

KENSOL 46

5 TON AIR-OPERATED ROLL LEAF STAMPING PRESS

A general purpose stamper in the medium pressure range, the versatile 46 was designed to replace the popular Kensol 36T. The main frame, head and table rams, and linkage system were completely redesigned for greater rigidity, durability and ease of maintenance.

The Kensol 46 incorporates many new state of the art features, such as a direct readout, microprocessor based digital control panel with a proportioning heat controller and an electronic pure dwell timer.

FEATURES

- Cast iron, dimensionally stable, "C" frame construction
- Double toggle head drive automatically compensates for thickness variations
- 4" wide rectangular head ram and 3" diameter table ram for additional rigidity
- Accepts items up to 4" high
- Pure dwell. Solid state timer does not start timing until head contacts items being decorated
- Microprocessor based, digital control panel
- Hand lever included to bring head down manually for setup, if desired
- 2 hand switches with simultaneous no tie down feature and head shut safety system for operator protection
- Air filter, pressure regulator and automatic lubricator included
- Multiple feed roll leaf attachments available
- Both head and roll leaf attachment have adjustable speed valves
- Delay valve on roll leaf feed aids stripping action



Kensol Equipment



Foilmark Roll Leaf

KENSOL-OLSENMARK INC.

40 Melville Park Road, Melville, N.Y. 11747 TEL. 516-694-7773 FAX 516-694-6836

Kensol 46T Manual

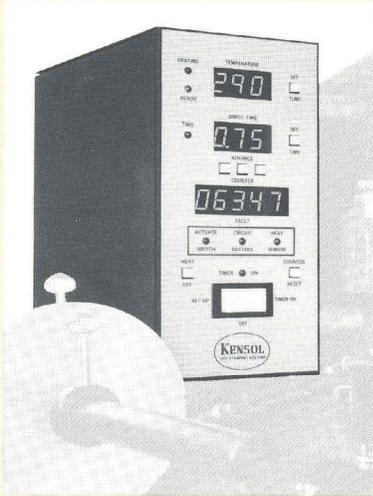
KENSOL 46

5 TON
AIR-OPERATED

ROLL LEAF STAMPING PRESS

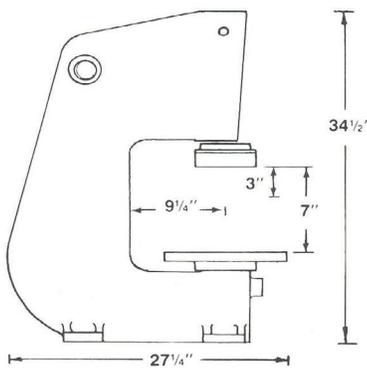
KENSOL DIGITAL CONTROL PANEL

This microprocessor based unit contains a solid state proportioning heat controller, electronic dwell timer with pure dwell feature and a five digit totalizing counter. Each function has a LED readout. The unit features diagnostic indicators for all panel functions, plug in connections for ease of service, and a set up switch that keeps the head in a shut position.



HEAD RAM CONSTRUCTION

In the photograph, the head ram cover plate has been removed to reveal the wide head ram and gib construction. The head ram is driven by a heavy duty, double toggle linkage system with a 3" head stroke for ease of feeding the press. This drive system automatically compensates for thickness variations in items being stamped. The cover plate has access openings for ease of lubrication.



SPECIFICATIONS

IMPRESSION AREA	HEATING SYSTEM
5 x 6 Inches	800 Watts
6 x 8 Inches	1,000 Watts
6 x 12 Inches	1,500 Watts
10 x 15 Inches	2,400 Watts
HEAD STROKE	3 Inches
DEPTH OF THROAT	9 1/4 Inches
MAXIMUM OPENING	7 Inches. Will hot stamp items up to 4 Inches high.
WORK TABLE	1/2" x 12" x 18" on heads up to 6" x 12"
	1" x 18" x 18" on 10" x 15" head
HEAT CONTROL	Digital, solid state proportioning to 600°F

DWELL TIMER	Digital, solid state with pure dwell feature 0-10 sec.
CONTROLS	Two hand, concurrent, no tie down switches with head shut safety system
ELECTRICAL REQUIREMENTS	110 Volts A.C. standard on 5" x 6", 6" x 8" and 6" x 12" heads; 220 Volts A.C. standard on 10" x 15" head
AIR COMPRESSOR REQUIREMENTS	7 1/2 CFM at 80 PSI
DIMENSIONS	28" deep x 19" wide x 34 1/2" high
WEIGHT	690 pounds net
TURNTABLES, AIR SLIDING TABLES AND OTHER FEEDING DEVICES AVAILABLE	



THE COMPLETE HOT STAMPING ORGANIZATION FROM EQUIPMENT TO ROLL LEAF

Kensol 46T Manual

ATTENTION!
KENSOL PRESS OPERATORS
IMPORTANT SAFETY PRECAUTIONS

The head of your KENSOL PRESS is driven by either a hand lever or an air cylinder. In order to perform a roll leaf stamping operation, high pressure must be applied by the stamping die on the work.

If an article is smaller than the heater head of your press, the operator should ALWAYS use a manual slide table to load and unload the item. A simple plastic safety gate can be installed to prevent the operator from accidentally placing the hand in the stamping area. Since KENSOL STAMPING PRESSES can be used to mark and decorate articles of many sizes, shapes and materials, it is impossible for the manufacturer to provide a universal safety gate. The PURCHASER SHOULD FABRICATE HIS OWN DEVICE. However, we will gladly assist with sketches or quote on a specially built safety gate upon receipt of sample parts.

In order to start a cycle on a KENSOL PRESS, it is necessary for the operator to use BOTH HANDS for each operation or cycle - so necessarily neither hand of the operator could at any time come directly beneath the stamping die - ANY OTHER USE OF A KENSOL PRESS whereby a TIE-DOWN ALTERATION is introduced (where the Press is altered so as to require only ONE hand to start a cycle) in order to obtain faster production, is UNAUTHORIZED by the manufacturer and could result in injury to the operator.

Air-operated slide tables and turntables are available to increase production rates.

IMPORTANT! AT NO TIME SHOULD AN OPERATOR PLACE THE HAND
DIRECTLY BENEATH THE STAMPING DIE.

Always bear in mind that you are operating a mechanical device and ANY machine can malfunction for one or several reasons beyond the control of a manufacturer, so if this Press does not appear to function as it normally does - shut it off AT ONCE and call it to the attention of your employer.

When setting up or repairing any KENSOL air-operated machine, the electrical power should be shut-off and the air line completely disconnected.

Kensol 46T Manual

INSTALLATION AND OPERATING INSTRUCTIONS FOR THE STANDARD KENSOL K-46 PRESS

The machine model and serial number are on the nameplate on the side of the press. When ordering parts or seeking information about the press, please supply the machine model, serial number, and the part number of the item needed. Part numbers are the reference and page-code numbers in the parts lists accompanying these instructions.

I. SETTING UP THE PRESS

A. Unpack the press carefully. Wipe off all protective grease. If purchased without a stand, the press should be mounted on a solid workbench. Comfort of the operator, whether sitting or standing, is very important. The machine should be mounted at a height where the operator's forearms are parallel to the floor when his/her hands are on the table of the press.

The air controlling unit (see air system parts photos) should be mounted on the bench or wall close to the machine, and easily accessible to the operator.

The machine must be properly lubricated to assure long service and proper stamping quality.

Types of lubricant required for Kensol air operated presses:

- 1... Olsenmark high temperature lubricant
- 2... SAE 10 oil without detergent or penetrating additives.

The first two steps should be carried out every day before using press.

1. Using an oil can filled with SAE 30 oil, lubricate all points of contact between links and pins. The toggle links have oil holes for this purpose; oil the main pin through the two ports above it in the casting.

Kensol 46T Manual

I. SETTING UP THE PRESS (CONTINUED)

Oil the roll leaf rack, gear, and bearings. The bearings are mounted in the two arms that support the knurled and rubber rollers, and should be oiled through oil holes located in the two arms directly above the knurled roller.

2. Using the long handled brush and Olsenmark lubricant supplied with the press, liberally lubricate the four sides of the ram.

Lubricate the pin that connects the bottom toggle link to the ram by inserting the brush down through the milled out slot in back of the ram.

Be sure to follow steps 1 and 2 everyday.

3. Fill the lubricator of the air controlling unit with S.A.E. #10 NON-DETERGENT oil according to the instructions with the lubricator diagram. Under normal usage, this will have to be filled once a week.

The lubricator oils the internal parts of the air system, and oil with detergents or penetrating additives will attack these parts, causing erratic cycles.

B. Hooking Up Air Connections

The press requires compressed air delivered at a constant pressure of up to 100 P.S.I. The size of the compressor should match the production speed desired.

600	impressions/hr. requires 1.2 C.F.M. of air (1 H.P. Compressor)
1000	impressions/hr. requires 2 C.F.M. of air (1.5 H.P. Compressor)
1500	impressions/hr. requires 3 C.F.M. of air (2 H.P. Compressor)

To deliver air to one press within 30 feet from compressor, use 3/4 inch galvanized pipe. For two or more presses, use 1 inch pipe. It is advisable to install an ordinary shut-off valve in this line for convenience and safety.

The air controlling unit consists of a filter, regulator and lubricator.

The filter removes foreign matter and water from the air, the regulator controls pressure, and the lubricator drops oil into the air flow at regular intervals. The lubricator should deliver about one drop of oil every 20 ' strokes. Operation and service of the controlling unit components are detailed in the diagrams located at the end of these instructions.

Kensol 46T Manual

I. SETTING UP THE PRESS (CONTINUED)

Connect the compressor to the hose connector on the filter. (Hose is supplied for a temporary hook up). Connect the lubricator to the center hose connector on the cylinder valve assembly with neoprene hose.

C. Hooking Up Electricity

Different heads require different line voltages. Make sure the voltage delivered matches the voltage required on the nameplate of the press.

The On-Off set-up switch on the electrical control unit operates the timer only. The dial on the thermostat controls the head temperature. The switch should be in the off position, the thermostat dial set to zero, and the line cord unplugged when setting up the press or when the press is not in use.

II. OPERATION OF PRESS

A. Understanding toggle action - The K-36 uses a toggle linkage to develop the high pressures needed for hot stamping. The nature of toggle action is to develop maximum force when the head reaches its maximum stroke (Full Toggle).

Referring to the toggle diagrams, the top sketch shows the head meeting the work before reaching maximum head stroke. The bottom sketch shows the head meeting the work at maximum head stroke, which exerts maximum pressure. If the table is set so that this occurs, and the work is then taken out and replaced by a part that is thinner than the first one, the head will exert no pressure on the thinner part. (The head cannot extend farther than maximum stroke).

B. Proper Air Pressure - The press should operate between 50 and 30 P.S.I. Operating above 80 P.S.I. will put excessive strain on the press and may cause damage to the air system.

If operated under 45 P.S.I. the press will become sluggish and erratic.

Kensol 46T Manual

II. OPERATION OF PRESS (Continued)

C. Hand Switches - The press is equipped with two hand switches that must be depressed at the same time to start the stamping cycle. The switches must be held down until the head meets the work. This ensures that the operator's hands are out of the stamping area during the cycle.

D. Dwell Timer - The dwell timer regulates how long the head stays on the part. Different dwell times are needed for different types of roll leaf or different applications. The dwell time is changed by simply turning the dial to the proper setting. Proper dwell information should be obtained from the roll leaf manufacturer.

The dwell timer starts when the head tripper switch (see tripper switch diagram) trips the timer micro-switch. The cam should trip the microswitch when the head makes contact with the part.

The set-up mode may be used when making adjustments on the machine. If the hand switches are pressed while the timer is in the set-up mode, the head will come down and stay down until the timer switch is turned off.

E. Thermostat - The thermostat controls the temperature of the stamping head. The head is heated by heater cartridges that are contained in the head. The temperature is set by turning the knob to the desired temperature.

The thermostat maintains the temperature by turning on the heaters until the head reaches the set temperature. When the heaters are on, the red "HEATING" light glows. When the head is up to temperature, the green "READY" light glows.

Heat and dwell time are used together to achieve the desired results. Different roll leaves require different temperatures for proper release. In general, shorter dwell times require higher head temperatures. The roll leaf manufacturer will be able to tell you the proper temperature for your roll leaf.

*MANUAL PRESS- Pilot light glows when heater is on; goes out when head is up to temperature.

Kensol 46T Manual

II. OPERATION OF PRESS (Continued)

F. Downstroke Speed Valve - The downstroke speed valve controls the speed of the head as it comes down to meet the work. There are two petcock valves that feed into the exhaust muffler. The top" valve is the downstroke speed valve. To slow the head's downstroke, turn the valve clockwise. This adjustment is useful for prolonging the life of soft metal type or dies, or to prevent cracking brittle work. When changing downstroke speed, the pressure of the head on the part does not change.

G. The Head Check Feature - The head check feature prevents the head from slamming into the frame on the upstroke.

Compressed air is released through the valve assembly on the upstroke. At a certain point the air flow is reduced, and bled out of the cylinder very slowly. This slows the upstroke before the head reaches the upper frame.

