The DTI 250MINI

Introduction:

The 250MINI manufactured by DTI is the current replacement for the original DM250 manufactured by Horlacher Maschinenbau AG in Switzerland. The 250Mini is built from the finest components available and includes improvements in electrical and hydraulics over the original. The machine you have purchased comes delivered as 2 self contained units requiring minimal hook up to begin running. The first unit is the electro-hydraulic console and the second is the machine base. The machine has been greased prior to shipping.

It is not necessary to pour a concrete foundation for the machine, however, Try to set machine on a level floor . it would be advisable to have the machine can be lagged down to the floor to prevent it from shifting position on the floor during operation and if possible use vibration absorbing floor mounts to reduce noise. It would be ideal to provide at least 5' of clearance around machine

The machine should be placed in an area with proper ventilation, since it requires burning gas to melt the pot and heat the nozzle. It is advisable to place a small ventilation hood over the machine that covers from the nozzle to the back of the machine where the melting pot is located.

Please remember a die casting machine is not a toy practice safety first at all times.

If you have questions, please call Die Tech Industries at 401- 273- 7250.

Overview of machine:

The 250Mini is an extremely durable machine which utilizes a cast iron base along with precision Swiss designed mechanics to provide years of trouble free operation.

The machine can be run a in three modes: manual which allows the operator to perform the machines sequence of events manually. Automatic single shot meaning that the machine will perform a full cycle (close, inject, chill and open) with out operator intervention, and will wait for the operator to initiate the next cycle. Fully Automatic meaning that the operator initiates the cycle and the machine continues to perform cycles completely on its own.

No matter what mode the machine is in there are built in safety inter locks to prevent accidents. The linkage is fully enclosed by the guard system, and the machine will abort cycle if the guard is opened. Additionally, the machine will not inject if the dies are not fully locked. Moreover, through

the use of a double proximity sensor system stuck parts or flash on the die faces will cause the moving platen to open up there by minimizing any damage to the die.

The machine can be adjusted via a manual hand lever, to allow the operator to adjust the linkage and set up dies with out having to run the machine at full operating speed.

The machine utilizes a digital temperature controller to regulate the pot temperature. There is a gas torch that is used to heat the nozzle and it is adjusted by mixing the correct amount of compressed air and natural gas. On electric nozzle/furnace units there are two temperature controllers located on a control box adjacent to the main panel to control the pot and nozzle temperature.

Requirements for operating your new die cast machine

Note: you must follow osha and other local codes to insure safe and proper machine installation!

The following must be present to properly run your die cast machine:

Electrical power: these machine are set up to run on one of several different voltages (220v / 440v / 600v). Typically DTI will wire the machine to your shop voltage per the instruction attached with your purchase order. It is recommended that your power supply is in the form of a drop cord with plug. This should have its own circuit and disconnect located near by.

Air pressure: some of the devices on your die cast machine require pressurized air (spray lube tank, safety devices) all of these devices are equipped with pressure regulators and ¼" diameter hose barbs but need to be plumed from your air compressor.

Water supply: it is very important to have a chilled water supply for both mold and hydraulic heat exchanger. A water cooling tower or chilling device is recommended. It is not recommended that you use "city water" as this will cause problems controlling temperature and is very wasteful.

Natural / LP. gas supply: unless you have purchased an all electric machine, you will need to plumb in gas for the furnace and nozzle torch. A ¾" line to the furnace with a ¼" line taped off for the nozzle torch is recommended. Each should have there own shut off valves and the main gas line should be equipped with a check valve.

Proper ventilation: it is recommended that you follow OSHA and other local codes regarding ventilation.

If you have questions, please call Die Tech Industries at 401- 273- 7250.

Panelview overview and screens:

The operator panel on the DTI Model # 250Mini has been simplified from previous models. Many of the selector switches and buttons that operate the machine have been incorporated in to the panelview program. Selectors and buttons now appear on the panelview 900 screen as depicted on the following pages.

The Panelview buttons are activated by lightly touching a finger to the screen much as you would press a regular push button. Use of the Panelview makes the operator interface much more streamlined, instead of a mass of push buttons and selector switches to control the operation of the machine, buttons are logically grouped to appear on the screen. The Panelview is organized by grouping and navigation from one set of functions to another is achieved by pressing navigation buttons available on each screen. The Panelview can not replace every pushbutton or selector switch, for safety and ease of machine operation some buttons remain on the panel. If it is deemed better buttons and selector switches may be moved to or from the Panelview in models produced after the publication of this manual.

The panel still has the two hand safety interlock buttons that are required to be pushed simultaneously to begin the machine cycle. The Two hand buttons are green and located on the right and left sides of the operators panel.

The Emergency-STOP is a red mushroom head button located to the lower right hand side of the operator's panel. This button must be pulled out to activate the machine. Hitting the E-STOP will immediately stop all machine functions and shut off the hydraulic motor.

Located on the lower left hand side of the operator's panel is the Watlow temperature controller. The Watlow unit reads the current temperature of the machine pot in a red digital read out and shows the set point in green digital numbers.

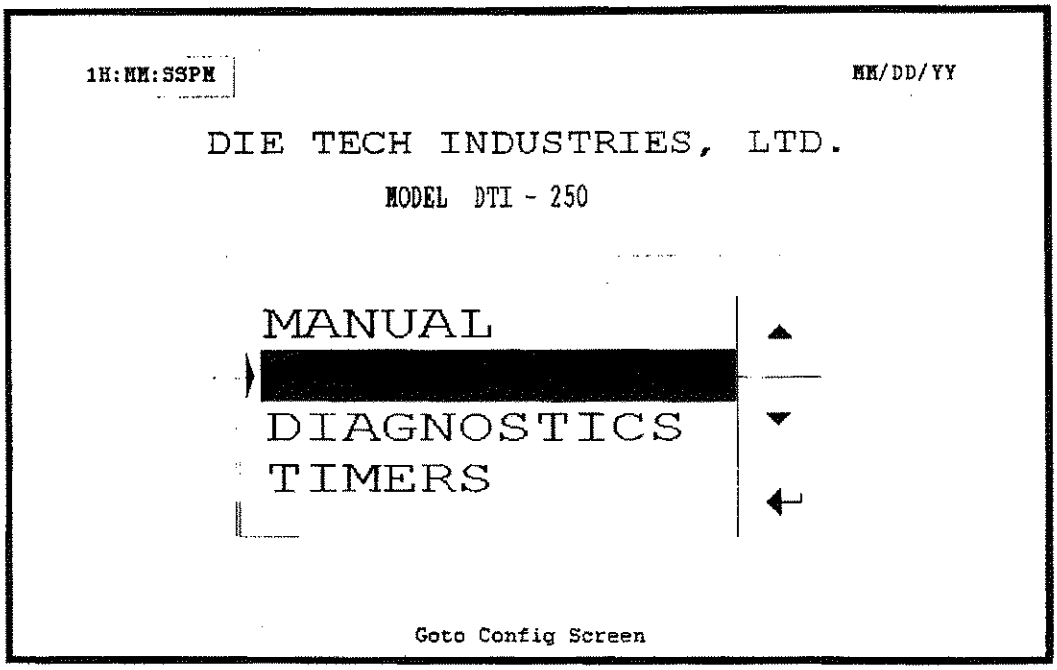
There are five (5) screens of logically grouped controls:

1) Main Screen
2) Manual Screen
3) Automatic Screen
4) Diagnostics Screen
5) Timers screen

Each of the five screens controls different aspects of the machine function. The main screen allows you access to the manual mode, automatic mode , diagnostics mode, and timers screen.

The main screen is depicted on the following page. Screen selection is as simple as pushing a button. You will notice that there is a lighted bar , which on the sample is highlighting the automatic mode. If you wish to choose another screen you would press the up or down arrow located on the right side of the box. Pressing the arrow moves the lighted bar one position in the direction of the arrow pushed. Once the bar is on the correct choice you would press the return symbol located below the down arrow. Pushing the return key on the Panelview will display the screen that is highlighted. In the sample on the next page if you were to push the return the panelview would display the automatic screen.

The main screen snap shot:



The manual screen :

The manual screen controls the machine in manual mode as the name implies. There are five controls on the manual screen and at the bottom of the screen there are three additional buttons to provide for navigation to other screens.

The button marked **MODE** acts and looks like a selector switch. This selector changes the machine from manual to automatic mode.

The button marked **Hyd. Pump** is used to turn the hydraulic motor on and off. On machines manufactured later the pump on buttons were moved from the Panelview to the panel and split in to two buttons; a green motor start button (ON) and a red motor stop button (OFF).

The button marked **Spray** allows the operator to manually spray die lube for as long as the button on the screen is depressed.

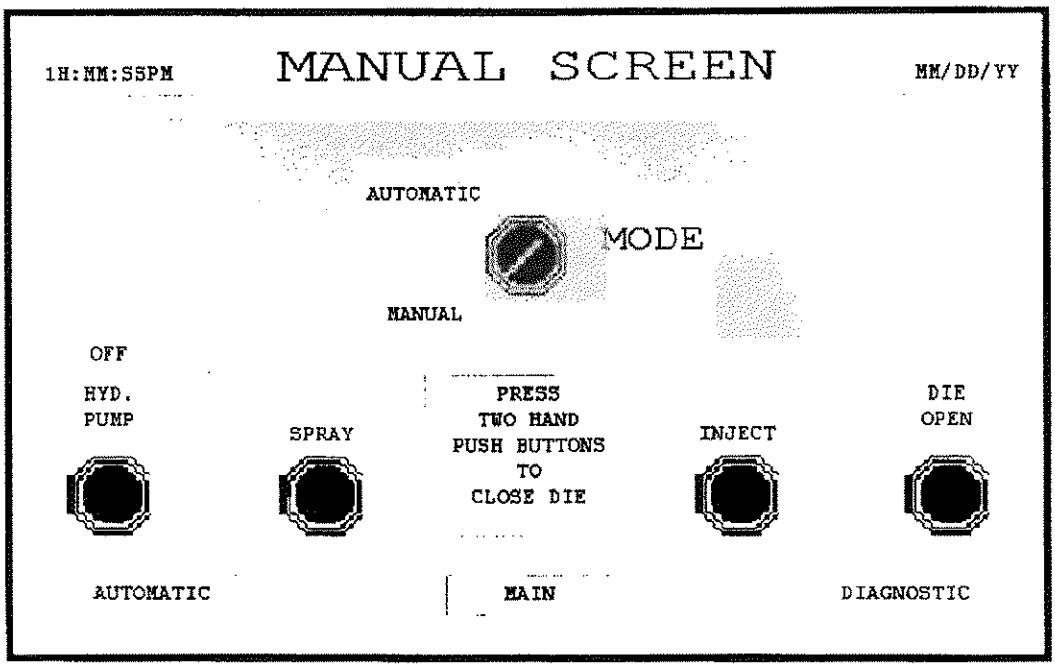
The button marked **Inject** will allow the operator to inject metal in to the die manually. The machine has to be in die lock status for the inject to function. If the die is locked then the inject will be performed as long as the button on the screen is pressed.

The button marked **Die Open** opens the die while it is depressed.

At the bottom of the screen there are three buttons that are used for navigation to other screens.

AUTOMATIC - If pushed this will display the Automatic screen
MAIN - If pushed this will display the Main screen
DIAGNOSTIC - If pushed this will display the Diagnostics screen

The manual screen snapshot:



The automatic screen:

The button marked **MODE** allows the operator to switch the machine from manual to automatic mode.

The button marked **Inject** allows the operator to turn inject off. This means that the machine will cycle but will not take a shot. This is handy for die setup.

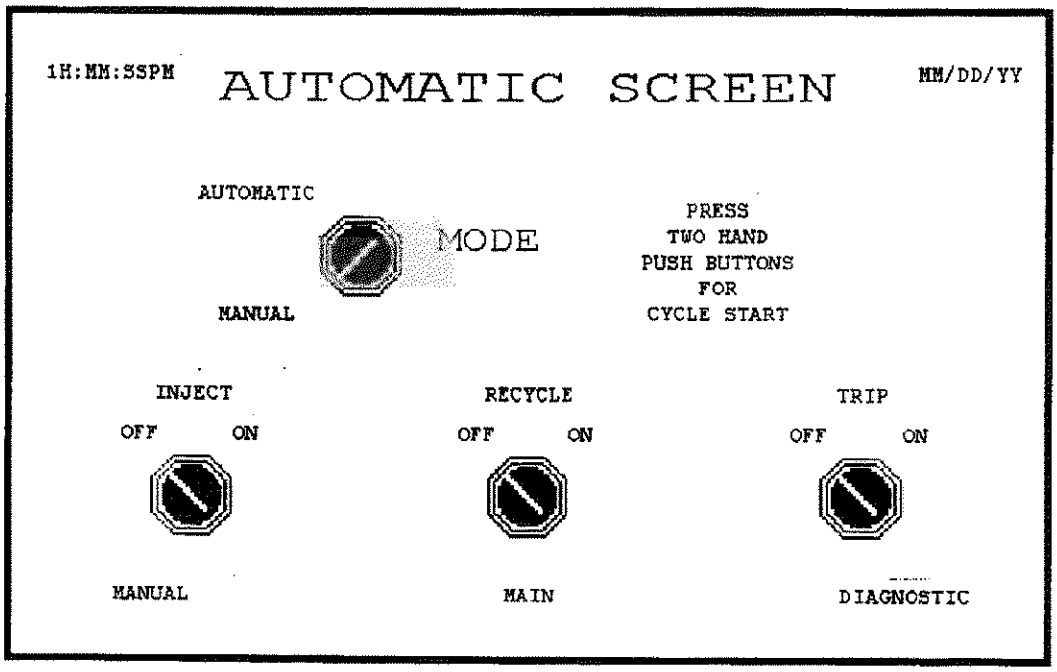
The button marked **Recycle** allows for the machine to cycle continuously. If the recycle is off then the machine will run a full cycle once and wait for the operator to reinitiate. To start the cycle again the operator would press the two hand push buttons. If the recycle is on the machine reinitiates the cycle as it completes the previous one.

The button marked **Trip** tells the PLC whether a part sensing switch is being used. If trip is in the on position then the PLC waits for the part sensor to be activated before starting the next machine cycle. In the off position the PLC would use the a timer which is set on the timers screen.

At the bottom of the screen there are three buttons that are used for navigation to other screens.

MANUAL - If pushed this will display the Manual screen
MAIN - If pushed this will display the Main screen
DIAGNOSTIC - If pushed this will display the Diagnostics screen

The automatic screen snapshot:



The diagnostics screen

The function of the diagnostics screen is to give the operator a visual status of what is happening as the machine cycles. The screen shows the inputs PLC receives as well as the outputs it produces.

INPUTS -
E STOP - Indicates if the e-stop is activated or waiting
HOOD - Indicates if the guard safety interlocks are activated or not.
HYD. PUMP - Indicates if the hydraulic motor is on or off
ABORT - Indicates that the 2 die closed limit switches mounted on the side of the moving platen are engaged or not.
DIE - Indicates if the die is in the open or closed
PLUNGER - Indicates if the plunger is in the fully up position
TRIP - Indicates if the switch is activated

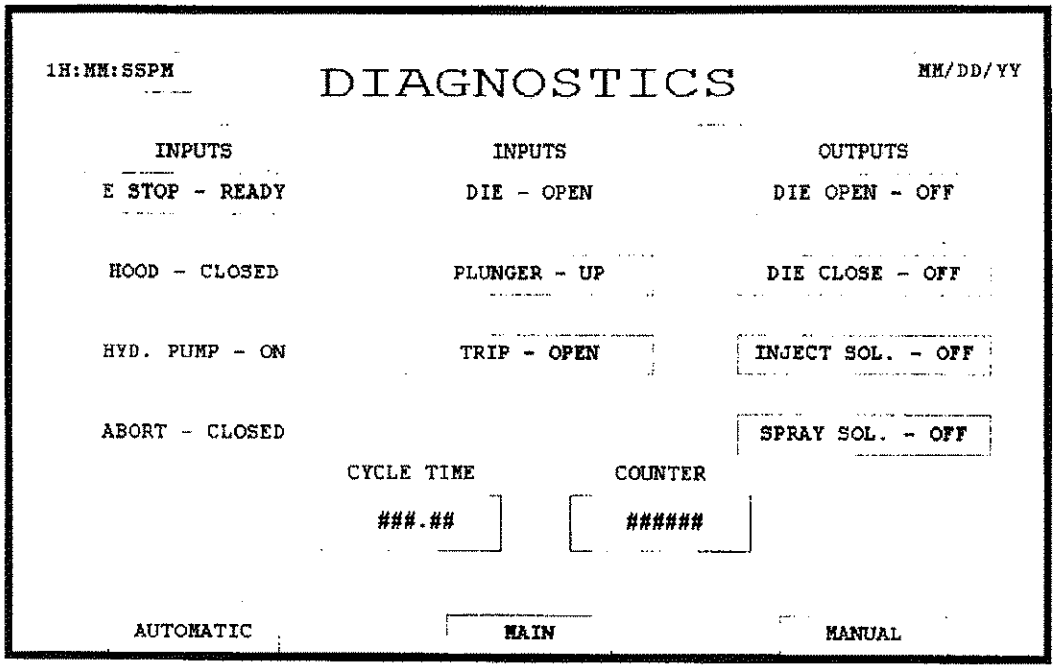
OUTPUTS
DIE OPEN - Indicates that the Die Open limit switch is engaged
DIE CLOSE - Indicates that the Die Close limit switch is engaged
INJECT SOL. - Lights up when the solenoid for shot valve is activated
SPRAY SOL. - Lights up when the solenoid for die lube spray is activated

CYCLE TIME - Gives a readout of a full cycle in seconds.
COUNTER - Gives a display of the number of shots that have been taken

At the bottom of the screen there are three buttons that are used for navigation to other screens.

AUTOMATIC - If pushed this will display the Automatic screen
MAIN - If pushed this will display the Main screen
MANUAL - If pushed this will display the Manual screen

The diagnostic screen snapshot :



Flow control: A flow control valve restricts the volume (flow) of hydraulic fluid to that is allowed to travel through a hydraulic line. There are three flow controls on the hydraulic manifold; two for the die open/close cylinder , and one for the inject cylinder. The flow control for the inject cylinder is set up in "meter out" configuration, meaning that the flow is constricted after the hydraulic fluid has passed through the cylinder on its way back to the manifold. The function of the flow controls ids to give the ability to the operator to infinitely fine tune the speed at which the closing and inject cylinders open and close. To increase the speed of a cylinder action locate the line feeding that particular function and adjust the flow control. The increase the flow and there by the speed turn the flow control knob counter-clockwise, to reduce the speed turn it the opposite direction.

