



PRINT GAP AND PAPER TENSION UPGRADE KIT INSTALLATION INSTRUCTIONS

(For 900 & 1200 LPM Line Printers)

SAVE THESE INSTRUCTIONS

THESE INSTRUCTIONS CONTAIN VALUABLE PARTS LISTS, REMOVAL AND REPLACEMENT AND ADJUSTMENT INFORMATION. AFTER INSTALLATION, INSERT THESE INSTRUCTIONS INTO YOUR SERVICE DOCUMENTATION FOR FUTURE REFERENCE. PERTINENT INFORMATION WILL BE ADDED TO SERVICE DOCUMENTS AT NEXT REVISION.

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Rev 08/88 - Adds note advising CEs to expect some variations from the illustrations and procedures in this document, depending on how and whether the printer has already been upgraded.

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PRINT GAP AND PAPER TENSION UPGRADE KIT INSTALLATION INSTRUCTIONS

1. OVERVIEW

This upgrade kit is for the 900 and 1200 LPM (line-per-minute) printers and provides for the installation of the upgraded Platen Gap Adjustment Handle, and Vertical Paper Tension Assemblies.

NOTE

The procedures and illustrations in this set of instructions assume that you have not already performed the CAST II Tractor Upgrade. If the tractor has already been upgraded, there will be small differences between some assemblies and the corresponding illustrations in this document. Where such differences occur, small changes to the installation procedure might also be required (e.g., the removal or replacement of additional screws or springs); however, these variations should be self-evident. These installation instructions should still be followed.

Before You Begin

Read the New Enhancement Parts service note (2565A-38, 2566A-40) if applicable. These service notes cover retrofit exceptions.

It is necessary that the installation of this Kit be done by a trained and experienced Customer Engineer (CE).

Before starting the installation of this kit, check the affected printer for installation of the latest Belt Tension Idler Assembly (02566-67919). **IF THIS KIT HAS NOT BEEN INSTALLED, IT SHOULD BE ACQUIRED AND INSTALLED BEFORE PROCEEDING WITH THIS UPGRADE.**

Tools Required:

- 2mm Allen wrench (platen handle set screw)
- 2.5mm Allen wrench (tractor belt cover screws)
- 3mm Allen wrench (tractor shaft collar clamping screws)
- 4mm Allen wrench (platen screws)
- 5mm Allen wrench (left end panel screws)
- 2 pt pozi-driver (corebar duct housing screws)
- 8mm wrench (spring plunger body)
- 17mm wrench (jam nut on spring plunger)
- Outside snap-ring pliers (platen gap shaft)
- Loctite 242 Removable Threadlock
- Safety glasses

NOTE

In some cases, ball drivers or hex drivers are preferable to standard Allen wrenches.

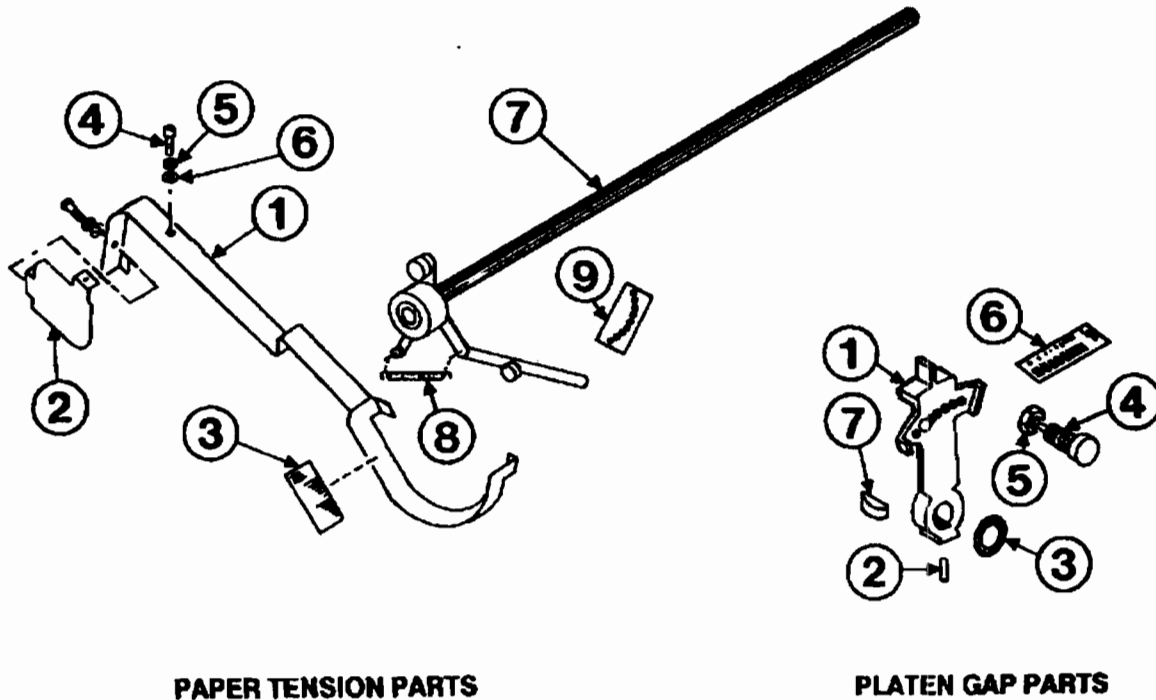
Parts Inventory:

PLATEN GAP PARTS:

__ (1)	Hndl: Platen Gap Adj	02566-20161 = 1 ea.
__ (2)	Scr:Set M4X6Hex	0515-0096 = 1 ea.
__ (3)	Washer: fiber	3050-1311 = 1 ea.
__ (4)	Spring Plunger: Gap Adj	02566-60346 = 1 ea.
__ (5)	Nut:Hex Jam	0535-0120 = 1 ea.
__ (6)	Label: Form Thickness	02566-00338 = 1 ea.
__ (7)	Key: Woodruff	1500-0674 = 1 ea.
___	Manual: Operator's	02566-90914 = 1 ea.

