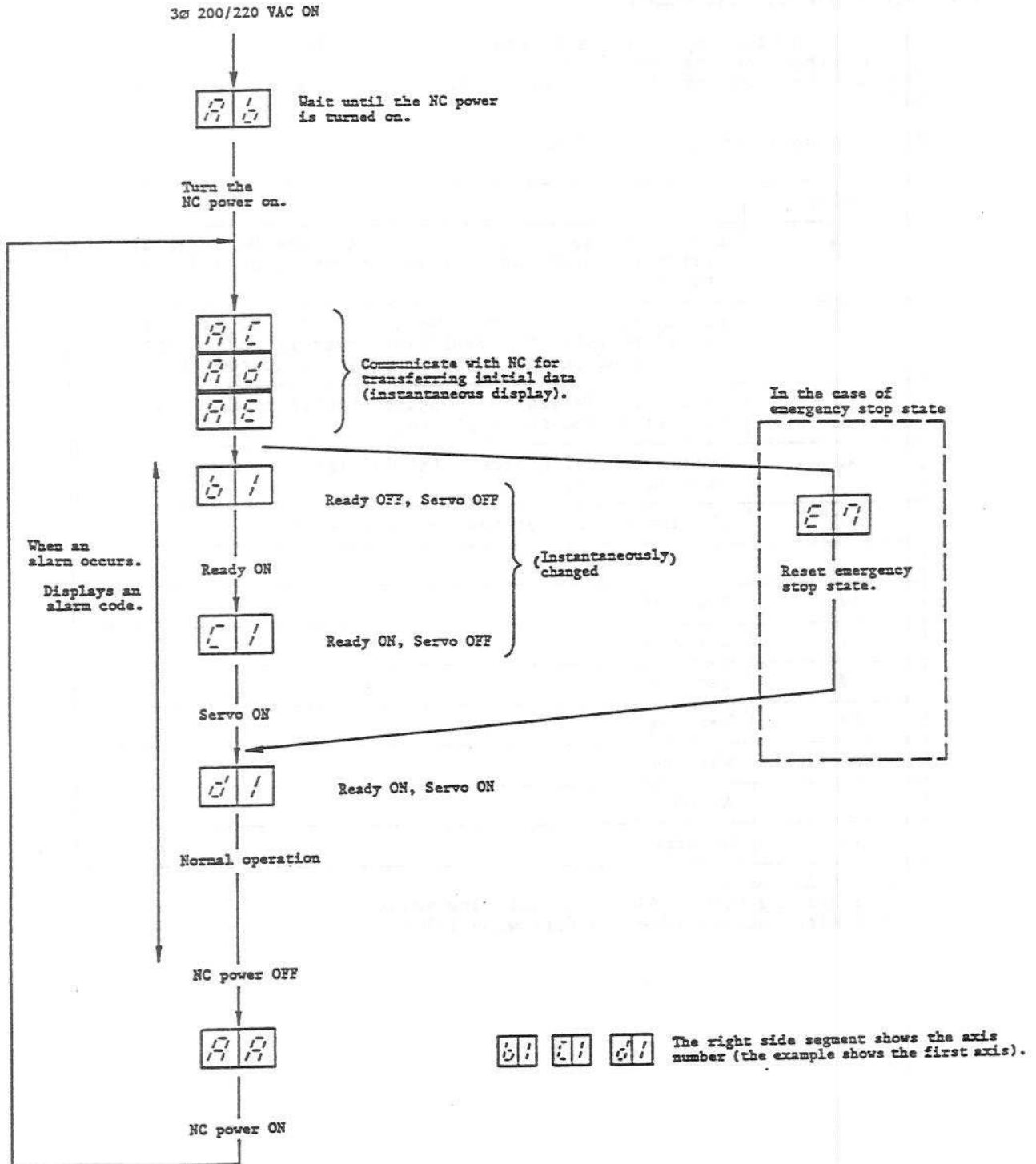


3. INSTALLATION ADJUSTMENT  
 PROCEDURE  
 3.8 PRECAUTIONS FOR POWER ON  
 AFTER INSTALLATION

(2) After power ON

After the power is turned on, the 7-segment display indicates data.



## 4. TROUBLESHOOTING

### 4.1 7-SEGMENT DISPLAY

The state of the amplifier is indicated by the 7-segment display located at the center of the amplifier.  
When an alarm occurs, the 7-segment display shows the related alarm number.

Status display of MR-S10 amplifier

Display	
AA	During initialization. Wait until the NC power is turned on (when the NC power is turned on and then turned off).
Ab	During initialization. Wait until the NC power is turned on (when the amplifier power is turned off and then turned on while the NC power is turned off).
AC	During initialization. Starts transferring data between NC and the amplifier.
Ad	During initialization. The initial parameters have been received.
AE	The initialization has been completed.
b#	Ready OFF
C#	Servo OFF
d#	Servo ON
E*	Warning
A*	Warning
**	Alarm
..	WD error

# : Axis number  
\* : Warning number (See the following table.)  
\*\* : Alarm number (See the following table.)

## 4. TROUBLESHOOTING

### 4.1 7-SEGMENT DISPLAY

#### Servo alarms and warnings

**	Abbreviation	Name	Reset	Axis/Cm
10	UV	Under Voltage	PR	C
(11)	AE	Axis Error	AR	A
12	ME1	Memory Error 1	AR	C
13	CE	external Clock Error	PR	C
14	WD	Watch Dog error	PR	C
15	ME2	Memory Error 2	PR	A
16	RD	Rotor position Detect error	PR	A
17	BE	Board Error	PR	A
20	NS1	No Signal1 (main board)	PR	A
21	NS2	No Signal2 (add on board Enc)	PR	A
22	NS3	No Signal3 (add on board 1X)	PR	A
24	PG	Phases Grounded detect	PR	C
25	BA	Battery Alarm	AR	C
(26)	NA	No control Axis error	PR	C
(27)	ICE	Internal Clock Error	PR	C
30	OR	Over Regeneration	PR	C
31	OS	Over Speed (2400/3600rpm)	PR	A
32	OC	Over Current	PR	A
33	OV	Over Voltage	PR	C
34	DP	Data Parity	PR	C
35	DE	Data Error	PR	A
36	TE	Transfer Error	PR	C
37	PE	Parameter Error (initialize)	PR	A
42	FE1	Feedback Error 1	PR	A
43	FE2	Feedback Error 2	PR	A
45	OHF	Fin Over Heat	NR	C
46	OEM	Motor Over Heat	NR	A
50	OL1	Over Load (250% 1min)	NR	A
51	OL2	Over Load (C.LIMIT 0.5sec)	NR	A
52	OD1	Over Droop 1	NR	A
53	OD2	Over Droop 2	NR	A
(54)	AOL	Amp Over Load	NR	C
55	EM	EMergency	NR	C
56	OA	Other Axis alarm	NR	C
57				
E0	WOR	Warning Over Regeneration	*	C
E1	WOL	Warning Over Load	*	A/C
E2				
E3	WAC	Warning Absolute Counter error	*	A
E4	WPE	Warning Parameter Error	*	A
E5	WAB	Warning ABSolute detect error	*	A
E6	WOT	Warning Over Travel	*	A
E7	NCE	NC Emergency		C
A0	WAT	Warning Absolute first Transmission	*	A
A1	WAS	Warning Absolute Serial signal	*	A
A2	WAV	Warning Absolute battery Voltage	*	C
A3	WAN	Warning Absolute cable No connection	*	A
A4	WAP	Warning Absolute Position error	*	A
A5	WAR	Warning Absolute Resolver	*	A

Note 1) Reset: PR: When the NC power is turned off, the reset operation takes place.  
NR: When the NC is reset, the reset becomes valid.

\* : It shows a warnings rather than the servo OFF.









Note 2) Regarding Axis/Cm A: Alarm occurs at each axis, C: Common alarm within amplifier.


