

Instructions for Kensol Models K-36/K-50/K-60/K-110

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,

Instructions for Kensol Models K-36/K-50/K-60/K-110

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. There are three types of lubricant required for Kensol air operated presses:

SAE 30 Oil
Olsenmark high temperature lubricant
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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 CFM of Air (1 H.P. Compressor)

1000 impressions/hr. requires 2 CFM of Air (1.5H.P. Compressor)

1500 impressions/hr. requires 3 CFM 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 card unplugged when setting up the press or when the press is not in use.

II. OPERATION OF PRESS

A. Understanding toggle action — The K- 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 100 P.S.I. Operated above 100 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.
E—50-3

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 micro switch 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 depressed 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 goes on. 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

II OPERATION OF PRESS (Continued)

- F. Down Stroke Speed Valve -The down stroke 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 down stroke speed valve. To slow the head's down stroke, 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 down stroke 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

II. 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. Looking Up Type or Dies - A four wall chase, hot plate case, or pallet can be purchased which slides into the head and is held tightly by a nut on the head look. 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 350°, 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 250°, 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

III. SETTING UP A JOB ON PRESS (Continued)

- 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).

“Make ready” board should be placed on the table and held down with masking tape or work stops which may be ordered from us. Make Ready can be cardboard or anything that is yielding. This prevents the work from being crushed by the high pressure.

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 make ready 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 make ready 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 bars¹ 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 re 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 screw.

Instructions for Kensol Models K-36/K-50/K-60/K-110

III SETTING UP A JOB ON PRESS (Continued)

- D. Setting the table height the air supply should still be connected, 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.

Adjusting the tripper cam. The micro switch tripper post is located on the top of the head, the cam on the post trips the micro switch which signals the dwell timer.

Place the work on the table in the proper position or stamping. Bring the head down until the die touches the work. At this head position, the cam should trip the micro switch. 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 make ready 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 works increase the air pressure at the regulator.

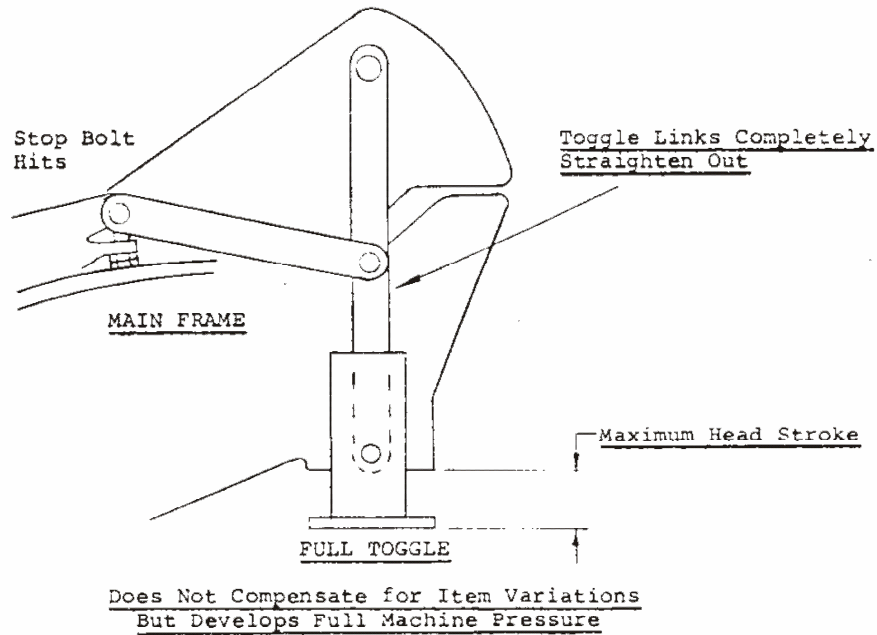
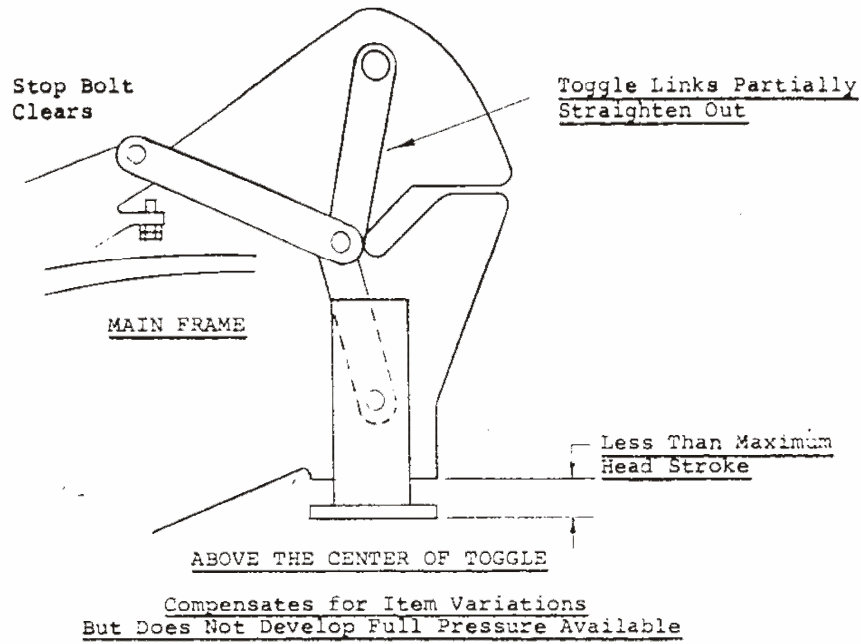
If the impression is too deep, the pressure must be dropped either by adjusting the table or using the valve on the pressure regulator.

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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

TOGGLE DIAGRAMS



E-50-11

Instructions for Kensol Models K-36/K-50/K-60/K-110

GENERAL TROUBLE SHOOTING PROCEDURES

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 300 degrees, 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 and Pins
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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

MECHANICAL FAILURE (CONTINUED)

3. RAM— (CONTINUED)

Start with the lower right hand set screw. Slightly loosen the locknut and turn the set screw out 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 micro switch 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 micro switch. The terminals of the micro switch 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 micro switch may now be reached by the ohmmeter probes.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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).

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 | <ol style="list-style-type: none">a. Blown fuses in electrical up at all, supplyb. Defective heater or heatersc. Loose or broken wired. Defective thermostate. Broken thermocouple wire. |
| 2. Press will not heat up to operating temperature | <ol style="list-style-type: none">a. Defective heater or heatersb. One fuse blown on 220 linec. Defective thermostat |
| 3. Press overheats (heating light on thermostat stays on) | <ol style="list-style-type: none">a. Defective thermostat light on thermostat |
| 4. Head will not come down | <ol style="list-style-type: none">a. Linkage frozen ramb. 4—way valve or main cylinder jammed due to lack of lubrication
c. No air from supply or not enough pressured. No output from timer |

Instructions for Kensol Models K-36/K-50/K-60/K-110

LOCATING AN AIR OR ELECTRIC FAILURE (CONTINUED)

SYMPTOM

POSSIBLE CAUSE

- | | |
|--|--|
| 5. Head comes down and stays down | a. Broken spring in 4—way valve
b. Bind in 4-way valve or main cylinder
c. Short in timer |
| 6. Head will not come all the way down | a. Jam in mechanical
roll leaf attachment |
| 7. Head slams on up stroke | a. Head check assembly out
of adjustment
b. Badly worn linkage system
c. Bind in ram or linkage |
| 8. Machine sluggish both up and down | a. Speed valves closed too far
b. Air line clogged
c. Air lines too small
d. Air pressure too low |
| 9. Blurry impression - not sharp and clear | a. Head shifting due to too much play in ram
b. Die or type holder not locked tightly in head |
| 10. Inconsistent impression
some deep, some light | a. Dwell setting too short
b. Poor lubrication
c. Head switch not making contact
d. Erratic timer
e. Fluctuating air pressure
f. Defective packing in 4-way valve or main
cylinder |

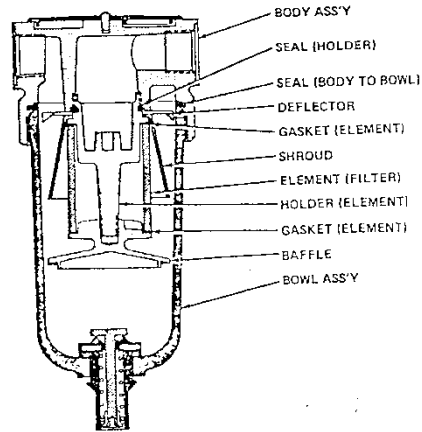
Instructions for Kensol Models K-36/K-50/K-60/K-110

LOCATING AN AIR OR ELECTRIC FAILURE (CONTINUED)

<u>SYMPTOM</u>	<u>POSSIBLE CAUSE</u>
11. Erratic leaf pull Mechanically operated roll leaf attachment	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
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 valves 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

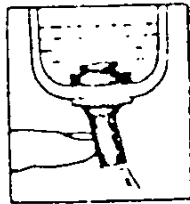
Instructions for Kensol Models K-36/K-50/K-60/K-110

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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

FILTER (AIR CONTROLLING UNIT)

OPERATION & SERVICE (CONTINUED)

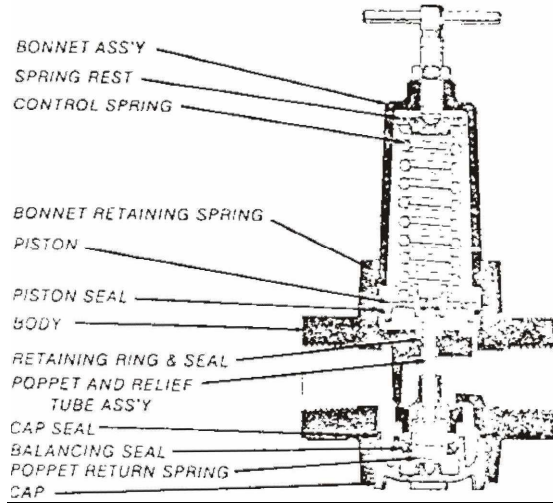
TO CLEAN POLYCARBONATE BOWLS USE MILD SOAP AND WATER ONLY! DO NOT use cleansing agents such as acetone, benzene, carbon tetrachloride, gasoline, toluene, etc, which are damaging to this plastic.

