Nebitype Instruction Manual and Parts List

The purpose of this Nebitype Instruction Manual is three-fold:

Installation and General Operating Instructions

Adjustments

Plates and Parts List

All Nebitype machines are given a series of thorough tests before they are shipped. They are tested with the motor, electric metal pot, mould, etc., that are on the machine when it is delivered. The thorough testing of your Nebitype machine eliminates the necessity for 'breaking in' or checking of adjustments before starting actual production on it.

Your Nebitype is a precision built mechanism and, like all such mechanisms, will give you its best product with fewest mechanical problems if you keep it clean and well lubricated at regular periods.

IMPORTANT When ordering parts, always list serial numbers and model of your Nebitype - located on the plate under the Slug Tray Bracket. Also, list the electric specifications when ordering any part of the electrical equipment.

This manual is a copy of the original English typewritten manual with some small changes for readability and the addition of some information from the Nebitype Company and users.

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General Characteristics

Nebitype operation is completely automatic by push-button control.

Your Nebitype produced type from 6pt to 72pt on a 42-em 6 or 12pt slug, depending on the size of the type face. In addition to Nebimats, all other slug-machine matrices can be used on it.

Matrices are set in the appropriate composing stick which is inserted into the machine. The starting button is pressed and the finished slug is delivered to the galley in 9 seconds.

During the operating cycle, the slug is cast, the mouthpiece wiped, the foot of the slug trimmed, and the slug delivered to the galley. Also, during the operating cycle the mould is water cooled by a self-contained circulating system.

Microswitches control the Crucible Plunger Mechanism and unless the Matrices and Mould are correctly locked against the Mouthpiece, the Microswitches will not release the pump mechanism. This safety feature eliminates the possibility of a 'squirt'.

The electric Metal pot and the mouthpiece have separate automatic controls.

I. Installation and general operating instructions.

The Nebitype machine does not require fastening to the floor, but it is important that the machine is level and resting solidly on the floor. Check for level by using a spirit level on top of the Sorts Tray Bracket on the right side of the machine. Check both ways, right to left and front to rear. Shim with hard wood as may be necessary.

The electric metal pot controller (E-10010, Plate 16) has been removed before shipping the machine. Attach the temperature controller in its opening in the door on the right side of the machine.

-- and terminals are clearly marked for correct connections.

A flexible conduit is used to connect the main line current to the machine. The conduit passes through a cut-out in the bottom of the door on the right side of the machine and the wires attached to the appropriate terminals in the lower left side of the door, as viewed when it is open. The machine should be grounded from any convenient metal part of it to a water pipe or other satisfactory ground.

The Metal pot is turned on by turning the switch (E-10011 Plate 16) on the door from the "0" to the "1" position. This switch turns on the Metal pot and the mouthpiece heater. A red pilot light, just above the controller on the door, lights when a current is going to the Metal Pot elements.

The temperature of the Metal Pot is set by turning either the right or left knobs on top of the temperature controller that moves the red pointer to the required temperature. Standard Linotype metal temperature should be 530-560 degrees F, or 277-293 degrees Celsius.

The temperature controller of the Mouthpiece (E 10046 - Plate 16) is provided with a Dial Pointer on the front of the bracket. The Dial is marked with one red and two green dots. For normal casting by manual operation, the Pointer is set at the red dot for both 12 and 6 point slugs. For automatic repeat casting of 12 point slugs the centre green dot is used and for repeat casting of 6 point slugs the right end green dot.

Addendum to the Manual, for Ultra machines with a separate power box:

The main switch connects mouthpiece element (17) and pot elements (18) to the line and prepares the starting of the machine. This main switch has 3 positions. (ON-OFF-OPEN)

ON Position - Closed circuit and box cover mechanically locked

OFF Position - Open Circuit and box cover mechanically locked

OPEN Position - Open circuit and possibility of opening box cover safely, that is without touching or striking appliances under tension

Temperature Control Temperature control is effected by means of a single appliance (28) which consists of two thermostatic equipments with Mercury bulbs.

Turning the Pointer to the left lowers the Mouthpiece temperature if the quality of the product indicates a slight change is desirable. If the slugs being cast have pock marks on their sides and have porous feet, the temperature should be lowered. If the slugs have a frosted appearance, especially on the type face, the temperature should be raised.

IMPORTANT - before turning on the pot, it should be filled with molten linotype metal if available. If not available, slugs or slug shavings can be used to fill the Pot. After turning on the Switch, continue to add slugs or shavings, especially against the Elements until the Pot is full of molten metal. The metal level should be at, or slightly above the Elements.

