

**1,000-SHEET FINISHER**  
**(Machine Code: A681)**

# 1. OVERALL MACHINE INFORMATION

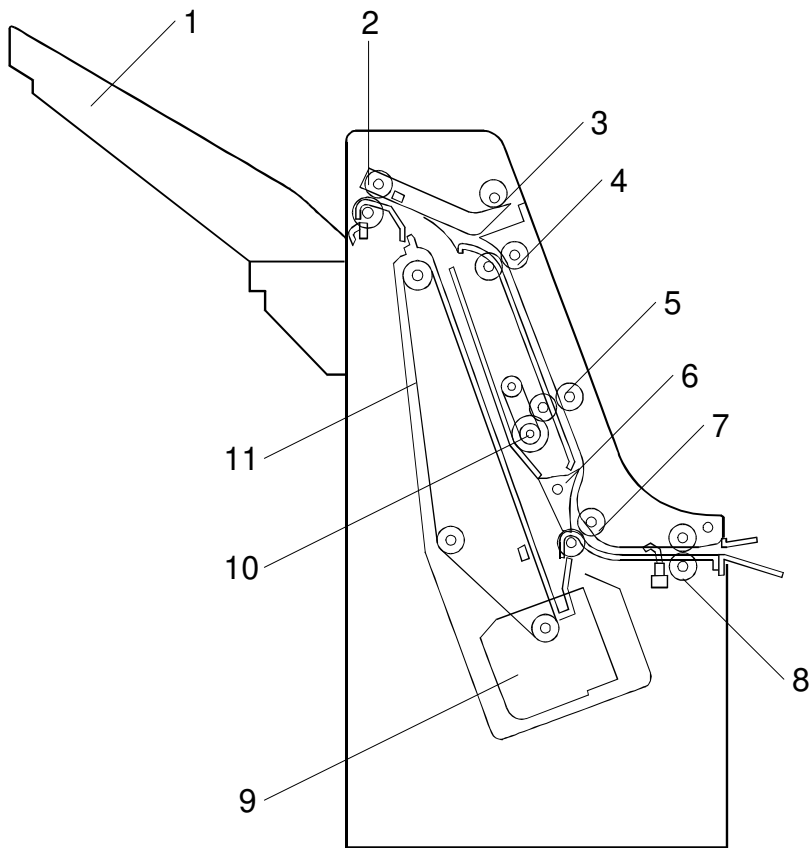
## 1.1 SPECIFICATIONS

|                   |  |
|-------------------|--|
| Paper Size:       | No staple mode:<br>A3 to A6 lengthwise<br>DLT to HLT lengthwise<br>Staple mode:<br>A3, B4, A4, B5 sideways<br>DLT to LT  |
| Paper Weight:     | No staple mode: 52 ~ 157 g/m <sup>2</sup> , 16 ~ 42 lb<br>Staple mode: 64 ~ 80 g/m <sup>2</sup> , 17 ~ 21 lb   |
| Stapler Capacity: | 20 sheets (A3, B4, DLT, LG)<br>30 sheets (A4, B5 sideways, LT)   |
| Paper Capacity:   | No staple mode:<br>1,000 sheets (A4/LT or smaller: 80 g/m <sup>2</sup> , 21 lb)<br>500 sheets (A3, B4, DLT, LG: 80 g/m <sup>2</sup> , 21 lb)<br>Staple mode: (80 g/m <sup>2</sup> , 21 lb, number of sets) |

| Size \ Size of each set       | 2 to 10 |         | 11 to 20 | 21 to 30 |
|-------------------------------|---------|---------|----------|----------|
|                               | 2 to 5  | 6 to 10 |          |          |
| A4/LT sideways<br>B5 sideways | 100     | 85      | 40       | 25       |
| A4/LT lengthwise              | 50      |         | 25       | 15       |
| A3, B4, DLT, LG               | 50      |         | 25       | —        |

|                         |                                     |
|-------------------------|-------------------------------------|
| Staple Positions:       | 1                                   |
| Staple Replenishment:   | Cartridge (3,000 staples/cartridge) |
| Power Source:           | 24 Vdc, 5 Vdc (from the copier)     |
| Power Consumption:      | 48 W                                |
| Weight:                 | 21 kg (46.2 lbs)                    |
| Dimensions (W x D x H): | 568 x 520 x 625 mm                  |

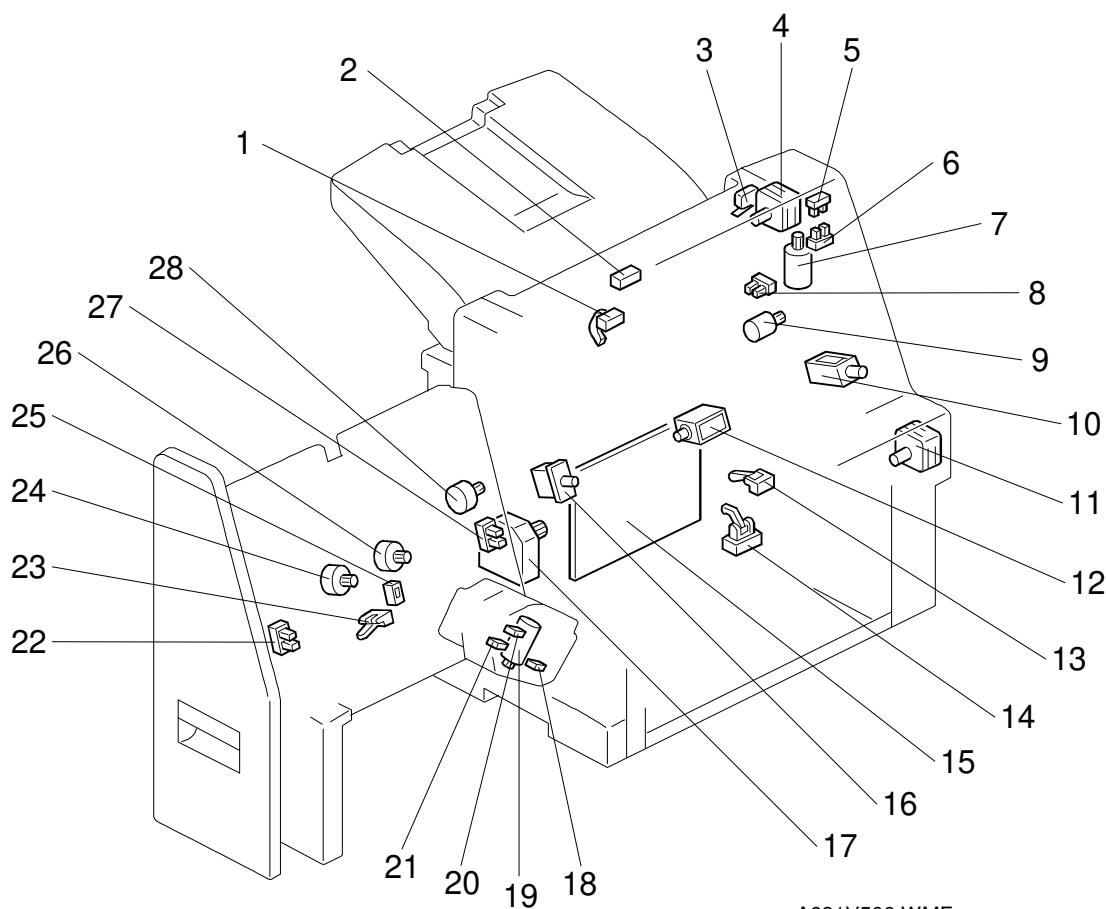
1.2 MECHANICAL COMPONENT LAYOUT



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- |                            |                           |
|----------------------------|---------------------------|
| 1. Shift Tray              | 7. Lower Transport Roller |
| 2. Exit Roller             | 8. Entrance Roller        |
| 3. Exit Roller Release Cam | 9. Stapler Unit           |
| 4. Upper Transport Roller  | 10. Positioning Roller    |
| 5. Middle Transport Roller | 11. Stack Feed-out Belt   |
| 6. Junction Gate           |                           |