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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

REGULATOR (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 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.

Instructions for Kensol Models K-36/K-50/K-60/K-110

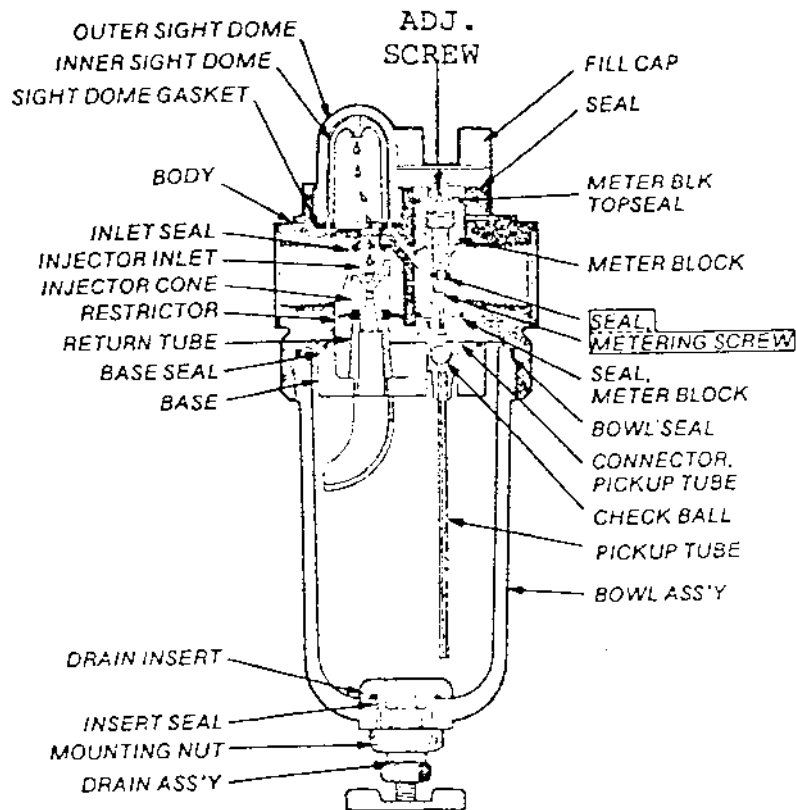
REGULATOR (AIR CONTROLLING UNIT)

SERVICING: (Continued)

- b. Clean and carefully inspect parts for wear and/or damage. If replacement is necessary, service kits are available,
 - c. Lubricate the piston seal with a mineral base oil or silicone grease. DO NOT use synthetic oils such as esters.
 - d. Install piston, piston seal, control spring, and adjusting screw pressure plate. Screw bonnet to body.
2. To service poppet and relief tube:
 - a. Relieve all pressures as described in above NOTE.
 - b. Remove cap by unscrewing from body (located opposite from control spring bonnet). Remove poppet relief tube and balancing spring.
 - c. Clean and carefully inspect parts for wear and damage. If replacement is necessary, service kits are available.
 - d. Lubricate cap seal as in step 2c above, install in groove of cap and screw cap into body.
3. Turn on air supply and adjust to desired secondary pressure as described in step I in Operation.

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 of 100 to 200 SSU viscosity at 100°F and an aniline point greater than 2000 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) APE NOT RECO1MENDED
2. Replace the fill plug and seat firmly - excessive torque is not necessary. The lubricator is now ready for setting. Re-pressurize the Lubricator.

Instructions for Kensol Models K-36/K-50/K-60/K-110

LUBRICATOR (AIR CONTROLLING UNIT)

OPERATION AND SERVICE (CONTINUED)

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

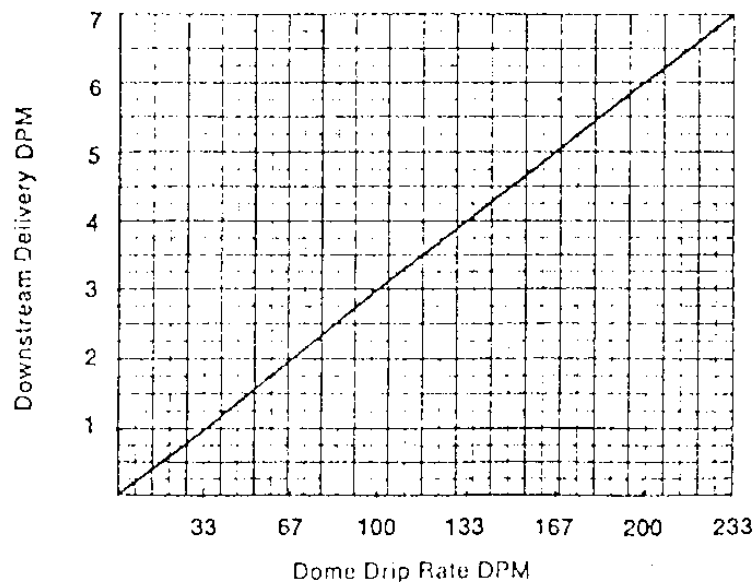
Leaner - Clockwise
Richer - Counter-Clockwise

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 PATIO IS DESIRED SHOULD YOUR NEEDLE VALVE SETTING BE CHANGED AFTER YOUR INITIAL SETTING.

Oil Delivery Conversion
3% of Drip Rate to Downstream



Instructions for Kensol Models K-36/K-50/K-60/K-110

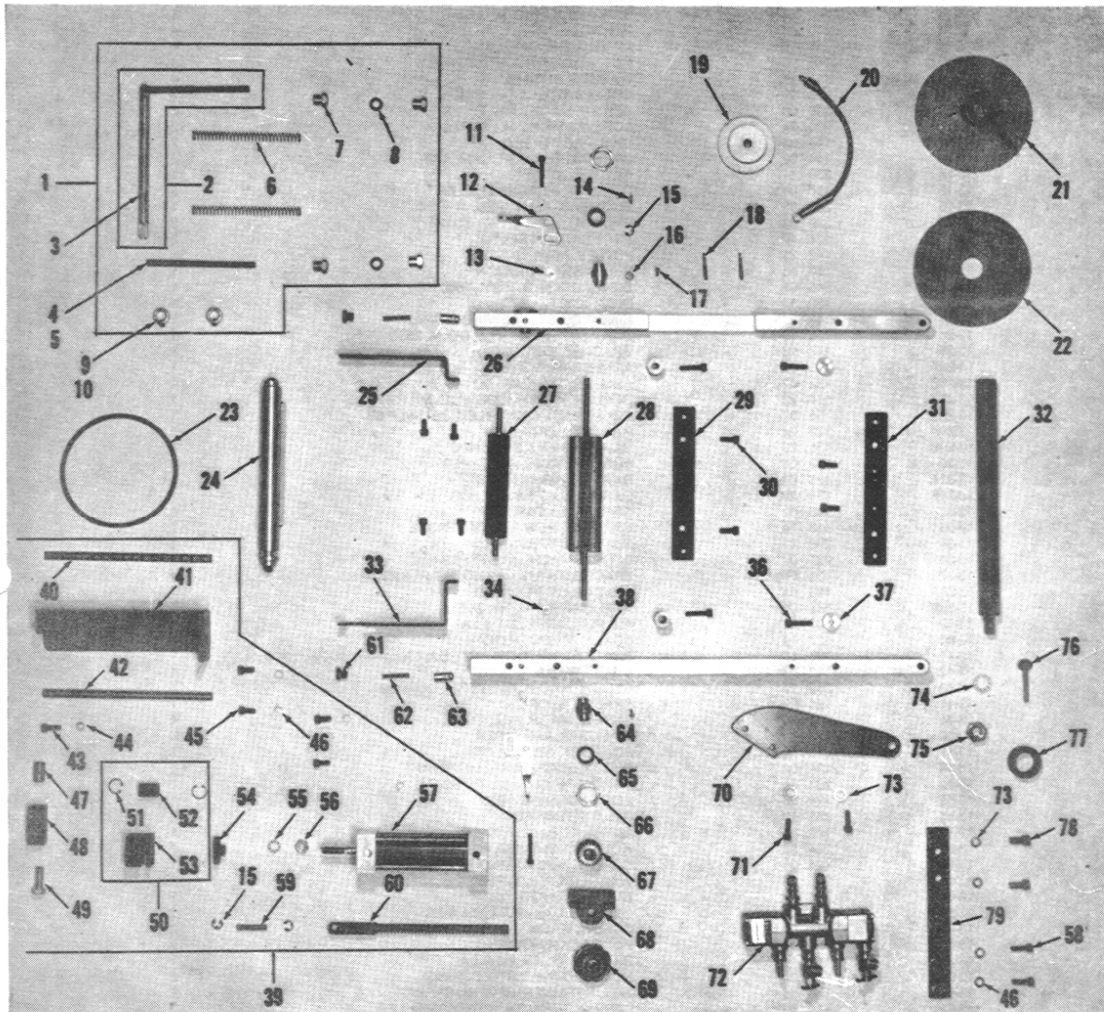


FIG. 13

6X8L, 6X12M,

SS AIR PULL ROLL LEAF ASS.