Mould Coolant Tank

The tank in the rear of the machine base provided an adequate supply of coolant for cooling the mould during each casting cycle. The coolant is water to which has been added 3-5% of water soluble oil. The combination of water and soluble oil is necessary to lubricate the circulating pump as well as to prevent rusting of metal parts. In those areas where the water is known to contain abnormal quantities of Lime or minerals, it is suggested that distilled water is used, The Tank holds approximately 6.5 US Gallons (24.6 litres) of water and .25 US Gallons (1 litre) of soluble oil.

Check the flow of water returning to the Tank occasionally. Efficient cooling of the mould depends on the full flow of coolant through the mould.

Mould

The mould is installed/changed when the machine is at rest (end of cycle) position. The Mould is slid into position on the rear of the elevating slide after making sure that the bearing surfaces on the slide and Mould are clean. Wrench (1094 - Plate 21) is used to tighten the Mould Screws. The Mould Screws position the Mould correctly.

Lubrication

The Nebitype machine has nineteen oil holes (circled in red) on the exterior of the machine. A large oil cup provides centralised oiling to the eight bearings, etc,. on the Cam Assembly inside the machine.

The large oil cup is under the knurled head screw (2628 - Plate 11) easily accessible by lifting off the sprue trimming tray (1021 - Plate 2)

Oil the machine twice a week with a good grade of motor oil S.A.E 30.

Two grease cups (2632 - Plate 3) should be turned in slightly once a week and refilled, when necessary, with a light weight cup grease.

The motor is permanently lubricated. The vertical shaft Worm (1102 - Plate 12) and helical tooth gear (2227 - Plate 12) should have an occasional light application of graphite grease.

Microswitch Plug

The Microswitch Plug is located in the upper left hand corner of the base of the machine. The three-pronged Plug is inserted with the red arrow on the top in line with the red dot that is on the female part of the plug.

Caution Always remove the Plug when making any machine adjustments or at any time when the machine is being run and no cast is wanted. When the Plug is disconnected, the Microswitches cannot actuate the Plunger - Release solenoid. The plug does not prevent the motor from running however.

Initial Starting of Motor

Before starting the machine, the rotation of the Motor must be checked. Proceed as follows:

Make sure the micro-switch plug is disconnected

Lift off the sprue trimmings tray and insert the Handwheel (2851 - Plate 11) in the hole provided - make sure it is seated. Jog the green and red operating buttons quickly and note the Handwheel rotation. It should be CLOCKWISE. If not, wiring connections must be shifted, either in the door panel or at the wall switch. When the rotation of the Motor is correct, remove the Handwheel and press the green button to let the machine run through a complete cycle to check its operation.

After the green button has been pushed to start the machine, the red button can be pushed at any time during the cycle to stop the machine instantly, if it is found necessary to do so.

Cleaning the Plunger and Pot

The plunger should be cleaned twice a week or more often, if necessary. The Plunger must operate freely to produce a good quality slug. Dirty type metal may necessitate cleaning the Plunger every day.

The Plunger is removed with the Tool (1089 - Plate 21). While the Plunger is still hot, brush it well with the Wire Brush (1092 - Plate 21). If necessary use the Scraper (1091 - Plate 21) to remove dross from the walls of the well. Clean dross from the surface of the metal, paying attention to the space between the Elements and the sides of the Pot. Note that the major constituent of type metal is lead, and this can be inhaled when using a wire brush on the plunger.

If the Plunger has cooled while performing the above operations, it should be heated in the Pot before replacing it. The Plunger must turn easily - if not, reclean it.

Before replacing the Plunger it is preferable to use Carnauba Wax on the Plunger, instead of oil. Carnauba Wax can be purchased locally from wholesale drug or industrial chemical suppliers. It can be obtained in chunks and should be of a light yellow colour. It will melt when rubbed lightly on the hot Plunger and the coating will reduce dross accumulation on the Plunger and well.

A light application of Carnauba Wax, twice a week, on the Mouthpiece will help keep it clean.

Caution - Slip the Plunger into the Well slowly, otherwise metal may be forced out the Mouthpiece.

Dross accumulation on the Plunger and Well wall is reduced by maintaining a constant metal level in the Pot. The use of the automatic Metal Feeder assures such a constant level.

Nebitype Composing Sticks

All Composing Sticks are equipped with Safety Pins (2257 - Plate 20). There are two Pins on the 42-em sticks, one at each end. The Pins actuate the Microswitches to release the Plunger Mechanism so that a cast will be made when Stick and Mould are correctly locked against the Mouthpiece. The Pins must actuate both Microswitches, otherwise no cast will be made. The Safety Pins must always have free movement in their seats. If, after long use they become sticky or dirty they can be freed by washing in Kerosene.

