

BLAKESLEE

Division of Blako Inc.

OWNERS MANUAL

ELECTRIC FOOD MIXER

20 QUART: Models B-20, F-20, U-20

30 QUART: Model F-30



1844 South Laramie Avenue
Chicago, IL 60804
Phone (708) 656-0660
Fax (708) 656-0017

www.blakesleeinc.com
service@blakesleeinc.com

1149 Bellamy Road North Unit 19
Scarborough, Ontario Canada M1H1H7
Phone (416) 751-2625
Fax (416) 751-8539

Revision 8/2005

INDEX

	Page
General Information	1
Installation Instructions	2
Design and Use Of Beaters, Whips and Other Accessories	5
Mixing Instructions	7
Mixing Bowl Capacity Chart	9
Available Beaters, Whips and Accessories	11
Operation	12
Parts Section:	13
Figure 1. Column Weldment	14
Figure 2. Bowl Support	16
Figure 3. Power Bowl Lift	18
Figure 4. Motor Mounting Bracket Assembly	20
Figure 5. Motor & Power Train	21
Figure 6. Auxiliary Hub Assembly	22
Figure 7. Lower Planetary	23
Figure 8. Planetary & Beater Shaft	24
Figure 9. Transmission Housing Assembly	25
Wiring Diagrams	30
Electrical Components	34
Service & Parts Distributors	35
Warranty	37

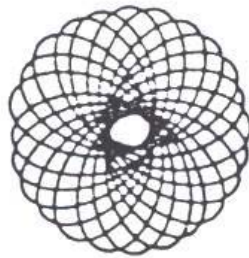
GENERAL INFORMATION

Your Blakeslee Mixer is just one piece of equipment that provides extra profit in your operation. Consistency of performance will reduce waste and maintain better control over yield.

Your Blakeslee-built mixer has been designed and engineered to assist you in the quick and easy preparation of fine tasting, quality foods. It is a valuable machine deserving the same maintenance and attention your other kitchen equipment now receives. By following the suggestions in this booklet, your mixer will operate for many trouble-free years.

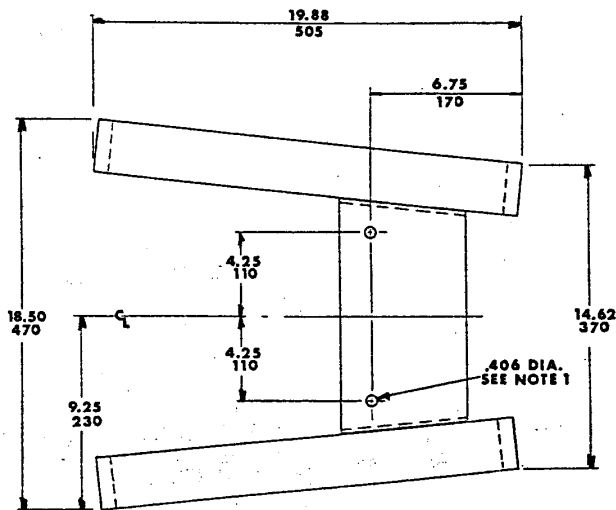
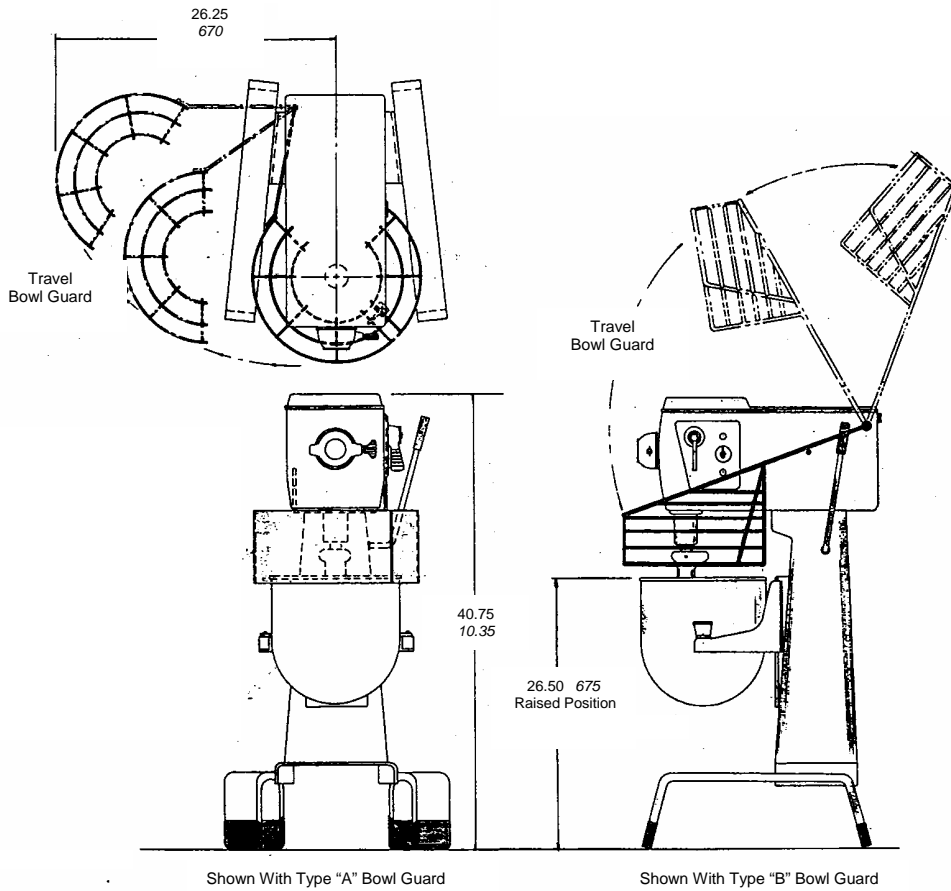
This booklet has been prepared to give you the necessary knowledge for correct operation, load, and lubrication of your mixer.

The food service operator will also be able to save you labor during the cleaning process due to the smooth surfaces and design of the Blakeslee mixer. Each beater, whip and attachment is engineered to perform specific jobs for you. The planetary action of Blakeslee Mixers (beater travels around the circumference of the bowl as it rotates) assures you of a perfectly blended mix every time.



*Diagram shows complete coverage of
Bowl by planetary action of beaters*

Installation Instructions



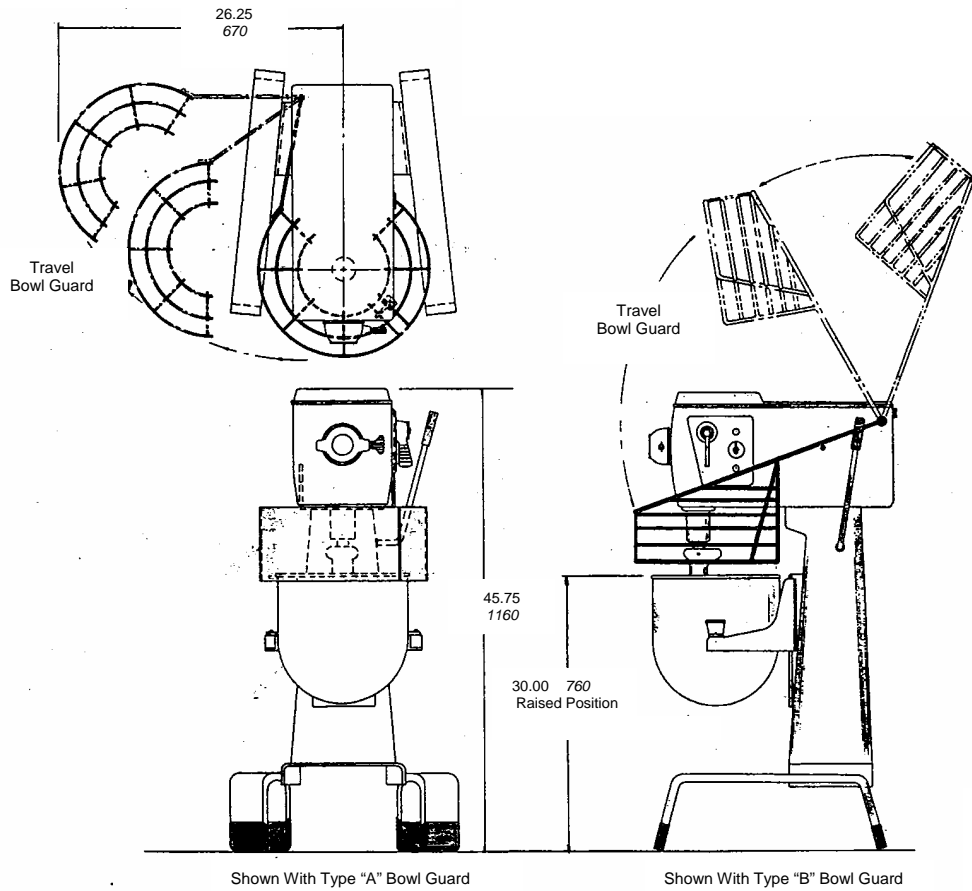
NOTE: Holes used for shipping and mounting unit to floor

BENCH MODEL – B20

Select a location for your mixer that will save time and steps for the operator. Allow ample work space in front and to the sides of the mixer.

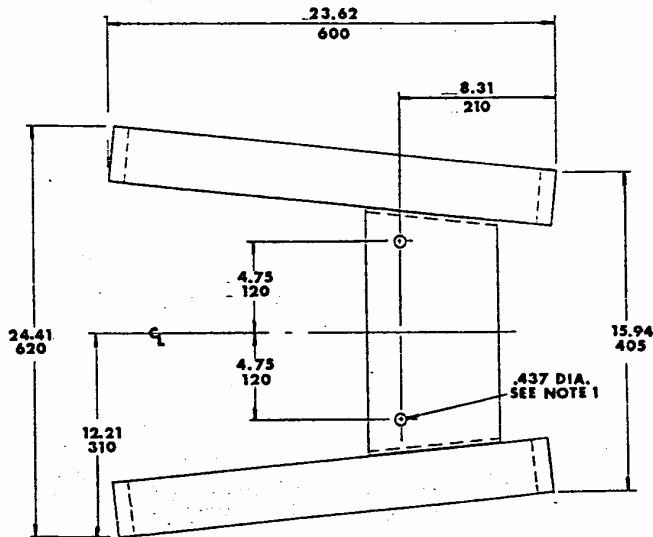
Mixer should be mounted to a sturdily built table or bench approximately 25 inches high. Mounting mixer to bench will insure against mixer slipping on wet surface or tipping over from pressure exerted as attachments are used. Refer to mounting hole dimensional diagram.

Drill (4) 13/32" dia. Holes in table or bench top per dimensions shown. Secure from underside of table with (4) 13/32" – 16 bolts (length as required by thickness of bench top).



Shown With Type "A" Bowl Guard

Shown With Type "B" Bowl Guard

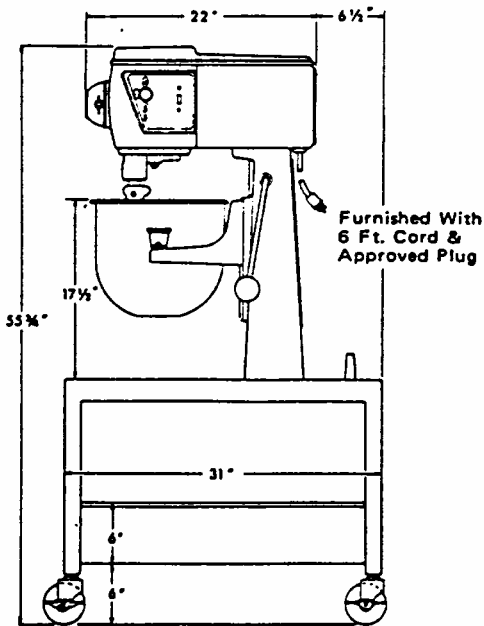


FLOOR MODELS – F20, F30

Select a location for your mixer that will save time and steps for the operator. Allow ample work space in front and to the sides of the mixer.

Holes are provided for anchoring the mixer to the floor, but unless desired bolting to the floor is not necessary except on shipboard use.

NOTE: Holes used for shipping and mounting unit to floor

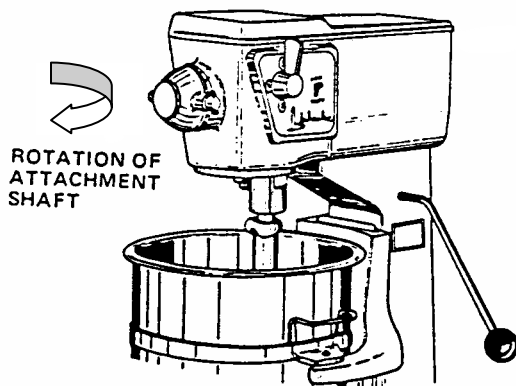


PORTABLE MODEL – U20

Available only in 20 quart size.

