

8. Troubleshooting

8-3-5 Troubleshooting

Follow this section to troubleshoot the main alarms that occur during start up or while the machine is operating. Also, refer to the explanations in section "8-3-1 List of alarms".

[Alarm/warning check timing]

f1: When servo drive unit power is turned ON

f2: When CNC power supply is turned ON (emergency stop ON)

f3: During normal operation (servo ON)

f4: During axis removal (ready ON, servo OFF)

(Note) Note that warning "93" could occur even when the axis is reinstalled after removal.

Alarm No.	12	Memory error: Error in drive unit memory IC (SRAM, FROM)	Alarm check timing			
			f1	f2	f3	f4
			○	–	–	–
	Investigation details	Investigation results	Remedies			
1	Check the repeatability.	The error is always repeated.	Replace the drive unit.			
		The state returns to normal once, but occurs sometimes thereafter.	Investigate item 2.			
2	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the drive unit.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	13	Software process error: The driver's software processing time did not end within the specified time, or an illegal IT process was carried out.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the servo software version was changed recently.	The version was changed.	Try replacing with the drive unit containing the original software version.			
		The version was not changed.	Investigate item 2.			
2	Check the repeatability.	The error is always repeated.	Replace the drive unit.			
		The state returns to normal once, but occurs sometimes thereafter.	Investigate item 3.			
3	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the drive unit.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	14	Software processing error 2: The current loop process, of the driver software processing times, did not end within the specified time.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the servo software version was changed recently.	The version was changed.	Try replacing with the drive unit containing the original software version.			
		The version was not changed.	Investigate item 2.			
2	Check the repeatability.	The error is always repeated.	Replace the drive unit.			
		The state returns to normal once, but occurs sometimes thereafter.	Investigate item 3.			
3	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the drive unit.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

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Alarm No. 17	A/D converter error: There is an error in the drive unit's A/D converter.		Alarm check timing			
			f1	f2	f3	f4
			-	○	-	-
	Investigation details	Investigation results	Remedies			
1	Check the repeatability.	The error is always repeated. The state returns to normal once, but occurs sometimes thereafter.	Replace the drive unit. Investigate item 2.			
2	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the drive unit. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No. 18	Initial communication error: Initial communication was not possible with the detector in the system using a high-speed serial detector for the motor side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	-	-
	Investigation details	Investigation results	Remedies			
1	Check the servo parameter (SV025) setting value.	The value is not set correctly. The value is set correctly.	Correctly set VO205. Investigate item 2.			
2	Wiggle the connectors by hand to check whether the detector connectors (drive unit side and detector side) are disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 3.			
3	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault. The connection is normal.	Replace the detector cable. Investigate item 4.			
4	Connect to another normal axis driver, and check whether the fault is on the driver side or detector side.	The alarm is on the driver side. The alarm is on the detector side.	Replace the drive unit. Investigate item 5.			
5	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the detector. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No. 1A	Serial detector initial communication error (SUB): Initial communication was not possible with the detector in the system using a high-speed serial detector for the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	-	-
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "18" items.					

Alarm No. 1B	CPU error (SUB): An error was detected in the data stored in the EEPROM of an absolute position linear scale connected to the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the connector on the drive unit side or scale side is disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 2.			
2	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault. The connection is normal.	Replace the detector cable. Investigate item 3.			
3	Connect to another normal axis driver, and check whether the fault is on the drive unit side or scale side.	The alarm is on the driver side. The alarm is on the absolute position linear scale side.	Replace the drive unit. Investigate item 4.			
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the absolute position linear scale. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

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Alarm No. 1C	EEPROM/LED error (SUB): An error was detected in the EEPROM of an absolute position linear position linear scale connected to the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "1B" items.					

Alarm No. 1D	Data error (SUB): An error was detected within one rotation position of an absolute position linear position linear scale connected to the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "1B" items.					

Alarm No. 1E	ROM, RAM/thermal error (SUB): A ROM/RAM error was detected in the absolute position linear scale connected to the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "1B" items.					

Alarm No. 1F	Serial detector communication error (SUB) Communication was cut off with the detector in the absolute position scale connected to the machine side.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check items 2 and following for alarm No. "18".					

Alarm No. 27	Scale CPU error (SUB): The CPU of the absolute position linear scale connected to the machine side is not operating correctly.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Wiggle the connectors by hand to check whether the absolute position linear scale connectors (unit side and scale side) are disconnected.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 2.			
2	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.			
		The connection is normal.	Investigate item 3.			
3	Connect to another normal axis unit, and check whether the fault is on the unit side or scale side.	The alarm is on the unit side.	Replace the drive unit.			
		The alarm is on the absolute position linear scale side.	Investigate item 4.			
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the absolute position linear scale.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			



CAUTION

Do not drive the motor with a drive unit having a capacity exceeding the motor capacity. The motor could be demagnetized.