Instructions for Kensol Models K-36/K-50/K-60/K-110

FIG. NO. 13

KENSOL-OLSENMARK PARTS SHEET

SHEET NO. 53C

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHENEVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

REF. NO.	PG. CODE	DESCRIPTION	QTY.
13-1	144 13	BAR ASSY. COMP. STRIP D. E. L. M. LR	2
13-2	148 17	STRIPPER BAR & POST ASSY DELMA	2
13-3	148 03	BAR, STRIP, 8 1/4, DA, EA, MA, LA	2
13-4	150 26	BAR, ADJ., STRIP, D. L. E. M. R. 5 1/4	4
13-5	240 04	PIN, ROLL	4
13-6	146 10	SPRING, STRIPPER, 5"	4
13-7	145 10	NUT, ADJUSTING, STRIPPING	8
13-8	*57A21	WASHER, SPRING	4
13-9	145 09	COLLAR, ROLL LEAF GUIDE	4
13-10	230 08	SCREW, MACH., ALL TYPES	4
13-11	230 24	SCREW, MACH., ALL TYPES	2
13-12	*44 04	CAM, PAPER FEED	2
13-13	*44 02	BUSHING, FLANGE, CAM, STD.	2
13-14	239 **	KEY, WOODRUFF	**
*13-15	195 01	RING, "E", RUBBER ROLLER	3
*13-16	238 03	WASHERS, ALL TYPES	1
*13-17	239 22	PIN, ROLL	2
*13-18	*24 10	PIN, FRICTION BELT	2
*13-19	142 21	PULLEY, REWIND, STD.	1
*13-20	*50 15	BELT ASSY. FRICTION	1
*13-21	*45 05	DISC & COLLAR ASSY., 1000 FT.	1
*13-22	*50 19	DISC, 1000 FT., STD.	1
*13-23	*43 21	RING, "C", STD. REWIND (BUNA)	1
*13-24	*38 10	BAR ASSY. REWIND 6, DELM, 25JD	1
*13-25	143 16	BRACKET, REWIND, LH	1
13-26A	123 02	ARM, DRAW, REAR 21	1
13-26B	133 02	ARM, DRAW, REAR, 24"	1
13-27	*50 23	ROLLER ASSY. RUBBER, DELM/LR 6FB	1
13-28	*55 02	ROLLER ASSY. KNURLED, DELM/LR 6B	1
13-29A	*23 04	BAR, TIE, LEFT HAND	1
13-29B	*31 20	BAR, TIE 6 x 8 x 8 x 12 HDS	1
13-30	232 04	SCREW, MACH., ALL TYPES	4
13-31A	*23 03	BAR, TIE, RIGHT HAND	1
13-31B	*31 20	BAR, TIE 6 x 8 x 8 x 12 HDS	1
13-32	*48 02	BAR, ROLL LEAF, 10 1/2"	1
13-33	*42 14	BRACKET, REWIND, UNIVERSAL	1
13-34	238 13	NUT, ALL TYPES	6
13-36	231 07	SCREW, MACH., ALL TYPES	4
13-37	133 07	SPACER, 6 x 8 x 6 x 12 HD, SHUT, K25/27	4
*13-38A	123 01	ARM, DRAW, FRONT 21	1
*13-38B	*33 01	ARM, DRAW, FRONT, 24"	1
*13-39	*22 01	AIR PULL ASSY., DA & LA	1
*13-40	124 11	SCALE, 20 TOOTH GEAR	1
*13-41	125 15	BRACKET ASSY. CYL. MT., DA, LA	1
*13-42	123 17	SHAFT, DA/LA, 1/2" x 10"	1
*13-43	230 17	SCREW, MACH., ALL TYPES	1
*13-44	*24 09	SPACER, STOP	1
*13-45	231 16	SCREW, MACH., ALL TYPES	4
*13-46	238 04	WASHERS, ALL TYPES	6
*13-47	*23 23	PIN, LOCK, STOP BLOCK	1
*13-48	*24 01	BLOCK, STOP, PARALLEL SHAFT	1
*13-49	233 05	SCREW, MACH., ALL TYPES	1
*13-50	*24 03	SLIDE HOUSING ASSY	1
*13-51	*95 10	RING, INTERNAL	2
13-52	*25 05	BUSHING, BALL, AIR PULL	1
13-53	*24 02	HOUSING, SLIDING, AIR PULL	1
13-54	124 05	CONNECTOR, CYLINDER TO HOUSING	1
13-55	232 06	WASHERS, ALL TYPES	1
13-56	235 18	NUT, ALL TYPES	1
13-57	9 02	CYLINDER, AIR PULL, DA & LA	1
13-58	231 02	SCREW, MACH., ALL TYPES	2
13-59	124 04	PIN, RACK & HOUSING	1
*13-60	*46 14	RACK ASSY., 6 x 8 DA, LA	1
13-61A	*44 05	NUT, RETAINER, STD. SPRING	2
13-61B	144 06	NUT, RETAINER, REWIND SPRING	2
*13-62	145 12	SPRING, TENSION, RUBBER ROLLER	2
*13-63	*45 11	BEARING, TENSION, RUBBER ROLLER	2
*13-64	*57A23	BEARING, ALT. ER 375	2
*13-65	*44 01	BEARING, RETAINER	2
13-66	*45 15	NUT, LOCK	2
13-67	*50 09	CLUTCH ASSY., 20 TOOTH, RH	1
13-68	*31 18	GUIDE RACK & GEAR, 20 TOOTH, STD	1
13-69	*57A01	KNOB, MAN. ADVANCE/DIM. 254	1
13-70	*24 06	BRACKET, ROLL	1
13-71	232 05	SCREW, MACH., ALL TYPES	2
*13-72	22 04	VALVE, PILOT, ROLL LEAF	1
13-73	238 05	WASHERS, ALL TYPES	4
13-74	238 05	WASHERS, ALL TYPES	1
13-75	23A 20	NUT, ALL TYPES	1
13-76	231 12	SCREW, MACH., ALL TYPES	1
13-77	*45 07	COLLAR, ROLL LEAF	1
13-78	232 24	SCREW, MACH., ALL TYPES	2
13-79	*24 06	BRACKET, VALVE	1

KENSOL-OLSENMARK, INC.

