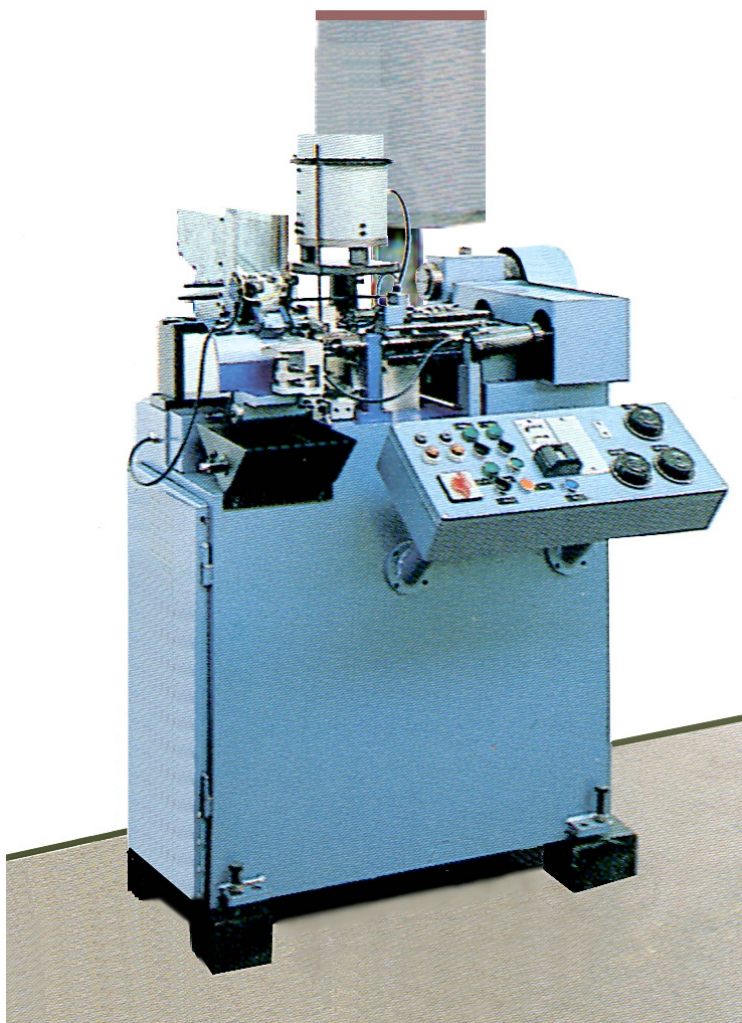


TopTip

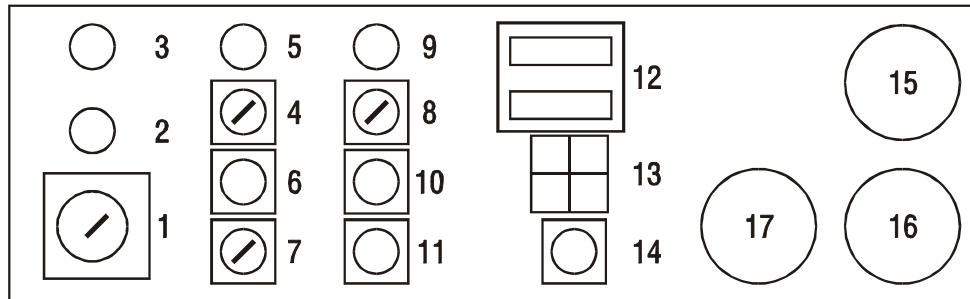
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INSTRUCTION MANUAL FOR REFILL ASSEMBLY MACHINE

INJ34



DESCRIPTION OF MAIN CONTROL PANEL



Pos	Function
1	Main switch
2	Pilot lamp
3	Speed regulator
4	Vibrator selector
5	Pilot lamp
6	Spare
7	Manual/Auto selector
8	Hot stamping selector
9	Pilot lamp
10	Main motor start
11	Main motor stop
12	Partial/total piece counter
13	Control elements: a) main motor stop b) stop of refill conveyor c) absence of tip d) spare
14	Reset
15	Temperature regulator for injection unit
16	Temperature regulator for hot stamping unit
17	Vibrator potentiometer

1. Main switch

The main switch gives the electrical input to the machine and its additional attachments.

The pilot lamp "2" indicates that the machine is under tension.

3. Speed regulator

Through this regulator is it possible to increase and decrease continuously the main motor speed i.e. the cadence of the machine. This regulator operates directly on the main motor without producing stop of the same.

4. Vibrator selector

This selector connects and disconnects the vibrator; the pilot lamp "5" indicates that the vibrator is connected.

6. Spare position for an additional function switch or button.

7. Manual/Auto selector

This selector changes the operation of the machine from manual to automatic, and from automatic to manual.

8. Hot stamping selector

This selector predispose the operation of the hot stamping unit, i.e. starts heating of the resistors. The pilot lamp "9" indicates this function.

10. Button for machine start

This button starts operation of main motor and kinematics of the complete machine according to the position selected on switch no. "7".
(manual/automatic).