The head check adjustment is a screw and locknut on the side of the cylinder's bottom plate. If the head is Slamming into the frame, loosen the locknut, and turn the screw in until the upstroke is smooth.

H. Roll Leaf Delay Valve - If the press is equipped with an air operated roll leaf mechanism, there is a petcock roll leaf delay valve attached to the second four-way valve on the air cylinder. The second four-way valve is mounted on a long bracket that is bolted to the top plate of the air cylinder.

When the stamping cycle is complete, and the head moves off the work, the roll leaf cylinder will advance the roll leaf. If the advance occurs before the head is clear of the work the leaf may tear. The roll leaf delay valve delays the advance of the roll leaf until the head clears the work.

To adjust the delay, turn the petcock valve to the right until it stops. This is the longest delay possible. During operation, slowly turn the valve to the left until the leaf pulls just after clearing the work.

Kensol 46T Manual

III. SETTING UP A JOB ON PRESS

IMPORTANT: Make sure that all safety precautions have been followed and press has been properly lubricated before proceeding.

Disconnect the air supply from the press, and insert the supplied handle in the arm casting.

A. Locking Up Type or Dies - A four wall chase, hot plate chase, or pallet can be purchased which slides into the head and is held tightly by a nut on the head lock. The pallet can hold several lines of type, type high dies, or linotype and ludlow slugs. The hot plate chase is used for larger type set-ups or dies. Larger dies are usually engraved on 1/4 inch or thinner metal and attached to the chase with screws, glue, or die bonding film which can be purchased from us.

To attach the die in place with die bonding film, slide the chase into the dovetail rails and tighten the locking nut on the head. Turn the thermostat to 3500, and make sure that the timer switch is off.

Center the die under the head, face down, and place a piece of die bonding film, cut to size, on the back of the die. Bring the head down with the handle, and apply full pressure for 15-20 seconds. Raise the head and turn the thermostat off. The die should be firmly held in place.

To glue the die in place, LePage's strength glue or fish glue is used. Lock the chase into the head, turn the thermostat up to 2500, and let it heat up to temperature.

Spread a thin layer of glue over the back of the die and place a piece of newspaper, cut to size, over that. Spread another layer of glue over the newspaper and center the die under the head. Bring the head down and apply full pressure for 1-2 minutes. The glue will dry, holding the die in place.

Kensol 46T Manual

III. SETTING UP A JOB ON PRESS

B. Making the Job Ready - During stamping, work should never be placed directly on the steel table unless it has a lot of give (example: cardboard) or is very thick (example: a block of wood).

"Makeready" board should be placed on the table and held down with masking tape or work stops which may be ordered from us. Makeready can be cardboard or anything that is yielding.

Guides must be used to assure stamping in the proper position on the work. This can be done with strips of cardboard or by cutting the shape of the work out of a sheet of cardboard and,gluing the strips or cutout nest to the makeready with the opening in the proper place.

If, during production, there are sections of the mark that are too light those areas can be built up on the makeready board with tape until the mark is satisfactory.

Irregular plastic pieces, shaped wood, and other "hollow" work should be supported by a fixture to prevent crushing. We can supply custom fixtures to order upon receipt of sample parts.

C. Roll Leaf - Different types of roll leaf are made for stamping different materials. It is important to use the proper roll leaf.

It is recommended that the roll leaf be 1/2 inch wider than the type or die. Remove the outer disc and collar assembly from the roll leaf spindle and place the roll on the shaft, dull coated side down when pulled over the work. Put the disc and collar back on the shaft, apply light pressure to the spring, and lock collar in place with the thumbscrew.

Bring the leaf under the stripper bars, over the knurled roller, and down between the knurled and rubber rollers. The knurled and rubber rollers may be spread by means of two levers at the ends of the rubber roller. Wrap the end of the leaf around the rewind roller.

Kensol 46T Manual

III. SETTING UP A JOB ON PRESS (Continued)

C. Roll Leaf - (Continued)

Loosen the thumbscrews on the disc collars and adjust the roll leaf under the die. Tighten the screws making sure there is enough tension on the roll to keep the leaf taut. If the roll leaf is not tight enough, it will sag, and if it is too tight, it will tear.

Stripper bars pull the roll leaf off the die after the stamp has been made. The stripper bars should keep the roll leaf 1/4 of an inch away from the die and are held in the draw arms with adjusting nuts. To adjust the height of the stripper bars, loosen the top nut on the post, and turn the bottom nut clockwise to raise the bar; counter clockwise to lower the bar. Retighten the top nut. It is very important that the stripper bars be kept parallel to the table. If they are not parallel and even, the roll leaf will tend to crawl from one side to the other. The small guides attached to the stripper bars are used to keep very narrow leaf from shifting. The set screws in the guides permit these to be moved.

Roll leaf spacing mechanism. The spacing mechanism is used to vary the amount of roll leaf pulled on each stroke.

If the press has a mechanical roll leaf pull, there is a slide clamp located on the end of the advancing rack. This slide clamp varies the amount of leaf pulled as it is moved on its slide arm. The clamp is moved by loosening its set screw, moving it on the arm, and re-tightening the screw. The leaf should be pulled 1/16th of an inch more than the length of the die. Bring the head down with the handle and back up again. If the roll leaf advances too much, slide the clamp down on the arm. If it doesn't advance enough, slide the clamp up. This may have to be periodically readjusted.

If the press has an air operated roll leaf pull, the knurled roller is driven by an air operated rack. The length of leaf pull is governed by the position of a stop block on the shaft of the cylinder mount assembly. The stop block is next to a scale marked in inches. To set the amount of roll leaf pulled, loosen the set screw in the stop block and move it along the scale until it covers the desired number of inches; then tighten the set

Kensol 46T Manual

III. SETTING UP A JOB ON PRESS (Continued)

D. Setting the table height. The air supply should still be disconnected, the timer switch off, and the thermostat set to zero.

If the articles to be stamped are all of the same thickness, the press can be operated at full head stroke and get maximum pressure. If the articles being stamped vary in thickness, (molded plastics, leather, etc.) the press will have to be operated so that the thinner pieces are not lower than the lowest head position.

Lower the table as much as possible with the table elevating nut. Bring the head down with the handle until it is at its maximum head stroke. Leave it in this position, and place the article on the table in the proper stamping position.

Raise the table until the work just touches the die, and bring the head back up.

If the articles to be stamped DO NOT vary in thickness, raise the table slightly to get the desired depth of stamping, and lock the table in place with the locking handle.

If the articles to be stamped DO vary in thickness, the table must be raised enough to reach the thinnest possible part and still give the proper depth of stamp.

E. Adjusting the tripper cam. The microswitch tripper post is located on the top of the head. The cam on the post trips the microswitch which signals the dwell timer.

Place the work on the table in the proper position for stamping. Bring the head down until the die touches the work. At this head position, the cam should trip the microswitch. If it does not, loosen the set screw in the cam, move the cam to a position where it does trip the switch, and retighten the set screw. This adjustment must be made whenever changing die or table height.

Kensol 46T Manual

IV. GETTING INTO PRODUCTION

The press should be mounted and lubricated properly and the safety gate, if needed, installed and functioning. The work area should be well lit, and the operator should be comfortable.

Connect the air supply to the press and set the proper temperature and dwell time. The timer switch should be in the on position. Remove the handle from the casting, and set the pressure with the regulator valve to 60 P.S.I. (pressure is shown on the gauge).

Put the work on the table and slide it under the head into stamping position. Operate the hand switches, remove the part, and inspect the impression. If it is too light in certain areas of the impression, build up those areas on the makeready with tape.

If the impression is grainy, as when the transfer is not complete, then the die is not hot enough, or the dwell time is too short.

If the lettering or detail has run together, the die is too hot, or the dwell time is too long.

If the impression is not deep enough, the pressure must be increased. If operating at maximum head stroke, the only way to increase the pressure is at the regulator on the air controlling unit. DO NOT exceed 100 P.S.I.

If operating the press at less than maximum head stroke, the pressure can be increased by lowering the table.

If the table can't be lowered and still compensate for variations in the size of the work, increase the air pressure at the regulator.

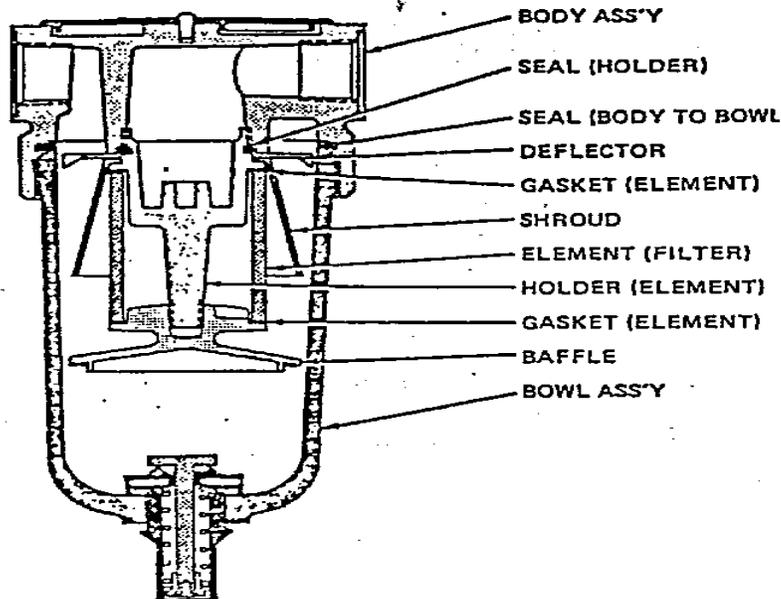
If the impression is too deep, the pressure must be dropped either by adjusting the table or using the valve on the pressure regulator.

If necessary, adjust the roll leaf delay valve as discussed previously.

Check each adjustment by running a cycle and inspecting each impression. When the impression is satisfactory, and the press is operating properly, begin regular production.

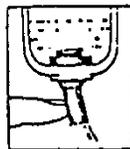
Kensol 46T Manual

FILTER (AIR CONTROLLING UNIT)



OPERATION & SERVICE

1. Both free moisture and solids are removed automatically by the filter. There are no moving parts.
2. Manual drain filters must be drained regularly before the separated moisture and oil reaches the bottom of the lower baffle. Automatic drain models will collect and dump liquids automatically.



Push 'N' Drain

3. The filter element should be removed and replaced when the pressure differential across the filter unit is excessive.
4. To service the filter element; SHUT OFF AIR SUPPLY and depressurize the unit.
 - a. Unscrew threaded bowl.
 - b. Unscrew lower baffle and remove filter element and gaskets (2).
 - c. Clean all internal parts bowl and element before reassembling.

Kensol 46T Manual

FILTER (AIR CONTROLLING UNIT)

OPERATION & SERVICE (CONTINUED)

TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc., which are damaging to this plastic.

Bowl guards are recommended for use with polycarbonate bowls.

d. Install element-and gaskets (2).

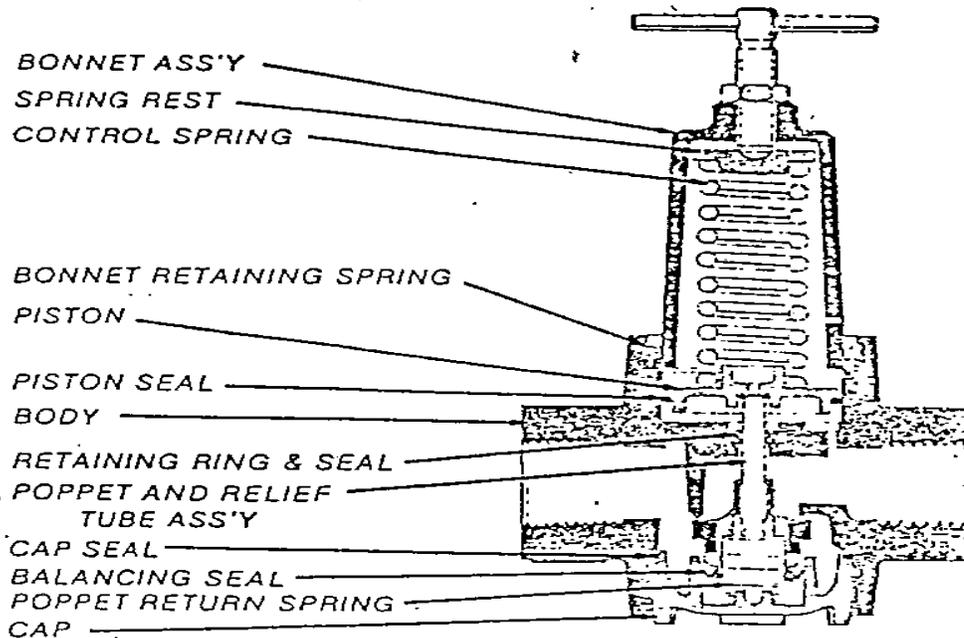
e. Attach lower baffle and tighten firmly.

f. Replace bowl seal, lubricate seal to assist in retaining it in position. Use only mineral base oils or grease, DO NOT use synthetic oils such as esters, and DO NOT use silicones.

g. Screw bowl into body.