Manual dump valve:

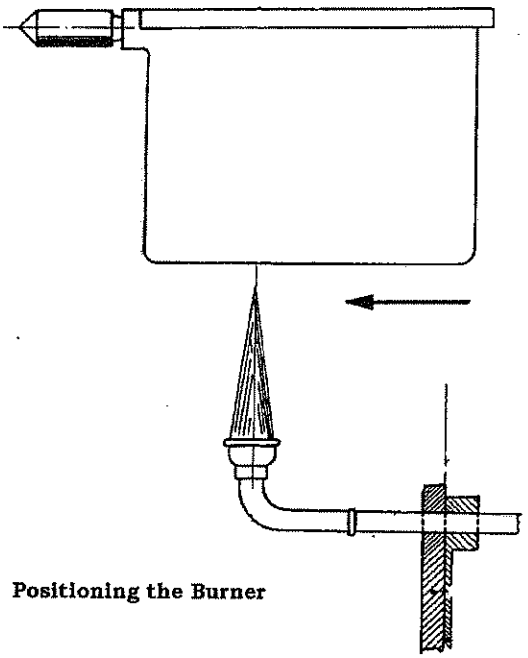
The manual dump valve should always remain in the closed position while the machine is cycling. If it is opened while the machine is cycling, the shot PSI. and the accumulator's hydraulic charge will dump straight to tank. Use this valve as a method of purging the system of hydraulic pressure prior to performing maintenance or repair work.

Automatic dump valve:

The automatic dump valve is similar to the manual valve described above, however, its function is directly tied into the machine's PLC (computer) as a safety device and machine idle. When the Emergency stop button is activated shutting down the machine the system and inject pressure are automatically dumped to tank for safety reasons.

point temperature if you are injecting a metal other than Zinc (Zn). A Watlow 965 manual is provided for documentation.

Your machine is equipped with an atmospheric burner (BU-250) for use with natural gas, the burner can be modified to operate on propane gas. The burner is mounted to the machine using an adjustable bracket. It is possible to move the burner forward and backward for positioning, as well as a vertical adjustment. The burner should be positioned approximately 4" (101mm) to 6" (150mm) inches below the melting pot. The burner should be positioned just forward of the center of the melting pot.



Positioning the Burner

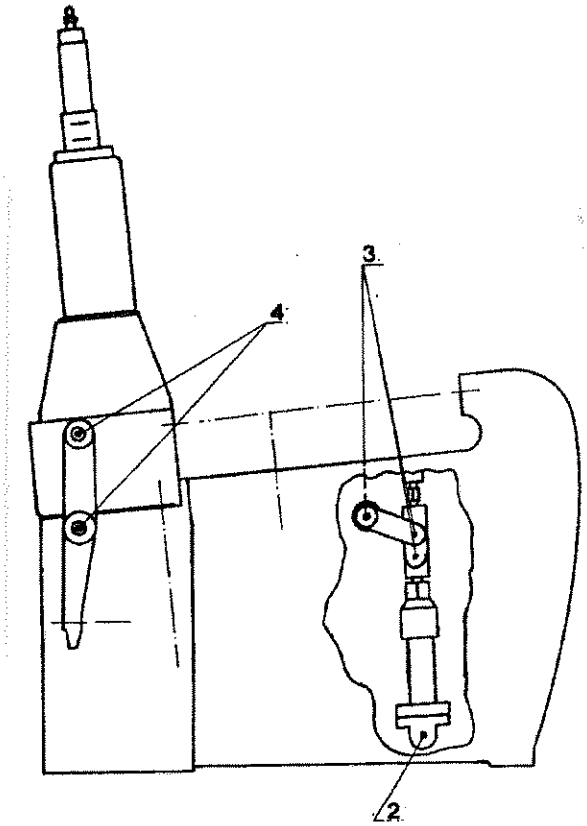
Hydraulic manifold information:

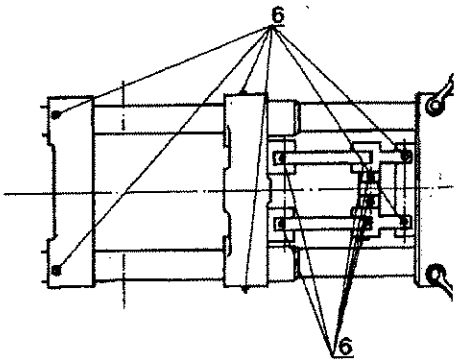
Pressure relief and reducing valves :

System pressure relief valve: This valve controls the maximum system pressure from the pump cartridge. the valve is factory set for 1,000 p.s.i. There is a gauge on the manifold which displays the system pressure reading. To increase system pressure turn the allen screw located on the die open/close manifold, clockwise to increase system pressure or counter-clockwise to reduce pressure.

Inject(Shot) pressure reducing valve: This valve is located on the top of the hydraulic valve stack manifold, in the form of a small black knob which usually has the word SUN imprinted on it. The Inject(shot) gauge displays the inject(shot) pressure. To increase the Inject (shot) pressure turn the adjustment knob clockwise and decrease it by turning counterclockwise.

Flow control valves:





Maintenance - 21 Lubrication Points

RECOMMENDED #DM250 HORLA/#250MINI DTI SPARE PARTS

ALL PRICES STATED ARE IN US DOLLARS.

#GNK-00 MACHINED GOOSENECK LESS SLEEVE $635.00
#GNK-02 GOOSENECK, INCLUDING 1¼" SLEEVE & CLAMPS . . . . . 996.00 EA
(ALSO AVAILABLE W/ 1.5" (GNK-03) & 1" (GNK-01) SLEEVE)
#SLV07 SLEEVE - 1¼" 289.00
#PLN05-250 PLUNGER 94.00
#RNG06 RING(3/PLUNGER) 12.50
#NZ06 NOZZLE BODY 89.00
#NZ07 NOZZLE TIP 18.30
#SEL25 SEAL KIT - INJECT CYLINDER(MILWAUKEE NEW STYLE). . .87.60
#SEL26 SEAL KIT - CLOSING CYLINDER(MILWAUKEE NEW STYLE) 92.40
#SEL08 SEAL KIT - INJECT CYLINDER(#50/110 OLD STYLE) 166.00
#SEL09 SEAL KIT - CLOSING CYLINDER(#55/120 OLD STYLE). . . . 166.00
#BSH25-123 BUSHING - NOZZLE PLATEN(2/MACHINE) 143.00
#BSH25-124 BUSHING - MOVING PLATEN(2/MACHINE) . . . . . 164.00 "
#BSH25-125 BUSHING - INJECT/SHOT HOOD . . . . . .145.00 "
#LNK25-81 BACK PLATE/LONG LINK(2/MACHINE) 506.00/PR
#LNK25-19 TOGGLE LEVER/TRIANGULAR LINK(2/MACHINE) 778.00/PR
#PT06 MACHINE FURNACE POT . . . . . 965.00 EA
#PIN25-61 PIN(2/MACHINE) 197.60
#PIN25-53 PIN(2/MACHINE) . . . . . 66.00 "

#PIN25-54 PIN(2/MACHINE) . . . . . 65.00 "
#CON25-68 LINKAGE CONNECTING ROD . . . . . 118.00 "
#SPRU-250 SPRUE BUSHING . . . . . .117.00 "
#SPG25-15X110 PLATEN SPRING(2/MACHINE) . . . . . 19.43 EA
#PMP-20/35/100/250 HYDRAULIC PUMP 622.00
#CLMP25-ACS4/M12 CLAMPING LEVER(2/MACHINE) . . . . . 96.80 EA
#FDRLS/5 DIE RELEASE FLUID(5-GAL PAIL) . . . . . .74.50 "
#FWGH/5 WATER GLYCOL HYDRAULIC FLUID(5-GAL PAIL) . . . 88.90 "
#FHTG TUBE HI TEMPERATURE GREASE FOR HOT END PARTS . 41.00 "
#FLG TUBE GREASE FOR LINKAGE . . . . . 39.35 "
#M8 GREASE FITTINGS . . . . . .2.50 "

NOTE: NORMAL WEAR AND TEAR ON DIE CASTING MACHINERY WILL VARY ACCORDING TO OPERATING CONDITIONS TO WHICH MACHINES ARE SUBJECTED IN THEIR PRODUCTION USEAGE, AND DEPENDING UPON NUMBER OF HOURS EQUIPMENT IS RUN IN SHOT PRODUCTION CONDITIONS; IE, DEPENDING UPON THE OPERATING CONDITIONS, PLANT PRE-VENTIVE MAINTENANCE PRACTICES, PERSONNEL TRAINING, AS WELL AS 40-HOUR WEEK SINGLE SHIFT VS. MULTIPLE SHIFTS, REQUIRING CONTINUOUS OPERATION IN PRODUCTION. ITEMS LIKE NOZZLE TIPS AND PLUNGER RINGS WILL WEAR ON A NORMAL BASIS REQUIRING REGULAR REPLACEMENTS. OTHER ITEMS LIKE PLUNGERS AND NOZZLE BODIES WILL WEAR LESS FREQUENTLY; HOWEVER, ITEMS LIKE GOOSENECKS, MECHANICAL BUSH-INGS, AND HYDRAULIC CYLINDER SEALS SHOULD REQUIRE REGULAR INSPECTION, AND REPLACEMENT APPROXIMATELY ANNUALLY IN NORMAL SINGLE SHIFT OPERATING CONDI-TIONS. ITEMS LIKE LINKS AND FURNACE POT SHOULD NOT REQUIRE REPLACEMENT FOR TWO OR MORE YEARS. BECAUSE OF THE SIMPLICITY OF THE THRU HOLE GOOSENECK SLEEVE DESIGN AND THE HEAVY WALLED CASTING, THE GOOSENECK CAN BE RE-SLEEVED QUITE EASILY ON A 100-TON HYDRAULIC SHOP PRESS; OR DTI CAN RE-SLEEVE GOOSE-NECKS IN OUR FULL SERVICE MACHINE SHOP, NORMALLY SHIPPING 1-2 WEEKS FOLLOWING OUR RECEIPT OF CUSTOMER'S GOOSENECK, AT AN AVERAGE COST OF $650-$700.00 INCLUDING DE-ZINCING AND NEW SLEEVE AND CLAMPS. ALL ABOVE ITEMS ARE QUOTED NORMAL SAME DAY SHIPPING, FOB OUR PLANT, PROVIDENCE, RI, USA. 1/98

Replacing the machine pot:

Removal of the old pot:

- ◊ Remove the locking wedge key (WDG-10-25-77) to allow removal of the plunger and clean it off with a cloth.
- ◊ Loosen the gooseneck hold down screw on the back of the machine pot.

- ◊ Ladle out as much of the metal from the pot as possible.
- ◊ Turn off the pot burner.
- ◊ Remove the hydraulic hoses that connect to the injection cylinder, using a bucket to collect the hydraulic fluid. Take care that no dirt gets in to the hoses or the hydraulic fluid that has been collected. If dirt gets in to the hoses clean them out as best as possible. If dirt gets in the collected hydraulic fluid discard it.
- ◊ Remove the four hex head bolts from the furnace hood (FRN-10-25-5). Also remove the two conical taper pins (PIN-8-55).
- ◊ Remove the hood with the injection cylinder mounted on it and put it in a safe place.
- ◊ Remove the gooseneck hold down clamp (CLMP-10-25-100).
- ◊ Remove the gooseneck with the nozzle installed and set aside.
- ◊ Remove the pot hold back bar (PT-10-25-80) from the rear of the machine.
- ◊ Lift the melting pot (PT-06) out of the furnace(FRN-10-25-4).

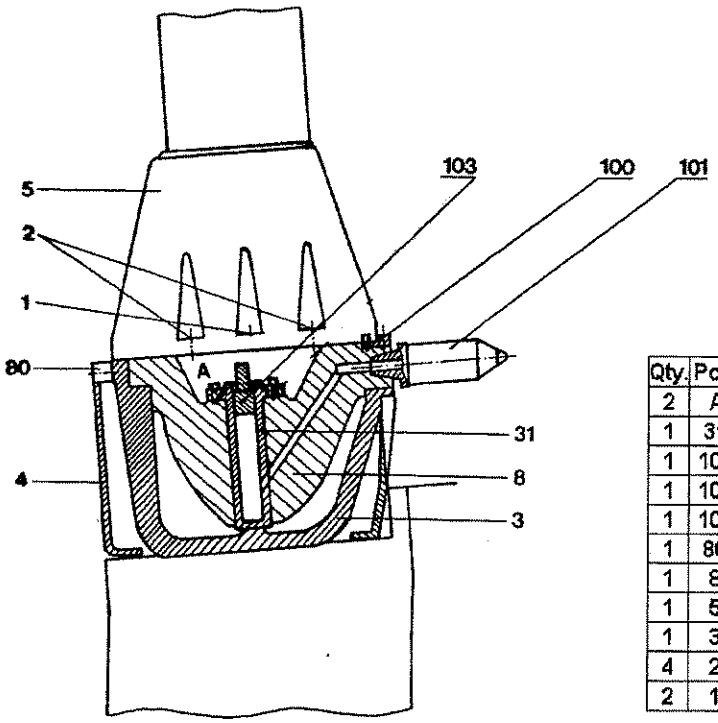
Installing the replacement pot:

- ◊ Place the replacement melting pot(PT-06) into the furnace (FRN-10-25-4).
- ◊ Re-attach the pot hold back bracket (PT-10-25-80).
- ◊ Set the gooseneck with nozzle in place in the pot.
- ◊ Replace the gooseneck hold down clamp (CLMP-10-25-100).
- ◊ Replace the gooseneck hold down screw on the back of the machine pot.
- ◊ Carefully lift in to place the hood with the injection cylinder mounted to it and put it back on the furnace.
- ◊ Replace the conical taper pins first to locate the hood.
- ◊ Replace and tighten the four hex bolts that hold the hood down.
- ◊ Re-attach the hydraulic hoses to the inject cylinder pipes.
- ◊ Restart the machine burner and fill the pot with metal.

◊ Replace the plunger and make sure you have installed the locking wedge (WDG-10-25-77) to secure the plunger.

◊ Check to make sure the nozzle tip still seats properly in the sprue bushing.

◊ Re-light the nozzle torch and you are ready to run.



Qty.	Pos.	Description	Part No.
2	A	Sleeve hold down clamp screws	
1	31	Sleeve	SLV-07
1	103	Plunger	PLN-05-250
1	101	Nozzle	NZ-06
1	100	Gooseneck Clamp	CLMP-10-25-100
1	80	Pot hold back bar	PT-10-25-80
1	8	Gooseneck	GNK-02
1	5	Hood	FRN-10-25-5
1	3	Melting Pot	PT-06
4	2	Hood screws	M12 x 30
2	1	Taper Pins	PIN-08x55

Replace Melting Pot

Replacing the gooseneck:

Removal of the old gooseneck:

◊ Remove the locking wedge key (WDG-10-25-77) to allow removal of the plunger and clean it off with a cloth.

◊ Loosen the gooseneck hold down screw on the back of the machine pot.

- ◊ Ladle out as much of the metal from the pot as possible.
- ◊ Turn off the pot burner.
- ◊ Remove the hydraulic hoses that connect to the injection cylinder, using a bucket to collect the hydraulic fluid. Take care that no dirt gets in to the hoses or the hydraulic fluid that has been collected. If dirt gets in to the hoses clean them out as best as possible. If dirt gets in the collected hydraulic fluid discard it.
- ◊ Remove the four hex head bolts from the furnace hood (FRN-10-25-5). Also remove the two conical taper pins (PIN-8-55).
- ◊ Remove the hood with the injection cylinder mounted on it and put it in a safe place.
- ◊ Remove the gooseneck hold down clamp (CLMP-10-25-100).
- ◊ Remove the gooseneck with the nozzle installed and set aside.

Installing the replacement gooseneck:

- ◊ Set the new gooseneck with nozzle in place in the pot.
- ◊ Replace the gooseneck hold down clamp (CLMP-10-25-100).
- ◊ Replace the gooseneck hold down screw on the back of the machine pot.
- ◊ Carefully lift in to place the hood with the injection cylinder mounted to it and put it back on the furnace.
- ◊ Replace the conical taper pins first to locate the hood.
- ◊ Replace and tighten the four hex bolts that hold the hood down.
- ◊ Re-attach the hydraulic hoses to the inject cylinder pipes.
- ◊ Restart the machine burner and fill the pot with metal.
- ◊ Replace the plunger and make sure you have installed the locking wedge (WDG-10-25-77) to secure the plunger.
- ◊ Check to make sure the nozzle tip still seats properly in the sprue bushing.
- ◊ Re-light the nozzle torch and you are ready to run.

- ◊ The spring rods position 87 (ROD-10-25-87) should be able to lightly move when the die is locked out. When the die is opened tension returns to the ROD-10-25-87.

- ◊ Check to see that the micro-switch(SW-05) located inside SUPT-10-25-9 is adjusted so that the top of the plunger sticks out approximately 5/64" (2.0mm).

- ◊ loosen the closing cylinder locking collar (CYL-55/120-6) position 6 so that it is almost all the way up against LNK-10-25-83.

- ◊ Loosen the locking bolt on LNK-25-20 and loosen the locking bolt on LNK-25-27.

- ◊ Lock the die up in the machine.

- ◊ Turn CON-25-68 connecting rod clockwise so that the SW-05 in SUPT-10-25-9 is actuated. If the SW-05 micro-switch is actuated before the die is fully locked you will have to back off on the CON-25-68 counter clockwise.

- ◊ After the SW-05 is actuated turn the CON-25-68 1/6th of a rotation clockwise.

- ◊ Re-tighten the locking bolts on LNK-25-20 and LNK-25-27.

- ◊ Now return to the operators panel and initiate the cycle in automatic with recycle on , trip off, and inject off.

- ◊ adjust the BLT-10-25-65 to add tension to the linkage if you over tighten this screw the machine will not continue to cycle since there is so much tension that the die lock limit switch can not be made. If this occurs then you will have to take the machine out of automatic, press the die open button and back off the BLT-10-25-65 and try again. When everything is adjusted correctly you will hear the distinctive popping sound on the die open.

- ◊ Place the machine back in manual and lock up on the die.

- ◊ Return to the closing cylinder locking collar (CYL-55/120-6) and screw it back down so that you can get a piece of paper between it and the top of the closing cylinder.

- ◊ The machine is now mechanically adjusted, however, you must adjust the proximity sensors that control the abort function.

- ◊ Apply grease directly to tie bars.

- ◊ Fill die release spray unit part number AA-SA-6060 with DTI FDRLS die release available in 5 gallon pails (FDRLS/5) and 55 gallon drums (FDRLS/55). See MSDS and DTI fact sheet on FDRLS in this manual.
- ◊
- ◊
- ◊ Clean die cavities and die faces and lubricate locator pins and or cams

Weekly:

- ◊ Check the sight gauge on the side of the hydraulic reservoir, be certain that the level is adequate and the color is still bright pink. Instead of relying on a visible color check the hydraulic fluid can be tested with a PH test kit.Water glycol hydraulic fluid is available from DTI. The DTI part number is FWGH and it comes in either 5 gallon pails (FWGH/5) or 55 gallon drums (FWGH/55). See MSDS and DTI fact sheet on FWGH in this manual.

- ◊ Inspect linkage for signs of wear, check to see if there is to much play in the linkage. Check for signs of wear around tie bars, link pins and other wear surfaces.
- ◊
- ◊ Check the tie bar nuts, locking set screws, snap rings, and other hardware that may have vibrated loose. Use a "hi -temp" thread anti seize compound such as FEl -PRO, C5 - a, copper based anti seize, to prevent heat damage on all hot end components.

- ◊ Check that limit switches , actuators, and proximity switches are all in proper adjustment

- ◊ Inspect nozzle and plunger rings for excess wear, replace as needed.

- ◊ Inspect Shot and closing cylinder to be sure they are not weeping any hydraulic fluid.

