



SERVICE MANUAL

** Updated technical documentation is attached to the end of this manual.*



4822 MEAT CHOPPER

4822

ML-136102

- NOTICE -

This Manual is prepared for the use of trained Hobart Service Technicians and should not be used by those not properly qualified.

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.

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GENERAL

INTRODUCTION

This manual is applicable to the models and ML numbers listed on the cover page. Procedures apply to all models unless specified otherwise.

- VOM with A/C current tester (any quality VOM with a sensitivity of at least 20K ohms per volt can be used).

SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

Voltage	HP	Amperes	
		No-Load	Nominal Load
120/60/1	1.5	6.7	12.0
240/60/1	1.5	3.35	6.0
208-240/60/3	1.5	2.2 - 2.7	3.4
480/60/3	1.5	NA	1.7

NA = Not Available

REFERENCE MATERIAL

NOTE: Consult the latest revision of the following documents for more information.

Replacement Parts Catalog 4822 Chopper - F43093.

Refer to Lubrications Manual F20067 for current values.

For operation and care instructions, refer to Operator's Manual 4822 Chopper F35104.

LUBRICATION

Component	Lubrication Type	Qty.
Transmission	Chevron American Industrial Oil #320	21 Fl Oz (621mL)
21 Fl Oz (621mL) Transmission Steel Balls	Lubriplate 630AA	Apply liberally to hold in place.

TOOLS

- Standard set of hand tools.

REMOVAL AND REPLACEMENT OF PARTS

HOUSING AND PANELS



WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

Removal

1. Remove chopper attachment unit.
2. Remove the bumper and pan rest spacer from top of chopper housing assembly.
3. Remove thumb screw assembly.

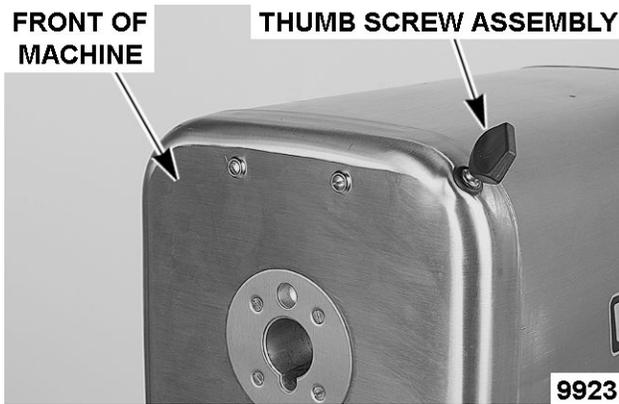


Fig. 1

4. Carefully lay chopper on its left side (as looking at machine from front) away from thumb screw assembly opening.
5. Remove screws securing the front and rear panels and the housing assembly to the frame.

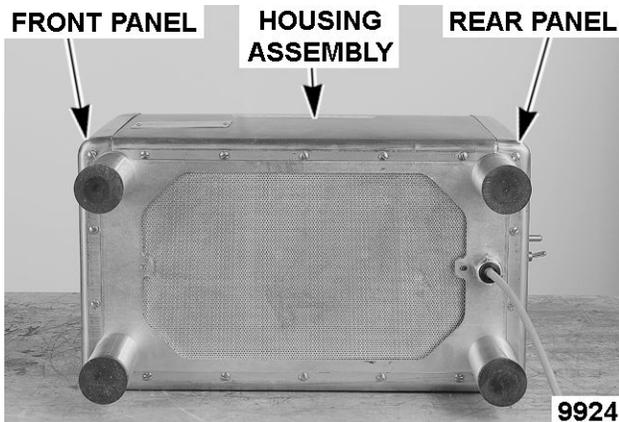


Fig. 2

6. Return chopper to its upright position.

NOTE: The short (5/16") screw securing the attachment hub trim washer to the front panel is to be installed in the upper right hole of trim washer as looking at the machine from the front to allow clearance for the thumb screw assembly. The remaining three longer screws are 3/8" in length.

7. Remove the attachment hub trim washer.

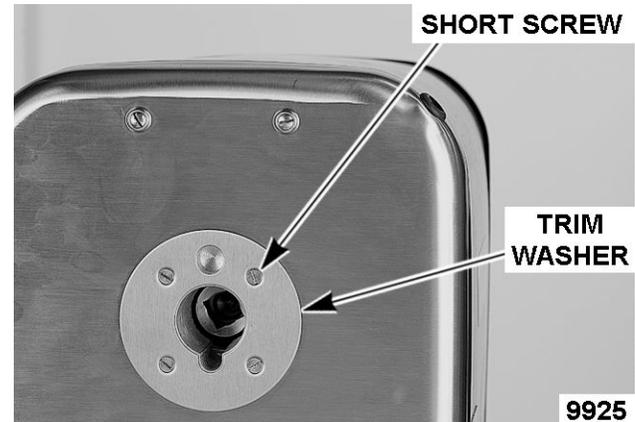


Fig. 3

NOTE: Electrical on/off switch can be mounted on either the front or rear panel. Use care when removing the panel with the on/off switch to avoid damaging the wiring or switch.

NOTE: Do not loosen the locating bracket or frame and housing support when removing panels or housing assembly.

8. Remove the two screws and countersunk washers at top of front panel.
 - A. Remove front panel and housing assembly.
9. Remove the two screws and countersunk washers securing top of rear panel.
 - A. Remove the rear panel.
10. Disconnect wiring from switch. For three phase machines, note connection points of wires before disconnecting wiring from switch to ensure proper attachment hub rotation is maintained when reassembled.
11. Install parts removed in reverse order.
 - A. If the position of either the locating bracket or frame and housing support has been disturbed, perform PANEL ALIGNMENT as outlined in SERVICE PROCEDURES AND ADJUSTMENTS.

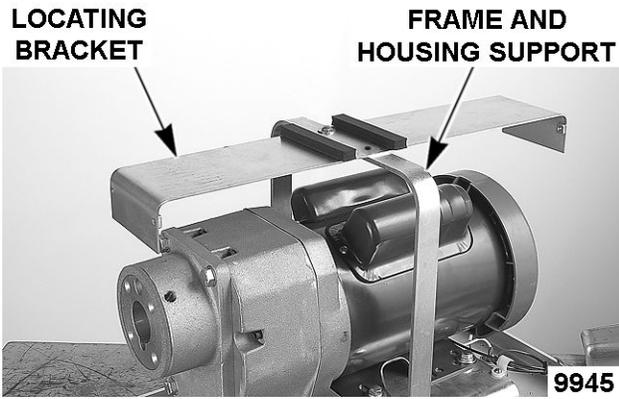


Fig. 4

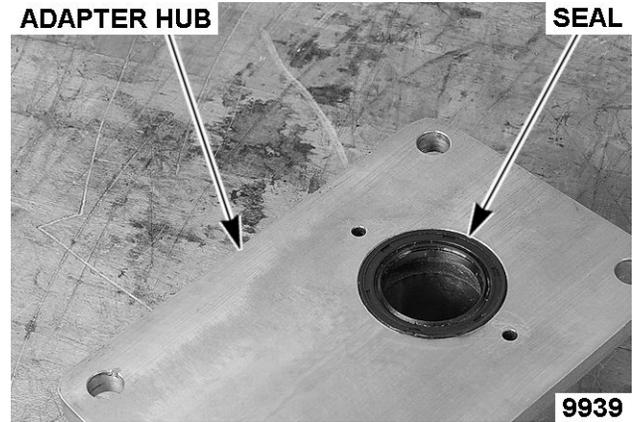


Fig. 6

TRANSMISSION



WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

NOTE: If servicing the transmission only, do not loosen the locating bracket, frame and housing support or the motor to frame mounting bolts.

Removal

1. Remove HOUSING AND PANELS.
2. Remove adapter hub gasket.

NOTE: Two small pins mounted in the transmission housing near the attachment hub align the adapter hub into position. Pull adapter hub off housing without exerting rotational force when removing.

