INSTRUCTIONS

TO LINOTYPE OPERATORS AND MACHINISTS

MERGENTHALER LINOTYPE COMPANY
Brooklyn 5, New York

INSTRUCTIONS

TO LINOTYPE OPERATORS AND MACHINISTS

This booklet is a compilation of the various and sundry Instruction Cards formerly attached to the particular parts of the Linotype to which they applied. We believe this form will provide a better means, both for ready reference and for handy filing for future use. It is, of course, to be understood that not all of the various items herein will apply to any one machine equipment.

Serial No. . . . . .

Order No. . . . . .

Model No. . . . . .

Remarks . . . . . .

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. . . . . CHIEF INSPECTOR

Set in Linotype Poster Bodoni, Poster Bodoni Compressed and Bookman

Printed in U. S. A. 1990-10-58-3M

GENERAL INSTRUCTIONS

Matrices: Before running matrices, be sure that all parts with which they come in contact have been thoroughly cleaned of oil and dirt. To run 18 point matrices in 90-channel magazine, remove I-336, matrix channel guard strip, from the top.

Metal: This machine has been tested with new Linotype metal. Since the slug delivered cannot be any better than the metal from which it is cast, we strongly recommend the service offered by metal companies of making periodic analyses of sample slugs.

To obtain the best results, a metal pig feeder should be used. It is the sure method of maintaining the proper and constant metal level necessary for casting good slugs.

Metal temperature should be checked occasionally with a glass thermometer (X-1480). When considering metal temperature, it should be understood that many factors are involved. In certain circumstances, best results can be obtained when maintaining the temperature as low as 520 degrees. The best working temperature can be determined only by local conditions, such as the type of work produced, the speed of casting, the use of a cooling system, etc. We have adopted a factory standard of 535 degrees for electric pots, 550 degrees for gas pots, since these operating temperatures have been found to cover average conditions. The methods of readjustment to suit individual conditions are detailed elsewhere in these pages.

Burrs or Imperfect Print from Linotype Slugs: Negligence is the only cause of unclean or imperfect print from Linotype slugs and is due to one or more of four causes: *(1)* the failure to keep the spacebands clean; *(2)* setting loose lines; *(3)* overheated metal; *(4)* failure to remove damaged matrices. If the metal is allowed to accumulate on the spacebands it will crush in the side walls of the matrices and ruin them, thus causing burrs to appear in the print. Spacebands should be removed from the machine at least once every eight hours, and any metal adhering to the slide at the casting point scraped off. Use for this purpose a piece of brass rule or other metal not as hard as the spaceband. Rub the spacebands on a flat board on which has been sprinkled Dixon's graphite, X-57, which can be purchased from our agencies. Be sure that operators set their lines full. Loose lines ruin matrices. Take a matrix proof frequently and remove defective matrices or they will ruin others. Most important of all, keep the machine clean.

Get The Best From Your Linotype

Linotypes, like other machines, require care and attention for their best operation. Maintenance work is least arduous and most effective when it is done systematically. Have a maintenance schedule and adhere to it faithfully. Include such items as:

DAILY–

1. Brush metal chips from machine.
2. Clean plunger, well and well feed holes.
3. Wipe off pot mouthpiece.
4. Wipe off molds and vise jaws.
5. Clean spacebands.
6. Cast slug and check type high and point size.

WEEKLY–

1. Clean and polish molds and liners.
2. Clean out mouthpiece holes and vents.
3. Clean metal drippings from under pot throat.
4. Check lock-up.
5. Oil mold disk slide and grease support screw.
6. Check position of mold wipers; apply graphite on felts if necessary.
7. Clean and oil vise assembly; check knife wiper.
8. Brush dirt from keyboard.
9. Graphite assembler and delivery slides.
10. Clean driving pulley and clutch leathers.
11. Clean dust from motor.
12. Wipe off cams and tighten screws.
13. Clean and oil distributor box.
14. Clean distributor screws; oil bearings.

MONTHLY–

1. Clean the lugs of one or two fonts of matrices (determined by number and use of fonts).
2. Clean magazines containing these fonts.
3. Brush escapements thoroughly.
4. Examine condition of assembler star.
5. Examine assembling elevator buffers.
6. Examine assembler slide brake shoes.
7. Examine keyboard rubber rolls.
8. Examine galley and slug adjuster buffers.
9. Examine ejector blades.
10. Examine distributor box rails, bar point and matrix lift.
11. Clean and oil keyboard.
12. Check operation of vise automatic.
13. Check matrix transfer for proper adjustment.
14. Oil mold turning cam shoe and vise jaw wedge felts.
15. Oil all rollers.
16. Oil all shafts.
17. Fill all grease cups.
18. Clean gas burners.

NOTE: For the location of lubricating points and recommended lubricants, consult the booklet "Linotype Lubrication." For machine adjustments and mechanical descriptions of functions, see the official Linotype manual "Linotype Machine Principles," a 474-page completely indexed book which can be had from any Linotype agency (X-1752).

EMERSON OVERHEAD GEARED MOTOR

ADJUSTMENT OF EMERSON MOTOR

Turn the screw bushings in the two lugs at the upper rear part of motor housing to the right, clockwise until their shoulder is down against the lugs.

Remove the two cap screws from right hand cam shaft bracket cap.

Place motor in position with end of screw bushings resting on bosses on top of cam shaft bracket cap, with the driving pinion meshed with and resting on top of driving gear.

Insert the two lower motor holding screws through lugs and screw loosely into place.

Insert the two cap screws through screw bushings and screw into cam shaft bracket until head is within 3-16″ of screw bushing. *See Figure 1.*

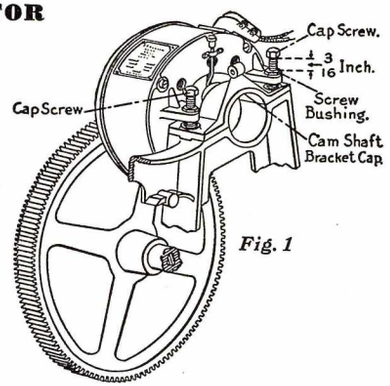


Fig. 1

This should result in lifting pinion away from top of gear. *See Figure 2.*

Place a piece of ordinary writing paper between driving gear teeth and pinion teeth and by turning the screw bushings to the left counter-clockwise, lower motor carefully and evenly until pinion just binds the paper between its teeth and those of the gear. *See Figure 3.*

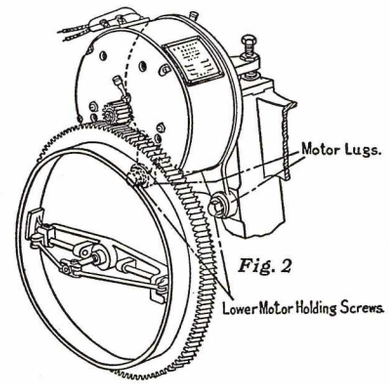


Fig. 2

Be careful to not lower any more than to just bind the paper. Fasten lower screws securely. Fasten top screws securely.

This motor unless otherwise specified is fitted with a 21-tooth spiral fibre pinion, Part No. C-1209, which at 850 revolutions of the motor will give 6⅓ lines per minute.

It is necessary to set the motor carefully so as to secure correct operating condition and economy covering the wear and life of the pinion. Should the distance be too close or too open, then excessive pinion wear will occur, making necessary frequent replacements.