40 Melville Park Road, Melville, NY 11747 • Telephone: (516) 694-7773

Instructions for Kensol Models K-36/K-50/K-60/K-110

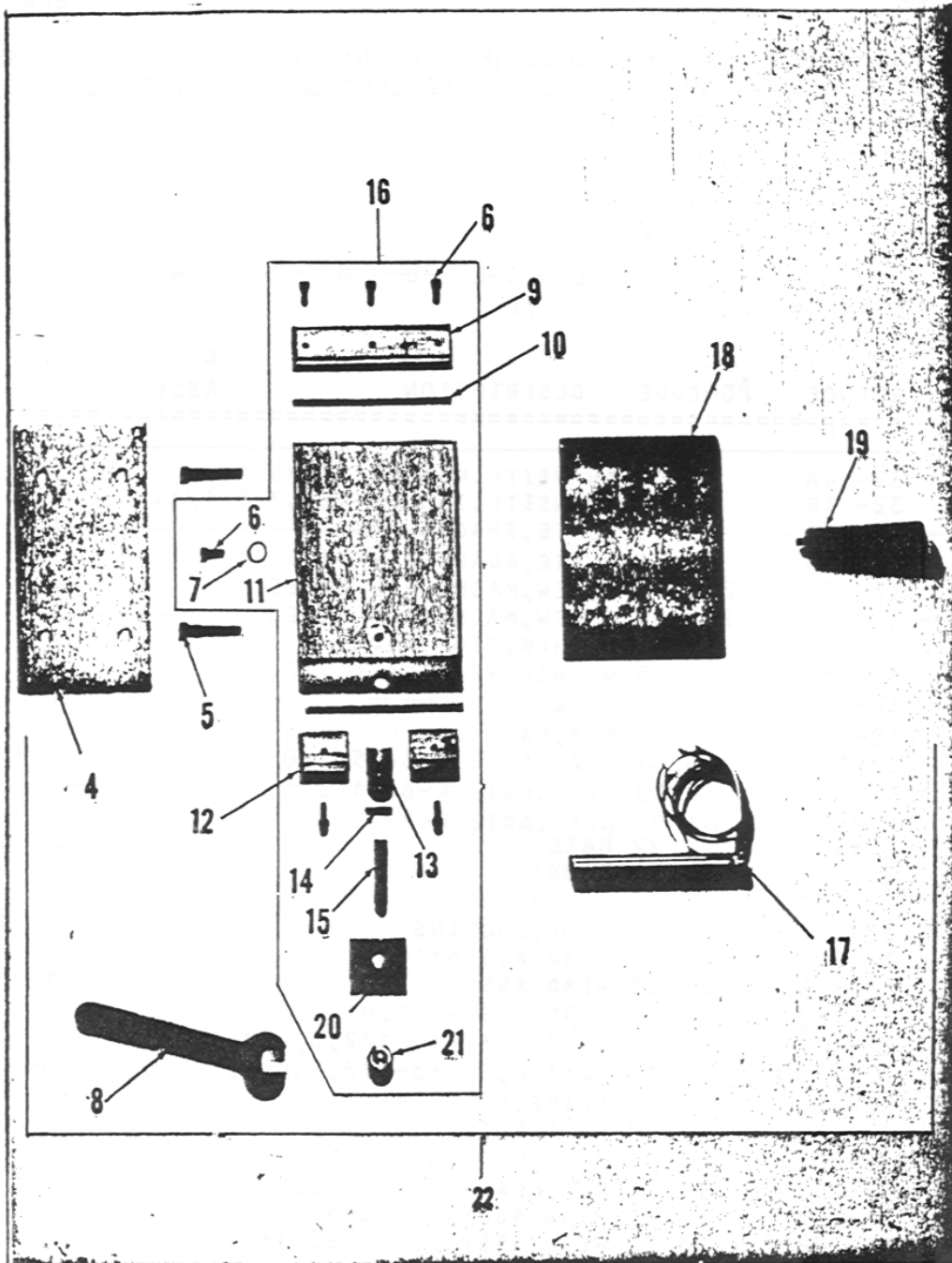


FIG. 32 (Rev. A)

6X8, 6X12M,
FRONT LOAD HEADS

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL-OLSENMARK PARTS SHEET

FIG. NO. 32 (REV. A)

SHEET NO. 35B

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHENEVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

~~K-E-N-S-O-L-O-L-S-E-N-M-A-R-K-A-S-S-I-Y-~~
6X12 (M) FRONT LOAD HEAD

REFNCE	PG-CODE	DESCRIPTION	QUAN ASSY
32-4A	83 09	TRANSITE, K36, KA, 1/4X5X10	1
32-4B	83 25	TRANSITE, INSUL. K165, 3/8X6X14	1
32-4C	83-11	PLATE, SPACER	1
32-4D	83 24	PLATE, ADAPTER (K-65)	1
32-5	233 10	SCREW, MACH., ALL TYPES	4
32-6	231-04	SCREW, MACH., ALL TYPES	7
32-7	93 03	WASHER, STOP, STD.	2
32-8	93 25	WRENCH, HEAD LOCK, 7/8	1
32-9	83-23	RAIL	1
32-10	93 09	KEY, BACK 6X8 L	2
32-11A	86 07	HEAD, 6X12 K-36, 50, 60	1
32-11B	86-08	HEAD, 6X12 K-65, 165	1
32-11C	86 09	HEAD, 6X12 K-25, 27	1
32-12	83 22	RAIL	2
32-13	93 22	HOUSING, STUD	1
32-14	240-15	PIN, ROLL	1
32-15	93 24	STUD, LOCKING	1
32-16A	86 04	HEAD ASSY-6X12M	1
32-16B	86-05	HEAD ASSY-6X12M	1
32-16C	86 06	HEAD ASSY-6X12M	1
32-17A	56 16	HEATER, 3/4X6 1/2, 6, L, M, 240/500	3
32-17B	56 15	HEATER, 3/4X6-1/2, 6, L, M, 120/500	3
32-18	36 11	SLIDE, 6X12M HEAD	1
32-19	42 07	HANDLE, 5/16-18 STUD	1
32-20	93 01	RAIL, LOCKING SLIDE	1
32-21	92 26	NUT, BRASS HEX (FULL)	1
32-22A	86 01	HEAD ASSY, COMP. K36 KA/115	1
32-22B	86 02	HEAD ASSY, COMP. K65-165/115	1
32-22C	86 03	HEAD ASSY, COMP. K25 27/115	1
32-22D	86A01	HEAD ASSY, COMP. K36 KA/220	1
32-22E	86A02	HEAD ASSY, COMP. K65-165/220	1
32-22F	86A03	HEAD ASSY, COMP. K25/K27, 115/220	1

KENSOL-OLSENMARK, INC.
40 Melville Park Road, Melville, NY 11747 • Telephone: (616) 694-7773

Instructions for Kensol Models K-36/K-50/K-60/K-110

Reprinted by AFM Engineering, Inc.
714.547.0194
1313 E. Borchard Ave.
Santa Ana, CA 92705

-30-

Phone
Fax 714.542.2728
Email info@afmeng.com

Instructions for Kensol Models K-36/K-50/K-60/K-110

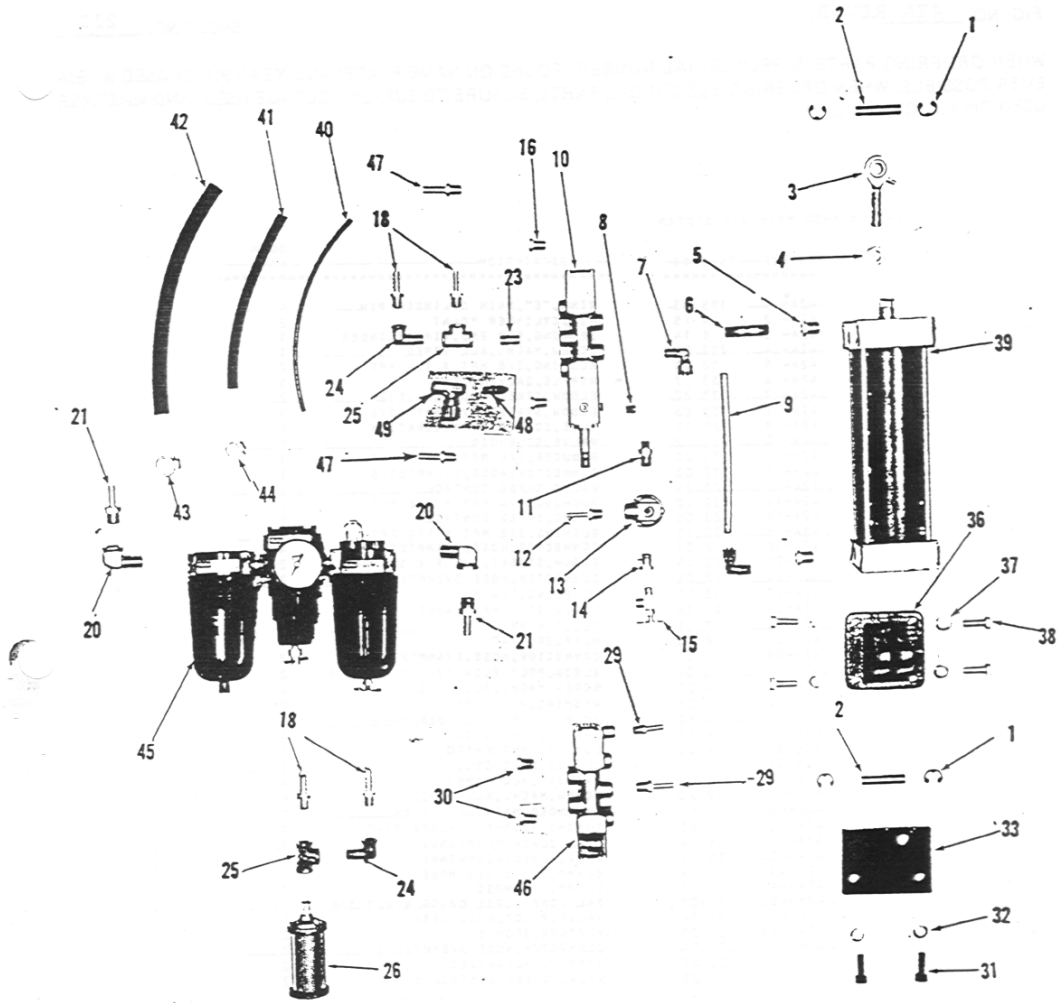


FIG. 42A (REV.B)

MAIN AIR SYSTEM,
AIR PULL ROLL LEAF

2/85

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL-OLSENMARK PARTS SHEET

FIG. NO. 42A (REV. B)

SHEET NO. 21D

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHENEVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

