

# Crestline® Altra Series™ Dampener

## Installation Instructions

Ryobi 512

**ACCEL** ®  
*Graphic Systems*

# GENERAL INFORMATION

**ATTENTION  
CRESTLINE®  
ALTRA SERIES™  
DAMPENER  
OWNER!**

Accel Graphic Systems provides parts and service through its authorized distributors and dealers. Therefore, all requests for parts and service should be directed to your local dealer.

The philosophy of Accel Graphic Systems is to continually improve all of its products. Written notices of changes and improvements are sent to Accel Graphic Systems' Dealers.

If the operating characteristics or the appearance of your product differs from those described in this manual, please contact your local Accel Graphic Systems Dealer for updated information and assistance.

Always update your dampener when improvements are made available, especially those related to safety.

**YOUR AUTHORIZED CRESTLINE® ALTRA SERIES™  
DEALER IS:**

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**THE SERIAL NUMBER OF YOUR CRESTLINE® ALTRA  
SERIES™ DAMPENER(S) IS:**

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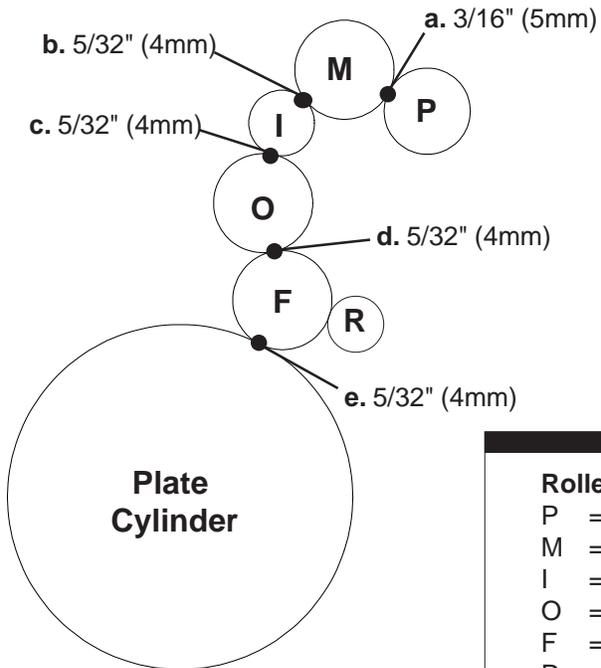
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**SAFETY  
INFORMATION**

**FOR YOUR SAFETY, DO NOT DISENGAGE OR REMOVE ANY GUARDS FROM THE CRESTLINE® ALTRA SERIES™ DAMPENER. THE DAMPENER CONTAINS SOME INWARD ROTATING ROLLER NIPS THAT CAN CAUSE INJURY IF LEFT UNGUARDED.**

# GENERAL INFORMATION

## BASIC CONFIGURATION OF CRESTLINE® ALTRA SERIES™



Adjustments
a. Pan to Metering
b. Metering to Intermediate
c. Intermediate to Oscillator
d. Oscillator to Form
e. Form to Plate

Roller Description
P = Pan
M = Metering
I = Intermediate
O = Oscillator
F = Form
R = Rider

## TERMINOLOGY

OPS = Operator's side  
 NOPS = Non-Operator's side  
 #1 TOWER = Closest to feeder  
 #2 TOWER = Closest to delivery

## TECHNICAL ASSISTANCE

For technical assistance during the installation, please contact:

**ACCEL GRAPHIC SYSTEMS**  
 11103 Indian Trail  
 Dallas, TX 75229  
 PHONE (972) 484-6808  
 FAX (800) 365-6510  
 E-MAIL [accel@dallas.net](mailto:accel@dallas.net)  
 WEB SITE [www.accelgraphicsystems.com](http://www.accelgraphicsystems.com)

Crestline® Altra Series™ is covered by U.S. Patents and patents pending.

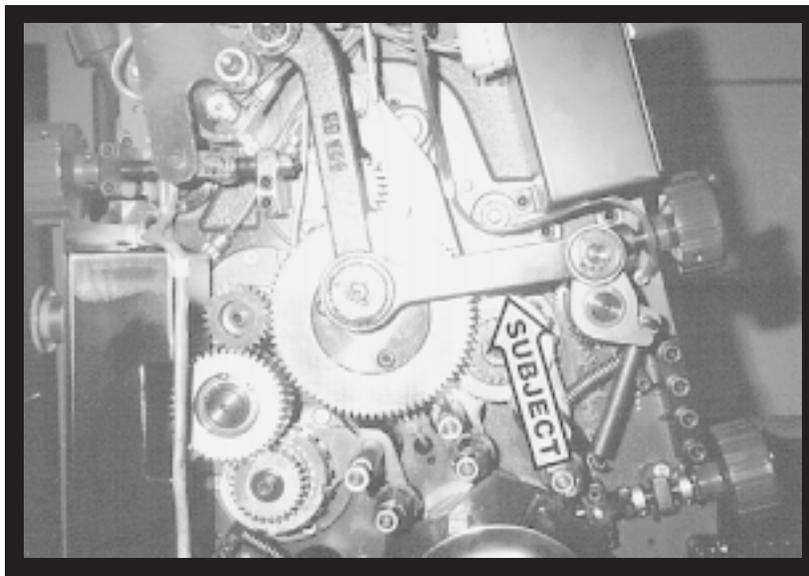
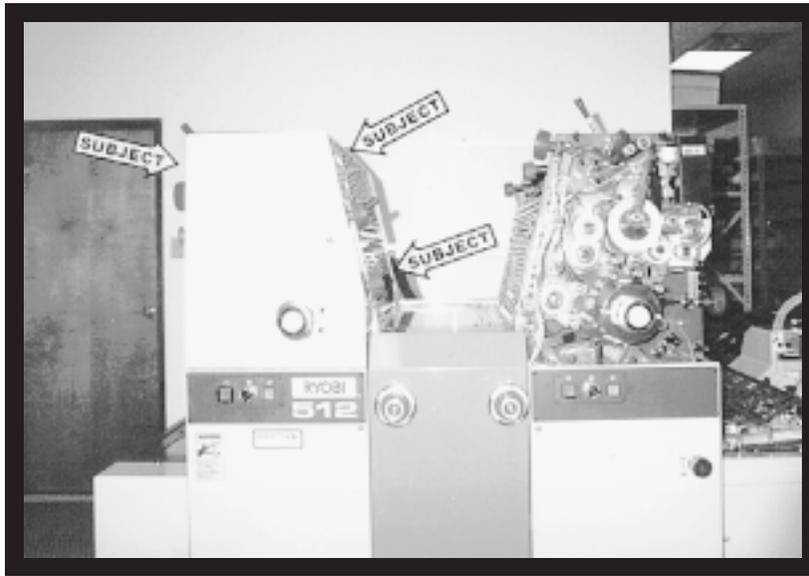
# GENERAL INFORMATION

## REQUIRED TOOLS

Phillips screwdriver  
Straight screwdriver  
.5mm Allen wrench  
3mm Allen wrench  
4mm Allen wrench  
5mm Allen wrench  
8mm wrench  
10mm wrench  
13mm wrench  
17mm wrench  
19mm wrench  
24mm wrench  
17mm socket  
3/32" punch  
Hammer  
Gear puller  
Snap ring pliers

## PRE-INSTALLATION INFORMATION

Check box and parts board to make sure all pieces are present and nothing has broken in shipping. Check the dampener for parallel (cutter bed works best). If dampener rocks, it needs to be realigned. Loosen tie bar bolts at OPS and align the frames on a flat surface. Retighten bolts.



# DISASSEMBLY

**1**

Disconnect press from power supply. Remove upper side covers at OPS & NOPS of printing towers as well as the slotted sheet metal guards covering the dampener. On the #2 tower, remove the slotted section of the cylinder guard by disconnecting the microswitch arm at NOPS and knocking out hinge pins. Save pins for reinstallation on the replacement guard provided. Also remove the water pans and any molleton covered roller from existing dampeners. To remove the water forms, the cylinder gap must be positioned under roller.

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**2**

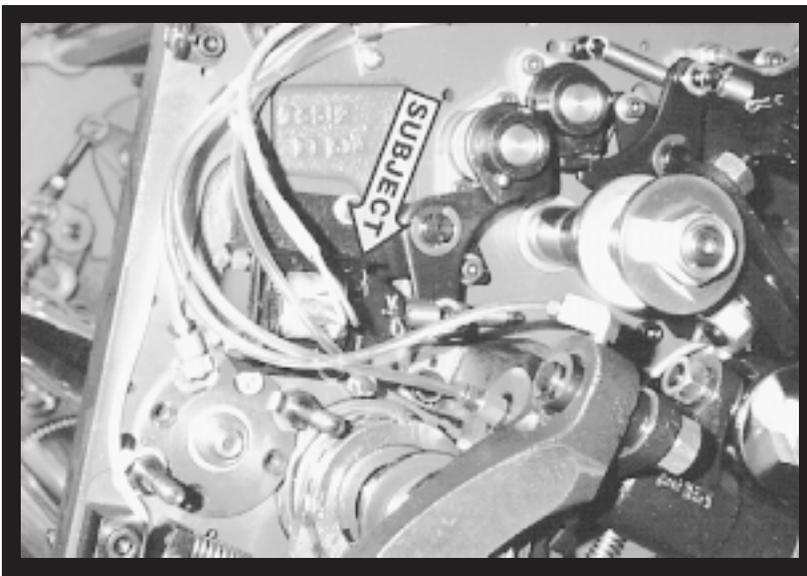
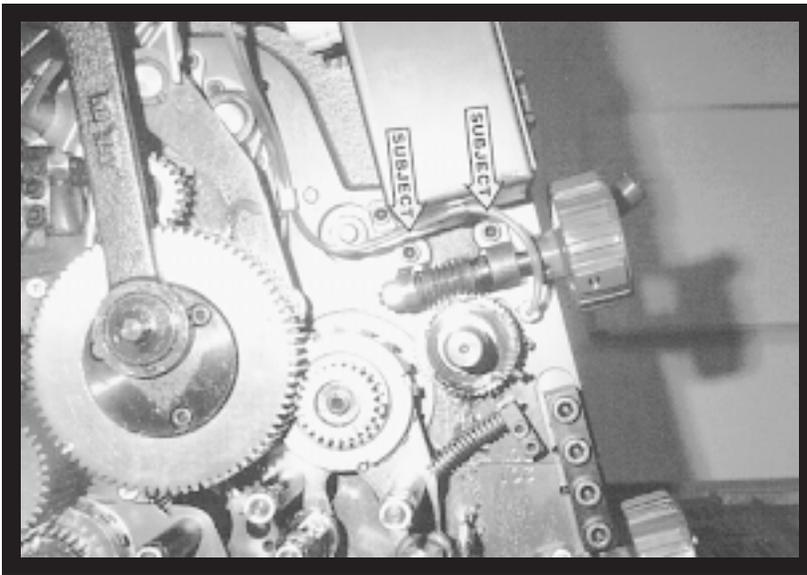
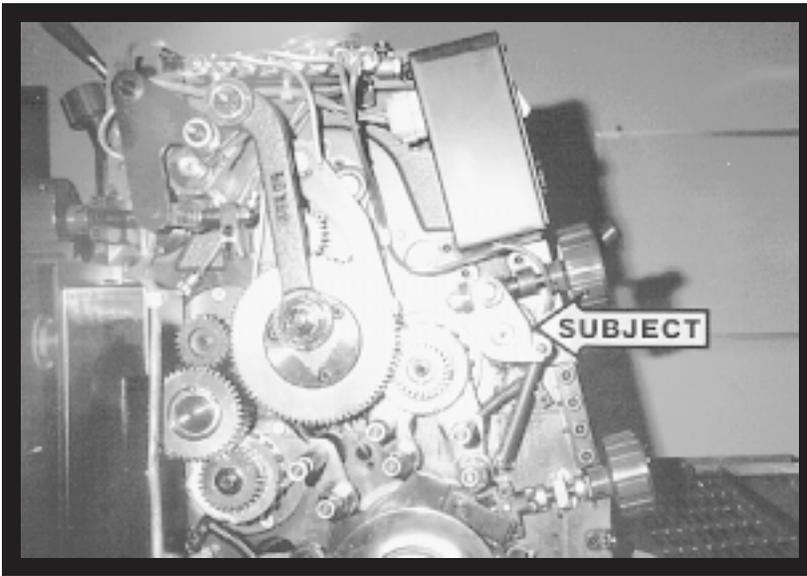
Remove wiper bar (left subject arrow) by removing mounting bracket and tapping out bar. Also, remove water pan mounting brackets (right subject arrow).

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**3**

At OPS, remove pan roller drive arm (subject arrow) by removing E-rings at each end and pulling arm off.

**7**



## DISASSEMBLY

**4**

At OPS, remove E-ring and pull assembly (subject arrow) from end of pan roller shaft.

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**5**

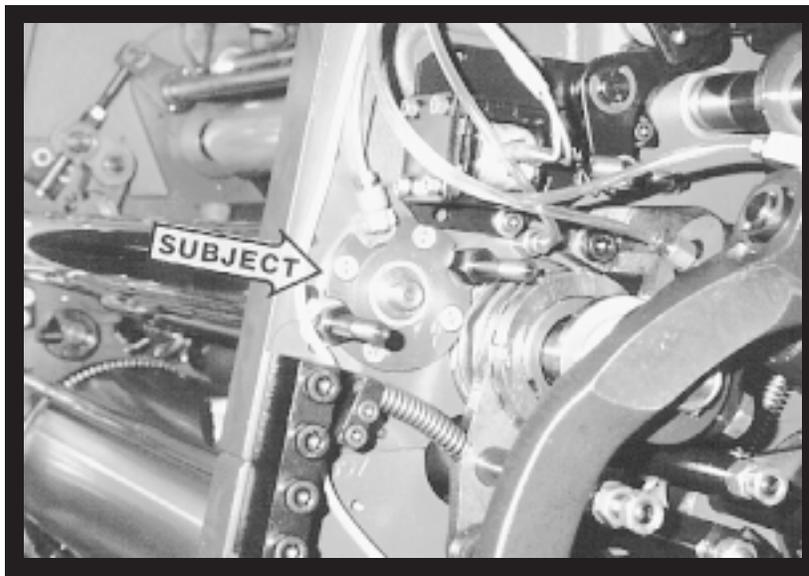
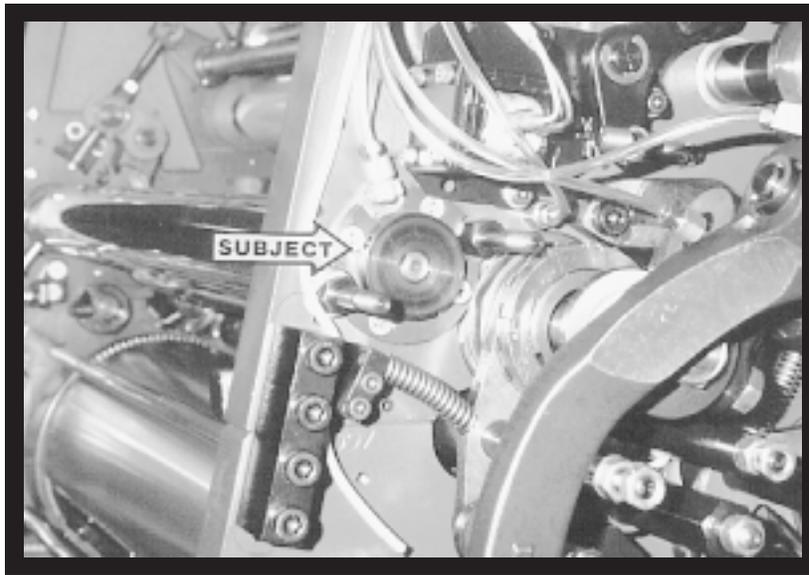
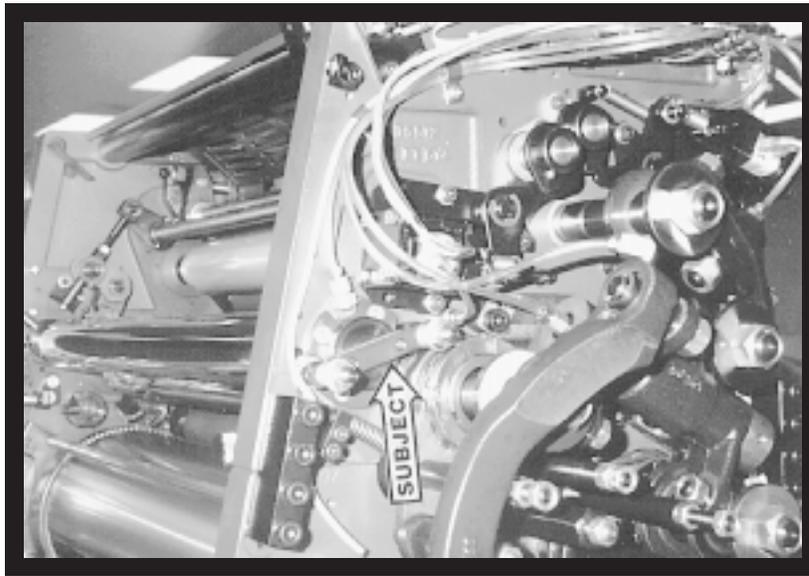
At OPS, remove 2 cap screws (subject arrow) and pull worm and worm gear assembly from end of pan roller shaft.

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**6**

At NOPS, disconnect water ductor solenoid and remove E-ring and 2 cap screws (subject arrow). There are spacers between the solenoid plate and press frame, so be careful that they do not fall down into the press. After removing solenoid, tie off wires on the press with provided zip tie.

**9**



**7**

At NOPS, remove friction brake (subject arrow) from pan roller by removing 2 nuts and springs.