N.B. the manual movement continues until the button is pushed, when the finger pressure stops the machine immediately also stops. At the automatic position the machine functions continuously.

11. Button for machine stop

This button stops operation of main motor and consequently the machine at end cycle.

12. Piece counter

The piece counter is divided in two parts; the upper part performs the partial counting of the refills daily produced; the lower part performs the total counting of the production required. The reset to "0" of the first counter can be obtained by pushing its left button, the second counter can be set to the "0" position only by using the special key which is endowed with the machine.

13. Control elements

These lamps give indication regarding an eventual, stop of the machine.

Lighten of the lamp indicates which is the reason of the machine stop.

- a. main motor stop
- b. stop of refill conveyor, due to defective parts or faulty introduction
- c. tip has not been loaded
- d. spare for additional operations

14. The reset re-starts the machine function, after the faulty operation, which has stopped the machine, has been eliminated.

15. Temperature regulator for injection unit

This element adjusts the temperature of the injection unit.

16. Temperature regulator for the hot stamping unit

This element adjusts the heading temperature of the resistors of the hot stamping unit, provided selector "8" is connected.

N.B. The values mentioned on the temperature adjusters do not correspond absolutely to the temperature in degrees centigrade. A correct adjustment is obtained between 40-60.

17. Vibrator potentiometer

This potentiometer adjusts the vibrations frequency in order to obtain a smooth tip loading.

Ink tank

It is a stainless steel cylindrical tank, capacity 30 l.

The tank is mounted vertically and through a tube connected with the injection unit the ink flows down simply forced by gravity.

A thermal plate is mounted at the base of the tank to perform ink heating.

The temperature is controlled by a regulator, which is mounted below the tank.

The temperature is adjusted to 40-50 degrees centigrade: this value may be modified by unscrewing the cover of the regulator and changing the position of the indicator.

The heater switch is situated on the rear side of the machine.

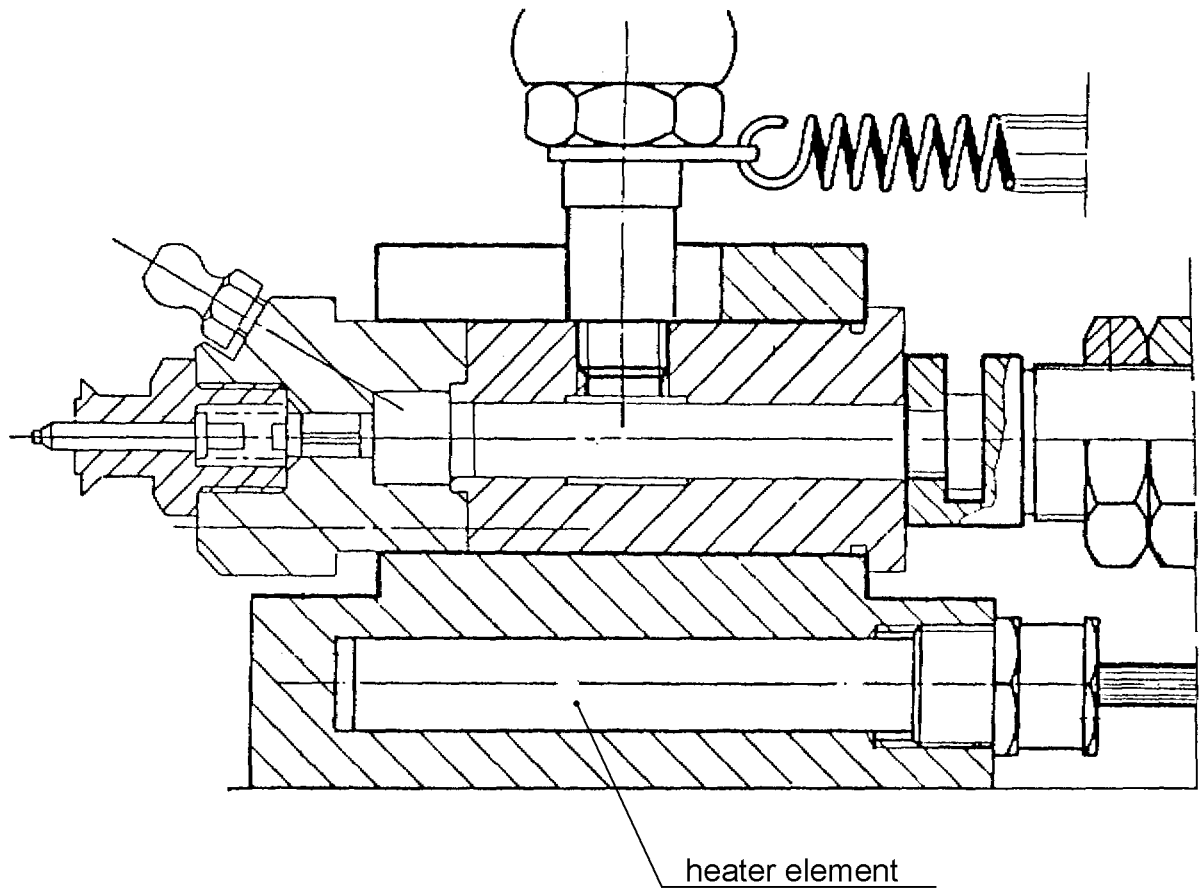


Fig. 1

Heater element shown on Fig. above keeps the ink injector body at the proper temperature,, which corresponds to about 40° C (100° Fahrenheit). Temperature can be regulated with rheostat on main control panel. (Setting between 40/60. Numbers do not indicate temperature in degrees)

Attention

If temperature is set too high, piston in injector body could become tight. Ink could dry out.