1. Store beaters and whips at rear of table top.
2. Lock all 4 casters before using mixer.
3. Refer to General Installation instruction for further information.

GENERAL FOR ALL MODELS



1. Electrical Connections

CAUTION: Before making electrical connections be sure that current and voltage of the mixer are identical to those of electrical inlet lines.

20 quart, 110 volt mixers are furnished with a six (6) foot flexible power cord.

On 30 quart mixers the line cord is to be supplied by the customer. Connections are made inside the mixer column through the cover plate located on the back side of the column near the bottom. **NOTE:** A six (6) foot flexible three (3) prong cord is available as an extra cost option.

IMPORTANT: On 3 phase mixers, after electrical connection has been made, be sure the mixer operates in a counter-clockwise direction as indicated by the arrow located above the attachment. If electrical connection is reversed the transmission will not shift, nor will the planetary action function.

2

Transmission Oil

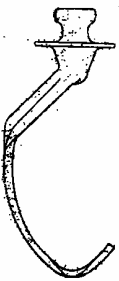
After the first 200 hours of operation and every 6 months thereafter the transmission oil must be changed.

When adding or changing transmission oil use 50 S.A.E. heavy duty oil. 3 pints required.

Design and use of Beaters Whips & Other Accessories

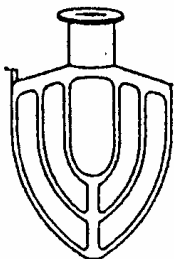
Each beater and whip has been designed to do a particular type of work. Use only that beater or whip for the work for which it was designed. For example: never use a batter beater for mixing heavy dough's. Always use a dough hook for dough work.

Following are illustrations of the different types of beaters and whips with an explanation of the work and use for which they were designed.



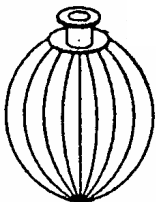
Dough Hook

Used for mixing bread or roll dough of standard consistency, biscuits, meat loaf, etc. Dough hooks should always be operated at low speeds only. Do not use other types of beaters for dough work; doing so will result in damage to either the beaters or the mixer proper.



Batter Beater

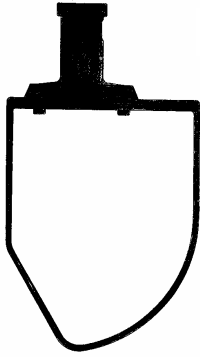
Used for mixing batters such as cake and muffin batters, creaming butter, mashing potatoes and vegetables, light cakes, icings and the average run of light work. Never use this beater for heavy dough work. When mashing potatoes, etc. it is advisable to start with the bowl at its lowest position and as the potatoes or other ingredients break up, the bowl should be raised to its working position. This procedure eliminates severe strain to the beater and to the mixer proper and consequently adds to their life and efficiency.



Wire Whip

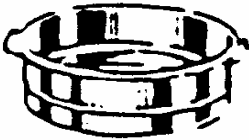
Used for whipping, creaming, beating eggs, meringues, small amounts of mayonnaise, icings and for whipping milk or cream into mashed potatoes after they have been broken up with a batter beater

"PK" Pastry Knife



Used for cutting flour and shortening together in a pie dough, pastry shells and for cutting lard or shortening into flour. The "PK" pastry knife should always be used for such work so that pie crusts, etc, are mixed with as little rubbing as possible and so that the shortening will be in small pieces to produce a flaky product.

Bowl Extension



Extension Rims are merely vertical sided splash covers. They are not covers in form but do provide higher side walls to prevent throw-out of ingredients. Usually they are not recommended because they are invitations to overloading a machine beyond its point of maximum efficiency. Extension rims permit more air to enter the bowl and prevents splash of light ingredients.

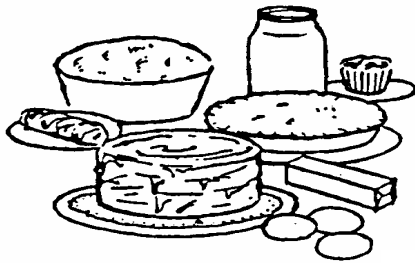
The true capacity of a mixer is not the amount of material that can be put in the bowl or the amount of the total batch which can be mixed with in the power of the motor. The true capacities and the most efficient (therefore the best money makers) are the ideal loads which permit a Mixer to operate at peak efficiency, so far as development, yield or aeration have their effect on the mixing operation.

Splash Covers



These items provide means for providing splash of throw-out on certain mixers when, for reasons of speed, the operator prefers to start in a higher speed or progress quickly to a high speed in order to complete a batch. These are valuable accessories but would not be used to increase the mixing capacity of any particular machine, beyond its recommended maximum.

They are convenience items, not capacity increasers. The best functioning of Blakeslee mixers depends on leaving room for proper material aeration or manipulation. Use splash covers or extenders only for containing ingredients. They are efficient for their intended use, but if a mixer is overloaded and a Splash Cover is used, aeration is reduced due to restriction in the area where air enters the mix. The capacity chart located on the column of the mixer is a good guide for maximum efficient use for the Mixer. Experience will have to dictate exact top capacity and Splash Cover use under your own needs.



FOR BEST RESULTS

Operators have their own particular ways of operating their mixing machines, so no attempt will be made to set up iron clad instructions, but there are certain general principles that should be followed in the various operations. These general principles as listed below should be helpful to old and new operators.

General Points for Proper Operation

NOTE

Refer to Mixing Chart before filling bowl.

1. In general, start all mixing at slow speed.
2. Always return to neutral position when finished with a mix.
3. Gradually raise bowl and its contents to the working position.
4. Bowl should be filled to at least half capacity to achieve best results.
5. Make sure that bowl-to-beater clearance is about 1/8". Place a 1/8" layer of paper on bottom of bowl to check bowl-to-beater clearance.

Electrical

"Start-Stop" Push buttons are used to operate the mixer. There is a thermal overload device with automatic resetting for protection, internally mounted. On all machines over 250 volts primary, a transformer is supplied to reduce voltage to the pilot circuit.

A timer shuts off the machine in any speed after the pre-set time has expired. Normal operation is obtained by setting the timer to "Hold" position. When the timer is set at "O", the start button becomes a jog button, permitting intermittent operation at the push of a button.

Whipping Cream

The wire whip (refer to Beaters and Whip chart) should be used for whipping cream. Cream to be whipped should be 24 hours old, should contain 30% butter fat and should be well chilled, in fact near freezing temperature is desirable, since the cooler the cream the better the whipping. Warm cream may turn into butter instead of whipped cream. To prevent splashing out of the bowl, start whipping the cream at low speed and increase the speed as the cream thickens.

Egg Whites

Use the wire whip and be sure the eggs are at room temperature and that both the mixing bowl and wire whip are free from all traces of fat or oil, or egg whites won't whip. In some installations one bowl will be kept and used exclusively for beating egg whites. Another bowl will be kept and used exclusively for the oily type mixes. Start beating the eggs at low speeds and gradually increase the speed.

Meringues

Use the wire whip. Meringues can be made perfect by the gradual addition of sugar to egg whites which have not been too stiffly beaten.

Mashing Potatoes

Use the batter beater and pre-heat the bowl and beater. Lower the mixing bowl before putting in the potatoes to be mashed then gradually raise the bowl to its working position.

Start the operation on low speed. When the potatoes have been broken up, stop the mixer and add milk or cream, butter and seasoning. Many operators like to change to the wire whip for whipping in the milk or cream since more of a whipping action is obtained to produce a fluffier mashed potato.

Cake Batters and Cookie Dough

Use the batter beater. Butter or shortening can be thoroughly creamed in about 10 minutes. The butter or shortening should be at room temperature. Always lower the mixing bowl before putting in the ingredients then gradually raise the bowl to its working position.

Sugar should be added to recipes at a medium speed. When all of the sugar has been added, stop the mixer and scrape down the sides of the mixing bowl with a spatula to insure a smooth mix. Be careful not to add sugar until the butter or shortening has been thoroughly creamed. When adding dry ingredients, stop the mixer occasionally and scrape the upper part of the bowl with a spatula to make sure that every portion will be efficiently mixed into the recipe. Always operate the mixer on slow speed while adding dry ingredients. Add dry ingredients alternately with liquid, starting and ending with dry ingredients. Do most of the beating before the flour and milk are added. Over beating after these two ingredients causes a sub-standard mixture.

Mixing Dough

Always use the dough hook for mixing heavy doughs. Do not overload the mixer with too large batches. (See the capacity chart on page 7.) When using the dough hook, the mixing should be started at low speed only. The bowl should be in its lowest position gradually raised to working position. Remember – an increased mixing time means a decreased fermentation time. Weighing materials each mix time will insure a standard product. Stop the mixer occasionally to lower the dough mass from the hook and to scrape the bowl.

Important – In mixing heavy doughs be sure to use the dough hook, be sure not to overload the mixer (see capacity chart on page 7,) and be sure to start the mixer on low speed with the bowl in operating position.

Biscuit Mix

Use “W” wire whip and bowl extension ring (to confine ingredients to bowl). Mix shortening and dry ingredients until shortening is blended and mixture is granular in appearance. Turn off mixer. Scrape bowl down with bowl knife. Store in covered can until ready for use. Use beater or dough hook when adding liquid; start mixing on slow speed and bowl in lowest position, then gradually rise to the working position. Do not over mix.

Pastries

Use the “PK” pastry knife, as pastries should be mixed with as little “rubbing” as possible. The “PK” pastry knife leaves the shortening in small pieces to produce a flaky product. Remember, over-worked dough makes tough pastry, and working in too much flour tends to toughen pastry.

Sweet Dough

For best results use the “SD” sweet dough beater.

Mixing Bowl Capacity Chart

KITCHEN MATERIALS	CAPACITY OF BOWL (Finished Material)	
	20 Qt.	30 QT.
Egg whites	1 qt.	1 ½ qt.
Mashed potatoes	15 lbs.	23 lbs
Mayonnaise (qts. Of oil)	10 qts	12 qts
Meringue (pts. Of water)	1 ½ Pts.	2 pts.
Waffle or Hot cake batter	8 qts.	12 qts
Whipped cream	4 qts.	6 qts
BAKE SHOP MATERIALS		
Angle Food (8 to 10 oz. cake)	15	22
Box or Slab Cake	21 lbs.	30 lbs.
Cup cakes	22 doz.	33 doz.
Layer cakes	20 lbs.	30 lbs.
Pound cake	21 lbs.	30 lbs.
Short sponge cake	15 lbs.	23 lbs.
Sponge cake batter	21 lbs.	18 lbs.
Sugar cookies	35 doz.	50 doz.
Bread or roll dough (60%AR)	25 lbs. (1)	45 lbs. (1)
Noodle dough	8 lbs.	10 lbs.
Pie dough (50%AR)	17 lbs.	27 lbs.
Pizza dough (65%AR)	14 lbs. (1)	21 lbs. (1)
Raised donut dough	9 lbs. (2)	15 lbs. (2)
Eggs & sugar (for sponge cake)	8 lbs.	12 lbs.
Fondant icing	12 lbs	18 lbs.
Marshmallow icing	2 lbs,	3 lbs.
shortening & sugar creamed	16 lbs.	24 lbs.

- (1) – First speed
(2) – Second speed

Mixer Capacity

The mixer capacity chart is provided as a guide for controlling the batch sizes. The capacities listed take into account the amount of product which can be contained in a particular size bowl and the type of dough or product to be mixed and it's own unique properties which affect mixer performance.

Also considered and noted on the chart is the batch absorption rate, the ratio of the weight of water to the weight of flour expressed as a percentage. The absorption rate (AR) measures how heavy a batch is or the density of the batch. In fact, the capacities listed on the capacity chart for the products listed below are based on the following absorption rates:

<u>Product</u>	<u>Absorption Rate</u>
Bread dough	60%
Pizza dough	50%
Raised donut dough	65%

When mixing any of the above products with an absorption rate lower than listed, the batch size should be decreased proportionately to insure efficient mixing of the product and eliminate the possibility of over-loading your mixer. For example: A DD-60 mixer has a pizza dough capacity of 40 pounds at first speed based on AR of 50% according to the capacity chart. If the batch to be mixed has an AR of 45%, the batch size must be reduced to compensate for the difference. The size of the reduction is computed as follows:

1. Divide the AR of the batch to be mixed by the AR listed on the capacity chart.

$$\frac{45\% \text{ Actual AR}}{50\% \text{ Rated AR}} = 90\%$$

2. Multiply the rated batch size by the percentage obtained in step 1. The result is the maximum batch size of the DD-60 mixer for pizza dough with a 40% AR.