3. Remove adapter hub.

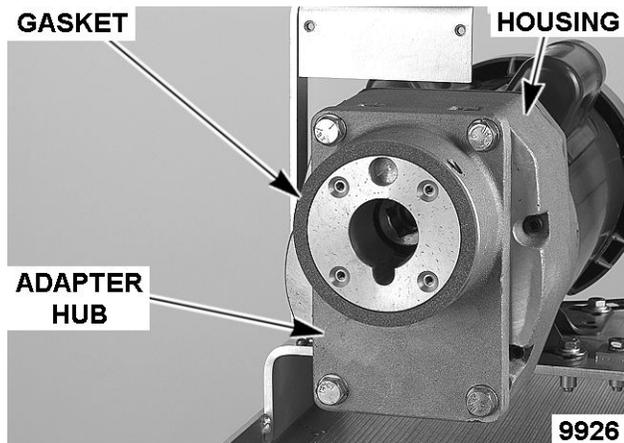


Fig. 5

4. Remove the seal from adapter hub.

5. Lay machine on its side so that the drain plug is located at the lowest position.
6. Elevate and support rear of machine to aid in draining transmission oil.
7. Place a one quart container under drain plug of transmission.
8. Remove drain plug to drain oil.



Fig. 7

9. Reinstall drain plug after oil has drained.

NOTE: The internal cavity of the transmission housing is baffled such that several ounces of oil will remain in the transmission after it is drained. Use care when separating the housing to avoid spillage of oil.

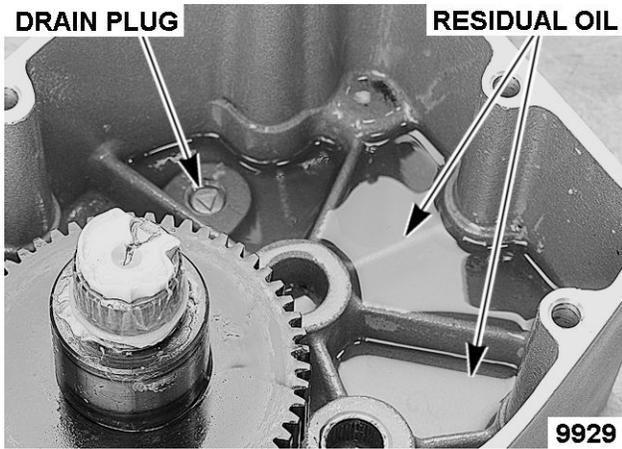


Fig. 8

10. Return machine to its upright position.
11. Loosen the transmission housing assembly cap screws.

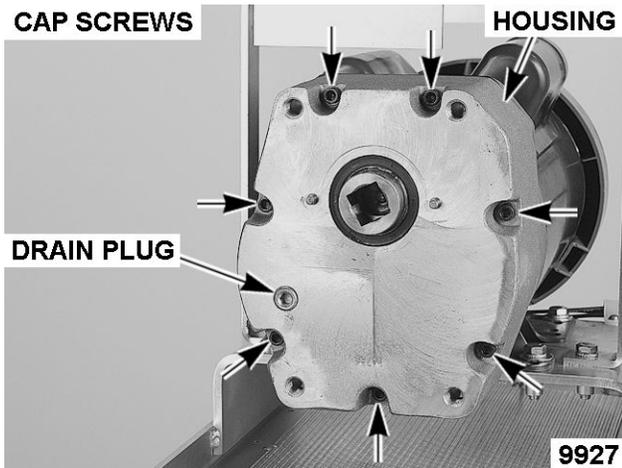


Fig. 9

12. Lay machine on its front letting it come to rest on the frame and frame and housing support.
13. Allow short period of time (1 minute) for remaining oil to collect in transmission housing.
14. Remove cap screws.
15. Remove transmission housing from motor assembly.

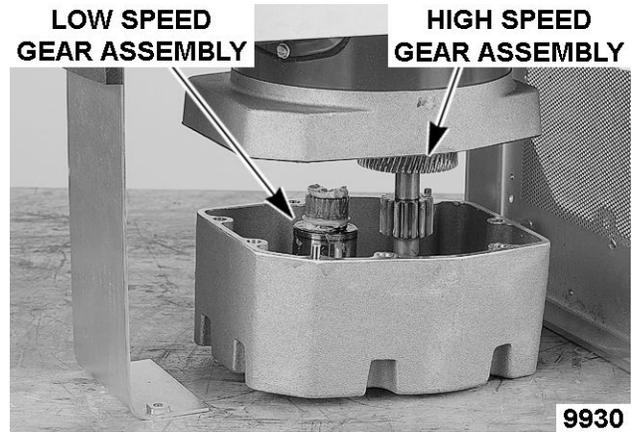


Fig. 10

Disassembly

NOTE: Steel balls are installed loosely into the transmission and motor adapter housings to reduce friction on the ends of the low and high speed gear shafts. Make sure to retain these balls for transmission assembly.

LOCATION OF STEEL BALLS

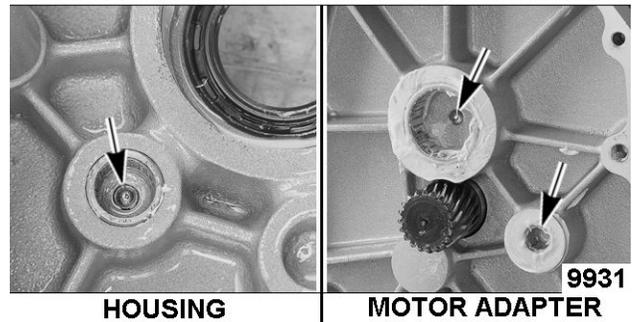


Fig. 11

1. Return machine to its upright position.
2. Place a towel or container under motor adapter to catch residual oil.
3. Drain remaining oil out of transmission housing.
 - A. Remove any metal shavings.

NOTE: Install a new gasket when assembling the transmission.

4. Remove the gasket.
5. Wipe residual oil and metal shavings from motor adapter.
6. Remove the high speed gear assembly.

NOTE: Use of a degreasing agent will ease removal of steel balls from motor adapter and housing.

7. Remove the steel balls from the motor adapter.

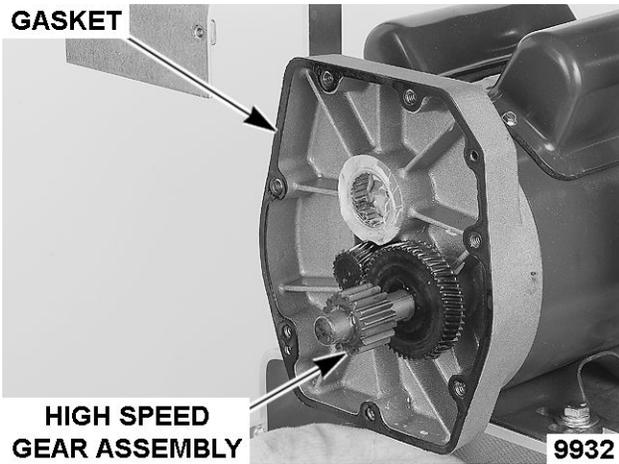


Fig. 12

8. Remove low speed gear assembly and steel ball from transmission housing.

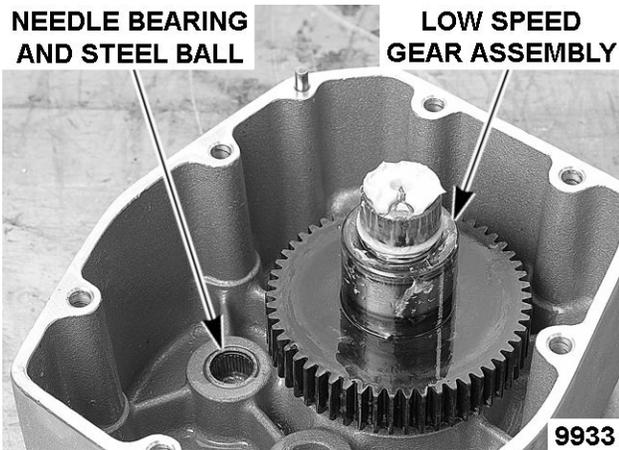


Fig. 13

9. Pull bearing off low speed gear assembly.
 - A. Remove shims from low speed gear shaft. Retain shims for reuse during installation.

