

## Modification Index

File Name	Mod No.	Type	Pub No.	Pub Date	Product
<a href="#">699611.pdf</a>	1	1 Required	699611	2/93	X-Omat 180 LP Processor
<a href="#">1c0925.pdf</a>	2	1 Selective	1C0925	3/94	X-Omat 180 LP Processor
<a href="#">1c0941.pdf</a>	3	1 Required	1C0941	2/94	X-Omat 180 LP Processor
<a href="#">1c7063.pdf</a>	4	1 Selective	1C7063	6/94	X-Omat 180 LP Processor
<a href="#">ma3227_6.pdf</a>	6	1 Required	5B6773	28JUL95	X-Omat 180 LP Processor
<a href="#">ma305829.pdf</a>	7	1 Selective	8B6658	29JUN96	X-Omat 180 LP Processor
<a href="#">ma305835.pdf</a>	8	1 Selective	8B7489	10MAY97	X-Omat 180 LP and 180 LPS Processors
<a href="#">ma305837.pdf</a>	9	1 Required	9B8929	March 1997	X-Omat 180 LP and 180 LPS Processors
<a href="#">mb305843.pdf</a>	10/12	2	7C8299	15MAR99	X-Omat 180 LP and 180 LPS Processors
<a href="#">ma3227_7.pdf</a>	11	1 Required	7C8295	15APR98	X-Omat 180 LP and 180 LPS Processors



**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat 270 RA PROCESSOR***  
**Service Code: 3059**  
**Modification No. 14**  
**and for the**  
***Kodak X-Omat 180 LP PROCESSOR***  
**Service Code: 3227**  
**Modification No. 1**

**Type 1 Required**

- Purpose:** (1) To prevent the disabling of safety circuits by checking for the correct positions of the JUMPERS on the 500 CIRCUIT BOARD.
- (2) To install a new style AIR FLOW SWITCH in the DRYER PLENUM, 270 RA only.
- (3) To check the position of the WIRE HARNESS for the DRYER HEATER.
- (4) To prevent malfunction of the LEVEL SENSING PROBES by installing new WASHERS, 270 RA only.
- (5) To prevent binds in the GEARS of the WASH RACK by installing new GEARS.

**IMPORTANT**

Use qualified personnel to install this modification.

<b>Service Effects:</b>	None
<b>Special Requirements:</b>	None
<b>Serial Numbers:</b>	270 RA S101 - S781, 180 LP 100 -147
<b>Installation Time:</b>	Modification No. 14 approximately 1½ hour, Modification No. 1 approximately 1 hour
<b>Special Tools:</b>	None
<b>Parts Status:</b>	Available through Service Parts Management
<b>Parts Requirements:</b>	See the Parts List on page 2.

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**CAUTION**



This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

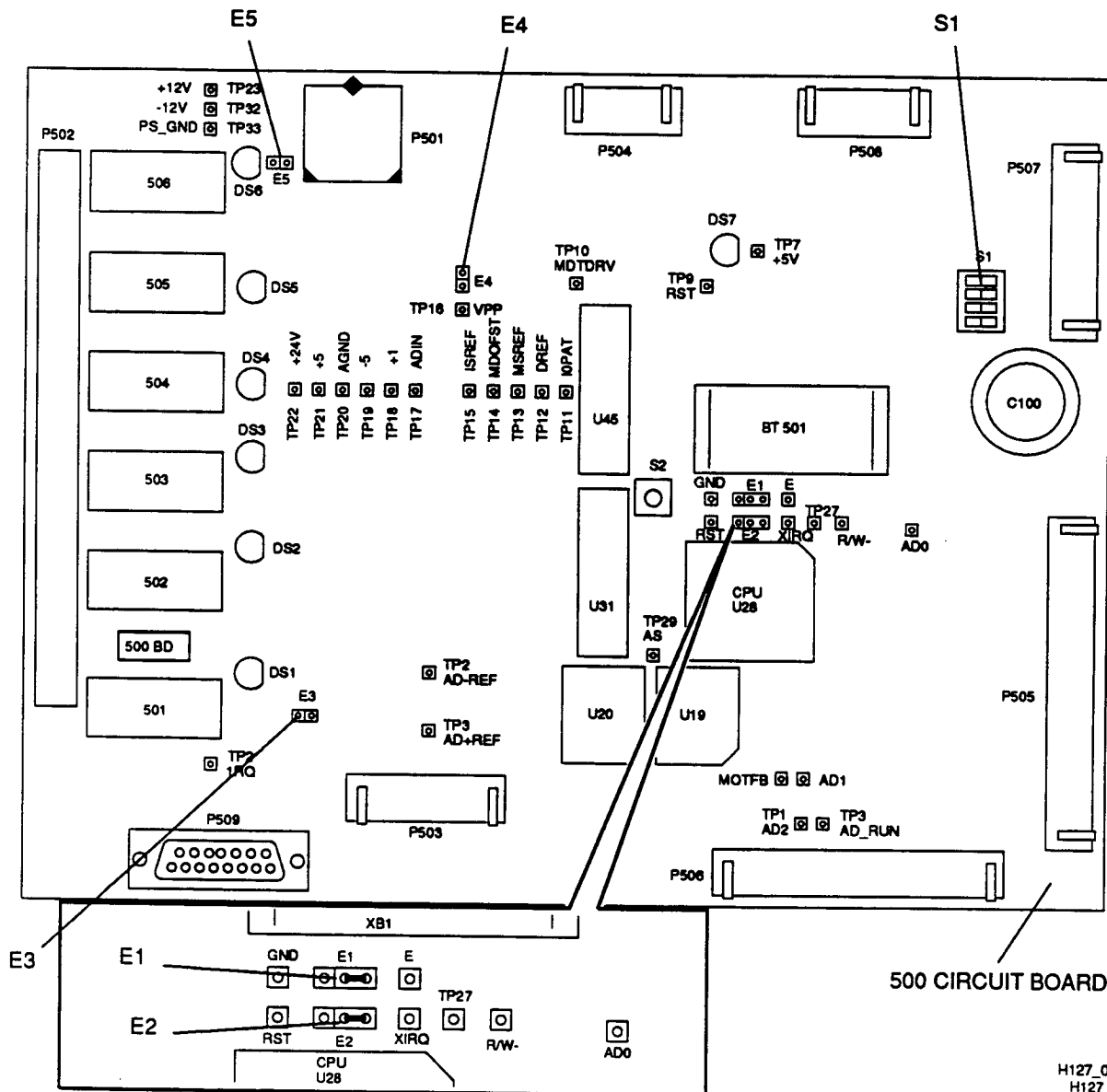
**Parts List for this Modification Kit, Part No. 696443:**

Part No.	Description	Quantity
968781	ADAPTER - HARNESS	1
943400	BRACKET	1
651107	E-RING	22
779028	GEAR	5
493246	JUMPER	2
699611	MODIFICATION INSTRUCTIONS	1
699809	PM CHECKLIST	1
556032	SCREW - 4-40 x 3/8	2
575820	SCREW - 6-32 x 5/8	2
331320	SPADE - SPRING	2
474239	SPRING	6
943375	SWITCH - AIR FLOW, S3	1
191098	WASHER - LOCK	2
748043	WASHER - SEALING	2

## Checking the Configuration of the 500 CIRCUIT BOARD

### WARNING

- Dangerous Voltage
  - Incorrect installation of the JUMPERS will disable important safety mechanisms in the PROCESSOR.
- [1] Move CB1 on the PROCESSOR to the "O" position.
  - [2] Move the wall CIRCUIT BREAKER to the "OFF" position.
  - [3] Lift the TOP COVER.
  - [4] Remove EXIT PANEL from the 270 RA PROCESSOR or the DRIVE SIDE PANEL from the 180 LP PROCESSOR.



### Jumper and Switch Positions on the 500 CIRCUIT BOARD

Note: Earlier 500 CIRCUIT BOARDS may have slightly different configurations. See the Illustration on the next page.

H127\_0142DCA  
H127\_0142DA

- [5] On the 270 RA PROCESSOR, extend the ELECTRICAL BOX from the PROCESSOR to access the 500 CIRCUIT BOARD.

**CAUTION**

Possible damage from electrostatic discharge.

- [6] Open the ELECTRICAL BOX.
- [7] Check the positions of the JUMPERS on the 500 CIRCUIT BOARD. See the illustrations below and on page 3.

- (a) Check that all positions are "OFF" on SWITCH S1.

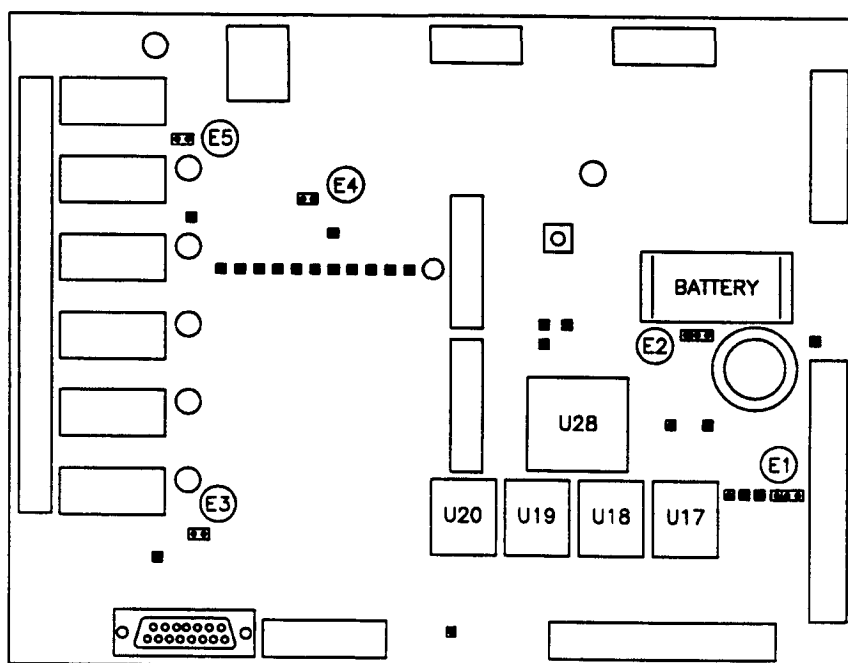
- (b) Check that the positions of the JUMPERS are correct:

Location	Jumper Positions
E1	Pins 1 and 2
E2	Pins 1 and 2
E3	No Jumper
E4	No Jumper
E5	No Jumper

- (c) Discard any JUMPERS that are not used.

- [8] Close the ELECTRICAL BOX.

- [9] On the 270 RA PROCESSOR, insert the ELECTRICAL BOX into the PROCESSOR.



P108\_0172DA

**Jumper Positions on Earlier 500 CIRCUIT BOARDS**

## Checking the WIRE HARNESS for the DRYER HEATER and Installing a New AIR FLOW SWITCH

### WARNING

The PLENUM COVER may be hot.  
Allow it to cool before you remove it.

**[1] Remove:**

- NON-DRIVE SIDE PANEL
- DRYER SIDE PANEL, on the 180 LP PROCESSOR
- 6 SCREWS
- 6 LOCK WASHERS
- 6 WASHERS
- PLENUM COVER

**[2] Check the WIRE HARNESS.** If the wires are charred, install a new DRYER HEATER.

**[3] Check the location of the WIRE HARNESS for the DRYER HEATER.**

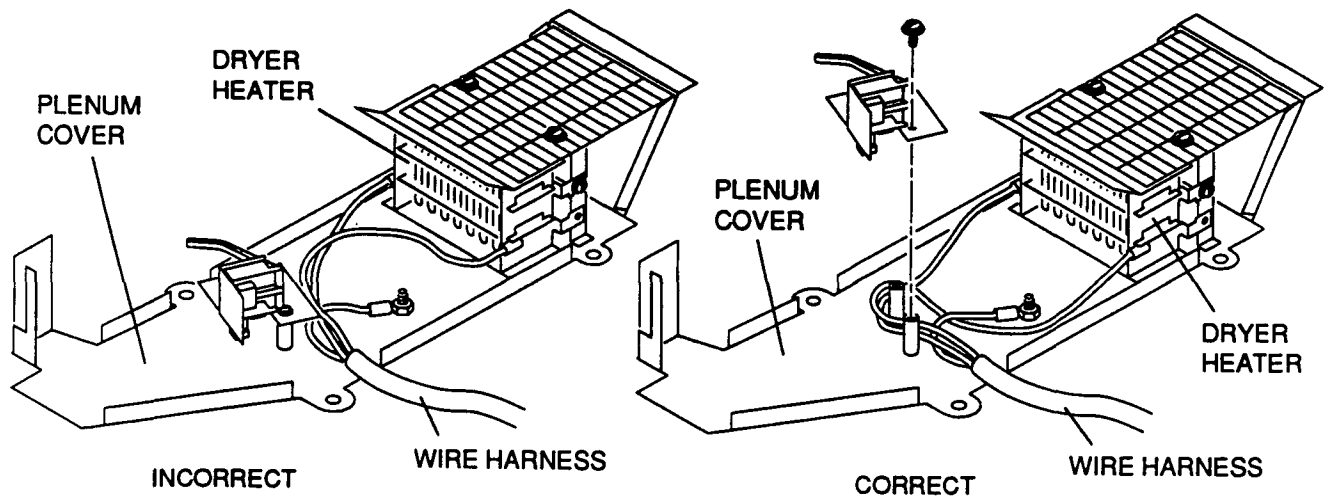
### CAUTION

If the wires are placed too close to the DRYER HEATER, the insulation on the wires may be damaged.

**[4] Move the wires of the WIRE HARNESS away from the DRYER HEATER to the correct positions.** The illustration on the right below has the correct positions.

### NOTE

- If the PROCESSOR is a **180 LP PROCESSOR**, advance to page 9. All 180 LP PROCESSORS have the new WASHERS installed. You will not need the SEALING WASHERS 748043 or the SCREWS 575820 in the Modification Kit.
- Some of the **270 RA PROCESSORS** have the new AIR FLOW SWITCH. Continue with step 5 if the PROCESSOR is a 270 RA PROCESSOR.



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H104\_0387BA

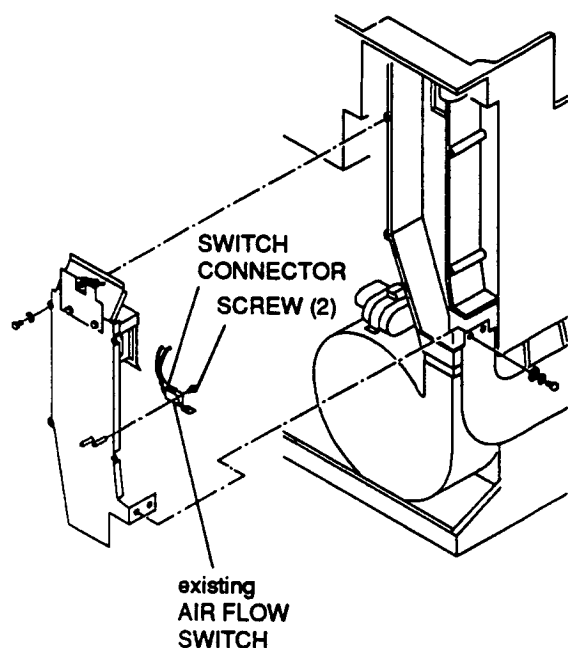
### Checking the Positions of the Wires inside the PLENUM COVER

- [5] Check that the 270 RA PROCESSOR has the new style AIR FLOW SWITCH.

- If the PROCESSOR has the new AIR FLOW SWITCH installed, discard the BRACKET, SCREWS 556032, LOCK WASHERS 191098, and AIR FLOW SWITCH in this Modification Kit. Advance to page 8.
- If not, continue with step 6 to install the AIR FLOW SWITCH in the Modification Kit.

- [6] Remove the existing AIR FLOW SWITCH:

- (a) Disconnect the SWITCH CONNECTOR from the AIR FLOW SWITCH.



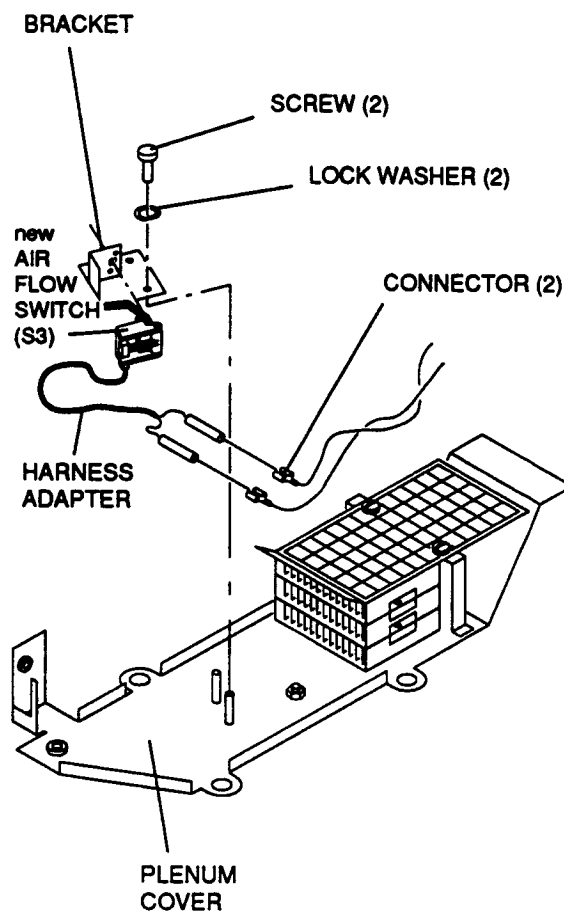
H104\_0146CCC  
P104\_0146CA

The Existing AIR FLOW SWITCH

- (b) Remove and discard:

- 2 SCREWS
- 2 LOCK WASHERS
- AIR FLOW SWITCH

- [7] Press the new AIR FLOW SWITCH onto the new BRACKET from the Modification Kit.
- [8] Install the BRACKET on the PLENUM COVER with the 2 LOCK WASHERS 191098 and the 2 SCREWS 556032 from the Modification Kit.
- [9] Check that the AIR FLOW SWITCH and the BRACKET are in the correct position.



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H104\_0315CA

The New AIR FLOW SWITCH

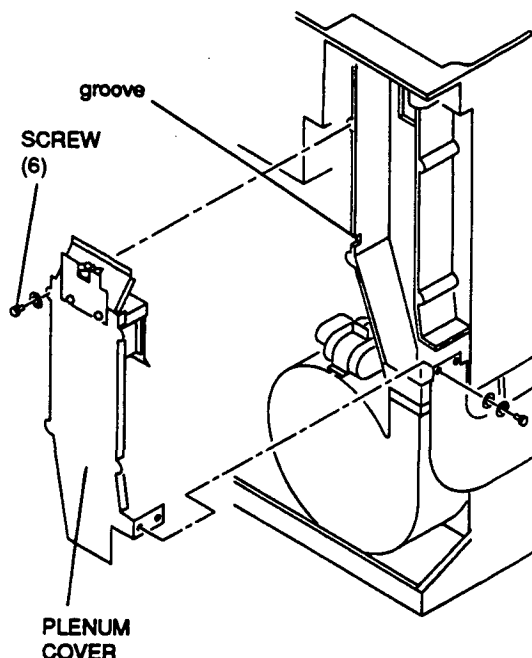
- [10] Remove the 2 wires and the CONNECTORS from the CONNECTOR HOUSING.

#### NOTE

Use a small SCREWDRIVER to release the CONNECTORS.

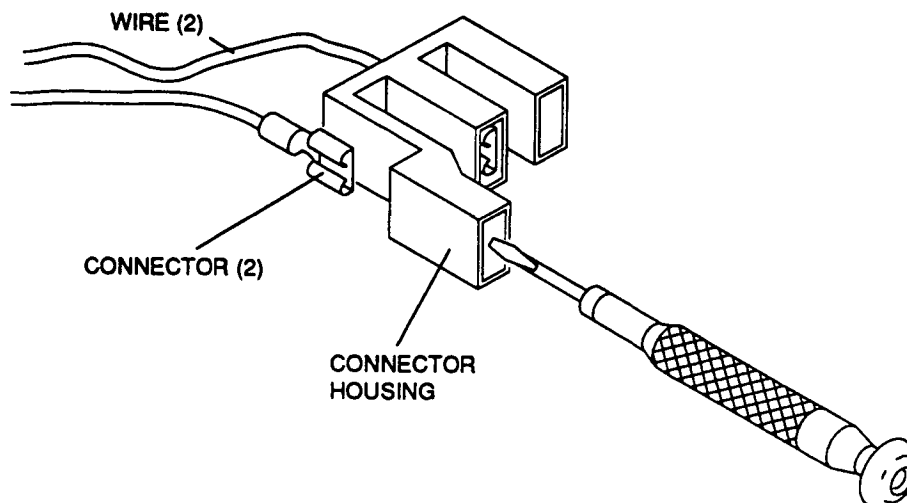
- [11] Insert the 2 CONNECTORS into the HARNESS ADAPTER. Press the CONNECTORS fully into the HARNESS ADAPTER.
- [12] Insert the other end of the HARNESS ADAPTER into the AIR FLOW SWITCH. Press the HARNESS ADAPTER fully into the AIR FLOW SWITCH.
- [13] Route the HARNESS ADAPTER, with the WIRE HARNESS from the DRYER HEATER, through the groove in the illustration at the right.
- [14] Check that the CONNECTORS are outside the DRYER PLENUM and that all the wires are correctly in the groove, or the PLENUM COVER may cut them.
- [15] Install:

- PLENUM COVER
- 6 WASHERS
- 6 LOCK WASHERS
- 6 SCREWS



H104\_0356CCB  
H104\_0356CA

#### Routing the Wires Through the Groove



H104\_0314BCA  
H104\_0314BA

#### Removing the CONNECTORS from the CONNECTOR HOUSING

## Installing New WASHERS on the LEVEL SENSING PROBES

### IMPORTANT

- Some of the 270 RA PROCESSORS have the new SEALING WASHERS installed. Check before you do this procedure. If the PROCESSOR has the new SEALING WASHERS, discard the new SEALING WASHERS 748043 and the SCREWS 575820 in the Modification Kit. Advance to page 9.
- This procedure will help prevent malfunctioning of the LEVEL SENSING PROBES and leakage from the holes in the sides of the fixer and developer TANKS.
- In 270 RA PROCESSORS that have 2 SCREWS for the LEVEL SENSING PROBES in the developer TANK, remove the SCREW that holds the SPRING SPADE for this procedure.

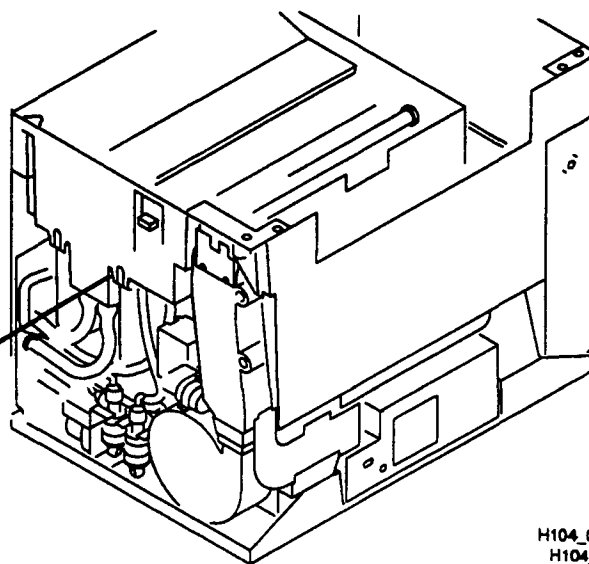
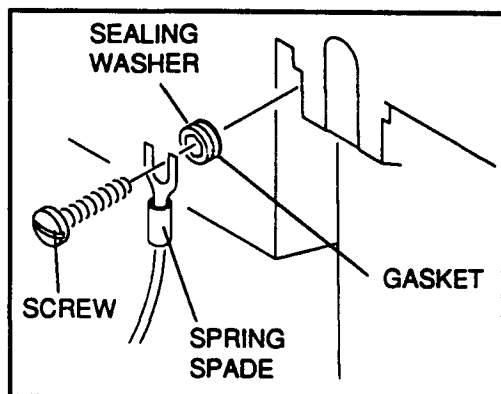
- [1] Remove and discard the SCREW for the LEVEL SENSING PROBE, that is in the side of the developer TANK.

- [2] Check the SPRING SPADE for corrosion. If necessary, install the new SPRING SPADE in the Modification Kit.

### IMPORTANT

Install the side of the SEALING WASHER that has the GASKET against the TANK.

- [3] Install the SPRING SPADE, the SEALING WASHER, and the new SCREW 575820 to the LEVEL SENSING PROBE inside the developer TANK. See the illustration below.
- [4] Do this procedure for the SCREW and the SEALING WASHER for the LEVEL SENSING PROBE in the fixer TANK.



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H104\_0383BA

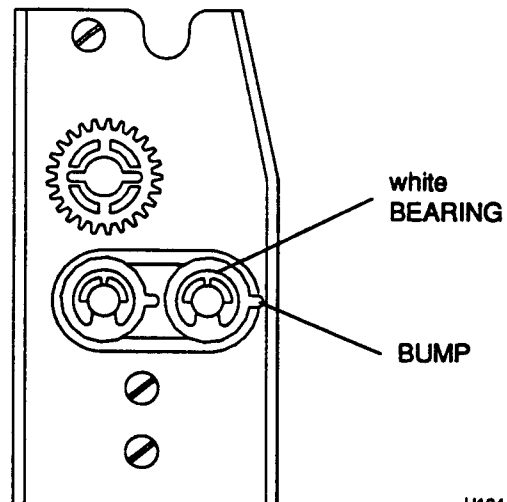
## Installing the New SEALING WASHERS on the LEVEL SENSING PROBES

## Installing New GEARS in the WASH RACK

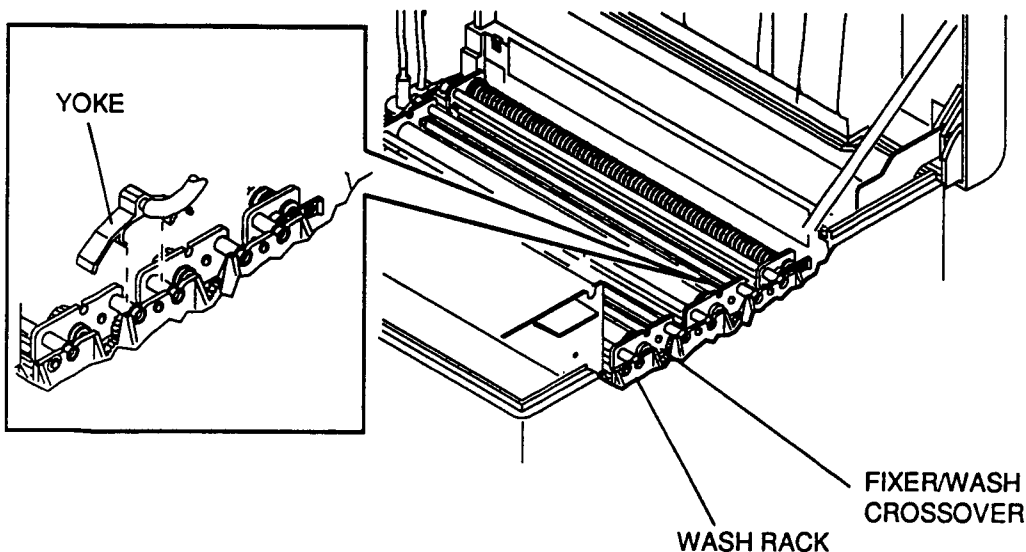
- [1] Close the WATER SUPPLY VALVE to stop the flow of water to the PROCESSOR.
- [2] Remove the WET SECTION COVER.
- [3] Remove the fixer EVAPORATION COVER.
- [4] Disconnect the WATER DISCONNECT on the nondrive side of the WASH RACK.
- [5] Lift the YOKE from the FIXER/WASH CROSSOVER.
- [6] Remove the FIXER/WASH CROSSOVER.
- [7] Lift the WASH RACK slowly from the PROCESSOR. Tilt the WASH RACK to drain the water.
- [8] Place the WASH RACK on a table.
- [9] Remove the 2 SHOULDER SCREWS, the 2 BUSHINGS, and the 2 IDLER GEARS from the nondrive side of the WASH RACK. Discard the 2 IDLER GEARS. See the illustration on page 10.
- [10] Remove and discard the E-RING on the drive side of SHAFT 1. See the illustration on page 10.
- [11] Move SHAFT 1 toward the nondrive side of the WASH RACK.
- [12] Remove the PIN from the nondrive side of SHAFT 1.
- [13] Remove and discard the GEAR from SHAFT 1.
- [14] Do steps 10 - 13 for SHAFT 2 and SHAFT 3.
- [15] Remove and discard the 6 SPRINGS.

### NOTE

It may be necessary to cut the BUMP from the white BEARINGS to remove and install the SPRINGS.



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H104\_0385AA



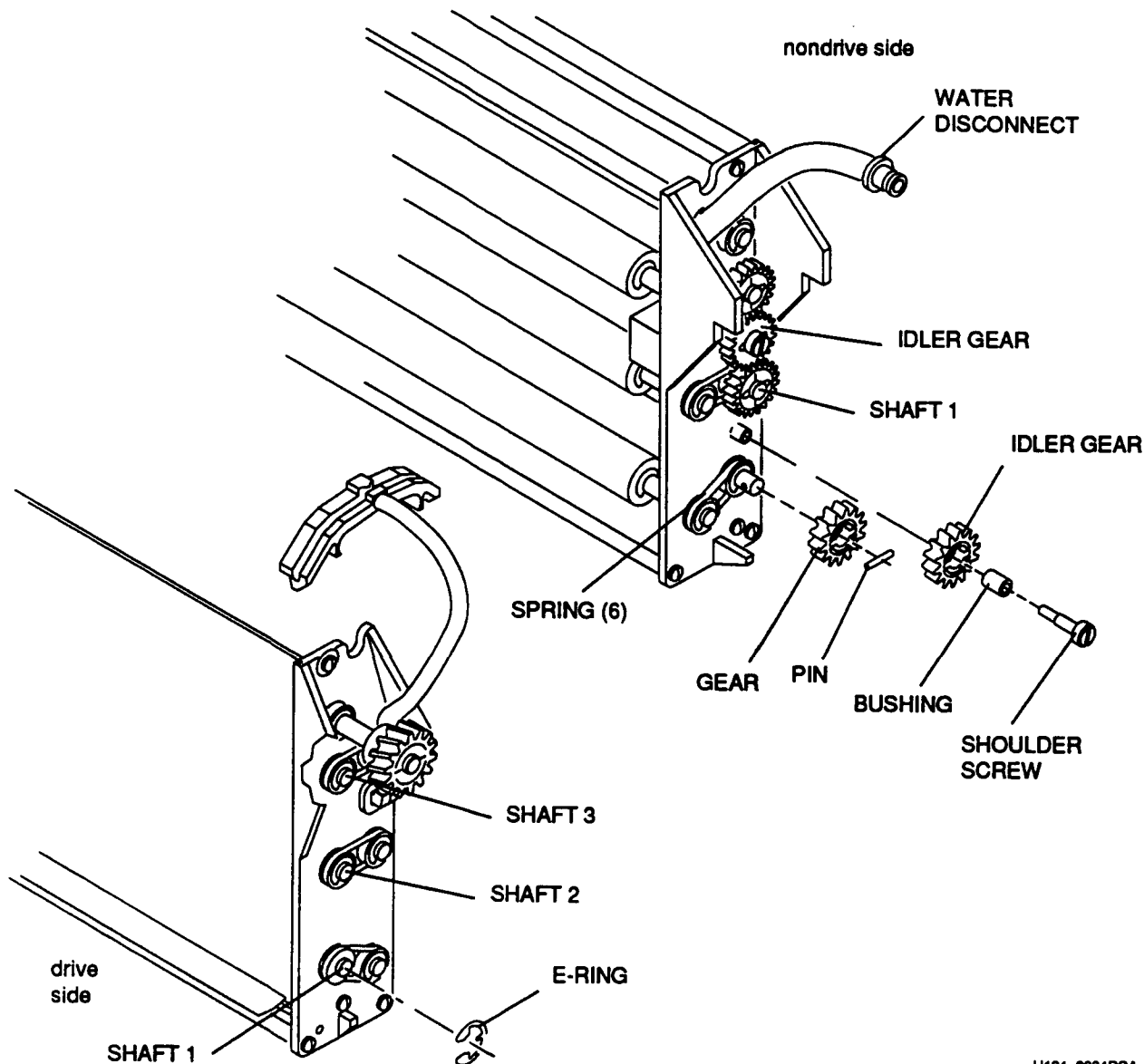
P104\_0153DCB  
P104\_0153BA

- [16] Install the 6 new SPRINGS.
- [17] Install a new GEAR and the PIN on the nondrive side of SHAFT 1.

- [18] Move the SHAFT into position and install a new E-RING on the drive side of SHAFT 1.
- [19] Do steps 17 and 18 for SHAFT 2 and SHAFT 3.

**NOTE**

All 5 GEARS in this Modification Kit are the same.



H104\_0384DCA  
H104\_0384DA

**Changing the GEARS on the WASH RACK**

- [20] Remove any E-RINGS with corrosion and install new E-RINGS.

### IMPORTANT

The IDLER GEARS must be installed with the correct side toward the WASH RACK. See the illustration on page 10.

- [21] Install:

- 2 new IDLER GEARS
- 2 BUSHINGS
- 2 SHOULDER SCREWS

- [22] Check the squareness of the WASH RACK.

- (a) Place the entrance side of the WASH RACK on a smooth, flat surface.

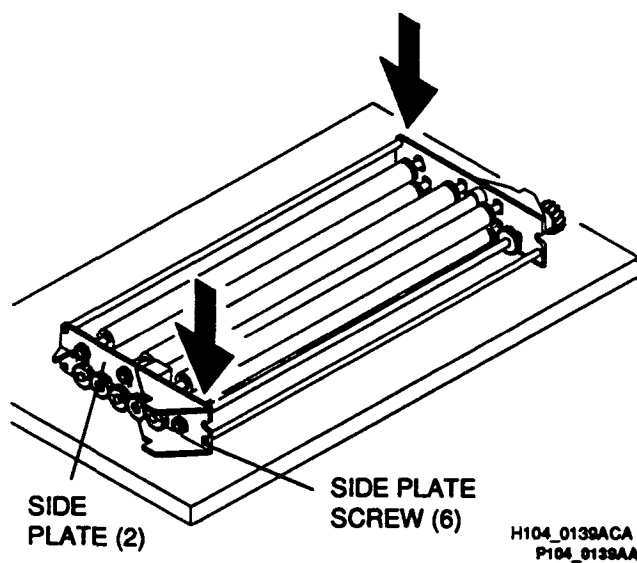
- (b) Check that the 2 SIDE PLATES are flat on the surface.

- (c) If necessary, adjust for squareness:

1. Loosen the 6 SIDE PLATE SCREWS.
2. Apply pressure to the SIDE PLATES.
3. Check for squareness.
4. Tighten the 6 SIDE PLATE SCREWS.

- [23] Return the WASH RACK slowly and carefully into position in the PROCESSOR.

- [24] Connect the WATER DISCONNECT.



Checking the Squareness of the WASH RACK

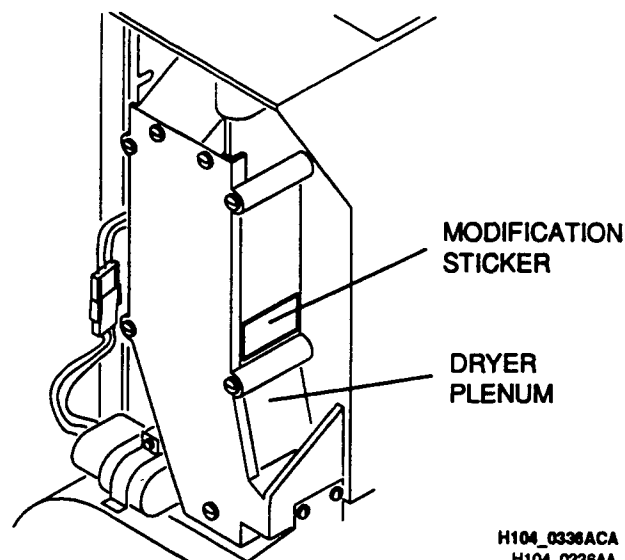
[25] Install:

- FIXER/WASH CROSSOVER
- YOKE
- EVAPORATION COVER
- WET SECTION COVER

[26] On the **270 RA PROCESSOR**, circle the "14" on the MODIFICATION STICKER. Install the EXIT PANEL and the NON-DRIVE SIDE PANEL.

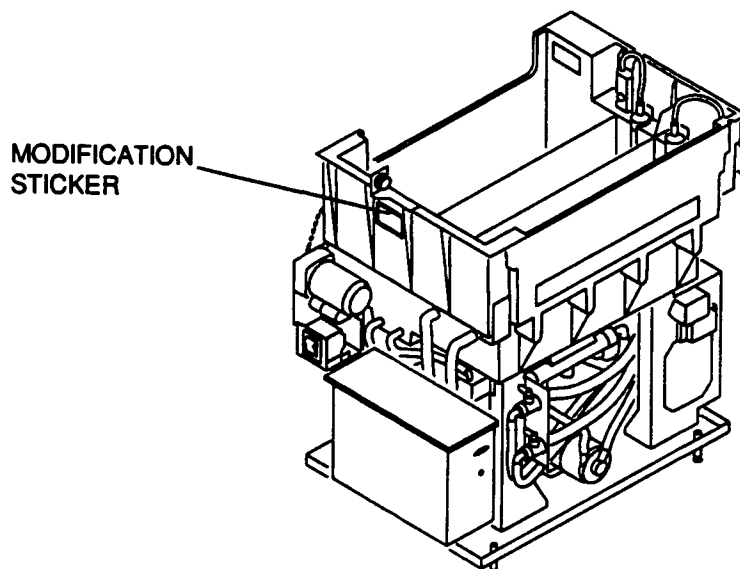
On the **180 LP PROCESSOR**, circle the "1" on the MODIFICATION STICKER. Install the DRIVE SIDE PANEL and the NON-DRIVE SIDE PANEL.