Note 3) Alarm No. in brackets indicates the alarm which exists only in MR-S12.

4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

When a problem occurs, refer to the following items and take proper precautions.

- 4.2.1 When a servo alarm occurs:
- 4.2.2 When an "amplifier not mounted" alarm occurs(NC side alarm):
- 4.2.3 When the motor vibrates or generates a vibration sound:
- 4.2.4 When the cutting surface or circularity is poor:
- 4.2.5 When an overshoot occurs during positioning:
- 4.2.6 When a surge feed occurs in a pulse feed operation:
- 4.2.7 Even if the power is turned on, the 7-segment display does not show any data or it shows  :
- 4.2.8 Even if the NC power is turned on, the 7-segment display does not change from   or it momentarily shows , ,  and then returns to  .

Note 1) There are alarms which are limited to one axis only and alarms common to all axes. During troubleshooting, alarms which are related to the axes are indicated with the mark of \*. When this mark is shown, make sure of which axis to examine. Please remember that the other axis alarm  occurs on the normal axes.

Note 2) In the subsequent explanation, the cards are assigned with the following code name.

Name of servo amplifier	MR-S11			MR-S12	
	40 to 100	103 to 300	700/900	13A to 33A	40A to 100A
Main card	RG101			RG201	
Base card	RG101			RG221	
Power card	RG11	RG10	None	RG21	RG20
Add-on card	Varies depending on the servo system. See paragraphs No.1, No.2.				

## 4.2.1 WHEN A SERVO ALARM OCCURS:

(1) Alarm No. 10 : Under voltage

The voltage drop of the 3Ø 200/220 VAC is detected (in phases S and T).

	Cause	Verification method	Remedy
1	The voltage of 3Ø 200/220 VAC power drops below 160 V ( $\pm 5\%$ ).	Check the input voltage using the volt meter.	Check the power supply facility.
2	The 3Ø 200/220 VAC power instantaneously stops.	Check that no instantaneous power failure occurs in the input voltage with the synchroscope for approx. 25 msec or more at 200 VAC.	

(2) Alarm No. 11 : Axis error (Exists only on MR-S12)

It shows that an error is detected concerning the selection of the rotary switch in the amplifier.

	Cause	Verification method	Remedy
1	Rotary switch is set at 6 - E.	Confirm the rotary switch.	Correct the setting.
2	The same axis is selected with L axis and M axis.	Confirmation of rotary switch (Are the numbers duplicated?)	Correct the setting.

(3) Alarm No. 12 : Memory error 1

During the initialization, an EPROM check sum error, SRAM error, or 2-port RAM error is detected.

	Cause	Verification method	Remedy
1	A check sum error occurs in EPROM.	Replace the EPROM with a normal one of another axis.	Replace the EPROM with a new one.
2	A check error occurs in SRAM or 2-port RAM.	Replace the main card with a normal one of another axis. Change the CS1 switch. See 5.1, "Replacing Servo Amplifier Control Card."	Replace the main card.

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

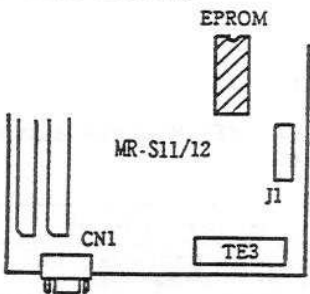
(4) Alarm No. 13 : External clock error

The clock sent from NC is abnormal. The software of the servo amplifier does not complete the process in the predetermined time.

	Cause	Verification method	Remedy
1	The connector between NC and amplifier or between amplifiers is imperfectly connected.	Visually check the cable connections. • Main card CN1A, CN1B • NC side	Connect the cables properly.
2	The software of the servo amplifier does not operate properly.		Replace the main card.
3	The cables between NC and the amplifier and/or between amplifiers are defective.	Replace the cables with those of another axis and test the alarm.	Replace the cables.

(5) Alarm No. 14 : Watch dog error

The software of the servo amplifier does not complete the process in the predetermined time.

	Cause	Verification method	Remedy
1	EPROM has not been correctly mounted.	Visually check that EPROM has been mounted at the location described. Check that the pins of EPROM have not been bent. 	Correctly mount EPROM.
2	EPROM has been broken.	Replace EPROM with one from another axis.	Replace EPROM.
3	The main card or add-on card is defective.	Replace the card with one from another axis. At the time, it is necessary to change the CS1 switch position of the main card. For details, see 5.1, "Replacing Servo Amplifier Control Card."	Replace the defective card.

## 4. TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

## (6) Alarm No. 15: Memory error 2

While initial data is transferred with NC during the initialization, a parity error occurs or an error occurs in the 2-port RAM.

	Cause	Verification method	Remedy
1	The cables between NC and the amplifier and between the amplifiers are defective.	Replace the cables with one from another axis and test the alarm.	Replace the defective cables.
2	A loud noise enters the cables between NC and the amplifier and/or between the amplifiers.	Remove the relays and connector which are turned on and off during the initialization.	Avoid noise. See 3.5, "Precautions for Installing Amplifier."

## (7) Alarm No. 16: Rotor position detect error

All the outputs of the phases U, V, and W of the OSE5K-6-12-108 detector (mounted on the motor non-load side) become "H" or "L".

	Cause	Verification method	Remedy
1	The connector of the detector has been removed.	Check that the connector is properly connected. • Main card CN2 • Detector side Cannon connector	Correctly connect the connector.
2	The cable between the amplifier and the detector has been imperfectly connected.	(1) In the emergency stop state observe the pins, 4,5, and 6 of the main card J4 with the synchroscope and check whether all of them are "H" or "L" (move the cable to check). (2) Replace the cable with one from another axis.	Replace the cables between the amplifier and the detector.
3	The detector is defective.	Replace the detector with one from another axis (make sure that the zero point has moved lightly.)	Replace the detector.
4	The servo parameter STY has been incorrectly set.	When the detector has not been connected to the main card, the parameter has been set in the state where they are connected.	Correctly set the servo parameter STY. For details, see 7, "Detail Description of Servo Parameters."
5	The servo parameter MTY has been incorrectly set.	When the standard encoder (OSE5K-6-12-108) has not been connected to the main card, the speed detector setting parameter (ENT) had been set to 0 or 1.	Correctly set the servo parameter STY. For details, see 7, "Detail Description of Servo Parameters."

4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

(8) Alarm No. **17**\*: Board error

During the initialization, the A/D converter on the main card does not operate correctly.

	Cause	Verification method	Remedy
1	If the main card is defective:	Replace the main card with a normal one from another axis. Then, change the position of the switch CS1 of the main card. For details, see 5.1, "Replacing Servo Amplifier."	Replace the card.

(9) Alarm No. **20**\*: No signal 1

Both the differential signals of the encoder connected to the main card become "H" or "L".

	Cause	Verification method	Remedy
1	The connector of the detector is imperfectly connected.	Visually check the connector. • Main card CN2 • Detector side Cannon connector.	Connect the connector properly.
2	If the cable between the amplifier and the detector is defective:	Test the cable with a normal one from another axis.	Replace the cable with a new one.
3	If the detector is abnormal:	Test the detector with a normal one from another axis (note that the zero point deviates slightly.)	Replace the detector with a new one.

(10) Alarm No. **21**\*: No signal 2

Both the differential signals connected to the add-on card become "H" or "L".

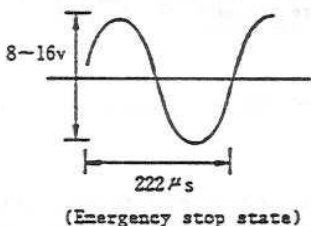
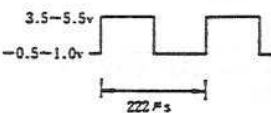
	Cause	Verification method	Remedy
1	If the connector of the detector is imperfectly connected:	Visually check the following connector. • Detector connector of add-on card. • Detector side Cannon connector.	Connect the connector properly.
2	If the cable between the amplifier and the detector is defective:	Test the cable with a normal one from another axis.	Replace the cable with a new one.
3	If the detector is defective:	Test the detector with a normal one from another axis (note that the zero point deviates slightly.)	Replace the detector with a new one.