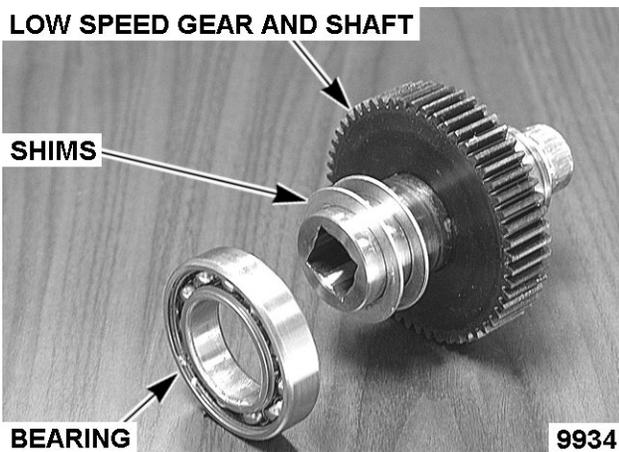


Fig. 14

NOTE: Use a new seal when assembling machine.

10. Remove seal from transmission housing.

11. Thoroughly clean transmission housing, motor adapter and adapter hub.

Installation

1. Coat inside and outside radii of seal with oil. Install the new seal into transmission housing making sure outside of seal (flat surface) is flush with face of housing.

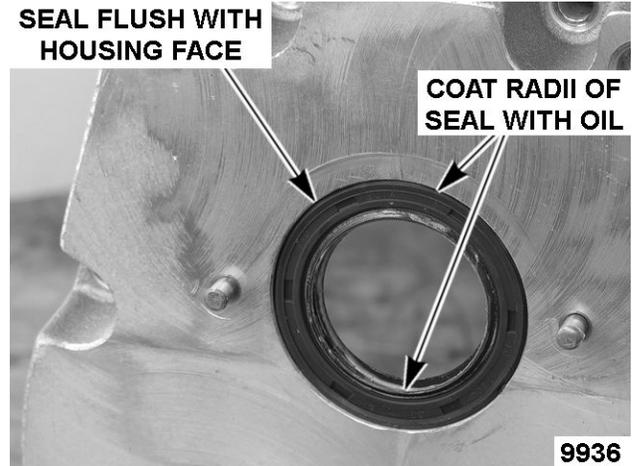


Fig. 15

2. Reinstall shims onto square drive side of low speed gear and shaft assembly.

NOTE: Press on the inner race of the bearing when installing bearing onto the low speed gear shaft.

3. Press the bearing fully into position on square drive side of low speed gear shaft.

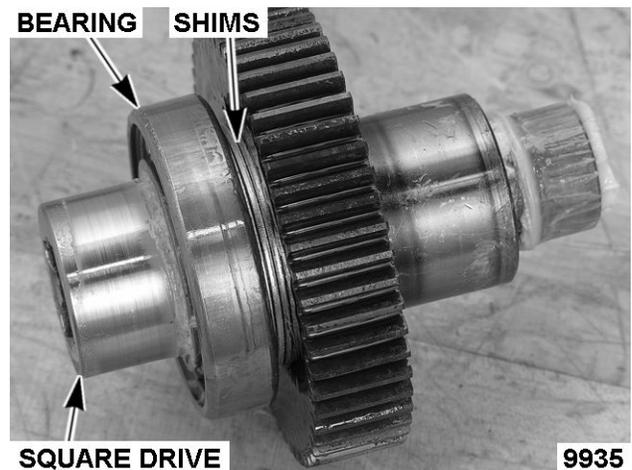


Fig. 16

NOTE: Steel balls are a loose fit into blind holes in motor adapter and transmission housings and can easily fall out of position. Apply a liberal amount of Lubriplate 630AA to the steel balls to help retain the balls into position when assembling.

4. Install high speed gear assembly into motor adapter. Mesh high speed gear with motor shaft worm gear.

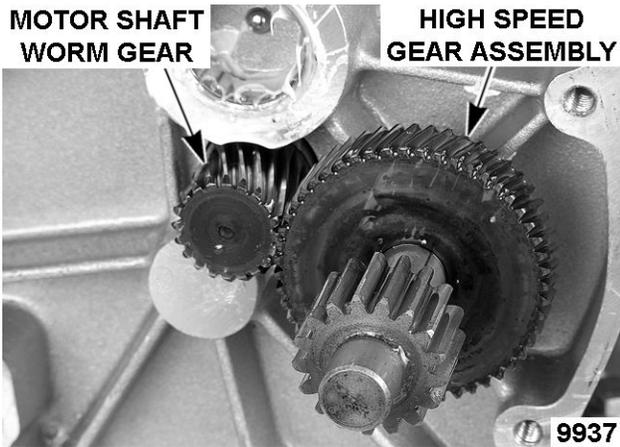


Fig. 17

NOTE: The outer race of low speed gear assembly bearing is a slip fit into the housing assembly.

5. Install low speed gear assembly into transmission housing assembly. Fully seat bearing into the housing.
6. Assure the steel balls are in place in blind holes of motor adapter and transmission housing.

LOCATION OF STEEL BALLS

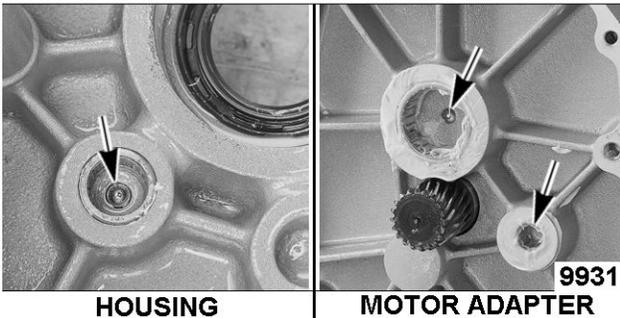


Fig. 18

7. Install a new gasket onto the housing assembly using the alignment pins to position the gasket.

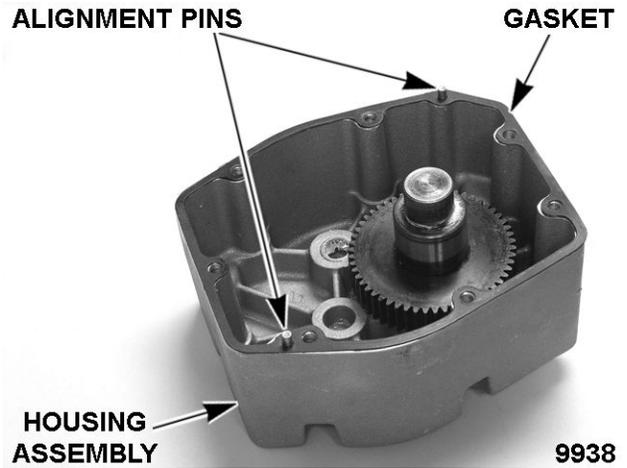


Fig. 19

8. Assemble the two transmission halves together. It may be necessary to rotate the square drive output shaft to mesh the low and high speed gears together.
9. Install the cap screws and tighten evenly to 45 in*lbs using a star-like pattern.
10. Remove drain plug and fill transmission with 21 Fl Oz - Chevron American Industrial Oil #320.
11. Apply thread sealant or pipe tape to threads of drain plug.
 - A. Reinstall drain plug into housing assembly.
12. Coat inside and outside radii of seal with oil. Install the new seal into adapter hub making sure outside of seal (flat surface) is flush with inside face of adapter hub.