PAPER TENSION PARTS:

__ (1)	Guard: belt	02566-00327 = 1 ea.
__ (2)	Guard: Upr Drv Pulley	02566-00259 = 1 ea.
__ (3)	Lbl: Vert Paper Tension	02566-00328 = 1 ea.
__ (4)	Screw	0515-0925 = 6 ea.
__ (5)	Washer: split	2190-0584 = 6 ea.
__ (6)	Washer: flat	3050-0891 = 6 ea.
__ (7)	Lower Drv Shft & Phs Hdl	02566-60354 = 1 ea.
__ (8)	Spring: Phase Handle	1460-1323 = 1 ea.
__ (9)	Plate: Plunger (detent)	02566-40084 = 1 ea.



PAPER TENSION PARTS

PLATEN GAP PARTS

Figure 1. Kit Parts

2. REMOVAL

The following procedures describe all of the printer components which must be removed in order to begin installation of the upgrade kit parts.

1. Run a SELF TEST prior to installing the kit. (After kit installation run another self test and compare these tests to confirm that the print quality has not deteriorated.)
2. Remove the paper and use the Tractor Control Keys to move the tractors so that they do not obstruct access to the three platen mounting screws, or the split shaft collars (right end).
3. Disconnect the printer's power cable from it's power source (wall socket). Move the printer so that you have adequate work space on all sides.
4. (Optional) Turn the two slotted quarter-turn allen screws holding the sound shroud to the rear panel. Lift the shroud off. (Figure 3).

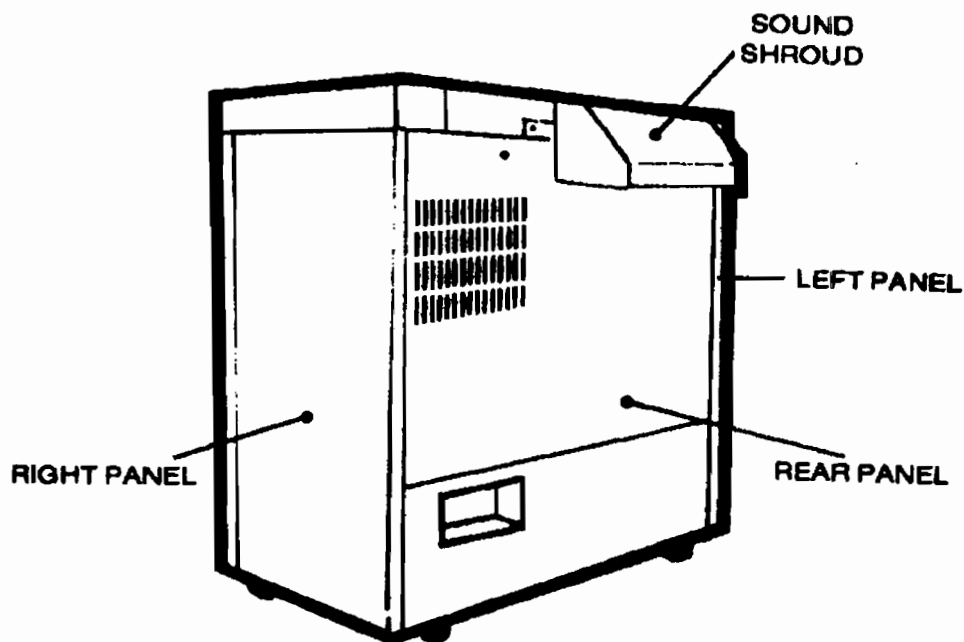


Figure 3. Panel Locations.

5. Remove the rear panel. Turn the two 3mm quarter-turn allen screws on the upper portion of the panel and lift the panel upward and away from the printer.

6. Remove the front door by opening it part way, grasping it near the hinge side, and pulling it straight up (the door is mounted on pins and not fastened - Figure 4).

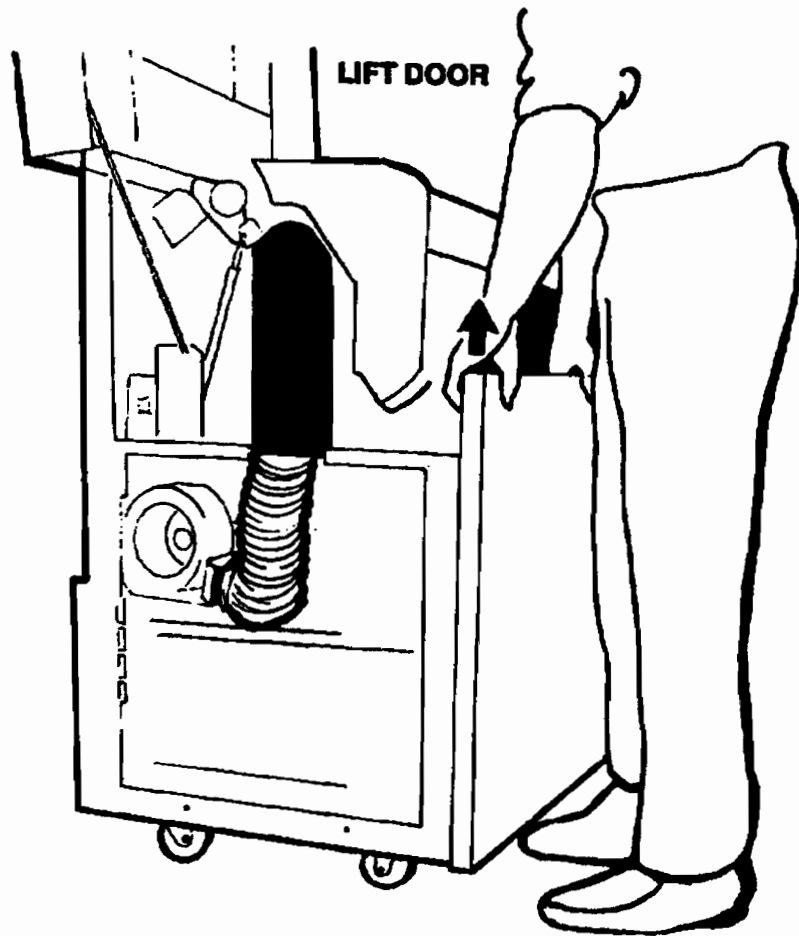


Figure 4. Removing Front Door

7. Remove the left end panel by removing the three 5mm allen screws securing the panel to the printer frame. Two of these screws are accessed from the rear of the printer, one from the front (Figure 5). lift upward and out to remove the panel