4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

(11) Alarm No. 22: No signal 3

The output voltage of the resolver connected to the RF33/332 card becomes 0 V.

	Cause	Verification method	Remedy						
1	If one of the cables of the detector is imperfectly connected.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Card name</th> <th>Check pin</th> </tr> </thead> <tbody> <tr> <td>RF33</td> <td>CP2-1 CP2-3</td> </tr> <tr> <td>RF332</td> <td>CP3-1 CP3-3</td> </tr> </tbody> </table>	Card name	Check pin	RF33	CP2-1 CP2-3	RF332	CP3-1 CP3-3	(1) Visually check <ul style="list-style-type: none"> <li>• Detector connector of add-on card.</li> <li>• Detector side Cannon connector</li> </ul> (2) Check using a synchroscope.   (Emergency stop state)	Correctly connect the cable.
Card name	Check pin								
RF33	CP2-1 CP2-3								
RF332	CP3-1 CP3-3								
2	If the cable between the amplifier and the detector is defective:  If the RF33/332 card is defective:  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Card name</th> <th>Check pin</th> </tr> </thead> <tbody> <tr> <td>RF33</td> <td>CP1-1 CP1-3</td> </tr> <tr> <td>RF332</td> <td>CP2-1 CP2-2</td> </tr> </tbody> </table>	Card name	Check pin	RF33	CP1-1 CP1-3	RF332	CP2-1 CP2-2	Test the cable with a normal one from another axis.  (1) Check using the synchroscope.   (2) Same as 1-(2) (Emergency stop state)	Replace the cable with a new one.  Replace the RF33/332 card with a new one.
Card name	Check pin								
RF33	CP1-1 CP1-3								
RF332	CP2-1 CP2-2								
4	If the detector is defective:	Test the detector with a normal one from another axis.	Replace the detector with a new one.						

(12) Alarm No. 24: Phases grounded detect

If one of phases U, V, or W of the amplifier output is grounded:

	Cause	Verification method	Remedy
1	If the motor cable is defective.	Check the resistance between the terminal block TE1 and each of phases U, V, and W using the circuit tester.	(1) Check the cable connections of the phases U, V, and W of the terminal block. (2) Check that the motor connector and Cannon connector are free of oil. (3) Replace the motor cable with a normal one.
2	If the base card is defective, Note 1.	Test the base card with a normal one.	Replace the base card with a new one.

Note 1: In the case of MR-S11: Base card RG101  
In the case of MR-S12: Base card RG22:

## 4. TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

(13) Alarm No. **25** : Battery alarm

If the battery voltage of the RF33/332 card drops:

	Cause	Verification method	Remedy
1	When the battery voltage drops.	Turn off the power and measure the voltage at both electrodes of the battery. When the voltage drops below 3.20 V, the battery alarm activates.	For two or three consecutive days, turn the power on for 8 hours a day.
2	The battery is defective.	Even if the above instructions are followed, the battery alarm occurs:	Replace the battery with a new one. For details of how to replace the battery, see 2.2. For details of operation after the replacement, see 8.4.

(14) Alarm No. **26** : No control axis error (Exists only on MR-S12.)

Rotary switch on the main card is set at "F" and an overcurrent is conducted through the AC bus which is not controlled.

	Cause	Verification method	Remedy
1	Setting error of rotary switch.	Visual (Upper left switch; of main card)	Straighten the matter. Remember that this error does not trigger the alarm without other cause(s).
2	Trouble concerning on the power of axis which is not used.	Same as the check method of alarm 32.	
3	Defective base card.	Try to exchange with the base card of another normal amplifier.	Replace the base card.
4	Defective main card.	Try to exchange with the main card of another normal amplifier. It is necessary to switch AXES SELECTION SW.	Replace the main card.

(15) Alarm No. **27** : Internal clock error (Exists only on MR-S12.)

Alarm occurs when the internal clock of the main card has stopped.

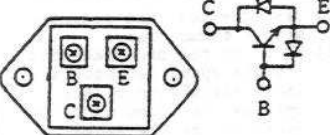
	Cause	Verification method	Remedy
1	Defective main card.	Try to exchange with the base card of another normal amplifier.	Replace the main card.

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(16) Alarm No. 30 : Over Regeneration

Overheating of the regeneration resistor is detected. (Because overheating is detected by software, when the power of the servo amplifier is turned on and then turned off, the value being computed is cleared. Therefore, after the alarm occurs, when the power of the servo amplifier is repeatedly turned off and then on, the resistor may burn.)

	Cause	Verification method	Remedy																												
1	If the servo parameter ORT is incorrectly set:	ORT = 4680 (Absence of option regeneration resistor) ORT = 3010 (Presence of option regeneration resistor)	Correctly set the parameter.																												
2	If the frequency of the acceleration/deceleration exceeds the value in the specification:	Using the operation program where the alarm has occurred, measure the number of acceleration times in the rapid traverse operation for one minute and check where the frequency is within the value in the specification. See Appendix 5, "Checking Positioning Repeatability."	(1) Decrease the repeatability frequency. (2) Decrease the rapid traverse rate. (3) If no option regeneration resistor was provided, mount one.																												
3	If the regeneration power transistor is short-circuited and broken:	Check the resistance of the regeneration power transistor using the circuit tester.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>+ terminal</th> <th>- terminal</th> <th>Normal resistance</th> <th>Abnormal resistance</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>E</td> <td>Several hundred Ω</td> <td>Short-circuit or infinity</td> </tr> <tr> <td>E</td> <td>C</td> <td>Infinity</td> <td>Short-circuit or several hundred Ω</td> </tr> <tr> <td>C</td> <td>B</td> <td>Several hundred Ω</td> <td>Short-circuit or infinity</td> </tr> <tr> <td>E</td> <td>B</td> <td>Infinity</td> <td>Short-circuit or several hundred Ω</td> </tr> <tr> <td>B</td> <td>E</td> <td>Several hundred Ω</td> <td>Short-circuit or infinity</td> </tr> <tr> <td>E</td> <td>B</td> <td>Several hundred Ω</td> <td>Short-circuit or infinity</td> </tr> </tbody> </table> 	+ terminal	- terminal	Normal resistance	Abnormal resistance	C	E	Several hundred Ω	Short-circuit or infinity	E	C	Infinity	Short-circuit or several hundred Ω	C	B	Several hundred Ω	Short-circuit or infinity	E	B	Infinity	Short-circuit or several hundred Ω	B	E	Several hundred Ω	Short-circuit or infinity	E	B	Several hundred Ω	Short-circuit or infinity	Replace the regeneration power transistor with a new one or replace the entire unit with a new one.
+ terminal	- terminal	Normal resistance	Abnormal resistance																												
C	E	Several hundred Ω	Short-circuit or infinity																												
E	C	Infinity	Short-circuit or several hundred Ω																												
C	B	Several hundred Ω	Short-circuit or infinity																												
E	B	Infinity	Short-circuit or several hundred Ω																												
B	E	Several hundred Ω	Short-circuit or infinity																												
E	B	Several hundred Ω	Short-circuit or infinity																												

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

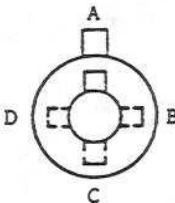
(17) Alarm No. 31 : Over speed

A speed exceeding the allowable value of the motor is detected.

