



Donut Cutter Type F Operator's Manual

Belshaw Bros., Inc.
814 44th Street NW, Suite 103
Auburn, WA 98001 USA
Phone: 206-322-5474 • Fax: 206-322-5425
E-mail: service@belshaw.com • <http://www.belshaw.com>

If you accept the machine from the shipping company, you are, in effect, saying that the machine is in good condition, and you must pay for the machine.

The Freight Company has accepted responsibility for the safe delivery of our machines.

For your protection, inspect the machine to see that no parts are bent, scratched, or otherwise damaged.

If any damage has occurred in shipping, file a freight claim with the shipping company immediately.

EQUIPMENT RECORD

Please provide the information below when you correspond with us about your machine.

Purchased by _____

Installed by _____

Date of Installation _____

Model number _____

Serial number _____

010208

MN-1532EN

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Preface

The Type F Donut Cutter is designed to cut cake donut products and deposit them in a variety of fryers. It is designed to be mounted on a wall, or on a column, attached to the fryer.

In the European Community, the machine is available with the following electrical configurations:

- 220 volts, 1 phase, 50 hertz
- 380 volts, 3 phase, 50 hertz
- 240 volts, 1 phase, 50 hertz
- 415 volts, 3 phase, 50 hertz

The Type F Donut Cutter produces only 75.5 dB(A) of equivalent A-weighted sound pressure at workstations. The C600G-E system (C600G-E, FM600-E, Type F Donut Cutter, FT600-E, DC600-E, and CA600-E) produces 71.5 dB(A). This has been determined while running the cutter with no batter in the hopper, using a Bruel & Kjaer sound level meter, type 2236.

During production, the operator must move the Cutter, holding the guide handle, to deposit donuts in the desired locations in the fryer. The operator must work safely at all times and read this manual, following its instructions and warnings.

A thorough understanding of how to install, maintain, and safely operate the Type F Donut Cutter will prevent production delays and injuries. Heed the following warnings and all other warnings that appear in this manual:

- Make sure the machine is mounted securely. Doing so will prevent the machine from tipping over or falling, which could cause serious injury.

- When the machine is column-mounted on a fryer, make sure the fryer is securely fastened to the floor. If the fryer is not fastened to the floor, the weight of the cutter could cause the fryer to tip over, resulting in serious burns, other injury, or death.
- To avoid being seriously injured, never put your hand in the hopper while the machine is connected to the power source.
- To avoid being seriously injured, never put your hand between the trip arms while the machine is connected to the power source.
- To avoid electrocution, or other injury, unplug the machine before attempting any adjustment, repair, disassembly, or cleaning.
- To avoid damaging the machine, never use force to assemble, disassemble, operate, clean, or maintain it.
- Be careful never to get shortening, water, or other materials on the floor. If anything does get spilled on the floor, clean the area immediately. Materials on the floor can cause people to slip or fall, resulting in serious injury, or loss of life.
- To prevent unintentional startup and possible fire, unplug the machine if there is a local power outage. When the power is restored, it is safe to plug the machine in again.
- To avoid electrocution, make sure that all electrical cords are not frayed, or cracked, and they do not pass through any water, or shortening.
- Make sure that all electrical cords are routed so that no one will trip over them.

1

Operation

Read each step **completely** prior to doing what it tells you to do.

1. Select the desired donut weight as follows:
 - a. Loosen the dial lock nut on the side of the cutter head.
 - b. Turn the pointer to the desired number on the dial. (The higher the number, the larger the donuts will be.)
 - c. Tighten the dial lock nut.

WARNING

To avoid serious injury, never adjust the product size while the motor is on.

2. Put dough into the hopper.
3. Move the power switch on the motor to the ON position.
4. Expel any air that is trapped in the cylinder as follows:
 - a. Hold a bowl under the cutter.
 - b. Squeeze the clutch lever toward the handle, and allow two or three donuts to drop into the bowl.

- c. Release the clutch lever.
 - d. Put the donuts back in the hopper.

5. Swing the cutter over the fryer kettle and squeeze the clutch lever to deposit donuts in the fryer. You should move the cutter about 4¹/₁₀ cm after every cut.

If the thermal overload circuit breaker cuts off the power to the motor during operation, push the red reset button.

WARNING

To avoid serious injury, never put your hand in the hopper, under the hopper, or between the trip arms while the machine is connected to the power source.

6. To use the last of the dough in the hopper, use a rubber or plastic spatula to push the dough to the bottom of the hopper. Do not use a metal utensil; it could scratch the hopper.
7. When you are done cutting donuts, release the clutch lever and swing the cutter away from the fryer kettle.

2

Cleaning

Clean the Type F Donut Cutter after every use. Follow these steps:

1. Turn the motor off and disconnect the machine from the power source.

WARNING

To avoid electrocution or other injury, unplug the machine before cleaning.

2. Put one of your hands underneath the cylinder.

CAUTION

If you do not keep your hand under the cylinder when you loosen the plunger, the plunger will fall on through and be damaged.

3. Loosen the wing nut that holds the crown bearing in place.
4. Remove the trip arm guard.
5. Loosen the wing nut that holds the hinge clamp in place.

6. Open the hinge clamp and remove the hopper, and the plunger, by pulling them forward.
7. If desired, remove the cylinder from the hopper. If you cannot remove it at first, run hot water on the hopper and cold water on the cylinder, and try again.
8. Wash the cutter, hopper, and cylinder separately, using warm water, a mild detergent, and a non-abrasive scrubber.
9. Rinse these parts in clear water.
10. Dry the parts.
11. If desired, wipe the rest of the machine using a damp cloth.

WARNING

To avoid electric shock, serious burns, and equipment damage, never allow water to enter the cutter head or the motor.

3

Maintenance

WARNING

To avoid electrocution or other injury, unplug the machine before performing maintenance.

WARNING

If grease gets on the floor, clean the area immediately. Grease on the floor can cause someone to slip, fall, be seriously injured, or even die.

Daily

Taking Care of the Plunger and Cylinder

The plunger and cylinder are precision equipment. Always handle them carefully and avoid dropping them. If you do, they will perform well for years.

Every day, after you clean and dry the plunger and the cylinder, coat them with a thin film of cooking oil. Doing so will keep them from rusting.

Lubricating the Center Rod

Before starting and after every two hours of operation, apply several drops of edible-grade mineral oil to the center rod, directly above the trip arm guard. This will allow the center rod to move smoothly through the crown bearing.

Weekly

WARNING

DO NOT allow grease/lubrication to get into the donut hopper, or to come in contact with the donut mixture.

Lubricating the Shaft

Once a week, put one drop of food grade 30-weight oil through the lubricating hole that is in the cam case, right *next* to the dial. (This hole is tapered; do not confuse it with the access hole *in* the dial, which is larger and not tapered.)

Lubricating the Cams and Trip Arm Pivot Pins

Once a week, apply several drops of food grade 30-weight oil through each of the two holes in the top of the cam case. (The rear hole is for lubricating the trip arm pivot pins. The other hole is for lubricating the cams.)

Draining the Cam Case

Once a week, drain the oil out of the cam case as follows:

1. Remove the trip arm guard, hopper, and plunger.
2. Lift the frame assembly off of the pivot arm pin.
3. Hold the frame assembly so the trip arms point downward and allow any accumulated oil to run out of the cam case.