8. Remove the ribbon from the printer.

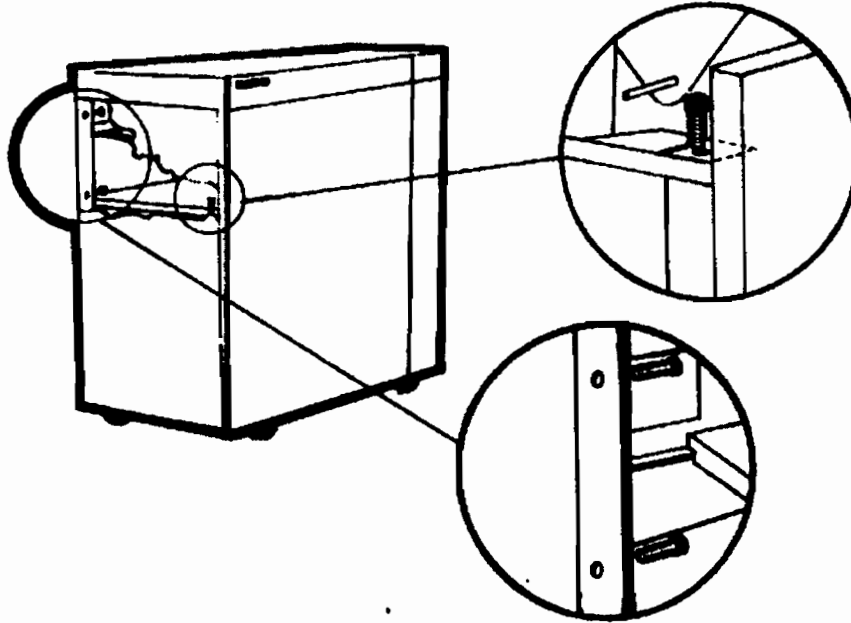


Figure 5. Left End Panel Mounting Screws

9. Remove the Ventilation Duct by performing the following steps:
 - a. Remove the two pozi-drive screws holding the upper duct bracket to the top edge of print mechanism casting.
 - b. Remove the screw holding each of the two lower duct brackets to the printer's frame (Figure 6).
 - c. Lift the duct outward and temporarily store duct on side of printer (do not disconnect air hose from duct).

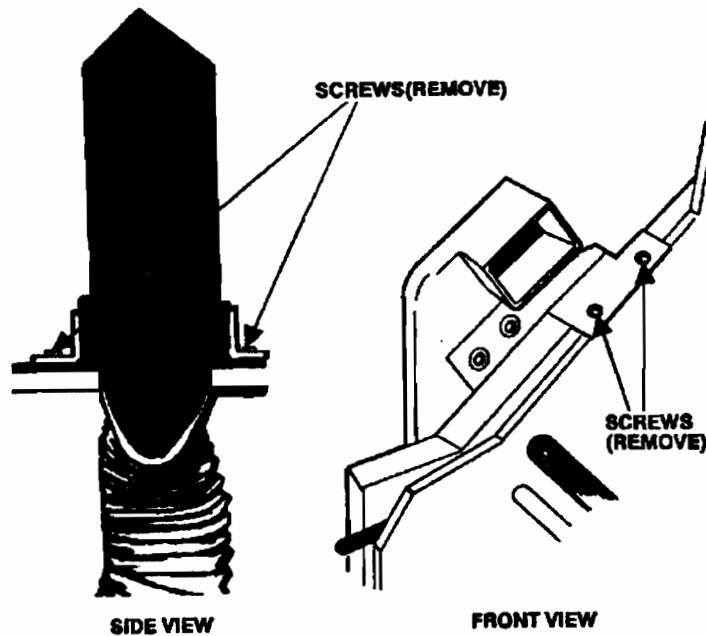


Figure 6. Removing Ventilation Duct

10. Use a 2.5mm driver to remove the four screws (five on some printers) holding the Belt Guard (Figure 7).

11. Remove the Tractor Drive Belt, as follows:

WARNING

Wear your safety glasses to avoid eye injury. Exercise caution when removing the tractor drive belt as there is a slight possibility that the idler arm may snap upwards.

- a. Relieve the tension on the belt by pulling the idler arm forward (Figure 7).
- b. Slide the belt off the pulleys and out.
- c. Inspect the belt for wear and replace if necessary (do not install yet).