- ◊ Repair or replace any item that shows excess wear.

- ◊ Clean the machine and electro-hydraulic console.

Monthly:

- ◊ Check the pressure in the accumulator.

- ◊ Inspect the hydraulic hoses for wear, also inspect the JIC fittings for leaks.

- ◊ Inspect the return line filter. If needed clean the filter with hot water since it is washable.

- ◊ Inspect the sacrificial zinc anodes in the heat exchange unit.

- ◊ Repair or replace any item that shows excess wear.

Semi-Annually:

- ◊ Perform regular monthly maintenance.

- ◊ Inspect the gooseneck and shot end components, replace as needed.

Annually:

- ◊ Change the water-glycol hydraulic fluid. The fluid is available from DTI in 5 gallon pails (FWGH/5) and 55 gallon drums (FWGH/55).

- ◊ Replace the suction strainer in the hydraulic unit DTI part number FLT-20/35/250.

The items listed above are preventative maintenance items, however, die casting is an extremely harsh environment. There are components that will have to be replaced periodically, these are primarily in the "hot" end of the machine. Items like goosenecks, sleeves, pots, plungers, rings, nozzles, and nozzle tips are susceptible to wear since they are constantly in contact with molten and corrosive metal. The longevity of these items will vary based upon usage and the type of metal being cast. NOTE: if you are casting in Zinc (Zn) try to keep the metal temperature close to 800°F (427°C) since it becomes increasingly corrosive as its temperature rises and attacks the hot end components more viciously dramatically shortening the components life.

The machine your company has purchased is a considerable investment. Like any mechanical device the better you maintain your machine the longer it will last and the less it will cost to operate over the long run. Lack of maintenance and operating the machine with worn or broken parts is the quickest way to ruining it. Remember the company bought the machine to make money, however, it will not earn anything if it is down.

- ◊ Fasten machine to floor using 4 bolt holes found in the bottom of the machine base casting.

- ◊ Position Electro/hydraulic console next to end of machine base opposite the melting pot.
- ◊ Wire in electrical connection for power (machine is set up for voltage as specified with your order) be sure that the motor is spinning clockwise when you start the machine.

- ◊ Plumb in water to the following places:
  Cylinder mount under the injection cylinder - done 3/8 hose
  Nozzle platen and moving platen - done
  Water lines on the mold - 1/8
  Heat exchanger for the hydraulic power unit 3/4 pipe
  - ◊ The machine comes with a water manifold located on the "helper's" side of the base if you do not have a "closed" loop system(re-circulator or chiller)

- ◊ Plumb in natural gas to nozzle torch and melting pot burner . For electric furnace and nozzle units the electrical connections will have to be made in place of gas hook ups.

- ◊ Connect 14 Pin Amphenol connector to plug located on rear of machine.

- ◊ Plug thermocouple plug in to socket located near 14 pin connector.

- ◊ Connect hydraulic lines from power unit to injection cylinder pipes and closing cylinder connections located on bulk head on "helper's" side of machine base.

At this point you should be able to turn on the machine and you should have power to the machine panel, you should be able to turn on the hydraulic pump, and fire off the melting pot.

To turn on the machine be sure that the RED knob labeled EMERGENCY STOP is pulled out. To turn on the hydraulic motor depending on the date of manufacture of the machine there is either a button marked motor start on the console or a hydraulic pump on button located on the machine manual mode touch screen.

To turn on the melting pot burner you will have to light the pilot light (TH-99) as detailed in the Robertshaw documentation provided for the combination safety gas valve (TH-41),

The next step is to set the seven day timer located inside the operator console as detailed in the Dayton timer documentation.

The temperature controller located on the operator console is preset at the factory and should need no other adjustment other than changing the set

- Now you are ready to check the opening and closing of the machine by hand. Open and close the machine slowly with the hand lever several times. Be certain that the die opens and closes smoothly and there is no interference of any kind. You may feel some resistance as you close down on the die since you are pushing up against the die springs and the machine furnace.

Additional items suggested for machine operation:

- Heat resistant gloves for the operator.
- Safety Glasses.
- A bronze rod to aid with removal of stuck castings and or sprues. Do not use a screwdriver or other hard metal object in the mold since they could damage m the mold cavities.
- Purchase a nozzle removal tool (WDG-10-25-59) for extracting the nozzle(NZ-06) from the gooseneck.
- Purchase a NZ-06-SETUP-KIT from DTI for replacing your own nozzle tips (NZ-07)
- Set of feeler gauges.
- The 250Mini is an almost completely metric machine so you should have the following to service it:
    - Metric/standard socket set
    - Metric/standard wrench set
    - Metric/standard ball end allen wrench set
- A small inspection mirror can come in very handy.
- Two grease guns one with regular grease and the other containing high temperature grease
- Set of blacksmith type tongs for easy removal of hot plungers.
- A machinist hammer approximately 22 Oz. (1Kg.) with replaceable soft nylon faces.
- A one piece forged ladle with a scoop diameter approximately 2-3/4" (70mm). Avoid ladles that have a welded or riveted handle since they are more susceptible to breakage thereby increasing the risk of accident.

Setting up the die casting machine:

- First locate the machine base in position on the floor.

Controlling the abort function:

The 250Mini is unique in design since it utilizes a "break way" platen to help with ejection of the part and decrease cycle time, additionally the furnace end of the machine moves back in die lock position. The movement of the furnace is part of the machine design and needed to produce the 14 ton lock-up.

The features described above along with a clever use of technology allows for an abort function if there is a part stuck in the die or excessive flash build up. Utilizing proximity sensors the 250Mini can be setup to detect if there are items in the mold that should not be there. This feature can be setup in such a fashion that if a piece of paper were introduced in to the mold area as it was closing the machine would abort cycle, saving dies from potential damage.

The abort system utilizes two adjustable rods that are mounted on the nozzle platen. One rod is longer(ROD-10-25-97) and the other short (ROD-10-25-95). There are also two inductive proximity sensors (SW-250-01). One of the Proximity sensors is mounted on the bottom of the moving platen while the other is mounted on the side of the tie bar support(SUPT-25-12). I will refer to the sensors as follows: the proximity sensor on the moving platen will be PROX 1 and the sensor on the SUPT-25-12 will be PROX 2. This feature functions as follows with the die open PROX 1 does not detect any load from ROD-10-25-97 and PROX 2 does detect a load from ROD-10-25-95. As the two die faces come in contact both PROX 1 and PROX 2 detect a load. As the die continues to close and the nozzle platen moves backwards PROX 1 still detects a load and PROX 2 does not. When the sequence of events is as follows the machine will inject.

The machine will abort if the following were the case: the point at which the two die faces meet if there was a foreign substance (i.e.... a part or flash etc...) the nozzle platen would begin to move backwards and PROX 2 would not be loaded indicating that there is some thing in the way and the PLC would instantly signal the die open solenoid to open the die and wait for the operator to reinitiate the cycle.

Ready to cast:

- ◊ All the machine adjustments have been made and now you are ready to take some live shots. You will need to experiment with the amount of shot (injection) pressure required to produce a well filled part. Generally the shot pressure will range from 200PSI (15 Bar) to 600PSI (42 Bar) and possibly greater. Note: the accumulator is charged to 450PSI (31 Bar) at DTI, so to run at a lower shot pressure than 450PSI(31 Bar) you will need to remove some of the charge from the accumulator. You can purchase the accumulator charge kit from DTI, part number ACC-30.

Installing the Mold in the Machine:

- ◊ The machine should be off meaning that the E-STOP button is pushed in.
- ◊ Open the guard.
- ◊ set the moving platen to an open position
- ◊ Place the two mold fastening screws M12 x 65mm Spez through the moving platen.
- ◊ If more space is required between the moving platen(PLT-25-14) and nozzle platen(PLT-25-1) to fit the mold then it is possible to gain extra space. To do this remove the PIN-25-61 from the LNK-25-19 and this will allow the moving platen to go back as far as the SUPT-10-25-9 support block. Additionally, you should screw the BLT-25-67 completely into the back platen PLT-25-15. Doing this will give you the maximum space possible for die installation.
- ◊ Locate the ejector half of the mold on the moving platen and fasten it loosely to the moving platen(PLT-25-14) using the M12 x 65 Spez screws. You should be able to move the mold by hand.
- ◊ Push the moving platen forward so the PIN-25-61 can be reinstalled attaching the LNK-25-81 back plates to the toggle levers LNK-25-19R&L. Do not move the moving platen all the way forward.
- ◊ Install the M12 x 70 Spez screws in the nozzle platen.
- ◊ Carefully install the "hot" side of the mold on to the nozzle platen and secure it loosely using the M12 x 70 Spez screws.
- ◊ Using the hand lever slowly close the two halves of the mold together. Check to see that the sprue bushing is lined up with the nozzle insert NZ-07
- ◊ Tighten the M12 x 65 Spez bolts so the ejector side of the die is securely fastened in position to the moving platen.
- ◊ Tighten the M12 x 65 Spez bolts fastening the "hot" side of the mold to the nozzle platen.
- ◊ Now it is necessary to adjust BLT-25-67 the ejector pin bumper. Open the die to fully open position. The rod on the rear of the mold will contact the BLT-25-67 there by moving the ejector plate forward. You will want to adjust this bolt so that the ejector pins come out far enough to eject the part. The ejector pins should extend out between 3 tenths of an inch (1mm) to approximately 1 eighth of an inch (3mm), these are only guidelines and your specific application may require a different setting.

- ◊ The spring rods position 87 (ROD-10-25-87) should be able to lightly move when the die is locked out. When the die is opened tension returns to the ROD-10-25-87.

- ◊ Check to see that the micro-switch(SW-05) located inside SUPT-10-25-9 is adjusted so that the top of the plunger sticks out approximately 5/64" (2.0mm).

- ◊ loosen the closing cylinder locking collar (CYL-55/120-6) position 6 so that it is almost all the way up against LNK-10-25-83.

- ◊ Loosen the locking bolt on LNK-25-20 and loosen the locking bolt on LNK-25-27.

- ◊ Lock the die up in the machine.

- ◊ Turn CON-25-68 connecting rod clockwise so that the SW-05 in SUPT-10-25-9 is actuated. If the SW-05 micro-switch is actuated before the die is fully locked you will have to back off on the CON-25-68 counter clockwise.

- ◊ After the SW-05 is actuated turn the CON-25-68 1/6th of a rotation clockwise.

- ◊ Re-tighten the locking bolts on LNK-25-20 and LNK-25-27.

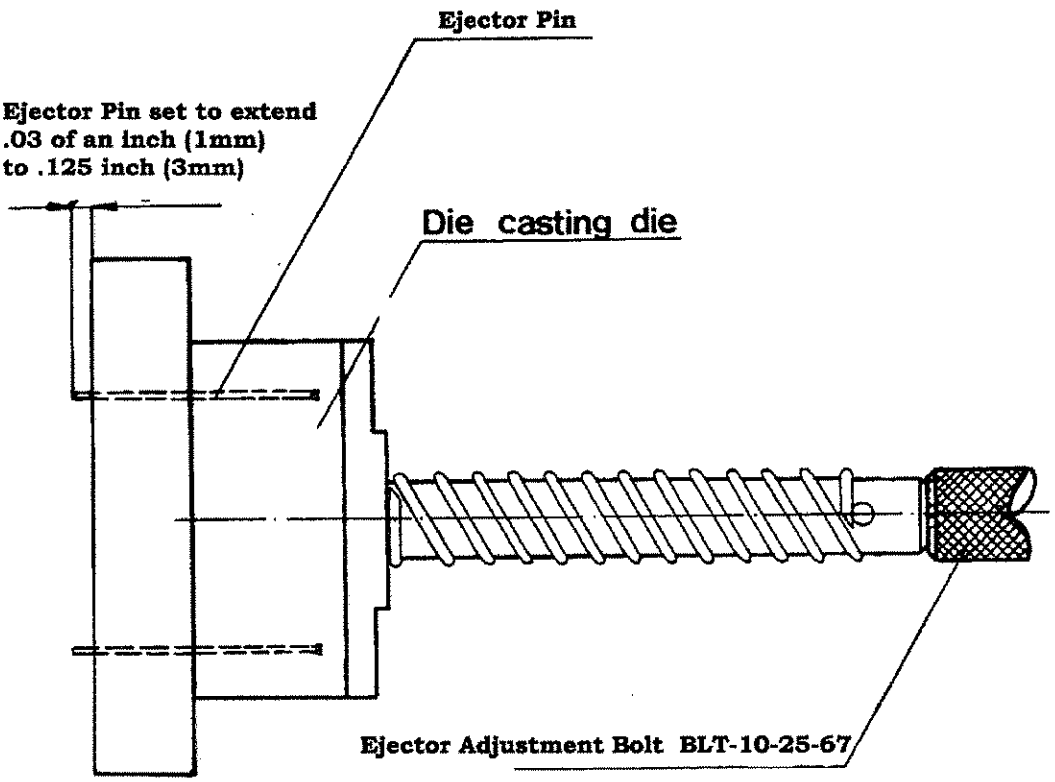
- ◊ Now return to the operators panel and initiate the cycle in automatic with recycle on , trip off, and inject off.

- ◊ adjust the BLT-10-25-65 to add tension to the linkage if you over tighten this screw the machine will not continue to cycle since there is so much tension that the die lock limit switch can not be made. If this occurs then you will have to take the machine out of automatic, press the die open button and back off the BLT-10-25-65 and try again. When everything is adjusted correctly you will hear the distinctive popping sound on the die open.

- ◊ Place the machine back in manual and lock up on the die.

- ◊ Return to the closing cylinder locking collar (CYL-55/120-6) and screw it back down so that you can get a piece of paper between it and the top of the closing cylinder.

- ◊ The machine is now mechanically adjusted, however, you must adjust the proximity sensors that control the abort function.



Adjusting the machine prior to cycling:

◊ Loosen the (2) clamping levers CLMP-04 located on the rear platen (PLT-25-15).

◊ Loosen the M12 x 30 set screw located on the back block (BLK-25-11).

◊ Lock the die up.

◊ The die should be locked up in such a manner as to compress the die springs SPG-15 X 110 allowing the bushing located in the nozzle platen to press up to the CLMP-25-30 locking collar. If needed the BLT-10-25-65 can be adjusted to fully extend the linkage.

◊ When the die is locked the machine furnace should move back between approximately 1/16"(1.5mm) to 5/64" (2.0mm)

◊ Adjust the right and left screws in position 33 until there is an gap of .019685" (.5mm) between the side levers PT-10-25-2 and the end of screw #33.

◊ With the die closed and the plate springs under stress adjust the bolt at position 34 to compress the springs to approximately 1.575" (40mm).

Installing the Mold in the Machine:

- ◊ The machine should be off meaning that the E-STOP button is pushed in.
- ◊ Open the guard.
- ◊ set the moving platen to an open position
- ◊ Place the two mold fastening screws M12 x 65mm Spez through the moving platen.
- ◊ If more space is required between the moving platen(PLT-25-14) and nozzle platen(PLT-25-1) to fit the mold then it is possible to gain extra space. To do this remove the PIN-25-61 from the LNK-25-19 and this will allow the moving platen to go back as far as the SUPT-10-25-9 support block. Additionally, you should screw the BLT-25-67 completely into the back platen PLT-25-15. Doing this will give you the maximum space possible for die installation.
- ◊ Locate the ejector half of the mold on the moving platen and fasten it loosely to the moving platen(PLT-25-14) using the M12 x 65 Spez screws. You should be able to move the mold by hand.
- ◊ Push the moving platen forward so the PIN-25-61 can be reinstalled attaching the LNK-25-81 back plates to the toggle levers LNK-25-19R&L. Do not move the moving platen all the way forward.
- ◊ Install the M12 x 70 Spez screws in the nozzle platen.
- ◊ Carefully install the "hot" side of the mold on to the nozzle platen and secure it loosely using the M12 x 70 Spez screws.
- ◊ Using the hand lever slowly close the two halves of the mold together. Check to see that the sprue bushing is lined up with the nozzle insert NZ-07
- ◊ Tighten the M12 x 65 Spez bolts so the ejector side of the die is securely fastened in position to the moving platen.
- ◊ Tighten the M12 x 65 Spez bolts fastening the "hot" side of the mold to the nozzle platen.
- ◊ Now it is necessary to adjust BLT-25-67 the ejector pin bumper. Open the die to fully open position. The rod on the rear of the mold will contact the BLT-25-67 there by moving the ejector plate forward. You will want to adjust this bolt so that the ejector pins come out far enough to eject the part. The ejector pins should extend out between 3 tenths of an inch (1mm) to approximately 1 eighth of an inch (3mm), these are only guidelines and your specific application may require a different setting.

◊ Now you are ready to check the opening and closing of the machine by hand. Open and close the machine slowly with the hand lever several times. Be certain that the die opens and closes smoothly and there is no interference of any kind. You may feel some resistance as you close down on the die since you are pushing up against the die springs and the machine furnace.

- First you should run a number of dry cycles on the machine to make sure that it is locking down correctly and to allow heat to be transferred to the die.

- Next run the machine in single shot mode so that you can inspect the castings.

- Once satisfied with the castings and they appear to have no problem ejecting, you are ready to run in fully automatic.

- You will find that each die runs differently and you will need to make adjustments to any number of items: shot pressure, chill time, amount of water flowing through the die

- The number of shots per minute will vary from die to die and will depend on :
    - Type of die does it have cams ?
    - Size of the part(s) being cast
    - Actual volume of the part(s)

  These factors can affect the cooling time needed and there by the cycle time.

- The surface of the zinc in the melting pot should be maintained at level no lower than the bottom of the plunger when it is in the up position. It is advisable that metal be added to the pot in molten form since adding an ingot in solid state will cause a temperature shock. To have the capacity to ladle in molten metal a premelt furnace such as DTI #Z225 or DTI #Z1000 is recommended.