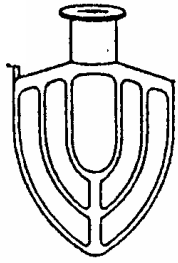
$$\begin{array}{r} 40 \text{ Lbs Rated Batch size} \\ \times 90\% \\ \hline 36 \text{ lbs. Max Capacity @ 45\% AR} \end{array}$$

Another factor often overlooked is the ability of your mixer to operate at a higher speed. For example, the F 30 has a 45 pound capacity of bread or roll dough with an AR of 60% in first speed. The batch could be mixed in second speed but the batch must be reduced by 60% to 27 pounds.

Your Blakeslee mixer is designed and intended to mix your products in the most efficient way possible. There is no need for you to sacrifice individual characteristics when using your Blakeslee mixer. Care should be taken during your batch mixing. When results are exactly to your liking, note carefully the time of operation and speed setting. Under the same conditions your Blakeslee mixer will perform exactly the same, day after day, providing uniformity of your product. A word of caution: Do not over-mix. Over mixing can adversely affect the texture of the product you are mixing. You will also discover there is often a savings in the time required for each mixing operation, and that even delicate products usually mixed by hand can be adapted to your mixer.

Beaters, Whips and Accessories

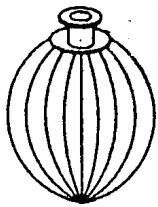
WHIPS & BEATERS



Batter Beaters

20 QT. [01367](#)

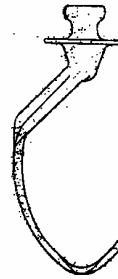
30 QT. [01367](#)



Wire Whips

20 QT. [03456](#)

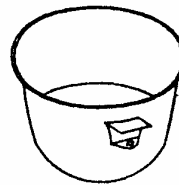
30 QT. [03459](#)



"H" Dough Hooks

20 QT. [01385](#)

30 QT. [01987](#)

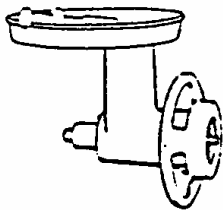


Bowls

20 QT. [01717](#)

30 QT. [03310](#)

MEAT CHOPPER



[20447](#)

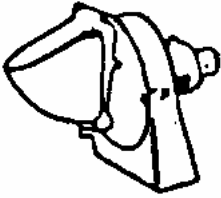
Meat Chopper Assembly

Includes Knife and 1/8" Plate and Pusher

ACCESSORIES FOR MEAT CHOPPER

1901 Knife	1903 End Plate, 3/16" Perforations	1905 End Plate, 3/8" Perforations
1902 End Plate, 1/8" Perforations	1904 End Plate, 1/4" Perforations	1906 End Plate, 1/2" Perforations

VEGETABLE SLICER

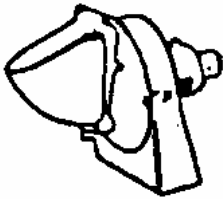


[20581](#)

9" Vegetable Slicer

Complete with Slicer Plate & Hopper Front

CHEESE SHREDDER

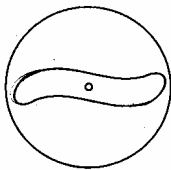


[99731](#)

9" Cheese Shredder

Complete with Hub & Shaft, 5/16" Shredder Plate and Hopper Front.

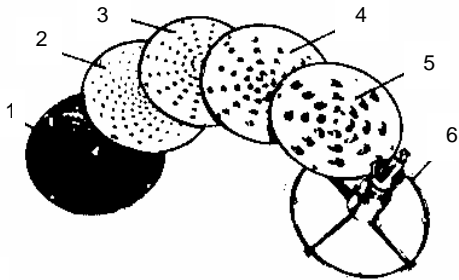
OPTIONAL EQUIPMENT FOR USE WITH SLICERS



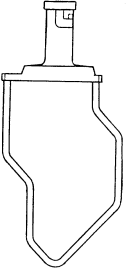

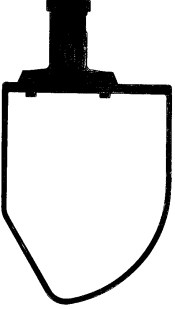

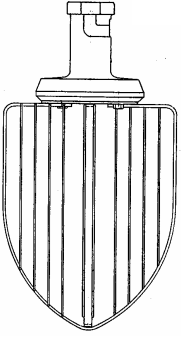
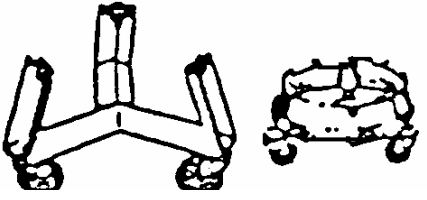
[20595](#)

9" Adjustable Slicer Plate

Furnished with Vegetable Slicer

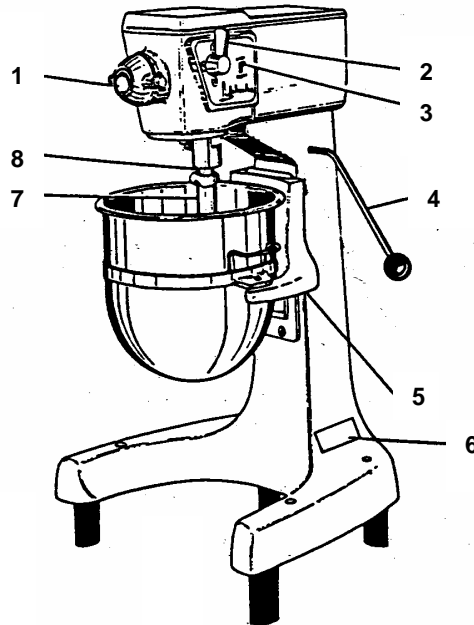


- 1 [15071](#) Grater Disc
- 2 [15021](#) 3/16" Shredder Disc.
- 3 [15088](#) 3/32" Shredder Disc.
- 4 [15019](#) 5/16" Shredder Disc.
- 5 [15072](#) 1/2" Shredder Disc.
- 6 [20599](#) Hub & Shaft Assembly - Optional for [20581](#)
(only one required for all sizes of shredder plates and grater plates)

<i>Part No. Includes Spindle</i>	“SD” Sweet Dough Beaters	Splash Covers		
	20 QT 01394	CAP	PART NO.	DESCRIPTION
	40QT 01979		20 Qt 01738	Stainless Steel
	30 Qt 14618		Stainless Steel	
<i>Part No. Includes Spindle</i>	“PK” Pastry Knife	Bowl Extensions		
	20 QT 01538	CAP	PART NO.	DESCRIPTION
	30QT 01976		20 QT 01735	Stainless Steel
	30 QT 01736		Stainless Steel	
<i>Part No. Includes Spindle</i>	“M” Four Wing Whip	Bowl Truck		
	20 QT 01542	<i>Allows bowl to be transported without carrying</i>		
	30QT 01978			
		CAP	PART NO.	DESCRIPTION
		30 QT	03374	Painted Steel

Operation

In Order for your mixer to perform at top efficiency at all times, it is necessary that you follow the recommendations as laid down by the designing engineers. Give your mixer the same attention you would give your automobile and your Blakeslee-Built Mixer will give you many years of satisfactory service.



1. Auxiliary Drive Socket
2. Speed Change Lever
3. "ON-OFF" Power Switch
4. Bowl Lift Hand Lever
5. Bowl Support
6. Nameplate & serial Number
7. Attachment Spindle
8. Beater Shaft

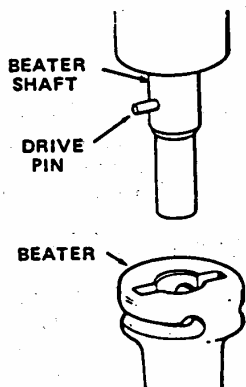
CAUTION:

Do not attempt to change attachments while mixer in operation. Always shut off mixer before placing hands or kitchen utensils near or in the mixing bowl

Operating the Bowl Lift

The bowl is raised to working position by means of a lever located on the right-hand side of the mixer. Once raised, the bowl will be automatically located in its proper operating position. The bowl lift is preadjusted to stop at the proper working position before the mixer is shipped.

Attaching Beaters & Whips



The beaters and whips used with your mixer have been designed to make fastening of the attachment positive and rapid.

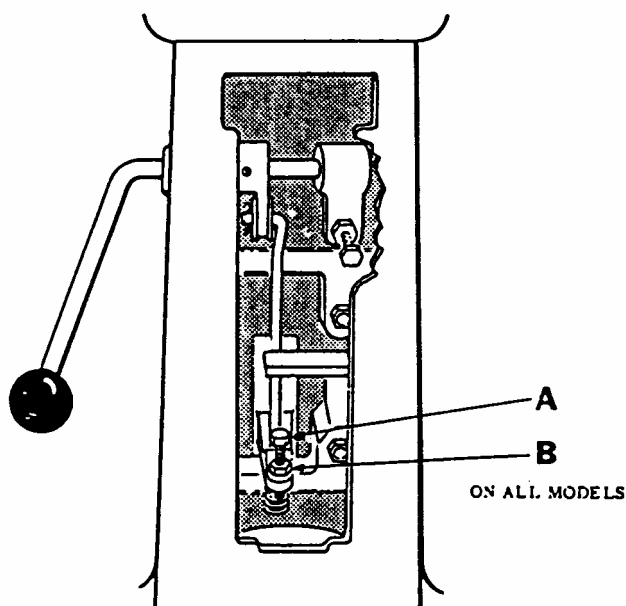
To engage the attachment, line up the slots in the attachment with the drive pin on the beater shaft. Raise the attachment and twist to the right. When released the attachment will drop slightly into full locked position.

To remove the attachment, grasp near the top, raise slightly while twisting to the left and slide downward.

Bowl Lift Mechanism Adjustment

Bowl lift is factory set. However should adjustment be necessary ds so as follows.

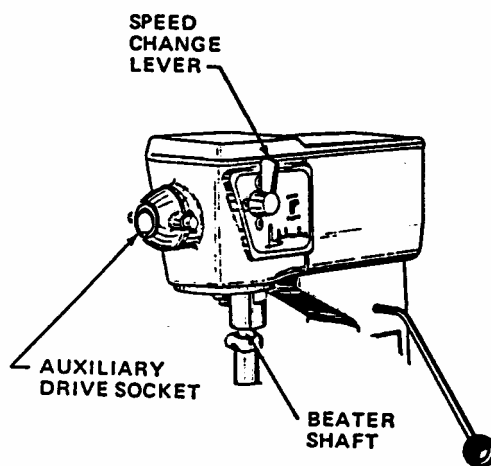
1. The mixers have adjustable stops to limit upward travel of the bowl lift
2. To adjust upward travel of lift (all models) loosen lock nut "B" and turn bolt "A" clockwise to bring bottom of bowl closer to attachment end or counter-clockwise to increase the distance between the bottom of bowl and attachment end. Retighten lock nut "B". CAUTION: Attachment muts not rub on bottom of bowl.



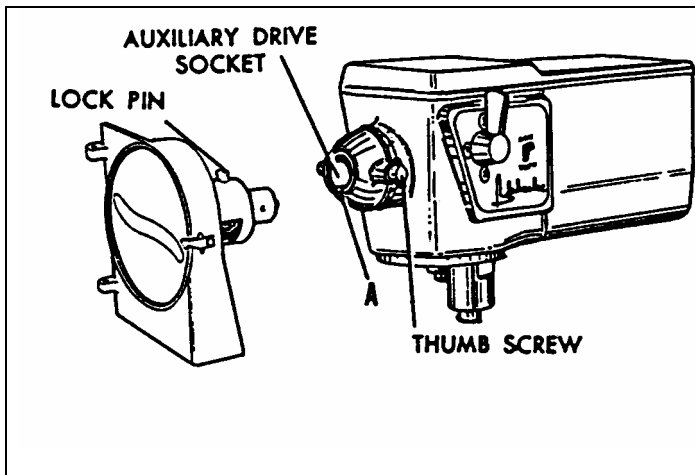
Changing Speeds

It is important to the life of the mixer, and to perfect mixing, to keep the mix in constant motion. In Blakeslee Built Mixers, which are equipped with constant mesh gears and automatic clutch, the speed may be varied by simply turning the mixer off, selecting the new desired speed with the speed change lever, and then turn the mixer back on.

NOTE: When mixing heavy loads, the Transmission should be fully stopped before shifting speeds.



SPEEDS	BEATER SPEED (RPM)	AUX. DRIVE SPEED (RPM)
1 Low	102	57
2 Medium	180	101
3 High	354	197



Mounting of Accessories

Vegetable Slicer, Meat Chopper, and Cheese Shredder all mount in a similar fashion to the "Auxillary Drive Socket". Illustration shows a typical mounting using vegetable slicer.

1. Remove cover plate from auxillary drive socket.
2. Turn thumb screws out so that it does not extend into the drive socket.
3. Insert hub of attachment into socket, rotating slightly untill it slides into place against mixer housing. Lubricate with a few drops of mineral oil or salad oil.
4. Turn thumb screws to lock attachment into place.
5. Clean drain slot (A) after use.