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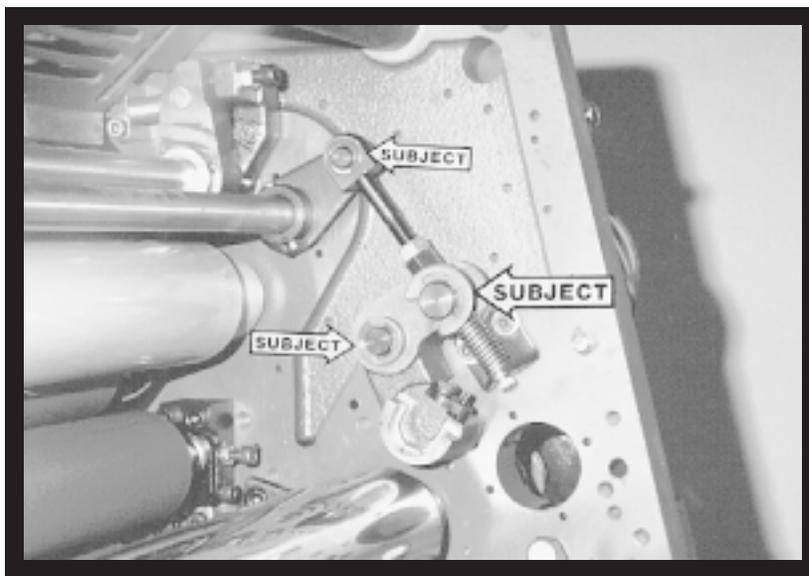
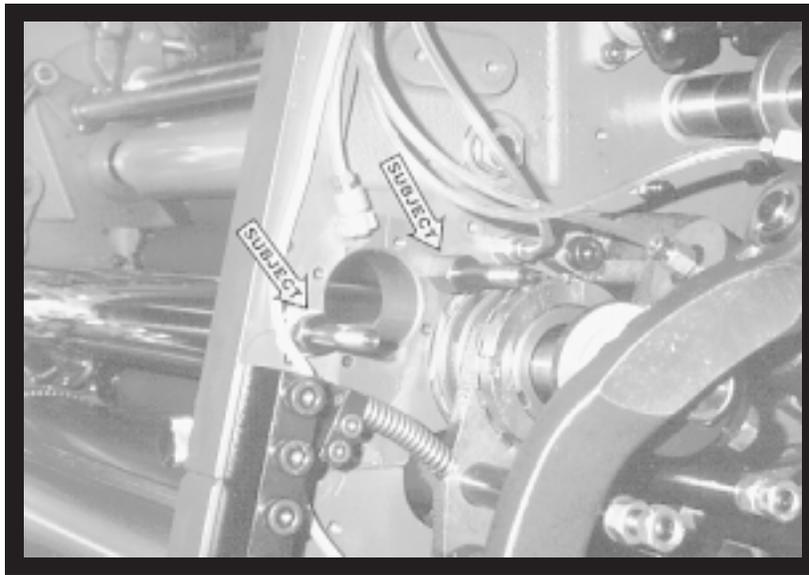
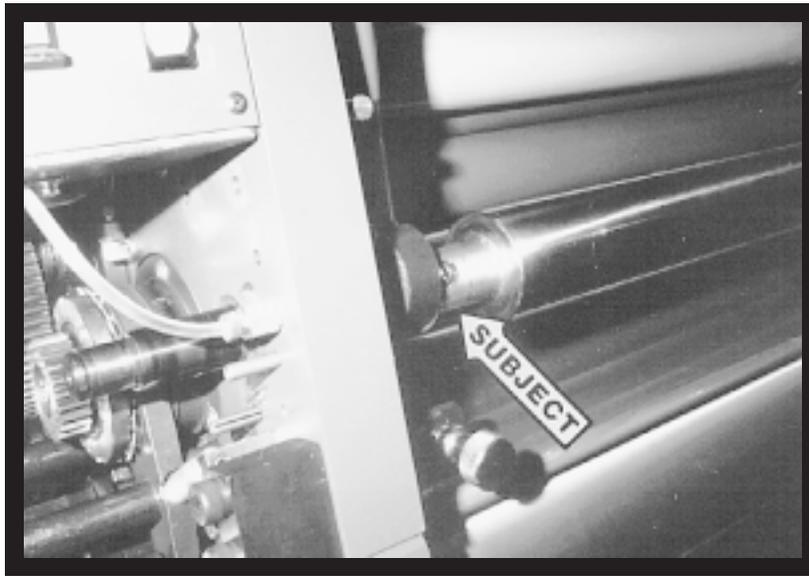
**8**

At NOPS, remove brake disc (subject arrow) by loosening set screw.

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**9**

At NOPS, remove pan roller bearing housing (subject arrow) by removing 4 Phillips head screws.



**10**

At OPS, remove cap screw from pan roller stub shaft (subject arrow) and pull shaft out of press. The pan roller can now be removed as well.

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**11**

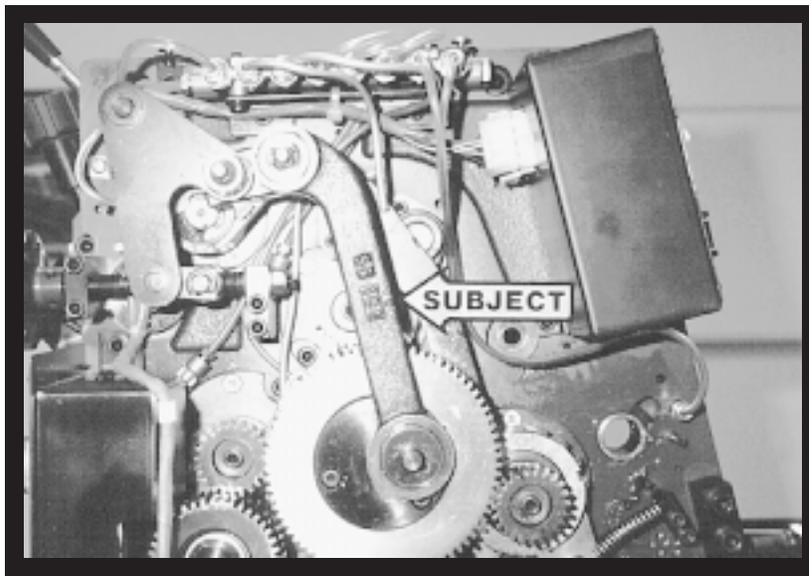
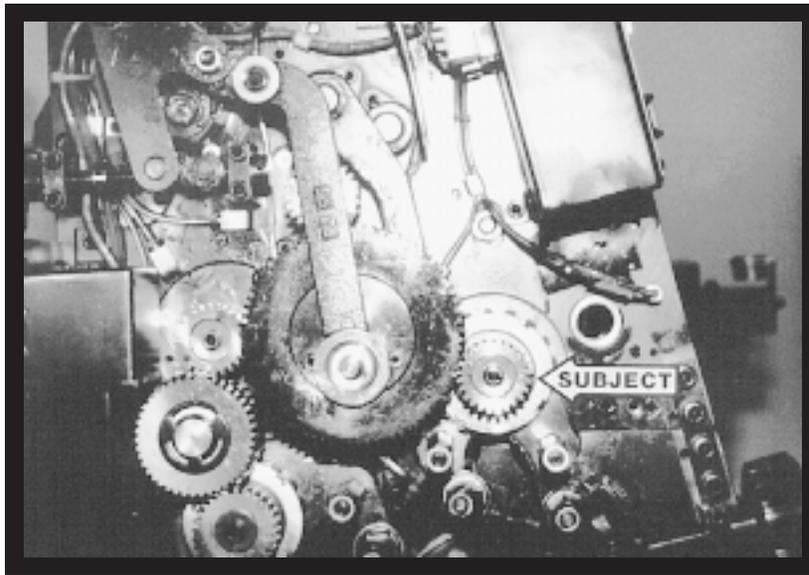
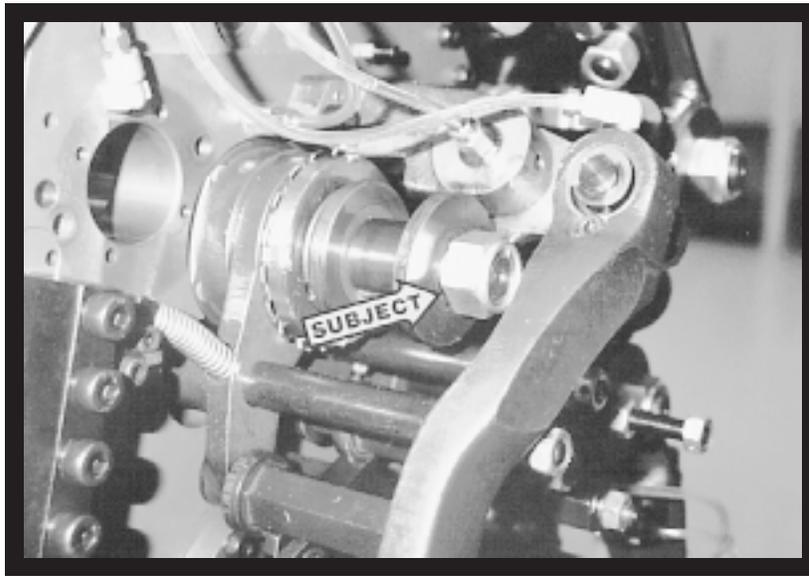
At NOPS, remove threaded studs (subject arrow) that held friction brake assembly.

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**12**

At OPS and NOPS, remove water ductor assemblies (subject arrow) by removing E-rings, cap screws, and 17mm nut on the outside of press frames.

**13**



## DISASSEMBLY

**13**

At NOPS, remove large nut on end of water oscillator (subject arrow).

**IMPORTANT!!!!!! - This nut is reverse (left hand) threaded. Turn clockwise to loosen. Save nut for reinstallation.**

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**14**

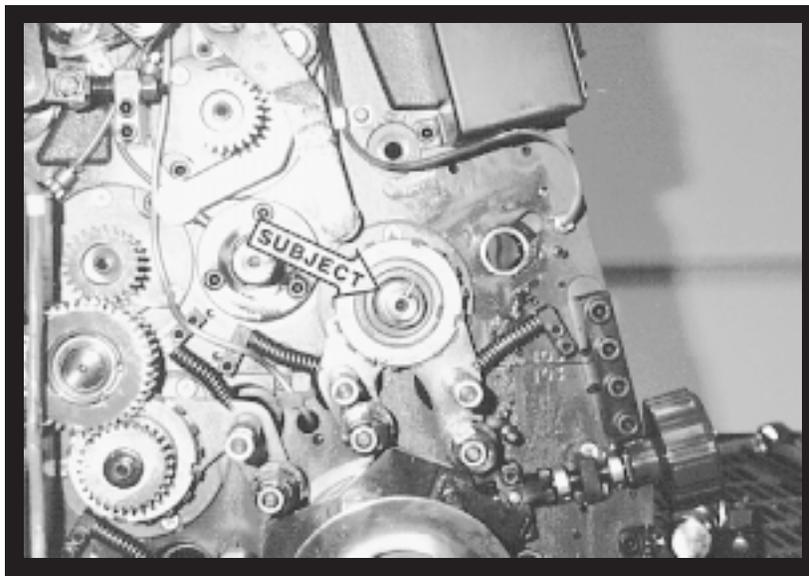
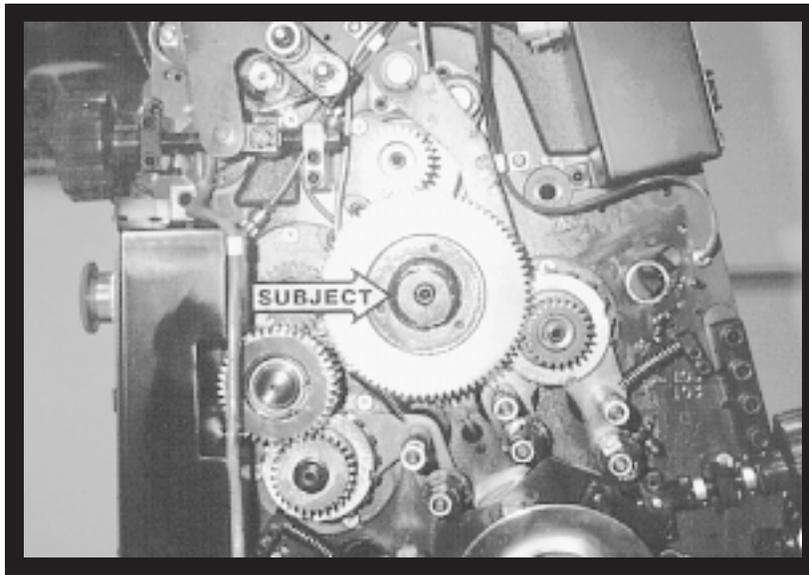
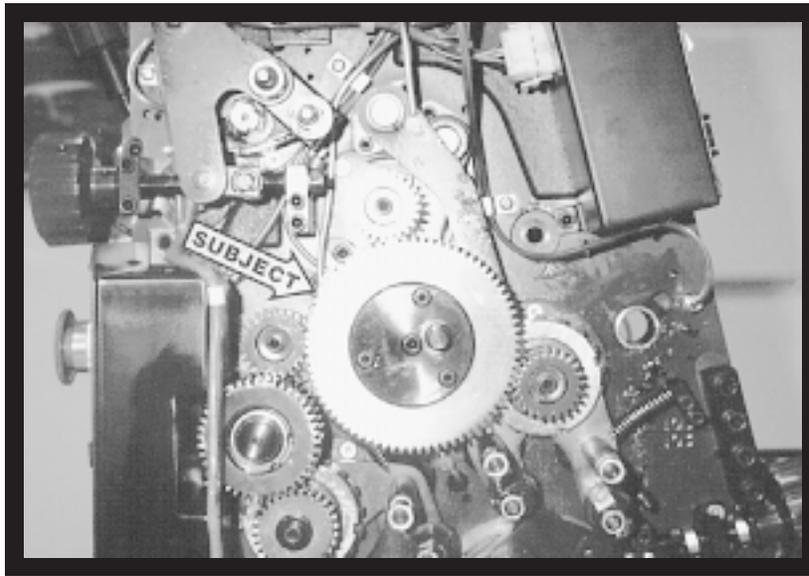
At OPS, remove cap screw and retainer washer from the end of water oscillator (subject arrow). Save for reinstallation.

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**15**

At OPS, remove ink fountain roller drive arm (subject arrow). Save arm, washers, and E-ring for reinstallation.

**15**



**16**

At OPS, make a timing mark between the large drive gear and one of the ink oscillator gears.

**IMPORTANT !!!!! - Do not jog the press until new oscillator is installed or ink ductor will be out of time.**

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**17**

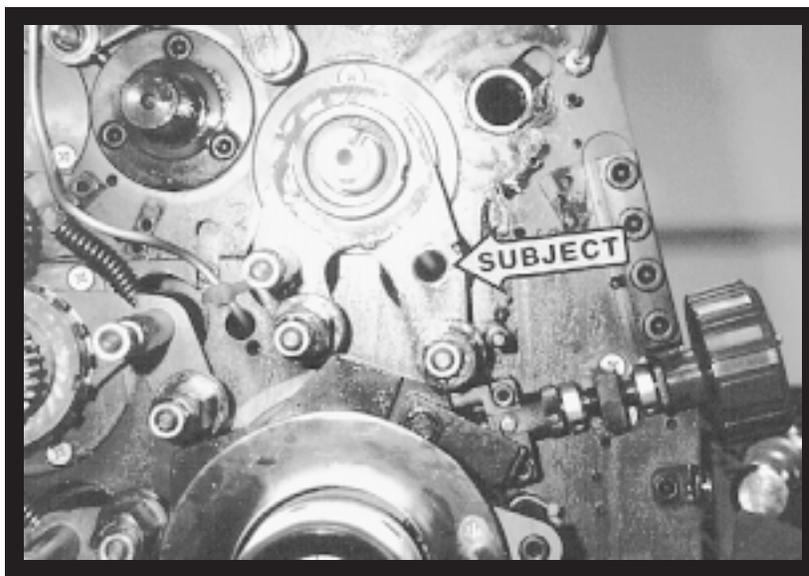
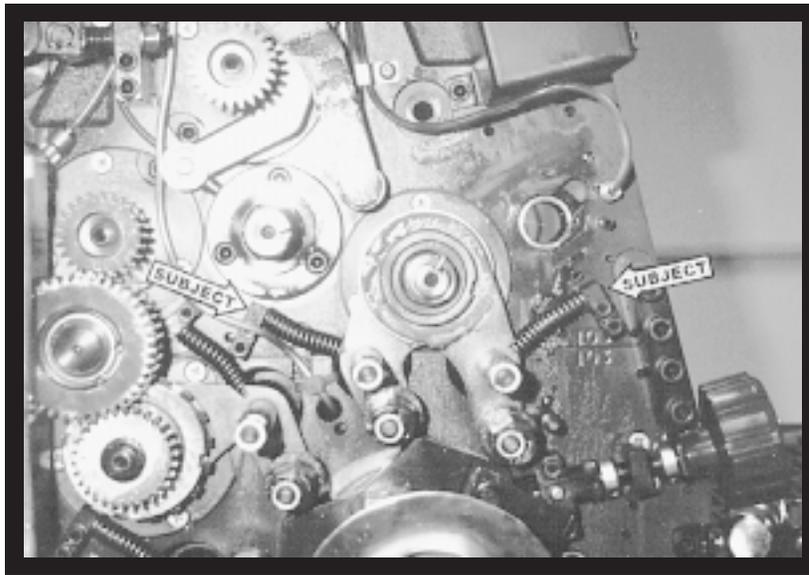
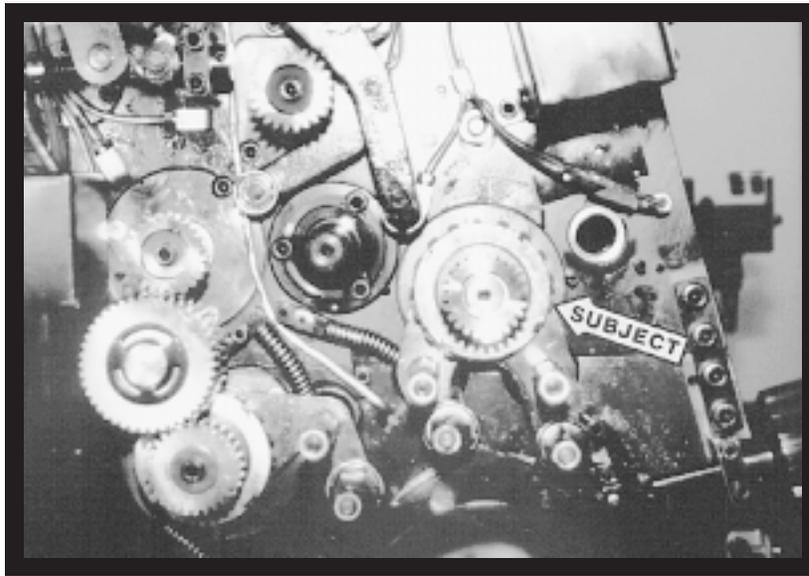
The ductor arms which ride on the cams behind the gear may have to be held up and out of the way when removing gear. Remove center 5 mm cap head allen bolt and pull large drive gear off.