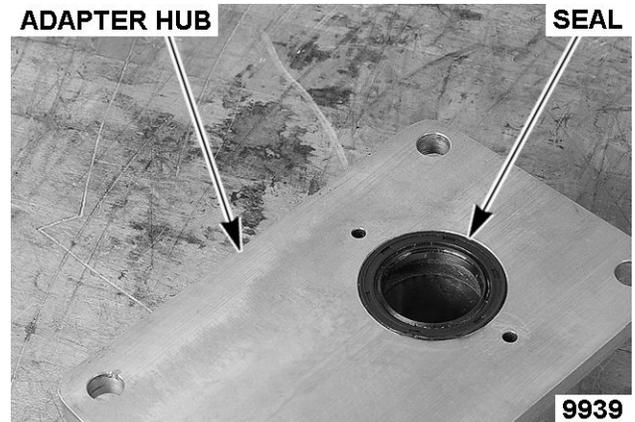


Fig. 20

13. Reinstall the adapter hub.
 - A. Align hub with housing assembly alignment pins and secure with lock washers and mounting screws. Torque screws to 250 in*lbs.
14. Inspect adapter hub gasket. Replace if damaged.

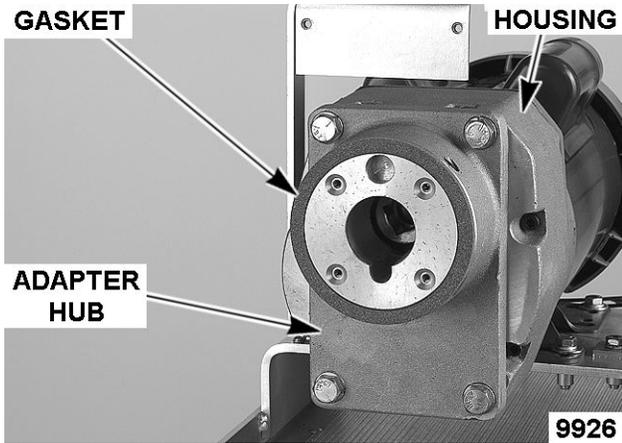


Fig. 21

15. Reinstall HOUSING AND PANELS.
16. Check machine for proper operation.

MOTOR ADAPTER HOUSING



WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

NOTE: The motor adapter housing can be serviced without removing the motor from the machine frame. If the motor is removed or loosened from the frame it will have to be aligned before machine can be operated.

Removal

1. Follow TRANSMISSION - REMOVAL procedure to remove transmission housing and high speed gear assembly from motor adapter housing.
2. Remove the steel balls from the blind holes that house the needle bearings in motor adapter. Retain the steel balls for re-use in installation.

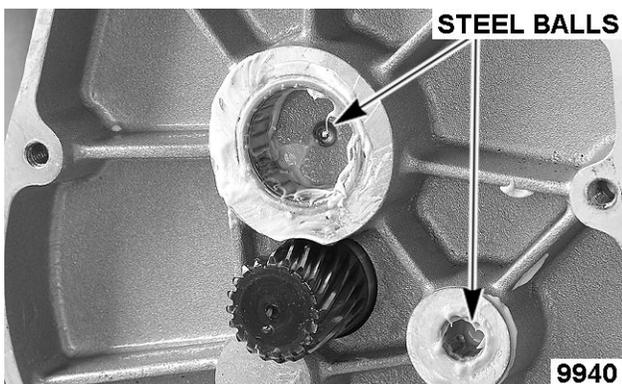


Fig. 22

NOTE: If motor adapter is being replaced, make certain to scribe alignment marks on motor housing and rear end bell before loosening motor screws.

3. If the motor adapter and the motor are to be reused, scribe an alignment mark across both components where both parts meet.

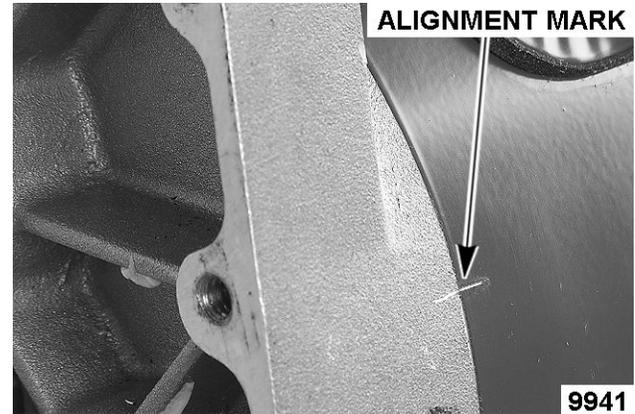


Fig. 23

4. Remove the fan cover and fan from back of motor.
5. Loosen the four motor screws that secure the end bell and motor adapter to the motor. Do not remove rear end bell. Make an alignment mark on motor housing and end bell if end bell is to be removed.

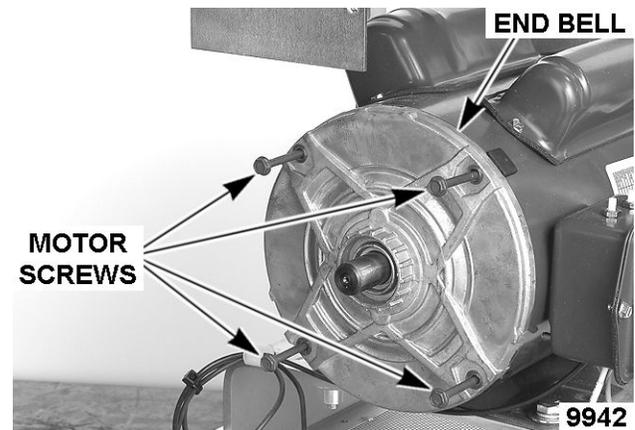


Fig. 24

6. Tap lightly on motor adapter with a rubber mallet to loosen and then pull motor adapter from motor.

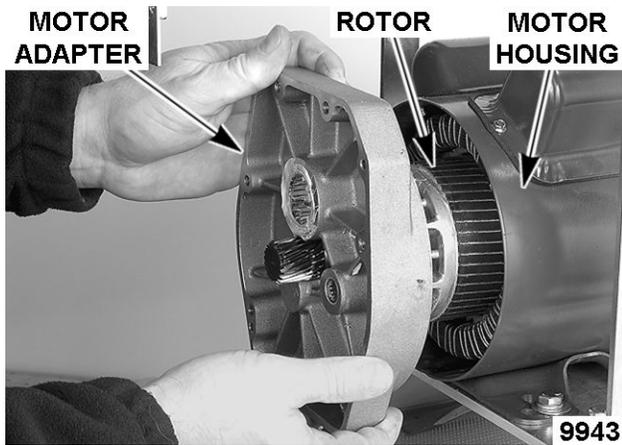


Fig. 25

NOTE: Motor bearing is a slip fit into motor adapter; however, rotor may come out along with motor adapter. Reinstall rotor assembly into motor once it is separated from motor adapter.

7. Remove seal from motor adapter.

NOTE: Apply a liberal amount of Lubriplate 630AA to the steel balls to help retain the balls into position when assembling.

8. Reinstall in reverse order of removal making sure to match alignment marks made earlier.
 - A. Tighten motor screws evenly making sure motor adapter and rear end bell draw up tight against motor housing leaving no gaps.
9. Follow TRANSMISSION - INSTALLATION procedure to install transmission assembly and adapter hub onto motor adapter housing.
10. Check machine for proper operation.

MOTOR



WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

NOTE: The motor and motor adapter are to be replaced as an assembly.

1. Follow TRANSMISSION - REMOVAL procedure to remove transmission housing and high speed gear assembly from motor adapter housing.
2. Remove the two steel balls from motor adapter assembly. Retain balls for use in motor adapter of new motor assembly.