-
4. Wipe the excess oil from the trip arms and the cam case.
 5. Put the frame assembly back on the pivot arm pin.
 6. Re-install the plunger, hopper, and trip arm guard.

Lubricating the Cam Shaft

Once a week, lubricate the camshaft as follows:

1. Disconnect the machine from the power source.
2. Loosen the wing nut that holds the crown bearing in place.
3. Turn the dial so the trip arms spread apart.
4. Use a narrow paintbrush to apply edible-grade grease to the camshaft through the opening between the trip arms.
5. Hand-tighten the wing nut that holds the crown bearing in place.

Lubricating the Gears and the Clutch

The oil in the gearbox should come up all the way to the fill hole, which is located on the lower part of the gearbox. Once a week, check the level of the oil and, if necessary, add oil, as follows:

1. Make sure the F machine is mounted in the upright operating position.
2. Remove the plug from the fill hole.
3. Check the oil level.
4. If necessary, pump 90-weight oil into the gearbox until it begins to overflow.
5. Allow the excess oil to drain out of the hole.
6. Replace the plug.
7. Wipe the oil off of the gearbox exterior.

Every Six Months

Every six months replace the oil in the gearbox as follows:

1. Remove the trip arm guard, hopper, and plunger.
2. Lift the frame assembly off of the pivot arm pin.
3. Remove the plug from the fill hole.
4. Allow the oil to drain from the gearbox into a suitable container.
5. Recycle or dispose of the used oil properly.
6. Pump 90-weight oil into the gearbox until it begins to overflow.
7. Allow the excess oil to drain out of the hole.
8. Replace the plug.
9. Wipe the oil off of the gearbox exterior.
10. Put the frame assembly back on the pivot arm pin.
11. Install the plunger, hopper, and trip arm guard.

Storing the Cutter

If the cutter is to be stored for any length of time, please use the following procedure:

Store the cutter upright. If it cannot be stored upright, drain the oil from the gear box. (The gearbox is not “watertight,” and should not be sprayed with water for cleaning purposes).

4

Donut-Making Helps

Tips on Making Quality Cake Donuts

- Use the correct batter temperature.
In general, the correct batter temperature is 75°-80°F/24°-27°C. Check the mix manufacturer's instructions, as the recommended temperature range may vary.
If the batter is too warm, the donuts will lack volume and may "ring out" or be misshapen. If the batter is too cold, the donuts will stay under the shortening too long, fry too slowly, and crack open or ball up. They may also absorb excess shortening and lose volume.
- Use the correct floor time.
A floor time of 10 minutes between mixing and cutting allows the baking powder to react with the water. This helps the donuts attain the proper volume the proper level of shortening penetration.
If the floor time exceeds 30 minutes, the mix will gas off, the donuts will lose volume and shape and will absorb too much shortening.
- Use the correct frying temperature.
The correct shortening temperature for frying is 370°-380°F/188°-193°C.
If the shortening is too hot, the donuts will fry too quickly on the outside and will lose volume. The donuts may also become dense inside.

If the shortening is too cold, the donuts will spread too rapidly, will form large rings, will tend to crack open, will be too light in appearance, and will absorb too much shortening.

- Maintain the proper shortening level. We recommend a distance of 1 1/4" between the cutter and the shortening.

If the shortening is too deep, the donuts may not turn over when they reach the turner, causing them to cook unevenly.

If the shortening is too shallow (too far below the cutter), the donuts may not drop flat, may turn over while submerging and surfacing, and may become irregular, cracked, or rough-crust.

- Ensure that the donuts absorb the right amount of shortening.

Donuts should absorb 1-1/2 to 3 oz/42 to 85 g of shortening per dozen, depending on their weight. You can achieve proper absorption by following tips 1-3.

- If the donuts do not absorb enough shortening, they will not keep well.

If they absorb too much shortening, they will lose volume and may become misshapen. If this happens, follow tips 1-3, mix the batter a little longer than usual, turn the donuts as soon as they become golden brown, and turn the donuts only once.

Calculating Correct Water Temperature

The following is an example of how to calculate the correct water temperature to use. You must

use your own room temperature, dry mix temperature, desired batter temperature, and, if you are making yeast-raised donuts, estimated temperature increase during mixing.

	Cake Donuts		Yeast-Raised Donuts	
	°F	°C	°F	°C
Room temperature	72	22.2	72	22.2
Dry mix temperature	+70	+21.1	+70	+21.1
Total A	142	43.3	142	43.3
Desired batter temperature	75	23.9	80	26.7
	<u>x3</u>	<u>x3</u>	<u>x3</u>	<u>x3</u>
Total B	225	71.7	240	80.1
Total B	225	71.7	240	80.1
-Total A	-142	-43.3	-142	-43.3
Desired water temp. for cake donuts	83°F	28.4°C	98	36.8
			↓	↓
			98	36.8
Temperature increase during mixing (average: 30°F/17°C)			<u>-30</u>	<u>-17</u>
Desired water temperature for yeast-raised donuts			68°F	19.8°C

Figure from above

Ratios of Plunger Sizes to Donut Weights

The weights given are for donuts without icings or other toppings. They are provided for reference only, as weights vary according to the density of the batter.

Plunger Size	Donut Weight per Dozen
1"	5-8 oz/142-227 g
1 5/8"	14-17 oz/397-482 g
1 3/4"	16-20 oz/454-567 g
1 7/8"	19-24 oz/539-680 g
2"	22-27 oz/624-765 g

Temperature Conversion

To convert temperatures from Fahrenheit to Celsius, subtract 32 from °F and divide the result by 1.8. For example, $212^{\circ}\text{F} - 32 / 1.8 = 100^{\circ}\text{C}$. To convert temperatures from Celsius to Fahrenheit, multiply °C by 1.8 and add 32 to the result. For example, $(100^{\circ}\text{C} \times 1.8) + 32 = 212^{\circ}\text{F}$.

°F	°C	°F	°C
55	12.8	340	171.1
60	15.6	345	173.9
65	18.3	350	176.7
70	21.2	355	179.4
75	23.9	360	182.2
80	26.7	365	185.0
325	162.8	370	187.8
330	165.6	375	190.6
335	168.3	380	193.3



Donut Cutter Type F

Technical Supplement

Belshaw Adamatic Bakery Group

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Preface

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to the floor. If the fryer is not fastened to the floor, the weight of the cutter could cause the fryer to tip over, resulting in serious burns, other injury, or death.

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- To avoid electrocution, make sure that all electrical cords are not frayed, or cracked, and they do not pass through any water, or shortening.
- Make sure that all electrical cords are routed so that no one will trip over them.

Unpacking and Initial Cleaning

To unpack the Type F Donut Cutter, transport it to the workstation, and clean it:

1. Remove all the parts of the machine from the shipping containers.
2. Carefully carry the parts to the workstation. Observe proper lifting techniques.
3. Remove all packing materials from the machine.
4. Wipe the hopper, plunger, and other parts of the machine with a damp cloth.

WARNING

To avoid electrocution and equipment damage, do not allow any water to enter the motor.