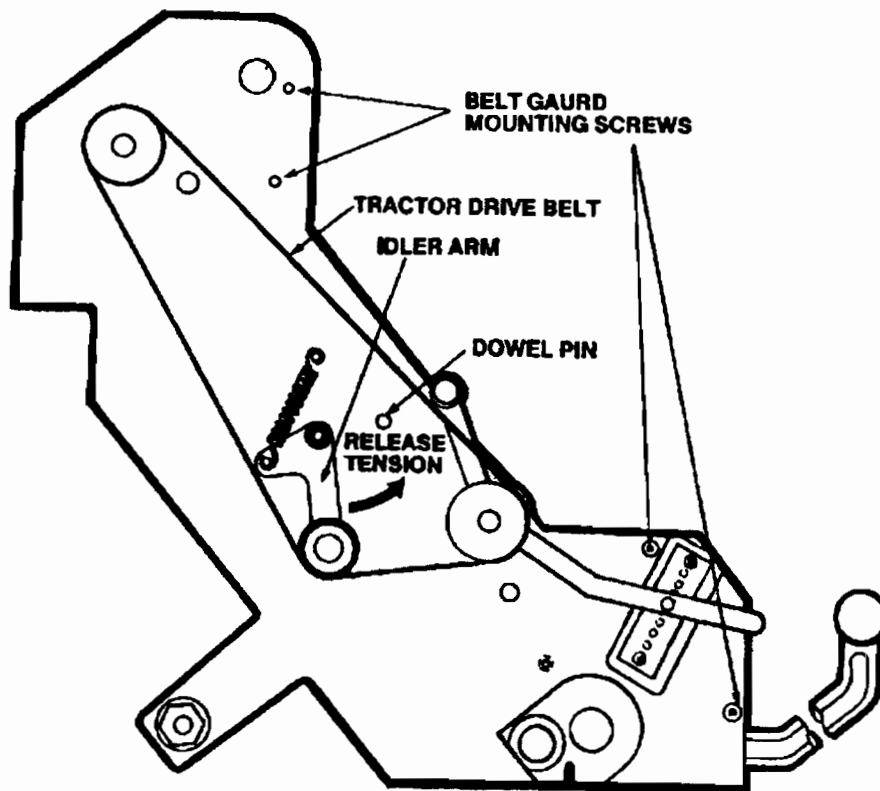


Figure 7. Removing the Tractor Belt Guard and Belt

12. Remove the lower tractor drive shaft, as follows:

- a. At the right end of the lower tractor drive shaft, loosen the 3mm clamping screw in the split collar which secures the shaft.
- b. Slide the lower tractor drive shaft toward the left, out of the tractors and out of the printer.

3. PAPER TENSION ASSEMBLY – INSTALLATION

This part of the upgrade kit contains a new lower drive shaft complete with idler assembly and new Vertical Paper Tension Lever (see Figure 1). This procedure assumes that the lower tractor drive shaft has been removed as described in Section 2.

Install as follows:

1. Replace the vertical paper tension detent plate with the new drilled plate for the spring plunger assembly as described in the following steps:
 - a. Use a 2.5mm driver to remove the two screws holding the old detent plate to the side of the casting (see Figure 7).
 - b. Install the new plunger plate, leaving the screws loose for now (Figure 7).

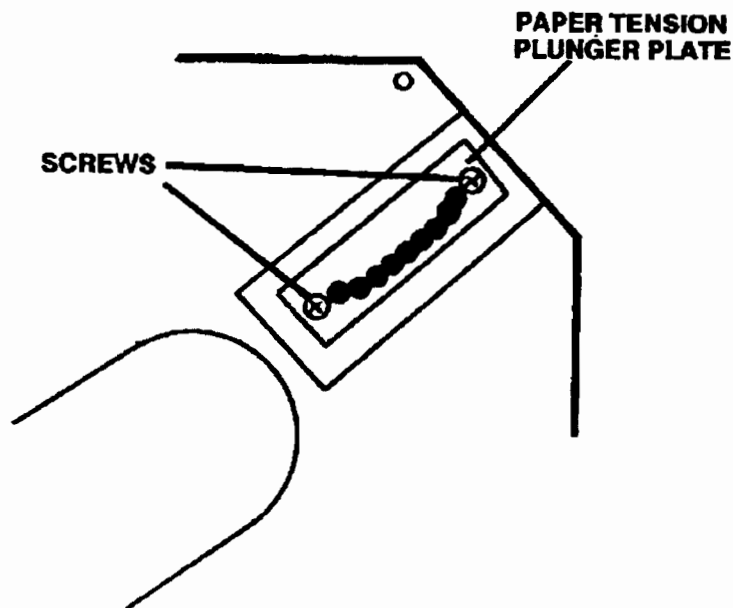


Figure 7. Replacing the Paper Tension Plunger Plate

2. Install the new lower tractor drive shaft as follows:

CAUTION

Be careful when handling the tractor drive shafts to avoid damaging the splines. Damaged splines can cause the tractors to bind during forms position and width adjustments.

- a. Slide the lower drive shaft through the left end of the casting, then through the left tractor and an inch or two beyond.
- b. Using a felt-tip pen, mark the spline groove of the shaft that passes directly beneath the small protrusion on the tractor's drive hub (see Figure 8).

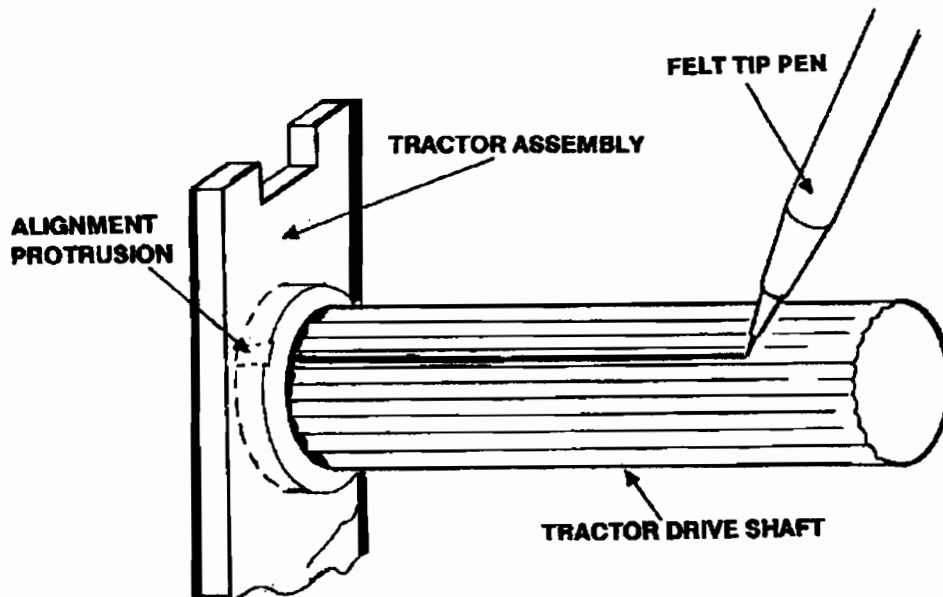


Figure 8. Aligning the Spline Groove with Left and Right Tractors

- c. Slide the shaft across and through the right tractor with the same spline groove passing directly beneath the protrusion on its hub. (This aligns the tractors to each other.)
- d. Slide the split collar over the end of the shaft, aligning the splits in the collar with the splits in the shaft.
- e. Be sure that the Paper Tension Lever is in correct position before seating the drive shaft all the way in toward right.