When ordered we furnish other spiral driving pinions as follows:

Part No.	Number of Teeth	Lines per Minute
C-1234	19	5⅔
C-1235	20	6
C-1189	22	6⅔
C-1986	23	7
C-1304	24	7⅓
C-2064	25	7½
C-1264	26	7¾

The two grease cups should be kept filled with any good grade medium ball bearing grease.

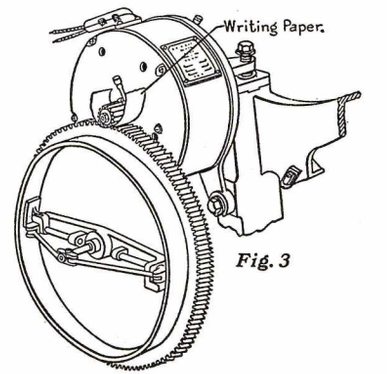


Fig. 3

THE V-BELT DRIVE MOTOR

This is a standard base ½ horsepower motor, with a speed of 1725 RPM on 60 cycles A.C. operation or on D.C. operation, and 1425 RPM for 25 or 50 cycle A.C. operation.

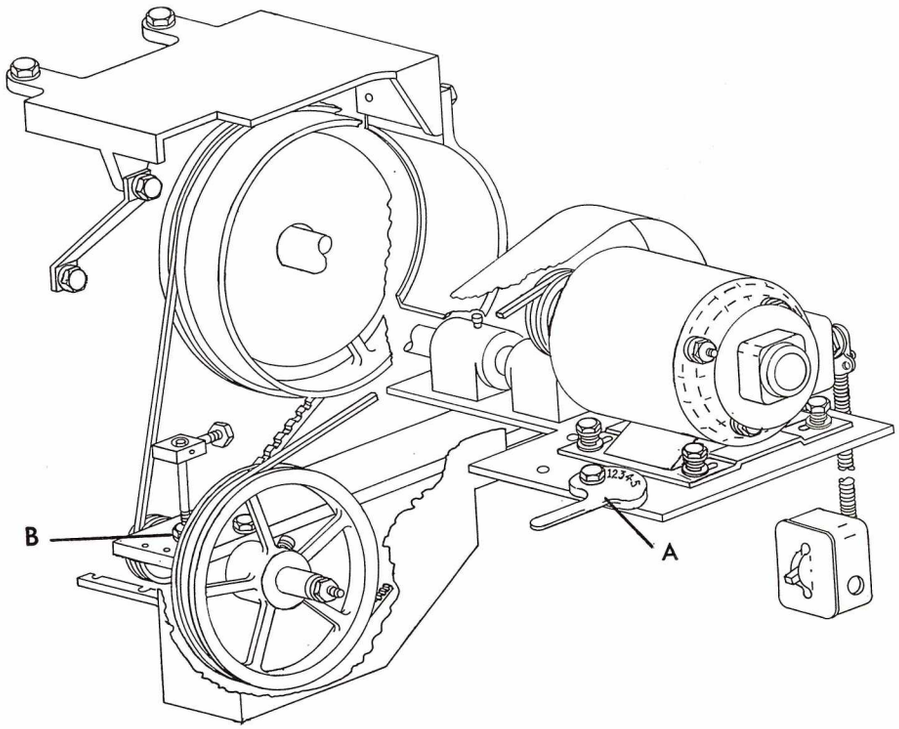
The drive consists of a motor bracket suspended between an extended first elevator-ejector lever shaft and a turnbuckle which is fastened to the base of the machine. A jack shaft is mounted near the front of the bracket.

The motor V-belt drives a large pulley and a small pulley on the same shaft drives the clutch pulley. This latter pulley is the same as the regular driving gear except for the V-belt groove in its periphery instead of teeth.

Each of the two V-belts can be adjusted independently to take up slack or to facilitate application of a new V-belt. There is a grease cup provided to lubricate the jack shaft which is supported by two ball bearings.

To change machine speeds, it is necessary to change motor pulleys and belts unless a variable speed pulley is used. Different size motor pulleys and belts are provided for 6⅔, 8, 9, 10, 11, or 12 lines per minute. Also the large driven pulley on the jack shaft is different for 1725 and 1425 RPM motors.

The variable speed pulley which permits machine speeds of 7½ to 12 lines per minute is used to change machine speeds quickly. It is attached to the motor shaft in place of the regular motor pulley. A camming lever A, is turned to move the motor so that machine speed can be increased or decreased. To move the camming lever, it is first necessary to loosen a bolt and then retighten it after the predetermined speed is reached.



Proper tension of the clutch pulley belt is accomplished by the adjusting nuts B. Tension adjustment of the motor belt on machines without the variable speed pulley is made by moving the motor on the motor bracket. Generally proper belt tension can be determined by striking the belt with the hand. When too much slack exists, the resulting vibration will feel "dead." When proper tension is reached, the belt will have a "live spring vibration." It is not necessary to have the belt "fiddle string" tight.

During the first few days of operation, the belt will seat itself in the grooves and tend to slacken. Adjustments should be made if necessary during this initial period to compensate for seating action and to assure proper belt tension.

Motors are supplied for 115 or 230 volts Direct Current. The Alternating Current motor is of the dual voltage type, the same motor being used for 115 or 230 volts, 220 or 440 volts, and 190 or 380 volts (see wiring connections for various voltages). These motors can be ordered for 25, 50 or 60 cycle operation. Single phase motors (A.C.) will operate satisfactorily on three-phase circuits. However, if such circuits are available, we recommend three-phase motors due to their simpler construction and ease of maintenance.

Two 10 amp fuses are used on 220 volt operation, while two 15 amp fuses are used for 110 volt operation.