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**18**

Remove gear from water oscillator (photo shows gear removed), using a puller if necessary. Save gear and shaft key for reinstallation.

**17**



**19**

At OPS, bend back tab on lock ring and remove spanner nut, washer, and lock ring (subject arrow) from water oscillator housing. Save for reinstallation.

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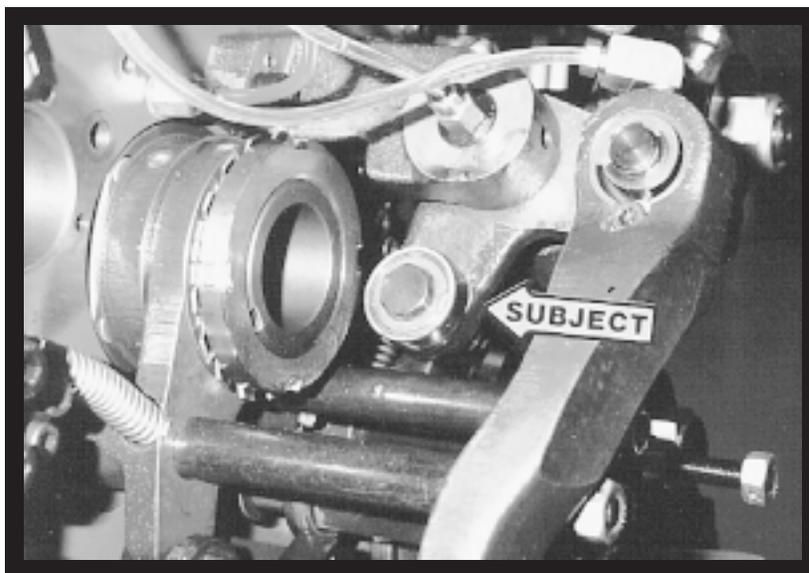
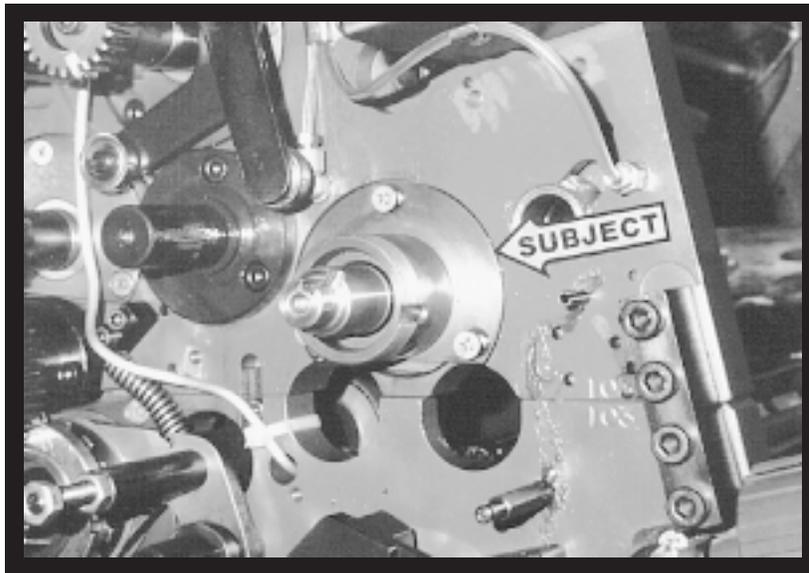
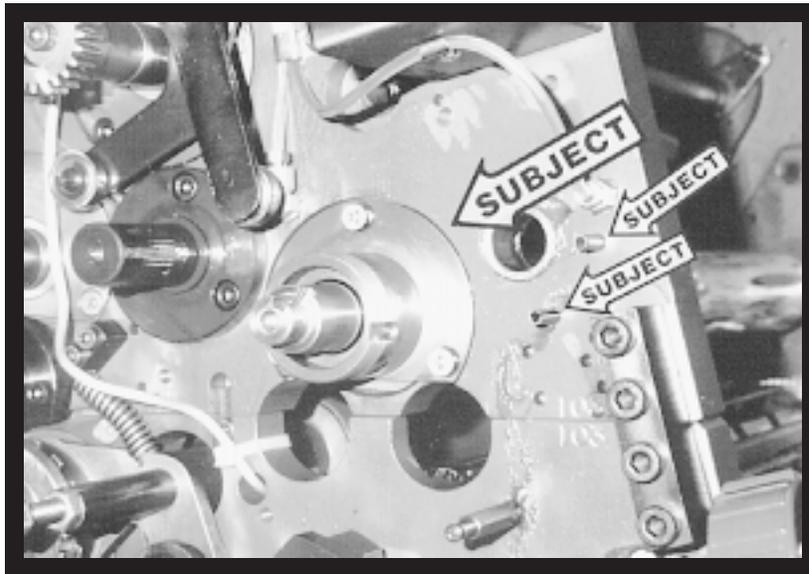
**20**

At OPS, remove compression spring assemblies from both water form hangers (subject arrow). Save for reinstallation.

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**21**

At OPS & NOPS, punch out roll pin on adjuster nut on the #1 water form hanger and spin off both nuts. Push threaded rod in and pull cup assembly off hanger (photo shows assembly removed from hanger). These parts will not be reinstalled.



**22**

At inside OPS, remove the bearing retainer cap from the #2 water form bearing cup. Save for reinstallation. After the cap is removed, pull hangers and washers off the oscillator housing at OPS (photo shows hangers removed). Also remove roll pins near pan roller hole (left subject arrow).

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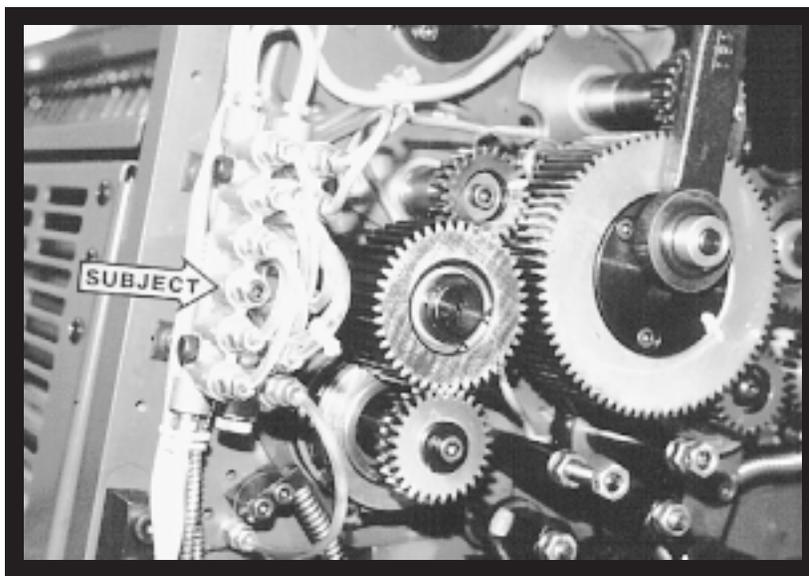
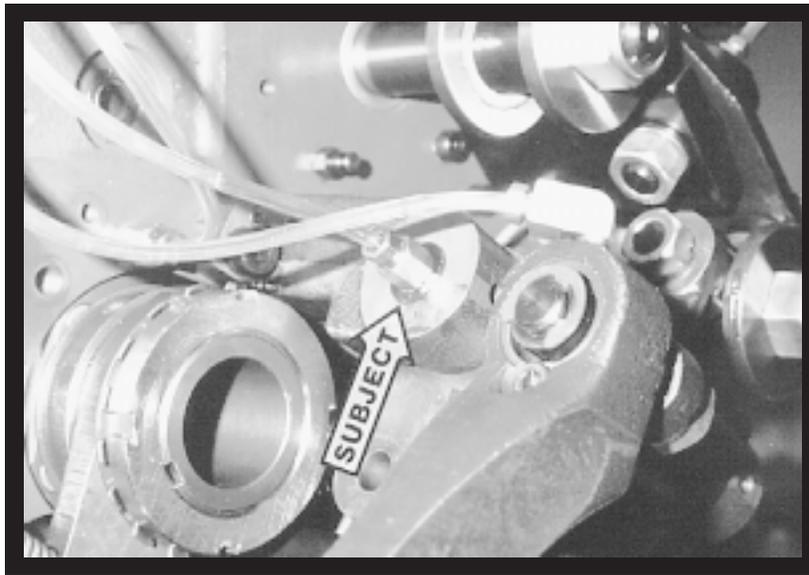
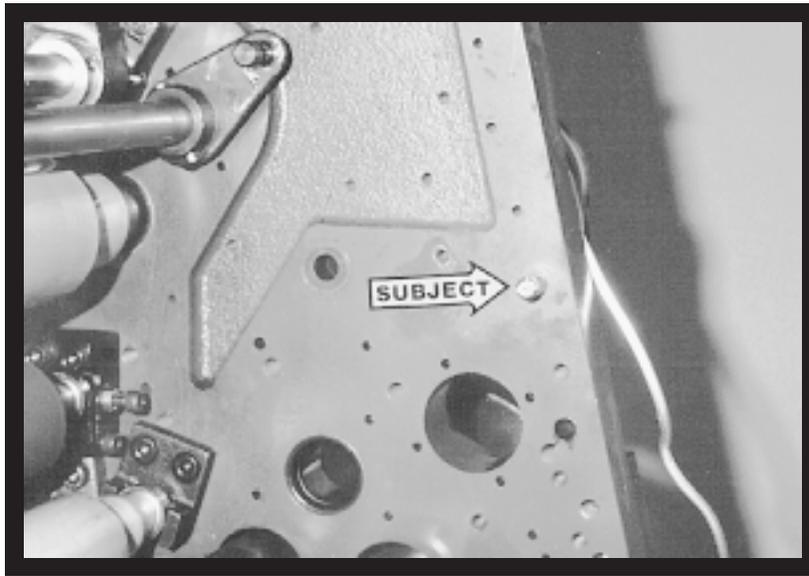
**23**

At OPS, remove the three Phillips head screws and pull oscillator housing off (subject arrow). The oscillator itself can now be pulled from the press out of the hole in the OPS frame. The parts on the NOPS end of the roller shaft will slide off as the roller is removed. Save all parts except roller for reinstallation.

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**24**

At NOPS, remove the ball bearing from the water oscillator drive arm (subject arrow). This part will not be reinstalled.



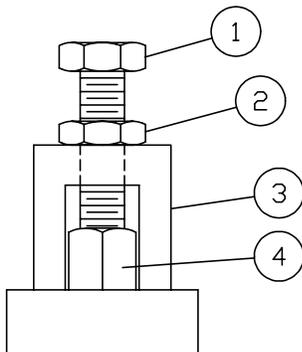
## DISASSEMBLY

**25**

Remove guard stop pins from the press frame at OPS & NOPS (subject arrow).

**26**

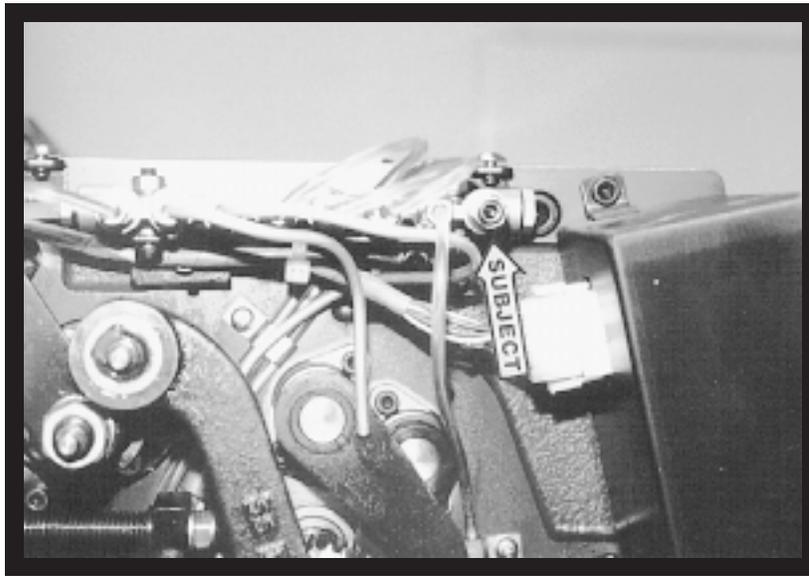
At NOPS, disconnect oil line and remove brass fitting (subject arrow) from pivot arm, using special puller provided. The fitting is pressed into the arm, not threaded. To use the puller, place each arm (3) around fitting (4). Thread bolt (1) into fitting and while holding bolt with wrench, turn nut (2) clockwise and the fitting will pull out.



**27**

At OPS #1 tower, disconnect pan roller oil line from distribution block and thread in provided pipe plug. This line is usually on the left bank, fourth position (subject arrow). Tie off line with provided zip tie.

**23**



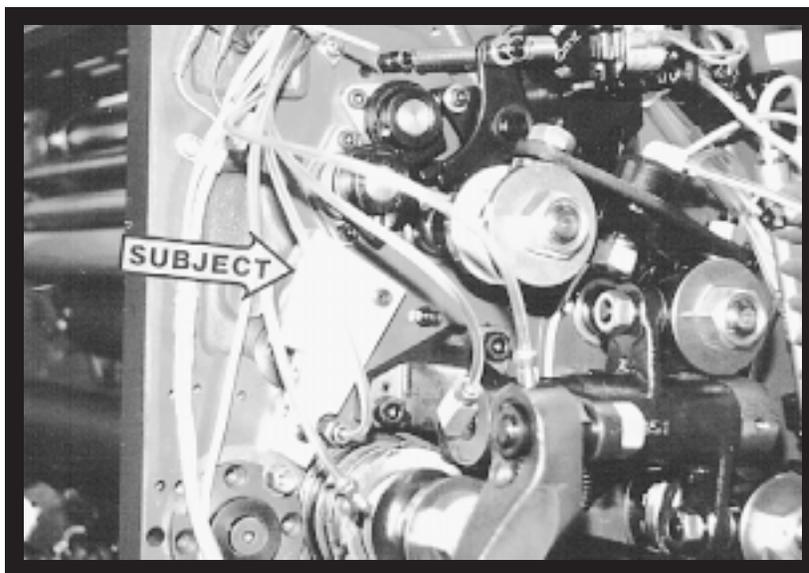
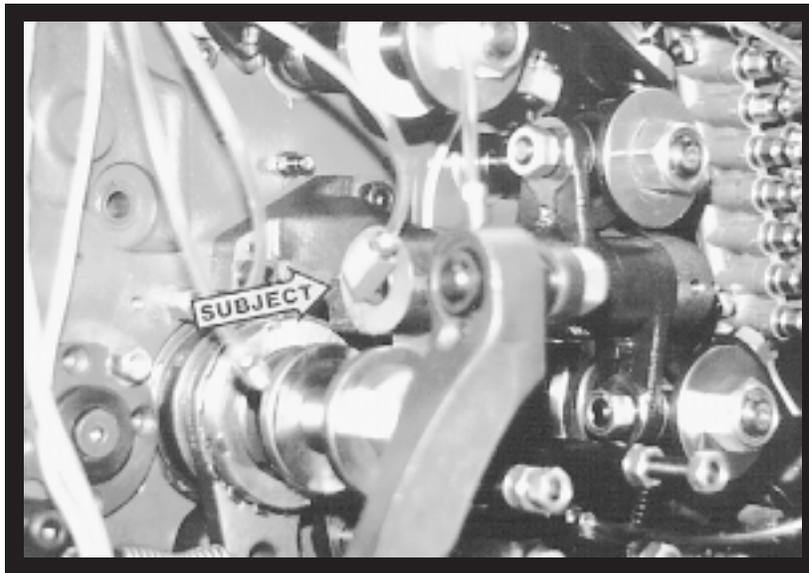
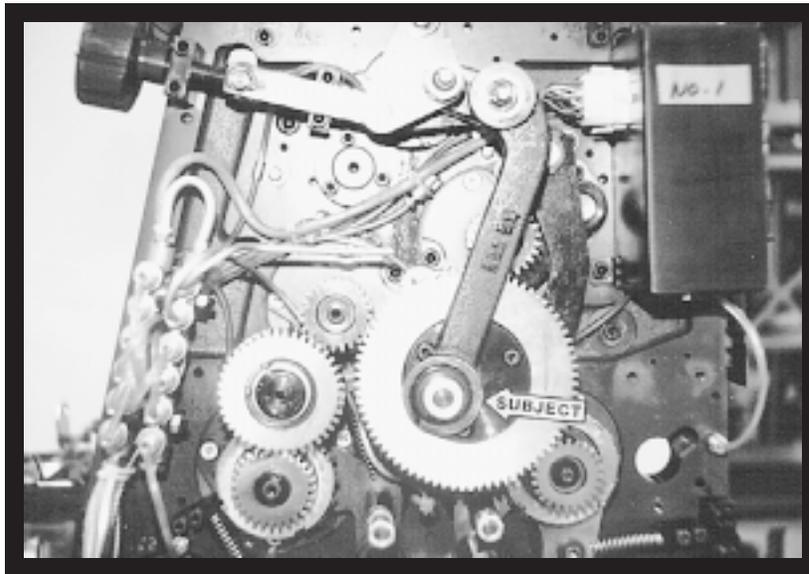
**28**

At OPS #2 tower, disconnect and completely remove pan roller oil line. Insert provided pipe plug in distribution block (subject arrow).

**YOU ARE NOW READY TO INSTALL CRESTLINE® ALTRA SERIES™.**

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# INSTALLATION

**1**

Install new oscillator provided, following disassembly steps 13-23 in reverse order, omitting step 21. Be sure to leave protected wrapper on new roller until it is completely installed. Also, remember to line up timing marks on large drive gear and that you may have to push out on the spring loaded ink ductor cam follower arm to seat the gear properly. When all the parts are in place, install provided set collar (subject arrow) to retain ink fountain roller drive arm.

