1159SBD000AA

EP1030/EP1030F
EP1031/EP1031F

DIS/REASSEMBLY, ADJUSTMENT

MINOLTA

1159SBD0000BA

◆ For the Utmost safety ◆

⚠ Warning

- For replacement parts, use the genuine parts with their part numbers specified in the parts manual. Use of a wrong part could cause an overload or dielectric breakdown resulting in an electric shock or fire.
- Replace a blown fuse or thermal fuse with the corresponding genuine part with its part number specified in the parts manual. Use of a fuse with a different rating or one with the same rating but of a different type can result in a fire.
  Especially when a thermal fuse blows frequently, the thermal control system is probably faulty.
  Be sure to take necessary action.
- Before attempting to disassemble the machine, be sure to unplug its power cord. The machine contains a high voltage unit and a circuit with a large current capacity that may cause an electric shock or burn from sparking.
  The machine also contains quick moving parts, which could injure a person.
  If the machine uses a laser, a person can lose his/her eyesight by a laser beam leak.
- Wherever feasible, keep the covers and parts mounted when energizing the machine.
  If it is absolutely necessary to energize the machine with its cover removed, do not touch an exposed part that is being charged and use care not to allow your clothing to be caught by a timing belt, gear, or other moving part.
- Do not leave the machine unattended while it is being energized.

⚠ Caution

- To actuate an interlock switch with a cover removed or opened, be sure to use the interlock switch actuating jig. Use of folded paper can damage the interlock switch mechanism.

⚠ Caution

- A high voltage is being applied to the part marked with the symbol shown on the right. Touching it can cause an electric shock. Be sure to unplug the power cord when servicing this part or other parts near it.



- When the machine is energized with any of its covers removed, never use a flammable spray near it, as a fire can result.
- Make sure that correct screws (diameter and length of the screw, binding/tapping screws) are used in the correct places when assembling parts. If a wrong screw is used, a short insulating distance could result. It could also result in collapsed threads, which provides only a poor grounding connection, resulting in an electric shock.
- A toothed washer and spring washer, if used originally, must be reinstalled. If they are left out, a contact failure results, causing an electric shock or fire.
- Replace a lithium cell only with one having the part number specified in the parts manual. An explosion could result if the cell is installed with wrong polarity or a wrong cell is installed.
  Dispose of a used lithium cell according to the applicable local regulations. Never throw it away or abandon it on the user's premises.

◆ Other Precautions ◆

- While the machine is being energized, do not unplug or plug in a connector on a PWB or relay harness.
- Since the Magnet Roller of the Imaging Unit generates a strong magnetic force, do not bring a CRT, watch, floppy disk, or magnetic card near it.
- Use of an air gun or vacuum generates static electricity which can cause the ATDC Sensor and associated parts to break down. Be sure therefore to use a blower brush or cloth to clean these parts. If a unit is to be cleaned, be sure to remove the sensors in advance.
- MOS ICs are susceptible to static electricity. When handling a PWB loaded with MOS ICs, follow precautions given in "INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs."
- The PC Drum is highly delicate. When handling the PC Drum, follow the precautions given in "HANDLING OF THE PC DRUM."
- To reassemble, reverse the order of disassembly unless otherwise specified.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

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1139SBD0100A

1 SERVICE INSTRUCTIONS

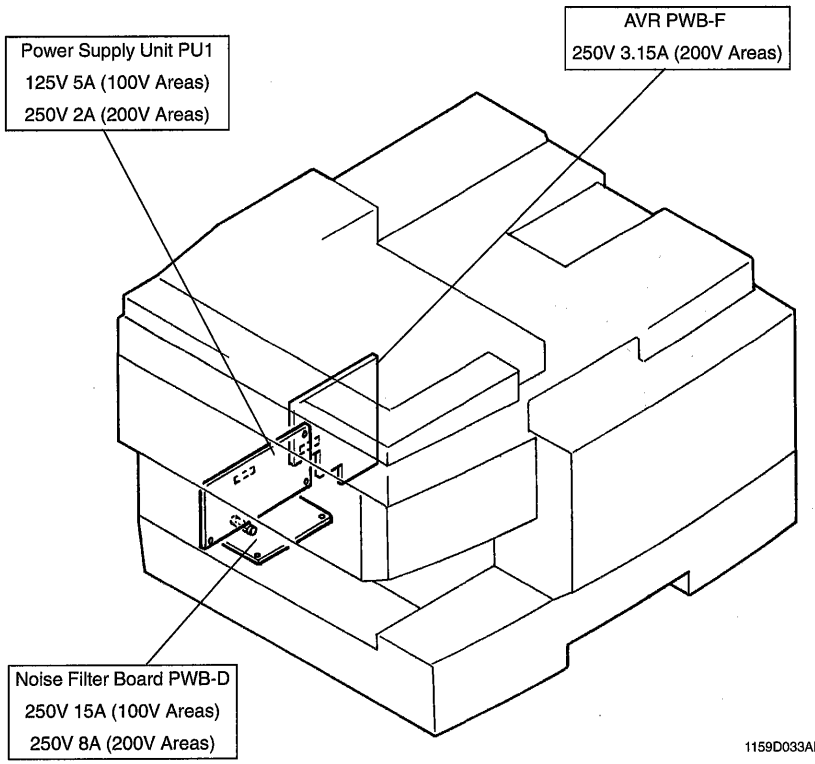
1159SBD0101A

1-1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

Observe the following precautions whenever servicing the copier.

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly.
  If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- Do not plug in or unplug print jacks on the Board or connect or disconnect the Board connectors while power is being supplied to the copier.
- Do not use flammable spray around the copier in operation.
- The Magnet Roller of the Imaging Unit generates strong magnetic force. Do not bring it near a cathode-ray tube or watch.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.
- When handling the PWBs with MOS ICs, observe "Instructions for Handling the PWBs with MOS ICs."
- When handling the PC Drum, observe precautions given in "Handling of the PC Drum."
- Note that replacement of a PWB may call for readjustments or resetting of particular items.
- Use the right screw in the right place at reassembly. Note that some are longer and some are thicker than others.
- A toothed washer is used with the screw that secures the ground wire to ensure positive conduction. Do not forget to insert this washer at reassembly.
- To reassemble the copier, reverse the order of disassembly unless otherwise specified.
- If it becomes necessary to replace the thermal fuse or any other fuse mounted on a board, be sure to use one of the rating marked on the blown fuse.
  Always note the rating marked on the fuse, as the rating and mounting site or number used are subject to change without notice.
- Do not pull out the Toner Hopper while the Toner Bottle is turning, as a damaged Toner Replenishing Motor or locking mechanism could result.
  If the copier is to be run with the Front Door swung down, make sure that the Toner Hopper is in the locked position.

<List of Fuses Used>



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1-2. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

During Replacement:

- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

During Inspection:

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the Board, be sure to ground your body.

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1-3. HANDLING OF THE PC DRUM

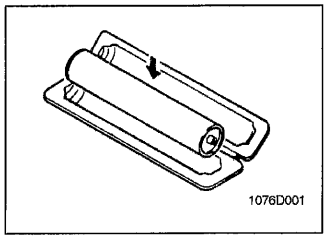
During Transportation/Storage:

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between –20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

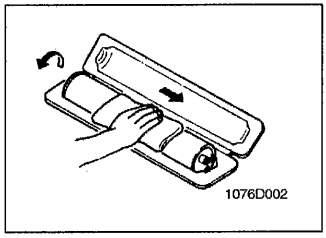
Handling:

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.

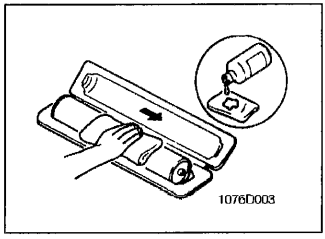


1. Place the PC Drum into one half of its container.



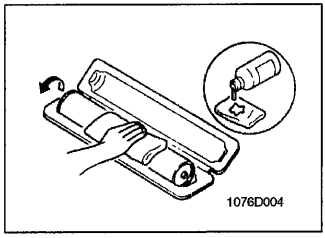
2. Gently wipe the residual toner off the surface of the PC Drum with a dry, Dust-Free Cotton Pad.
   a) Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
   b) Rotate the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the Dust-Free Cotton Pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

   * At this time, always use a CLEAN face of the dry Dust-Free Cotton Pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused Dust-Free Cotton Pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

   * Never move the Pad back and forth.



4. Using the SAME face of the Pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.*
- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

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1-4. PARTS WHICH MUST NOT BE TOUCHED

(1) Screws

Purpose of Application of Red Paint

Red paint is applied to the screws which cannot be readjusted, set, or reinstalled in the field.
The basic rule is not to remove or loosen the screws to which red paint is applied. In addition, be advised that, if two or more screws are designated as those which must not be touched on a single part, only one representative screw may be marked with red paint.

(2) Variable Resistors on Board

Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

2 DISASSEMBLY/REASSEMBLY

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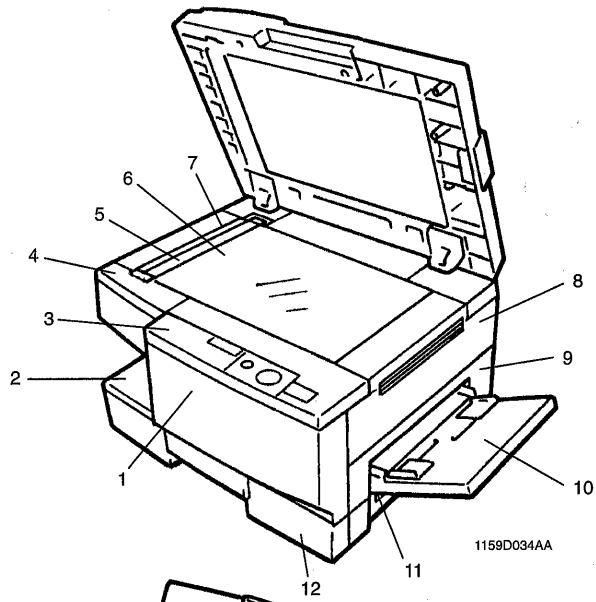
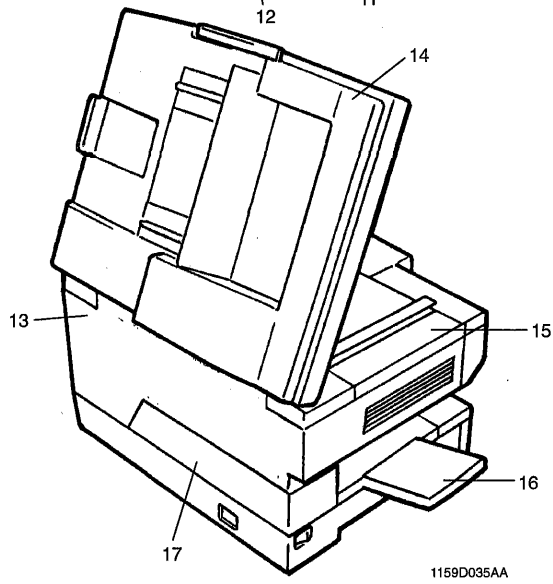
2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES





No.	Parts Name	Removal Procedure
1	Front Door	Swing down No. 1. → Open Front door to the right and remove from the right side.
2	Middle Front Cover	Pull out No. 12. → Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove two screws that secure the Middle Front Cover.
3	Control Panel	Remove two screws that secure the Control Panel.
4	Upper Front Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 15. → Remove two screws that secure the Upper Front Left Cover.
5	Original Scales	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 15. → Remove No. 4. → Remove two screws that secure the Original width Scales.
6	Original Glass	
7	SDH Glass (*1)	
8	Upper Right Cover	Remove two screws that secure the Upper Right Cover.
9	Middle Right Cover	Swing down No. 1. → Remove No. 11. → Remove two screws that secure the Middle Right Cover.
10	Manual Bypass Table	Remove two screws that secure the Manual Bypass Table.
11	Right Door	<EP1031/EP1031F> Open No. 11. → Remove No. 9. → Remove two screws that secure the Right Door.
		<EP1030/EP1030F> Remove No. 9. → Remove two screws that secure the Right Door.
12	Pape Feed Cabinet	Pull out the Paper Feed Cabinet
13	Rear Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove two screws that secure the Upper Rear Cover.
14	SDH (*1)	See p. D-34.
	Original Cover (*2)	Open the Original Cover → Remove the Hinge.
15	Upper Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove four screws that secure the Upper Left Cover.
16	Exit Cover	Remove No. 17.
17	Middle Rear Left Cover	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove three screws that secure the Middle Rear Left Cover.

*1 : EP1030F/EP1031F only
*2 : EP1030/EP1031 only

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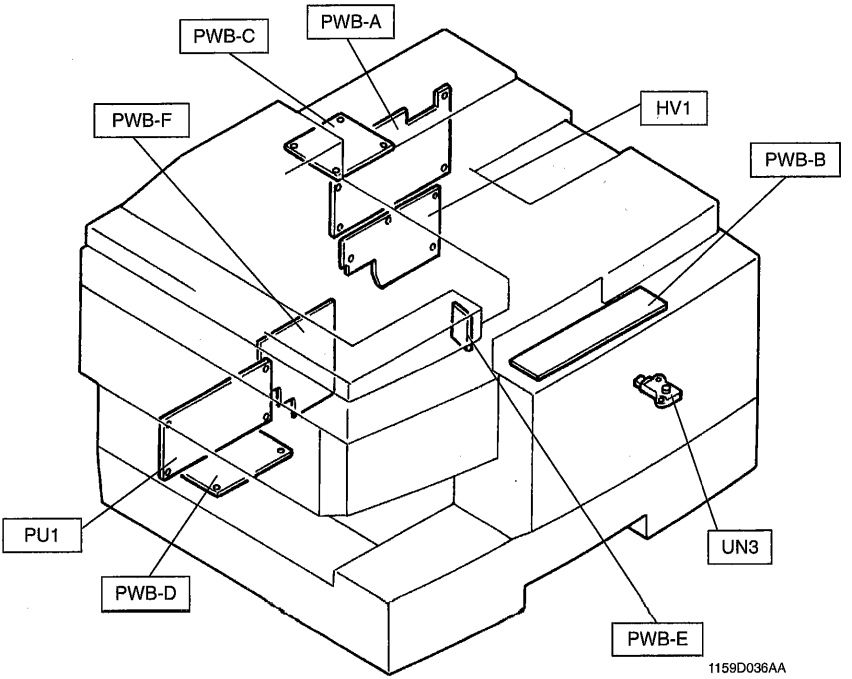
2-2. REMOVAL OF PWBs

- When removing a circuit board, refer to "PRECAUTIONS FOR HANDLING THE PWBs" contained in SWITCHES ON PWBs and follow the corresponding removal procedures given on the next page.
- Replacement of a circuit board may call for readjustment or resetting of particular items.
- The removal procedures given on the next page omit the removal of connectors and screws securing the circuit board support or circuit board.
- Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.