1.3 ELECTRICAL COMPONENT LAYOUT



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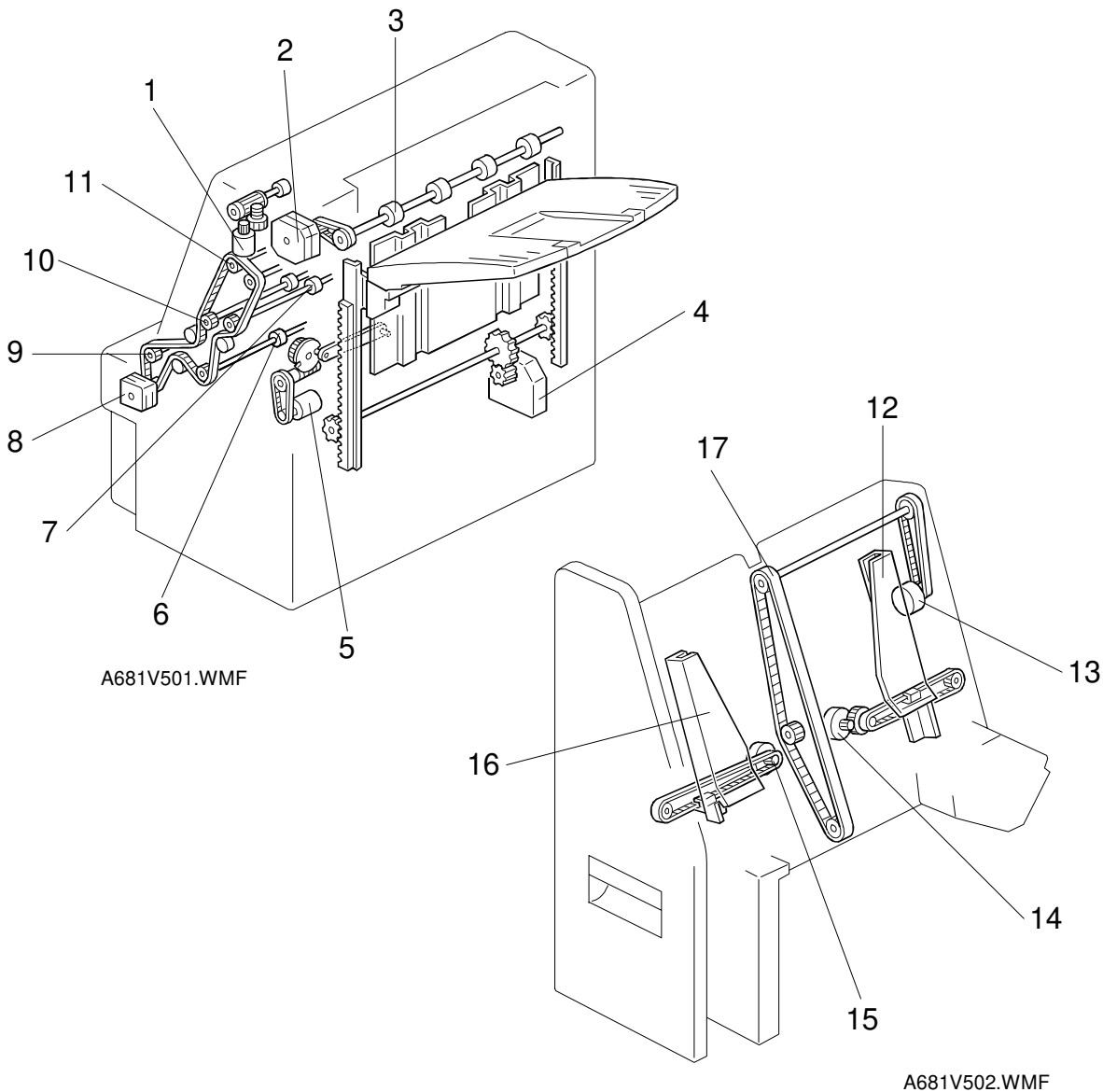
- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| 1. Stack Height Sensor            | 15. Main Board                    |
| 2. Exit Sensor                    | 16. Right Cover Safety Switch     |
| 3. Shift Tray Upper Limit Switch  | 17. Shift Tray Lift Motor         |
| 4. Exit Motor                     | 18. Staple Hammer HP Sensor       |
| 5. Exit Guide Plate Open Sensor   | 19. Staple Hammer Motor           |
| 6. Exit Guide Plate HP Sensor     | 20. Cartridge Set Switch          |
| 7. Exit Guide Plate Motor         | 21. Staple End Switch             |
| 8. Shift Tray Half-turn Sensor    | 22. Jogger Fence HP Sensor        |
| 9. Shift Motor                    | 23. Stack Feed-out Belt HP Sensor |
| 10. Junction Gate Solenoid        | 24. Jogger Fence Motor            |
| 11. Transport Motor               | 25. Jogger Unit Paper Sensor      |
| 12. Positioning Roller Solenoid   | 26. Rear Fence Motor              |
| 13. Shift Tray Lower Limit Sensor | 27. Rear Fence HP Sensor          |
| 14. Entrance Sensor               | 28. Stack Feed-out Motor          |

1.4 ELECTRICAL COMPONENT DESCRIPTIONS

| Symbol           | Name                   | Function  | Index No. |
|------------------|------------------------|---|-----------|
| <b>Motors</b>    |                        |   |           |
| M1               | Transport              | Drives the entrance roller, transport rollers, and positioning roller.        | 11        |
| M2               | Jogger Fence           | Drives the jogger fence.  | 24        |
| M3               | Rear Fence             | Drives the rear fence.  | 26        |
| M4               | Staple Hammer          | Drives the staple hammer.   | 19        |
| M5               | Stack Feed-out         | Drives the stack feed-out belt.   | 28        |
| M6               | Exit Guide Plate       | Opens and closes the exit guide plate.  | 7         |
| M7               | Exit                   | Drives the exit roller.   | 4         |
| M8               | Shift Tray Lift        | Moves the shift tray up or down.  | 17        |
| M9               | Shift                  | Moves the shift tray from side to side.                                       | 9         |
|                  |                        |   |           |
| <b>Sensors</b>   |                        |   |           |
| S1               | Entrance               | Detects copy paper entering the finisher and checks for misfeeds.             | 14        |
| S2               | Jogger Unit Paper      | Detects copy paper in the jogger unit.  | 25        |
| S3               | Jogger Fence HP        | Detects the home position of the jogger fence.                                | 22        |
| S4               | Rear Fence HP          | Detects the home position of the rear fence.                                  | 27        |
| S5               | Stack Feed-out Belt HP | Detects the home position of the stack feed-out belt.                         | 23        |
| S6               | Staple Hammer HP       | Detects the staple hammer home position.                                      | 18        |
| S7               | Exit Guide Plate HP    | Detects the home position of the exit guide plate.                            | 6         |
| S8               | Exit Guide Plate Open  | Detects whether the exit guide plate is opened or not.                        | 5         |
| S9               | Exit                   | Checks for misfeeds.  | 2         |
| S10              | Stack Height           | Detects the top of the copy paper stack.                                      | 1         |
| S11              | Shift Tray Lower Limit | Detects the lower limit position of the shift tray.                           | 13        |
| S12              | Shift Tray Half-turn   | Detects the stop position of the shift tray during the side-to-side movement. | 8         |
|                  |                        |   |           |
| <b>Solenoids</b> |                        |   |           |
| SOL1             | Junction Gate          | Drives the junction gate.   | 10        |
| SOL2             | Positioning Roller     | Moves the positioning roller.   | 12        |
|                  |                        |   |           |

| Symbol   | Name                      | Function  | Index No. |
|----------|---------------------------|---|-----------|
| Switches |                           |   |           |
| SW1      | Shift Tray<br>Upper Limit | Detects the upper limit position of the shift tray.     | 3         |
| SW2      | Right Cover<br>Safety     | Cuts the dc power when the right cover is opened.       | 16        |
| SW3      | Cartridge Set             | Detects whether a staple cartridge is installed.        | 20        |
| SW4      | Staple End                | Detects staples in the cartridge.                       | 21        |
|          |                           |   |           |
| PCBs     |                           |   |           |
| PCB1     | Main                      | Controls the finisher and communicates with the copier. | 15        |
|          |                           |   |           |