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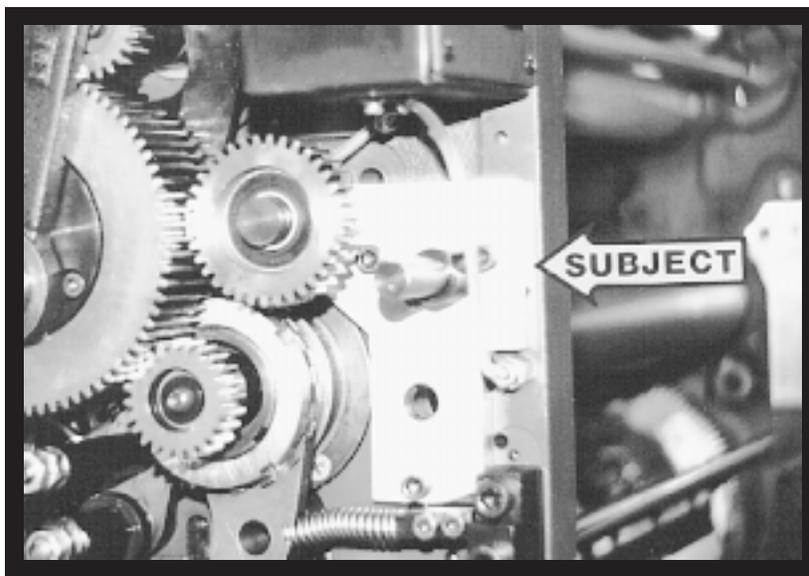
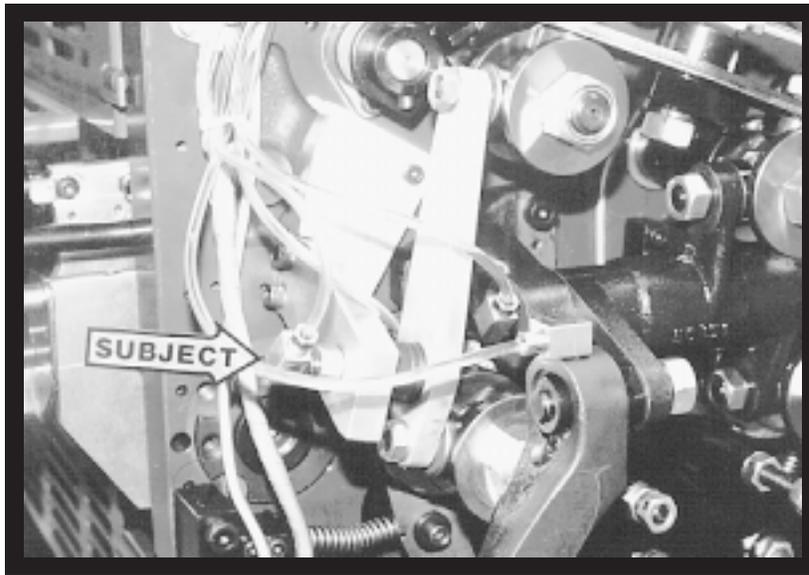
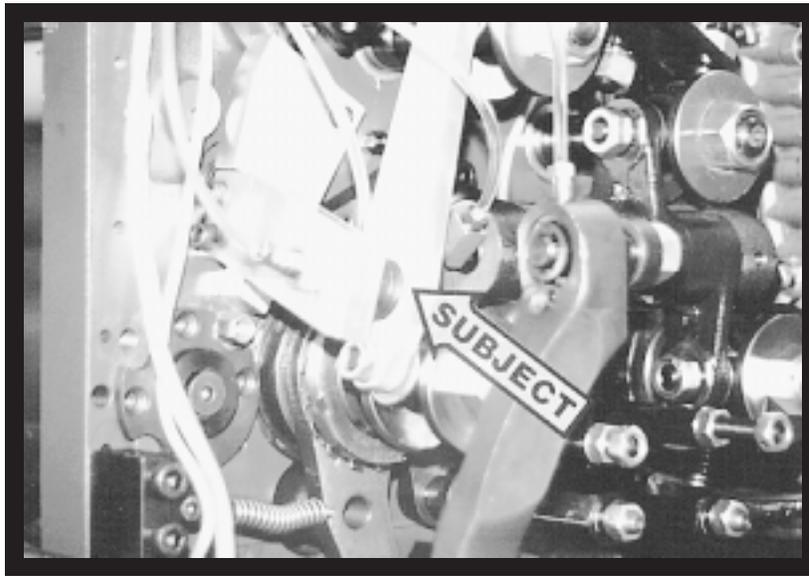
**2**

Install new right angle oil line fitting on main oscillator swing arm assembly (subject arrow) and reconnect oil line. Hold fitting with wrench when tightening oil line.

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**3**

Install new water oscillator drive mounting plate (subject arrow) using two 5mm cap screws provided.



4

Install new oscillator drive assembly (subject arrow) as shown onto the plate installed in the previous step. The ball bearings will fit into the roller guides. You may want to shift the water oscillator side to side in order to line up the swing arm properly. Make sure there is clearance between the bolt heads holding the ball bearings and the spools on the oscillators.

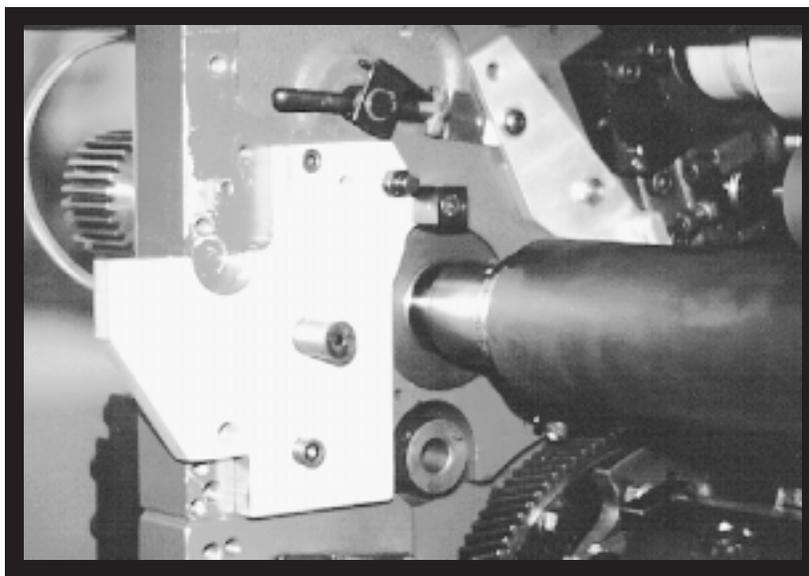
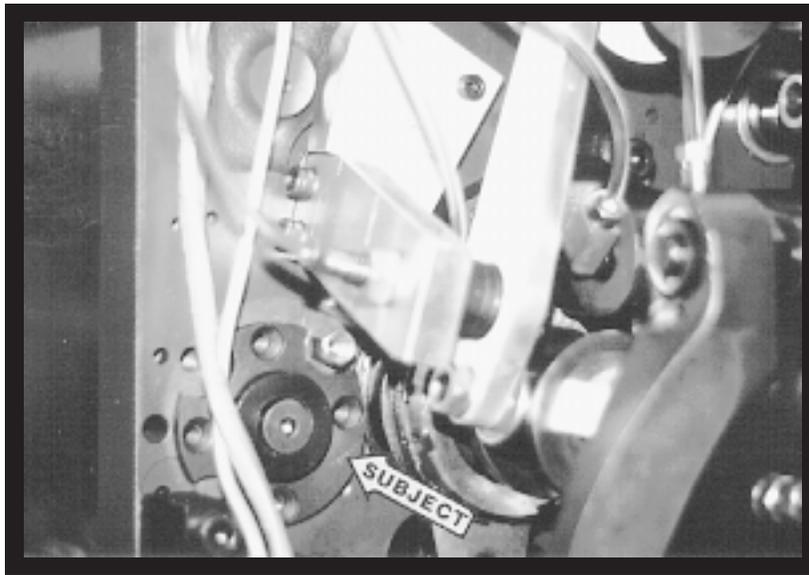
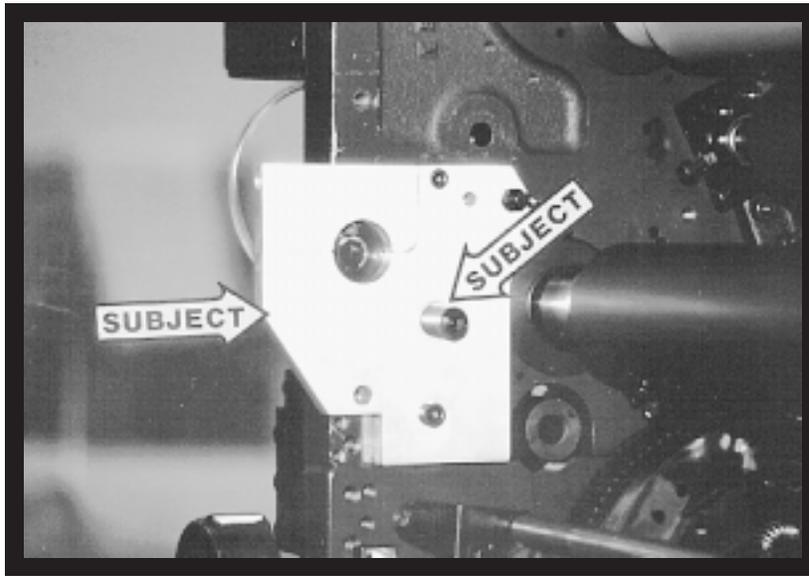
5

Install right angle oil line fitting in end of oscillator drive pivot bolt (subject arrow). Disconnect oil line from original pan roller housing and connect to this new part. Tie off all oil lines that touch or rub up against oscillator drive (to eliminate wear).

6

At OPS, install gear mounting plate (subject arrow). If plate already has gears mounted from factory, you may have to remove one or more of them to access bolts. With large idler gear on plate, check mesh with large drive gear and finger tighten bolts only at this time.

**NOTE: Some presses may have holes that need to be finish tapped. If this is necessary, use the provided tap to do so.**



# INSTALLATION

7

At OPS, slip drive shaft (subject arrow) through gear plate installed in the previous step. Take OPS mounting plate, which is stamped 1-O for #1 tower and 2-O for #2 tower. Remove bearing cap and slip over drive shaft and up against press frame. Thread provided M5 cap screw through top hole, and M6 through bottom hole. As you tighten bolts, spin drive shaft to make sure it is not binding. If necessary, adjust mounting plate and/or drive gear plate to provide a free spinning drive shaft. Fully tighten bolts in both plates when finished and reinstall gears. (The gears on the drive shaft will be different between the #1 and #2 towers.)

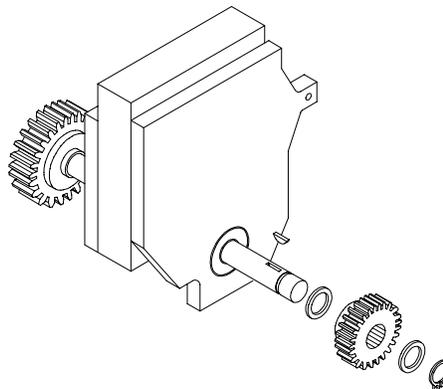
The #1 tower has a 28 tooth gear on the outside and a 30 tooth on the inside. The #2 tower has a 24 tooth gear on the outside and a 26 tooth gear on the inside.

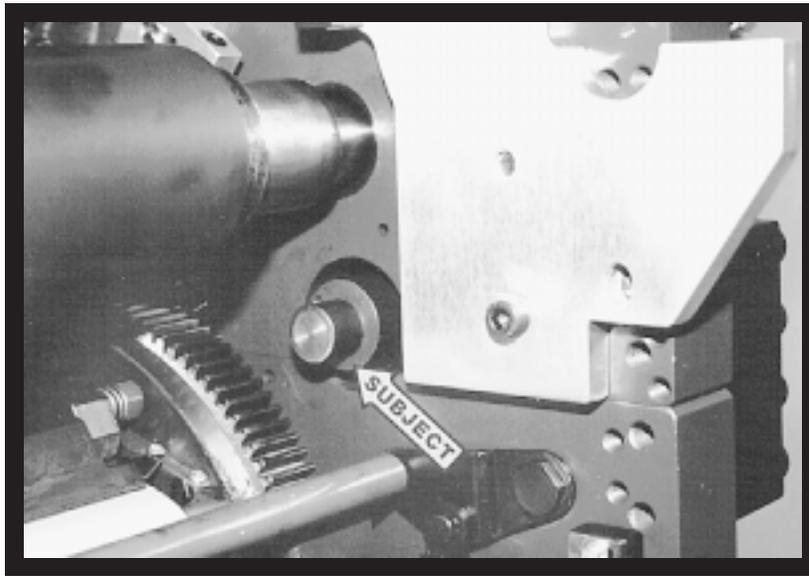
8

At NOPS, slip flanged mounting spool through press frame (flange outside) and slip flat head bolt through spool. Place NOPS mounting frame, stamped 1-N for #1 tower and 2-N for #2 tower, against press frame and thread bolt into frame. Thread remaining bolts into frame similar to OPS frame and tighten all three bolts.

9

At OPS, finish installing gear train by placing a washer over the drive shaft, inserting woodruff key, slipping gear over shaft and key, another washer, and finally snap ring.





10

At OPS & NOPS, slip lift pins (subject arrow) through vacated hole in #1 water form hanger as shown. Secure on outside with cap screw and washer.

11

Install new water form roller into the #2 water form hangers and tighten retainers. Remember the plate cylinder gap will have to be located under the hangers to install the roller.

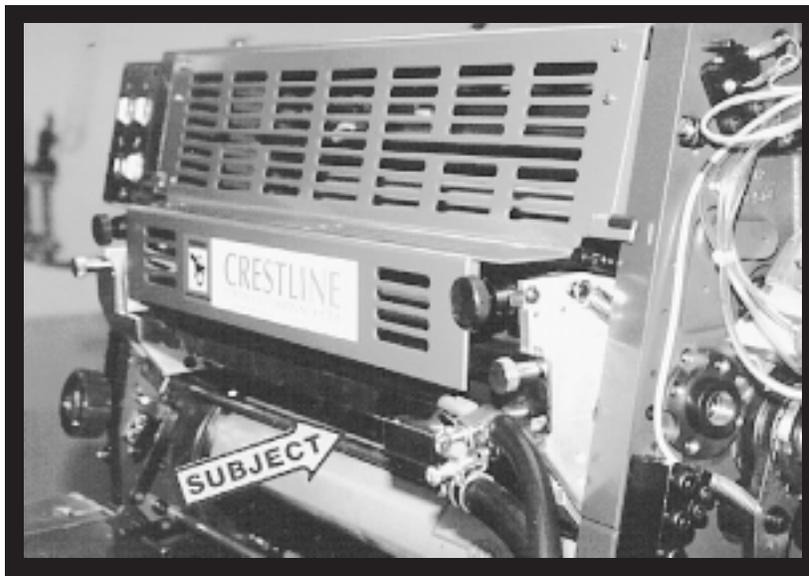
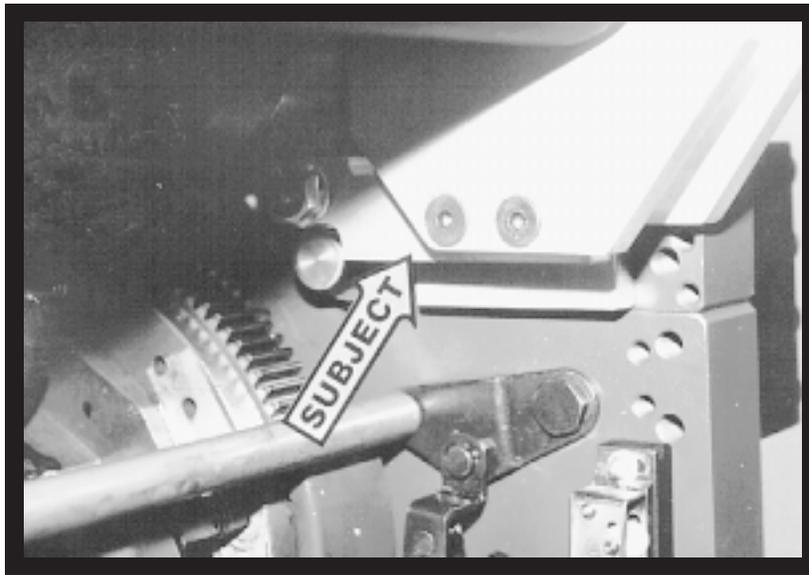
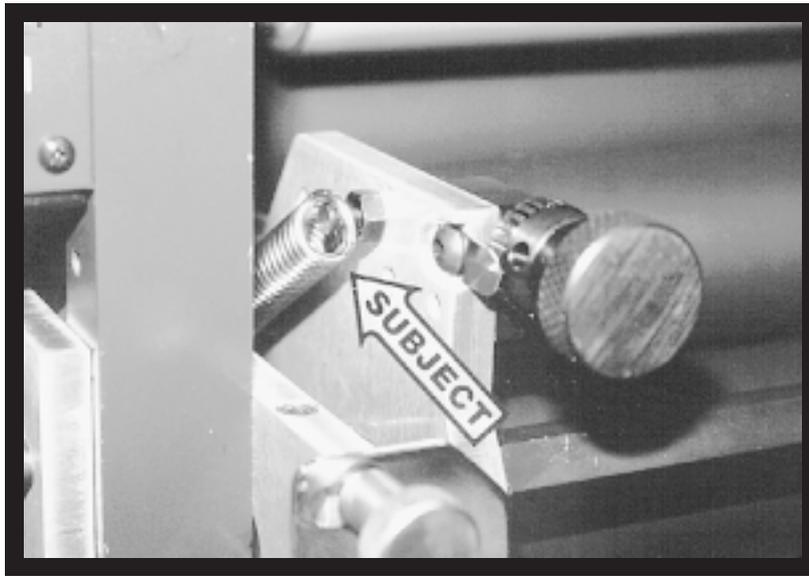
**NOTE: If this is a new press, be sure that the #1 ink form roller is installed at this time.**

12

Place dampener assembly up into press. The bearing on the end of the water pan roller will rest in notches on mounting frame. Center dampener side to side by observing gap between ball bearing and press frame. When centered, replace bearing caps, remembering to match the stamped number on the cap to the same stamped number on the mounting frame. The dampener assembly will contain 2 nylon bolts, one each protruding from the side frames. Once the dampener is secured, turn these bolts until they just contact the mounting plates and tighten lock nuts. These eliminate any end play at the front of the dampener assembly.

**NOTE: When installing, you may have to spin the nylon bolts in to have enough clearance to slip the dampener assembly past the drive gears.**

33



13

Using spring hook tool, install extension springs (subject arrow) at OPS & NOPS between studs on mounting frame and dampener side frame. To facilitate easier installation, make sure the more open side of the spring loop faces the spring stud.