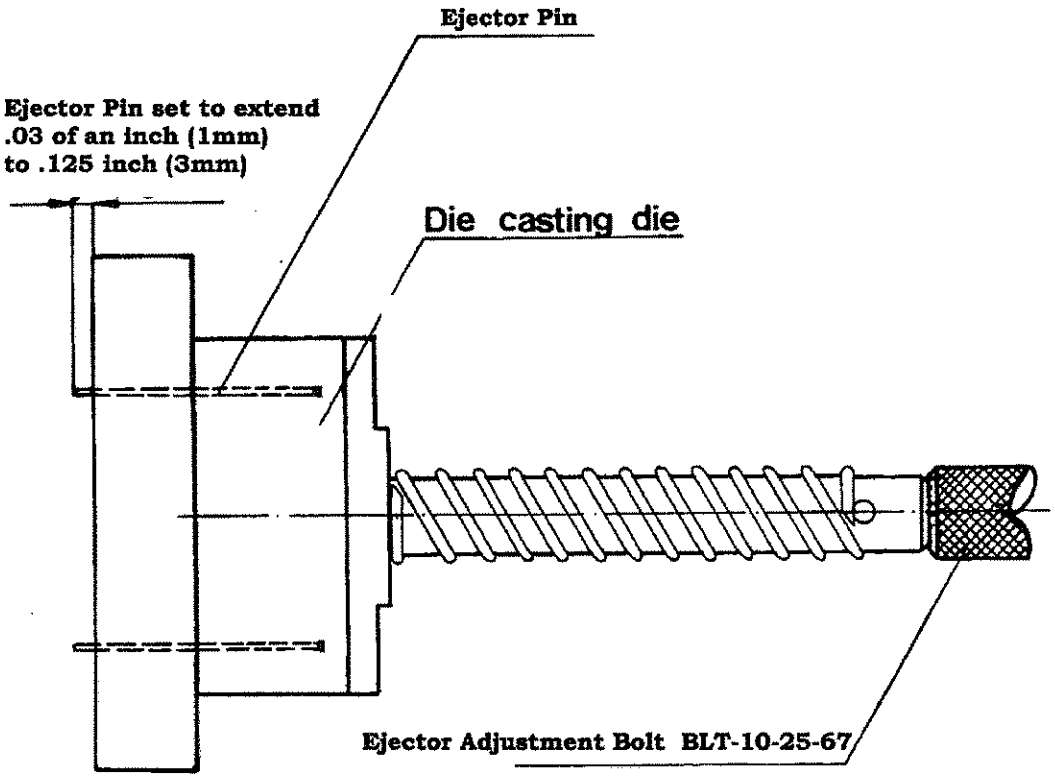
- If possible use only fresh metal for casting. You may use the sprue and runner as remelt to run the machine, but be aware that you will need to clean the "dross" out of the pot as it builds up. Dross is comprised of all the impurities in and on previously cast metal. You want to avoid at all costs allowing dross to get in to the gooseneck. If dross gets in to the gooseneck it can wreak havoc with the gooseneck, plunger, and nozzle. Dross can freeze a plunger , or clog a gooseneck, and it is amazing how incredibly difficult it is to get out.

- When using remelt try to use at least 30 percent "virgin" metal. Check with your metals dealer since they may have programs to reclaim metal from remelt and dross and resell it back to you as reprocessed virgin metal at a reduced cost.

Maintenance:

Daily :

- Grease all 21 grease fittings



Adjusting the machine prior to cycling:

◊ Loosen the (2) clamping levers CLMP-04 located on the rear platen (PLT-25-15).

◊ Loosen the M12 x 30 set screw located on the back block (BLK-25-11).

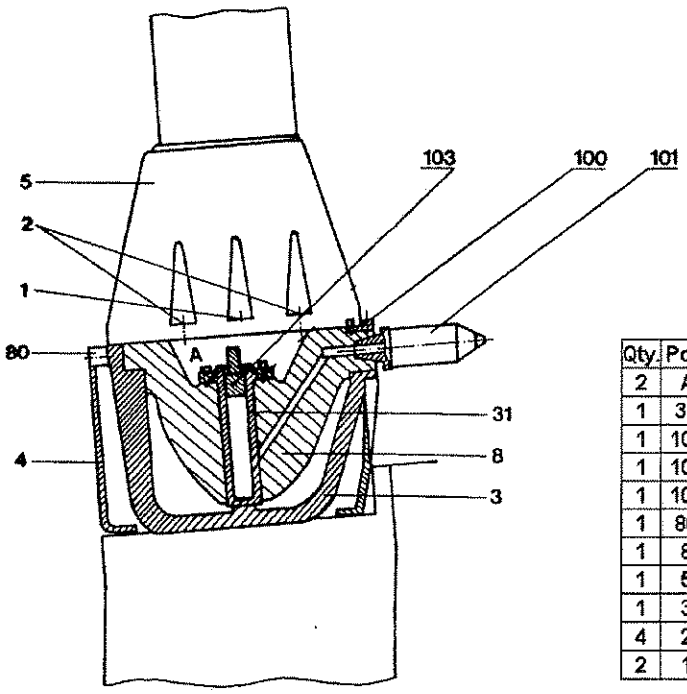
◊ Lock the die up.

◊ The die should be locked up in such a manner as to compress the die springs SPG-15 X 110 allowing the bushing located in the nozzle platen to press up to the CLMP-25-30 locking collar. If needed the BLT-10-25-65 can be adjusted to fully extend the linkage.

◊ When the die is locked the machine furnace should move back between approximately 1/16"(1.5mm) to 5/64" (2.0mm)

◊ Adjust the right and left screws in position 33 until there is an gap of .019685" (.5mm) between the side levers PT-10-25-2 and the end of screw #33.

◊ With the die closed and the plate springs under stress adjust the bolt at position 34 to compress the springs to approximately 1.575" (40mm).



Qty.	Pos.	Description	Part No.
2	A	Sleeve hold down clamp screws	
1	31	Sleeve	SLV-07
1	103	Plunger	PLN-05-250
1	101	Nozzle	NZ-06
1	100	Gooseneck Clamp	CLMP-10-25-100
1	80	Pot hold back bar	PT-10-25-80
1	8	Gooseneck	GNK-02
1	5	Hood	FRN-10-25-5
1	3	Melting Pot	PT-06
4	2	Hood screws	M12 x 30
2	1	Taper Pins	PIN-08x55

Removing the sleeve from a gooseneck:

- ◊ Follow the steps above for removing the gooseneck.
- ◊ Remove the screws that hold the sleeve hold down clamps (CLMP-30).
- ◊ Turn the gooseneck over and place it in an arbor press and press out the sleeve.
- ◊ Clean and inspect the sleeve hole.

Note: the sleeve should be able to be pressed out using a 100 ton hydraulic press, however, if the sleeve is really stuck it could require up to 400 tons to press it out. Your gooseneck can be de-zinced and re-sleeved by DTI requiring normally with in two weeks.

Replacing the sleeve in a gooseneck:

◊ Place the sleeve in a freezer for at least 1 hour.

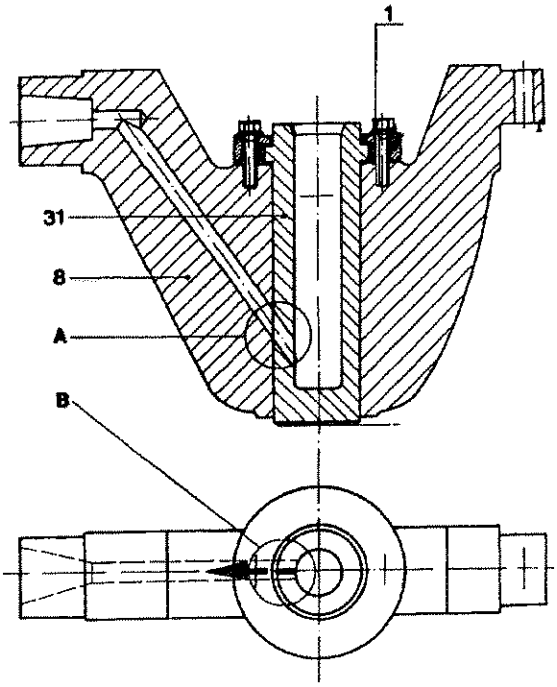
◊ Line up the sleeve using the lead on the bottom making sure that the single hole at the bottom of the sleeve lines up with the centerline of the nozzle socket, and that the sleeve is straight.

◊ Press the sleeve in to the gooseneck.

◊ Reinstall the sleeve hold down clamps (CLMP-30).

◊ Replace the gooseneck in the pot.

Positioning The Sleeve



A and B indicate the position that the inject hole at the bottom of the sleeve should be lined up to prior to pressing it in to the gooseneck.

31	SLV-07
8	GNK-00
1	3/8 - 16 x 1 Cap Screw

Nozzle :

The nozzle used in the 250Mini is comprised of two pieces; the nozzle body (NZ-06) and a replaceable hardened insert tip (NZ-07). The nozzle body is not hardened to allow for compression during lockup, the nozzle body takes

the stress that would otherwise be transmitted to the gooseneck or mold both of which out weigh the cost of the nozzle many fold.

A gas torch is used to heat the nozzle to approximately 935°F (500°C). You do not want to heat the nozzle till it glows red since this will shorten its life, if this happens then you need to adjust the torch lower. You also do not want to leave the torch on the nozzle for extended periods with out the machine cycling, because the nozzle body will be come soft enough that the 14 ton lockup will push the nozzle insert into the nozzle body.

If the nozzle temperature is to high then the nozzle tip will not be cool enough when the platen springs forward on die open and drops of zinc will dribble out the tip. The drops of zinc will then be clamped down on when the next cycle locks up. This situation can lead to different complications:

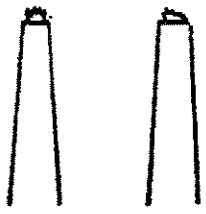
- ◊ Lack of proper seal causing metal to spray out the nozzle tip upon injection.
- ◊ Possible damage to the nozzle tip (NZ-07).
- ◊ Possible damage to the sprue bushing (SPRU-250)
- ◊ Possible hazard to personnel near by.

If the nozzle is to cold meaning that the metal is freezing and you are unable to inject try the following:

- ◊ Turn up the gas nozzle torch to produce more heat on the nozzle.
- ◊ Adjust the dwell timer to increase time the die remains open
- ◊ Adjust the chill time so it is shorter
- ◊ Reduce the amount of water cooling the sprue bushing (SPRU-250)

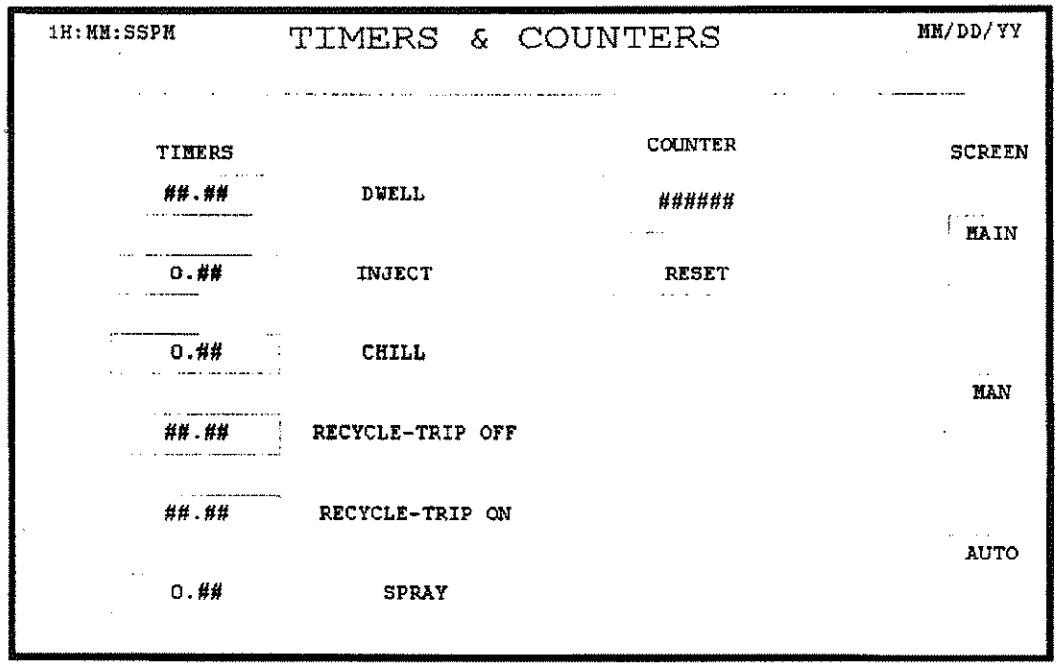
If the nozzle is to hot meaning that the metal is drooling out the tip try the following:

- ◊ reduce the gas nozzle torch to produce less heat on the nozzle
- ◊ Adjust the dwell timer to decrease time the die remains open
- ◊ Adjust the chill time so it is longer
- ◊ Increase the amount of water cooling the sprue bushing (SPRU-250)

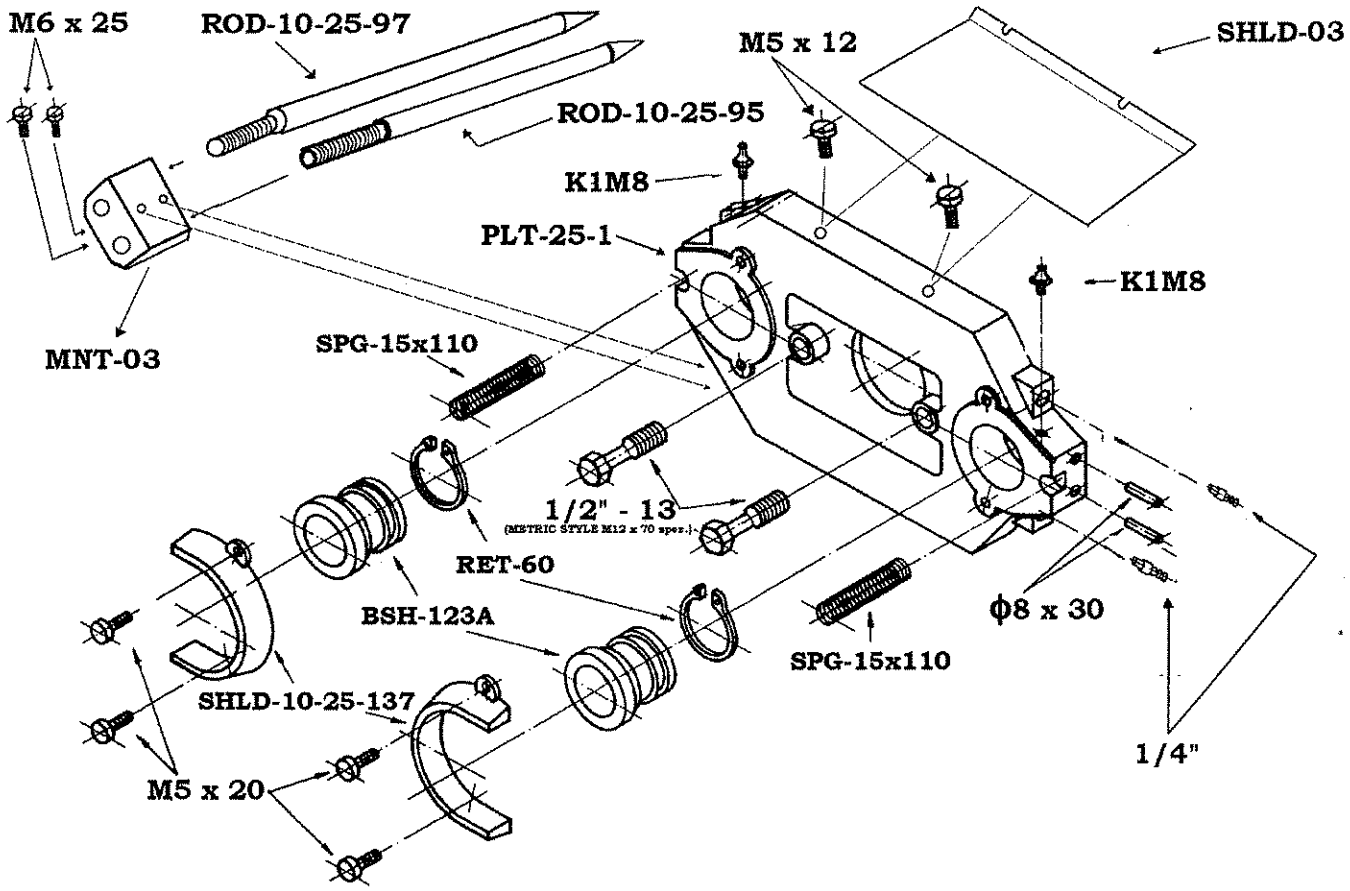


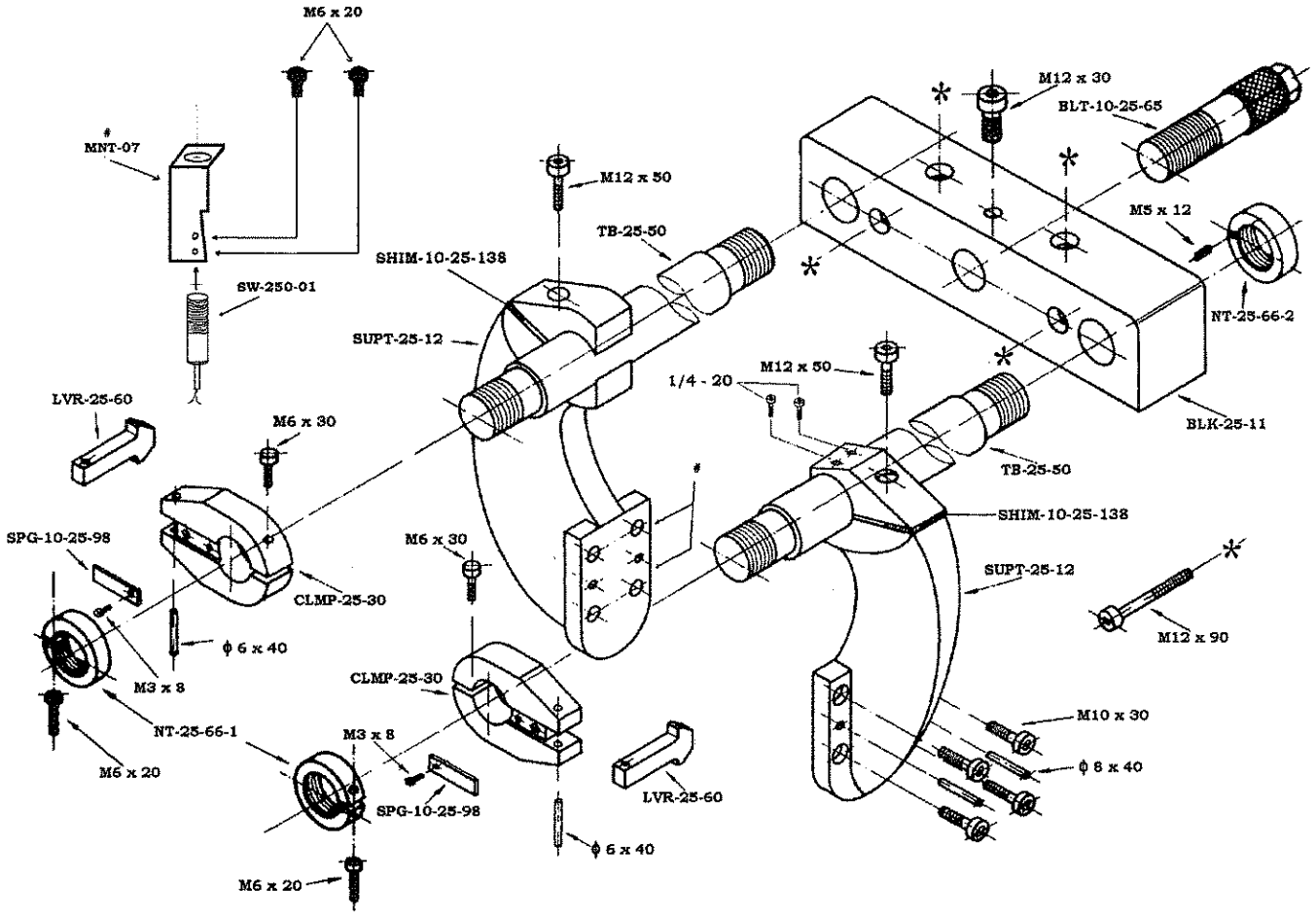
Clean breaks at the sprue tip :
Correct nozzle temperature
Correct metal temperature
Adequate water on sprue bushing
Correct dwell time
Correct chill time