1.5 DRIVE LAYOUT

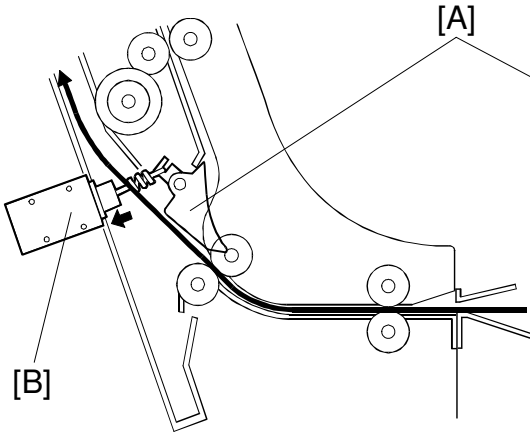


- |                                    |                             |
|------------------------------------|-----------------------------|
| 1. Exit Guide Plate Motor          | 10. Middle Transport Roller |
| 2. Exit Motor                      | 11. Upper Transport Roller  |
| 3. Exit Roller                     | 12. Rear Fence              |
| 4. Shift Tray Lift Motor           | 13. Stack Feed-out Motor    |
| 5. Shift Motor                     | 14. Rear Fence Motor        |
| 6. Lower Transport Roller          | 15. Jogger Fence Motor      |
| 7. Positioning Roller Drive Roller | 16. Jogger Fence            |
| 8. Transport Motor                 | 17. Stack Feed-out Belt     |
| 9. Entrance Roller                 |                             |

## 2. DETAILED DESCRIPTIONS

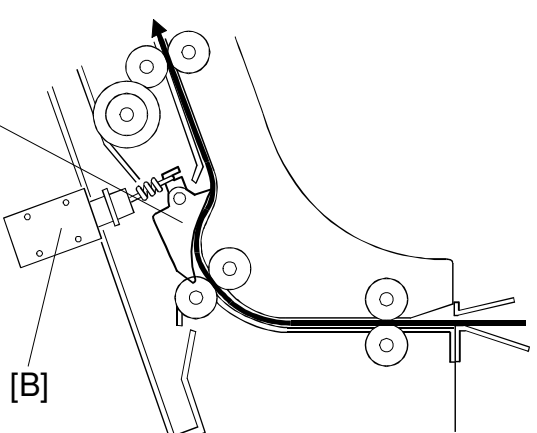
### 2.1 JUNCTION GATE MECHANISM

- Staple mode -



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- No staple mode -



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Depending on the selected finishing mode, the copies are directed to the left or right by the junction gate [A], which is controlled by the junction gate solenoid [B]. This happens when the exit sensor of the copier turns on.

#### ***Staple mode***

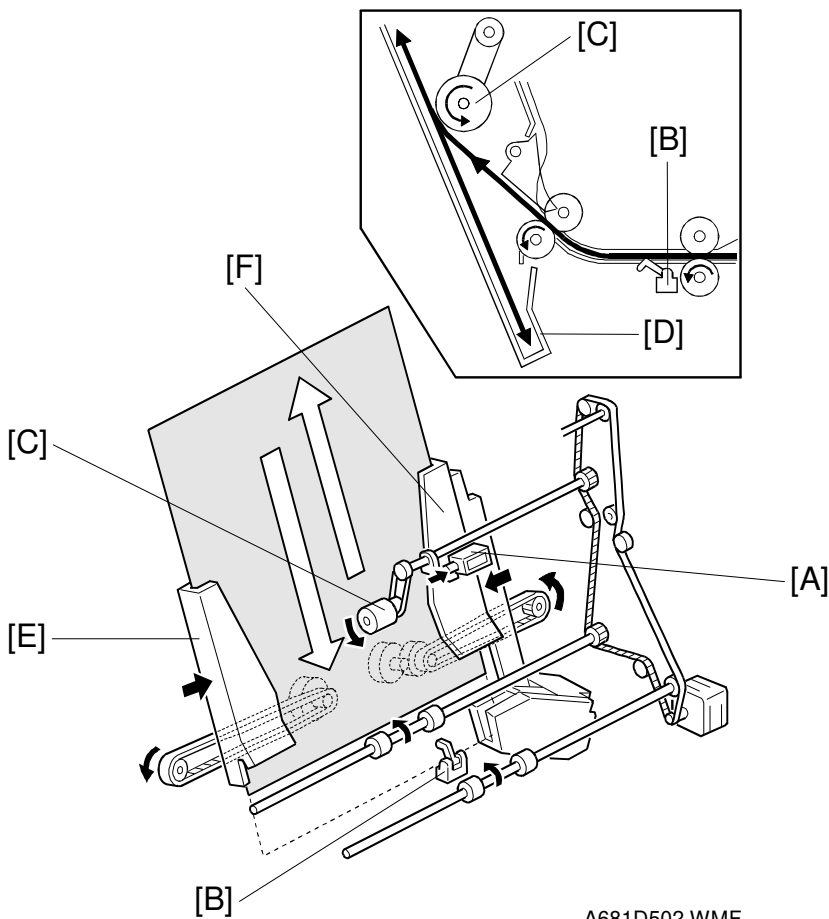
When the exit sensor of the copier turns on, the junction gate solenoid is energized. The paper is sent to the jogger unit.

#### ***No staple mode***

The junction gate solenoid stays off and the paper is sent to the shift tray directly.



2.2 JOGGER UNIT PAPER POSITIONING MECHANISM



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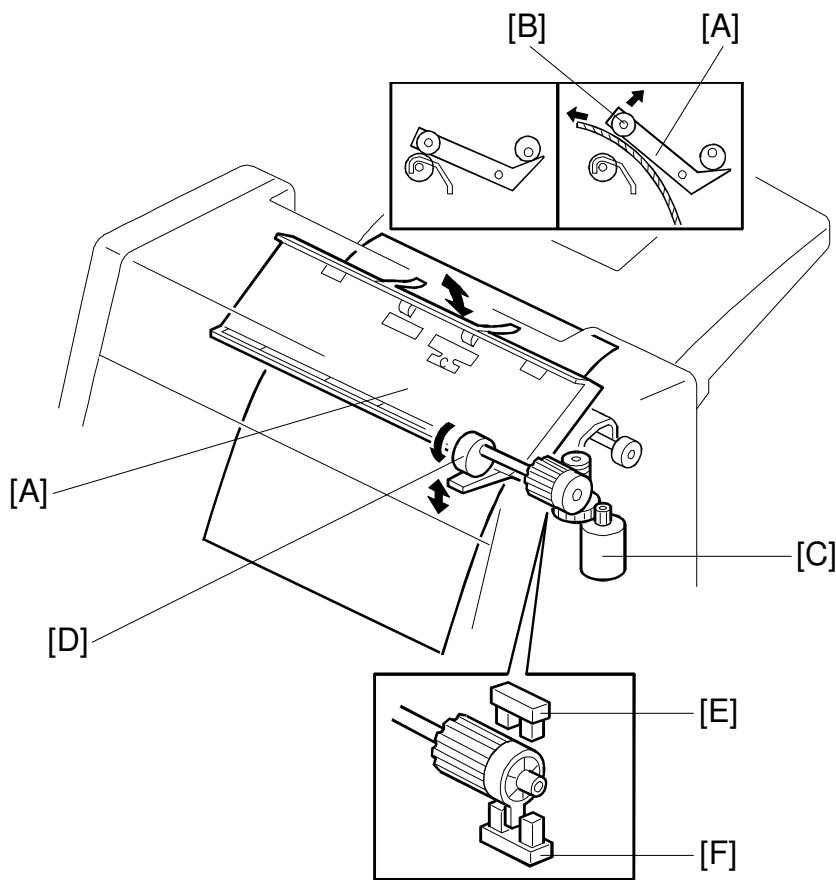
In staple mode, each sheet of copy paper is vertically and horizontally aligned when it arrives in the jogger unit.

For the vertical paper alignment, the positioning roller solenoid [A] turns on shortly after the entrance sensor [B] turns off and the positioning roller [C] pushes the copy against the bottom of stack stopper [D].

For the horizontal paper alignment, the jogger fence [E] and the rear fence [F] move to the waiting position, which is 10 mm away from the side of the paper. After the vertical position is aligned, the jogger fence pushes the paper 20 mm against the rear fence to align the paper horizontally. Then the jogger fence moves back to the previous position.

The stapler is mounted on the rear fence.

