*****WARNING*****

USE OF INKS OTHER THAN KIWI INKS ON THIS EQUIPMENT WILL RENDER THE WARRANTY NULL AND VOID.

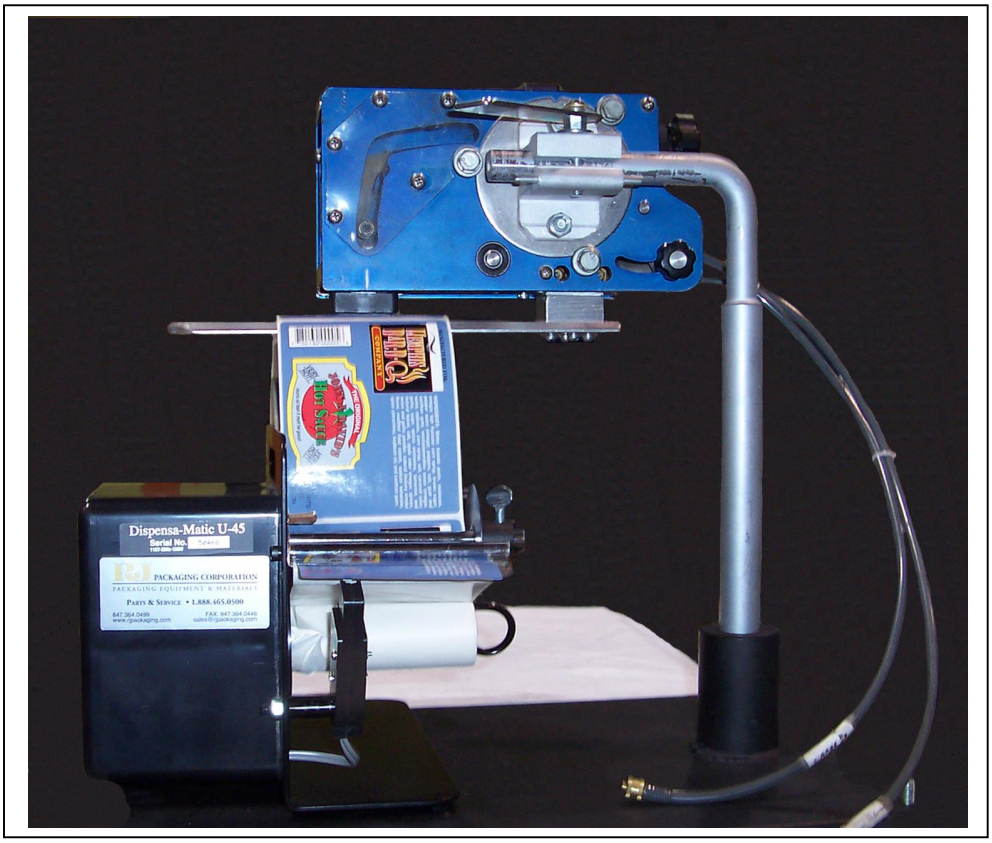
KIWI CODERS CORPORATION

KIWI SERIES 1100 RECIPROCATING CODER

Instruction Manual with parts list.

MODEL 1100_____

SERIAL NUMBER _____



See Brochure 225 for all series 1100 applications and uses

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KIWI CODERS CORPORATION

MODEL 1100 RECIPROCATING CODER

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OPERATING TIPS FOR SERIES 1100

1. Watch type projection. ï Lay straight edge on type. Type should project above bearer ring about .015ò(1/64ò). To increase type projection, grind bearer ring down using face of abrasive wheel. Or place emery cloth on flat table and grind down manually.

2. Donôt mix worn with new baselock type. May result in incomplete prints due to differing type heights.

3. Keep ink cartridge holder clean. Using Kiwi No. 8 ink conditioner or equivalent, clean recess of any dried ink. Also clean typeholderôs bearer ring. If not kept clean, ink becomes tacky and may cause typeholder to stick. Also prevents ink outlining of imprint.

4. Remove oil lubricator if present. Lubricator was furnished with older 1100 Models. Oil can cause pilot valve to malfunction resulting in hang ups.

5. Typeholder gap ï check gap between fully extended typeholder (slide sleeve valve to air off position) and surface to be imprinted. Should be (1/4òto 5/16ò). Fine adjust knob should be locked in middle of slot when making adjustment.

6. If necessary, readjust air flow control valves. Slower speed applications (60/minute and below) should have return stroke set for gentle contact of typeholder with ink cartridge holder. Print stroke speed should be set such that typeholder has sufficient extension to reach surface to be marked.

7. Replace ink cartridge gaskets (P/N F011063) as required. Ink contamination causes gasket to harden, losing its flexibility.

8. K8 ink cartridges ï Always store with foil face up prior to opening. Pump unopened foil face lightly with thumbs or flat object. This puts any excess ink back into cartridge. It may be necessary to absorb excess ink with absorbent paper towel.

9. After inserting new K8 ink cartridge into clean ink cartridge holder, lightly cut foil with knife using the square opening as a template. Peel foil off, insert assembly into Series 1100 Coder and gently snug up cartridge using adjusting knob. Do not use excessive force as ink will flow out of cartridge.

10. Mid-Stroke Hang-Ups

    A. Check to see that recommended typeholder gap is being maintained. If air cylinder is not permitted to bottom, unit will hang up.

    B. Check speed settings. If too slow, typeholder may hang-up in middle of cam path on return stroke.

    C. Replace obsolete pilot air valve with current production larger diameter valve P/N F011140 and bottom cover P/N F011058.

    D. Remove oil lubricator.

1. GETTING TO KNOW YOUR UNIT.

Did you get everything you ordered? Check everything in the box against the pictures on FIG. 11 (page 19). Remove any instructions, packing lists, etc. that accompany the unit or the electronic sensors and add them to the rear of this booklet for future reference. This is VERY important. Please do it NOW.

Keep the unit in front of you as you take a few minutes to familiarize yourself with the Model 1100 Coder. Learning about it now, BEFORE attempting installation and operation will save you a great deal of time during set-up and in production. The following are brief descriptions of the features and operating characteristics that you MUST know before actual installation.

A. Swivel Clamp with Integral Wrench. (see FIG. 1)
Loosening this clamp permits angular adjustment in a horizontal plane and minor vertical adjustments.

B. Swivel Plate. (see FIG. 1)
Loosening the 3 clamping bolts permits angular adjustment in a vertical plane. NOTE: If necessary to clear some obstruction, the swivel clamp and plate assembly may be relocated to the opposite side of the coder.

C. Stop Collar. (see FIG. 1)
Once positioned and its set screw tightened, it permits precise relocation (both horizontally and vertically) of the coder after it has been removed from the mounting shaft.

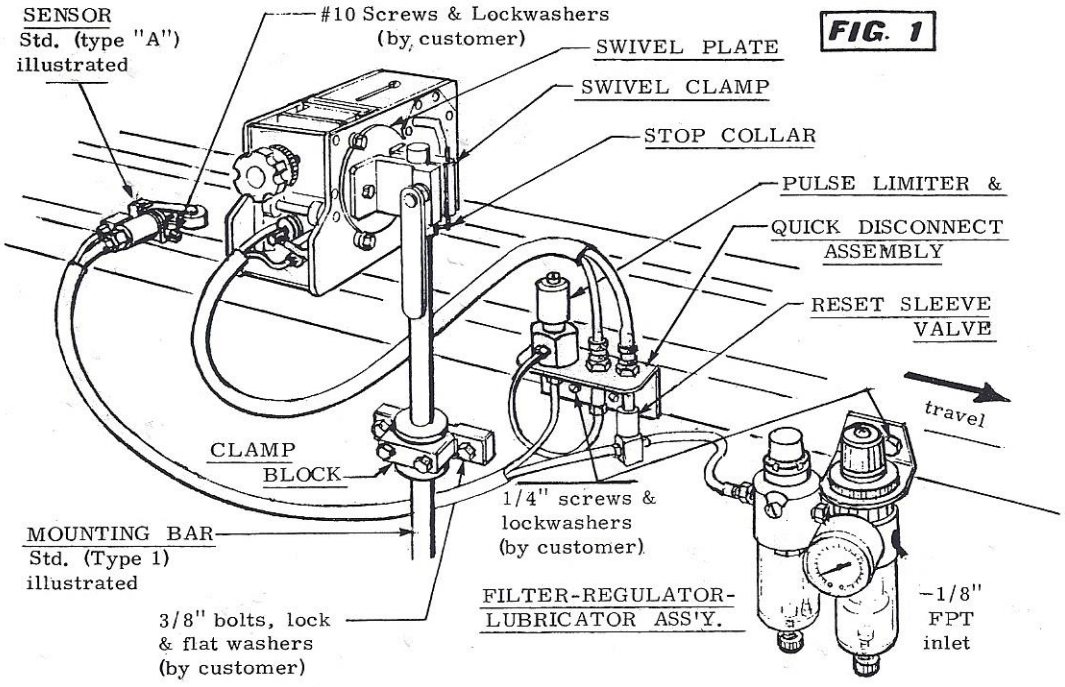


FIG. 1

D. Quick Discount Assembly. (see FIG. 1, page 1)

Permits INSTANT removal of the coder from the mounting shaft. The disconnect fittings contain check valves that prevent the loss of plant air when the coder in not connected. Remember, the large hose is always air POWER; the small one is always the air SIGNAL from the sensor.

1. Pulse Limiter: Permits the marking head to complete only one printing cycle regardless of how long the sensor is activated.

2. Reset Sleeve Valve: This chrome plated sleeve valve is used to dump pressure from the coderôs air cylinder. Use it for safe and easy type changing. It is also used to reset the mechanism is case of a jam.

E. Marketing Head Motion. (see FIG 2)

With the coder in front of you, open the top access cover and remove the rubber band retaining the marking head. Move it away from the inking position by gently pushing on the cast links on either side of it. Observe the action of the marking head as it rotates 90° and completes its stroke in a straight line. The head is now in the printing position. NOTE: Pushing on the marking head itself will cause it to move erratically and bind in the guide slots. ALWAYS push on the cast links when manually operating the marking head.
Return the marking head to the inking position observing the rotation and straight line motion as it contacts the ink cartridge. Do this for several cycles to familiarize yourself with the action. When the coder is under power, the entire ñink-print-inkò cycle takes place in a small fraction of a second.