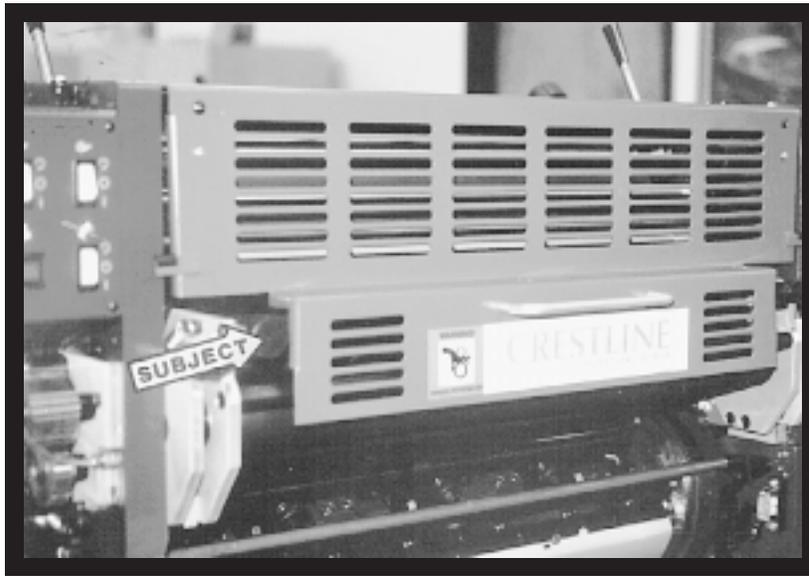
14

Turn on press and push water form roller button (button should be lit). Slip lift arms (subject arrow) between mounting frame and dampener frame and thread countersunk bolts through the frame holes and into arm and tighten (the longer arms belong to the #1 tower). Push water form roller button again and the upper section of the dampener should raise off the oscillator. The gap should be 1 - 1.5 MM. Use the eccentric that originally set the #1 water form to plate pressure to adjust this gap. Turning eccentric in the direction of the arrow will reduce the gap and vice-versa.

**Note: On the #2 tower you should push up on the lift arms & then tighten. This positions the lift arms properly. On the #1 tower, pull down on lift arms to get more lift.**

15

Install water pan as shown and connect circulator.



**16**

Replace original dampener guard with the new one provided (subject arrow). The longer guard goes on the #1 tower. Be sure to check for proper activation of microswitch.

**NOTE: Replacement mounting screws have been provided if necessary.**

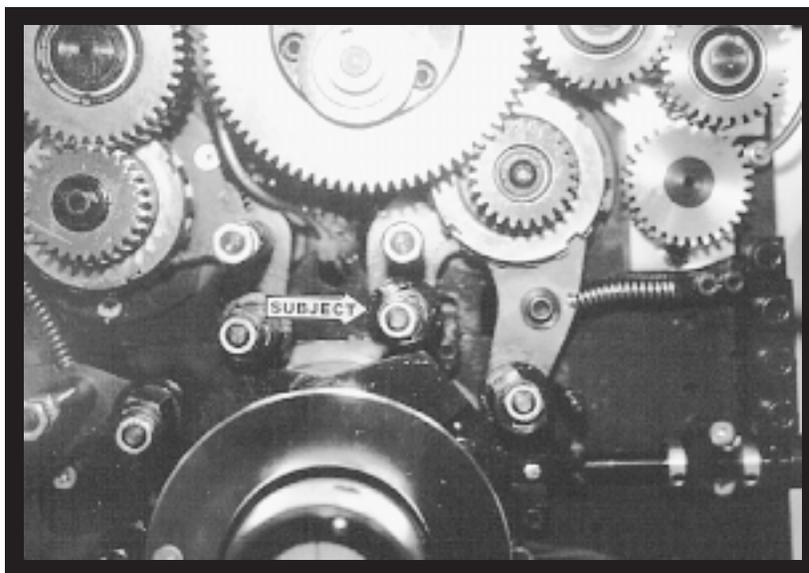
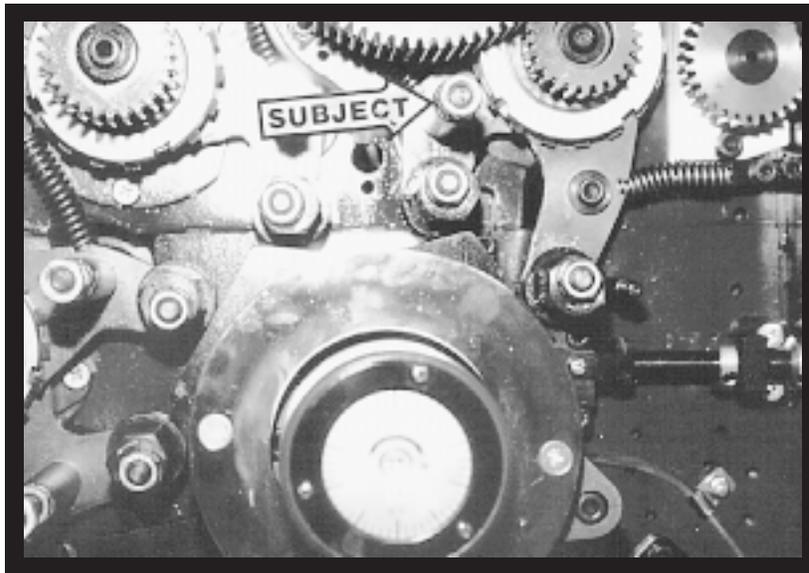
**17**

Replace the cylinder guard on the #2 tower with the new one provided. Be sure to reconnect the microswitch activation arm at NOPS. Also, on #1 tower, attach provided extension to the cylinder guard by slipping the studs through the top slot and securing with washers and nuts.

**18**

Pump the press oiler several times to bleed the oil line and lubricate the new parts.

**YOU ARE NOW READY TO MAKE FINAL ADJUSTMENTS.**



# FINAL ADJUSTMENTS

1

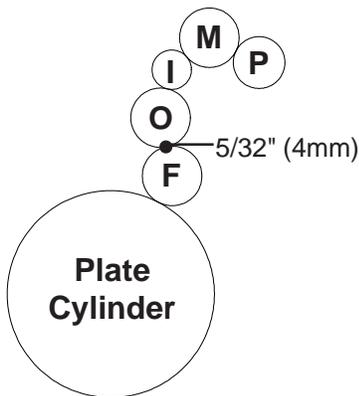
## INKING THE DAMPENER

Make sure the dampener is in the "OFF" position (indicator light is not lit). Apply a small amount of ink on the dampener oscillator only. Turn on the press and run slowly for 30-40 seconds and allow the ink to mill. Only the oscillator and form roller will ink up at this time.

2

## OSCILLATOR TO FORM ROLLER PRESSURE

After the press sits still for 15-20 seconds, jog the press forward slightly while looking at the form roller. A stripe or bead line should appear on the form roller which was created by the oscillator. This stripe should be  $5/32$ " (4mm) wide. To adjust, loosen the lock nut (subject arrow) and turn the outer nut. At OPS, turning the nut clockwise will reduce the stripe and vice-versa. At NOPS, turning the nut counterclockwise will reduce the stripe and vice-versa.

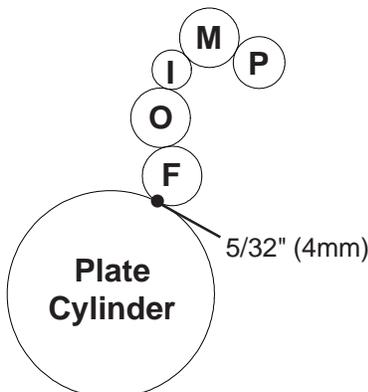


**NOTE: When making adjustment, be sure you do not go 180° out with adjustment. If you cannot get sufficient pressure on one side or the other, you may be 180° out on one side.**

3

## FORM ROLLER TO PLATE CYLINDER PRESSURE

With a properly packed plate on the cylinder, drop the dampener form roller down to the plate and back to "OFF" again. This will leave a stripe on the plate which should be  $5/32$ " (4mm). This stripe is adjusted exactly as the original dampener by loosening the lock nut (subject arrow) and turning the eccentric. Turning the eccentric in the direction of the arrow will increase the stripe and vice-versa.

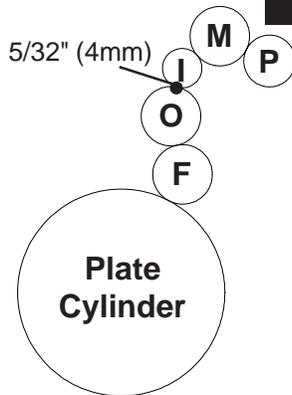


**NOTE: When making adjustment, be sure you do not go 180° out with adjustment. If you cannot get sufficient pressure on one side or the other, you may be 180° out on one side.**



# FINAL ADJUSTMENTS

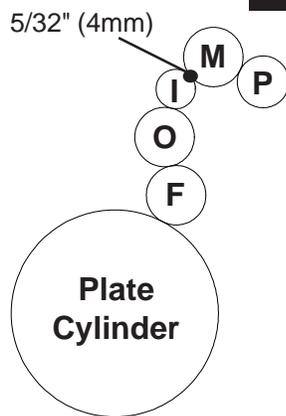
4



## INTERMEDIATE ROLLER TO OSCILLATOR PRESSURE

Place the dampener in the "ON" position and then immediately back to "OFF". In addition to the form roller dropping to the plate, the intermediate roller will drop down and contact the oscillator. To view the stripe, jog the press forward slightly and observe the intermediate roller. The stripe should be  $5/32$ " (4mm). To adjust, loosen the lock nut (subject arrow) and turn the set screw. Turning the set screw down will reduce the stripe and vice versa. Retighten lock nut when finished.

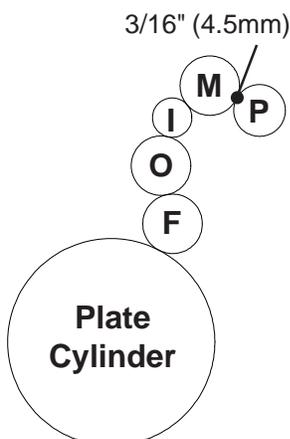
5



## METERING ROLLER TO INTERMEDIATE ROLLER PRESSURE

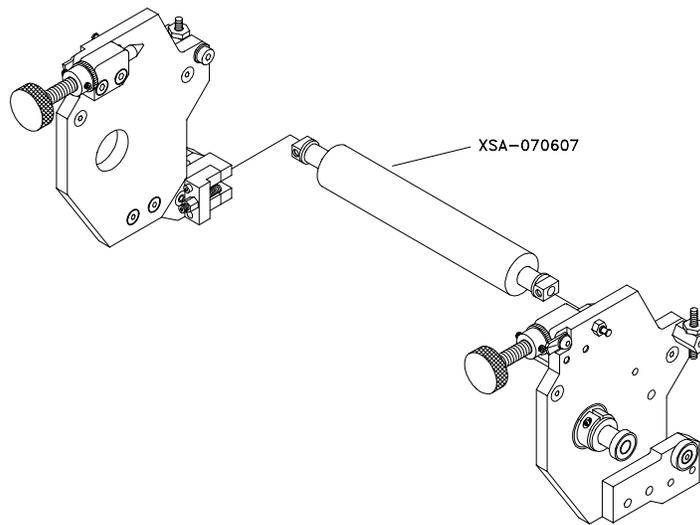
Dab a little ink on the upper section of the dampener and run press to mill. Place the dampener in the "ON" position, allow to sit still for 15 seconds and jog press backwards. Observe the stripe left on the metering roller by the intermediate roller. It should be  $5/32$ " (4mm). To adjust, turn the cap screw on the metering roller hanger (subject arrow). Turning the screw in (clockwise) increases the stripe and vice-versa.

6

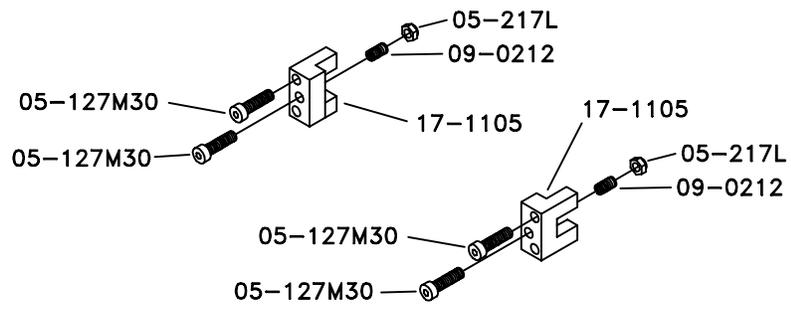


## MAXIMUM METERING ROLLER TO PAN ROLLER PRESSURE

Turn the press on and run for 30-40 seconds to mill the ink. Stop the press and allow it to sit still for 15-20 seconds. Jog the press forward and observe the stripe on the pan roller. It should be  $3/16$ " (4.5mm). Turn the knurled metering knobs (subject arrow) clockwise to increase the stripe and vice versa. When the proper stripe has been obtained, spin the ratchet gears down until they bottom out on the block and secure the ratchet gear to the knurled knobs with the set screws.



512-20, 9-96



# FINAL ADJUSTMENTS

7

## WATER LEVEL IN PAN

With water pan installed and circulator hoses connected, make sure weir is in place over drain hole and turn on circulator pump. The weir will automatically control the water level in the pan as long as the flow is kept below the drain capacity of the pan. Only a slow trickle from the pipe is needed for proper circulation.

8

## RIDER ROLLER INSTALLATION

Remove the cap (17-1105) and place the rider roller (XSA-070607) in the slot with the *set screws on the roller collar facing you*. Adjust the collars so there is no side to side movement of the roller between dampener frames. Once adjusted, remove the roller. Grease each roller collar and the slot the collars fit into. Place the roller back in the slot with the set screws *facing away from you* and the compression spring centering hole facing the front. Install the retaining caps making sure the center screw fits into the counterbore on the roller end bushing.

**CAUTION:** If lift is set too high, the rider roller may rub the oscillator roller. ***Be sure the rider roller is only contacting form roller before running press!!!***

9

In the "ON" position check the stripe between the rider & water form rollers. It should be between 2 - 3 mm. If necessary, the pressure can be adjusted by turning the lock nut (x05-217L).

**Activate and deactivate the lift mechanism several times and observe the movement of the rider roller within the brackets. Make sure the roller moves in and back within the bracket without binding. If the roller is binding and not moving properly then loosen the end play in the roller.**

## BASIC OPERATION

### START OF DAY

- A. Make sure all rollers are in place.
- B. Spin knurled knobs until the shoulder on the ratchet stops.
- C. Mount plate to cylinder. Wipe down all plates before running. Pre-ink the Crestline® Altra Series™ dampener before running the plates with an extremely light coverage of ink.
- D. Place fountain bottles in brackets, or if applicable, adjust circulator flow to water pans.

**NOTE:** Accel recommends using the proper fountain solution for the plate material being run on the press. A good acid/gum etch should be used with metal plates. Accel offers a product called FC (Fountain Concentrate) that we recommend for a fountain solution. Contact your Accel dealer for more information.

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### RUNNING DURING THE DAY

- A. In general, the Crestline® Altra Series™ dampener should not have to be adjusted from job to job. The form roller setting should never be changed unless it has deviated from the factory specification of 5/32" (4mm) to the plate.
- B. Adjustments to the amount of water fed to the plate is made by altering the pan roller pressure. Less pressure equals more water.
- C. In general, more water will only be required when going from a metal plate to an electrostatic or silvermaster type plate.

# CLEANING & MAINTENANCE

## WASH UPS DURING THE DAY

1. Remove fountain bottles, or if applicable, shut the circulator off. Drain the excess water from the pan.
2. Mount a metal plate to the press.
3. Turn on the press and squirt a small amount of press wash on the ink rollers.
4. Drop both the dampener and ink forms to the plate. In general, the dampener will pick up enough roller wash off the plate to clean itself.
5. Use wash up attachment as normal. The plate cylinder is being used as a bridge between the dampener and inker. Solution transfers from the dampener to the plate, plate to inker, and inker to wash up attachment.
6. Remove water pan and clean any solution left in it.
7. Be sure to wipe excess clean up solution from the ends of the dampener metering and pan rollers.

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## END OF THE DAY

1. Wash up dampener. Pay close attention to cleaning the ends of the pan and metering rollers that extend past the form rollers.
2. Spin the knurled knobs up until the metering roller can be removed.
3. Remove metering roller and wipe down thoroughly to remove any excess wash that may be on the roller.

## CLEANING & MAINTENANCE

### DEGLAZING THE DAMPENER

Periodic deglazing of water-soluble contaminants will be necessary with the Crestline® Altra Series™. Typically, once every 2-3 weeks will be sufficient, unless you are running electrostatic plates on a daily basis whereas deglazing should be performed weekly. A 50/50 solution of household ammonia and hot water can be used for deglazing purposes. If you prefer a commercially available deglazer, avoid those containing pumice or gritty substances. Always follow deglazing with straight water and then roller wash. Accel offers a product called **COMPOUND X** that we recommend for deglazing our system. Contact your dealer or Accel for more information.

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### OILING AND GREASING THE DAMPENER

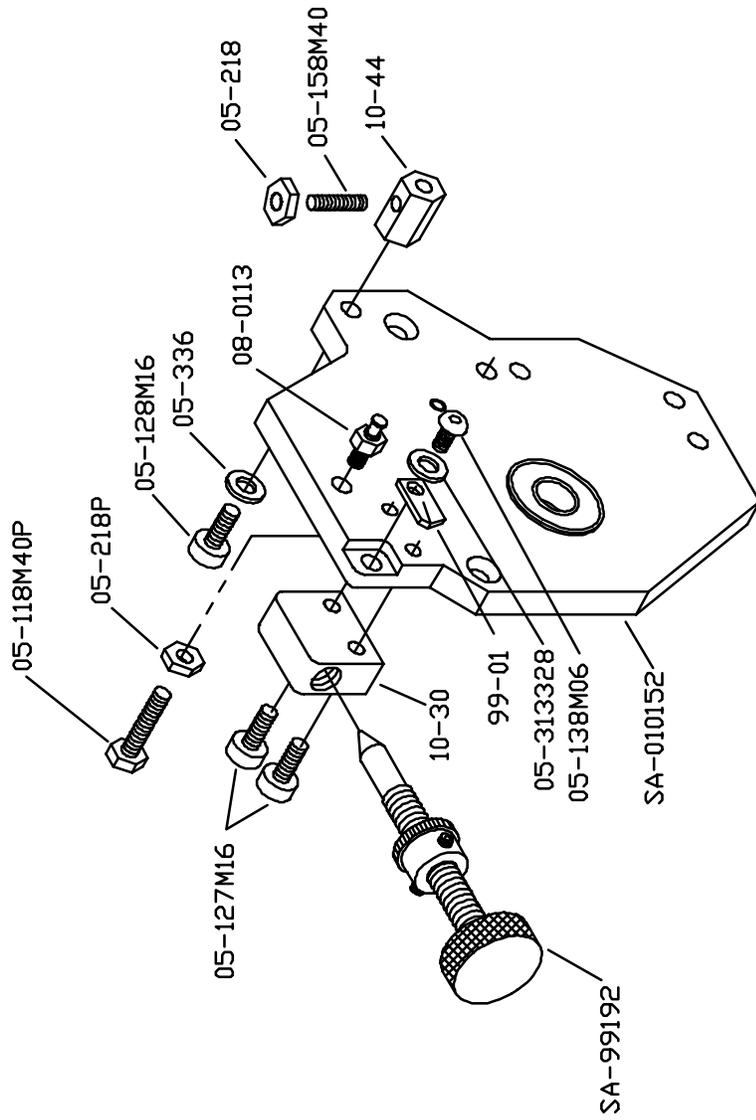
- A. Place a small amount of grease on the gears once a month.
- B. Inject grease into the oscillator grease fitting once a month.