	Cause	Verification method	Remedy
1	If the servo parameter MTY is incorrectly set:	Check whether the parameter is set to a value for 3000 rpm rather than 2000 rpm.	Correctly set the parameter. For details, see 7, "Details of Servo Parameters."
2	If the servo parameter RNG is incorrectly set:	Check that the detector used for the position detector is correctly set:	Correctly set the parameter. For details, see 7, "Details of Servo Parameters."
3	If the servo parameter PIT is incorrectly set:	Check whether the lead of the ball screw is set in the unit of mm or degrees. In a special gear ratio, the parameter value does not always accord with the real speed.	Correctly set the parameter.
4	If the rapid traverse rate is too high:	Check whether or not $\text{Speed (rpm)} = \frac{\text{rapid traverse rate (mm/min)}}{\text{ball screw lead (mm)}}$ exceeds the motor specification value.	Decrease the rapid traverse rate.
5	If the acceleration/deceleration time constant is too small and an overshoot occurs:	Increase the acceleration/deceleration time constant.	Consider the acceleration/deceleration time constant.
6	If the servo system is unstable and an overshoot occurs:	Increase the high speed loop gain VG1 or decrease the position loop gain PGN.  Note: In changing the position loop gain, it is necessary to change OD1 and OD2 so that they are reversely proportional to PGN.	Set the gain once again.
7	If the cable between the position detector and the servo amplifier is defective:	Check for erratic motion in the motor, even in a low speed feed operation.	Repair the cable.
8	If the position detector is defective:	(1) Test the position detector with a normal one. (2) When the position detector and the speed detector are independently provided, operate the servo motor by substituting the speed detector for the position detector.	Replace the detector with a new one.
9	If the minimum movement unit has been set to 0.1μ system instead of 1μ system:	Check the system specification.	Correctly set the parameter.

4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

(18) Alarm No. 32: Over current

	Cause	Verification method	Remedy						
1	If the phases U, V and W of the servo amplifier outputs short-circuit each other:	Remove the cables of the phases U, V, and W from the terminal block, disconnect the Cannon connector of the motor, and use the circuit tester to check whether the phases short-circuit each other.	Arrange the cables so that they will not short-circuit.						
2	If the phases U, V, and W of the servo amplifier outputs are grounded:	Check the resistance between each of the phases U, V, and W of the terminal block and the case using the circuit tester.	Arrange the cables so that they are not grounded.						
3	If the speed detection cable is defective:	Test the cable with a normal cable.	Replace the cable with a new one.						
4	If the mounting direction of the speed detector is not in accordance with the parameter value being set:	<p>The following table shows the relationship between the mounting direction of the motor/detector and the parameters.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Bit F</th> <th>Mounting direction</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>AC</td> </tr> <tr> <td>1</td> <td>BD</td> </tr> </tbody> </table> 	Bit F	Mounting direction	0	AC	1	BD	Correctly position the speed detector or change the parameter. For details, see 7, "Details of Servo Parameters, #17. STT."
Bit F	Mounting direction								
0	AC								
1	BD								
5	If the speed detector is defective:	Test the detector with a normal one.	Replace the detector with a new one.						
6	If the main card is defective:		Replace the RF01 card with a new one.						
7	Defective main card.	Try to exchange with a normal main card.	Replace the main card.						

Note) Where there is an overcurrent error, do not turn on the servo before the cause is clarified.

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

If the over current alarm occurs, the transistor module may be defective.

Before restoring the operation of the motor, check that the transistor module is normal using the following procedure:

Transistor module verification procedure

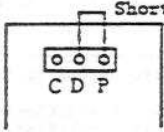
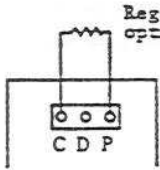
No.	Description																																																																																							
1	Turn off the 3Ø, 200/220 VAC power input.																																																																																							
2	Dismount the main card and remove all the screws which fasten the power card and the related parts. Dismount the power card from the frame.																																																																																							
3	<p>Measure the resistance between each two pins of the transistor module using the circuit tester.</p> <table border="1"> <thead> <tr> <th colspan="2">Pin to be measured by circuit tester</th> <th>Normal resistance</th> <th>Abnormal resistance</th> <th colspan="2">Pin to be measured by circuit tester</th> <th>Normal resistance</th> <th>Abnormal resistance</th> </tr> <tr> <th>+</th> <th>-</th> <td></td> <td></td> <th>+</th> <th>-</th> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td rowspan="6">P</td> <td>B1</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> <td rowspan="6">N</td> <td>B2</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> </tr> <tr> <td>B3</td> <td>B4</td> </tr> <tr> <td>B5</td> <td>B6</td> </tr> <tr> <td>U</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> <td>U</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> </tr> <tr> <td>V</td> </tr> <tr> <td>W</td> </tr> <tr> <td>B1</td> <td rowspan="6">P</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> <td>B2</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> </tr> <tr> <td>B3</td> <td>B4</td> </tr> <tr> <td>B5</td> <td>B6</td> </tr> <tr> <td>U</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> <td>U</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> </tr> <tr> <td>V</td> </tr> <tr> <td>W</td> </tr> <tr> <td>B1</td> <td>U</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> <td>B2</td> <td>U</td> <td rowspan="3">Infinity</td> <td rowspan="3">Short-circuit or several hundred ohms</td> </tr> <tr> <td>B3</td> <td>V</td> <td>B4</td> <td>V</td> </tr> <tr> <td>B5</td> <td>W</td> <td>B6</td> <td>W</td> </tr> <tr> <td>U</td> <td>B1</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> <td>U</td> <td>B2</td> <td rowspan="3">Several hundred ohms</td> <td rowspan="3">Short-circuit or infinity</td> </tr> <tr> <td>V</td> <td>B3</td> <td>V</td> <td>B4</td> </tr> <tr> <td>W</td> <td>B5</td> <td>W</td> <td>B6</td> </tr> </tbody> </table> <p>(Circuit tester: x 10 ohm range)</p> <p>Measure the same terminal for each of the phases U, V, and W and check that all values are equal.                      If an abnormality is found in any portion, replace the transistor module with a new one.                      (Replace the amplifier with a new one.)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px;"> </div> <div> </div> </div>	Pin to be measured by circuit tester		Normal resistance	Abnormal resistance	Pin to be measured by circuit tester		Normal resistance	Abnormal resistance	+	-			+	-			P	B1	Several hundred ohms	Short-circuit or infinity	N	B2	Several hundred ohms	Short-circuit or infinity	B3	B4	B5	B6	U	Several hundred ohms	Short-circuit or infinity	U	Infinity	Short-circuit or several hundred ohms	V	W	B1	P	Infinity	Short-circuit or several hundred ohms	B2	Infinity	Short-circuit or several hundred ohms	B3	B4	B5	B6	U	Infinity	Short-circuit or several hundred ohms	U	Several hundred ohms	Short-circuit or infinity	V	W	B1	U	Infinity	Short-circuit or several hundred ohms	B2	U	Infinity	Short-circuit or several hundred ohms	B3	V	B4	V	B5	W	B6	W	U	B1	Several hundred ohms	Short-circuit or infinity	U	B2	Several hundred ohms	Short-circuit or infinity	V	B3	V	B4	W	B5	W	B6
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V	B3			V	B4																																																																																			
W	B5			W	B6																																																																																			
4	Restore the transistor module in the order of steps 2 and 1 above.																																																																																							

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(19) Alarm No. 33 : Over voltage

The DC bus voltage in the unit exceeds the allowable value (around 400 V).