CAUTION

On some older model printers, the collar on the lower splined tractor drive shaft can bind against a mounting screw on the shaft mounting plate. This can cause damage to the tractor drive motor! On these printers, be sure to hold the collar back from the right wall of the printer's casting before tightening.

- f. Tighten the clamping screw on the lower drive shaft collar (ensure that the splits in the collar are aligned with the splits in the shaft).
3. Verify that the tractor drive shaft turns freely and does not have sideways play.

WARNING

Wear your safety glasses to avoid eye injury. Exercise caution when installing the drive belt as there is a slight possibility that the idler arm may snap upwards.

4. Pull the tension off the idler arm and slide the tractor drive belt back into position as shown in Figure 9.

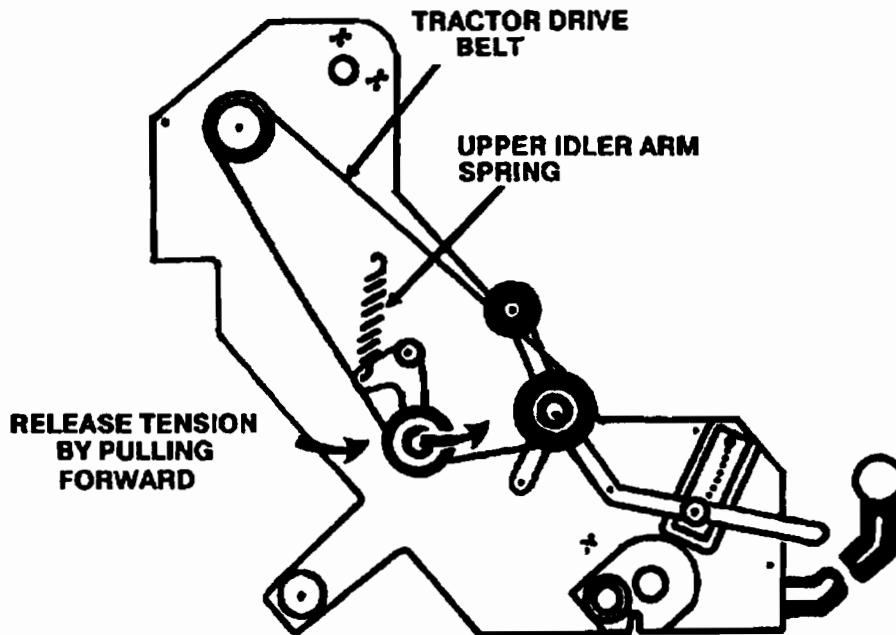


Figure 9. Re-Installing the Tractor Drive Belt

NOTE

As of June 1988 the following guidelines should be used for the installation of the belt tension idler spring.

- 1) If the printer is a Series 2819AXXXX (or an earlier series printer in which the Phase Gap Kit, part number 02566-67926, has been installed), two springs (1460-2073) are required on the belt tension idler. These two springs are required for proper tension of the CAST II belt tension roller/follower system. (Note, CAST II can be identified by the Paper Thickness Adjustment Lever. The CAST II lever mechanism will have a spring pin forms thickness detent in lieu of a ball plunger detent mechanism.
 - 2) For all other printers only one spring on the tension idler system is recommended.
-

5. Bring the Paper Tension Lever forward and install the tension arm spring on the two posts (see Figure 10 - Note that this spring is longer than the idler arm spring).

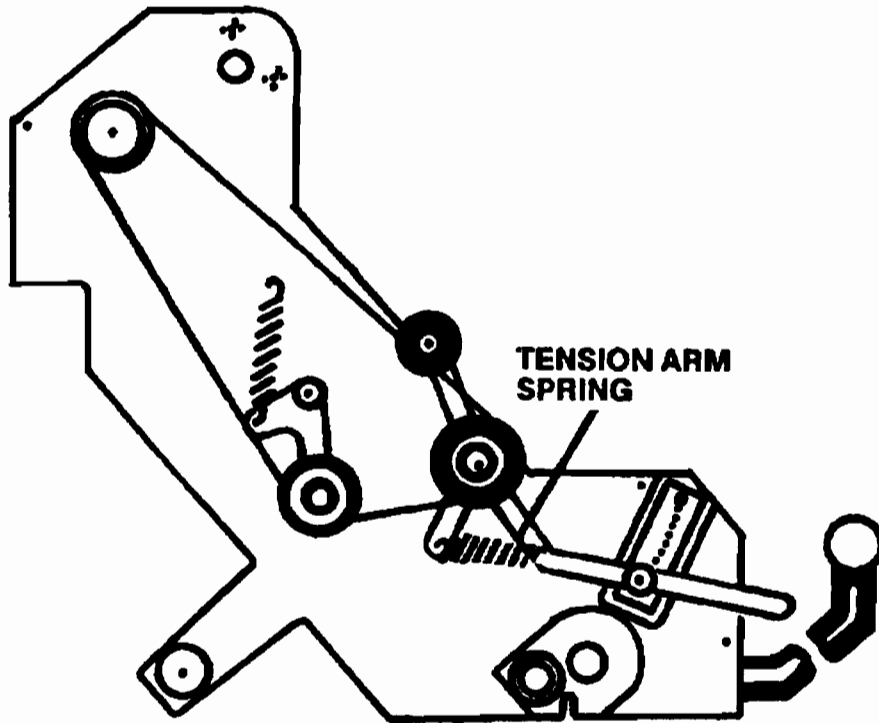


Figure 10. Installing the Tension Arm Spring

6. Using a 2.5mm wrench, install the new sheet metal belt cover, using the four mounting screws. Do not tighten the mounting screws until all are installed.