Motor Pulley and Belts Necessary for 6⅔ to 12 Lines Per Minute

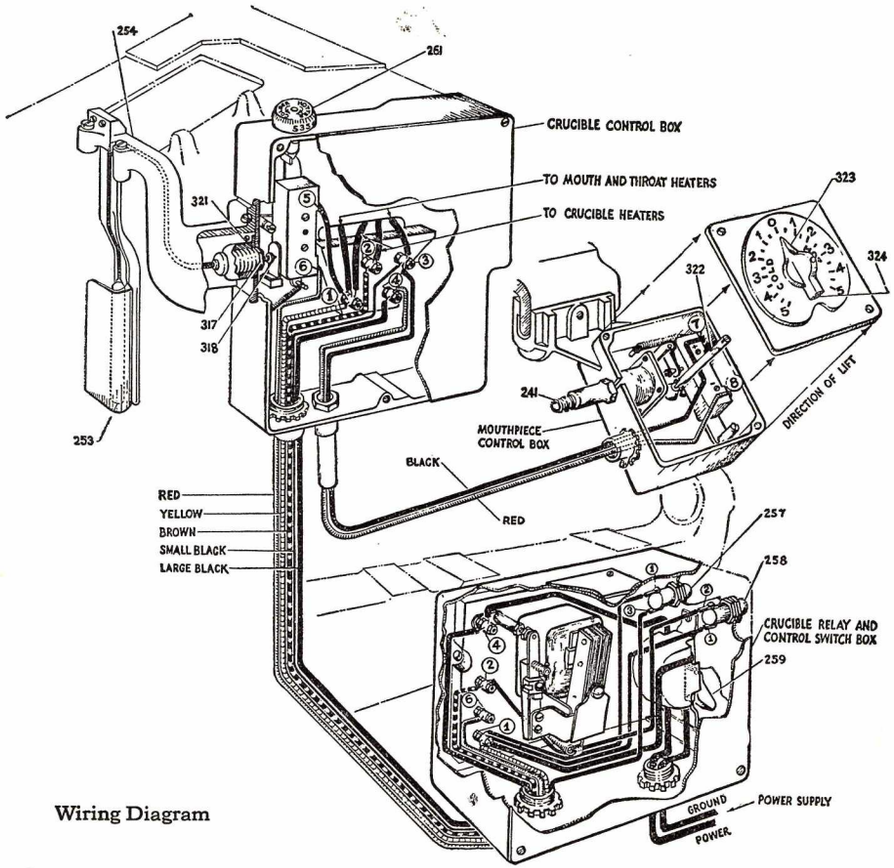
			Jack Shaft Pulley		Belt	
Motor Pulley	Shaft Hole	Lines Per Min.	1725 RPM Motor	1425 RPM Motor	1725 RPM Motor	1425 RPM Motor
C-2132	⅝"	6⅔	C-2131	C-2185	C-2128	C-2186
C-2158	⅝"	8	C-2131	C-2185	C-2128	C-2186
C-2205	⅝"	9	C-2131	C-2185	C-2128	C-2186
C-2160	⅝"	10	C-2131	C-2185	C-2128	C-2129
C-2207	⅝"	11	C-2131	C-2185	C-2157	C-2129
C-2162	⅝"	12	C-2131	C-2185	C-2129	C-2129
C-2163	¾"	6⅔	C-2131	C-2185	C-2129	C-2186
C-2164	¾"	8	C-2131	C-2185	C-2128	C-2186
C-2204	¾"	9	C-2131	C-2185	C-2128	C-2186
C-2166	¾"	10	C-2131	C-2185	C-2128	C-2129
C-2206	¾"	11	C-2131	C-2185	C-2157	C-2129
C-2168	¾"	12	C-2131	C-2185	C-2157	C-2129

ELECTRIC POT MICRO-THERM CONTROL

The principal operating parts of the Micro-Therm Electric Pot Temperature Control consist of two bulb and bellows expansion units which operate to make and break the contacts of a pair of Micro switches, thus providing individual control of crucible and mouthpiece temperatures.

Due to the large current requirements of the crucible heating elements, the Micro switch in the crucible circuit does not directly control the flow of current. Instead, the Micro switch operates a relay, which in turn controls the flow of current through the crucible heaters. The mouthpiece circuit, however, operates without the use of a relay, since the flow of current through the mouthpiece heaters is sufficiently low to be handled entirely by the mouthpiece Mu switch.

The wiring diagram illustrated below applies to all A.C. Micro-Therm Electric Pots. The D.C. Micro-Therm Control is wired in the same manner, the only difference being that a double contact relay is used in the crucible circuit and a different type Micro switch is used in the mouthpiece circuit. Both these changes serve to cut



Wiring Diagram

down the arcing effect of D.C. current. In installing the D.C. wiring, the polarity at the mouthpiece switch terminals must be as indicated at points 7 and 8 on the wiring diagram. If not connected in this manner, reverse the two wires at these points.

ADJUSTMENTS—When electrical connections have been completed and the crucible is ready for operation, turn control switch to "on" position. Lamps 257 and 258 will light. Lamp 258 will remain lighted only as long as current flows to the crucible heaters and 257 will remain lighted only as long as current flows to the mouthpiece heaters. After the metal has melted, insert a glass rod thermometer. When it registers 535° F. lamp 258 should go out. If it does not, turn the dial 261 toward "colder" until the lamp does go out. At this point, the 535° marking on the dial should coincide with the line on the box. If it does not, loosen the two set screws which fasten the dial to the adjusting shaft and turn the dial so that the markings agree. Then tighten the two set screws. The crucible, temperature control is now adjusted for 535° F. To increase the temperature, turn dial toward "hotter"; to decrease the temperature turn dial toward "colder." To adjust mouthpiece control, set pointer 323 to 0 on dial and loosen pointer set screw 324. To increase temperature turn adjusting shaft 322 clockwise toward "hot" on the dial, or to decrease temperature turn adjusting shaft 322 counter-clockwise toward "cold" on the dial. When the adjustment is satisfactory set the pointer 323 to 0, tighten pointer set screw. If necessary to remove the mouthpiece control box cover, set pointer 323 to 0 and loosen pointer set screw 324. After removing pointer 323, loosen cover holding screws and remove cover.

REPLACING BULB AND BELLOWS ASSEMBLY—To replace a damaged expansion tube and bulb assembly 253, turn control switch 259 to "off" position, then remove expansion tube and bulb guard 254, four round-head screws 321, lift old bulb 253 from pot and remove adjusting screw 318 with plunger, spring and lock nut 317. Place a thermometer in crucible, and allow sufficient time for crucible temperature to drop to at least 505° F. A new bulb and bellows can be easily damaged if immersed in metal above this temperature. When crucible has been allowed to cool to about 505° F, place new bulb in pot and reassemble.

As an extra precaution, if sufficient time is available, we recommend bailing out the crucible prior to applying a new bulb and bellows assembly. In this way, the new bulb and bellows can be applied to an empty pot and brought up to casting temperature gradually, thus affording extra protection against any possible damage caused by abrupt temperature changes.

Mouthpiece bulb and bellows assembly 241 is replaced in a similar manner, and should not be applied to a mouthpiece at casting temperature. After turning control switch to "off" position, allow mouthpiece to cool for 30 minutes, and during this time place new bulb and bellows on top of pot cover, thus allowing it to warm up gradually.

CAUTION—Expansion tube and bulb assemblies MUST NOT be inserted into the pot until they have been exposed to room temperature (70°) F. for at least one hour. *Make sure that bulb 253 is ½ inch from crucible heaters.* All Micro-Therm controls have been carefully tested and adjusted at the factory, so there should be very little need to readjust when operating at normal temperature. *Do not permit the crucible or mouthpiece to overheat, (525° F. for mouthpiece), (600° F. for crucible), it may damage the expansion tube and bulb.*

FUSES—Fuse protection for the Micro-Therm Electric Pot must be provided outside the unit itself. The 30 em pot fuses for 100-125 volt equipment should be two 20 ampere fuses and for 200-250 volt equipment, two 10 ampere fuses. The 42 em pot fuses for 100-125 volt equipment should be two 30 ampere fuses and for 200-250 volt equipment, two 15 ampere fuses.

Fuses of ampere ratings larger than recommended should never be used, otherwise the equipment may be seriously damaged and require replacement.

NOTE—For complete instruction on the operation, care and maintenance of this equipment, please consult the Micro-Therm Electric Pot Instruction Book.

GAS POT MICRO-THERM CONTROL

Note: This thermostat is designed to operate with manufactured gas, which has a pressure of 3 to 5 inches of water. With natural or "bottled" gases, which run to greater pressures, a regulator (Part No. F-7964) should be used to reduce the pressure to the normal operating range.

Two separate thermostats, operated by bulb and bellows expansion units, provide individual control of crucible temperature and mouthpiece temperature. The thermostat barrel located at the side of the pot jacket controls the crucible burner only, and is calibrated to operate at approximately 550° F. The thermostat barrel attached to the base below the left side of the keyboard, controls both the throat and mouthpiece burners and is calibrated at 490° F. A cross section of the crucible thermostat is shown in Fig. 1, and the bulb and bellows unit is illustrated in Fig. 2.