K-36 & K-50 PAIN AIR SYSTEM

REFNOE	PG-EDGE	DESCRIPTION	QUAN
			ASST
42A-1	195 03	RING, 1/2", MAIN CYLINDER PIN	4
42A-2	4 15	PIN, CYLINDER MOUNT	2
42A-3	6 14	BEARING, ROD END, AIR CYLINDER	1
42A-4	232 06	SCREW, MACH., ALL TYPES	1
42A-5	32 13	BUSHING, 3/8 NPT X 1/4 FPT	2
42A-6	33 07	NIPPLE, GALVANIZED	1
42A-7	33 22	ELBOW, STREET, 90 DEG., 1/2"	2
42A-8	33 06	ELBOW, STREET, 1/8 FPT X 1/8 "	1
42A-9	28 11	TUBE, COPPER REFRIGERATION	1
42A-10	22 02	VALVE, SOLENOID	1
42A-11	32 20	REDUCER, 1/4 NPT X 1/8 NPT	1
42A-12	32 03	CONNECTOR, HOSE, 1/4 NPT X 3/8	1
42A-13	23 24	VALVE, SPEED CONTROL	1
42A-14	32 12	BUSHING, 1/4 NPT X 1/8 FPT	1
42A-15	23 05	VALVE, SPEED CONTROL	1
42A-16	32 13	BUSHING, 3/8 NPT X 1/4 FPT	2
42A-18	32 03	CONNECTOR, HOSE, 1/4 NPT X 3/8	4
42A-20	32 19	ELBOW, STREET, 3/8 F X 3/8 NPT	2
42A-21	32 04	CONNECTOR, HOSE 3/8 NPT X 3/8	2
42A-23	32 11	COUPLING, 1/4 FPT	1
42A-24	32 18	ELBOW, ST, 1/4 F X 1/4 NPT	2
42A-25	22 06	TEE, 1/4 FPT	2
42A-26	28 13	MUFFLER, 1/4"	1
42A-29	32 03	CONNECTOR, HOSE, 1/4 NPT X 3/8	2
42A-30	33 01	ELBOW, POLY FLOW, 1/4 OD X 1/4 P	2
42A-31	233 05	SCREW, MACH., ALL TYPES	2
42A-32	238 06	WASHERS, ALL TYPES	2
42A-33A	4 22	MOUNT, LOWER CYLINDER, K-36	1
42A-33B	4 21	LWR CTL MNT K-50	1
42A-33C	4 23	LWR CTL MNT K-110	1
42A-36	4 19	CLEVIS, D-70 CTL	1
42A-37	238 05	WASHERS, ALL TYPES	4
42A-38	232 20	SCREW, MACH., ALL TYPES	4
42A-39	9 19	CYLINDER, MAIN, K-36 & K-50	1
42A-40	28 09	TUBING, POLY-FLO, BLACK, 1/4"	1
42A-41	28 06	HOSE, BLACK (NEOPRENE)	1
42A-42	28 05	HOSE, BLACK (NEOPRENE)	1
42A-43	28 18	CLAMP, 3/8 & 1/2 HOSE	1
42A-44	28 17	CLAMP, 1/4 HOSE	1
42A-45	31A01	FRL COMP., LESS GAUGE & BKT, 3/8	1
42A-46A	22 04	VALVE, PILOT, ROLL LEAF	1
42A-46B	28 21	MUFFLER, BRONZE	2
42A-47	32 06	CONNECTOR, HOSE 3/8 NPT X 3/8	2
42A-48	33 07	NIPPLE, GALVANIZED	2
42A-49	22 25	VALVE, SPEED CONTROL, 3/8	2

KENSOL-OLSENMARK, INC.

Instructions for Kensol Models K-36/K-50/K-60/K-110

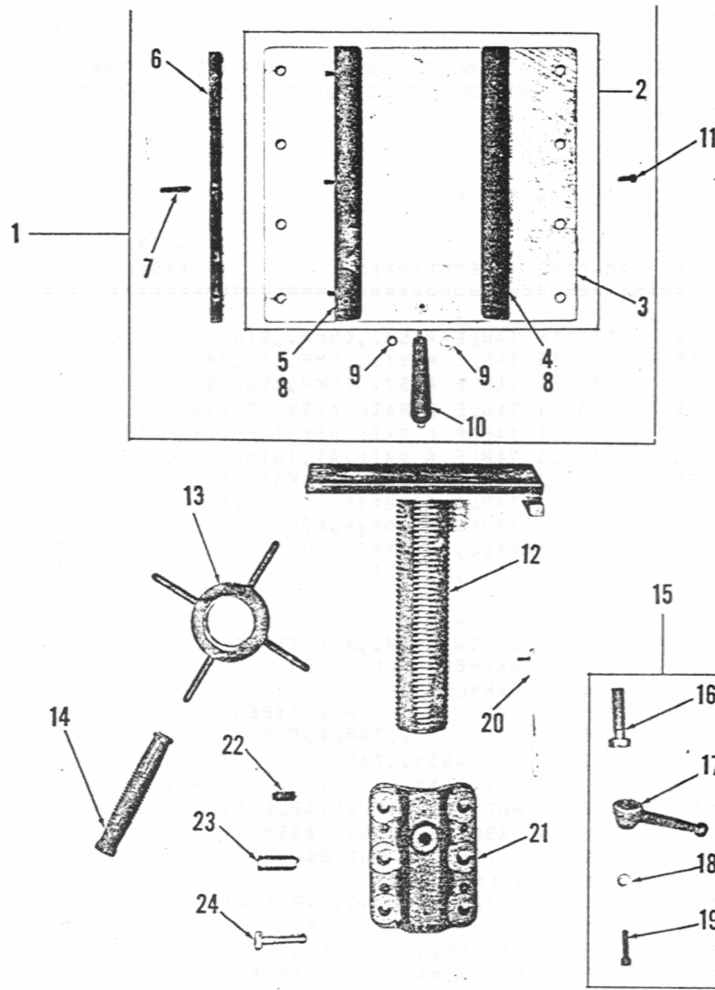


FIG. 64 (Rev. A)

TABLE

11/84

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL-OLSENMARK PARTS SHEET

FIG. NO. 64 (REV. A)

SHEET NO. 71B

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHENEVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

K50		TABLE & RAM ASSY.		QUAN
REFNCE	PG-CODE	DESCRIPTION	ASSY	
64- 1A	173 19	TABLE ASSY., COMP., STD.		1
64- 1B	179 15	TABLE ASSY., COMP., 1", KA		1
64- 1C	174 24	TABLE ASSY., COMP, K56/156		1
64- 2A	173 01	TABLE & RAIL ASSY., 12X14 STD.		1
64- 2B	179 11	TABLE & RAIL ASY, 1, K50/56/K156		1
64- 2C	175 01	TABLE & RAIL AS, 1X16X24, 56/156		1
64- 3A	173 03	TABLE, 1/2X12X14, K36, KA		1
64- 3B	179 02	TABLE, 1X18X18, K50/56/110/156		1
64- 3C	175 03	TABLE, 1X16X24, K56/156		1
64- 4	173 06	RAIL, DOVETAIL, LH		1
64- 5	173 05	RAIL, DOVETAIL, RH		1
64- 6	173 07	GIB, TABLE		1
64- 7	184 13	SCREW, GIB		3
64- 8	231 03	SCREW, MACH., ALL TYPES		6
64- 9	238 04	WASHERS, ALL TYPES		2
64-10	34 22	HANDLE, 1/4-20 STUD		1
64-11	231 02	SCREW, MACH., ALL TYPES		1
64-12A	110 01	RAM ASSY., TABLE, K-50		1
64-12B	110 02	RAM ASSY., TABLE, K25, K60, K110		1
64-13A	107A01	NUT ASSY., TABLE ELEVATING, STD.		1
64-13B	107A05	NUT ASSY., TURNTABLE ELEVATING		1
64-13C	111 05	TABLE ELEV NUT ASSY		1
64-14	111 04	ELEVATING NUT BAR AS		1
64-15	111 17	WRENCH ASSY		1
64-16	111 01	SCREW, LOCKING, TABLE RAM		1
64-17	111 16	WRENCH, TABLE RAM		1
64-18	238 05	WASHERS, ALL TYPES		1
64-19	232 07	SCREW, MACH., ALL TYPES		1
64-20	111 25	LOCKING GIB ASSY		1
64-21	205 17	CAP, TABLE RAM (6CD1)		1
64-22	235 05	SCREW, MACH., ALL TYPES		4
64-23	102 13	PIN, DOWEL, RAM CAP, LC		2
64-24	235 09	SCREW, MACH., ALL TYPES		4

KENSOL-OLSENMARK, INC.
40 Melville Park Road, Melville, NY 11747 • Telephone: (516) 694-7773