The 84-em Sticks contain four Safety Pins

Setting Type with Nebimats

The Nebitype Composing Stick is held in the left hand with the Locking Screw toward right. The mats are set in the Stick with the type face up in the same way individual types are set. The Locking Screw is tightened to a light bearing, the Stick inserted in the machine and a line of type cast.

Casting Type Lines

Pull out the Rod (located just above the Microswitch Plug) to engage both Plunger Springs.

Normal operating conditions are: *(original temperatures were struck out and values were handwritten below)*

Metal Pot Temperature	~~530 560~~ degrees F (570-580)
Mouthpiece Temperature Control	~~40-45~~ at red dot (520-525)
Coolant Control	between + (full flow) or midway between + and -.

Normal production of type lines is done by pressing the green button to start each casting cycle. If several lines are required, they can be obtained by using the Repeater Switch - the toggle switch located at the right of the red-green buttons. The Repeater Switch automatically restarts the casting cycle until the switch is turned off.

Casting Blank Slugs

Blank slugs for use in underpinning type can be cast on the Nebitype if desired. They are cast by pressing the green button for each casting cycle or by using the Repeater Switch, cast continuously.

The following instructions are to be followed when casting blanks:

Push in the Rod to disconnect one of the Plunger Springs

Metal Pot Temperature should be ~~530-560~~ degrees F (570-580) (same as for line types)

If repeat casting with Repeater Switch, reset MouthPiece Temperature control to 55-60 (centre green dot) for 12 point and 80-90 (end green dot) for 6 point.

Note - The Mouthpiece Temperature Control should be returned to the red dot immediately after blanks have been cast so that the Mouthpiece Temperature will return to normal for line casting.

II. NEBITYPE ADJUSTMENTS

The Nebitype machine is given thorough mechanical tests during and after assembly. It is given severe final mechanical and production tests. After long use, it may be necessary to adjust or check adjustments of parts or assemblies. When necessary to do so, follow the instructions carefully.

IF THE MACHINE DOES NOT CAST

1. Check for looseness of the Set Screws 6-4 x 10 that lock the Screws (2626 - Plate 6). If the Set Screws are loose, there is a possibility that the Screws (2626) have turned. if so, see Microswitch Adjustment
2. Incorrect Lockup - The Matrices, Stick and Mould must be locked correctly against the Mouthpiece to actuate the Microswitches. Minute particles of metal adhering to the Mouthpiece, Mould or Matrices will prevent a cast - also, a metal squirt. Make sure all parts are clean - check rear side of the Mould also.
3. Broken Microswitch Circuit - To check for such a broken circuit, start the machine. Immediately after the casting point and while the Mouthpiece wiper is moving, push the safety guard Microswitch and, at the same time, press together with thumbs and forefingers, the Microswitches (E 10053 - Plate 16) and composing stick Safety Pins (2257 - Plate 20) simultaneously. Two operators are needed for this test. The snap of the Plunger release solenoid should be heard. If the snap is not heard, it indicates a broken circuit or sluggish operation of the Safety Latch (2809 - Plate 14). Such sluggish operation can be eliminated by thoroughly oiling the Latch and moving it by hand while the machine is at rest.

Note - The snap cannot be heard while the machine is at rest because the Microswitch current is cut off when the machine is idle. Be sure to press the Microswitches **after** the casting point to prevent the possibility of a squirt.

Microswitch Adjustment

If, after thoroughly checking the above details, the machine does not cast, check the adjustment of the Microswitches. This is done by holding a piece of 16-lb. paper or newsprint between the Microswitch and the blank matrix while the machine is running. If the machine does not cast, try the paper between the other Microswitch.

If this test produces a cast, turn the Microswitch adjusting screws (2647 - Plate 4) in order to compensate the paper thickness.

Lockup Adjustment -(Stick, Mould and Mouthpiece).

The Lock-up Adjustment is checked while the machine is either power operated or handwheel operated.

The Screw (2604 - Plate 5) connects the two levers (1027 and 1028 - Plate 5). When the Stick and Mould are correctly locked up against the Mouthpiece, the cup washers (2475 - Plate 5) will compress 3/64" from rest position. The measurement is checked between the red groove in the screw head (2604 - Plate 5) and the top of the lever (1028 - Plate 5).

To obtain the correct compression of 3/64", loosen Lock Nut (2606 - Plate 5) and turn screw (2624 - Plate 5) in or out as required. Recheck adjustment after the Lock Nut has been tightened.