## 2.3 EXIT GUIDE PLATE OPEN/CLOSE MECHANISM

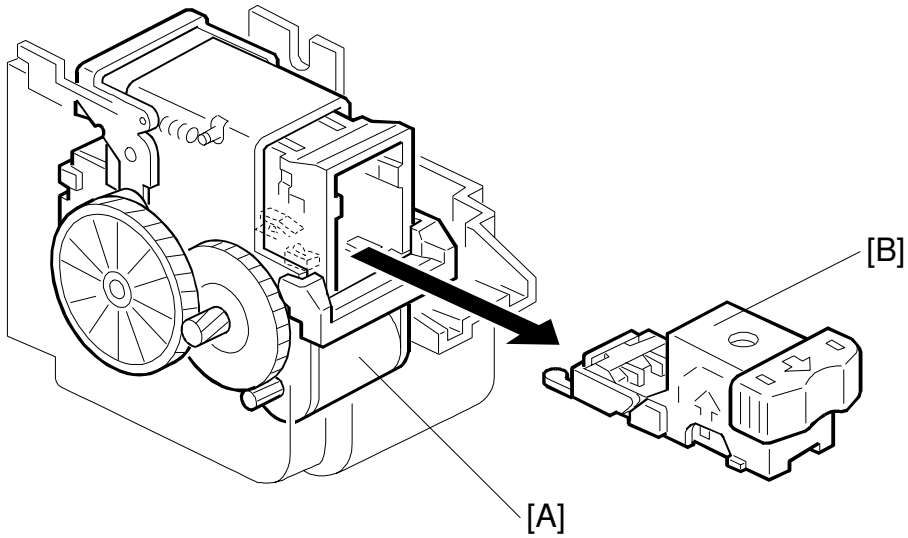


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When stacking a large size of paper (such as A3, DLT) in the jogger unit, the leading edge of the paper reaches the exit rollers. To prevent the paper from running into the exit rollers and not being aligned correctly, the exit guide plate [A] is moved up and this makes a gap between the exit rollers [B]. This operation is done at all paper sizes, but is only needed for the larger sizes.

The exit guide plate motor [C] and exit roller release cam [D] control the exit guide plate movement. When the exit guide plate motor starts, the cam turns and the exit guide plate is moved up. When the exit guide plate open sensor [E] turns on, the motor stops. When stapling is finished, the exit guide plate motor turns on again to close the exit guide plate. When the exit guide plate HP sensor [F] turns on, the motor stops.

## 2.4 STAPLER



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The stapler is mounted on the rear fence. When the rear fence moves, the stapler moves.

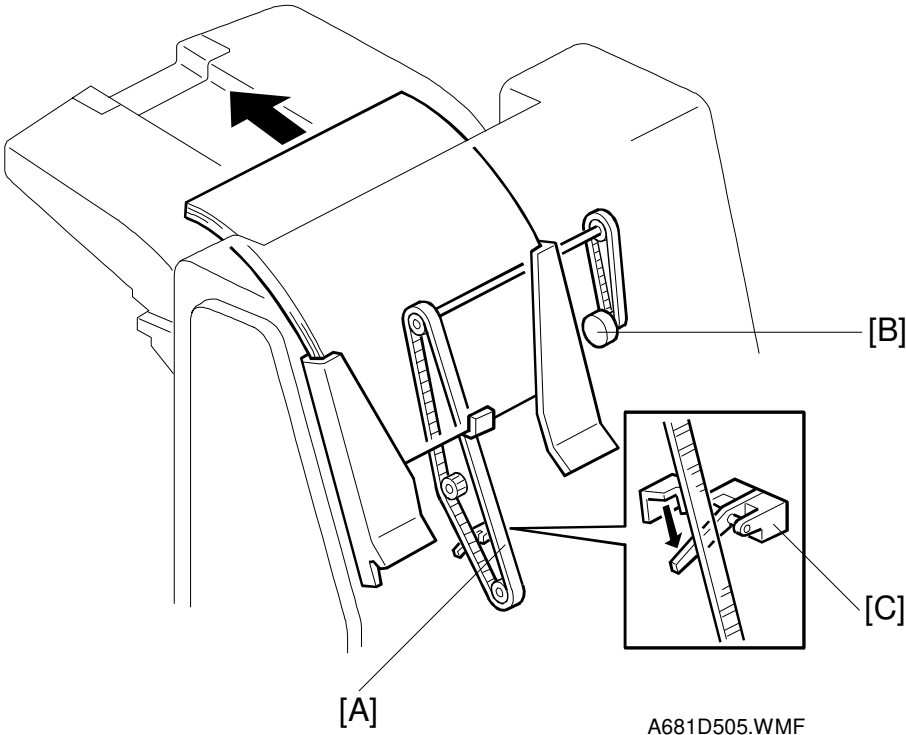
The staple hammer is driven by the stapler hammer motor [A].

When excessive load is applied to the staple hammer motor, the copier detects a staple jam. When a staple jam has occurred, the jammed staple is inside the staple cartridge [B]. Therefore, the jammed staple can be removed easily after pulling out the staple cartridge.

If there is no staple cartridge in the stapler unit or no staples in the staple cartridge, staple end is indicated on the operation panel.

This machine has only one stapling position.

## 2.5 FEED OUT MECHANISM



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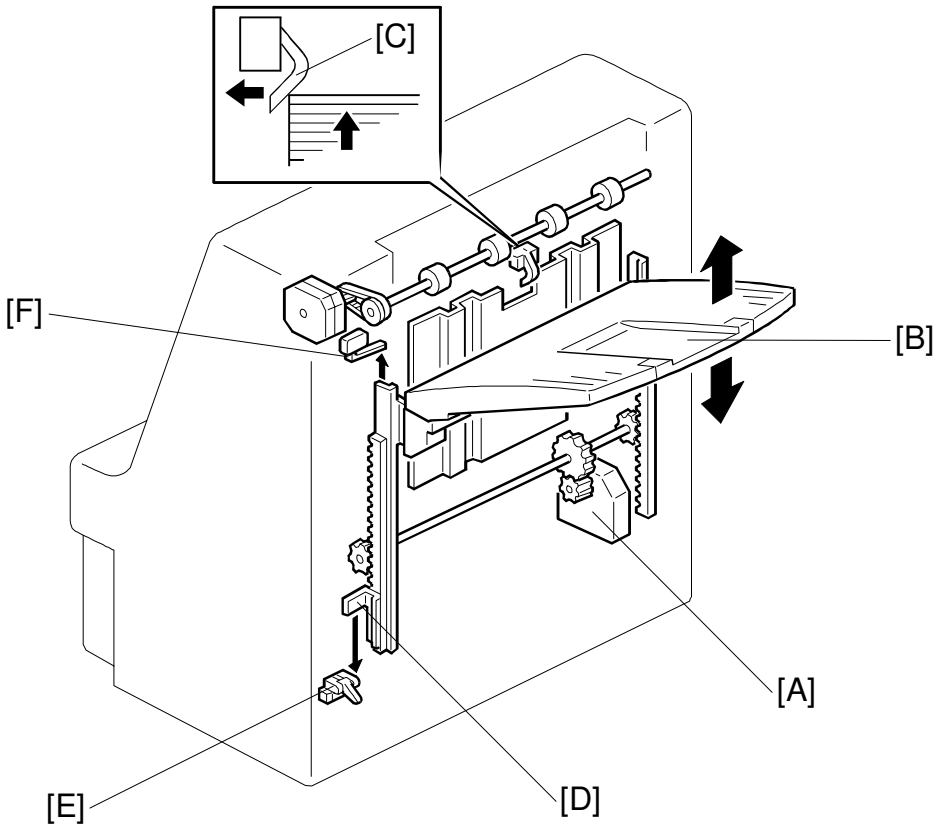
The stack feed-out belt [A] and the exit roller feed out the set of stapled copies.

After the copies have been stapled, the stack feed-out motor [B] turns on to drive the stack feed-out belt.

When the leading edge of the copies reaches the exit rollers, the exit guide plate motor turns on and the exit roller comes down to transport the set of stapled copies. Shortly afterwards, the stack feed-out motor stops, and the exit motor feeds out the stack.

When the stack has been fed out to the shift tray, the stack feed-out motor turns on again. When the stack feed-out belt HP sensor [C] turns on, the stack feed-out motor turns off.

## 2.6 SHIFT TRAY UP/DOWN MECHANISM



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The shift tray lift motor [A] controls the vertical position of the shift tray [B] through some gears. Just after the main switch is turned on, the tray is initialized at the upper position. The tray upper position is detected when the stack height sensor [C] is activated by the shift tray.

