

**(Trouble codes and countermeasures)**

Trouble code	Sub code	Content	Possible cause	Countermeasure
F2	31	Image exposure sensor error. Photoconductor surface reflection detection error	Dirt on the image density sensor (ID)	Clean the image density sensor and its peripheral. Use soft cloth immersed in water or alcohol to clean the sensor surface.
		After displaying the trouble code (occurrence of the error), process control does not function. The previous correction controls are retained.	Dirt on the drum surface by incomplete cleaning	Check the cleaning blade and the photoconductor drum surface and replace them if necessary.
			Image density sensor (ID) sensing level is not adjusted. * Image density sensor (ID) PWB trouble * Process control VR PWB trouble	Execute simulation No. 44-3. (Set to 90±3 with VR2.)
Error display in simulation No. 44-9 DM CNT: 99 ID CNT: 2 or 4				
F2	32	Drum mark sensor trouble. Surface level and drum mark sensing abnormality	Dirt on the drum mark sensor (DM)	Clean the drum mark sensor (DM) and its peripheral. Use soft cloth immersed in water or alcohol to clean the sensor surface.
		After displaying the trouble code (occurrence of the error), process control does not function. The previous correction controls are retained.	Dirt on the drum surface by incomplete cleaning	Check the cleaning blade and the photoconductor drum surface, and replace them if necessary.
			Drum mark sensor (DM) sensing level is not adjusted. Improper drum (drum without mark) * Drum mark sensor (DM) PWB trouble * Process control VR PWB trouble	Execute simulation No. 44-2. (Set to 90±3 with VR1.)
Error display in simulation No. 44-9 DM CNT: 99 ID CNT: 1 or 3 or 5				
F2	35	Process control operation failure Density detection and correction error	1 Image density is too high to be corrected. (When executing simulation No. 44-6) Developer/toner density changes greatly. Humidity and temperature is low.	Check the developer unit. • Visually check the pressure contact and the lock state. • Check the high voltage output. Simulation No. 44-11.
		When 1 or 2 is detected, process control is fixed to the reference condition.  In case of an accidental trouble caused by the change in environments (temperature, humidity), if the inside state of the machine recovers, then the trouble will be cleared.	2 Image density is too low to be corrected. (When executing simulation No. 44-6) Developer/toner density changes greatly. Humidity and temperature change greatly.	GB NOM: -875V GB INT: 440V Simulation No. 8-1 DV BIAS: -200V  • Developer stirring Simulation No. 25-1. Replace the developer.
Error display with simulation No. 44-9: 1 DM CNT: 99 ID CNT: 6 or 8 2 DM CNT: 99 ID CNT: 7				

## [8] Test commands and diagnostics

### 1. Test command

#### (1) Introduction

The following can be done with test command.

- Used to operate any functional block independently to check its function.
- Used to adjust the machine.
- Used to cancel troubles.
- Used to set up functions.

#### (2) Purpose

It allows to help repairing and adjusting the machine using test command.

When the PAUSE key is pressed in a course of test command being executed, the test command is interrupted with the copy number window turned off and becomes ready to accept entry of a test command number.

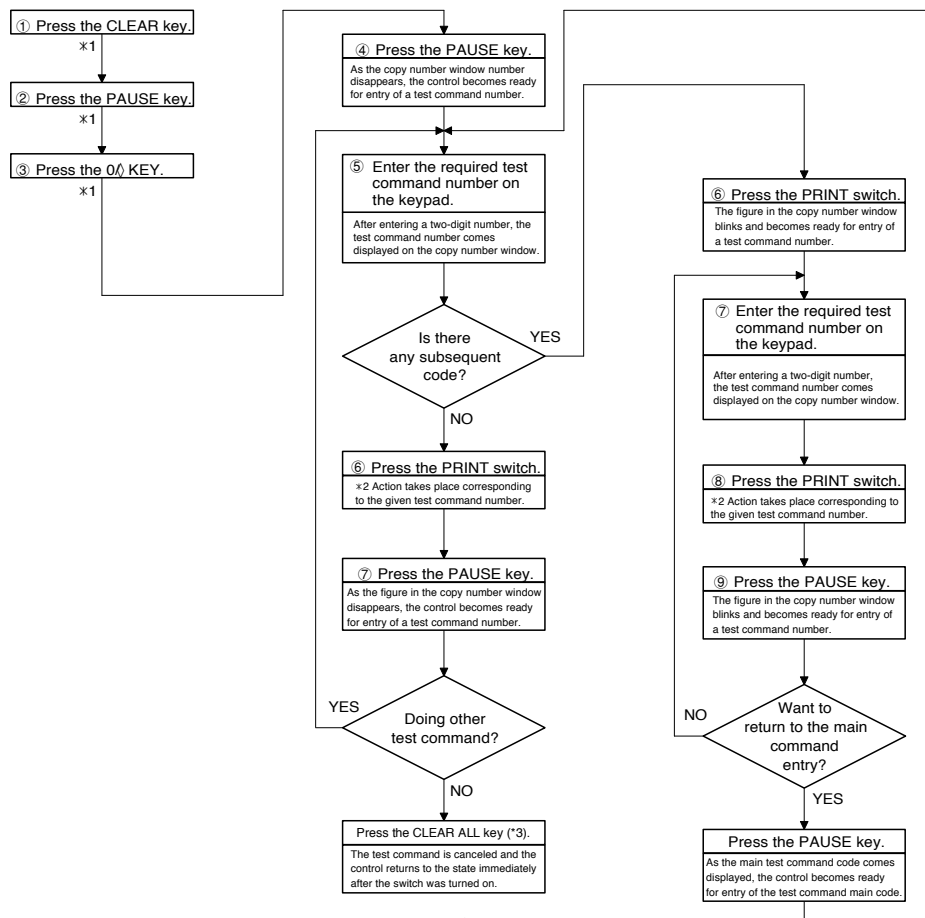
\*1: If the key was pressed for more than five seconds, it may not go into the test command mode.

\*2: Further operation may be needed depending on the kind of test command.

\*3: One of the next methods is required to cancel the test command as it varies according to the test command. The machine then starts from the state immediately after power on.

- Other than test command 7  
The test command is canceled when the CLEAR ALL key is pressed.
- Test command 7  
One of the following operation cancels the test command execution.
  1. Power switch off.
  2. Press the CLEAR → PAUSE → 0 → PAUSE → CLEAR ALL keys.
- Test command 14  
The test command 14 is used to clear the memory contents (H2, H3, H4) that has been stored in it. After the test command 14 has been executed, the diagnostic is automatically terminates.
- Special keys  
CLEAR ALL key: Test command mode → normal mode.  
PAUSE key: Execution of test command is interrupted.  
CLEAR key: Clears the copy number window.
- The diagnostic is automatically terminates after the doorswitch operation "ON → OFF → ON", except "H", "U2" code.

#### (3) Test command execution procedure



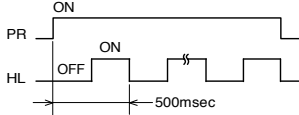
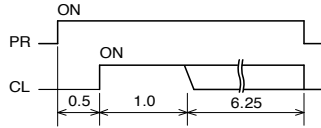
## List of the test commands

SIMNO	SIMSUB	Description		
01	01	Optical system mirror scanning check		
	02	Optical system sensor state display		
	03	Lens movement operation check		
	04	Lens aging		
02	01	RADF aging		
	02	RADF sensor state display		
	03	RADF individual load operation check	Motor A forward rotation	
	04		Motor A reverse rotation	
	05		Motor B forward rotation	
	06		Motor B reverse rotation	
	07		Belt clutch	
	08		Paper feed solenoid	
	09		Reverse solenoid	
	10		Stopper solenoid	
03	02		Sorter sensor state display	
	03		Sorter individual load operation check	Transport motor
	04	Bin shift motor		
	05	Fan motor (SF-S15 only)		
	06	Gate solenoid		
	08	Staple motor (SF-S53 only)		
	09	Paper hold solenoid (SF-S53 only)		
	10	Guide bar motor (SF-S53 only)		
04	02	Desk sensor state display		
	03	1st cassette slot, cassette size switch check (Desk)		
	04	2nd cassette slot, cassette size switch check (Desk)		
	05	3rd cassette slot, cassette size switch check (Desk)		
	06	Desk individual load operation check	Transport motor	
	07		1st cassette slot, lift-up motor	
	08		2nd cassette slot, lift-up motor	
	09		3rd cassette slot, lift-up motor	
	10		Transport clutch	
	11		1st cassette slot, paper feed solenoid	
	12		1st cassette slot, paper feed clutch	
	13		2nd cassette slot, paper feed solenoid	
	14		2nd cassette slot, paper feed clutch	
	15		3rd cassette slot, paper feed solenoid	
	16		3rd cassette slot, paper feed clutch	
	05		01	Operation panel display check
02			Fuser lamp check	
03			Copy lamp check	
04			BL/DL check	
06	02		Separation pawl solenoid operation check	
07	01	Warm-up time display and aging with jam detection		
	02	Warm-up time display and aging without jam detection		
	03	Aging without fusing and jam detection		
	04	Warm-up disabled		
	06	Intermittent aging		
	07	Intermittent aging without jam		
	08	Warm up time display (without aging)		
	08	01	Developer bias check	
02		MHV (Charge), grid check	ME	
03			Photo	
04			TSM	
06		THV (Transfer) check		
07		SHV (Separation) check		
09		02	ADU sensor state display	
	03	ADU trail edge plate aging		
	04	ADU alignment plate aging		
	05	Gate solenoid operation check		
	10	**	Toner motor aging	
14	**	Cancel of troubles except U2, H2, H3, H4		
16	**	Cancel of U2 trouble code		