NOTE

Don't place the new label on the belt guard until after new cover is securely mounted and the Paper Tension Lever has been adjusted.

7. Mount the upper tractor drive pulley guard on the belt guard using 2 screws and washers (see Figure 11).

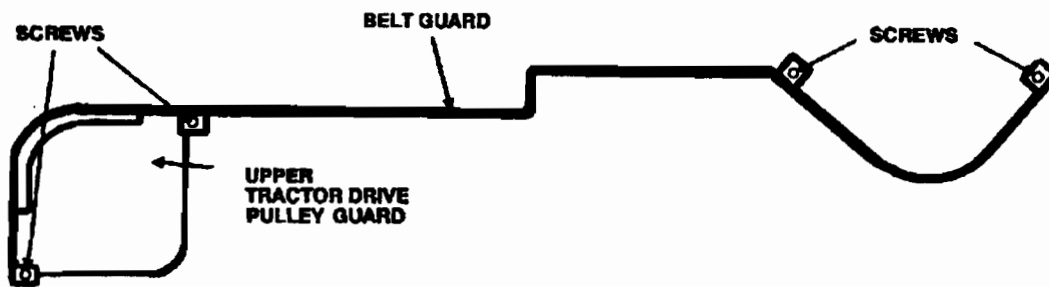


Figure 11. Installing the Belt and Pulley Guards

8. Adjust the Paper Tension Lever plunger mounting plate, as follows:
 - a. Place the Paper Tension Lever in top-most position. With the plunger rod fully engaged in the top hole of the plate, snug-down the upper mounting screw.
 - b. Place lever in bottom position. With the plunger rod fully engaged in the bottom hole of the plate, snug-down the lower mounting screw.
 - c. Tighten both screws securely and check plunger rod for free play. There should be no binding as the plunger engages in the holes of the plate.

9. Apply the paper tension adjustment label to the belt guard, as follows:
- Place the Paper Tension Lever in the top-most position.
 - Remove the backing from the label.
 - Align the "A" position line on the label with the top edge of the lever and apply the label, holding it along the right edge of the cover (see Figure 12).

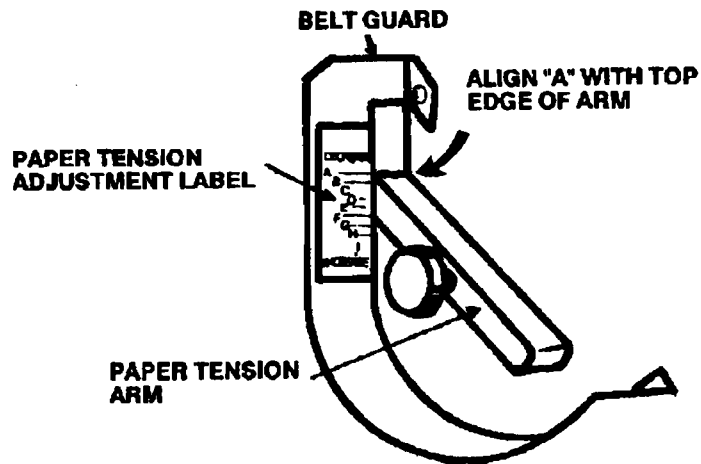


Figure 12. Applying the Paper Tension Adjustment Label

4. PAPER TENSION LEVER ADJUSTMENT

Adjust the Paper Tension Lever, as follows:



NOTE

Ensure that the Tractor Control Knob is in the **FORMS ALIGNMENT (PRINTING)** position while performing this adjustment.

1. Place the Paper Tension Lever in the fourth position down from the top ("D" position).
2. Place the two mylar triangles (02566-00261), or a sheet of paper in the upper and lower tractors.
3. If the drive teeth do not align vertically with the drive holes, the Tractor Phase Adjustment must be performed as follows:
 - a. Place the Paper Tension Lever all the way down to the "I" position.
 - b. With one hand, pull back on the drive belt idler arm to release the tension on the belt. This allows the lower drive shaft to turn without the belt turning. With your other hand, rotate the lower drive shaft past the cleats on the belt, until the tractor drive teeth align with the holes in the mylar (the top drive shaft should not turn).
 - c. Return the Paper Tension Lever to the fourth position down from the top ("D" position).
 - d. Verify the vertical alignment of the tractor drive teeth to ensure that they are centered in the holes. The Paper Tension setting may be set to either one setting more ("E" position) or one less ("C" position) and be sufficient.

5. PLATEN GAP HANDLE – INSTALLATION

The Platen Gap Handle has been re-designed to utilize a spring plunger mechanism for positive locking into adjustment position. This design eliminates possibility of the platen gap slipping out of adjustment. Figure 1 shows the new parts.

Install the new Platen Gap Handle assembly as follows:

1. Remove the platen gap handle as described in the following steps:
 - a. Raise the print mechanism swing-gate into the open position.
 - b. Remove the four pozi-drive screws securing the lower part of the right print mechanism cover and remove this cover (see Figure 13).
 - c. Using a large slotted screwdriver, remove the old ball detent assembly and discard.
 - d. Remove the ring clamp from the right end of the shaft (Figure 13).
 - e. Loosen the set screw in the platen gap handle (Figure 13).