During copying, every ten copies in no staple mode or for each set of copies in staple mode, the shift tray is lowered until the stack height sensor turns off then raised until the stack height sensor turns on, and lowered again until the stack height sensor turns off.

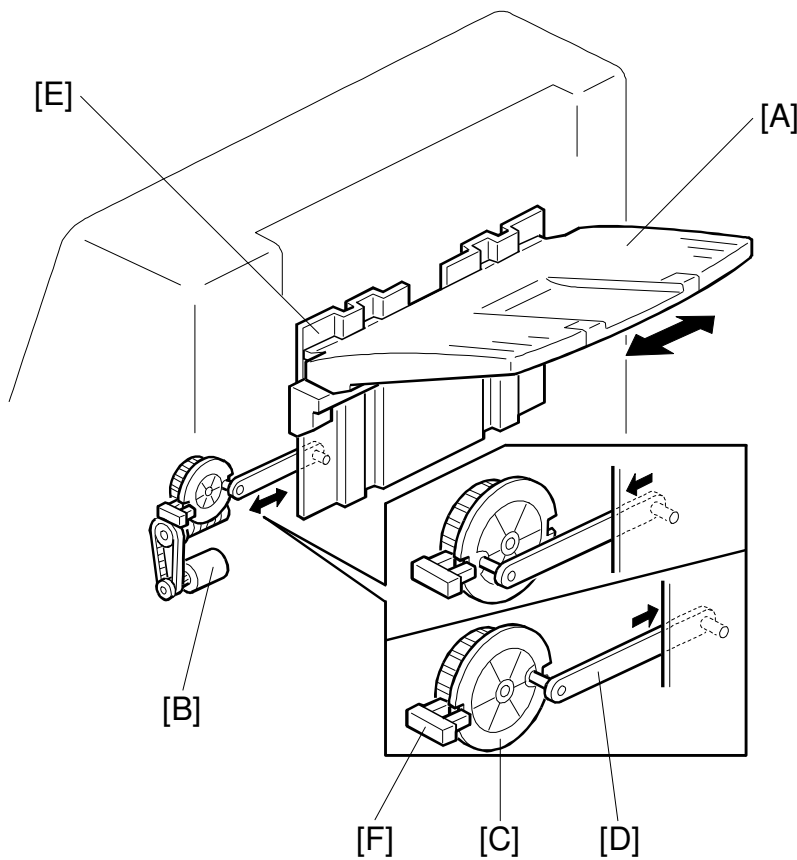
In either mode, the shift tray will rise when the user takes the stack of paper from the tray during copying.

When the shift tray reaches its lower limit, the actuator [D] turns on the shift tray lower limit sensor [E], and copying stops.

When the stack height sensor stays off for 2 seconds in standby mode, the shift tray is raised till the stack height sensor turns on.

The shift tray upper limit switch [F] prevents the drive gears from being damaged if the stack height sensor fails. When the shift tray turns on the shift tray upper limit switch, the switch cuts the power to the shift tray lift motor.

2.7 SHIFT TRAY SIDE-TO-SIDE MECHANISM



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In the sort/stack mode, the shift tray [A] moves from side to side to separate the sets of copies.

The horizontal position of the shift tray is controlled by the shift motor [B] and the shift gear disk [C]. After one set of copies is made and delivered to the shift tray, the shift motor turns on, driving the shift gear disk and the link [D]. The end fence [E] is positioned by the link, creating the side-to-side movement.

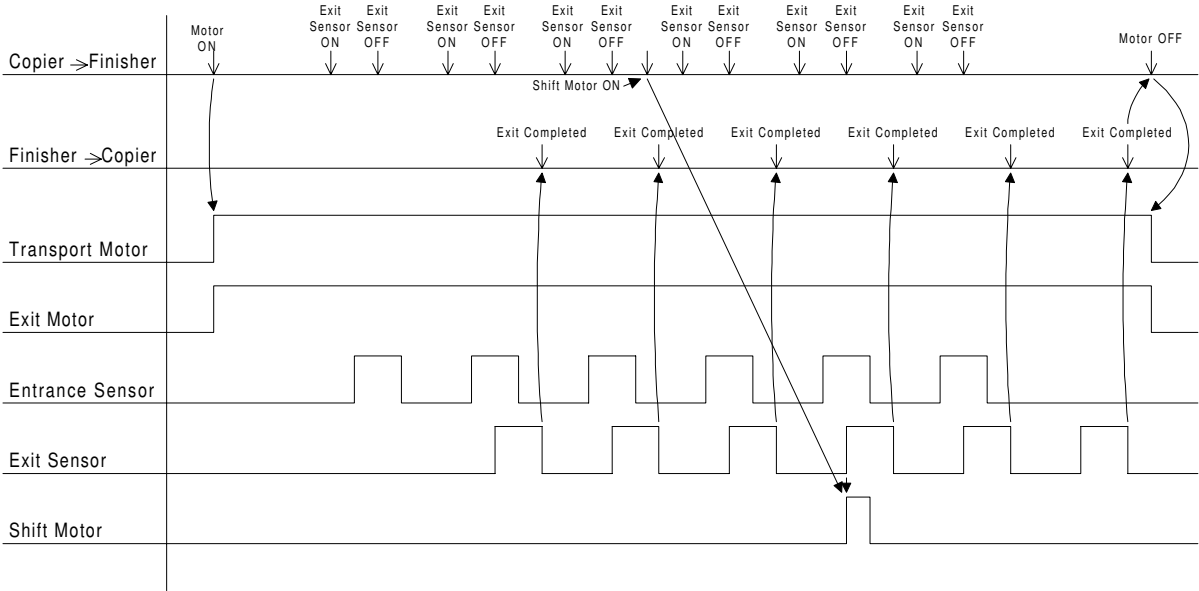
When the shift gear disk has rotated 180 degrees (when the shift tray is fully shifted across), the cut-out in the shift gear disk turns on the shift tray half-turn sensor [F] and the shift motor stops. The next set of copies is then delivered. The motor turns on, repeating the same process and moving the tray back to the previous position.

## **2.8 JAM CONDITIONS**

1. When the entrance sensor does not turn off within 1,000 ms after it turns on.
2. When the exit sensor does not turn off within 1,000 ms after it turns on.
3. When the exit sensor does not turn on in no staple mode within 1,250 ms after the entrance sensor turns on.

2.9 TIMING CHARTS

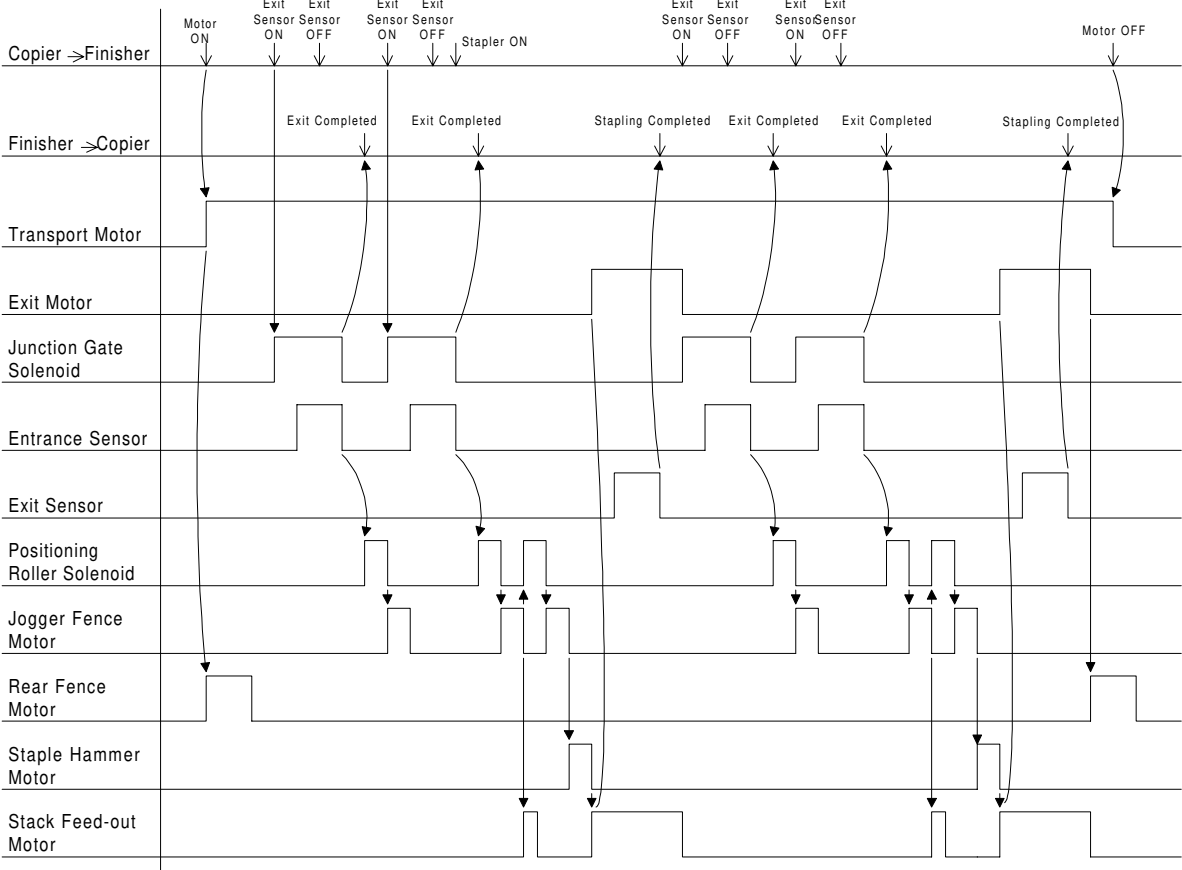
2.9.1 NO STAPLE MODE (A4 SIDEWAYS, 3 SHEETS/2SETS)