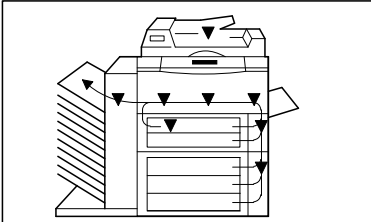
SIMNO	SIMSUB	Description	
17	**	PF trouble cancel	
20	**	Maintenance counter clear	
21	01	Maintenance cycle setting	
	02	Setting of domestic mini maintenance for black copy kit	
22	01	Maintenance counter display	
	02	Maintenance preset counter display	
	03	Jam memory display	
	04	Total jam counter display	
	05	Total counter display	
	06	Developer counter display	
	07	Developer preset cycle counter display	
	08	RADF counter display	
	09	ADU counter display	
	10	Staple counter display	
	11	Developer adjustment counter display	
	12	Drum adjustment counter display	
	13	Key operator code display	
24	01	Jam memory/total jam counter clear	
	03	Duplex counter clear	
	04	ADF/RADF counter clear	
	05	Staple counter clear	
	06	Developer correction counter clear	
	07	Drum film wear counter clear	
	25	01	Main motor system ON, toner sensor output display
02		Auto developer adjustment	
03		Setting of toner control ignoring time when warming up	
26	01	Option setting	
	03	Counter mode setting	
	06	Destination setting	
	07	Drum sensitivity setting	
	08	Lens focus setting	
	09	4/5 mirror characteristics setting	
27	01	PPC communication trouble	
30	01	Paper sensor state display	
	02	Cassette size switch state display	
41	01	Document size sensor check	
	02	Document size sensor adjustment	
	03	Document sensor light receiving level adjustment	
42	**	Developer counter clear	
43	**	Fusing temperature setting	
44	01	Correction mode setting,	
	02	Drum mark sensor sensitivity adjustment	
	03	Image density sensor sensitivity adjustment	
	05	Test mode	
	06	Compulsory execution of process control	
	07	Drum mark sensor/image density sensor gain select check	
	09	Process control data display	
	11	Enters the copy aging mode to allow the following operation and setting.	
46	01	Exposure level adjustment	
47	**	AE sensor characteristics setting	
48	01	Front/rear magnification ratio adjustment, focus adjustment	
	02	Paper transport direction magnification ratio adjustment (scanner speed)	
50	01	Lead edge image position adjustment, lead edge void adjustment	
	02	Lead edge image position adjustment (Calculation formula), lead edge void adjustment	
51	02	Paper buckle adjustment	
52	01	ADU alignment plate adjustment value setting	
	02	ADU trail edge plate adjustment value setting	
	03	ADU drive clutch OFF time setting	
53	01		
	02	RADF stop position adjustment	
	03		
	04	RADF resist sensor adjustment	
	05	RADF eject sensor adjustment	
		Normal paper, single sided original mode	
		Normal paper, double sided original mode	
		Thin paper mode adjustment	

Main code	Sub code	Description	Ref. Page																		
01	01	This is the test command used to test the optical system. The mirror base automatically starts to scan. (1) With depression of the PAUSE key, the control moves from the test command mode to be ready to execute it. The READY pilot lamp (RPL) comes active with the zoom ratio at 100%. It is possible to change the zoom mode using the ZOOM key. (2) When the PRINT key is pressed while the RPL is active, the status lamp turns off and the test command starts to execute. The mirror base moves to scan in the zoom ratio at that time. (3) If the door is opened while the operation is in process, the operation is interrupted with status "CH" prompted. Closing the door will start the operation all over again from its initial step.																			
	02	This is the test command used to test the optical system sensors. When the test command starts and the sensor turns on and the display reverses, it starts to test the on/off action of a optical system sensor.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Active status lamp</th> </tr> </thead> <tbody> <tr> <td>RE</td> <td>Mirror rotary encoder pulse (RE) input</td> </tr> <tr> <td>MHPS</td> <td>Mirror home position sensor</td> </tr> <tr> <td>LHPS</td> <td>Lens home position sensor</td> </tr> <tr> <td>MPHPS</td> <td>No.4/5 mirror home position sensor</td> </tr> </tbody> </table>	Active status lamp		RE	Mirror rotary encoder pulse (RE) input	MHPS	Mirror home position sensor	LHPS	Lens home position sensor	MPHPS	No.4/5 mirror home position sensor									
	Active status lamp																				
	RE	Mirror rotary encoder pulse (RE) input																			
MHPS	Mirror home position sensor																				
LHPS	Lens home position sensor																				
MPHPS	No.4/5 mirror home position sensor																				
03	Used to test the zoom lens movement. • The zoom ratio is displayed on the zoom ratio window. AB series machine    100% → 50% → 70% → 81% → 86% ↑    115% ← 122% ← 141% ← 200% ← Inch series machine    100% → 50% → 64% → 77% → 95% ↑    121% ← 129% ← 141% ← 200% ←																				
04	Used to test the zoom lens in the aging test mode. • Test command 01-03 are repeated to test.																				
02	01	Used to test the action of the RADF. The aging test starts when the document presence sensor is manually turned on.																			
	02	This is the test command used to test RADF sensors. On/off state of sensor can be manually tested. When the sensor turns on, the display reverses.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>Sensing presence of document DSD</td> <td>Sensing DF block open/close AUOD</td> <td>Sensing document width DWS1</td> </tr> <tr> <td>Sensing pre-fed document DFD</td> <td>Sensing paper feed block open/close FGOD</td> <td>Sensing document width DWS2</td> </tr> <tr> <td>Sensing document release RDD</td> <td>Sensing paper inversion block open/close TGOD</td> <td>Sensing document width DSW3</td> </tr> <tr> <td></td> <td></td> <td>Sensing document width DSW4</td> </tr> <tr> <td>Sensing document width DWS</td> <td></td> <td>Sensing document length DLS1</td> </tr> <tr> <td></td> <td></td> <td>Sensing document length DLS2</td> </tr> </tbody> </table> Reverse display: Paper presence/Door open, Normal display: No paper/Door closed	Sensing presence of document DSD	Sensing DF block open/close AUOD	Sensing document width DWS1	Sensing pre-fed document DFD	Sensing paper feed block open/close FGOD	Sensing document width DWS2	Sensing document release RDD	Sensing paper inversion block open/close TGOD	Sensing document width DSW3			Sensing document width DSW4	Sensing document width DWS		Sensing document length DLS1			Sensing document length DLS2	
	Sensing presence of document DSD	Sensing DF block open/close AUOD	Sensing document width DWS1																		
	Sensing pre-fed document DFD	Sensing paper feed block open/close FGOD	Sensing document width DWS2																		
	Sensing document release RDD	Sensing paper inversion block open/close TGOD	Sensing document width DSW3																		
			Sensing document width DSW4																		
	Sensing document width DWS		Sensing document length DLS1																		
			Sensing document length DLS2																		
	03	Used to test the action of RADF (individual load check) Motor A forward rotation																			
	04	Motor A reverse rotation																			
05	Motor B forward rotation																				
06	Motor B reverse rotation																				
07	Belt clutch																				
08	Paper feed solenoid																				
09	Inversion solenoid																				
10	Stopper solenoid																				