	Cause	Verification method	Remedy
1	The cables are incorrectly connected to the terminal block.	<p>Connection when the regeneration option resistor is not used:</p>  <p>Connection when the regeneration option resistor is used:</p> 	Correctly connect the cables.
2	If the acceleration/deceleration frequency is excessive and the acceleration/deceleration time constant is too small:	<p>(1) Increase the acceleration/deceleration time constant.                  (2) Decrease the acceleration/deceleration frequency.                  (3) Decrease the rapid traverse rate.</p>	<p>(1) Increase the acceleration/deceleration time constant.                  (2) Decrease the acceleration/deceleration frequency.                  (3) Decrease the rapid traverse rate.</p>
3	When the vertical axis is unbalanced, the acceleration/deceleration time constant is small.	<p>(1) Increase the acceleration/deceleration time constant.                  (2) Decrease the acceleration/deceleration frequency.                  (3) Decrease the rapid traverse rate.</p>	<p>(1) Increase the acceleration/deceleration time constant.                  (2) Decrease the acceleration/deceleration frequency.                  (3) Decrease the rapid traverse rate.</p>
4	If the regeneration resistor is broken:	<p>Measure the resistance between terminals C and P of the terminal box using the circuit tester.                  P(+), C(-): Approx. 13 ohms                  Measure the resistance 3 minutes after the charge lamp goes out.</p>	
5	If the regeneration power transistor is broken:	<p>Measure the resistance in the same manner as (12)-4.</p>	

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(20) Alarm No. 34 : Data parity

If a parity error occurs in data which is received from NC:

	Cause	Verification method	Remedy
1	The connectors CN1A and CN1B of the main card are not perfectly connected.	Check that they are perfectly connected.	Correctly connect the connectors and tighten them with screws.
2	If the cable between NC and the servo amplifier is defective:	Test the cable with a normal one.	Replace the cable with a new one.
3	If noise enters the cable between NC and the servo amplifier:	(1) Take precautions against noise. See 3.5, "Precautions for Installing Amplifier." (2) Check whether the noise occurs when a specific relay contractor in the power control box is turned on and off.	(1) Take precautions against noise. (2) Mount a spark killer, etc.
4	If a card on the NC side is defective (MC611, etc.)	Test the card with a normal one.	Replace the card with a new one.

(21) Alarm No. 35 : Data error

The amount of movement by the movement command from NC is excessive.

	Cause	Verification method	Remedy
1	The connectors CN1A and CN1B of the main card are not perfectly connected.	Check that they are perfectly connected.	Correctly connect the connectors and tighten them with screws.
2	If the cable between NC and the servo amplifier is defective:	Test the cable with a normal one.	Replace the cable with a new one.
3	If noise enters the cable between NC and the servo amplifier:	(1) Take precautions against noise. See 3.5, "Precautions for Installing Amplifier." (2) Check whether the noise occurs when a specific relay contractor in the power control box is turned on and off.	(1) Take precautions against noise. (2) Mount a spark killer, etc.
4	If a card on the NC side is defective (MC611, etc.)	Test the card with a normal one.	Replace the card with a new one.



4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(22) Alarm No. **36**: Transfer error

A periodical data transfer from NC is stopped.

	Cause	Verification method	Remedy
1	The connectors CN1A and CN1B of the main card are not perfectly connected.	Check that they are perfectly connected.	Correctly connect the connectors and tighten them with screws.
2	If the cable between NC and the servo amplifier is defective:	Test the cable with a normal one.	Replace the cable with a new one.
3	If noise enters the cable between NC and the servo amplifier:	(1) Take precautions against noise. See 3.5, "Precautions for Installing Amplifier." (2) Check whether the noise occurs when a specific relay contractor in the power control box is turned on and off.	(1) Take precautions against noise. (2) Mount a spark killer, etc.
4	If a card on the NC side is defective (MC611, etc.)	Test the card with a normal one.	Replace the card with a new one.

(23) Alarm No. **37**: Parameter error

A servo parameter transferred from NC during initialization is abnormal.

	Cause	Verification method	Remedy												
1	The data range is incorrect.	Check the upper and lower limit values of the setting values. NC indicates the incorrect parameter number. See 7, "Details of Servo Parameters."	Set the parameter once again and turn the power off and on.												
2	If the servo parameter STY does not accord with the hardware setting:	The following table shows the relationship between STY and the hardware setting. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>Card configuration</th> <th>Parameter STY</th> </tr> </thead> <tbody> <tr> <td>RG101</td> <td>xxx0</td> </tr> <tr> <td>RG101 + RF31</td> <td>xxx4</td> </tr> <tr> <td>RG101 + RF31</td> <td>xxx5</td> </tr> <tr> <td>RG101 + RF31</td> <td>xxx4</td> </tr> <tr> <td>RG101 + RF31</td> <td>xxx1</td> </tr> </tbody> </table> NC indicates "17" as the incorrect parameter number.	Card configuration	Parameter STY	RG101	xxx0	RG101 + RF31	xxx4	RG101 + RF31	xxx5	RG101 + RF31	xxx4	RG101 + RF31	xxx1	Set the parameter once again and turn the power off and on.
Card configuration	Parameter STY														
RG101	xxx0														
RG101 + RF31	xxx4														
RG101 + RF31	xxx5														
RG101 + RF31	xxx4														
RG101 + RF31	xxx1														
3	The combination of the servo parameter RNG, PIT, PCI, and PC2, and PGN is incorrect.	Check the upper and lower limit values of the setting values. NC indicates "34" as the incorrect parameter number. See (Note 1) of 7, "Details of Servo Parameters."	Set the parameter once again and turn the power off and on.												
4	The unit conversion constant transferred from NC is set to 0.	NC indicates "33" as the incorrect parameter number.	The parameter is incorrectly set on the NC side.												

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

	Cause	Verification method	Remedy
5	The connectors CN1A and CN1B of the main card are not perfectly connected.	Check that they are perfectly connected.	Perfectly connect the connectors and tighten them with screws.
6	If the cable between NC and the servo amplifier is defective:	Test the cable with a normal one.	Replace the cable with a new one.
7	Noise enters the cable between NC and the servo amplifier:	(1) Take proper precautions against noise. See 3.5, "Precautions for Installing Amplifier." (2) Check whether the noise occurs when a specific relay contractor in the power control box is turned on and off.	(1) Take proper precautions against noise. (2) Mount a spark killer, etc.
8	If a card on the NC side is defective (MC611, etc.):	Test the card with a normal one.	Replace the card with a new one.

(24) Alarm No. 42\*: Feedback error 1

If the feedback value of the motor shaft end detector is incorrect:

	Cause	Verification method	Remedy
1	The cable between the amplifier and the detector is defective.	Test the cable with a normal one from another axis.	Replace the cable with a new one.
2	If the motor shaft end detector is defective:	Test the motor shaft end detector with a normal one from another axis.	Replace the motor shaft end detector with a new one.
3	If the main card (or add-on card) is defective:	Test the main card (or add-on card) with a normal one from another axis. Change the axis selection switch position of the main card. For details, see 5.1, "Replacing Servo Amplifier Control Card."	Replace the main card (or add-on card) with a new one.

(25) Alarm No. 43\*: Feed back error 2

The feed back value in the fully closed loop is invalid.

	Cause	Verification method	Remedy
1	If the cable between the amplifier and the detector on the machine shaft end is defective:	Test the cable with a normal one from another axis.	Replace the cable with a new one.
2	If the motor shaft end detector is defective:	Test the motor shaft end detector with a normal one from another axis.	Replace the cable with a new one.
3	If the machine shaft end detector is defective:	Test the machine shaft end detector with a normal one from another axis.	Replace the machine shaft end detector with a new one.
4	If the motor shaft end detector is defective:	Test the motor shaft end detector with a normal one from another axis.	Replace the motor shaft end detector with a new one.
5	If the add-on card is defective.	Test the add-on card with a normal one from another axis.	Replace the add-on card with a new one.
6	If the main card is defective:	Test the main card with a normal one from another axis. Change the axis selection switch position of the main card. For details, see 5.1, "Replacing Servo Amplifier Control Card."	Replace the main card with a new one.

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(26) Alarm No. 45 : Fin over heat

The fin thermal protector in the unit is activated.