# CLEANING & MAINTENANCE

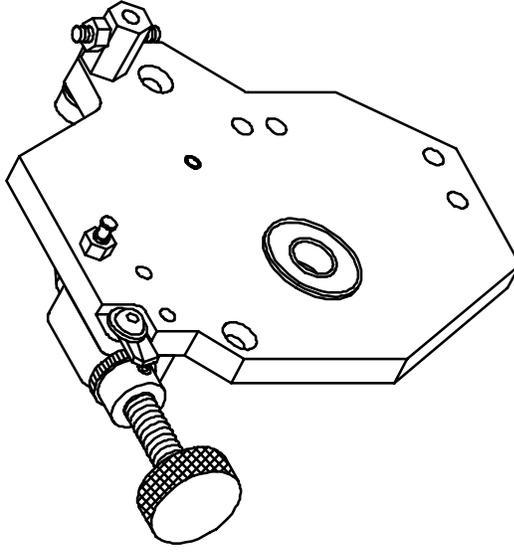
## CRESTLINE® ALTRA SERIES™ CLEANING & MAINTENANCE CHART

	Daily	Weekly	Bi-Weekly	Monthly
Wash Rollers	✓			
Deglaze Rollers				
Metal Plate Users			✓	
Silvermaster Plate Users			✓	
Electrostatic Plate Users		✓		
Grease Gears				✓
Inspect Ball Bearings				✓
Check Roller Pressures				✓
Check Roller Surfaces				✓