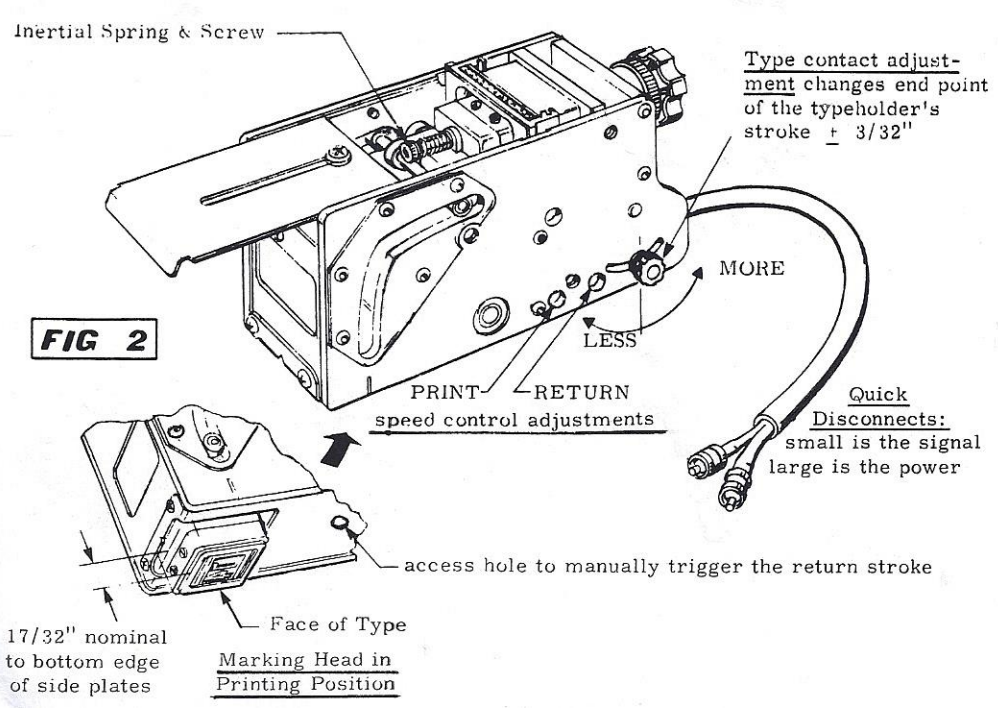


FIG 2

F. "Micrometer" Type Contact Adjustment. (see FIG 2, page 2)

This permits fine adjustment of type contact on the product after the coder has been locked in position. Drop the marking head to the print position and try it. Make certain the knob is locked in the center of its slot during installation.

G. Speed Control Valves. (see FIG 2, page 2)

These adjustments control the speed at which the marking head reaches the printing position and returns. They are factory adjusted and should not require any changing. If for any reason you do change them and want to return to the original settings, follow this procedure:

1. Screw both adjustments lightly full in.
2. Back out the Return Screw 3/4 turn.
3. Back out the Print Screw 1 full turn.

If you wish to print at speeds greater than 125 prints per minute, you may have to back them out slightly more. Always adjust the return to the ink cartridge slower than the printing stroke.

H. Ink Cartridge Holder. (see FIG 10, page 9)

Retains and seals the ink cartridge. Permits quick replacement of the cartridges. Push marking head slightly away from holder and back off the pressure plate using the inker adjusting knob. Pull the cartridge straight up for removal.

I. Typeholder Removal. (see FIG 3)

With the ink cartridge removed and the pressure plate backed-off, press in the screw head at the top of the marking head and slide the typeholder off the T-bar that retains it. Note that the typeholder can be mounted in any of four directions to give you the maximum flexibility from a single mounting location.

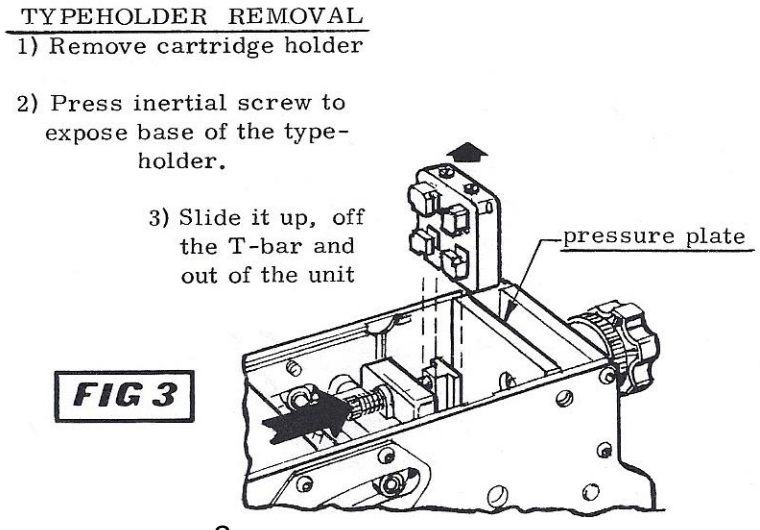
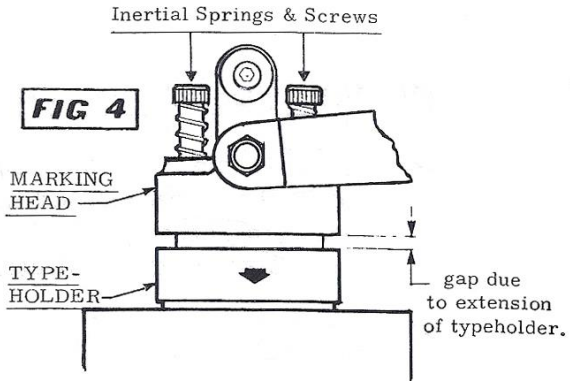


FIG 3

J. Inertial Typeholder. (see FIG 4)



With the marking head in the printing position, gently pull the type holder outward approx. 1/8ò This is the inertial action of the typeholder. When the marking head reaches the end of its stroke, the typeholder is permitted to continue duct. The faster the marking head is moving, the greater will be the extension. When properly adjusted, the type will contact the product for only .001 to .003 of a second. This feature makes possible very high speed, non-smear printing on a moving product.

II. INSTALLATION PROCEDURES:

FIG. 5, page 5, shows that the coder can be mounted in any direction EXCEPT the one shown in the inset figure.

FIG. 6, page 5, provides all the physical dimensions of the coder to aid in locating the unit with respect to the product being printed.

A. Coder Location: (see FIG 1, page 1)

Choose a location which will provide a rigid mounting as well as accessibility to the ink cartridge, typeholder and all adjustments: Should it be necessary to mount on a sheet metal surface rather than a rigid frame member, you might well consider ordering our optional mounting plate that distributes the load over a greater area. (Refer to FIG. 13, page 22) and order item #49 and the related fasteners.

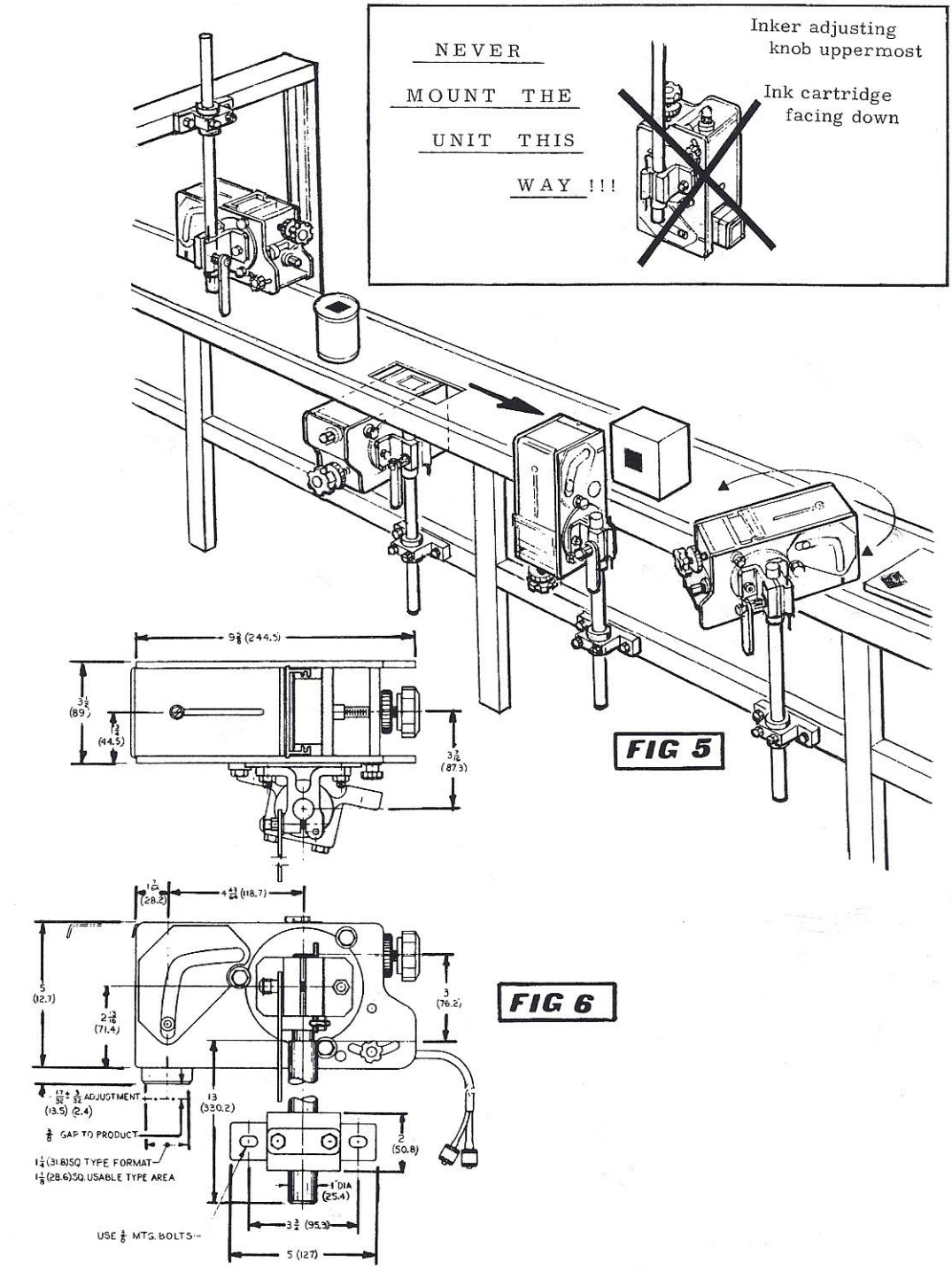
Remember that the location you choose must also provide easy access to the sensor. As FIG. 1 shows, it MUST be mounted slightly ñup streamòof the coder.

B. Assemble Coder to Mounting Shaft: (see FIG 1, page 1)

Slide the clamp block on the 1òdia. end of the mounting shaft and snug the two clamp screws. Lock the stop collar on the shaft about 1/2òfrom the shoulder, then slide the coder on the shaft so that the swivel clamp rests on the stop collar. Snug tighten the swivel clamp using its built in wrench.

C. Mount the Coder Assembly:

Place the coder assembly at the location selected for permanent mounting and temporarily clamp the mounting block to the conveyor frame with a pair of C ï clamps.



D. Position the Coder: (see FIG 2, page 2)

1. Check that the ñmicrometeròtype contact adjustment knob is in the center of its slot.
2. Open the top access cover and manually push the marking head assembly down into the printing position.

3. Loosen the swivel clamp for side-to-side adjustment, and the lower clamp block for vertical adjustment. Position the coder so the typeholder is 1/4ò ï 5/16ò from the productôs surface. (See FIG 7) Retighten both clamps securely.

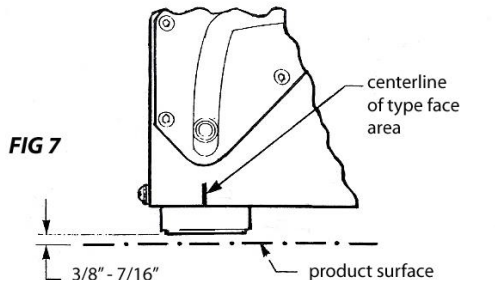


FIG 7

IMPORTANT: The typeholder must be parallel to the productôs surface, and must make flat contact with the product during operation. Operating the coder with the typeholder out-of-parallel will result in very early failure of the typeholder and associated parts. To adjust, loosen the 3 bolts on the swivel plate and tilt the coder up or down until the typeholder is parallel to the product. Retighten bolts securely.