	Cause	Verification method	Remedy
1	If the motor current exceeds the continuous output current limit value of the amplifier:	Decrease the load amount. Decrease the acceleration/ deceleration frequency. Decrease the rapid traverse rate. Decrease the ratio of the heavy cutting time period.	Same as left hand column.
2	If the regeneration resistor and the regeneration power transistor are overloaded:	Decrease the acceleration/ deceleration frequency. Decrease the rapid traverse rate.	Same as left hand column.
3	If the thermal protector is defective:	Check whether or not the thermal protector is activated in the non-load state.	Replace the unit with a new one.

(27) Alarm No. 46 : Motor over heat

The thermal protector in the motor is activated.

	Cause	Verification method	Remedy
1	If the motor operation exceeds the continuous rating:	Check whether or not the motor is hot. Decrease the load amount. Decrease the acceleration/ deceleration frequency. Decrease the ratio of the heavy cutting time.	The load amount is decreased:
2	The cables are incorrectly connected to the terminal block.	Check whether or not the motor is cool: • The cables are incorrectly connected to the terminal blocks G1 and G2. • The cables are incorrectly connected to the Cannon connectors G1 and G2 of the motor. Check the continuity of G1 and G2 using the circuit tester.	Correctly connect the cables.
3	If the thermal protector is defective:	Check G1 and G2 of the motor using the circuit tester.	Replace the motor with a new one.
4	If the regeneration option unit MR-RB30 is overheated (only on the axis where the regeneration option unit is mounted).	Check whether or not the regeneration option unit is hot. It is possible to consider cause 2 or 3 of the alarm No.3 "Over-regeneration". For details, see "Over regeneration."	See "Over-regeneration."
5	If the thermal protector of the regeneration option unit MR-RB30 is defective (only on the axis where the regeneration option unit is mounted):	Check G3 and G4 of the regeneration option unit using the circuit tester.	Replace the regeneration option unit with a new one.

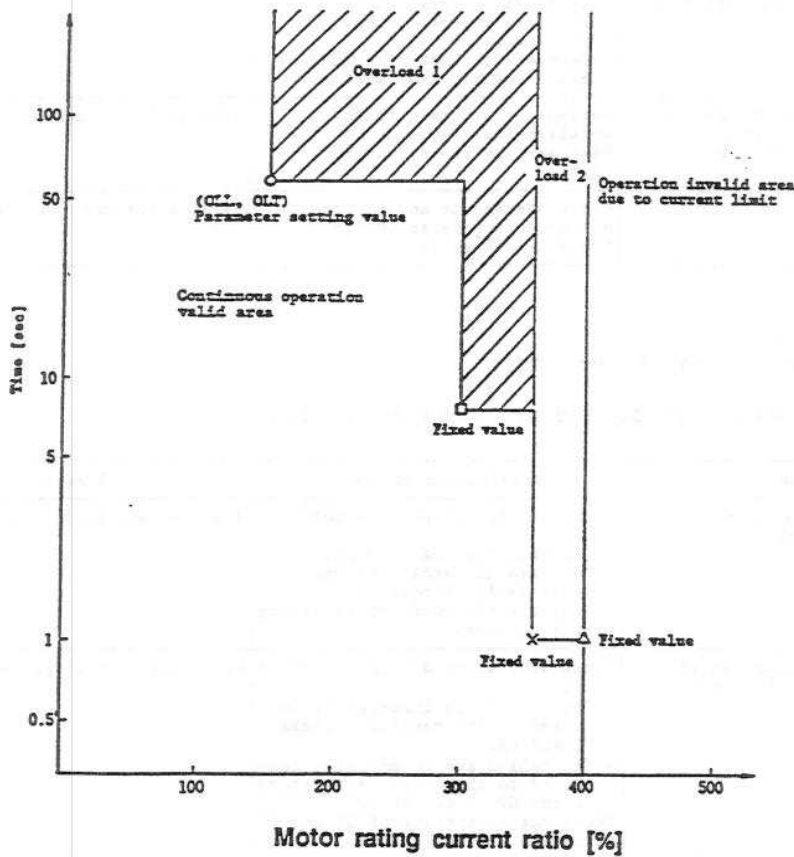
Note) G1, G2 terminal application

MR-S11	G1, G2
MR-S12	LG1, LG2, MG1, MG2

4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

(28) Alarm No. 50 \*: Overload 1

The motor is operated in the hatched area of the following thermal characteristic:  
 The motor rating current and the time represented by ○, □, ×, and Δ in the figure depend on the motor type. Refer to the following table.



Motor	○		□		×		Δ
	Level	Time	Level	Time	Level	Time	Level
HA053/13	OLL	OLT/10 sec.	250%	10	320%	1	355%
23/33	OLL	OLT/10	250	10	355	1	375
40	OLL	OLT/10	250	10	500	1	555
43	OLL	OLT/10	250	10	360	1	400
80	OLL	OLT/10	250	10	410	1	455
83	OLL	OLT/10	250	10	305	1	340
100	OLL	OLT/10	250	10	290	1	320
103	OLL	OLT/10	220	5	305	1	340
200	OLL	OLT/10	200	5	270	1	300
203	OLL	OLT/10	190	5	265	1	295
300/700	OLL	OLT/10	180	5	245	1	270
900	OLL	OLT/10	180	5	270	1	300

Note 1: Parameter standard setting value: OLL - 150% OLT/10 - 60 sec.  
 Note 2: In the case of (ILP - 1364, ILN - 1364), when the parameter values are changed, the level of Δ is correspondingly changed.

## 4. TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

	Cause	Verification method	Remedy
1	If the motor operation exceeds the continuous rating value:	Check whether or not the motor is hot: Decrease the load amount. Decrease the acceleration/ deceleration frequency. Decrease the rapid traverse rate. Decrease the ratio of the heavy cutting time, etc.	The load amount is decreased.
2	The motor collides with a machine.	Check whether or not the motor collides with the machine.	Separate the motor from the machine. Check that the soft limit operates correctly.
3	If the servo parameters OLL and OLT are incorrectly set:	Check that the parameters are set to the following standard values. OLL: 150, OLT: 600	Correctly set the parameters.
4	If a hunting occurs by the reverse servo operation:	1. The motor power cable connections are incorrect. 2. The servo parameter STY is incorrectly set. 3. The servo parameter MTY is incorrectly set.	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
5	The detection system is defective.	1. If the detector is defective. Replace the detector with a normal one. 2. If the detector cable is defective: Replace the cable with a normal cable.	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
6	If a hunting occurs due to unstable servo system:	1. The servo parameter PGN is incorrectly set. 2. The servo parameter PC1 is incorrectly set. 3. The servo parameter PC2 is incorrectly set. 4. The servo parameter RNG is incorrectly set. 5. The servo parameter VG1 is incorrectly set.	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."