Instructions for Kensol Models K-36/K-50/K-60/K-110

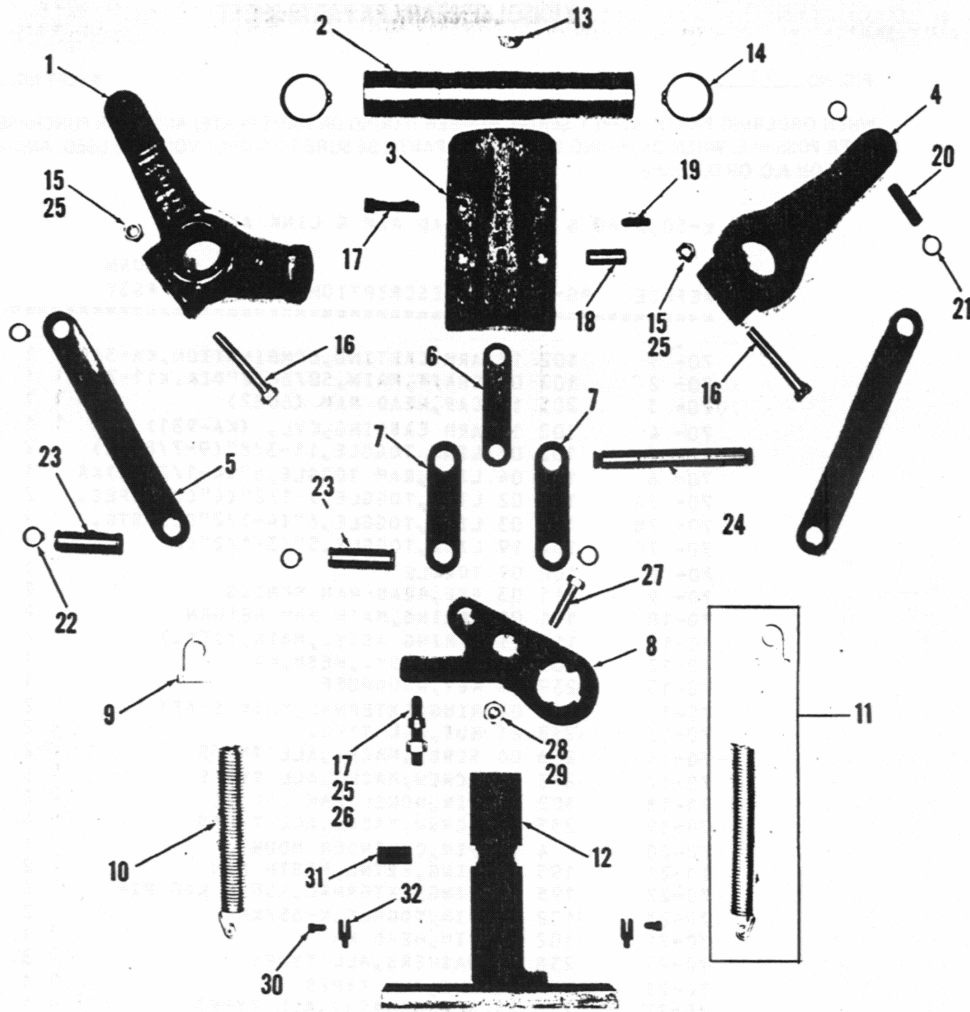


Fig. 70

RAM, LINKS, and PINS

4/83

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL-OLSENMARK PARTS SHEET

FIG. NO. 70

SHEET NO. 42A

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHEN EVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

K-50, K-60 & K-110 HEAD RAM & LINK ASSY.

REFNCE	PG-CODE	DESCRIPTION	QUAN ASSY
70- 1	102 12	ARM CASTING, COMBINATION, KA-36B	1
70- 2	102 08	SHAFT, MAIN, 50/60, 2" DIA. X 11-7/8	1
70- 3	205 18	CAP, HEAD RAM (60E2)	1
70- 4	102 10	ARM CASTING, CYL. (KA-931)	1
70- 5	102 01	LINK, TOGGLE, 11-3/8" (9-7/8" CC)	2
70- 6	102 04	LINK, RAM TOGGLE, 5" (4-1/2" CC) KA	1
70- 7A	102 02	LINK, TOGGLE, 5-1/2" (4" CC) SPEC.	2
70- 7B	102 03	LINK, TOGGLE, 6" (4-1/2" CC) STD.	2
70- 7C	102 19	LINK, TOGGLE, 5" (3-1/2" CC)	2
70- 8	102 09	TOGGLE	1
70- 9	111 03	EYE, HEAD RAM SPRING	2
70-10	111 02	SPRING, MAIN RAM RETURN	2
70-11	111 21	SPRING ASSY., MAIN, (STD.)	2
70-12	109 04	RAM ASSY., HESD, KA	1
70-13	239 18	KEY, WOODRUFF	1
70-14	195 07	RING, EXTERNAL, MAIN SHAFT	2
70-15	238 21	NUT, ALL TYPES	2
70-16	236 06	SCREW, MACH., ALL TYPES	2
70-17	235 09	SCREW, MACH., ALL TYPES	5
70-18	102 13	PIN, DOWEL, RAM CAP, LC	2
70-19	235 05	SCREW, MACH., ALL TYPES	4
70-20	4 15	PIN, CYLINDER MOUNT	1
70-21	195 08	RING, EXTNL, PISTN PIN	2
70-22	195 05	RING, EXTERNAL, K50 & K60 PIN	6
70-23	102 07	PIN, TOGGLE, K-65/KA	2
70-24	102 05	PIN, HEAD KA	1
70-25	238 08	WASHERS, ALL TYPES	3
70-26	238 20	NUT, ALL TYPES	1
70-27	237 25	SCREW, MACH., ALL TYPES	1
70-28	241 10	WASHERS, ALL TYPES	1
70-29	239 20	NUT, ALL TYPES	1
70-30	231 04	SCREW, MACH., ALL TYPES	2
70-31	102 14	PIN DWL RAM PLG TGGL	1
70-32	111 08	MOUNT, LOWER SPRING	2

KENSOL-OLSENMARK, INC.
40 Melville Park Road, Melville, NY 11747 • Telephone: (516) 694-7773

Instructions for Kensol Models K-36/K-50/K-60/K-110

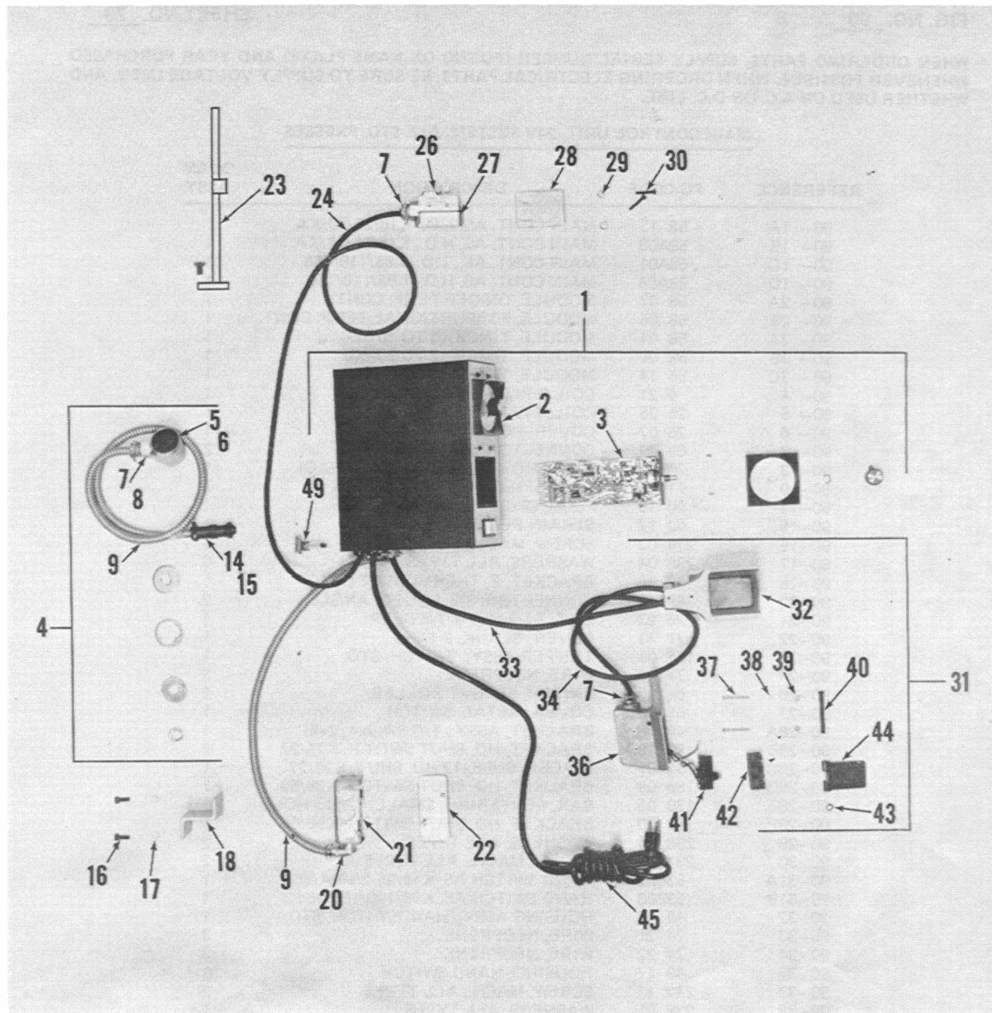


FIG. 90
MAIN CONTROL UNIT

1/83

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL-OLSENMARK PARTS SHEET

FIG. NO. 90

SHEET NO. 79

WHEN ORDERING PARTS, SUPPLY SERIAL NUMBER (FOUND ON NAME PLATE) AND YEAR PURCHASED WHENEVER POSSIBLE. WHEN ORDERING ELECTRICAL PARTS, BE SURE TO SUPPLY VOLTAGE USED, AND WHETHER USED ON A.C. OR D.C. LINE.