Transmission Removal and Disassembly

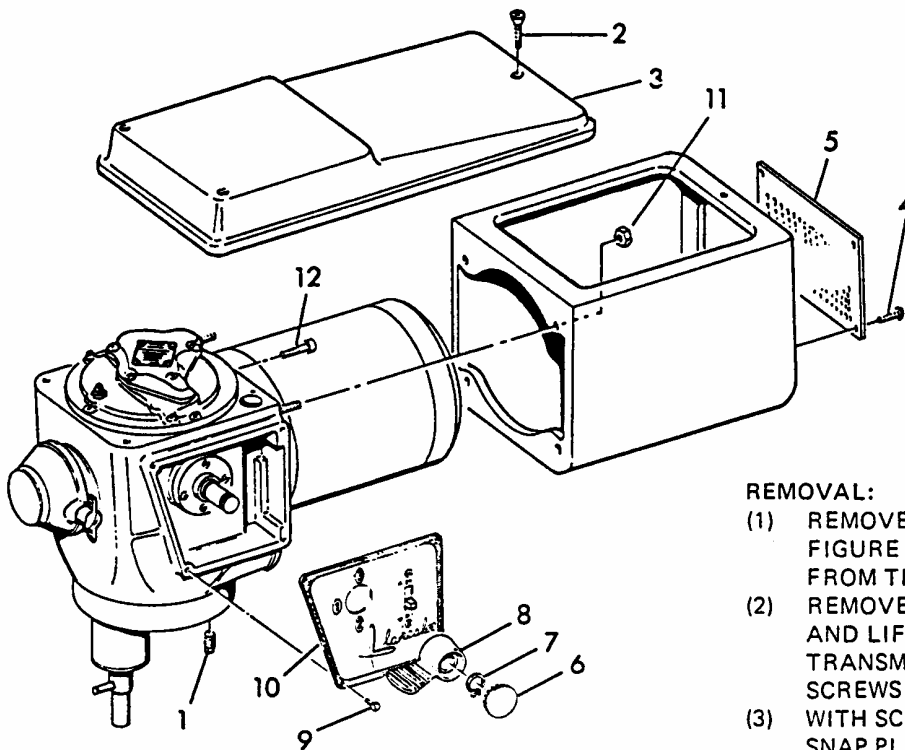


FIGURE 1

NOTE: TRANSMISSION ASSEMBLY DOES NOT HAVE TO BE REMOVED FROM MIXER TO REPLACE AUXILIARY HUB SEALS OR BEATER SHAFT OIL SEAL. REFER TO DISASSEMBLY STEPS 1 & 2.

REMOVAL:

- (1) REMOVE DRAIN PLUG (1, FIGURE 1) AND DRAIN OIL FROM TRANSMISSION.
- (2) REMOVE THREE SCREWS (2) AND LIFT COVER (3) OFF TRANSMISSION. REMOVE SCREWS (4) AND SCREEN (5).
- (3) WITH SCREWDRIVER PRY OFF SNAP PLUG (6) FROM SHIFT LEVER. REMOVE SNAP RING (7) AND PULL LEVER (8) OFF CAM SHAFT. REMOVE SCREWS (9) AND DROP NAMEPLATE (10) AWAY FROM TRANSMISSION. TAG ELECTRICAL WIRES FOR REASSEMBLY IDENTIFICATION AND DISCONNECT WIRE LEADS FROM BACK OF TIMER OR TOGGLE SWITCH ON BACKSIDE OF NAMEPLATE.
- (4) USING SOCKET WRENCH AND 12 INCH EXTENSION REMOVE FOUR LOCK NUTS (11) AND SLIDE TRANSMISSION AND MOTOR ASSEMBLY OUT FRONT OF MOTOR HOUSING. REMOVE FOUR SOCKET HEAD CAPSCREWS (12) AND SEPARATE MOTOR ASSEMBLY FROM TRANSMISSION. USE CARE TO AVOID DAMAGING MOTOR GASKET.

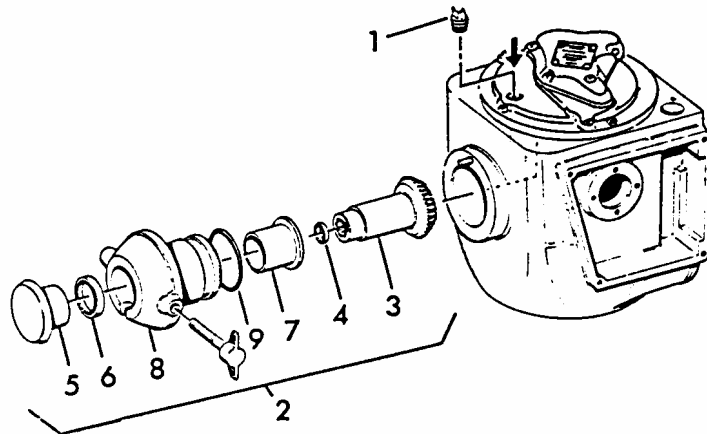


FIGURE 2

DISASSEMBLY

1. **REPLACEMENT OF AUXILIARY HUB AND SEALS.**
 NOTE: TRANSMISSION NEED NOT BE REMOVED FROM MIXER IF ONLY AUX. HUB OR HUB SEALS NEED REPLACEMENT.

A. REMOVE OIL FILLER PLUG (1, FIGURE 2), INSERT 3/8 INCH LONG STEMMED ALLEN WRENCH DOWN THROUGH FILLER PLUG HOLE AND LOOSEN SETSCREW (APPROX. 3 TURNS). WITH SCREWDRIVER BETWEEN HUB (8) AND TRANSMISSION HOUSING, PRY HUB ASSEMBLY (2) OUT OF TRANS. LIGHT HAMMER TAPS AGAINST BACK OF HUB MAY BE REQUIRED.

B. PULL BEVEL PINION SHAFT (3) FROM HUB. REMOVE CAP (5) AND BUSHING (7) FROM HUB (8) WITH A PIECE OF PIPE INSERTED INTO BACK OF HUB (SEE FIGURE 2A) TAP SEAL (6) OUT OF HUB; REPLACE "O" RING SEAL (9). COAT NEW SEAL (6) WITH LIQUID GASKET MATERIAL BEFORE REASSEMBLING.

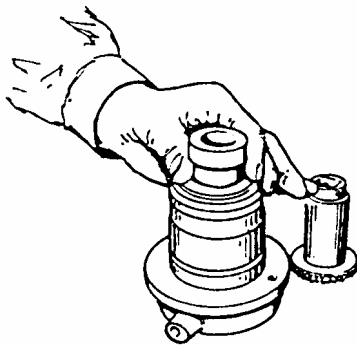


FIGURE 2A

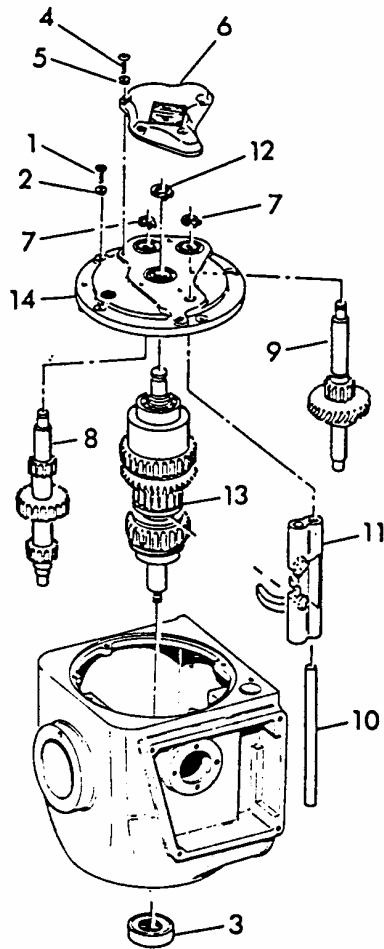


FIGURE 4

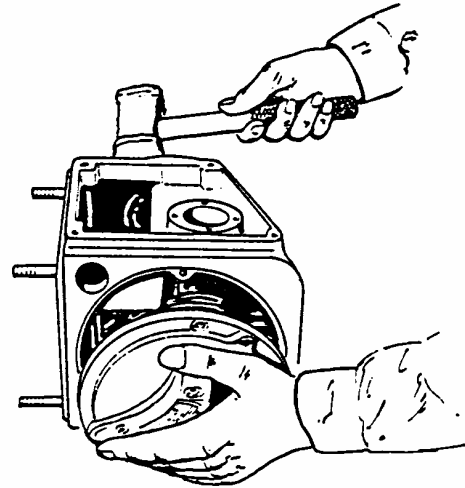


FIGURE 4A

3. REMOVAL OF SUN SHAFT, INTERMEDIATE & PINION SHAFT AS SUBASSEMBLY.

- A. REMOVE COVER SCREWS (1, FIGURE 4) AND WASHERS (2).
- B. LAY TRANSMISSION ON ITS SIDE AND WITH A LEAD OR RUBBER Mallet LIGHTLY TAP THE END OF SUN SHAFT (SEE FIGURE 4A). COVER WILL SEPARATE FROM TRANSMISSION HOUSING. STAND TRANSMISSION UP AND LIFT COVER AND SHAFTS OUT OF HOUSING. NOTE: ROTATE GEARS AS NECESSARY TO CLEAR TRANSMISSION HOUSING.
- C. USING A PIPE AND Mallet, DRIVE OIL SEAL (3, FIGURE 4) OUT OF BOTTOM OF TRANSMISSION HOUSING. WHEN INSTALLING NEW SEAL, COAT OUTER EDGE OF SEAL AND PRESS INTO HOUSING WITH METAL SIDE OF SEAL TOWARD MIXING BOWL (DOWN).
- D. REMOVE SCREWS (4), WASHERS (5) AND COVER (6). REMOVE SNAP RINGS (7) AND PULL INTERMEDIATE (8) AND PINION SHAFT (9) ASSEMBLIES TOGETHER, FROM COVER.
- E. PULL ROD (10) OUT OF COVER TO REMOVE SHIFTER YOKE (11).
- F. REMOVE SNAP RING (12). WITH A CENTER PUNCH, TAP SUN SHAFT ASSEMBLY (13) OUT OF COVER (14).

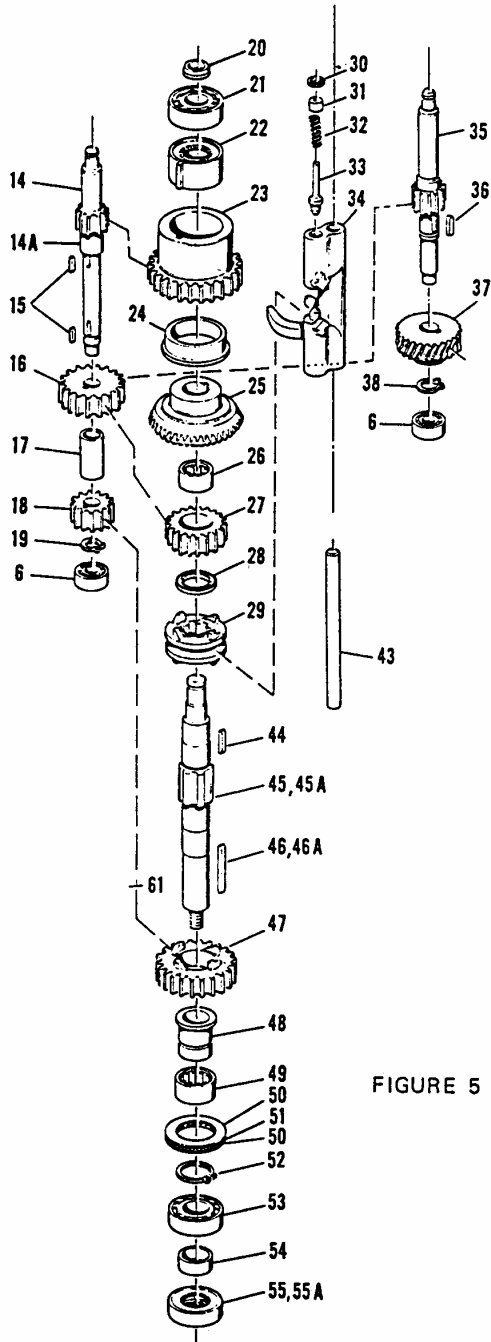


FIGURE 5



FIGURE 6

4. **DISASSEMBLY OF SUN SHAFT ASSEMBLY.** REFER EXP. VIEW FIGURE 5.

A. REMOVE SPUR GEAR & SLEEVE (23), CLUTCH (22), BEARING (21) AND SPACER (20) FROM SHAFT AS AN ASSEMBLY.

B. IN AN ARBOR PRESS, PRESS CLUTCH (22) AND BEARING (21) FROM GEAR (23). PRESS BEVEL GEAR (25) OFF SHAFT. ITEMS 26, 27, 28 & 29 WILL SLIDE OFF SHAFT.