Kensol 46T Manual

(AIR CONTROLLING UNIT)



OPERATION:

1. BEFORE TURNING ON AIR SUPPLY, TURN ADJUSTING HANDLE COUNTER-CLOCKWISE UNTIL COMPRESSION RELEASED FROM PRESSURE CONTROL SPRING. Then turn on air supply and adjust to desired secondary pressure by turning adjusting handle clockwise. This permits pressure to build up slowly, preventing any unexpected operation of the valve, cylinders, tools, etc., in the line.

Adjustment to desired secondary pressure can be made only with primary pressure applied to the REGULATOR.

2. To lower secondary setting, always reset from a pressure lower than the final setting desired. For example: To lower the secondary pressure from 80 PSIG, drop the secondary pressure to 50 PSI or less, then adjust upward to 60 PSI.

SERVICING:

NOTE: SHUT OFF AIR SUPPLY AND DE-PRESSURIZE THE UNIT. COMPLETELY VENT THE SUPPLY LINE ALSO.

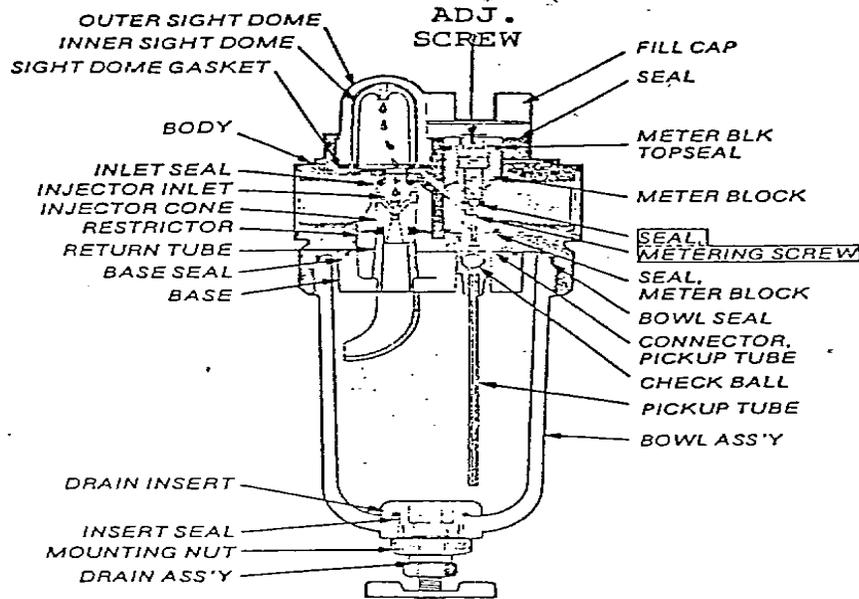
1. To service the piston or control springs, turn the adjusting handle counter-clockwise until compression is released from pressure control spring.

a. Remove bonnet by unscrewing bonnet from body and removing the control spring, piston, and piston seal.

Kensol 46T Manual

LUBRICATOR

(AIR CONTROLLING UNIT)



OPERATION AND SERVICE

1. FILLING - Inlet pressure must be eliminated before fill cap is removed. Fill to fill line on the bowl with oil of 100 to 200 SSU viscosity at 100° F and an aniline point greater than 200° F - same as SAE No. 10 (petroleum base hydraulic oils or spindle oils are good examples.) DO NOT USE OILS WITH ADHESIVES OR TACKY ADDITIVES. COMPOUNDED OILS - CONTAINING SOLVENTS, GRAPHITE, SOAPS, OR DETERGENTS (automotive oils generally contain detergents) ARE NOT RECOMMENDED.
2. Replace the fill plug and seat firmly - excessive torque is not necessary. The lubricator is now ready for setting. Repressurize the Lubricator.

Kensol 46T Manual

LUBRICATOR (AIR CONTROLLING UNIT)

OPERATION AND SERVICE (CONTINUED)

3. OIL DELIVERY ADJUSTMENT - To adjust oil delivery, use a slotted screwdriver to turn the adjusting screw in the top of the lubricator.

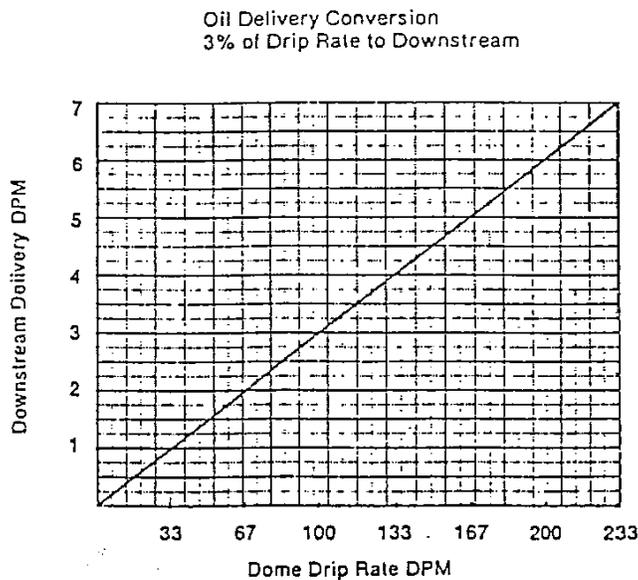
Leaner Clockwise
Richer - Counter-Clockwise

By counting the number of drops per minute in the sight dome, you can adjust your requirements. Approximately 3% of the drops seen in sight dome go downstream; adjust drip rate accordingly. Consult oil delivery conversion chart.

25 drops per minute equals one ounce per hour - Volume of oil passing through sight dome.

NOTE: This is a constant density type lubricator which delivers a constant ratio of oil to air flow. Therefore, if air flow increases or decreases, oil delivery will be adjusted proportionately. ONLY IF A DIFFERENT RATIO IS DESIRED SHOULD YOUR NEEDLE VALVE SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

Oil Delivery Conversion
3% of Drip Rate to Downstream



Kensol 46T Manual

GENERAL TROUBLE SHOOTING PROCEDURES FOR KENSOL K-46

The Kensol Press was carefully manufactured with high quality materials and components. However, over the long life of this equipment something may go out of order. If a problem arises, the solution should be found in these instructions.

Experience shows the primary cause of equipment failure to be poor maintenance. Equipment should be properly lubricated as explained in "Installation and Operating Instructions".

In general, equipment failure can be broken down into two-categories:

1. Mechanical failure.
2. Air or electrical component failure.

To determine cause of failure heat the head to 3000, disconnect the air supply, and insert the handle into the casting. On a press with mechanical pull roll leaf, set it for maximum pull.

Operate the press manually. If the press still binds, the problem is mechanical failure.

If the machine operates freely by hand, the problem is in the air or electrical system.

MECHANICAL FAILURE

Mechanical failure may occur in:

- Mechanical Pull Roll Leaf
- Links
- Ram

1. If the press is equipped with a mechanical pull roll leaf attachment, disconnect it by moving the leaf pull adjusting block to the bottom of the slide. If the press now operates properly by hand, the problem lies in the roll leaf pull. Press the levers located at either end of the rubber roller towards the head, separating the two rollers.

Kensol 46T Manual

MECHANICAL FAILURE (CONTINUED)

If the rubber roller does not spin freely its bearings are binding. If the rubber roller does spin freely the bind is in the knurled roller bearings. Lubricate the bearings.

2. Links and Pins

Disconnect air. Remove the center pin (the pin joining five links) which allows all links to be moved by hand making it easier to locate a bind.

Once it is determined which area binds, the link should be removed from the pin by taking the ring clips off the ends of the pin and tapping the pin out through the side. Some pins are slip fit and are easily removed; others are press fit and should be driven out with a drift punch. Check for set screws in the top pin before attempting to remove it.

If a pin or link is scored it should be replaced. If not scored, the pins and links should be cleaned, greased liberally and reassembled.

3. Ram

If the press still binds after checking the mechanical roll leaf, links and pins as a source of trouble, then the ram is binding.

If the roll leaf pull is mechanical, make certain it is disconnected when adjusting the ram fit to allow better judgment of the fit.

The fit should be free, but not sloppy. If sloppy, the head may twist and jam the roll leaf assembly or blur the impression.

To adjust the ram fit, there are four (4) set screws inside of four (4) locknuts on the ram cap. The ram cap is located right above the head, and faces the operator when he is standing in front of the machine. This adjustment involves working the handle up and down while changing the position of the set screws in the casting. Loosen one set screw at a time, and retighten it before going on to the next. The head temperature should still be 300 degrees.

Kensol 46T Manual

MECHANICAL FAILURE (CONTINUED)

3. RAM - (CONTINUED) Start with the lower right hand set screw. Slightly loosen the locknut and turn the set screw nut while working the handle up and down. If this doesn't lessen the bind, repeat the procedure on each set screw in turn. In some cases it may be necessary to loosen and reset a combination of two set screws. Make sure all the locknuts are tightened after adjusting a set screw.

LOCATING AN AIR OR ELECTRIC FAILURE

If it is determined after converting the press to hand operation that there is no mechanical failure, then the problem must be located in one of these components: hand switches, dwell timer, air cylinder, 4 way valve, pilot valve, or air controlling unit. If the problem is obviously electrical, check the fuse in the back of the electrical control box first.

HAND SWITCHES - Each hand switch housing contains a microswitch that is activated by a hand switch plate. The machine will not operate unless both switches are depressed at the same time. The hand switches are checked one at a time with an ohmmeter. The timer must be off during this test.

When the hand switch is operated, there should be no resistance across the terminals of the microswitch. The terminals of the microswitch are accessible through the bottom of the hand switch housing, and are protected by a plastic cover. To remove this cover, loosen the two brass screws on the side of the housing, and gently pull the cover down through the bottom of the hand switch. The terminals on the microswitch may now be reached by the ohmmeter probes.

Kensol 46T Manual

LOCATING AN AIR OR ELECTRIC FAILURE (CONTINUED)

MAIN CONTROL UNIT - If the hand switches are found to be working properly, and the cycle light on the electrical control unit does not glow during the stamping cycle, the timer is faulty.

The timer and thermostat are separate modules housed in one unit, and are each composed of circuit boards which may be removed and replaced.

To remove one of the circuit boards, first remove the knob by loosening the two set screws in the knob with an alien key. Slide the knob off, and remove the locknut immediately behind it. The faceplate now will slide off. Behind the faceplate there are two screws holding the front piece and circuit board in place. Remove these screws, and slide out the circuit board.

To install new module, reverse the procedure outlined for its removal. After the module is installed, rotate shaft counter-clockwise to stop. Set knob pointer to lowest setting and tighten set screws.

AIR-CYLINDER, PILOT VALVE, 4-WAY VALVE - These components are considered as one complete assembly in trouble-shooting. If the ram action of the press is erratic and the mechanical sections of the press and the dwell-timer have been eliminated as the cause of failure, the air assembly must be faulty. The complete assembly is either returned to us for repair or disassembled and examined for:

1. Broken electrical connection in pilot valve.
2. Broken return spring in the four-way valve.
3. Bind of the spindle in the four-way valve. This is usually caused by "O" ring expansion due to the use of oil containing additives.
4. Bypass of air around 4-way valve spindle or cylinder cups. Caused by the use of oil with additives (in automatic lubricator).

Kensol 46T Manual

LOCATING AN AIR OR ELECTRIC FAILURE (CONTINUED)

5. Corrosion due to excessive water getting into the press.
6. Scoring of the walls of the cylinder.

AIR CONTROLLING UNIT- The air controlling unit consists of an air filter, regulator, and lubricator. Any failure of these parts is usually apparent. The air filter is designed to remove water from the air line. If excessive water is building up so that this has to be drained a few times each day, it is advisable to have an after cooler installed on the compressor. Repair kits for these components are available through Kensol if you find that they are not functioning properly.