4. Loosen the stop collar and rotate it so the pin in the collar makes contact with the pin in the swivel clamp. Retighten the collar. This will permit precise relocation of the coder should you ever wish to remove it from the mounting shaft.

5. After ALL of the above steps have been completed, loosen the ñmicrometer: type contact adjustment and fine adjust the gap into the middle of its recommended range. Retighten the knob. NEVER allow the typeholder to be powered into the product being marked without some inertial extension.

E. Sensor Location:

The various sensors that are available for use with the Model 1100 Coder are designated ñAò through Hò. They are illustrated in FIG. 11, page 19. Refer to it for the designation of your particular sensor. They all must be located slightly ñup streamò of the center line of the print area. You can approximate the correct location by moving its location the same distance your conveyor will travel in 1/8 of a second. The following formula can be used to approximate the distance between the sensor and the center of the print area:
Distance in inches = 0.025 X line speed (in ft./min)

If the coder is mounted in line with your conveyor, measure up stream from the white index mark on the coderôs side plates. If the coder is mounted perpendicular to the conveyor, measure form the centerline of the coder. Clamp the sensor in place as your will move it slightly later.

1. Air Only Sensors: If you are using an ñAò or ñBò sensor, mount it as suggested above. The ñBò sensor (feather touch) requires only a 1/4 to 1/2 ounce of force to trigger the coder. Check that there is no more than a 1/16ò gap between the actuator arm and the air bleed port. Adjust it if required. Position this sensor for very light contact and a minimum of over-travel.

2. Electronic/Air Sensors: If you purchased a photocell, proximity or micro-sonic sensor (ñCò, ñDò, ñEòor ñHò), temporarily clamp the solenoid and box assembly within 12òof the clamp block that is mounted on the conveyor frame. The 12 VDC power supply MUST plug into a 115 VAC outlet that is OFF when your line is turned off. Position the sensor up stream in the same manner as was discussed above. Exact registration is achieved by slight adjustments in the final location of these sensors.

3. 115 VAC Solenoid: This is option ñFò It will take a 115 VAC signal from your own microswitch, relay, etc. and convert into a limited air pulse to actuate the coder. Your electrical signal does not have to be ñchoppedòto permit the return stroke. It should, however, be at least 1/8 of a second long to insure proper triggering. Mount the solenoid within 12òof the clamp block and wire it according to NEMA and local electrical codes. Note that the solenoid has a manual triggering lever for your convenience in setting up and checking out the coder.

F. Quick-Disconnect Assembly:

Temporarily clamp this assembly within easy reach of both the coder and the sensor. (see FIG. 1, page 1)

G. Filter – Regulator Assembly:

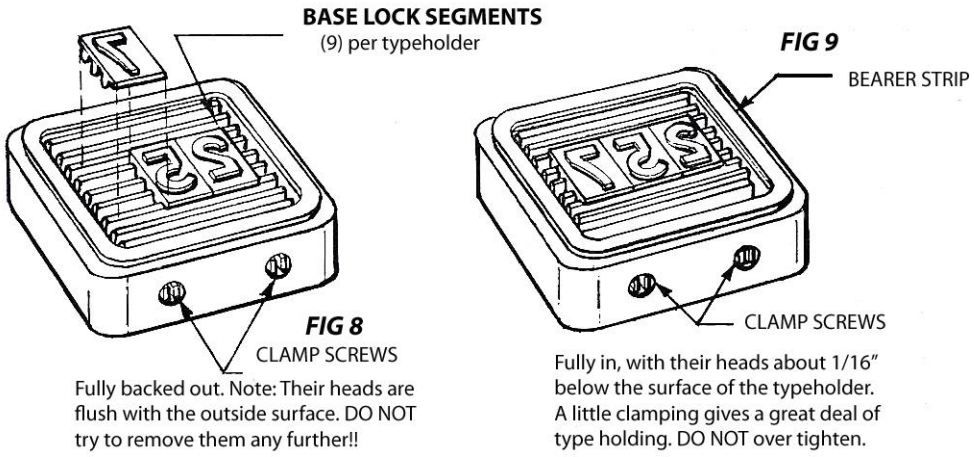
Temporarily clamp the F-R within easy reach of the single hose coming from the quick-disconnect assembly. Attach your air supply to the F-R. (see FIG. 1, page1). NOTE: The coder operates are 60 psi. Your air supply should be well above that and not subject to sudden, large drops in pressure. If you cannot assure this, add a check valve to your supply line.

III. TYPE CHANGING: (see FIGóS. 8 & 9, page 8)

The baselock segments contained in the typeholder can be loosened for type changes and retightened again with just a few turns of a screwdriver. It has a patented internal anti-vibration locking device. The screws do not have to be tight to avoid loosening. Use the following procedure to change type.

A. Back off the ink cartridge pressure plate and move the marking head slightly away from the cartridge holder. Remove the cartridge holder by sliding it straight out.

B. Remove the typeholder from the marking head by compressing the inertia spring and sliding the typeholder off its T-bar.)see FIG. 3, page 3)



C. With the small screwdriver provided, loosen both baselock clamp screws.

   VITAL: WHEN LOOSENING, NEVER FORCE THE SCRESW PAST THEIR NATURAL STOPPING POINT. (SEE fig. 8)

   Remove old type and firmly press new type into baselock segments.

D. Turn clamp screws in until firm resistance is felt. A little clamping force creates a great deal of type holding power. DO NOT OVER TIGHTEN! (see FIG. 9)

E. Replace typeholder on marking head.

F. Reinstall cartridge ink holder and adjust pressure plate against the cartridge. (see Section IV, item F for adjustment instructions.)

G. Close access cover and manually actuate the coder to check its operation.

IV. INK CARTRIDGE INSTALLATION: (see FIG. 10, page 9)

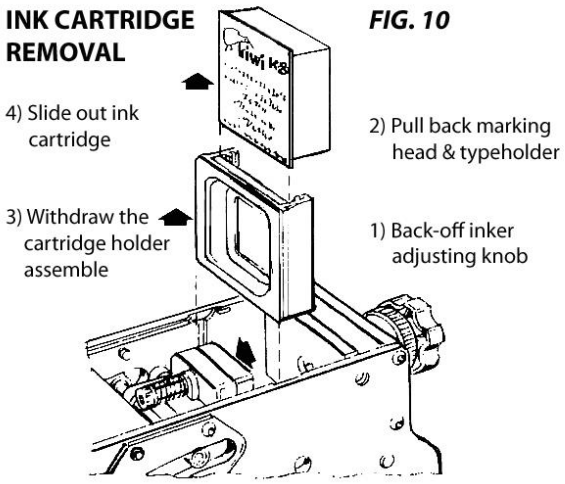
The KIWI K-8 cartridge contains a super fast ink which dries instantaneously in most applications. The coderôs inking system has been designed to totally seal the ink from the atmosphere at all times, except for the fraction of a second it takes for the marking head to print your product and return.

To prepare and install a new cartridge, use the following procedure:

A. Precondition your cartridge by holding it in two hands and using both thumbs to gently ñpumpò the label of the cartridge. This action will also flatten the natural crowing that occurs during storage and thus help insure more uniform inking.

B. Cut off air pressure with the reset sleeve valve, back-off the cartridge pressure plate, pull the marking head slightly away and remove the ink cartridge holder from the coder.

C. Dispose of used cartridge and replace with a new one, as shown in FIG. 10



D. Using the stainless steel mask as a template, cut away the sealing material with a sharp knife or razor.

E. Pull the marking head out of the way and slide the cartridge holder back into place. Re-apply line pressure with the reset sleeve valve.

F. Adjust the cartridge pressure plate so that the sponge rubber seal compresses about 50%. Fresh ink cartridges tend to slightly over-ink the type. Readjust the pressure plate after 50 or so imprints. Lock the satisfactory setting in place with the knurled jam nut.

G. Close the access cover.

Cartridge life will vary from one to two shifts to a full week, depending upon your usage. Keeping air pressure on between shifts and overnight insures that the typeholder will seal the ink cartridge face, preventing evaporation and greatly increasing the cartridge life. If this is not possible, hook a rubber band around the top inertial screw head and the pressure adjustment knob to keep the marking head in the sealing position. NOTE: Always store new, unused cartridges with the seal surface UPWARD. An extra cartridge assembly will allow you to prepare a new ink cartridge ahead of time and complete your change-over within 10 to 15 seconds of down time. Always precondition your cartridges.

V. PRECAUTIONS:

PLEASE NOTE THE FOLLOWING PRECAUTIONS. THEY SHOULD BE OBSERVED AT ALL TIMES WHEN THE CODER IS IN OPERATION.

A. Keep fingers and tools away from the coder when it is operational. The marking head operates at ñfaster than the eyeòspeeds and can cause an injury. NEVER operate the coder without ALL its stainless steel and plastic covers in place.

B. To prevent accidental triggering of the coder while replacing an ink cartridge or changing type, the air power to the coder MUST be temporarily shut off by sliding the chrome plated Reset Sleeve Valve downward.

C. When performing maintenance beyond the two activities mentioned above, unscrew BOTH quick-disconnect fittings at the quick-disconnect assembly to completely insure your safety.

D. The ONLY way the typeholder should contact the product is when it is separated INERTIALLY from the marking head. This is how the coder is designed to operate. Failure to provide the ¼ò5/16ògap required will prevent the typeholder from functioning properly and create problems for automatic return of the marking head back to the cartridge. This will cause a mid-stroke jam for the mechanism.

1. If the marking head stops in mid-stroke for any reason, it can be correct by sliding the Reset Sleeve Valve downward for a few seconds, allowing the system to vent, and then returning the valve to its operating position.

2. If the above procedure fails to clear a jam, the return valve actuator (located within the coder) must be manually pushed. A small access hole in the center of the bottom cover will permit you to do this using a small screwdriver.

Jams are generally caused by an inaccurate gap between the typeholder and the product, too low of an air pressure or a ppinched air line. Any of these conditions should be corrected as once.

E. Under no circumstances should the coder be operated without BOTH the ink cartridge and the typeholder in place. Test running with either of them missing will cause the cam follower bearings to SMASH into the ends of their guide tracks.

F. You will be given instructions later on the proper amount of oil to drip from the lubricator. FOLLOW THE INSTRUCTIONS. Over oiling is about the only to hurt this unit. Always use non-detergent, 10 weight oil. Expensive, automotive motor oil is the worst thing you can possibly use in modern pneumatic systems. Using motor oil can ruin the seals in the valving and cylinder and possibly set up a condition where the plastic oil reservoir could stress-crack and possibly explode under line pressure.

VI. HOOK-UP AND TESTING:

With the installation almost complete, the system is ready for testing. Before continuing, PLEASE reread the precautions in Section V.

A. Hose Connections: (see FIG. 1, page 1)

All hose connections are designed to be permanent and trouble free. The larger 1/8ò size tubing goes on the barbed fittings with some resistance. A smooth jaw pliers used on the hose, just past the end of the fitting will help considerably in attaching it. The smaller hose goes on nicely with only finger pressure. Take care not to bend the small barbed fitting as you attach the hose.

1. Connect the hoses from the sensor to the fittings on the underside of the quick-disconnect assembly.

2. Connect the single hose from the quick-disconnect assembly to the fitting on the lubricator.

3. Connect the coder hoses to the quick-disconnect fittings.

Throughout the entire pneumatic system, the larger diameter hose is the source of POWER and the smaller hose carried the SIGNAL from the sensor.