[27] Restore the PROCESSOR to correct operating condition.



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H104\_0336AA

**MODIFICATION STICKER**  
on the 270 RA PROCESSOR, Modification No. 14



H127\_0159BCA  
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**MODIFICATION STICKER**  
on the 180 LP PROCESSOR, Modification No. 1

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Health Sciences Division





**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat 270 RA PROCESSOR***  
**Service Code: 3059**  
**Modification No. 15**  
**and for the**  
***Kodak X-Omat MULTILOADER 300***  
**Service Code: 3058**  
**Modification No. 21**  
**and for the**  
***Kodak X-Omat 180 LP PROCESSOR***  
**Service Code: 3227**  
**Modification No. 2**  
**Type 1 Selective**

**Purpose:** To reduce artifacts by installing new SQUEEGEE ROLLER ASSEMBLIES.

**IMPORTANT**

Use qualified personnel to install this modification.

<b>Service Effects:</b>	None
<b>Special Requirements:</b>	None
<b>Serial Numbers:</b>	270 RA S101 - S1234, Multiloader 300 101 - 657, 180 LP 101 - 422
<b>Installation Time:</b>	Approximately ½ hour
<b>Special Tools:</b>	None
<b>Parts Status:</b>	Available through Service Parts Management
<b>Parts Requirements:</b>	See the Parts List on page 2

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**CAUTION**



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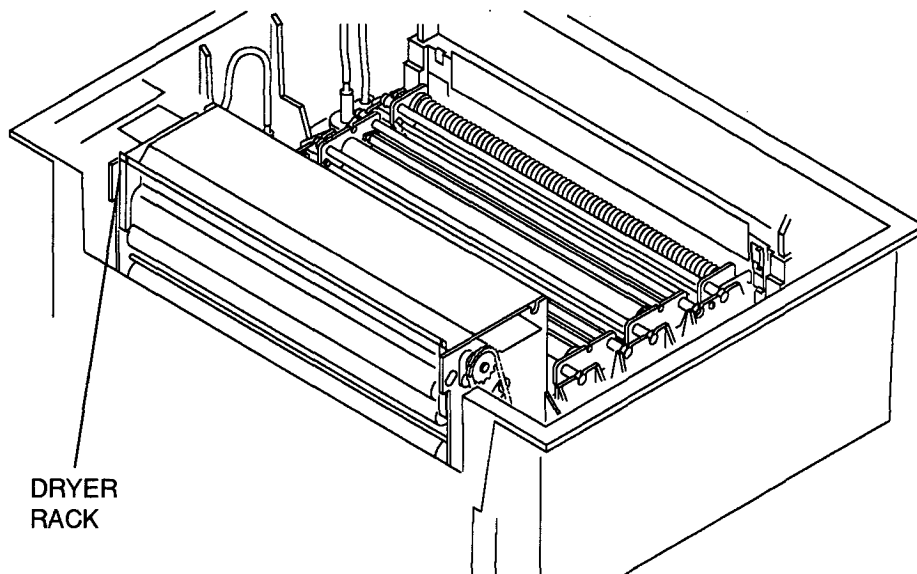
**Parts List for Modification Kit, Part No. 1C0986:**

Part No.	Description	Quantity
779119	BEARING	4
651107	E-RING	4
246580	SPRING, for a 270 RA Processor or a Multiloader 300	2
459344	SPRING, for a 180 LP Processor	2
1C0983	SQUEEGEE ROLLER	1
1C0985	SQUEEGEE ROLLER	1

- [1] Move the main wall CIRCUIT BREAKER to "OFF" and the main CIRCUIT BREAKER for the processor to the "O" position.
- [2] For access to the processing section, lift the TOP COVER or extend the PROCESSOR.

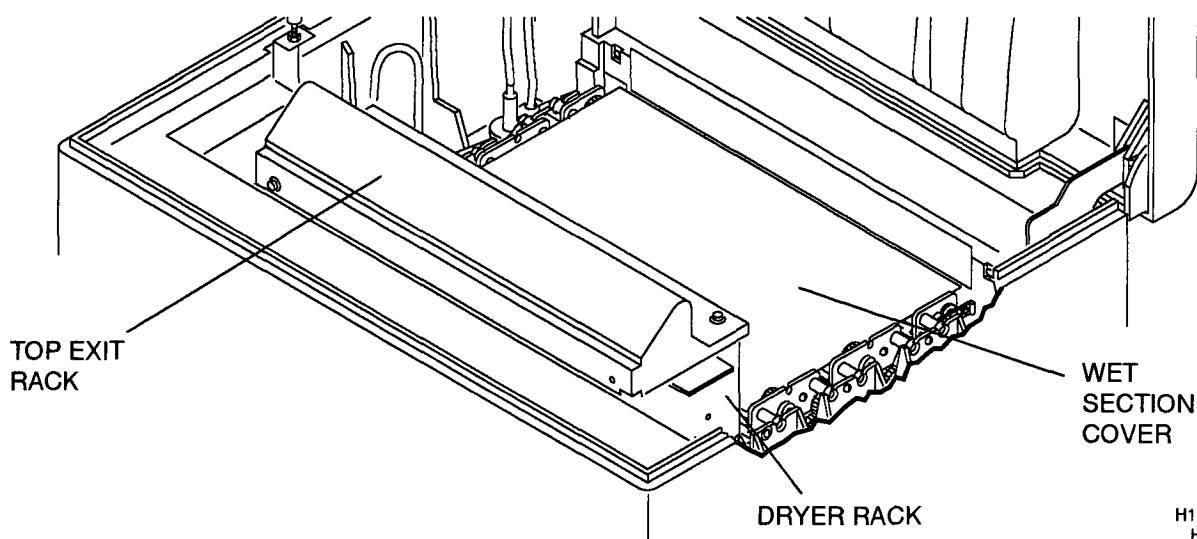
[3] Remove:

- WET SECTION COVER
- TOP EXIT RACK if the PROCESSOR has one
- DRYER RACK
- DRYER COVER from the DRYER RACK



P104\_0206BCG  
H104\_0462BA

**An X-Omat MULTILOADER 300 or  
An X-Omat 270 RA PROCESSOR without a Top Exit Rack**



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H104\_0404BA

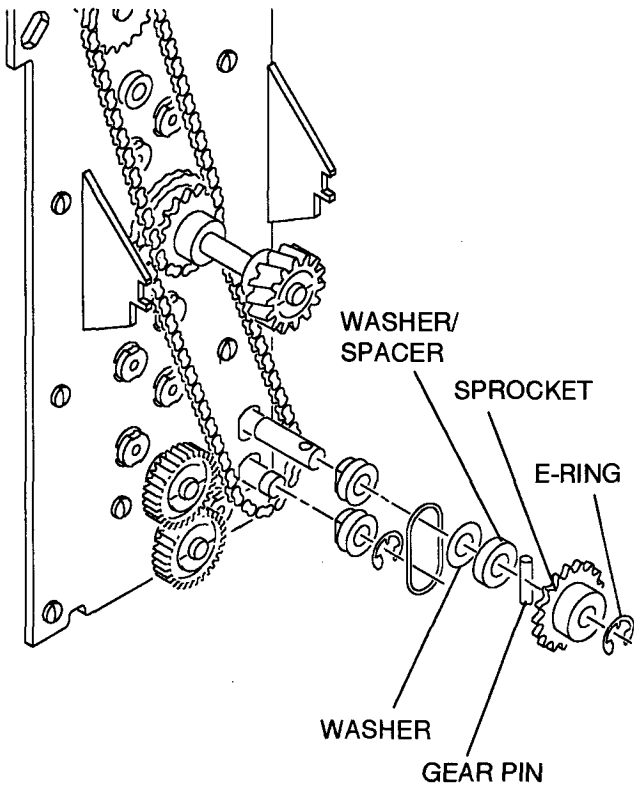
**An X-Omat 270 RA PROCESSOR with a Top Exit Rack**

## IMPORTANT

Two configurations of SPROCKET and SHAFT exist. See the figures below.

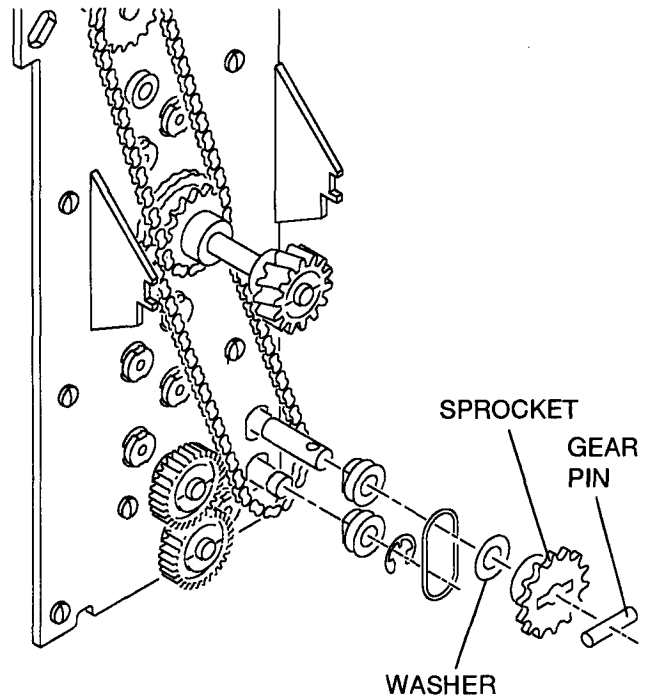
**[4]** Check the configuration in your PROCESSOR.

- For a **Type I** configuration of the DRYER RACK, do Steps [16] - [29].
- For a **Type II** configuration of the DRYER RACK or a 180 LP PROCESSOR, do Steps [5] - [15].



H104\_0451GCA  
H104\_0451GA

**Type I Dryer Rack**



H104\_0452GCA  
H104\_0452GA

**Type II Dryer Rack  
and 180 LP PROCESSORS**

## Installing the New Squeegee Roller Assemblies in a Type II Dryer Rack

[5] Remove from the non-drive side and discard:

- SPRING
- 2 E-RINGS
- 2 white BEARINGS

[6] Remove from the drive side:

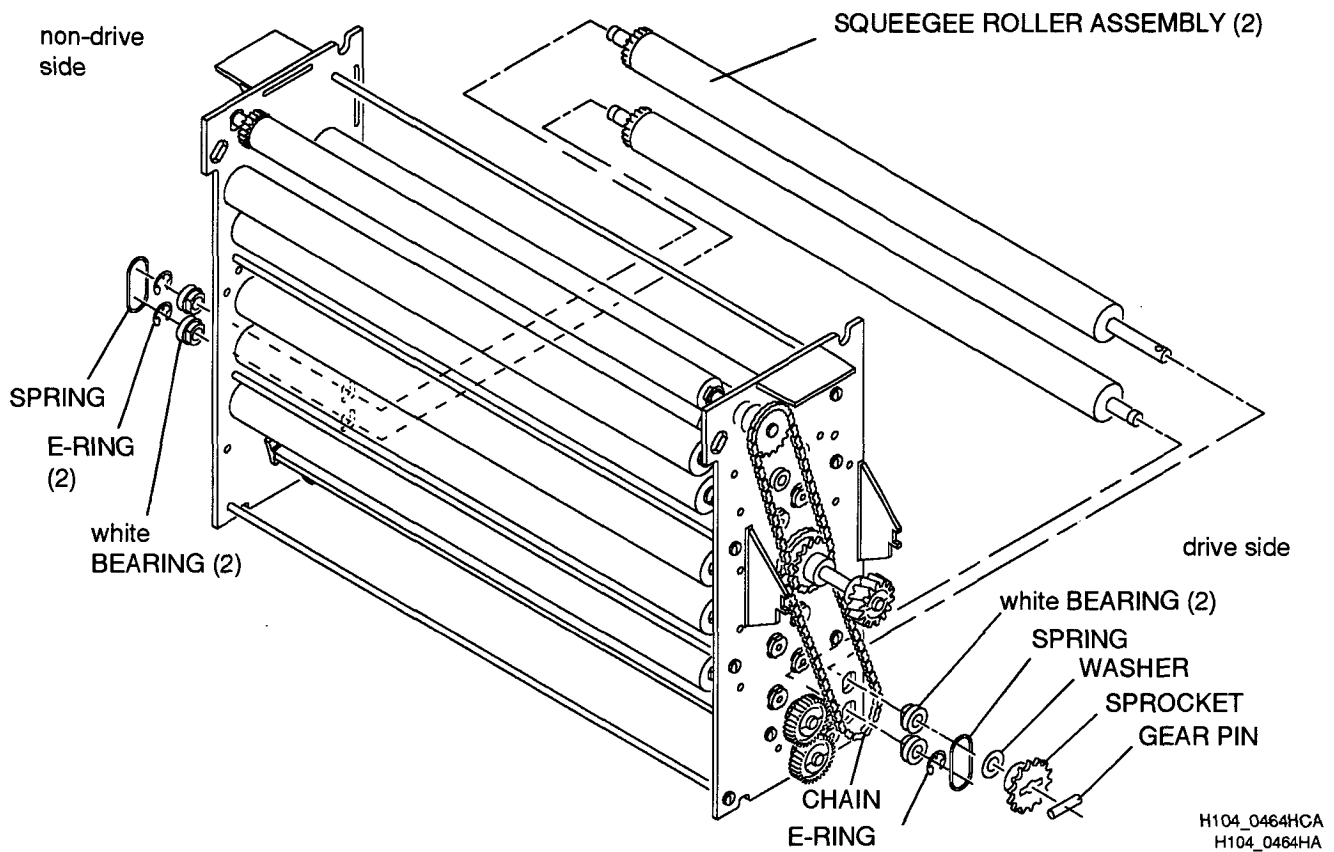
- E-RING and discard
- GEAR PIN
- SPROCKET and CHAIN
- WASHER
- SPRING and discard
- 2 white BEARINGS and discard

[7] Remove and discard the 2 SQUEEGEE ROLLER ASSEMBLIES from the DRYER RACK.

### CAUTION

The SQUEEGEE ROLLER ASSEMBLIES can be damaged easily. Be careful.

[8] Install the 2 new SQUEEGEE ROLLER ASSEMBLIES in the DRYER RACK.



**Replacement of the Squeegee Roller Assemblies in the Type II Dryer Rack  
A 180 LP PROCESSOR Is Similar**

- [9] Check that the GEARS align correctly.
- [10] Install on the drive side:
- 2 new white BEARINGS
  - new SPRING
    - Part No. 246580 for 270 RA or MULTILOADER 300
    - Part No. 459344 for 180 LP
  - WASHER on the **top** SQUEEGEE ROLLER ASSEMBLY
  - new E-RING on the **bottom** SQUEEGEE ROLLER ASSEMBLY
- [11] Move the top SQUEEGEE ROLLER ASSEMBLY toward the drive side of the DRYER RACK.
- [12] Install on the drive end of the top SQUEEGEE ROLLER ASSEMBLY:
- SPROCKET and CHAIN
  - GEAR PIN
- [13] To hold the GEAR PIN in position, move the top SQUEEGEE ROLLER ASSEMBLY toward the non-drive side of the DRYER RACK.
- [14] Install on the non-drive side:
- 2 new white BEARINGS
  - 2 new E-RINGS
  - new SPRING
    - Part No. 246580 for 270 RA or MULTILOADER 300
    - Part No. 459344 for 180 LP
- [15] Advance to Step [28].

## Installing the New Squeegee Roller Assemblies in a Type I Dryer Rack

**[16]** Remove from the non-drive side and discard:

- SPRING
- 2 E-RINGS
- 2 white BEARINGS

**[17]** Remove from the drive side:

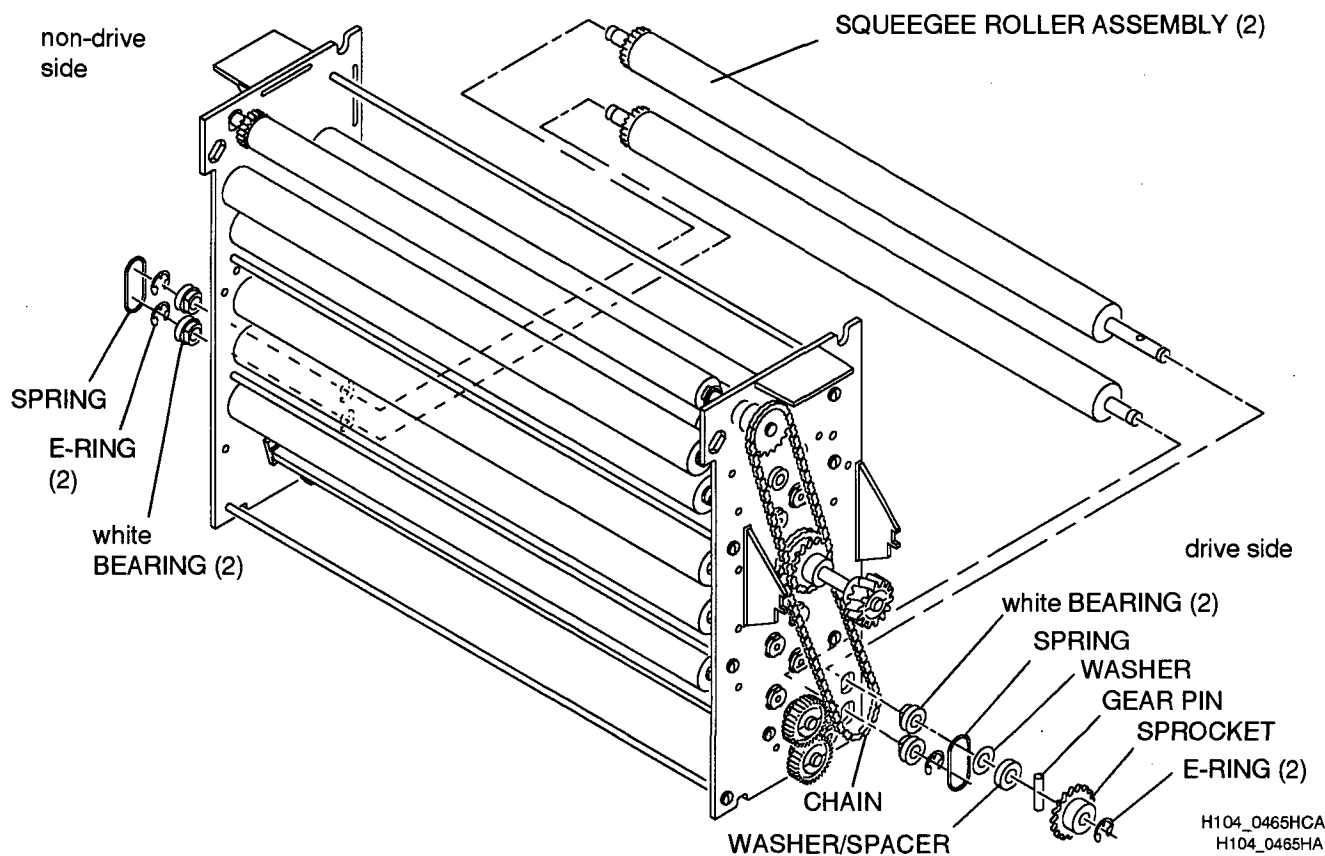
- E-RINGS and discard
- SPROCKET and CHAIN
- GEAR PIN
- WASHER/SPACER and discard
- WASHER
- SPRING and discard
- 2 white BEARINGS and discard

**[18]** Remove and discard the 2 SQUEEGEE ROLLER ASSEMBLIES from the DRYER RACK.

### CAUTION

The SQUEEGEE ROLLER ASSEMBLIES can be damaged easily. Be careful.

**[19]** Install the 2 new SQUEEGEE ROLLER ASSEMBLIES in the DRYER RACK.



## Replacement of the Squeegee Roller Assemblies in the Type I Dryer Rack

[20] Check that the GEARS align correctly.

[21] Install on the drive side:

- 2 new white BEARINGS
- new SPRING
  - Part No. 246580 for 270 RA or MULTILoader 300
  - Part No. 459344 for 180 LP
- WASHER on the **top** SQUEEGEE ROLLER ASSEMBLY
- new E-RING on the **bottom** SQUEEGEE ROLLER ASSEMBLY

[22] For installation of the GEAR PIN on the **outside of the SPROCKET**, reverse the position of the SPROCKET in the CHAIN.

[23] Move the top SQUEEGEE ROLLER ASSEMBLY toward the drive side of the DRYER RACK.

[24] Install on the drive end of the top SQUEEGEE ROLLER ASSEMBLY:

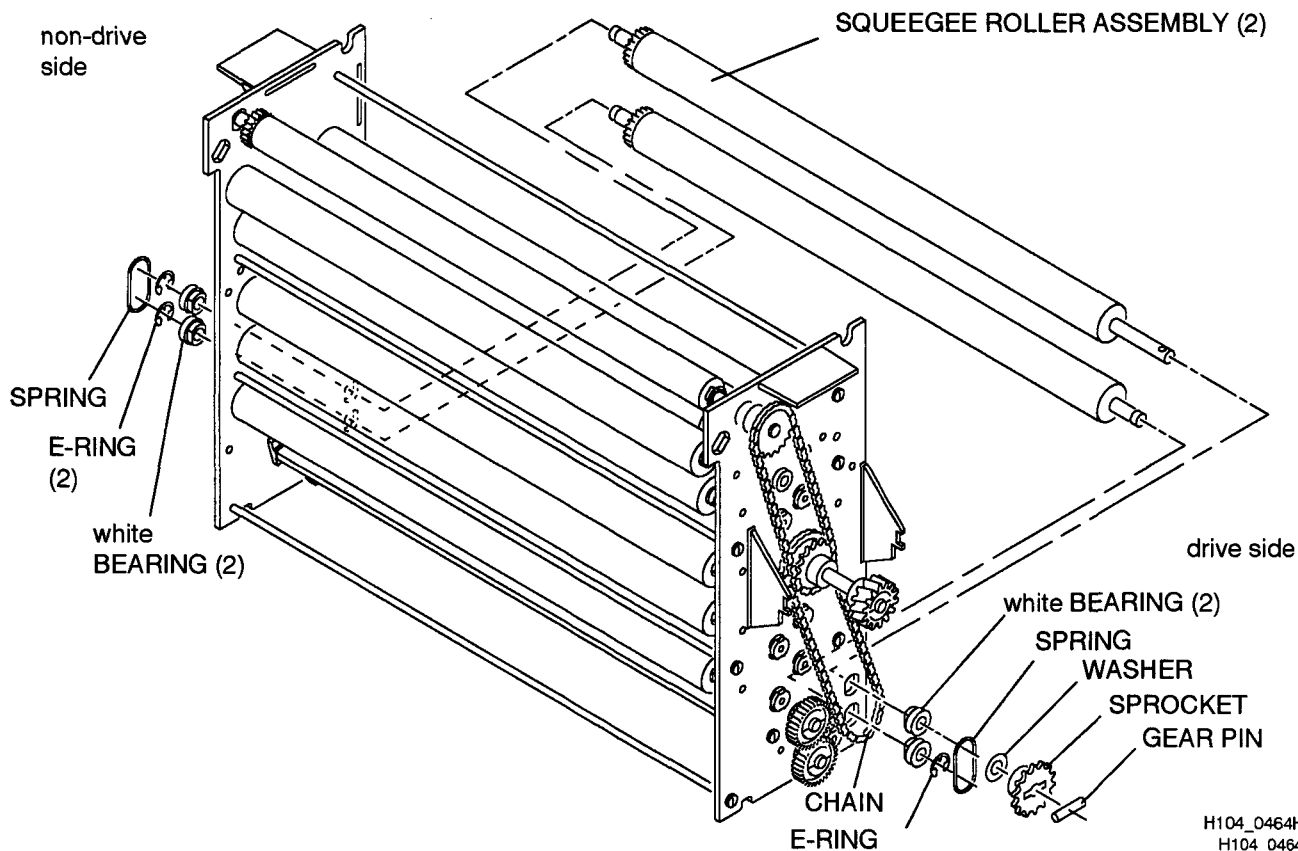
- SPROCKET and CHAIN
- GEAR PIN

[25] To hold the GEAR PIN in position, move the top SQUEEGEE ROLLER ASSEMBLY toward the non-drive side of the DRYER RACK.

[26] Install on the non-drive side:

- 2 new white BEARINGS
- 2 new E-RINGS
- new SPRING
  - Part No. 246580 for 270 RA or MULTILoader 300
  - Part No. 459344 for 180 LP

[27] Continue with Step [28].



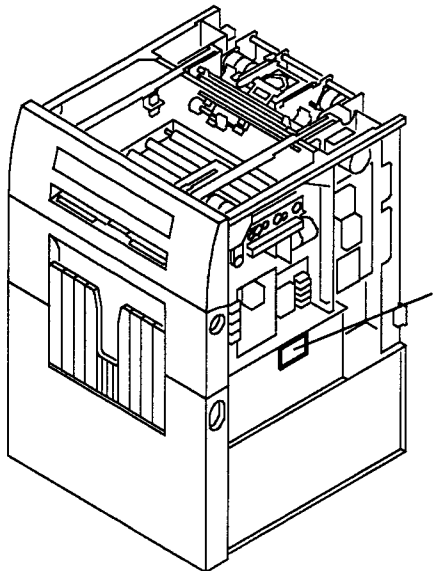
**Modified Type I Configuration of the Dryer Rack**

**[28] Install:**

- DRYER COVER
- DRYER RACK in the PROCESSOR
- TOP EXIT RACK, if the PROCESSOR has one
- WET SECTION COVER

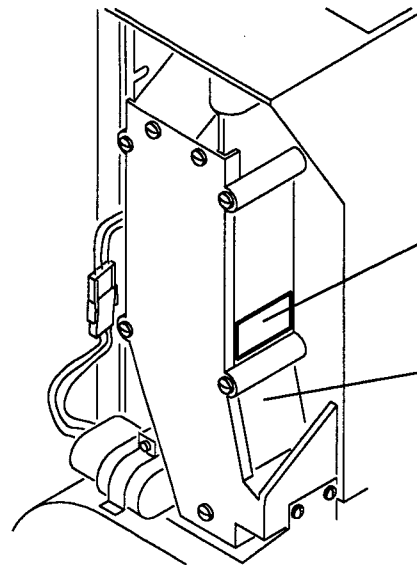
**[29] Circle on the MODIFICATION STICKER:**

- "21" for a MULTILoader 300
- "15" for a 270 RA PROCESSOR
- "2" for a 180 LP PROCESSOR



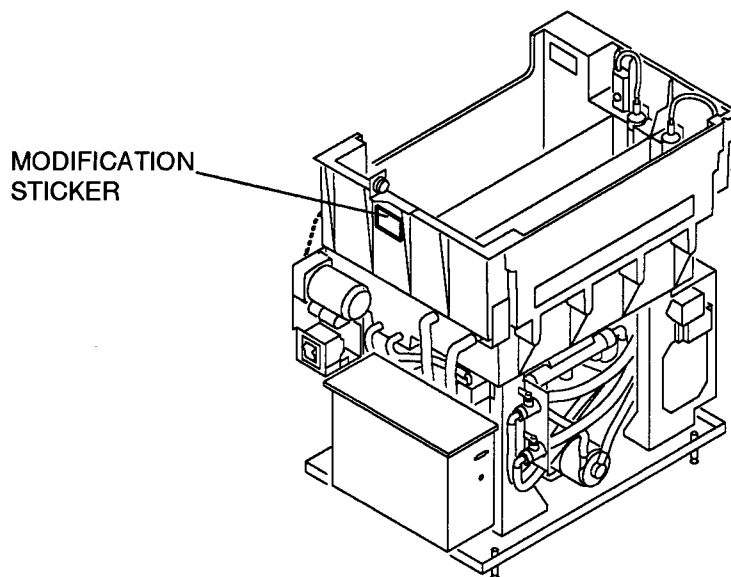
H104\_0343ACA  
H104\_0343AC

**MULTILOADER 300**



H104\_0336ACA  
H104\_0336AA

**270 RA PROCESSOR**



H127\_0160BCA  
H127\_0160BA

**180 LP PROCESSOR**

**NOTE**

You have been charged for the updated SQUEEGEE ROLLERS that were sent to you. Return the old style SQUEEGEE ROLLERS with the green Service Tag for HSD Equipment Parts, and you will be credited for the price of the updated SQUEEGEE ROLLERS.

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**Health Sciences Division**





**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat 180 LP PROCESSOR***  
**Service Code: 3227**  
**Modification No. 3**  
**Type 1 Required**

**Purpose:** To prevent solution leakage caused by cracked or broken FITTINGS.

**IMPORTANT**

Use qualified personnel to install this modification.

<b>Service Effects:</b>	None
<b>Special Requirements:</b>	None
<b>Serial Numbers:</b>	101 - 568
<b>Installation Time:</b>	Approximately 1 hour
<b>Special Tools:</b>	Clamps TL-2170
<b>Parts Status:</b>	Available from Service Parts Management
<b>Parts Requirements:</b>	See the Parts List on page 2

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**CAUTION**



This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

**Parts List for Modification Kit No. 3, Part No. 1C4499:**

Part No.	Description	Quantity
1C4520	FITTING - $\frac{3}{8}$ in.	4
779376	NUT - $\frac{3}{8}$ in.	4
489174	WASHER - rubber, $\frac{3}{8}$ in.	4
1C4519	FITTING - $\frac{5}{8}$ in.	6
779377	NUT - $\frac{5}{8}$ in.	6
1C4721	WASHER - rubber, $\frac{5}{8}$ in.	6
1C4523	FITTING - 1 in.	1
779378	NUT - 1 in.	1
1C0941	Instructions	1

- [1] Deenergize the PROCESSOR.
- [2] Stop the flow of replenisher by installing 2 CLAMPS TL-2170 on the HOSES from the developer and fixer REPLENISHMENT TANKS.

[3] Lift the TOP COVER.

[4] Remove:

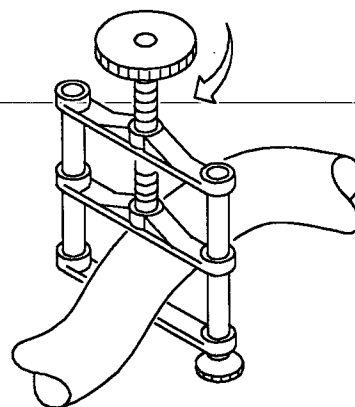
- NON-DRIVE SIDE PANEL
- DRYER SIDE PANEL

### IMPORTANT

- For correct connection to the new FITTINGS, observe or record the positions of the HOSES before removing the HOSES from the existing FITTINGS.
- Change the FITTINGS for the FIXER RECIRCULATION, even if not now being used. If used in the future, the FIXER RECIRCULATION should be connected to **new style FITTINGS**.

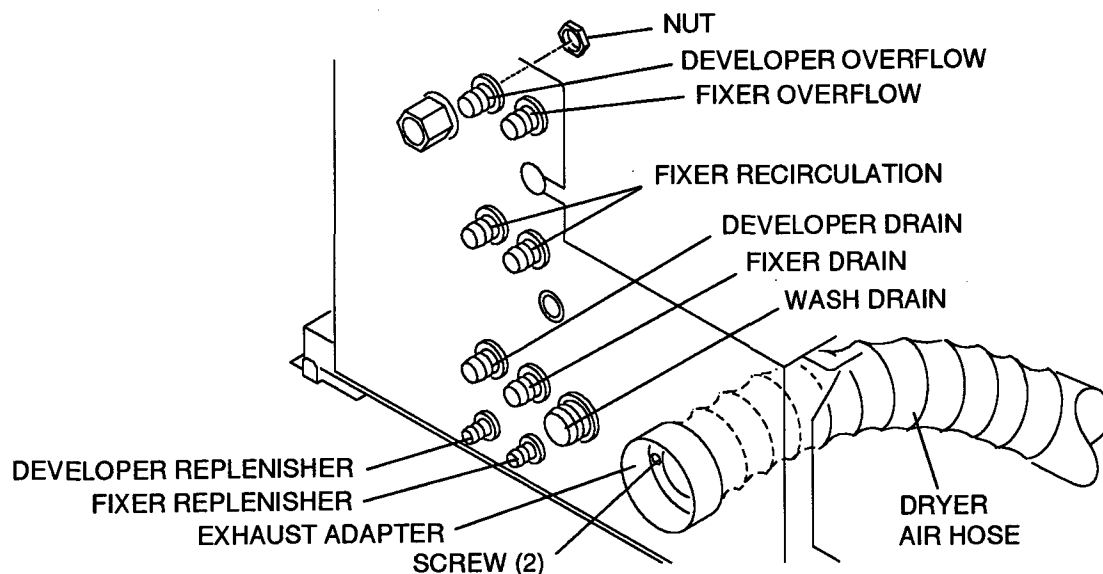
[5] On both sides of the BULKHEAD PANEL, remove the HOSES, NUTS, and existing FITTINGS for the:

- DEVELOPER OVERFLOW
- FIXER OVERFLOW
- FIXER RECIRCULATION



P104\_0257AA

Clamp TL-2170



H127\_0166BCA  
H127\_0166BA

## CAUTION

- Install the rubber WASHERS between the BULKHEAD PANEL and the FITTINGS, not between the BULKHEAD PANEL and the NUTS.
- Do not overtighten the NUTS when installing the new FITTINGS.

**[6]** Install the new FITTINGS for the FIXER RECIRCULATION.

- (a) Install the rubber WASHERS in the correct position on the FITTINGS. See the figure at the right.
- (b) Insert the new FITTINGS through the holes in the BULKHEAD PANEL with the rubber WASHERS between the BULKHEAD PANEL and the FITTINGS.
- (c) Install the NUTS on the FITTINGS. Tighten the NUTS **until the NUTS make contact** with the BULKHEAD PANEL.
- (d) Tighten the NUTS an additional  $\frac{1}{4}$  rotation to compress the WASHERS.
- (e) Install the HOSES on the FITTINGS.

**[7]** Do Step [6] for the:

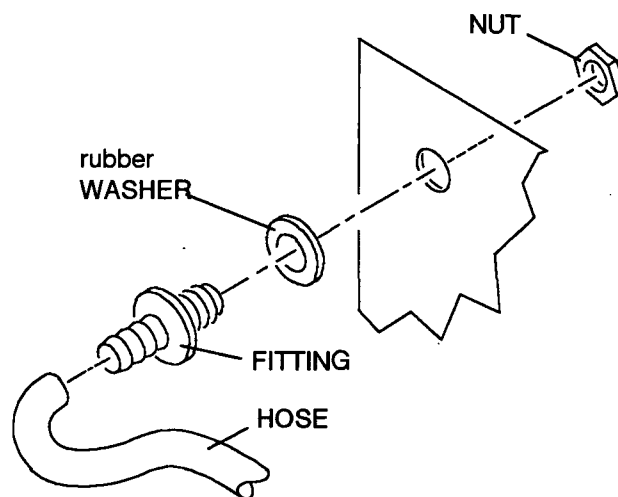
- FIXER OVERFLOW
- DEVELOPER OVERFLOW

**[8]** For easier access, remove and keep:

- DRYER AIR HOSE
- 2 SCREWS and EXHAUST ADAPTER

**[9]** On both sides of the BULKHEAD PANEL, remove the HOSES, NUTS, and existing FITTINGS for the:

- FIXER DRAIN
- FIXER REPLENISHER
- DEVELOPER DRAIN
- DEVELOPER REPLENISHER
- WASH DRAIN



H127\_0165ACA  
H127\_0165AC

**[10]** Do Step [6] to install new FITTINGS for the:

- DEVELOPER DRAIN
- DEVELOPER REPLENISHER
- FIXER DRAIN
- FIXER REPLENISHER

**[11]** Install:

- new FITTING for the WASH DRAIN

### NOTE

The FITTING for the WASH DRAIN has no rubber WASHER.