NOTE: WHEN REASSEMBLING NEW CLUTCH (22) INTO GEAR (23) ARROW MARKED ON CLUTCH MUST BE VISIBLE AS SHOWN IN FIGURE 6.

C. PRESS BEARING (53) OFF SHAFT. REMOVE SNAP RING (52). ITEMS 47 THRU 51 WILL SLIDE OFF SHAFT.

5. **DISASSEMBLY OF INTERMEDIATE SHAFT.** REFER TO FIGURE 5.

A. PRESS BEARING (6) OFF SHAFT (14). REMOVE SNAP RING (19) AND PRESS OFF GEAR (18). SLIDE OFF SLEEVE (17) AND PRESS OFF GEAR (16).

NOTE: IN EARLY MODEL TRANSMISSIONS SHAFT (14) HAD A MACHINED SHOULDER. BEGINNING IN 1971 HEAVY DUTY SHAFTS WERE USED WITH A SPACER (14A) INSTEAD OF THE MACHINED SHOULDER. WHEN REASSEMBLING SPACER (14A) THE CHAMFERED END MUST FACE FIXED GEAR ON SHAFT (SEE FIGURE 7).

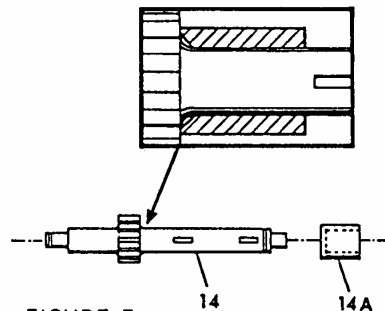


FIGURE 7

6. **DISASSEMBLY OF PINION SHAFT.** REFER TO FIGURE 5.

A. PRESS BEARING (6) OFF SHAFT (35). REMOVE SNAP RING (38) AND PRESS OFF WORM GEAR (37).

REASSEMBLY & INSTALLATION

(1) REASSEMBLY SUBASSEMBLIES IN REVERSE ORDER OF DISASSEMBLY AND INSTALL IN REVERSE ORDER OF REMOVAL.

(2) REFILL TRANSMISSION WITH #50 HEAVY DUTY OIL. (HYDROL MASTER 500 OR EQUIVALENT)
 3 PINTS – M-5-3330 TRANS.
 4 PINTS – M-5-1505 TRANS.

Troubleshooting

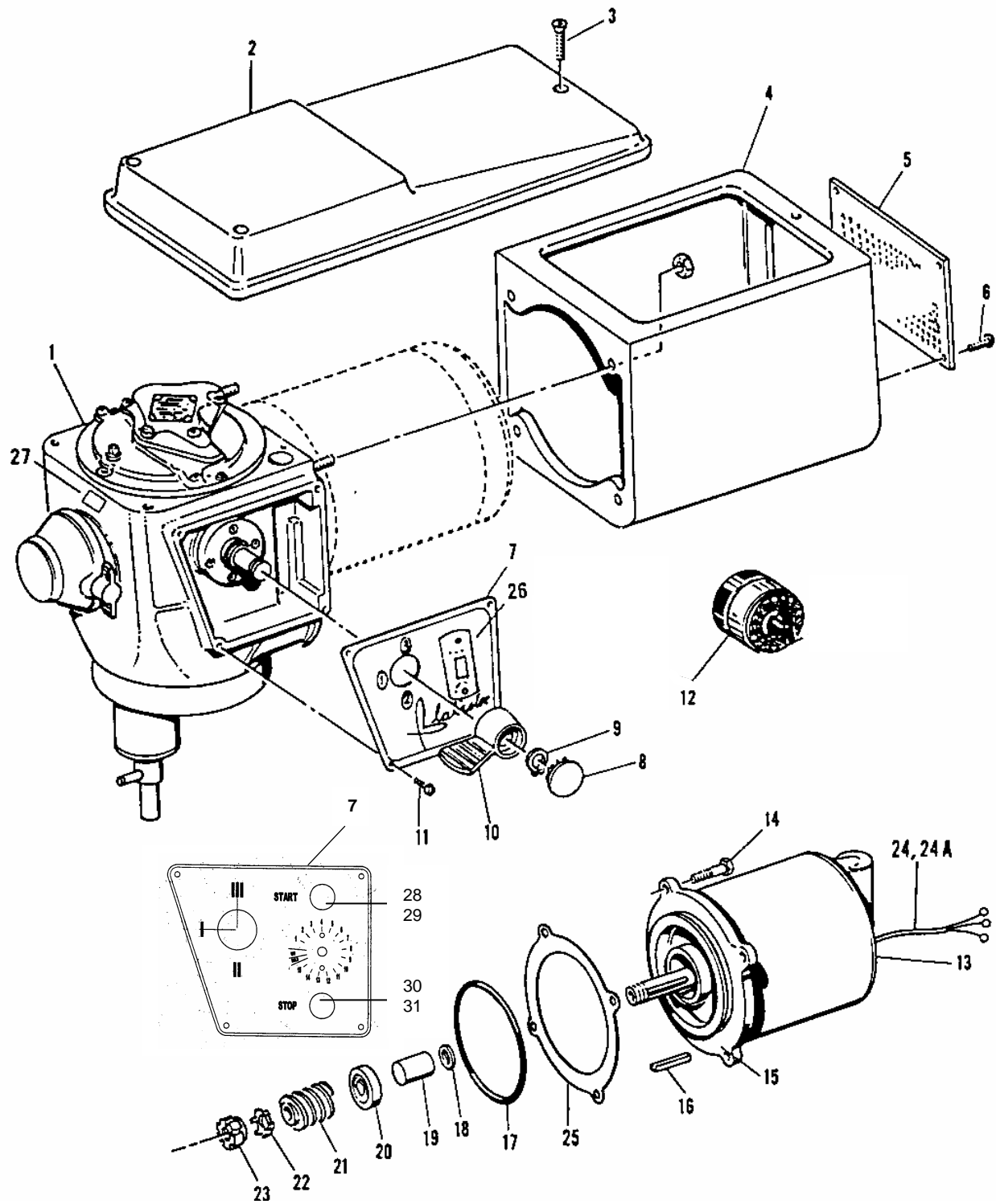
Type of Trouble	Possible Cause	Recommended Corrective Procedure
Mixer will not start	Main fuse or breaker out	Reset breaker and change fuse.
	Overload switch tripped	
	Wire loose or broken	
	The timer inoperative	
Motor runs but will not change speeds	Speed change lever loose	Remove handle, install key, replace handle and snap ring.
	Mixer under to great a load	Stop mixer, shift to another speed and restart.
	Shifter yoke bent or broken	Gearbox to be repaired after removal.
Unit runs hot or smokes	Improper voltage on motor or motor defective	Have electrician check
	Motor overloaded	Have amp draw checked by electrician
	Gear box low on lubricant	Drain out old oil (square drain plug on bottom of gear box) and insert 3 pints of S.A.E. 50 oil in vent plug hole.
Attachments strike bottom of bowl	Bowl support out of adjustment	See adjustment procedure on page 15
Attachments striking side of bowl	Attachments bent or bowl dented	Replace damaged parts
Bowl will not raise	The drag link spring is off drag link arm	Remove inspection cover from back of machine, replace 2" long heavy spring on rocker guide, install nut and washer on drag link and lock in place by tightening nuts.
	Crank casting loose on drag link	Remove inspection cover from back of machine, reposition crank casting, tighten set screws after being sure crank casting key is in place on shaft.
Transmission operates with a skipping motion	Unit overloaded	Shift to lower speed or reduce quantity of material being mixed
Bowl support hard to raise and lower	Bowl support binding on bowl slides	Clean off bowl slides and lubricate with light grade of oil.
Transmission operates in one speed only and has a clicking noise.	Clutch jaw worn	Replace clutch and gear

Type of Trouble	Possible Cause	Recommended Corrective Procedure
Transmission slips in 1 st gear	Overrun clutch worn	Replace overrun clutch
Motor runs but transmission does not operate	Bronze worm gear worn	Replace bronze worm gear
Bronze worm gear failure	Transmission operated when it was low on oil.	Check transmission for seal leaks
Transmission runs attachment shaft but beater shaft does not	Broken beater shaft or stripped ring gear	Replace broken beater shaft or stripped ring gear