The Cup Washers should be only slightly compress when in rest position.

Lockup release adjustment

The lower ends of the forked lever (519 - Plate 5) move the mould from the Mouthpiece, after the cast is made and assist in pulling the matrices from the slug. Turn the machine so that the elevator slide it at its highest position but has not started to move horizontally. In this position the distance from the front of the forks to the read of the blocks (2726 and 2727 - Plate 4) should be .020" to .025".

Compensating slide

The slide (2036 - Plate 4) is a flexible connection through the springs (2905 - Plate 4) between the Bell Crank (1005 - Plate 4) and the Stick Slide (527 - Plate 4) as well as to synchronise the Elevator Slide and Stick Head movements after a cast is made. The Compensating Slide requires no adjustment.

Matrix Alignment (Left End)

To align the first Matrix with the left end of the slug, loosen the screw that holds the block (2756 - Plate 4) and move the block as much as necessary. Make sure the screw is tightened.

Mould Position (Vertical) Adjustments

There are two details to consider first, the relationship of the slug opening in the Mould to the orifices in the Mouthpiece; second, the relationship of the slug to the opening to the Ejector Blade (2031 - Plate 3).

1. First - Put a 12pt Mould on the machine. Remove the fork lever (519 - Plate 5) and the stick slide (527 - Plate 4). Turn the machine by using the hand wheel (2851 - Plate 11), to the casting point. The double row of orifices can be seen by looking through the Mould - they should be exactly centred. If not, adjust either or both screws (2630 - Plate 5), making sure the lock nuts (7-8) are tightened.
2. Second - Put a 6pt Mould on the Machine. Loosen Screw (2633 - Plate 13), under plate (2180 - Plate 11), ten (10) turns to take tension from the spring (2813 - Plate 13). Ease out the pin (2207 in bracket 506 - Plate 3) to disconnect Elevator slide shock absorber rod (2001 - Plate 10). Remove the Pin (2217 - Plate 3) so that the Ejector slide can be moved by hand. Push the Ejector Blade out of the Mould and check whether Blade is exactly centred in the 6pt Mould opening. If not, adjust stop screw (6-10 x 35 in bracket 506 - Plate 3) and lock the nut. If the adjustment of the stop screw has been changed the following adjustment must be checked. Remove the 6pt Mould, re-connect the shock absorber rod (2001 - Plate 10) with pin (2207 - Plate 3) and re-turn screw (2633 - Plate 13) ten (10) turns to restore the original tension on the spring. (2813 - Plate 13). Raise the elevator slide and put a thickness of newsprint between the slide and the stop screw. Turn the machine backward by hand so that the slide is in its lowest position. The newsprint should be held firmly, but the slide should not be jammed against the stop screw. If necessary to change the adjustment, turn the machine to rest position and lift the slide by hand, bringing it to the casting position. The shock-absorber sleeve (2454 - Plate 10) can now be seen. Remove the sleeve screw (4-4x8 - Plate 10) and slide the sleeve down. Slip a piece of cord through the screw hole to keep the sleeve from sliding too far down. Loosen Lock Nut (8-14 - Plate 10) and turn the elevator spring adjusting plug (2403 - Plate 10) that will turn the shock absorber body (2401 - Plate 10) up or down as required until the slide just holds the paper firmly. Be sure to tighten the lock nut before each test of the adjustment.

Ejector Blade Adjustment

If it becomes necessary to adjust the Ejector Blade, proceed as follows: Remove the stick slide (527 - Plate 4) for better visibility. Turn the machine backward by hand until the ejector blade is in its extreme forward position.

The blade should: (1) extend beyond the Mould from .050" to .060" (2) be parallel to the Mould surface.

These two adjustments are made as follows:

1. Turn the machine to rest position, remove pin (2217 - Plate 3), loosen lock nuts (8-14 - Plate 3) and turn the yoke (2721 - Plate 3) a half-turn in the direction necessary to have the blade extend from .050" to .060".
2. The ejector blade, in its forward position, is made parallel by adjusting the lever (1004 - Plate 3) only. The screw (1-8 x 5 - Plate 3) is loosened so that lever (1004 - Plate 3) can be positioned by turning the pin (6-8 x 40 - Plate 3) to make the blade parallel with the Mould surface. Lock the screw tightly.

Mould and Mouthpiece Adjustment

The Metal Pot is adjustable horizontally and vertically so that the Mould will seat squarely against the Mouthpiece.

To check whether the Mould sits squarely against the Mouthpiece:

- remove guards (1019 and 1020 - Plate 6),
- loosen the screws (2714 - Plate 8) and
- remove the Mouthpiece wiper holder (2197 - Plate 8).