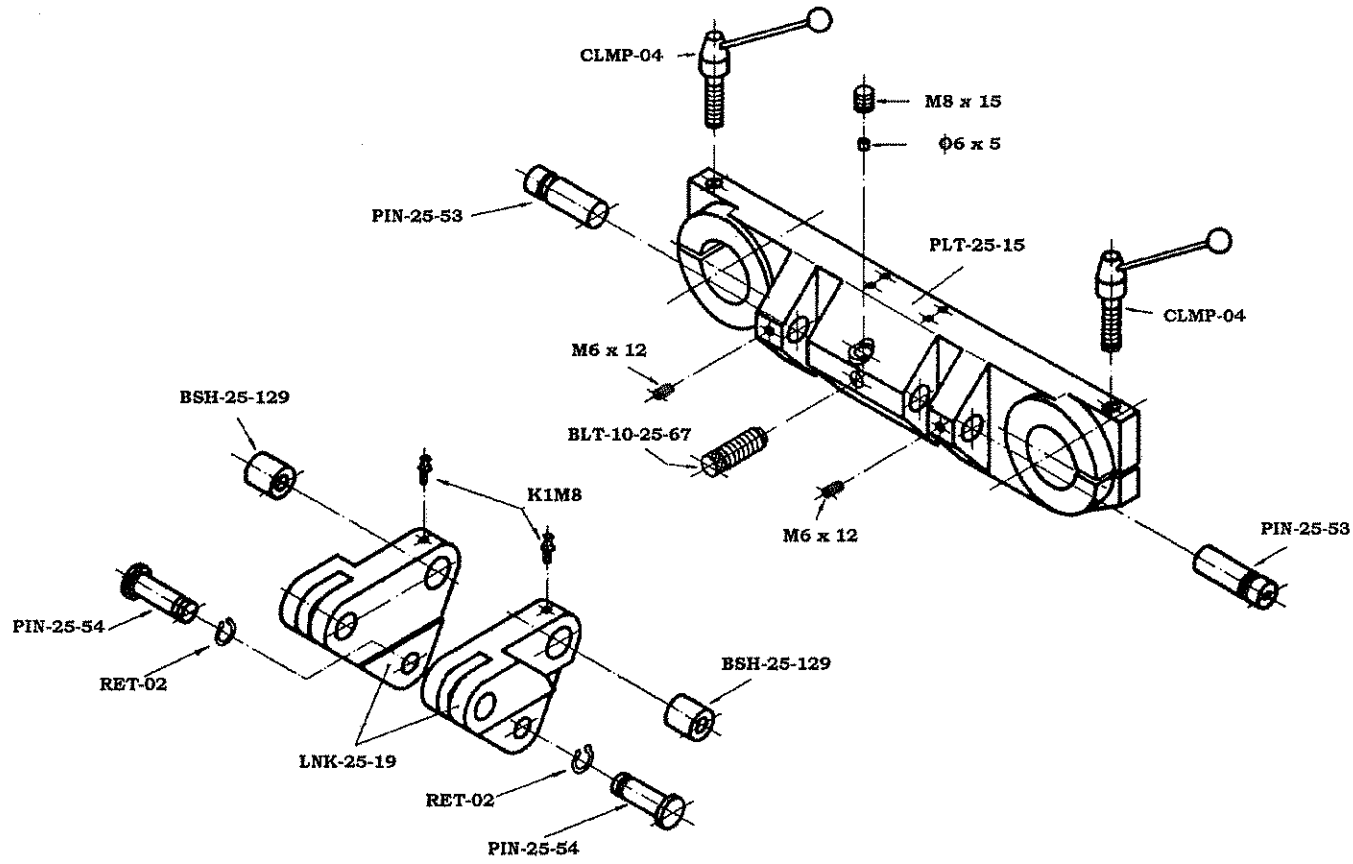
The Timers & counters Screen Snapshot:

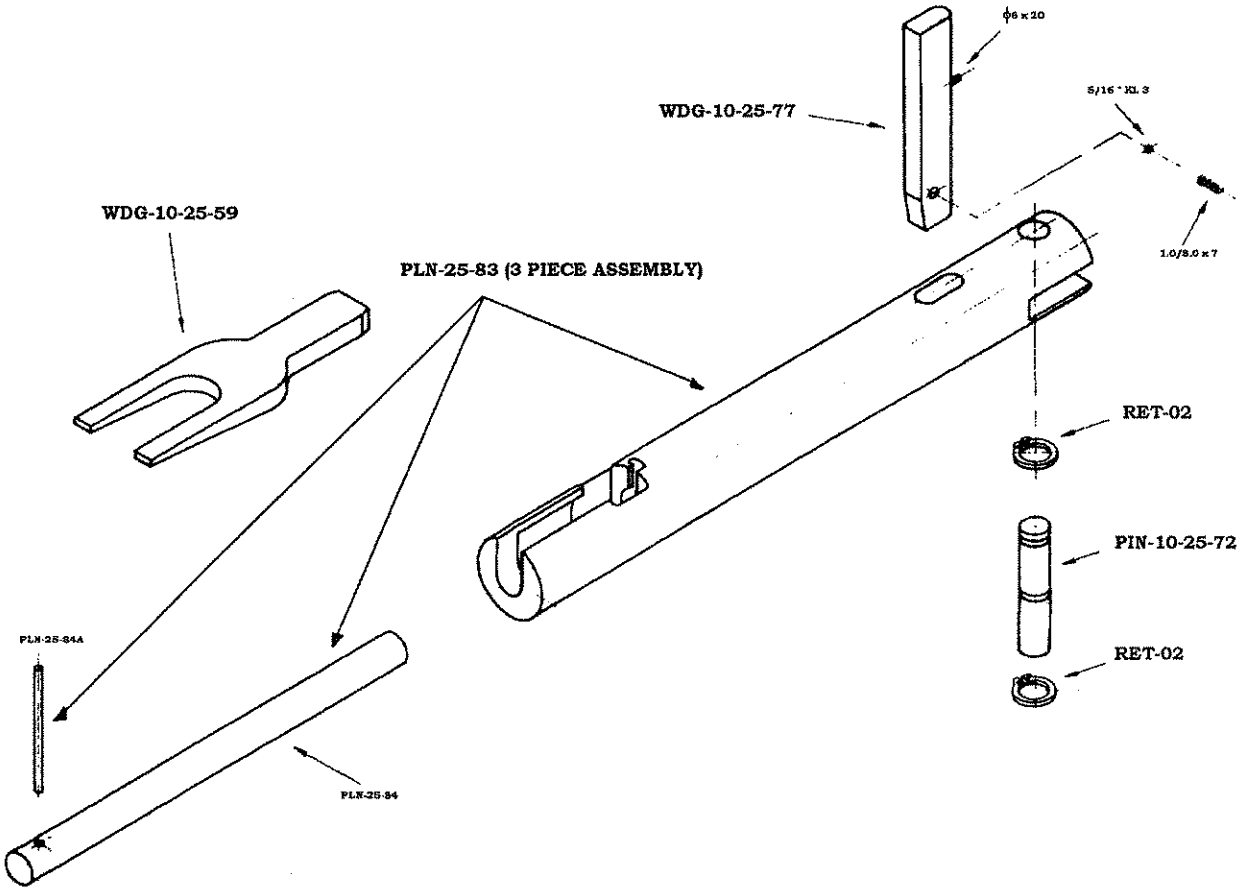


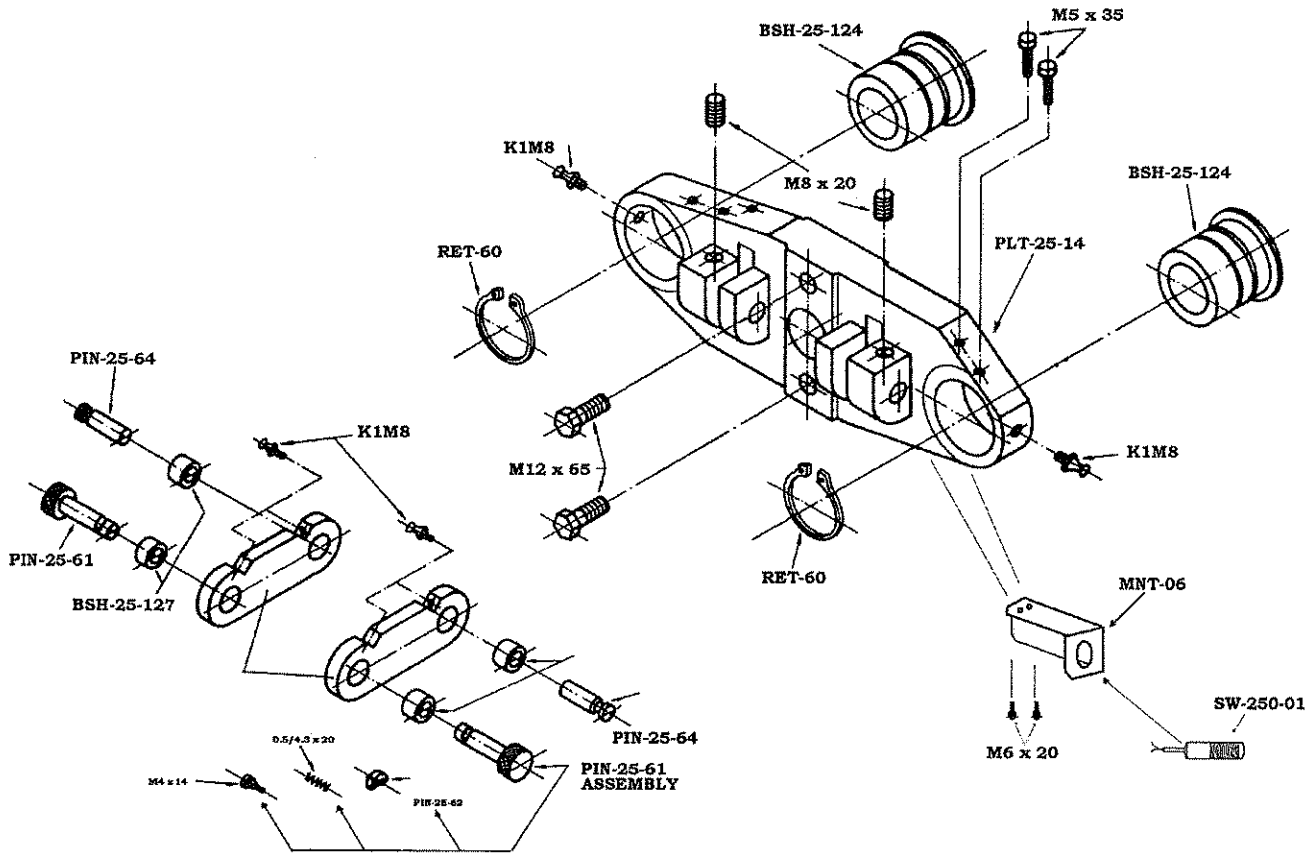
ASSEMBLY DRAWINGS

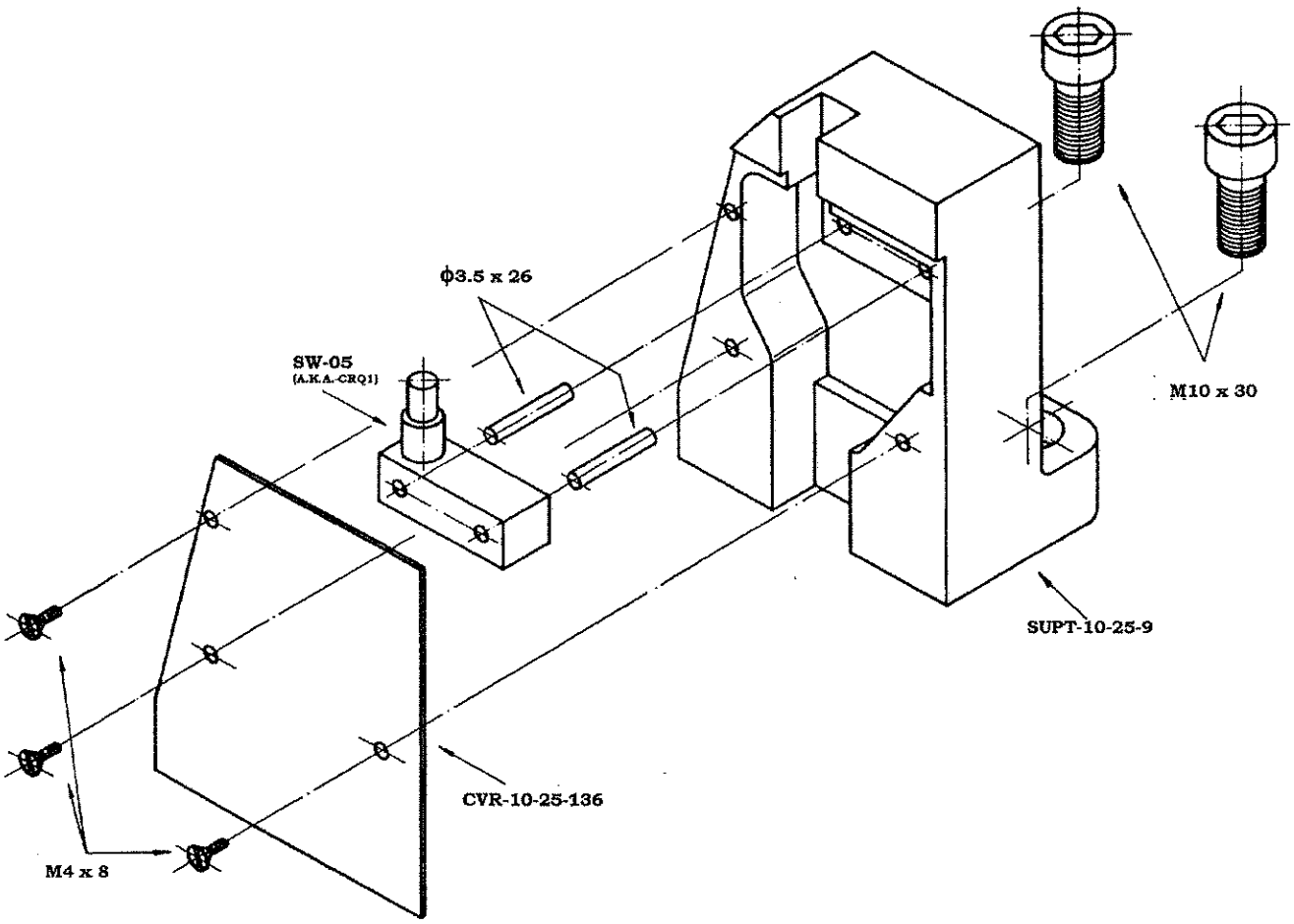


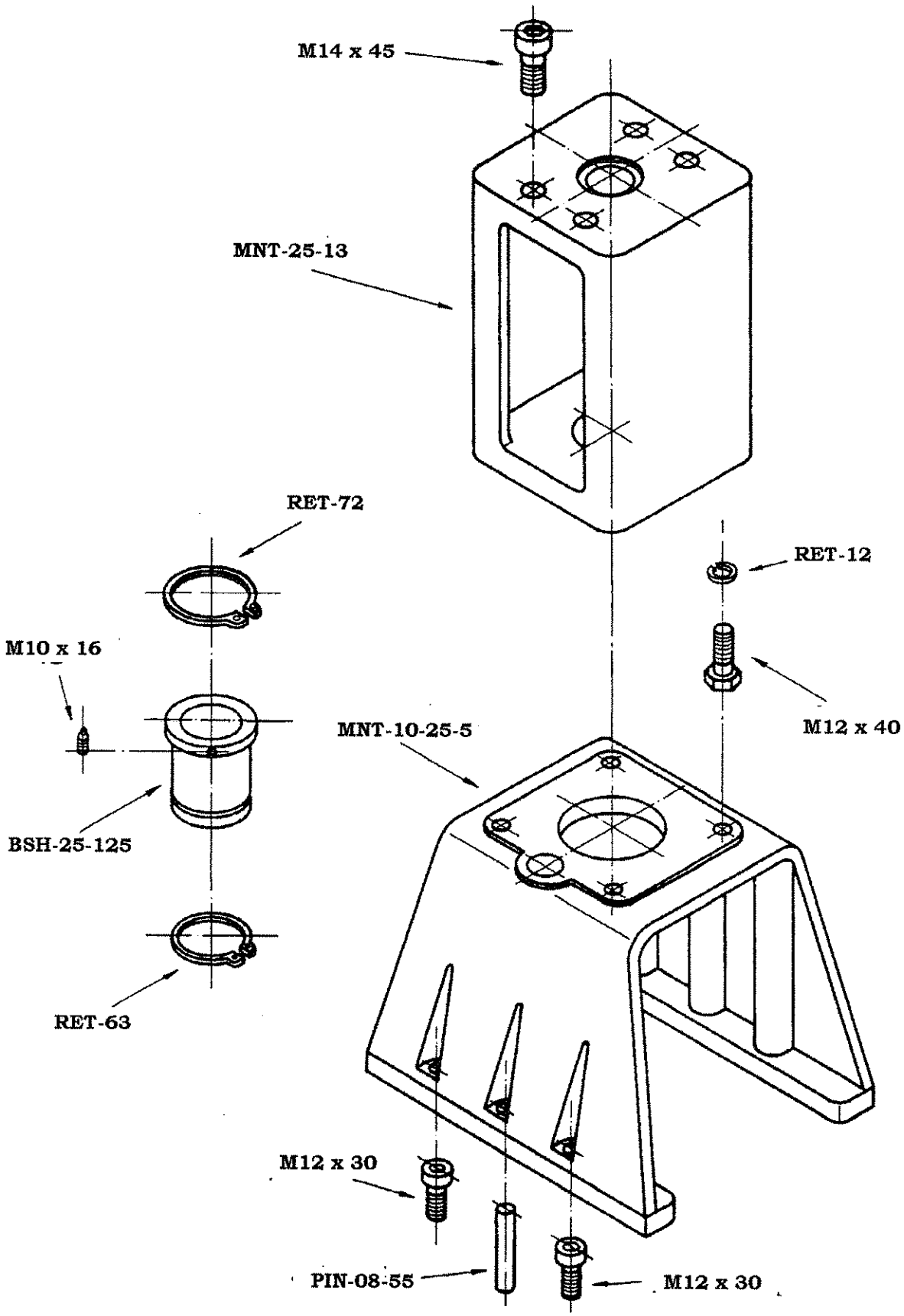

M6 x 20
MNT-07
SW-250-01
M12 x 50
TB-25-50
SHIM-10-25-138
SUPT-25-12
M12 x 30
BLT-10-25-65
M5 x 12
NT-25-66-2
BLK-25-11
1/4 - 20
LVR-25-60
M6 x 30
SPG-10-25-98
CLMP-25-30
ϕ 6 x 40
M3 x 8
NT-25-66-1
M6 x 20
M12 x 90
M10 x 30
ϕ 8 x 40