Temperature varies depending upon type and quality of ink.

Adjusting quantity of ink (or grease)

To change quantity of ink, adjust the hexagonal nut behind injector body.

Seen from injector nozzle side :

clockwise rotation of nut decreases quantity

counterclockwise rotation increases quantity

Tighten safety the nut again after adjustment.

Injection pump

There are 4 different injection pumps available, as far as the quantity of ink or grease is concerned.

The diameter of the piston 1 changes. Roughly, the following rule can be applied:

- piston Ø 6 mm for grease
- piston Ø 10 mm for miniature and standard refills
- piston Ø 13 mm for jumbo refills

Valve body and piston are accurately matched and should not be interchanged.

We can provide a complete pump assembly as shown on Fig. below upon request.

Please, specify type of refill when ordering.

The nozzle in front of the injection pump must also be adapted to the refill.

There are basically 3 different types of nozzles :

1. For plastic refills

With plastic refills, the ink under pressure through the piston opens check valve after overcoming the spring. Ink enters into nozzle and refill.

The plastic refill must be compressed to get a tight connection in front of the nozzle.

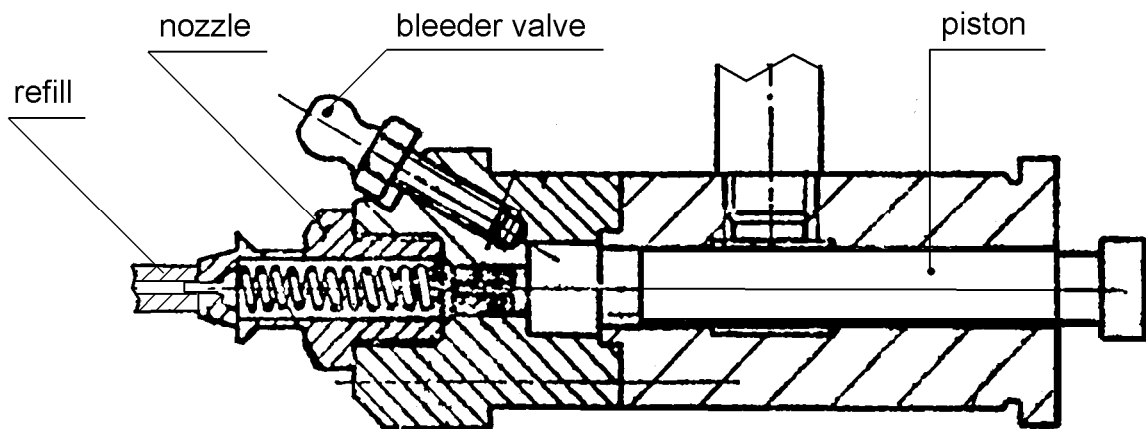


Fig. 2

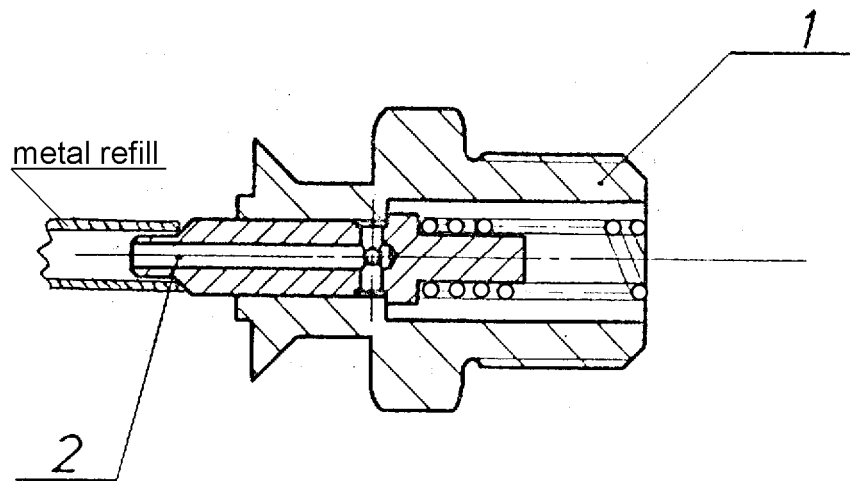
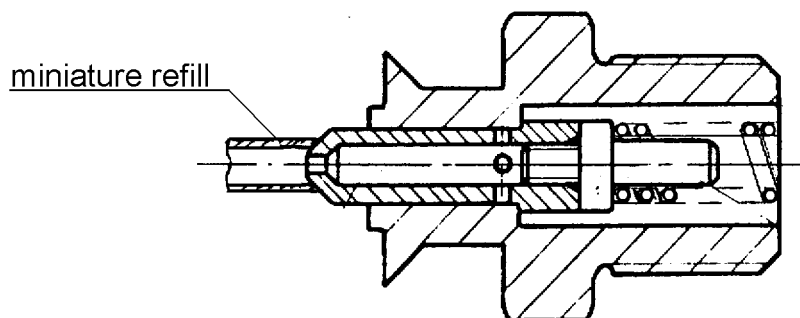


