	Lock Nut - Back	1
15	A-531	Lock Nut - Front	1
16	A-574	Spacer	40
17	A-101-1	Blade (Std.)	41
18	C-545	Lift - Out Unit (Std.) (Incls. items #22 & 26)	1
19	A-750	Lift - Out Unit (Star Blade) (Incls. items #23 & 27)	1
20	A-716	Lift - Out Unit (No Knit) (Incls. items #24 & 26)	1
21	C-76842	Lift - Out Unit (403U) (Incls. items #25 & 28)	1
22	C-543	Back Hanger Unit (Std.) (Incls. items #1, 2, 3, 4, 6, 7 & 11)	1
23	A-752	Back Hanger Unit (Star Blade) (Incls. items #1, 2, 3, 4, 6, 8 & 11)	1
24	A-715	Back Hanger Unit (No Knit) (Incls. items #1, 2, 3, 4, 6, 9 & 11)	1
25	C-76845	Back Hanger Unit (403U) (Incls. items # 1, 2, 3, 5, 6, 7 & 11)	1
26	C-544	Front Hanger Unit (Std. & No Knit) (Incls. items #29, 31, 32, 33, 35, 36, & 37)	1
27	A-751	Front Hanger Unit (Star Blade) (Incls. items #29, 31, 32, 33, 35, 36 & 38)	1
28	C-76843	Front Hanger Unit (403U) (Incls. items #29.31, 32, 34, 35, 36 & 37)	1
29	A-539	Front Stripper Assy.	1
30	B-529	Front Blade Shaft Assy.	1
31	A-559	Set Screw - Special	1
32	B-537	Bearing - Left Front	1
33	C-542	Front Hanger Assy.	1
34	C-76844	Front Hanger Assy. (403U)	1
35	A-535	Bearing - Right	1
36	A-559	Set Screw - Special	1
37	A-533	Front Roller Assy. (Std., No Knit & 403U) (Incls. items #15, 16, 17 & 30)	1
38	A-753	Front Roller Assy. (Star Blade) (Incls. items #15, 16, 30 & 39)	1
39	B-732	Blade - Star	41
* 40	A-712	Blade - Round	13
* 41	A-101-1	Blade (Std.)	28
42	A-157	Fork - Cleaning	1

*No Knit



INSTALLATION DIAGRAM

MOTOR CHARACTERISTICS & PERFORMANCE DATA

MFGR. HOBART CORPORATION
MOTOR MODEL NO. 403
MOTOR TYPE_____
MOTOR FRAME_____
H.P. 1/2
VOLTS 115
PHASE 60
HERTZ 1
R.P.M. 1725
DUTY NOT APPLICABLE - MOTOR IS ″SPECIAL PURPOSE″
TORQUE STARTING 85 Oz. Ft.
-F.L. 24 Oz. Ft.
EFFICIENCY-F.L. 64 %
-3/4 61 %
-1/2 54 %
POWER FACTOR_____
-F.L. .64
-3/4 .55
-1/2 .45
-LOCKED .90
AMPERES-F.L. 7.8
-STARTING 22.8
TEMPERATURE RISE 40°C AMBIENT
TYPE OF BEARING BALL
MAKE OF BEARING MRC & NUMBER 306S FF
FAFNIR & NUMBER 201 PP

CONTROLLER DATA
HOBART MODEL 403 TENDERIZER

MANUFACTURER ARROW-HART, INC.
CATALOG NUMBER 82607-P
RATING 10 Amp. 250 V.A.C.
15 Amp. 125 V.A.C.