Symbol	Parts Name	Removal Procedure
PWB-A	Master Board	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 13.
PWB-B	MSC Board	Remove No. 3.
PWB-C	SDH Board (*1)	Remove No. 14. → Remove the SDH Lower Rear Cover. → Remove the Mat. → Remove the SDH Front Rear Cover. → Remove the SDH PWB Mounting Bracket Assy.
PWB-D	Noise Filter Board	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 17. → Remove the Power Supply Unit Mounting Bracket Assy. → Remove the AVR Mounting Bracket Assy.
PWB-E	AE Sensor Board	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 15. → Remove No. 5, 6, and 7. → Remove the AE Sensor Board Mounting Bracket Assy.
PWB-F	AVR	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 17. → Remove the Contact Plate.
PU1	Power Supply Unit	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 17. *NOTE: Never replace individual parts within the Power Supply when repairing it. Always replace the entire Power Supply Unit.*
HV1	Hight Voltage Unit	Swing down No. 1. → Release and swing up the Upper Half of the copier. → Remove No. 13.
UN3	ATDC Sensor	———

*1 : EP1030F/EP1031F only

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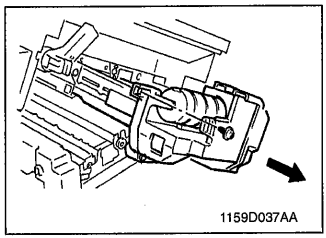
2-3. PAPER TAKE-UP/TRANSPORT SECTION

(1) Removal of the Paper Take-Up Roll and Separator Roll Assy

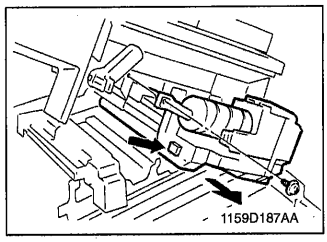
1. Remove two screws and the Upper Right Cover.
2. Remove two screws and the Middle Right Cover.
3. Remove one screw and the Right Door.
4. Pull out the Paper Feed Cabinet.
5. Swing down the Front Door.
6. Release and swing up the Upper Half of the copier.
7. Remove three screws and the Rear Cover.

<USA, Canada>

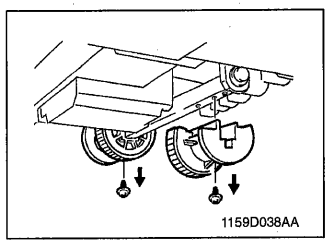


8. Remove one screw and the Imaging Unit from the copier.

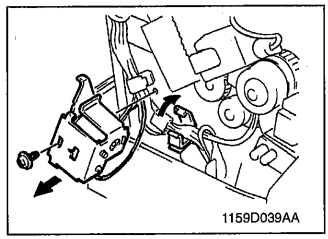
<Except USA, Canada>



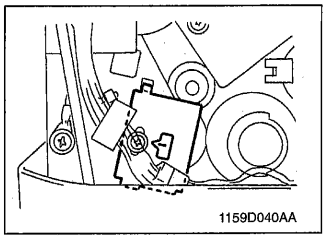
8. Push the lock lever and remove the IU.



9. Remove each of the two screws and the Paper Take-Up Roller.

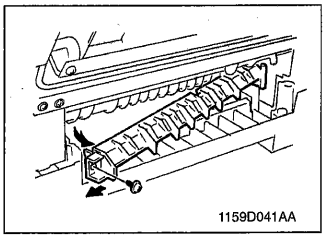


10. Open the Cord Clamp.
11. Remove one screw and the Multi Bypass Paper Take-Up Solenoid Assy. (EP1031/EP1031F Only)

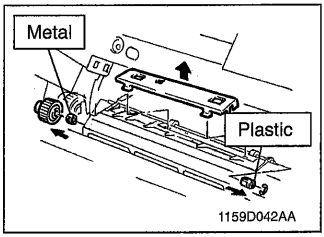


NOTE

When reinstalling the Multi Bypass Paper Take-Up Solenoid Assy, make sure that the marking-off line is aligned with the triangle of the hole.



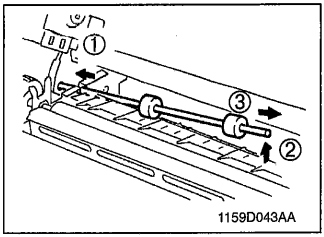
12. Remove one screw and the Gide Plate.



13. Remove the Separator Roller Guide Plate.
14. Remove the Rear Gear.
15. Snap off the one E-ring to remove the front and rear Bushings.

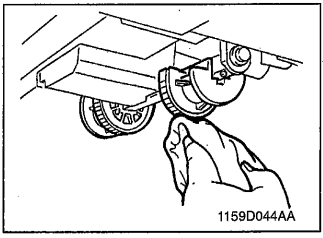
NOTE

When reassembling the bushing, make sure not to mistake the front and rear components.
The front is plastic and the rear is metal.



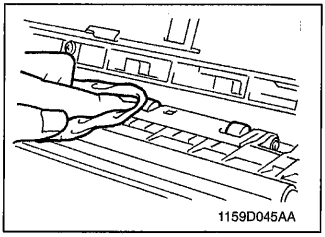
16. Move the Separator Roller to the rear and, as shown in by the sequence in the illustration to the left, remove it from the front.

(2) Cleaning of the Paper Take-Up Rolls



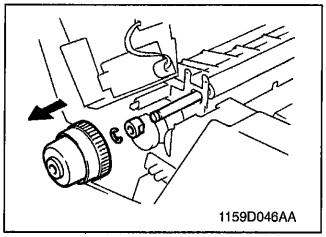
1. Pull out the Paper Feed Cabinet.
2. Using a soft cloth dampened with alcohol, wipe clean the two Paper Take-Up Rolls.

(3) Cleaning of the Separator Rolls

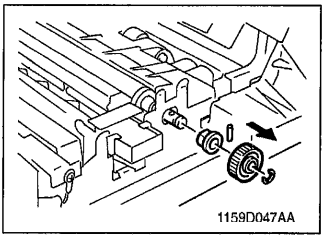


1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove one screw and the Imaging Unit from the copier.
4. Using a soft cloth dampened with alcohol, wipe clean the two Separator Rolls.

(4) Removal of the Synchronizing Roller



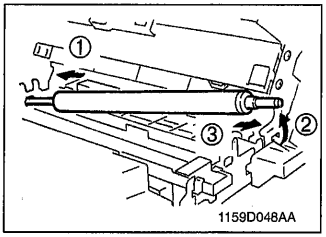
1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove the Imaging Unit from the copier.
4. Remove three screws and the Rear Cover.
5. Snap off the one E-ring to remove the Timing Clutch.
6. Snap off the one E-ring to remove the Rear Bushing.



7. Snap off the one E-ring to remove the Gear.
8. Remove the front Bushing.

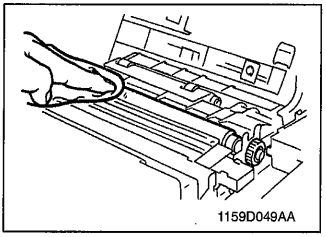
NOTE

Use care not to loose the Set Pin when removing the Gear.



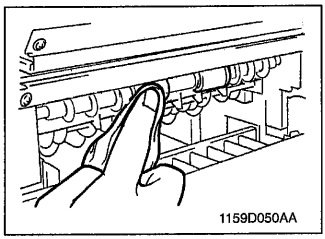
9. Move the Timing Roller to the rear and, as shown in the illustration to the left, remove it from the front.

(5) Cleaning of the Synchronizing Roller



1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Using a soft cloth dampened with alcohol, wipe clean the Synchronizing Roller.

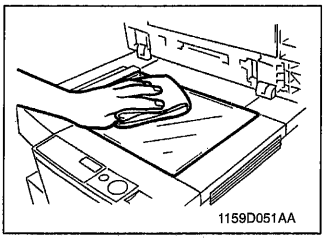
(6) Cleaning of the Multi Bypass Feed Roller (EP1031/EP1031F Only)



1. Open the Right Door.
2. Using a soft cloth dampened with alcohol, wipe clean the two Multi Bypass Paper Feed Rollers.

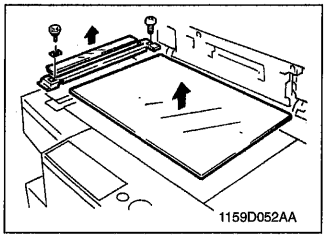
2-4. OPTICAL SECTION

(1) Cleaning of the Original Grass

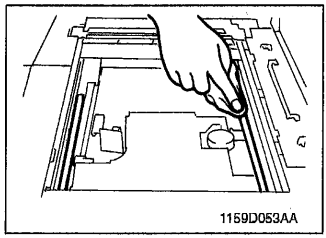


1. Wipe clean the Original Glass with a soft cloth.

(2) Cleaning of the Scanner Rail and Bush



1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove four screws and the Upper Left Cover.
4. Remove two screws and the Original Width Scale.
5. Remove the SDH Glass. (EP1030F/EP1031F Only)
6. Remove the Original Glass.



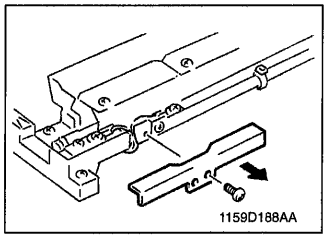
7. Wipe clean the Scanner Rail and Bush with a soft cloth.

NOTE

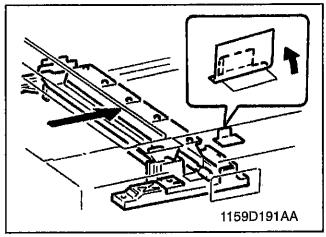
Be sure to apply lubricating oil after the Scanner Rail and Brush have been cleaned.

(3) Cleaning of the Exposure Lamp

1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove four screws and the Upper Left Cover.
4. Remove one screw and the Upper Front Left Cover.
5. Swing down and lock the Upper Half of the copier.
6. Remove two screws and the Original Width Scale.
7. Remove the SDH Glass. (EP1030F/EP1031F Only)
8. Remove the Original Glass.



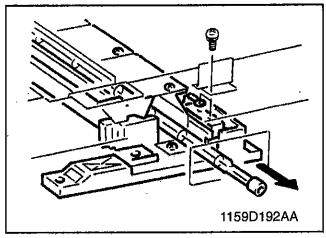
9. Remove one screw and front terminal cover.



10. Move the Scanner to the position shown on the left and peel the seal partly off the copier frame.

NOTE

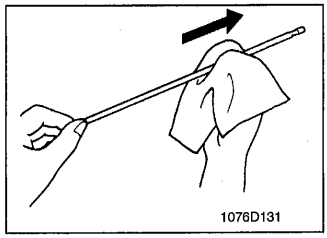
Do not peel the seal completely off the frame. After the cleaning steps have been completed, affix it back again.



11. Remove one screw and front Scanner Harness.
12. Remove one screw and the Exposure Lamp Terminal.
13. Slide out the Exposure Lamp.

NOTE

When the Exposure Lamp has been cleaned or replaced, be sure to make the "adjustment of optimum exposure setting in the Manual Exposure mode." (See p.D-44) and "adjustment of exposure Level in the Auto Exposure mode." (See p.D-46)

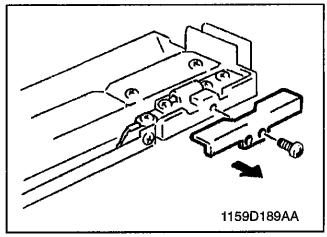


14. Using a soft cloth dampened with alcohol, crean the lamp by gently wiping its surface in one direction.

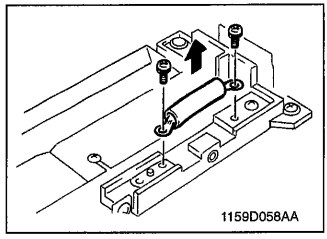
NOTE

When reinstalling the lamp, point the protruding navel of the lamp toward the opening in the Lamp Reflector so that the protruding navel will not hit against the Lamp Reflector.

(4) Removal of the Thermal Fuse

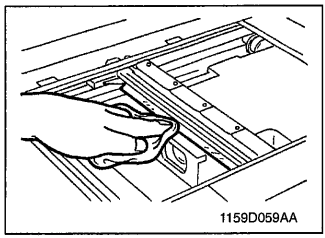


1. Remove one screw and rear terminal cover.

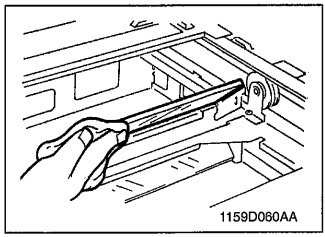


2. Remove two screws and the Thermal Fuse.

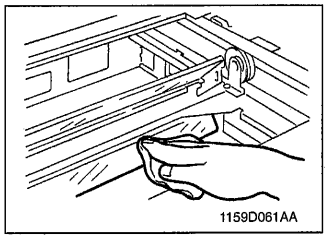
(5) Cleaning of the 1st, 2nd, and 3rd Mirrors



1. Wipe clean the 1st Mirror with a soft cloth.

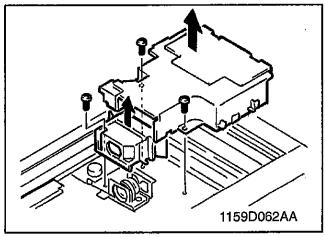


2. Wipe clean the 2nd Mirror with a soft cloth.

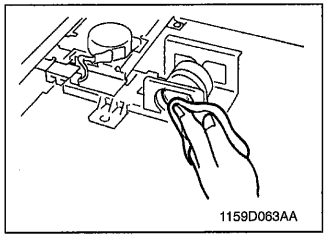


3. Wipe clean the 3rd Mirror with a soft cloth.

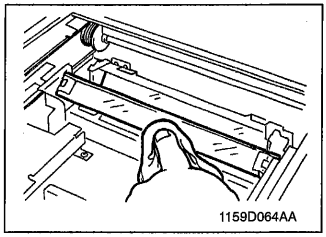
(6) Cleaning of the Lens and 4th and 5th Mirrors



1. Remove the Original Glass.
2. Remove two screws and the Optical Cover.
3. Remove two screws and the Lens Cover.

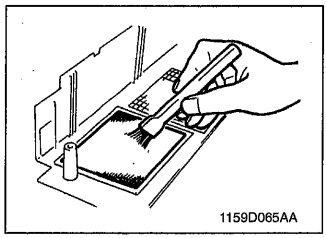


4. Gently dust off the surface of the Lens using a soft cloth.



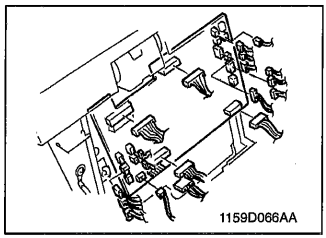
5. Wipe clean the 4th and 5th Mirrors with a soft cloth.

(7) Cleaning of the Cooling Fan Filter

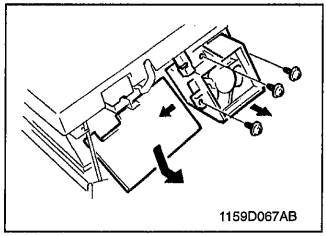


1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove three screws and the Rear Cover.
4. Clean the Cooling Fan Filter using a brush or a vacuum cleaner.