Main code	Sub code	Description	Ref. Page																		
03	02	<p>This is the test command used to test the sensors in the sorter. On/off state of sensors can be manually tested. When the sensor turns on, the display reverses.</p> <table border="1"> <tr> <td>Paper entry sense (non-sort) PES/SPID</td> <td>Indexer upper limit sense IULS/—</td> <td>Sorter set sense SJS/JSW</td> </tr> <tr> <td>Paper entry sense (sort) —/SPPD</td> <td>Indexer lower limit sense ILLS/—</td> <td>Top cover open/close sense UCSW/—</td> </tr> <tr> <td>Paper out sense PWB-S/—</td> <td>Indexer (bin) home sense IHS/BHPS</td> <td>Blower cover open/close sense FCSW/—</td> </tr> <tr> <td>Bin paper sense —/BPED</td> <td>Indexer (bin) position sensor IPS/LCHPS</td> <td>Staple cover open/close sense —/SCSW</td> </tr> <tr> <td>Staple position paper sense —/SPED</td> <td>Guide bar home position sense —/SGHPS</td> <td>Staple unit home position sense —/SCS</td> </tr> <tr> <td>Staple unit position sense —/SSD</td> <td>Staple operation home position sense —/SHPS</td> <td>Stapler needle sense —/SED</td> </tr> </table> <p>Note: The signal names are given in the order of S15/S53. Reverse display: paper found/door opened/ON Normal display: no paper found/door closed/OFF</p>	Paper entry sense (non-sort) PES/SPID	Indexer upper limit sense IULS/—	Sorter set sense SJS/JSW	Paper entry sense (sort) —/SPPD	Indexer lower limit sense ILLS/—	Top cover open/close sense UCSW/—	Paper out sense PWB-S/—	Indexer (bin) home sense IHS/BHPS	Blower cover open/close sense FCSW/—	Bin paper sense —/BPED	Indexer (bin) position sensor IPS/LCHPS	Staple cover open/close sense —/SCSW	Staple position paper sense —/SPED	Guide bar home position sense —/SGHPS	Staple unit home position sense —/SCS	Staple unit position sense —/SSD	Staple operation home position sense —/SHPS	Stapler needle sense —/SED	
		Paper entry sense (non-sort) PES/SPID	Indexer upper limit sense IULS/—	Sorter set sense SJS/JSW																	
		Paper entry sense (sort) —/SPPD	Indexer lower limit sense ILLS/—	Top cover open/close sense UCSW/—																	
		Paper out sense PWB-S/—	Indexer (bin) home sense IHS/BHPS	Blower cover open/close sense FCSW/—																	
		Bin paper sense —/BPED	Indexer (bin) position sensor IPS/LCHPS	Staple cover open/close sense —/SCSW																	
		Staple position paper sense —/SPED	Guide bar home position sense —/SGHPS	Staple unit home position sense —/SCS																	
		Staple unit position sense —/SSD	Staple operation home position sense —/SHPS	Stapler needle sense —/SED																	
		03	Used to test the components of the sorter (individual load check). Transport motor rotation																		
		04	Indexer motor rotation (returns to the home position at first, then stops at each bin location Bin 1 to Bin 21, moving up and down. Sorter bin moving.																		
		05	Fan motor rotation in the case of SF-S15 only																		
06	Gate solenoid ON																				
07	Offset solenoid (in the case of SF-S53)																				
08	Stapler motor rotation (the paper is stapled once when there is a paper in the stapler tray). (SF-S53 only)																				
09	Paper holder solenoid operation check (SF-S53 only)																				
10	Guide motor operation check																				
04	02	<p>This is the test command used to test sensors in the desk. On/off state of the sensors can be manually tested. When a sensor turns on, the display reverses.</p> <table border="1"> <tr> <td>Sensing paper fed from the upper cassette DPOD1</td> <td>Upper cassette lift upper limit sensor DLUD1</td> <td>Sensing paper presence on the upper cassette DPE1</td> </tr> <tr> <td>Sensing paper fed from the middle cassette DPOD2</td> <td>Middle cassette lift upper limit sensor DLUS2</td> <td>Sensing paper presence on the middle cassette DPE2</td> </tr> <tr> <td>Sensing paper fed from the bottom cassette DPOD3</td> <td>Bottom cassette lift upper limit sensor DLUD3</td> <td>Sensing paper presence on the bottom cassette DPE3</td> </tr> <tr> <td>Sensing door close/open DDOP</td> <td>—</td> <td>—</td> </tr> </table> <p>Reverse display: paper found/door opened/ON Normal display: no paper found/door closed/OFF</p>	Sensing paper fed from the upper cassette DPOD1	Upper cassette lift upper limit sensor DLUD1	Sensing paper presence on the upper cassette DPE1	Sensing paper fed from the middle cassette DPOD2	Middle cassette lift upper limit sensor DLUS2	Sensing paper presence on the middle cassette DPE2	Sensing paper fed from the bottom cassette DPOD3	Bottom cassette lift upper limit sensor DLUD3	Sensing paper presence on the bottom cassette DPE3	Sensing door close/open DDOP	—	—							
		Sensing paper fed from the upper cassette DPOD1	Upper cassette lift upper limit sensor DLUD1	Sensing paper presence on the upper cassette DPE1																	
		Sensing paper fed from the middle cassette DPOD2	Middle cassette lift upper limit sensor DLUS2	Sensing paper presence on the middle cassette DPE2																	
		Sensing paper fed from the bottom cassette DPOD3	Bottom cassette lift upper limit sensor DLUD3	Sensing paper presence on the bottom cassette DPE3																	
		Sensing door close/open DDOP	—	—																	
03	<p>Used to test the on/off state of the first cassette size switch of the desk. When the switch turns on, the display reverses. (Cassette size board) Switch positions when viewed from the front frame</p>																				
04	Used to test the on/off state of the second cassette size switch of the desk. Function is identical to the test command 04-03.																				
05	Used to test the on/off state of the third cassette size switch of the desk. Function is identical to the test command 04-03.																				

Main code	Sub code	Description	Ref. Page
04	06	Transport motor rotation. (Desk)	
	07	Motor turns off when detected the upper limit of the first cassette lift up motor rotation. (Desk).	
	08	Motor turns off when detected the upper limit of the second cassette lift up motor rotation. (Desk)	
	09	Motor turns off when detected the upper limit of the third cassette lift up motor rotation. (Desk)	
	10	Activate transport clutch of the desk	
	11	Activate first cassette paper feed solenoid of the desk	
	12	Activate paper feed clutch of the first cassette of the desk	
	13	Activate second cassette paper feed solenoid of the desk	
	14	Activate paper feed clutch of the second cassette of the desk	
	15	Activate third cassette paper feed solenoid of the desk	
	16	Activate paper feed clutch of the third cassette of the desk	
05	01	All LED's on the operation panel are turned on for five seconds. After five seconds, the machine automatically goes into the sub code input wait state.	
	02	This is the test command used to test the heater lamp. Heater lamp turned on and off five times.   <p>The heater turns on and off in the order shown above.</p>	
	03	This is the test command used to test the copy lamp. Copy lamp turned on in the following order. When the test command starts, the copy lamp turns full power for one second with the manual exposure setting 3.0 shown, and the copy lamp intensity can be changed to the power set on the exposure setup key for a period of 6.25 seconds.   <p>Use care not to damage original cover or RADF belt.</p> <p>* Refrain from repeating this test command without waiting for lamp and glass to cool.</p>	
	04	This is the test command used to check activation of the discharge lamp (DL) and the blank lamps (BL). The discharge lamp (DL) turns on for 30 seconds. Each blank lamp turns on, from the front frame side to the rear frame side. Finally, all blank lamps turn on. After lighting, the machine automatically goes into the sub code input wait state.	
06	02	Activation of the separation solenoid Used to test the action of the drum separator pawl solenoid.	
07	01	Aging test with alert for paper misfeed 1. Used to check the warmup time. 2. Executes the continuing aging test for the given number of copies. When the test command is executed, the machine performs its normal action and the warmup time starts to count from zero and increase count every one second. The count is displayed on the copy lamp window. When the RPL is turned on, the addition of the copy number is interrupted with the copy number remaining on display as it is. When the CLEAR key is pressed, the copy number must be entered on the keypad, and with depression of the PRINT switch, the given number of copies repeated to produce. In this case, the paper misfeed function comes alive.	
	02	Aging test without alert for paper misfeed Aging test is done without feeding paper. This test command is similar to 07-01. But, it does not alert paper misfeed occurrence. The warmup time check is similar as the test command 07-01.	
	03	Aging test without misfeed and fusing This test command is similar to 07-01. But, it does not count the warmup time and disregards the heater and paper feed troubles, without activating the heater lamp.	
	04	Warmup disabled Machine action is checked disregarding the warmup time. When the test command is executed, the RPL immediately turns on. Although the machine action may be tested, it may show the trouble status H4 depending on the case if low heater temperature is found.	
	06	Intermittent aging test	
	07	Intermittent aging test without alert for paper misfeed	
	08	Warm up time display (without aging) To check warm-up time, follow simulation 7-01.	