Fig. 3

2. Metal Refill

With metal refills, the stroke must be adjusted so that the spring loaded nozzle after entering into the refill, will be compressed enough to be pushed about .060" (1.5 mm) into to nozzle holder. Thus the cross holes are open to let ink pass into refill.



3. Miniature refills (metal)

With miniature refills, the taper of the nozzle pushes against the refill. The spring loaded nozzle must enter the holder about .060" (1.5 mm) to open the holes and allow ink to enter the refill.

Ink Tank

The ink tank has 2 containers with separate outlets, which can be used for two different colors. In case the customer has one color only, a connector with a faucet can be installed, allowing the operator to switch from one tank to the other.

To release the air pressure in the ink tank, close first the air inlet faucet and then open the valve in the center of each container cover.

The control lamp on the ink container indicates when water heater is turned on. ("on-off" switch on machine panel).

Changing color

If different ink colors are used and a frequent change of color is necessary, we recommend to use additional injection pumps to prevent the need to clean the pump too often.

The pump can be left connected to the respective hose and must only be removed from the fixed holder.

To clean the pump, disassemble and wash it in a solution,

Attention

Close air supply and open air escape valve on the ink container to release pressure before removing injection pump

Drum indexing and advancing mechanism

Two cams are necessary to index and rotate the drum. These cams are synchronized and set at the factory and no adjustment should be necessary.

If the drum rotates hard or stops because of one of the following reasons :

- refill not properly loaded in drum,
- distorted refill,
- other kind of interference,

and the spring loaded feedlever cannot advance the drum, the limit switch mounted on top of this mechanism interrupts the machine.

The indexing pin in the front disc (behind drum) holds the drum during the working process and gives the accurate position (see drawing 034.5.2110.0).

The transport pin in the back disc only feeds the drum.

Possible problems

(turn the machine manually for proper observation).

If the transport pin is not lined up properly and hits against the index disc before entering the hole, adjustment of the pushrod 034.3.2195 is necessary. If drum is held in position with the front pin, the advancing pin must enter freely.

Excessive play in the ball joints part 950.111.010 of the pushrods can also cause a misalignment of the pin, in which case the balljoint should be replaced.

The index pin must not be pushed into the hole too tightly

To check it, proceed as follows :

- in the most forward position of the indexing slide loosen the spring holding the index pin. Pin must be free to turn, should however have no axial clearance (end play) . An adjusting screw has been provided to set the end position of the indexing slide movement.

Changeover to different refill

In case the machine has been prepared for more than one refill with different dimensions various parts must be interchanged.

1. **Hopper** (Fig. 6)

The guide in the tube hopper must be slightly wider than the tube itself. The parts shown in Fig. above are made up to give the proper width. The rollers must also be changed.

2. **Drum** (Fig. 5)

The diameter and the shape of the refill determine the grooves in the drum. They are manufactured to bring the refill to the proper height which is given by the injection station.

In case interchangeable drums are provided the proper dimension has been maintained in manufacturing and no adjustment is necessary. This can easily be verified. Position a refill in the groove, move it back and for making it enter the injection nozzle.

Changing drum

1. Turn machine manually until index pin is engaged in the front disc.
2. With special box wrench 46 mm loosen hexagonal nut inside drum.
3. Replace drum and tighten nut slightly that drum can still be moved.
4. Put refill in drum groove and adjust drum in such a way that refill fits exactly into the nozzle of injection pump.
5. Put tip into tip transfer slide and check that refill also is lined up with this station. If a difference between the injection and tip mounting-station is observed adjustment is possible on the tip mounting station by means of the stop plate N. 8, Fig. 9

This plate can be moved slightly changing the angle of the tip transfer slide in the final position. If drum grooves are now properly in line with the two stations, the hexagonal nut can be tightened.

3. The tilting cover (Fig. 5)

The spring loaded guide inside the cover is holding the refill in the drum. This guide and the holding screws for it must be free. The proper distance between drum with refills and cover is maintained by means of the hexagon spacer No 2. This spacer is specially made up for a particular refill diameter.

Observe:

When closing the cover with refills in the drum, screws holding guide must slightly move. When changing over to a different refill the refill stop on the tilting cover must also be adjusted. It is important that this stop is set to compress the refill slightly (see adjustment for injection pump nozzle).