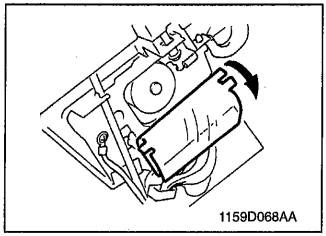
(8) Removal Scanner Drive Motor M4



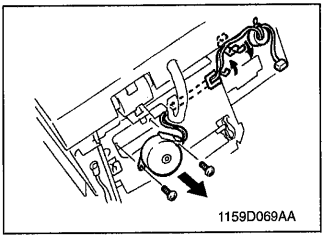
1. Remove the Upper Right Cover.
2. Swing down the Front Door.
3. Release and swing up the Upper Half of the copier.
4. Remove three screws and the Rear Cover.
5. Remove the 17 connectors from the PWB-A.



6. Remove the PWB-A.
7. Remove the three screws and the Ozone Fan Motor Assy.



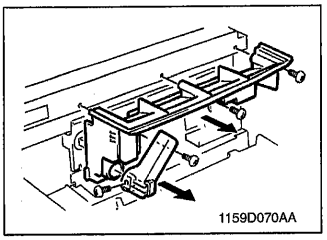
8. Free the Mylar.



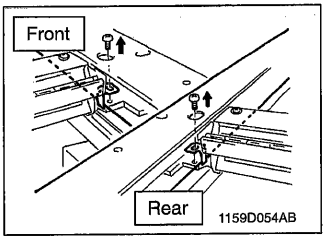
9. Remove the Harness for the Scanner Drive Motor from the Locking Edge Cover and remove it from the Cord Clamp.
10. Remove two screws and the Scanner Drive Motor M4.

(9) Removal of the Scanner Drive Cable

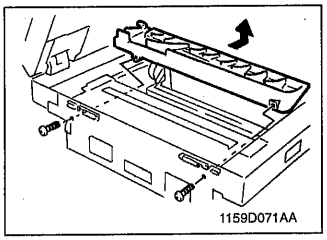
1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove the Imaging Unit from the copier.
4. Remove the Upper Left Cover, Upper Front Left Cover and Rear Cover.
5. Swing down and lock the Upper Half of the copier.
6. Remove the Original Scale and Original Glass.
7. Remove the SDH Glass. (EP1030F/EP1031F Only)
8. Remove the Upper Right Cover.



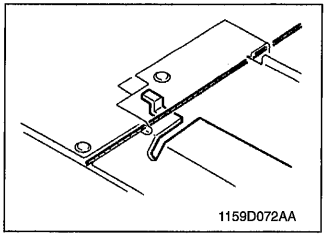
9. Remove the two screws and one connector and the Control Panel.
10. Remove the one screw and the Upper Unit Release Lever.
11. Remove the three screws and the Lower Panel Cover.



12. Move the Scanner to the center and remove the one screw and the front and rear Scanner Mounting Brackets.

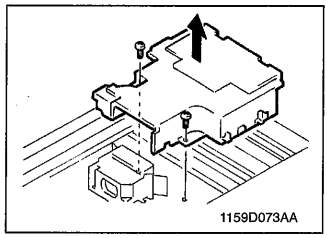


13. Remove the two screws and the Optical Section Cooling Duct.

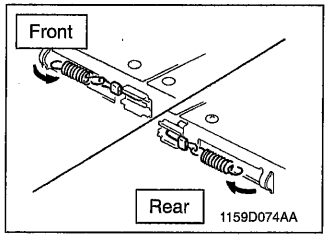


NOTE

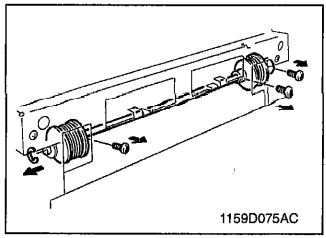
When reassembling the Optical Section Cooling Duct, make sure the Rear Wire is retained as shown in the illustration.



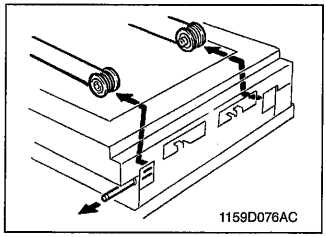
14. Remove two screws and the Optical Cover.



15. Unhook each of the two springs at the front and rear and remove the cable.



16. Snap off the one E-ring from the Pulley Shaft.
17. Remove the one screw from the Drive Belt Pulley.
18. Remove each screw from the front and rear Cable Drive Pulleys.

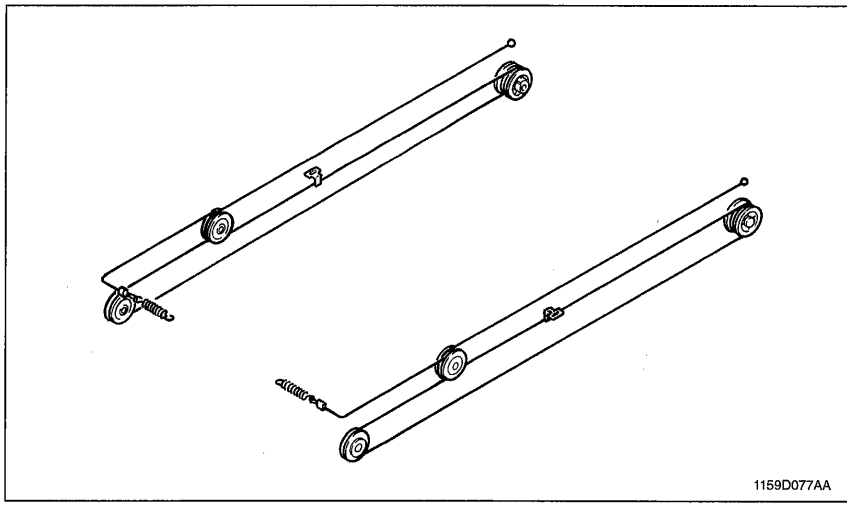


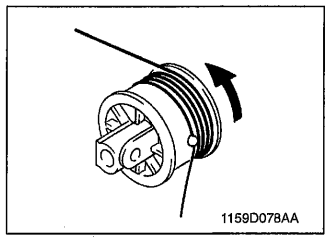
19. Remove the Pulley Shaft.
20. Remove the Cable Drive Pulley.

(10) Winding of the Scanner Drive Cable

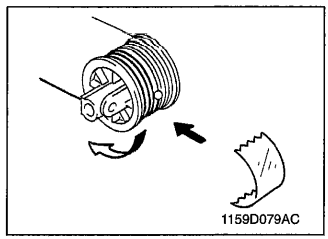
◆ **Remark**

Whenever Scanner Drive Cable has been rewound, be sure to make the "Adjustment of the Scanner/Mirrors Carriage Position." See p.D-67.

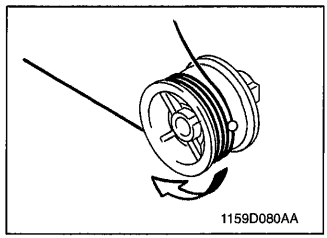




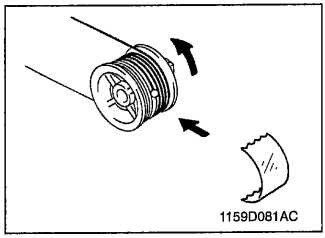
1. From the bead on the rear pulley, wrap the shorter of the Cable counterclockwise four times towards the rear.



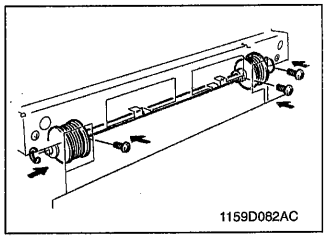
2. Wrap the longer of the Cable clockwise three times towards the front and secure with the Tape.



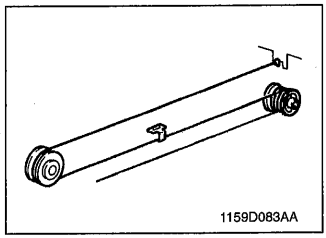
3. From the bead on the front pulley, wrap the longer of the Cable in clockwise three times towards the front.



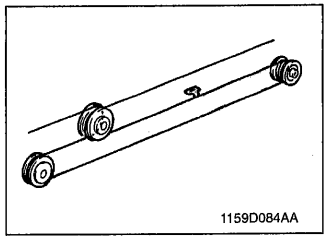
4. Wrap the shorter of the Cable in counterclockwise four times towards the rear and secure with the Tape.



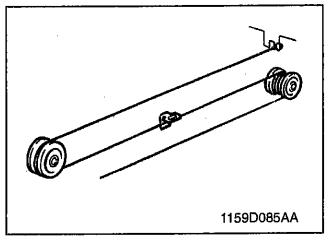
5. Mount the front and rear Cable Drive Pulleys, Drive Belt Pulley and Pulley Shaft.
6. Install the three set screws to the front and rear Cable Drive Pulleys and the Drive Belt Pulley and mount the one E-ring to the Pulley Shaft.



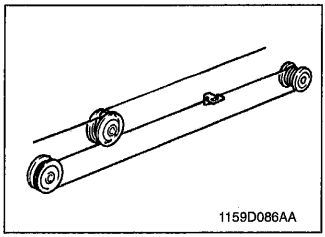
7. Wrap the shorter of the two Cable in the rear around Pulley B and secure it to the frame.



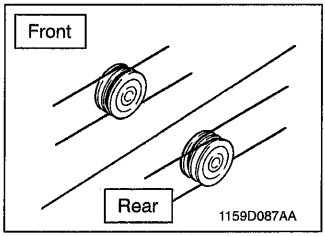
8. Pull the longer of the two Cable and wrap it around Pulleys A and B.



9. Wrap the shorter of the two Cable in the front around Pulley B and secure it to the frame.

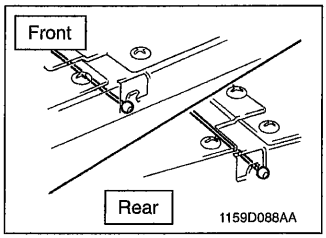


10. Pull the longer of the two Cable and wrap it around Pulleys A and B.



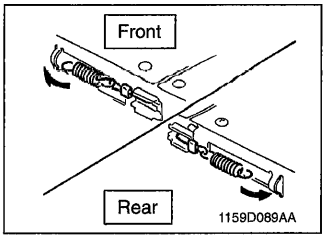
NOTE

- *The longer Cable is wrapped around the outside of Pulley B.*
- *The shorter Cable is wrapped around the inside of Pulley B.*

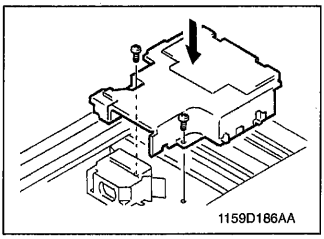


NOTE

Set the Rounded Tip as shown in the illustration to the left.



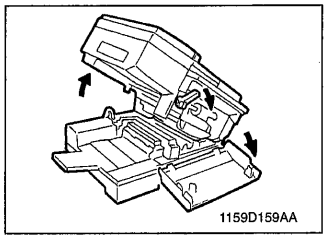
11. Set the front and rear Cable in the groove for the Cable Guide and attach to the Spring.
12. Peel tape off the Cable Drive Pulleys.



13. Secure the Optical Cover with two screws.

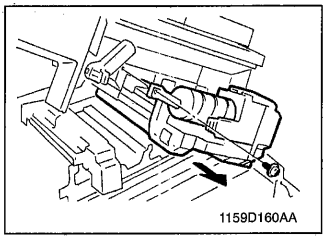
2-5. IMAGING UNIT

(1) Removal of the Imaging Unit



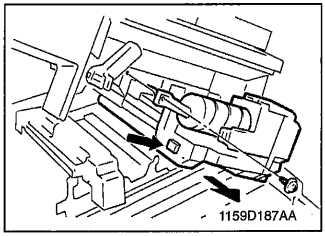
1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.

<USA, Canada>



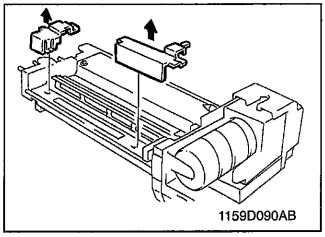
3. Remove one screw and the Imaging Unit from the copier.

<Except USA, Canada>

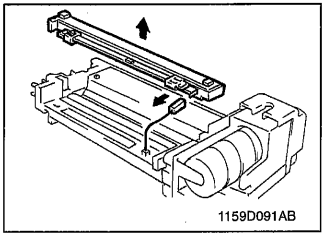


3. Push the lock lever and remove the IU.

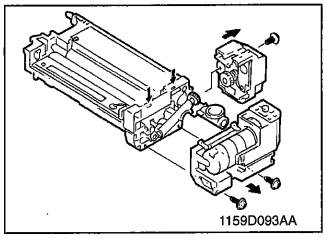
(2) Replacement of the PC Drum



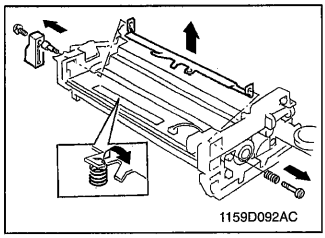
1. Remove the two Covers.



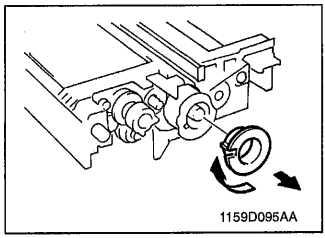
2. Remove the Connectors for the Ground-Shielded Harness.
3. Remove the Drum Charge Corona.



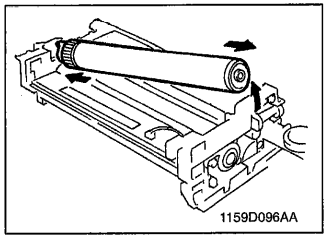
4. Remove the three screws and the Hopper Unit.



5. Remove two shoulder screws and the Cleaning Blade.

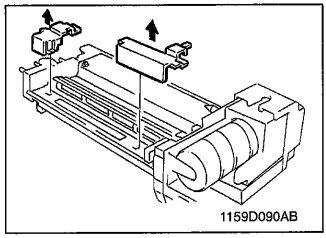


6. Turn the Bushing in the direction of the arrow and remove.

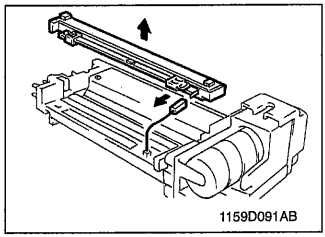


7. Push in on the rear of the PC Drum, remove it from the front and replace it.

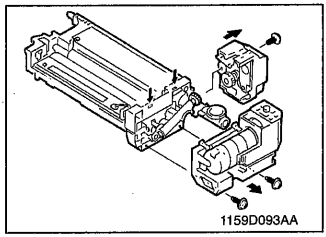
(3) Replacement of the Cleaning Blade



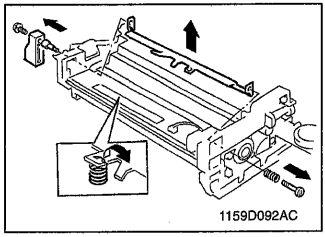
1. Remove the two Covers.