Main code	Sub code	Description	Ref. Page														
08	01	Developing bias voltage output. After delivering the output, the machine automatically goes into the sub code input wait state. This is the test command used to check the developing bias voltage. The developing bias voltage is turned on for 30 seconds. Standard developing bias setting is -200VDC.	[7]-1-(3)														
	02	Main (charge) corona output [ME]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard manual exposure mode main corona grid voltage is -875±15V. This is the test command used to check the main corona variance between the front and rear sides. The corona output continues for 30 seconds. • The main corona variance must be within 8µA between the front and the rear.	[7]-4-(3)														
	03	Main corona output [PE]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard photographic mode main corona grid voltage is -560±15V.	[7]-2-(3)														
	04	Main corona output [TSM]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard TSM main corona grid voltage is -710V±15V.	[7]-2-(3)														
	06	Transfer corona output [TSM]. After delivering the output, the machine automatically goes into the sub code input wait state. This is the test command used to check the transfer corona output (THV). The transfer corona output continues for 30 seconds.  <div style="text-align: center;"> </div> Standard transfer corona output is -31±5µA with variance between the front and rear at 8µA, maximum.	[7]-2-(3)														
	07	Separation corona output. After delivering the output, the machine automatically goes into the sub code input wait state. This is the test command used to check the separation corona output (SHV). The separation corona output continues for 30 seconds.  <div style="text-align: center;"> </div> Standard separation corona output is -10 to 10 Vdc (Japan).	[7]-2-(3)														
	09	02	ADU sensor check test command ON/OFF state of each sensor can be manually checked. When the sensor turns on, the display reverses.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Sensor</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>DPPD1</td> <td>ADU transport sensor 1</td> </tr> <tr> <td>DPPD2</td> <td>ADU transport sensor 2</td> </tr> <tr> <td>DTPID</td> <td>ADU tray sensor</td> </tr> <tr> <td>DPPFD</td> <td>ADU tray out sensor</td> </tr> <tr> <td>APHPS1</td> <td>ADU alignment plate home position sensor</td> </tr> <tr> <td>APHPS2</td> <td>ADU rear edge plate home position sensor</td> </tr> </tbody> </table>	Sensor	Function	DPPD1	ADU transport sensor 1	DPPD2	ADU transport sensor 2	DTPID	ADU tray sensor	DPPFD	ADU tray out sensor	APHPS1	ADU alignment plate home position sensor	APHPS2	ADU rear edge plate home position sensor
Sensor		Function															
DPPD1		ADU transport sensor 1															
DPPD2		ADU transport sensor 2															
DTPID		ADU tray sensor															
DPPFD	ADU tray out sensor																
APHPS1	ADU alignment plate home position sensor																
APHPS2	ADU rear edge plate home position sensor																
03	ADU trail edge plate drive motor rotation • Used to check the trail edge plate movement  (AB series) HP.A3 → B4 → A4R → B5R → A4 → B5 → A5 ↑ (Inch series) HP.11" x 17" → 11" x 14" → 8 1/2" x 11"(R) → 8 1/2" x 11" ↑																
04	ADU alignment plate drive motor rotation • Used check the alignment plate movement  (AB series) HP.A3 → B4 → A4R → B5R → A4 → B5 → A5 ↑ (Inch series) HP.11" x 17" → 11" x 14" → 8 1/2" x 11"(R) → 8 1/2" x 11" ↑																
05	Gate solenoid activation Used to check the gate solenoid operation.																

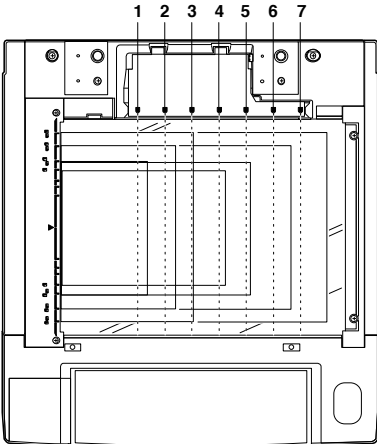
Main code	Sub code	Description	Ref. Page														
10	—	Toner motor activation Used to check the toner motor activation.															
14	—	Trouble code cancellation This is the test command used to cancel other than the "U2" trouble (H2, H3, H4). After the trouble has been removed, the test command terminates.															
16	—	U2 trouble code cancellation This is the test command used to cancel the "U2" trouble code. After the trouble code has been removed, the test command terminates.															
17	—	PF trouble cancel Used to cancel the PF trouble in the machine with PC/Modem when the copy inhibition command from the host machine is received. After cancelling the trouble, the test command is automatically cancelled.															
20	—	Maintenance counter clear Used to reset the maintenance preset counter to zero after the maintenance is completed. It is mandatory to clear the counter after the maintenance is completed.															
21	01	<p>◦ Maintenance cycle setting Used to set the maintenance cycle.</p> <table border="0"> <thead> <tr> <th>Code</th> <th>Maintenance cycle</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>80,000 sheets</td> </tr> <tr> <td>1</td> <td>5,000 sheets</td> </tr> <tr> <td>2</td> <td>10,000 sheets</td> </tr> <tr> <td>3</td> <td>20,000 sheets</td> </tr> <tr> <td>4</td> <td>40,000 sheets</td> </tr> <tr> <td>5</td> <td>None</td> </tr> </tbody> </table> <p>The default is 0.</p>	Code	Maintenance cycle	0	80,000 sheets	1	5,000 sheets	2	10,000 sheets	3	20,000 sheets	4	40,000 sheets	5	None	
Code	Maintenance cycle																
0	80,000 sheets																
1	5,000 sheets																
2	10,000 sheets																
3	20,000 sheets																
4	40,000 sheets																
5	None																
22	01	◦ Maintenance counter display Copy number of the maintenance counter is displayed.															
	02	◦ Maintenance preset counter display This test command is used to check the contents of the maintenance preset cycle counter.															
	03	<p>◦ JAM memory display (JAM map display) Displays the causes (positions) of JAM occurred in copy operation. (Max. 50 JAMs from the recent one) To check the history of JAM cause, press the message forward feed key.</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">Simulation No.22-3 JAM memory display</div> </div>															
	04	◦ Total misfeed counter display															
	05	◦ Total counter display This counter is used to show the total copy number of the machine.															
	06	◦ Developer counter display The contents of the copy number counter of the installed developing unit is displayed.															
	07	◦ Developer preset cycle counter display Number of developer replacements and the reset counter contents of the installed developing unit are displayed.															
	08	◦ RADF counter display Used to check the number of originals fed through the RADF.															
	09	◦ Duplex counter display Used to check the number of sheets fed through the duplex unit.															
	10	◦ Staple counter display Used to check the number of use of the staple unit.															
	11	◦ Developer correction counter display Used to check the correction level according to the number of copy quantity.															
	12	◦ Drum film wear correction counter Used to check the correction level according to the copy quantity of the drum.															

Main code	Sub code	Description	Ref. Page																
22	13	<ul style="list-style-type: none"> <li>Key operator code display Used to check the key operator code registered voluntarily by the key operator.</li> </ul>																	
24	01	<ul style="list-style-type: none"> <li>Misfeed map memory and total misfeed counter clear</li> </ul>																	
	03	<ul style="list-style-type: none"> <li>RADF counter clear The contents of the copy number counter is reset for the RADF. It is mandatory to clear the memory contents after the maintenance is completed.</li> </ul>																	
	04	<ul style="list-style-type: none"> <li>Duplex counter clear The contents of the copy number counter is reset to the duplex unit. It is mandatory to clear the memory contents after the maintenance is completed.</li> </ul>																	
	05	<ul style="list-style-type: none"> <li>Staple counter clear The staple unit using counter is cleared to zero.</li> </ul>																	
	06	<ul style="list-style-type: none"> <li>Developer correction counter clear The developer copy quantity correction counter is cleared to zero.</li> </ul>																	
	07	<ul style="list-style-type: none"> <li>Drum film wear counter clear The drum film wear correction counter is cleared to zero.</li> </ul>																	
25	01	<ul style="list-style-type: none"> <li>Main motor activation <ul style="list-style-type: none"> <li>Used to check malfunction in the main motor drive train. (Rotates for 3 min.)</li> <li>Also, monitors the toner density sensor. (Sensor output value display)</li> </ul> </li> </ul> <p>C → [=] → 0 → [=] → 2 → 5 → PSW → 1 → PSW</p>																	
	02	<ul style="list-style-type: none"> <li>Automatic developer adjustment <ul style="list-style-type: none"> <li>This is the test command used to monitor the toner sensor and to automatically set the developer.</li> <li>For automatically setting developer, the developing tank is stirred and the toner sensor output is monitored. The sensor is monitored 16 times in 3 minutes after the stirring started and the mean value is stored in the memory as the toner density reference value. (See the area marked with an asterisk in the figure below.) ( Afterwards, reference changes as copies are made to maintain density.)</li> </ul> </li> </ul> <p>C → [=] → 0 → [=] → 2 → 5 → PSW → 2 → PSW</p>																	
	03	<ul style="list-style-type: none"> <li>Setting of toner control ignoring time when warming up Used to set toner control ignoring time when warming up. (Set time: 0 - 99 sec)</li> </ul>																	
26	01	<ul style="list-style-type: none"> <li>Option unit setup <ul style="list-style-type: none"> <li>Used to set up option unit.</li> <li>1 When the test command is executed, the presently stored machine setup code is displayed with the READY lamp turned on.</li> <li>2 After the READY lamp has turned on, enter an appropriate setup code on the keypad and press the PRINT switch. Then, the date is stored in the memory and the READY lamp turns off.</li> </ul> <table border="1"> <thead> <tr> <th>Code</th> <th>Option</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RADF</td> </tr> <tr> <td>4</td> <td>Desk</td> </tr> <tr> <td>5</td> <td>RADF + desk</td> </tr> <tr> <td>10</td> <td>Sorter</td> </tr> <tr> <td>11</td> <td>RADF+ sorter</td> </tr> <tr> <td>14</td> <td>Desk + sorter</td> </tr> <tr> <td>15</td> <td>RADF + desk + sorter</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>Used to set the code that corresponds to an option unit. (EX): To set the RADF and desk together with ADU, enter "5" (1+4=5). "7" is on display. NOTES: <ul style="list-style-type: none"> <li>(1) Be sure to enter the code that corresponds to the installed option unit.</li> <li>(2) If option setup is incorrect, a trouble code is displayed. See the trouble code chart.</li> </ul> </li> </ul> </li> </ul>	Code	Option	1	RADF	4	Desk	5	RADF + desk	10	Sorter	11	RADF+ sorter	14	Desk + sorter	15	RADF + desk + sorter	
Code	Option																		
1	RADF																		
4	Desk																		
5	RADF + desk																		
10	Sorter																		
11	RADF+ sorter																		
14	Desk + sorter																		
15	RADF + desk + sorter																		