In addition to the thermostats, three needle valves with simple, positive adjustments are provided for the crucible, throat, and mouthpiece burners. A serrated brass dial or knob permits ready adjustment for any type of gas. Each dial has 72 serrations about its circumference; and table A (Fig. 3) shows approximate settings from closed position, for the most common types of gas.

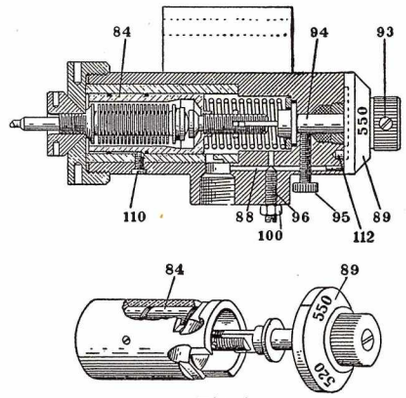


Fig. 1

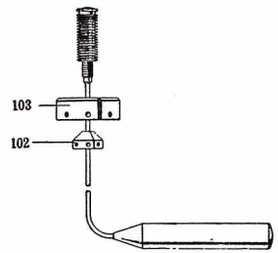


Fig. 2

ADJUSTING GAS POT MICRO-THERM CONTROL

The thermostats are calibrated at the factory for commercial manufactured gas of 537 B.T.U. and a minimum of adjustment should be necessary. Proceed as follows for adjusting the Micro-Therm Control to the type of gas in use:

Turn each needle valve cap to the closed position. Then turn each valve cap in reverse direction, and count the number of serrations until the number specified for each valve in Table A (Fig. 3) is reached. For example, when using natural gas of 1,000 B.T.U., the crucible valve cap should be opened 58 serrations. The above will be the approximate valve cap settings, and can be varied in either direction to meet exact requirements after the gas pot is in operation.

After setting the three needle valves to the proper opening, adjust the air intake shutters above each valve for a steady, blue flame at each burner.

Next adjust the mouthpiece thermostat. Loosen screws 95 and 93 (Fig. 1) and remove dial 89. Using a screwdriver turn shaft 94 clockwise as far as possible. Place dial 89 part way on shaft 94 so that it does not touch stop pin 112, and set one of the dial graduations in line with zero line on housing. Tighten screw 93, and after referring to Table B (Fig. 3) turn dial 93 counter-clockwise for the number of graduations specified in the table for the type of gas used. Count the number of graduations passing the zero line. Now tighten screw 95,

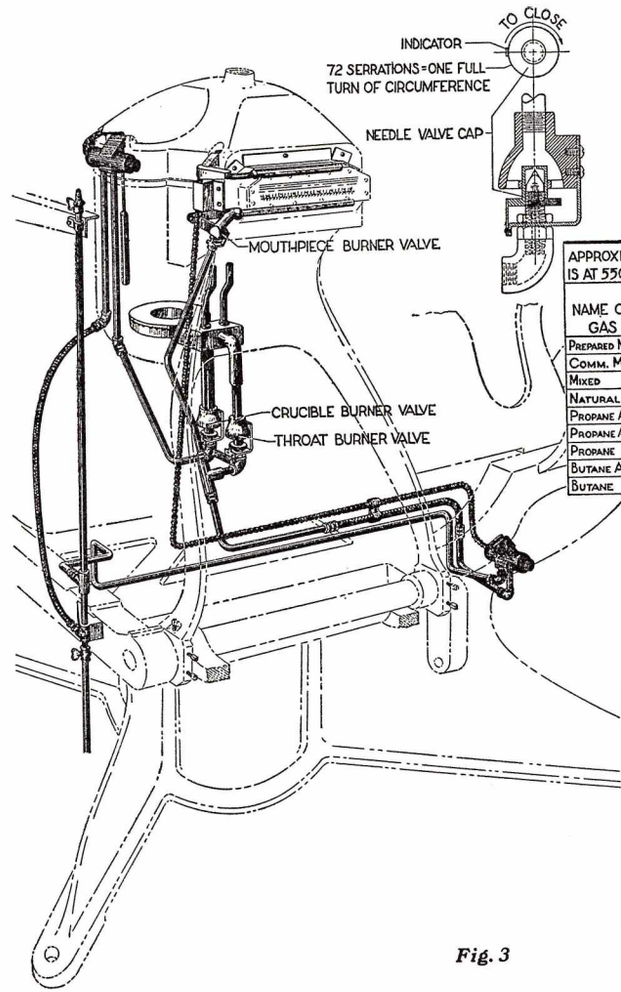


Fig. 3

TABLE A

APPROXIMATE NEEDLE VALVE SETTING WHEN POT IS AT 550° & GAS LINE HAS 5" WATER PRESSURE				
NAME OF GAS	B.T.U.	NUMBER OF SERRATIONS FROM A CLOSED POSITION		
		CRUCIBLE	MOUTHPIECE	THROAT
Prepared Mfg.	460	216	57	46
Comm. Mfg.	537	216	57	46
Mixed	800	58	31	8
Natural	1000	58	28	22
Propane Air	1500	33	16	7
Propane Air	2000	33	16	7
Propane	2519	33	16	7
Butane Air	2900	33	16	7
Butane	3200	28	16	7

TABLE B

FROM CLOSED POSITION APPROX. THERMOSTAT SETTING			
NAME OF GAS	B.T.U.	DIAL GRADUATIONS	
		CRUCIBLE	MOUTHPIECE
Prepared Mfg.	460	550°–24	490°–15
Comm. Mfg.	537	550°–24	490°–15
Mixed	800	550°–16½	490°–15
Natural	1000	550°–14	490°–15
Propane Air	1500	550°–15	490°–15
Propane Air	2000	550°–15	490°–15
Propane	2519	550°–15	490°–15
Butane Air	2900	550°–15	490°–15
Butane	3200	550°–15	490°–15

loosen screw 93, and re-set dial 89 so that the 490° F. mark lines up on the zero line. Move dial 89 all the way in flush with housing and tighten screw 93.

Repeat the above procedure for the crucible thermostat, but in last step, line up 550° F. dial mark with zero line on housing.

CALIBRATING THE MICRO-THERM CONTROL

In some instances it may become necessary to calibrate the Micro-Therm Control, if thermostat settings are disturbed, if a new bulb and bellows unit has to be installed, or if the gas in use does not approximate the B.T.U. ratings of the various gases listed in Table B (Fig. 3).

To calibrate the crucible thermostat, place a glass thermometer in crucible, loosen dial screw 93 and shaft screw 95 (Fig. 1). Remove dial 89, and with a screw driver turn shaft 94 clockwise to lower the temperature or counter-clockwise to raise the temperature. Adjust until thermometer reaches 550° F., and then turn shaft 94 clockwise until main burner flame is cut down to a pilot flame. *Permit pot to idle for at least 15 minutes to make sure that the 550° F. temperature will not be exceeded during idling periods.* If temperature has a

tendency to rise, pilot flame is too high and should be cut down by loosening lock nut 100 and adjusting pilot light regulating screw 96. When the pilot light has been properly adjusted, replace dial 89 and line up 550° F. mark with zero line on the thermostat housing. Lock dial in position by tightening screws 93 and 95.

Precisely the same procedure may be followed in setting the mouthpiece thermostat, except that the temperature of the mouthpiece can be determined by rubbing a 6-point slug slowly across the mouthpiece below the lock-up area. With pot idling, the corner of the slug melts when the temperature is 490° F. Final dial setting for the mouthpiece thermostat should be 490° F. instead 550° F. as in the case of the crucible thermostat.