2. Remove the Ground-Shielded Harness Connector.
3. Remove the Drum Charge Corona.

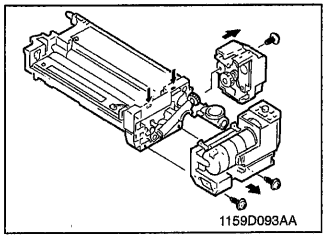


4. Remove the three screws and the Hopper Unit.

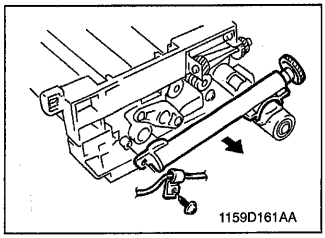


5. Remove and replace the Cleaning Blade.

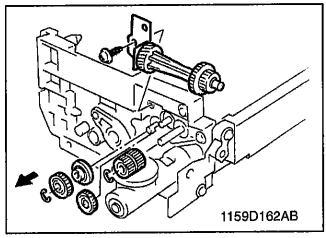
(4) Replacement of the Ds Positioning Collars



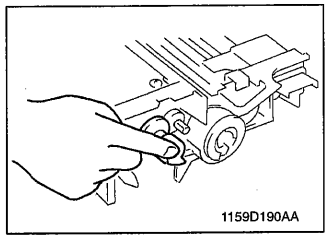
1. Remove the three screws and the Hopper Unit.



2. Remove the one screw and the Recycling Pipe.

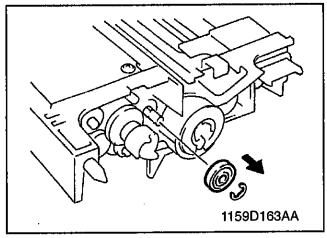


3. Snap off the two E-rings to remove the one screw and the Drive Gear.
4. Remove the front Ds Positioning Collar and replace.



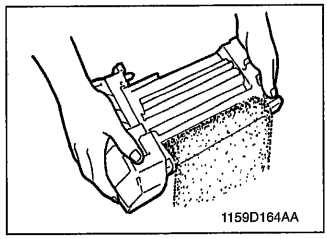
NOTE

When replacing the front Ds Positioning Collar, hold the shaft behind the Bucket Roller.

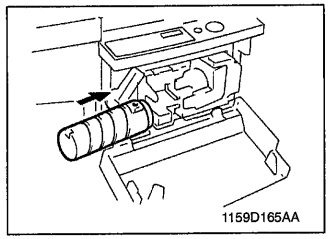


5. Snap off the one E-ring to remove the rear Ds Positioning Collar and replace.

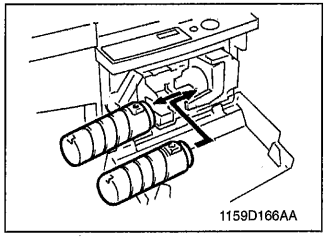
(5) Replacement of the Starter



1. Damp the developer out of the Developing Unit.



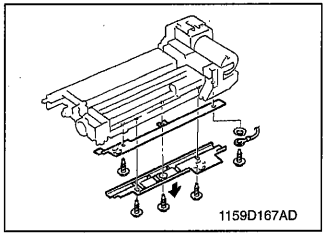
2. Set the Starter Bottle to IU and perform adjustment of the F8 ATDC Adjustment. (See p.D-46)



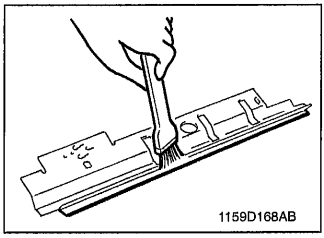
3. Remove the Starter Bottle and set the Toner Bottle.

> ***NOTE***
> *Shake the Toner Bottle before setting it in place.*

(6) Cleaning of the Toner Antispill Mylar

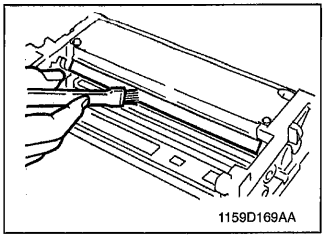


1. Remove the two screws, the Receiver Plate and the Toner Antispill Mylar.



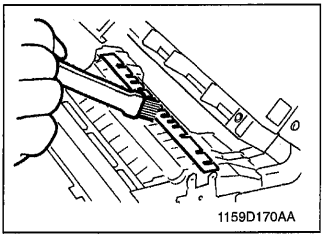
2. Using a brush, whisk dust off the Toner Antispill Mylar.

(7) Cleaning of the Toner Scattering Prevention Mylar



1. Using a brush, whisk dust off the Toner Scattering Prevention Mylar.

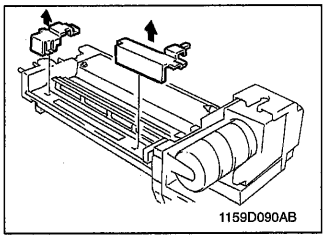
(8) Cleaning of the Paper Dust Removal Cleaner



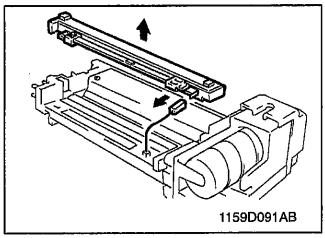
1. Remove the Timing Roller.
2. Using a brush, wihisk dust off the Paper Dust Removal Cleaner.

2-6. PC DRUM CHARGE CORONA AND IMAGE TRANSFER/ PAPER SEPARATOR CORONAS

(1) Removal of the PC Drum Charge Corona

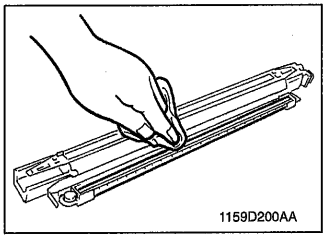


1. Remove the two Covers.



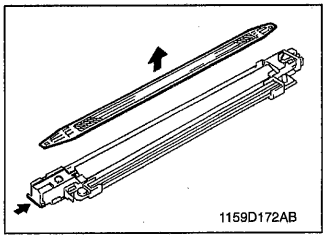
2. Remove the Ground-Shielded Harness Connector.
3. Remove the Drum Charge Corona.

(2) Cleaning of the Main Eraser

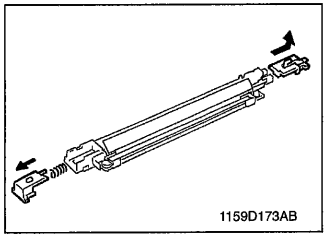


1. Using a soft cloth dampened with alcohol, clean the Main Eraser by gently wiping its surface in one direction.

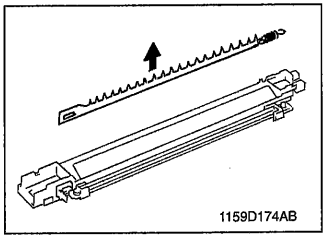
(3) Cleaning of the PC Drum Charge Corona Housing



1. Press the Mesh Holder on the front of the Corona Unit in the direction of arrow to remove the Grid Mesh.



2. Remove the End Cups from the front and rear end of the Unit.

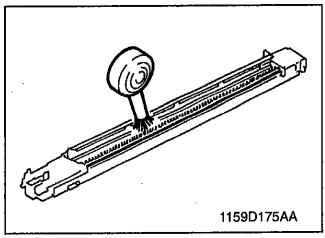


3. Remove the Comb Electrode, Drum charge Corona.

NOTE

Use care not to deform the Electrode. When removing it, first snap off its spring end.

(4) Cleaning of the Comb Electrode, Drum charge Corona

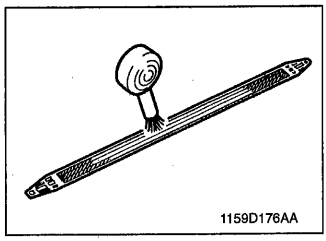


1. Use a blower brush to clean the Comb Electrode, Drum charge Corona.

NOTE

If the blower brush is not effective in cleaning the Comb Electrode, Drum Charge Corona use a soft cloth dampened with alcohol to clean serious contamination.

(5) Cleaning of the PC Drum charge Corona Grid Mesh

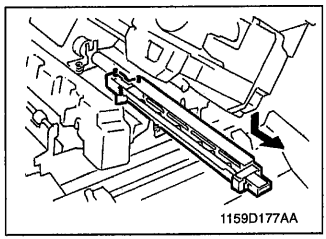


1. Blow all foreign matter off the Grid Mesh a blower brush.

NOTE

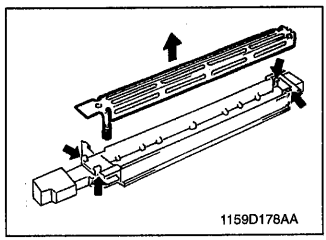
If the blower brush is not effective in cleaning the Grid, use a soft cloth dampened with alcohol to clean serious contamination.

(6) Removal of the Image Transfer/Paper Separator Coronas

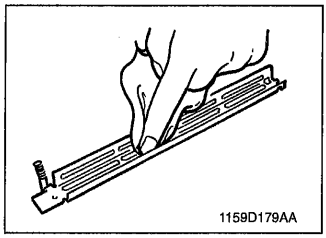


1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Pull out the Image Transfer/Paper Separator Coronas.

(7) Cleaning of the Image Transfer/Paper Separator Coronas Housing

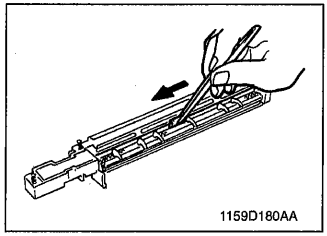


1. Remove the Image Transfer/Paper Separator Corona Housing.



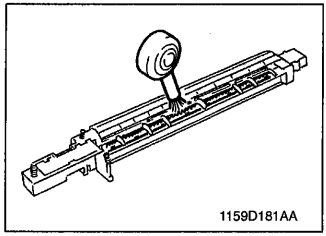
2. Using a soft cloth dampened with alcohol, wipe the housing clean of dirt.

(8) Cleaning of the Image Transfer Charge Wire



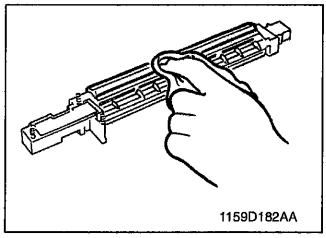
1. Clamp a soft cloth (gauze) dampened with alcohol with tweezers and clean the Charge Wire in one direction. Wipe from the Hook side to the Spring side.

(9) Cleaning of the Comb Electrode, Paper Separator Corona



1. Use a blower brush to clean the Comb Electrode, Paper Separator Corona.

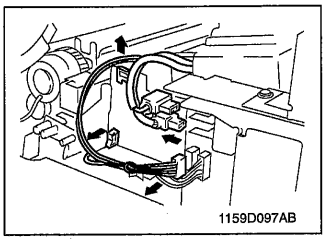
(10) Cleaning of the Pre-Image Transfer Guide Plate



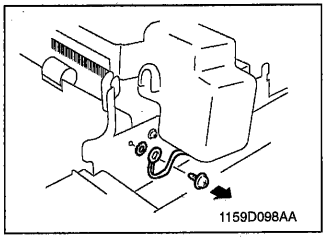
1. Use a soft cloth dampened with alcohol to clean the Pre-Image Transfer Guide Plate.

2-7. FUSING UNIT

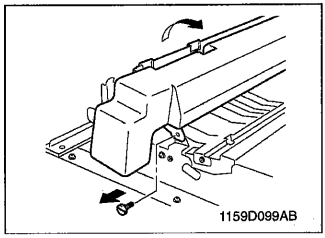
(1) Removal of the Fusing Unit



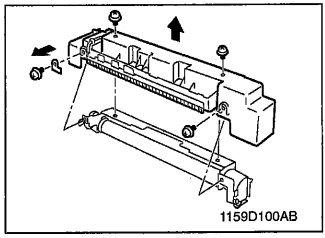
1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Removal three screws and the Middle Rear Left Cover.
4. Remove the Harness for the Fusing Unit from the Edge Cover and remove it from the Cord Clamp.
5. Remove the two terminals for the Fusing Unit.



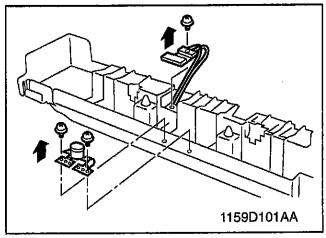
6. Remove the one screw, two washers and Ground Wire from the Fusing Unit.



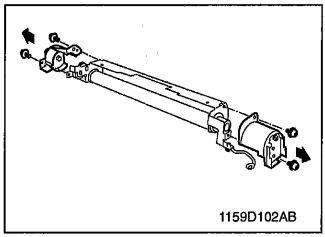
7. Remove the one Shoulder Screw, turn the Fusing Unit in the direction of the arrow and remove it.



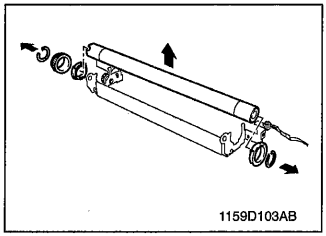
8. Remove one screw and the Bracket.
9. Remove the three screws and the Cover for the Fusing Unit.
10. Remove the one screw and front Heater Harness.



11. Remove two screws and the Fusing Thermoswitch.
12. Remove one screw and the Fusing Thermistors.

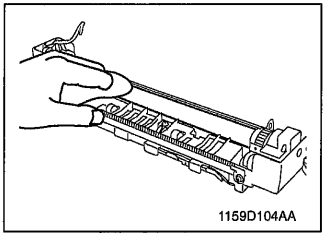


13. Remove the two screws and the front Power Supply Brush Assy.
14. Remove the two screws and the rear Power Supply Brush Assy.



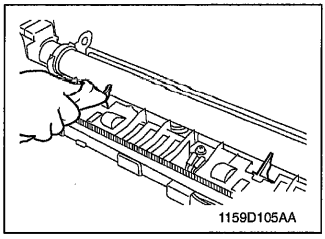
15. Remove two C-clips.
16. Remove one Spur Gear.
17. Remove the front and rear Bushings and remove the Roller.

(2) Cleaning of the Upper Fusing Roller



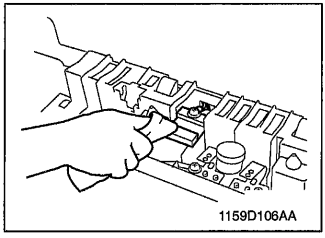
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Upper Fusing Roller.

(3) Cleaning of the Fusing Paper Separator Fingers



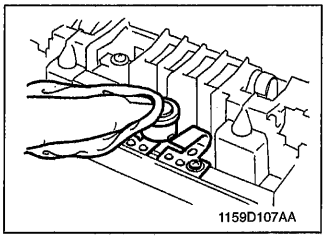
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Fusing Paper Separator Fingers.

(4) Cleaning of the Fusing Thermistor TH1



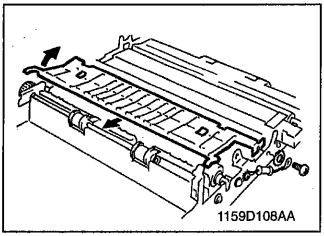
1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Fusing Thermistor TH1.