PROTECT YOUR EQUIPMENT

USE GENUINE **BLAKESLEE** PARTS

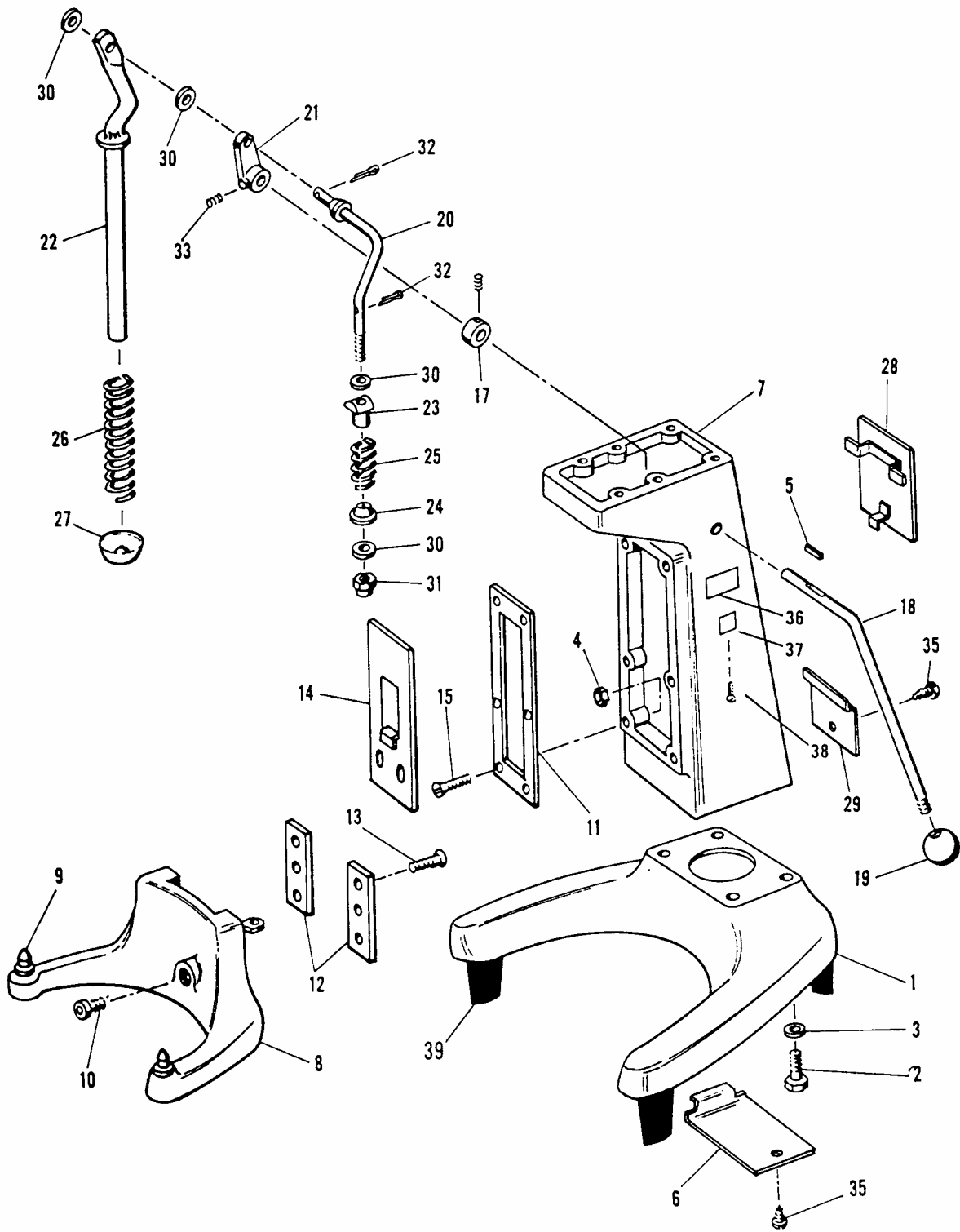


M-5-3330-D & M-5-18769 TRANSMISSION, MOTOR AND HOUSING

ITEM	PART NO.	DESCRIPTION	QTY		
*	1	18769	Transmission	1	
*	1a	86185	Transmission Reconditioned	1	
	1b	3330-D	No Longer Available		
	2	01961	Top Cover, Gearbox and Motor Housing	1	
	3	12549	Screws, ¼ x 1-1/4" Flat Head Machine	3	
	4	72974	Housing, Motor, Steel (20 Quart)	1	
	4a	72972	Housing, Motor, S/S (20 Quart)	1	
	4b	72975	Housing, Motor, Steel (30 Quart)	1	
	4c	72973	Housing, Motor, S/S (30 Quart)	1	
	5	72667	Cover Plate, for Rear of Motor Housing	1	Steel
	5a	03451	Cover Plate, for Rear of Motor Housing	1	Aluminum
	5b	72976	Cover Plate, for Rear of Motor Housing	1	S/S
	6	20279	Screws, 10-24 x 3/8" R.H.	4	
	7	73689	Nameplate for Electric Timer	1	
	7a	03327	Name Plate for Manual Timer	1	
	8	17379	Plug	1	
	9	17380	Snap Ring	1	
	10	01458	Lever Gear Shift	1	
	11	15310	Screws, 8-32 x 3/8" Pan Head	1	
	12		Timer, Electric	1	
	12a	1957	Timer, Mechanical	1	
	13	15117	Motor, ½ H.P., 1 Phase (20 Quart)	1	
	13a	20274	270-325 M.F.D. Capacitor (for 15117 motor only)	1	
	13b	15118	Motor, ½ H.P., 3 Phase (20 Quart)	1	
	13c	15119	Motor, ¾ H.P., 1 Phase (30 Quart)	1	
	13d	18904	540 M.F.D. Capacitor (for 15119 Motor only)	1	
	13e	15120	Motor, ¾ H.P., 3 Phase (30 Quart)	1	
		18512		1	
	14	03573	Screws, 3/8 x 1" Socket Head	4	
	15	03427	Gasket	1	
	16	15358	Key	1	
	17	15141	'O' Ring	1	
	18	15144	Washer, ½ x ¾" Copper Asbestos	1	
	19			1	
				1	
	20	15143	Oil Seal	1	
	21	01252	Worm	1	
	22	15142	Washer	1	
	23	15145	Nut	1	
	24	15366	Cable Assembly, Motor to Switch (3 Ph. 208/230 V)	1	
	24a	18594	Cable Assembly, Motor to Switch (3 Ph. 440/480V)1	1	
	25	03427	Gasket , Motor to switch`	1	
	26	95654	Switch Guard	1	
	27	95650	Caution Label	1	
	28	97275	Start Button	1	
	29	97276	Contact Block N.O.	1	
	30	97274	Stop Button	1	
	31	97277	Contact Block N.C.	1	

- 18769 Transmission is used from serial number suffix #1-B A A and up.

Specify machine serial number when ordering parts



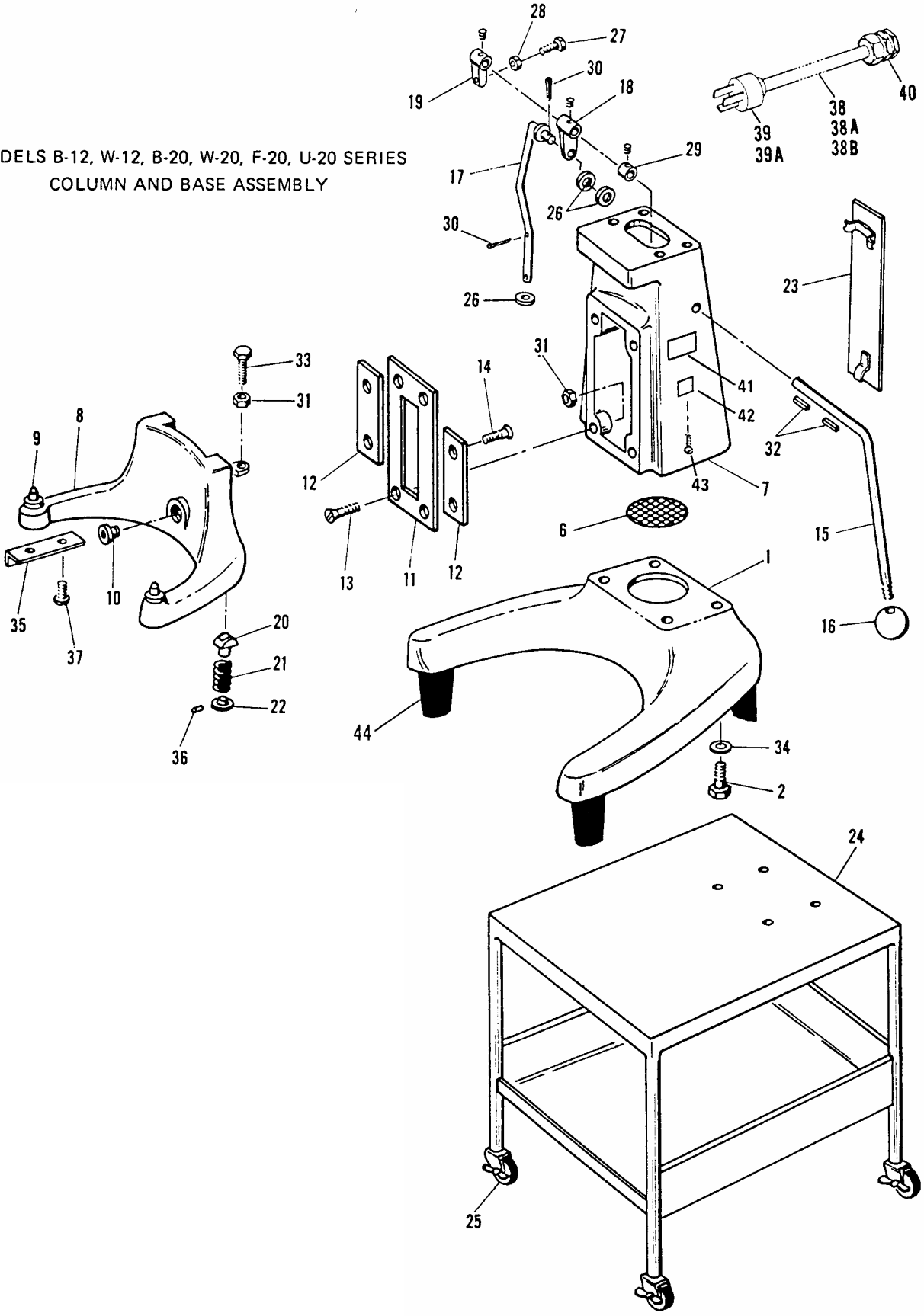
MODEL F-30 COLUMN & BASE ASSEMBLY

MODEL F-30 COLUMN AND BASE ASSEMBLY

Item No.	Part No.	Description	No. Reqd.	F30 with M5-3330 or M5-18769 Transmission	F30 with M5-1505 Transmission
1	M-3-72877	BASE, Floor Type	1	x	x
2	M1-15320	CAPSCREW, 1/2 x 1-3/4"	4	x	x
3	M1-15317	LOCKWASHER, 1/2" Split	4	x	x
4	M1-15323	LOCKNUT, 3/8" Hex	4	x	x
5	W0-16364	KEY, 3/16 x 3/16 sq. x 1-1/6" lg.	1	x	x
6	M1-3442	BOTTOM COVER	1	x	x
7	M4-1997	COLUMN	1	x	
7	M4-1412	COLUMN	1		x
8	M4-1998	BOWL SUPPORT	1	x	
8	M4-1414-G	BOWL SUPPORT	1		x
9	M1-1991	BOWL PIN	2	x	x
10	M1-1603	BUSHING, Nylon	1	x	x
11	M3-3305	BAR, Bowl Support Guide	1	x	
11	M2-1424-F	BAR, Bowl Support Guide	1		x
12	M2-3312	STRAP, Bowl Support Guide	2	x	
12	M2-1425	STRAP, Bowl Support	2		x
13	M1-15056	SCREW, 3/8 x 7/8" F. H. Machine	4	x	x
14	M2-1995	SANITARY SHIELD	1	x	
14	M2-1461	SANITARY SHIELD	1		x
15	M1-15339	SCREW, 3/8 x 2" F. H. Machine	6	x	x
17	W1-12821	COLLAR, 5/8" Set	1	x	x
18	M3-3308	LEVER, Bowl Left	1	x	
18	M3-1937	LEVER, Bowl Left	1		x
19	M-0-99066	KNOB, Bowl Lift Handle	1	x	x
20	M2-1969	DRAG LINK	1	x	
20	M2-1319	DRAG LINK	1		x
21	M1-1967	CRANK	1	x	
21	M1-1419	CRANK	1		x
21	M1-1528	STOP, Crank	1		x
22	M2-1968	ROD, Spring	1	x	
22	M2-1514	ROD, Spring	1		x
23	M1-1322	GUIDE, Rocker	1	x	x
24	M1-1346	WASHER, Spring	1	x	x
25	M1-1320	SPRING	1	x	x
26	M1-1994	SPRING, Balance	1	x	x
27	M1-1515	HEMISPHERICAL SPRING PERCH	1	x	x
28	M2-3314	ENCLOSURE PANEL, Rear	1	x	
28	M4-1457	ENCLOSURE PANEL, Rear	1		x
29	M1-3307	PANEL ENCLOSURE, Base	1	x	x
30	M1-1516	WASHER, 3/8" Flat	3	x	x
31	W0-16365	LOCKNUT, 3/8-16 Flex	1	x	x
32	W1-16361	PIN, 1/8 x 3/4" Cotter	1	x	x
33	M1-7117	SETSCREW, 5/16 x 3/8" Soc. Hd.	1	x	x
35		SCREW, Sheet Metal	1	x	x
36	P1-5052	PLATE, Data	1	x	x
37	W2-20878	MOTOR REQUIREMENT NAME PLATE	1	x	x
38	W1-8096	SCREW, #4 x 1/4 Self-Tapping	4	x	x
39	M-1-73481	PLASTIC LEG CUP	4	x	x