Bleeder hole in tilting cover:

The refill stop in the tilting cover has a bleeder hole. If the cover is closed and fastened this bleeder hole must line up with the refill at the injection station. The purpose of this hole is to let the air escape when ink is being injected. If this is not the case, the ink and the air in the refill is being compressed and ink is squeezed out at the nozzle end. A hose is provided to connect to the bleeder hole out-let. This hose can be fed into a can.

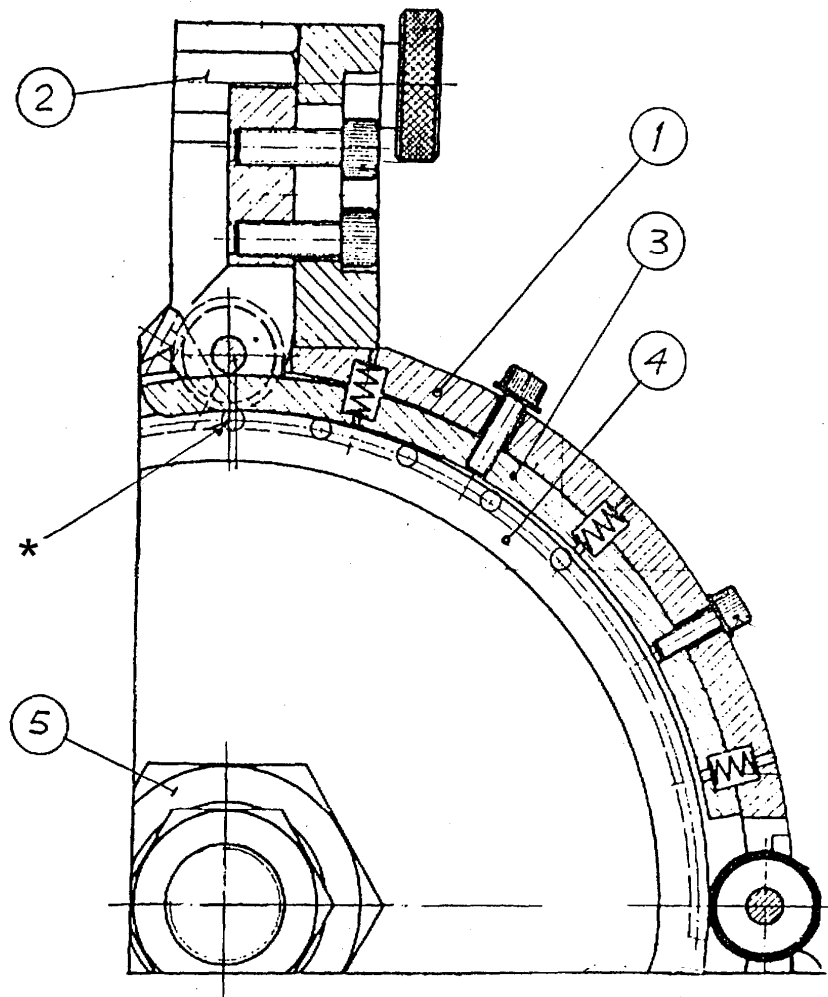


Fig. 5

Tilting cover

1. cover
2. hexagonal spacer
3. spring loaded guide
4. stop plate
5. nut holding drum

Spring loaded guide is in contact with refill-Hexagon spacer is giving proper distance between cover and drum.

For refills with different diameters hexagon spacer is interchanged to give proper distance.

* Watch for bleeder hole in the stop plate.