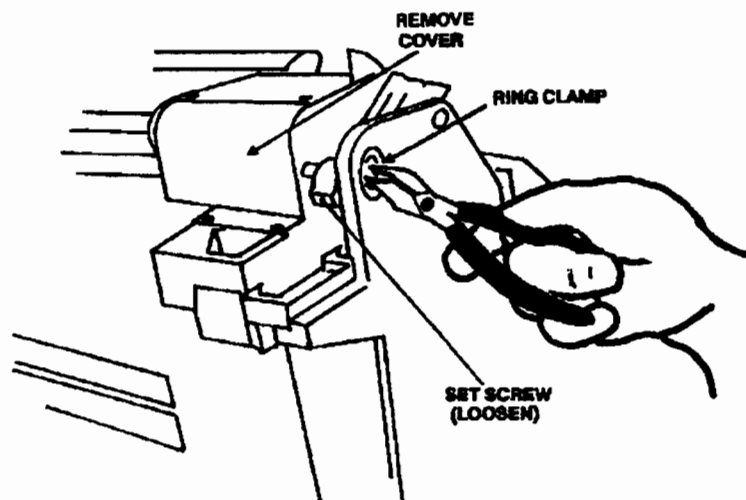


Figure 13. Set Screw and Ring Clamp

- f. Slide the shaft toward the left just enough to remove the old Platen Gap Handle (see Figure 14). The woodruff key may fall out. Discard the old handle and the key.

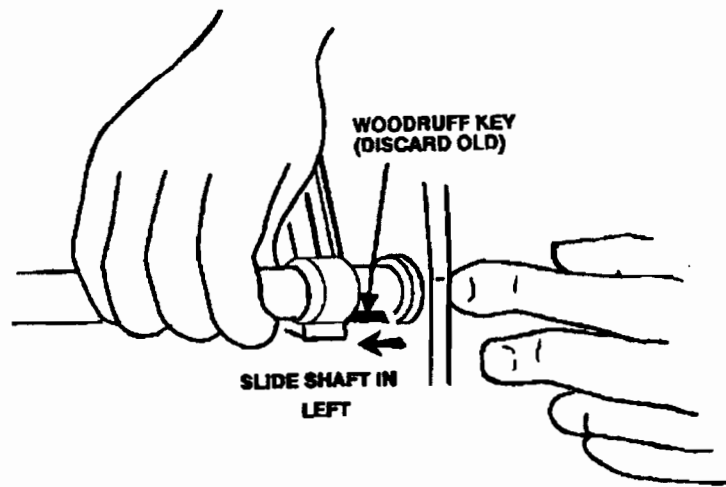


Figure 14. Removing the old Platen Gap Handle

- g. Remove the old "FORMS THICKNESS" label from the right print mechanism cover. Use isopropyl alcohol or another solvent to clean any adhesive residue from the cover.

2. Install the new Platen Gap Handle, as follows:

- a. Place the new Gap Handle into position and slide the shaft about 1/2 inch into the handle.
- b. Apply some petro-wax on the new woodruff key and insert the key into the slot in the handle and shaft. **Be sure to use a new woodruff key. The used key will be scored from the set screw and may cause the handle to offset to the side, making adjustment difficult.**
- c. Slide the shaft the rest of the way into the Platen Gap Handle and back over the key.
- d. Place the supplied fiber washer over the end of the shaft, and then slide the shaft through the hole in the right side of the casting. **Do not insert the set screw yet.**
- e. Replace the ring clamp on the end of the shaft.
- f. Apply a dab of Loctite 242 on the threads of the platen handle set screw and start the set screw into its threads.
- h. Apply pressure to the right end of the shaft and opposite pressure on the gap handle while tightening the set screw on the bottom of the handle. Tighten the set screw securely. (see Figure 15). This eliminates all sideways play in the shaft.
- i. Replace the lower part of the right print mechanism cover.

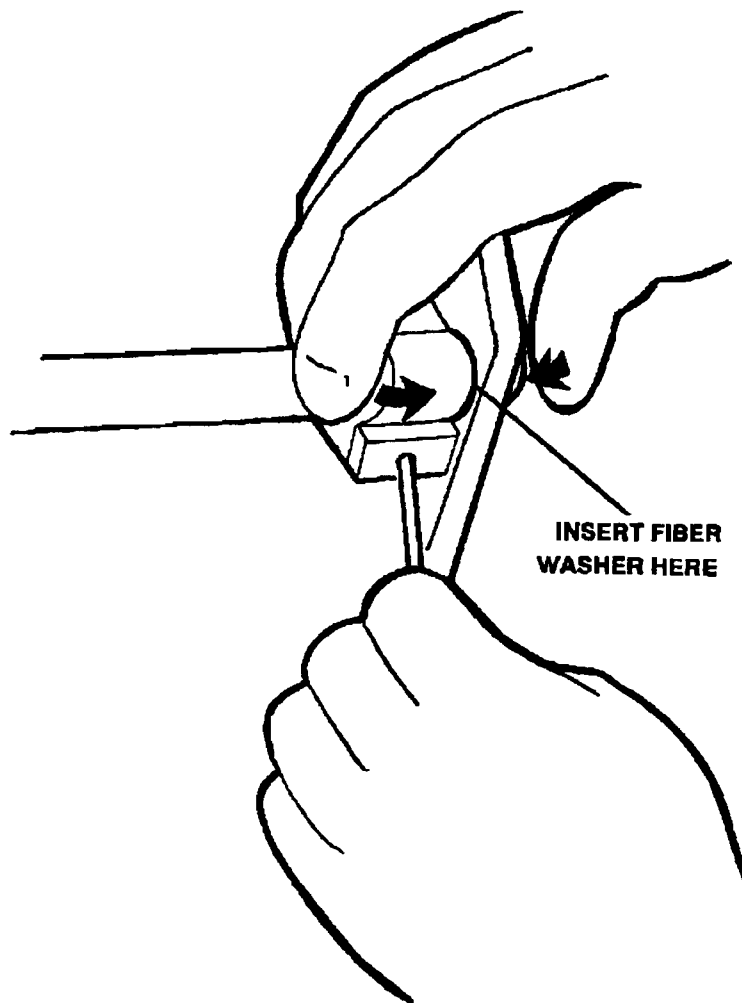


Figure 15. Tightening the Platen Handle on the Shaft

3. Install the new spring plunger assembly, as follows:
 - a. Install the hex "jam-nut" onto the spring plunger assembly body.
 - b. Apply a dab of Loctite 242 to the threads on the plunger assembly body.
 - c. Thread the new plunger assembly into the same hole in the casting (Figure 16). Do not tighten yet.