RYOBI 512 DAMPENER FRAME ASSEMBLY NOPS

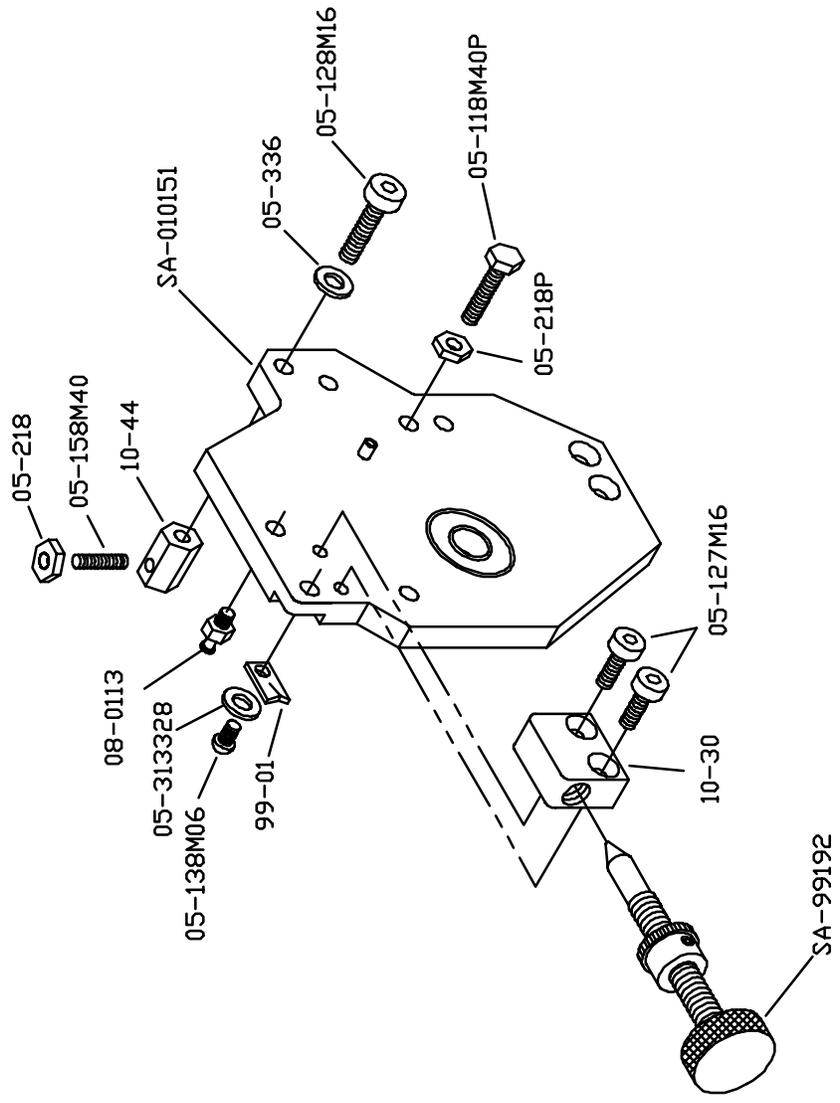


RYOBI 512 DAMPENER FRAME ASSEMBLY NOPS

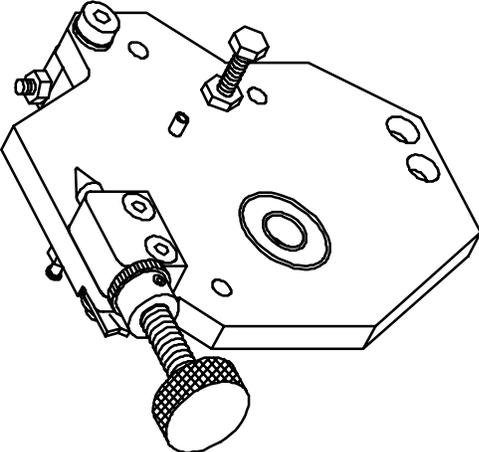


512C02, 2-17-97

RYOBI 512 DAMPENER FRAME ASSEMBLY DPS

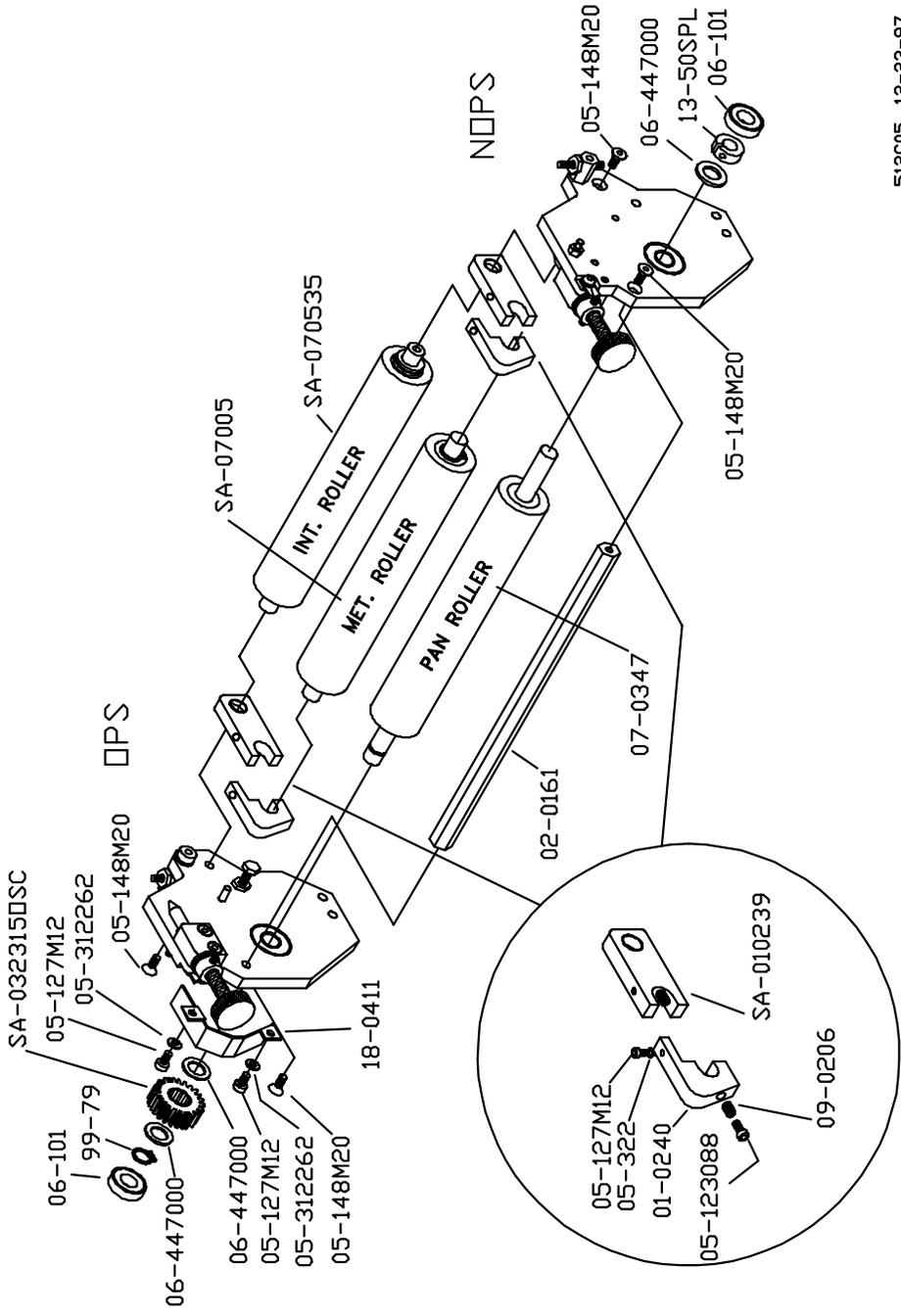


RYOBI 512 DAMPENER FRAME ASSEMBLY DPS



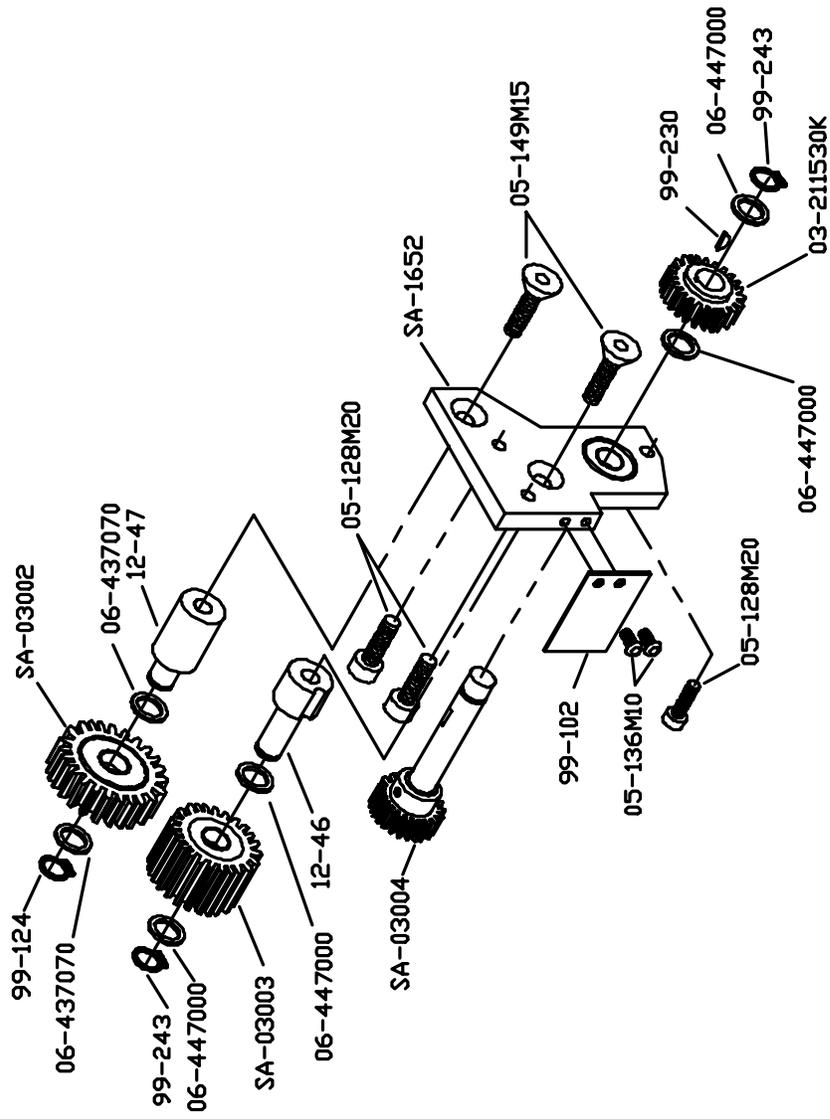
512C04, 2-17-97

DAMPENER ASSEMBLY  
RYOBI 512



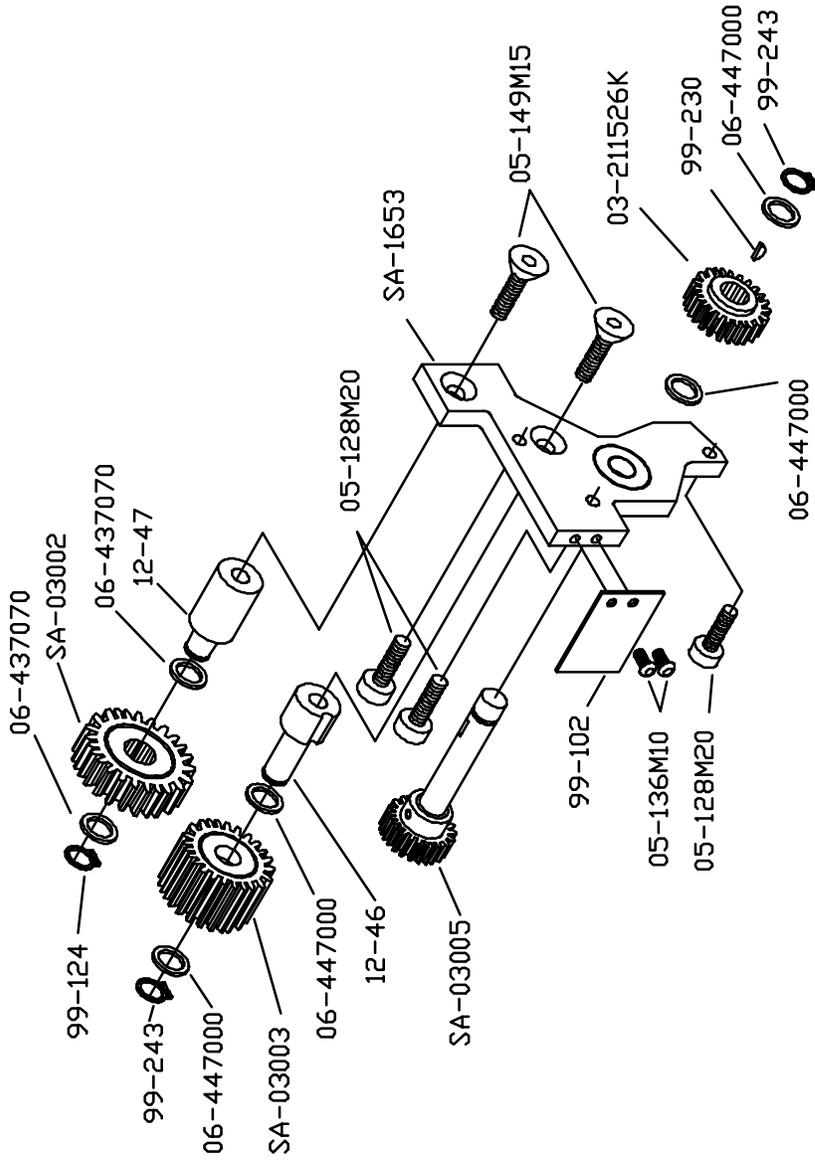
512C05, 12-23-97

RYDBI 512 GEAR DRIVE ASSEMBLY  
#1 TOWER

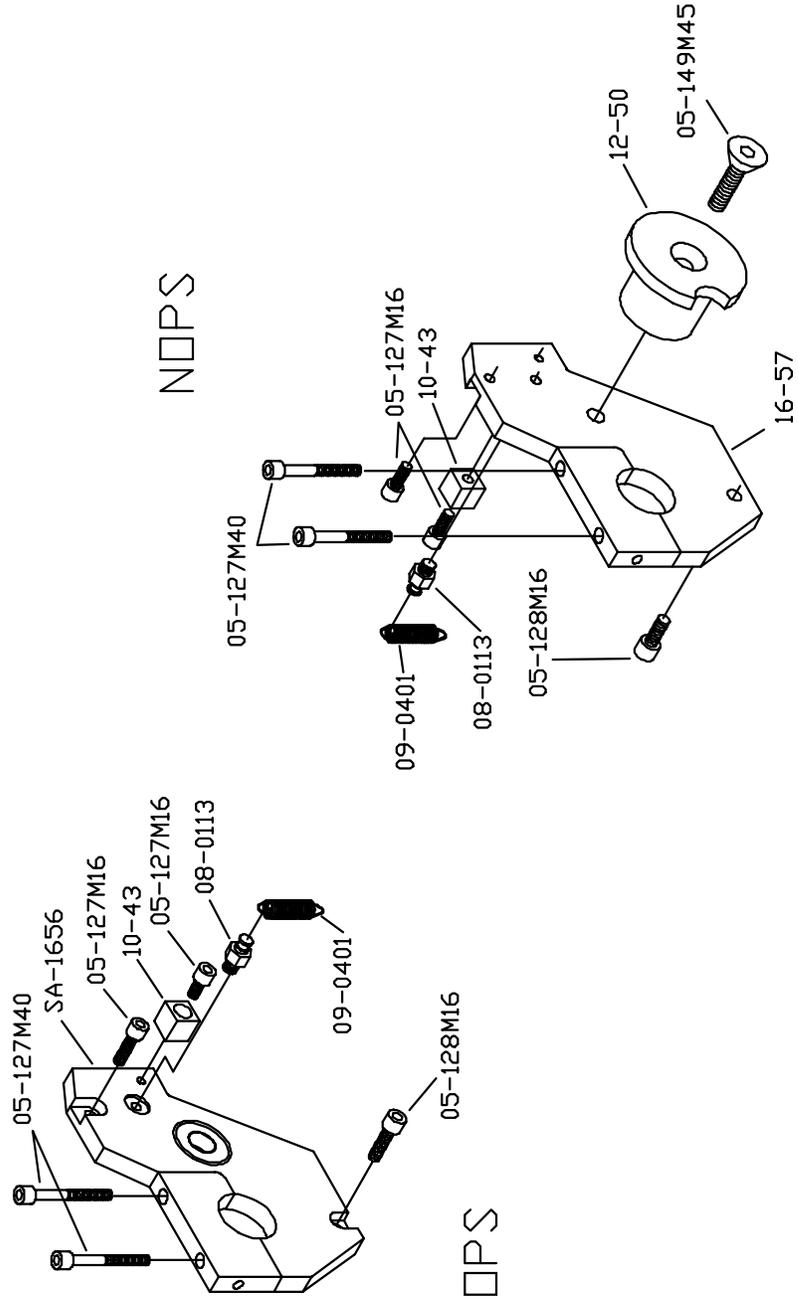


512C06, 2-18-97

GEAR DRIVE ASSEMBLY #2 TOWER  
RYOBI 512

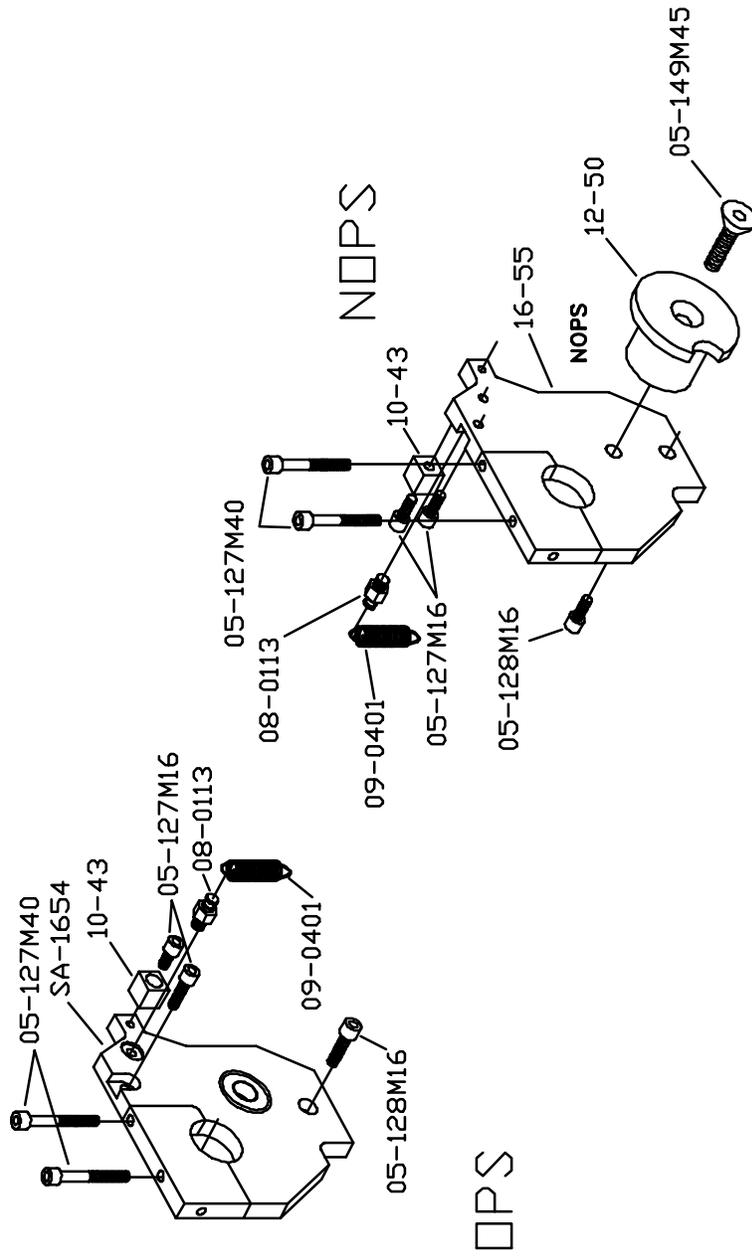


MOUNTING FRAME ASSEMBLY  
RYOBI 512 #2 TOWER

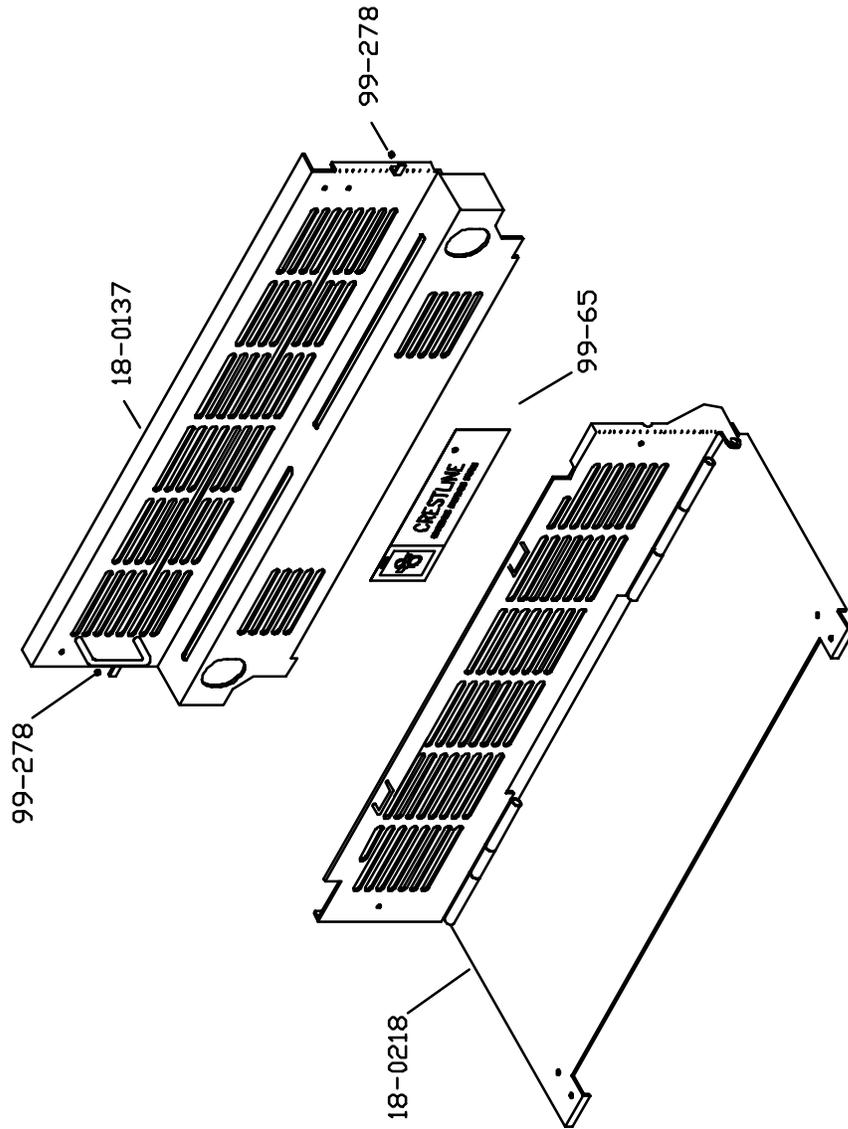


512C08, 2-18-97

MOUNTING FRAME ASSEMBLY  
RYOBI 512 #1 TOWER

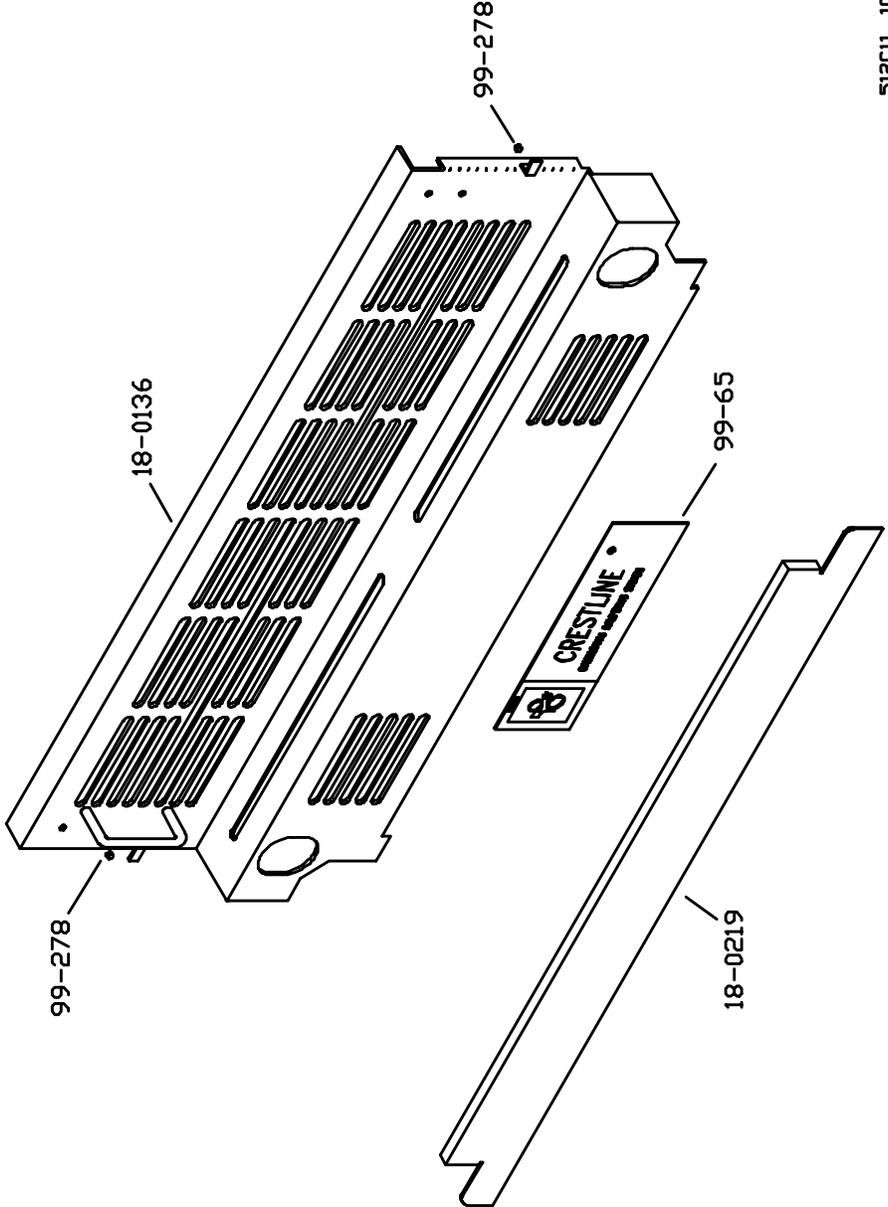


GUARD ASSEMBLY #2 TOWER  
RYOBI 512