SYMPTOM

POSSIBLE CAUSE

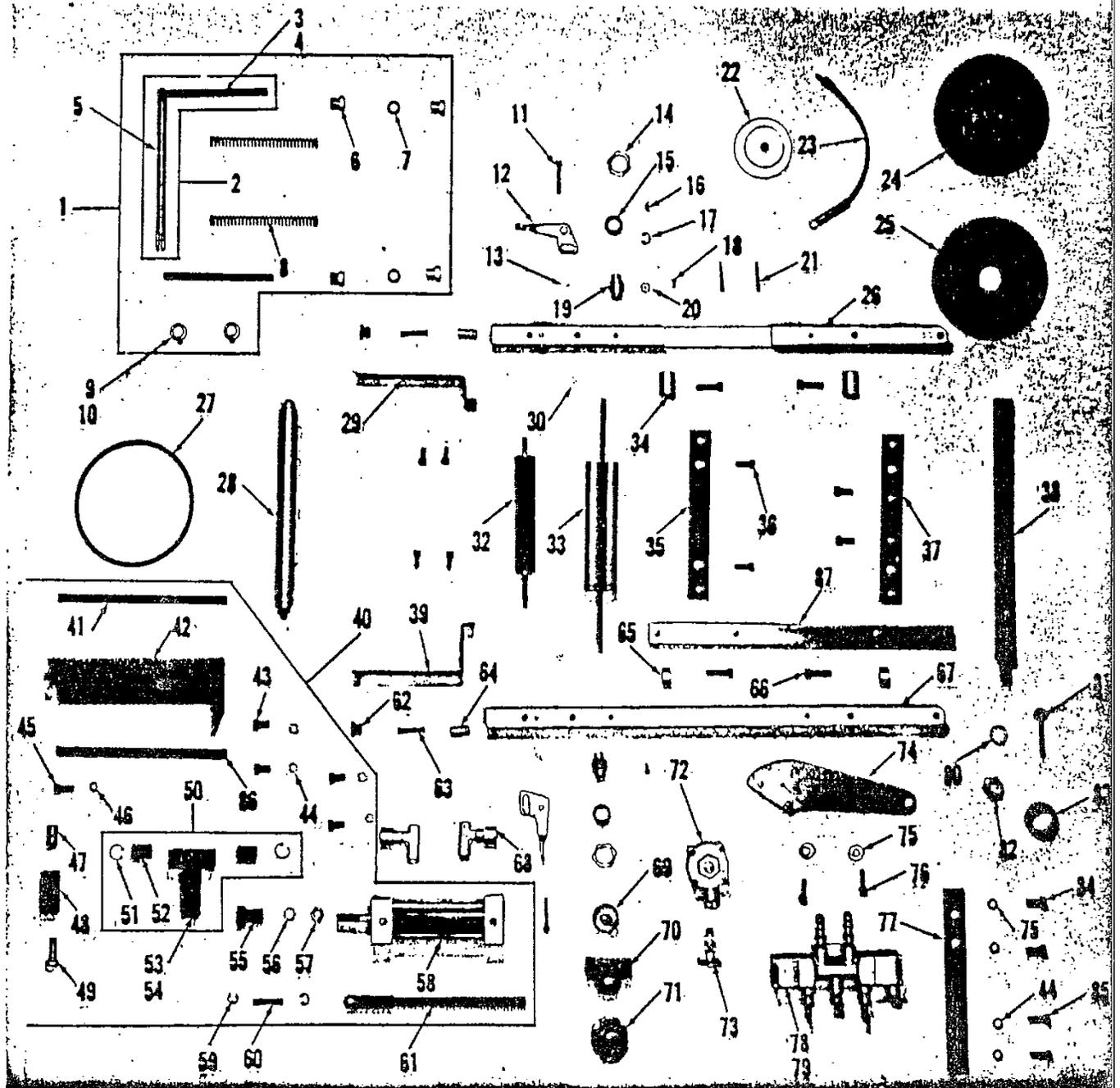
- | | |
|---|--|
| 1. Press will not heat up at all. | a. Blown fuses in the electrical supply.
b. Defective heater or heaters
c. Loose or broken wire
d. Defective thermostat
e. Broken thermocouple wire |
| 2. Press will not heat up to operating temperature. | a. Defective heater or heaters
b. One fuse blown on 220 line
c. Defective thermostat |
| 3. Press overheats (heating light on thermostat stays on) | a. Defective thermostat |
| 4. Head will not come down | a. Linkage frozen, ram frozen
b. 4-way valve or main cylinder jammed due to lack of lubrication (air machine only)
c. No air from supply or not enough pressure
d. No output from timer |

Kensol 46T Manual

LOCATING AN AIR OR ELECTRIC FAILURE (CONTINUED)

<u>SYMPTOM</u>	<u>POSSIBLE CAUSE</u>
11. Erratic leaf pull	a. Rubber roller worn b. Knurled roller slipping on its shaft c. Defective clutch d. Roll leaf tension disc too tight e. Bushings for knurled or rubber roller worn
Mechanically operated roll leaf attachment	
Air-Operated roll leaf attachment	a. Check a, b, c, d, and e above b. Air pull cylinder not returning all the way c. Air pull cylinder moving too fast-adjust speed values d. Air pull 4-way valve defective. Delay valve packings defective
12. Leaf runs off to one side when pulling	a. Stripper bars are not parallel to head b. Rollers are badly worn c. Knurled or rubber roller bearings worn
13. Air leaking out of top of main cylinder	a. Worn top packing in cylinder
14. Oil leaking out of mufflers	a. Incorrect adjustment of automatic lubricator

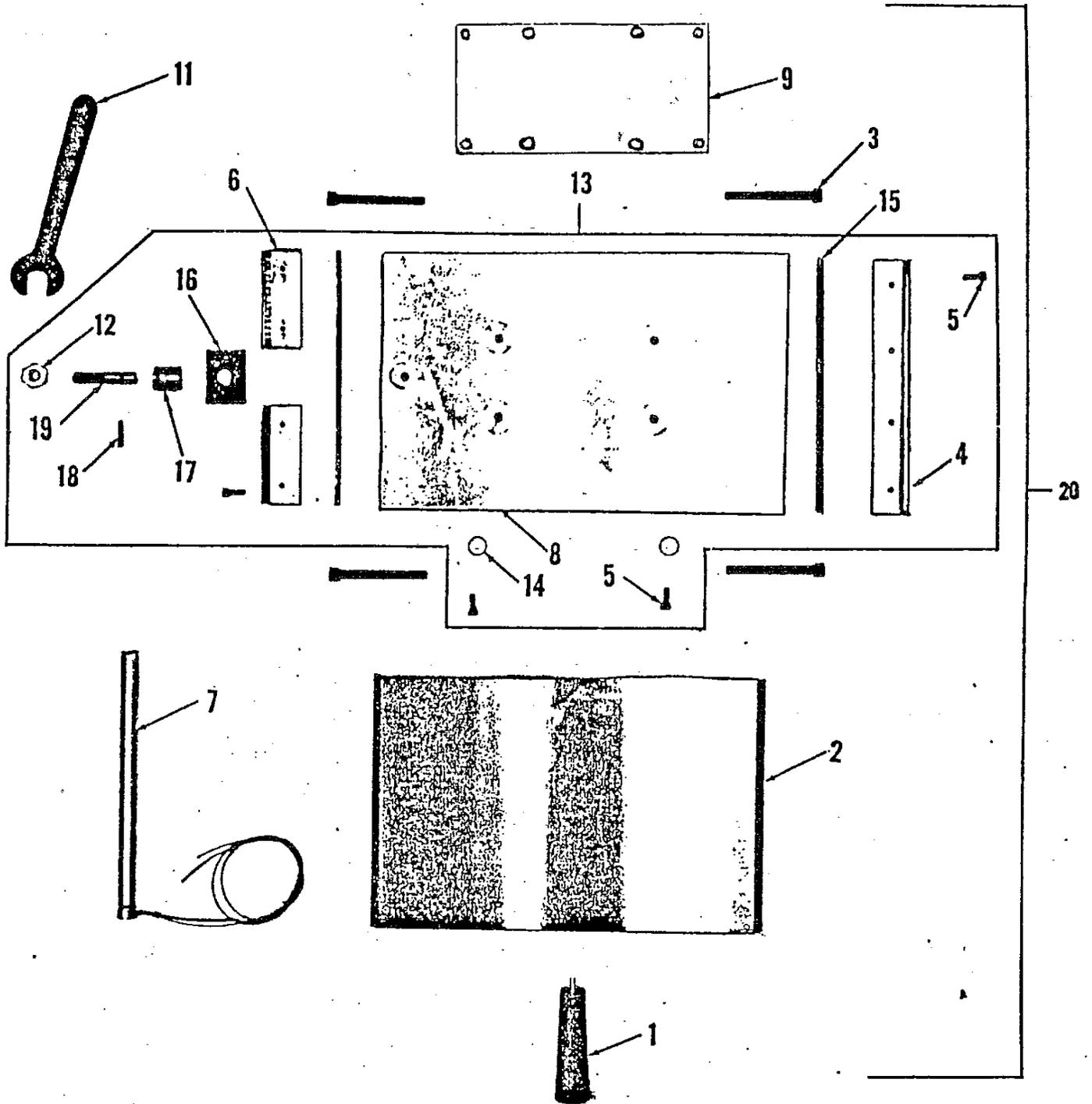
Kensol 46T Manual



Kensol 46T Manual

REFERENCE	PART NO.	DESCRIPTION	QUANTITY	REFERENCE	PART NO.	DESCRIPTION	
11-1	144 14	STRIPPER BAR ASSY.COMP. 9 X 12	1	11-47	144 14	STRIPPER BAR ASSY.COMP. 9 X 12	1
11-2	144 18	STRIPPER BAR & POST ASSY.9 X 12	2	11-48	144 18	STRIPPER BAR & POST ASSY.9 X 12	2
11-3	150 26	BAR, ADJ., STRIP	4	11-49	150 26	BAR, ADJ., STRIP	4
11-4	240 04	PIN, ROLL	4	11-50	240 04	PIN, ROLL	4
11-5	149 06	BAR, STRIP., 12, GA,FA,PA, 2A, K.	2	11-51	149 06	BAR, STRIP., 12, GA,FA,PA, 2A, K.	2
11-6	145 10	NUT, ADJUSTING, STRIPPING	8	11-52	145 10	NUT, ADJUSTING, STRIPPING	8
11-7	157A21	WASHER, SPRING	4	11-53	157A21	WASHER, SPRING	4
11-8	146 09	SPRING, STRIPPER, 3"	4	11-54	146 09	SPRING, STRIPPER, 3"	4
11-9	145 06	COLLAR, ROLL LEAF GUIDE	4	11-55	145 06	COLLAR, ROLL LEAF GUIDE	4
11-10	230 08	SCREW, MACH., ALL TYPES	4	11-56	230 08	SCREW, MACH., ALL TYPES	4
11-11	230 24	SCREW, MACH., ALL TYPES	2	11-57	230 24	SCREW, MACH., ALL TYPES	2
11-12	144 04	CAM, PAPER FEED	2	11-58A	144 04	CAM, PAPER FEED	2
11-13	144 02	BUSHING, FLANGE,CAM,STD.	2	11-58B	144 02	BUSHING, FLANGE,CAM,STD.	2
11-14	145 15	NUT, LOCK	2	11-58C	145 15	NUT, LOCK	2
11-15	144 01	BEARING, RETAINER	2	11-58D	144 01	BEARING, RETAINER	2
11-16	239 11	KEY, WOODRUFF	1	11-59	239 11	KEY, WOODRUFF	1
11-17	195 01	RING, "E", RUBBER ROLLER	2	11-60	195 01	RING, "E", RUBBER ROLLER	2
11-18	239 22	PIN, ROLL	2	11-61	239 22	PIN, ROLL	2
11-19	157A22	BEARING, (ALT.FB-575)	2	11-62	157A22	BEARING, (ALT.FB-575)	2
11-20	233 03	WASHERS, ALL TYPES	2	11-63	233 03	WASHERS, ALL TYPES	2
11-21	124 10	PIN, FRICTION BELT	2	11-64	124 10	PIN, FRICTION BELT	2
11-22	142 21	PULLEY, REWIND (STD)	1	11-65	142 21	PULLEY, REWIND (STD)	1
11-23	150 15	DELT ASSY., FRICTION	1	11-66	150 15	DELT ASSY., FRICTION	1
11-24	145 05	DISC & COLLAR ASSY., 1000 FT.	1	11-67	145 05	DISC & COLLAR ASSY., 1000 FT.	1
11-25	150 19	DISC, 1000 FT., STD.	1	11-68	150 19	DISC, 1000 FT., STD.	2
11-26	133 02	ARM, DRAW, REAR,24"	1	11-69	133 02	ARM, DRAW, REAR,24"	1
11-27	143 21	RING,"D", STD.REWIND(BUNA),15"	1	11-70	143 21	RING,"D", STD.REWIND(BUNA),15"	1
11-28	138 15	BAR ASSY., REWIND, 9X12 R	1	11-71	138 15	BAR ASSY., REWIND, 9X12 R	1
11-29	143 15	BRACKET, REWIND, RM	1	11-72	143 15	BRACKET, REWIND, RM	1
11-30	238 13	NUT, ALL TYPES	1	11-73	238 13	NUT, ALL TYPES	1
11-32	151 03	ROLLER ASSY., RUBBER, R/LR	1	11-74	151 03	ROLLER ASSY., RUBBER, R/LR	1
11-33	155 07	ROLLER ASSY, KNURLED R/LR	1	11-75	155 07	ROLLER ASSY, KNURLED R/LR	4
11-34	133 09	SPACER, 10X15, 12X18HD,RR	2	11-76	133 09	SPACER, 10X15, 12X18HD,RR	2
11-35	132 04	BAR, TIE 12 RA	1	11-77	132 04	BAR, TIE 12 RA	1
11-36	231 21	SCREW, MACH., ALL TYPES	4	11-78A	231 21	SCREW, MACH., ALL TYPES	1
11-37	132 05	BAR, TIE 12 RA	1	11-78B	132 05	BAR, TIE 12 RA	1
11-38	148 05	BAR, ROLL LEAF, R, 12-7/8	1	11-79	148 05	BAR, ROLL LEAF, R, 12-7/8	1
11-39	143 14	BRACKET, REWIND, UNIVERSAL	1	11-80	143 14	BRACKET, REWIND, UNIVERSAL	1
11-40	122 25	AIR PULL ASSY., 9X12R LR	1	11-81	122 25	AIR PULL ASSY., 9X12R LR	1
11-41	124 11	SCALE, 20 TOOTH GEAR	1	11-82	124 11	SCALE, 20 TOOTH GEAR	1
11-42A	129 12	MOUNT ASSY., CYL.	1	11-83	129 12	MOUNT ASSY., CYL.	1
11-42B	125A05	SHIELD ASSY., CYL., FLAT, FA/RA	1	11-84	125A05	SHIELD ASSY., CYL., FLAT, FA/RA	1
11-43	231 16	SCREW, MACH., ALL TYPES	4	11-85	231 16	SCREW, MACH., ALL TYPES	1
11-44	238 04	WASHERS, ALL TYPES	4	11-86	238 04	WASHERS, ALL TYPES	1
11-45	230 17	SCREW, MACH., ALL TYPES	1	11-87	230 17	SCREW, MACH., ALL TYPES	1

Kensol 46T Manual



Kensol 46T Manual

R 9X12 FRONT LOAD HEAD ASSY.