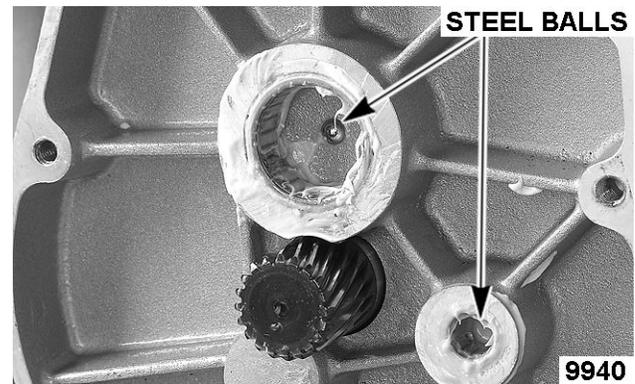


Fig. 26

3. Note connection location of electrical wiring and disconnect wiring from motor.
4. Remove motor from machine frame.
5. Install new motor assembly onto machine frame, but do not fully tighten mounting hardware.
6. Follow TRANSMISSION - INSTALLATION procedure to install transmission assembly and adapter hub onto motor adapter housing. Do not install exterior housing or panels at this time.
7. Install adapter hub gasket.
8. Install front panel.
 - A. Secure panel in place using four screws under front lip and two screws and countersunk washers on face of panel. Tighten hardware.



Fig. 27

9. Perform MOTOR ALIGNMENT as outlined in SERVICE PROCEDURES AND ADJUSTMENTS.
10. Connect wiring to motor.
11. Check direction of rotation (Three phase only).
 - A. Connect power switch to motor.
 - B. Apply power to machine.

- C. Turn machine on and verify transmission is running smoothly.
- D. Verify direction of square drive travel is CCW.



Fig. 28

- 12. Disconnect power.
- 13. Loosen hardware securing front panel to machine frame and locating bracket.
- 14. Install housing assembly and rear panel.
 - A. Connect electrical wiring to the power switch.
 - B. Fit housing assembly under the front and rear panels.
 - C. Tighten all housing and panel mounting hardware.
- 15. Reinstall trim washer. Make sure to install short screw where shown.

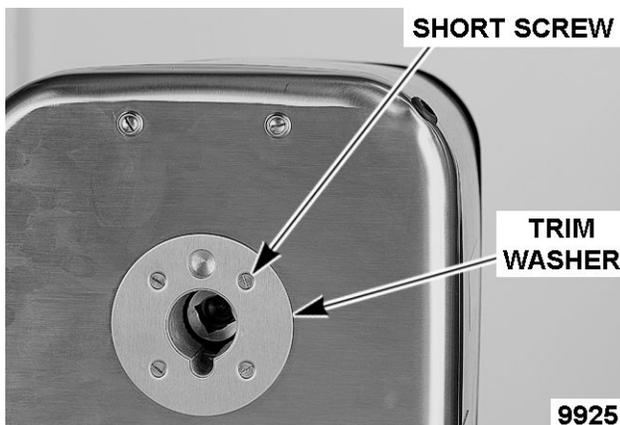


Fig. 29

- 16. Install thumb screw assembly.
- 17. Reinstall the bumper and pan rest spacer from top of chopper housing assembly.

SERVICE PROCEDURES AND ADJUSTMENTS

⚠ WARNING Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow lockout / tagout procedures, attach test equipment and reapply power to the test.

PANEL ALIGNMENT



⚠ WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

NOTE: The locating bracket must be aligned with front and rear panels whenever the position of the locating bracket or the frame and housing support is disturbed.

1. Install the frame and housing support.
2. Install the locating bracket with only one screw, lock washer and flat washer. Do not tighten.

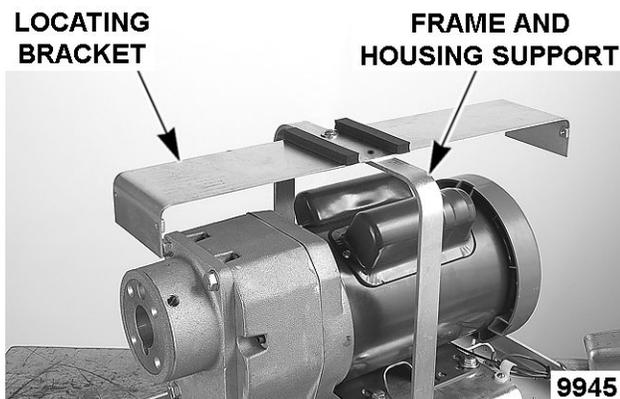


Fig. 30

3. Install adapter hub gasket.

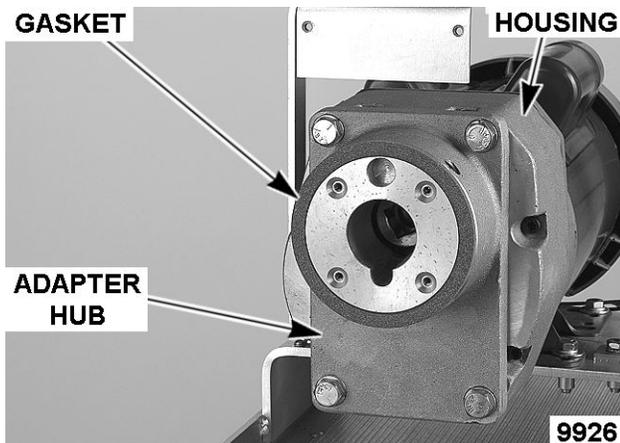


Fig. 31

4. Install front and rear panels. Secure panels to frame and locating bracket using all required hardware. Tighten screws.

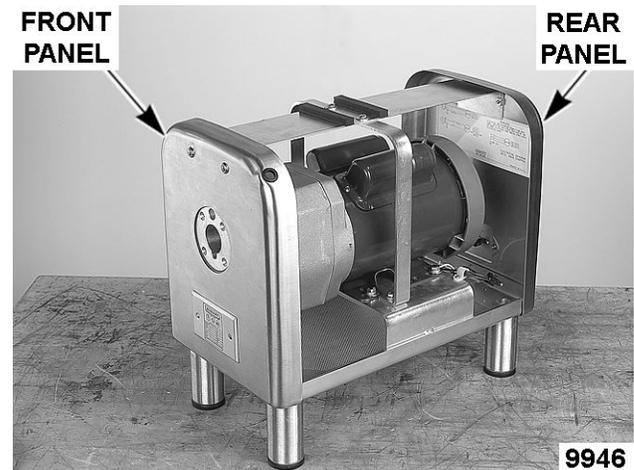


Fig. 32

5. Line up the center of the open slot of locating bracket with center of tapped hole in frame and housing support.
 - A. Holding locating bracket in position, install a washer, lock washer and screw into tapped hole and tighten.

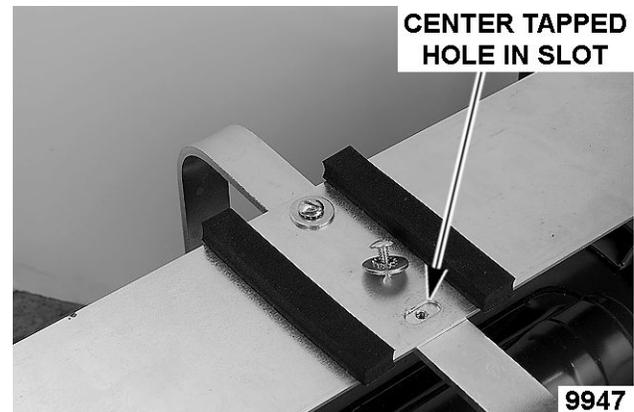


Fig. 33

- B. Tighten remaining screw securing locating bracket to frame and housing support.
 - C. Remove rear panel.
6. Check **MOTOR ALIGNMENT** as outlined in this section. Adjust if necessary.

MOTOR ALIGNMENT



WARNING Disconnect the electrical power to the machine and follow lockout / tagout procedures.

