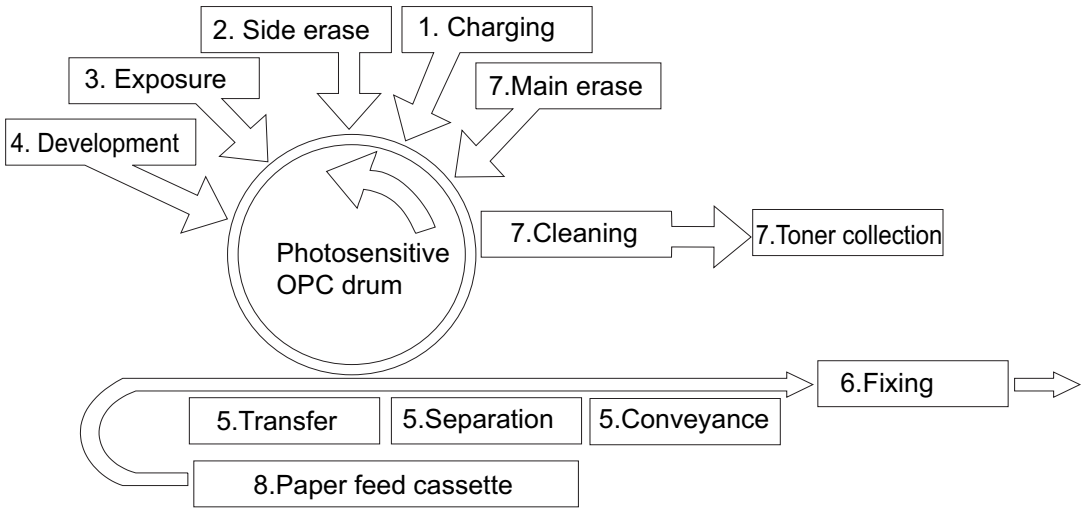
Chapter 6 Mechanism

6-1. Copy process 6-1

6-2. Front cross-section (Main mechanism parts layout drawing) 6-3

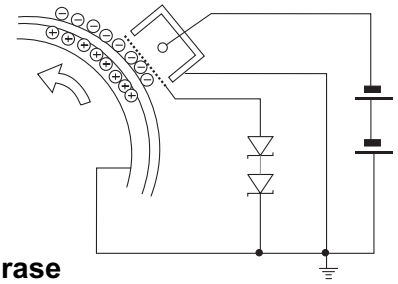
6-3. Drive conveyance system diagram 6-4

6-1. Copy process



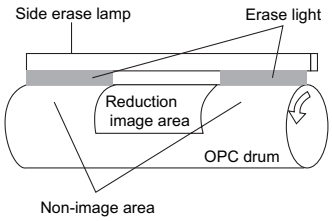
1. Charging

A high voltage of -4 to -5.5KV, output from the high voltage PCB (UNITHV), is applied on the charge corona unit. The grid mesh between the photosensitive OPC drum and charger is grounded via a 780V Zenner diode, keeping the surface of the photosensitive drum constant at -720V.



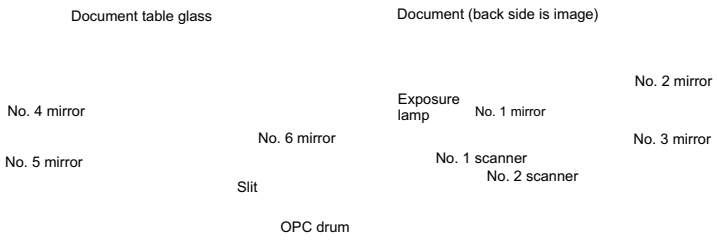
2. Side erase

The non-image area such as the edges during reduction copy, of the OPC drum surface after charging is discharged with the side erase lamp.



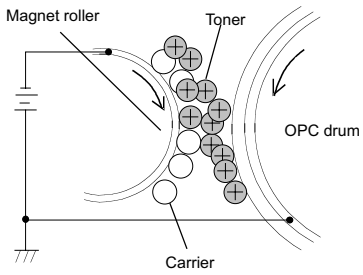
3. Exposure

The light irradiated from the exposure lamp exposes the photosensitive surface via the six mirrors and lens.