REPLACING BULB AND BELLOWS UNIT

To replace a damaged bulb and bellows unit, shown in Fig. 2, first turn the gas flame down, using the main supply cock. Remove the expansion bellows guard, loosen bellows retaining nut 102 before loosening enclosing nut 103, then remove expansion bulb and bellows. Place a thermometer in crucible, and allow sufficient time for crucible temperature to drop to at least 505° F. A new bulb and bellows can be easily damaged if immersed in metal above this temperature. When crucible has been allowed to cool to about 505° F. insert new bulb and bellows. Tighten enclosing nut 103, and then tighten bellows retaining nut 102. To clean, follow same procedure with the addition of removing piston by loosening set screw 110, Fig. 1. Clean thoroughly and wipe piston 84 with dry graphite before assembling.

As an extra precaution, if sufficient time is available, we recommend bailing out the crucible prior to applying a new bulb and bellows assembly. In this way, the new bulb and bellows can be applied to an empty pot and brought up to casting temperature gradually, thus affording extra protection against any possible damage caused by abrupt temperature changes.

Mouthpiece bulb and bellows assembly is replaced in a similar manner, and should not be applied to a mouthpiece at casting temperature. After turning control switch to "off" position, allow mouthpiece to cool for 30 minutes, and during this time place bulb and bellows on top of pot cover, thus allowing it to warm up gradually.

CAUTION: The bulb and bellows of thermostats must not be inserted in the pot or above the mouthpiece until they have been exposed to room temperature (70° F.) for at least one hour. ***Do not insert in overheated pot (over 600° F.), since excessive expansion at high temperatures will damage the bulb and bellows.***

BRIDGE CONTROL DIALS

MODELS 29, 30, 35 AND 36 4-MAGAZINE WITH ALL 90-CHANNEL MAGAZINES

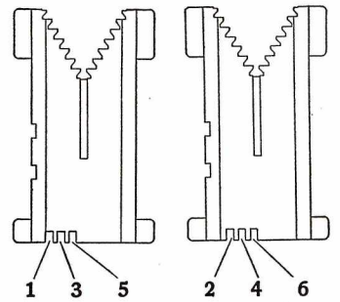
The three indicator dials are for use in positioning the matrix bridge. Use the top dial when top or 1st magazine is in upper operating position, the second when the 2nd magazine is in upper operating position, and the third when the 3rd magazine is in upper operating position.

Set the dial for any bridge notch or font slot in the matrices of the magazine in upper operating position, which notch does not appear in the matrices in the next lower magazine. This permits the upper matrices to drop on the bridge and distribute to the upper magazine while the lower matrices will be supported by the bridge, ride over it and distribute to the lower magazine.

The facsimiles at the right may be used as gauges to identify the bridge notch or font slot in matrices which are to run in these models. The bridge notch numbers correspond with those on the bridge dials in the blue sector marked "Bridge Notches." Note that notches 1 and 8 are only applicable to outstanding Models 25 and 26 matrices having such notches. The standard bridge notching for Models 29 and 30 comprise notches from 2 to 7, inclusive.

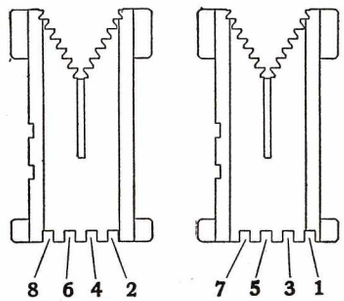
If it is desired to separate mixed lines by means of font slots, use the font slot gauges to determine the correct number of the font and use the black sector of the dials, marked "Font Slots." Note that while this sector has 12 positions, only six (1 to 6 inclusive) can be used. Where font slots are used, the sliding bridge is replaced by one having a narrower projection, since the font slot measures .040″ in width compared to the bridge notch's .058″.

To use Model 9 matrices in any upper operating magazine, it is necessary to replace the standard dial with one for use with Model 9 matrices only.



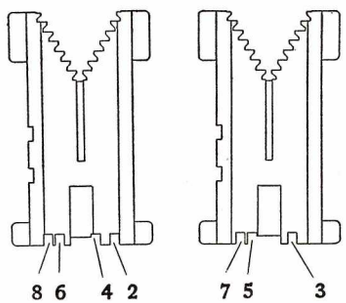
FONT SLOT

Used on Single Distributor Machines



BRIDGE NOTCHES:

Models 25-26-29-30-35-36

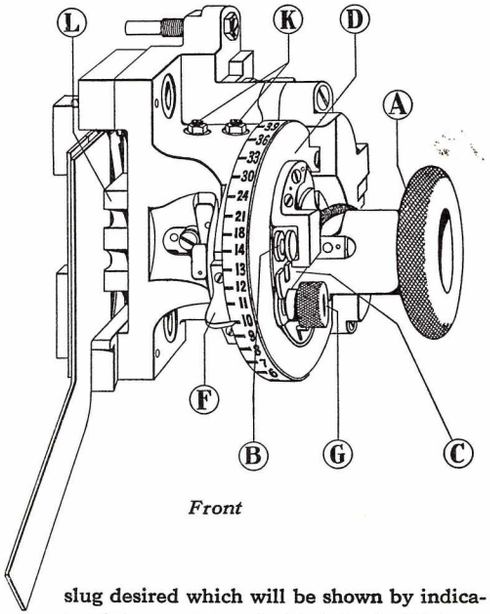


BRIDGE NOTCHES: *Model 9*

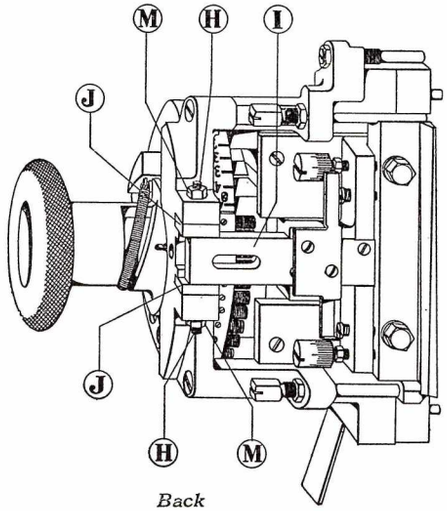
KNOB KNIFE BLOCK

(5 Pt. to 45 Pt. Capacity)

To set trimming knife, place left hand on knob (A) and turn knob clockwise until latch (C) enters the slot of pin (B) and with hand on knob pull knob (A) out until pin (B) in sector (D) disengages. Now turn knob (A) in direction corresponding to the size of slug desired which will be shown by indicator (F) on point scale. Push knob (A) in so that pin (B) re-enters and return knob (A) to its original position.



Front



Back

CAUTION—The flat surface on the releasing knob (G) must be kept turned clockwise in locked position, when the trimming knife is operating under regular conditions.

If a slug becomes jammed between the knives due to incorrect setting of the trimming knife, turn the releasing knob (G) counter-clockwise as far as possible, then pull knob (A) out before turning, this will release sector (D) so that it can be rotated to the left to open the trimming knife, relieve the slug and obtain correct setting. If the edge of the knife sinks into the face of the slug deep enough to hold the knife and yet not wedge between the knives, the machine must be turned backward until the knife is released, then the usual action may be resorted to, to obtain the correct setting.