5. Dry all the parts.

Preparing to Mount the Cutter on the Wall

1. Have a qualified technician provide a solid support on the wall, as explained below. We cannot guarantee that the Type F Donut Cutter will comply with CE standards unless you have this work done by a qualified technician.
 - a. Cut a good-quality board (at least 2"/5 cm thick by 4"/10 cm wide) so that it extends from the floor to the ceiling of the bakery.

- b. Attach the board to a wall stud using #4 wood screws, at least 4"/10 cm long. Space the screws every 12"/30.5 cm along the entire length of the board.
2. Drill holes for mounting the fryer, as follows:
 - a. Position the fryer 6-8"/15-20 cm from the wall, slightly to one side of the board. Level the fryer.
 - b. Lay a straight edge across the top of the fryer kettle so that it touches the board.
 - c. With a pencil, mark the board where the bottom of the straight edge touches it. This mark indicates the height of the top of the kettle.
 - d. With a pencil, mark the board 15"/38 cm above the kettle height, in the center of the board.
3. Using an appropriate tool, make a 1/4"/0.635 cm diameter hole at this point.

Installing the Wall Plate

1. Attach the wall plate to the wall support by screwing a 5/16" x 1-1/2" lag screw (provided) through the top hole of the wall plate.
2. Use a level to make sure the wall plate is hanging vertically.
3. On the mounting board, mark the locations of the five other holes in the wall plate.
4. Using an appropriate tool, make holes at these five locations.
5. Screw the five remaining lag screws through the five remaining holes in the wall plate.

Installing the Swing Arm

1. Connect the straight-arm section to the wall plate as follows:
 - a. One end of the straight arm is wider than the other. Slide the bushing through one leg of the wide end of the straight arm.
 - b. Slide the set collar onto the bushing, with the pin side down.
 - c. Slide the bushing into the other leg of the straight arm.
 - d. Put the straight-arm and bushing between the hinge brackets on the wall plate. **The bushing must line up with the holes in the hinge brackets.**
 - e. Slide the wall arm pin through the hinge brackets and bushing. See **Figure 1-1.**

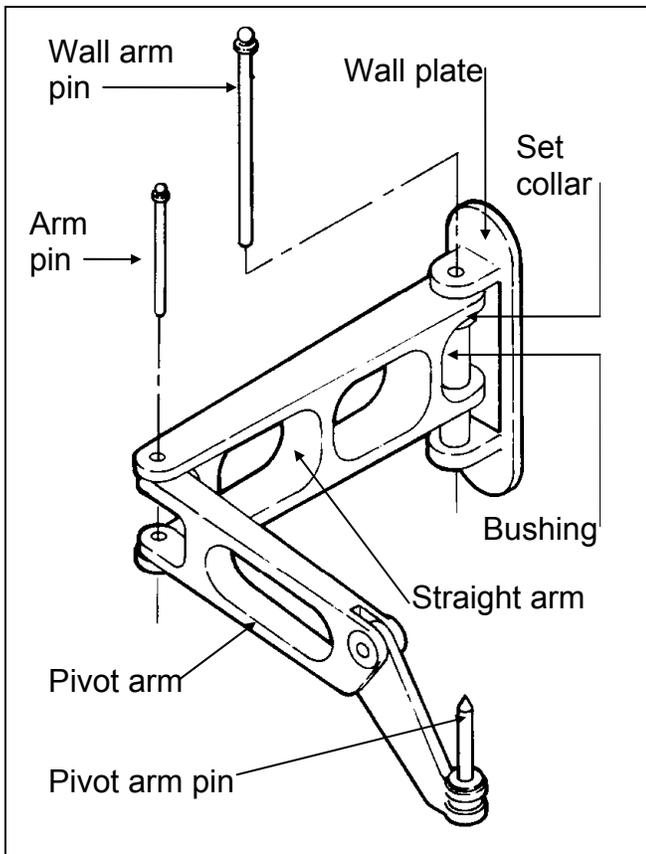


Figure 1-1 Installing the Swing Arm on the Wall Plate

2. Connect the pivot arm section to the straight arm as follows:
 - a. Put the pivot arm between the legs of the straight arm. The holes in the pivot arm and straight-arm must line up.
 - b. Slide the arm pin through the holes in the straight-arm and pivot arm. (See **Figure 1-1.**)

Skip the next section and proceed to “Installing the Cutter.”

Preparing to Mount the Cutter on the Column

Before you can column-mount the Type F Donut Cutter to a fryer, you must secure the fryer to the floor, install the column, and install the swing arm.

Securing the Fryer

If you plan to column-mount the cutter to a non-Belshaw fryer, fasten the fryer securely to the floor. We cannot guarantee that the Type F Donut Cutter will comply with CE standards if you use a non-Belshaw fryer.

If you plan to column-mount the cutter to a Belshaw Century fryer, you do not need to fasten the fryer to the floor.

If you plan to column-mount the cutter to a Belshaw open-kettle fryer, secure the fryer to the floor as follows:

1. Remove the hairpin clips (2 per leg) that hold the casters to the frame of the fryer, then remove the casters. The flanged feet of the fryer will now be resting on the floor.
2. Each of the flanged feet has two holes in it, mark the locations of these holes on the floor.
3. Have a qualified technician use an appropriate tool to create holes in the floor to accommodate 1/4” bolts. We cannot guarantee that the Type F Donut Cutter will

comply with CE standards, unless you have this work done by a qualified technician.

4. Thread a 1/4-20 bolt through each of the holes in the fryer's feet and into the floor.

WARNING

When the machine is column-mounted on a fryer, make sure the fryer is securely fastened to the floor. If the fryer is not fastened to the floor, the weight of the cutter could cause the fryer to tip over, resulting in serious burns, other injury, or death.

Installing the Column

To install the column, follow the instructions appropriate for your fryer. The four sets of instructions below explain how to install the column on the following fryers:

- Pre-1990 Belshaw Open-Kettle Electric Fryers;
- Other Belshaw Open-Kettle Fryers (this includes all Belshaw Open-Kettle Gas Fryers, and Belshaw Electric Fryers manufactured since 1990);
- Belshaw Century fryers; and
- Non-Belshaw Fryers

Pre-1990 Belshaw Open-Kettle Electric Fryers

To install the column on a Belshaw electric fryer made before 1990, follow these steps:

1. Slide the column mounting brackets onto the column.
2. Remove the six nuts and washers from the mounting blocks on the back of the fryer cabinet.
3. (On older Belshaw fryers with narrow kettle flanges, there are no mounting blocks. The

mounting holes are pre-punched in the sheet metal cabinet.)

4. Slide the mounting brackets onto the bolts.
5. Replace the washers and nuts you removed in step 3, and tighten the nuts.
6. With the column resting on the floor, secure the column by tightening the two 5/16-18 x 1" square head set screws (provided) in the mounting brackets.

Other Belshaw Open-Kettle Fryers

Read this section if you want to column-mount the Type F Donut Cutter on a Belshaw open-kettle gas fryer or on a Belshaw open-kettle electric fryer manufactured since 1990. To install the column, follow these steps:

1. Slide the column mounting brackets onto the column.
2. There is a mounting plate on the side of the fryer cabinet; the plate has two sets of three holes in it. Align the holes in the mounting brackets with these holes. Fasten the mounting brackets to the plate using the six lock washers and 5/16-18 x 1" hex-head screws provided.
3. With the column resting on the floor, secure the column by tightening the two 5/16-18 x 1" square head set screws (provided) in the mounting brackets.