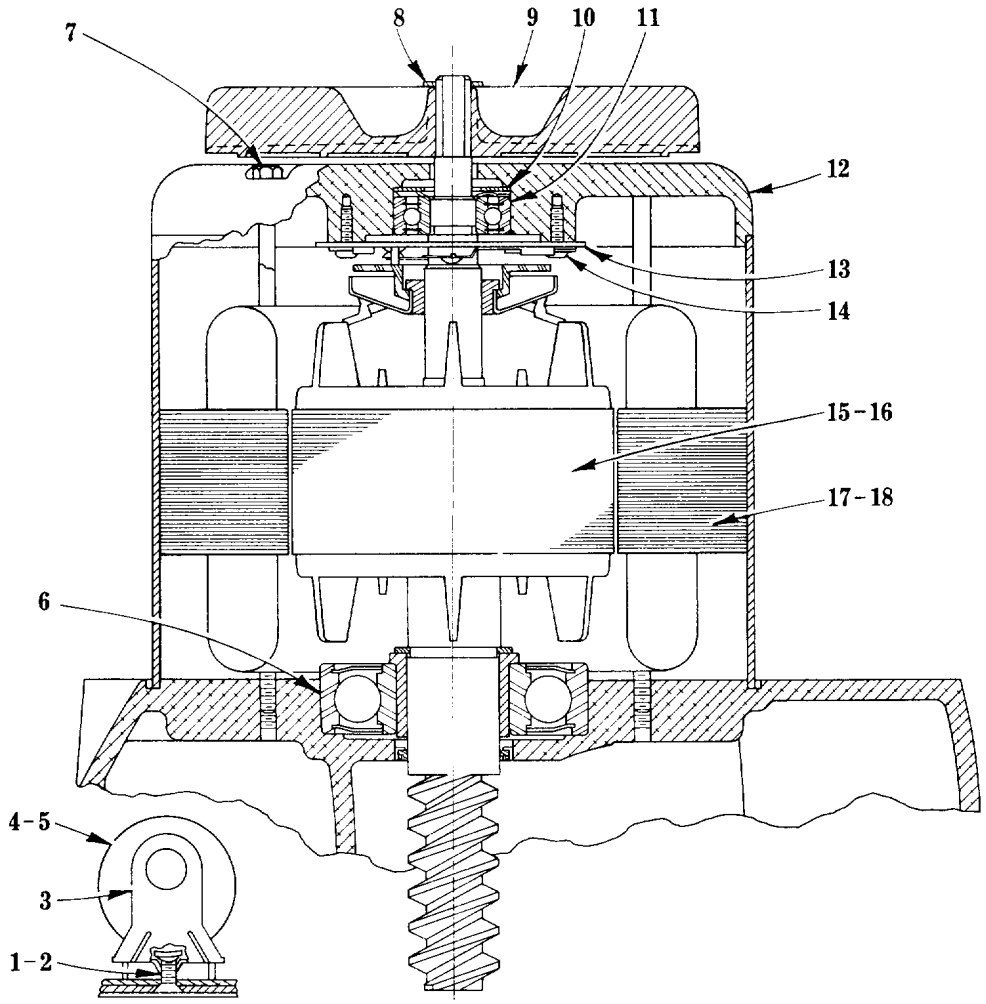
POLES 2

OPERATION MANUAL

TYPE TOGGLE

MOTOR RATINGS 3/4 H.P. 120-240 V.A.C.

MOTOR
REPLACEMENT PARTS



Type of Motor - 403
Motor ML 23056-A,L,M Motor type and ML number are stamped on motor (sometimes under name plate).

When ordering motor replacement parts, in addition to motor Type and ML No., give Serial No., Model, ML, and all electrical data shown on machine name plate.

Illus. PL-13829	Part No.	Name of Part	Amt.
1	SC-20-23	Mach. Screw - #10-24 x 3/8″ Phil. Flat Hd.	2

Illus. PL-13829	Part No.	Name of Part	Amt.
2	A-76774	Tensionut - #10-24 Sq.	2
3	P-66621-1	Bracket - Capacitor	1
4	D-70487-3	Capacitor	1
5	C-70486-1	End Cap - Capacitor	1
6	BB-6-31	Ball Bearing - MRC #306SFF	1
7	B-113690	Mach. Screw - #10-32 x 5-5/8″ Indented Hex Hd.	4
8	RR-7-18	Retaining Ring	1
9	D-111493-2	Fan - Ventilating	1
10	SL-2-2	Loading Spring - N.D. #S-12	1
11	BB-5-11	Ball Bearing - Fafnir #201PP	1
12	E-117707	Bracket - Bearing	1
13	C-111688-4	Switch - Starting (Stationary Part)	1
14	SD-9-34	Self - Tapping Screw - #6-32 x 3/8″ Phil. Pan Hd., Type F	2
15	C-22275-209	Rotor Assy. (60 Hz.)	1
16	C-22275-210	Rotor Assy. (50 Hz.)	1
17	D-65477-134-1	Stator Assy. (115 V., 60 Hz., 1 Ph.)	1
18	D-65477-135-1	Stator Assy. (115/230 V., 50 Hz., 1 Ph.)	1

MANUFACTURER'S RECOMMENDED SPARE PARTS
TENDERIZER HOBART
MODEL 403

QTY	MFG.'S PART NO.	DESCRIPTION	PRICE
20	B-123955	BLADE @.65 ea.	
1	538-A	STRIPPER - BACK	
1	539-A	STRIPPER - FRONT	
1	B-87711-129-1	SWITCH	