Check

1. Make sure the locating bracket is aligned with the front and rear panels before aligning motor. If necessary, perform PANEL ALIGNMENT.
2. Install front panel securing it to the frame and locating bracket. Do not install trim washer.
3. Observe alignment of adapter hub face with respect to front panel opening.
 - A. Alignment is correct if:
 - 1) The entire adapter hub face and a small amount of the gasket can be seen within the opening of front cover.
 - 2) The gasket has the minimum gap or minimum interference with front panel.
 - 3) The thumb screw assembly can be inserted into front cover and tightened against adapter hub without binding.



Fig. 34

- B. If the conditions above are not met, the motor needs to be aligned.

Alignment

1. Install front cover onto the frame and locating bracket. Tighten hardware.
2. Loosen motor mounting hardware enough to allow motor movement.
3. Slide the motor assembly forward or backward to align adapter hub gasket with front cover.

4. Center adapter hub face with center opening of front cover by moving motor assembly side to side.
5. If adapter hub is not at correct height with center opening, add shims under motor feet as necessary.
 - A. If shims are needed under the rear motor feet, install the shims from the sides of motor.
 - B. If shims are needed under the front motor feet, install shims from the front of motor.
6. Tighten motor mounting hardware and recheck alignment.

MOTOR WINDING RESISTANCE

Single Phase Motors

NOTE: The resistance listed in the table are of the individual windings. When measuring the resistance of a winding, disconnect that winding from the circuit.

SINGLE PHASE MOTOR RESISTANCE IN OHMS			
Winding	Min.	Nominal	Max.
Main	0.82 Ω	0.86 Ω	0.91 Ω
Run	2.49 Ω	2.63 Ω	2.76 Ω
Start	1.22 Ω	1.29 Ω	1.35 Ω

Three Phase Motors

NOTE: Resistance values for three phase motors are measured with the windings in the circuit. Measure resistance from line to line on the terminal block. Example: Measure from L1 to L2, L2 to L3 and L1 to L3. Leg to leg winding resistance is to fall between the minimum and maximum values.

THREE PHASE MOTOR RESISTANCE IN OHMS			
Voltage	Min.	Nominal	Max.
High (480V)	9.20 Ω	9.68 Ω	10.16 Ω
Low (208-240V)	2.30 Ω	2.42 Ω	2.54 Ω

ELECTRICAL OPERATION

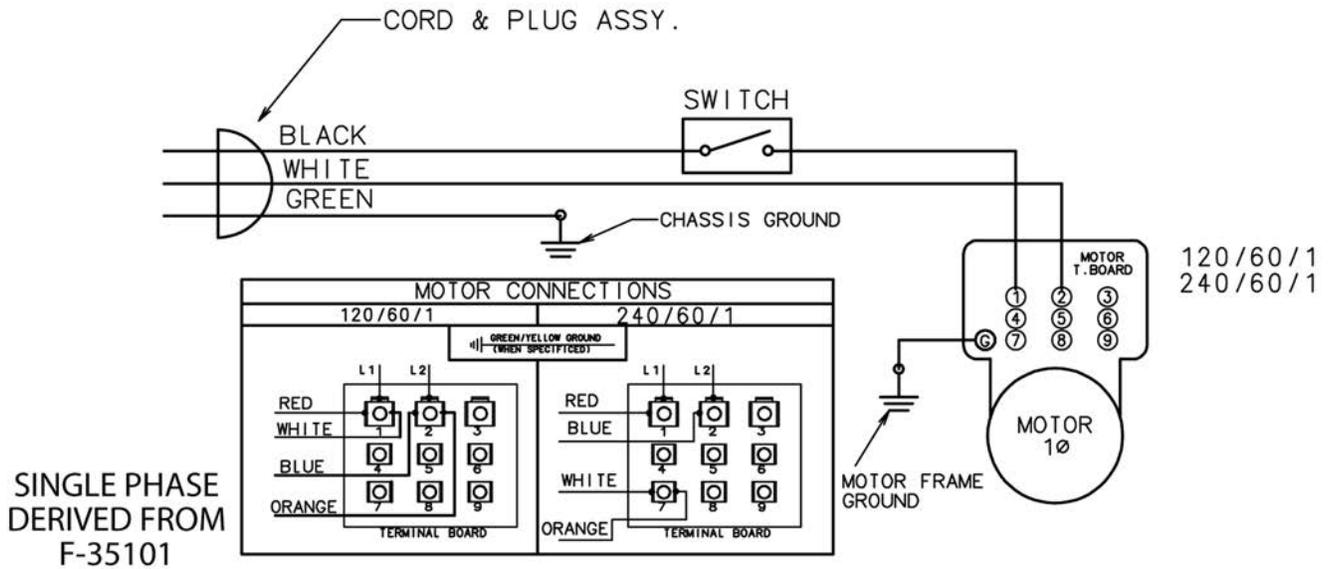
COMPONENT FUNCTION

Power Switch Controls voltage to motor.

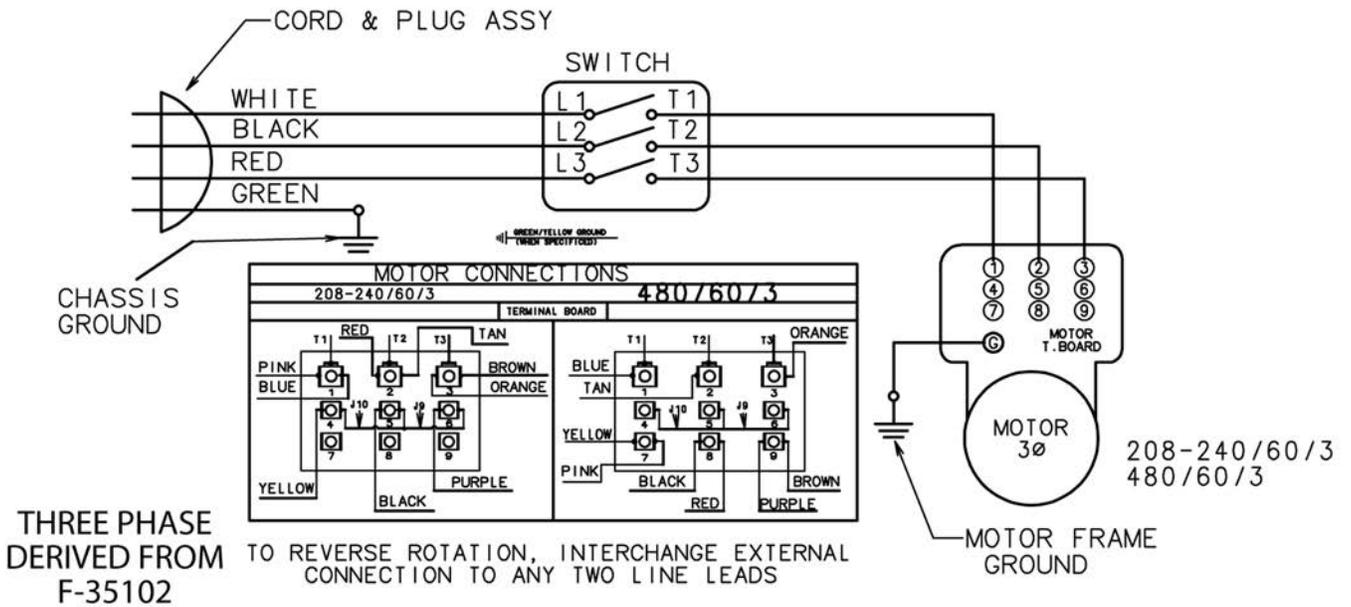
Motor Single or three phase depending on machine data plate. Powers the gear reducer.

WIRING DIAGRAMS

SINGLE PHASE WIRING



THREE PHASE WIRING



WARNING

ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH THE APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.