Belshaw Century Fryers

To install the column on a Belshaw Century Fryer, follow these steps:

1. Have a qualified technician use an appropriate tool to create holes in the fryer's frame assembly for installing the column mounting brackets.
2. We cannot guarantee that the Type F Donut Cutter or the Century Fryer will comply with CE standards unless you have this work done by a qualified technician.
3. Slide the column mounting brackets onto the column.

4. Align the holes in the column mounting brackets, with the holes in the fryer frame assembly.
5. Secure the mounting brackets to the frame using the 5/16-18 x 1" hex-head screws provided.
6. With the column resting on the floor, secure the column by tightening the two 5/16-18 x 1" square head set screws (provided) in the mounting brackets.

Non-Belshaw Fryers

If you have a non-Belshaw Fryer, check in the Technical Supplement to see whether Belshaw makes an adapter kit for it. If we do, order the adapter kit and install the column according to the instructions that come with the kit.

To install the column on a non-Belshaw fryer for which we do not make an adapter kit, follow these steps:

1. Slide the column mounting brackets onto the column.
2. Choose a location to mount the column. You should mount the column on the side of the fryer the operator will stand on, on the rear corner. You may mount the column either on the side, or on the back of the fryer, provided that the cutter will be able to move freely.
3. Have a qualified technician use an appropriate tool to create holes in the fryer cabinet for installing the column mounting brackets. We cannot guarantee that the Type F Donut Cutter will comply with CE standards, unless you have this work done by a qualified technician.
4. Secure the mounting brackets to the fryer using 5/16-18 machine screws, 5/16 flat washers, 5/16 lock washers, and 5/16-18 hex nuts.
5. With the column resting on the floor, secure the column by tightening the two 5/16-18 X

1" square head set screws (provided) in the mounting brackets.

Installing the Swing Arm

1. Slide the set collar onto the column.
2. Slide the straight-arm section onto the column.
3. Put the pivot arm section between the legs of the straight arm.
4. Put the extension arm-limiting bracket between the legs of the pivot arm. The holes in the extension arm limiting bracket, pivot arm, and straight-arm must line up. (You do not need to use the extension arm-limiting bracket if you are mounting the machine to a Belshaw Century fryer.)

WARNING

You must use the extension arm limiting bracket when column-mounting the Type F Donut Cutter to a Belshaw 618, 618L, 624, 718LG, or 724G fryer, or to any fryer that is 24"/61 cm square or smaller. If you do not, the fryer might tip over when the cutter is swung away from the fryer, resulting in serious burns, other injury, or even death.

5. Slide the arm pin through the holes in the straight-arm, pivot arm, and extension arm-limiting bracket.

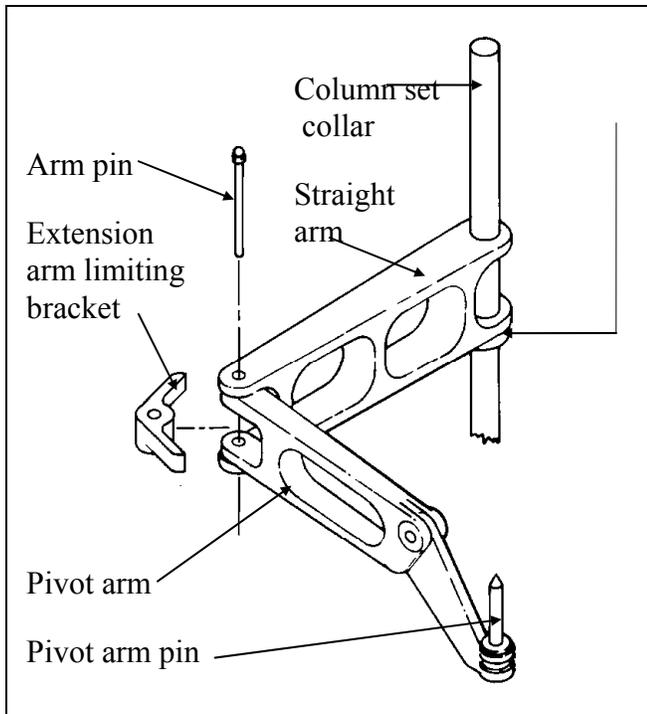


Figure 1-2. Installing the Swing Arm on the Column.

6. Slide the straight arm up the column far enough for the cutter to clear the fryer when it is mounted. (The exact height does not matter at this point.) To hold the straight arm in place, slide the set collar up the column and tighten the setscrew.

Installing the Cutter

1. Mount the cutter by sliding the frame assembly onto the pivot arm pin.
2. Adjust the height of the cutter as follows:
 - a. Loosen the setscrew in the set collar.
 - b. Slide the straight arm up the bushing, or column as far as needed, for the hopper cylinder to be the proper distance above the shortening in the fryer. (See Figure 1-3.)
 - c. Slide the set collar up the bushing, or column, so it is right under the straight arm. Secure it by tightening the setscrew.

Figure 1-3 - Setting the Cutter Height

Plunger Type and Size	Distance between Cylinder and Shortening
Cake plungers, 7/8"-1"	1"/2.5 cm
Cake plungers, 1-1/8"-2-1/4"	1-1/4"-1-3/8"/ 3.2 cm-3.5 cm
French cruller plungers, all sizes	1-1/2"/3.8 cm

Filling the Gear Box

Before you use the Type F Donut Cutter, you must fill the gearbox with oil. Follow these steps:

1. Make sure the F machine is mounted in the upright operating position.
2. Remove the plug from the fill hole. The fill hole is in the lower part of the gearbox.
3. Pump 90-weight oil into the gearbox until it begins to overflow.
4. Allow the excess oil to drain out of the hole.
5. Replace the plug.
6. Wipe the oil off of the gearbox exterior.

Installing the Motor

1. Place motor (with spacers) onto motor mounting plate, on top of gearbox.
2. Hand tighten 1/4-20 hex nuts.
3. Check that there is a slight clearance between the "worm shaft & coupling assembly" (motor set collar), and the motor mounting plate. Insert the blade of a flathead screwdriver under the set collar. Rotate shaft, so flat of shaft, is under set screw. Tighten setscrew, being careful not to overtighten.

-
4. Turn motor on.
 5. With motor running, finish tightening the hex nuts underneath the motor spacers. Tighten in an alternating sequence (not one after another in a circle).
 6. This allows the motor to properly center the drive shaft.

WARNING

Failure to install the motor in the above manner can cause the shaft to wear improperly and break.

Installing the Motor Coupling Covers

Install the motor coupling covers (2) around motor spacers, using the two sheet metal screws provided.