B. Insert Type and Ink Cartridge:

1. Insert type in the typeholder following the instructions of Section III.

2. Install the ink cartridge following the instructions of Section IV.

C. Adjust Air Pressure and TEST:

1. Attach air supply to the F-R unit.

2. Set air pressure at 60 psi and manually trigger the sensor a few times to check the unitôs operation. The marking head should cycle and return to the inking position within ¼ to ½ second.

D. Sample Printing:

Initial printing and adjustments are to be done while the product is not moving. Follow this sequence:

1. ñKillò air power with the sleeve valve and manually lower the marking head. Confirm the 3/8 to 7/16ò gap. Adjust if required using the ñmicrometerò type contact adjustment.

2. Confirm the parallelism between the typeholder and the productõs surface. Adjust, if necessary. If you do, repeat step 1.

3. When these fine adjustments are complete, close the top access cover and restore air pressure to coder by sliding the reset valve upward. NOTE: the marking head will instantly retract when the air is reapplied. Keep fingers and tools clear.

4. Manually actuate the coder and observe the quality of the prints on the product. Adjust the pressure on the ink cartridge, if required. Make minor adjustments with the ñmicrometeròtype contact knob, if required.

5. Adjust the position of the senor up or down stream to register the print in the exact location desired. Reclamp the senor securely.

VII. SETTING UP FOR PRODUTION:

When testing is complete and you are satisfied with the operation of the entire system, prepare to mount the installation permanently.

A. Bolt Components in Place: (see FIG 1, page 1)

Carefully mark the centers of the holes of all the clamped in place components. Drill clearance holes for the fasteners suggested in FIG. 1 and bolt every item securely in place. Be particularly accurate when mounting the coder and sensor to avoid major readjustment of these components.

B. Recheck All Adjustments:

Repeat the Sample Printing Procedure (Section VI, item D) and insure that all fine adjustments are correct. Readjust as necessary.

VIII. MAINTENANCE:

A. Typeholder:

Every few type changes (or as experience teaches) wipe the typeholder in KIWI #8 solvent to wash away accumulated dried ink and to insure that the baselock segments move freely.

B. Guide slots for the Marking Head:

Every 60 days (30 if running two shifts) apply a thin film of Lubriplate on the slot surfaces. Open the top access cover, apply a little both slots and work the mechanism by hand to distribute the film evenly. Use as little as possible, it lasts a long time.

C. General Cleanliness:

Keeping the coder clean will greatly reduce functional problem. Dirt or grit on the guide slots will cause premature wear and may eventually affect the alignment of the marking head. The cover plates are not only important as a safety feature, they are vital to keep dirt and debris out of the mechanism. Keep them in place at all times.

D. Adjustments After a Major Parts Replacement:

In the event a major component must be replaces, one or more of the following steps must be followed to maintain facortor adjustments and performance:

1. Air Cylinder to Actuator Shaft: (see FIG. A)

Assemble actuator shaft to the cylinder piston rod to the dimension shown. Measure from the end of the cylinder, not the face of the nut.

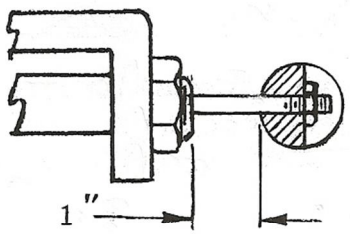
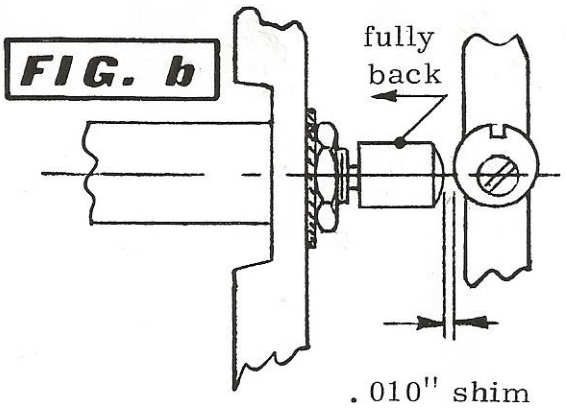


FIG. a

2. Eccentric Sleeve Adjustment:



Note: This adjustment must be made from the bottom of the coder with the bottom cover removed. Move the micrometer adjustment to the rear of its stroke and tighten it. Hold the marking head in the printing position while you rotate the eccentric to obtain the gap shown. The notch in the eccentric should be above the center line so that the impact force tends to tighten rather than loosen the adjustment.

3. Side Plate Re-Assembly:
When re-assembling the side plates, alignment is extremely important. Replace all screws and lockwashers loosely. Place the coder so the bottom edges of the side plates are resting on a hard, flat surface. Snug tighten all the screws and check that the sides are still flat against the surface. Now you may tighten all screws securely.

IX. SPECIAL APPLICATIONS:

A. Web Printing:
Your 1100 Coder is designed to print on moving webs. A special back-up bar, designed for web printing, is available in any desired length. Please refer to FIG. 16, page 18, for parts and how to use them. Consult with the factory on your application before ordering.

B. Multiple Prints on Long Products:
There are several ways to do this using a single coder and existing sensors. Consult KIWI about your particular application.

C. Printing on Small and/or Recessed Surfaces:
Several options are currently available and we are constantly adding more. PLEASE send us 6 samples of the item to be marked along with a sketch showing the size and location of the code.

D. Special Inks and Colors:
We have a continuing program of new ink development. The standard K-8 dark blue is most superior one on the market. Consult us about your specific requirements.

X. RECOMMENDED ACCESSORIES AND SUPPLIES:

A. Extra Typeholder Assembly #F011002

B. Extra Cartridge Holder #F011004

C. Cartridge Seal (order 6 of them) #F011053

D. Ink Cartridges:

Carton of 32 (specify color)

Carton of 80 (specify color)

Carton of 160 (specify color)

Dark blue is the standard and most recommended color.

E. TYPE:

See pages 16 and 17 for both size and selection.

F. AN EXTRA MOUNTING LOCATION FOR YOUR 1100 CODER:

If you wish to use this coder on another production line, consult FIG. 11, page 19. You will need item #94, the F-R-L #F011134; you will also need a Mounting Set and a Sensor. Pick one of each for the desired location and order them, substituting an ñFò for the ñLò prefix in the part number.

G. A SPARE 1100 CODER ASSEMBLY:

Many of our customers order a spare unit for every 2 to 8 lines they are operating. This will permit almost instant replacement of a malfunctioning coder and allow you to correct it while your line is still operating. Again, see FIG. 11, page 19. Item #171, part number F011228, shows you the parts you will receive.

H. BACK-UP BAR KIT FOR WEB PRINTING:

Please refer to FIG. 16, page 18, for instructions on how to order and use the kit.

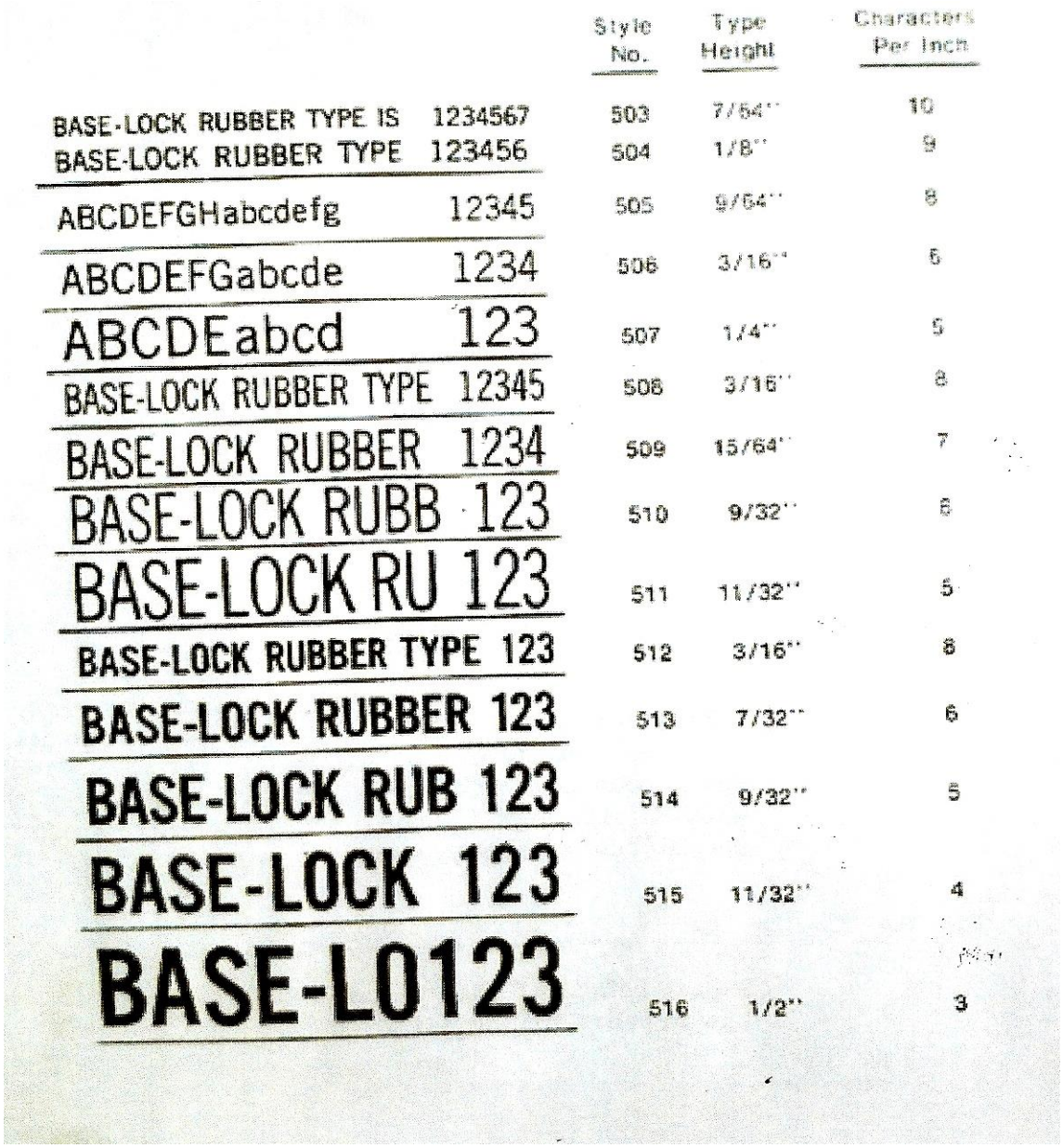
XI. RECOMMENDED SPARE PARTS:

A. 1/8ò Urethane Hose, 7 ft. #F011115

B. 1/16ò Urethane Hose, 7 ft. #F011116

C. 1/8 & 1/16 Barbed Fittings Kit, (6 each) #F011226

XII. BASELOCK TYPE RECOMMENDATIONS



Baselock Rubber Type can be purchased as follows:

A. Sorts ï Single letter, figure or punctuation mark.

B. Logo ï Single piece of type having more than one letter, figure or punctuation mark.

C. ñTòFont ï Stock box of individual letters, figures, and punctuation marks.

D. ñFòFont ï Stock box of 4 figure sets 0 to 9

Orders for stock boxes should designate Prefix T (Type Font) for Prefix F (Figure Set).

Example: T501 or F508.