REFERENCE	PG-CODE	DESCRIPTION	QUAN ASSY	
310-	1	42 07	HANDLE, 5/16-18 STUD	1
310-	2	36 12	SLIDE, 9 x 12R HEAD	1
310-	3A	233 10	SCREW, MACH., ALL TYPES	4
310-	38	232 11	SCREW, MACH., ALL TYPES	4
31D-	4	86 24	RAIL	1
310-	5	231 04	SCREW, MACH., ALL TYPES	11
310-	6	86 23	RAIL	2
310-	7A	57 01	HEATER, 3/4X9 1/2,R 120/700	3
310-	78	57 02	HEATER, 3/4X9 1/2,R 240/700	3
310-	8A	86 20	HEAD, 1-1/2" x 9" x 12", K-36,50, 60	1
310-	88	86 21	HEAD, 9 x 12R, K65 & 165	1
310-	8C	86 22	HEAD,9 x 12R, K-25 & 27	1
310-	9A	83 09	TRANSITE, K36, KA, 1/4 x 5 x 10	1
310-	98	83 25	TRANSITE,INSUL.K165, 5/8 x 6 x 14	1
310-	11	93 25	WRENCH, HEAD LOCK, 7/13	1
310-	12	92 26	NUT, BRASS HEX (FULL)	1
310-	13A	86 17	HEAD ASSY.	1
310-	138	86 18	HEAD ASSY.	1
310-	13c	86 19	HEAD ASSY.	1
310-	14	93 03	WASHER, STOP, STD.	2
310-	15	93 11	KEY, BACK 9 x 12R	2
310-	16	93 01	RAIL, LOCKING SLIDE	1
310-	17	93 23	HOUSING, STUD	1
310-	18	240 15	PIN, ROLL	1
310-	19	93 24	STUD, LOCKING	1
3,10-	20A	86 14	HEAD ASSY, COMP.K36 KA/115	1
310-	208	86 15	HEAD ASSY, COMP.K65 165,115	1
310-	20C	86 16	HEAD ASSY, COMP.K25 27/115	1
310-	209	86A07	HEAD ASSY, COMP.K36 KA/220	1
310-	20E	86A08	HEAD ASSY, COMP.K65 165/220	1
310-	20F	86A09	HEAD ASSY, COMP.K25 27/220	1

Kensol 46T Manual

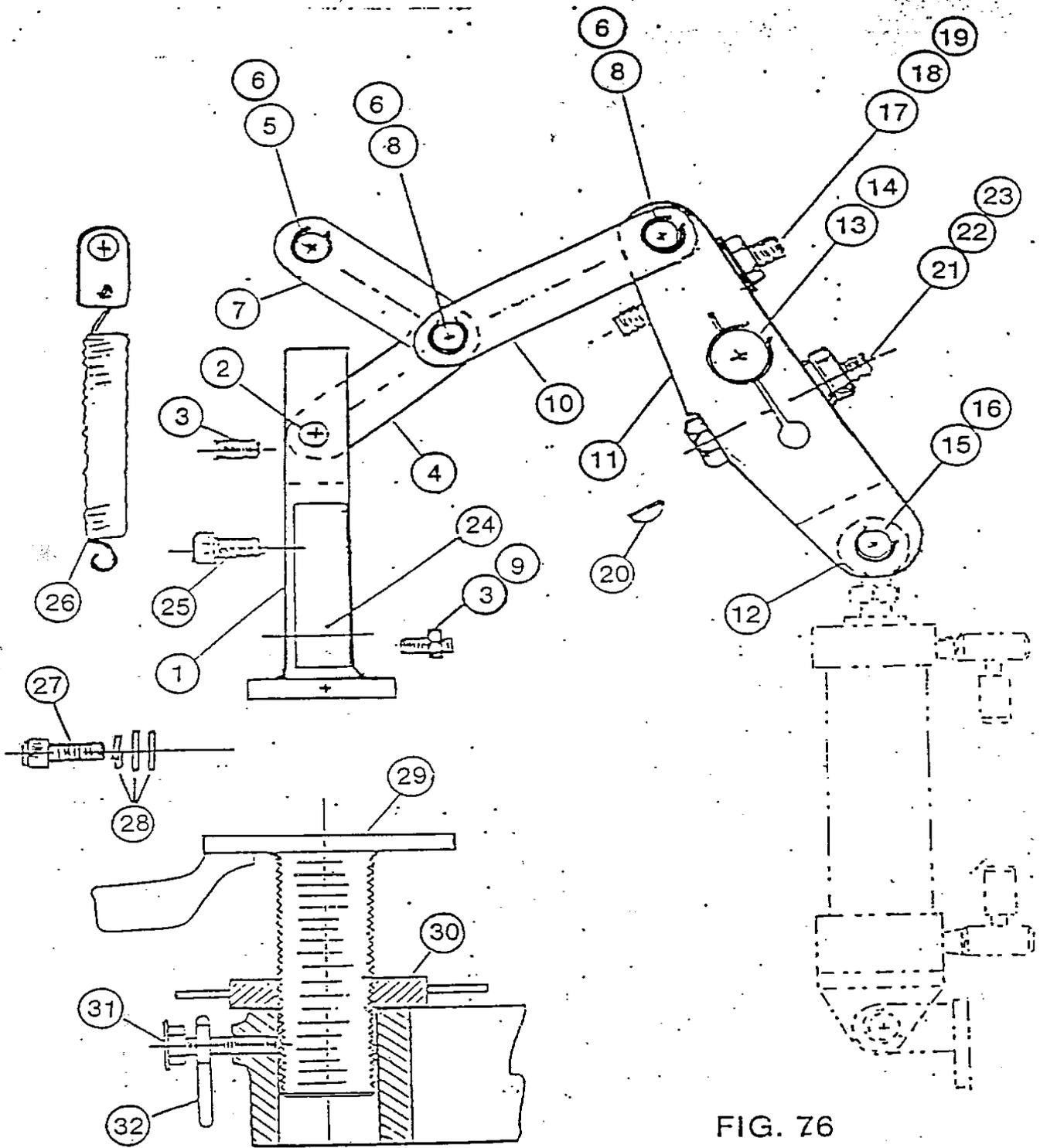


FIG. 76

Kensol 46T Manual

K 46
MECHANICAL COMPONENTS
FIGURE 76

REFERENCE	PART NO.	DESCRIPTION	QUANTITY
76- 1	107A16	RAM ASSY., HEAD	1
76- 2	107A17	PIN, RAM	1
76- 3	233 03	SCREW, MACH.	4
76- 4	100/102	LINK ASSY., RAM, 61/2" CAL	1
76- 5	102 25	PIN, HEAD, 101/4" CAL	1
76- 6	195 05	RING, EXTERNAL	6
76- 7	100 23	LINK ASSY., SHORT, 6" CAL	2
76- 8	102 07	PIN, TOGGLE, 3" CAL	2
76- 9	238 18	NUT	2
76-10	100A01	LINK ASSY.; LONG, 10 1/4"	2
76-11	100 15	TOGGLE	1
76-12	6 14	BEARING, ROD END	1
76-13	100 27	SHAFT, MAIN. 2" x 107/8"	1
76-14	195 07	RING, EXTERNAL, MAIN SHAFT	2
76-15	4 15	PIN, CYLINDER MOUNT	1
76-16	195 03	RING, "E," MAIN CYLINDER PIN	2
76-17	237 13	SCREW, MACH. 3/4"	1
76-18	238 23	NUT, 3/4"	1
76-19	241 12	WASHER, 3/4"	1
76-20	239 18	KEY, WOODRUFF	1
76-21	237 26	SCREW, MACH. , 5/8" x 3 1/2"	1
76-22	241 10	WASHER, 3/4"	1
76-23	239 20	NUT, 5/8"	1
76-24	107A11	GIB	2
76-25	233 06	SCREW. MACH.	4
76-26	111 22	SPRING ASSY., MAIN	2
76-27	231 05	CREW, MACH.	2
76-28	238 04	WASHERS	6
76-29	173 23	TABLE & RAM ASSY., 12" x 18"	1
76-30	111 04	ELEVATING NUT BAR ASSY.	1
76-31	108 17	BOLT ASSY.	1
76-32	175 05	WRENCH, TABLE	1