MAIN CONTROL UNIT, 24V SYSTEM, ALL STD. PRESSES

REFERENCE	PG-CODE	DESCRIPTION	QUAN ASSY
90-1A	59 13	MAIN CONT. AS, L.D., K16 25 36 KA	1
90-1B	59A03	MAIN CONT. AS, H.D., K16 25 36 KA	1
90-1C	59A01	MAIN CONT. AS, L.D., K65 110 156	1
90-1D	59A04	MAIN CONT. AS, H.D., K65 110 156	1
90-2A	59 07	MODULE, ON/OFF TEMP. CONT.	1
90-2B	59 08	MODULE, PROPORTIONAL TEMP. CONT.	1
90-3A	59 04	MODULE, TIMER, .5 TO 10 SEC.	1
90-3B	59 06	MODULE, TIMER, .2 TO .8 SEC.	1
90-3C	59 11	MODULE, TIMER, .2 TO 2 SEC.	1
90-4	25 21	CORD & PLUG ASSY., 24VDC	1
90-5	25 29	CORD, 24VDC	1
90-6	29 07	COVER, HOUSING	1
90-7	61 09	CONNECTOR, 3/8 ROMEX	2
90-8	70 11	ANTI-SHORTS, 16D FIBER, .35 BAG	1
90-9	71 15	GREENFIELD, EXTRA FLEX BX	3
90-14	50 16	PLUG, OPC	1
90-15	50 17	STRAIN RELIEF	1
90-16	230 02	SCREW, MACH., ALL TYPES	4
90-17	238 04	WASHERS, ALL TYPES	4
90-18	59 09	BRACKET, Z, THERMOSTAT 771C	1
90-20	59 10	CONNECTOR, 3/8, 90 DEG. ANGLE	2
90-21	70 23	BOX, 2 1/8x4x1 7/8 DEEP	1
90-22	71 13	COVER, BLANK, 2 1/8x4	1
90-23	188 01	TRIPPER ASSY., SWITCH, STD.	1
90-24	74 23	WIRE, NEOPRENE	3
90-25	64 02	SWITCH, STRIGHT ROLLER	1
90-27	55 03	COVER, METAL SWITCH	1
90-28A	49 08	BRACKET, ASSY., T.C.S.W 2x4 2x6	1
90-28B	125 19	BRACKET, HD. SHUT SWITCH, K25 27	1
90-28C	133 07	SPACER, 6x8 6x12 HD. SHUT, K25 27	1
90-28D	186 09	BRACKET, HD. SHUT SWITCH, K38 50	1
90-28E	130 05	BAR, CENTERING, SMALL, 7/16 NO HOLE	1
90-28F	53 10	BRACKET, HD. SHUT SWITCH, K56 65	1
90-29	238 04	WASHERS, ALL TYPES	2
90-30	231 02	SCREW, MACH., ALL TYPES	2
90-31A	59302	HAND SWITCH AS, K16 25 36 KA 56	1
90-31B	59303	HAND SWITCH AS, K65 110 156 165	1
90-32	49 13	HOUSING ASSY., HANDSWITCH, STD.	1
90-33	74 21	WIRE, NEOPRENE	3
90-34	74 22	WIRE, NEOPRENE	3
90-36	49 17	HOUSING, HAND SWITCH	1
90-37	242 11	SCREW, MACH., ALL TYPES	2
90-38	238 01	WASHERS, ALL TYPES	2
90-39	238 10	NUT, ALL TYPES	2
90-40	48 15	PIN, LEVER HANDSWITCH	1
90-41	55 01	SWITCH, HAND SWITCH HOUSING	1
90-42	55 02	COVER, PLASTIC SWITCH	1
90-43	185 12	RING, EXT. GRIPPING	2
90-44	48 25	LEVER, HANDSWITCH	1
90-45	74 17	LEVERCORD, MOLDED, 18 3/4, 115V, 8 FT	1
90-49	67 19	FUSE, GLASS TUBE TYPED	1

KENSOL-OLSENMARK, INC.

40 Melville Park Road, Melville, NY 11747 • Telephone: (516) 694-7773

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL SUGGESTED

<u>REFERENCE</u>	<u>HEAD SIZE</u>	<u>ROLL LEAF ATTACHMENT</u>
(1)	<u>6 X 8L</u>	<u>S/S Air</u>
(2)	<u>6 X 12M</u>	<u>S/S Air</u>
(3)	<u>9 x 12R</u>	<u>S/S Air</u>
(4)	<u>10 x 15P</u>	<u>S/S Air</u>
(5)	<u>12 x 18Q</u>	<u>S/S Air</u>

ELECTRICAL SPARE PARTS

2 Heaters

Ref(1)	(2)Size 3/4 x 6 1/2	120V/ 500W 220V/ 500W	# 56-15 # 56-16
Ref.	(3) Size 3/4 x9 1/2	120V/ 700W 220V/700W	# 57-01 # 57-11
Ref	(4) Size 3/4 X 10 1/2	120V/ 600W 220V/ 600W	# 55-10 # 55-11
Ref.	(5)Size 3/4 X 12 1/2	120V/ 800W 220V/ 800W	# 55-12 # 55-13
1	Timer Insert		# 55-06
1	Coil Assembly (for way valve)		# 25-26
2	Switch for Hand Switches		# 65-01
1	Switch for Head Shut		# 65-02
1	Thermostat Insert	On-Off Proportional	# 58-07

PNEUMATIC SPARE PARTS

1	Four Way Valve – Roll Leaf System		# 22-04
1	Main Press Valve	K-50 K-561, K-156	# 22-02 # 22-03
2	Roll Leaf Valve Rebuild Kits		# 5-18
1	Main Cylinder Rebuilding Kit	K-50 K-56, K-156	# 5B06 # 5B07
2	Speed Valves		# 23-05
2	Speed Valves	K-50 K-56, K-156	# 7-13 # 22-25
2	Mufflers		# 28-33

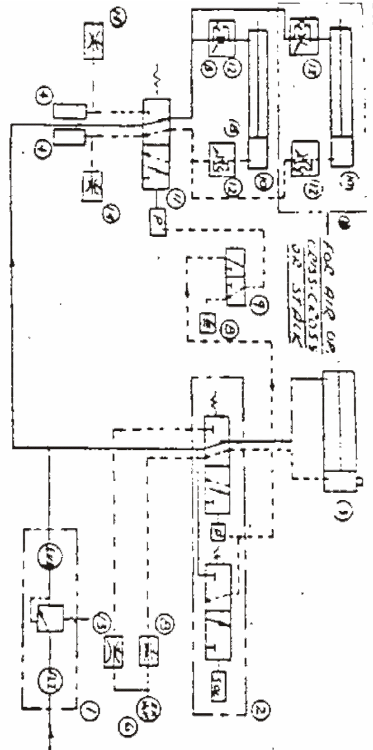
Instructions for Kensol Models K-36/K-50/K-60/K-110

SPARE PARTS LIST (contd.)

MECHANICAL SPARE PARTS

4	Stripper Springs	# 146-09
2	Complete Stripper Bar Assemblies.	
	Ref. (1) (2)	# 144-13
	Ref. (3)	# 144-14
	Ref. (4)	# 144-12
	Ref. (5)	# 144-15
2	Head Return Spring	# 111-02
1	Rubber Roller	
	Ref. (1) (2)	# 150-23
	Ref. (3)	# 151-03
	Ref. (4)	# 150-25
	Ref. (5)	# 151-04
1	Knurled Roller	
	Ref. (1) (2)	# 155-02
	Ref. (3)	# 155-07
	Ref. (4)	# 155-04
	Ref. (5)	# 155-08
4	Stripper Bar Nuts	# 145-10
2	Chase Handles	# 42-07
2	Rewind Kits	# 143-21
1	Foil Leaf Clutch Assembly	
	Ref. (1) (2)	# 155-09
	Ref. (3) (4)	# 150-08
	Ref. (5)	# 150-06
1	Knurled Roller Advance Knob	#157A01
2	High Temperature Grease for Ram	# 79A03
2	Qts. NON DETERGENT Press Lubrication Oil	# 197-20

Instructions for Kensol Models K-36/K-50/K-60/K-110



SEQUENCE OF OPERATIONS

PRESS HAND SWITCHES TO ENERGIZE TIMER. TIMER ENERGIZES HEAD SOLENOID VALVE #2 WHICH PRESSURIZES HEAD CYLINDER #3 ADVANCE LEAF CYLINDER #10 TO RETURN. WHEN TIMER TIMES OUT, SOLENOID VALVE #2 IS DEENERGIZED PRESSURIZING HEAD CYLINDER #3 RETRACT AND PILOT FOOT ON HEAD SOLENOID VALVE #2 PRESSURIZES PILOT VALVE #11 PRESSURIZING ROLL LEAF CYLINDER #10.