(5) Cleaning of the Fusing Thermoswitch TS1

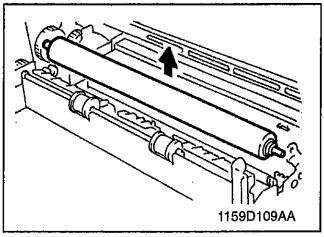


1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Fusing Thermoswitch TS1.

(6) Removal of the Lower Fusing Roller

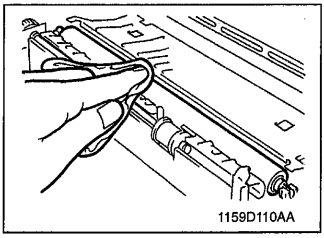


1. Remove the one screw and one washer, Lift the Fusing Entrance Guide in the direction of the arrow and remove.



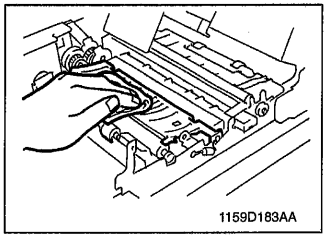
2. Remove the Lower Fusing Roller.

(7) Cleaning of the Lower Fusing Roller



1. Using a soft cloth dampened with alcohol or silicone oil, wipe clean the Lower Fusing Roller.

(8) Cleaning of the Fusing Unit Entrance Guide Plate



1. Remove the Fusing Unit.
2. Using a soft cloth dampened with alcohol, wipe clean the Fusing Unit Entrance Guide Plate.

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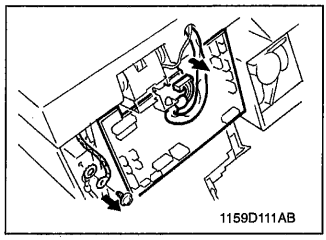
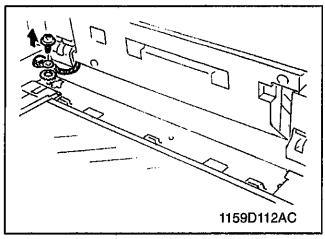
2-8. SDH Unit (EP1030F/EP1031F Only)

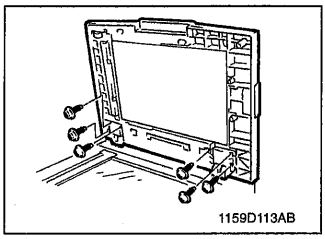
(1) Removing the Paper Feed Roller/Pick-up Roller/Separator Roller



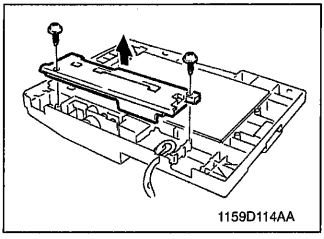
1. Swing down the Front Cover.
2. Release and swing up the Upper Half of the copier.
3. Remove three screws and the Rear Cover.
4. Remove the one Connector from the PWB-A.
5. Remove the one screw, one washer and the Ground Wire.



6. Open the SDH and remove the one screw, one washer and the Ground Wire.

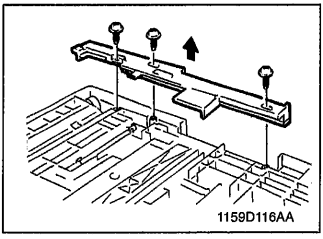


7. Remove the six screws and SDH.

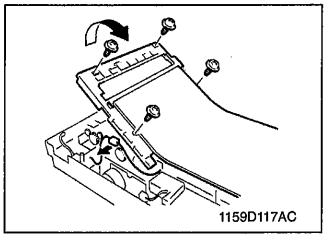


8. Remove the two screws and Lower Rear SDH Cover.

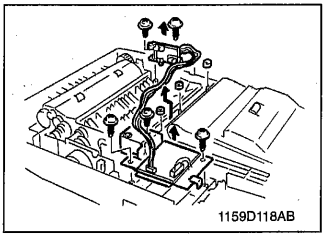
> ***NOTE***
> *The SDH, left attached to the copier, can also be disassembled.*



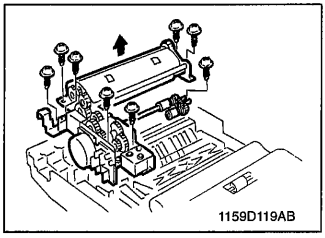
9. Remove the three screws and Lower Front SDH Cover.



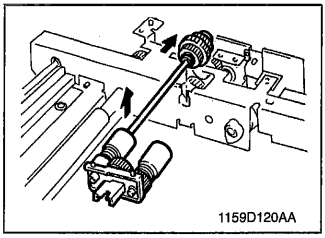
10. Remove the Harness.
11. Remove the four screws and the Transport Guide Plate Assy.



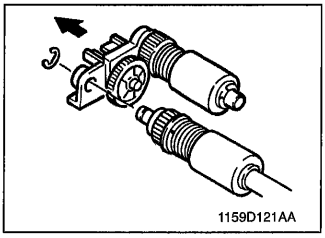
12. Remove the three Collars and the Harness.
13. Remove the three screws and free the PWB-C Assy.
14. Remove the two screws and free the Lead Switch Assy.



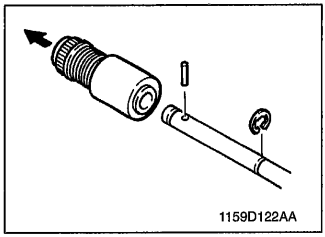
15. Remove the eight screws and the Transport Assy.



16. Move the Bushing to the rear and remove the Paper Roller Assy.

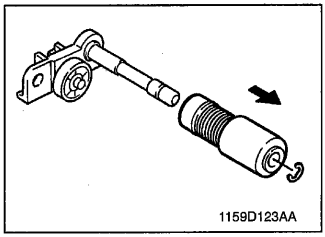


17. Snap off the one E-ring to remove the Paper Feed Holder Assy.

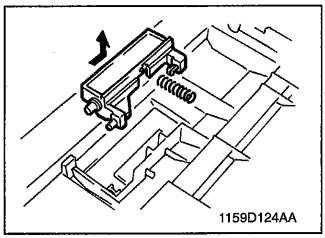


18. Snap off the one E-ring to remove the Paper Feed Roller Assy.

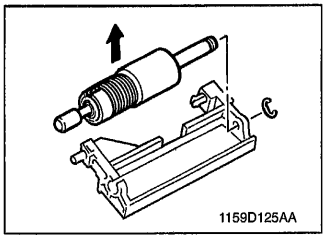
> ***NOTE***
> *Use care not to loose the Set Pin when removing the Paper Feed Roller Assy.*



19. Snap off the one E-ring to remove the Pick-up Roller from the Paper Feed Holder Assy.

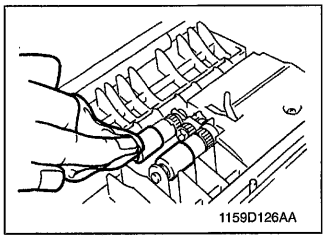


20. Remove the Separator Holder and Spring from the Transport Guide Plate.



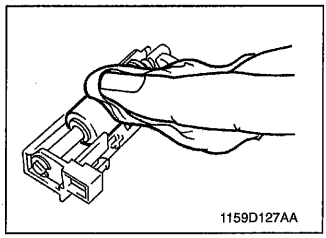
21. Snap off the one E-ring to remove the Separator Roller Assy.

(2) Cleaning the Paper Feed Roller/Pick-up Roller



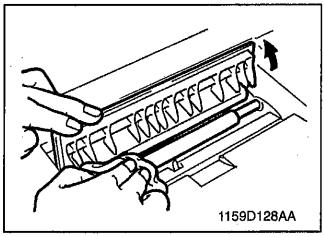
1. Remove the Paper Feed Roller/Pick-up Roller.
2. Using a soft cloth dampened with alcohol, wipe clean the Rollers.

(3) Cleaning of the Separator Roll



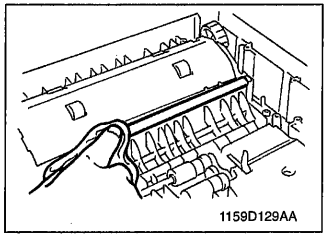
1. Remove the Separator Roller Assy.
2. Using a soft cloth dampened with alcohol, wipe clean the Separator Roll.

(4) Cleaning of the Upper Synchronizing Roller



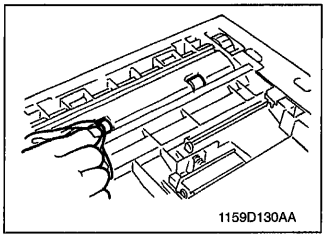
1. Open the Opening/Closeing Guide .
2. Using a soft cloth dampened with alcohol, wipe clean the Upper Synchronizing Roller.

(5) Cleaning of the Lower Synchronizing Roller



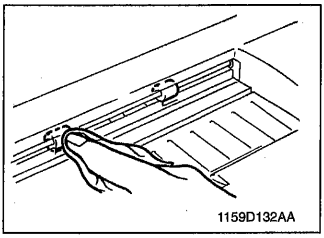
1. Remove the Transport Assy.
2. Using a soft cloth dampened with alcohol, wipe clean the Lower Synchronizing Roller.

(6) Cleaning the Upper Glass Roller



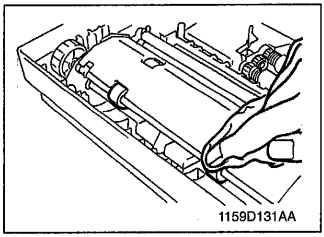
1. Remove the Transport Assy.
2. Using a soft cloth dampened with alcohol, wipe clean the Upper Glass Roller.

(7) Cleaning the Transport Roller



1. Remove the Transport Assy.
2. Using a soft cloth dampened with alcohol, wipe clean the Transport Roller.

(8) Cleaning the Exit Roller



1. Using a soft cloth dampened with alcohol, wipe clean the Exit Roller.

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3 ADJUSTMENT

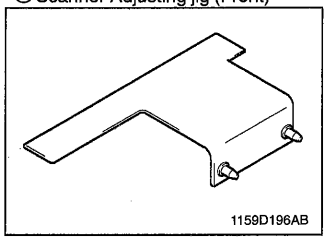
1159SBD0301A

3-1. JIGS AND TOOLS USED

◆ **Important**

- These jigs are used when adjusting the Scanner for correct positioning.

①Scanner Adjusting jig (Front)



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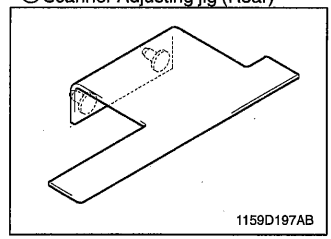
②Scanner Adjusting jig (Rear)



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3-2. ADJUSTMENT REQUIREMENTS LIST

Adjustment Item	Requirements	Adjusting Point	Ref. Page
MAX. Exposure Lamp Voltage	115 V to 127 V Areas 80 ± 1 V 220 V to 240 V Areas 160 ± 2 V	Control panel	D-42
Adjustment of Optimum Exposure Setting in the Manual Exposure Mode	Over No. 1 and covering No. 2 (KGS)	Control panel	D-44
Adjustment of Exposure Level in the Auto Exposure Mode	———	Control panel	D-46
Adjustment of Zoom Ratio in the Crosswise Direction	(100 %) 200 ± 1.0 mm	Control panel	D-49
Adjustment of Zoom Ratio in the Feeding Direction	(100 %) 200 ± 1.0 mm	Control panel	D-51
Adjustment of Reference Position of Manual Bypass Table	(100 %) 20 ± 3.0 mm	Manual Bypass Table	D-53
Adjustment of Reference Position of Paper Feed Cabinet	(100 %) 20 ± 2.0 mm	Original Width Scale	D-54
Leading Edge Registration in Full Size Mode	(100 %) 20 ± 1.5 mm (Cassette Section) (100 %) 20 ± 2.0 mm (Manual Bypass Section)	Control panel	D-55
Leading Edge Registration in Enlargement Mode (*1)	(156 %) 31.2 ± 2.4 mm	Control panel	D-57
Leading Edge Registration in Reduction Mode (*1)	(64 %) 12.8 ± 1.2 mm	Control panel	D-59
Adjustment of the Image Leading Edge Erase Width	(100 %) 3.5 ± 0.5 mm	Control panel	D-61
Adjustment of Edge Erase (*1)	Width B – Width A = ± 1.0 mm	Adjusting Screw for Edge Erase Lamp Position	D-63
Adjusting the SDH Reference Position (*2)	(100 %) 20 ± 2.0 mm	Mounting Screw on the upper SDH cover.	D-64
Adjusting the Leading Edge Registration (*2)	(100 %) 20 ± 2.0 mm	Control panel	D-65
Adjustment of SDH Center Alignment (*2)	Width B – Width A = ± 1.0 mm	Mounting Screw on left side of SDH	D-67

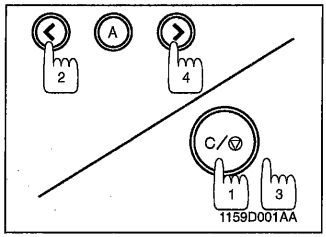
*1: EP1031/EP1031F Only
*2: EP1030F/EP1031F Only

3-3. ACCESSING THE TECH. REP. MODE

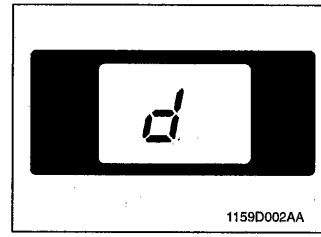
1. Perform the following steps to set the copier in to Service Mode.

Clear/Stop Key ➡ Exposure Control Key ⓒ ➡ Clear/Stop Key ➡

➡ Exposure Control Key ⓒ

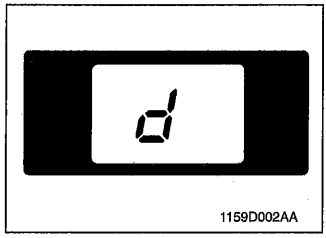


Press the Keys in order of [1], [2], [3], and [4].

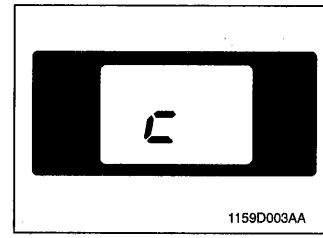


Set the Display Panel to a flashing "d".