Main code	Sub code	Description	Ref. Page																	
26	03	Counter mode setup 1 When the test command is executed, the code of the presently stored mode is displayed with the READY lamp turned on. 2 After the READY lamp has turned on, enter an appropriate setup code on the keypad and press the PRINT switch. Then, the code is stored in the memory and the READY lamp turns off. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Code</th> <th>Total counter</th> <th>Maintenance counter</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Double count</td> <td>Double count</td> </tr> <tr> <td>1</td> <td>Single count</td> <td>Double count</td> </tr> <tr> <td>2</td> <td>Double count</td> <td>Single count</td> </tr> <tr> <td>3</td> <td>Single count</td> <td>Single count</td> </tr> </tbody> </table>	Code	Total counter	Maintenance counter	0	Double count	Double count	1	Single count	Double count	2	Double count	Single count	3	Single count	Single count			
	Code	Total counter	Maintenance counter																	
	0	Double count	Double count																	
	1	Single count	Double count																	
	2	Double count	Single count																	
3	Single count	Single count																		
06	Destination setup Used to set the destination setting. 1 When the test command is executed, the presently stored model number and the destination code are displayed (see table below) and the READY lamp turns on. 2 After the READY lamp has turned on, enter the model number and the destination code on the keypad and press the PRINT switch to store the setting in the memory. The READY lamp then turns off. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Code</th> <th>AB/Inch</th> <th>Destination</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>AB</td> <td>U.K. (SUK)</td> </tr> <tr> <td>4</td> <td>AB</td> <td>JAPAN</td> </tr> <tr> <td>5</td> <td>AB</td> <td>AB series except U.K. (SEEG, SCA, EXTRA)</td> </tr> <tr> <td>6</td> <td>Inch</td> <td>U.S.A. (SEC)</td> </tr> <tr> <td>7</td> <td>Inch</td> <td>Inch series except U.S.A. (SECL, EXTRA)</td> </tr> </tbody> </table>	Code	AB/Inch	Destination	1	AB	U.K. (SUK)	4	AB	JAPAN	5	AB	AB series except U.K. (SEEG, SCA, EXTRA)	6	Inch	U.S.A. (SEC)	7	Inch	Inch series except U.S.A. (SECL, EXTRA)	
Code	AB/Inch	Destination																		
1	AB	U.K. (SUK)																		
4	AB	JAPAN																		
5	AB	AB series except U.K. (SEEG, SCA, EXTRA)																		
6	Inch	U.S.A. (SEC)																		
7	Inch	Inch series except U.S.A. (SECL, EXTRA)																		
07	Drum sensitivity setup 1 When the test command is executed, the number stored in the memory is recalled and the READY lamp turns on. 2 A number 1 to 3 may be entered on the keypad while the RPL is active. 3 Press the PRINT switch after the number has been entered. With this, the READY lamp turns off and the test command number is displayed. <ul style="list-style-type: none"> <li>◦ Drum</li> </ul> <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Keypad entry</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>Sensitivity</td> <td>1</td> <td>2</td> <td>3</td> </tr> </tbody> </table>	Keypad entry	1	2	3	Sensitivity	1	2	3											
Keypad entry	1	2	3																	
Sensitivity	1	2	3																	
08	Lens characteristics entry (at a time of lens replacement) For each lens has a variance in its focal distance, the lens moving distance in any zoom mode must correspond with the focal distance of the lens. The zoom ratio varies proportionate to the variance of the lens focal distance. To avoid focus problem, the class of the lens focal distance (refer to chart on page 7-11) is stored in the memory using the test command. In a variable zoom mode, the lens moving distance that corresponds to the lens focal distance is obtained on the basis of the data so as to produce the accurate zoom copy. Setup method (26-08) 1 When the test command is executed, the presently stored preset code is displayed and the READY lamp turns on. 2 After the READY lamp turned on, enter the lens number shown on the top of lens area and press the PRINT switch to store the value in the memory. The READY lamp now turns off. <p style="margin-left: 20px;"> <math>\boxed{C}</math> → <math>\boxed{=}</math> → <math>\boxed{0/}</math> → <math>\boxed{=}</math> → <math>\boxed{2}</math> → <math>\boxed{6}</math> → <math>\boxed{PSW}</math> → <math>\boxed{8}</math> → <math>\boxed{PSW}</math> → <math>\boxed{1}</math>              → <math>\boxed{4}</math> → <math>\boxed{PSW}</math> </p>	[7]-3-(6)																		
09	4/5 mirror characteristics entry (at a time of lens replacement) 1 Set the correction value for lens marked value based on "lens value vs. test command input." Press $\boxed{C}$ → $\boxed{=}$ → $\boxed{0/}$ → $\boxed{=}$ → $\boxed{2}$ → $\boxed{6}$ → $\boxed{PSW}$ → $\boxed{9}$ → $\boxed{PSW}$ keys to execute the test command 26-09. As the READY lamp turns on, the previously set value 1 to 21 is shown. 2 Enter the new value on the keypad. EX: If the value shown on the lens is +1, 2, enter "14." Press the $\boxed{1}$ → $\boxed{4}$ → $\boxed{PSW}$ keys. <div style="margin-left: 100px;"> <table style="border: 1px solid black; padding: 5px;"> <tr> <td style="border: none;">(0-L)</td> <td style="border: none;">901024</td> <td style="border: none;">Manufacturing date</td> </tr> <tr> <td style="border: none;">(0-i)</td> <td style="border: none;">O.L +1.2</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;">O.i +2.4</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;">P.NO 12</td> <td style="border: none;"></td> </tr> <tr> <td style="border: none;"></td> <td style="border: none;">TOPCON</td> <td style="border: none;">Preset value</td> </tr> </table> <p style="text-align: center;">Label contents</p> </div>	(0-L)	901024	Manufacturing date	(0-i)	O.L +1.2			O.i +2.4			P.NO 12			TOPCON	Preset value	[7]-3-(6)			
(0-L)	901024	Manufacturing date																		
(0-i)	O.L +1.2																			
	O.i +2.4																			
	P.NO 12																			
	TOPCON	Preset value																		

Main code	Sub code	Description					Ref. Page
26	09	Lens display value		Correction reference value			Lens display value Oi
		Oi	OL	No. 4/5 mirror focus adjustment (45MB) 48-01	Vertical magnification ratio adjustment 48-01- <input type="checkbox"/>	Lens characteristics input value 26-08 No. 4/5 mirror characteristics input value 26-09	
		+8.0	+4.0	2	20	21	
		+7.8 ~ 7.9		3			
		+7.6 ~ 7.7	+3.8 ~ 3.9	4	21	20	
		+7.4 ~ 7.5		5			
		+7.2 ~ 7.3	+3.6 ~ 3.7	6	22	19	
		+7.0 ~ 7.1		7			
		+6.8 ~ 6.9	+3.4 ~ 3.5	8	23	18	
		+6.6 ~ 6.7		9			
		+6.4 ~ 6.5	+3.2 ~ 3.3	10	24	17	
		+6.2 ~ 6.3		11			
		+6.0 ~ 6.1	+3.0 ~ 3.1	12	25	16	
		+5.8 ~ 5.9		13			
		+5.6 ~ 5.7	+2.8 ~ 2.9	14	26	15	
		+5.4 ~ 5.5		15			
		+5.2 ~ 5.3	+2.6 ~ 2.7	16	27	14	
		+5.0 ~ 5.1		17			
		+4.8 ~ 4.9	+2.4 ~ 2.5	18	28	13	
		+4.6 ~ 4.7		19			
		+4.4 ~ 4.5	+2.2 ~ 2.3	20	29	12	
		+4.2 ~ 4.3		21			
		+4.0 ~ 4.1	+2.0 ~ 2.1	22	30	11	
		+3.8 ~ 3.9		23			
		+3.6 ~ 3.7	+1.8 ~ 1.9	24	31	10	
		+3.4 ~ 3.5		25			
		+3.2 ~ 3.3	+1.6 ~ 1.7	26	32	9	
		+3.0 ~ 3.1		27			
		+2.8 ~ 2.9	+1.4 ~ 1.5	28	33	8	
		+2.6 ~ 2.7		29			
		+2.4 ~ 2.5	+1.2 ~ 1.3	30	34	7	
		+2.2 ~ 2.3		31			
		+2.0 ~ 2.1	+1.0 ~ 1.1	32	35	6	
		+1.8 ~ 1.9		33			
		+1.6 ~ 1.7	+0.8 ~ 0.9	34	36	5	
		+1.4 ~ 1.5		35			
		+1.2 ~ 1.3	+0.6 ~ 0.7	36	37	4	
		+1.0 ~ 1.1		37			
		+0.8 ~ 0.9	+0.4 ~ 0.5	38	38	3	
		+0.6 ~ 0.7		39			
		+0.4 ~ 0.5	+0.2 ~ 0.3	40	39	2	
		+0.2 ~ 0.3		41			
		-0.1 ~ +0.1	-0.1 ~ +0.1	42	40	1	
		-0.3 ~ 0.2		43			
		-0.5 ~ 0.4	-0.3 ~ 0.2	44	41	0	
		-0.7 ~ 0.6		45			
		-0.9 ~ 0.8	-0.5 ~ 0.4	46	42	-1	
		-1.1 ~ 1.0		47			
		-1.3 ~ 1.2	-0.7 ~ 0.6	48	43	-2	
		-1.5 ~ 1.4		49			
		-1.7 ~ 1.6	-0.9 ~ 0.8	50	44	-3	
		-1.9 ~ 1.8		51			
		-2.1 ~ 2.0	-1.1 ~ 1.0	52	45	-4	
-2.3 ~ 2.2	53						