Installing the Plunger and Hopper

To install the plunger and the hopper on the cutter, follow these steps:

1. Open the hinge clamp at the bottom of the frame, if it is not open already. To open it, loosen the wing nut and swing the hinge clamp bolt out of the slot.
2. Put the plunger in the hopper. Put one of your hands underneath the hopper cylinder so the plunger does not fall out.
3. Slide the plunger's locating pins into the slots on the ends of the trip arms.
4. Slide the cylinder into the opening at the bottom of the frame.
5. Swing the hinge clamp around the cylinder, swing the hinge clamp bolt into the slot, and hand-tighten the wing nut that holds the hinge clamp shut.
6. Install the trip arm guard assembly. The crown bearing, which is mounted inside the trip arm guard, must pass over the plunger center rod and into the cylindrical opening in the frame. The safety key, which is also mounted inside the trip arm guard, must connect with the safety interlock switch.
7. Hand-tighten the wing nut that holds the crown bearing in place. The wing nut can be reached through the opening in the side of the trip arm guard.

2

Troubleshooting

If you have a problem with your Type F Donut Cutter that you cannot solve, call your dealer or another qualified technician.

If your dealer cannot help you, please call Belshaw. To do so, first dial the appropriate international access code, then (206) 322-5474 (United States). When you call, please specify the following:

- The model name of the machine.
- The serial number of the machine.
- The voltage, phase, and cycle of the machine.

CAUTION

If you perform repairs yourself or have them performed by anyone other than a service technician authorized by Belshaw Bros., you do so at your own risk.

Following is a troubleshooting question and answer to help you identify and solve some basic problems.

Heed all warnings listed below. These warnings when followed will help ensure your safety.

WARNING

Disconnect the machine from the power source before disassembling, repairing, or wiring.

WARNING

To avoid serious injury, before doing any service to the cutter, turn off the cutter, disconnect it from the power source, and swing it away from over the fryer.

THE MOTOR WILL NOT START.	
Possible Causes	What To Do
The machine is not connected to a proper power source.	Connect the machine to a proper power source, as specified on the data plate.
The circuit breaker has been tripped.	Press the red reset button.
THE MOTOR SHUTS OFF WHEN THE CLUTCH IS ENGAGED.	
Possible Cause	What To Do
The plunger is jammed at the base of the hopper cylinder.	Clear away the cause of the obstruction. Plug in and turn on the machine. Press the red reset button.
THE DONUTS DO NOT DROP STRAIGHT OR SEPARATE FROM THE CYLINDER EVENLY.	
Possible Causes	What To Do
The machine frame is out of alignment.	Send the machine to the factory for service.
The cylinder is dirty.	Clean the cylinder as explained in Section 3, "Cleaning."
THE MACHINE MAKES CLICKING OR BANGING NOISES.	
Possible Cause	What To Do
The machine frame is out of alignment.	Send the machine to the factory for service.
THE DONUTS VARY IN SIZE.	
Possible Causes	What To Do
The hopper and the cylinder are not joined tightly enough.	Tap down lightly on the top of the hopper.
The plunger pistons are worn or undersized.	Replace the plunger.

THE OUTER AND INNER DIAMETERS OF THE DONUTS ARE TOO LARGE.

Possible Cause	What To Do
The donuts are falling too far, causing them to turn after they drop.	Adjust the height of the machine so there is less distance between the bottom of the machine and the frying screen. Do this by moving the set collar on the mounting column or bushing.

UNWANTED DOUGH IS DEPOSITED ON THE PRODUCT.

Possible Causes	What To Do
The plunger is worn.	Replace the plunger.
The cylinder is worn.	Replace the cylinder.
The cylinder lip is damaged.	Replace the cylinder.

THE MACHINE JAMS.

Possible Causes	What To Do
The machine frame is out of alignment.	Send the machine to the factory for service.
There is an obstruction in the cylinder.	Clear the cause of the obstruction.
The plunger is bent.	Replace the plunger.

WHEN USING THE BALL PLUNGER, THE BALLS STICK TOGETHER.

Possible Cause	What To Do
The cutter is too far above the shortening.	Adjust the height of the machine so the end of the plunger touches the shortening when the balls are extruded. Do this by moving the set collar on the mounting column or bushing.

WHEN USING THE BALL PLUNGER, THE BALLS VARY IN SIZE.

Possible Cause	What To Do.
One of the holes in the plunger piston is clogged with batter.	Remove the plunger and clean it.

WHEN USING THE STICK PLUNGER, THE STICKS BEND AND ARE POORLY SHAPED.

Possible Causes	What To Do
The sticks are too large.	Turn the short crank on the dial to decrease the size of the sticks.
The cutter is too far above the shortening.	Lower the cutter. Do this by moving the set collar on the mounting column or bushing.

WHEN USING THE KRINKLE PLUNGER, THE PRODUCT IS SHAPED IRREGULARLY.

Possible Cause	What To Do
The former flutes are plugged with batter.	Disassemble and clean the plunger.

THE LOWER PISTON AND THE FORMER OF THE KRINKLE PLUNGER CANNOT BE REMOVED FOR CLEANING.

Possible Cause	What To Do
The lower piston and the former are stuck to the center rod, probably due to corrosion.	Soak the plunger in oil for 24 hours. Tap the lower piston and the former lightly with a rubber hammer to loosen them.

Adjustments

Adjusting the Verticality

If the donuts do not drop straight or separate from the cutter evenly, the cutter may not be level.

To make minor adjustments in the verticality of the machine, you do not need to re-mount the wall plate or the column; you can simply adjust the pivot hinge by changing the setting of the pivot hinge-adjusting pin.

To adjust the verticality of the machine (see **Figure 2-1**):

1. Turn off and unplug the machine.

WARNING

To avoid being seriously injured or electrocuted, turn off and unplug the machine before making adjustments.

2. Thread the pivot hinge adjusting pin in or out:
 - Thread the pin out to move the vertical axis of the cutter counterclockwise
 - Thread the pin in to move the vertical axis of the cutter clockwise

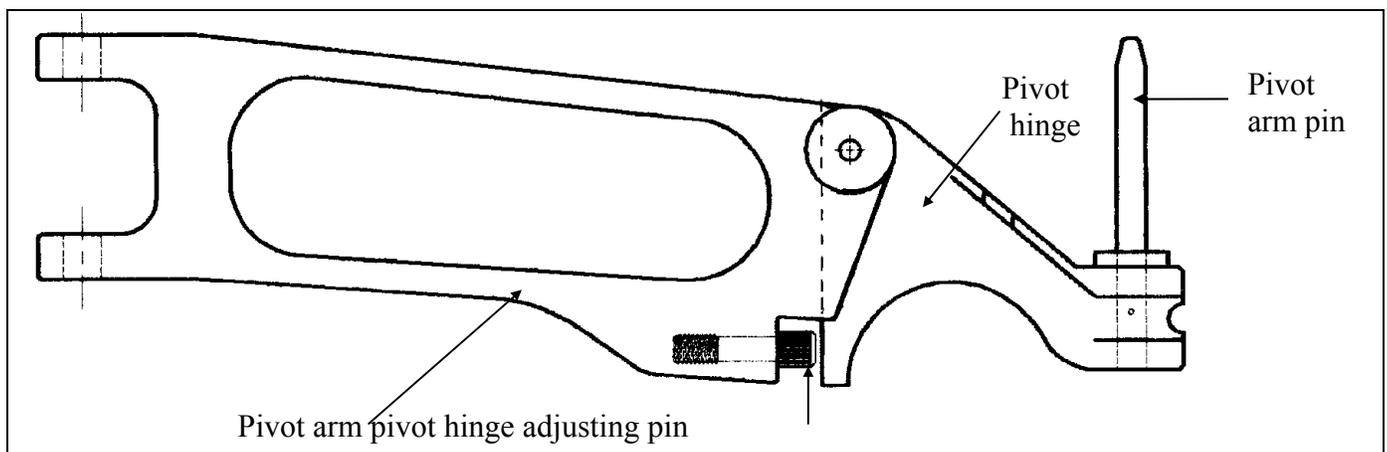


Figure 2.1. Adjusting the Verticality of the Machine

Adjusting the Spacing of the Trip Arms

If the machine becomes jammed, the trip arms may go out of adjustment. Therefore, you should check the spacing of the trip arms after any jamming has occurred. Also, you should check the spacing of the trips arms if doing so is suggested in “Troubleshooting.”