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2.9.2 STAPLE MODE (A4 SIDEWAYS, 2 SHEETS/2 SETS)



A681D509.WMF

### 3. SERVICE TABLE

#### 3.1 DIP SWITCH TABLE

| DPS101 |   |   |   | Description              |
|--------|---|---|---|--------------------------|
| 1      | 2 | 3 | 4 |                          |
| 0      | 0 | 0 | 0 | Default                  |
| 1      | 1 | 1 | 0 | Free run: staple mode    |
| 1      | 1 | 0 | 1 | Free run: no-staple mode |

#### 3.2 TEST POINTS

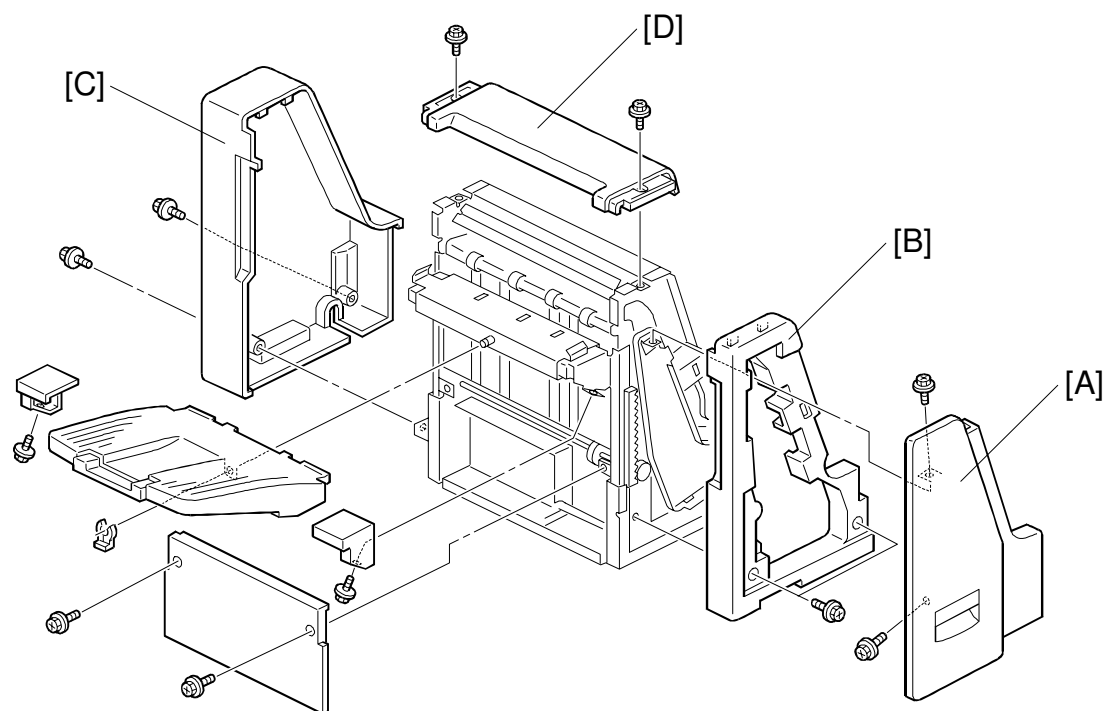
| No.   | Label | Monitored Signal |
|-------|-------|------------------|
| TP100 | (5 V) | +5 V             |
| TP101 | (GND) | Ground           |

#### 3.3 FUSES

| No.   | Function                |
|-------|-------------------------|
| FU100 | Protects the 24 V line. |

## 4. REPLACEMENT AND ADJUSTMENT

### 4.1 COVER REMOVAL



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#### **Front Door**

1. Remove the front door [A] (2 screws).

#### **Front Cover**

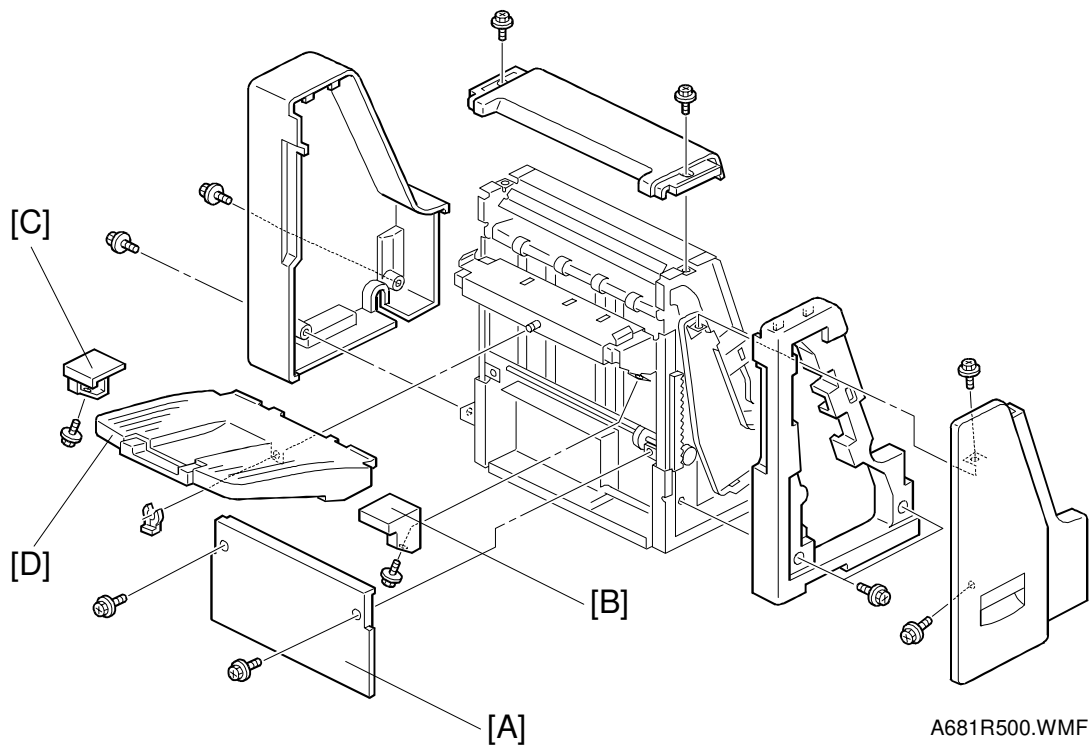
1. Remove the front door.
2. Remove the front cover [B] (2 screws).

#### **Rear Cover**

1. Remove the rear cover [C] (2 screws).

#### **Upper Cover**

1. Remove the front door.
2. Remove the front cover.
3. Remove the rear cover.
4. Remove the upper cover [D] (2 screws).



**Lower Left Cover**

- 1. Remove the lower left cover [A] (2 screws).

**Front Shift Tray Cover**

- 1. Remove the front shift tray cover [B] (1 screw).