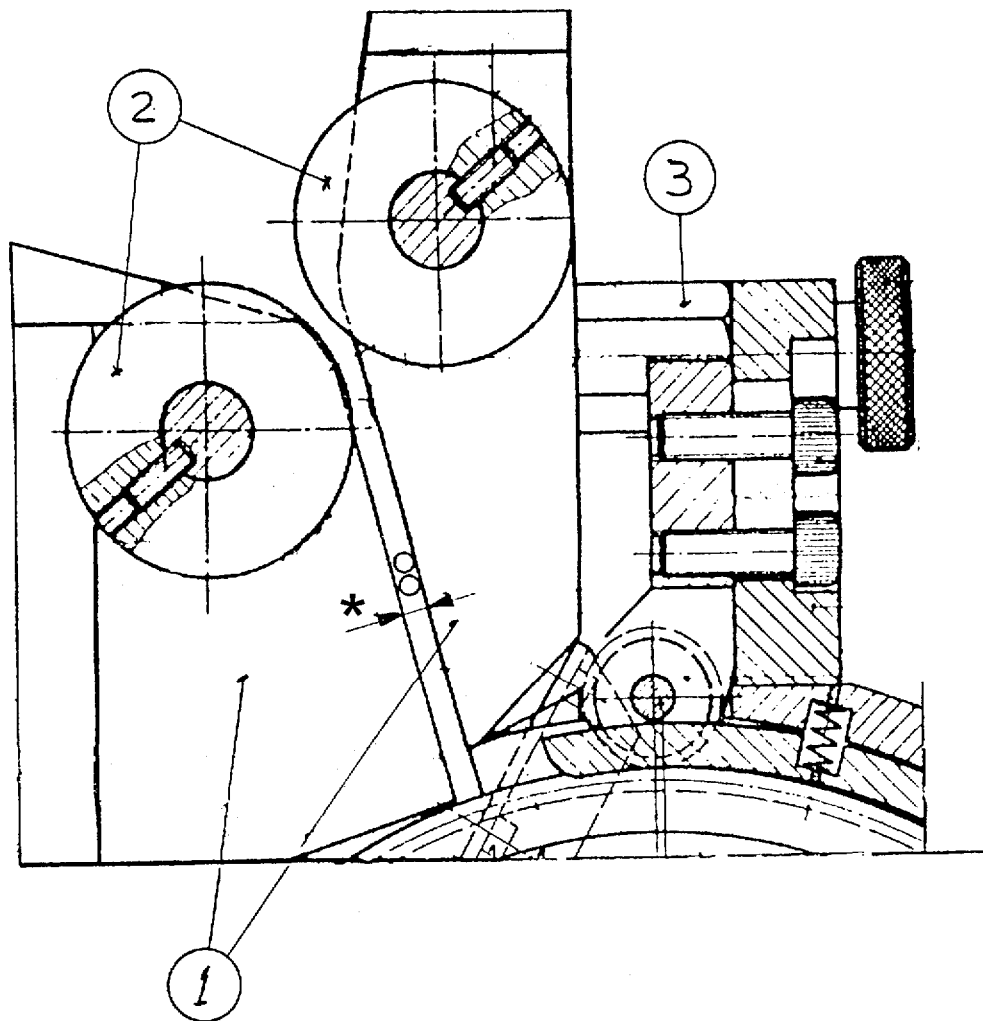


Fig. 6

Change over parts for refill with different diameter.

1. Hopper guides to obtain proper space determined by refill
2. Rollers
3. Hexagonal bolt

* Guide slot must be slightly wider than refill

Tip feeder

1. Functioning

The tips feed down from the vibrator and the feeder tube into the tip feeder. The two sliding fingers no. 3 are alternately holding the tips.

When the upper finger is holding the tip the bottom finger releases the first tip and lets it drop into the bushing of the transfer slide which in turn feeds it into the refill. The end position of the transfer slide movement must be adjusted to mount the tip properly into the refill.

For this purpose an adjusting screw has been provided between main slide and cam pushrod.

2. Interchangeable parts for tip feeder

The ends of the two fingers holding the tips must be fitted to a particular tip to function properly. It is recommended to interchange the complete assembly shown in Fig. below.

Controls

The INJ34 is equipped with various controls to stop the machine in case of malfunctioning.

1. Refill control

If no refill is present in the drum no ink is being injected and no tip is being mounted. The control of the ink injection pump is being explained in chapter Ink Injection.

2. Tip feeder control

A feeler senses the absence of a refill. By means of a lever system the tip feeder is prevented from dropping a tip into the transfer slide.

The fingers in the tip feeder do not release a tip.

At the next index position of the drum a limit-switch senses the absence of a tip by means of its feeler and together with a limit switch located on the camshaft this stops the automatic cycle of the machine.

After the fault has been eliminated the machine can be started again with the green pushbutton. The limit switch must be set that a refill in the drum just energizes the switch.

Air pump for tip transfer

This pump has a double function :

1. when tip drops into the transfer slide, the pump acts as a vacuum pump holding the tip in the transfer slide bushing.
2. when tip is pushed into the refill tube, the pump works as a pressure pump keeping the tip out of the transfer slide bushing.

The synchronization is maintained by the cam activating the pump.

Speed variation

The machine is equipped with an infinitely variable speed drive. With the handcrank mounted to the spindle end in front of the machine, the speed can be adjusted. The weight of the motor is sufficient to keep the belt tight.

Attention

Change speed only when main motor is running.

Changeover parts

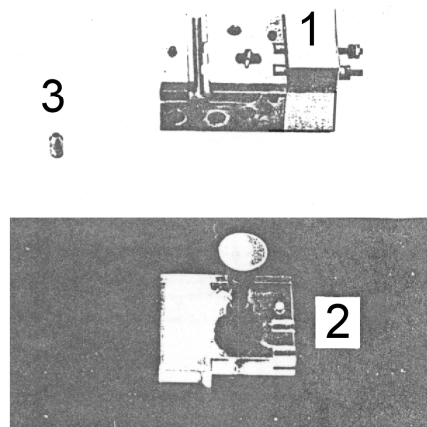
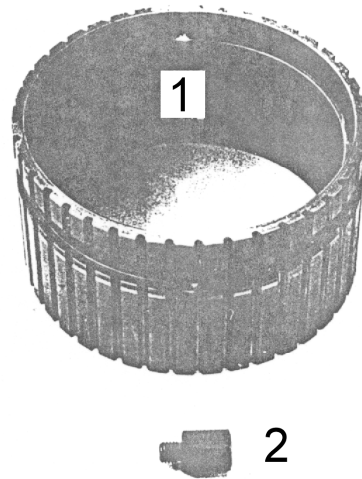