To check and adjust the spacing of the trip arms, follow the procedure below, referring to **Figure 2-2**. All dimensions given are ± 0.020 ”/0.051 cm.

1. Turn off and unplug the machine.

WARNING

To avoid being seriously injured or electrocuted, turn off and unplug the machine before making adjustments.

2. Set the donut size to #3, the maximum setting on the dial.
3. Turn the dial by hand until the lower trip arm is in its lowest position.
4. Check dimension A. If necessary, bend the lower trip arm until this dimension is 11.063”/28.100 cm.
5. Turn the dial until the upper trip arm is in its lowest position.
6. Check dimension B. If necessary, bend the upper trip arm until this dimension is 12.53”/31.83 cm.
7. Turn the dial until the pointer on the short rank points straight down.
8. Check dimension C. If this dimension is not 2.65”/6.73 cm, some of the parts in your machine may be worn and need to be replaced.
9. Turn the dial until the pointer on the short crank points straight up.

10. Check dimension D. If this dimension is not 0.94”/2.39 cm, some of the parts in your machine may be worn and need to be replaced.

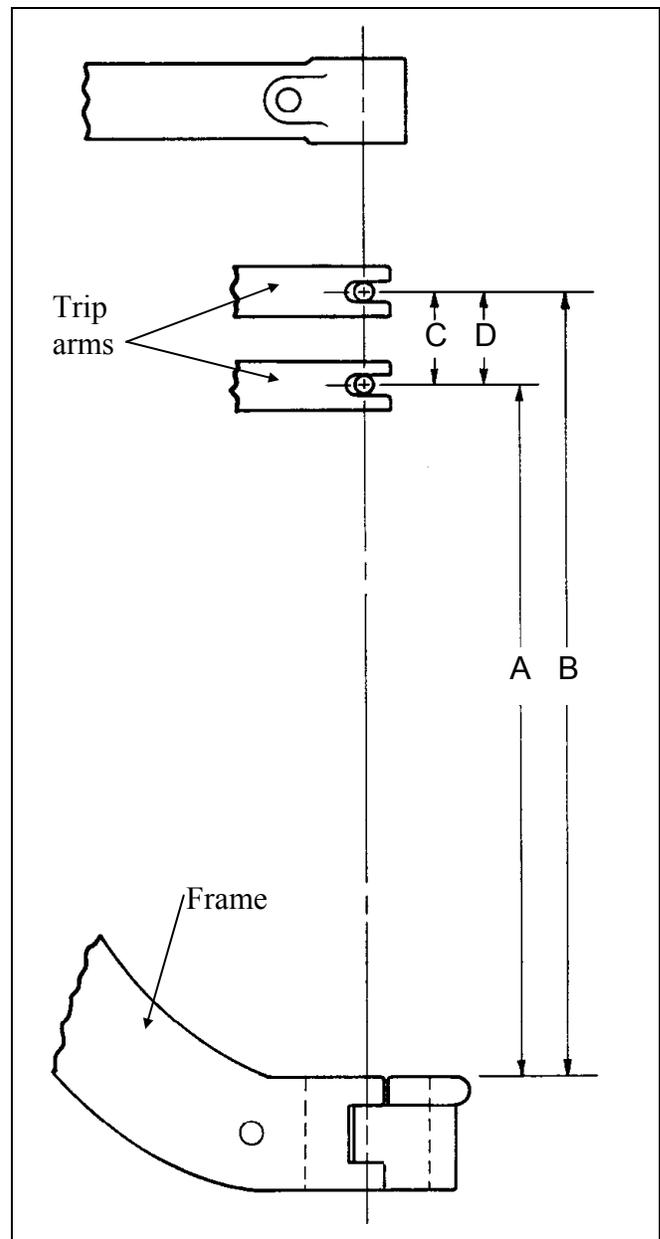


Figure 2-2. Adjusting the Spacing of the Trip Arms.

Adapter Kits

If you want to column-mount the Type F Donut Cutter to a non-Belshaw fryer, use the table below to determine whether Belshaw can provide you with a special adapter kit.

The adapter kits, which are available at additional cost, contain complete installation instructions and blueprints. Order kits by number.

MAKE	MODEL	KIT NUMBER
Anetsberger	TFS 20x20, BFG 18x26, TFS 24x24, WFG 18x26, TFS 24x34	(Adapter kit not required.)
Avalon	20x20, 24x24, 24x34	AV-1000
Eagle	C-2, C-3	FR-1000
Frymaster	24-D	P-1000
Keating	18x18	P-1000
Moffat	D-450	MO-1000
Pitco	20, 24, 26x34	P-1000
Wells	KS-12	W-1000
	KS-18	W-1001
	KS-24	W-1003

3

Plunger Info

This section contains the following information:

French Plunger Drawing (7B-1001)