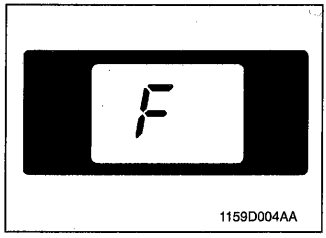
2. Use the Copy Quantity and Zoom Key ① to select the Service Mode No. for the setting to be performed and press the Start Key. (Display will appear in sequence d, c, A, F)



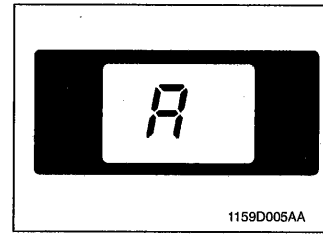
Display



Tech. Rep. Choice



Test



Adjust

3-4. ELECTRICAL/IMAGE ADJUSTMENTS

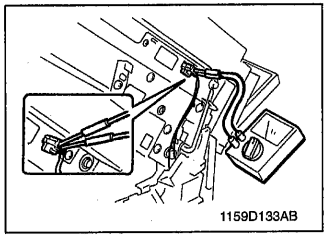
(1) Adjustment of the Maximum Exposure Lamp Voltage for the Manual Mode

◆ **Requirement**

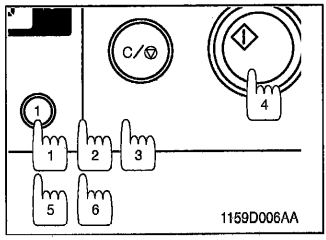
- Maximum Exposure Lamp Voltage : 80 ± 1 V (115 V~127 V Areas)
  : 160 ± 2 V (220 V~240 V Areas)

◆ Important

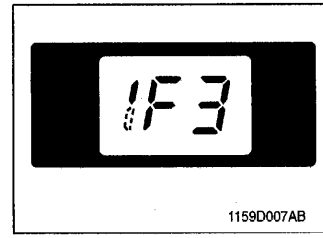
- After the Maximum Exposure Lamp Voltage has been adjusted, be sure to make the following adjustments: Optimum Exposure Setting in the Manual Exposure Mode and Exposure Level in the Auto Exposure Mode.



1. Remove the Control Panel/lower Panel Cover.
2. Insert the probes of the multimeter into the gap in the Exposure Lamp Voltage measurement connector.
3. Set to Service Mode.
4. To adjust the MAX. Exposure Lamp Voltage, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① three times; the Start Key one time and the Copy Quantity and Zoom Key ① two times.



Press the Keys in order of [1], [2], [3], [4], [5], and [6].



"F3" will appear in the Display Panel.

5. Check that the upper segment of "❙" to the left of "F3" is lit up. If the lower segment is lit up, press Exposure Control Key Ⓐ to turn OFF the lower segment and light up the upper one.
6. Press the Start Key to turn on the Exposure Lamp and check its voltage.
7. Use the value shown on the Tester and the Specification Table on page D-43 to calculate the Correction Value. (For Example: 164 V – 160 V = + 4 V (the Correction Value)
8. Use the Correction Value to find the Number of Steps and then push the Exposure Control Keys to change the settings for adjusting the MAX. Exposure Lamp Voltage.
9. Push the Clear/Stop Key to set the settings.

NOTE

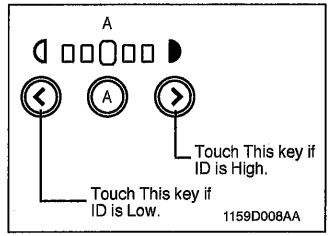
For the Root Mean Square values and Mean values, see p.69-70. Most testers, voltmeters, or multimeters used in the field show only the mean values.

Setting Instructions

If the value shown on the Tester is:

- Higher ..... Increase the setting
- Lower ..... Decrease the setting

*If the measurement does not fall within the specifications through on setting, try another setting.



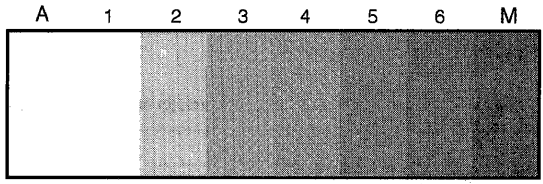
4. After the adjustments have been made, press the Clear/Stop Key three times to restore the copier to the normal copy mode.

Correction Value for 80 V Specifications (V)	Correction Value for 160 V Specifications (V)	Exposure Control Keys	Number of Steps	LED Position
+4	+8		4	
+3	+6	<	3	
+2	+4		2	
+1	+2		1	
0	0	—	0	
−1	−2		1	
−2	−4	>	2	
−3	−6		3	
−4	−8		4	

(2) Adjustment of Optimum Exposure Setting in the Manual Exposure Mode

◆ **Requirement**

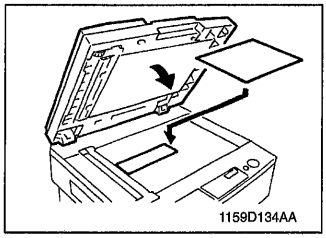
- Exposure Lamp voltage setting range in the Manual Exposure mode ... 46 to 54
- When the manual exposure setting is at the central indication, no image of step no. 1 of a Kodak Gray Scale should be produced on the copy, but a faint image of step no. 2 should be produced.



1136D300AA

◆ **Important**

This adjustment should be made only after completing the "Adjustment of the MAX. Exposure Lamp Voltage for the Manual Mode".



1159D134AA

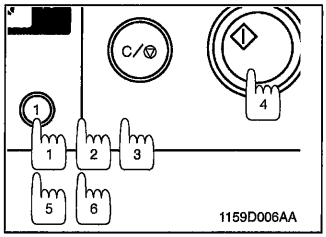
1. Place the Kodak Gray Scale (KGS) in the center of the Original Glass, place a sheet of A4 or 8-1/2" × 14" paper on top of it and close the Original Cover.
2. Use the Control Panel to manually set the exposure position to EXP 5 (the center position), make one copy at the 1:1 zoom ratio and confirm that it passes over 1 and into 2.

* If the image density is outside the specifications, make the following adjustment.

3. Set to Service Mode.
4. To adjust the voltage the AC MAX Exposure Lamp, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① three times; Start key once; and Copy Quantity and Zoom Key ① twice. Or, holding down Exposure Control Key Ⓐ, turn ON the Power Switch to set the F3 Max. Exposure Lamp Voltage.

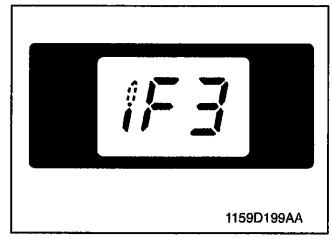
NOTE

When the Power Switch is turned ON with Exposure Control Key Ⓐ held down, "F3" does not appear on the Display Panel.



1159D006AA

Press the Keys in order of [1], [2], [3], [4], [5], and [6].



1159D199AA

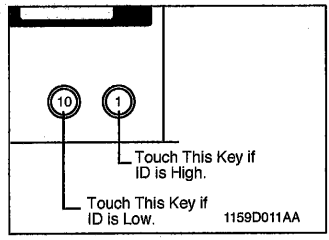
"F3" will appear in the Display Panel.

5. Check that the lower segment of " ▌" to the left of "F3" is lit up. If the upper segment is lit up, press Exposure Control Key Ⓐ to turn OFF the upper segment and light up the lower one.
6. Look at the image density of the sample copy. Press the Copy Quantity and Zoom Keys to change the settings for adjusting the voltage for the Exposure Lamp.
7. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If the image density low, decrease the setting value.
- If the image density high, increase the setting value.

* If the image density does not fall within the specifications through one setting, try another setting.



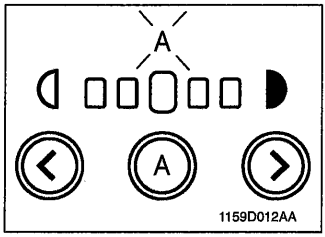
8. After the adjustments have been made, press the Clear/Stop Key two times to restore the copier to the normal copy mode.

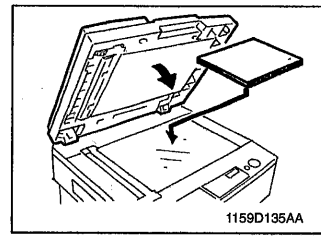
(3) Adjustment of Exposure Level in the Auto Exposure Mode

◆ **Important**

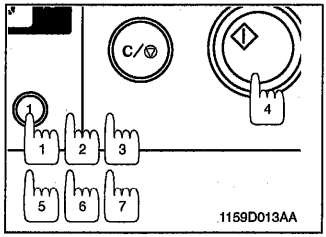
- When making adjustments, the exposure position on the Control Panel must be set to Auto.
- For the adjustment, place about five blank sheets of A4 or 8-1/2" × 14" paper one on top of the other on the Original Glass and lower the Original Cover.
- After this adjustment, be sure to check the "Adjustment of optimum exposure setting in the Manual Exposure mode".

1. Confirm that the exposure position on the Control Panel is set to Auto. Stack five blank sheets of A4 or 8-1/2" × 14" paper on top of each other on the Original Glass and close the Original Cover.

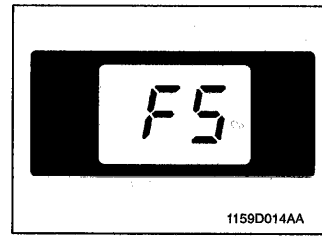




2. Set to Service Mode.
3. To adjust the F5 AE Sensor Automatic Adjustment, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① three times; the Start Key one time and the Copy Quantity and Zoom Key ① three times.
4. Press the Start Key to perform adjustment of the Auto Exposure. (Approximately 15 Seconds)



Press the Keys in order of [1], [2], [3], [4], [5], [6] and [7].



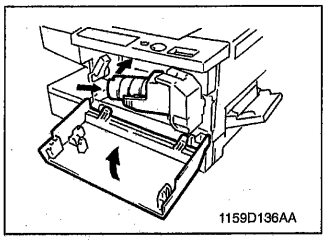
"F5" will appear in the Display Panel.

5. After the adjustments have been made, press the Clear/Stop Key two times to restore the copier to the normal copy mode.

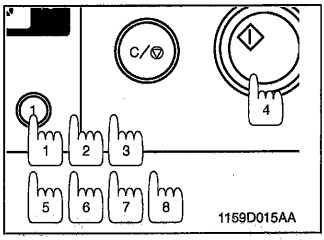
(4) ATDC Adjustment

◆ **Important**

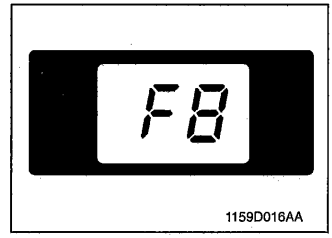
- ATDC adjustment is not necessary when a new IU is used. (Set the Starter and ATDC adjustment will be automatically entered when the power is turned on.)
- Always perform ATDC adjustment when a new Starter has been set with a existing IU.



1. Set the Starter and close the Front Door.
2. Set to Service Mode.
3. To adjust the F8 AE Sensor Automatic Adjustment, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① three times; the Start Key one time and the Copy Quantity and Zoom Key ① four times.



Press the Keys in order of [1], [2], [3], [4], [5], and [6].



"F8" will appear in the Display Panel.

4. Press the Start Key to perform adjustment of the ATDC.
5. After the adjustments have been made, press the Clear/Stop Key two times to restore the copier to the normal copy mode.

(5) Adjustment of the Aperture Blades

◆ **Requirement**

- There should be no dark or light bands running in the feeding direction on copies produced. (Adjust to obtain the mean image density for all areas.)

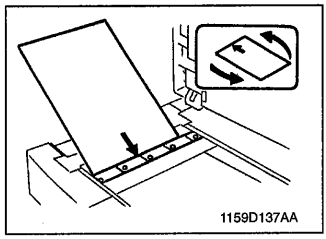
◆ **Important**

- If dark and light bands running in the feeding direction occur on copies, make this adjustment after checking following.

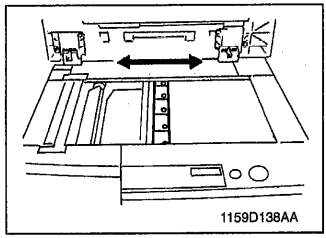
1) The surfaces of the Mirror and Lens are free of dirt.
2) The surfaces of the Exposure Lamp and Main Erase Lamp free of scratches and dirt.

1. Make copies in the following modes.

Original	: A4 or 8-1/2" × 14"
Paper	: A4 or 8-1/2" × 14"
Magnification ratio	: 100 %
Exposure	: Manual (setting convenient for check)


1159D137AA

2. Remove the Original Glass.
3. Turn the copy on the Copy Tray Around as shown to reverse the leading and trailing edges and align it with the Aperture Blades.


1159D138AA

4. Adjust to obtain the mean image density for all areas of the copy.

NOTE

To make the image darker, move the Aperture Blade toward the Auxiliary Reflector.
To make the lighter darker, move the Aperture Blade away from the Auxiliary Reflector.

(6) Adjustment of Zoom Ratio in the Crosswise Direction (EP1031/EP1031F Only)

◆ **Requirement**

- This adjustment is made for the Zoom ratio in the crosswise direction.
- A scale is placed on the Original Glass to run parallel with the scanner and the length of the scale on the copy is compared with that of the actual scale. The adjustment must be made so that the difference between the two dimensions falls within the following specifications.

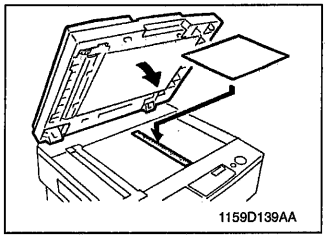
The difference should be within ± 0.5 % of the actual length.

Against 200mm, allowance is 200 mm × 0.005 = 1.0 mm

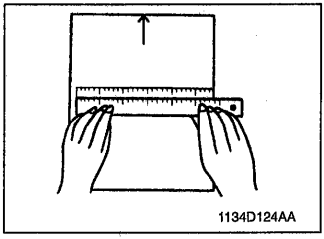
Zoom Ratio	Specifications	Adjusting Mode	Setting Range
Full size (× 1.000)	220 ± 1.0 mm	Adjust A1 =Lens Full Size Position	33 to 67

◆ **Important**

This adjustment must be made before the "Reference Position Adjustment".

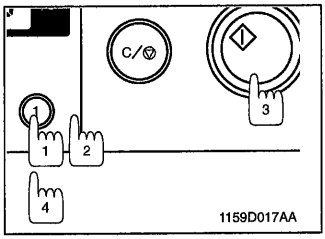

1159D139AA

1. Place a scale in parallel with the Original Width Scale and make a copy.
   * Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
   * If the scale is of plastic and transparent, place a blank sheet of paper on it.

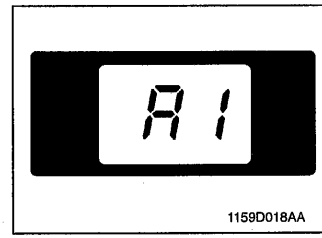

1134D124AA

2. Measure the crosswise zoom ratio of the sample copy. Measure the length of the scale on the copy with the actual scale to determine if there is any deviation.
   * If the zoom ratio deviates from the specifications, go to the next step.

3. Set to Service Mode.
4. To correct the A1 Lens Full Size Position, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① one time; the Start Key one time and the Copy Quantity and Zoom Key ① one time.



Press the Keys in order of [1], [2], [3], and [4].



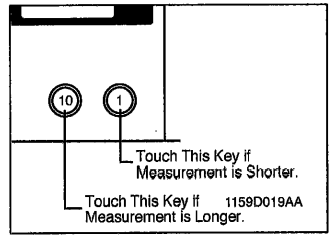
"A1" will appear in the Display Panel.

5. Press the Start Key and press the Copy Quantity and Zoom Keys to change the setting for correcting the Lens Full Size Position.
6. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If the scale on the copy is longer than the actual scale, decrease the setting value.
- If the scale on the copy is shorter than the actual scale, increase the setting value.

* If the measurement does not fall within the specifications through one setting, try another setting.