A type font stock box assortment is presented below. The letters, figures and other characters are shown above the line and the quantity of each are directly beneath each character.

Example:
5A
ASSORTMENT

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	1	2	3	4	5	6	7	8	9	0	.	,	-	&
5	4	5	4	6	4	4	4	5	2	2	5	4	5	5	4	2	5	5	5	3	3	3	2	3	2	3	2	2	2	2	2	2	2	2	3	4	4	4	1

THE TYPE is cast in one piece to uniform height. The face of the type is deep and clear cut. All letters are in uniform alignment.

XIV. BACK-UP BAR KIT:

A. Order as long a back-up bar as you need. The Kit, item #172, or the bar alone, item #174, are both priced by the inch. Refer to the parts list on page 20 for the correct part numbers to order.

B. Instructions:
Mount 1/32 to 1/16òfrom your web, using brackets (item #173) and shims as required. Drill the back-up bar to match the holes in the brackets. If space permits and you are using length that exceeds 18ò, a center support would be helpful.

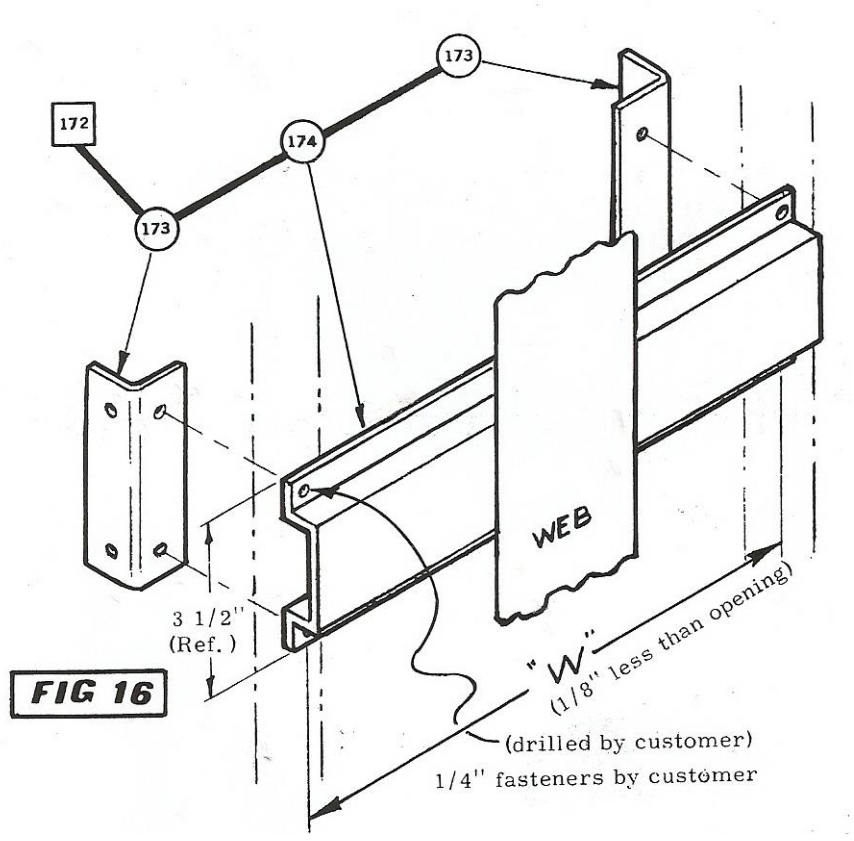
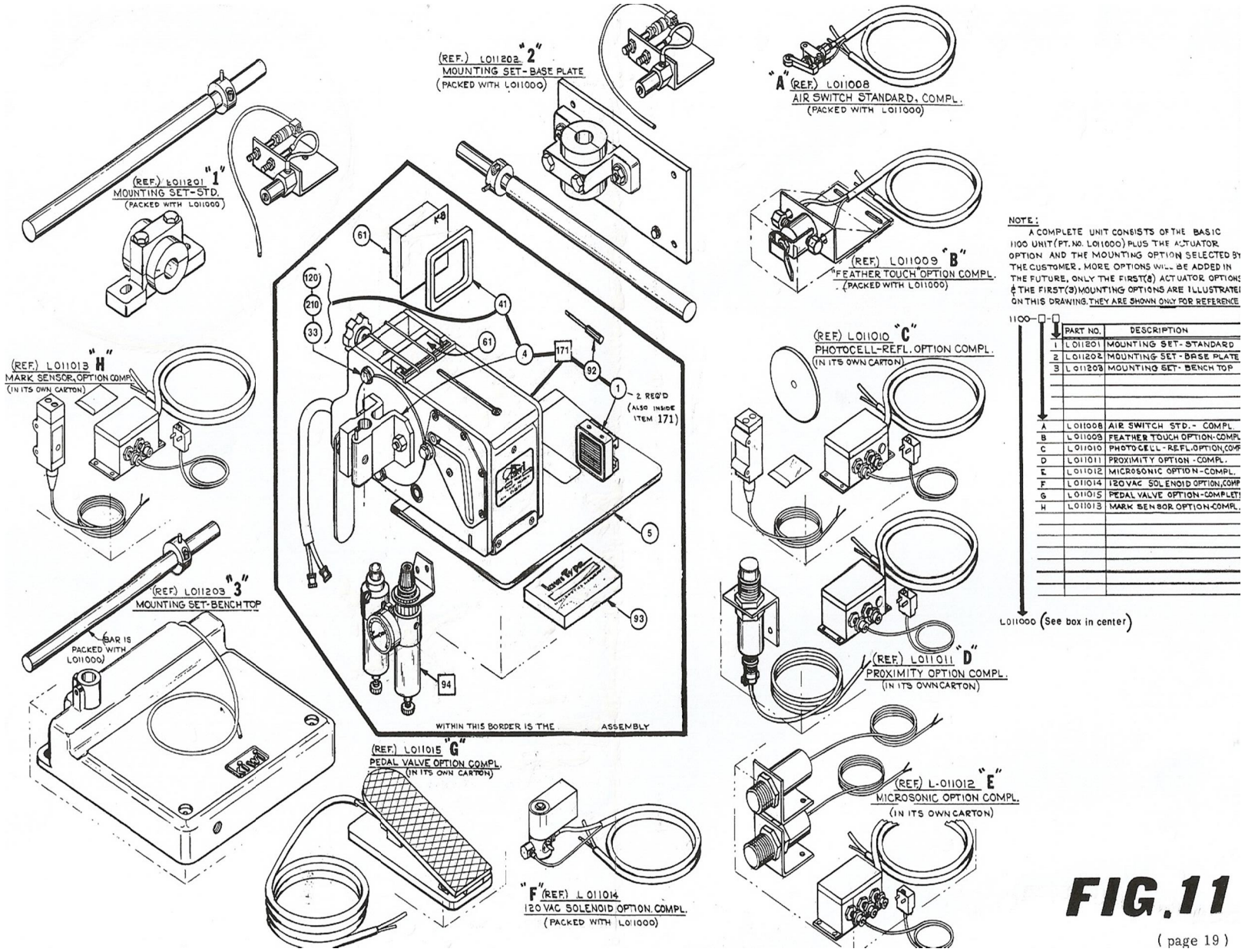


FIG 16



NOTE:
A COMPLETE UNIT CONSISTS OF THE BASIC 1100 UNIT (PT. NO. L011000) PLUS THE ACTUATOR OPTION AND THE MOUNTING OPTION SELECTED BY THE CUSTOMER. MORE OPTIONS WILL BE ADDED IN THE FUTURE. ONLY THE FIRST(8) ACTUATOR OPTIONS & THE FIRST(3) MOUNTING OPTIONS ARE ILLUSTRATED ON THIS DRAWING. THEY ARE SHOWN ONLY FOR REFERENCE.

1100-□-□

	PART NO.	DESCRIPTION
1	L011201	MOUNTING SET-STANDARD
2	L011202	MOUNTING SET-BASE PLATE
3	L011203	MOUNTING SET-BENCH TOP
A	L011008	AIR SWITCH STD.-COMPL
B	L011009	FEATHER TOUCH OPTION-COMPL
C	L011010	PHOTOCELL-REFL.OPTION,COMP
D	L011011	PROXIMITY OPTION-COMPL.
E	L011012	MICROSONIC OPTION-COMPL.
F	L011014	120 VAC SOLENOID OPTION,COMP
G	L011015	PEDAL VALVE OPTION-COMPLET
H	L011013	MARK SENSOR OPTION-COMPL.

L011000 (See box in center)

FIG.11

(page 19)