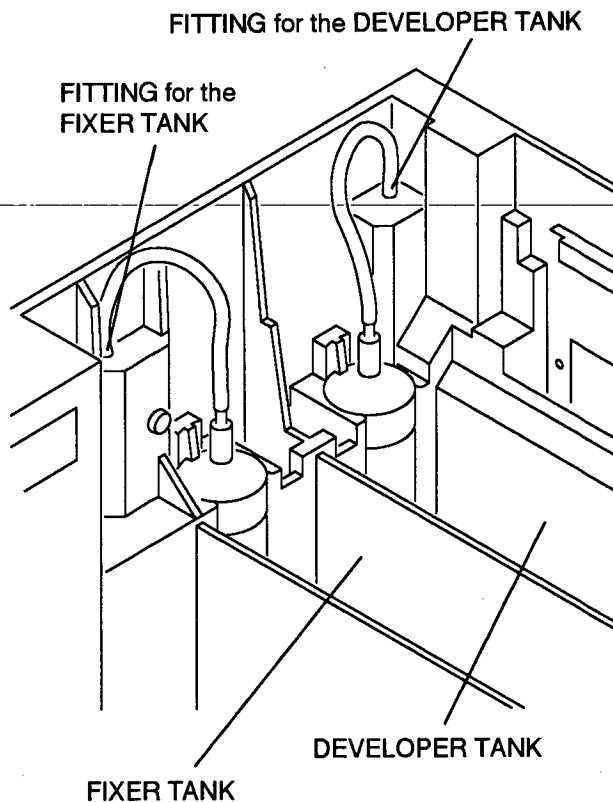
- HOSES for the WASH DRAIN
- EXHAUST ADAPTER and the 2 SCREWS
- DRYER AIR HOSE

- [12] Remove the HOSES, NUTS, and existing FITTINGS for the:

- DEVELOPER TANK
- FIXER TANK

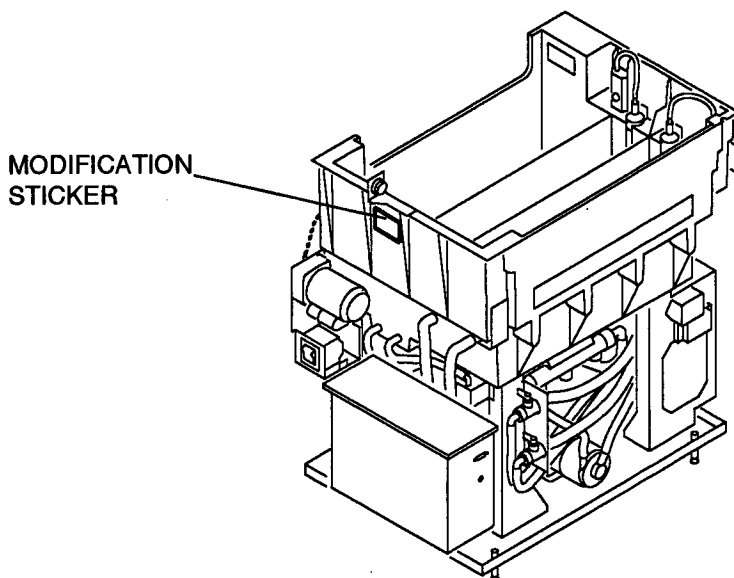
- [13] Install the new FITTINGS for the DEVELOPER TANK and the FIXER TANK:

- (a) Install the rubber WASHERS in the correct position on the FITTINGS.
- (b) Insert the new FITTINGS through the holes in the TANKS with the rubber WASHERS between the TANKS and the FITTINGS. See the figure on page 4.
- (c) Install the NUTS on the FITTINGS. Tighten the NUTS until the NUTS make contact with the wall of the TANKS.
- (d) Tighten the NUTS an additional  $\frac{1}{4}$  rotation to compress the WASHERS.
- (e) Install the HOSES on the FITTINGS.



H127\_0173GCA  
H127\_0173GA

- [14] Remove the CLAMPS TL-2170 from the HOSES from the REPLENISHMENT TANKS.
- [15] Close the TOP COVER.
- [16] Check for leakage and correct operation of the PROCESSOR.
- [17] Circle "3" on the MODIFICATION STICKER.



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H127\_0160BA

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Health Sciences Division





**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat* MULTILOADER 300**  
**Service Code: 3058**  
**Modification No. 25,**  
***Kodak X-Omat* 270 RA PROCESSOR**  
**Service Code: 3059**  
**Modification No. 17,**  
***Kodak X-Omat* 180 LP PROCESSOR**  
**Service Code: 3227**  
**Modification No. 4**  
**Type 1 Selective**

**Purpose:** To reduce maintenance requirements of the WASH RACK.

**IMPORTANT**

Use qualified personnel to install this modification.

<b>Service Effects:</b>	None
<b>Special Requirements:</b>	None
<b>Serial Numbers:</b>	S/N 101 - 846 for the 180 LP PROCESSOR S/N S101 - S1650 for the 270 RA PROCESSOR S/N M101 - M803 for the MULTILOADER 300
<b>Installation Time:</b>	Approximately 1 hour
<b>Special Tools:</b>	ELECTRIC DRILL TL-1466, 7/16 in. DRILL BIT, 1/8 in. DRILL BIT, 11/64 in. DRILL BIT, and THICKNESS GAUGE TL-3134
<b>Parts Status:</b>	Available through Service Parts Management
<b>Parts Requirements:</b>	None

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**CAUTION**

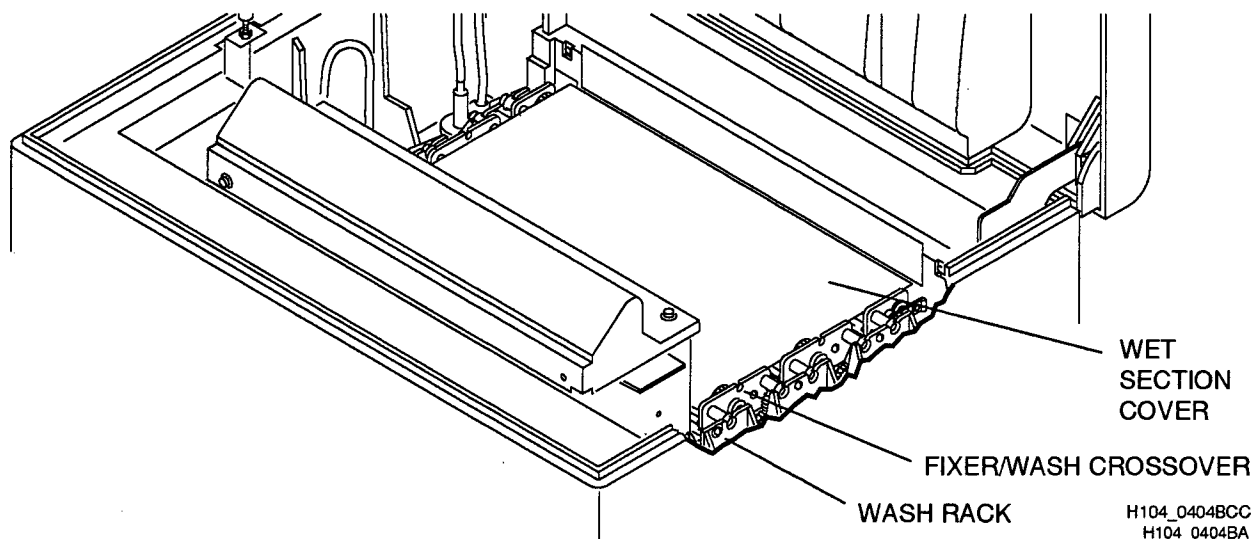


This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

**Parts List: Modification Kit, 1C4963, includes:**

Part No.	Description	Quantity
1C4391	WATER MANIFOLD	1
1C0998	TUBING BRACKET	1
1C4385	YOKE HOSE	1
1C4398	TUBING ASSEMBLY	1
1C4383	YOKE SUPPLY TUBE	1
182590	WIRE TIE	2
1C4968	DOLE VALVE	1
852807	SCREW	2
651107	E-RING	2
852522	SCREW	4
458219	TIE ROD	1
539180	STAR WASHER	1
1C7399	YOKE	1
1C7642	TUBING ASSEMBLY COVER	1
1C7643	FASTENER	3

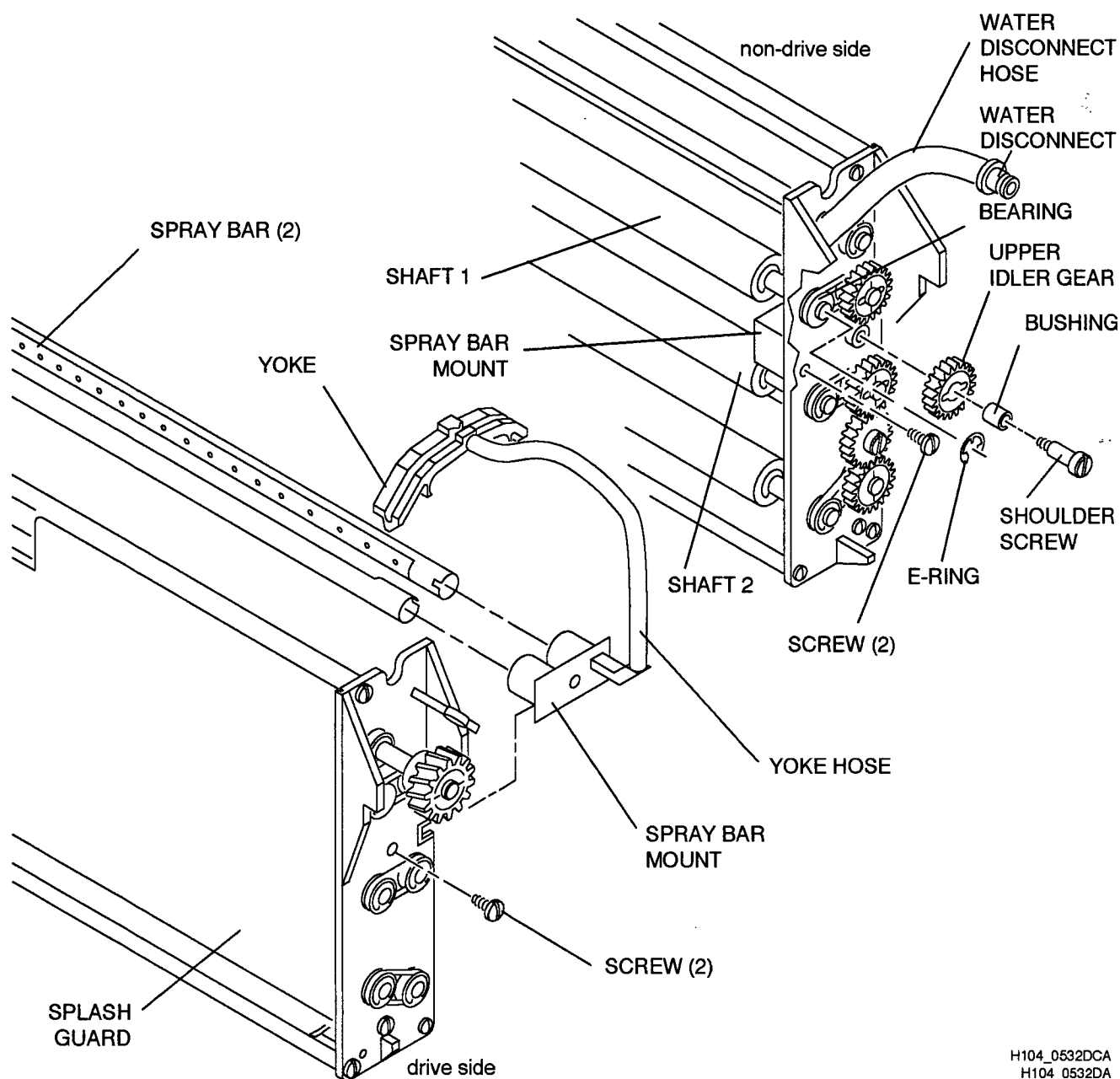
- [1] Move the main wall CIRCUIT BREAKER to "OFF" and the main CIRCUIT BREAKER for the PROCESSOR to the "O" position.
- [2] Turn off the water supply to the PROCESSOR.
- [3] For access to the processing section, lift the TOP COVER or extend the PROCESSOR.
- [4] From the PROCESSOR, remove:
  - WET SECTION COVER
  - EVAPORATION COVER
  - FIXER/WASH CROSSOVER
  - WASH RACK



**Figure 1 Identifying Parts on a 270 RA PROCESSOR**

- [5] From the WASH RACK, remove the parts listed below. See Figure 2.
  - SPLASH GUARD and discard
  - SHOULDER SCREW
  - BUSHING
  - UPPER IDLER GEAR
- [6] Remove and discard the 2 SCREWS that secure the SPRAY BAR MOUNT on the drive side of the WASH RACK.
- [7] Remove and discard the following parts from the WASH RACK by sliding them out of the drive side SIDEPLATE:
  - SPRAY BAR MOUNT
  - SPRAY BARS - pull and rotate to remove
  - YOKE HOSE and YOKE

- [8] For easier removal of the WATER DISCONNECT HOSE, cut the HOSE close to the DISCONNECT on the non-drive side of the WASH RACK.
- [9] Remove and discard the WATER DISCONNECT HOSE and the WATER DISCONNECT.



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H104\_0532DA

**Figure 2 Identifying Parts on the WASH RACK**

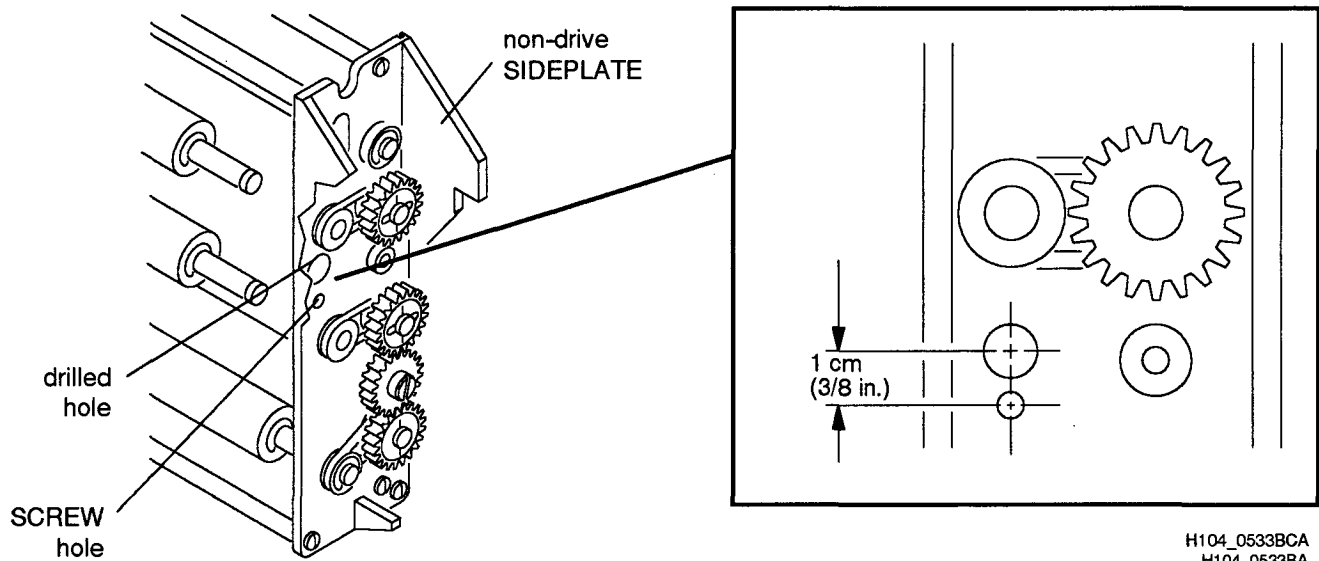
- [10] Remove and discard the 2 SCREWS that secure the SPRAY BAR MOUNT on the non-drive side of the WASH RACK.
- [11] Remove and discard the E-RING from the non-drive end of SHAFT 1. See the figure.

- [12] To remove the SPRAY BAR MOUNT from the non-drive side of the PROCESSOR, push SHAFT 1 toward the drive side of the WASH RACK until the SHAFT passes through the BEARING.

**NOTE**

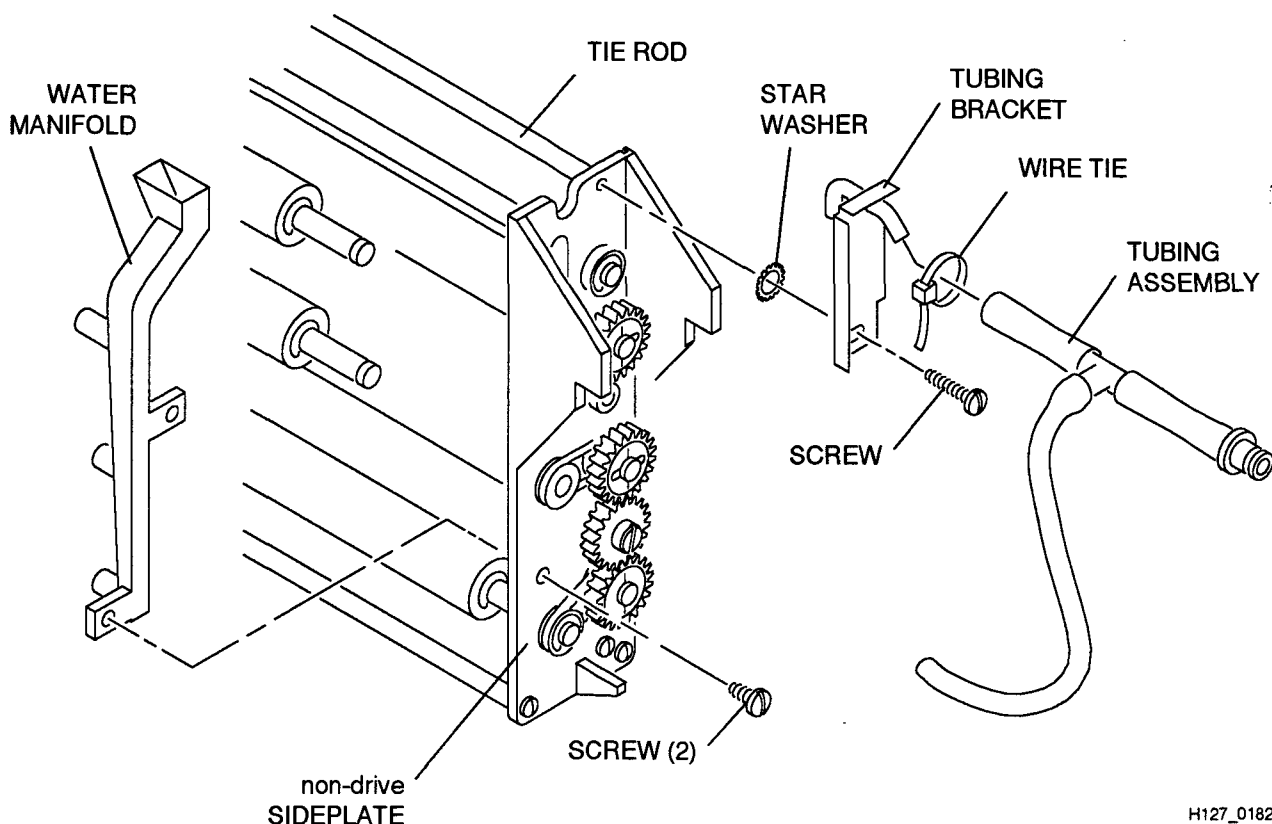
On some PROCESSORS, the SHAFT may not easily slide out of the ROLLER. If you cannot slide the SHAFT through the SIDEPLATE, you will need to remove the non-drive side SIDEPLATE from the WASH RACK

- [13] Remove and discard the SPRAY BAR MOUNT and remaining WATER DISCONNECT HOSE from the non-drive side of the WASH RACK.
- [14] Remove and discard the E-RING from the non-drive side of SHAFT 2.
- [15] Push SHAFT 2 toward the drive side of the WASH RACK until the SHAFT passes through the BEARING.
- [16] Drill a 8 mm (7/16 in.) hole in the non-drive SIDEPLATE 1 cm (3/8 in.)  $\pm$  1 mm (1/16 in.) above the existing SCREW hole for the SPRAY BAR MOUNT. See the figure.
- (a) Use a CENTER PUNCH to mark the hole.
  - (b) Use a DRILL BIT less than 8 mm (7/16) in. to begin the hole.
  - (c) Use a 8 mm (7/16 in.) DRILL BIT to finish the hole.



**Figure 3 Drilling the Hole for the WATER MANIFOLD**

- [17] Install the WATER MANIFOLD onto the non-drive side of the RACK using the 2 new SCREWS provided.



H127\_0182HCA  
H127\_0182HA

**Figure 4 Positioning and Installing the WATER MANIFOLD and the TUBING BRACKET**

- [18] Install SHAFT 1 and SHAFT 2 into the non-drive side SIDEPLATE. If it was necessary for you to remove the SIDEPLATE, install the SHAFTS and install the SIDEPLATE.
- (a) Check that the BEARINGS and the SPRINGS are positioned correctly.
  - (b) Check that the GEARS on the ROLLERS mesh correctly.
- [19] Install the new 2 E-RINGS provided onto the 2 SHAFTS.
- [20] Remove and discard the SCREW securing the TIE ROD on the non-drive side of the WASH RACK.

#### **IMPORTANT**

See the figure for the correct location of the STAR WASHER.

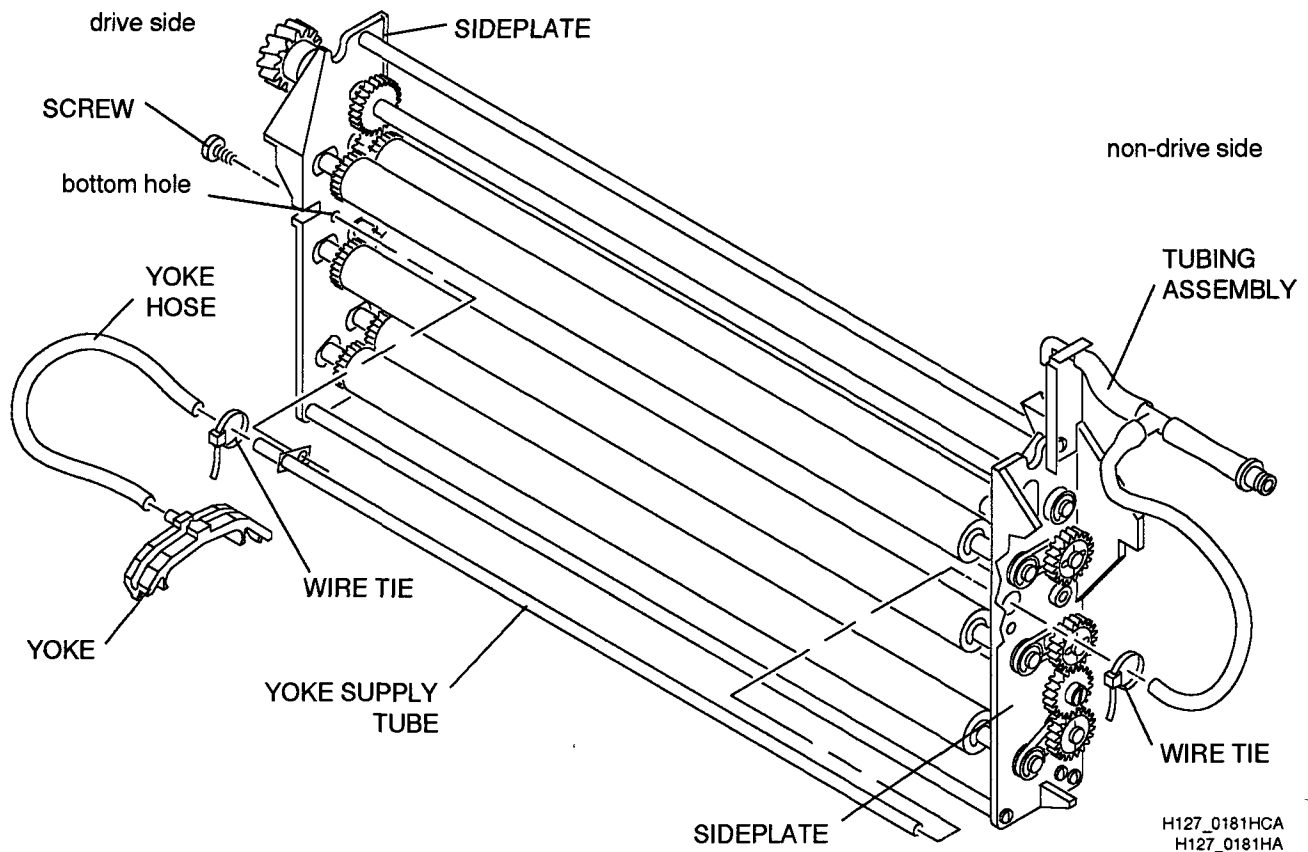
- [21] Using the new SCREW and STAR WASHER provided, install the TUBING BRACKET. See the figure for the correct location and orientation of the TUBING BRACKET.
- [22] Connect the TUBING ASSEMBLY to the TUBING BRACKET. Secure the TUBING ASSEMBLY with a WIRE TIE.

- [23] Install the metal YOKE SUPPLY TUBE through the hole drilled in the non-drive side SIDEPLATE.

**NOTE**

There are 2 holes in the drive side SIDEPLATE. Be certain to use the **bottom** hole when installing the YOKE SUPPLY.

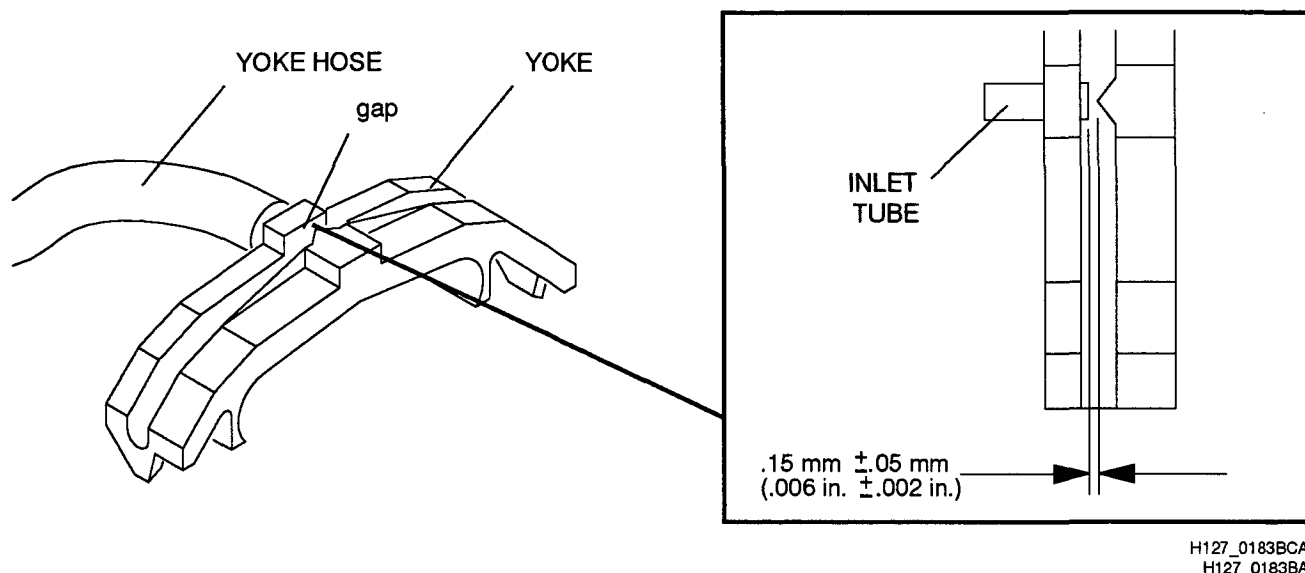
- [24] Position the other end of the metal YOKE SUPPLY TUBE in the drive side SIDEPLATE. Secure the YOKE SUPPLY TUBE to the bottom hole in the drive side SIDEPLATE with the new SCREW provided.
- [25] Install the new YOKE HOSE provided onto the drive side end of the metal YOKE SUPPLY TUBE. Secure the YOKE HOSE to the metal YOKE SUPPLY TUBE with a WIRE TIE.



**Figure 5 Positioning the Metal YOKE SUPPLY TUBE**

**[26]** Use THICKNESS GAUGE TL-3134 to measure the gap in the YOKE. See the figure.

- (a)** If the gap is not  $.15 \text{ mm} \pm .05 \text{ mm}$  ( $.006 \text{ in.} \pm .002 \text{ in.}$ ), adjust the position of the INLET TUBE as necessary.



**Figure 6 Measuring the Gap in the YOKE**

**[27]** Install the other end of the YOKE HOSE onto the new YOKE provided.

**[28]** Connect the TUBING ASSEMBLY to the non-drive side of the metal YOKE SUPPLY TUBE. Secure the TUBING ASSEMBLY with a WIRE TIE.

**[29]** Install into the WASH RACK the following parts that you removed in Step 5:

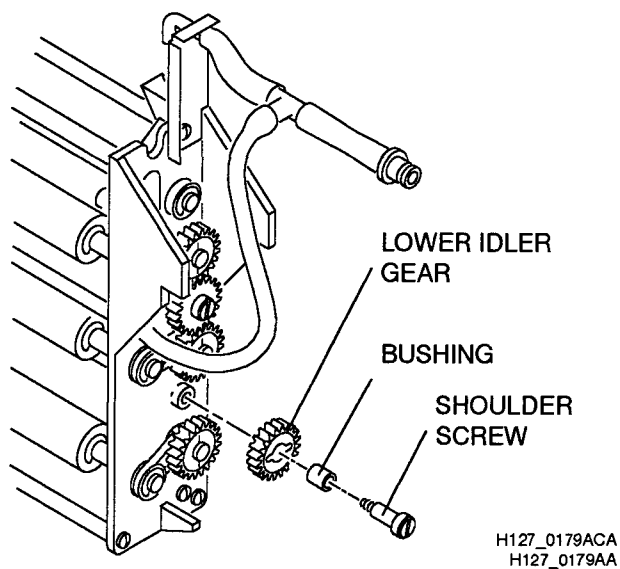
- SHOULDER SCREW
- BUSHING
- UPPER IDLER GEAR

- [30]** Drill a 4.4 mm (11/64 in.) hole in the drive side SIDEPLATE as indicated in the figure. The tolerance for the position of the hole is  $\pm 2$  mm (1/16 in.).

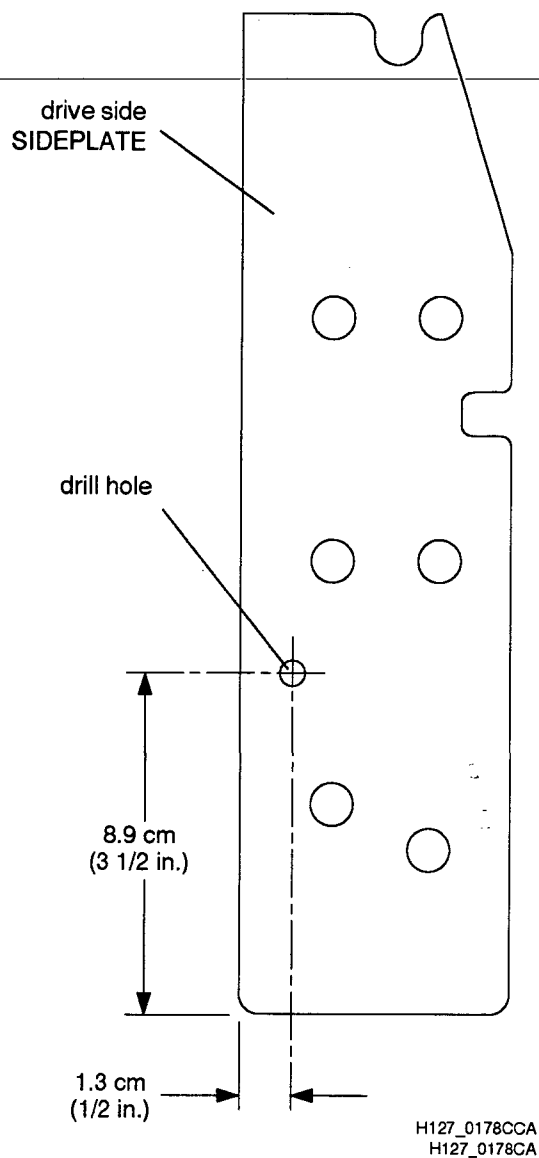
- (a) Use a CENTER PUNCH to mark the hole.
- (b) Use a DRILL BIT less than 4.4 mm (11/64 in.) in diameter to begin the hole.
- (c) Use a DRILL BIT 4.4 mm (11/64 in.) in diameter to finish the hole.

- [31]** Remove:

- SHOULDER SCREW
- BUSHING
- LOWER IDLER GEAR



**Figure 7 Removing the SCREW, BUSHING, and GEAR**



**Figure 8 Drilling the Hole in the Drive Side SIDEPLATE**

[32] Install the TIE ROD using the new 2 SCREWS provided.

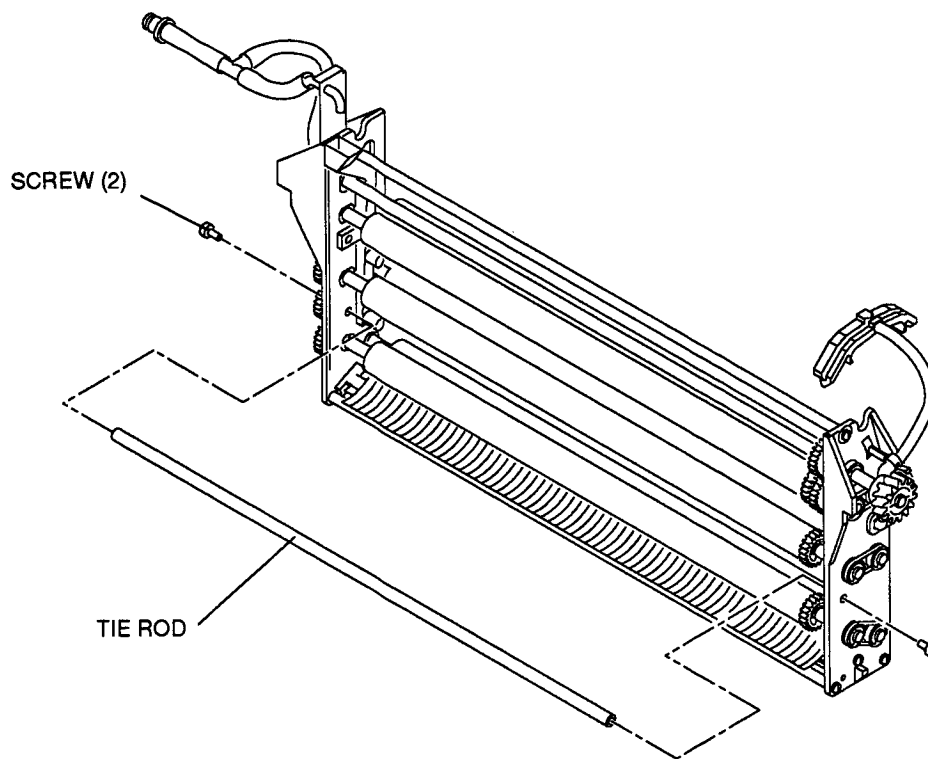


Figure 9 Installing the TIE ROD

[33] Install the following parts in the PROCESSOR:

- WASH RACK
- FIXER/WASH CROSSOVER
- EVAPORATION COVER

[34] Using TIN SNIPS or a HACK SAW, cut the WET SECTION COVER as shown in the figure.

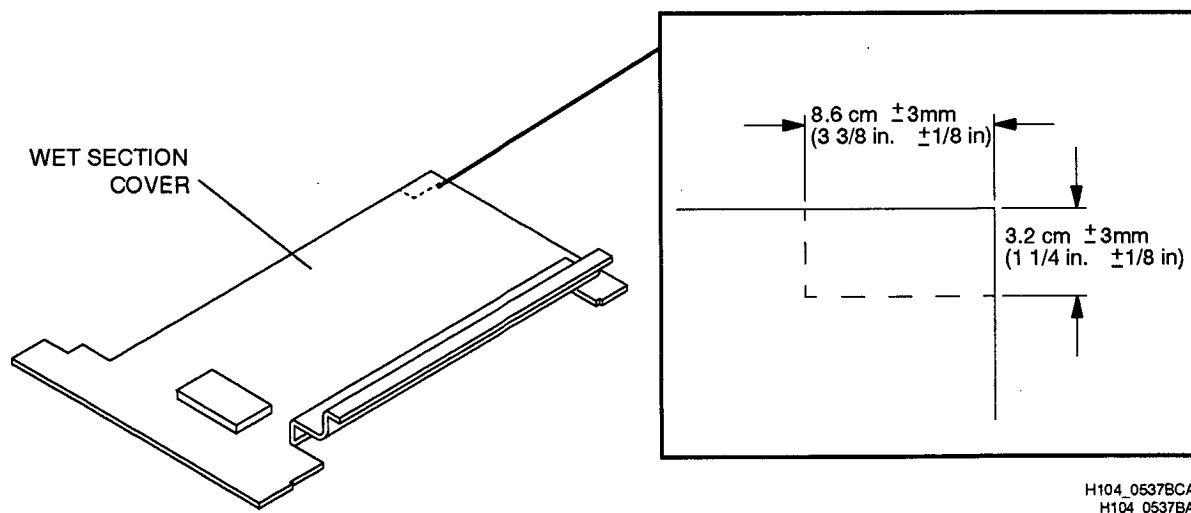
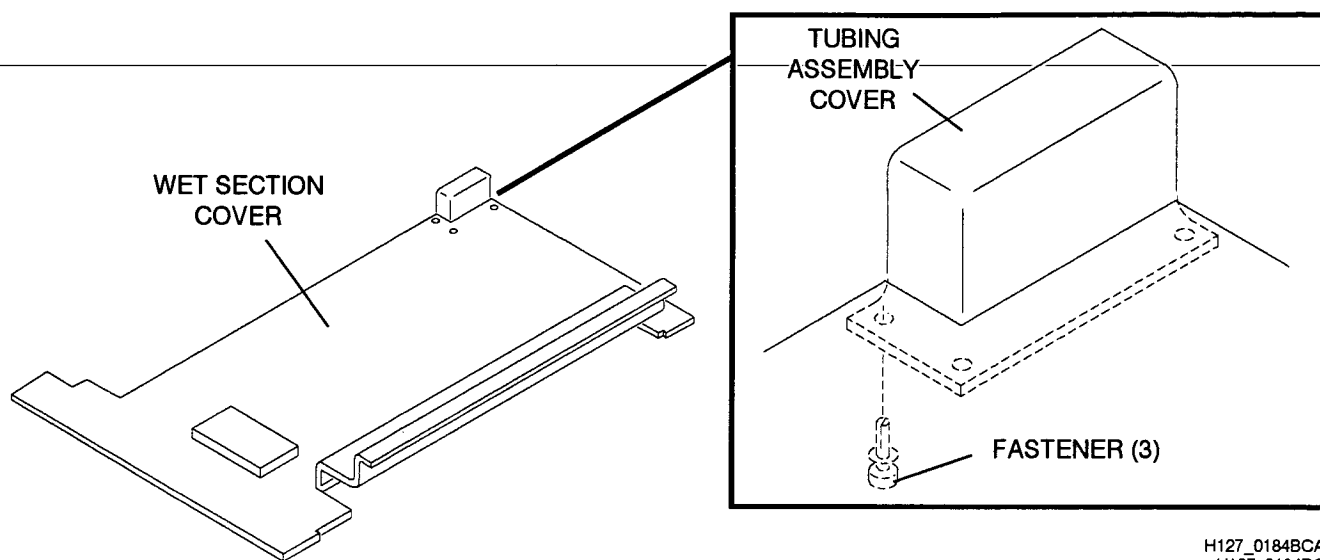


Figure 10 Cutting the WET SECTION COVER

**[35]** Align the TUBING ASSEMBLY COVER with the WET SECTION COVER as shown.

**(a)** Check that the LIP of the TUBING ASSEMBLY COVER is under the WET SECTION COVER.



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H127\_0184BC

**Figure 11 Installing the TUBING ASSEMBLY COVER**

**[36]** Using the TUBING ASSEMBLY COVER as a template, drill 3 holes that are 3.2 mm ( $\frac{1}{8}$  in.) in diameter in the WET SECTION COVER.