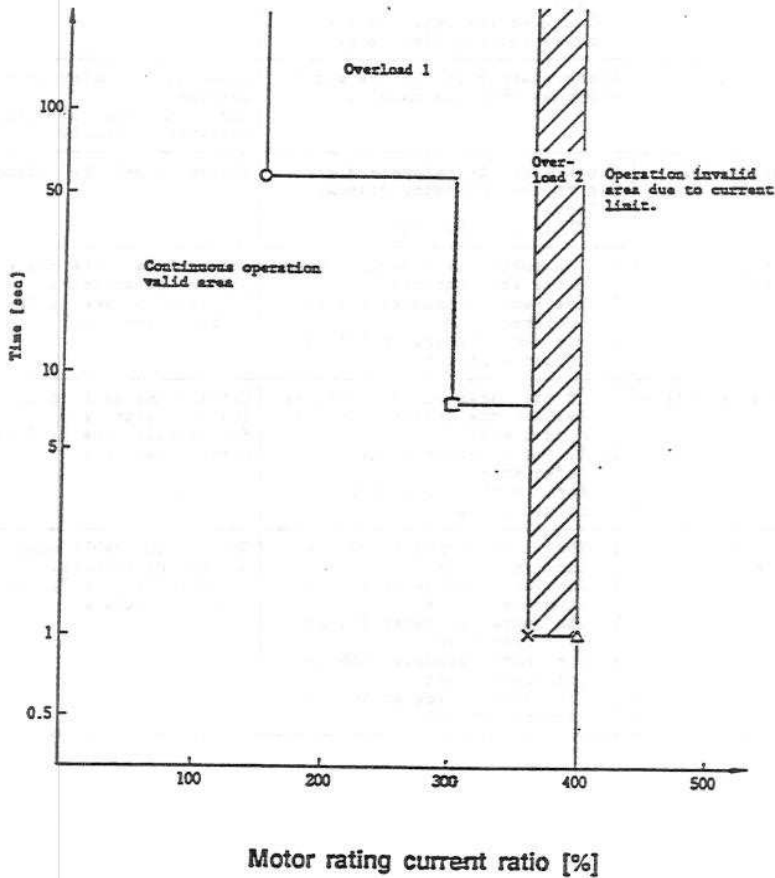
4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(29) Alarm No. 51 \*: Overload 2

The motor is operated in the hatched area of the following thermal characteristic:

The motor rating current and the time represented by ○, □, ×, and Δ in the figure depend on the motor type. Refer to the following table.



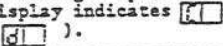
Motor	○		□		×		Δ
	Level	Time	Level	Time	Level	Time	Level
HA053/13	OLL	OLT/10 sec.	250%	10	320%	1	355%
23/33	OLL	OLT/10	250	10	355	1	375
40	OLL	OLT/10	250	10	500	1	555
43	OLL	OLT/10	250	10	360	1	400
80	OLL	OLT/10	250	10	410	1	455
83	OLL	OLT/10	250	10	305	1	340
100	OLL	OLT/10	250	10	290	1	320
103	OLL	OLT/10	220	5	305	1	340
200	OLL	OLT/10	200	5	270	1	300
203	OLL	OLT/10	190	5	265	1	295
300/700	OLL	OLT/10	180	5	245	1	270
900	OLL	OLT/10	180	5	270	1	300

Note 1: Parameter standard setting value: OLL = 150% OLT/10 = 60 sec.

Note 2: In the case of (ILP = 1364, ILN = -1364), when the parameter values are changed, the level of Δ is correspondingly changed.

4. TROUBLESHOOTING

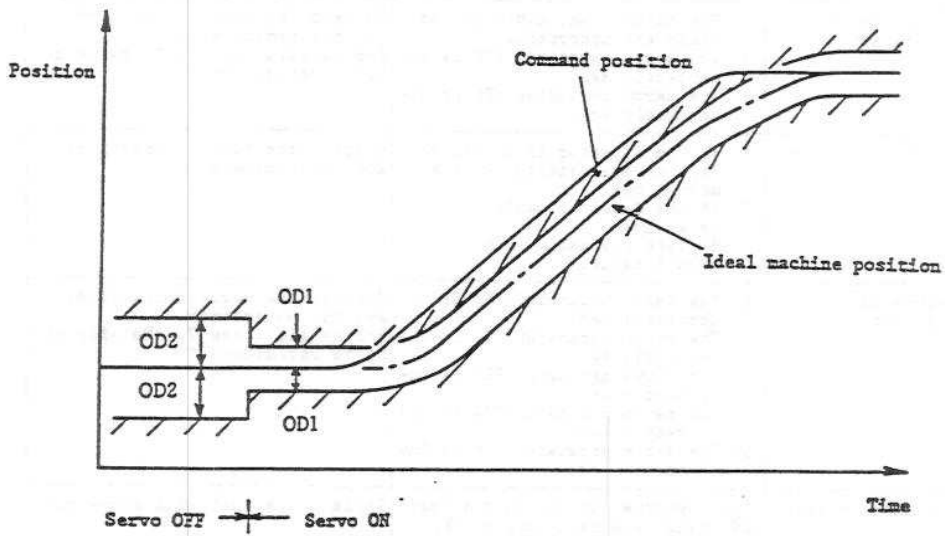
4.2 TROUBLESHOOTING

	Cause	Verification method	Remedy
1	The motor collides with a machine.	Check whether or not the motor collides with the machine.	Separate the motor from the machine.
2	If the acceleration/deceleration time constant is too short:	Observe the current on the servo monitor screen and check whether or not the current exceeds the level marked with x on the preceding table for 1 sec or more.	Increase the acceleration/deceleration time constant.
3	If a hunting occurs by the reverse servo operation:	<ol style="list-style-type: none"> <li>1. The motor power cable connections are incorrect.</li> <li>2. The servo parameter STY is incorrectly set.</li> <li>3. The servo parameter MTY is incorrectly set.</li> </ol>	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
4	The detection system is defective.	<ol style="list-style-type: none"> <li>1. If the detector is defective: Replace the detector with a normal one.</li> <li>2. If the detector cable is defective: Replace the cable with a normal cable.</li> </ol>	Correct the cable connections and the parameters.
5	If a hunting occurs due to unstable servo system:	<ol style="list-style-type: none"> <li>1. The servo parameter FGN is incorrectly set.</li> <li>2. The servo parameter PCl is incorrectly set.</li> <li>3. The servo parameter PC2 is incorrectly set.</li> <li>4. The servo parameter RNG is incorrectly set.</li> <li>5. The servo parameter VG1 is incorrectly set.</li> </ol>	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
6	If the DC bus voltage in the unit drops:	Check whether or not in the ready ON state, the neon lamp on the left side of the unit terminal block light up (the 7-segment display indicates  ).	Replace the unit with a new one.

4. TROUBLESHOOTING  
4.2 TROUBLESHOOTING

(30) Alarm No. **52**: Over droop

The real machine position deviates from the ideal machine position according to the command position set by OD1. The machine position is in the hatched area of the following figure.





## 4. TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

	Cause	Verification method	Remedy
1	If the acceleration/deceleration time constant is too short:	<p>Increase the acceleration/deceleration time constant. Obtain the minimum acceleration/deceleration time constant from the following equation.</p> $T_s \text{ min} = \frac{2\pi N(J_m - J_L)}{60 \times (\overline{T_m} - \overline{T_L})}$ <p>where</p> <p>N : Rapid traverse rate [rpm]  <math>J_m</math>: Motor inertia [kg·cm·S<sup>2</sup>]  <math>J_L</math>: Load inertia [kg·cm·S<sup>2</sup>]  <math>\overline{T_m}</math>: Maximum motor torque [kg·cm]  <math>\overline{T_L}</math>: Maximum load torque of rapid traverse [kg·cm]  <math>T_s \text{ min}</math>: Minimum acceleration/deceleration time constant [S]</p> <p>For details of the motor constant, see Appendix 7.</p>	Increase the acceleration/deceleration time constant or decrease the rapid traverse rate.
2	If the current is excessively limited:	Check the servo parameters ILP and ILN.	Correct the servo parameters.
3	The motor collides with a machine.	Check whether the motor collides with the machine.	Separate the motor from the machine.
4	If a hunting occurs by the reverse servo operation:	<ol style="list-style-type: none"> <li>1. The motor power cable connections are incorrect.</li> <li>2. The servo parameter STY is incorrectly set.</li> <li>3. The servo parameter MTY is incorrectly set.</li> </ol>	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
5	The detection system is defective.	<ol style="list-style-type: none"> <li>1. If the detector is defective: Replace the detector with a normal one.</li> <li>2. If the detector cable is defective: Replace the cable with a normal cable.</li> </ol>	Correct the cable connections and the parameters.
6	If a hunting occurs due to unstable servo system:	<ol style="list-style-type: none"> <li>1. The servo parameter PGN is incorrectly set.</li> <li>2. The servo parameter PCI is incorrectly set.</li> <li>3. The servo parameter PC2 is incorrectly set.</li> <li>4. The servo parameter RNG is incorrectly set.</li> <li>5. The servo parameter VG1 is incorrectly set.</li> </ol>	Correct the cable connections and the parameters. For details, see 7, "Details of Servo Parameters."
7	If the DC bus voltage in the unit drops:	Check whether or not in the ready ON state, the neon lamp on the left side of the unit terminal block lights up (the 7-segment display indicates <input type="checkbox"/> or <input type="checkbox"/> ).	Replace the unit with a new one.
8	If the gain of the servo system is correct:	<ol style="list-style-type: none"> <li>1. Continuously increase the level of the servo parameter VG1 in the unit of 20.</li> <li>2. Continuously decrease the level of the servo parameter PGN in the unit of 5.</li> </ol>	<ol style="list-style-type: none"> <li>1. After the left-hand adjustment, observe the situation.</li> <li>2. After the left-hand adjustment, set the interpolation axis value to the same value.</li> </ol>