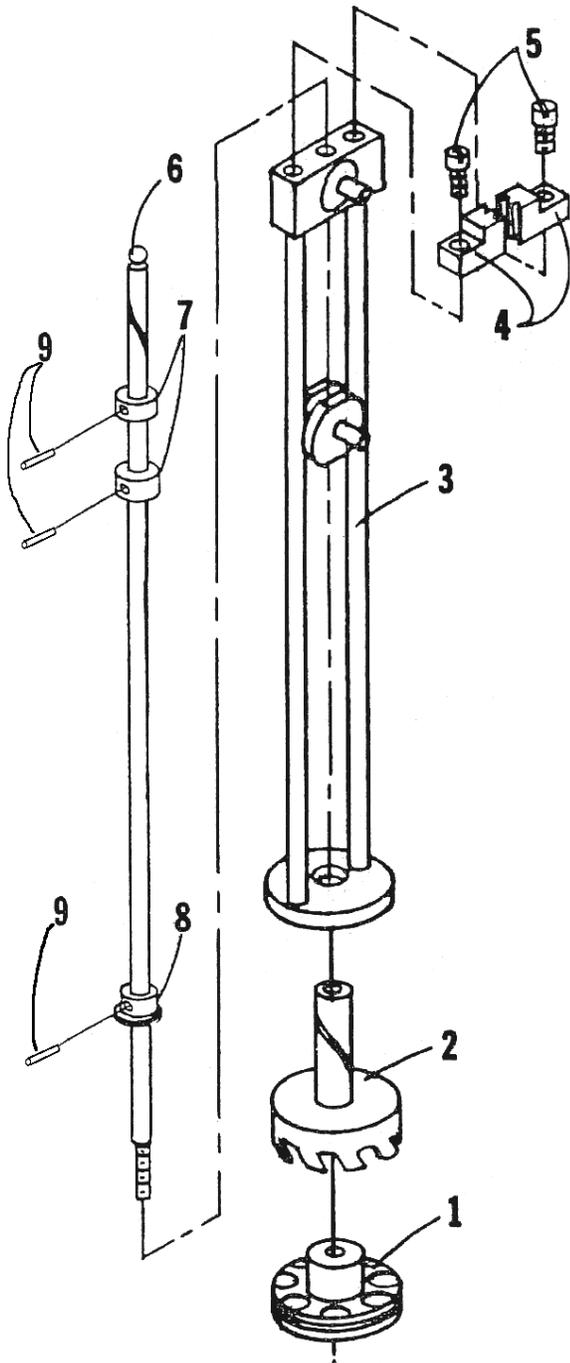
French Plunger Cleaning Instructions

Care & Maintenance and Cleaning Instructions for Plungers & Hoppers

Service Bulletin #254F

7B-1001 FRENCH PLUNGER PARTS LIST.

Models B, F and MD-2 Cutters



BILL OF MATERIAL

ITEM	DESCRIPTION
1	Lower Piston (Specify Size):
2	Former Assembly (Specify Size)
3	Side Rod Assy (Specify Size):
4	Gib (2 required, specify size):
5	Gib Screw (2 required)
6	Center Rod Replacement Kit (Includes items 7, 8, 9, & 7B-11 Center Rod)
7	Short Retainer (2 Required)
8	Flanged Retainer
9	Groove Pin

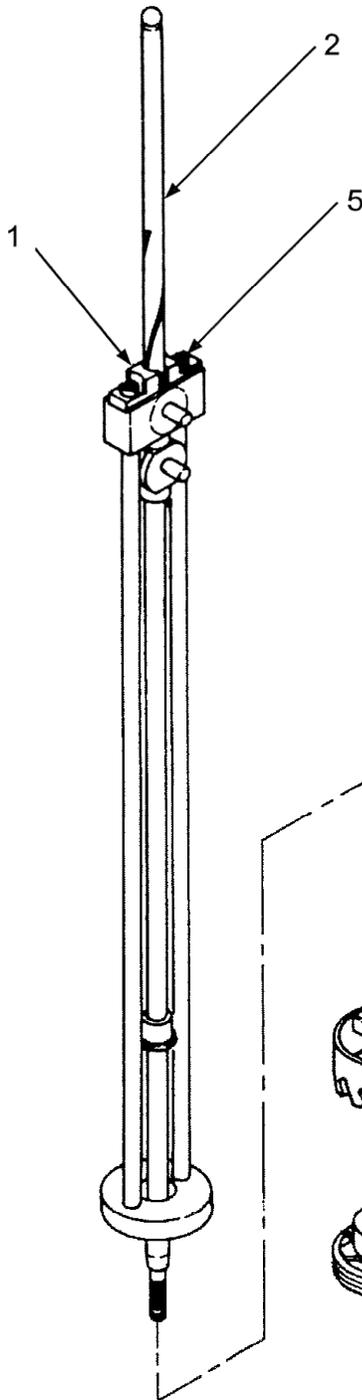
For repairs involving the side rod assemblies, your French plunger should be returned to the factory.

#7B-1001 French Plunger

Sizes: 1-1/8", 1-1/4", 1-3/8", 1-1/2", 1-5/8",
1-3/4", 1-7/8", 2", 2-1/8", 2-1/4"

FRENCH PLUNGER

CARE & MAINTENANCE



The French Plunger is a delicate, precision piece of equipment and must be handled with extreme care.

Before each use, put one drop of good quality food grade lubrication oil on the gibs (1), so the grooved center rod (2) can slide easily.

After each use, unscrew the lower piston (3) and remove the former (4). Thoroughly wash and dry all parts. Dip the bottom of the plunger in fry shortening before reassembly of the former (4) and the lower piston (3). Reassemble as shown. Apply cooking oil to the assembly to prevent rust.

To Avoid Damage:

- Do not handle roughly
- Do not drop on hard surfaces
- Do not wash in the same sink as other utensils.
- Keep all parts coated with cooking oil to prevent rust.

CARE, MAINTENANCE, and CLEANING INSTRUCTION

for PLUNGERS, CYLINDERS, and HOPPERS

The plungers and hoppers of your donut machine are precision instruments built from alloy steels and aluminum. They should be handled with care to insure continued satisfactory performance.

When cleaning aluminum, selection of the right type cleaner is your most important consideration. Any household dish washing detergent which is safe for aluminum does a good job of cleaning and does not attack aluminum. Strong Alkali cleaners, such as lye, soda ash, and tri-sodium phosphate, will discolor or even corrode aluminum even in weak solutions.

DO NOT Handle roughly or drop on hard surfaces.

DO NOT Mix with other utensils in the sink when washing.

DO NOT Allow to rust. Always wash parts thoroughly. Dry completely and then lubricate with mineral oil or

liquid shortening before storing or reinstalling in unit.

DO NOT Force the machine if it becomes jammed. Disassemble and remove any obstruction to prevent damage to the plunger.

Washing Plungers, Cylinders, and Hoppers by Hand:

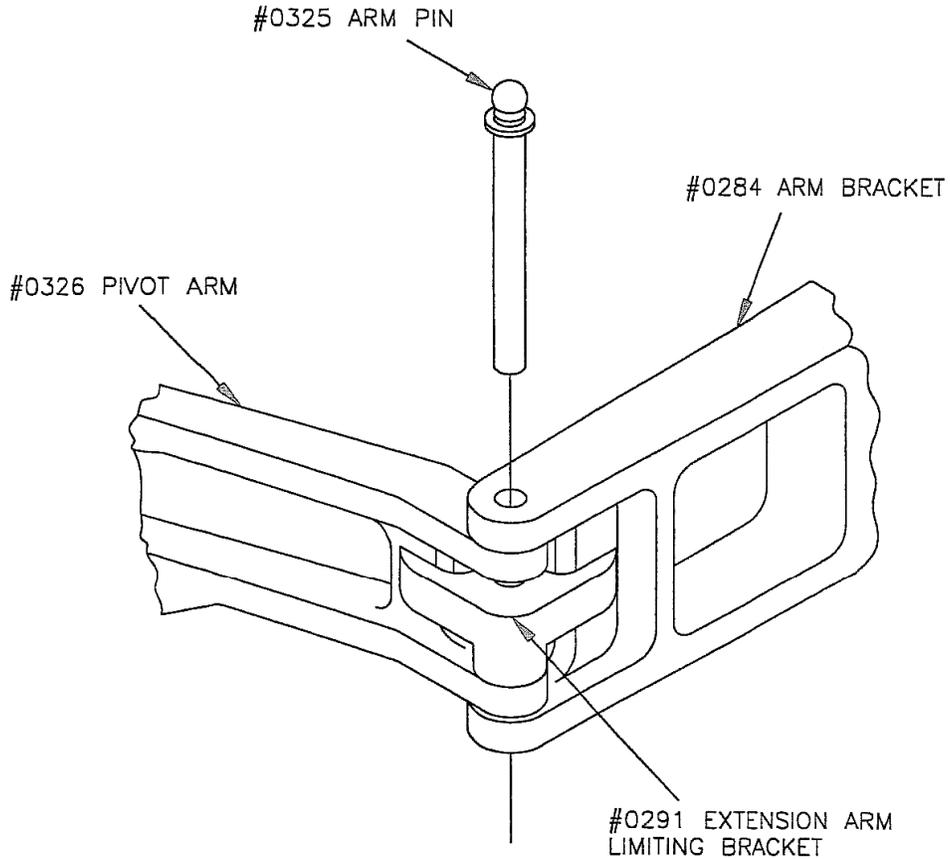
1. Remove "O" Rings, if so equipped.
2. Use plenty of warm water.
3. Add cleaner approved for aluminum in concentrations recommended by manufacturer.
4. Presoak to loosen stubborn or dried-on deposits.
5. Use a non-scratching plastic scour cloth to remove soil and restore luster.
6. Rinse in clear hot water (170-190 °F)
7. Wipe completely dry.
8. Dip plungers in mineral oil or liquid shortening to prevent rust and sticking.