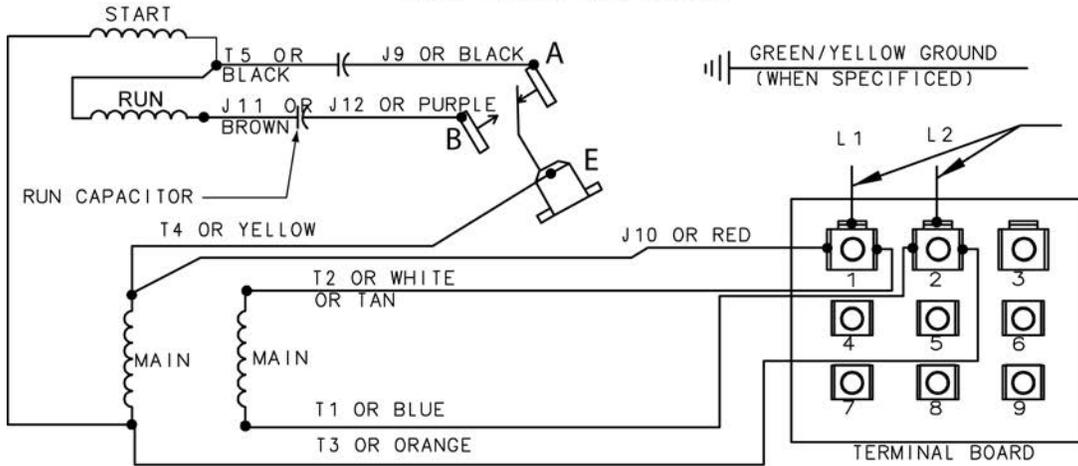
**ELECTRICAL DIAGRAM
4822 CHOPPER**

AI 1700

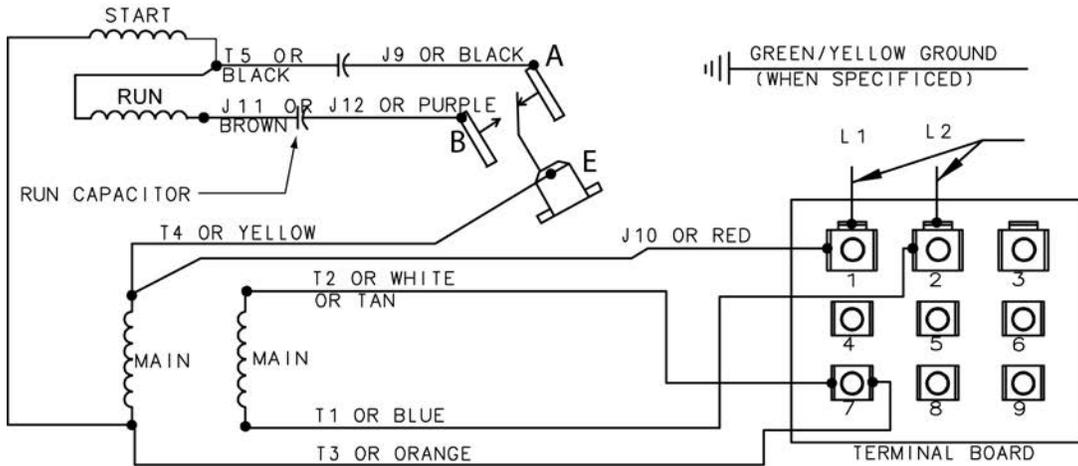
Fig. 35

SINGLE PHASE - MOTOR CONNECTION DIAGRAMS

110V - LOW VOLTAGE



208 - 240V - HIGH VOLTAGE



NOTE :
WHEN MORE THAN ONE CAPACITOR IS USED,CONNECT IN PARALLEL .

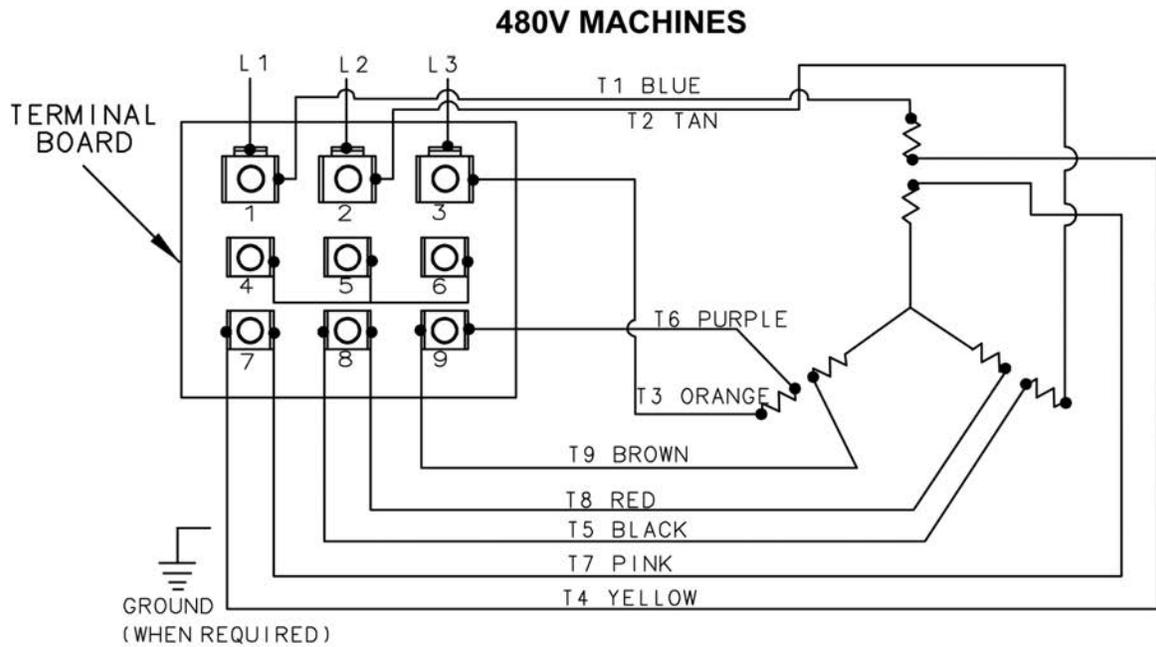
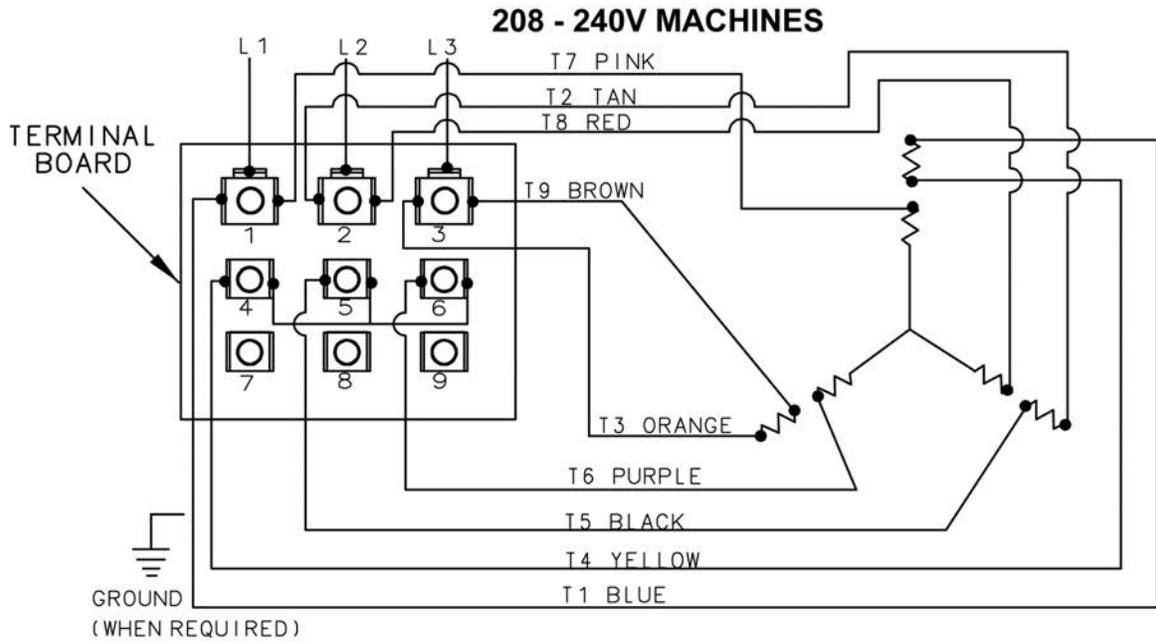
WINDING RESISTANCE IN OHMS