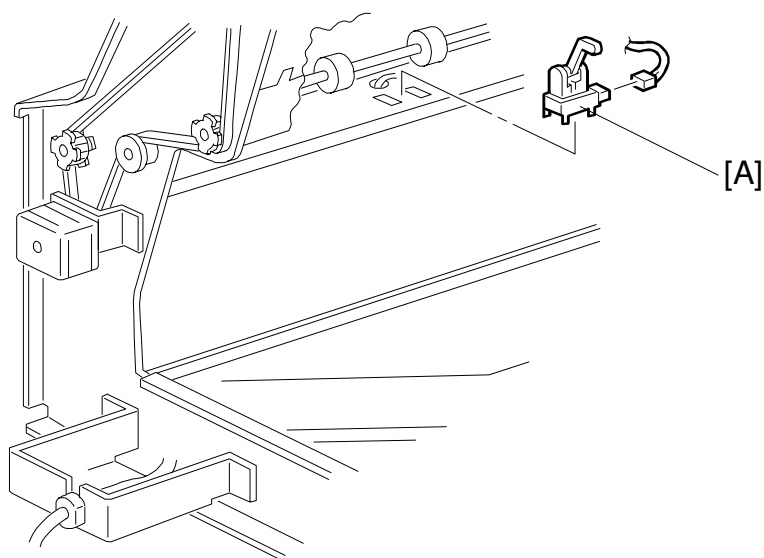
**Rear Shift Tray Cover**

- 1. Remove the rear shift tray cover [C] (1 screw).

**Shift Tray**

- 1. Remove the shift tray [D] (1 snap ring).

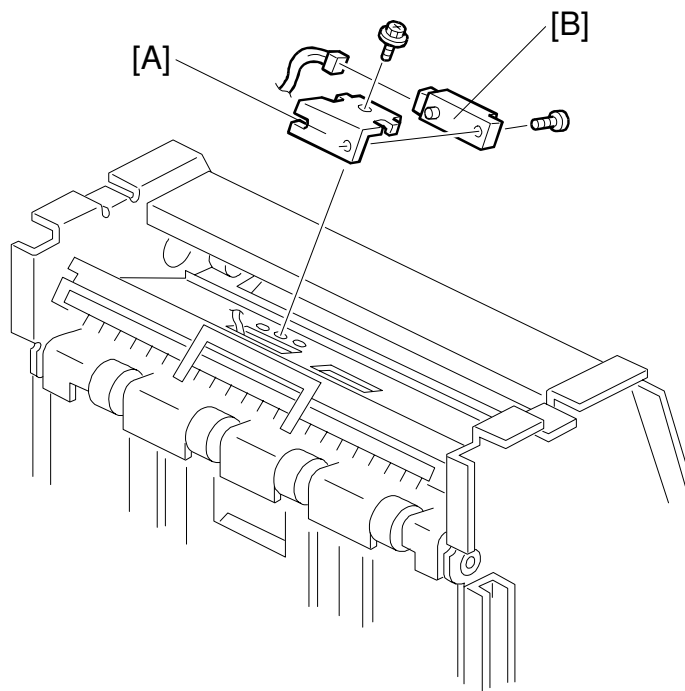
## 4.2 ENTRANCE SENSOR REPLACEMENT



A681R501.WMF

1. Remove the finisher from the copier.
2. Replace the entrance sensor [A] (1 connector).

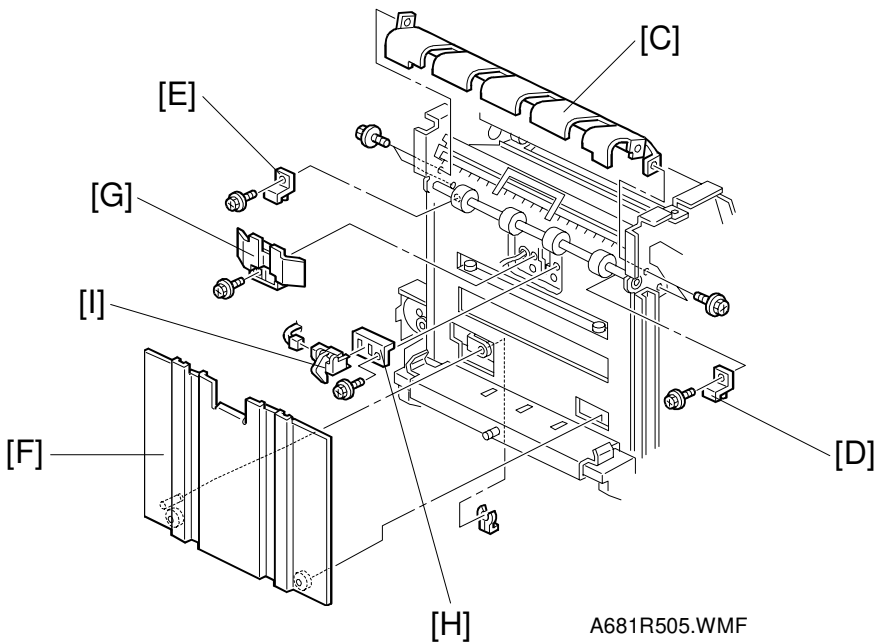
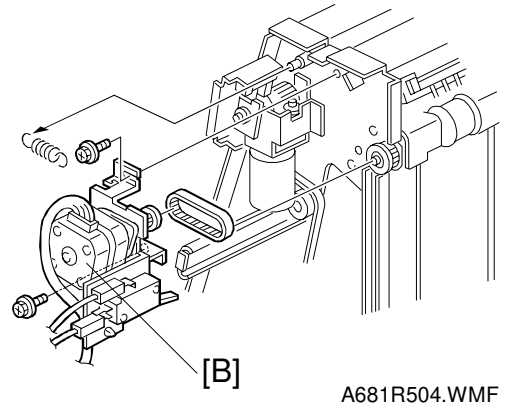
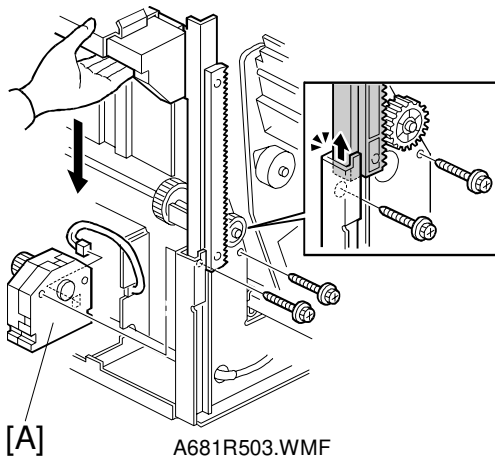
## 4.3 EXIT SENSOR REPLACEMENT



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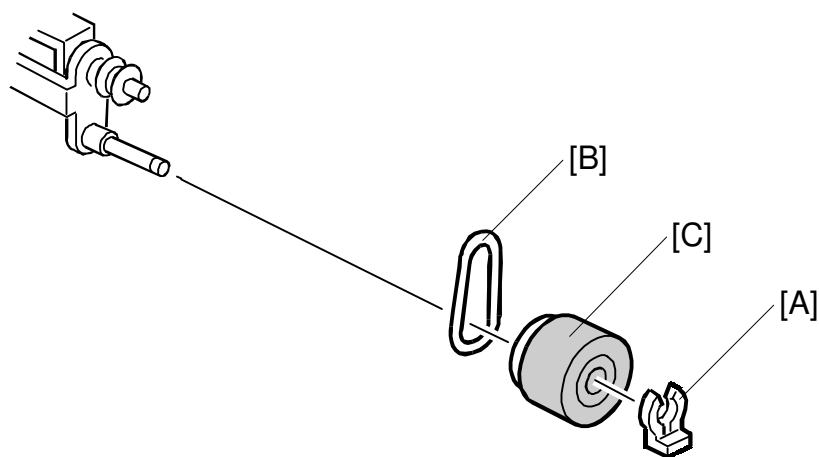
1. Remove the upper cover.
2. Remove the exit sensor bracket [A] (1 screw).
3. Replace the exit sensor [B] (1 screw, 1 connector).