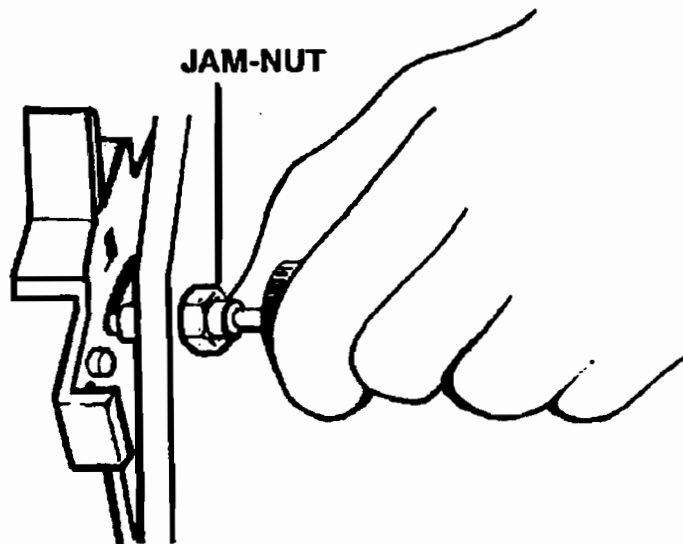


Figure 16. Spring Plunger Assembly

- e. Place the handle in the CE adjust position, engaging the plunger rod to hold it (see Figure 17).

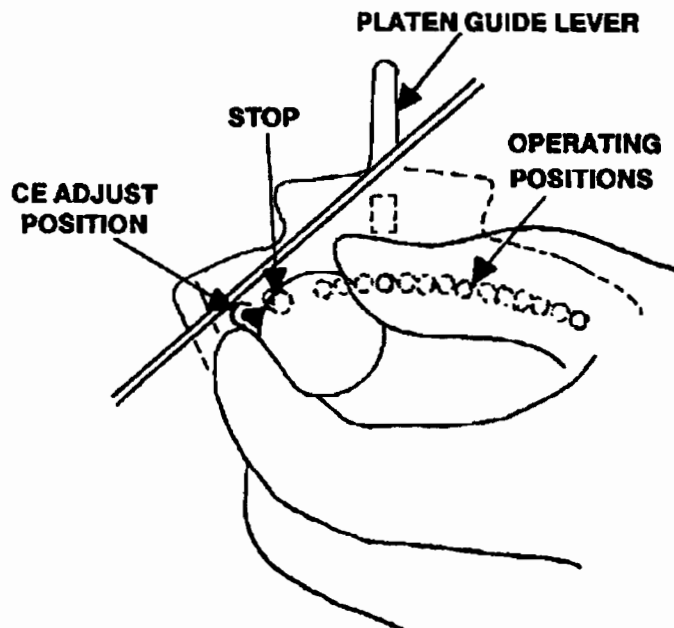


Figure 17. Platen Handle in CE Adjust Position

6. PLATEN GAP HANDLE – ADJUSTMENTS

1. Adjust the platen gap, as follows:
 - a. Use a long shank 4mm Allen wrench to loosen the three platen adjustment screws.
 - b. **With the Platen Gap Handle in CE ADJUST position, close the swing gate gently.** This causes the print mechanism to press against the platen assembly.
 - c. Snug-down then securely tighten the three 4mm platen mounting screws in the following sequence: (1) Center, (2) Left, (3) Right.
2. Adjust the platen gap spring plunger assembly, as follows:
 - a. Raise the print mechanism swing-gate.
 - b. Back-out the spring plunger body to allow the Platen Gap Handle to return to normal operator position.
 - c. Thread the plunger body in far enough to prevent the Platen Gap Handle from being moved into the CE adjust position, but not so far in as to cause interference with movement of the handle. Verify that the handle can be placed in all operator adjust positions, especially the first and last positions.
 - d. Tighten the "jam-nut" against the side wall of the casting to prevent movement of the plunger body. (You can turn or hold the plunger body using a 17mm open-end or adjustable end-wrench on the flattened area on the side (see Figure 18).

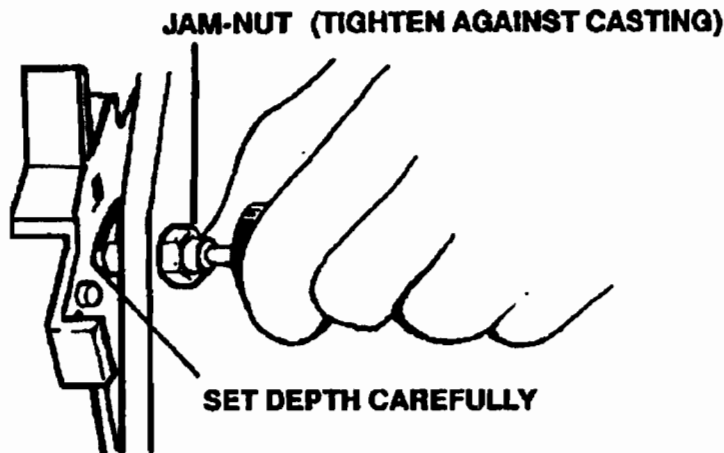


Figure 18. Adjusting the Platen Handle Spring Plunger

- e. Place the platen gap lever in the top position, and install the new "FORMS THICKNESS" label on the right edge of the print mechanism cover, aligning the "A" on the label with the upper edge of the lever.

7. BUTTON-UP

When the above procedures are complete, you are ready to replace all printer components, as follows:

1. Re-install the ribbon.
2. Install paper and fine-adjust paper tension.
3. With the Tractor Control Knob set in the **FORMS ALIGNMENT (PRINTING)** position, try several form-feeds and printing tests using all the customer's various forms to verify paper motion.
4. Compare a new self-test printout to the one obtained before beginning this installation to verify that there is no loss of print quality.
5. Re-install the corebar blower duct.
6. Re-install left and rear printer panels, the sound cover and the front door (if removed).