**(a)** Use a CENTER PUNCH to mark the holes.

**(b)** Use a DRILL BIT less than 3.2 mm ( $\frac{1}{8}$  in.) to begin the holes.

**(c)** Use a 3.2 mm ( $\frac{1}{8}$  in.) DRILL BIT to finish the holes.

**[37]** Using the 3 FASTENERS provided, install the TUBING ASSEMBLY COVER to the WET SECTION COVER.

**(a)** Install the FASTENERS up through the bottom of the WET SECTION COVER.

## IMPORTANT

Because the new WASH RACK requires less water flow, you need to install the new 3/4 gallon/min DOLE VALVE provided. The old and new DOLE VALVES are not interchangeable. Do not use the old 1 gallon/min DOLE VALVE in a newly modified WASH RACK.

[38] To gain access to the existing DOLE VALVE, do the appropriate steps below:

- (a) For a MULTILOADER 300, remove the non-drive side SAFETY COVER.
- (b) For a 270 RA PROCESSOR, remove the non-drive side ACCESS PANEL.
- (c) For a 180 LP PROCESSOR, remove the drive side ACCESS PANEL and swing out the ELECTRICAL BOX.

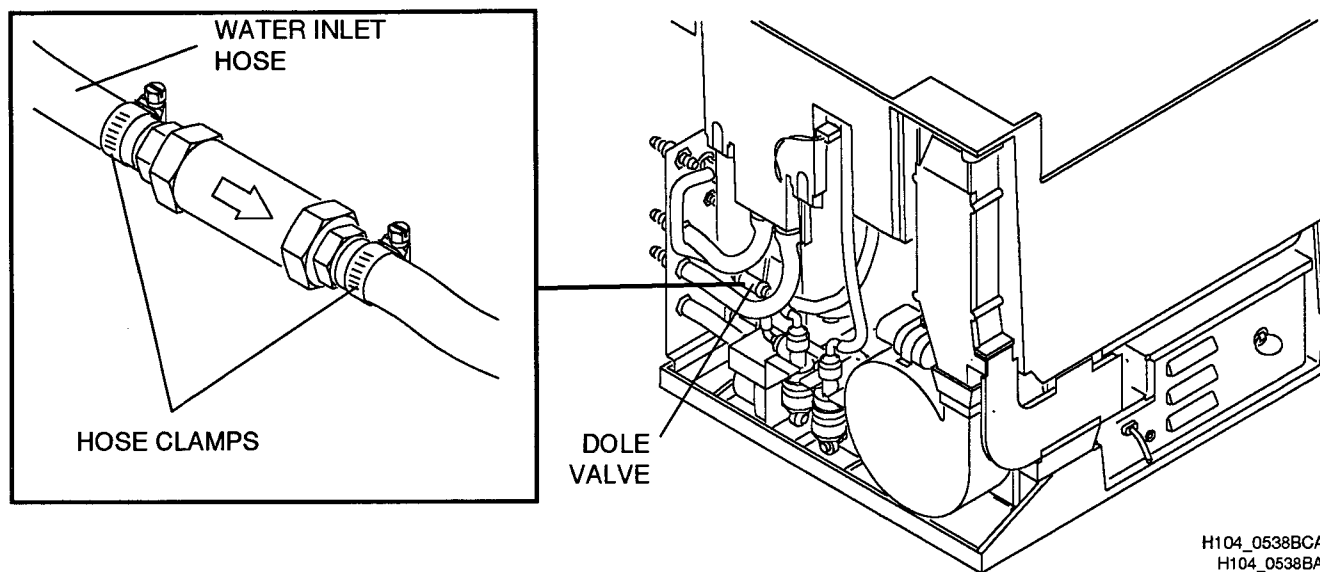


Figure 12 Identifying Parts on the 270 RA PROCESSOR or MULTILOADER 300

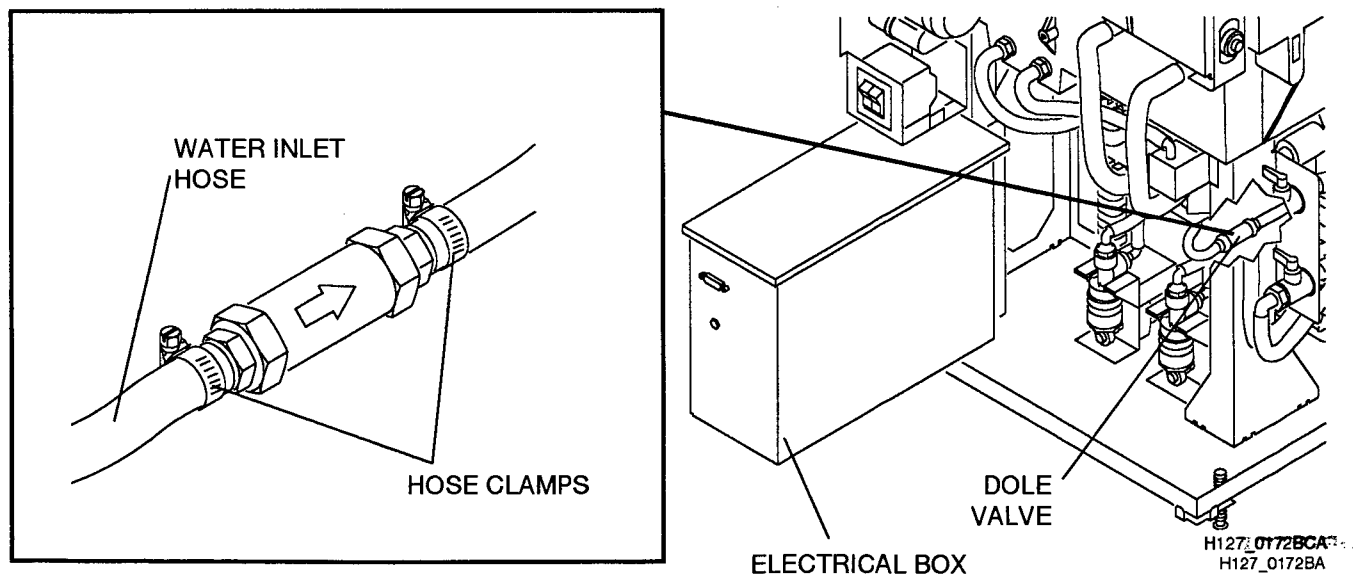


Figure 13 Identifying Parts on the 180 LP PROCESSOR

**[39]** From the WATER INLET HOSE, remove:

- 2 HOSE CLAMPS
- DOLE VALVE

**IMPORTANT**

Orient the VALVE so that the arrow points in the direction of the water flow.

**[40]** Install the DOLE VALVE.

**[41]** Install the ACCESS PANEL.

**[42]** Check for correct operation of the PROCESSOR.

**[43]** Check that the water flows out of the TUBING BRACKET into the middle of the WATER MANIFOLD.  
If necessary, bend the TUBING BRACKET.

**[44]** Circle the appropriate number on the MODIFICATION STICKER.

**[45]** Install all COVERS and ACCESS PANELS.

**Table 1 Publication Change Notice Table**

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
June 1994	1C7063	2592-279	Not Applicable	3059mi_i.txt	

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Health Sciences Division



# MODIFICATION INSTRUCTIONS

## for the

### *Kodak X-Omat* 180 LP PROCESSOR

### Service Code 3227

### Modification No. 6

### Type 1 Required

- Purpose:**
- Install new style HEAT EXCHANGER FITTINGS to minimize chemical leakage from the HEAT EXCHANGER connections.
  - Install new style RACK SPRINGS that are more resistant to corrosion than the existing RACK SPRINGS.
  - Install a new WASH TANK CLIP to increase the volume of water around the HEAT EXCHANGER in the WASH TANK to decrease false "Loss of Developer Cooling Ability" errors.



#### **Important**

Use qualified personnel to install this modification.

<b>Service Effects:</b>	See Page 3 for changes to Part Numbers
<b>Special Requirements:</b>	None
<b>Serial Numbers:</b>	See Page 3
<b>Installation Time:</b>	1.0 hour
<b>Special Tools:</b>	3 CLAMPS TL-2170
<b>Parts Status:</b>	Available at Service Parts Management, September 1995
<b>Parts Requirements:</b>	See Page 3.



HEALTH SCIENCES DIVISION

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 This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

Table of Contents

Description	Page
<b><u>Section 1</u></b>	
Serial Numbers and Parts Information .....	3
Serial Numbers .....	3
Changes to Existing Parts .....	3
Parts Requirements .....	3
<b><u>Section 2</u></b>	
Preliminary Procedure .....	4
<b><u>Section 3</u></b>	
Installing the FITTINGS and FORMED TUBING .....	6
Removing the Existing FITTINGS and FORMED TUBING .....	6
Installing the New BARBED FITTINGS .....	8
Installing the New FORMED TUBING and New HOSE CLAMPS .....	10
<b><u>Section 4</u></b>	
Installing the New SPRINGS .....	11
<b><u>Section 5</u></b>	
Installing the New WASH TANK CLIP .....	13
<b><u>Section 6</u></b>	
Final Steps .....	14

## Section 1: Serial Numbers and Parts Information

### Serial Numbers



#### Important

Check the Serial No. on the Processor and in the table below. It may not be necessary to do the whole Mod. on your Processor.

Processor Serial No. Range:	Action Required: (See “Parts Requirements” on Page 3)	
1367 and Below	Install Groups 1, 2, and 3 parts	Do Section 2 through Section 6
1368 to 1429	Install Group 3 parts only	Do Sections 2, 5, and 6 only
1430 to 1476	Mod. 6 was factory installed. The 6 was not circled on the Mod. Label	Circle 6 on the MODIFICATION LABEL
1477 and above	Mod. 6 is factory installed	None

### Changes to Existing Parts

Qty.	Existing Part No.	New Part No.	Part Description
2	562602 or 990418	<b>5B6156</b>	BARBED FITTING
1	943101	<b>5B6152</b>	FORMED TUBING - long
1	943100	<b>5B6153</b>	FORMED TUBING - short
2	246801	<b>246803</b>	HOSE CLAMP B
6	459344	<b>1C7106</b>	RACK SPRING
6	474239	<b>1C7107</b>	RACK SPRING
1	943683	<b>5B6750</b>	WASH TANK CLIP

### Parts Requirements

Modification Kit 5B6770 includes:

Qty.	Part No.	Description
1	5B6773	Modification Instructions

<b>Group 1:</b>	2	5B6156	BARBED FITTING
	1	5B6152	FORMED TUBING-long
	1	5B6153	FORMED TUBING-short
	2	246803	HOSE CLAMP B
	2	532378	O-RING SEAL

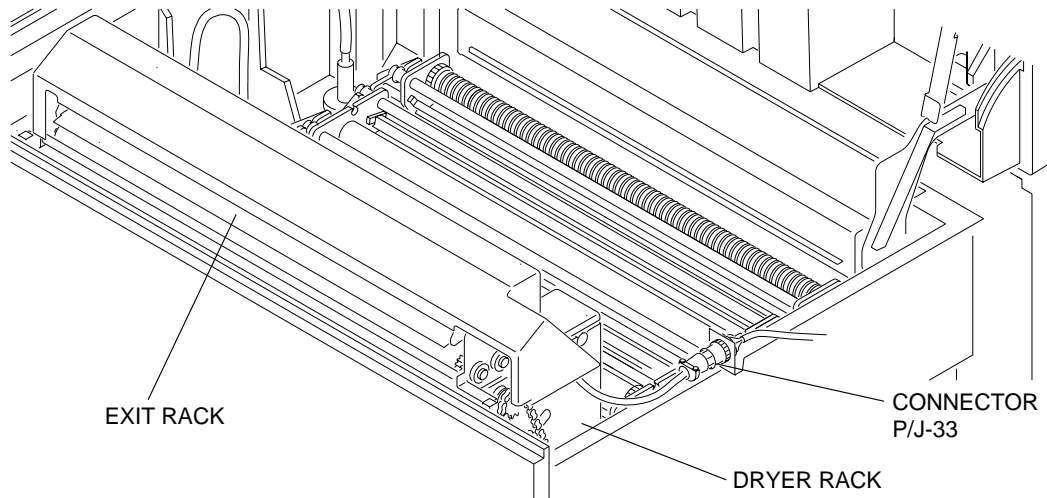
<b>Group 2:</b>	6	1C7106	RACK SPRING
	6	1C7107	RACK SPRING

<b>Group 3:</b>	1	5B6750	WASH TANK CLIP
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## Section 2: Preliminary Procedure

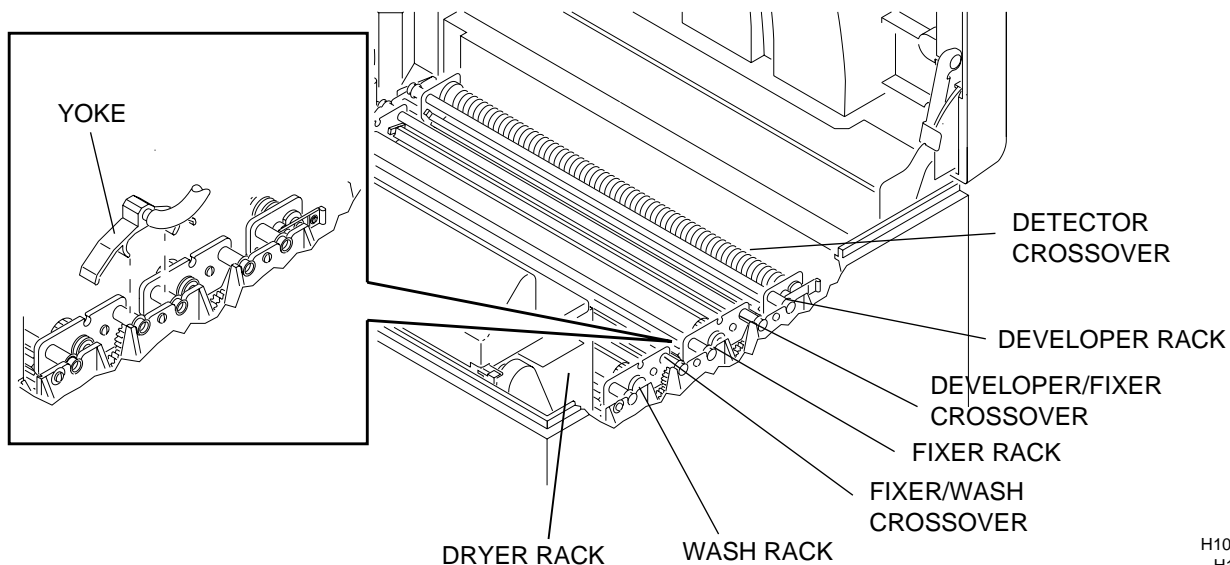
- [1] De-energize the PROCESSOR.
- [2] Move the main wall CIRCUIT BREAKER to "OFF".
- [3] Lift the TOP COVER.
- [4] Remove:

- DRIVE SIDE PANEL
- WET SECTION COVER
- EVAPORATION COVERS



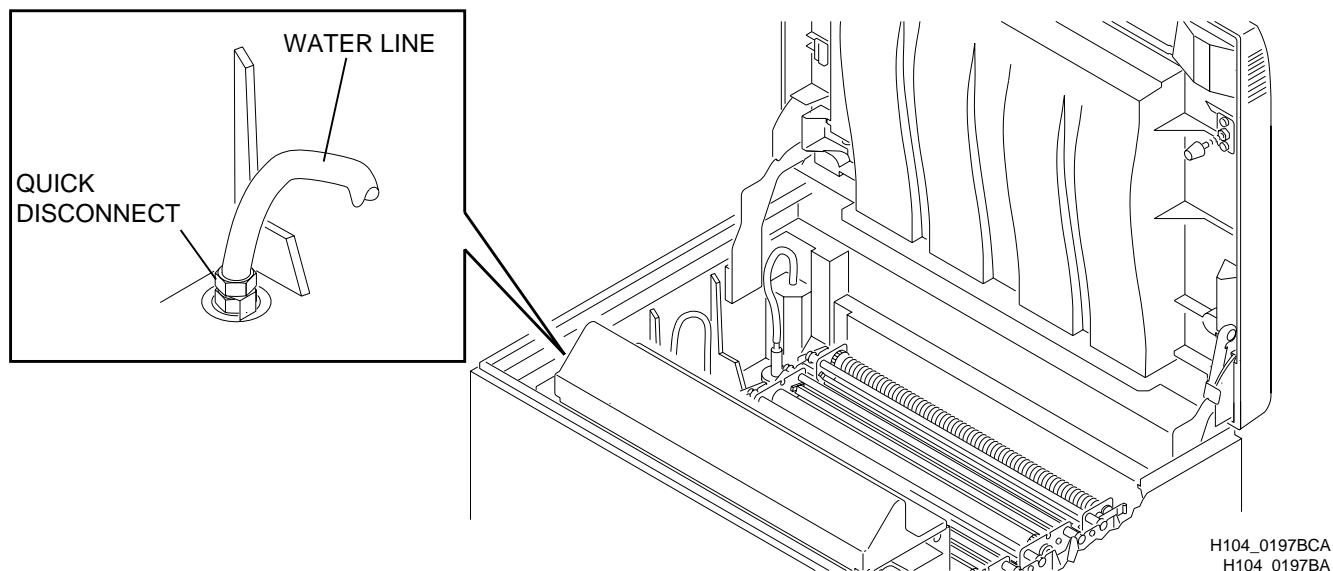
H127\_0136BCA  
H127\_0136BA

- [5] Disconnect CONNECTOR P/J-33.

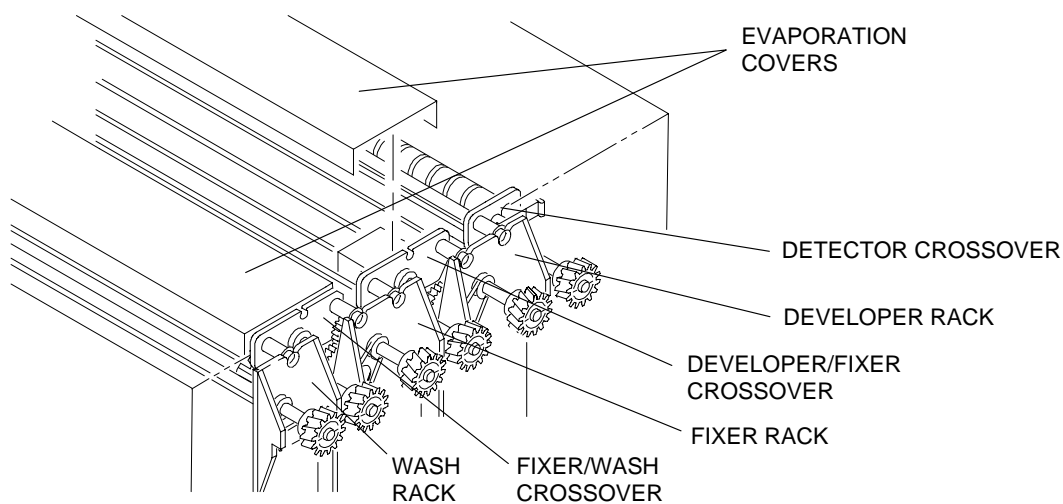


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H104\_0227BA

- [6] Disconnect the YOKE from the CROSSOVERS.



[7] Disconnect the water QUICK DISCONNECT from the TANK.



[8] Remove:

- EXIT RACK
- DEVELOPER/FIXER CROSSOVER
- FIXER/WASH CROSSOVER
- DRYER RACK (See the figure on Page 4)
- WASH RACK

## Section 3: Installing the FITTINGS and FORMED TUBING

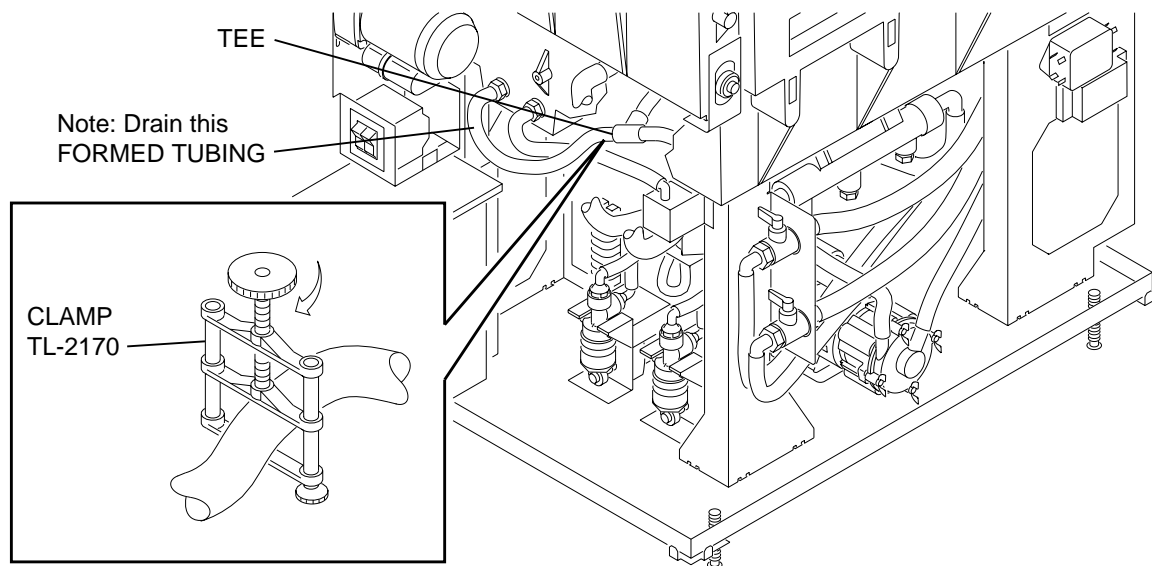
### Removing the Existing FITTINGS and FORMED TUBING



#### Caution

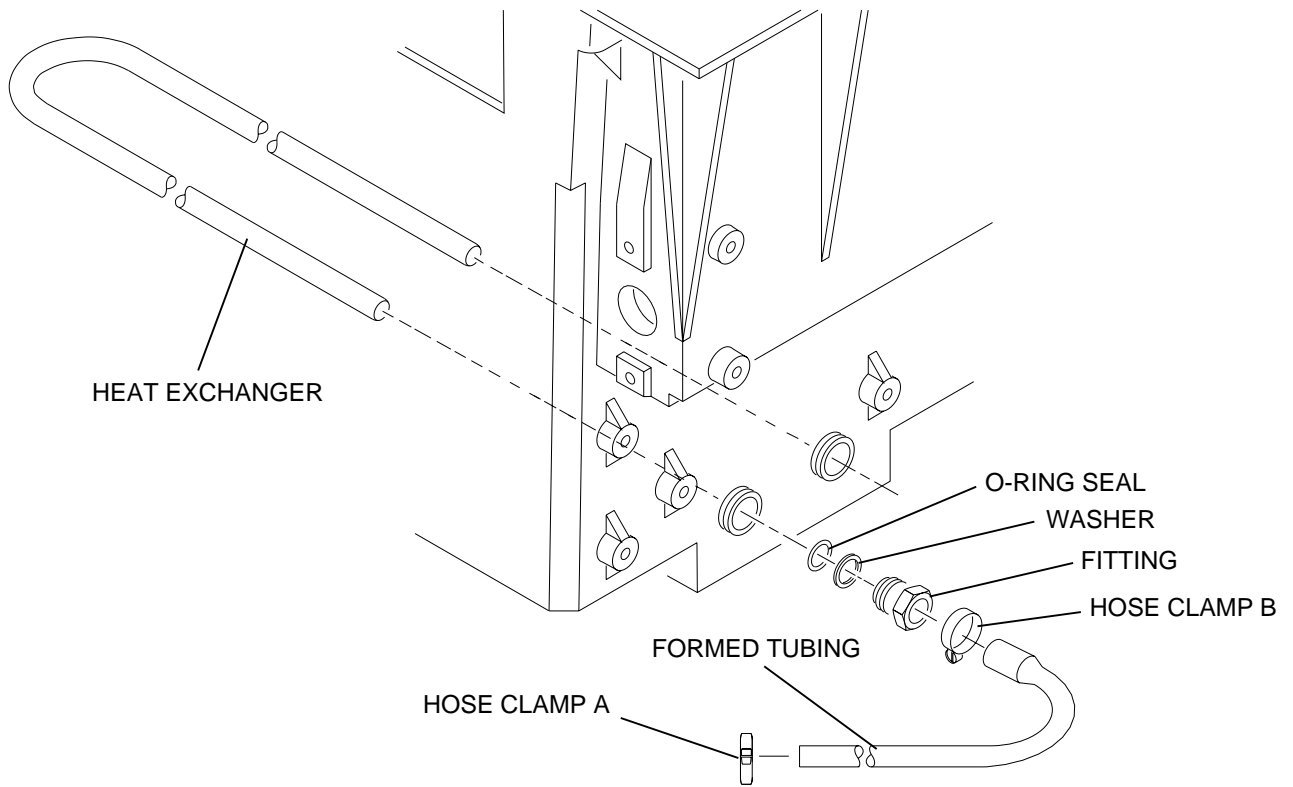
Developer leakage may occur when you remove the HEAT EXCHANGER and FORMED TUBING.

[1] Rotate the ELECTRICAL BOX to the open position.



[2] See the illustration above:

- (a) Install a CLAMP TL-2170 on each of the 3 FORMED TUBINGS connected to the TEE.
  - Install the CLAMPS TL-2170 close to the TEE.
- (b) Disconnect the FORMED TUBING, that requires draining, from the TEE. (See the figure above)
  - Keep the HOSE CLAMP A
- (c) Remove the CLAMP TL-2170 and drain the FORMED TUBING into a container.

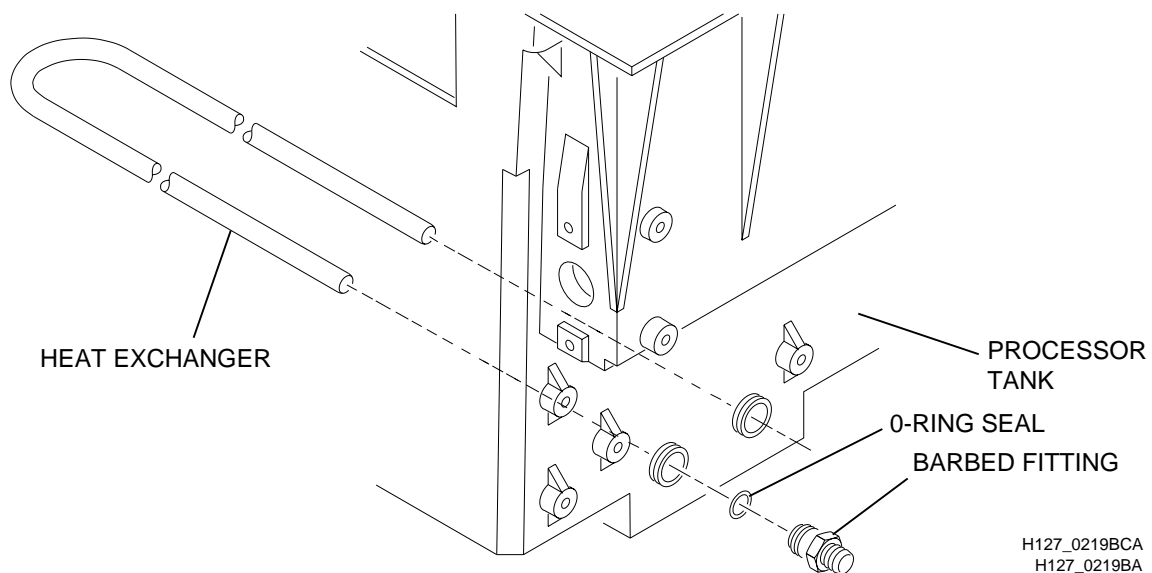


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H127\_0204HA

- [3] Remove and keep the other HOSE CLAMP A.
- [4] Remove and discard:

Part Description	Qty.
HOSE CLAMP B	2
FORMED TUBING	2
FITTING	2
WASHER	2
O-RING SEAL	2

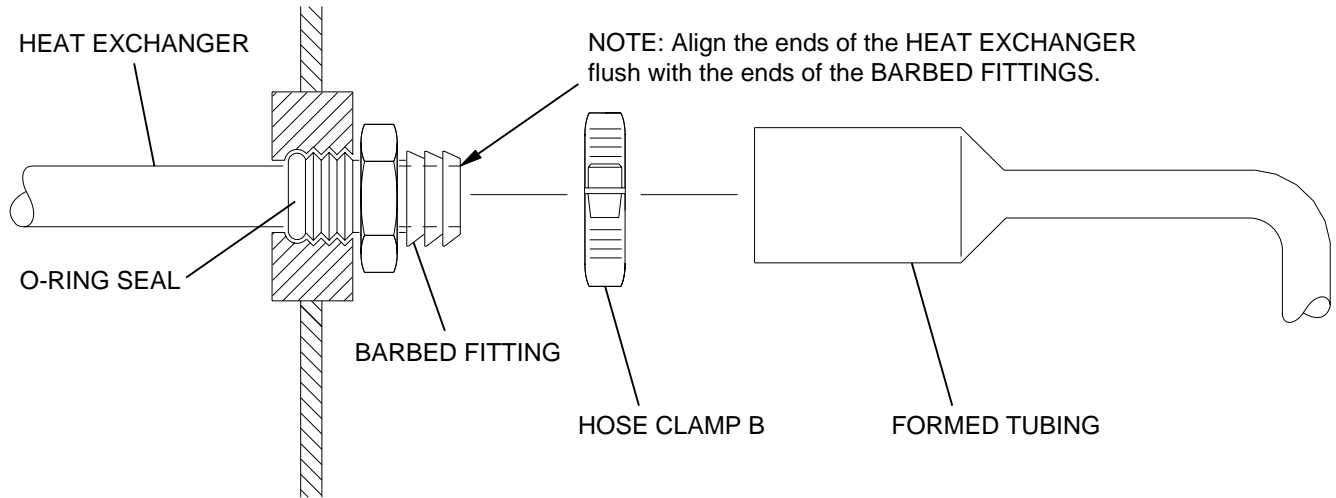
## Installing the New BARBED FITTINGS



- [1] Place the ends of the HEAT EXCHANGER through the holes in the side of the PROCESSOR TANK.
- [2] Place a new O-RING SEAL on each end of the HEAT EXCHANGER.

**Important**

DO NOT use the existing WASHERS with the new BARBED FITTINGS.



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H127\_0206BA

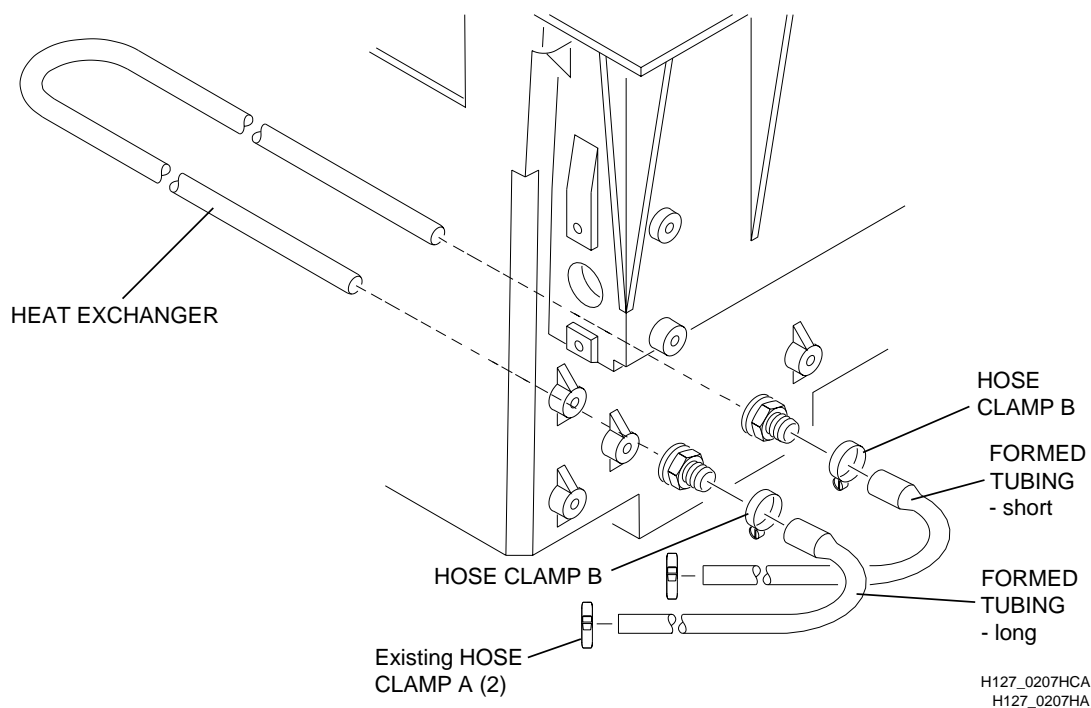
- [3] Place a new BARBED FITTING onto each end of the HEAT EXCHANGER.
- [4] Loosely rotate the new BARBED FITTINGS into the holes in the side of the PROCESSOR TANK.

**Caution**

Do not tighten the BARBED FITTINGS more than necessary to correctly seat the O-RING SEALS. Incorrect installation of the BARBED FITTINGS will cause damage to the O-RING SEALS and fluid leakage.

- [5] Align the ends of the HEAT EXCHANGER flush with the ends of the BARBED FITTINGS and tighten the BARBED FITTINGS.

## Installing the New FORMED TUBING and New HOSE CLAMPS



Qty.	Part No.	Description
1	5B6153	FORMED TUBING - short
1	5B6152	FORMED TUBING - long
2	From Step 3, Page 7	HOSE CLAMP A
2	246803	HOSE CLAMP B



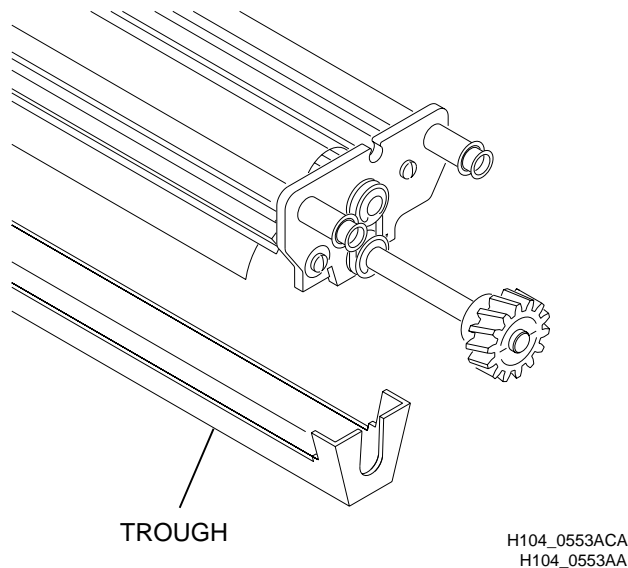
### Important

Even when a CLAMP is correctly tightened at installation, cold flow or shrinkage of the FORMED TUBING will occur beneath the CLAMP. CLAMPS should be periodically checked and tightened, especially after FORMED TUBING replacement.

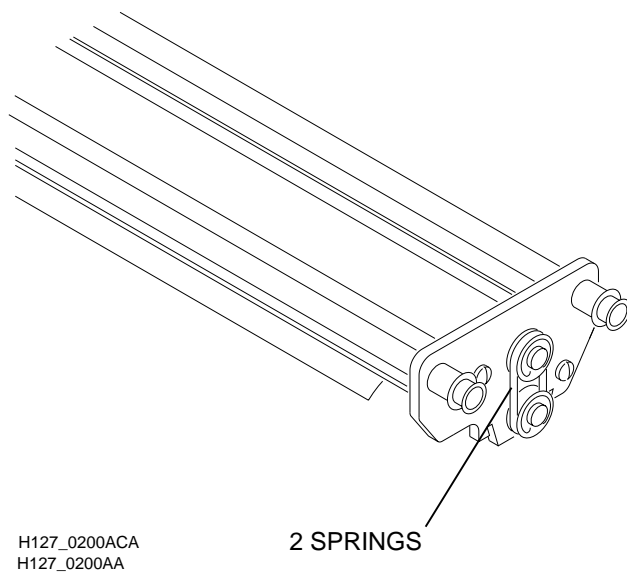
- [1] Install the new FORMED TUBING and HOSE CLAMPS, and tighten the HOSE CLAMPS.
- [2] Remove the 2 remaining CLAMPS TL-2170.
- [3] Move the ELECTRICAL BOX back into position.