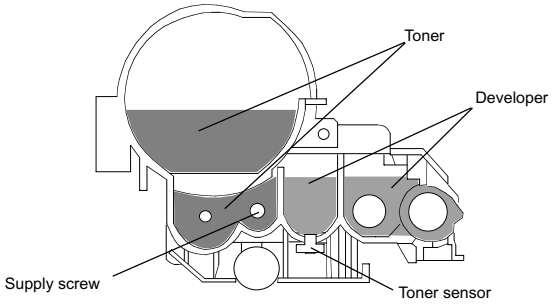


4. Development

1) The toner contained in the developer is positively charged when agitated. The charged toner is developed (magnetic brush method) when contacted against the OPC drum by the carrier (ferrite) and magnet roller. The toner adheres only at the sections of the OPC drum where there is an image, and creates a visible image. There is a slight negative charge even at the sections with no image (white sections), and some toner will adhere. The bias voltage -170V, output from the high voltage PCB (UNITHV) is applied on the magnet roller to prevent this adhesion.



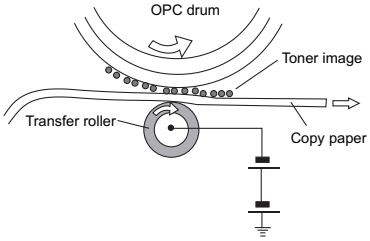
2) The density of the toner contained in the developer is kept constant by the toner sensor (magnetic sensor). When the toner sensor detects a low density, the supply screw provided at the bottom of the toner box rotates, and the toner is supplied into the developer.



5. Transfer, separation and conveyance

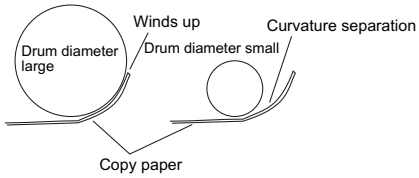
1) Transfer

The paper fed from the paper cassette is conveyed between the OPC drum and TC roller. A transfer voltage of -1 to -2KV, output from the high voltage PCB (UNIT HV) is applied on the TC roller, and the paper is negatively charge. As the toner on the OPC drum is positively charged, the toner image is transferred onto the paper. At areas other than the transfer area, the transfer voltage is changed to a positive voltage (600V), so the toner adhered on the transfer roller surface is returned to the OPC drum.



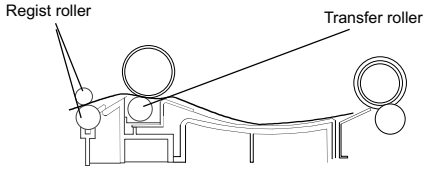
2) Separation

As the diameter of the OPC is small at 30mm, the paper after transfer is naturally separated (curvature separation) by the firmness of the paper.



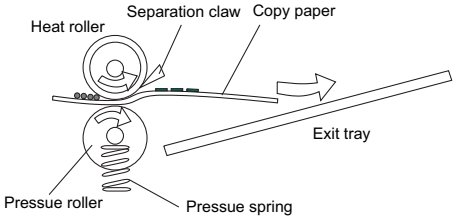
3) Conveyance

As the distance between the transfer process and fusing process in this machine is short, the paper is conveyed to the fusing process by the regist roller and transfer roller.



6. Fixing

The toner image transferred onto the paper is fixed by the heat roller's heat and pressure roller's pressure. The fixed paper is peeled off by the separation claws, and is exited.

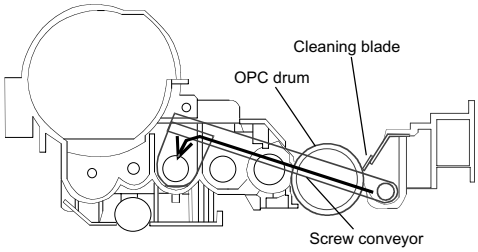


⚠1 7. Cleaning

1) Blade cleaning, toner recycle

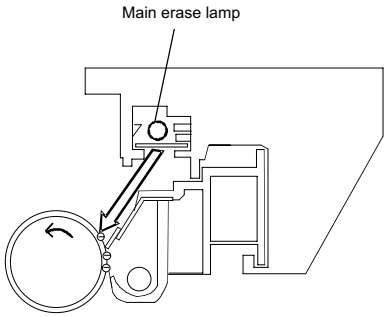
The toner left on the OPC drum after the transfer process is scraped off by the cleaning blade (urethane rubber).

The toner scraped off is returned to the developing unit by the screw conveyor, and is reused.



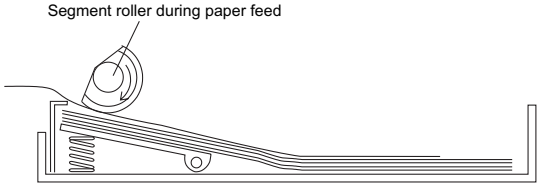
2) Main erase lamp

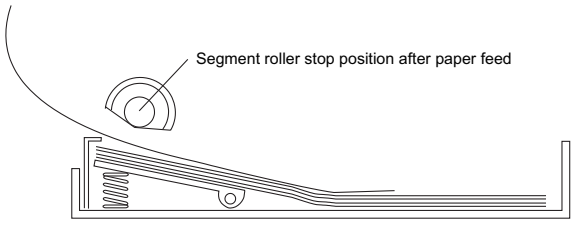
A slight residual potential is left on the OPC drum surface after the toner is scraped off. As the OPC drum is repeatedly used, the residual potential is completed erased by the main erase lamp.