Main code	Sub code	Description	Ref. Page																																																																																																																																	
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	11	Auto clear time setting Possible to set between 1 and 99 seconds (default at 60 seconds).																																																																																																																																		
27	01	PPC communication trouble																																																																																																																																		
30	01	Monitoring main unit paper sensor Used to check the on/off state of paper sensor in the copier. When the sensor turns on, the display reverse.																																																																																																																																		
	02	Monitoring paper cassette size Used to check the on/off state of paper cassette size. When the switch turns on, the display reverses.																																																																																																																																		

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41	01	Document size photosensor check The length of the document is sensed by way of the sensor beam interrupt method. When the sensor turns on, the display reverses.	[7]-4-(1)																																
		<table border="1"> <thead> <tr> <th>Axis</th> <th>Japan AB series</th> <th>Export AB series</th> <th>Export inch series</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>—</td> <td>A5</td> <td>8½" x 5½"</td> </tr> <tr> <td>2</td> <td>B5</td> <td>A4</td> <td>11" x 8½"</td> </tr> <tr> <td>3</td> <td>A4</td> <td>—</td> <td>—</td> </tr> <tr> <td>4</td> <td>B5R</td> <td>A4R</td> <td>11" x 8½" (R)</td> </tr> <tr> <td>5</td> <td>AR4</td> <td>—</td> <td>—</td> </tr> <tr> <td>6</td> <td>B4</td> <td>B4</td> <td>11" x 14"</td> </tr> <tr> <td>7</td> <td>A3</td> <td>A3</td> <td>11" x 17"</td> </tr> </tbody> </table>	Axis	Japan AB series	Export AB series	Export inch series	1	—	A5	8½" x 5½"	2	B5	A4	11" x 8½"	3	A4	—	—	4	B5R	A4R	11" x 8½" (R)	5	AR4	—	—	6	B4	B4	11" x 14"	7	A3	A3	11" x 17"	
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Original size sensors chec. OCSW is used to check open/close of the original cover. Refer to page 7-18 for sensors corresponding to each destination. Reverse display: Cover open Normal display: Cover closed																																			
																																			
02		Document size photosensor setup. Refer to adjustment section page 7-18.	[7]-4-(2)																																
03		<ul style="list-style-type: none"> <li>° Document sensor beam receiving level and setup level Used to check the document sensor level. Refer to adjustment section.</li> <li>1. Receiving level display <ul style="list-style-type: none"> <li>• The receiving level when the test command is in execution is displayed.</li> </ul> </li> <li>2. Setup level display <ul style="list-style-type: none"> <li>• The referance level of each sensor that was set by way of the test command 41-2 is displayed.</li> </ul> </li> </ul>	[7]-4-(2)																																
42	*	<ul style="list-style-type: none"> <li>° Developer counter clear Reset the contents of the copy number counter of the installed developing unit.</li> </ul>																																	
43	*	<ul style="list-style-type: none"> <li>° Fuser temperature setup Used to set the fuser temperature. When the test command is executed, the currently programmed fuser temperature is shown. When the message feed key is pressed here, the fuser temperature setting can be changed in increments of 5C. Press the PRINT switch to set. (Japan) 180 → 185 → 190 → 195 → 200 → 205 → 160 → 165 → 170 → 175</li> </ul>																																	
44	01	<ul style="list-style-type: none"> <li>Correction mode setting</li> <li>[+1] Process control correction enable</li> <li>[+2] Optical dirt correction enable</li> <li>[+4] Drum layer wear correction enable</li> <li>Note: When all are "Enable," set simulation 44-01=[07]. The corrections, except for the process control correction mode, can be disabled in the normal copy mode. When "0" is inputted, "1" (Process control correction) is enabled. (Automatic setting)</li> </ul>																																	