# 4.4 STACK HEIGHT SENSOR REPLACEMENT



1. Remove the front cover.
2. Remove the shift tray lift motor [A] (2 screws).  
**NOTE:** The shift tray must be pulled up to remove the two screws.
3. Remove the rear cover.
4. Remove the exit motor unit [B] (2 screws, 1 spring, 1 timing belt).
5. Remove the lower exit guide [C] (4 screws).
6. Remove the front and rear end fence holders [D,E] (1 screw each).
7. Remove the end fence [F] (1 snap ring).
8. Remove the stack height sensor cover [G] (1 screw).
9. Remove the stack height sensor bracket [H] (1 screw).
10. Replace the stack height sensor [I] (1 connector).

## 4.5 POSITIONING ROLLER REPLACEMENT

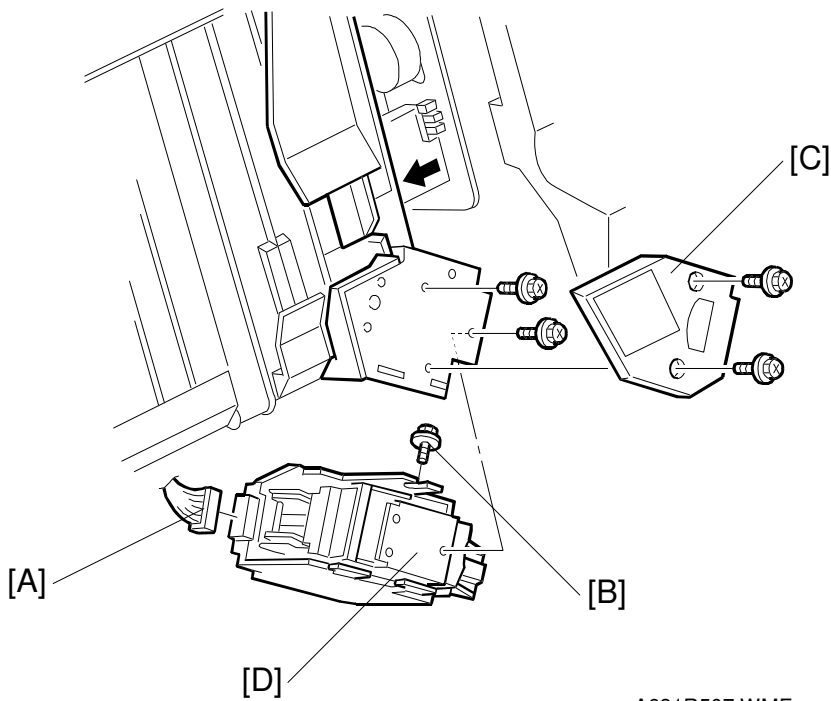


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1. Pull out the jogger unit.
2. Remove the snap ring [A].
3. Release the rubber belt [B].
4. Remove the positioning roller [C].



## 4.6 STAPLER REPLACEMENT

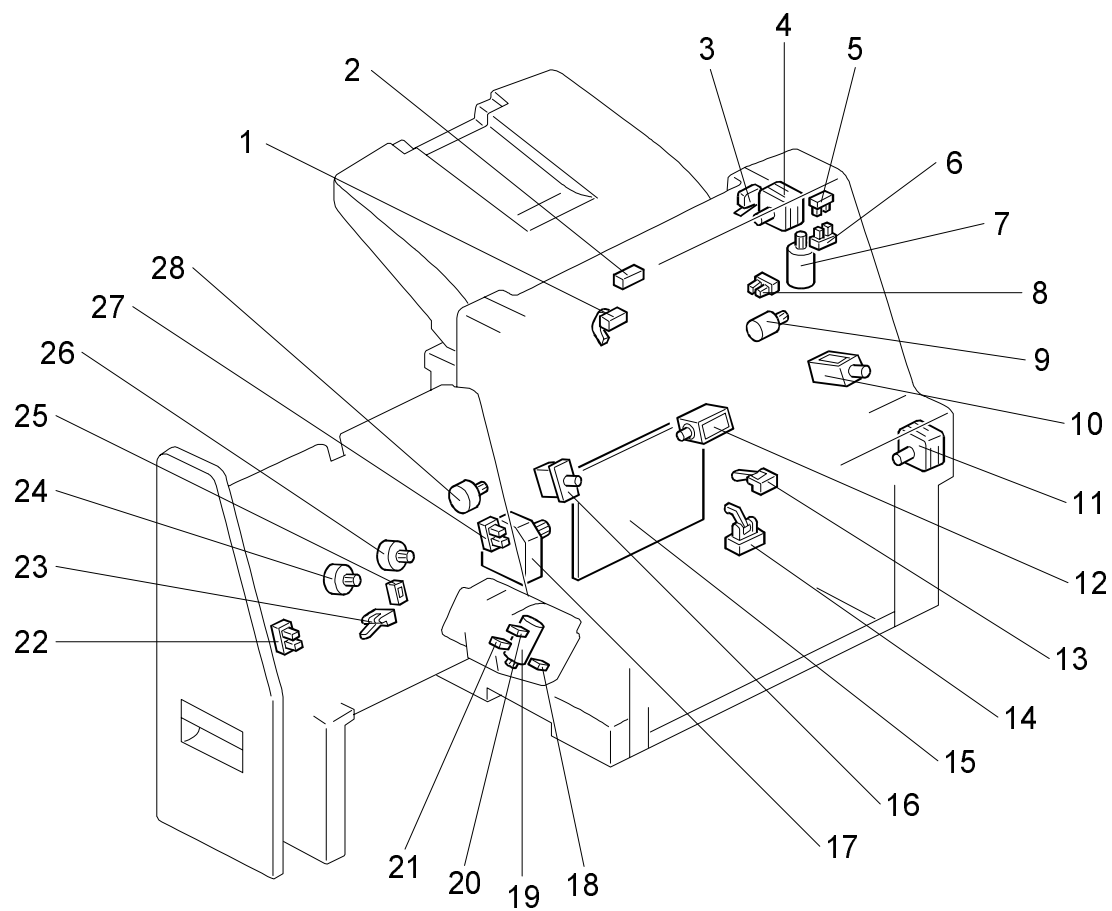


A681R507.WMF

1. Pull out the jogger unit.
2. Disconnect the stapler connector [A].
3. Remove the lower cover screw [B].
4. Remove the upper cover [C] (2 screws).
5. Remove the stapler with the lower cover [D] (2 screws).
6. Release the harness from the lower cover.
7. Replace the stapler.



1,000-SHEET FINISHER (A681) ELECTRICAL COMPONENT LAYOUT



| Symbol         | Index No. | Description            | P to P |
|----------------|-----------|------------------------|--------|
| <b>Motors</b>  |           |                        |        |
| M1             | 11        | Transport              | F13    |
| M2             | 24        | Jogger Fence           | Q2     |
| M3             | 26        | Rear Fence             | J13    |
| M4             | 19        | Staple Hammer          | C13    |
| M5             | 28        | Stack Feed-out         | O2     |
| M6             | 7         | Exit Guide Plate       | M13    |
| M7             | 4         | Exit                   | H13    |
| M8             | 17        | Shift Tray Lift        | L13    |
| M9             | 9         | Shift                  | K13    |
| <b>Sensors</b> |           |                        |        |
| S1             | 14        | Entrance               | C2     |
| S2             | 25        | Jogger Unit Paper      | L2     |
| S3             | 22        | Jogger Fence HP        | J2     |
| S4             | 27        | Rear Fence HP          | M2     |
| S5             | 23        | Stack Feed-out Belt HP | K2     |
| S6             | 18        | Staple Hammer HP       | D13    |
| S7             | 6         | Exit Guide Plate       | I2     |
| S8             | 5         | Exit Guide Plate Open  | H2     |
| S9             | 2         | Exit                   | F2     |
| S10            | 1         | Stack Height           | G2     |
| S11            | 13        | Shift Tray Lower Limit | D2     |
| S12            | 8         | Shift Tray Half-turn   | E2     |

| Symbol           | Index No. | Description            | P to P |
|------------------|-----------|------------------------|--------|
| <b>Solenoids</b> |           |                        |        |
| SOL1             | 10        | Junction Gate          | N13    |
| SOL2             | 12        | Positioning Roller     | O13    |
| <b>Switches</b>  |           |                        |        |
| SW1              | 3         | Shift Tray Upper Limit | L13    |
| SW2              | 16        | Right Cover Safety     | N2     |
| SW3              | 20        | Cartridge Set          | C13    |
| SW4              | 21        | Staple End             | D13    |
| <b>PCB</b>       |           |                        |        |
| PCB1             | 15        | Main                   | B6     |