An important feature has been added to this knife block, which is the third bearing and support, indicated at (I) supported by gibs (J). This is to be adjusted as follows, in the event that the knife block has been taken apart.

The gib screws (K) should be tightened so that slide (L) under the action of slide springs, moves freely without any play. Then gibs marked (J) should be set up to sides of the third bearing (I) by means of set screws (H) so that slide is supported, but still operates freely and does not shake, then tighten lock nuts (M).

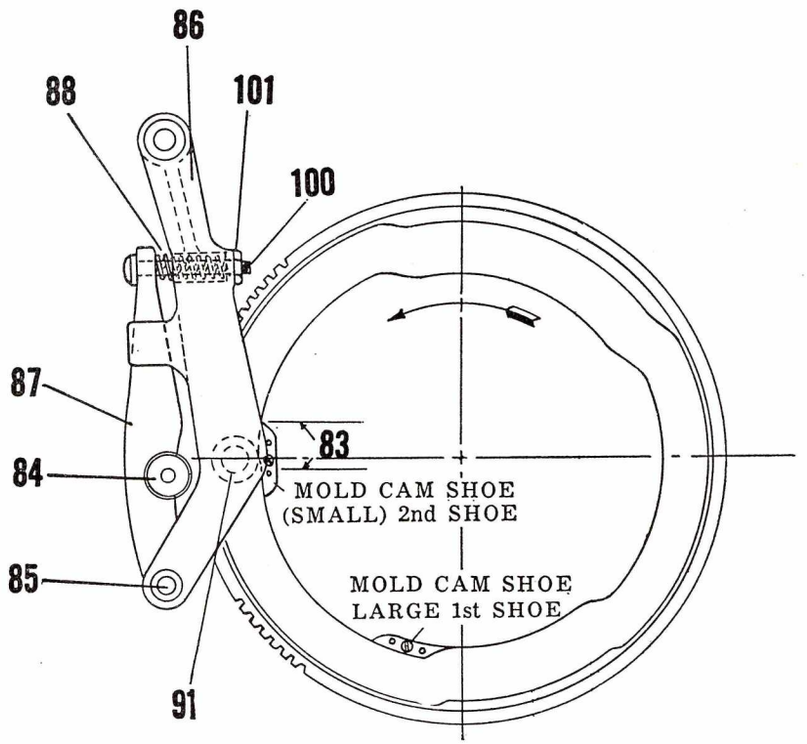
MOLD CAM LEVER

The adjustment of the mold cam lever is made after first removing the first elevator back jaw and setting left-hand vise jaw measure to about 4 ems. It is essential that the first elevator slide and front jaw be in the machine when making this adjustment.

Run machine to the point where the metal pot recedes from the first pot lockup. Then with the driving motor turned off, slowly turn machine forward by hand until the second mold cam shoe high portion 83, is in contact with the mold cam lever roll 91. This position is just before the pot rocks forward for the second lockup, at which point there should be a space of about 3/32" between the mouthpiece and the mold. Test for this clearance by rocking the pot forward by hand or with a lever, to make certain that the pot mouthpiece is not against the mold; such condition could only exist if there were an improper adjustment of the back lock nuts on the pot lever eyebolt.

Then forcibly push the mold disk back so that roll 91 is in hard contact with the second mold cam shoe 83, and measure the clearance between the face of the mold and the back of the vise jaws. By having the measure set for about 4 ems, this gives a large area for using a thickness feeler gauge between the molds and the jaws. This should be not less than .003" and not more than .005".

Adjustment is made with screw 100, at the back of the machine. Turning the screw clockwise will decrease the clearance, and turning it counterclockwise will increase the clearance. After making each adjustment, push the mold disk back again to insure the roll 91 being in contact with the cam shoe 83 before taking a measurement. Lock the screw 100 with the nut 101. Make sure that the screw 100 does not turn while locking the nut. After tightening the nut 101 recheck the clearance between mold and vise jaws.

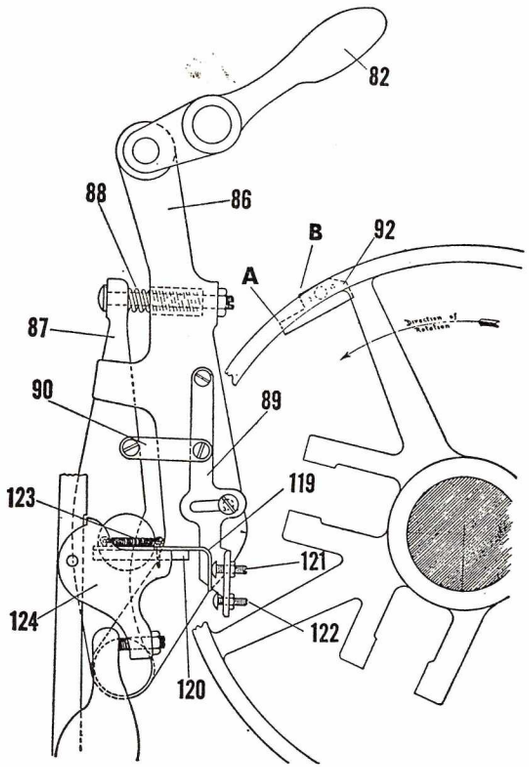


MOLD SLIDE SAFETY

The purpose of the mold slide safety attachment is to throw out the driving clutch and bring the machine to a full stop if there is interference with the normal first advance of the mold slide. Interference due to the wrong combination of molds and filling pieces being used, or improper alignment of molds due to the mold disk being out of time will stop the machine and prevent damage which might otherwise result.

Attached to the upper automatic stopping lever *124* is a mold safety slide *120* held in a bracket. It is normally pulled toward the back of the machine by means of a tension spring *123*, and retained in its bracket by the rear anchor screw of this spring. Attached to the delivery and transfer cam is a mold safety stop *92*.

Just as the mold slide advances on the first mold cam shoe, this stop *92* would catch on the mold safety slide *120*, and thus stop the machine by disengaging the main driving clutch, if the safety slide *120* were not pushed forward by the normal action of the



View of the mold slide safety stop attachment from right side of the machine. The operating lever and link are attached to the resilient mold cam lever, and the mold safety slide is attached to the upper automatic stopping lever. The stop 92 is attached to the delivery and transfer cam.

mold safety slide control lever *89* and the adjusting screw *121*. Attached to the top of the slide *120* is the slide control *119*, which acts as a contact finger with the adjusting screw *121*.

The mold safety slide control lever *89*, is pivoted to the mold cam lever *86* at its upper end, and is linked to the auxiliary mold cam lever *87* by means of the link *90*. The bottom end of the control lever *89* has two adjusting screws, the upper, *121*, being the sensitive adjustment screw for normal safety.

The operation of the mold slide safety is based on the resilient action of the mold cam lever. If an obstruction prevents the mold slide from moving forward, this resistance to the forward motion of the mold cam lever assembly compresses the spring *88* as the first mold cam shoe moves against the roll *91*. As the auxiliary lever *87* closes in toward the main lever *86*, the link *90* moves the lower end of the control lever *89* backwards. The compound linkage gives a multiplied motion to the adjusting screw *121*. This backward movement of the lower end of the control lever *89* and the screw *121* allows the safety slide *120* to project abnormally to the rear and into the path of the mold safety stop *92*, which moves into this position at this time, thus stopping the machine by forcing the upper stopping lever *124* downward, and throwing out the main driving clutch.