## Section 4: Installing the New SPRINGS

### Installing the New SPRINGS in the CROSSOVERS

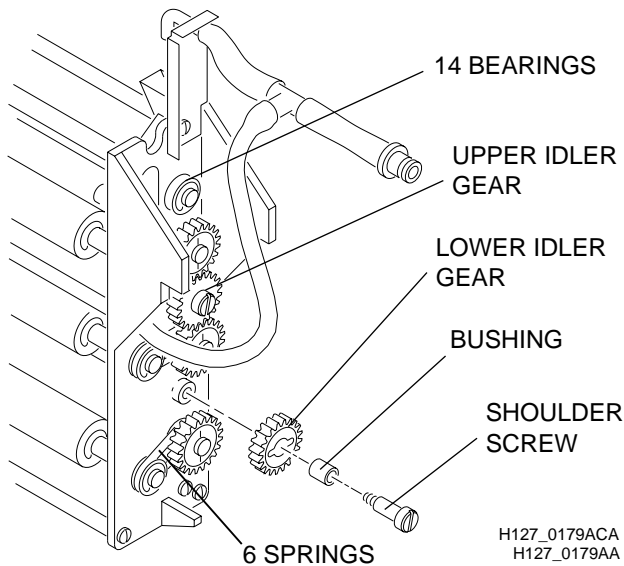


- [1] Remove the TROUGHS from the CROSSOVERS.



- [2] Remove and discard the 2 SPRINGS from the DEVELOPER/FIXER CROSSOVER and the FIXER/WASH CROSSOVER.
- [3] Install the 2 new SPRINGS, Part No. 1C7106, in both the DEVELOPER/FIXER CROSSOVER and the FIXER/WASH CROSSOVER.
- [4] Install the TROUGHS on the CROSSOVERS.

## Installing the New SPRINGS in the WASH RACK



[5] Remove from both the LOWER and UPPER IDLER GEARS on the WASH RACK:

- SHOULDER SCREW
- BUSHING
- IDLER GEAR

[6] Remove and discard the 6 SPRINGS from the WASH RACK

a. To remove the top SPRING on the non-drive side of the RACK, do the steps below.

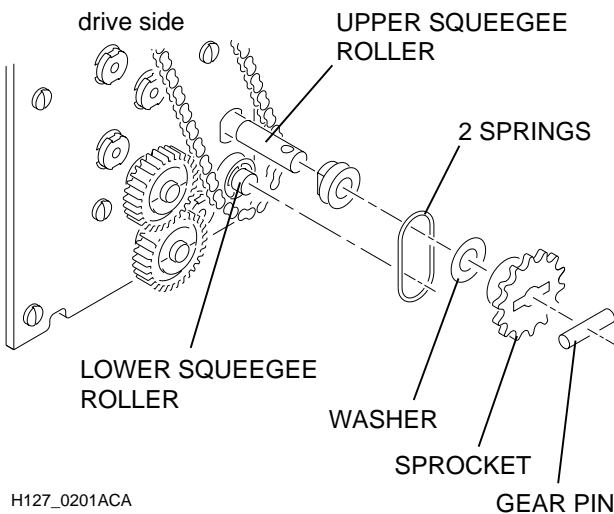
1. Remove the SPRING from around the BEARING.
2. Place the SPRING between the teeth of the GEAR.
3. Rotate the GEAR.

[7] Install the 6 new SPRINGS, Part No. 1C7107.

[8] Install the:

- IDLER GEARS
- BUSHINGS
- SHOULDER SCREWS

## Installing the New SPRINGS in the DRYER RACK



[9] Remove the following parts from the UPPER SQUEEGEE ROLLER on the non-drive side of the DRYER RACK:

- SPRING and discard
- E-RING and keep

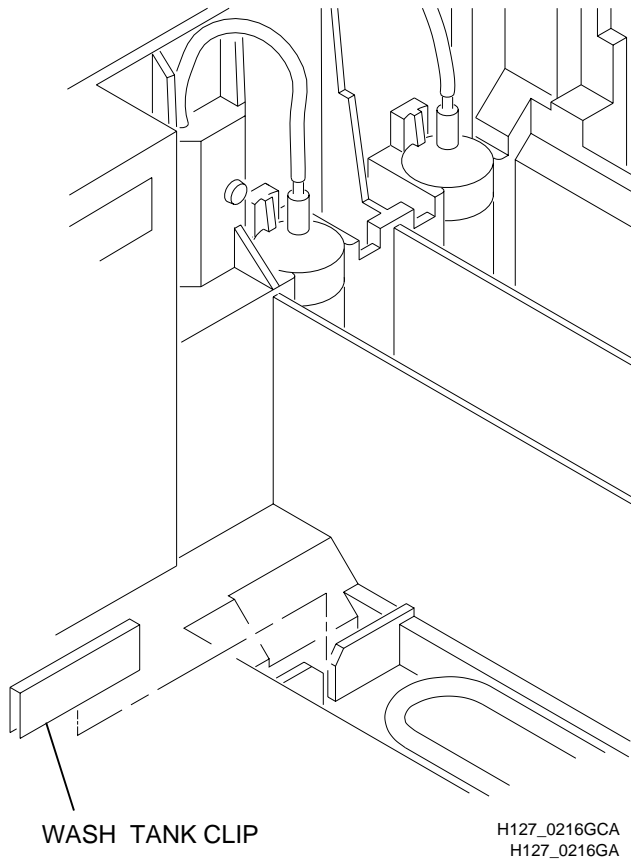
[10] For access to the GEAR PIN, move the UPPER SQUEEGEE ROLLER toward the drive side of the PROCESSOR.

[11] Remove from the drive side of the UPPER SQUEEGEE ROLLER:

- GEAR PIN
- SPROCKET
- WASHER
- SPRING and discard

[12] Reverse Steps 9 through 11 to install the 2 new SPRINGS, Part No. 1C7106.

## Section 5: Installing the New WASH TANK CLIP



- [1] Remove and discard the existing WASH TANK CLIP.
- [2] Install the new WASH TANK CLIP.

## Section 6: Final Steps

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[1] Install:

- WASH RACK
- FIXER/WASH CROSSOVER
- DEVELOPER/FIXER CROSSOVER
- DRYER RACK

[2] Connect the water QUICK DISCONNECT to the TANK.

[3] Connect the YOKE to the CROSSOVERS.

[4] Install:

- EXIT RACK
  - Connect CONNECTOR P/J-33
- EVAPORATION COVERS
- WET SECTION COVER
- DRIVE SIDE PANEL

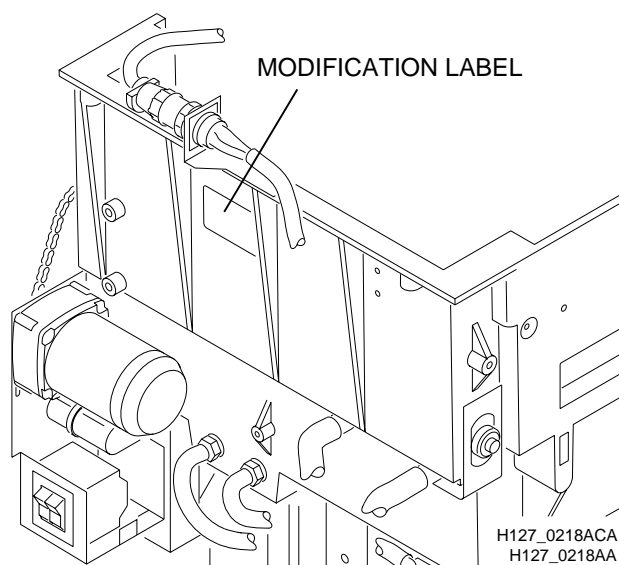
[5] Close the TOP COVER.

[6] Move the main wall CIRCUIT BREAKER to “ON”.

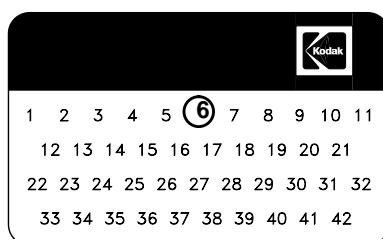
[7] Energize the PROCESSOR.

[8] Check for leakage from the HEAT EXCHANGER FITTINGS and FORMED TUBING.

[9] Check for correct operation of the PROCESSOR.



[10] Circle 6 on the MODIFICATION LABEL.



### Publication Change Notice Table

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
28JUL95	5B6773	2592-327	All	ma3227_6_28jul95.doc	New Modification Instructions

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**MODIFICATION INSTRUCTIONS**  
***Kodak X-Omat* MULTILOADER 300**  
**Service Code: 3058**  
**Modification No. 29**

***Kodak X-Omat* 270 RA PROCESSOR**  
**Service Code: 3059**  
**Modification No. 19**

***Kodak X-Omat* 180 LP PROCESSOR**  
**Service Code: 3227**  
**Modification No. 7**

**Type 1 Selective**

- Purpose:** To install an improved version of the WASH RACK, that has these benefits:
- **More uniform washing.** A redesigned water MANIFOLD improves the distribution of water across the ROLLERS.
  - **More corrosion resistant.** SCREWS now hold the SHAFTS of the ROLLERS in the WASH RACK, instead of E-RINGS. The SPRINGS on the WASH RACK are still made of a special, high-quality, stainless steel alloy.
  - **Improved film transport.** A new GUIDE SHOE and an additional IDLER ROLLER improve the transport of film from the WASH RACK into the DRYER RACK. Pinned ROLLERS keep the drive and driven ROLLERS correctly engaged.



HEALTH IMAGING

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**PLEASE NOTE** The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

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**Important**

Use qualified service personnel to install this modification.



This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

**Service Effects:** See Pages 11 - 15 for part numbers and configuration changes. Keep these pages with the Illustrated Parts List for the PROCESSOR for future reference.

**Special Requirements:** None

**Serial Numbers:**

270 RA PROCESSOR	101 - 2397
MULTILOADER 300	101 - 1040
180 LP PROCESSOR	101 - 1644

**Special Tools:**

TL-1466 ELECTRIC DRILL  
1/8 in. DRILL BIT  
CENTER PUNCH  
HACK SAW or TIN SNIPS

**Installation Time:** Approximately 1 hour

**Parts Status:** Available in Service Parts Management

**Parts Requirements:** See the Parts List below

**Table 1**

**Modification Kit 8B6612 includes:**

Part No.	Description	Quantity
5B6890	WASH RACK ASSEMBLY	1
5B6630	DOLE VALVE ASSEMBLY -1/2 GPM	1
1C7642	COVER - TUBING ASSEMBLY	1
1C7643	FASTENER - BUTTON	3
8B6658	Mod Instructions	1

## Section 1: Installing the New WASH RACK

- [1] De-energize the PROCESSOR or MULTILOADER.
- [2] Move the main wall CIRCUIT BREAKER to “OFF”.
- [3] For the 180 LP and 270 RA PROCESSORS only:
  - Lift the TOP COVER.
  - Remove the WET SECTION COVER.
  - Remove the EVAPORATION COVERS.
- [4] For the MULTILOADER 300 only:
  - Extend the PROCESSOR from the MULTILOADER.
  - Remove the WET SECTION COVER.
  - Remove the EVAPORATION COVERS.

Figure 1 New WASH RACK

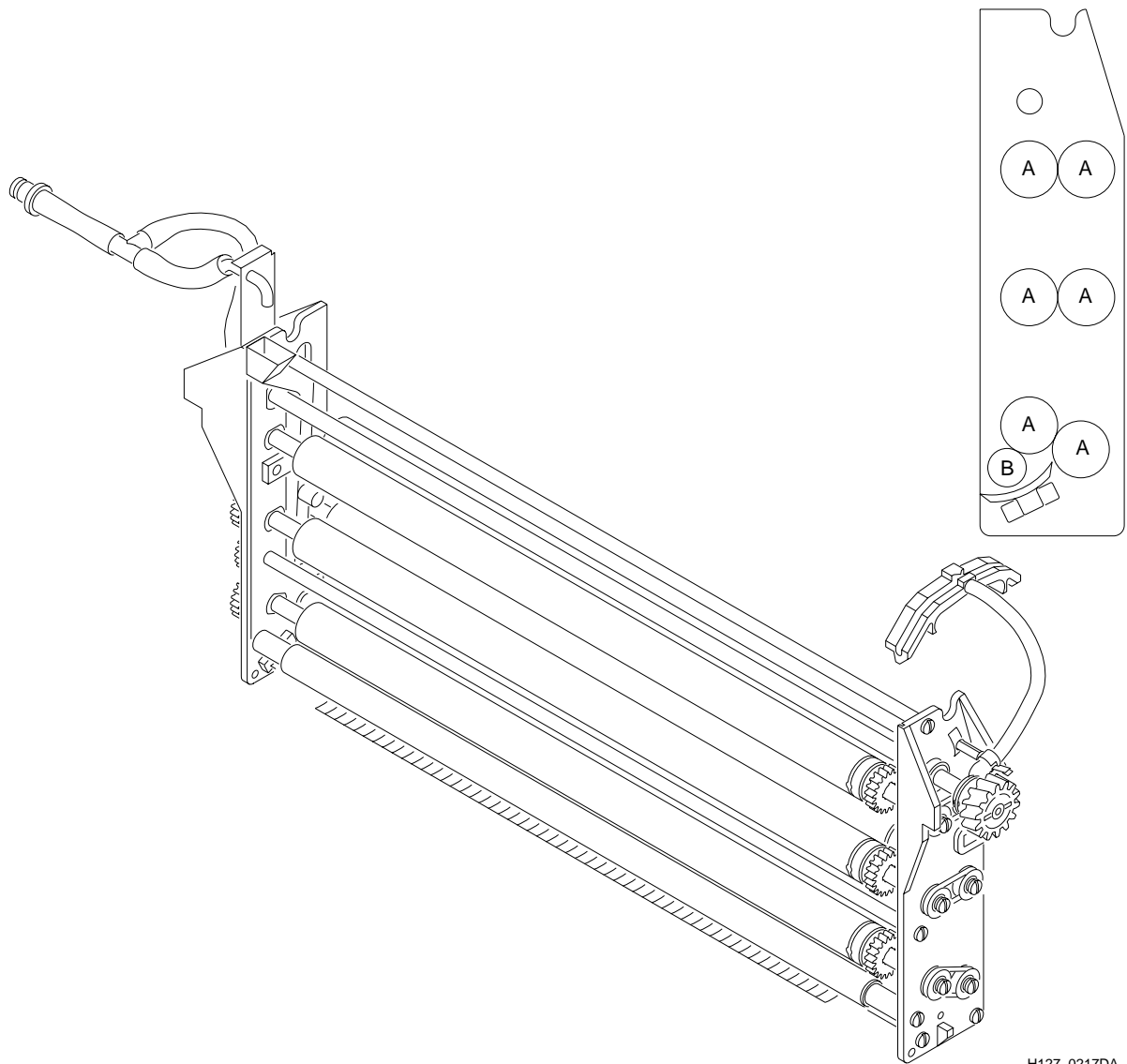
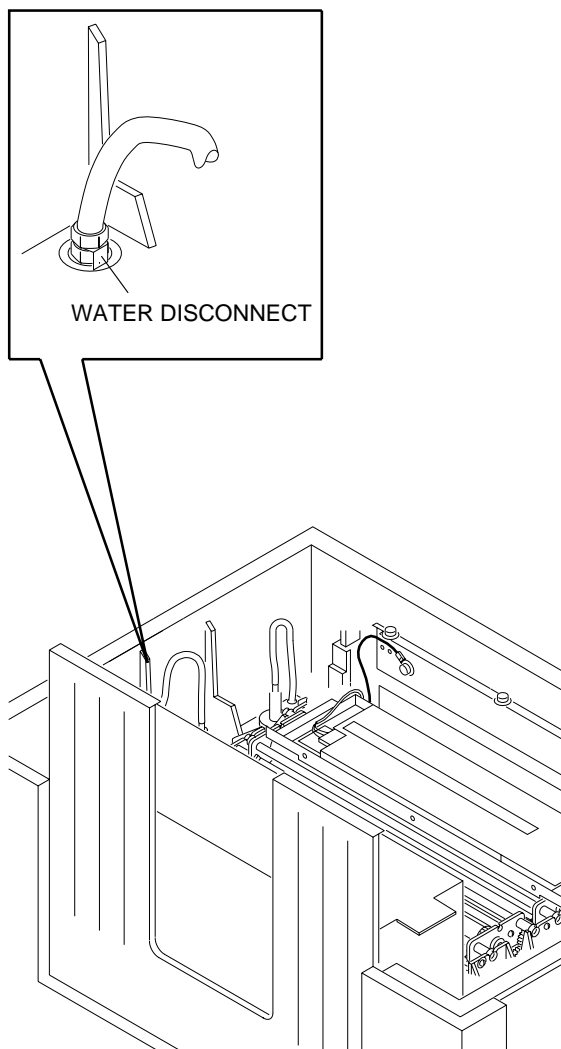
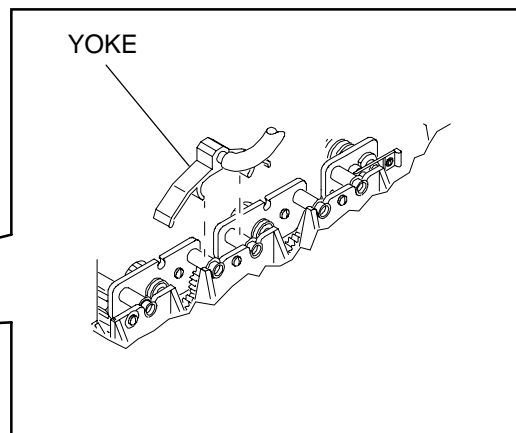
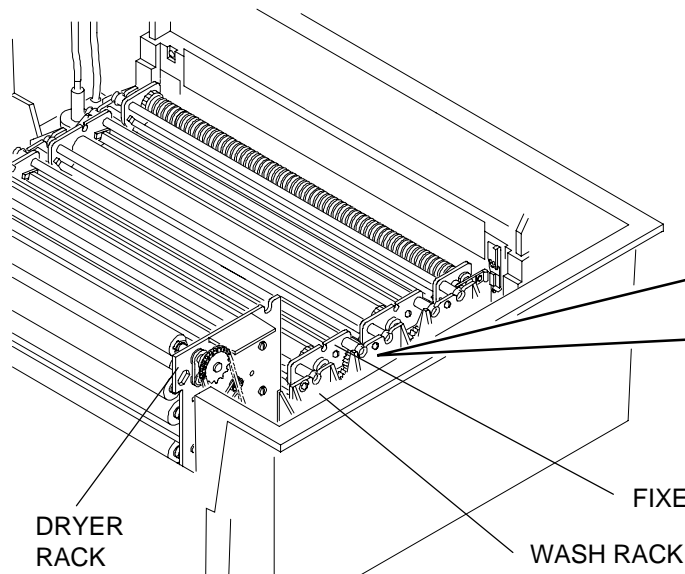


Figure 2 Removing the WASH RACK —  
MULTILOADER 300 Shown



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H118\_0036CA



- [5] Disconnect:
  - WATER DISCONNECT
  - YOKE
- [6] Remove the FIXER/WASH CROSSOVER from the PROCESSOR.
- [7] Lift the WASH RACK from the PROCESSOR.
- [8] Check the new RACK for squareness on a flat surface.
- [9] Install in the PROCESSOR:
  - new WASH RACK
  - FIXER/WASH CROSSOVER
- [10] Connect:
  - YOKE
  - WATER DISCONNECT
- [11] Install the EVAPORATION COVERS.
- [12] See Step 13 to determine if Sections 2 and 3 must be done.
- [13] Check the MODIFICATION LABEL on the PROCESSOR. See Pages 7 - 9 for the location of the LABELS.
  - (a) If the Mod number below is not circled, do Sections 2, 3, and 4.
  - (b) If the Mod number below is circled, do Sections 4 only. Advance to Page 7.

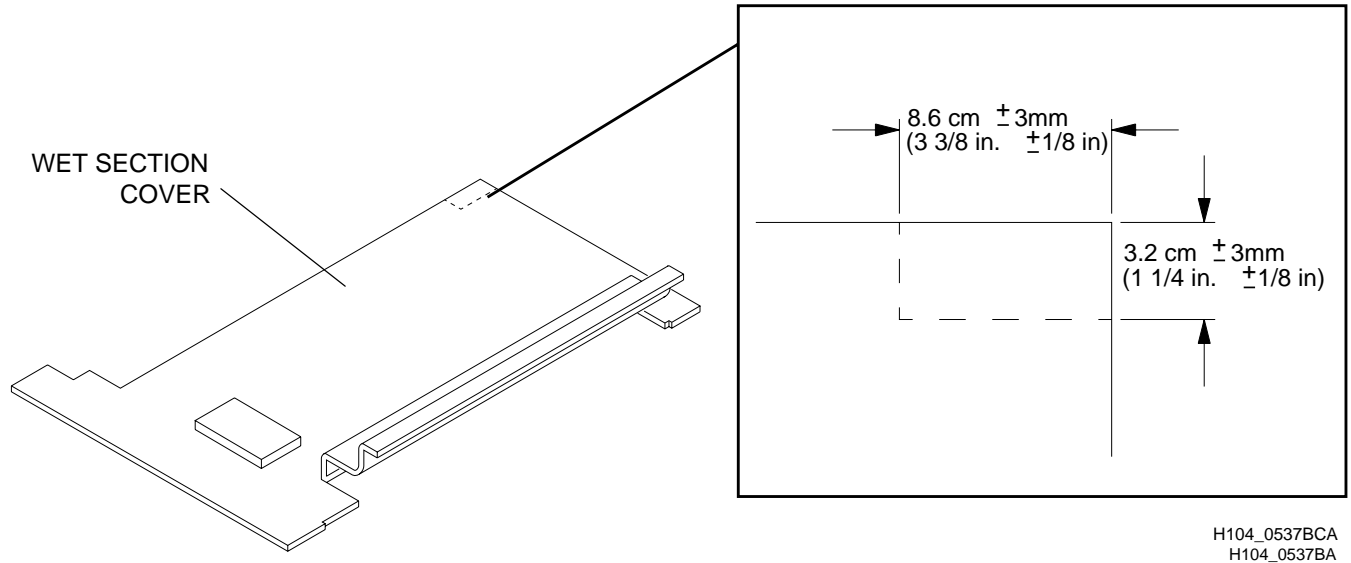
Equipment	Mod No.
MULTILOADER 300	25
270 RA PROCESSOR	17
180 LP PROCESSOR	4

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H104\_0258BA

## Section 2: Installing the TUBING ASSEMBLY COVER

[1] See Step 13 on Page 4 to determine if Sections 2 and 3 must be done.

Figure 3 Cutting the WET SECTION COVER



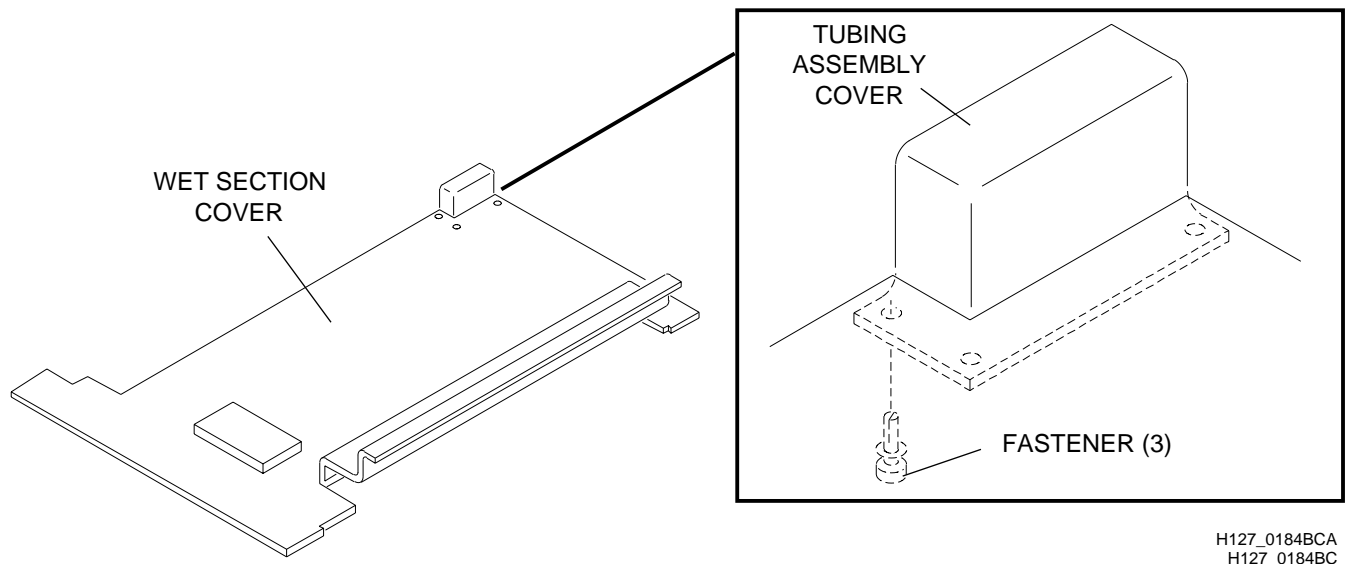
[2] Use the TIN SNIPS or the HACK SAW to cut the WET SECTION COVER as shown in Figure 3 above.

[3] Using the TUBING ASSEMBLY COVER as a template, do the following steps:

- (a) Align the TUBING ASSEMBLY COVER with the WET SECTION COVER as shown in Figure 4 below.
- (b) Check that the edge of the TUBING ASSEMBLY COVER is under the WET SECTION COVER. See Figure 4.
- (c) Use the CENTER PUNCH to mark the holes.
- (d) Use the 3.2 mm ( $1/8$  in.) DRILL BIT and the ELECTRIC DRILL TL-1466 to drill the holes.

[4] Install the TUBING ASSEMBLY COVER by inserting the 3 FASTENERS up through the holes in the TUBING ASSEMBLY COVER and the bottom of the WET SECTION COVER.

Figure 4 Installing the TUBING ASSEMBLY COVER



## Section 3: Installing the DOLE VALVE



### Important

Because the new WASH RACK requires less water flow, you need to install the new ½ gallon/min DOLE VALVE provided in the Kit. The existing and new DOLE VALVES are not interchangeable. Do not use the existing DOLE VALVE with the new WASH RACK.

[1] For access to the existing DOLE VALVE:

- For a MULTILOADER 300, remove the NONDRIVE SIDE SAFETY COVER.
- For a 270 RA PROCESSOR, remove the NONDRIVE SIDE PANEL.
- For a 180 LP PROCESSOR, remove the DRIVE SIDE PANEL and move the ELECTRICAL BOX to the out position.

[2] From the WATER INLET HOSE, remove:

- 2 HOSE CLAMPS
- existing DOLE VALVE

[3] Install the new DOLE VALVE in the correct position with the arrows in the direction of the water flow. See Figures 5 and 6.

Figure 5 **Installing the New Dole Valve in a 270 RA PROCESSOR or a MULTILOADER 300**

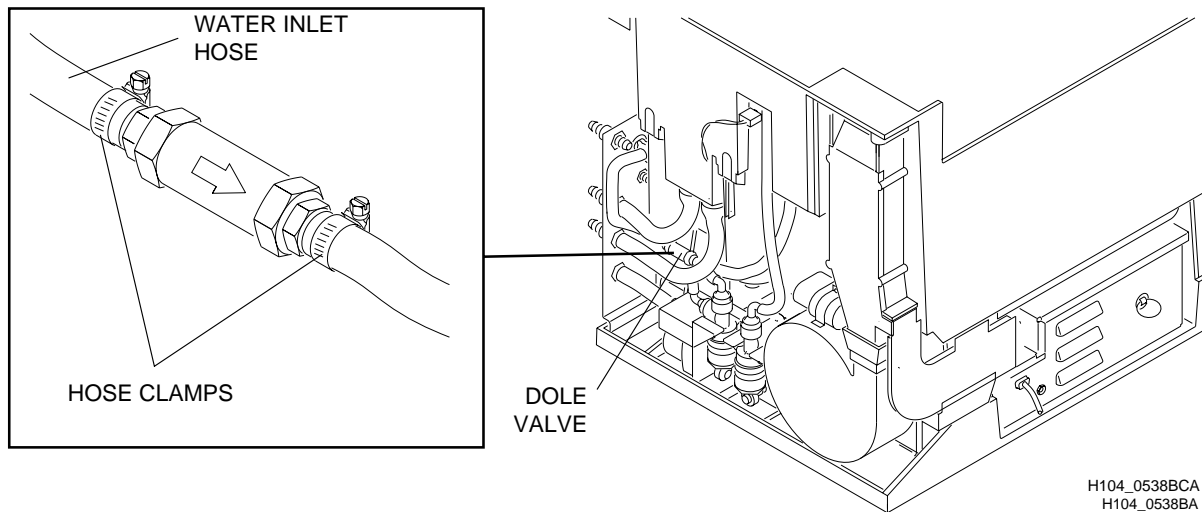
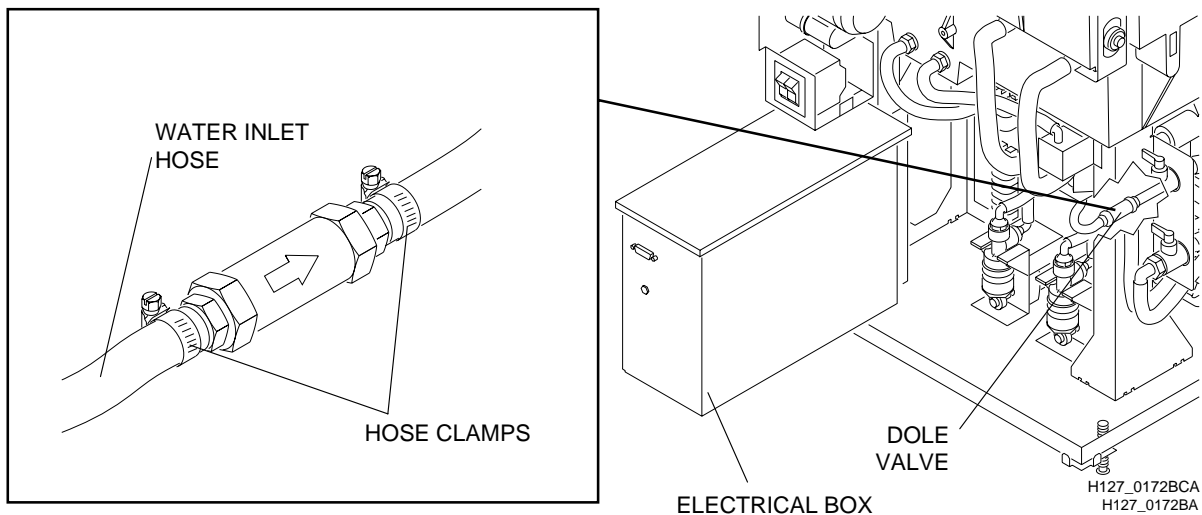


Figure 6 **Installing the New Dole Valve in a 180 LP PROCESSOR**



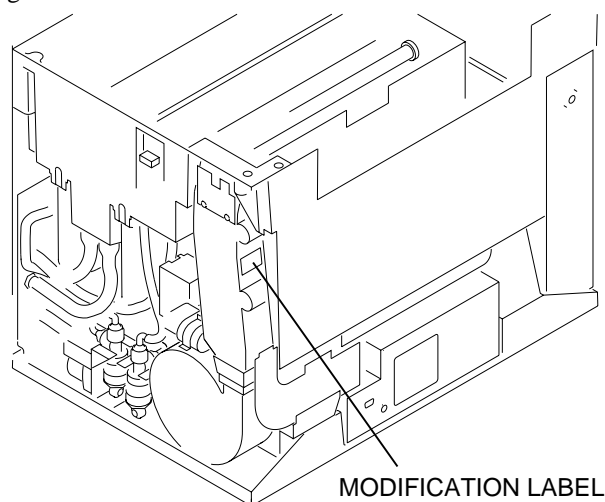
## Section 4: Final Steps

[1] Insert Pages 11 - 15 from these Modification Instructions into the Binder for the PROCESSOR.

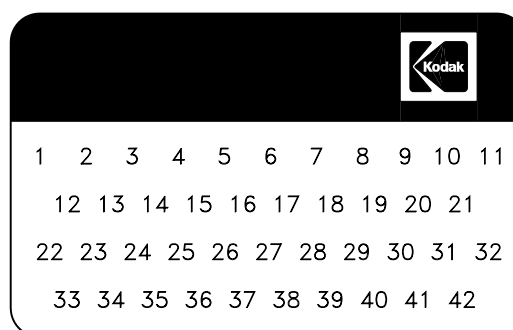
[2] For the 270 RA PROCESSOR only:

- (a) Remove the EXIT PANEL.
- (b) Circle the “19” on the MODIFICATION LABEL.
- (c) Move the main wall CIRCUIT BREAKER to “ON”.
- (d) Energize the PROCESSOR.
- (e) Check that the water flows out of the TUBING BRACKET into the center of the WATER MANIFOLD.  
If not, bend the TUBING BRACKET.
- (f) Install:
  - WET SECTION COVER
  - DRIVE SIDE and EXIT PANELS
- (g) Close the TOP COVER.
- (h) Check for correct operation of the PROCESSOR.

Figure 7 **270 RA PROCESSORS**



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H104\_0554AA

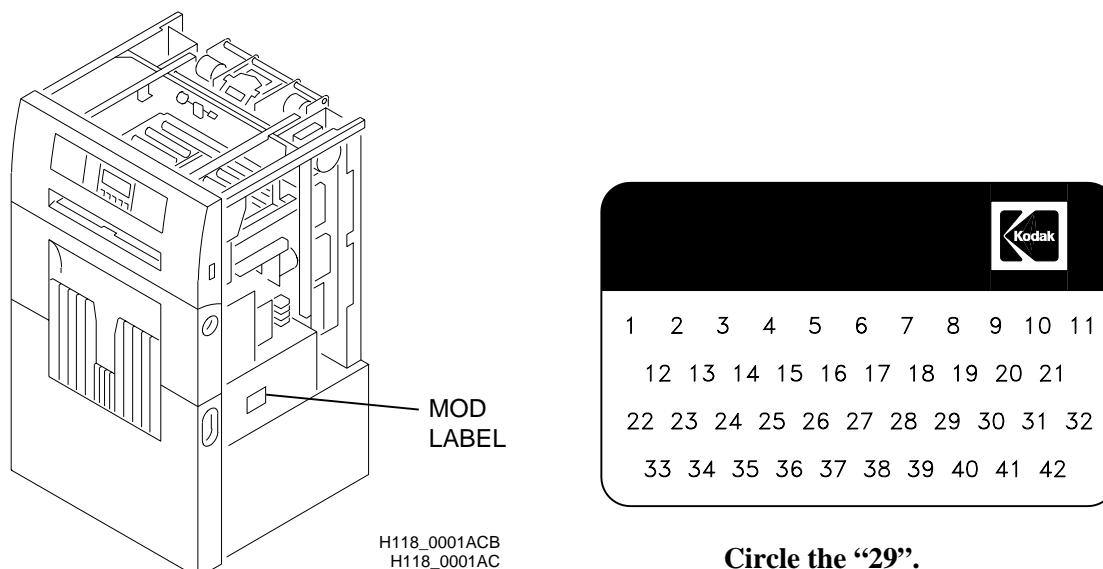


**Circle the “19”.**

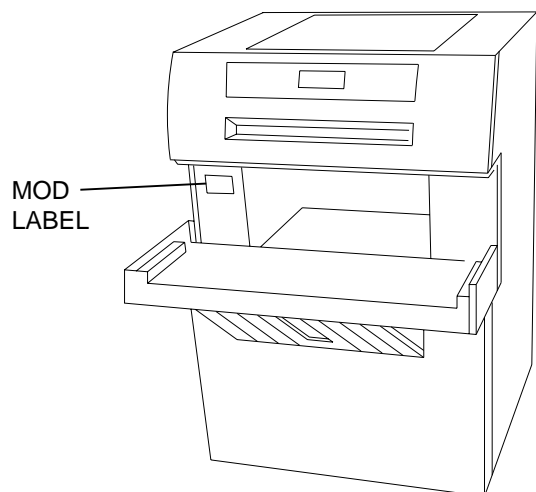
**[3]** For the MULTILOADER 300 only:

- (a) Circle the “29” on the MODIFICATION LABEL.
  - On MULTILOADERS Serial No. 1369 and below, see Figure 8.
  - On MULTILOADERS Serial No. 1370 and above, the MOD LABEL is inside the MAGAZINE DOOR. See Figure 9.
- (b) Move the main wall CIRCUIT BREAKER to “ON”.
- (c) Energize the MULTILOADER.
- (d) Check that the water flows out of the TUBING BRACKET into the center of the WATER MANIFOLD. If not, bend the TUBING BRACKET.
- (e) Install the WET SECTION COVER.
- (f) Move the PROCESSOR into the MULTILOADER 300.
- (g) Check for correct operation of the PROCESSOR.