Kensol 46T Manual

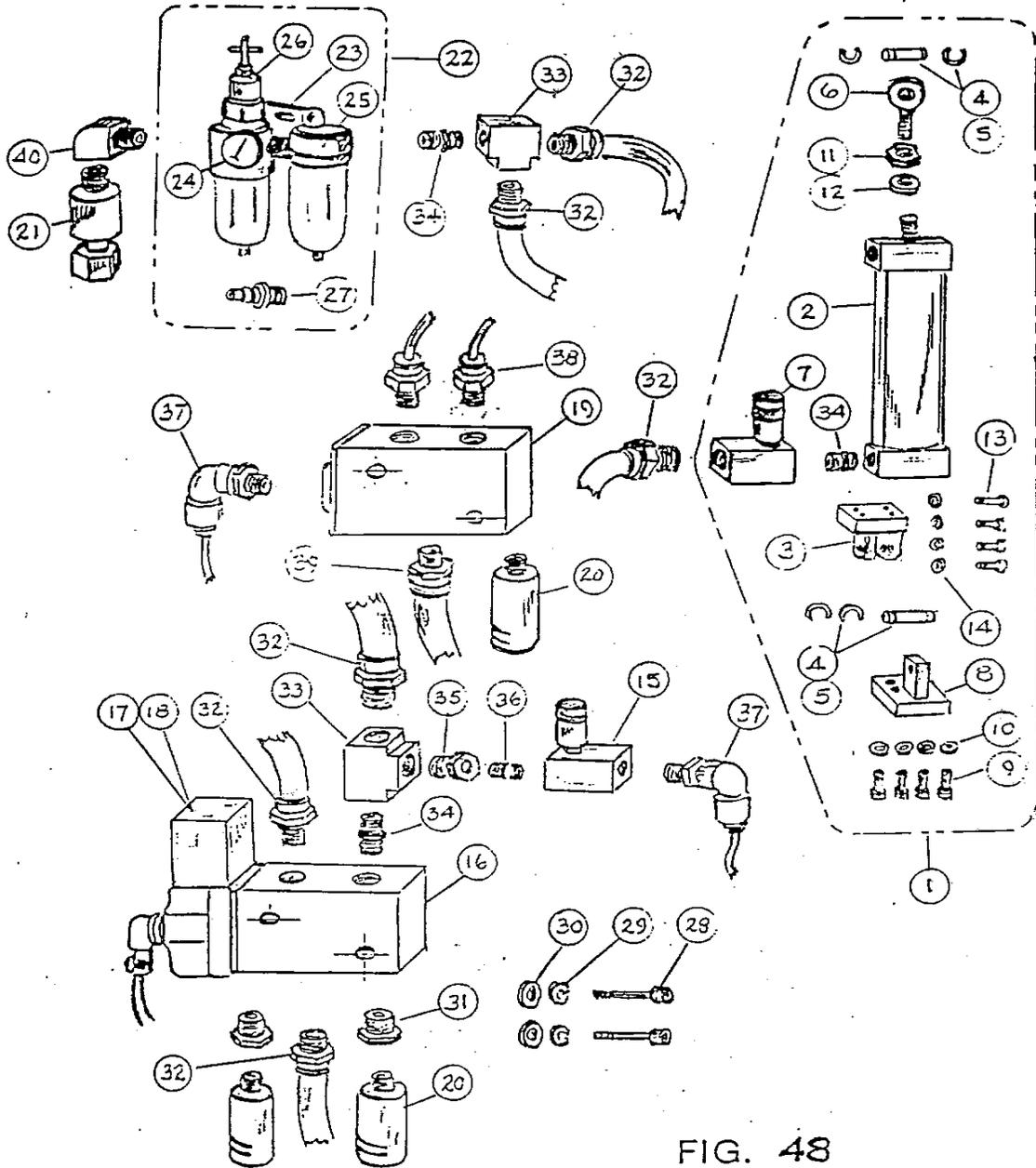


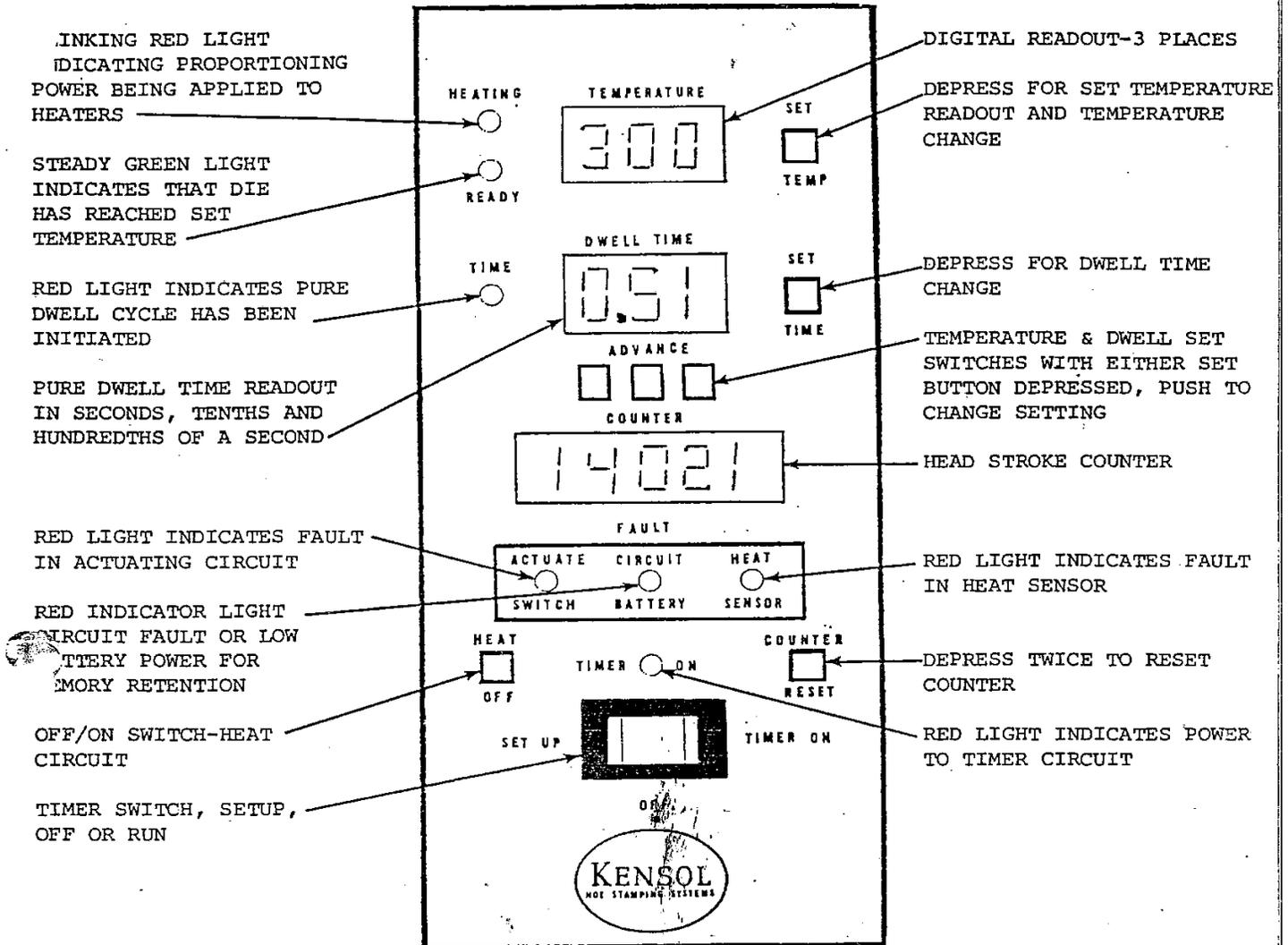
FIG. 48

Kensol 46T Manual

REFERENCE	PART NO.	DESCRIPTION	QUANTITY
48-1		CYLINDER, MAIN AIR, ASSY	1
-2	9 19	CYLINDER, MAIN AIR	1
-3	4 19	CLEVIS, CYLINDER	1
-4	4 15	PIN, CYLINDER MOUNT	2
-5	195 03	RING, "E", MAIN CYL. PIN	4
-6	6 14	BEARING, ROD END AIR CYL	1
-7	22 25	VALVE, SPEED CONTROL, 3/8	2
-8	7 24	TIE BAR & LINK ASSY	1
-9	233 07	SCREW, MACHINE-3/8-16 X 1 1/2"	4
-10	238 06	WASHER, 3/8	4
-11	238 21	NUT- 1/2-20	1
-12	238 08	WASHER-1/2	1
-13	232 20	SCREW MACHINE 5/16-24 X 1	4
-14	238 05	WASHER, LOCK-5/16	4
-15	22 23	VALVE, SPEED CONTROL 1/8	1
-16	23A23	VALVE, IN LINE, SING SOLENOID 24VDC, 3/8	1
-17	23B04	SOLENOID, 24VDC	1
-18	23B03	SOLENOID, 110 VAC	1
-19	23A17	VALVE, PILOT, 4-WAY, 1/4	1
-20	28A10	MUFFLER, 1/4	4
-21	2315	VALVE, SLIDE, 3/8	1
-22	31A27	FILTER-REGULATOR-LUBRICATOR ASSY, 3/8	1
-23	31A02	BRACKET 3/8 FRL	1
-24	31A03	GAUGE	1
-25	31A20	LUBRICATOR WITH BOWL	1
-26	31B13	FILTER & REGULATOR	1
-27	32 04	HOUSE CONNECTOR 3/8 MPT X 3/8	2
-28	231 13	SCREW MACHINE- 1/4 - 20 X 2 3/4	2
-29	238 04	WASHER, LOCK 1/4	2
-30	238 04	WASHER, FLAT 1/4	2
-31	32 13	BUSHING 3/8 MPT X 1/8 FDT	2
-32	33 19	CONNECTOR, PUSH-LOCK 3/8 X 3/8	7
-33	32 07	TEE 3/8 FPT	2
-34	33A01	NIPPLE, CLOSE, 3/8 MPT	4
-35	32 14	BUSHING 3/8 MPT X 1/8 FPT	1
-36	33 15	NIPPLE, CLOSE, 1/8 MPT	1
-37	33A24	ELBOW, SWIVEL, PUSH LOCK 1/8 X 1/4	2
-38	33A22	CONNECTOR, PUSH LOCK 1/4 X 1/4	2
-39	33 18	CONNECTOR, PUSH LOCK 1/4 X 3/8	1
-40	32 19	ELBOW STREET 3/8 MPT X 3/8 FPT	2

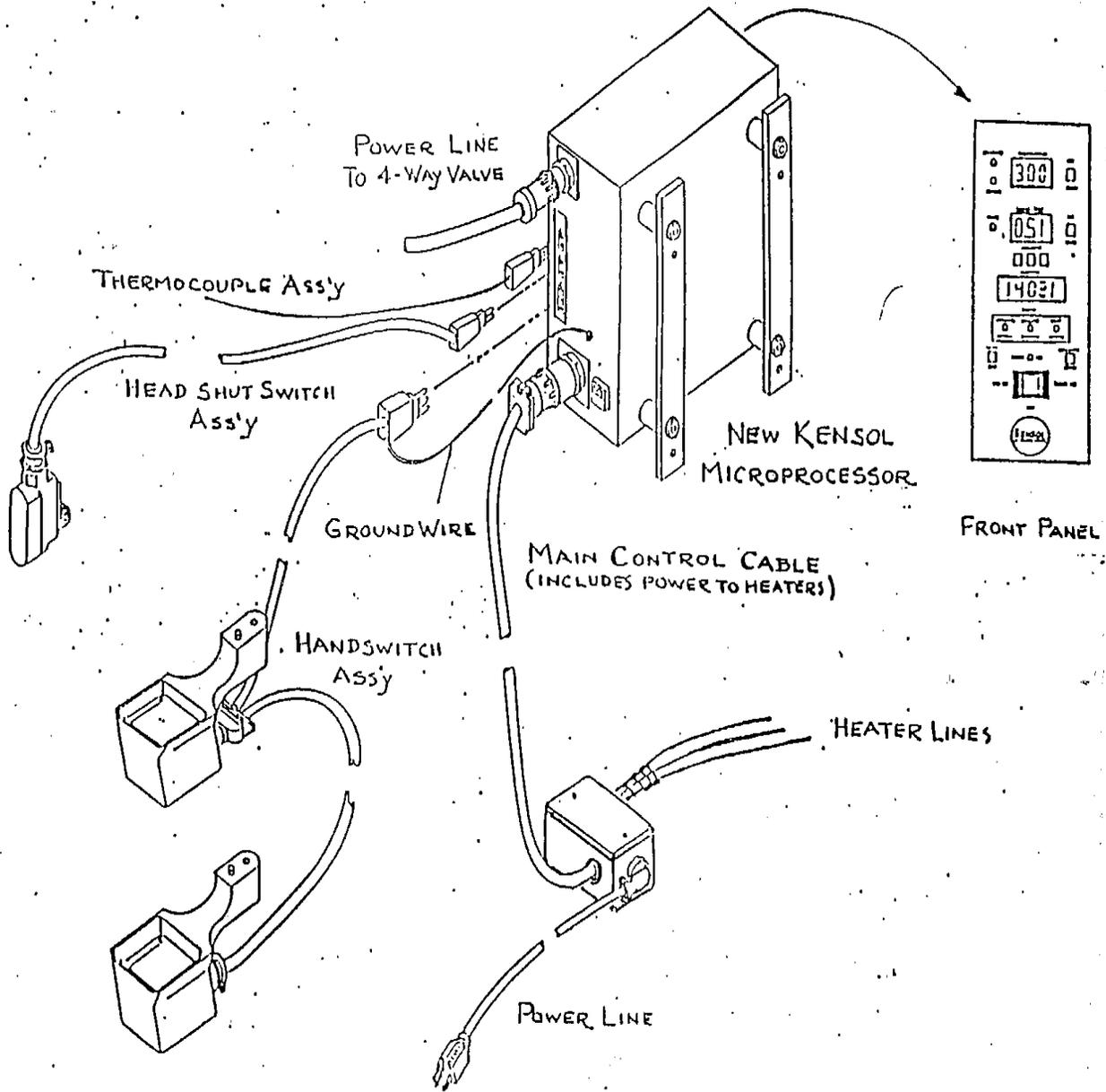
Kensol 46T Manual

NEW KENSOL MICROPROCESSOR BASED DIGITAL TIMER/HEAT CONTROLLER

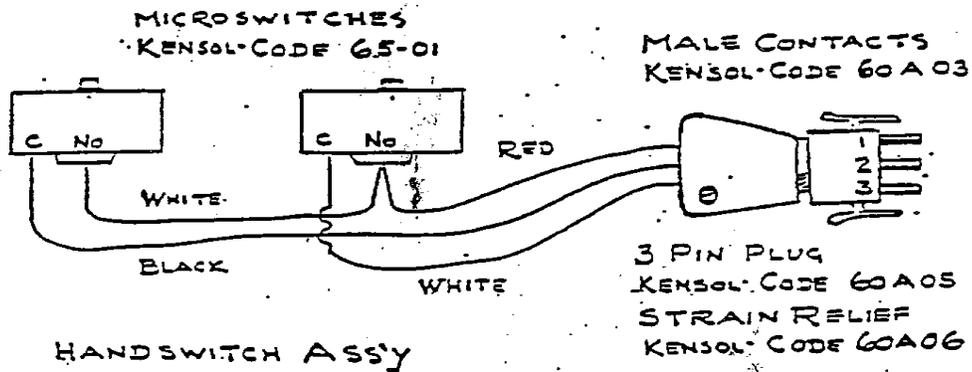
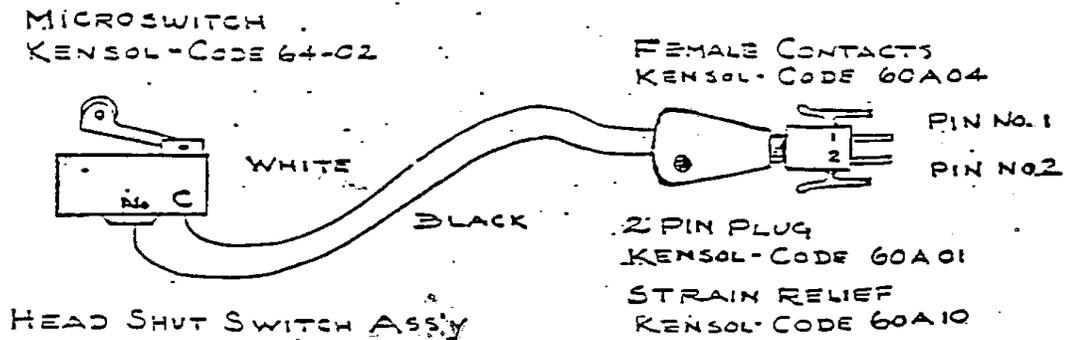
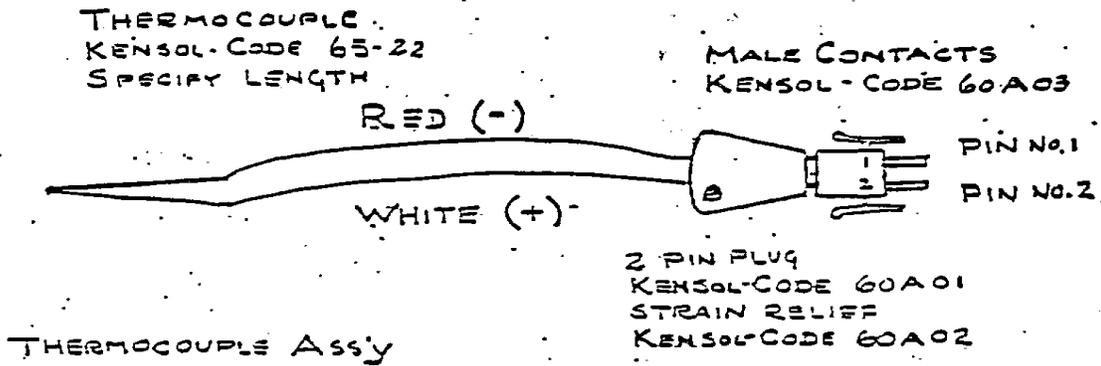