Fig. 7

1. Tip feeder assembly
2. Cover for Tip feeder
3. Transfer slide bushing



1. Drum
2. Hexagonal bolt (spacer)

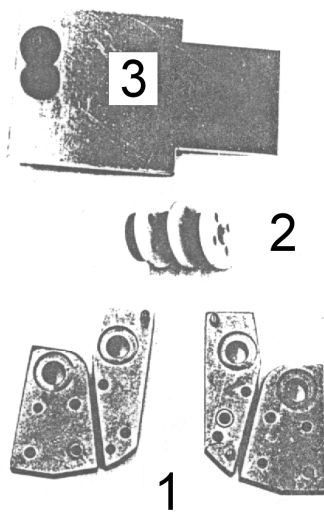
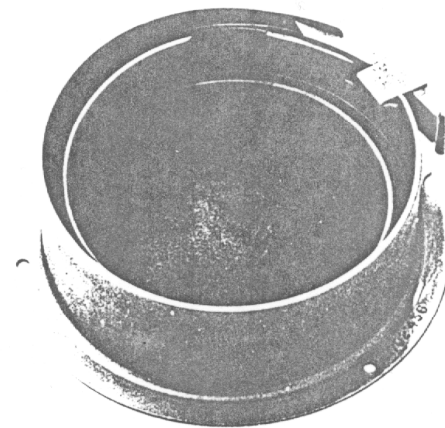


Fig. 8

1. Hopper guides
2. Roller
3. Hopper feed shut off plate

1. Vibrator bowl



Tip feeder

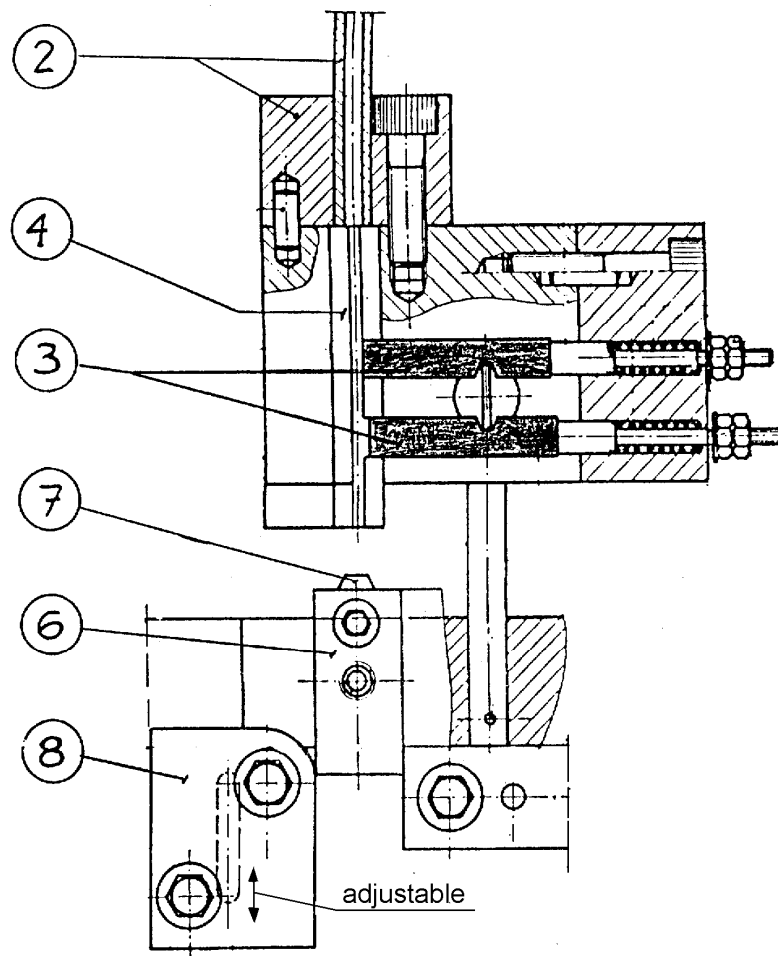


Fig. 9

vibrator bowl (*)

2. feeder tube (*)

3. fingers

4. tip guide

5. removable cover (*)

6. transfer slide

7. transfer slide bushing (*)

8. stop plate

tip feeder assembly (*)

Parts to be interchanged for different tips

(*): Parts to be interchanged for different tips

Vibrator (Fig. 10)

Functioning

The vibrator consists basically of two main parts. The electromagnetic coil in the lower base and the vibrator potentiometer No. 2,

The electromagnetic coil 3 is fed through the rheostat (1500 Ohm, 100 W., 0,5 amps,) producing the vibrations depending on the setting of the rheostat. Through the vibrations the tips move to the spiral runway, reach the top, are lined-up and pass through the connecting tube into the tip Feeder. The vibrator pot 2, which holds the parts, is supported by three spring-packages 5 which allow the pot to vibrate.

Between the two electromagnetic cores 3 and 4 must be an air gap to allow the pot to vibrate.