Use a lighted pad of blotter, soaked in kerosene, and blacken the Mouthpiece or rub a light film of Prussian Blue on the Mouthpiece.

Start the machine and stop it just before the Mould seats; slip a piece of tissue paper between the Mould and the Mouthpiece; restart the machine and again stop it just after the Mould leaves the Mouthpiece. Remove the tissue and check the print on it.

To square horizontally, the Mould to the Mouthpiece, adjust either the right or left screw (2702 - Plate 6) in the front support (1121 - Plate 6).

To square, vertically, adjust screw (2709 - Plate 6) in the rear support (2088 - Plate 6)

If there are high and low spots on the Mouthpiece, as indicated by the tissue print, use a fine grain stone or fine grain emery cloth to carefully remove the high spots.

Slug foot trimmer adjustment - The trimmer knife (2070 - Plate 8) does not control the slug height but merely trims he sprue formed at the Mouthpiece. The knife is held, under spring tension, against the Mould while trimming the sprue. If necessary to adjust the spring tension, loosen lock screw (4-4 x 6 - Plate 8), turn in or out the adjusting screw (2612 - Plate 8) as required. Be sure to tighten the lock screw.

Mouthpiece Wiper adjustment

The Mouthpiece wiper (2098 - Plate 8) should be adjusted so that if it is removed or as it wears, the metal parts will not touch the Mouthpiece. To make the adjustment,

- loosen the two screws (2714 - Plate 8) & remove the wiper and its holder (2197 - Plate 8).
- Turn the machine backward by hand until the wiper support bad (1108 - Plate 8) is in front of the Mouthpiece,
- loosen lock nut (7-4 - Plate 8) and
- adjust screw(6-4 - Plate 8) so that there is a clearance from .020" to .040" (.5mm to 1mm) between the bar and the Mouthpiece and tighten the lock nut.

Plunger timing adjustment - When a cast is made, the Plunger Cam Roller (2502 - Plate 13) must not ride on the Cam contour but roller and lever (1010 - Plate 13) must raise quickly and without interruption to produce a good cast.

When the machine is in the rest position the pump release lever block (2064 - Plate 14) should extend over the pump cam lever block (2066 - Plate 13) by 1/8" (~3mm). Adjustment is made with screw (6-6 x 30 - Plate 14). Clearance between pump release lever block (2064 - Plate 14) and pump cam lever block (2066 - Plate 13) should be 0.010" to .15". Adjust by loosening screws (1-6 x 20 - Plate 14) and adjusting with screw (6-6 x 12 Plate 14) as necessary. Make sure the screws (1-6 x 20 - Plate 14) are tightened.

Plunger safety Latch adjustment - The latch (2809 - Plate 14) is actuated by the three stick slide Microswitches through a solenoid when the composing stick and Mould are correctly locked against the Mouthpiece. Clearance between the latch and its block (2067 - Plate 13) should be .020" to .025" (.508mm to .635mm). The clearance is obtained by varying the thickness of the shims under the block (2067 - Plate 13).

End of Cycle stop adjustment

At the end of each machine cycle the trip (2075 - Plate 12) automatically stops the machine in the rest position (the elevator slide is in its lowest position). The coolant circulating pump provides a braking action to immediately stop the machine. The trip (2075 - Plate 12) presses the Microswitch (E 10017 - Plate 14) that actuates the remote control switch (2334 - Plate 16) to stop the Motor.

Note: Before changing the trip to advance or retard the rest position stop, make sure the circulating pump operates and its belt has good tension.

Cleaning the elevator slide

If the Elevator Slide (524 - Plate) does not move up and down smoothly, there is a possibility that metal shavings or dust has accumulated in the slide ways. To clean the slide ways proceed as follows:

- Remove the Mould.
- Lift the slide by hand to the casting position and remove the two top screws. (1-6 x 12 - Plate 3) in gibs (1075 and 1076 - Plate 3).
- Lower the slide by hand to its low (rest) position.
- Raise the lock plate (2758 - Plate 4),
- slip out the pin (2216 - Plate 4) and
- remove bell crank (1005 - Plate 4)

Remove stick slide (527 - Plate 4).

- Take out the remaining four gib screws being careful to hold the elevator slide while taking out the last screw.
- Pull the top of the slide out to its horizontal position - it will remain there, hold by the lower connecting pin.

A light coating of oil can be put on the slide ways before reassembly.

Elevator Slide Counterbalance Springs Adjustment

The Spring (2813 - Plate 13) compensates for the weight of the Elevator Slide so that wear and parts-strain are minimised.