THE NEW KENSOL MICROPROCESSOR BASED DIGITAL TIMER/HEAT CONTROLLER WAS DESIGNED BY KENSOL TO MAINTAIN EXTREME ACCURACY IN TWO OF THE THREE VARIABLES OF HOT STAMPING, DWELL AND HEAT. THE THIRD VARIABLE, AIR PRESSURE, IS CONTROLLED BY A SEPARATE UNIT SUPPLIED WITH THE PRESS. INCLUDED IN THE UNIT IS AN ELECTRONIC STROKE COUNTER AND A FAULT LIGHT PANEL, WHICH AIDS IN TROUBLESHOOTING. THIS UNIT CAN BE ADAPTED TO EXISTING EQUIPMENT IN THE FIELD AFTER WIRING MODIFICATIONS ARE MADE.

Kensol 46T Manual



Kensol 46T Manual



MICROPROCESSOR PLUG WIRING DIAGRAMS

Kensol 46T Manual

TYPE AND DIES

Type: Brass: Fine quality type available in many sizes and attractive faces. Recommended for most materials except hard plastics, metal and hard wood.

Steel: Recommended for long runs on hardest materials.

Service: Hard, durable, deep mat, composition white metal type. Contains no lead. Made specially for hot stamping. Not recommended for wood or hard plastic. Attractively priced.

Dies: Brass, Steel and Silicone Rubber

Flat or contoured. Submit art work and sample of item or print for price quotation. Silicone rubber dies are molded onto aluminum for mounting purposes. Soft aluminum available for bending to match contours.

Rubber dies recommended for irregular surface caused by shrink marks, etc.

SILICONE RUBBER SHEETS

Silicone rubber sheet stock is used primarily for applying roll leaf to raised areas on molded plastic items. These pads are also used to apply heat transfers. For ease of mounting, the rubber is sold bonded to an aluminum backing. Various thickness combinations of aluminum to rubber are available as follows:

1/32" rubber on 1/8" alum.

1/32" rubber on 1/32"alum.

1/16" rubber on 1/8" alum.

1/16" rubber on 1/16"alum.

1/8" rubber on 1/8" alum.

Generally 1/8" rubber is recommended when relatively severe surface imperfections are encountered. Soft aluminum backing is recommended when the pad requires bending to match a contour.

Silicone rubber die material is sold in 15" x 24" sheets or smaller sheets cut to order.

MAKEREADY MATERIALS

Polyurethane: 80 durometer

1/16 x 12 x 12	1/8 x 12 x 12
1/16 x 12 x 24	1/8 x 12 x 24
1/16 x 12 x 48	1/8 x 12 x 48
1/16 x 48 x 48	1/8 x 48 x 48

Red Board - .025 x 12 x 12 inches. Hard board for items with uniform surface.

.012 Rubber

1/16 Rubber -60 Durometer with cloth backing.

Kensol 46T Manual

MAKEREADY MATERIAL (CONTINUED)

Cork Sheeting - Supplied with adhesive backing. Priced as follows:

- 12 x 12 inch sheets
- 12 x 12 inch-sheets
- 12 x 36 inch sheets
- 24 x 36 inch sheets
- 36 inch x 10 ft. & up

KENSOL LUBRICANTS

HIGH TEMPERATURE GREASE - For ram and ram pin. Over 50% of press breakdowns are caused by improper lubrication. Ordinary oil applied to these heated surfaces breaks down when operating at higher stamping temperatures. Sold in one pound can with long handled application brush.

SPECIAL SAE 10 OIL - For automatic internal lubrication of pneumatic components on any air operated press. Does not contain detergents or penetrating additives which attack valve and cylinder packings.

SUSPENDED GRAPHITE LUBRICANT - For use on needle bearings inside roll on machine arbors - 2 oz. can.

TOOLING

NESTS, JIGS, FIXTURES - For locating and supporting parts to be hot stamped. Submit parts with decorating area marked off. Our tooling • department will submit a quote.

MISCELLANEOUS

DIE BONDING FILM - Die bonding film is a quick, strong method of bonding metal dies and aluminum backed silicone rubber to the hot plate chase or head slide. Instructions are sent with this material. 3 inch wide rolls, 60'yards long

DOUBLE SIDED STICKY TAPE - Used for holding fixtures, nests, etc. to the bed of the press. 3 inch wide roll, 36 yards

TYPE BOX - Wood, 49 compartments with sliding cover. Type cannot fall out of place even if box is turned over. Each compartment 1-3/8" square. Overall dimensions 1-1/4" x 12" x 12"

FOILMARK ROLL LEAF - The Foilmark division manufactures a complete line of metallic, pigment and specialized stamping foil. Write for color cards. Samples available on request.

Kensol 46T Manual

INSTRUCTIONS

“LEVELING TEE DIE STAMPING HEAD TO THE WORK TABLE”

Kensol tests and dry runs, under pressure, every new press before shipment for mechanical, pneumatic and electrical details through a detailed check list.

The head is heated to operating temperature, in the up position, for three hours so that the head, ram and frame have expanded. The head is checked for level and ram for the proper fit and registration.

All presses should be checked every six months or sooner for level and. ram accuracy if, it takes excessive time to setup a job.

A stamping head should be leveled only after the ram has been tested to check that the ram is tight,. (lubricated) not shifting and registers properly.

Tests are done by reducing the presses air line to zero,, putting the setup handle in the machine, bringing the head down by hand and try to shift the head from side to side in the stamping position.

The condition of the head in the press' up position is not important and need not be checked.

Separate instructions are available on adjusting the ram play in the press.

Adjusting the ram and leveling the head should be done at the presses operating temperature plus 25 degrees. Example; If silicone rubber stamping at 425 F. degrees on the thermostat (the face of the rubber is approximately 300 degrees F), you should set the thermostat f,or 450 degrees F, so that the complete head of the machine and frame, is expanded.

The ram should then be checked to see if there is any play in the down or stamping position. If there is play in the ram it should be adjusted before leveling.

continued...

Kensol 46T Manual

Use 'Kensol hi-temperature grease to lubricate the ram. First clean the ram by wiping off the old grease. Do not take the machine apart or loosen the ram to clean the ram because the ram's adjustment is critical.

To level the head put the largest flat die chase in the head without a die and lock it in place. The head is brought down and the table brought up to the chase. A metal feeler gauge is used on each corner. A piece of bond paper can also be used to check the variation you have in all four corners.

When checking level it is important that the table be locked in place so that you get an accurate setting.

On older machines check the work table for flatness. You may need to surface grind the table and the die chase to be sure that they are accurate, level, and flat.

The head is leveled, to the ground work table, by installing metal shim stock under the head ram plate between the spacer plate and the ram plate. Loosen the four head bolts on the ram plate. Place the required shim stock between the plates and tighten the four head bolts. Reheat the head and recheck the level. Use large areas, at least 3"x3", of shim stock for stability.

A right angle screwdriver is needed on the older K-35 & K-36 model machines to loosen the head screws.

If the right front corner is out of level by ten (.01) thousandths. To level the head and die face to the table, a shim of ten thousandths (.01) must be added to that corner and the head locked up.

Kensol builds its frames out of cast iron for superior stability. When a "C" frame cast iron press ages and cures over a long period of time, the frame could distort and require releveling of the head and adjusting the ram.

A cast iron frame is superior more rigid than a steel (stretch) frame.

continued...

Kensol 46T Manual

Steel frame machines require releveling when maximum pressure is applied to the steel press due to frame stretch because the frame takes .a set.

Releveling a machine's head can save a tremendous amount of press time and money by the stamper on makeready and setting up a job. Example, if the right front corner of a head is out of level by ten (.01) thousandths. It will take an operator additional time, more than five minutes, to level and setup each job. If a stamper is doing short run work and changing dies constantly, the table makeready must be changed on every die change and so the stamper must correct for an inaccurate level and then add your usual makeready to prepare the job.

When metal die stamping plastics., the impression is debossed below the surface three (.003) to four (.004) thousandths of an inch and therefore accurate level head is essential

Down time and changeover time is expensive and nonproductive. By checking a machine for level every six months the quality will be improved greatly and the down time, changeover time and cost per day will be cut considerably.

The age of a press should not be a problem when worn parts are replaced and the ram and level is adjusted for good fit.

A press' heat system, when adjusting the ram should be set and adjusted for the temperature of the die used.

In adjusting a press' ram it is important that the heater head is adjusted at 25 degrees hotter than the average operating temperature. When stamping with a metal die (250 to 300 degrees F) set the thermostat at 325 degrees F. When stamping with silicone rubber dies (375 to 425 degrees F), set the thermostat at about 450 degrees F.

Leveling the head and adjusting the ram play, when

continued...

Kensol 46T Manual

the machine is hot, should take less than one hour.

It should not take more than 30 minutes to adjust the play in a ram.

Replace any worn head parts before adjusting the ram and level the head.

SAFETY FIRST! Check your machine's safety system every day. The two hand safety switch system should function properly, with no tie down feature and head shut switch. Any guards or gates should be in place and functioning properly.

There is available a paper on CLEAN COMPRESSED AIR. There should be no excessive oil or moisture in the air system and the air flow and control unit should be functioning properly with no small quick change couplers.

Kensol 46T Manual

KENSOL PRESS RAM ADJUSTMENT

Test the ram on each press every six (6) months to be sure it is operating properly. Test and adjust a ram at the press' operating temperature, for excessive play, or jamming.

If the press binds first check for other mechanical binding for the source of trouble rather than the ram. #1 the mechanical roll leaf and #2 the links and pins and then test the ram for binding and see that the ram is properly lubricated including the ram pin.

High temperature ram grease should be used. First remove the old ram grease but do not loosen the ram bolts or remove the ram to clean unless there are signs of wear.

If the press is equipped with a mechanical pull roll leaf attachment, disconnect it. If the press operates properly by hand, the binding problem lies in the mechanical roll leaf attachment.

If the rubber roller and the knurled roller of the roll leaf attachment does not spin freely its bearings are binding. If the rubber roller spins, the bind could be the knurled roller bearings. Lubricate with oil and free or replace the bearings.

If the roll leaf attachment is mechanical, make certain it is disconnected when adjusting the ram fit.

The ram tests are done by reducing the presses air line to zero, putting the setup handle in the machine, bringing the head down by hand and try to shift the head - in the stamping position. Tests done only after the head has been heated to operating temperature for three hours so that the ram and frame has expanded fully.

Adjusting the ram's fit should be done at the press' operating temperature plus 25 degrees. Example: if stamping with silicone rubber at 425 degrees F. on the thermostat, you should set the thermostat for 450 degrees F. so that the complete ram and frame is expanded. The ram should then be checked to see if there is any play in the down or stamping position. If there is play in the ram it

continued...

Kensol 46T Manual

should be adjusted first before leveling the head. Move the head up and down and press the roll leaf attachment on the left and right sides to try to cause the ram to bind.

We are not concerned with the head condition in the press' up position.

LINKS AND PINS BINDING

Tap each link to determine if they are loose and free.

Remove the center pin (the pin joining five links) which allows all links to be moved by hand making it easier to locate a pin and link that is bound up.

Lubricate the pins with 30W. oil once a week.