Parts List

1	F011002	Typeholder Assô	n g	70	F011106	10-32 to 1-16 Hose Fitting	bbbbbbbb	140	F011190	Solenoid Valve & Box Assô
2	F011003	Quick Discon. & Pulse Limiter	nnnnnnnn	71	F011107	10-32 to 1/8 Hose Fitting	bbbbbbbb	141	F011191	18ga Stranded Wire, Green
3	F011004	Cartridge Holder Assô	bbbbbbbb	72	F011108	10-32 Adjustable ñLòFitting	bbbbbbbb	142	F011192	Solenoid Valve Box
4	F011005	Clamp Assô	mmmmm	73	F011109	1/8 NPT to 10-32 ñLòFitting	bbbbbbbb	143	F011194	Plastic Plug, ½ò Dia.
5	F011007	Instruction Manuel	bbbbbbbb	74	F011110	1/8 NPT to 1/8 Hose Fitting	bbbbbbbb	144	F011195	.090-.265 Dia. Cord Grip
6	F011008	Air Switch, Std. Complete	bbbbbbbb	75	F011111	10-32 ñòFitting	bbbbbbbb	145	F011196	5 Contract Terminal Strip
7	F011009	Feather Touch Option, Complete	bbbbbbbb	76	F011112	10-32 Fem. Quick Conn	bbbbbbbb	146	F011197	5 Contact Marker Strip
8	F011010	Photocell Refl. Option, Complete	bbbbbbbb	77	F011113	1/8 Quick Conn. Connect	bbbbbbbb	147	F011198	#6, 18ga. Ring Terminal
9	F011011	Proximity Option, Complete	bbbbbbbb	78	F011114	1/16 Quick Conn. Connect	bbbbbbbb	148	F011199	Electronic Sensors Instr.
10	F011012	MicroSonic Option, Complete	bbbbbbbb	79	F011115	1/8 Urethane Hose (7 ft.)	bbbbbbbb	149	F011201	Standard Mounting Set
11	F011013	Mark Sensor Option, Complete	bbbbbbbb	80	F011116	1/8 Urethane Hose (7 ft.)	bbbbbbbb	150	F011202	Base Plate Mounting Set
12	F011014	120 VAC Solenoid Option, Complete		81	F011119	10-32 Male Quick Con. Body	bbbbbbbb	151	F011203	Bench Top Mounting Set
13	F011015	Pedal Valve Option, Complete	bbbbbbbb	82	F011121	12 VDC Solenoid Valve	bbbbbbbb	152	F011209	12 VDC Euro. Power Sup.
14	F011016	Bench Top Stand Assô	bbbbbbbb	83	F011122	Reset Valve & Fitting Assô	bbbbbbbb	153	F011210	6-32 x ¼ Pan Hd. Screw
15	F011018	L.H. Side Assô	bbbbbbbb	84	F011123	1/16 Bulkhead Fitting Assô	bbbbbbbb	154	F011211	#6 Int. Tooth Lockwasher
16	F011019	R.H. Side Assô	bbbbbbbb	85	F011124	Pulse Limiter & Quick Conn	bbbbbbbb	155	F011212	4-40 x 5/8 Flat Hd. Screw
17	F011022	Shuttle Sub-Assô	bbbbbbbb	86	F011125	Foot Pedal Actuator	bbbbbbbb	156	F011214	4-40 Hex. Nut
18	F011023	Knob & Plate Assô	bbbbbbbb	87	F011126	Valve & Fittings Assô	bbbbbbbb	162	F011210	15/32 Int. tooth Thin LôWash
19	F011024	Eccentric Pivot Assô	bbbbbbbb	88	F011127	Min. Filter/Regulator	bbbbbbbb	163	F011220	15/32-32 Thin brass Nut
20	F011026	Mounting Plate Assô	bbbbbbbb	89	F011128	Miniature Lubricator	bbbbbbbb	164	F011221	Air Cylinder Nut
21	F011027	Yoke Assô	bbbbbbbb	90	F011129	F R Bracket & Nut	bbbbbbbb	165	F011223	5/16 Thin Lockwasher
22	F011028	L.H. Main Link Assô	bbbbbbbb	91	F011130	1/8 Quick Connect Assô	bbbbbbbb	166	F011224	5/16-24 Brass Hex Nut
23	F011029	R.H. Main Link Assô	bbbbbbbb	92	F011132	Small Screw Driver	bbbbbbbb	167	F011225	BleedValve Nozzle Pkg of 5
24	F011032	Valve Crossmember	bbbbbbbb	93	F011133	Box of F506 Type, 3/16 Id	bbbbbbbb	168	F011226	1/8 & 1/16 Barbed Fitting Kit
25	F011033	Corner Post	bbbbbbbb	94	F011134	F R & Bracket Assô	bbbbbbbb	169	F011227	3/8-24 Stamped Jam Nut
26	F011040	Shuttle	bbbbbbbb	95	F011135	Pulse Limiter Assô	bbbbbbbb	170	F011120	10-32 Fem Bulkhead Fitting
27	F011047	Main Shaft	bbbbbbbb	96	F011136	1/16 Quick Connect Assô	bbbbbbbb	171	L011228	Series 1100 Unit ï SPARE
28	F011048	Actuator Shaft	bbbbbbbb	97	F011137	Quick Conn. & Reset Valve	bbbbbbbb	172	F011229	Kit ï Back Up Bar, Web***
29	F011049	3/8-16 Knurled Jam Nut	bbbbbbbb	98	F011138	Cylinder & Fittings Assô	bbbbbbbb	173	F011230	Bracket ï Back Bar
30	F011050	Adjusting Screw	bbbbbbbb	99	F011139	4-way Valve & Fittings Assô	bbbbbbbb	174	F011231	Back Up Bar ***
31	F011051	Driving Rod	bbbbbbbb	100	F011140	Pilot Actuator & Fitting	bbbbbbbb	175	F011251	Bearing ï ¼ Nylon, Flanged
32	F011052	Cross Rod	bbbbbbbb	101	F011141	Hose &Quick Connect Assô	bbbbbbbb	176	F011105	Ball Actuator
33	F011053	Clamp Washer	bbbbbbbb	102	F011142	Actuator Valve & Fittings	bbbbbbbb	200	F035018	Split Collar & Pin Assô
34	F011054	Rear Crossmember	bbbbbbbb	103	F011143	Solenoid Valve&Hose Assô	bbbbbbbb	201	F035030	Mounting Block & Pin Assô
35	F011056	End Cover	bbbbbbbb	104	F011144	1/8 MPT, 160psi Gauge	bbbbbbbb	202	F035054	7/16 Hex Box Wrench
36	F011057	Top Cover	bbbbbbbb	105	F011145	1/8 & 1/16 Hose Assô	bbbbbbbb	203	F035070	Mounting Block Clamp Scr.
37	F011058	Bottom Cover	bbbbbbbb	106	F011146	1/8 & 1/16 Hose Assô	bbbbbbbb	204	F035092	3/8 Dia. Ext. Retaining Ring
38	F011059	Lever	bbbbbbbb	107	F011147	1/8 & 1/16 Hose Assô	bbbbbbbb	205	F035097	¼-20 Hex Nut
39	F011060	Cartridge Holder	bbbbbbbb	108	F011151	¼ Dia. Ext. Retaining Rng	bbbbbbbb	206	F035098	8-32 x 5/16 Pan Hd Ext. LW
40	F011062	Quick Discon. Bracket	bbbbbbbb	109	F011152	½ Dia. Ext. Retaining Rng	bbbbbbbb	207	F035099	¼-20 x3/8 Self Lock Set Scr
41	F011063	Cartridge Seal	bbbbbbbb	110	F011153	10-32 x ½ Soc. Button Hd	bbbbbbbb	208	F035104	¼-28 Hex Esna Jam Nut
42	F011064	Pressure Plate	bbbbbbbb	111	F011154	¼-20 x 3/8 Soc. Hd. Screw	bbbbbbbb	209	F035105	¼-20 x 3/8 Soc. Button Hd.
43	F011065	Mask ï 1-5/16 Sq.	bbbbbbbb	112	F011155	¼ ñEòType Bowed Ret. Rng	bbbbbbbb	210	F035110	5/16 Int. Tooth Lockwasher
44	F011066	Mask ï Blank	bbbbbbbb	113	F011156	1/8 Dia. x 5/8 Roll Pin	bbbbbbbb	211	F035111	5/16 Std. Flat Washer
45	F011067	ñTòBar	bbbbbbbb	114	F011157	.318 x 9/16 Fiber Washer	bbbbbbbb	212	F035113	¼ Ext. Tooth Lockwasher
46	F011068	Guide Track Cover Plate	bbbbbbbb	115	F011158	4-40 x 3/8 Soc. Fl. Hd. Scr	bbbbbbbb	213	F035117	.260x9/16x1/32 Brass Wash
47	F011070	Mounting Block Assô	bbbbbbbb	116	F011159	¼ x 1¼ Nylok Shoulder Bolt	bbbbbbbb	214	F035120	3/16 x 1òRoll Pin
48	F011071	Eccentric	bbbbbbbb	117	F011160	8-32 x ½ Nylok Pan Hd Scr	bbbbbbbb	215	F035121	3/16 x ¾ Roll Pin
49	F011072	Mounting Plate	bbbbbbbb	118	F011161	.200 x ½ x 1/16 Nylon Wash	bbbbbbbb	216	F035153	¼-20 x 3/8 Hex Hd. Screw
50	F011073	Valve Actuator Arm	bbbbbbbb	119	F011162	#10 Int. Tooth Lock Washer	bbbbbbbb	217	F035165	5/16-18 Hex Nut
51	F011074	Inertia Spring	bbbbbbbb	120	F011163	5/16-18 x ½ Hex Hd. Bolt	bbbbbbbb	218	F035118	¼-28 Flanged Locknut
52	F011076	Valve Mounting Bracket	bbbbbbbb	121	F011164	.190 x 7/16 x .008 Sp Wash	bbbbbbbb	219	F036108	3/8-16 x 2òHex Hd. Screw
53	F011077	Bench Top Stand	bbbbbbbb	123	F011170	3/16òI.D. Ball Bearing	bbbbbbbb	220	F077502	1òDia. Clamp Block Assô
54	F011079	Standard Mounting Bar	bbbbbbbb	124	F011171	¼-20 x ¼ Sl. Flat Hd. Scr	bbbbbb			
55	F011080	Stand Mounting Bar	bbbbbbbb	125	F011172	3/8-16 x 1½ Sl. Flat Hd Scr	bbbbbbbb	___ = If you need either 1/8 or 1/16 hose fit-		
56	F011082	10òlong Baselock Bearer Strip	bbbbbbbb	126	F011173	3/8 Std. Flat Washer	bbbbbbbb	tings (F011107 or F011106) we suggest		
57	F011083	10-32 Coupling Pitting	bbbbbbbb	127	F011174	3/8 Split Lock Washer	bbbbbbbb	that you order Kit #F011226 which contains		
58	F011084	3 Way Sleeve Valve	bbbbbbbb	128	F011175	3/8-16 Std. Hex Nut	bbbbbbbb	(6) of each size.		
59	F011086	(32) K-8 Cartridges, Blue	bbbbbbbb	129	F011176	¼ Std. Flat Washer				
60	F011087	(80) K-8 Cartridges, Blue	bbbbbbbb	130	F011179	3/8 I.D. Rubber Grommet	bbbbbbbb	*** = Must be ordered to a specific length.		
61	F011088	K-8 Cartridge, Blue	bbbbbbbb	131	F011180	Reflective Photocell				
62	F011089	(160) K-8 Cartridges, Blue	bbbbbbbb	132	F011181	Mark Sensing Photocell	bbbbbbbb	If you order an item whose number is in a		
63	F011090	3/8 Dia. Flanges Ball Bearing	bbbbbbbb	133	F011182	Proximity Sensor	bbbbbbbb	square box, you will get ALL of the parts		
63	F011095	1-3/4òDia. Knob	bbbbbbbb	134	F011183	MicroSonic Transmitter	bbbbbbbb	that are shown ñchainedò to the box. Refer		
64	F011096	1òDia. Knob w/ ½-20 Shaft	bbbbbbbb	135	F011184	MicroSonic Receiver	bbbbbbbb	to figures 11 through 16 for illustrations of		
65	F011097	Plastic Sleeving (7 ft.)	bbbbbbbb	136	F011185	Photocell Reflector	bbbbbbbb	all of these parts.		
66	F011098	Roller Follower Actuator	bbbbbbbb	137	F011186	Sensor Mounting Bracket	bbbbbbbb	IMPORTANT: Please include the serial		
67	F011099	Valve Mounting Bracket	bbbbbbbb	138	F011187	Solenoid Valve & Fittings	bbbbbbbb	number of your unit when ordering any		
68	F011102	Needle Valve	bbbbbbbb	139	F011189	12 VDC Power Supply	bbbbbbbb	parts.		