To Adjust Mold Slide Safety—This adjustment must be made after the mold cam lever has been adjusted for a clearance of .003" to .005" between the mold and the vise jaws. Make sure that the front of the molds are clean and that no obstruction interferes with the advance of the mold disk. Start machine and allow the first elevator slide to drop down to the vise cap. Turn off the driving motor, and when driving gear wheel comes to a stop, pull out the starting and stopping lever at front of machine. Moving cams forward and backward by hand, adjust the upper screw *121* on the control lever *89* so that as the first mold cam shoe pushes the mold slide forward, the mold safety slide *120* will advance so that it will just clear the mold safety stop *92* at the point marked "B." To obtain the best close adjustment, move screw *121* backwards first and keep advancing it until it just clears. The machine should be backed up by hand until the mold slide has moved backwards about one-quarter of an inch, and then make test on the normal forward cam motion of the mold slide, moving machine slowly by hand.

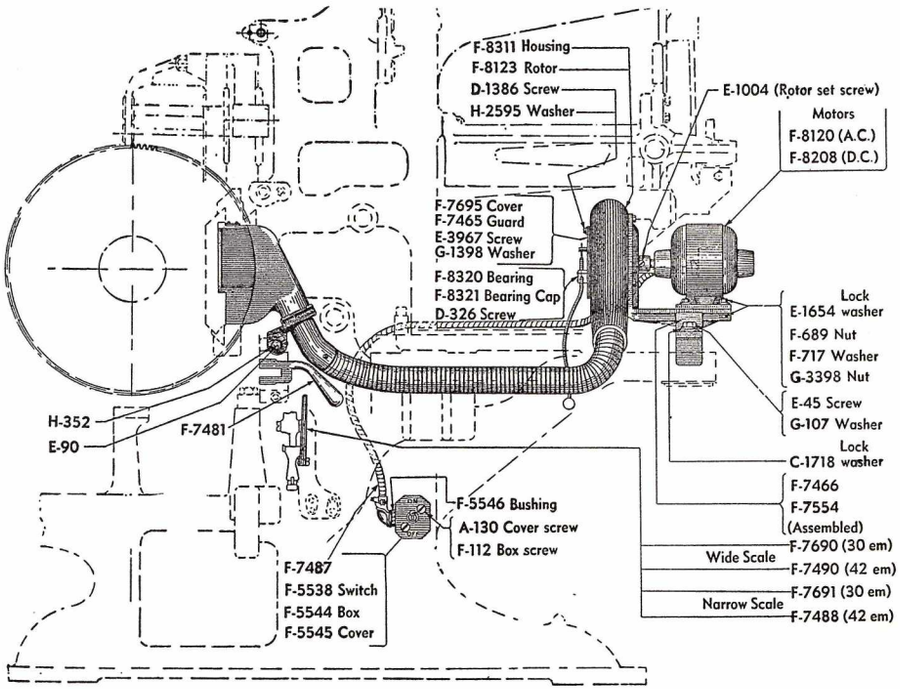
The lower adjusting screw *122* will make contact with the mold safety slide control *119* only when the mold cam lever handle *82* is in the down position at back, which is the released position for pulling the mold slide forward. This prevents the upper screw *121* from being broken when the mold slide is re-engaged. Adjust the lower screw *122* so that its head will not extend quite as much as the head of upper screw *121*. After making the adjustment on the screw *121*, test the machine under normal operating conditions with power on. If shoe *92* has a tendency to catch on slide *120*, and there is no interference with the advance of the mold slide, turn screw *121* forward slightly so that it will just clear. Lock nuts are provided on both adjusting screws, *121* and *122*, to maintain the settings.

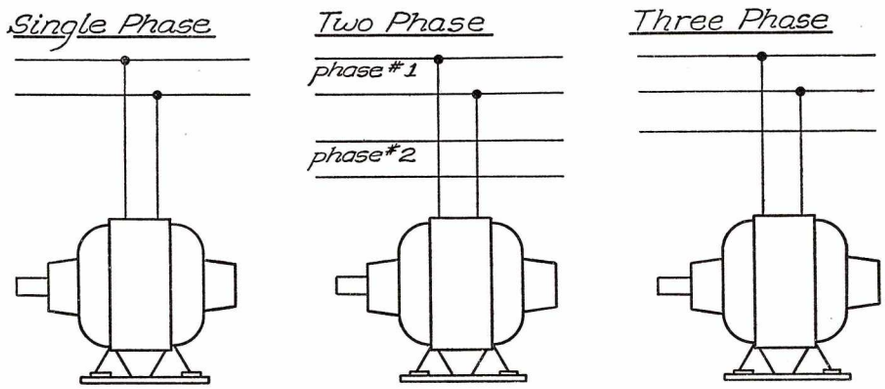
THERMO-BLO MOLD COOLER

THERMO-BLO–
MOLD COOLER

The diagrammatic views below and opposite show the mounting of this attachment on current Linotypes, as seen from the front and right side of the machine. The manner and point of attachment vary somewhat, depending upon the model involved. Screw J-468 fastens the air tube F-8308 to the nozzle extension assembly F-8305, which is in turn rigidly attached to the base of the machine by screw E-90. This arrangement permits a sliding connection with mold disk nozzle assembly F-8310, which provides for pulling out the mold slide beyond normal operating distance without the necessity of disconnecting the air tube. The volume of air delivered at the nozzle may be controlled by opening or closing the intake shutter, which is operated by the knob F-8323 extending through the right front of the base. Pulling knob F-8323 out closes the opening of the air intake, and pushing it forward increases the opening. Actual settings of the knob F-8323 can best be determined under actual operating conditions.