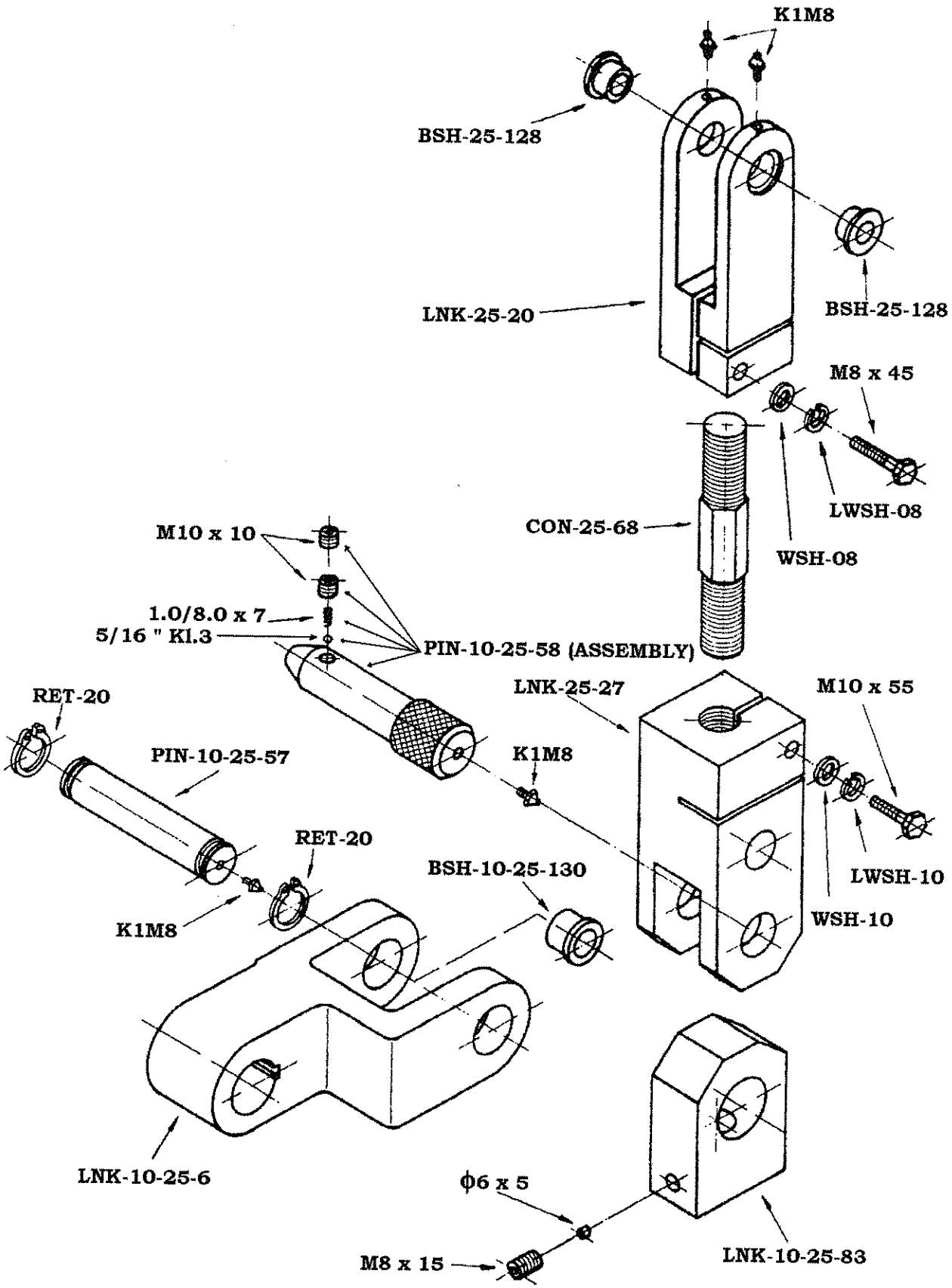

CLMP-04
M8 x 15
ϕ6 x 5
PIN-25-53
PLT-25-15
M6 x 12
BLT-10-25-67
BSH-25-129
K1M8
PIN-25-54
RET-02
LNK-25-19

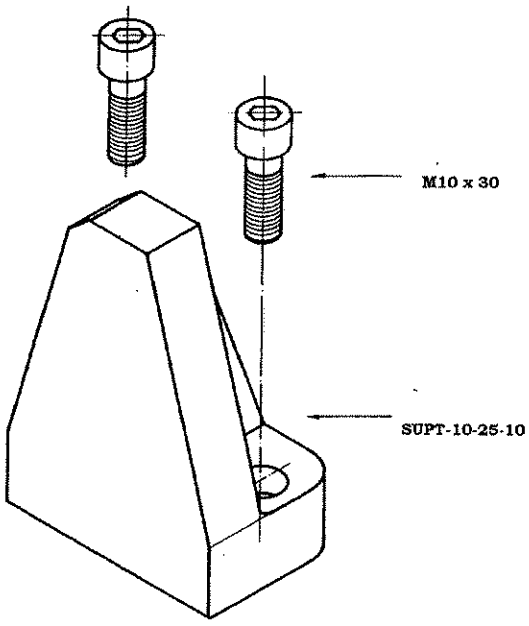

ϕ6 x 20
WDG-10-25-77
5/16" Kl. 3
WDG-10-25-59
PLN-25-83 (3 PIECE ASSEMBLY)
1.0/8.0 x 7
RET-02
PIN-10-25-72
RET-02
PLN-25-84A
PLN-25-84

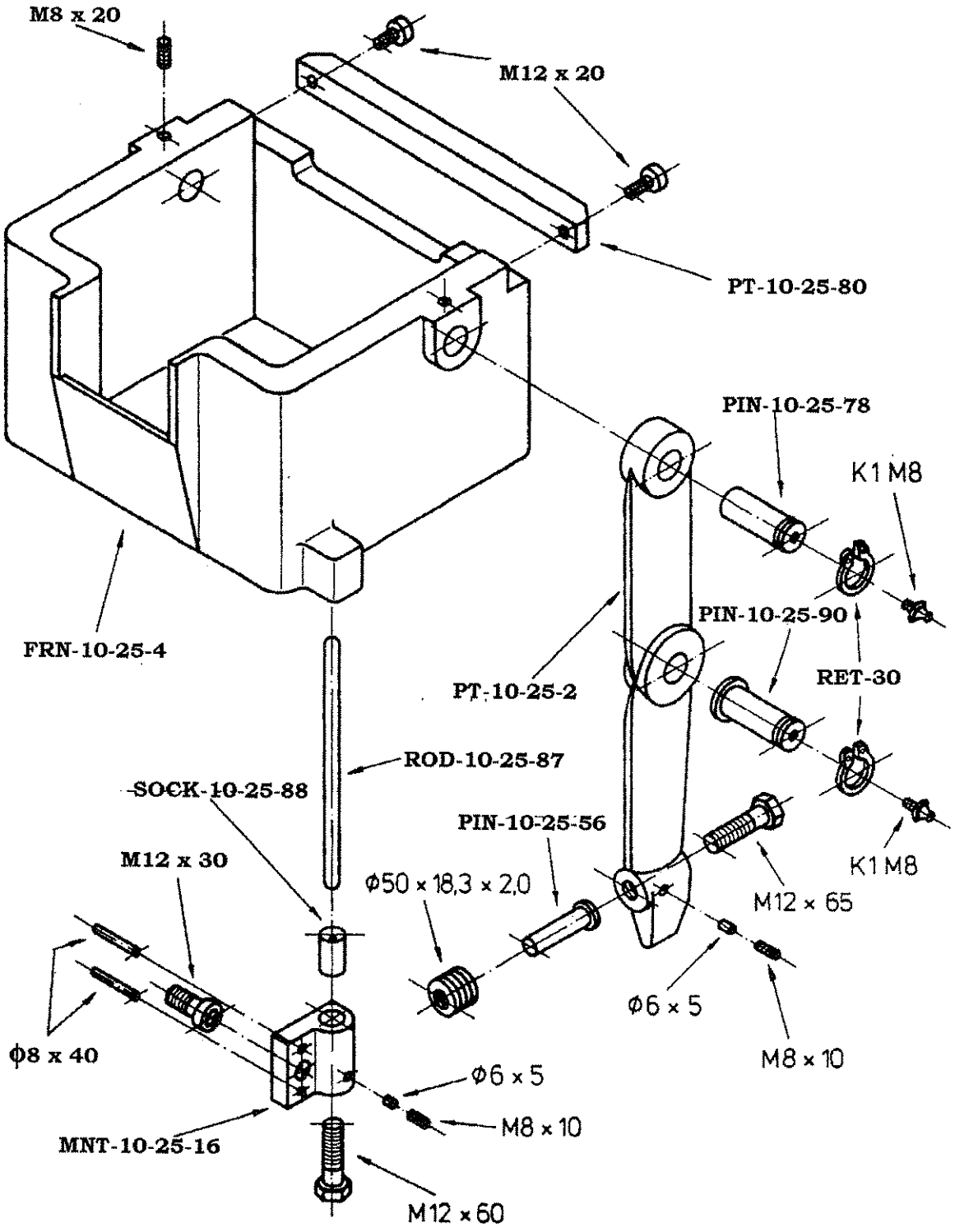

BSH-25-124
M5 x 35
K1M8
M8 x 20
BSH-25-124
RET-60
PLT-25-14
PIN-25-64
K1M8
M12 x 65
K1M8
PIN-25-61
BSH-25-127
RET-60
MNT-06
SW-250-01
M6 x 20
PIN-25-64
PIN-25-61
ASSEMBLY
M4 x 14
PIN-25-62

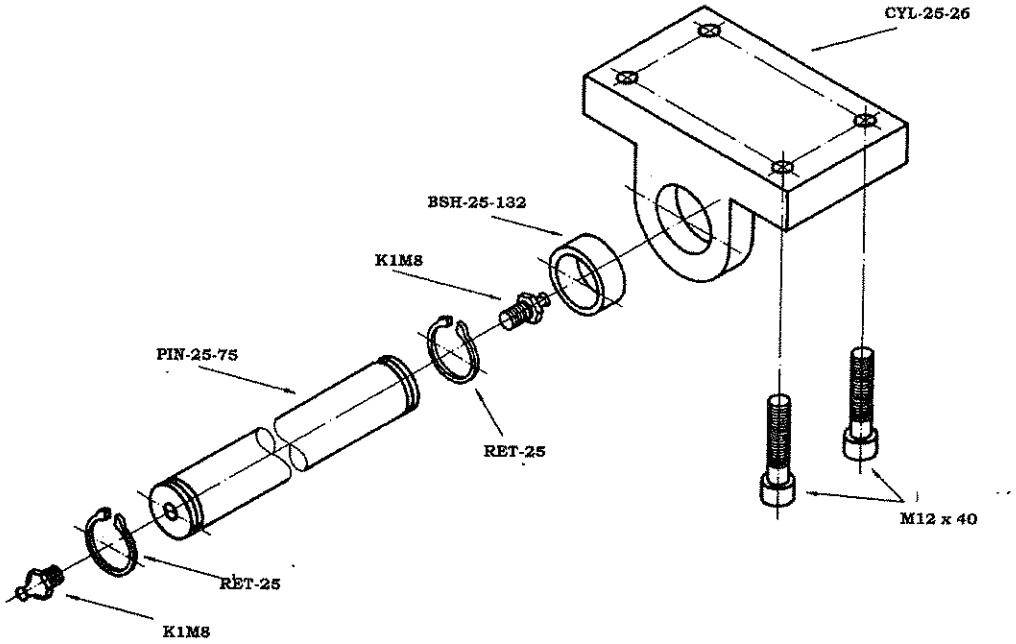

ϕ3.5 x 26
SW-05
(A.K.A. CRQ1)
M10 x 30
SUPT-10-25-9
CVR-10-25-136
M4 x 8

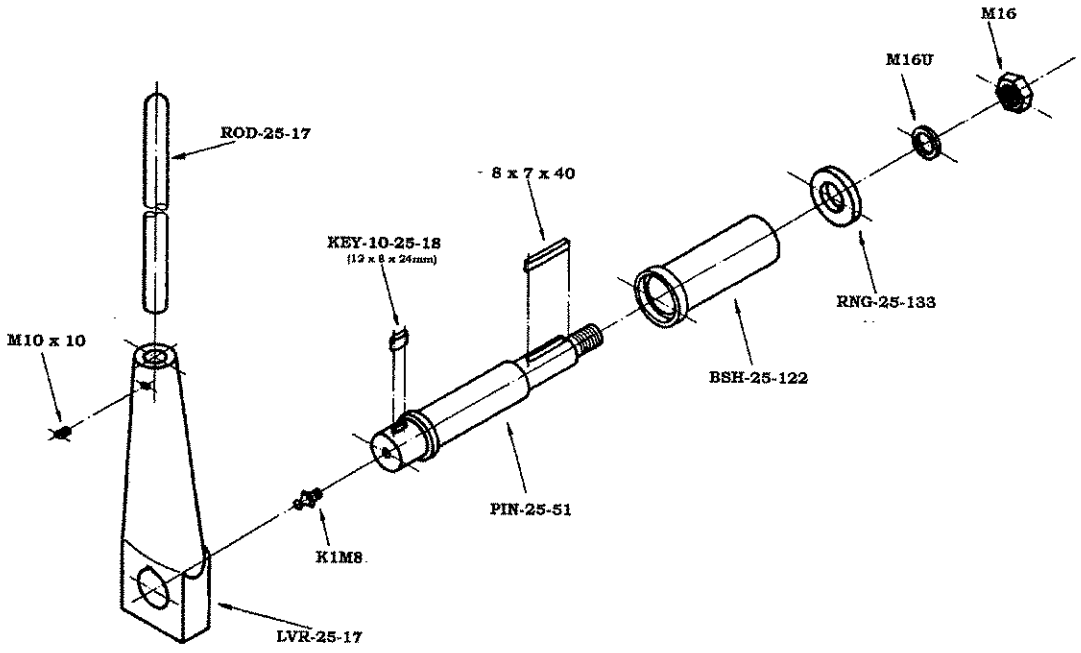

M14 x 45
MNT-25-13
RET-72
RET-12
M10 x 16
M12 x 40
MNT-10-25-5
BSH-25-125
RET-63
M12 x 30
PIN-08-55
M12 x 30

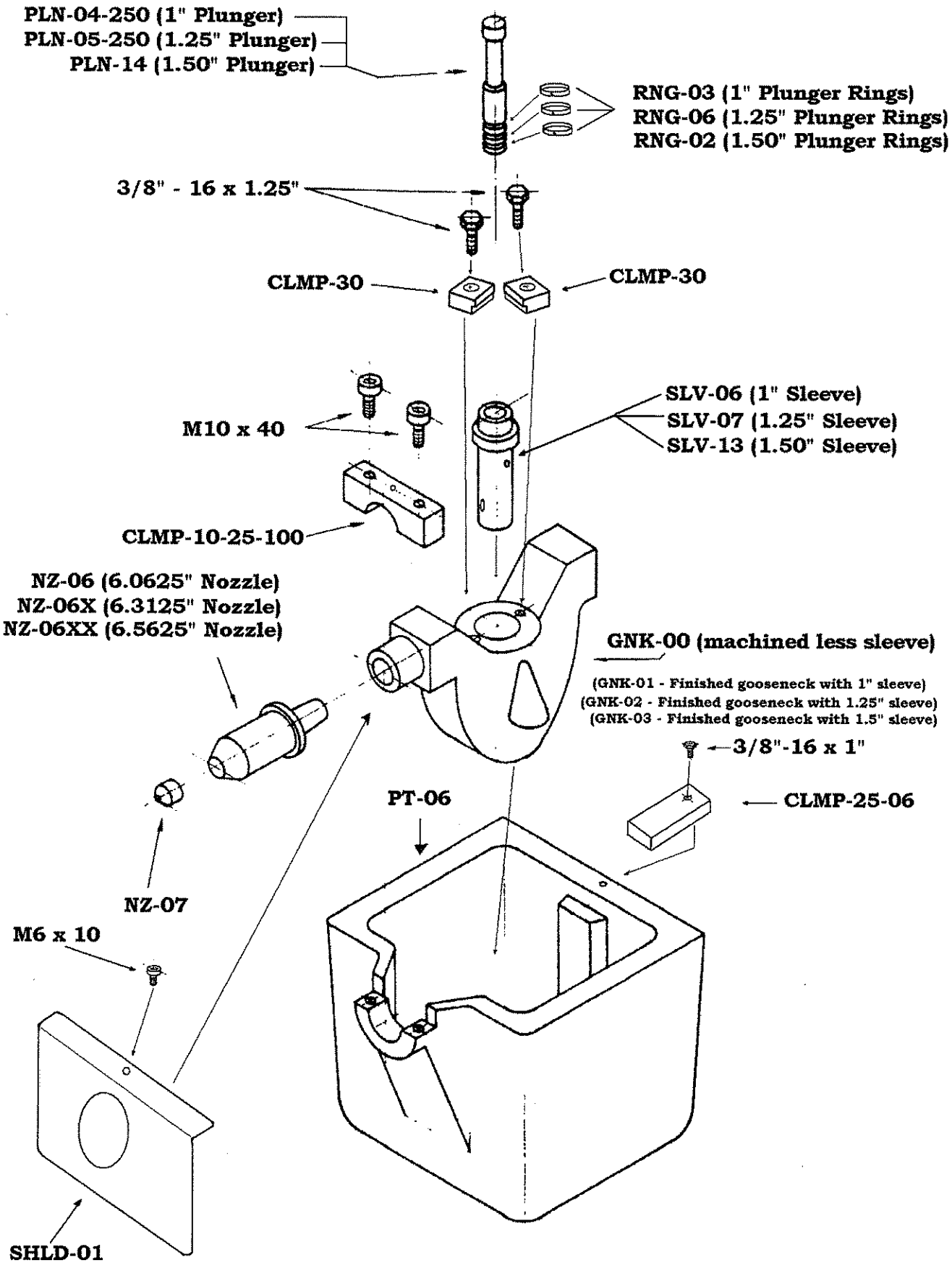

K1M8
BSH-25-128
LNK-25-20
BSH-25-128
M8 x 45
LWSH-08
WSH-08
CON-25-68
M10 x 10
1.0/8.0 x 7
5/16 " Kl.3
PIN-10-25-58 (ASSEMBLY)
RET-20
PIN-10-25-57
LNK-25-27
M10 x 55
K1M8
LWSH-10
WSH-10
RET-20
BSH-10-25-130
K1M8
LNK-10-25-6
ϕ6 x 5
M8 x 15
LNK-10-25-83


M10 x 30
SUPT-10-25-10


M8 x 20
M12 x 20
PT-10-25-80
PIN-10-25-78
K1 M8
FRN-10-25-4
PIN-10-25-90
RET-30
PT-10-25-2
ROD-10-25-87
SOCK-10-25-88
PIN-10-25-56
K1 M8
M12 x 30
ϕ50 x 18,3 x 2,0
M12 x 65
ϕ6 x 5
ϕ8 x 40
M8 x 10
ϕ6 x 5
M8 x 10
MNT-10-25-16
M12 x 60


CYL-25-26
BSH-25-132
K1M8
PIN-25-75
RET-25
M12 x 40
RET-25
K1M8


M16
M16U
ROD-25-17
8 x 7 x 40
KEY-10-25-18
(12 x 8 x 24mm)
RNG-25-133
M10 x 10
BSH-25-122
PIN-25-51
K1M8
LVR-25-17


PLN-04-250 (1" Plunger)
PLN-05-250 (1.25" Plunger)
PLN-14 (1.50" Plunger)
RNG-03 (1" Plunger Rings)
RNG-06 (1.25" Plunger Rings)
RNG-02 (1.50" Plunger Rings)
3/8" - 16 x 1.25"
CLMP-30
CLMP-30
M10 x 40
SLV-06 (1" Sleeve)
SLV-07 (1.25" Sleeve)
SLV-13 (1.50" Sleeve)
CLMP-10-25-100
NZ-06 (6.0625" Nozzle)
NZ-06X (6.3125" Nozzle)
NZ-06XX (6.5625" Nozzle)
GNK-00 (machined less sleeve)
(GNK-01 - Finished gooseneck with 1" sleeve)
(GNK-02 - Finished gooseneck with 1.25" sleeve)
(GNK-03 - Finished gooseneck with 1.5" sleeve)
3/8"-16 x 1"
CLMP-25-06
PT-06
NZ-07
M6 x 10
SHLD-01

SPECIFICATIONS: #FDRLS
DIE RELEASE FLUID FOR
ALUMINUM AND ZINC DIE CASTING

#FDRLS is an economical, water soluble, die casting release agent that can be used in the most severe zinc and aluminum die cast operations eliminating the use of pigment or graphite based lubricants; it does not contain aluminum, silicones, graphite, kerosene, molybdenum, pigment or wax. It is formulated with the highest quality synthetic polymers, vegetable oils, emulsifiers, and other water soluble additives. It dilutes readily in hard or soft water, and will not clog strainers or spray heads, assuring a clean die operation. Its very high flash point makes #FDRLS die release extremely safe in die casting machinery environments.