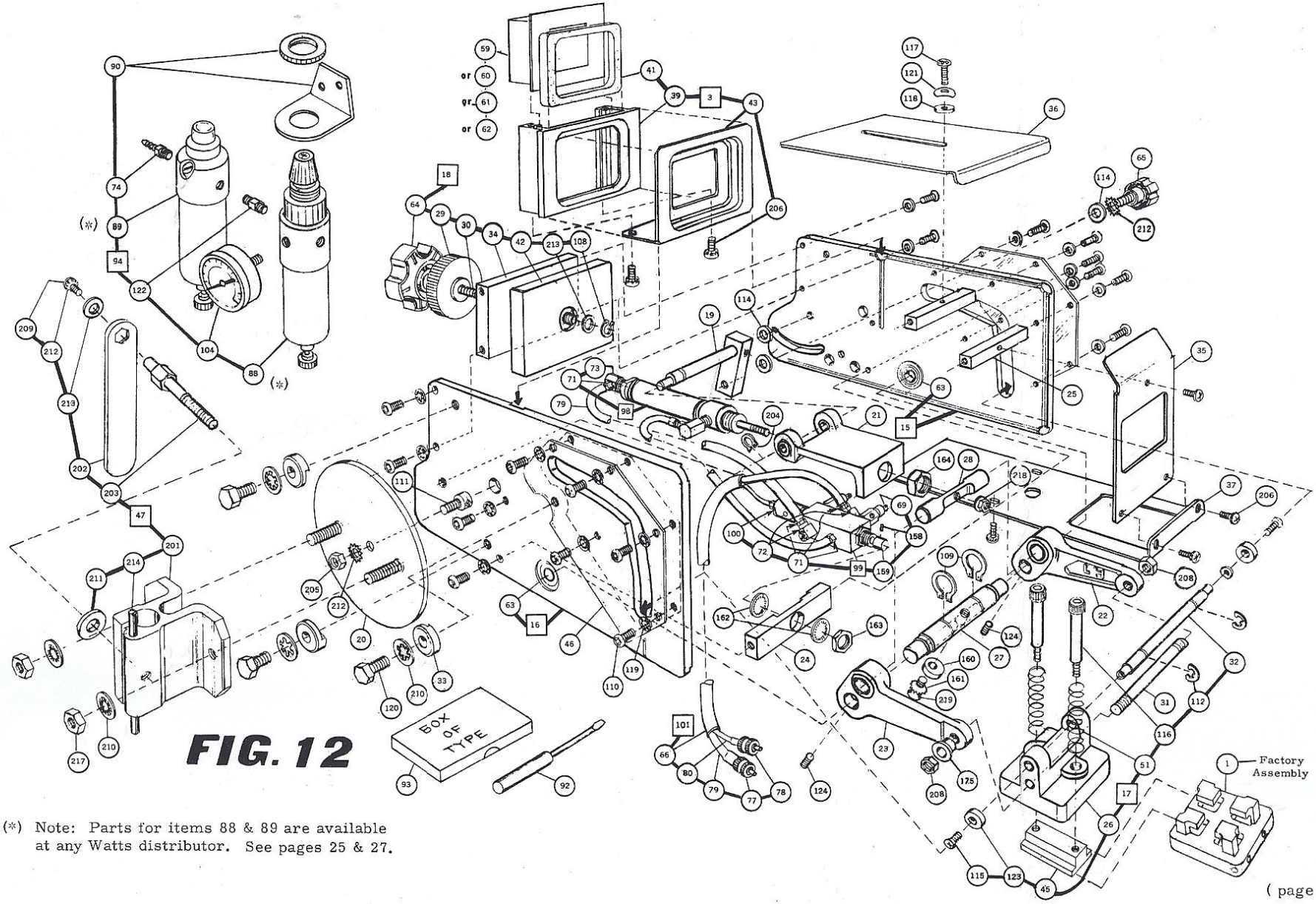


FIG. 12

(*) Note: Parts for items 88 & 89 are available at any Watts distributor. See pages 25 & 27.

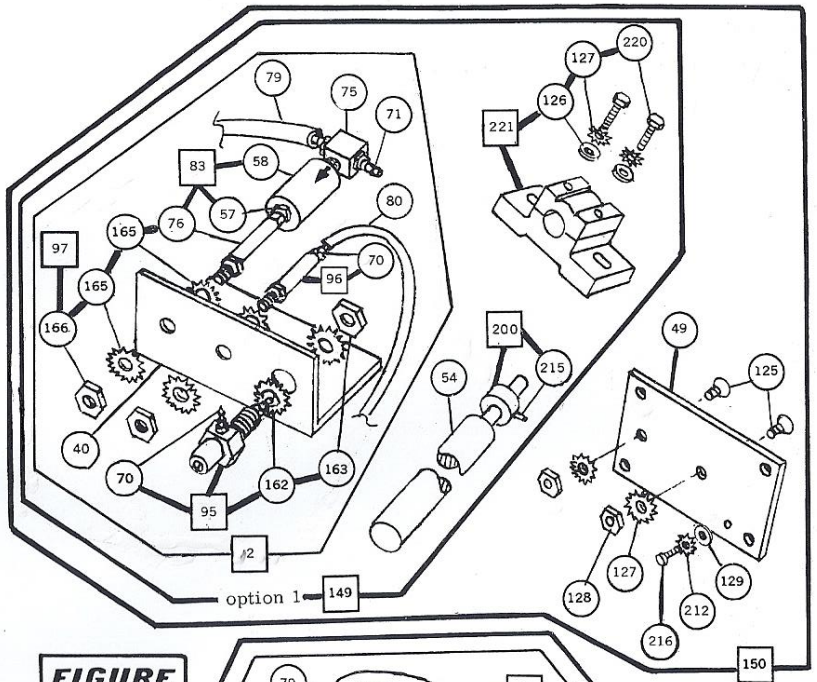
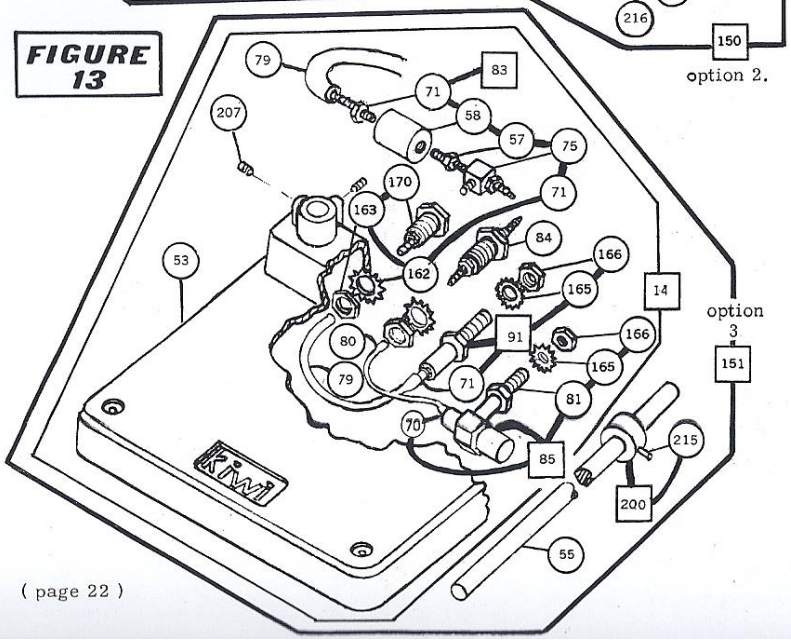
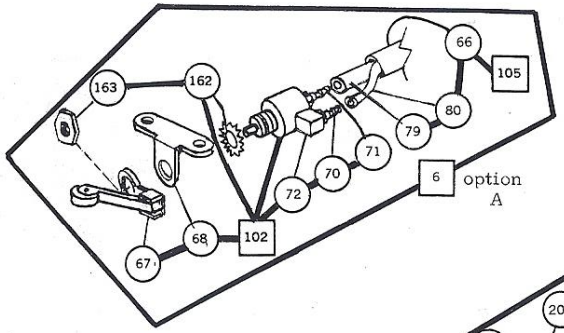


FIGURE 13





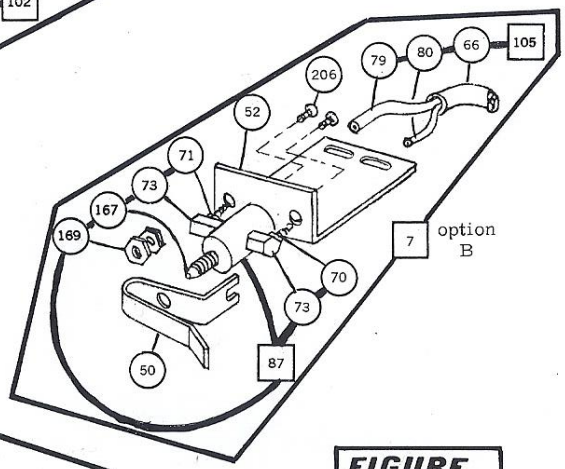
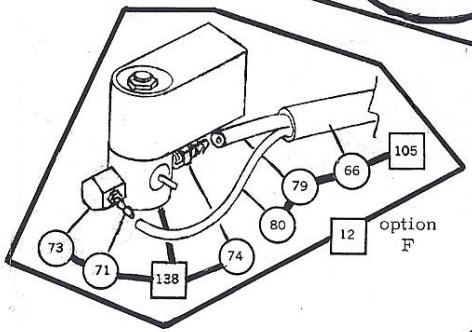
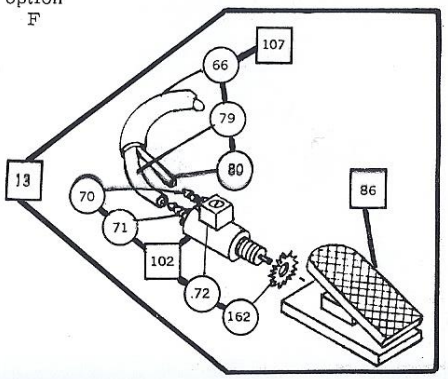