SYN	CODE	PART NAME	QTY
1	314-01	AIR SOURCE UNIT	1
2	22-02	DIRECTIONAL VALVE - L-WAY	1
3	9-19	AIR CYL - K-36, K-50, K-60, AND	1
4	28-21	SEE CHART	1
5	28-18	VALVE	1
6	23-05	METERING VALVE	2
7	23-24	QUICK EXHAUST VALVE	1
8	9-02	SOLE LEAF CYL - DOLLAR	1
9	9-05	SOLE LEAF CYL - EM. VAL	1
10	22-04	PILOT VALVE	1
11	22-23	FLOW VALVE	1
12	7-13	NEEDLE VALVE	1
13	23-05	SEE CHART	1
14	23-05	SEE CHART	2

NOTE:
 MAIN CYL WITH ROLL LEAF ATTACHMENT (SR, CR, CS, S, & ST) K-30, K-50, K-60, K-110, K-36

SYN	CODE	PART	USE
4	2821	VALVE	FOR CR, CS, S, & ST
14	2305	VALVE	FOR CR, CS, S, & ST

* GIVE STROKE OF CYL IN INCHES

FOR 3 INCHES

KENSOL-OLSENMARK, INC.			
TO BE ASSEMBLED (LIST IN ORDER)	DATE	BY	CHKD
ASSEMBLED	6-12-67	MIC. JOHNSON - S	J
CYL. & VALVE DRG. (SEE NOTE)		REV	

Instructions for Kensol Models K-36/K-50/K-60/K-110

DRAWING 40-21 36487

FRONT VIEW

RIGHT SIDE VIEW (REV)

SEE NOTE

PIVOT TO SWIT

NOTE:
 THE LENS MUST BE SET TO SWITCH IS ABOVE WHEN DIE COMES AUTO. CONTACT WITH WORK.
 CRUISE - THIS SETTING MAY HAVE TO BE ADJUSTED WITH EACH SET-UP.
 ATTENTION TO DOWN STROKE

REV	DATE	DESCRIPTION	BY	CHK
REV 534-4	5/24/74	ESTABLISHING 4 HARDWARE ASSY		
REV 534-3	5/24/74	ESTABLISHING 3 HARDWARE ASSY		
REV 534-2	5/24/74	ESTABLISHING 2 HARDWARE ASSY		
REV 534-1	5/24/74	ESTABLISHING 1 HARDWARE ASSY		

REV	534-4	ESTABLISHING 4 HARDWARE ASSY	
REV	534-3	ESTABLISHING 3 HARDWARE ASSY	
REV	534-2	ESTABLISHING 2 HARDWARE ASSY	
REV	534-1	ESTABLISHING 1 HARDWARE ASSY	

REV	534-4	ESTABLISHING 4 HARDWARE ASSY	
REV	534-3	ESTABLISHING 3 HARDWARE ASSY	
REV	534-2	ESTABLISHING 2 HARDWARE ASSY	
REV	534-1	ESTABLISHING 1 HARDWARE ASSY	

REVISIONS:

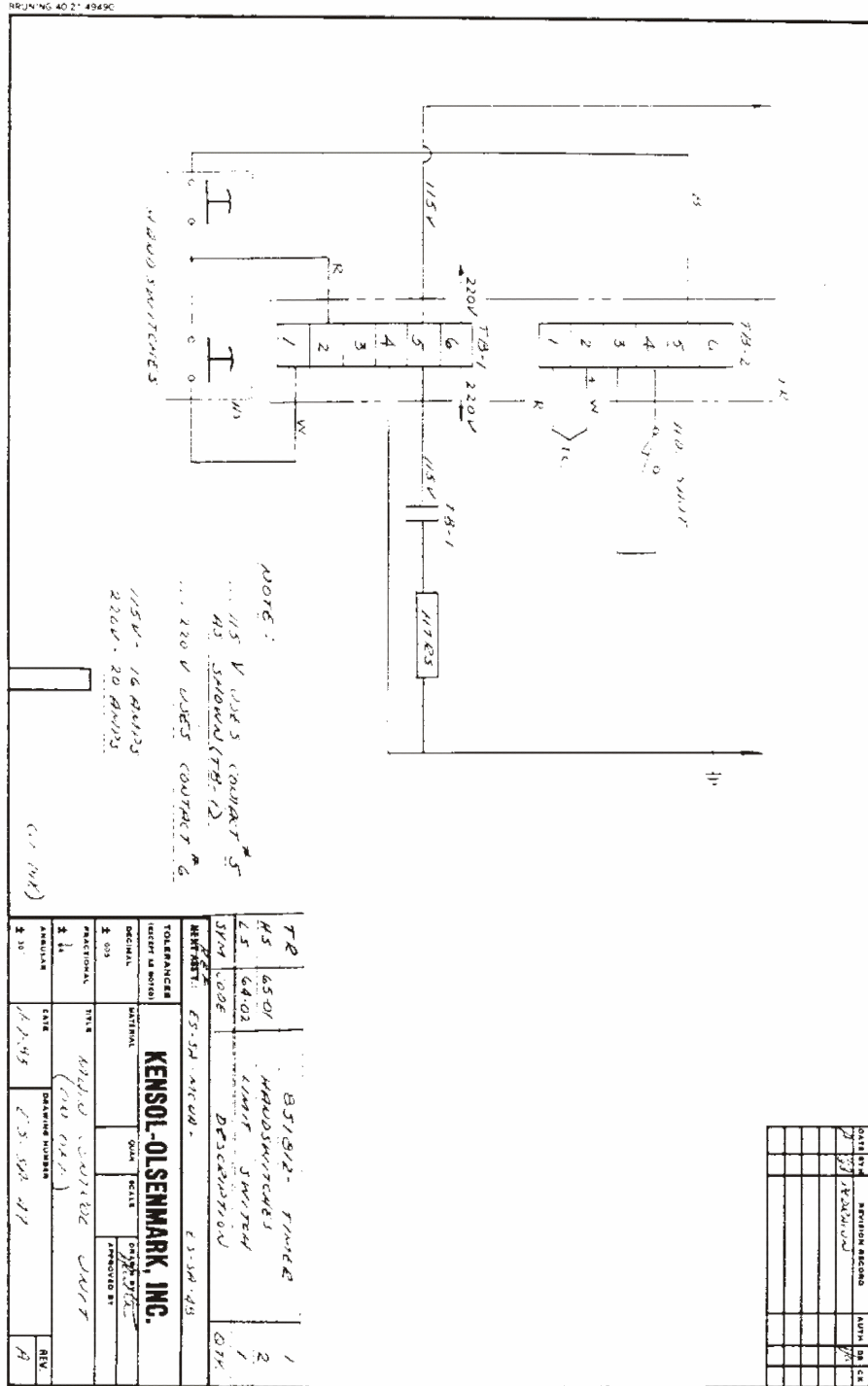
NO.	DATE	DESCRIPTION
1	5/24/74	ESTABLISHING 1 HARDWARE ASSY
2	5/24/74	ESTABLISHING 2 HARDWARE ASSY
3	5/24/74	ESTABLISHING 3 HARDWARE ASSY
4	5/24/74	ESTABLISHING 4 HARDWARE ASSY

TOLERANCES (UNLESS OTHERWISE SPECIFIED):

FRACTIONAL: ± .015
 DECIMAL: ± .005

KENSOL-OLSENMARK, INC.
 TITLE: TOLERANCE SWITCH ELEMENT AND SHAFT
 DATE: 5/24/74
 DRAWING NUMBER: 40-21 36487
 REV: B

Instructions for Kensol Models K-36/K-50/K-60/K-110



Instructions for Kensol Models K-36/K-50/K-60/K-110

INSTRUCTIONS

LEVELING THE 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 proper fit and registration

All presses should be checked every six months or sooner for level and rat 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 330 degree F). You should set the thermostat for 650 degrees F, so that the complete head of the machine and frame is expanded.

The ram should then be checked to see f there is any play in the down or stamping position. If there is

Continued...

Instructions for Kensol Models K-36/K-50/K-60/K-110

INSTRUCTIONS

LEVELING THE DIE STAMPING HEAD TO THE WORK TABLE

Page 2

play in the ram it should be adjusted before leveling.

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 chock 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 tan 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"x #', of shin stock for stability.

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

If the right front corner is out of level by ten (.010) thousandths. To level the head and die face to the face, 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 casting press ages and cures over a long period of time, the frame could distort and require re-leveling of the head and adjusting the ram.

A cast iron frame is superior to a steel

Continued...

Instructions for Kensol Models K-36/K-50/K-60/K-110

INSTRUCTIONS

LEVELING THE DIE STAMPING HEAD TO THE WORK TABLE

Page 3

(stretch) frame.

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

Re-leveling a machine's head can save a tremendous amount of press time and money by the stamper on make ready 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 make ready must be changed on every die change and so the stamper must correct for an inaccurate level and then add your usual make ready to prepare the job.

When metal die stamping plastics, the impressions debossed below the surface three (.003) to four (.004) thousands 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 (253 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 453 degrees F.

Leveling the head and adjusting the tam play, when

Continued...

Instructions for Kensol Models K-36/K-50/K-60/K-110

INSTRUCTIONS

LEVELING THE DIE STAMPING HEAD TO THE WORK TABLE

Page 4

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 function properly.

There is available a paper on CEAN 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.

* * *

Instructions for Kensol Models K-36/K-50/K-60/K-110

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 excess 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 the 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 cam 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 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 tee down or stamping position. If there is play in the ram it

continued. . .

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL PRESS RAM ADJUSTMENT (Continued)

Page 2

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.

Removed 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.

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

A bound link should be removed from the pin by taking the lock ring off the ends the pin and tapping the pin out of 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 in is locked in place with a set screw on the frame. Before attempting to remove the tap pins, 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 cap casting to set the gap inside of four (4) locknuts on older machines. Kensol K-36T ram cans have a special lock bolt with alien head and locking nut. The ram cap is located right above the head, and faces 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 . . .

Instructions for Kensol Models K-36/K-50/K-60/K-110

KENSOL PRESS RAM ADJUSTMENT (Continued)

Page 3

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 lockbolt 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.

End