#FDRLS also prevents soldering and drag and eliminates porosity and staining, for a clean, bright, high quality finish, is non toxic and almost 100% biodegradable and therefore, not harmful to the skin, clothing or the environment. Accidental spillage may be easily cleaned up with water or simply flushed down a sewer. It will not separate either in concentrated form or after dilution with hard or soft water; it will not become rancid in concentrated form or after dilution with water.

Suggested starting dilution ratio should be 1 part #FDRLS to 50 parts water. Extended dilution can go as high as 1 part #FDRLS to 100 parts of water, depending on the severity of the operation; in fact for zinc die casting the dilution ratio may go as high as 1 part #FDRLS to 125 parts water. In diluted form it can be used with conventional central spraying equipment.

#FDRLS is available from DIE TECH INDUSTRIES stock in 5 gal. pails and 55 gal. drums.

DIE TECH WATER GLYCOL HYDRAULIC SAFTEY FLUID #FWGH

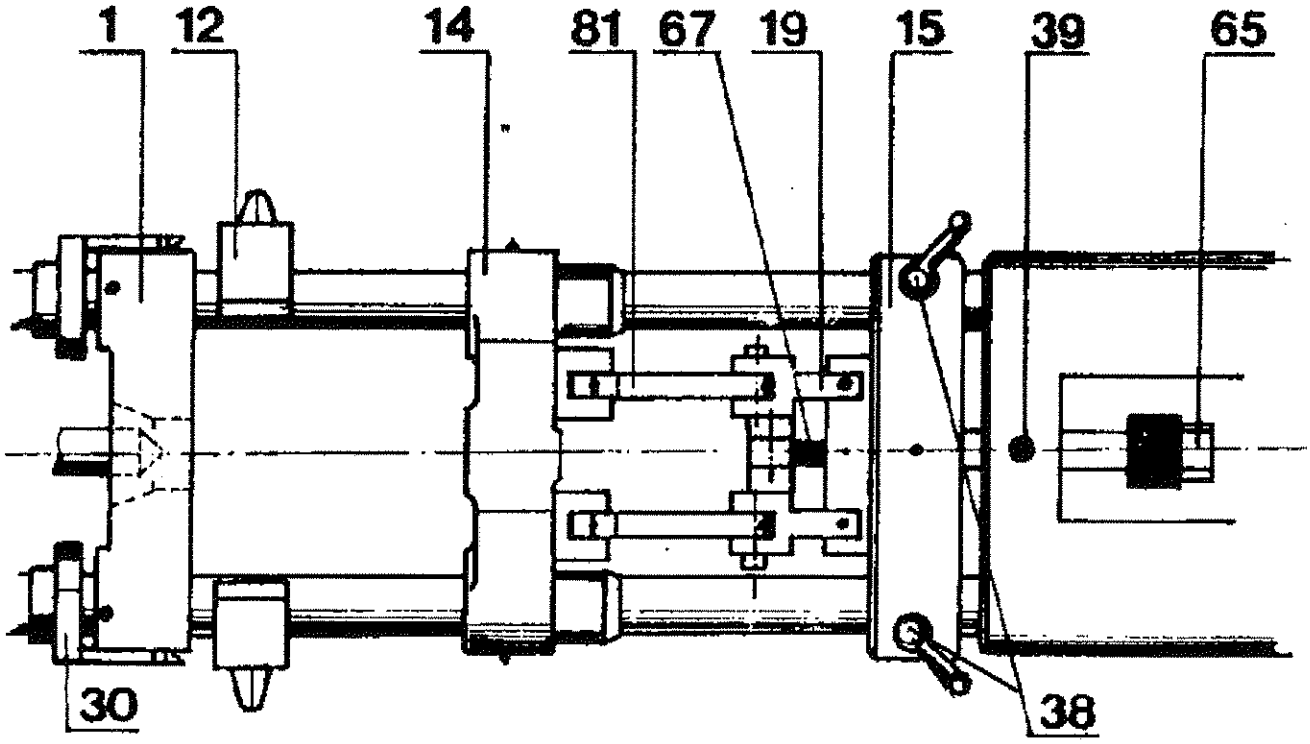
TYPICAL CHARACTERISTICS:

Appearance	Pink
Specific Gravity, 60/60°F	1.090
Water, % n	40
Pour Pt., °F	-65
Visc., cSt at 40° C,	43.0
cSt at 65.5°C	23.5
SUS at 100° F	205
SUS at 150° F	110
Neutralization No.	0.20

DIE TECH #FWGH Hydraulic Water-glycol Fluids are fire resistant by virtue of their high water contents. When these fluids are exposed to sources of ignition, steam is generated. The steam generated tends to reduce ignition temperatures and displace air (oxygen) in the hot area thereby inhibiting combustion and suppressing flaming. With fluids of this nature the water content must be maintained during use to ensure the designed degree of fire resistance. DIE TECH #FWGH is a water solution of blends of high and low molecular weight glycols. It contains approximately 40 percent water. In addition to water and glycol it contains a combination of anti-wear agents and rust inhibitors designed to make it suitable for use in a wide variety of hydraulic systems.

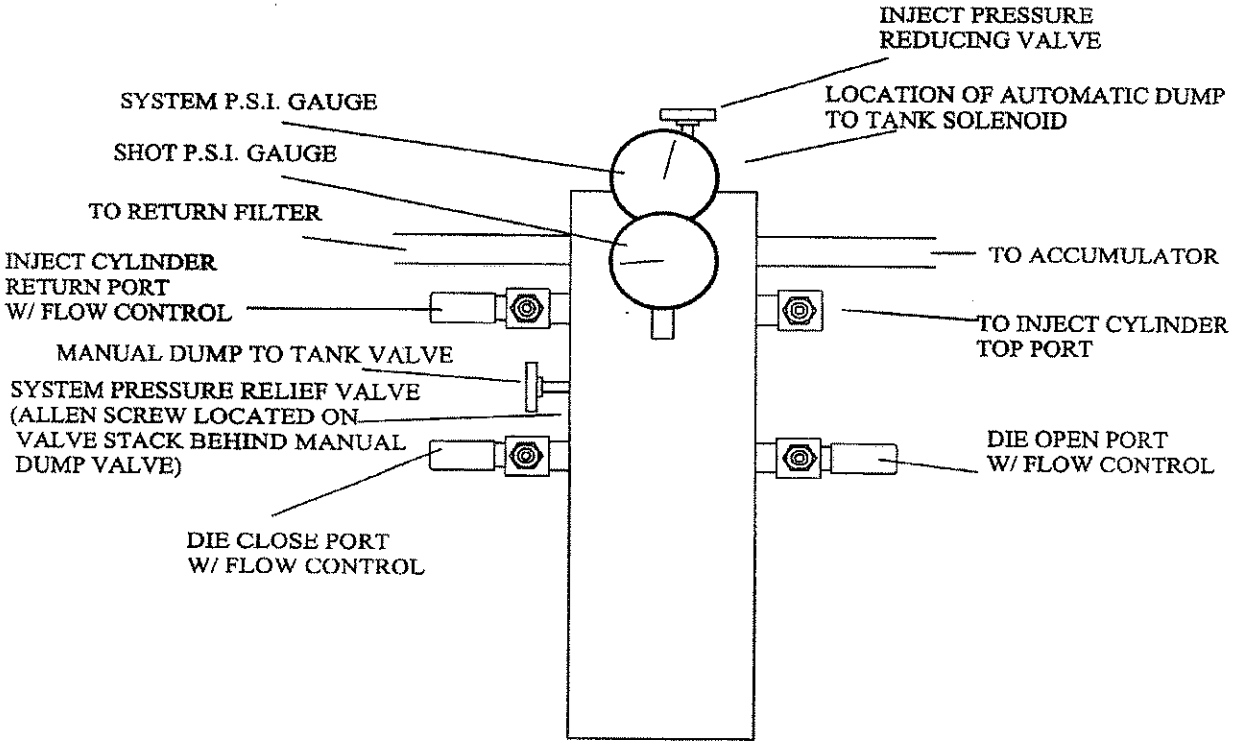
Like other water glycol safety fluids, DIE TECH #FWGH increases in viscosity when the water content is lowered and decreases in viscosity with increasing water content. When necessary to add water in the field, a good quality, relatively soft water should be used. It has found extensive use in hydraulic systems of die casting equipment, injection molding equipment, hydraulic stretchers, slag granulators, hydraulic pressure guns, down coilers in steel hot strip mills, oven doors, tipping ladles, continuous casting equipment and mobile equipment operating on slag heaps and other hazardous locations requiring hydraulic fluids. DIE TECH #FWGH has been approved for use as less hazardous hydraulic fluids in Factory Mutual insured plants.

DIE TECH #FWGH water glycol hydraulic safety fluid is available from stock in 55-gallon drums and 5-gallon pails, which can be shipped individually by U.P.S.



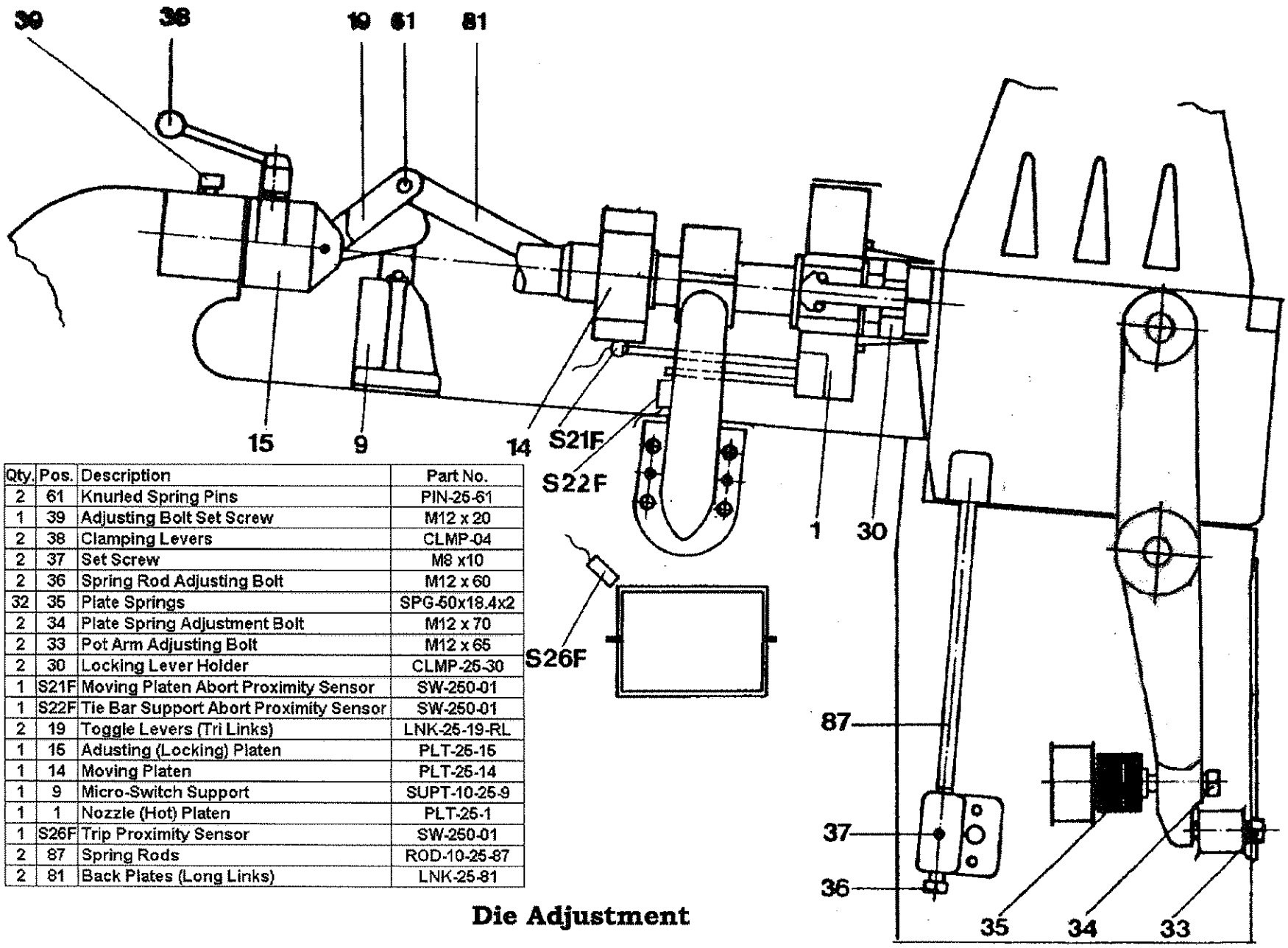
Qty.	Pos.	Description	Part No.
2	81	Back Plates (Long Links)	LNK-25-81
1	67	Ejector Adjustment Screw	BLT-10-25-67
1	65	Linkage Adjustment Screw	BLT-10-25-65
1	39	Allen Head Set Screw	M12 x 20
2	38	Clamping Levers	CLMP-04
2	30	Locking Lever Holder	CLMP-25-30
2	19	Toggle Levers (Tri Link)	GNK-02
1	15	Adjusting (Locking) Platen	PLT-25-15
1	14	Moving Platen	PLT-25-14
2	12	Tie Bar Supports	SUPT-25-12
2	1	Nozzle (Hot) Platen	PLT-25-1

Linkage Adjustment



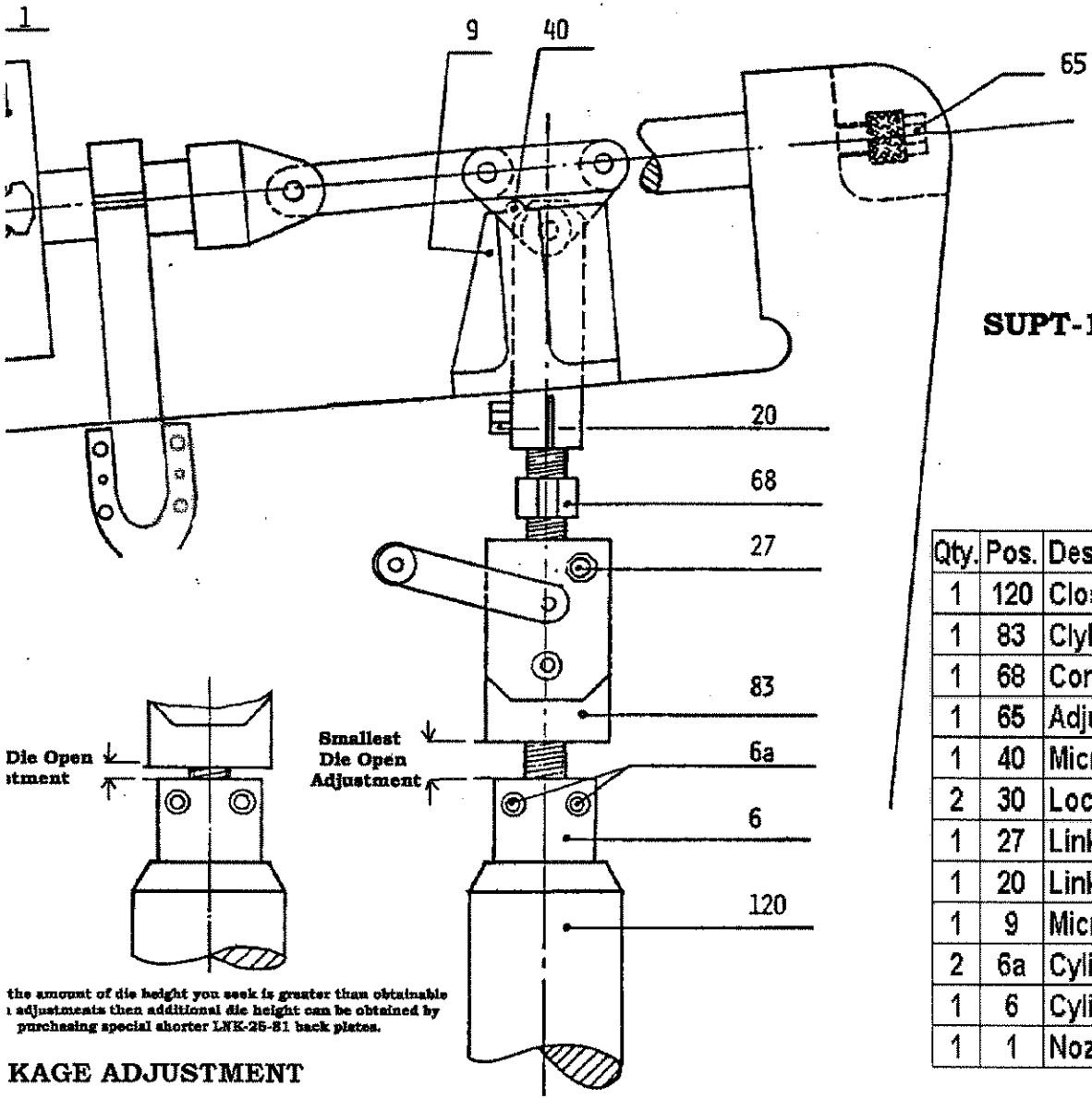
VIEW FROM FRONT

14 TON, MINI
DIE CAST MACHINE
HYDRAULIC MANIFOLD
DR.NO. MANIFOLD



Qty.	Pos.	Description	Part No.
2	61	Knurled Spring Pins	PIN-25-61
1	39	Adjusting Bolt Set Screw	M12 x 20
2	38	Clamping Levers	CLMP-04
2	37	Set Screw	M8 x10
2	36	Spring Rod Adjusting Bolt	M12 x 60
32	35	Plate Springs	SPG-50x18.4x2
2	34	Plate Spring Adjustment Bolt	M12 x 70
2	33	Pot Arm Adjusting Bolt	M12 x 65
2	30	Locking Lever Holder	CLMP-25-30
1	S21F	Moving Platen Abort Proximity Sensor	SW-250-01
1	S22F	Tie Bar Support Abort Proximity Sensor	SW-250-01
2	19	Toggle Levers (Tri Links)	LNK-25-19-RL
1	15	Adusting (Locking) Platen	PLT-25-15
1	14	Moving Platen	PLT-25-14
1	9	Micro-Switch Support	SUPT-10-25-9
1	1	Nozzle (Hot) Platen	PLT-25-1
1	S26F	Trip Proximity Sensor	SW-250-01
2	87	Spring Rods	ROD-10-25-87
2	81	Back Plates (Long Links)	LNK-25-81

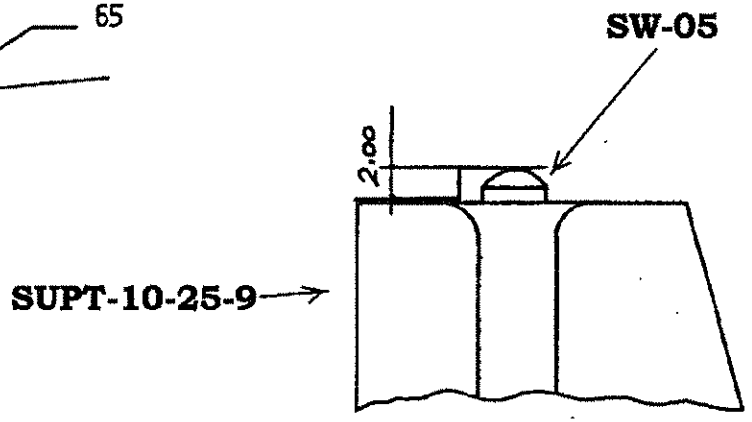
Die Adjustment



the amount of die height you seek is greater than obtainable
adjustments then additional die height can be obtained by
purchasing special shorter LNK-25-81 back plates.