4. TROUBLESHOOTING

4.2 TROUBLESHOOTING

(31) Alarm No. 53 : Over-droop 2

Actual mechanical position has been displaced during servo off beyond the distance set by OD2 from the ideal mechanical position for the commanded position.

	Cause	Verification method	Remedy
1	When the error offset during servo off was not arranged, the motor was operated beyond the value of parameter OD2.	Confirm the amount of mechanical movement during servo off.	
2	Inadequate insertion of CN1A, CN1B of main card into connectors.	Check the state of insertion.	Correct the insertion and insert into the groove.
3	Some trouble with the cable between NC and servo amplifier.	Try to replace the cable.	Replace the cable.
4	Noises exist on the cable between NC and servo amplifier.	(1) Arrange the noise prevention. - Refer to cautions for installation of the amplifier. (2) It is raised with the timing of On/Off of specific relay contactor in the power control box.	(1) Arrange the noise prevention. (2) Add the spark killer, etc.
5	Defective card at NC side (MC611, etc.)	Try to replace with a normal card.	Replace the card.

(32) Alarm No. 54 : Amp. overload (Exists only on MS-S12.)

It was operated beyond a definite time when the total value of current of the motor which is connected with the motor, beyond the following level. The following table shows the current level and time.

	Current level (A)	Time (min)
MR-S12-33A	21	12
MR-S12-40A		
MR-S12-80B		
MR-S12-80A		
MR-S12-100B	32	
MR-S12-100A		

## 4. TROUBLESHOOTING

## 4.2 TROUBLESHOOTING

	Cause	Verification method	Remedy
1	The amplifier was operated beyond its rating of continued operation.	Try to reduce the load <ul style="list-style-type: none"> <li>• Reduce the frequency of acceleration and deceleration.</li> <li>• Slow down the rapid traverse rate.</li> <li>• Reduce the rate of heavy cutting time.</li> </ul>	Reduce the load.
2	Setting error of servo parameter MTY	Is servo parameter MTY identical to the motor's requirement?	Adjust accordingly.
3	Hunting by a reverse servo	<ol style="list-style-type: none"> <li>1. The wrong power cable is connected to the motor.</li> <li>2. Setting error of servo parameter STY</li> <li>3. Setting error of servo parameter MY</li> </ol>	Correct accordingly. See 7. Details of parameter.
4	Hunting by unstable servo line	<ol style="list-style-type: none"> <li>1. Setting error of servo parameter PCN.</li> <li>2. Setting error of servo parameter PC1.</li> <li>3. Setting error of servo parameter PC2.</li> <li>4. Setting error of servo parameter PNG.</li> <li>5. Setting error of servo parameter VGI.</li> </ol>	Correct accordingly. See 7. Detail of parameter.

(33) Alarm No. 55 : Emergency

The terminals B and R of the terminal block, which were short-circuited, are open. (These terminals may be linked to the emergency stop depending on the machine model.)  
In the standard specification, the terminals are short-circuited in the terminal block.

	Cause	Verification method	Remedy
1	If the emergency stop occurs:	When the emergency stop occurs, the terminals B and R are open.	Normal operation
2	The 200/220 VAC input voltage drops (in the phases R and S).	Check the input voltage using the volt meter.	Consider the power supply facility.
3	If the unit is struck by something:	When a force exceeding 5 G strikes the unit (for example the bottom of the unit is struck by a wooden hammer, etc.).	Remove the cause.
4	If a contactor in the unit is broken:	Check the continuity between each two contacts of the contactor (see the main circuit structural drawing).	Replace the unit with a new one.

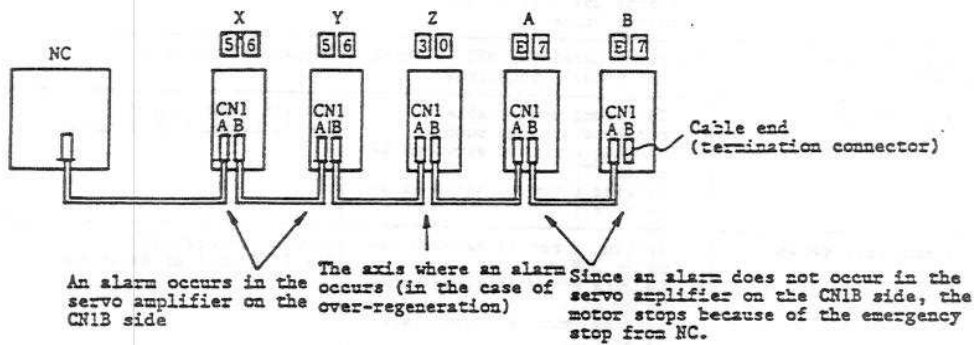
## 4. TROUBLESHOOTING

### 4.2 TROUBLESHOOTING

(34) Alarm No. 56 : Other axis alarm

An alarm occurs in the unit connected to CN1B, or the cable end (termination connector) is disconnected.

Example)



	Cause	Verification method	Remedy
1	An alarm occurs in the servo amplifier on the CN1B side.		Normal operation.
2	The cable end is disconnected.		Correctly mount the cable end.
3	The power of the amplifier which is not used is not turned on.	In the above example, axis B is not used and the power input of the axis is disconnected.	In the left-hand example, 1. Turn on the power of axis B. 2. Connect the cable end to CN1B axis A.

(35) Warning No. E0 : Warning over regeneration

The 80 % level of the regeneration alarm is detected. Because it is not an alarm, the servo OFF does not occur. However, if the motor is operated in this condition, the regeneration alarm may occur. For details, see (12) "Over-regeneration."

Note: It is recommended that the precautions described in item 2, (12), "Over regeneration" be taken. Check that the value of the regeneration load on the servo monitor screen gradually increases while E0 appears. When it does, see (12), "Over regeneration."

(36) Warning No. E1 : Warning overload

The 80 % level of the overload 1 alarm is detected. Because it is not an alarm, the servo OFF does not occur. However, if the motor is operated in this condition, the overload 1 alarm may occur. For details, see (22) "Overload 1".

(37) Warning No. E3 : Absolute position counter warning

Occurs when the value of the absolute position counter is invalid. Although an alarm does not occur even if the motor is operated in this condition, when the NC power is turned on, zero return operation is required. This warning may occur just after the motor is installed or before the zero return operation is performed. At that time, perform the zero return operation. Check the absolute position detector, encoder, and add-on card (RF33/332) where cables are connected.

(38) Warning No. E4 \*: Warning parameter error

A parameter value which is not allowed has been set. (For the setting range, see 7, "Details of Servo Parameters." Any invalid parameter is ignored and the value before the invalid value was set will kept. When a normal value is set, this warning disappears. The servo OFF state does not occur.