To check and adjust the balance of the slide, remove the cotter pin (15-2 x 40 - Plate 3) from the head of the screw (2617 - Plate 3) and count the turns required to take all tension from the spring (2812 - Plate 3) so the tension can be correctly restored.

Raise and lower the elevator slide by hand - equal effort should be needed for raising and lowering it. If unequal effort is needed, adjust tension on the spring (2813 - Plate 13) by removing plate (2180 - Plate 3) and turning screw (2633 - Plate 13) as necessary to equalise the effort needed.

Note - a Mould and Composing Stick with matrices should be in the machine for the check and adjustment.

To remove Cam Assembly

The cam assembly unit is an integral part of the front cover of the machine base.

The assembly is removed as follows:

Disconnect or take out:

- tie rod (2619 - Plate 11),
- rods (615, 614, 2862 and 613 - Plate 10),
- shock absorber link pins (2207, 2208 - Plate 10),
- the wires from terminal (E-10066 - Plate 14),
- motor cable connected to panel (1079 - Plate 16) and
- circulating pump belt (2439 - Plate 15).
- The two dowels (12-8 x 60 - Plate 11) are to be driven out about 3/4" (18mm) from the rear.
- Finally, take out the eight screws (1-10 x 60 - Plate 11) and remove the assembly.

The Cam Shaft (1233 - Plate 12) can be taken out after loosening the set screw (4-8 x 15 - Plate 12) in the pump cam hub (1231 - Plate 12).

Torque Limiter

The Torque limiter or slip clutch (2476 - Plate 12) prevents part breakage in the case of any machine jam. The limiter needs no adjustment. If, through abnormal use, excessive slippage should occur, the fibre ring (2477 - Plate 12) should be replaced. To replace the ring:

- Take out worm shaft (1102 - Plate 12) and its bearing brackets (2007 and 2008 - Plate 12) as a group.
- Take out screw (2710 - Plate 12), washer (2482 - Plate 12), sheave (2425 - Plate 12) and limiter body (2476 - Plate 12).
- Take out the three screws (2707 - Plate 12) and replace fibre ring (2477 - Plate 12).

Appendix A.
Monotype Company of Canada, Limited
Notes on the Nebitype Caster / Addition to Manual

Microswitch Adjustment

When setting the Microswitches, machine should have a sensitivity of no more than 5 strips of Keyboard Paper. Note Machine may cast with as many as 4 strips of Keyboard Paper, but will not case with 5 strips. 4 strips no cast, 3 strips cast - would be ideal.

Mouthpiece

The distance from the front face of the top stand to the front face of the Mouthpiece is 1-31/32".

Mouthpiece orifices - use #53 drill. (0.0595" or 1.5113mm)

Mouthpiece vents - Open on top, closed on bottom

Second Spring

Adjusting screw (2633 - Plate 7) for second spring - Turn clockwise until tight then counter-clockwise 3 turns.

Plunger Lever Link

For this adjustment you can use a tool such as Port Cleaning Tool (#1115) with the angled end ground shorter, so as to insert through the Port Hold from the outside of the well between the heating element and the outside edge of the Well. With the tool position thus, insert the Piston until it comes to rest against the protruding part of the tool. By turning Part (#2045) you may adjust Lever (#1006) to insert Pin (#2229) until all three Pins slide without bind into their respective holes. (See Plate 7)

Elevator Shock absorber

On bottom of Shock absorber, Guide Screw should have approximately 1/4" (~6mm) from bottom of slot to centre of screw head.

Top of Shock absorber under Sleeve from bottom of connecting Link to top of Nut has approximately 3/8" (~9.5mm) space

Shock absorber should measure 15-9/16" (395.28mm) between centre of eyes.

Tension of Slug Foot Trimmer

To set proper tension for Trimmer Knife, take slant on back of Mould and Prussian Blue this angle or slant. Replace Mould and run for one cycle. Remove Mould and note where

the Knife is bearing on the angle of the Mould. Trimmer Blade should hit the centre of the Angle. If necessary, adjust Trimmer Blade according to instructions in the manual on page 12.

Clamping Mechanism

When replacing Clamping Mechanism Line (#1109 - Plate 10), Clamping Assembly (#1220 - Plate 5) should have the same distance between Top and Bottom of Casting (13 - Plate 2).

Adjustment of Set Screws

Set Screws (#2626 - Plate 6) on Shields (1019 and 1020) are set to extend no more than .090" (2.286mm). On the newer machines the Shield is made in two sections.