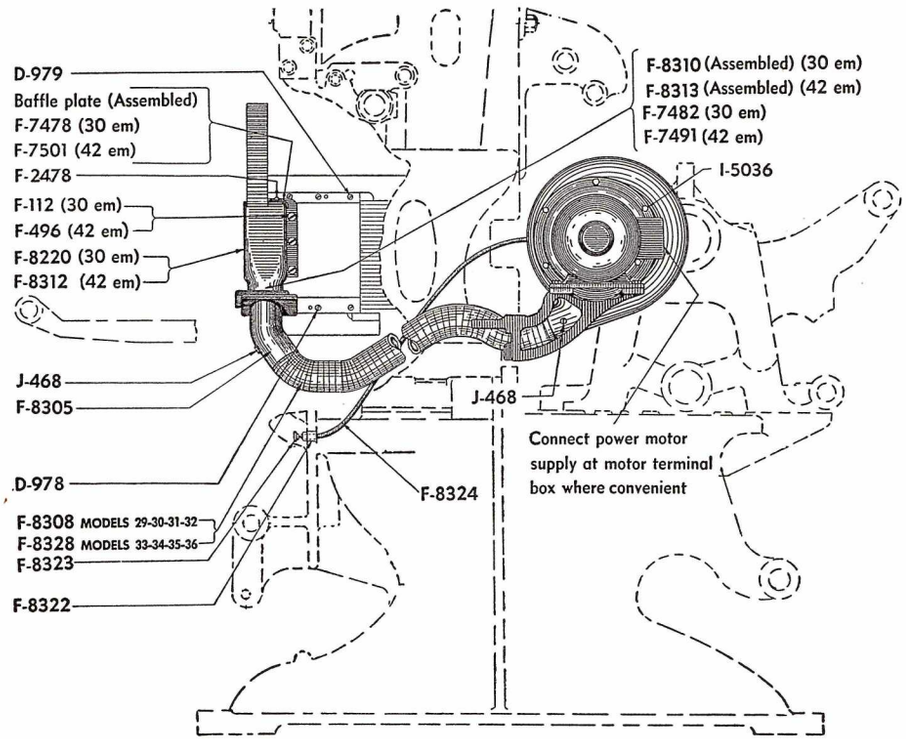
View From Front of Machine



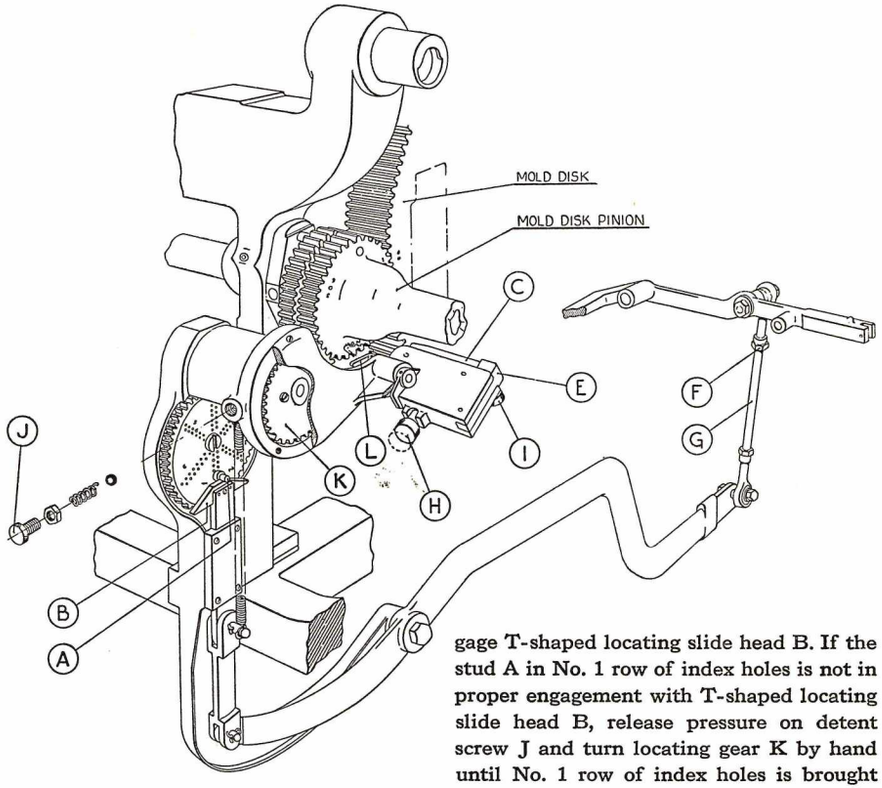


All Alternating Current Motors for the Thermo-Blo are of the single phase type and may be connected, as shown above, to a single phase, a two phase or a three phase circuit. For single phase, connect to the two wires of the circuit. For two phase, connect to the two wires of either phase. For three phase, connect to any two of the three wires.

View From Right Side of Machine



LINOTYPE AUTO-EJECTOR SET



Having been set to conform with the length of slugs to be ejected, this device automatically selects the correct ejector blades for each mold in the disk. The present discussion of the auto-ejector set will apply to six-mold machines where it finds one of its most useful applications due to the casting of constant measures and infrequent liner changes. To set the auto-ejector set, proceed as follows:

SETTING THE AUTO-EJECTOR

With Mold Disk Guide Knob H in lowered position (as illustrated), turn No. 1 mold to normal position (indicating line on face of mold disk should register with No. 1 position on mold disk shield). Index stud A in row No. 1 of index holes should now engage T-shaped locating slide head B. If the stud A in No. 1 row of index holes is not in proper engagement with T-shaped locating slide head B, release pressure on detent screw J and turn locating gear K by hand until No. 1 row of index holes is brought into vertical position. When No. 1 row of index holes has been rotated into proper position, tighten detent screw J until there is little or no play in locating gear K. (Test this setting with finger.)

With No. 1 mold in normal or ejecting position, index stud A should be positioned in hole to agree with length of slug to be ejected from No. 1 mold. If not correctly positioned, proceed in the following manner: To change position of stud A, turn index dial ¼ turn clockwise by rotating mold disk pinion one revolution clockwise. This will give access to nut D (Fig. 2) on index stud A. Remove nut D, pull out index stud A, and re-set in index hole corresponding to length of slug to be ejected. Replace nut D and tighten securely. Repeat procedure for each successive mold until all index studs are in position to agree with length of slugs to be ejected from each corresponding mold.

When length of line is changed on any mold, index stud in the corresponding row of index holes must be re-set to agree with the new length of slug to be ejected. This is accomplished by repeating the above procedure for each mold being changed to a new measure.

ADJUSTING THE EJECTOR CONTROLLER

If necessary to adjust the travel of the ejector controller (in order that index stud settings will produce corresponding settings of the ejector blade control lever), loosen lock nut F and turn rod G clockwise or counter-clockwise as necessary. When this adjustment is made, tighten lock nut F.

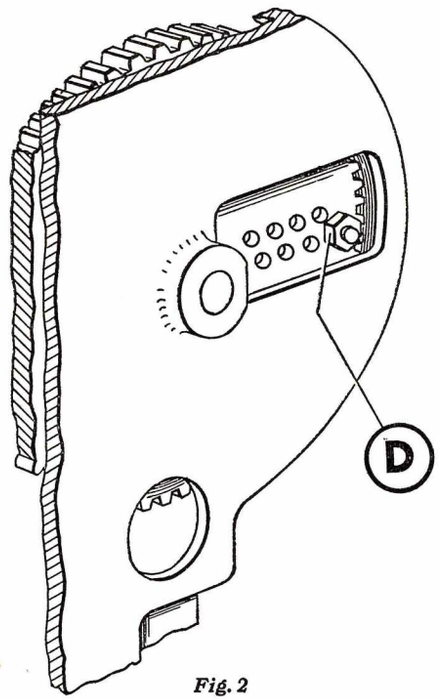


Fig. 2

MOLD DISK

When it is necessary to pull the mold disk forward for any reason, mold disk guide C engages the mold disk teeth and prevents the mold disk from being turned out of time with the mold-turning pinion or the auto-ejector set. This feature greatly facilitates returning the mold disk to normal position.

Should it be necessary to rotate the mold disk after it is pulled forward, mold disk guide knob H should be pulled out and locked. This retracts guide rail C, and moves mold disk pinion stop L in front of the mold disk pinion to prevent disturbing its setting. In this instance, when returning the mold disk to normal position, particular care must be exercised to assure that the mold disk is put back in correct time with the mold disk pinion.

To remove the mold disk beyond mold disk stop E, pull out mold disk guide knob H and lock it. Then release stop detent knob I and pivot mold disk stop E outward to permit full withdrawal of the mold slide. When the mold disk is removed beyond stop E it is not held in proper time by guide rail C, and in returning the mold disk to normal position, particular care must again be exercised to assure that it is put back in correct time with the mold disk pinion.

CAUTION—On six pocket mold disk machines care must be exercised when pulling the mold disk forward, since the equal spacing of six molds does not permit the mold disk teeth to mesh with guide rail C in all positions.

To bring mold disk forward onto guide rail C either mold number 1 or number 4 should be in "normal" or ejecting position. If mold disk is to be pulled forward with some other mold in "normal" or ejecting position, guide rail C must first be retracted.