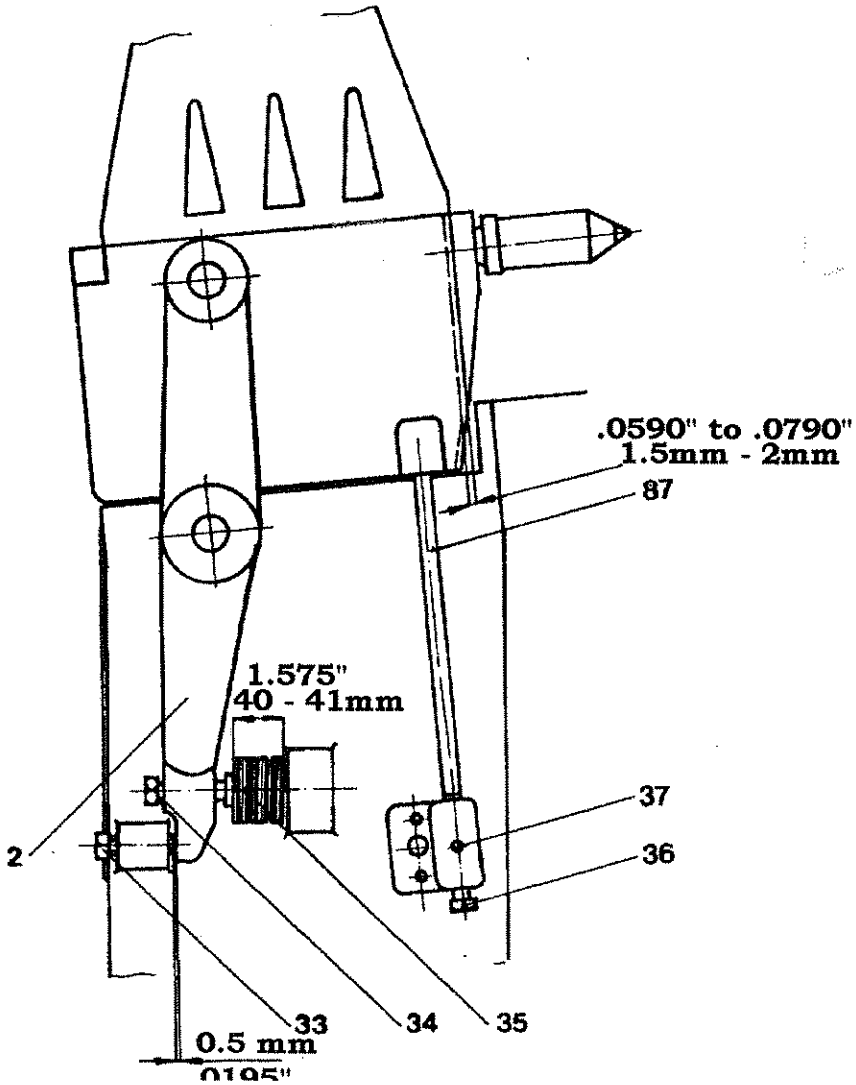
KAGE ADJUSTMENT

Die Lock Micro-Switch Adjustmen



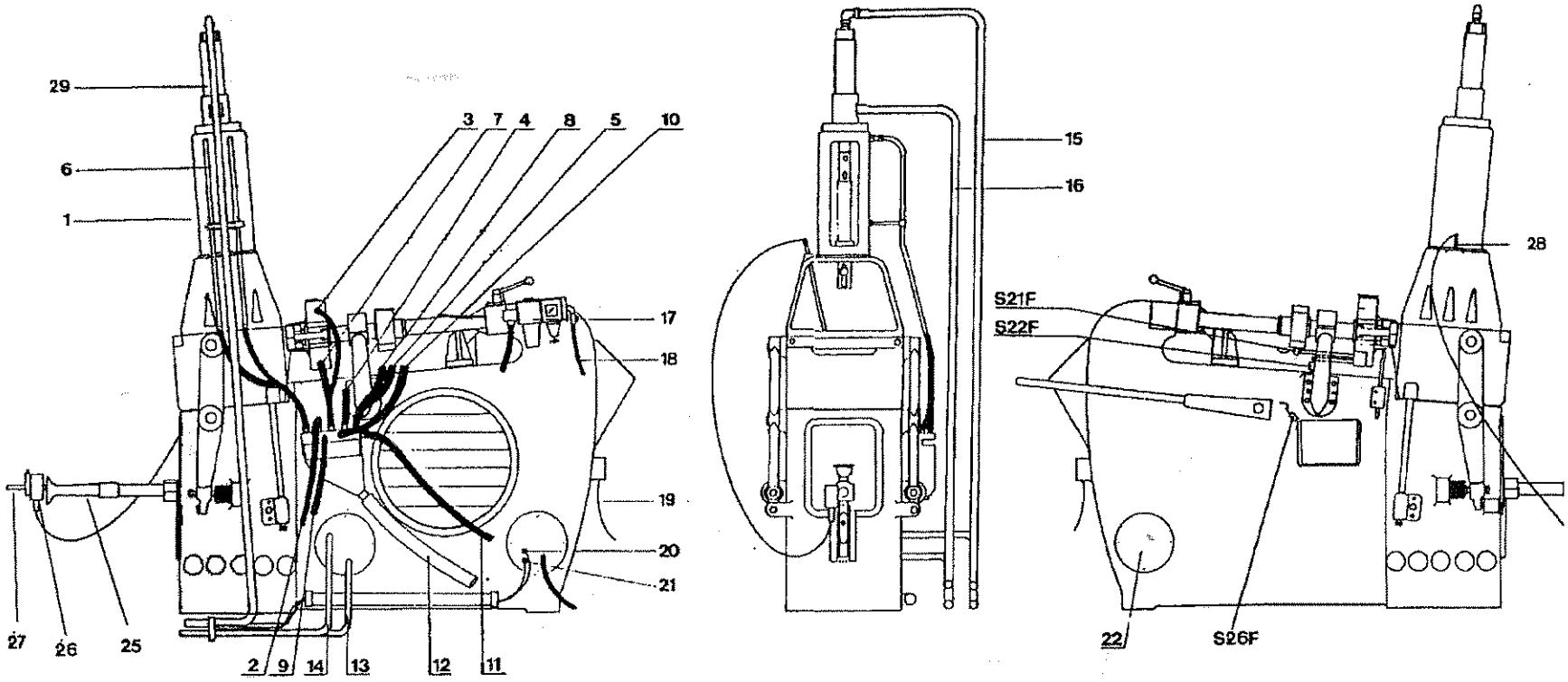
Qty.	Pos.	Description	Part No.
1	120	Closing Cylinder (Milwaukee)	CYL-250-C
1	83	Clylnder to Linkage Connector	LNK-10-25-83
1	68	Connecting Rod	CON-25-68
1	65	Adjusting Screw	BLT-10-25-65
1	40	Micro-Switch	SW-05
2	30	Locking Lever Holder	CLMP-25-30
1	27	Linkage Connecting Yoke (Lower)	LNK-25-27
1	20	Linkage Connecting Yoke (Upper)	LNK-25-20
1	9	Micro-Switch Support Block	SUPT-10-25-9
2	6a	Cylinder Locking Collar Screws	
1	6	Cylinder Locking Collar	CYL-55/120-6
1	1	Nozzle (Hot) Platen	PLT-25-1

Hot End Adjustments



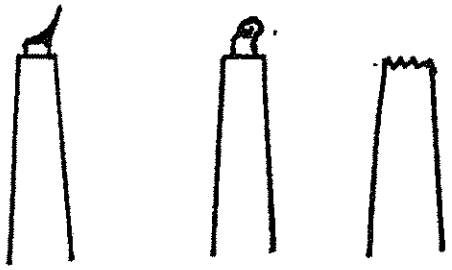
2	PT-10-25-2 Pot Arm
87	ROD-10-25-87 Spring Rod
37	M8 x 10 Set Screw
36	M12 x 60 Spring Rod Adjusting Bolt
35	SPG-50x18.3x2 Plate Springs
34	M14 x 65 Plate Spring Adjustment Bolt
33	Pot Lever Adjusting bolt

Machine Components



1	Water hose - return for inject cylinder	11	Water In - main connection	21	Not used anymore
2	Water hose - return for heat exchanger	12	Water Out - main discharge	S21F	Moving platen abort proximity switch
3	Water hose - return for nozzle platen	13	Hydraulic pipe for opening the closing cylinder	22	Cover
4	Water hose - return "hot" side of die	14	Hydraulic pipe for closing the closing cylinder	S22F	Tie bar support mounted abort proximity switch
5	Water hose -return ejector side of die	15	Hydraulic pipe for closing the inject cylinder	25	Burner
6	Water hose - to inject cylinder	16	Hydraulic pipe for opening the inject cylinder	26	Saftey gas valve
7	Water hose - to nozzle platen	17	AA-SA-6060 Diehube unit	S26F	Trip chute proximity sensor
8	Water hose - to ejector side of die	18	Air in for AA-SA-6060 Die spray unit	27	Gas In
9	Water hose - to heat exchanger	19	Electirc supply	28	Thermocouple
#	Water hose - to "hot" side of die	20	Not used any more	29	Inject cylinder

bright bright



Excess metal or shearing at the sprue tip :
One or more of the items mentioned above is out of adjustment

Removing the Nozzle :

◊Ladle metal out of the pot until the level is below the level of the plunger.

◊Remove the nozzle from the gooseneck by driving the wedge key (WDG-10-25-59) between the gooseneck and the nozzle body using a hammer.

◊Clean the metal out of the nozzle seat in the gooseneck as best as possible with a cloth. and or a round wooden dowel.

Installing the Nozzle :

◊Insert the nozzle into the nozzle seat of the gooseneck.

◊Use the manual lever to close up the linkage to ensure that the nozzle tip(NZ-07) is seating properly in to the sprue bushing (SPRU-250) .

◊If the alignment needs no adjustment then put the .machine in single cycle and allow the machine to close up a couple of times which will seat the nozzle in to the gooseneck.

Removing the Nozzle insert (NZ-07) :

◊Remove the nozzle.

◊Drill zinc out of the nozzle .

◊Press the nozzle insert out using a .punch which is part of the nozzle setup kit DTI part number (NZ-06-SETUP-KIT).

Replacing the Nozzle insert (NZ-07) :

◊Place the nozzle in the nozzle holder, which is part of the nozzle setup kit DTI part number (NZ-06-SETUP-KIT).

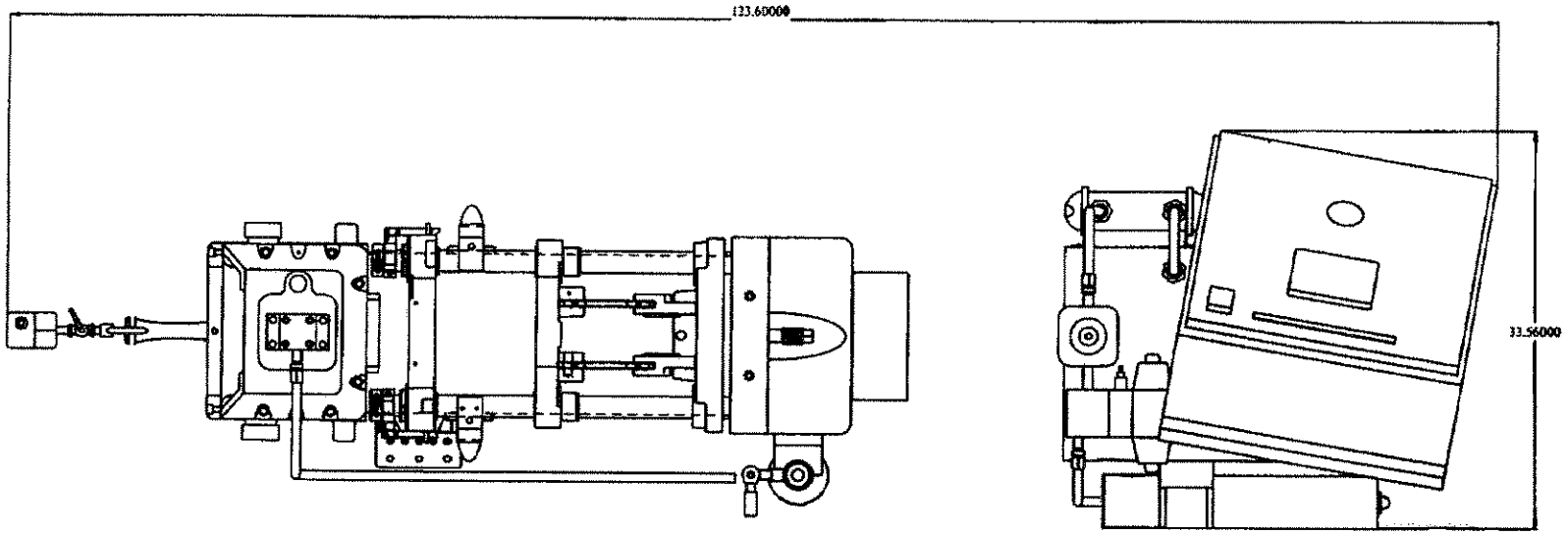
◊Heat the nozzle slowly with a torch until is red hot.

◊Set a room temperature nozzle insert(NZ-07) carefully in position on top of the hot nozzle(NZ-06).

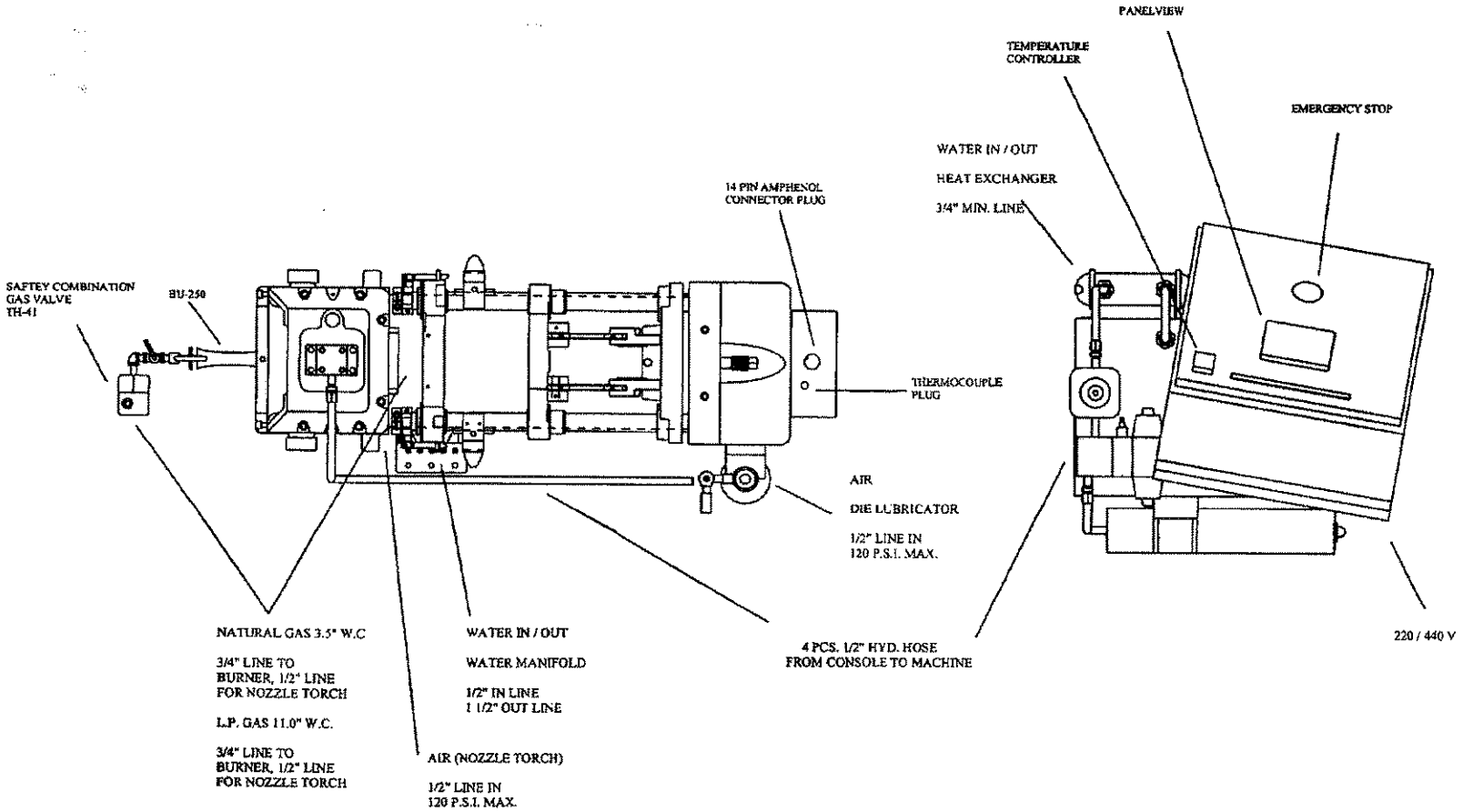
◊Using a punch with a concave taper, hammer the tip into the nozzle.

◊Allow the nozzle to cool.

◊Replace nozzle in to gooseneck.



DM - 250 MINI DIE CAST MACHINE
FOOTPRINT ASSEMBLY DRAWING
DR NO. 250LD



DM - 250 MINI DIE CAST MACHINE
PART #HOOKUP. DRG.
DR.NO. 250HOOKUPS