Trimmer Knife Slide Line Assembly

The distance between Assembly (2862 - Plate 10) and (#610 - Plate 8) should measure approximately 12" (304.8mm) between centre of eyes.

Pump Release Lever Fork Assembly

The distance between the eye and the straight part of the fork should measure approximately 5-5/8" (142.875mm). See Plate 14

Appendix B
Nebitype Notes - Jack Page,
(ex "The Dominion", New Zealand)

Casting 6pt - "Raise" temp to 55 degrees

Casting 12pt - Mouthpiece Temp 40 degrees

Keep metal level at top of elements - better too high than too low.

Mouthpiece Wiper and leather wiper under knife carrier can all be changed at right hand side of machine.

Troubles

Machine 'dragging' to casting position - Check the water pump is turning; ejector blade fully home; metal particles in front slides.

Riding on slip clutch before ejection - Check elevator properly down and that ejection blade is against slug and not Mould. Elevator can sit up if metal in front of slides.

Slug Jammed in Mouthpiece - Remove Mould and if unable to knock slug out with piece of brass, dismantle mould One set of screws turn anticlockwise to force Mould apart.

Keep metal level at top of elements - better too high than too low.

Appendix C
Nebitype Bulletin No. 6
February 1966

Improvements and modifications affected on the Nebitype Line Casting machine as from January 1st 1963

Variable Length System (Spare Parts Catalogue - pages 3, 4, 8)

Starting with the machine serial number 441/NTC the Ejector Blade No 2031 has been replaced with a new style on which bears the symbol No 2049. The Ejector Blade has been lengthened in order to obtain a perfect ejection also when short lengths are cast.

The new Ejector Blade No 2049 is to be used only with new moulds which cast slugs with square ends.

Ejector Blade (old style) No 2031 - length 165.5mm. (for Cic. & Ems)
Ejector Blade (new style) No 2049 - length 175.5 (Ems)
Ejector Blade (new style) No 2049 - length 179.0 (Cic.)

The Safety Stop for the Composing Stick on the Elevator Head has been replaced by a new stop No 3201 (page 4). It ensures the right positioning of the stick in relation to the mould.

By virtue of this new stop the stick can be inserted in the Elevator Head with one hand, without it being necessary to lower the safety stop knob.

This new device can be fitted on old style machines.

The introduction of the Variable Length System has rendered necessary the replacement on Gripper Slug Release Plate (No 2179) with Slug Release Plate Assembly (No 3202) which ensures trouble-free delivery of short slugs.

According to the length of the slug cast, Slug Release Plate Assembly (No 3202) can be set in two positions:

on the left hand side: for lengths superior to 25 Cic. (Ems)

on the right-hand side: for lengths inferior to 25 Cic. (Ems)

In addition it has been necessary to increase the backward movement of the Elevator Head on the slide to avoid that type face can be damaged by the Variable Length Blocks.

In view of the above the following modifications have been made:

(Page 3) part 2006 has been increased in height in order to increase the movement of lever No 1005

(Page 4) the slot on the Elevator Slide (No 524) has been slightly lengthened on both ends. The slot existing on part No 2036 has also been lengthened.

(Page 4) the Elevator Slide Gib (No 2040) has been lengthened by 3 millimeters.

Mould

The standard Cicero mould for Variable Lengths has 20 ribs for retaining the slug. The standard Pica mould for Variable Lengths has 21 ribs.

The ribs are spaced two Cicero and two Pica points from each other.

40 Cicero Mould 1-3-5-7-9-11-13-15-17-19-21-23-25-27-29-31-33-35-37-39

42 Ems Mould 1-3-5-7-9-11-13-15-17-19-21-23-25-27-29-31-33-35-37-39-41

If the end of a Variable Length Block coincides with a rib the slug cast will show beards. The end of the block must rest between two ribs.

For Variable Lengths different from the standard ones a mould with a different rib spacing is necessary.

In view of this it will be advisable to always indicate the slug lengths required by the customer.

Delivery Slide

Starting with machine Serial No 521/NTC the Delivery Slide (No 2076) has been made higher to ensure that slugs shorter than 25 Cicero (Ems) are delivered without trouble.

Gripper Jaw Assembly (No 3203 - page 8)

Gripper Assembly old style (No 2849) has been replaced with a new one (No 3203) which, being interchangeable, can be fitted on all existing Nebitype machines. When ordering spare parts of the new Gripper it will be necessary to refer to the new Nebitype spare parts manual

Elevator Spring Connecting Eye (lower) Assembly (No 2801 - Page 10)

Starting with Serial No 331/NTC the Elevator Spring Connecting Eye Assembly has been strengthened. The following parts have been replaced:

Part No 2002
Part No 2401
Part No 2405
Part No 2906

The new Elevator Spring Connecting Eye (lower) Assembly can be fitted on all Nebitype machines.