Main code	Sub code	Description	Ref. Page																																								
44	02	Drum mark sensor sensitivity adjustment : 0 ~ 100 100=5V For the drum mark sensor gain rank, [2] is selected. The main motor rotates and the drum mark sensor sensing level is displayed on the multi-display section. Adjust VR1 in the process unit to obtain [90±4].																																									
	03	Image density sensor sensitivity adjustment : 0 ~ 100 100=5V For the image density sensor gain rank, [2] is selected. The main motor rotates and the image density sensor sensing level is displayed on the multi-display section. Adjust VR2 in the process unit to obtain [90±4].																																									
	05	Test mode The main motor rotates to form images in nine steps of the grid bias level from 350V to 590V (30V step) on the drum, and the image density sensor level is displayed on the LCD.  Display <div style="border: 1px dashed black; padding: 5px; width: fit-content; margin: 10px auto;"> <pre> GB_INI *** GB_PAT *** STD_BA *** IDBAS1 *** IDBAS2 *** STD_PT *** 350v_1 *** 380v_2 *** 410v_1 *** 440v_1 *** 470v_2 *** 500v_1 *** 530v_1 *** 560v_2 *** 590v_1 *** </pre> </div> GB_INI 44-11 Patch set level : 1~99 50=typ. 440V GB_PAT Current process control set level : 1~99 50=typ. 440V STD_BA Image density sensor drum surface sense level in the process control initial measurement : 0~100 100=5V IDBAS1 Image density level on the drum surface (1) : 0~100 100=5V IDBAS2 Image density level on the drum surface (2) : 0~100 100=5V STD PA Image density sensor patch sense level in initial measurement of process control : 0~100 100=50V 350V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V 380V_2 Image density sensor level with the set bias (Corresponds to the image density sensor level 2 on the surface) : 0~100 100=5V 410V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V 440V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V 470V_2 Image density sensor level with the set bias (Corresponds to the image density sensor level 2 on the surface) : 0~100 100=5V 500V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V 530V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V 560V_2 Image density sensor level with the set bias (Corresponds to the image density sensor level 2 on the surface) : 0~100 100=5V 590V_1 Image density sensor level with the set bias (Corresponds to the image density sensor level 1 on the surface) : 0~100 100=5V																																									
	06	Compulsory execution of process control : 1~99 50=typ. 440V The main motor rotates to display the initial patch forming grid bias level GB_INI[**] in the multi-display. After the completion of the measurement, the patch forming grid bias level GB_PAT[**] after the process control is displayed and data which are stored in the back-up memory are displayed on the LCD.																																									
	07	Drum mark sensor/image density sensor gain select check : 0~100 100=5V The image density sensor level can be checked for selection of each gain rank. <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Gain rank</th> <th>DM sensor</th> <th>ID sensor</th> <th colspan="2">Amplifying rate (current amount) of the sensor for rank 2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>No. 0</td> <td>No. 7</td> <td>About 85%</td> <td></td> </tr> <tr> <td>2</td> <td>No. 1</td> <td>No. 8</td> <td>100%</td> <td>1 vs 2 116%</td> </tr> <tr> <td>3</td> <td>No. 2</td> <td>No. 9</td> <td>About 115%</td> <td>2 vs 3 115%</td> </tr> <tr> <td>4</td> <td>No. 3</td> <td>No. 10</td> <td>About 152%</td> <td>3 vs 4 132%</td> </tr> <tr> <td>5</td> <td>No. 4</td> <td>No. 11</td> <td>About 163%</td> <td>4 vs 5 107%</td> </tr> <tr> <td>6</td> <td>No. 5</td> <td>No. 12</td> <td>About 171%</td> <td>5 vs 6 105%</td> </tr> <tr> <td>7</td> <td>No. 6</td> <td>No. 13</td> <td>About 203%</td> <td>6 vs 7 119%</td> </tr> </tbody> </table> Since the max. difference in amplifier rates between two gains is 132%, supposing the max. sensor input is 4.8V, the gain rank is increased by +1 for 3.6V.	Gain rank	DM sensor	ID sensor	Amplifying rate (current amount) of the sensor for rank 2		1	No. 0	No. 7	About 85%		2	No. 1	No. 8	100%	1 vs 2 116%	3	No. 2	No. 9	About 115%	2 vs 3 115%	4	No. 3	No. 10	About 152%	3 vs 4 132%	5	No. 4	No. 11	About 163%	4 vs 5 107%	6	No. 5	No. 12	About 171%	5 vs 6 105%	7	No. 6	No. 13	About 203%	6 vs 7 119%	
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44	09	<p>Process control data display</p> <p>Display</p> <pre style="border: 1px dashed black; padding: 5px;"> NORMAL *** TS *** PHOTO *** GBBAS2 *** GB_PAT *** STD_PA *** DMCNT *** IDCNT *** STD_BA *** IDBAS1 *** IDBAS2 *** IDBAS3 *** IDPAT1 *** IDPAT2 *** IDPAT3 *** MARK *** MAK_BA </pre> <p>NORMAL Normal mode grid bias level : (1~999V)/10  TS TSM grid bias level : (1~999V)/10  PHOTO Photo mode grid bias level : (1~999V)/10  GB BEF Grid bias output level on measurement of IDPAT2 patch : 1~99 50=typ. 440V  GB_PAT Current process control measurement patch output grid bias level : 1~99 50=typ. 440V  STD_PA Image density sensor patch sense level on initial measurement of process control : 0~100 100=50V  DMSNT Gain rank of drum mark sensor selected in process control : 1~7  IDCNT Gain rank of image density sensor selected in process control : 1~7  STD_BA Image density sensor drum surface sense level in initial measurement of process control : 0~100 100=5V  BASE1 Image density sensor level (1) on drum surface : 0~100 100=5V  BASE2 Image density sensor level (2) on drum surface : 0~100 100=5V  BASE3 Image density sensor level (3) on drum surface : 0~100 100=5V  IDPAT1 Image density sensor level at the set bias: -32V mode : 0~100 100=5V  IDPAT2 Image density sensor level at the set bias: ±0VV mode : 0~100 100=5V  IDPAT3 Image density sensor level at the set bias: +32V mode : 0~100 100=5V  MARK Drum mark sensor drum mark sense level : 0~100 100=5V  MAK_BA Drum mark sensor drum surface sense level : 0~100 100=5V</p>	
	11	<p>Enters the copy aging mode to allow the following operation and setting.</p> <p>Display</p> <pre style="border: 1px dashed black; padding: 5px;"> 850v GB_INI *** GB_NOM *** GB_TS *** GB_POTO *** 1000V </pre> <p>The desired output is selected by the message forward feed key. The grid bias output selected when pressing PSW is delivered. (The set level is stored in the backup memory.)  850V fixed output (High voltage unit VR adjustment)</p> <p>GB_INI Patch forming voltage check  Set level: 50=440V  When the measurement level is higher, make the set level smaller. (1 step: 4V)  When the measurement voltage is lower, make the set level greater.</p> <p>GB_NOM (For the normal mode ME/AE)  Set level: 50=850V output  To make the measurement voltage smaller, make the set level smaller. (1 step: 4V)  To make the measurement voltage greater, make the set level greater.</p> <p>GB_TS (For TSM mode ME/AE)  Set level: 50=700V output  To make the measurement voltage smaller, make the set level smaller. (1 step: 4V)  To make the measurement voltage greater, make the set level greater.</p> <p>GB_POTO: (For photo mode ME)  Set level: 50 = 560V output  To make the measurement voltage smaller, make the set value smaller. (1 step: 4V)  To make the measurement voltage greater, make the set value greater.</p> <p>1000V fixed output (High voltage unit check)</p>	
46	01	<p>Exposure level adjustment  Used to adjust the copy density and the copy density select level. Refer to adjustment section page 7-19.</p>	[7]-5-(5)

Main code	Sub code	Description	Ref. Page
47	*	<ul style="list-style-type: none"> <li>° AE sensor characteristics measurement</li> <li>AE sensor output characteristics memory</li> <li>(1) AE sensor output characteristics input</li> </ul> <p>Press the [C] → [=] → [0] → [=] → [4] → [7] → [PSW] keys. The mirror base is initialized, scans about 10cm, then stops.</p> <p>The READY lamp turns on now and becomes ready to measure.</p> <p>Press the PRINT switch. The copy lamp driving voltage changes in increments of 5V (10V) each from 80V (160V) to 55V (110V), and the AE sensor output characteristics are stored in the memory. The values are used as references.</p> <p>NOTE: Shown in parenthesis is for the 200V series machine.</p>	[7]-5-(2)
48	01	<p>Front/rear direction zoom ratio adjustment (refer to [7]-3-(6)-9 for the lens type value. Used to set the No.4/5 mirror home position (focal adjustment) and to adjust the zoom ratio of the copy in the vertical direction (from front to rear).</p> <p>There are two kinds of test command 48-01 of which are described as follows.</p> <p>1-1. Horizontal copy zoom ratio standard value input method (at a time the lens or main PWB replacement)</p> <p>Press the [C] → [=] → [0] → [=] → [4] → [8] → [PSW] → [▶] keys. The already set value or "40" is displayed.</p> <p>Substitute the value of "O.L" shown on the label attached to the lens with the formula value.</p> <p><math>40 - [(value\ of\ O.L.) \times 5] = standard\ value\ of\ correction</math></p> <p>Ex: <math>40 - (+1.2 \times 5) = 34</math></p> <p>1-2. Use this test command to adjust the horizontal zoom ratio. Change the value entered in "1-1" to change.</p> <p>2-1. No.4/4 mirror home position standard value input (at a time of lens or main PWB replacement).</p> <p>Press the [C] → [=] → [0] → [=] → [4] → [8] → [PSW] [1] → [PSW] keys. The already stored value or "42" is displayed.</p> <p>Substitute the value of "O.L" shown on the label attached to the lens with the formula value.</p> <p><math>42 - [(O.L\ value) \times 10] = standard\ value\ of\ correction</math></p> <p>Ex: <math>42 - (+1.2 \times 10) = 30</math></p> <p>2-2. To adjust the resolution, change the value entered at "2-1" using this test command.</p> <p>When the No. 4/5 mirror reference value is "+" from the center value "50", the mirror is shifted away from the lens to lengthen the light path. When it is "-", the mirror is shifted to the lens to shorten the light path. The value is calculated in this manner.</p> <div style="text-align: center; margin-top: 20px;"> <p>The diagram shows a rectangular label with the following text: 901024, O.L +1.2, O.i +2.4, P.NO 12, TOPCON. Callouts point to: (0-L) at the top left, (0-i) at the bottom left, Manufacturing date at the top right, and Preset value at the bottom right. The entire diagram is labeled 'Label contents' at the bottom.</p> </div>	[7]-3-(1) -(3)  [7]-3-(2) -(4)
	02	<ul style="list-style-type: none"> <li>° Paper moving direction zoom adjustment</li> </ul> <p>Used to adjust the zoom ratio in the landscape mode.</p> <p>Varying the mirror base moving speed adjusts the zoom factor in the landscape direction of the copy (paper moving direction).</p> <p>1 Place a scale over the original table in the direction the paper moves. Make a copy in the 100% zoom mode and obtain the copy zoom ratio correction factor.</p> <p>Copy zoom correction factor = <math>(original\ size) - \frac{(copy\ image\ size)}{(original\ size)} \times 100\%</math></p> <p>2 As the READY lamp turns on, the previously set figure between 15 and 35 is displayed. Change it with the copy zoom factor correction factor obtained in 1 .</p> <p>(Input value) = (previously stored value) + copy zoom ratio correction factor [%] × 10</p> <p>Press the PRINT switch after entering the input value. With this, the input value is stored in the memory and the READY lamp turns off.</p>	[7]-3-(5)
50	01	Used to adjust the copy lead edge image loss and void areas. For more information, refer to the optical system copy lead edge adjustment procedure.	[7]-3-(11)
	02	The function of this test command is similar to the test command 50-01. The test command 50-02 allows easier lead edge adjustment using the values of L1 and L2. For more information, refer to the optical system copy lead edge adjustment procedure.	[7]-3-(11)