**Figure 8 MULTILOADERS 300 with Serial No. 1369 and Below**



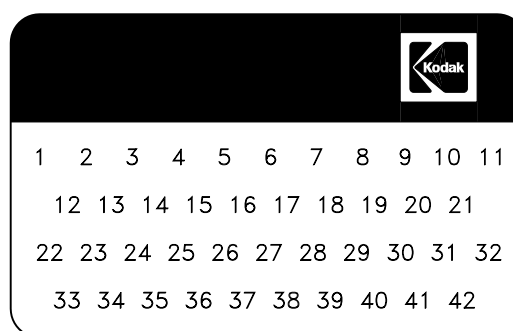
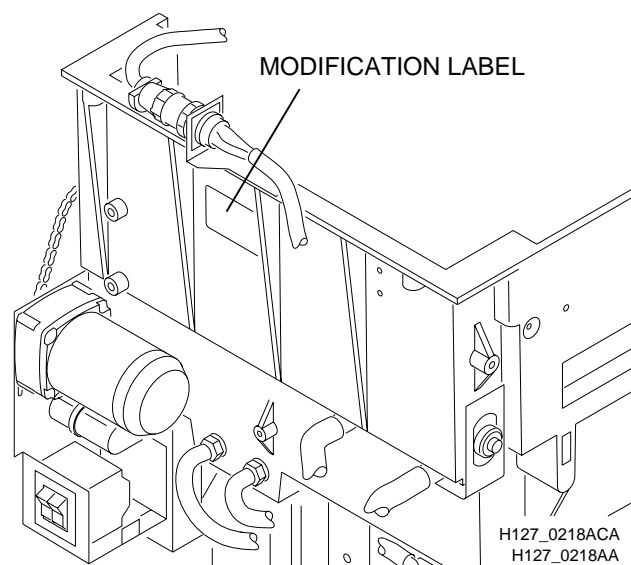
**Figure 9 MULTILOADERS 300 with Serial No. 1370 and Above**



[4] For the 180 LP PROCESSOR only:

- (a) Remove the DRIVE SIDE PANEL.
- (b) Circle the “7” on the MODIFICATION LABEL.
- (c) Move the main wall CIRCUIT BREAKER to “ON”.
- (d) Energize the PROCESSOR.
- (e) Check that the water flows out of the TUBING BRACKET into the center of the WATER MANIFOLD.  
If not, bend the TUBING BRACKET.
- (f) Install the DRIVE SIDE and NON-DRIVE SIDE PANELS.
- (g) Close the TOP COVER.
- (h) Check for correct operation of the PROCESSOR.

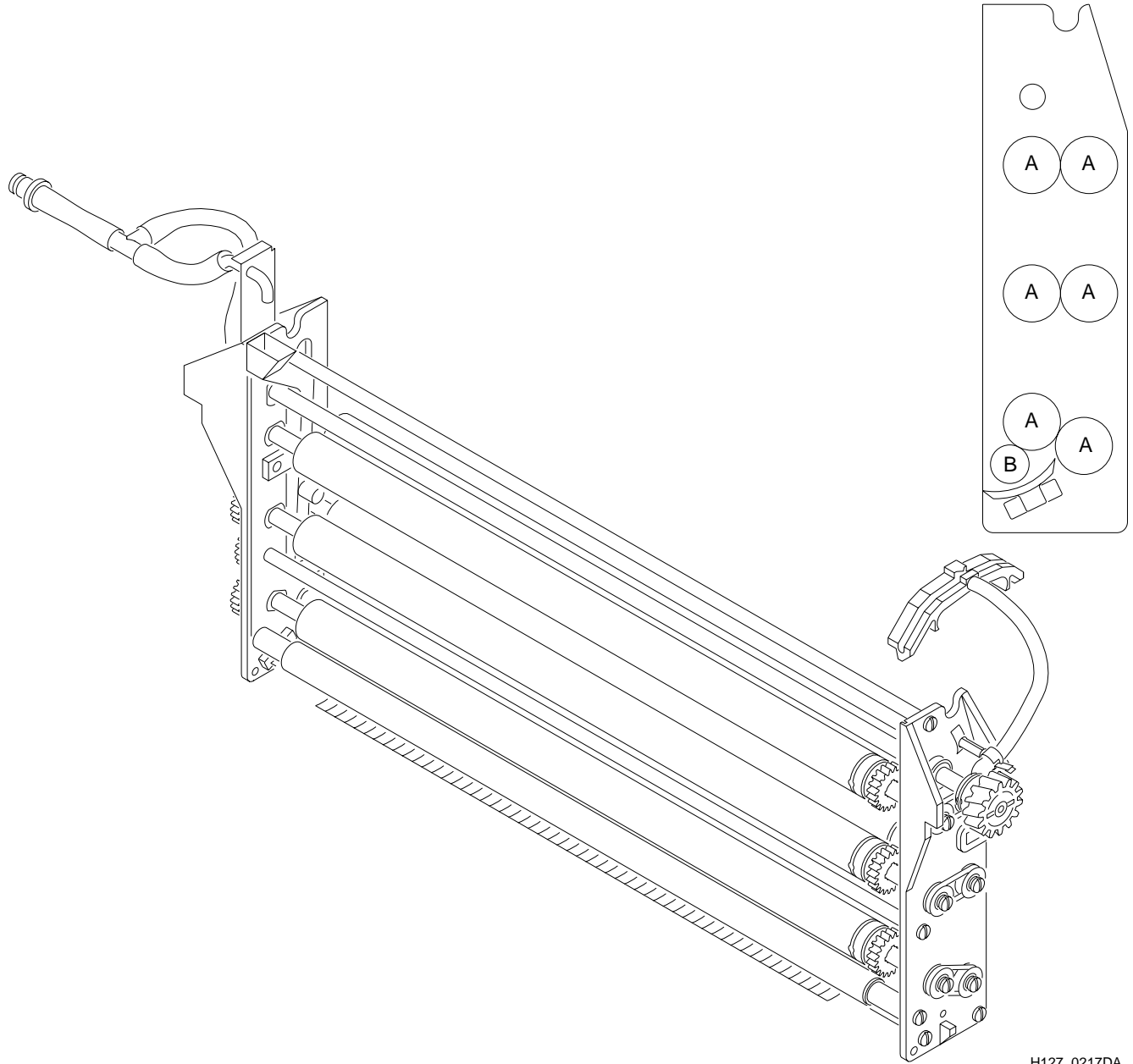
Figure 10 **180 LP PROCESSORS**



**Circle the “7”.**



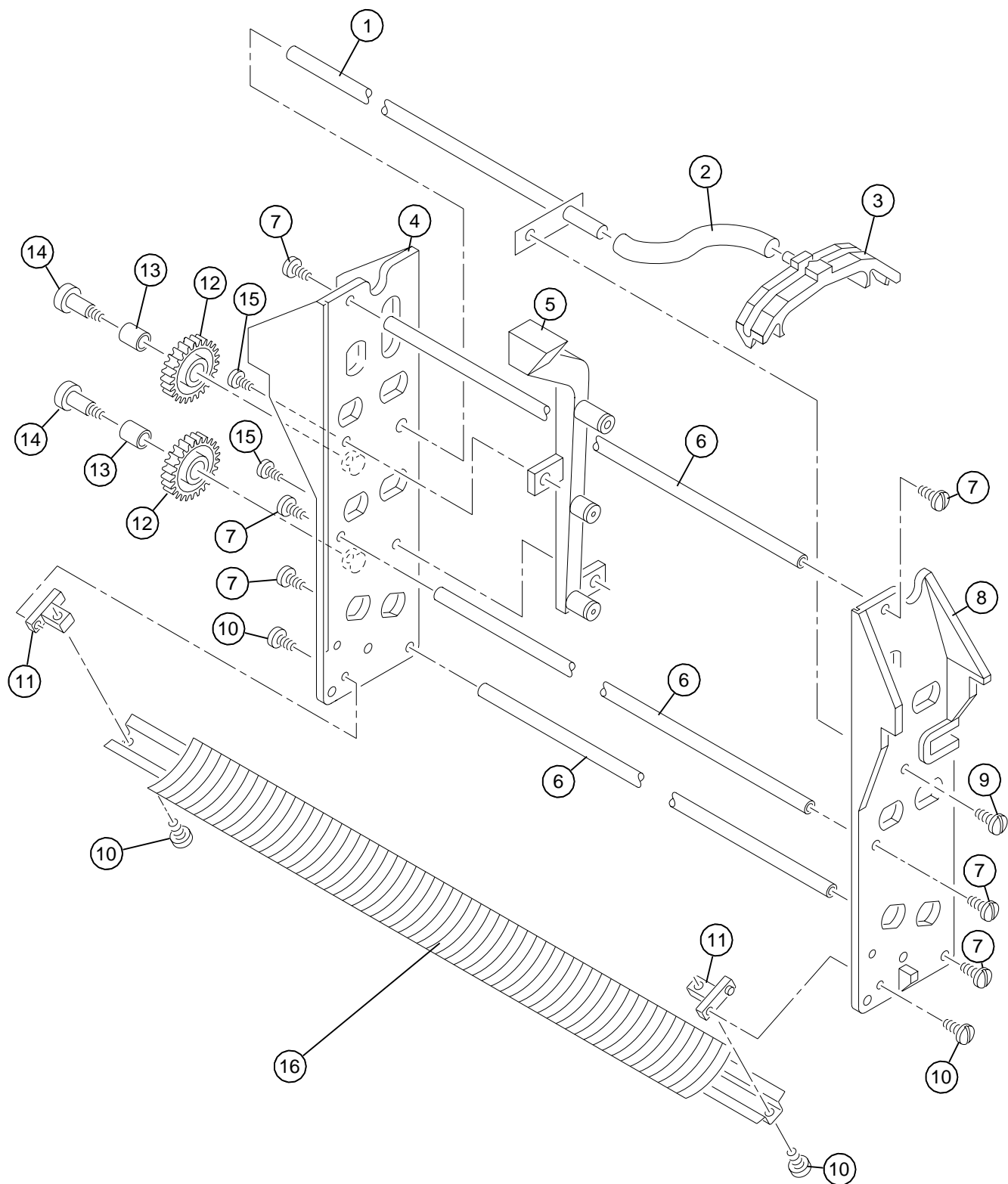
## Section 5: Illustrated Parts List for Wash Rack 5B6890



H127\_0217DA

Item	Part No.	Description
	5B6890	Wash Rack Assembly
A	5B6590	Roller Assembly
B	8B6568	Roller Assembly

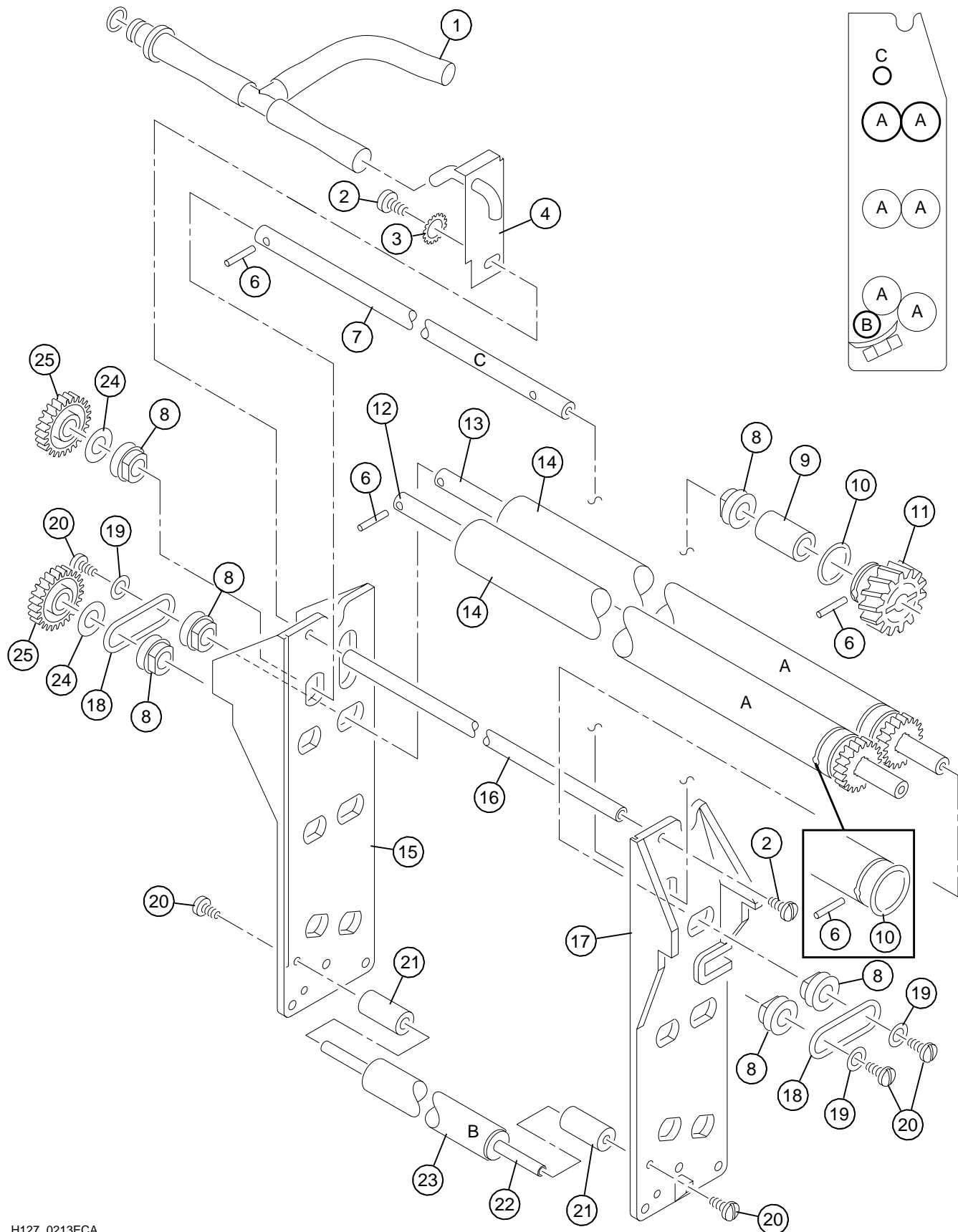
Wash Rack - Guide Shoe and Drive Gear



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H127\_0212EA

Item	Part No.	Description
1	1C4384	Tube - Yoke Supply
2	1C4385	Hose - Yoke
3	1C7399	Yoke and Pin Assembly
4	5B6594	Side Plate - Wash Rack, Non-Drive Side
5	5B6585	Manifold - Water
6	458219	Tie Rod
7	852807	Screw
8	5B6593	Side Plate - Wash Rack, Drive Side
9	852682	Screw
10	544267	Screw
11	474596	Bracket - Guide Shoe
12	779028	Gear
13	911725	Bushing - Idler
14	5B6808	Screw - Shoulder
15	852522	Screw
16	5B6565	Guide Shoe

Wash Rack - Miscellaneous Parts



H127\_0213ECA  
H127\_0213EA

Item	Part No.	Description	Notes
1	1C4398	Tubing Assembly	
2	852682	Screw	
3	539180	Star Washer	
4	5B6892	Bracket - Tubing	
5	--	--	Item not used.
6	502464	Pin	
7	1C7366	Shaft	
8	779119	Bearing	
9	5B6589	Spacer	
10	183851	O-Ring	
11	5B6591	Gear	
12	5B6588	Shaft	
13	5B6587	Shaft	
14	5B6590	Roller Assembly	A
15	5B6594	Side Plate - Wash Rack, Non-Drive Side	
16	458219	Tie Rod	
17	5B6593	Side Plate - Wash Rack, Drive Side	
18	1C7107	Spring - Extension	
19	852611	Washer	
20	490097	Screw	
21	953828	Spacer	
22	5B6817	Shaft	
23	8B6568	Roller Assembly	B
24	418775	Thrust Washer	
25	779028	Gear	

### Publication History

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
04AUG95	8B6658	2648-334	All	ma3058_29.doc	New Modification Instructions.
29JUN96	8B6658	2592-377	Front Cover, 2, 4, 6, 11, 13, Back Cover	ma3058_29_29jun96.doc	1/2 GPM Dole Valve

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**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat* MULTILOADER 300**  
**Service Code: 3058**  
**Modification No. 35**

***Kodak X-Omat* 270 RA PROCESSOR**  
**Service Code: 3059**  
**Modification No. 21**

***Kodak X-Omat* 180 LP and 180 LPS PROCESSORS**  
**Service Codes: 3227, 3198**  
**Modification No. 8**  
**Type 1 Selective**

- Purpose:** To improve the reliability of the PROCESSOR by:
- moving the connections for the DRYER OVER-TEMPERATURE and the DRYER THERMISTOR to outside of the TANK, to reduce corrosion of the CONNECTORS
  - installing a new YOKE AND PIN ASSEMBLY, to minimize the possibility of diluting the fixer
  - installing plastic SPROCKETS in the DRYER RACK, to eliminate corrosion of the SPROCKETS



HEALTH IMAGING

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 **Note**

Some of the PROCESSORS in the serial number range will already have the plastic SPROCKETS installed.  
It is not necessary to install the new SPROCKETS from the Kit in these PROCESSORS.

 **Important**

Use qualified service personnel to install this modification.

**PLEASE NOTE** The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

**Service Effects:** See the table below for the new part descriptions and numbers.

**Special Requirements:** Some of the existing SPROCKETS may be so corroded that you could cause damage to the SHAFT of the SQUEEGEE DRIVE ROLLER when you remove the SPROCKET. To avoid another service call and lost time, have a new SQUEEGEE DRIVE ROLLER with you. The part numbers are:

270 RA PROCESSOR or MULTILOADER 300 1C0985

180 LP or 180 LPS PROCESSOR 8B7110

NOTE: When you order one of the above ROLLERS, you will receive Kit No. 9B8087. This Kit includes the new improved SQUEEGEE ROLLER 8B7110 and the parts and instructions to install it.

**Serial Numbers:**

270 RA PROCESSOR	All
MULTILOADER 300	101 - 1499 (Serial No. is for the Processor)
180 LP PROCESSOR	101 - 3399
180 LPS PROCESSOR	10,001 - 13,199

**Special Tools:**

TL-2020 CRIMPING TOOL (or the equivalent)  
TL-2275 WIRE STRIPPING TOOL (or the equivalent)

**Installation Time:** Approximately 1.5 hours

**Parts Status:** Available from Service Parts Management

**Parts Requirements:** See the Parts List below

**Table 1 Modification Kit 9B8368 includes:**

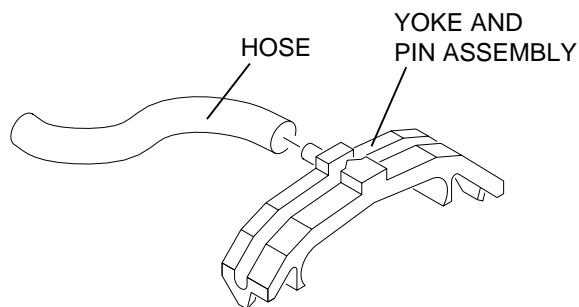
Part No.	Description	Quantity
9B8352	THERMOSTAT - OVER-TEMPERATURE	1
9B8353	THERMISTOR - DRYER	1
331083	SPLICE - CLOSED-END	5
8B7389	YOKE AND PIN ASSEMBLY	1
8B7109	SPROCKET	4
8B7489	Mod Instructions	1

## Preliminary Steps

- [1] De-energize the PROCESSOR or MULTILOADER.
- [2] Move the main wall CIRCUIT BREAKER to “OFF”.
- [3] For the 180 LP, 180 LPS, and 270 RA PROCESSORS only:
  - Lift the TOP COVER.
  - Remove:
    - NONDRIVE SIDE PANEL
    - DRYER END PANEL (180) or the EXIT PANEL (270)
    - WET SECTION COVER
    - TOP EXIT RACK
- [4] For the MULTILOADER 300 only:
  - Extend the PROCESSOR from the MULTILOADER.
  - Remove:
    - front PROCESSOR PANEL
    - NONDRIVE SIDE SAFETY SHIELD
    - WET SECTION COVER
- [5] Remove the DRYER RACK.

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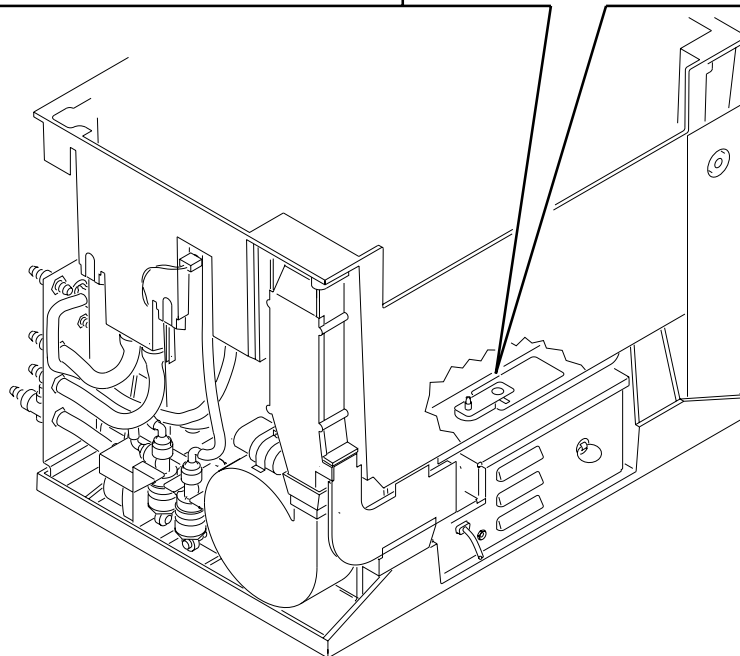
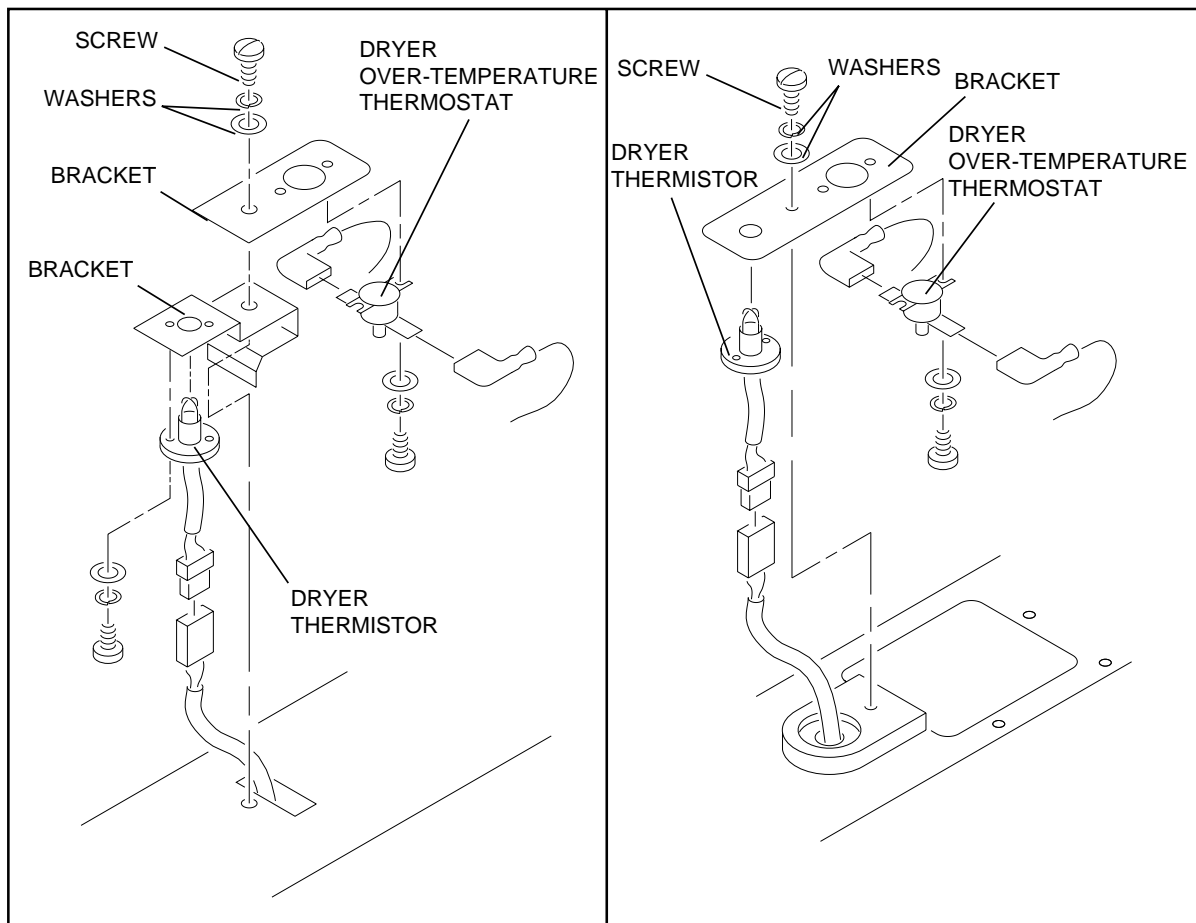
## Installing the New YOKE AND PIN ASSEMBLY on the WASH RACK



- [1] Remove the existing YOKE AND PIN ASSEMBLY from the HOSE. Discard the YOKE AND PIN ASSEMBLY.
- [2] Install the new YOKE AND PIN ASSEMBLY on the HOSE and then on the CROSSOVERS.

H104\_0594ACA  
H104\_0594AA

## Installing the New DRYER THERMISTOR and OVER-TEMPERATURE THERMOSTAT



H104\_0414ECB  
H104\_0414EA

### Note

PROCESSORS can have 1 of 2 styles of BRACKETS. See the figure above that matches your PROCESSOR.

- [1] Remove the BRACKET(S) for the DRYER THERMISTOR and the DRYER OVER-TEMPERATURE THERMOSTAT from the PROCESSOR.

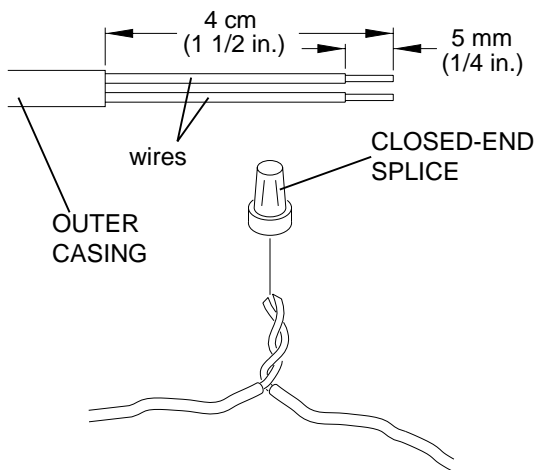
- [2] Remove the DRYER THERMISTOR and the DRYER OVER-TEMPERATURE THERMOSTAT from the BRACKET(S).
- [3] Disconnect the wires from the DRYER OVER-TEMPERATURE THERMOSTAT. Discard the THERMOSTAT.
- [4] Disconnect the DRYER THERMISTOR at the CONNECTOR. To free the wires, cut any TIE WRAPS necessary. Discard the THERMISTOR.
- [5] Remove the DRYER BLOWER ASSEMBLY from the PROCESSOR.
  - (a) Remove the 3 SCREWS.
  - (b) Bend the BLOWER SLEEVE down to release the BLOWER ASSEMBLY from the PLENUM.
- [6] From the nondrive side of the PROCESSOR, pull the wires for the DRYER OVER-TEMPERATURE and the DRYER THERMISTOR outside the TANK.
- [7] Prepare the new wires. See the figure below.
  - (a) Cut the CONNECTOR from the new DRYER OVER-TEMPERATURE THERMOSTAT. Discard the CONNECTOR.
  - (b) Remove approximately 4 cm (1½ in.) of the OUTER CASING from around the wires.
  - (c) Remove approximately 5 mm (¼ in.) of the insulation from the wires.
  - (d) Do Steps (a), (b), and (c) for the DRYER THERMISTOR.
- [8] Install the new DRYER THERMISTOR and the DRYER OVER-TEMPERATURE THERMOSTAT to the BRACKET(S). Use the SCREW(S) and WASHER(S) from Step 2 above.
- [9] Route the wires for the new DRYER THERMISTOR and DRYER OVER-TEMPERATURE THERMOSTAT from inside the TANK to outside.
- [10] Install the BRACKET(S) on the TANK. Use the SCREW and WASHERS from Step 1 on Page 4.

## Connecting the New DRYER OVER-TEMPERATURE THERMOSTAT

### Note

Do the following steps outside the TANK, on the nondrive side of the PROCESSOR.

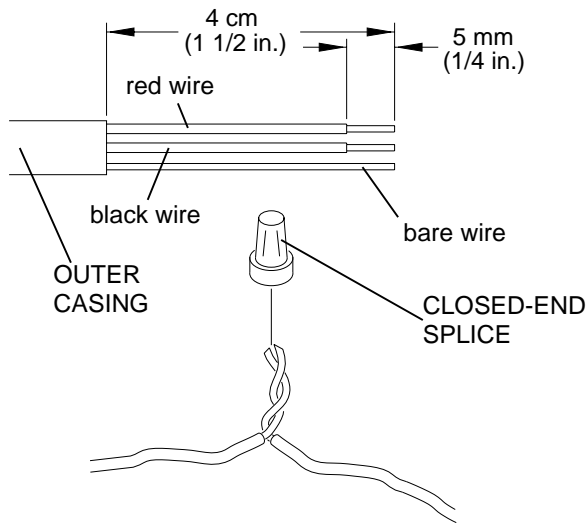
- [1] Prepare the existing wires.
  - (a) Cut approximately 28 cm (11 in.) from the existing wires for the DRYER OVER-TEMPERATURE THERMOSTAT.
  - (b) Remove approximately 4 cm (1½ in.) of the OUTER CASING from around the wires.
  - (c) Remove approximately 5 mm (¼ in.) of the insulation from the wires.
- [2] Connect the new wires to the existing wires.
  - (a) Twist the end of one of the existing wires around the end of one of the wires coming from the new DRYER OVER-TEMPERATURE THERMOSTAT.
  - (b) Insert the twisted wire ends into one of the CLOSED-END SPLICES from the Mod Kit. Use TL-2020 (or the equivalent) to close the SPLICE.



H104\_0595ACA  
H104\_0595AA

- [3] Do Step 2 for the other wire.
- [4] Move the wires to positions that will not have contact with moving parts or be compressed by the PANELS.

## Connecting the New DRYER THERMISTOR



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H104\_0596AA

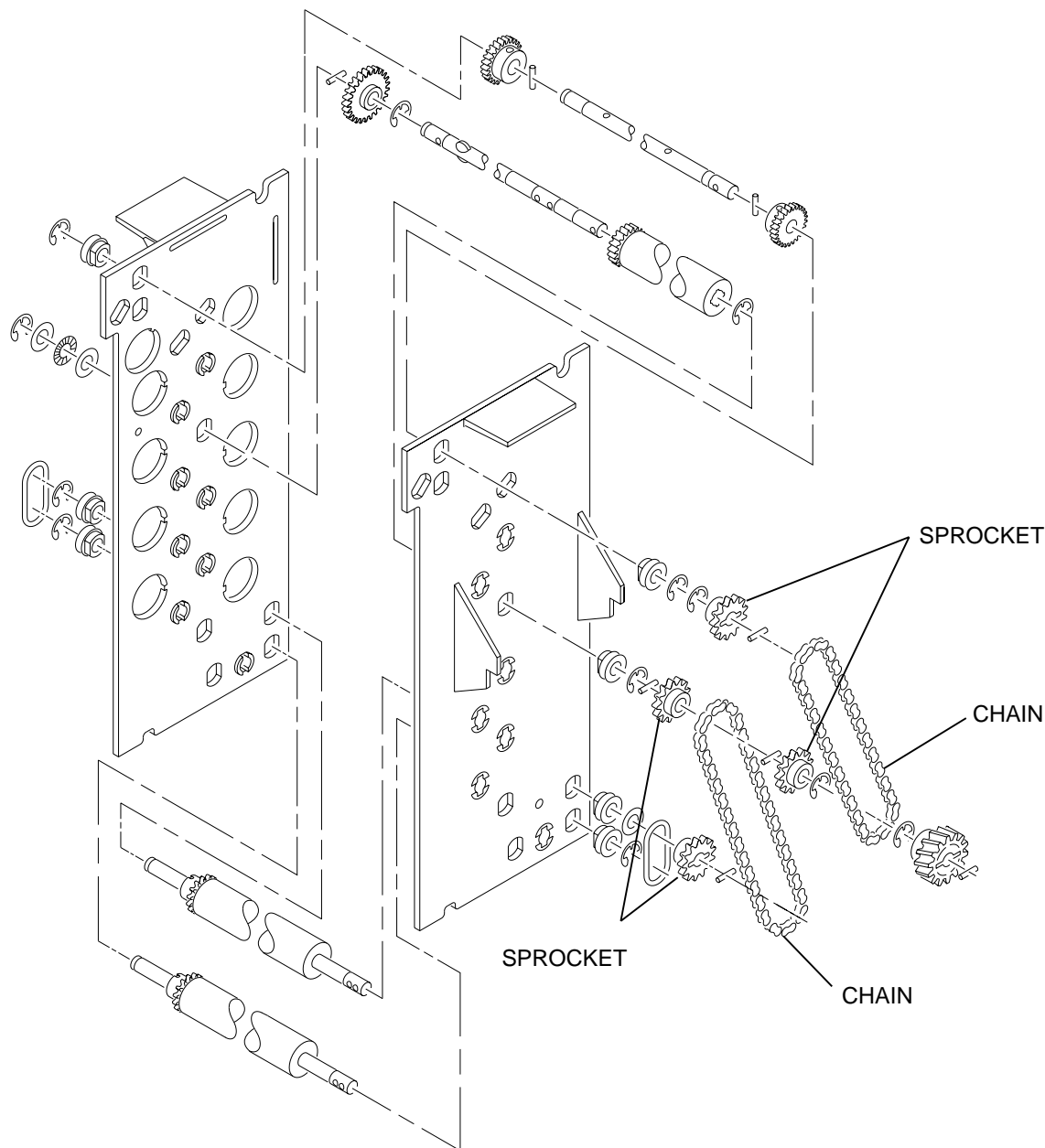
- [1] Prepare the wires for the new DRYER THERMISTOR. See Step 1 on Page 5.
- [2] Twist together each pair of wires, insert into a CLOSED-END SPLICE, and close the SPLICE:
  - 2 red wires
  - 2 black wires
  - 2 bare ground wires

### Note

The bare ground wires do not need insulation.

- [3] Move the wires to positions that will not have contact with moving parts or be compressed by the DRYER BLOWER.
- [4] Install the DRYER BLOWER in the PROCESSOR.
- [5] Check that the BLOWER SLEEVE is in the correct position, and no leakage of air occurs.

## Installing the New Plastic SPROCKETS in a 270 RA PROCESSOR or a MULTILOADER 300



H104\_0504DCA  
H104\_0504DA

### Note

- Some of the PROCESSORS in the serial number range will already have the plastic SPROCKETS installed. It is not necessary to install the new SPROCKETS in these PROCESSORS.
- See Page 8 to install new SPROCKETS in a 180 LP or 180 LPS PROCESSOR.

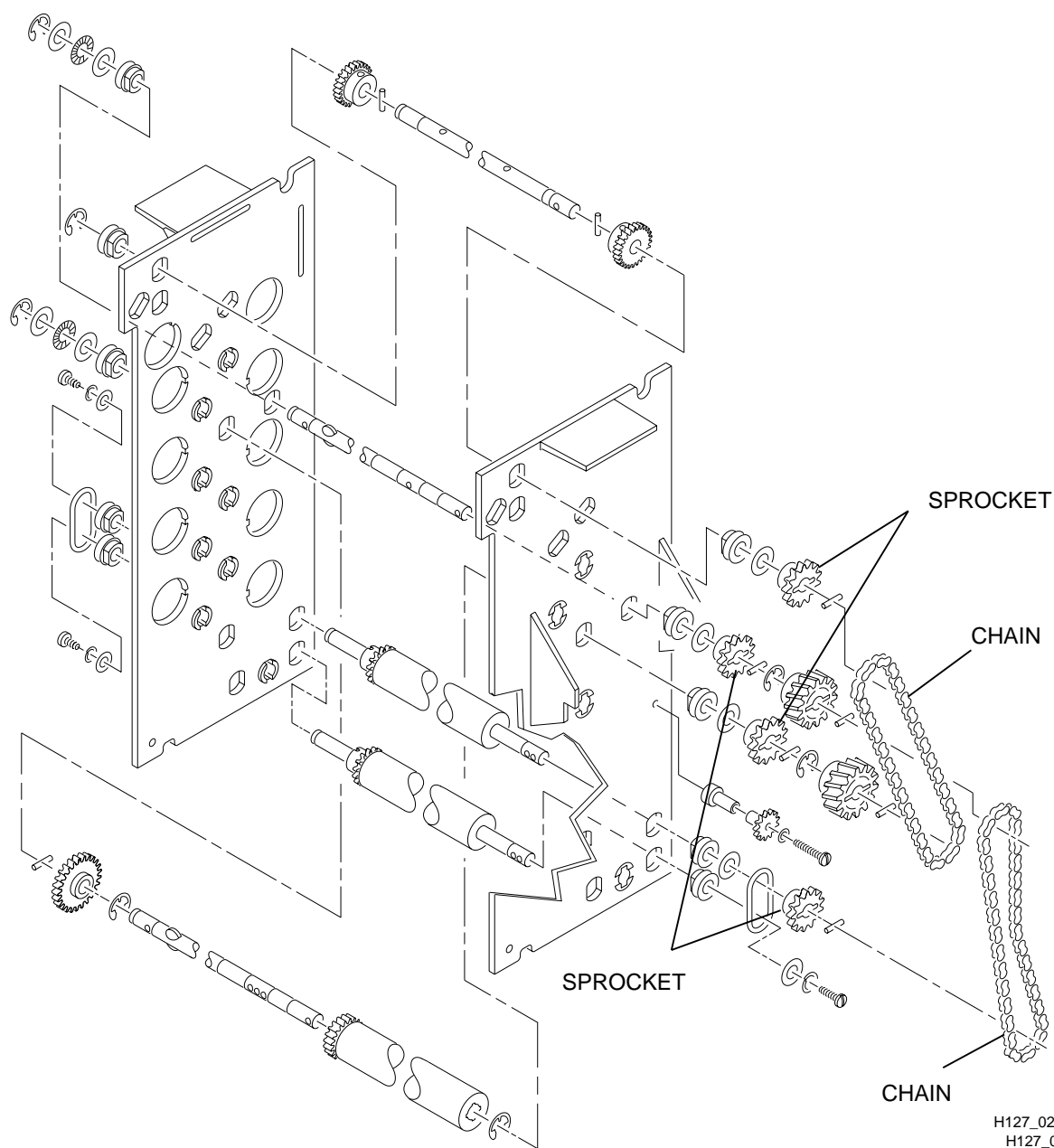
[1] Install the 4 new plastic SPROCKETS for the CHAINS in the DRYER RACK. See the figure above.