Red Signal Lamp (Pages 17 and 18)

A Red Signal Lamp and a Micro-Switch have been fitted to the Metal Feeder. When lit the red lamp shows that the ingot is exhausted.

This innovation has been applied starting with Nebitype machine No 589/NTC (machines Serial No 582-583-586/NTC included).

Mouthpiece Front Aligning Bar & Crucible (Part Nos 1121 & 30 - Pg 6)

The diameter of the screws supporting the Pot has been increased from 5MA to 6MA, starting with machine serial No 331/NTC. In order to effect this modification on previous machines it will be sufficient to thread once again the 4 holes on part No 30 to 6MA and to widen the housing slot of the screw head on Mouthpiece Front Aligning Bar (No 1121).

Torque Limiting Assembly (Page 12)

Starting with machine 484/NTC, an adjustable torque limiter new style has been adopted. This can be re-set after a certain period of time in order to compensate the wear and tear of Torque Limiter Disc (fiber).

The Parts which have been modified are the following:

Part No 2916

Part No 2425

Part No 2476

Part No 1102

Part No 2482 has been replaced by part 2546

Part No 2710 has been replaced by part A10x35UNI 2383

Part No 5x10 UNI 2382 has been added

Clamping Mechanism Bracket (No 522 - Page 5)

Starting with No 339/NTC, part No 522 has been strengthened. The maximum protrusion is now 96mm instead of 90mm. Also the height of Clamping Fork Pin (No 2213) has been changed from 97 to 102mm

When assembling a new Clamping Mechanism Bracket (No 522) on old machines it will be necessary to replace also part No 521 (Protection Guard) otherwise it would not be possible to close the Guard because of the new type bracket.

Clamping Mechanism Shaft (No 1120 - Page 5)

Starting with machine No 441/NTC, Clamping Mechanism Pin (No 2282) has been incorporated into part No 1120.

This will eliminate the trouble which occurred on old machines owing to the fact that part No 2282 (which was threaded on part No 1121) tended to become loose.

It will be possible to fit this new part No 1120 on all Nebitype machines.

Shunt Box (No E10148 - Page 14 and page 2)

Electro-Magnetic Terminal Block No E10066 has been replaced with a Shunt Box (No E10148) on Pump Latch Circuit and Feeder (Ref. Draw. E10097). This modification improves the wiring. All wires have been numbered so that they can be easily identified.

This modification has been applied starting with machine No 589/NTC (machine serial No 582-583-586/NTC included).

Mouthpiece Guards - left and right (No 1019/1020 - Page 6)

Two steel plates have been incorporated in the above mentioned Mouthpiece Guards in order to strengthen them.

Some reference pins have been fitted to said pieces in order to render them interchangeable.

The reference pins have been fitted starting with machine No 265/NTC.

The steel plates on the Mouthpiece Guards have been fitted starting with machine No 381/NTC.

Delivery Slide Assembly (No 609 - Page 9)

Part No 2636 (Delivery Slide Operating Body Spring Pin) has been replaced with Part No 2545 (Slug Turner Bracket Spring Post) and Spring (No 2914) has been strengthened

To fit this new spring it will be necessary to drill a 4 MA diameter for the insertion of the Slug Turner Bracket Spring Post (No 2545)

Worm Shaft Bracket upper and lower(No 2007/2008 - Page 12)

In order to ensure the exact positioning in case of disassembly the Worm Shaft Brackets (No 2007/2007) have been provided with pins of the face of the Cam Panel (No 12).

This modification starting with machine No 441/NTC

Slide Cover and Slide Body (No 512 and 520 - Page 8)

Slide Cover (No 512) and Slide Body (No 520) have been modified to improve registration of both Trimming Knife Slide and Gripper, starting with machine No 521/NTC.

The Lengthened Slide Cover (No 512) can be assembled on old style machines, while Slide Body (No 520) cannot be assembled on old style machines.

Water Tank Valve (No 2166 - Page 5)

To avoid any loss of cooling water the Water Tank Valve (No 2166) has been changed with a new one which stops leakages. The said valve can be fitted on all existing machines.

Clamping Mechanism Operating Lever (No 1027 - Page 5)

Starting with machine No 441/NTC the two screws 6-4x5 of screw No 2604 (Clamping Mechanism Spring Adjusting Screw) have been replaced with a screw E 5x5 UNI 2384 and with nut 8-5.