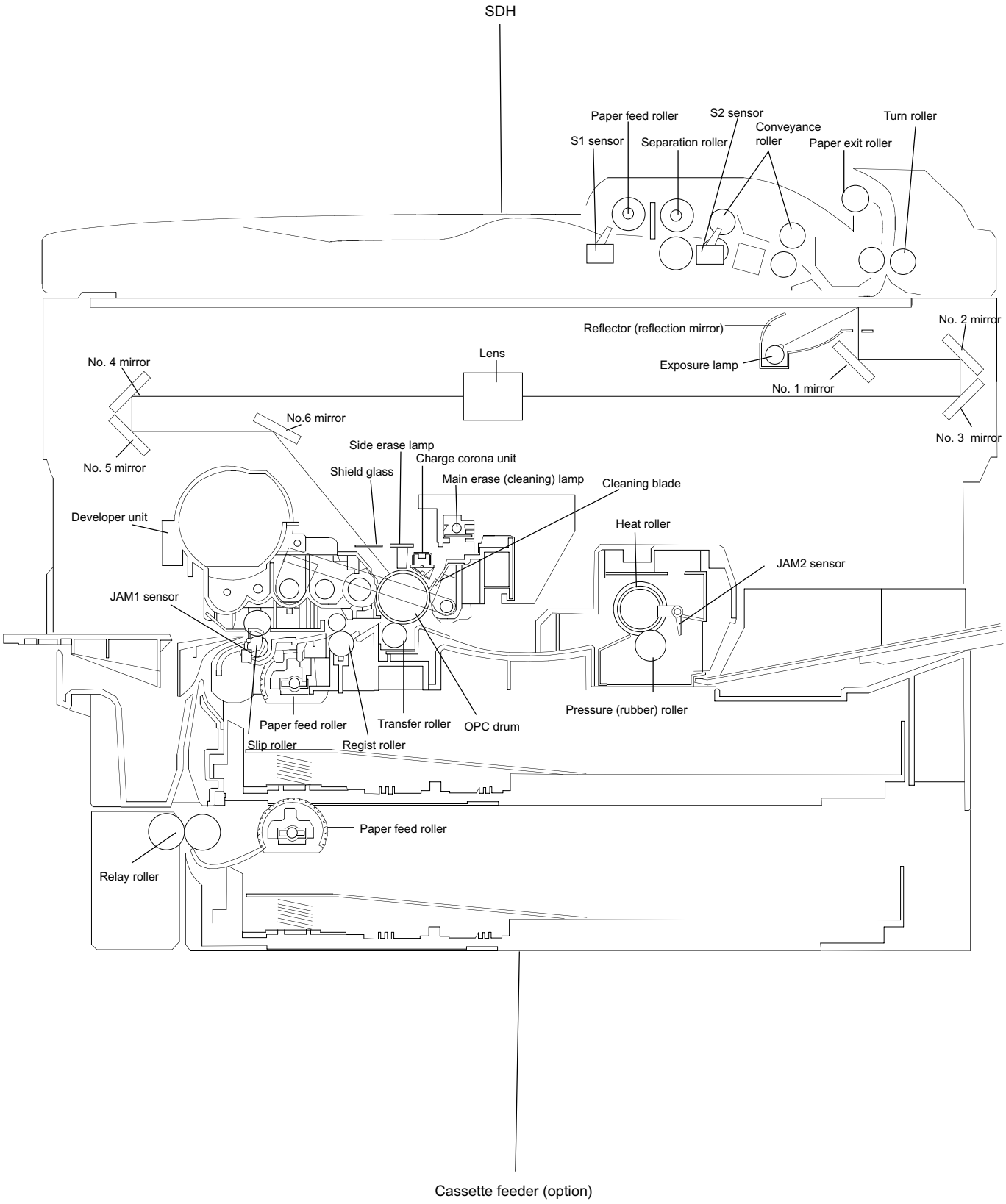
8. Paper feed

The paper in the paper feed cassette is separated by the claws on both edges, and only one sheet is conveyed into the unit by the paper feed roller (segment roller). When the paper feed is completed, the segment roller stops at a position where it does not contact the paper, so the paper pressing load is reduced.





△1 6-2. Front cross-section (Main mechanism parts layout drawing)



6-3. Drive conveyance system diagram