WINDING	MIN.	NOMINAL	MAX.
MAIN	0.82 Ω	0.86 Ω	0.91 Ω
RUN	2.49 Ω	2.63 Ω	2.76 Ω
START.....	1.22 Ω	1.29 Ω	1.35 Ω

AI 1699

Fig. 36

THREE PHASE - MOTOR CONNECTION DIAGRAMS



WINDING RESISTANCE IN OHMS

VOLTAGE / WIRING	MIN	NOMINAL	MAX
208-240V / PARALLEL L1/L2 = L2/L3 = L1/L3	2.30 Ω	2.42 Ω	2.54 Ω
480V / SERIES L1/L2 = L2/L3 = L1/L3	9.20 Ω	9.68 Ω	10.16 Ω

AI 1698

Fig. 37

TROUBLESHOOTING

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSES
Noisy operation.	<ol style="list-style-type: none">1. Machine with chopper attached being operated without meat.2. Gear reducer low on lubricant.3. Bearing malfunction.4. Gear malfunction.5. Motor malfunction.
Motor will not run.	<ol style="list-style-type: none">1. Power source circuit breaker open.2. Machine not plugged in to power source.3. Power switch malfunction.4. Motor malfunction.



SERVICE

MISCELLANEOUS

VOL. 1 NO. 550B

April 20, 2005

TECHNICAL SERVICE BULLETIN

PRODUCT SERVICE DEPARTMENT

TROY, OH. 45374-0001

MACHINE DATE CODE INFORMATION

Introduction

Since January 1, 2002, all Hobart equipment, *except* microwave ovens, has been marked with a three-letter date code to eliminate duplication at the end of the two-letter date code numbering cycle (i.e. 23 assigned letters for a 23 year date code numbering cycle). The microwave ovens are marked with the month and year as outlined under Manufacture Date (item 2).

Between January 1985 and January 2001 all Hobart equipment, *except* microwave ovens, was marked with a two-letter date code.

Refer to manufacturing date code tables.

Manufacture Date

- All Hobart equipment is marked with a manufacturing date code in the CODE or MD section on the machine data plate with the exception of microwave ovens. If the CODE or MD section is not available, the manufacturing date code should be marked in the far right of the serial number section. The manufacturing date code will not become part of the serial number.

Exception: Refrigeration equipment is marked with the manufacturing date code directly following the serial number; or with the two-digit numerical date (Month & Year) in the DATE section.

- The microwave ovens are marked with a manufacturing date code in the section designated on the machine data label per UL 923. The month and year of manufacture are both marked without abbreviation, with the year shown as a four-digit number on the machine data label. Example: January 2005.

MANUFACTURING DATE CODES AFTER JANUARY 1, 2002					
*First Letter = Month	*Second and Third Letters = Year				
A = JAN	AA = 2001	AN = 2013	BB = 2025	BP = 2037	CC = 2049
E = FEB	AB = 2002	AP = 2014	BC = 2026	BR = 2038	CD = 2050
R = MAR	AC = 2003	AR = 2015	BD = 2027	BS = 2039	CE = 2051
P = APR	AD = 2004	AS = 2016	BE = 2028	BT = 2040	CF = 2052
Y = MAY	AE = 2005	AT = 2017	BF = 2029	BU = 2041	CG = 2053
U = JUN	AF = 2006	AU = 2018	BG = 2030	BV = 2042	CH = 2054
L = JUL	AG = 2007	AV = 2019	BH = 2031	BW = 2043	
G = AUG	AH = 2008	AW = 2020	BJ = 2032	BX = 2044	
T = SEP	AJ = 2009	AX = 2021	BK = 2033	BY = 2045	
C = OCT	AK = 2010	AY = 2022	BL = 2034	BZ = 2046	
N = NOV	AL = 2011	AZ = 2023	BM = 2035	CA = 2047	
M = DEC	AM = 2012	BA = 2024	BN = 2036	CB = 2048	

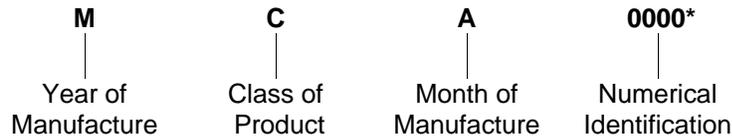
* The letters I, O, and Q have been omitted for clarity.

NOTE: For the year 2001, each manufacturing facility had the option of using the last letter of **Y** in the two letter date code format or begin using the second and third letters of **AA** in the three-letter date code format (if space was available on the data plate).

MANUFACTURING DATE CODES BETWEEN JANUARY 1985 AND JANUARY 2001					
*First Letter = Month		*Second Letter = Year			
A = JAN	L = JUL	A = 1980	G = 1986	N = 1992	V = 1998
E = FEB	G = AUG	B = 1981	H = 1987	P = 1993	W = 1999
R = MAR	T = SEP	C = 1982	J = 1988	R = 1994	X = 2000
P = APR	C = OCT	D = 1983	K = 1989	S = 1995	Y = 2001
Y = MAY	N = NOV	E = 1984	L = 1990	T = 1996	
U = JUN	M = DEC	F = 1985	M = 1991	U = 1997	

* The letters I, O, and Q have been omitted for clarity.

3. Before 1985, GE or Chicago Heights cooking equipment serial numbers included a manufacturing date code. Serial number coding from 1962 to approximately 1984 for cooking equipment only.



*From 1962 to 1963, the number of digits used may vary.

YEAR OF MANUFACTURE		YEAR OF MANUFACTURE		CLASS OF PRODUCT		MONTH OF MANUFACTURE	
Year	Letter	Year	Letter	Product	Letter	Month	Letter
1962	K	1974	B	Cooking	C	JAN	A
1963	L	1975	C	Refrigeration	R	FEB	B
1964	M	1976	D	Sanitation	S	MAR	C
1965	N	1977	E			APR	D
1966	P	1978	F			MAY	E
1967	R	1979	G			JUN	F
1968	S	1980	H			JUL	G
1969	T	1981	J			AUG	H
1970	U	1982	K			SEP	J
1971	W	1983	L			OCT	K
1972	X	1984	M			NOV	L
1973	A					DEC	M

SERIAL NUMBER CODING BEFORE 1962 FOR GE OR CHICAGO HEIGHTS EQUIPMENT ONLY								
	1954	1955	1956	1957	1958	1959	1960	1961
COOKING								
Heavy Equipment	4-0000	B-0000	F-0000	E-0000	C-0000	D-0000	G-0000	H-0000
Counter Equipment	4-0000	B-0000						
Griddles			BG0000	EG0000	CG0000	DG0000	GG0000	HG0000
Food Warmers			BF0000	EF0000	CF0000	DF0000	GF0000	HF0000
Fry Kettles			BK0000	EK0000	CK0000	DK0000	GK0000	HK0000
Waffle Bakers			BW0000	EW0000	C0000	DW0000	GW0000	HW0000
REFRIGERATION								
Water Coolers	24600000 to 24999999	55400000 to 55807000	70060000 to 70099999	70190000 to 70199999	70230000 to 70239999	70300000 to 70335000	70335700 to 70359100	70359101 to 70386665
SANITATION	Sanitation serial numbers will vary prior to 1968.							