FIGURE 14





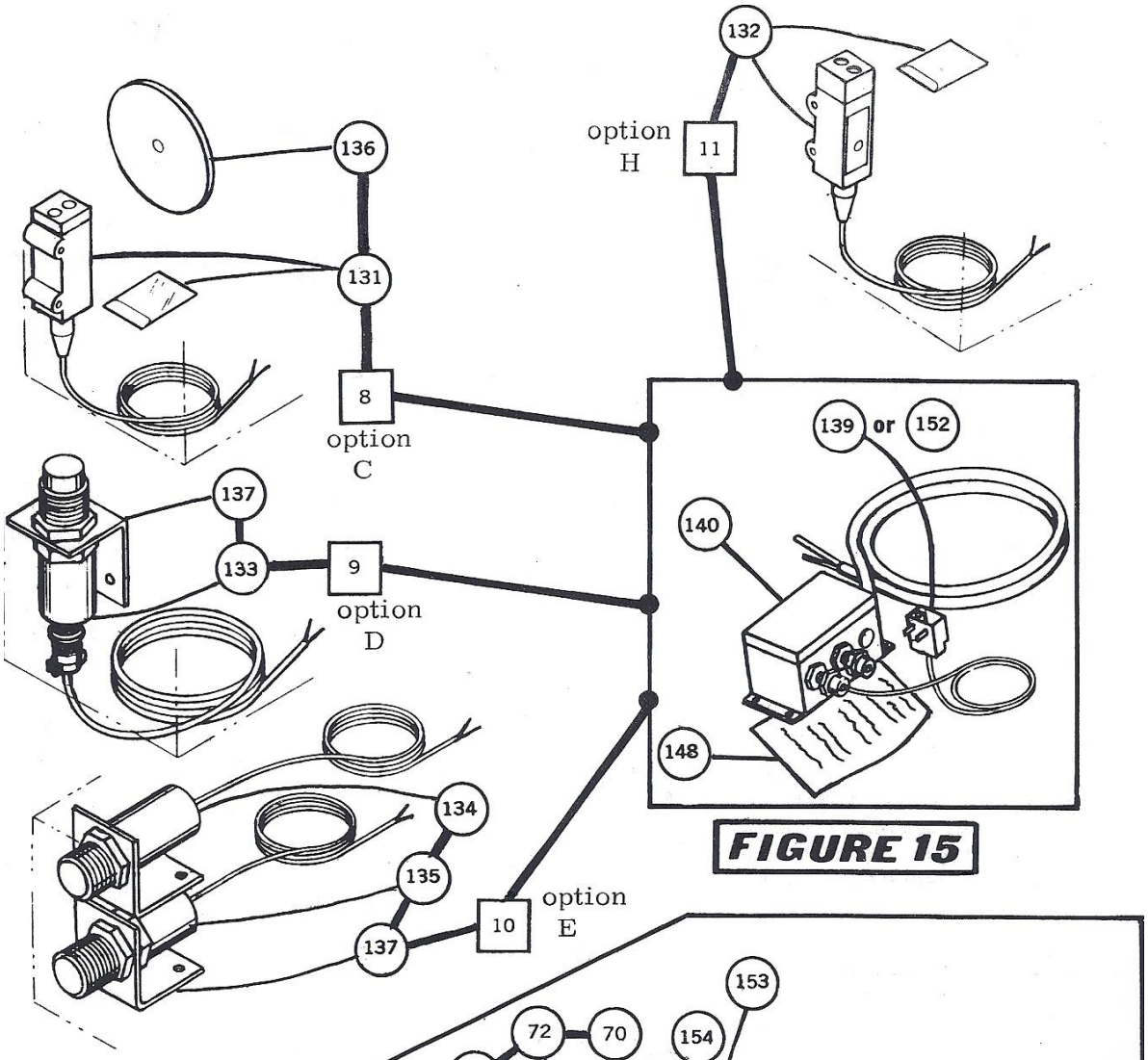
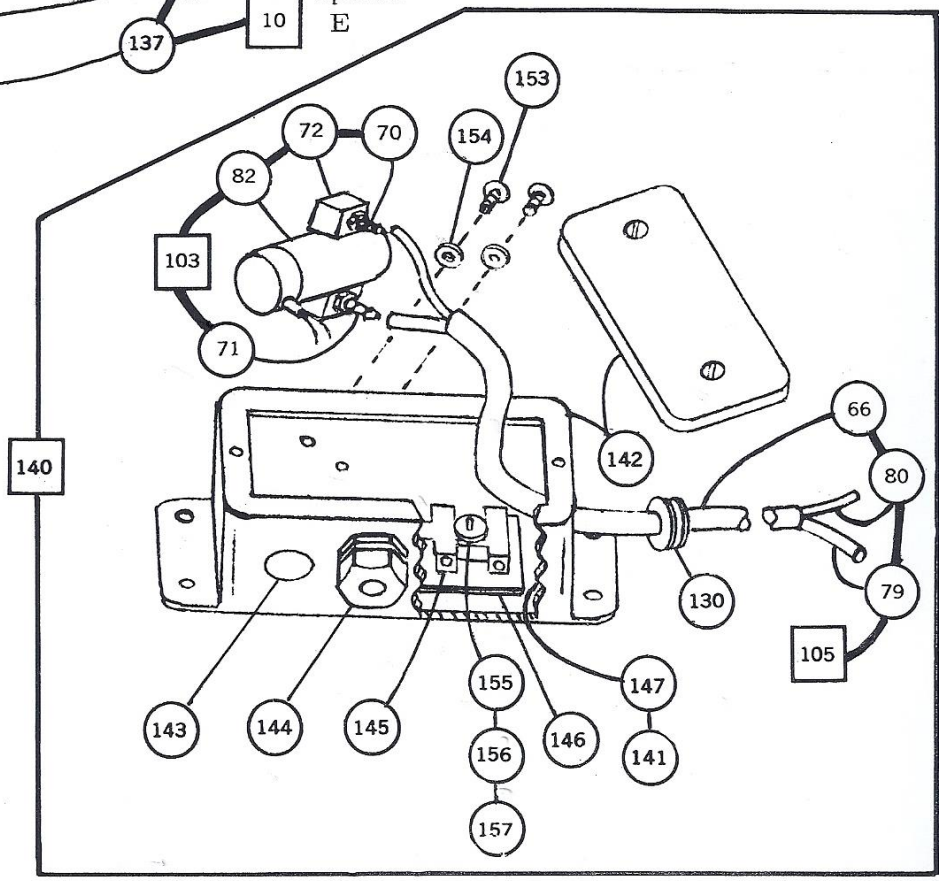

132
option
H
11
136
131
8
option
C
137
133
9
option
D
139 or 152
140
148
134
135
137
10
option
E

FIGURE 15


153
72
70
154
82
103
71
140
142
66
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141

WATTS FLUID POWER INC.
P.O. BOX 322
KITTERY, MAINE
03904

MINIATURE SERIES

INTEGRAL FILTER-REGULATORS

No. 548 *with Non-Relieving Regulator*
No. 549 *with Relieving Type Regulator*
PLASTIC BOWL MAX. PRESS. 150 PSI-MAX. TEMP. 120°F
METAL BOWL MAX. PRESS. 300PSI-MAX. TEMP. 120°F
PISTON DRAIN MAX. PRESS. 50 PSI-MAX. TEMP. 120°F

WARNING! Never use these polycarbonate plastic bowls on air supplied by a compressor lubricated with synthetic oils or oils containing phosphate esters or chlorinated hydrocarbons. They can carry-over into the air distribution system and chemically attack and possibly rupture the bowls. On these applications use a metal bowl. Also, do not expose these polycarbonate plastic bowls to materials such as carbon tetrachloride, trichloroethylene, acetone, paint thinner, cleaning fluids, or other harmful materials, for they too will craze and/or rupture the bowl. If materials harmful to polycarbonate are present either outside or inside the bowl, use a metal bowl.

INSTALLATION, OPERATING and MAINTENANCE INSTRUCTIONS

INSTALLATION

Install in vertical position so that air flow is in direction of arrow stamped on body of unit. Before pip-in, blow out line to remove scale and other foreign matter. If pipe compound is used, apply only to male threads and just enough to make tight joints.

MAINTENANCE

To obtain best efficiency and longest periods of trouble-free operation the air supply must be kept clean, as dirt is the most common cause of erratic regulator operation. Only a few parts require occasional replacement ï most trouble can be cured and prevented by a thorough and careful cleaning procedure. To clean, it is not necessary to remove unit from its piping or line. At the bottom of the bowl is a drain valve which should be periodically opened (turn clockwise) particularly when sediment is visible in bowl.

DISASSEMBLY FOR CLEANING

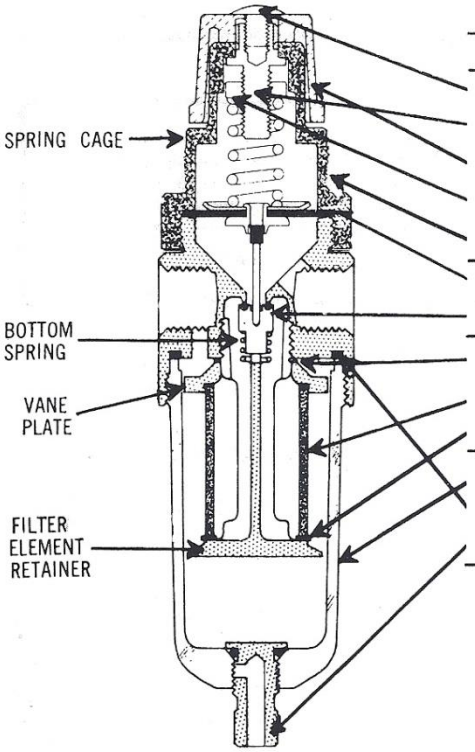
Depressurize, unscrew and remove the bowl. Remove the filter element retainer, filter element, and vane plate, and let down the disc assembly and bottom spring. Unscrew the spring cage to remove diaphragm assembly if it is worn or knicked. Reassemble the unit in the same order making sure the disc assembly fits into the small hole in the diaphragm assembly. Tighten the spring cage slightly more than hand-tight (up to 65-inch lbs. torque).

CLEANING

For best results, clean parts with methanol. After cleaning, blow out parts including body of unit with compressed air. The filter cone should be blown out from the inside, plugging one end with finger. CLEAN PLASTIC BOWL WITH HOUSEHOLD SOAP ONLY.

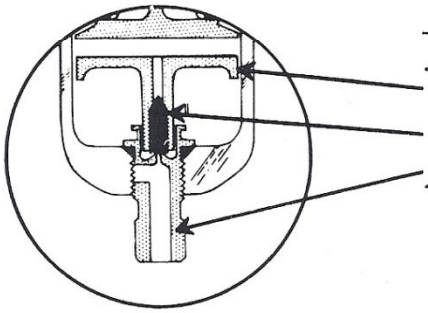
REPLACEMENT PARTS

ORDER BY SIZE and KIT NUMBER



PART NAME	KIT NAME	KIT NO.
Lock Screw Adjusting Screw Adjusting Knob Nut Spring Cage	Spring Cage Knob Assembly	CK 364Y
Diaphragm Assembly Disc Assembly	Repair Kit {Relieving {Non-Relieving	RK 549Y RK 548Y
Vane Plate Gasket Filter Element Gasket	Element Replacement Kit 20 Micron Bronze* 5 Micron Bronze	 EK 504Y EK 504VY
Bowl Bowl Gasket Drain Cock	Bowl Replacement Kit Plastic Metal	 BK 504Y BK 505Y

*Standard Element



PART NAME	KIT NAME	KIT NO.
Piston Valve Disc Drain Cock Assembly	Piston Drain Kit	RK 504SY

WATTS

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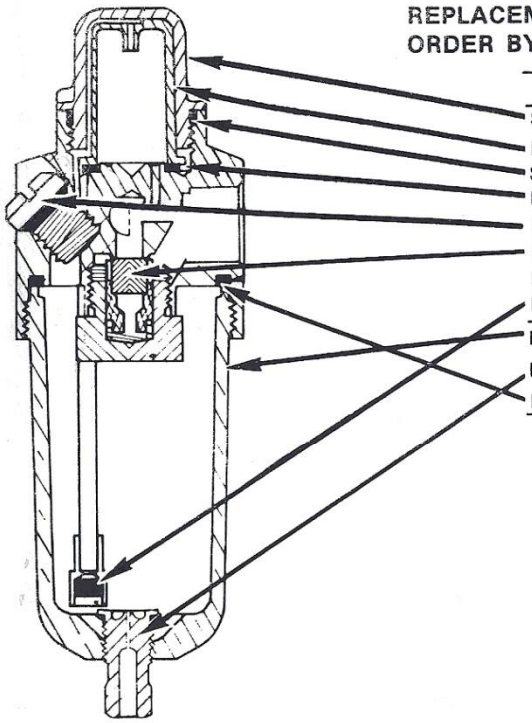
MANUFACTURERS OF COMPRESSED AIR LINE FILTERS-REGULATORS-LUBRICATORS and OTHER PNEUMATIC PROTECTION DEVICES



REPLACEMENT PARTS
ORDER BY KIT NUMBER

PART NAME	KIT NAME	KIT NO.
Sight Glass Drip Spout Sight Glass Gasket Drip Spout Gasket Fill Plug Assembly By Pass Disc Assembly Needle Valve (not shown) Filter	Repair Kit	RK 508YM1
Bowl	Bowl Replacement Kit	
Drain Cock	Plastic	BK 504Y
Bowl Gasket	Metal	BK 505Y

WATTS

WATTS FLUID POWER, INC. ● **KITTERY, MAINE., U.S.A.**

MANUFACTURERS OF COMPRESSED AIR LINE FILTERS · REGULATORS · LUBRICATORS and OTHER PNEUMATIC PROTECTION DEVICES

LIMITED WARRANTY: The Company warrants each product against defects in material and workmanship for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge. This shall constitute the exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental or consequential damages, including, without limitation, damages or other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water/air conditions, chemicals, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product. THE COMPANY MAKES NO OTHER WARRANTIES EXPRESS OR IMPLIED EXCEPT AS PROVIDED IN THIS LIMITED WARRANTY.