7. After the adjustments have been made, press the Clear/Stop Key three times to restore the copier to the normal copy mode.

(7) Adjustment of Zoom Ratio in the Feeding Direction

◆ **Requirement**

- This adjustment is made for the zoom ratio in the feeding direction.
- A scale is placed on the Original Glass Perpendicularly to the Scanner and the length of the scale on the copy is compared with that of the actual scale. The adjustment must be made so that the difference between the two dimension falls within the following specifications.

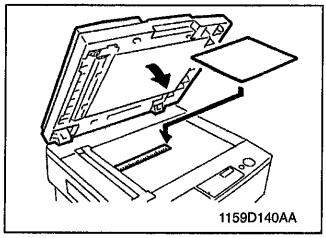
The difference should be within ± 0.5 % of the actual length.

Against 200 mm, allowance is 200 mm × 0.005 = 1.0 mm

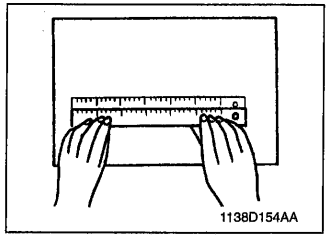
Zoom Ratio	Specifications	Adjusting Mode	Setting Range
Full size (× 1.000)	200 ± 1.0 mm	Adjust A3 =Feed Direction Mag. Ratio	43 to 57

◆ **Important**

This adjustment must be made before the "Adjustment of the Leading Edge Registration".

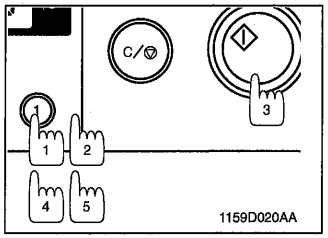

1159D140AA

1. Place a scale in parallel with the Original Length Scale and make a copy.
   * Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
   * If the scale is of plastic and transparent, place a blank sheet of paper on it.

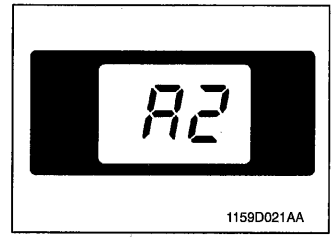

1138D154AA

2. Measure the crosswise zoom ratio of the sample copy. Measure the length of the scale on the copy with the actual scale to determine if there is any deviation.
   * If the zoom ratio deviates from the specifications, go to the next step.

3. Set to Service Mode.
4. To correct the A2 feeding direction zoom ratio, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① two times.



Press the Keys in order of [1], [2], [3], [4], and [5].



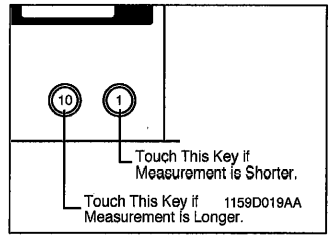
"A2" will appear in the Display Panel.

5. Press the Start Key and press the Copy Quantity and Zoom Keys to change the setting for correcting the feeding direction zoom ratio.
6. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If the scale on the copy is longer than the actual scale, decrease the setting value.
- If the scale on the copy is shorter than the actual scale, increase the setting value.

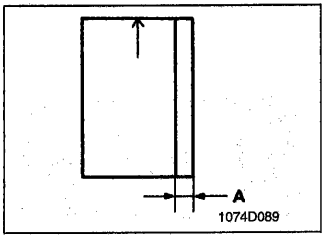
* If the measurement does not fall within the specifications through one setting, try another setting.



7. After the adjustments have been made, press the Clear/Stop Key two times to restore the copier to the normal copy mode.

(8) Adjustment of the Reference Position of the Manual Bypass Table

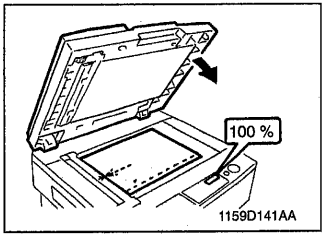
◆ **Requirement**



- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw a reference line 20 mm from the left edge.
- Specification ..... 20 ± 3.0 mm

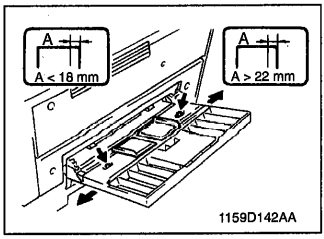
◆ **Important**

This adjustment should be made after the "adjustment of zoom ratio in the crosswise direction".



1. Place the test chart on the reference position for the original scale and close the Original Cover.
2. Use the Manual Bypass Table to make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. Check if dimension A (from theedge up to the reference line) on the copy is up to the specifications.

<EP1031/EP1031F>

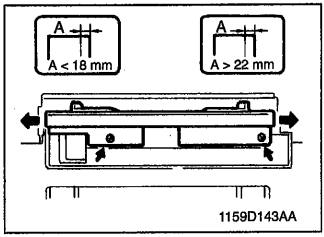


4. If dimension A deviates from the specifications, loosen two screws that secure the Manual Bypass Table and more the table in the direction of the arrow as necessary.

Adjusting Instructions

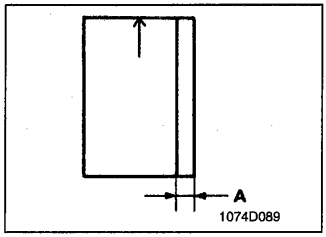
- If dimension A deviates on the copy is shorter than 17 mm move the table to the rear of the copier.
- If dimension A deviates on the copy is longer than 23 mm move the table to the front of the copier.

<EP1030/EP1030F>



(9) Adjustment of Paper Feed Cabinet Reference Position

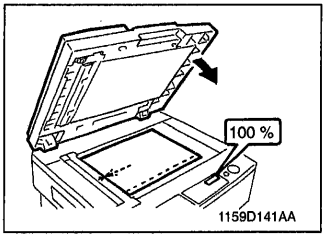
◆ **Requirement**



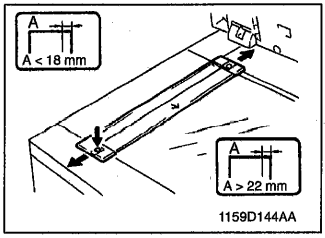
- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw a reference line 20 mm from the right edge.
- Specification ..... 20 ± 3.0 mm

◆ **Important**

This adjustment should be made after the "adjustment of zoom ratio in the crosswise direction".



1. Place the test chart on the reference position for the original width scale and close the Original Cover.
2. Use the Paper Feed Cabinet to make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. Check if dimension A (from theedge up to the reference line) on the copy is up to the specifications.



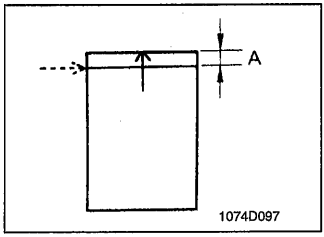
4. If the reference position is outside of the specification, loosen the one mounting screw for the Original Width Scale and use the confirmation sample to adjust the Original Width Scale in the correct direction.

Adjusting Instructions

- If dimension A on the copy is longer than 22 mm, move the position Plate to the front of the copier.
- If dimension A on the copy is Shorter than 18 mm, move the position Plate to the rear of the copier.

(10) Adjust of the Leading Edge Registration

◆ **Requirement**



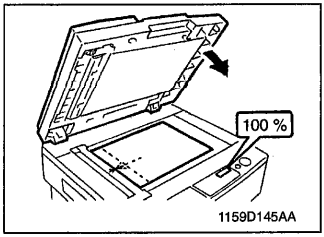
- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw a reference line 20 mm from the leading edge.
  Adjust so that on the copy, the width of A at the center section of the leading edge of the test chart will be within the specifications shown below.

Zoom Ratio	Specifications	Adjusting Mode	Setting Range
Full Size (× 1.000)	20 ± 1.5 mm Cabinet Section 20 ± 2.0 mm Manual Bypass Section	Adjust A3 =Lens Position Full Size	26 to 74
Enlargement (× 1.56)	31.2 ± 2.4 mm	Adjust A4 =Lens Position Enlargement	42 to 58
Reduction (× 0.67)	12.8 ± 1.2 mm	Adjust A4 =Lens Position Reduction	

◆ **Important**

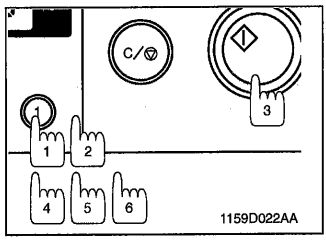
- This adjustment should be made after the "adjustment of zoom ratio in the feeding direction".
- The adjustment of the registration for enlargement and reduction need only be performed on the EP1031/EP1031F.

(10)-1. Leading Edge Registration in Full Size Mode

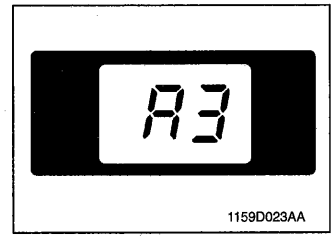


1. Place the Test Chart on the reference position for the Original Width Scale and close the Original Cover.
2. Make one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. If the leading edge registration of the 1:1 copy is within the standards, proceed with the adjustment for adjustment of the zoom leading edge registration. (EP1031/EP1031F only) If it is outside the specifications, adjustment must be made using the following procedure.

4. Set to Service Mode.
5. To adjust the A3 Full Size Registration, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① three times.



Press the Keys in order of [1], [2], [3], [4], [5], and [6].



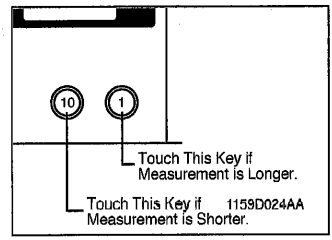
"A3" will appear in the Display Panel.

6. Press the Start Key to change the settings for the Full Size Registration.
7. Press the Clear/Stop Key to set the settings.

Setting Instructions

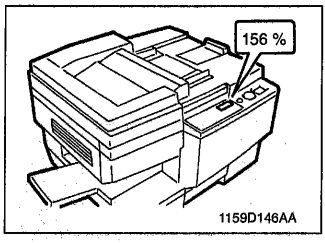
- If dimention A on the copy is longer than 21.5 mm, increase the setting value.
- If dimention A on the copy is Shorter than 18.5 mm, decrease the setting value.

* If the measurement does not fall within the specifications through one setting, try another setting.



8. After the adjustments have been made, press the Clear/Stop Key to restore the copier to the normal copy mode.

(10)-2. Leading Edge Registration in Enlargement Mode

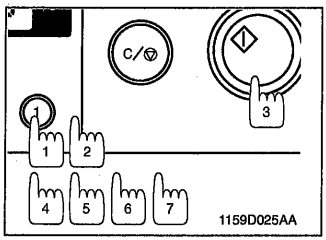


1. Once the 1:1 Zoom Registration has been adjusted, make one copy using A4 or 8-1/2" × 14" paper at a × 1.56 enlargement ratio.
2. If the registration is up to the specifications, go to the adjustment in the reduction mode. If it deviates from the specifications, perform the following steps to make the adjustment of leading edge registration in the enlargement mode.

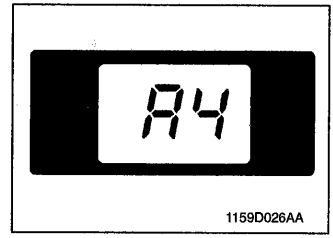
◆ **Important**

- This adjustment should be made after the "adjustment of leading edge registration in the full size mode".

3. Set to Service Mode.
4. To adjust the A4 Enlargement Registration, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① four times.



Press the Keys in order of [1], [2], [3], [4], [5], [6], and [7].



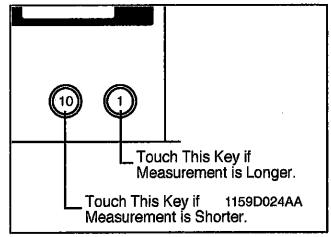
"A4" will appear in the Display Panel.

5. Press the Start Key and use the Copy and Zoom Keys to change the settings for the Enlargement Registration.
6. Press the Clear/Stop Key to set the settings.

Setting Instructions

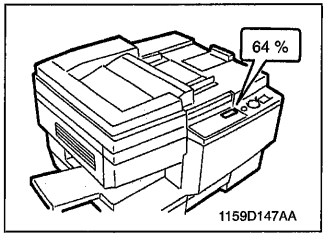
- If dimention A on the copy is longer than 33.6 mm, increase the setting value.
- If dimention A on the copy is Shorter than 28.8 mm, decrease the setting value.

* If the measurement does not fall within the specifications through one setting, try another setting.



7. After the adjustments have been made, press the Clear/Stop Key to restore the copier to the normal copy mode.

(10)-3. Leading Edge Registration in Reduction Mode

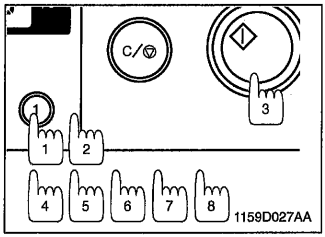


1. Once the Enlargement Registration has been adjusted, make one copy using A4 or 8-1/2" × 14" paper at a × 0.64 reduction ratio.
2. If the registration is up to the specifications, go to the adjustment in the reduction mode. If it deviates from the specifications, perform the following steps to make the adjustment of leading edge registration in the enlargement mode.

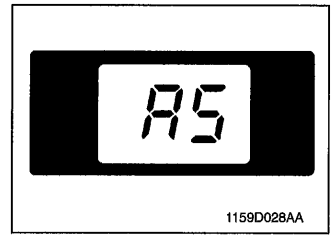
◆ **Important**

- This adjustment should be made after the "adjustment of leading edge registration in the full size mode".

3. Set to Service Mode.
4. To adjust the A5 Reduction Registration, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① five times.



Press the Keys in order of [1], [2], [3], [4], [5], [6], [7], and [8].



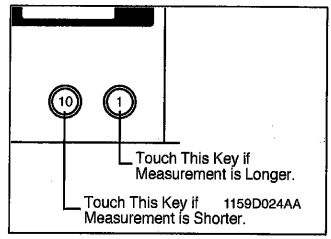
"A5" will appear in the Display Panel.

5. Press the Start Key to and use the Copy Quantity and Zoom Keys to change the settings for the Reduction Registration Adjustment.
6. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If dimention A on the copy is longer than 14 mm, increase the setting value.
- If dimention A on the copy is Shorter than 16 mm, decrease the setting value.

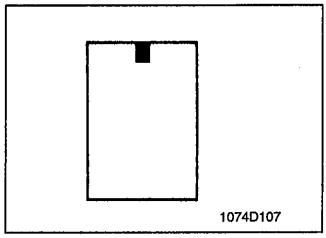
* If the measurement does not fall within the specifications through one setting, try another setting.



7. After the adjustments have been made, press the Clear/Stop Key three times to restore the copier to the normal copy mode.

(11) Adjustment of the Image Leading Edge Erase Width

◆ **Requirement**

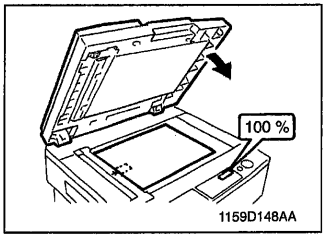


- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw black mark 20 approximately 20 mm from the center section of the leading edge. Adjust so that this black mark will image erase 3.0 to 4.0 mm from the leading edge.