Possible problems with vibrator Should the vibrator fail to operate check the following:

1. Remove the protective cover 7 and check the clearance No. 8-between the two cores 3 and 4, The clearance must be . 3 mm (.012 in.) in case of 50 cycles operation or .2 mm (.008 in.) in case of 60 cycles operation. Check this clearance with a feeler gauge. If necessary, adjust this clearance by means of the two hexagon nuts with which the coil is mounted on the four feet, No. 6.
2. Check whether these holding screws are tight.
3. Check the rheostat mounted on the main panel. This rheostat could have an open winding or a poor contact between the slider and the resistance windings.

Note: The vibrator must be completely free and should not touch any other outside parts, otherwise the vibrations are dampened. There must always be a slight gap between the vibrator and the feeder tube.

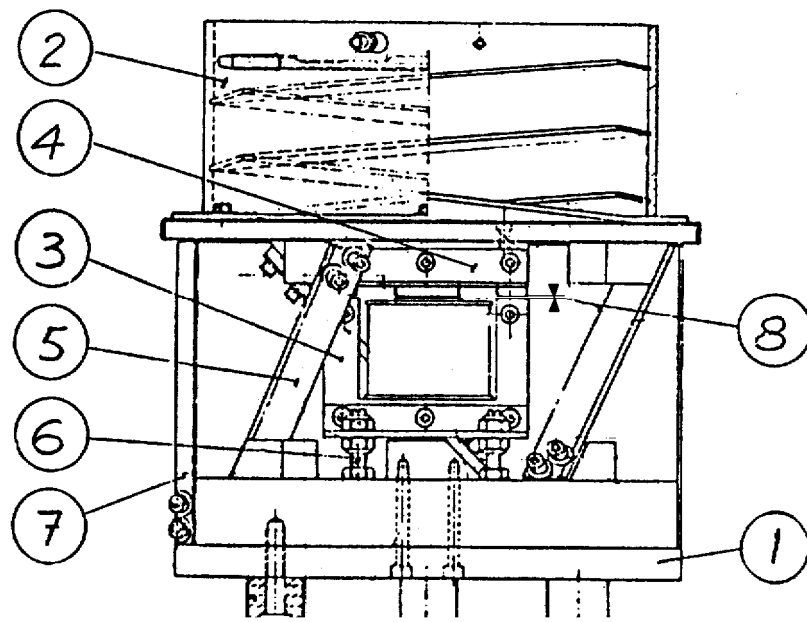
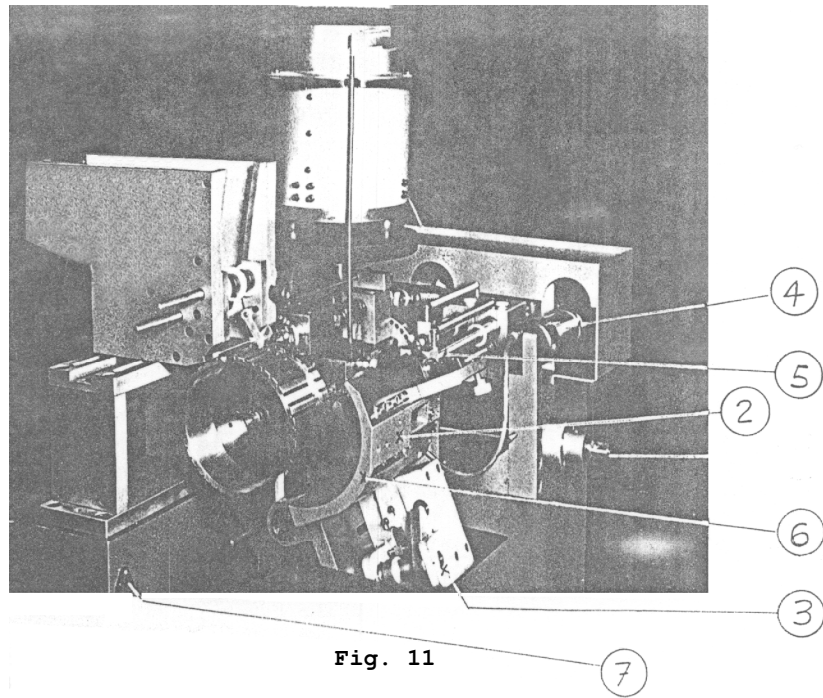


Fig. 10

1. Base
2. Vibrator pot
3. Lower magnet
4. Upper magnet
5. Spring-package
6. Feet with hexagon nuts
7. Cover
8. Gap to be adjusted



2. Holes for hot stamping attachment
3. Crimping attachment
4. Air pump
5. Actuating piston for attachments
 - crimping
 - hot stamping
 - coining
6. Tilting cover
7. Plug for hot stamping

Special attachments

All INJ34 machines are prepared to take attachments for:

- hot stamping,
- crimping,

These attachments can be mounted on the tiltable cover over the drum. The mounting holes are already drilled.

The necessary motion is taken from the pushrod already installed.

Coining of miniature refills

For coining of miniature refills a special tilting cover is necessary on which the coining attachment can be mounted.

The motion is again taken from the pushrod already installed on the machine.