A bound link should be removed from the pin by taking the lock ring clips off the ends of the pin and tapping the pin out to the side. Some pins are slip fit and are easily removed; other pins are press fit and should be driven out with a drift punch. The top pin is locked in place with a set screw on the frame. Before attempting to remove the top pin, unlock the screw.

Replace any worn links and pins.

The ram fit should be tight and free, not sloppy. If sloppy, the head may twist or slide and jam the mechanical roll leaf assembly or blur the impression by the head twisting, shifting or skidding.

When adjusting the ram fit, there are four (4) set screws on the cap casting to set the gap inside of four (4) lock nuts on older machines. Kensol K-36T ram caps have a special lock bolt with Allen head and locking nut. The ram cap is located right above the head, and faces the operator when he is standing in front of the machine. The ram adjustment involves working the handle up and down while changing the position of the gap set screws in the casting and the locking bolts.

If the ram is binding loosen one lock bolt at a time

continued...

Kensol 46T Manual

and test with the handle. Tighten the bolt back, if the bind is not freed, before going on to the next bolt if the loosening does not improve the problem.

If excess play (loose and sloppy) is in the ram; Start with the lower right hand lock nut, test by tightening each nut clockwise to eliminate the gap and play. If the ram is still loose and all bolts tight, slightly loosen each lock bolt and reset the gap set screw out (to the left) and retighten the bolts while testing the ram up and down manually on each adjustment.

In a drastic case where the ram gap is bad and cannot be adjusted, you must start the procedure all over again from a zero setting. Loosen all bolts and all gap set screws. Lock the head in place with no gap by tightening all lock bolts. The ram and cap will be locked at zero adjustment. Tighten the gap set screws (four) to the frame. All adjustments on the ram are at zero gap. Loosen the four lock bolts. Turn the gap set screws (four) in, to the right, one quarter turn. This will establish the new gap on all four corners. Tighten all corner bolts in turn about one quarter turn to draw the cap casting in to set the gap. Continue to tighten all four bolts(clockwise) until all bolts are tight and the ram doesn't bind. If the ram binds on a bolt adjustment back off that bolt a crack to free the bind and continue tightening the other three bolts until they are tight and not binding the ram. All set screws should be tight and all bolts tight without the head binding for a perfect fit.

These adjustments are always done by mechanically operating the head up and down by hand when doing each tightening adjustment.

Check the head for level. See instructions.

Proper weekly lubrication is essential. See instructions.

KENSOL/FOILMARK MARKING EQUIPMENT and ROLL LEAF

THE BASIC 7 for ROLL LEAF DECORATING

Roll leaf and transfers are dry techniques of marking by using heat and pressure for materials affected by heat.

SAFETY FIRST: Make sure all equipment is operated safely with guards in place.

1

ROLL LEAF and Multi-color Heat Transfers:

Metals (gold, silver, chrome & bronze) pigments (flat & luster), manufactured on paper, cellophane, mylar. Available in all kinds of specially printed foils, such as woodgrain and metallized patterns. Heat transfers are made to specific artwork.

2

DIES and Rollers:

Metal (zinc, magnesium, copper, brass & steel), silicone rubber (sheet or molded contours and imprint dies), and plastic.

3

Die Surface TEMPERATURE:

Accurate temperature must be maintained on the **face** of the die. Silicone rubber dies require approximately 100° higher thermostat temperature than metal dies due to insulation factors.

4

Dwell TIME:

The time **on** the work must be accurate. An exact combination of heat and time (total heat) is required in order to transfer and adhere the leaf properly.

5

PRESSURE:

Roll leaf marking is a technique of combining heat and pressure. The die must be mounted on the center of the force. Many machines are air starved and do not build up the pressure required because of reduced air flow due to small, quick change couplers. Without proper pressure or power, quality and definition is lost when marking.

6

MAKEREADY and Tooling Support:

Makeready acts as the bed or nest to support the impression and compensate for part variation. Examples of makeready: thick, hard, smooth paperboard, rubberized cork material, thick rubberized materials of urethane of different hardness. *Soft chipboard* or improper makeready will ruin quality of a stamping job.

7

Cure Cycle and STRIPPING ACTION:

Some special foils and transfers are unsuccessful without specific stripping action. However, care must be taken to insure that the leaf and material have been properly cured before the stripping action so as not to disturb the quality of the end product.

The Basic 7 must be maintained in order to control quality, productivity, reject rate and PROFIT on any job.

KENSOL Machines Manufactured by:

KENSOL-OLSENMARK INC.

40 Melville Park Road • Melville, NY 11747
Phone: 516-694-7773 • TWX #510-224-6418

FOILMARK Roll Leaf Manufactured by:

FOILMARK, INCORPORATED

5 Malcolm Hoyt Drive, Newburyport Industrial Park
Newburyport, MA 01950 • Phone: 617-462-7300

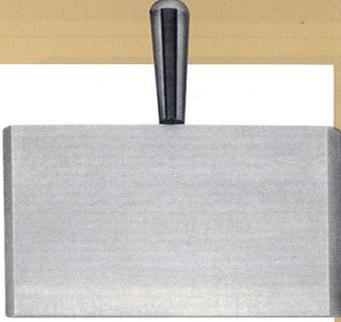
SALES SERVICE TELEPHONE 516-694-7773

MID-WEST SALES SERVICE OFFICE: Elmhurst, IL • Telephone 312-530-8600

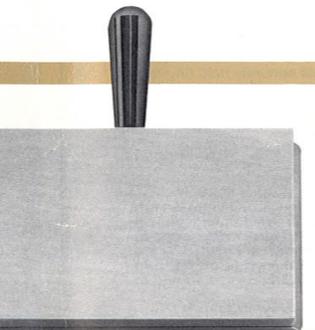
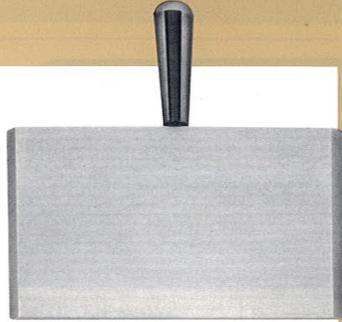
DISPLAY THIS NEAR YOUR KENSOL ROLL LEAF STAMPING MACHINE

ESTABLISHED 1920

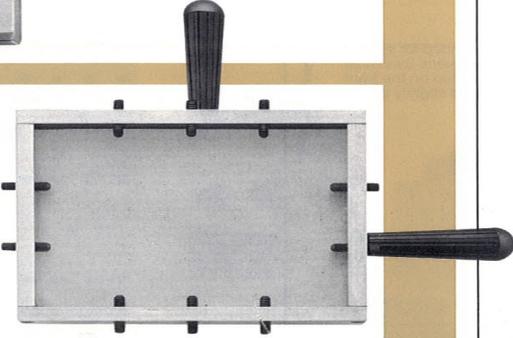
KENSOL TYPE AND DIE HOLDERS FOR VERTICAL PRESSES



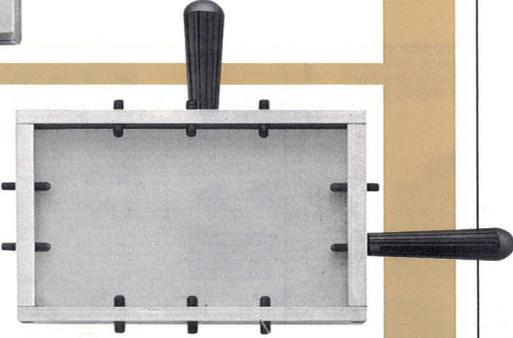
HEAD SLIDE - 3/8" thick dove tail plate which is recommended for customers who use type high dies (.918 inches). Plate is normally drilled and countersunk with a clearance hole for screws that mate with drilled and tapped holes in the die.



HOT PLATE CHASE - 3/4" thick ground steel (or aluminum) plate mounted onto a dove tail plate with a handle. This chase is recommended for mounting flat dies. Dies are mounted using screws, glue or die bonding film. Some customers drill and tap the plate with a hole pattern. The die maker uses a template of this pattern to drill clearance holes that match up with the mounting holes in the chase.



FOUR WALL LOCK UP CHASE - Recommended for large lock-ups of type high dies, slugs and loose type. Spacers are required to separate individual pieces of type where required, and metal or wood strips are used to separate lines. The complete lock-up is secured by tightening the set screws found in the side walls.



SELF-CENTERING PALLET - Recommended for quick change of several lines of loose type or slugs. Pallet automatically centers the lock up because the jaws travel in or out equally when removable crank is turned.

Kensol manufactures a complete range of type and die holders for use with our equipment. All Kensol vertical presses are equipped with an aluminum heater head that has a set of brass rails machined to accept a dovetail plate. The dovetail plate slides into the head between these brass rails and is secured by a head lock arrangement. The dovetail is machined to the dimensions of the heated platen. The various type and die holding devices are mounted onto this plate at the factory.

Kensol manufactures four standard type and die holders, namely; the head slide, hot plate chase, four wall lock up chase and self-centering pallet. These will satisfy most requirements. We have also developed quick change devices to speed up changeover time on short run work and special chases to meet unusual requirements.

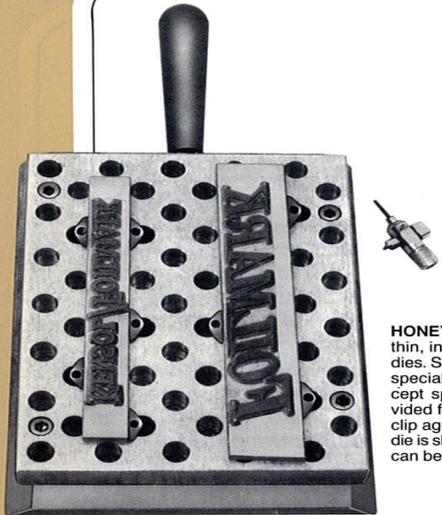
The standard die holders are shown on the left side of this sheet and the special die holders on the reverse side. Special devices can be made to meet any requirement.

PRINTING ELEMENTS USED IN THE HOT STAMPING PROCESS

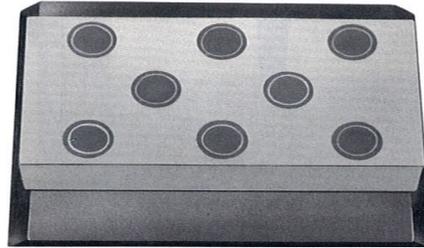
In general, the hot stamping industry uses printing elements in the form of loose type, single line slugs, and dies. These elements can be made of any material that will conduct heat; primarily steel, brass, copper, lead, zinc, magnesium, and silicone rubber. The choice depends upon length of run, hardness of item being stamped, uniformity of item's surface, and naturally, price. Type is usually manufactured to a height of .918" ("type high"). Dies are supplied in height of from .08" to .918". Higher dies are available for special applications.

Kensol 46T Manual

KENSOL SPECIAL DIE HOLDERS



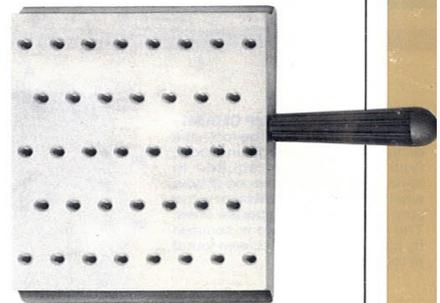
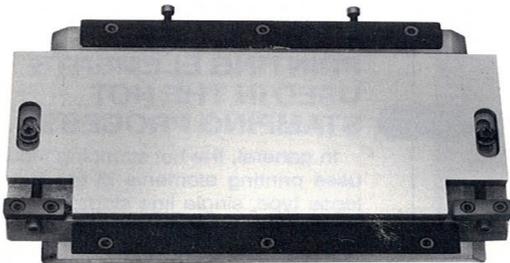
HONEYCOMB CHASE - Used to hold thin, inexpensive zinc or magnesium dies. Steel block contains a pattern of special type stepped holes which accept special grippers. The key provided forces the gripping edge of the clip against the edge of the die. If the die is slightly out of alignment, the clips can be shifted to align properly.



MAGNETIC CHASE - One inch thick ground steel block mounted onto a dove tail. Block contains magnetic inserts which will securely hold flat steel dies. Non ferrous dies (silicone rubber, magnesium, copper, brass) could be used if they are first mounted onto a steel plate.

CAM-O-LOCK CHASE - The Cam-O-Lock system is similar to the Honeycomb system, except, it is recommended for holding 1/4" thick dies (copper, brass or steel). The cams shown are rotated by the special key provided until the edge of the cam grips the edge of the die. Cams can be shifted to bring die into register.

THREE WAY ADJUSTABLE - Normally recommended for special systems such as multi-headed machines where several dies must be mounted in perfect register. Chase can be shifted on the front to back X axis, left to right Y axis as well as rotated slightly by adjusting set screws.



OTHER HOLDERS CAN BE DESIGNED AND MANUFACTURED TO MEET YOUR REQUIREMENTS.

Kensol Equipment **KF** Foilmark Roll Leaf
KENSOL-OLSENMARK INC.
40 Melville Park Road, Melville, N.Y. 11747 TEL. 516-694-7773 FAX 516-694-6836