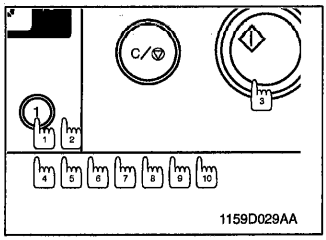
- Specification ..... 3.5 ± 0.5 mm
- Adjustment Setting Range .... 38 to 68

◆ **Important**

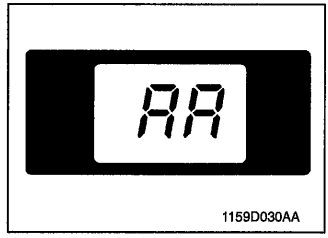
- This adjustment should be made after the "adjustment of the leading edge registration".



1. Place the test chart on the reference position for the original Width scale and close the Original Cover.
2. Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. If the erase width deviates from the specifications, perform the following steps to make the adjustment of image leading edge erase width.
4. Set to Service Mode.
5. To adjust the AA Leading Edge Erase Width, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① seven times.



Press the Keys in order of [1], [2], [3], [4], [5], [6], [7], [8], [9], and [10].



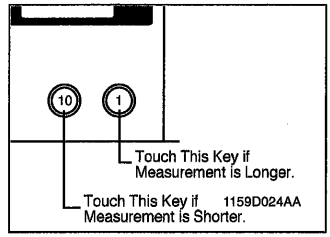
"AA" will appear in the Display Panel.

6. Press the Start Key to and use the Copy Quantity and Zoom Keys to change the settings for the Leading Edge Erase Width Adjustment.
7. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If dimention A on the copy is longer than 4.0 mm, increase the setting value.
- If dimention A on the copy is Shorter than 3.0 mm, decrease the setting value.

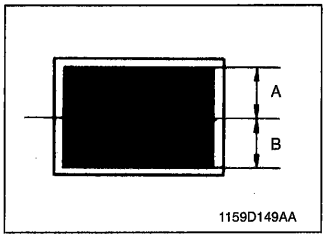
* If the measurement does not fall within the specifications through one setting, try another setting.



8. After the adjustments have been made, press the Clear/Stop Key to restore the copier to the normal copy mode.

(12) Adjustment of Edge Erase (EP1031/EP1031F only)

◆ **Requirement**



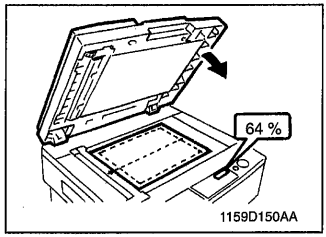
- Ready a test chart as shown on the left. Adjust so that the difference between widths A and B in the illustration on the left falls within the following specifications on the copy made at × 0.64.
- Specification ..... B Width – A Width = ± 1.0 mm

NOTE

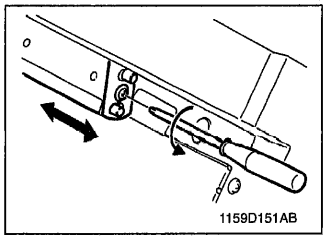
Width A plus B must be 120 mm or more.

◆ **Important**

- This adjustment should be made after the "adjustment of reference options".



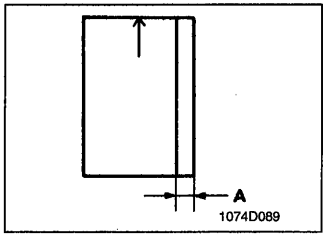
1. Place the Test Chart on the reference position for the Original Width Scale and close the Original Cover.
2. Make a one copy using A4 or 8-1/2" × 14" paper at a reduction ratio of × 0.64.



3. If the specifications are not met, adjust by moving the Edge Erase Lamp in the direction of the arrow.

(13) Adjustment of SDH Reference Position (EP1030F/EP1031F Only)

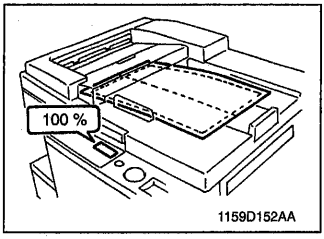
◆ **Requirement**



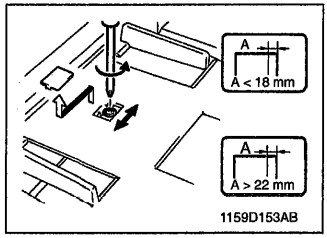
- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw a reference line 20 mm from the left edge.
- Specification ..... 20 ± 2.0 mm

◆ **Important**

- This adjustment should be made after the "adjustment zoom ratio in the crosswise direction".



1. Place the test chart in the SDH.
2. Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio
3. Check that the reference line for the Test Chart on the copy is within the standards.



4. If the reference position falls outside the specifications, remove the Ornament Cover and loosen the SDH Cover mounting screw; then, move the mounting screw as shown for adjustment.

Adjusting Instructions

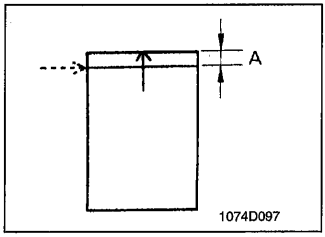
Relation between the width on the chart and the width on the copy.

18 mm or less .... Move the mounting screw towards the front.

22 mm or more ... Move the mounting screw towards the back.

(14) Adjustment of SDH Leading Edge Registration (EP1030F/EP1031F Only)

◆ **Requirement**

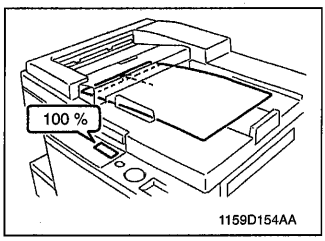


- As shown in the illustration on the left, use a A4 test chart or a sheet of 8-1/2" × 14" paper to draw a reference line 20 mm from the leading edge.
  Adjust so that on the copy, the width of A at the center section of the leading edge of the test chart will be within the specification shown below.

- Specification ... 20 ± 2.0 mm

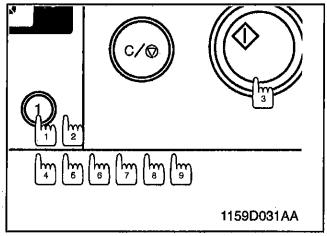
◆ **Important**

- This adjustment should be made after the adjustment of the Leading Edge Registration on the main unit and the adjustment of the Feed Direction Zoom Ratio.

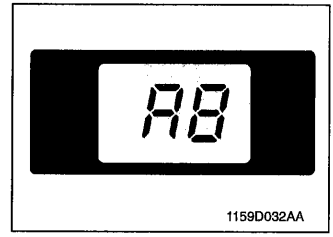


1. Place the test chart in the SDH.
2. Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. If the leading edge registration of the copy is outside the standards, use the following procedure to adjust.

4. Set to Service Mode.
5. To adjust the A8 SDH Registration, press the following keys in the indicated sequence: Copy Quantity and Zoom Key ① two times; the Start Key one time and the Copy Quantity and Zoom Key ① six times.



Press the Keys in order of [1], [2], [3], [4], [5], [6], [7], [8], and [9].



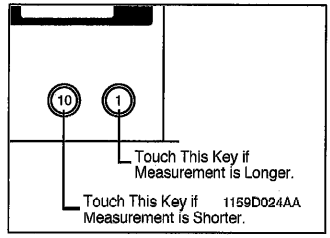
"A8" will appear in the Display Panel.

6. Press the Start Key to and use the Copy Quantity and Zoom Keys to change the settings for the SDH Registration Adjustment.
7. Press the Clear/Stop Key to set the settings.

Setting Instructions

- If dimention A on the copy is longer than 22 mm, increase the setting value.
- If dimention A on the copy is Shorter than 18.5 mm, decrease the setting value.

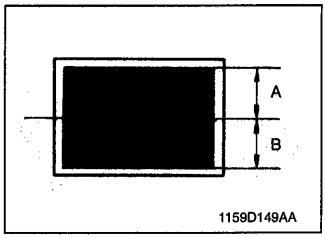
* If the measurement does not fall within the specifications through one setting, try another setting.



8. After the adjustments have been made, press the Clear/Stop Key to restore the copier to the normal copy mode.

(15) Adjustment of SDH Center Alignment (EP1030F/EP1031F Only)

◆ **Requirement**

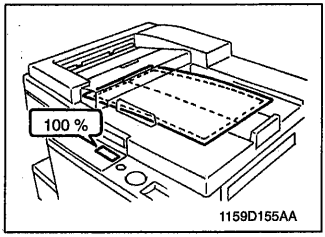


- As shown in the illustration to the left, use a Test Chart and adjust so that deviation of the lengths of Width A and Width B on the copy will be within the Specification shown below.

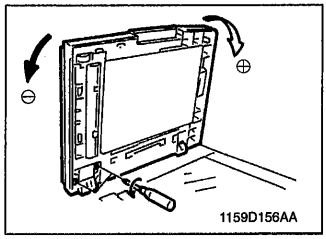
- Specification ... B Width – A Width = ± 1.0 mm

NOTE

Width A plus B must be 120 mm or more.



1. Place the test chart in the SDH.
2. Make a one copy using A4 or 8-1/2" × 14" paper at a 1:1 zoom ratio.
3. Check that the reference line for the Test Chart on the copy is within the standards.



4. If the reference position is outside the standards, loosen the two mounting screws on the left side of the SDH and move it in the direction shown by the arrow in the illustration.

Adjusting Instructions

If the deviation of the length of Width A and Width B on the Chart is

+ ..... Move the SDH to the right.

– ..... Move the SDH to the left.

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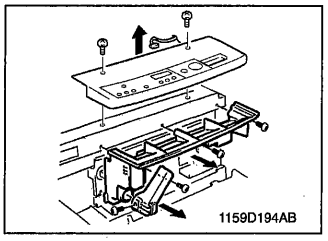
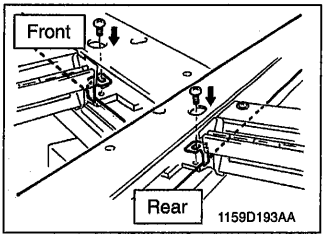
3-5. OTHER ADJUSTMENT

(1) Adjustment of the Scanner/Mirrors Carriage Position

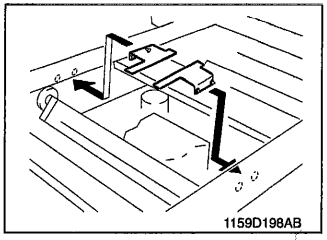
1. Swing down the Front Door.
2. Release and swing up the Upper Half of the copier.
3. Remove three screws and the Rear Cover.
4. Remove four screws and the Upper Left Cover.
5. Remove one screw and the Upper Front Left Cover.
6. Swing down and lock the Upper Half of the copier.
7. Remove two screws and the Original Width Scale.
8. Remove the SDH Glass. (EP1030F/EP1031F Only)
9. Remove the Original Glass.



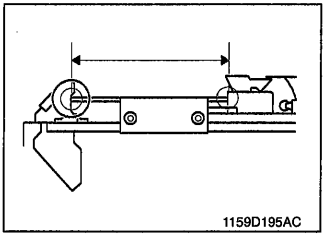
10. Remove one screw, one connector, and the control panel.
11. Remove one screw and the Lock Release Lever.
12. Remove three screws and Panel Lower Cover.



13. Temporarily secure the set screws of the Scanner Fixing Brackets at the front and rear to the Scanner.



14. Fit the Scanner/Mirrors Carriage Positioning Jigs between the Scanner and Mirrors Carriage.



15. Loosen the fixing bracket set screws and press the Mirrors Carriage up against the Positioning Jigs and Scanner.
16. Tighten the fixing bracket set screws to the specified torque.

3-6. POWER SOURCE VOLTAGE ROOT-MEAN-SQUARE-VALUE-TO-MEAN-VALUE CONVERSION TABLE

When using the testers, voltmeters, or multimeters which show only the mean value, not Rms values, carry out the following procedure.

1. Measure the line voltage.
2. Referring to the Mean Value Chart corresponding to each voltage area, see the figure under the voltage obtained in step 1.

If the line voltage is 125 V and Rms value is 80 V, for example, the mean value is 53.5 V.
Therefore, it is recommended that the voltage be adjusted so that the mean value is set as close to 53.5 V as possible.

MEAN VALUE
CHART FOR 115/120/127V AREAS

V / Rms	104	105	106	107	108	109	110	111	112	113	
80	59.5	59.2	58.5	58.5	58.0	57.7	57.5	57.2	56.8	56.5	MEAN VALUE

V / Rms	114	115	116	117	118	119	120	121	122	123	
80	56.2	56.0	55.7	55.5	55.2	55.0	54.2	54.5	54.2	54.0	MEAN VALUE

V / Rms	124	125	126	127	128	129	130	131	132	133	
80	53.7	53.5	53.3	53.2	52.8	52.7	52.5	52.2	52.0	51.8	MEAN VALUE

V / Rms	134	135	136	137	138	139	140	
80	51.7	51.5	51.3	51.2	51.0	50.8	50.7	MEAN VALUE

MEAN VALUE
CHART FOR 200/220/240V AREAS

V / Rms	180	181	182	183	184	185	186	187	188	189	
160	132.7	132.0	131.4	130.7	130.1	129.6	129.0	128.4	127.9	127.2	MEAN VALUE

V / Rms	190	191	192	193	194	195	196	197	198	199	
160	126.7	126.2	125.7	125.2	124.7	124.4	123.9	123.5	123.0	122.6	MEAN VALUE

V / Rms	200	201	202	203	204	205	206	207	208	209	
160	122.2	121.7	121.2	120.9	120.5	120.2	119.7	119.4	119.0	118.7	MEAN VALUE

V / Rms	210	211	212	213	214	215	216	217	218	219	
160	118.2	118.0	117.6	117.2	116.9	116.6	116.2	115.9	115.6	115.2	MEAN VALUE

V / Rms	220	221	222	223	224	225	226	227	228	229	
160	115.0	114.7	114.4	114.1	113.7	113.5	113.2	112.9	112.7	112.4	MEAN VALUE

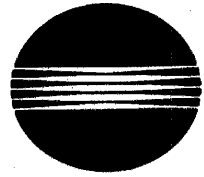
V / Rms	230	231	232	233	234	235	236	237	238	239	
160	112.1	111.7	111.6	111.2	111.0	110.7	110.5	110.2	110.0	109.7	MEAN VALUE

V / Rms	240	241	242	243	244	245	246	247	248	249	
160	109.5	109.2	109.0	108.7	108.6	108.2	108.1	107.9	107.6	107.4	MEAN VALUE

V / Rms	250	251	252	253	254	255	256	257	258	259	
160	107.2	107.0	106.7	106.5	106.2	106.1	105.9	105.7	105.5	105.2	MEAN VALUE

V / Rms	260	261	262	263	264	265	266	267	268	269	
160	105.1	104.9	104.7	104.5	104.2	104.1	103.9	103.7	103.5	103.2	MEAN VALUE

V / Rms	270	271	272	273	274	
160	103.1	103.0	102.7	102.6	102.4	MEAN VALUE



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