SPECIFY MACHINE SERIAL NO. WHEN ORDERING PARTS

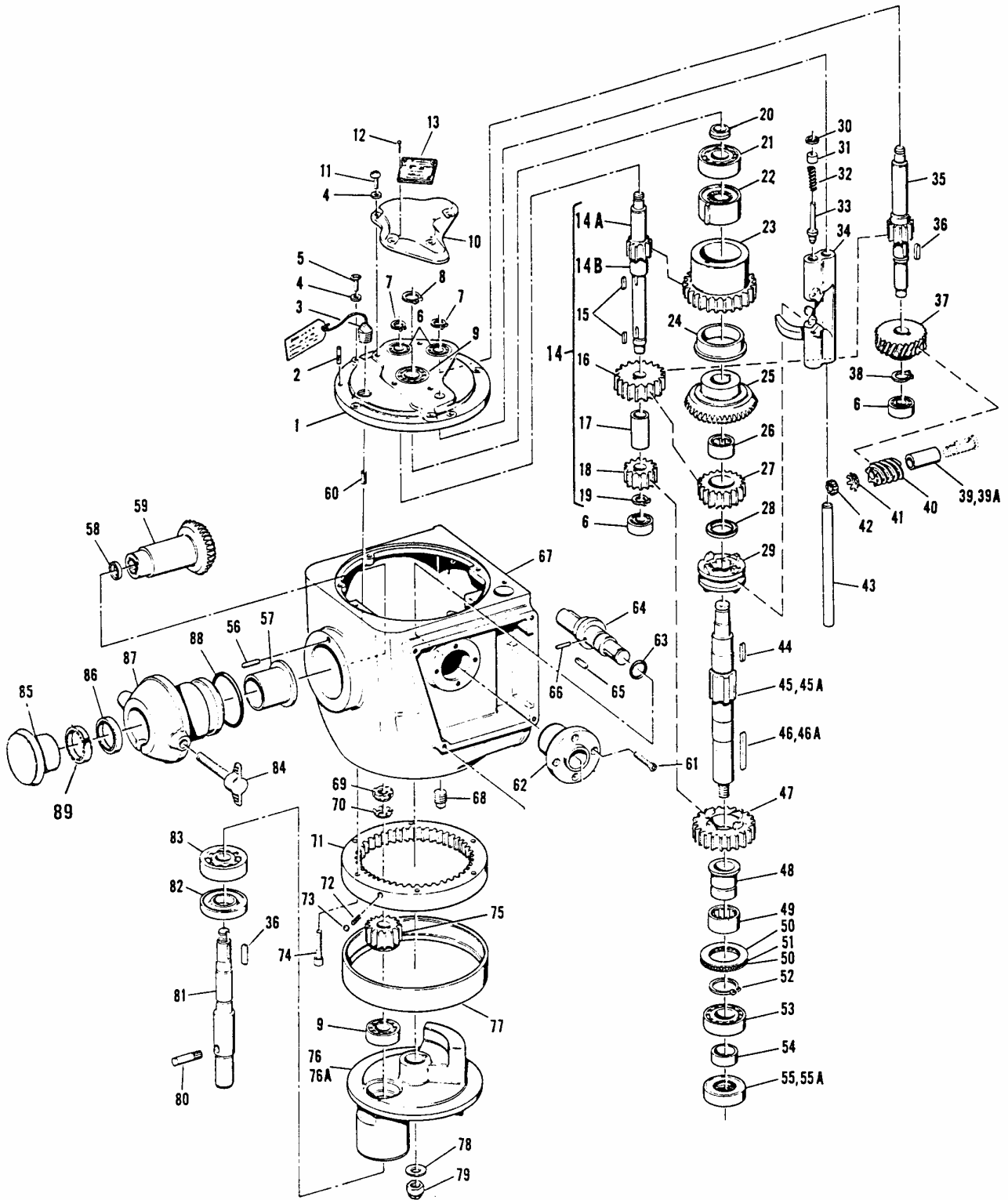
MODELS B-12, W-12, B-20, W-20, F-20, U-20 SERIES
COLUMN AND BASE ASSEMBLY



MODELS B-20, F-20, U-20 SERIES COLUMN & BASE ASSEMBLY

Item No.	Part No.	Description	No. Reqd.	USED ON				
					B20		F20	U20
1	M-4-72871	BASE, Bench Type	1		x			
1	M-4-72871	BASE, Floor Type	1				x	
2	W1-9548	CAPSCREW, 3/8 x 1-3/4"	4		x			
2	M1-15320	CAPSCREW, 1/2 x 1-3/4"	4				x	x
3	M4-1504	BASE, Wall Type	1					
4	M4-1506	BRACKET, Wall Mount	1					
5	M1-1361	SUPPORT STUD, Attachment Mount	2					
6	M1-1462	SCREEN, Vinyl	1		x		x	
7	M4-1413-B	COLUMN	1					
7	M4-1416	COLUMN	1		x			
7	M4-1557	COLUMN	1				x	x
8	M4-1418	BOWL SUPPORT	1					
8	M4-1417	BOWL SUPPORT	1		x		x	x
9	M1-1348-B	BOWL PIN	2		x		x	x
10	M1-1603	BUSHING, Nylon	1		x		x	x
11	M2-1428-B	BAR, Bowl Support Guide	1		x			
11	M2-1437-B	BAR, Bowl Support Guide	1				x	x
12	M1-1427	STRAP, Lock Bowl Support	2		x		x	x
13	M1-15339	SCREW, 3/8 x 2" F. H. Mach.	4		x		x	x
14	M1-15056	SCREW, 3/8 x 7/8" F. H. Mach.	4		x		x	x
15	M2-1436	LEVER, Bowl Lift Handle	1		x			
15	M3-1315	LEVER, Bowl Lift Handle	1				x	x
16	M-0-99066	KNOB, Bowl Lift Handle	1		x			
16	M-0-99066	KNOB, Bowl Lift Handle	1				x	x
17	M2-1426	DRAG LINK	1					
17	M2-1422	DRAG LINK	1		x			
17	M2-1420	DRAG LINK	1				x	x
18	M1-1344	CRANK w/SETSCREW	1		x			
18	M1-1419	CRANK w/SETSCREW	1				x	x
19	M1-1528	CRANK STOP w/SETSCREW	1				x	x
20	M1-1322	GUIDE, Rocker	1		x		x	x
21	M1-1320	SPRING	1		x		x	x
22	M1-1346	WASHER, Spring	1		x		x	x
23	M2-1431	PANEL, Column Enclosure	1					
23	M2-3359	PANEL, Column Enclosure	1		x			
23	M4-1457	PANEL, Column Enclosure	1				x	x
24	M1-18926	CABINET STAND w/Castors & Att. Holders	1					x
25	M1-15102	CASTORS w/BRAKE	4					x
26	M1-3538	WASHER, 3/8" Flat	3		x		x	x
27	W1-7657	CAPSCREW, 1/4 x 1-1/4"	1		x			
28	W0-7012	NUT, 1/4" Hex	1		x			
29	M1-15346	COLLAR, 1/2" Set	1		x			
30	W1-16361	PIN, 1/8 x 3/4" Cotter	2		x		x	x
31	M1-15323	LOCKNUT, 3/8" Hex	5		x		x	x
32	M1-15385	KEY, 1/8 x 1/8 sq. x 1" lg.	2		x			
32	M1-15387	KEY, 3/16 x 3/16 sq. x 1-5/8" lg.	2				x	x
33	M1-15095	CAPSCREW, 3/8 x 2-1/4" Full Thread	1		x		x	x
34	W1-5994	LOCKWASHER, 3/8" Split	4		x			
34	M1-15317	LOCKWASHER, 1/2" Split	4				x	x
35	M1-3476	SPLASH GUARD	1		x		x	x
36	M1-15345	PIN, 1/8 x 9/16" Drive	1		x		x	x
37	M1-3514	SCREW, 10-24 x 3/8" Rd.Hd.Self Tapping	2		x		x	x
38	M1-18562	3 WIRE CORD, Rubber Covered	1					
38A	M1-15369	4 WIRE CORD, Rubber Covered	1					
38B	M1-18563	CORD SET ASSY.	1					
39	P1-17212	3 PRONG PLUG	1					
39A	P1-17213	4 PRONG PLUG	1					
40	P1-17227	CABLE CONNECTOR	1					
41	P1-5052	PLATE, Data	1		x		x	x
42	W2-20878	POWER REQUIREMENT NAMEPLATE	1		x		x	x
43	W1-8096	SCREW, #4 x 1/4 Self-Tapping	4		x		x	x
44	M-1-73480	PLASTIC LEG CUP	4				x	

SPECIFY MACHINE SERIAL NO. WHEN ORDERING PARTS



TRANSMISSION
 M-5-3330 WITH BLAKESLEE HUB
 M-5-18769 WITH UNIVERSAL HUB (TYPE B)

TRANSMISSION
M-5-3330 WITH BLAKESLEE HUB
M-5-18769 WITH UNIVERSAL HUB (TYPE B)

Item No.	Part No.	Description	No. Reqd.	Item No.	Part No.	Description	No. Reqd.
1	M-4-1959-A	COVER	1	47	M-2-1259-E	GEAR & CLUTCH, Intermediate	1
2	M-0-17364	DRIV-LOK PIN, Type B 3/16 dia. x 1/2" lg.	1	48	M-1-1884-B	SPACER & BEARING RACE	1
3	M-1-1681	PLUG ASSY, Trans. Case Vent	1	49	M-0-17374	BEARING, Needle, Torr. B-2010	1
4	M-0-17365	WASHER, 1/4 I. D. x 1/2 O. D. x 1/64" thk	9	50	M-0-17375	BEARING RACE, Thrust, Torr. TRA-2031	2
5	W-0-16074	SCREW, Ph. Truss Hd. 1/4-20 x 3/4" lg.	4	51	M-0-17376	THRUST BRG., Needle, Torr. NTA-2031	1
6	M-0-17366	BEARING, N. D. #3201 or equiv.	4	52	M-0-17377	SNAP RING, Truarc Ext. 5100-125	1
7	M-0-17367	SNAP RING, Truarc 5100-46	2	53	M-0-17378	BEARING, N. D. #3205 or equiv.	1
8	W-1-13059	SNAP RING, Truarc 5100-66	1	54	M-1-1279	SPACER (used with M-2-1271 shaft)	1
9	M-0-17368	BEARING, N. D. #3203 or equiv.	2	54A	M-1-1279-B	SPACER (used with M-2-1271-D shaft)	1
10	M-2-1407-B	COVER, Shaft	1	55	M-1-15315	SEAL (for use with M-2-1271-D only)	1
11	W-0-16075	SCREW, Ph. Truss Hd. 1/4-20 x 5/8" lg.	5	55A	M-1-15318	SEAL (for use with M-2-1271 only)	1
12	M-0-16076	PIN, Escutcheon #13 x 1/4" lg. brass	4	56	M-0-17385	PIN, Driv-lok, 5/16 dia. x 3/4" lg.	1
13	M-1-1492-B	DATA PLATE	1	57	M-1-3334	BUSHING, Aux. attachment shaft	1
14	W-0-14862	SHAFT ASSY, Intermediate (includes items 14A thru 19)	1	58	M-0-17386	PLUG, Expansion	1
14A	M-1-15074	INTERMEDIATE SHAFT	1	59	M-2-1262-G	SHAFT, Bevel Pinion and Attachment Dr.	1
14B	M-1-15078	SPACER (on hvy. duty shafts only)	1	*59A	M-2-18750	SHAFT, Bevel Pinion and Attachment Dr.	1
15	M-1-1559	KEY, 3/16" sq. x 5/8" lg.	2	60	W-0-16086	SETSCREW, Soc. Hd. 3/8-16 x 7/8" lg.	1
16	M-1-15076	GEAR, Countershaft	1	61	W-0-16078	SCREW, Fl. Hd. 10-24 x 5/8" lg.	4
17	M-1-15077	SPACER	1	62	M-1-1408-A	BEARING COVER	1
18	M-1-15075	SPUR PINION	1	63	M-0-17381	"O" RING, Garlock 24849-15, 3/4 x 1" x 1/8"	1
19	M-1-15083	SNAP RING, Truarc 5100-75	1	64	M-2-3332-D	CAM & GEAR SHAFT	1
20	M-1-1280-A	Spacer	1	65	M-1-1659	KEY, 3/16" sq. x 1/2" lg.	1
21	M-0-17369	BEARING, N. D. #3304 or equiv.	1	66	M-0-17382	DRIV-LOK, 1/8 dia. x 1/2" lg. Type "D"	1
22	M-1-1934	CLUTCH, Overrun	1	67	M-5-1960-C	HOUSING, Trans.	1
23	M-2-1258-D	SPUR GEAR & SLEEVE, Low speed	1	68	W-0-16079	PLUG, Drain 1/8-27 N. P. T.	1
24	M-0-17370	BUSHING, Flange	1	69	M-0-16081	LOCKNUT, Brg, Torr. #N-02	1
25	M-2-1261-E	BEVEL GEAR	1	70	M-0-16080	LOCKWASHER, Brg, Torr. #W-02	1
26	M-0-17371	BEARING, Needle, Torrington B-168	1	71	M-2-1264-C	RING GEAR, Internal	1
27	M-2-1260-F	GEAR & CLUTCH, Hi speed	1	72	M-1-1292	SPRING	3
28	M-0-17372	THRUST BUSHING, Bunting TW-100	1	73	W-0-16082	BALL, Steel 1/4" dia.	3
29	M-2-1265-C	CLUTCH (Jaw)	1	74	S-0-16083	SCREW, Soc. Hd. 1/4-20 x 1" lg.	6
30	M-0-17373	SNAP RING, Truarc 5000-50	2	75	M-1-1263-A	PINION, Planet	1
31	M-1-1404-B	GUIDE, Actuator rod	1	76	M-3-1248-C	SUPPORT, Beater Shaft (for use with M-2-1271 only)	1
32	M-1-1288	SPRING, Shifter fork	2	76A	M-3-1248-E	SUPPORT, Beater Shaft (for use with M-2-1271-D only)	1
33	M-1-3331-B	ROD, Actuator	2	77	M-2-1284-A	DRIP RING	1
34	M-2-3345-B	SHIFTER YOKE ASSY. (Includes Items 30-31-32-33-34)	1	78	W-0-16084	WASHER, Fl. 1/2" x 1-1/4" O. D.	1
35	M-1-1254-C	PINION SHAFT	1	79	W-0-16085	STOP NUT, Elastic 1/2-20	1
36	M-1-1658	KEY, 3/16" sq. x 3/4" lg.	2	80	M-1-1396-A	PIN, S/Stl.	1
37	M-1-1253-C	WORM GEAR	1	81	M-2-1250-D	SHAFT, Beater	1
**37a	M0-95492	WORM GEAR	1	82	W-1-12561	OIL SEAL, Victor K-3-64254	1
38	M1-3488	SNAP RING, Truarc 5100-75	1	83	M-0-17383	BEARING, N. D. #3204 or equiv.	1
39	M-1-1491-A	SPACER (for A. O. Smith Motor - only)	1	84	M-1-1438-A	SCREW ASSY, Wing head	1
39A	M-1-1539	SLEEVE (for Howell & Marathon Mtrs.)	1	85	M-1-1933	CAP, Aux. Drive Hub	1
40	M-1-1252-A	WORM, 5 thread	1	*85A	M-1-18751	CAP, Aux. Drive Hub	1
**40a	M0-95491	WORM	1	86	M-1-15314	OIL SEAL, Victor K4-63544	1
41	M-1-15142	LOCKWASHER, Bearing, Torr. W-01	1	*86A	M-0-18752	OIL SEAL	1
42	M-0-16077	LOCKNUT, Bearing, Torr. N-01	1	87	M-3-3333-A	HUB, Aux, attachment	1
43	M-1-1293	GUIDE ROD, Shifter Yoke	1	*87A	M-3-18749	HUB, Aux, attachment	1
44	M-1-1560	KEY, 3/16" sq. x 1" lg.	1	88	M-0-17384	"O" RING SEAL	1
45	M-2-1271	SUN SHAFT, 3/4" shaft dia.	1	89	M-0-18805	OIL, Transmission (3 pts. reqd)	1
45A	M-2-1271-D	SUN AHFT, 15/16" shaft dia. (use 46A key)	1				
46	M-1-1657	KEY, 3/16" sq. x 1-7/8" lg.	1				
46A	M-1-15079	KEY, 1/4x1-7/8"lg. (for use w/45A)	1				