Main code	Sub code	Description	Ref. Page
51	02	<ul style="list-style-type: none"> <li>◦ Resist roller adjustments Used to set the on timing of the paper feed roller (rate of buckle in the paper caused by the resist roller). When the test command is executed, the manual feed mode is automatically established. Change the manual feed mode resisting rate, cassette paper feed resist rate, and ADU paper feed resist rate independently. Press the [C] → [=] → [0/] → [=] → [5] → [1] → [PSW] → [2] → [PSW] → keys. The manual feed lamp turns on → 1 Enter number → press the cassette key (main unit bottom cassette and pause lamp turn on) → 2 enter number → press the cassette key (main unit bottom cassette lamp turns on) → 3 enter number → press the cassette key. 1 : Manual feed paper resist rate adjustment (MALTI TRAY) 2 : Cassette paper resist rate adjustment (TRAY) 3 : ADU paper resist rate adjustment (ADU)  RESIST AMOUNT ADJUSTMENT MULTI TRAY : 40 TRAY : 45 ADU : 50</li> </ul>	[7]-2-(2)
	05	<ul style="list-style-type: none"> <li>◦ Frame delete rate adjustment (copy moving direction only) Used to set the frame delete rate.  <ul style="list-style-type: none"> <li>• When the test command is executed, the READY lamp turns on, and the figure previously stored is displayed on the copy number window. Now, it becomes ready to accept a number between 1 and 19 on the keypad. When the PRINT switch is pressed after the entry, the number is stored in the memory and the READY lamp turns off. A single rate deletes the frame of about 1.0mm. The standard value has been set to "6."</li> </ul> </li> </ul>	[7]-2-(2)
52	01	<ul style="list-style-type: none"> <li>◦ ADU alignment plate adjust value setup Used to adjust the home position of the ADU alignment plate. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It can be adjustable from 1 to 99. The default is 7. Setting a smaller value increases the width of the alignment plate and vice versa.</li> </ul>	
	02	<ul style="list-style-type: none"> <li>◦ ADU rear plate adjust value setup Used to adjust the home position of the ADU rear plate. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It can be adjustable from 0 to 99. The default is 0. Setting a smaller value increases the width of the rear plate and vice versa.</li> </ul>	
	03	<ul style="list-style-type: none"> <li>ADU drive clutch off time setup Can be set to any number between 0 and 10 in increments of 10ms each (default: 4). 0 = 30ms 1 = 0ms ..... 4 = 30ms ..... 10 = 90ms Setting a smaller value shortens the ADU clutch off timings and decreases the enforced curling rate of paper.</li> </ul>	
53	01	<ul style="list-style-type: none"> <li>◦ RADF stop position adjustment value setup (plain paper copied on one side) Used to adjust the RADF stop position for the single side copy of plain paper. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It can be adjustable from 0 to 15.</li> </ul>	
	02	<ul style="list-style-type: none"> <li>◦ RADF stop position adjustment setup (for double side copy on plain paper) Used to adjust the RADF stop position in the double side copy of plain paper. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It can be adjustable from 0 to 15.</li> </ul>	
	03	<ul style="list-style-type: none"> <li>◦ RADF stop position adjustment setup (thin paper mode) Used to adjust the RADF stop position for light paper. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It can be adjustable from 0 to 15.</li> </ul>	
	04	<ul style="list-style-type: none"> <li>◦ RADF resist sensor adjustment Used to adjust the RADF resist sensor. (For ADF, adjust the length sensor and the passing width sensor.) When the test command is executed, the RADF resist sensor is adjusted and its value is displayed.</li> </ul>	
	05	<ul style="list-style-type: none"> <li>◦ RADF and ADF eject sensor adjustment Used to adjust the RADF eject sensor. When the test command is executed, the RADF eject sensor is adjusted the value is displayed.</li> </ul>	

**(Trouble codes list)**

Trouble status code	Subordinate code	Description
L4	01	Main motor lock detection
L5	03	No.4/5 mirror motor error detection
	04	No.4/5 mirror motor MHPS error detection
	05	Lens motor error detection
L8	06	Lens motor LHPS error detection
	01	Power supply line frequency error detection
H2	—	Open thermistor (Test command 14 to reset)
H3	—	Heat roller high temperature detection (Test command 14 to reset)
H4	—	Heat roller low temperature detection (Test command 14 to reset)
U2	00	Memory. Counter sumcheck error detection (Test command 16 to reset)
	01	
U3	20	Mirror motor lock detection
	21	Mirror motor MHPS error detection
U4	02	ADU alignment plate malfunction detected
	04	ADU rear plate malfunction detected
U5	00	ADF communication trouble detected
	01	A motor malfunction detected
	02	B motor malfunction detected
	03	Resist sensor malfunction detected
	04	Eject sensor malfunction detected
U6	00	Desk communication trouble detected
	01	Desk-1 cassette liftup motor trouble detected
	02	Desk-2 cassette liftup motor trouble detected
	03	Desk-3 cassette liftup motor trouble detected
	08	Desk 24V line error detected
	09	LCC motor overcurrent detected
U7	10	Desk transport motor trouble detected
	00	Communication trouble between PC/Modem and the copier.
F1	00	Sorter communication trouble detected
	01	Paper jog malfunction detected
	02	Transport motor malfunction detected
	04	Indexer lower limit detected
	05	Indexer upper limit detected
	06	Shift motor malfunction detected
F2	02	Toner motor malfunction detected
	31	ID sensor level abnormality (less than 3V)
	32	ID sensor photo conductor surface level abnormality (less than 2.25V)
		DM sensor level abnormality (less than 3V)
	35*	DM sensor cannot sense. When measuring the gain level (at 1.5 rotations of the drum) DM sensor cannot sense. When measuring the patch (at 1.5 rotations of the drum) Adjustment impossible for GB (-32V * 4 times) Adjustment impossible for GB (+32V * 7 times) Preliminary adjustment impossible for GB (-200V to -88V)
F3	12	Main unit upper cassette liftup motor trouble detected
	22	Main unit bottom cassette liftup motor trouble detected
EE	EL	Toner sensor indicates extreme overtuned condition
	EU	Toner sensor indicates extreme undertuned condition
CC	—	Original size detect sensor level abnormality.

Mark " \* ": The error display is given only when performing the simulation. (For the process control at warming-up., the error display is not given.)

**Display codes other than trouble**

Trouble codes	Sub code	Operation
CH	—	Door open/DV unit uninstalled
PC	—	Personal counter uninstalled/auditor code input waiting
PF	—	Copy inhibit command is received from the host when installing PC/Modem.

## (Key operator program)

The list below shows all key operator programs. These programs can be used only when the key operator code is inputted at the beginning.

Code	Program name	Function
* P10	Department control counter setting/clear	Sets or clears the department control counter.
* P11	Copy quantity count total	Used to display the total of copy quantities of the departments.
* P13	Total clear	Used to clear the total of copy quantities of the department.
* P14	Department number setting (Register/clear/change/display)	Used to register/clear/change department numbers, and also to display the registered department numbers.
* P16	Set/cancel of the upper limit of copy quantity	Used to set or cancel the maximum allowable copy quantity of each department.
* P18	Alarm to a mistaken input of a department number	The alarm display is given when a department number is erroneously inputted 3 times continuously. (To prevent against use in another department.)
P19	Key operator code number change	Used to change a key operator code number.
P20	Auto copy exposure level adjustment	Used to adjust copy exposure under the auto copy exposure mode.
P21	Time setting in the power save mode	Used to set the time for automatically turning off the power after turning on the power. (Adjustable from 10 min to 24 hours.)
P23	Auto clear time setting	Used to set the time for automatically returning to the normal state after completion of copying. (Adjustable from 10 sec to 240 sec.)
P24	Fixed magnification ratio setting	Used to add or change fixed magnification ratios. (2 ratios for each of reduction and enlargement.)
P25	Copy set quantity upper limit setting	Used to set the upper limit of copy set quantity (the number of copy sets or the number of copies).
P26	Standard binding margin setting	Used to set the standard binding margin.
P27	Edge erase width setting	Used to set the edge erase width.
P28	Standard state setting	Used to set the state when the power is turned on (standard state).
P29	General total copy quantity display	Used to display the general total of the copier, the duplex auto feed unit, the duplex module, or the stapler.
P30	Setting/cancel of the auto repeat function of copy set quantity	Used to set or clear the auto repeat function.
P45	Message display time setting	Used to set the message display time.
P70	Auto paper selection function inhibition	Used to inhibit the auto paper selection.
P71	Auto tray selection inhibition	Used to inhibit auto tray selection (paper feed).
P72	Manual paper feed inhibition in auto duplex copy	Used to inhibit manual paper feed from the tray in the auto duplex copy mode.
P73	Registered copy condition rewrite inhibition	Used to inhibit rewriting of copy condition registered by the copy condition register function.
P74	Duplex auto feeder inhibition	Used to inhibit the use of the duplex auto feeder, when it is in trouble. (When the optional duplex auto feeder is installed.)
P75	Auto duplex copy inhibition	Used to inhibit the use of the duplex module. (When the optional duplex module is installed.)
P76	Staple function inhibition	Used to inhibit the use of the staple unit when it is in trouble. (When the optional staple sorter is installed.)
P77	Cover insertion copy inhibition	Used to inhibit the cover insertion function. (When the optional duplex auto feed unit is installed.)
P90	Program list display	Used to display all key operator programs in the message screen.

The programs marked with " \* " cannot be set when the optional code-number-system department control counter (SF-EA12) or the card-system department control counter.