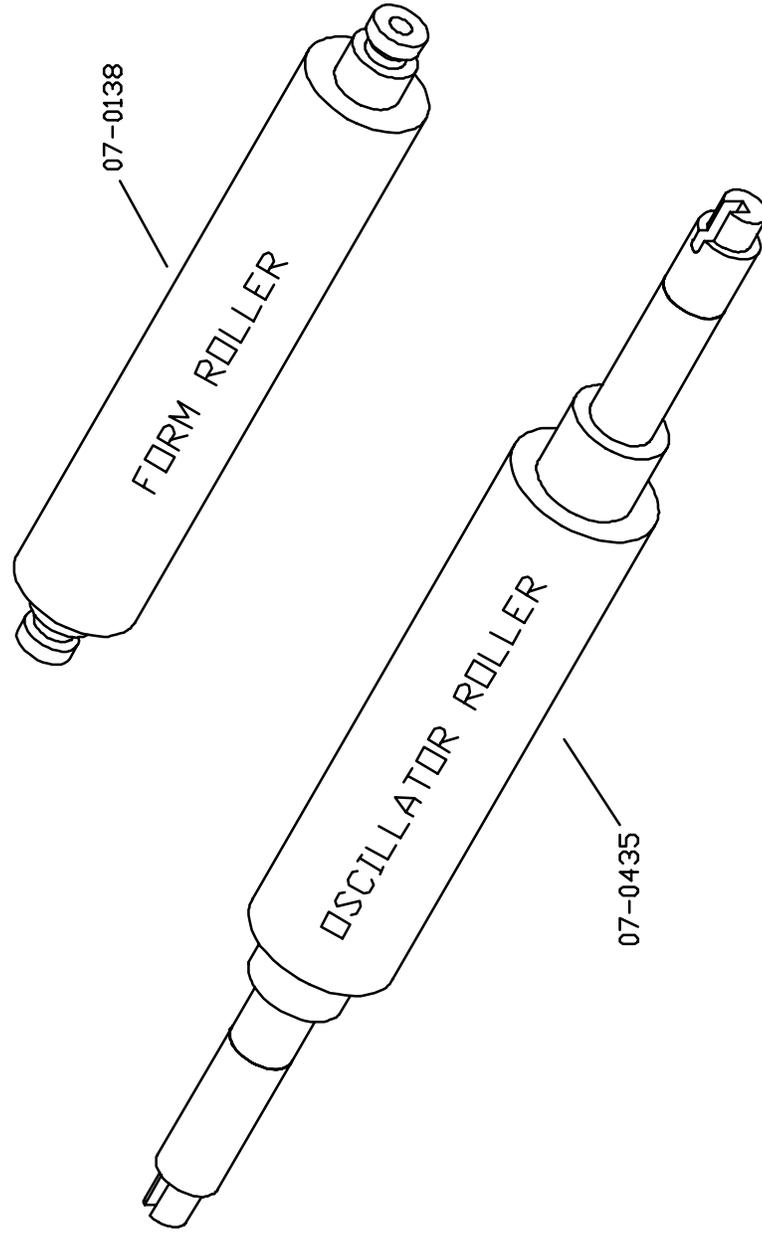
512C10, 10-28-97

GUARD ASSEMBLY #1 TOWER  
RYOBI 512



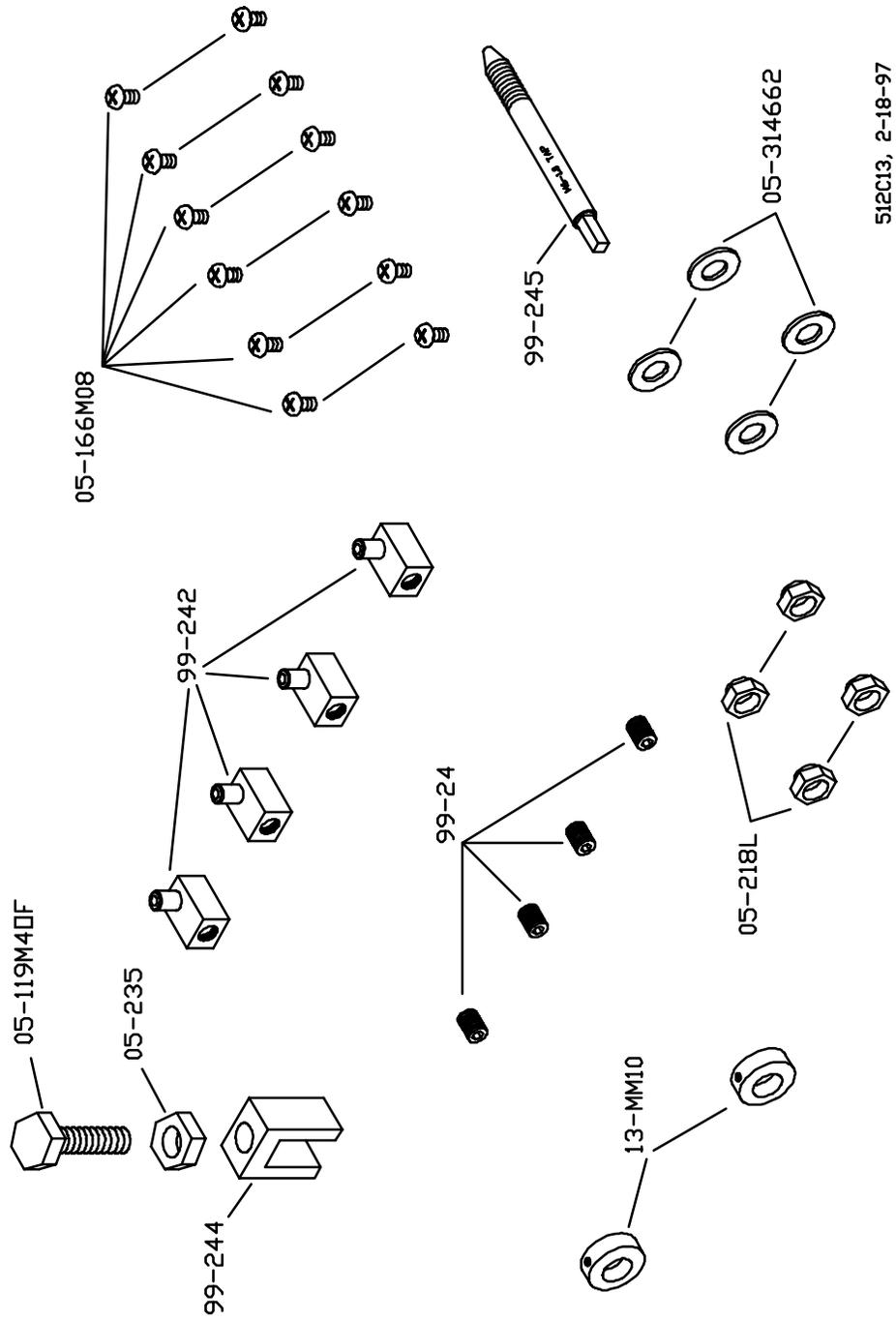
512C11, 10-28-97

WATER FORM AND OSCILLATOR ROLLER ASSEMBLY

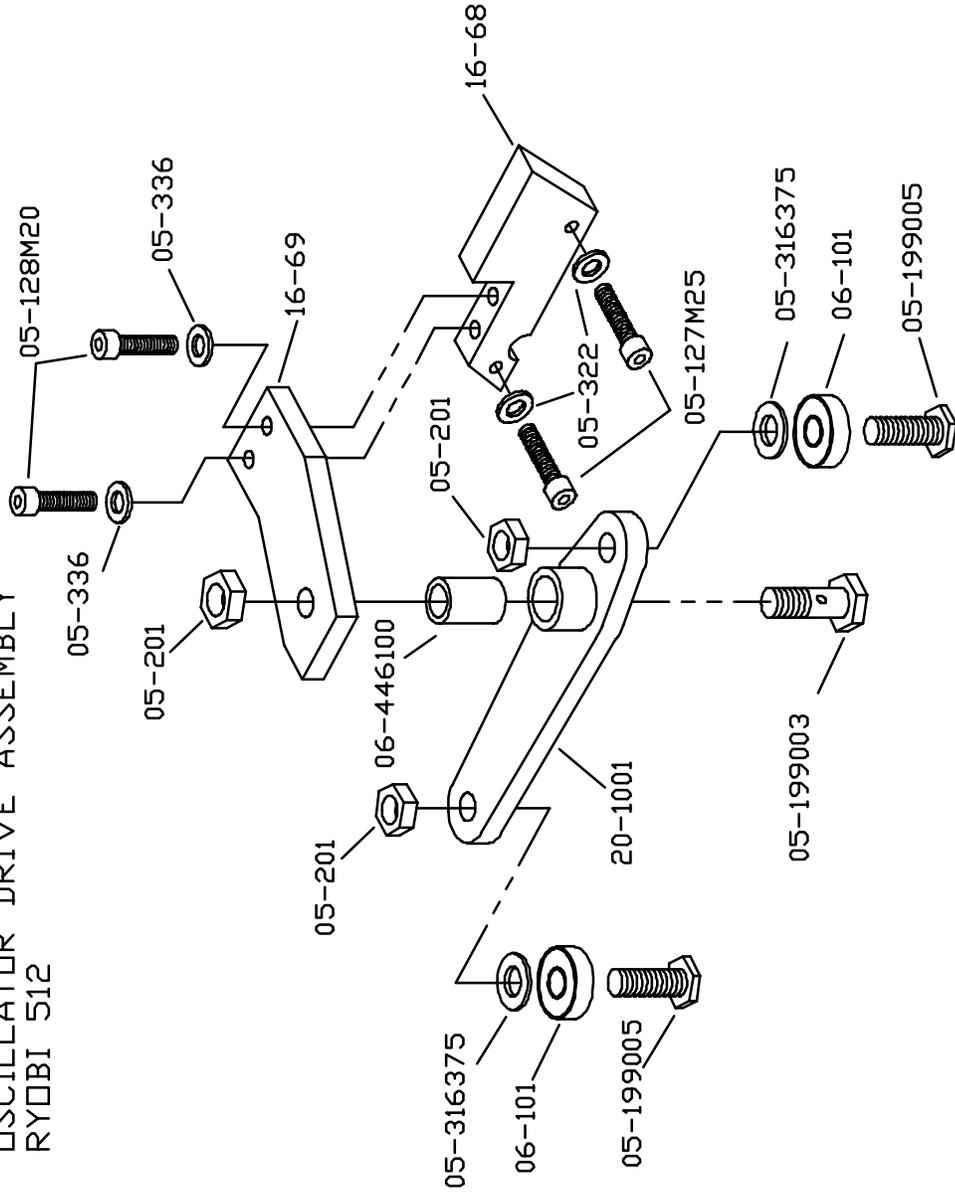


512C12, 2-18-97

MISCELLANEOUS PARTS  
RYOBI 512

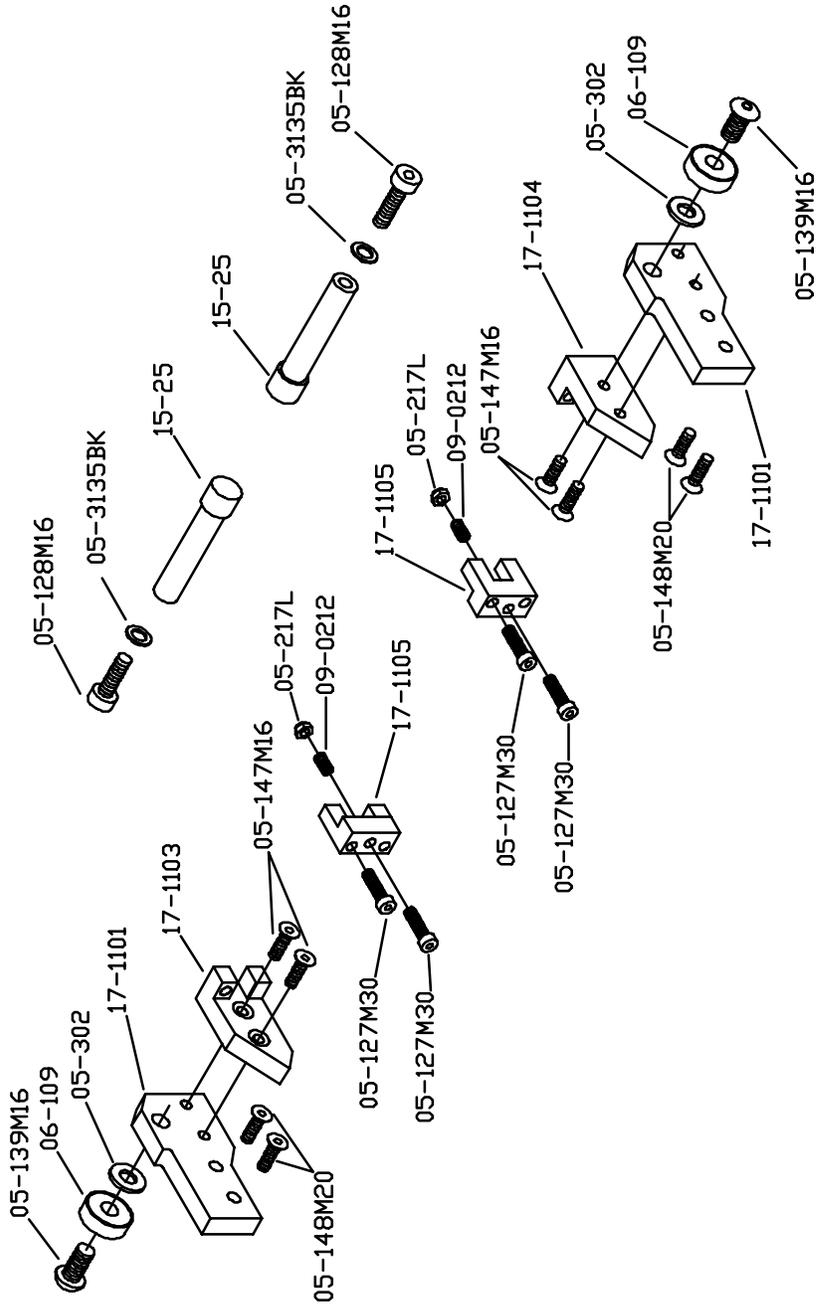


OSCILLATOR DRIVE ASSEMBLY  
RYOBI 512

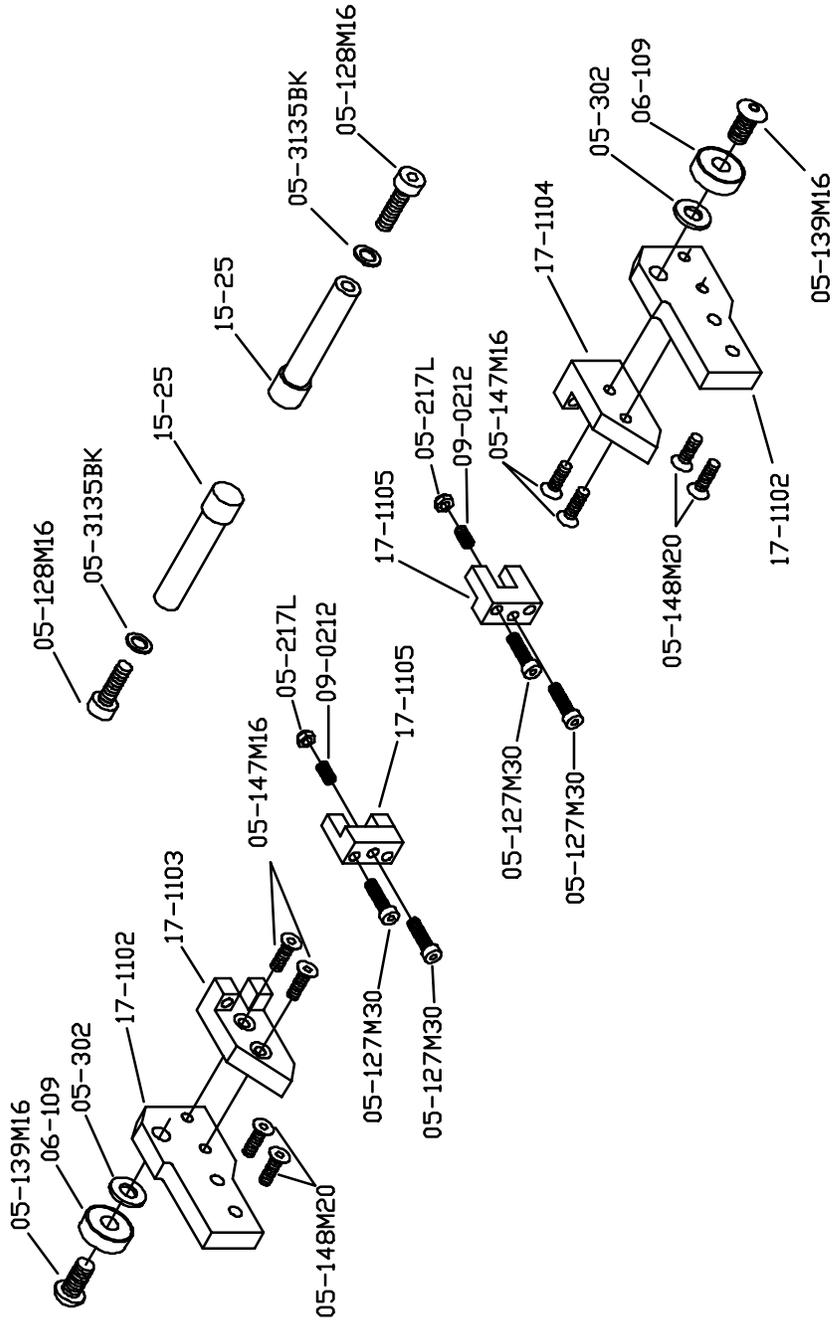


512C14, 2-18-97

RIDER ROLLER HANGER ASSEMBLY  
RYOBI 512 #1 TOWER

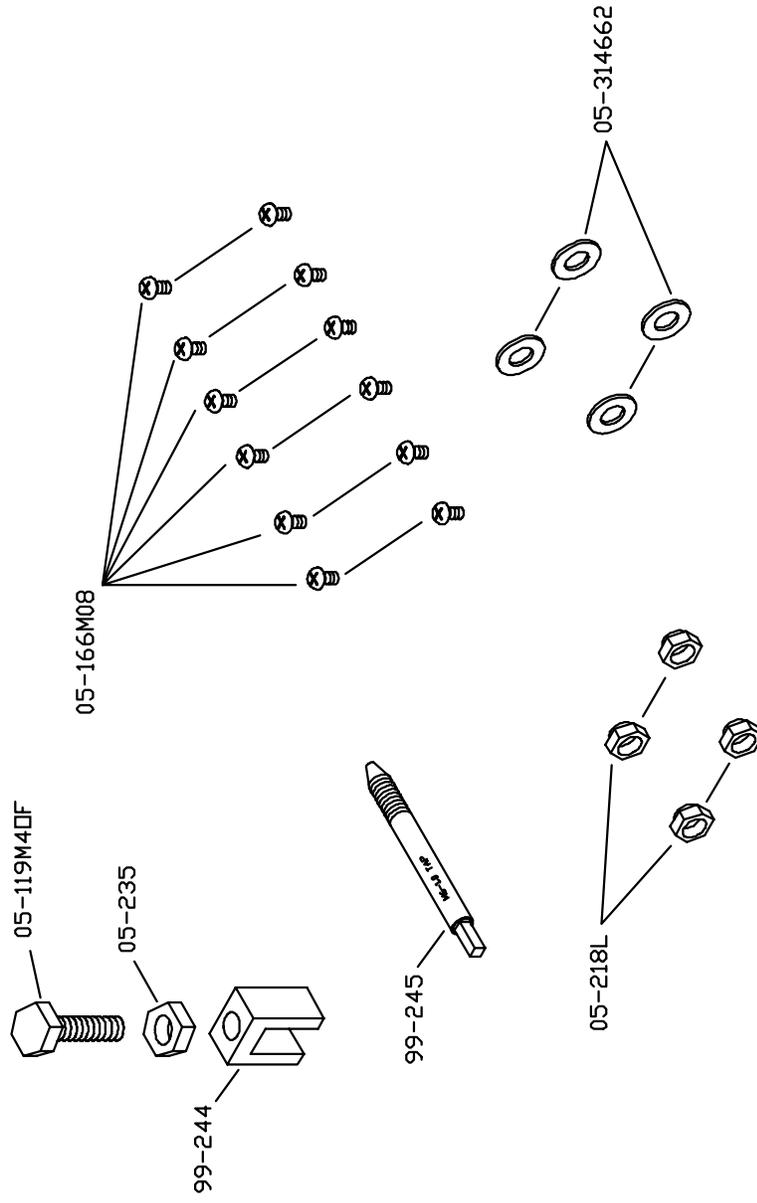


RIDER ROLLER HANGER ASSEMBLY  
RYOBI 512 #2 TOWER

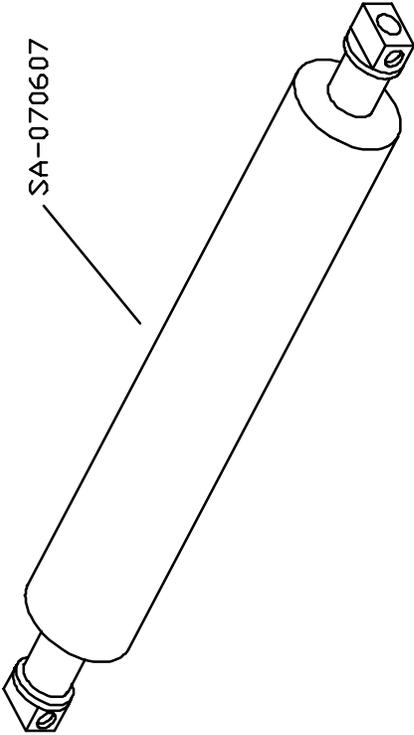


512C16, 2-18-97

SPECIAL TOOLS  
RYOBI 512

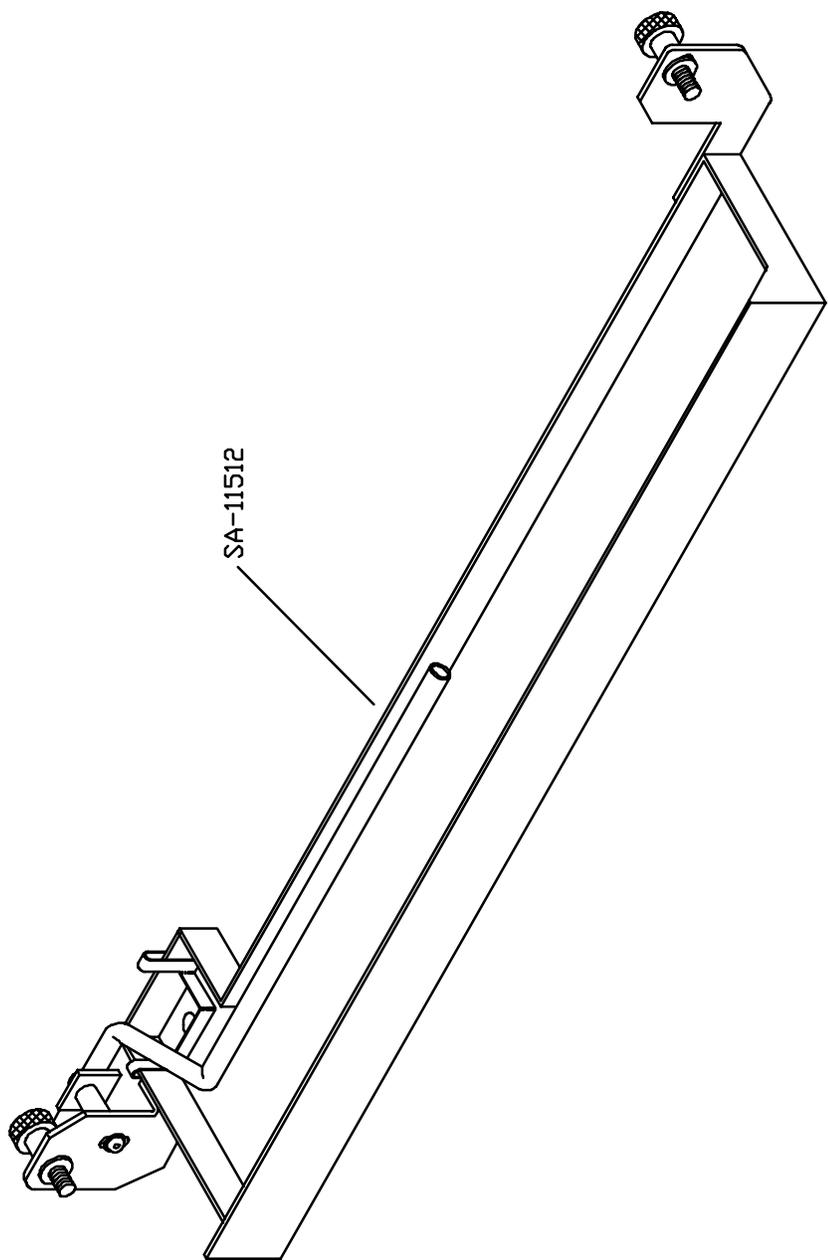


RIDER ROLLER ASSEMBLY  
RYOBI 512



RY512C18, 2-26-97

WATER PAN ASSEMBLY  
RYOBI 512



RY512C19, 2-25-97





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