SPECIAL INSTRUCTIONS FOR THE CARE OF FRENCH PLUNGERS:

The French plunger must be handled with great care. Before each use, put one drop of mineral oil on each of the gibs that slide in the grooves near the top of the plunger. After each use, unscrew the lower piston and remove the product former. Thoroughly wash and dry and then oil the parts with mineral oil or liquid shortening to prevent sticking. Reassemble the plunger. Be certain that the bottom piston is threaded into place completely.

SB-254F

#0291 EXTENSION ARM LIMITING BRACKET INSTALLATION INSTRUCTIONS



("F" COLUMN MOUNT ONLY)

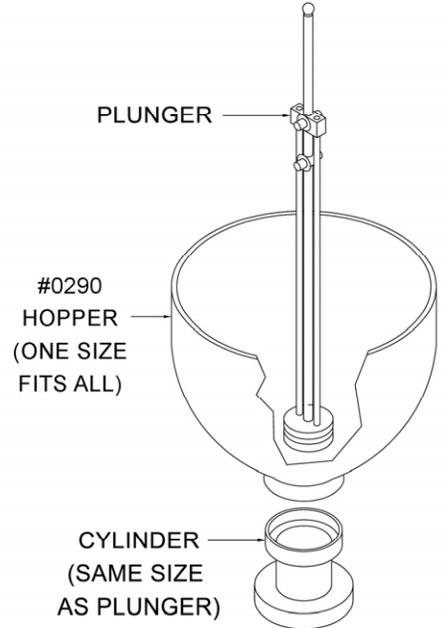
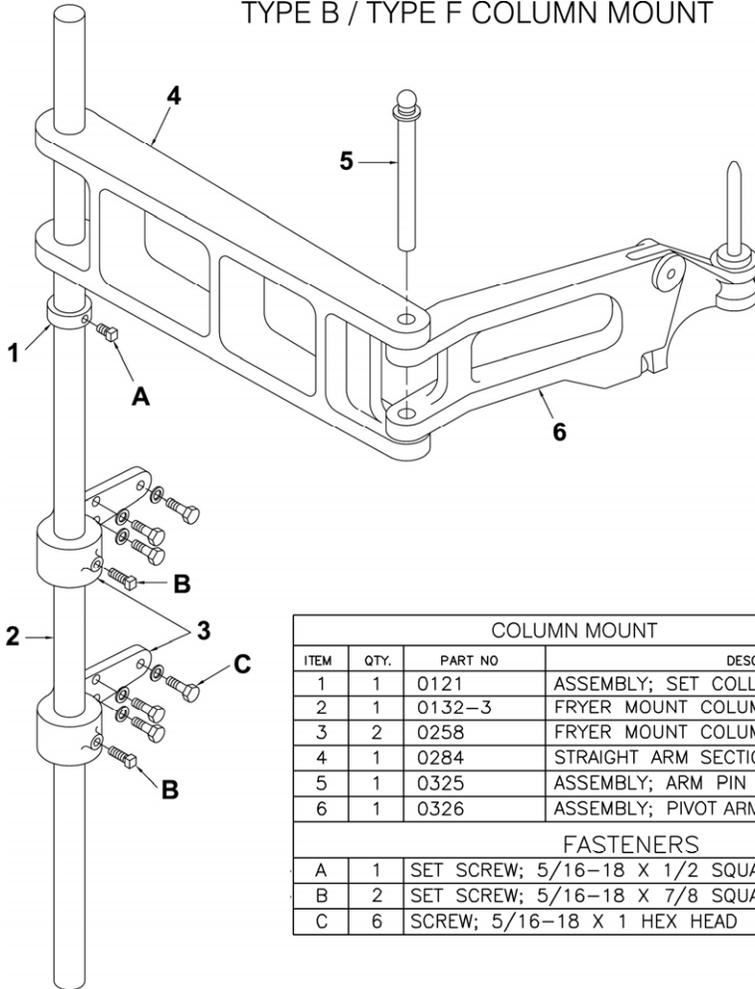
THE ILLUSTRATION SHOWS THE #0291 EXTENSION ARM LIMITING BRACKET CORRECTLY INSTALLED IF THE CUTTER COLUMN IS MOUNTED ON THE RIGHT SIDE OF THE FRYER. THE PIVOT ARM AND ARM BRACKET ARE REVERSED IF THE COLUMN IS ON THE LEFT SIDE (STANDARD)

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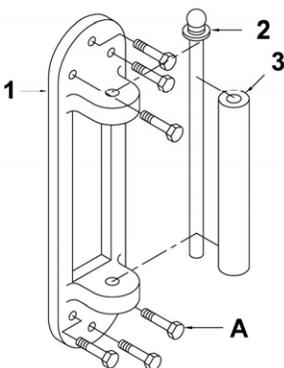
Parts Info

TYPE B / TYPE F COLUMN MOUNT



COLUMN MOUNT			
ITEM	QTY.	PART NO	DESCRIPTION
1	1	0121	ASSEMBLY; SET COLLAR
2	1	0132-3	FRYER MOUNT COLUMN
3	2	0258	FRYER MOUNT COLUMN BRACKET
4	1	0284	STRAIGHT ARM SECTION
5	1	0325	ASSEMBLY; ARM PIN
6	1	0326	ASSEMBLY; PIVOT ARM
FASTENERS			PART NUMBERS
A	1	SET SCREW; 5/16-18 X 1/2 SQUARE HEAD	903-1315
B	2	SET SCREW; 5/16-18 X 7/8 SQUARE HEAD	903-1310
C	6	SCREW; 5/16-18 X 1 HEX HEAD	903-1330SS

TYPE B / TYPE F WALL MOUNT



WALL MOUNT			
ITEM	QTY.	PART NO	DESCRIPTION
1	1	0004	WALL PLATE
2	1	0011	ASSEMBLY; WALL ARM PIN
3	1	0120	WALL ARM SECTION BUSHING
FASTENERS			PART NUMBER
A	6	SCREW; 5/16-18 X 1 1/2 HEX HEAD	903-1345

See Parts List Drawing Insert Page