[2] Install the DRYER RACK in the PROCESSOR.

[3] In the 270 RA PROCESSOR only, install the TOP EXIT RACK.

[4] Advance to Page 9.

## Installing the New Plastic SPROCKETS in a 180 LP or 180 LPS PROCESSOR



### Note

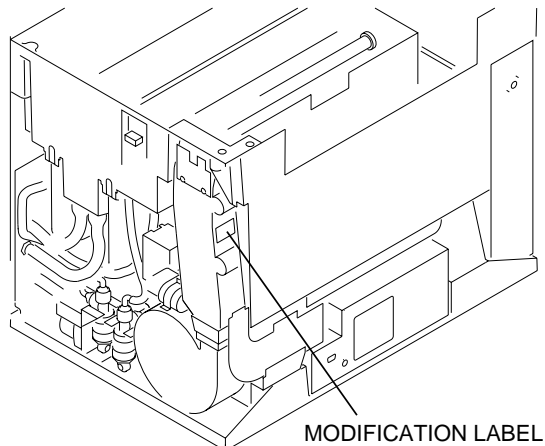
- Some of the PROCESSORS in the serial number range will already have the plastic SPROCKETS installed. It is not necessary to install the new SPROCKETS in these PROCESSORS.
- See Page 7 to install new SPROCKETS in a 270 RA PROCESSOR or a MULTILOADER 300.

[1] Install the 4 new plastic SPROCKETS for the CHAINS in the DRYER RACK. See the figure above.

[2] Advance to Page 10.

## Final Steps

Figure 1 **270 RA PROCESSORS**



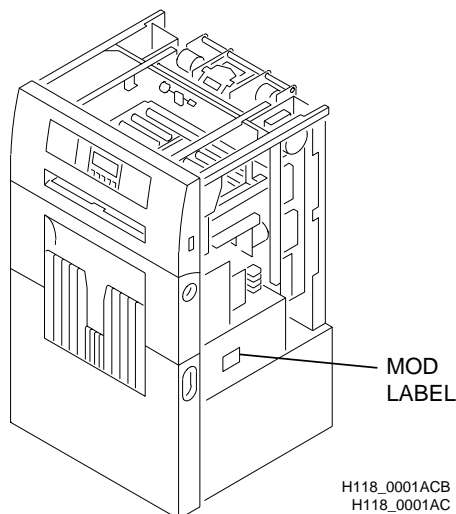
H104\_0554ACA  
H104\_0554AA

[1] For the 270 RA PROCESSOR only:

- (a) Circle the “21” on the MODIFICATION LABEL. Use permanent ink.
- (b) Install the WET SECTION COVER.

**Circle the “21” on 270 RA PROCESSORS.**

Figure 2 **MULTILOADERS 300 with Serial No. 1369 and Below**

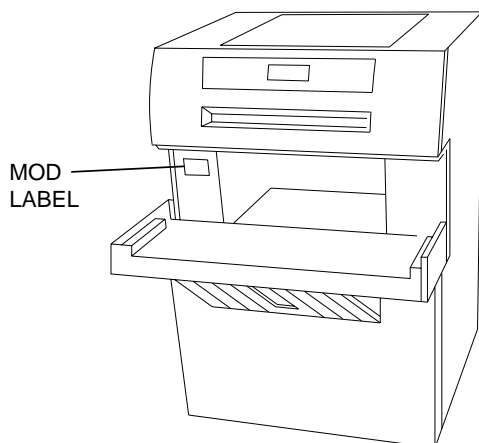


H118\_0001ACB  
H118\_0001AC

[2] For the MULTILOADER 300 only:

- (a) Circle the “35” on the MOD LABEL. Use permanent ink.
  - On MULTILOADERS Serial No. 1369 and below, see Figure 2.
  - On MULTILOADERS Serial No. 1370 and above, the MOD LABEL is inside the MAGAZINE DOOR. See Figure 3.
- (b) Install:
  - WET SECTION COVER
  - SAFETY SHIELD

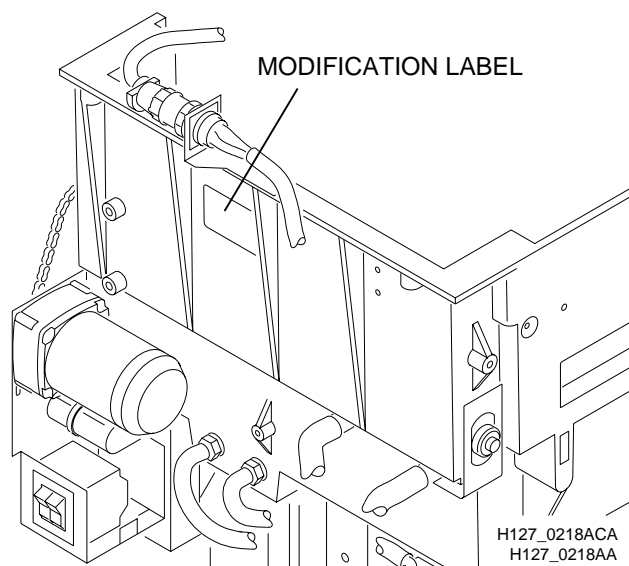
Figure 3 **MULTILOADERS 300 with Serial No. 1370 and Above**



H118\_0055ACA  
H118\_0055AC

**Circle the “35” on MULTILOADERS.**

Figure 4 **180 LP or 180 LPS PROCESSORS**



[3] For the 180 LP or 180 LPS PROCESSOR only:

- (a) Remove the DRIVE SIDE PANEL.
- (b) Circle the “8” on the MODIFICATION LABEL. Use permanent ink.

**Circle the “8” on 180 LP and 180 LPS PROCESSORS.**

(c) Install:

- DRYER RACK
- TOP EXIT RACK
- WET SECTION COVER

[4] For all PROCESSORS:

- (a) Install the PANELS.
- (b) Close the TOP COVER, or move the PROCESSOR into the MULTILOADER.
- (c) Move the main wall CIRCUIT BREAKER to “ON”.
- (d) Energize the PROCESSOR.
- (e) Check for correct operation of the PROCESSOR.

### Publication History

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
SEP96	8B7489	2619-143	All	ma3058_35_01sep96.doc	New Modification Instructions.
01MAY97	8B7489	2619-143	All	ma3058_35_01may97.doc	Revision.

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# **MODIFICATION INSTRUCTIONS** **for the**

***Kodak X-Omat* MULTILOADER 300**  
**Modification No. 37**

***Kodak X-Omat* 270 RA PROCESSOR**  
**Modification No. 22**

***Kodak X-Omat* 180 LP and 180 LPS PROCESSORS**  
**Modification No. 9**

**Service Codes: 3058, 3059, 3227, 3198**

**Type 1 Required**

**Purpose:** To increase the reliability of the PROCESSOR by replacing the ROLLERS in the FIXER/WASH CROSSOVER. The replacement phenolic ROLLER has a steel core, which significantly reduces swelling, binding, and possible film transport problems. The mating rubber ROLLER is being replaced because the new ROLLERS are not interchangeable with the existing ROLLERS, and therefore must be replaced as a set. New BEARINGS and E-RINGS are also supplied.

Included with this Mod is Operating Software, which is being supplied to upgrade PROCESSORS to the latest Software Version.



**Important**

Use qualified service personnel to install this modification.



**HEALTH IMAGING**

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Possible damage from electrostatic discharge.

**Service Effects:** Update your manuals with the new Part Numbers, see the table on Page 7.

- Special Requirements**
- 180 LP PROCESSOR with a SORTER and 180 LPS PROCESSOR must have SORTER Mod 1 installed before attempting to download the 2.24 Software.
  - The *Kodak Ektascan* 2180 LASER PRINTER must have Software Version 2.16 or higher installed before the PROCESSOR 2.24 Operating Software can be installed.

<b>Serial Numbers:</b>	180 LP PROCESSOR .....	101 - 3640
	180 LPS PROCESSOR.....	101 - 13320
	270 RA PROCESSOR in a MULTILOADER 300 ....	101 - 1610
	270 RA PROCESSOR .....	101 - 2495

**Installation Time:** .5 hour

**Special Tools:** PORTABLE COMPUTER  
INTERFACE CABLE, TL-4391

**Parts Status:** Modification Kits are available through Service Parts Management.

**Parts Requirements:** See the Parts List on Page 3.

---

## Parts List:

**Modification Kit No. 9B8447 includes the following parts:**

Part No.	Description	Quantity
9B8662	Roller, Driven (phenolic) [A]	1
470085	Roller, Drive (black rubber) [B]	1
779119	Bearing, white	4
651107	E-Ring	5
1C7618	Download Disk, 270 RA, Version 2.57 Operating Software	1
5B6623	Download Disk, 180 LP and 180 LPS, Version 2.24 Operating Software	1
9B8929	Modification Instructions	1

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## Checking the Current Operating Software

For the *Kodak X-Omat 270 RA PROCESSOR* and the *Kodak X-Omat 270 RA PROCESSOR* in a *Kodak X-Omat MULTILOADER 300*:

1. Check which Version of Operating Software is installed in the PROCESSOR. See the PROCESSOR or MULTILOADER 300 display, or use the PORTABLE COMPUTER.
  - If the PROCESSOR already has Operating Software Version 2.57, advance to “Installing the New ROLLERS, BEARINGS, and E-RINGS” on Page 5.
  - If the PROCESSOR has an earlier Version of Operating Software, advance to “Installing the Operating Software” on Page 4.

### Note

If the PROCESSOR has Version 3.0 Operating Software, no change is necessary. Advance to “Installing the New ROLLERS, BEARINGS, and E-RINGS” on Page 5.

For the *Kodak X-Omat 180 LP PROCESSOR* without a SORTER:

1. Check which Version of Operating Software is installed in the PROCESSOR. See the display on the LASER PRINTER, or use the PORTABLE COMPUTER.
  - If the PROCESSOR already has Operating Software, Version 2.24, advance to “Installing The New ROLLERS, BEARINGS, and E-RINGS” on Page 5.
  - If the PROCESSOR has an earlier Version of Operating Software, advance to “Installing the Operating Software” on Page 4.

For the *Kodak X-Omat 180 LP PROCESSOR* with a SORTER, and all *Kodak X-Omat 180 LPS PROCESSORS*:

1. Check the SORTER Modification Label, which is located on the back (as you face the PRINTER) edge of the hinged section of the SORTER, and do one of the following:
  - If Mod 1 is installed, check which Version of Operating Software is installed, see the display on the LASER PRINTER, or use the PORTABLE COMPUTER. If the PROCESSOR has Version 2.24 Operating Software, go to the section “Installing the New ROLLERS, BEARINGS, and E-RINGS” on Page 5.
  - If Mod 1 is installed, and Version 2.24 Operating Software is not installed, advance to “Installing the Operating Software” on Page 4.
  - If Mod 1 is not installed, do not install the 2.24 Operating Software. Go to the Section “Installing the New ROLLERS, BEARINGS, and E-RINGS” on Page 5, and finish this Mod. Order SORTER Mod No. 1, Part Number 1C7525, and install it at a later date. (Mod No. 1 comes with Version 2.24 Operating Software and BOOTSTRAP, Version 2.52.)

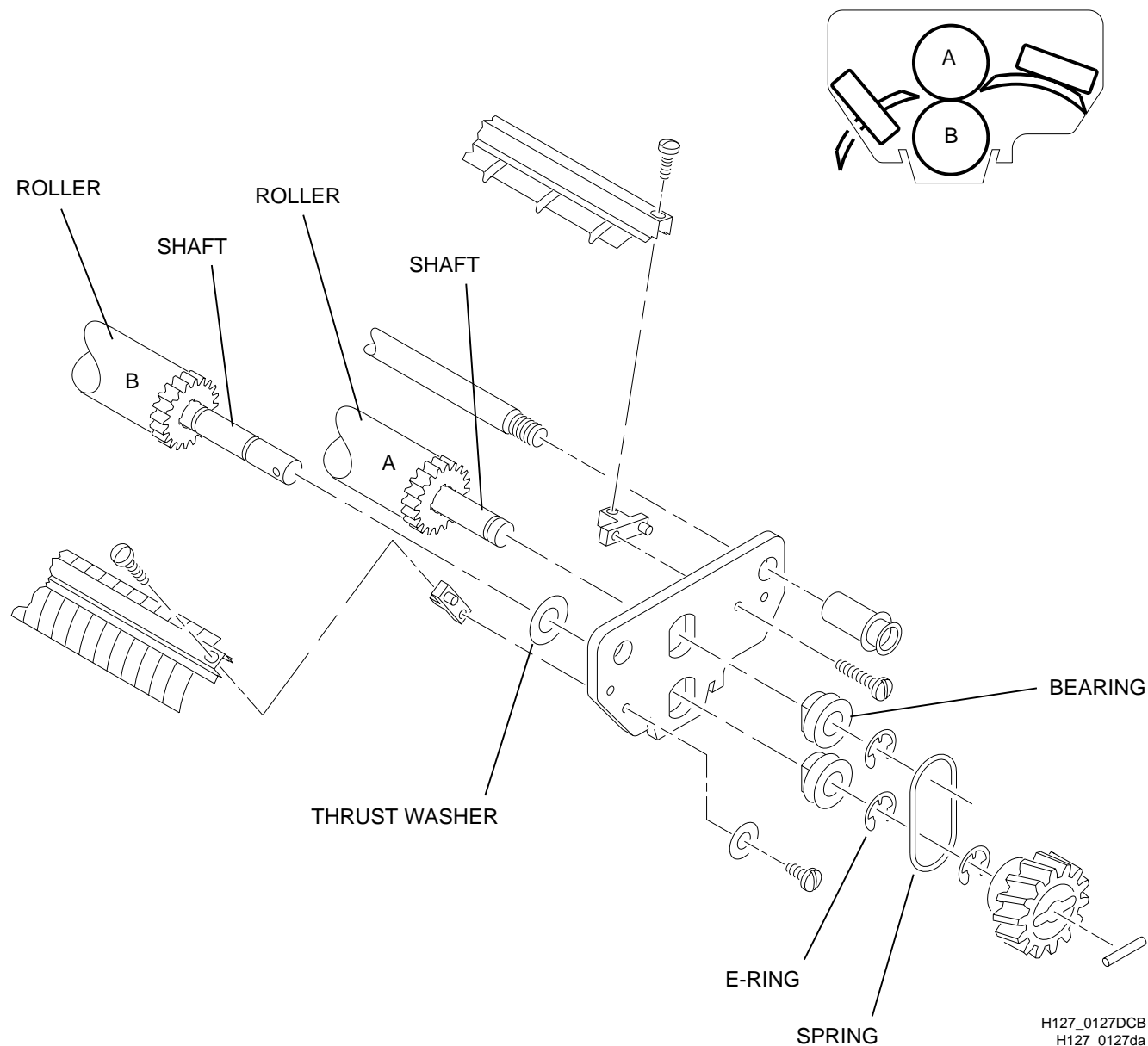
**Installing the Operating Software**

- Instructions for installing the Operating Software are included in the Operating Software package.
- Install the appropriate Operating Software for the PROCESSOR as follows:

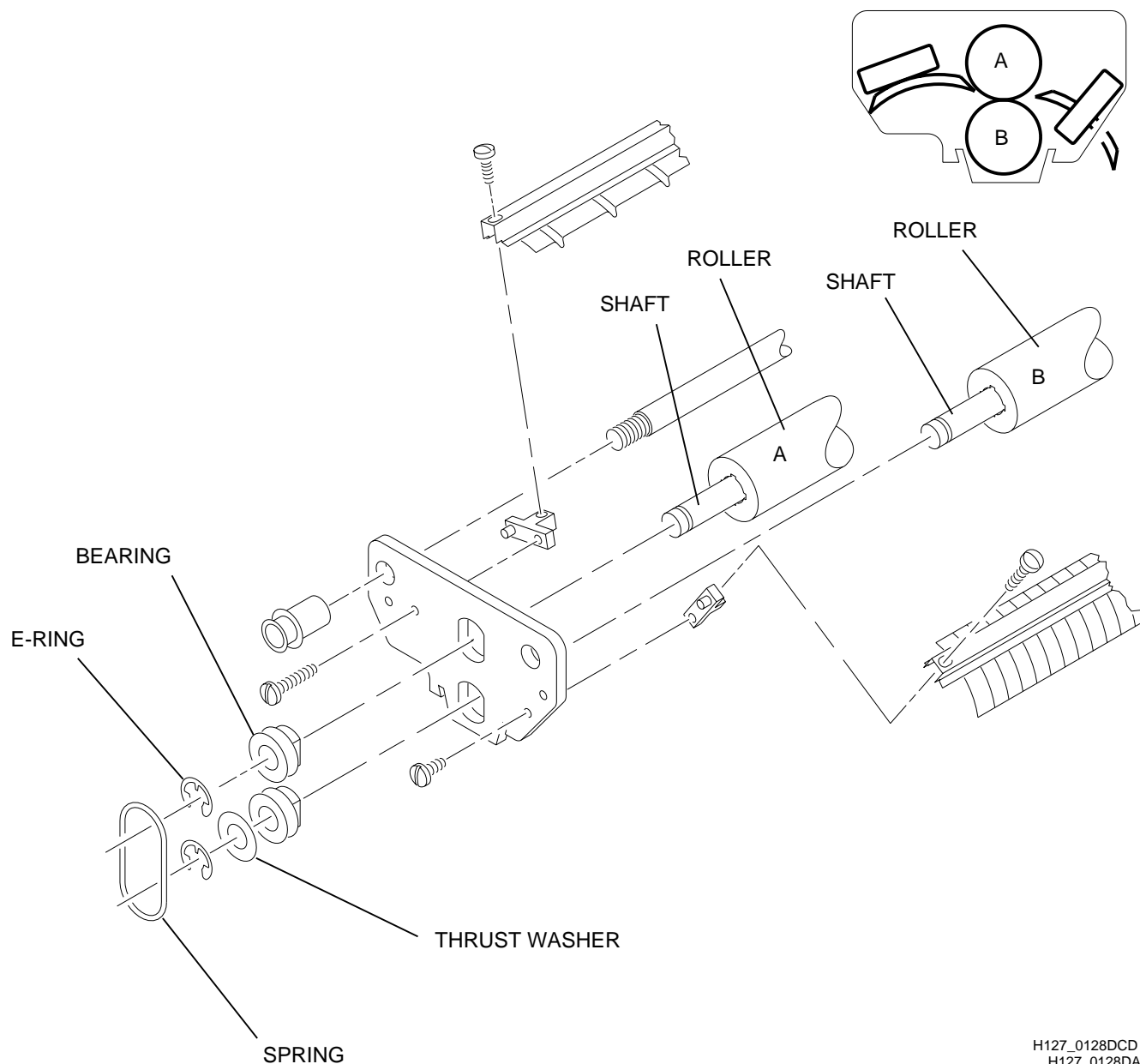
<b>PROCESSOR</b>	<b>Operating Software Version</b>	<b>Part No.</b>
<i>Kodak X-Omat 270 PROCESSOR</i>	2.57	1C7618
<i>Kodak X-Omat 270 RA PROCESSOR in a Kodak X-Omat MULTILOADER 300</i>	2.57	1C7618
<i>Kodak X-Omat 180 LP PROCESSOR</i> - The BOOTSTRAP PROM must be Version 2.52, Part Number 5B6607 (not included with this Mod). - The <i>Kodak Ektascan 2180 LASER PRINTER</i> must have Software Version 2.16 or higher installed.	2.24	5B6623
<i>Kodak X-Omat 180 LPS PROCESSOR &amp; 180 LP PROCESSOR with a SORTER</i> - The SORTER must have SORTER Mod 1. Check the Mod Label on the SORTER. - The BOOTSTRAP PROM must be Version 2.52, Part Number 5B6607 (not included with this Mod). - The <i>Kodak Ektascan 2180 LASER PRINTER</i> must have Software Version 2.16 or higher installed.	2.24	5B6623

## Installing the New ROLLERS, BEARINGS, and E-RINGS

### FIXER/WASH CROSSOVER - Drive Side



**FIXER/WASH CROSSOVER - Non-Drive Side**



H127\_0128DCD  
H127\_0128DA

Refer to the illustrations and install the new parts as follows:

1. Remove the FIXER/WASH CROSSOVER from the PROCESSOR
2. Remove the TROUGH, and save.
3. Remove the existing ROLLERS, BEARINGS, and E-RINGS, and discard. Save the SPRINGS, SHAFTS, and THRUST WASHERS.
4. Install the new ROLLERS, BEARINGS, and E-RINGS from the Mod Kit, using the SPRINGS, SHAFTS, and THRUST WASHERS saved in the previous step. Make sure that the THRUST WASHERS and other parts are assembled in the order shown.
5. Install the TROUGH.
6. Check the squareness of the RACK on a smooth, flat surface.
7. Install the FIXER/WASH CROSSOVER in the PROCESSOR.

---

## Updating the Parts List

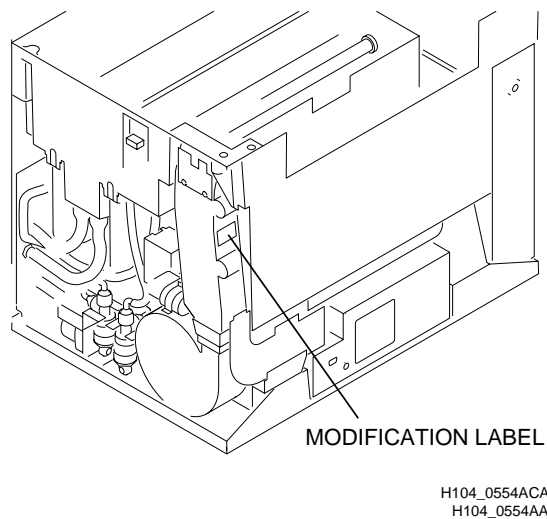
1. Change the Part Numbers for the ROLLERS and the ASSEMBLY in the Parts List for the figures, and also in the Numerical and Alphabetical Lists:

Description	Old Part No.	New Part No.
Roller, Drive (black, rubber) [B]	594237	470085
Roller, Driven (phenolic) [A]	911660	9B8662
Fixer/Wash Crossover Assembly	918945	9B8445

---

## Final Steps

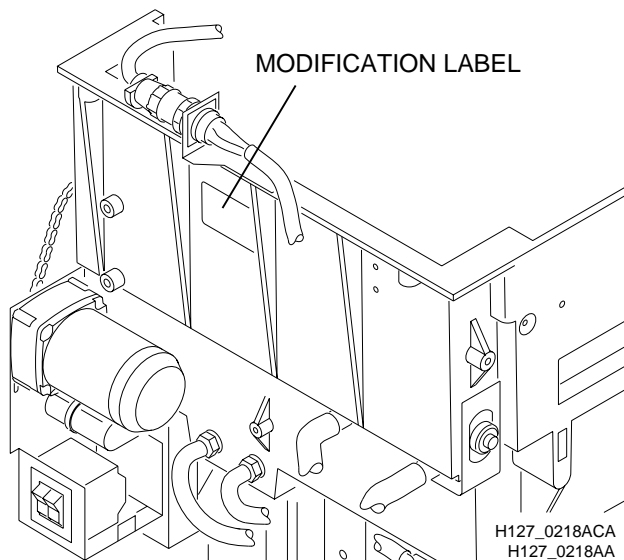
Figure 1 **270 RA PROCESSORS**



- [1] Circle the appropriate Mod Number on the MODIFICATION LABEL. Use permanent ink.

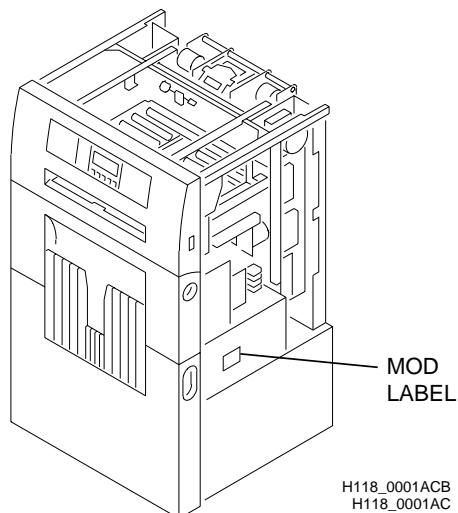
- (a) For the 270 RA PROCESSOR, circle number 22.

Figure 2 **180 LP or 180 LPS PROCESSORS**



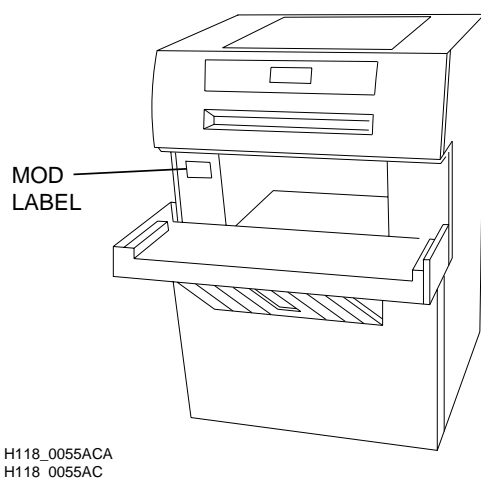
- (b) For the 180 LP or 180 LPS PROCESSOR, circle number 9.

Figure 3 **MULTILOADERS 300 with Serial No. 1369 and Below**



(c) For the MULTILOADER 300, circle number 37.

Figure 4 **MULTILOADERS 300 with Serial No. 1370 and Above**



**[2] For all PROCESSORS:**

- (a) Assemble the PROCESSOR.
- (b) Check for correct operation of the PROCESSOR.

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**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat* MULTILOADER 300**  
**Service Code: 3058**  
**Modification No. 41/43**  
***Kodak X-Omat* 270 RA PROCESSOR**  
**Service Code: 3059**  
**Modification No. 23/24**  
***Kodak X-Omat* 180 LP/180 LPS PROCESSORS**  
**Service Codes: 3227, 3198**  
**Modification No. 10/12**

**Type 2**

- Purpose:** To upgrade the DRYER RACK with new RACK SIDEPLATES to improve reliability.  
Mods 10/23/41 will:
- improve the film path by making changes to the positions of the “F” and “E” ROLLERS.
  - make changes to the diameter of the new “F” and “E” ROLLER GEARS.
  - make the bottom GUIDE SHOE adjustable.
  - include new SIDEPLATE BEARINGS which have a longer service life.
- Mods 12/24/43 will:
- reduce wear and binding in the RACK by installing new BEARING WASHERS.



**Important**

Use qualified personnel to install this modification.

- Service Effects:** Make changes to the Illustrated Parts Lists to include the new part numbers.
- Special Requirements:** None
- Serial Numbers:** There are two modifications for the PROCESSORS. The modifications were combined since they are both for the DRYER RACK. See “Serial Numbers:” on Page 2.
- Installation Time:** 1.5 hours
- Special Tools:** None
- Parts Status:** Parts are available at Service Parts Management.
- Parts Requirements:** See “Parts Lists:” on Page 2.



**HEALTH IMAGING**

**PLEASE NOTE** The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

#### Serial Numbers:

101 - 1659	270 RA INTEGRATED PROCESSOR in a MULTILOADER 300
101 - 2495	270 RA PROCESSOR
101 - 4099 and 100001 - 100073	180 LP PROCESSORS
10001 - 13564 and 125001 - 125229	180 LPS PROCESSORS

#### Parts Lists:

MODIFICATION KIT 7C8712 for the 270 RA PROCESSOR (Mod 23/24) and the 270 INTEGRATED in a MULTILOADER (Mod 41/43) includes:

Part No.	Description	Qty.
3H8277	SIDEPLATE - Drive Side	1
9B8871	SIDEPLATE - Non-Drive Side	1
1C7245	"F" ROLLER GEAR	1
1C7244	"E" ROLLER GEAR - snap-in	1
544267	GUIDE SHOE BRACKET SCREW	2
852611	GUIDE SHOE BRACKET WASHER	2
9B8719	BEARINGS	18
3H8282	BEARING WASHERS	14
7C8299	MODIFICATION INSTRUCTIONS	1

MODIFICATION KIT 7C8713 for the 180 LP and 180 LPS PROCESSORS (Mod 10/12) includes:

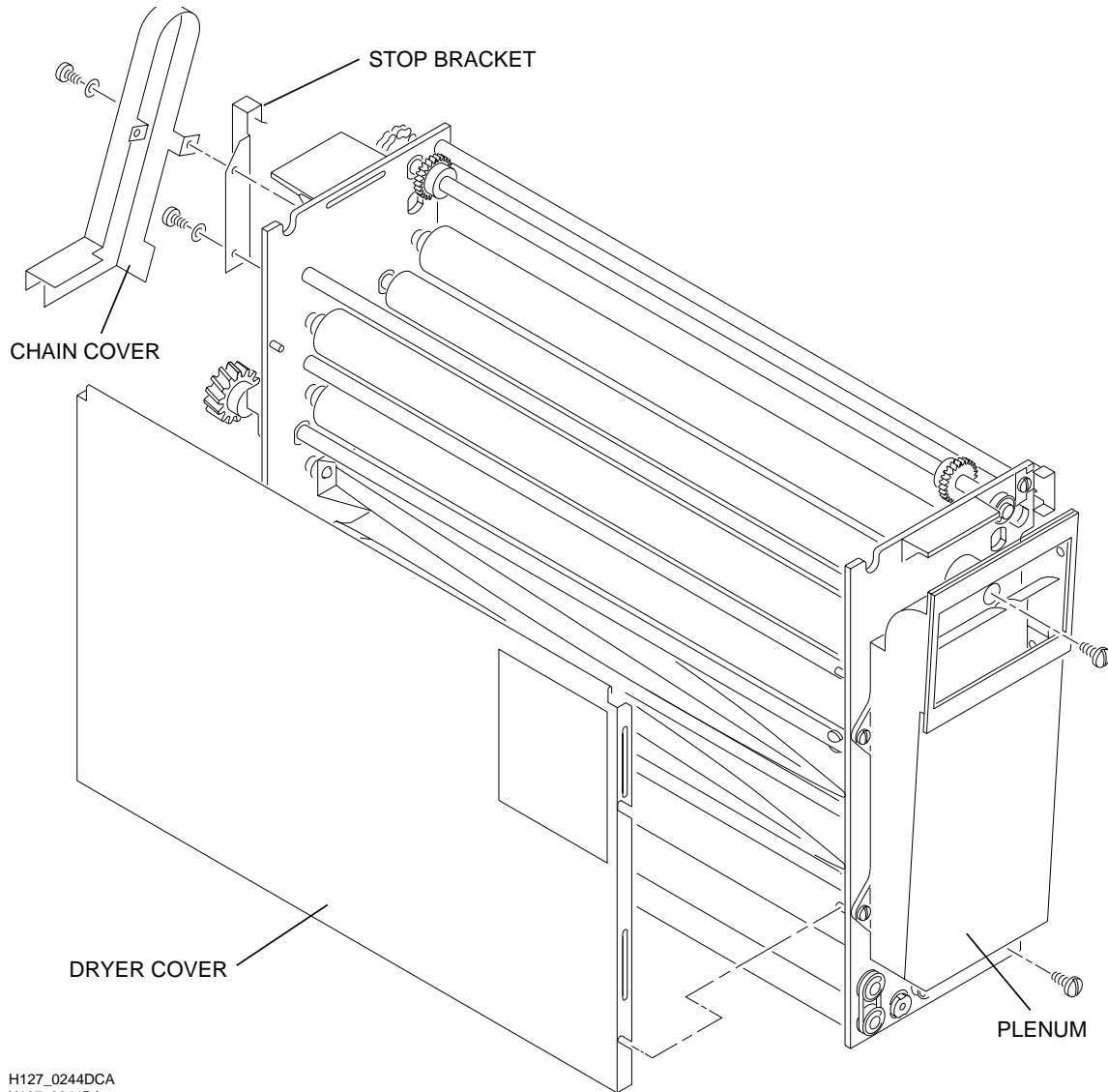
Part No.	Description	Qty.
3H8276	SIDEPLATE - Drive Side	1
9B8873	SIDEPLATE - Non-Drive Side	1
1C7245	"F" ROLLER GEAR	1
1C7244	"E" ROLLER GEAR - snap-in	1
544267	GUIDE SHOE BRACKET SCREW	2
852611	GUIDE SHOE BRACKET WASHER	2
9B8719	BEARINGS	16
3H8282	BEARING WASHERS	14
7C8299	MODIFICATION INSTRUCTIONS	1

## Upgrading the DRYER RACK

### Note

- Modification 10 may be installed already on some 180 LP / LPS PROCESSORS. It is still necessary that all of the Steps in these instructions are followed.
- All of the Figures are of a 180 LP PROCESSOR. The DRYER RACK in the 270 RA PROCESSOR is similar. Save all of the parts removed except for the parts that are replaced by new parts in the KIT.

Figure 1 **DRYER RACK**



H127\_0244DCA  
H127\_0244DA



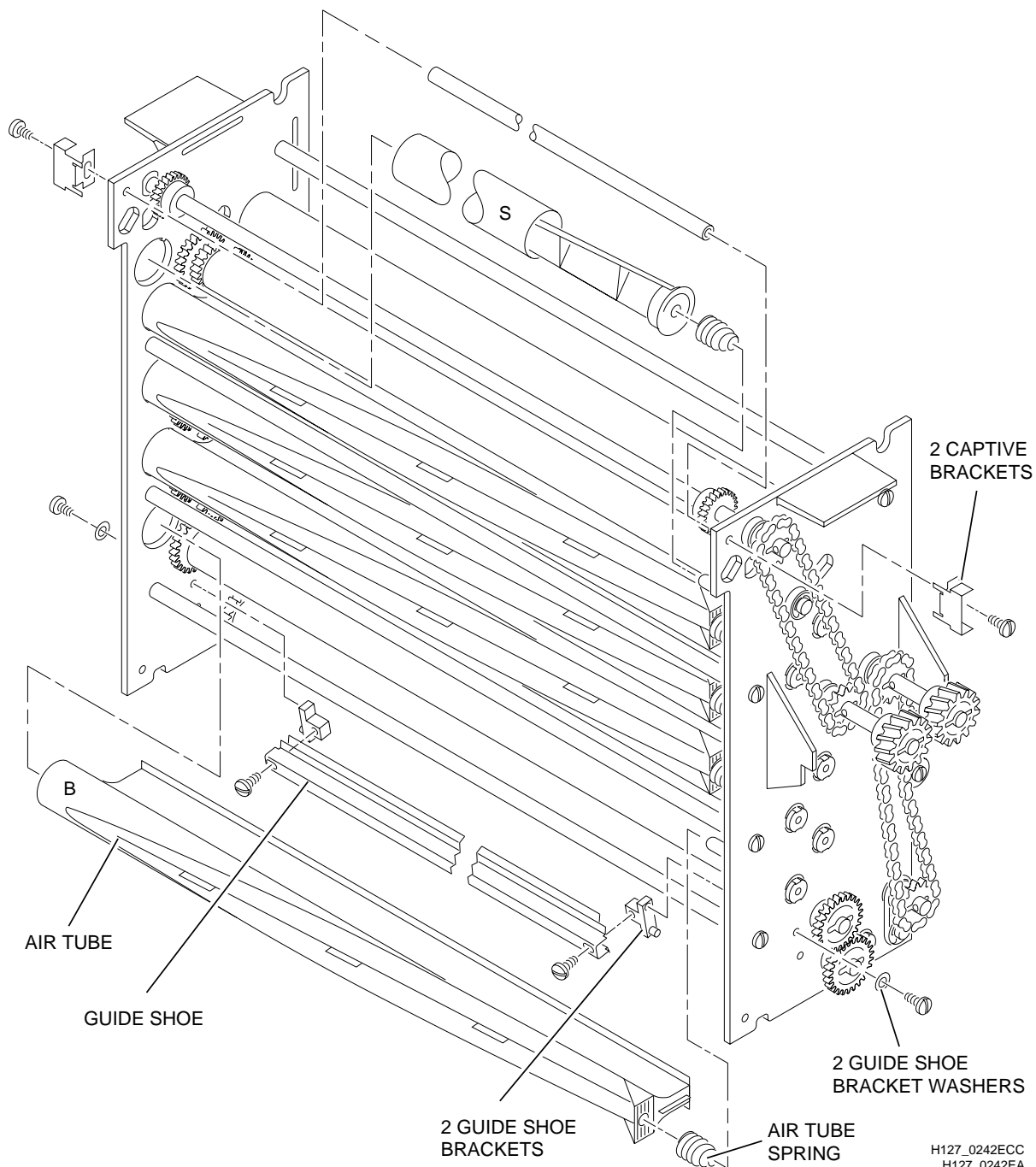
**Warning**  
Dangerous Voltage

- [1] De-energize the PROCESSOR.
- [2] Remove the DRYER RACK from the PROCESSOR.