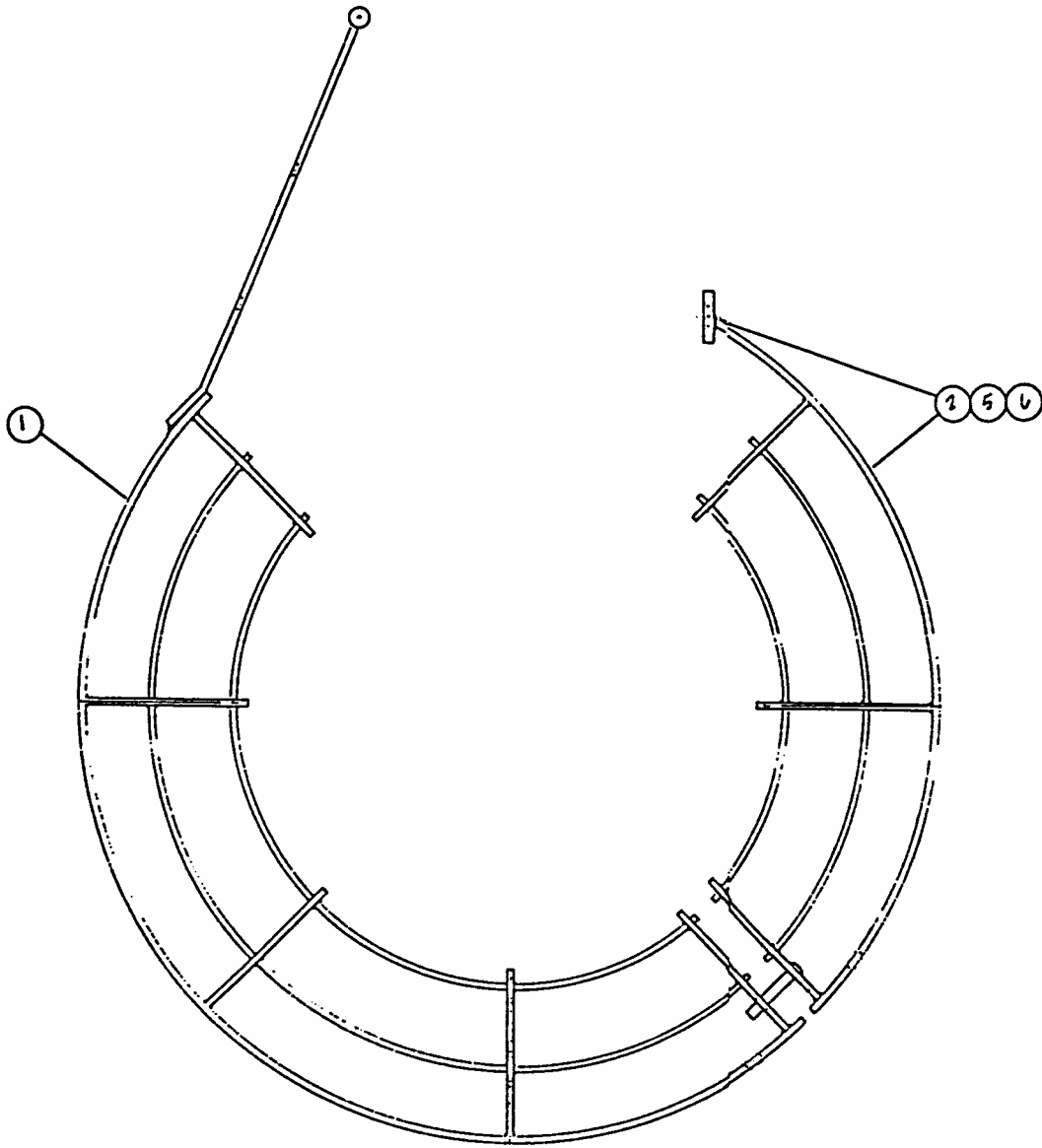
*These parts used only on Universal Hub (Type B) transmissions, beginning with serial # 1 **B** **A** **A** & up.

**USED WITH M-5-95493 SPECIAL TRANSMISSION (50 cycle)

NOTE 1.

In 1967 the thickness of the lower end of the sun shaft was changed from 3/4" to 15/16". To determine the diameter of the shaft in any transmission, remove the support (Index 76, Part #M-3-1248) and measure the shaft end.

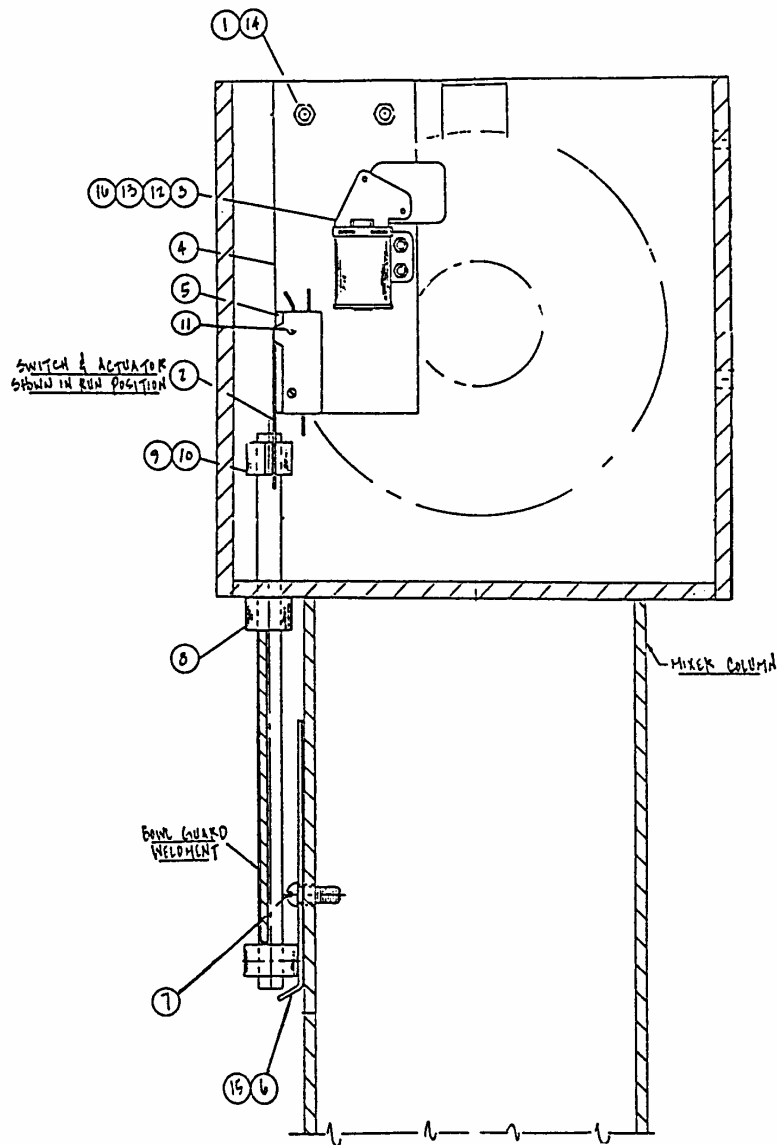
SPECIFY MACHINE SERIAL NO. WHEN ORDERING PARTS



ITEMS # 5,6, & 7 NOT SHOWN

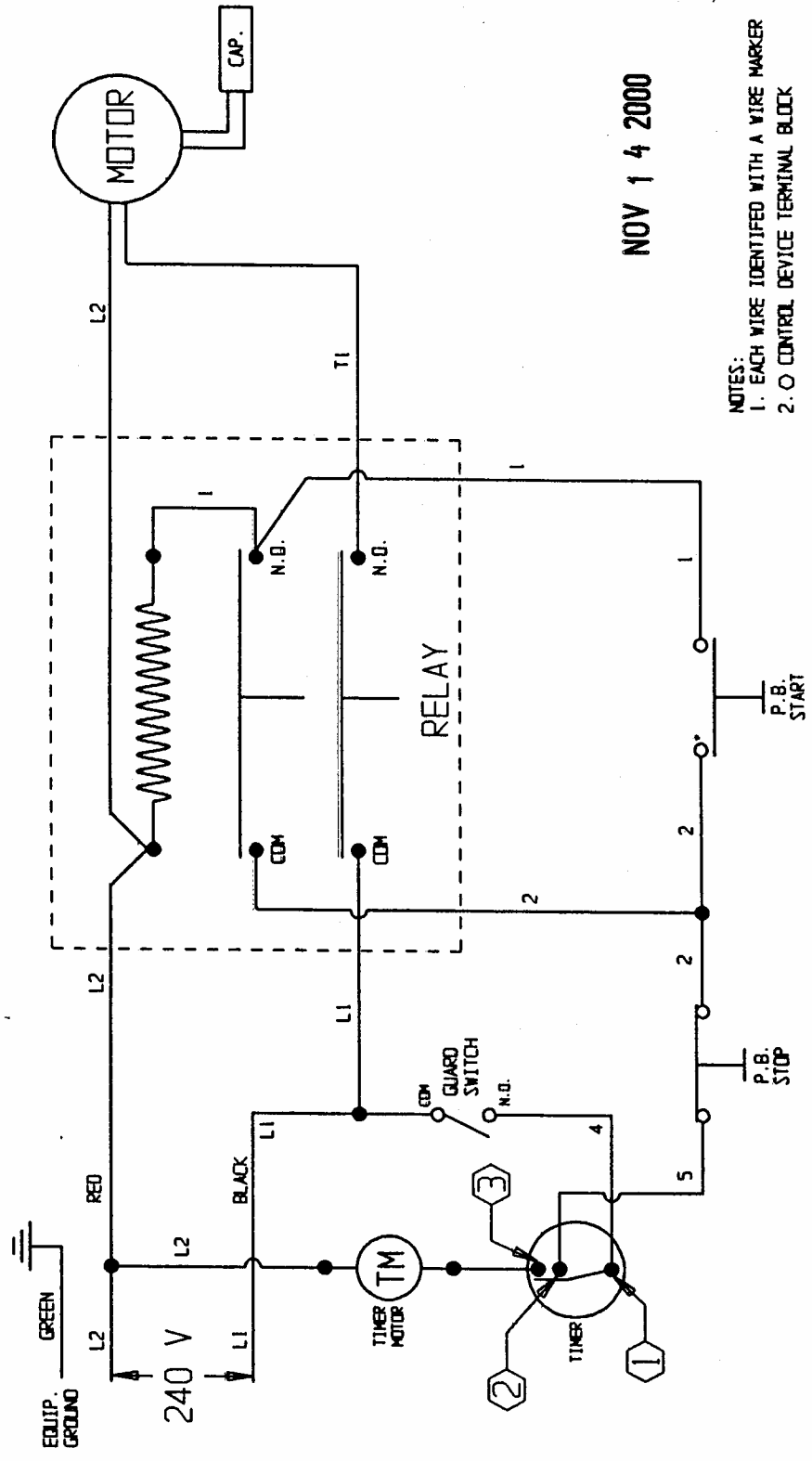
TYPE "A" BOWL GUARD ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	74845	Cover Weldment	1
2	74048	Side Plate Weldment	1
3	74941	Handle	1
4	14849	Pin	1
5	08434	1/4-20 x 1" Screw	2
6	07282	1/4-20 Lock Nut	2
7	74955	Safety Switch Assembly	1



TYPE "A" BOWL GUARD ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY
1	16732	1/4-20 Lock Nut	2
2	70152	Micro-Switch	1
3	74073	Power Relay 115V	1
4	74949	Plat, Switch	1
5	74948	Spacer, Switch	1
6	75502	Retainer	1
7	08434	1/4 -20 x 1" Machine Screw	2
8	74951	Spacer	1
9	74954	Actuator Weldment	1
10	07847	1/4-20 x .31 Set Screw	1
11	74978	6-32 x 1.5 Machine Screw	2
12	09887	6.32 x .50 Machine Screw	2
13	08875	6.32 Hex Nut	2
14	12608	1/4-20 x .75	2
15	75291	Retainer	1
16	75292	Power Relay	1



NOV 1 4 2000

- NOTES:
 1. EACH WIRE IDENTIFIED WITH A WIRE MARKER
 2. O CONTROL DEVICE TERMINAL BLOCK