**[3]** Remove the following from the DRYER RACK:

- DRYER COVER
- TOP COVER and top GUIDE SHOE, if necessary (parts not shown)
- PLENUM
- STOP BRACKET
- CHAIN COVER (newer RACKS have a larger COVER than shown)

**Figure 2 AIR TUBES, GUIDE SHOE, and CAPTIVE BRACKETS - Drive Side View**

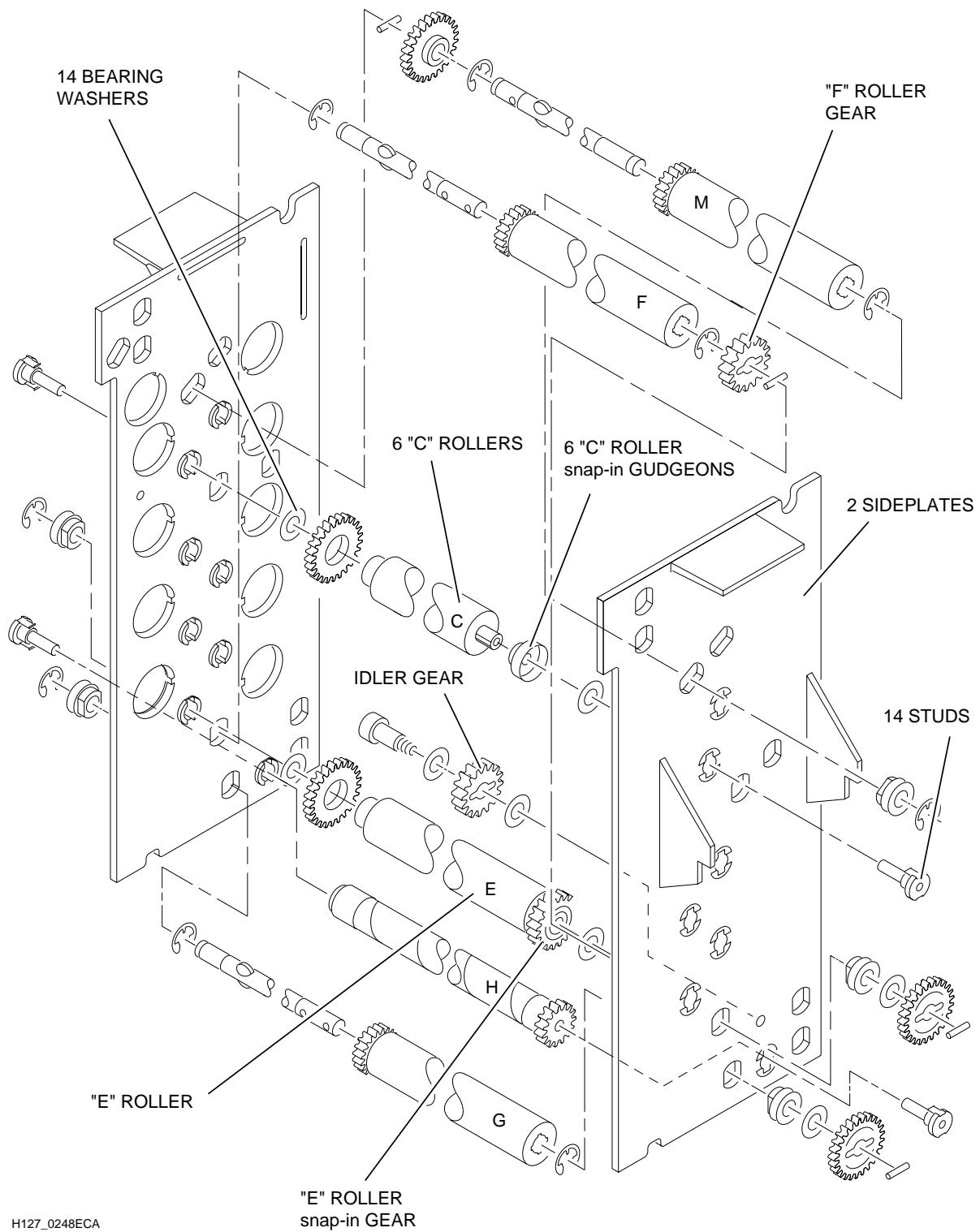


H127\_0242ECC  
H127\_0242EA

[4] Remove:

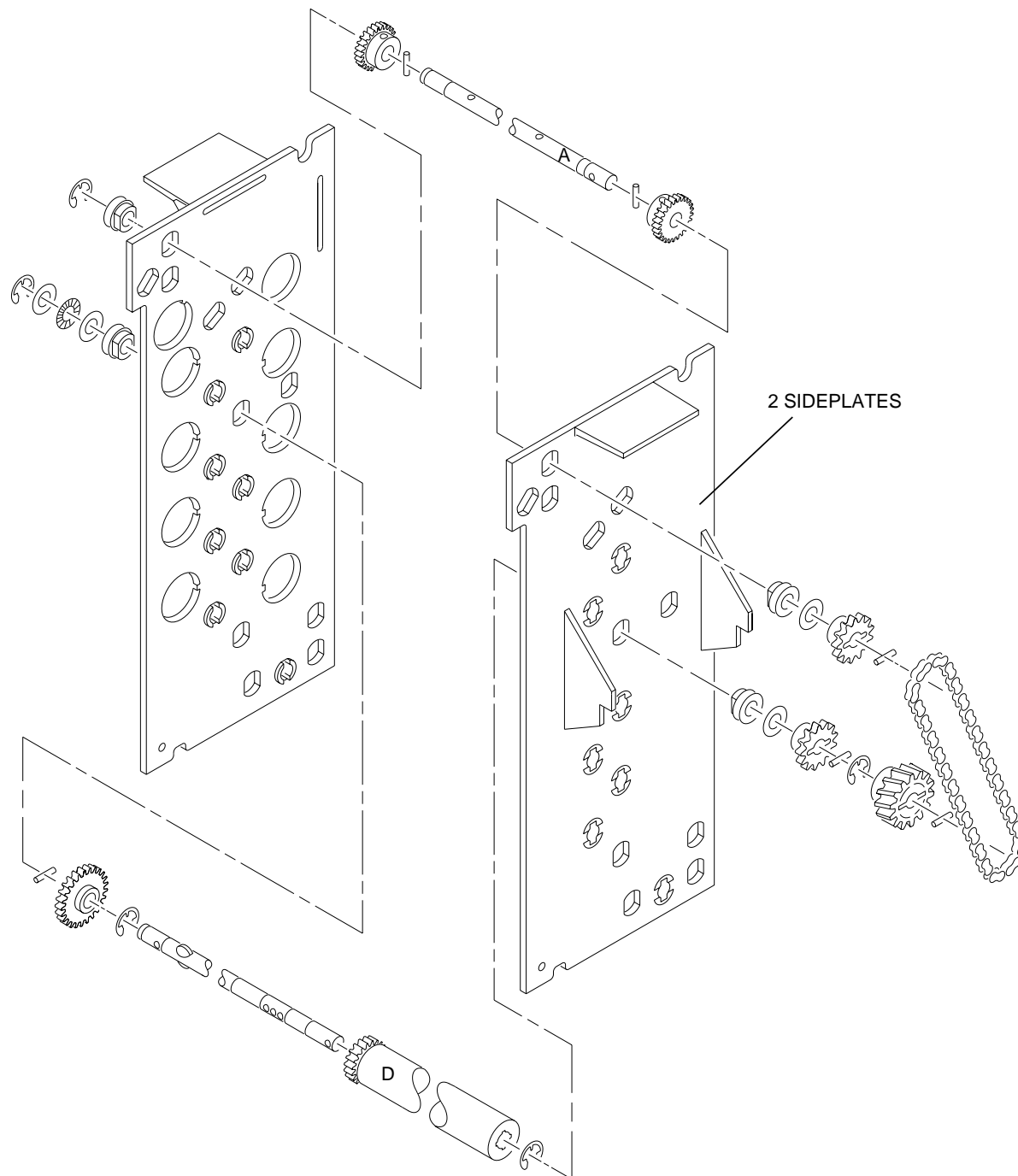
- AIR TUBES
- AIR TUBE SPRINGS
- bottom GUIDE SHOE
- 2 GUIDE SHOE BRACKETS
- 2 CAPTIVE BRACKETS, if necessary

Figure 3 **SIDEPLATES, ROLLERS, and GEARS - Drive Side View**



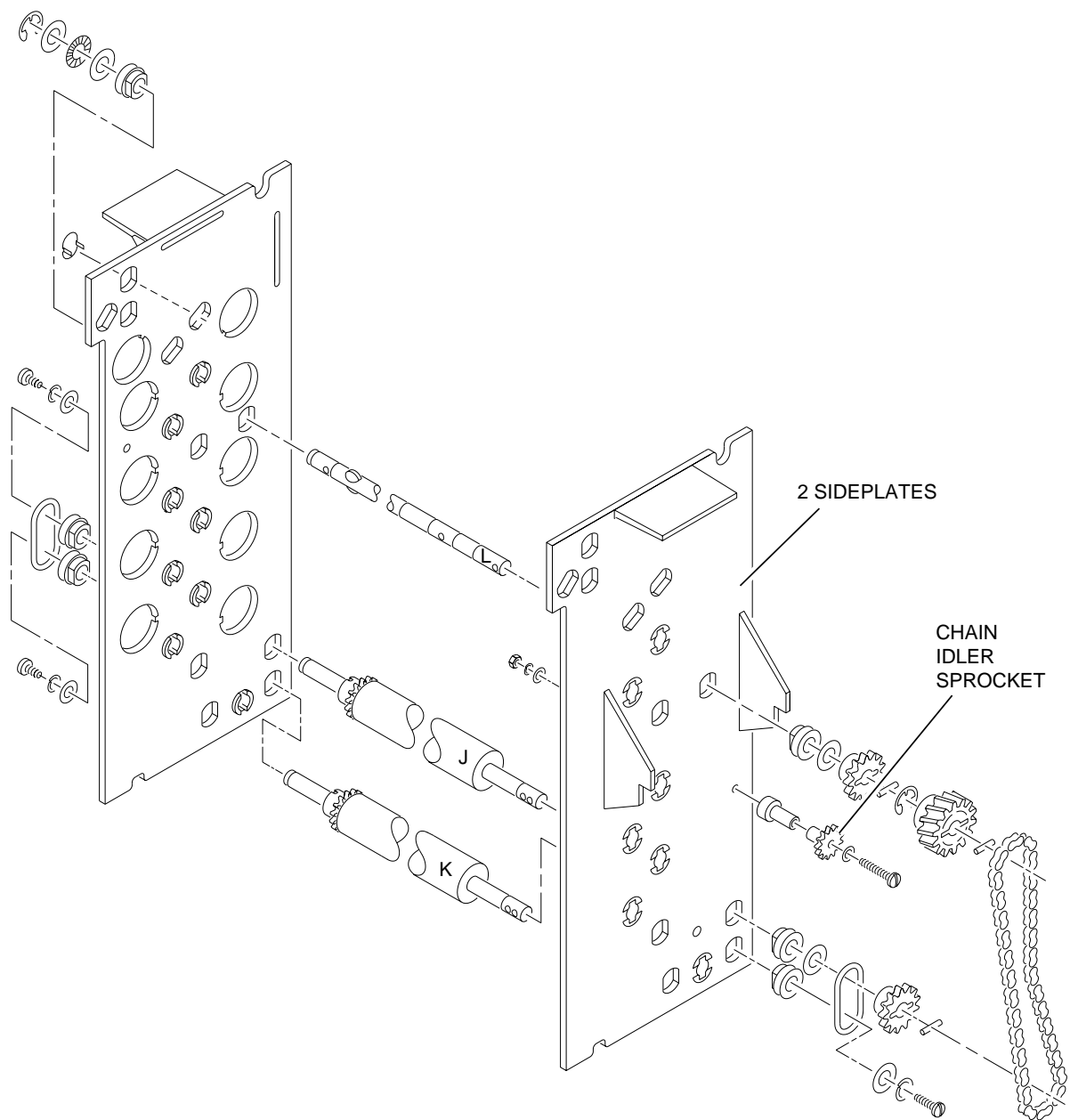
H127\_0248ECA  
H127\_0248EA

Figure 4 SIDEPLATES, DRIVE CHAIN, and SPROCKETS - Drive Side View



H127\_0240ECA  
H127\_0240EA

Figure 5 **SIDEPLATES, DRIVE CHAIN, and SQUEEGEE ROLLERS - Drive Side View**



H127\_0241ECA  
H127\_0241EA



**Note**

“J” and “K” ROLLERS may have E-RINGS and not SCREW FASTENERS.

[5] Remove the old SIDEPLATES. See Figures 3, 4, and 5.

[6] See Figure 3. Remove and discard:

- existing GEAR from the “F” ROLLER (drive side)
- existing snap-in GEAR from the “E” ROLLER (drive side)
- 6 snap-in GUDGEONS from the 6 “C” ROLLERS

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## Installing the New SIDEPLATES and Adjusting the GUIDE SHOE

[1] See Figure 3. Install the new snap-in “E” ROLLER GEAR 1C7244 on the “E” ROLLER.

[2] Remove the CHAIN IDLER SPROCKET in Figure 5 and the IDLER GEAR in Figure 4 from the old SIDEPLATE and install them on the new drive side SIDEPLATE.



### Important

Do **not** install the following parts at this time: See Figure 6.

- “E” ROLLER
- bottom “C” ROLLER
- 2 bottom AIR TUBES

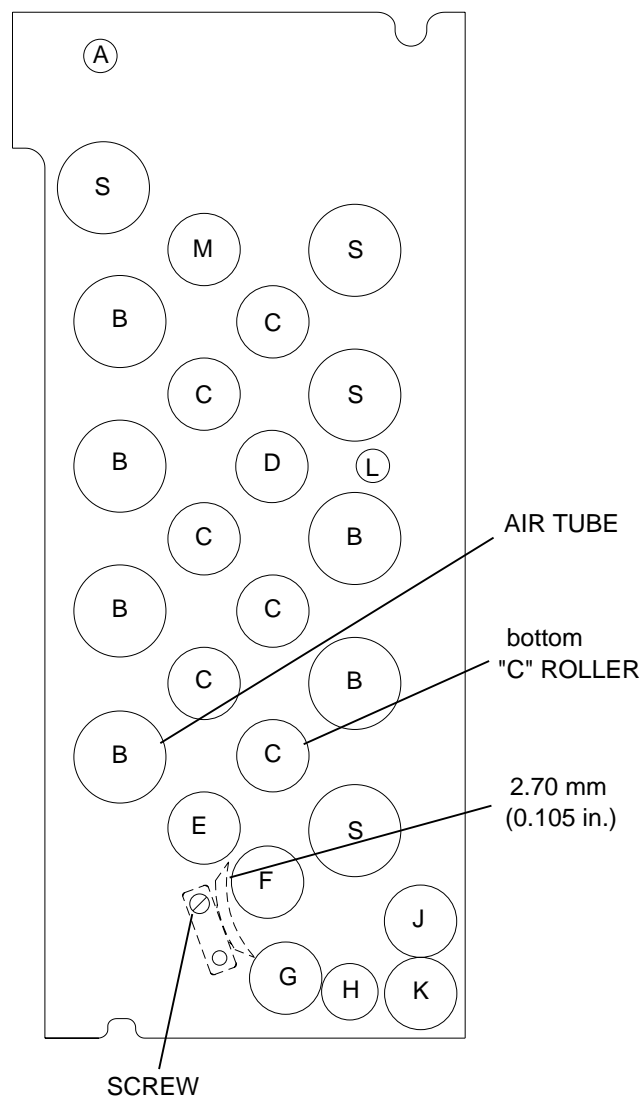
[3] See Figures 3, 4, and 5. Install:

- the parts removed in Step 5 on Page 8.
- the new BEARING WASHERS, one on each end of each “C” ROLLER between the SIDEPLATE and the end of the ROLLER.
- the new “F” ROLLER GEAR 1C7245 (located inside the SIDEPLATE) on the “F” ROLLER.

[4] See Figure 2. Install the parts removed in Step 4 on Page 5.

- use new SCREWS 544267 and WASHERS 852611 to install the bottom GUIDE SHOE BRACKETS on the SIDEPLATES.
- check that the long edge of the bottom GUIDE SHOE is in the direction of the film path.

Figure 6 **GUIDE SHOE**



H127\_0243CCB  
H127\_0243CA

[5] See Figure 6. Loosen the SCREWS.

[6] Set the distance between the “F” ROLLER and the GUIDE SHOE:

- (a) Place a 2.70 mm (0.105 in.) FEELER GAUGE between the “F” ROLLER and the long edge of the GUIDE SHOE. See Figure 6.
- (b) Hold the GUIDE SHOE against the FEELER GAUGE and tighten the SCREWS.
- (c) Check that the clearance between the GUIDE SHOE and the ROLLER is 2.70 mm (0.105 in.) +/- 0.10 mm (0.005 in.) at both ends and in the center.

#### **Note**

Apply a small amount of water on the BEARING WASHER to help hold it in place on the “E” ROLLER.

[7] See Figure 3. Install the “E” ROLLER and the bottom “C” ROLLER using a new BEARING WASHER at each end of each ROLLER between the SIDEPLATE and the end of the ROLLER.

[8] Install the 2 bottom AIR TUBES.

[9] See Figure 1. Install the parts removed in Step 3 on Page 3 to assemble the DRYER RACK.

[10] Check the squareness of the DRYER RACK on a smooth, flat surface.

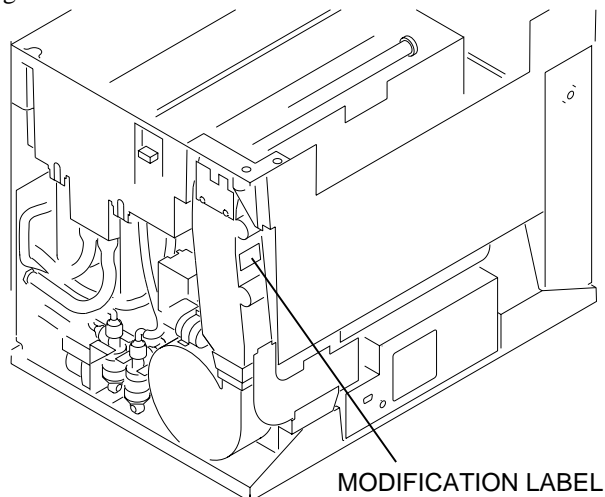
[11] Rotate the DRIVE SHAFT on the DRYER RACK and check for interference.

[12] Install the DRYER RACK in the PROCESSOR.

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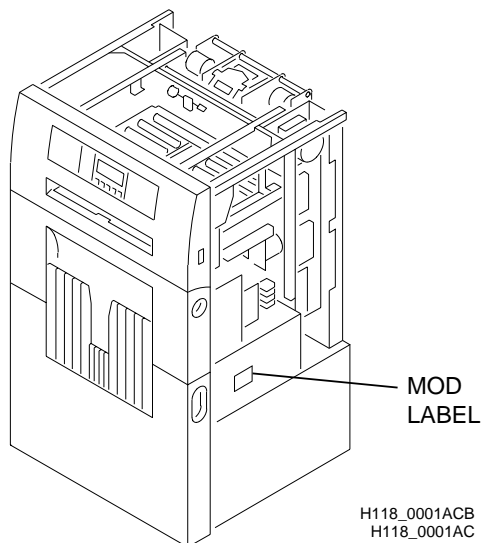
## Completing the Modification

Figure 7 **270 RA PROCESSOR**



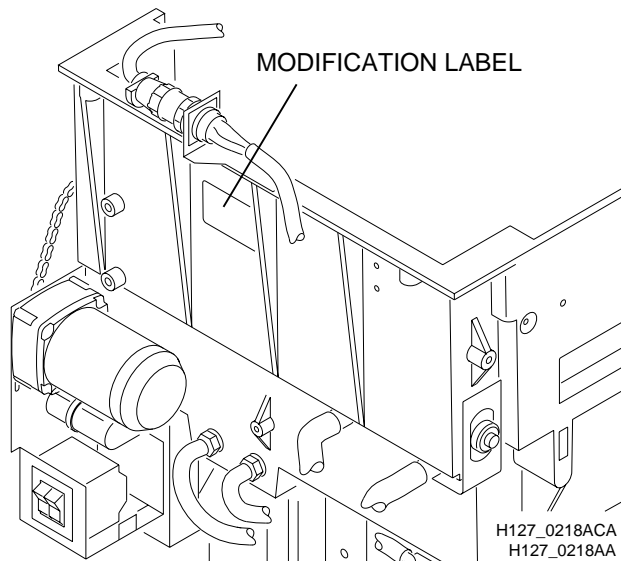
H104\_0554ACA  
H104\_0554AA

Figure 9 **MULTILOADERS 300 with Serial No. 1369 and Below**



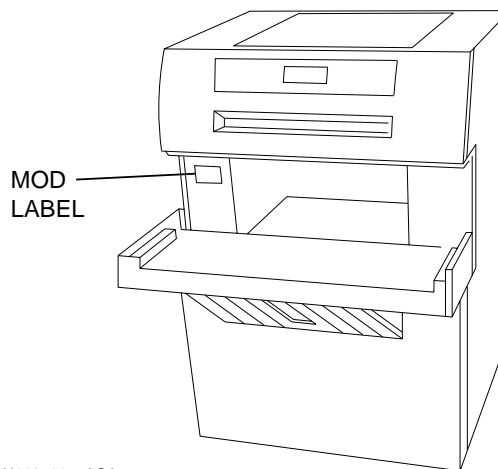
H118\_0001ACB  
H118\_0001AC

Figure 8 **180 LP or 180 LPS PROCESSORS**



H127\_0218ACA  
H127\_0218AA

Figure 10 **MULTILOADERS 300 with Serial No. 1370 and Above**



H118\_0055ACA  
H118\_0055AC

[1] Circle:

- “23” and “24” on the MODIFICATION LABEL on the 270 RA PROCESSOR.
- “10” if necessary, and “12” on the MODIFICATION LABEL on the 180 LP or 180 LPS PROCESSOR.
- “41” and “43” on the MODIFICATION LABEL on the MULTILoader 300.

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## Assembling and Checking PROCESSOR Operation

[1] Assemble the PROCESSOR and check for correct operation.

[2] Check for correct operation of the DRYER RACK by processing 35.0 x 43.0 cm (14.0 x 17.0 in.) films.

### Note

If the DRYER RACK bottom GUIDE SHOE causes film scratches or stubbing, do the following adjustments:

- for scratches, **increase** the distance approximately 0.10 mm (0.005) between the GUIDE SHOE and the “F” ROLLER.
- for stubbing, **decrease** the distance approximately 0.10 mm (0.005 in.) between the bottom GUIDE SHOE and the “F” ROLLER.
- after making the adjustment, check for film quality by processing the film. Do the above procedures again as necessary, to minimize the film scratching or stubbing.

## Publication History

Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
24MAR98	7C8299	2619-169	All	ma3058_41_24mar98.doc	First printing
30JUL98	7C8299	2650-194	All	mb3058_43_30jul98.fm	Add Mods 12, 24, and 43.
15MAR99	7C8299	2592-416	Pages 3 and 4.	mb3058_43_15mar99..fm	Old Page 3: Deleted “Preliminary Instructions”. New Page 3: Added Note.

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**MODIFICATION INSTRUCTIONS**  
**for the**  
***Kodak X-Omat 180 LP PROCESSOR***  
**Service Codes: 3227**

***Kodak X-Omat 180 LPS PROCESSOR***  
**Service Code: 3198**

**Modification No. 11**  
**Type 1 Required**

- Purpose:** To improve the PROCESSOR reliability by:
- changing the AC input voltage to the QUAD POWER SUPPLY to lower the temperature
  - installing a new QUAD POWER SUPPLY
  - installing new software to eliminate errors caused by mis-adjusted ENTRANCE DETECTOR SWITCHES
  - installing new STANDOFFS on the PROCESSOR INTERFACE CONNECTOR to minimize communication errors



**Important**

Use qualified personnel to install this modification.



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This equipment includes parts and assemblies sensitive to damage from electrostatic discharge. Use caution to prevent damage during all service procedures.

**Service Effects:** Make wiring changes to the wiring diagrams DIAGRAM PACKAGE, 1C7841.

**Special Requirements:** The 180 LP SORTER, if fitted, must have Modification No. 1, 1C7525.

**Serial Numbers:** 101-3999.....180 LP PROCESSOR  
10001-13499.....180 LPS PROCESSOR

**Installation Time:** Approximately 1.5 hours.

**Special Tools:**

- PORTABLE COMPUTER
- INTEFACE CABLE TL-4391

**Parts Status:** Available through Service Parts Management.

**Parts Requirements:** See table below.

MODIFICATION KIT 7C8702 includes:

Part No.	Description	Qty.
7C8295	MODIFICATION INSTRUCTIONS	1
955745	QUAD POWER SUPPLY	1
7C8704	WIRING KIT: <ul style="list-style-type: none"><li>• WIRE No. 13</li><li>• WIRE No. 14</li><li>• CONNECTOR J9 AND WIRING ASSEMBLY</li><li>• 17 TIE WRAPS</li></ul>	1
9B8473	SOFTWARE DOWNLOAD DISK, Version 2.25	1
918095	STANDOFF KIT	1
655272	HEATSINK COMPOUND PACKET	1

## Installing the new QUAD POWER SUPPLY



### Warning

Dangerous Voltage

- [1] De-energize the PROCESSOR.



### Note

If the PROCESSOR has a SORTER, remove the BIN ASSEMBLY.

- [2] Lift the TOP COVER.

- [3] Remove:

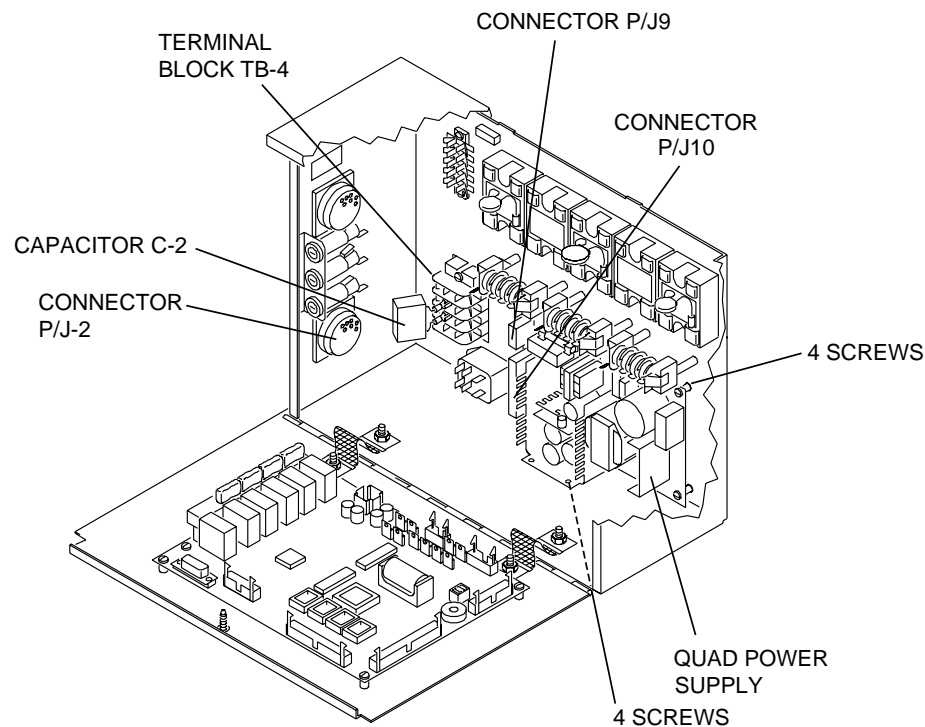
- DRIVE SIDE PANEL
- INTERFACE CABLE
- NON-DRIVE SIDE PANEL
- DRYER SIDE PANEL



### Note

**Optional:** The ELECTRICAL BOX can be removed from the PROCESSOR to do the following procedures.

- [4] Open the ELECTRICAL BOX.



H127\_0245HCC  
H127\_0245HC

- [5] Remove from the QUAD POWER SUPPLY:

- CONNECTORS J9 and J10
- 4 SCREWS inside the ELECTRICAL BOX that hold the POWER SUPPLY
- 4 SCREWS under the ELECTRICAL BOX that hold the POWER SUPPLY (SCREWS not shown.)

- [6] Remove and discard the QUAD POWER SUPPLY. (QUAD POWER SUPPLY has been damaged by heat.)



### Important

All the old HEATSINK COMPOUND must be removed for correct contact.

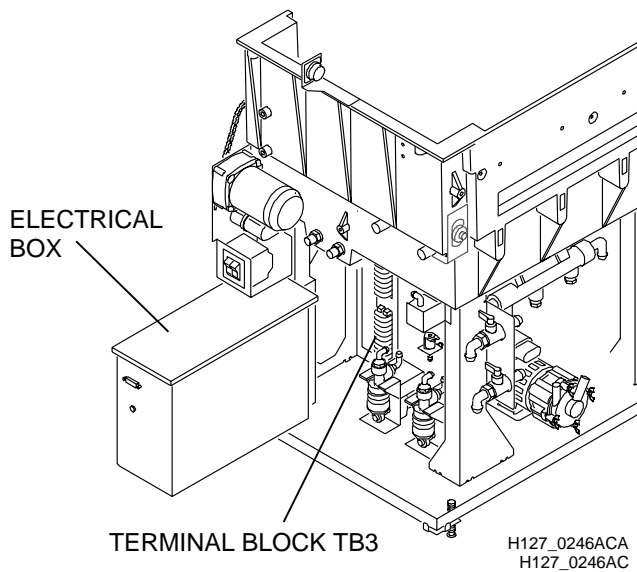
- [7] Clean the old HEATSINK COMPOUND from inside the ELECTRICAL BOX.
- [8] Apply a thin layer of the new HEATSINK COMPOUND to the surface of the new QUAD POWER SUPPLY.  
Make sure the surface is covered with the COMPOUND.
- [9] Install:
  - new QUAD POWER SUPPLY in the ELECTRICAL BOX
  - CONNECTOR J10 to the QUAD POWER SUPPLY



### Note

Do not install CONNECTOR J9 at this time.

## Installing the New 120 V AC WIRES Outside of the ELECTRICAL BOX



- [1] Locate the following COMPONENTS outside of the ELECTRICAL BOX:
  - TERMINAL BLOCK TB3, rotate the ELECTRICAL BOX to see the TERMINAL BLOCK
  - CONNECTOR J2  
(See illustration on Page 3.)
- [2] Disconnect J2 from the outside of the ELECTRICAL BOX.
- [3] Loosen the SCREWS for the STRAIN RELIEF on CONNECTOR J2.
- [4] Rotate the BODY of the CONNECTOR to disassemble.
- [5] Slide the STRAIN RELIEF backward to have access to the WIRE TERMINALS.
- [6] Install the new WIRE No. 14 on TERMINAL 4 of TERMINAL BLOCK TB3.



### Important

Press the SOCKET TERMINALS into CONNECTOR J2. The TERMINALS should snap into position.

- [7] Feed the SOCKET TERMINAL END of WIRE No. 14 through the STRAIN RELIEF.
- [8] Insert the SOCKET TERMINAL END of WIRE No. 14 into position 2 of CONNECTOR J2.
- [9] Install the new WIRE No. 13 on TERMINAL 8 of TERMINAL BLOCK TB3
- [10] Feed the SOCKET TERMINAL END of WIRE No. 13 through the STRAIN RELIEF.
- [11] Insert the SOCKET TERMINAL END of WIRE No. 13 into one of the following positions:

PROCESSOR	Serial No.	Position in J2 CONNECTOR
180 LP	below 3000	5
180 LPS	below 13000	
180 LP	3000 and above	16
180 LPS	13000 and above	

- 
- [12] Slide the STRAIN RELIEF forward.
- [13] Rotate to assemble the BODY onto the CONNECTOR.
- [14] Tighten the SCREWS for the STRAIN RELIEF.
- [15] Fasten the new WIRES to the PROCESSOR HARNESS with the TIE WRAPS provided.
- 

## Removing the Old 240 V AC WIRES and CAPACITOR from the Inside of the ELECTRICAL BOX

- [1] Locate the following COMPONENTS inside the ELECTRICAL BOX: (See the illustration on Page 3.)
- TERMINAL BLOCK TB4
  - CAPACITOR C2
  - CONNECTOR J9
- [2] Cut the WIRE TIES to remove the J9 WIRES from the HARNESS.

### Note

Note the position of the GROUND WIRES, STAR WASHERS, and NUT to assemble later.

- [3] Disconnect the yellow/green J9 GROUND WIRE from the GROUNDING STUD.
- [4] Remove:
- J9 WIRE No. 35 from TERMINAL 2 of TB4
  - J9 WIRE No. 36 from TERMINAL 3 of TB4
- [5] Discard the old CONNECTOR J9 and WIRING ASSEMBLY
- [6] Remove CAPACITOR C2 from TERMINALS 2 and 3 on TB4 and discard the CAPACITOR.
- 

## Installing the New WIRES Inside of the ELECTRICAL BOX

- [1] Locate following COMPONENTS inside the ELECTRICAL BOX: (See the illustration on Page 3.)
- CONNECTOR P2
  - QUAD POWER SUPPLY
- [2] Insert the PIN TERMINAL END of WIRE No. 14 from the new CONNECTOR J9 and WIRING ASSEMBLY, into position 2 of CONNECTOR P2.
- [3] Insert the PIN TERMINAL END of WIRE No. 13 from the new CONNECTOR J9 and WIRING ASSEMBLY, into one of the following positions of CONNECTOR P2:

PROCESSOR	Serial No.	Position in P2 CONNECTOR
180 LP	below 3000	5
180 LPS	below 13000	
180 LP	3000 and above	16
180 LPS	13000 and above	



### Important

The GROUND WIRES, STAR WASHERS, and NUT must be installed in the correct sequence.

[4] Install on the GROUNDING STUD:

- STAR WASHER
- existing yellow/green WIRE
- yellow/green GROUND WIRE for CONNECTOR J9
- STAR WASHER
- NUT, and tighten

[5] Install CONNECTOR J9 to the QUAD POWER SUPPLY.

[6] Fasten the wires to the HARNESS with TIE WRAPS.

[7] Close the ELECTRICAL BOX.

[8] Install CONNECTOR J2 to P2 on the outside of the ELECTRICAL BOX.

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## Removing the ACTUATOR MAGNETS from the ENTRANCE DETECTOR RACK

[1] Remove the ENTRANCE DETECTOR RACK.

[2] Remove and discard:

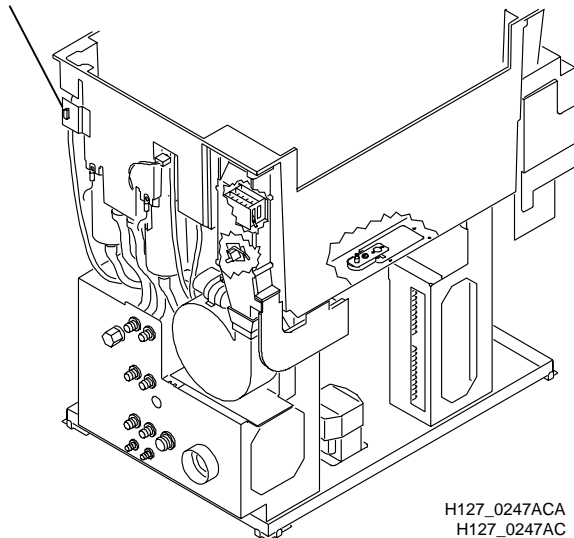
- 2 SCREWS
- 2 LOCKWASHERS
- 2 FLAT WASHERS
- 2 ACTUATOR MAGNETS

[3] Install the ENTRANCE DETECTOR RACK.

---

## Installing the STANDOFF SCREWS on the PROCESSOR CONNECTOR P29

CONNECTOR P29



[1] Locate CONNECTOR P29 on the NON DRIVE SIDE of the PROCESSOR.

[2] Remove and discard the old:

- 2 STANDOFF SCREWS
- 2 LOCKWASHERS

[3] Open the STANDOFF KIT and discard:

- 2 WASHERS
- 2 NUTS

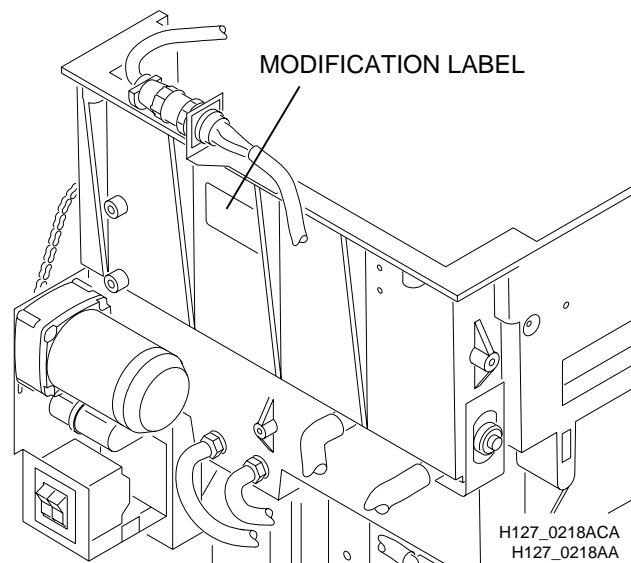
[4] Install and tighten the new STANDOFF SCREWS. (No WASHERS are used.)

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## Installing the New Operating Software

[1] Install the new Operating Software Version 2.25. See the Instructions included with the DISK.

## Completing the Modification



- [1] Circle “11” on the MODIFICATION LABEL.
- [2] Install:
  - DRIVE SIDE PANEL
  - NON DRIVE SIDE PANEL
  - DRYER SIDE PANEL
- [3] Connect the INTERFACE CABLE for the PRINTER to CONNECTOR P29.
- [4] Close the TOP COVER.
- [5] Install the BIN ASSEMBLY if necessary.
- [6] Energize the PROCESSOR
- [7] Check for correct operation of the PROCESSOR.

## Publication History

Print Date	Pub No.	ECO No.	Affected Pages	File Name	Notes
15APR98	7C8295	2619-167	All	ma3227_7_15apr98.doc	First printing.

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