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Alarm No.	28	Scale overspeed (SUB): The absolute position linear scale connected to the machine side detected a speed of 45m/sec or more when the CNC power was turned ON.	Alarm check timing			
			f1	f2	f3	f4
			–	○	–	–
	Investigation details	Investigation results	Remedies			
1	Check that the system is an absolute position linear scale specification system.	The system is not the absolute position linear scale specifications.	Correctly set the SV025: MTYP parameter.			
		The system is the absolute position linear scale specifications.	Investigate item 2.			
2	Check whether the machine was operating when the alarm occurred.	The machine was operating.	Check the motor's mechanical brakes and machine system.			
		The machine was not operating.	Investigate item 3.			
3	Wiggle the connectors by hand to check whether the absolute position linear scale connectors (unit side and scale side) are disconnected.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 4.			
4	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.			
		The connection is normal.	Investigate item 5.			
5	Connect to another normal axis unit, and check whether the fault is on the unit side or detector side.	The alarm is on the unit side.	Replace the drive unit.			
		The alarm is on the absolute position linear scale side.	Investigate item 6.			
6	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the absolute position linear scale.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	29	Absolute position detection circuit error (SUB): An error was detected in the scale or scale side circuit of the absolute position linear scale connected to the machine side.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "28" items.					

Alarm No.	2A	Incremental position detection circuit error (SUB): A speed exceeding the max. movement speed of the absolute position linear scale connected to the machine side was detected.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the machine was operating when the alarm occurred.	The machine was operating.	Investigate item 3.			
		The machine was not operating.	Investigate item 2.			
2	Check whether the operation is normal at low-speeds.	The machine was operating.	Investigate item 3.			
		The machine was not operating.	Check the precautions for turning the power ON. • Wiring check • Parameter check			
3	Wiggle the connectors by hand to check whether the absolute position linear scale connectors (unit side and scale side) are disconnected.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 4.			
4	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.			
		The connection is normal.	Investigate item 5.			
5	Connect to another normal axis unit, and check whether the fault is on the unit side or detector side.	The alarm is on the unit side.	Replace the drive unit.			
		The alarm is on the absolute position linear scale side.	Investigate item 6.			
6	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the motor (the absolute position linear scale).			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

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Alarm No. 2B	CPU error: An error was detected in the data stored in the EEPROM of an absolute position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check items 3 and following for alarm No. "2A".				

Alarm No. 2C	EEPROM/LED error: An error was detected in the EEPROM of an absolute position linear position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check items 3 and following for alarm No. "2A".				

Alarm No. 2D	Date error: An error was detected within one rotation position of an absolute position linear position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check items 3 and following for alarm No. "2A".				

Alarm No. 2E	ROM/RAM error: A ROM/RAM error was detected in the absolute position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check items 3 and following for alarm No. "2A".				

Alarm No. 2F	Serial detector communication error: Communication was cut off with detector of the absolute position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check items 2 and following for alarm No. "18".				

Alarm No. 31	Overspeed: Movement was carried out at a speed exceeding the linear motor's tolerable speed.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check whether the machine was operating when the alarm occurred.	The machine was operating.	Investigate item 4.		
		The machine was not operating.	Investigate item 2.		
2	Check whether the operation is normal at low-speeds.	The machine was operating.	Investigate item 3.		
		The machine was not operating.	Check the wiring and the parameters at power ON.		
3	Check whether the rapid traverse speed is too high.	The speed is too high.	Lower the speed to below the rated speed.		
		The speed is set below the rated speed.	Investigate item 4.		
4	Check whether the acceleration/ deceleration constant is too small. • Check the current value display on the Servo Monitor screen.	A value that is 80% or more of the max. value is displayed.	Reduce the rapid traverse time constant so that the current value on the Servo Monitor screen is 80% or less of the max. value during rapid traverse acceleration/deceleration.		
		The value is 80% or less of the max. value.	Investigate item 5.		
5	Check items 2 and following for alarm No. "18".				



CAUTION

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Alarm No.	32	Power module error (Overcurrent): The IPM used for the inverter detected an overcurrent.		Alarm check timing			
				f1	f2	f3	f4
				–	○	○	○
Investigation details		Investigation results		Remedies			
1	Check for a short-circuit in the UVW phases of the unit output. • Disconnect the U V W connection from the terminal block and the motor's cannon plug, and check with a tester.	The phases are short circuited or there is no continuity.		Replace the UVW wires.			
		The phases are normal.		Investigate item 2.			
2	Check whether there is a ground fault in the UVW wires. • Check between the UVW wires and ground with a tester in the state given in item 1.	The phases are short circuited or there is no continuity.		Replace the UVW wires.			
		The phases are normal.		Investigate item 3.			
3	Check whether there is a ground fault in the motor. • Check between the motor's wires and ground with a tester (megger) in the state given in item 1.	The phases are short circuited or there is no continuity.		Replace the motor.			
		The phases are normal. (same level as other axes)		Investigate item 4.			
4	Check the parameter setting values. • Refer to the adjustment procedures.	The settings are incorrect.		Correctly set.			
		The settings are correct.		Investigate item 5.			
5	Wiggle the connectors by hand to check whether the detector connectors (unit side and detector side) are disconnected.	The connector is disconnected (or loose).		Correctly install.			
		The connector is not disconnected.		Investigate item 6.			
6	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.		Replace the detector cable.			
		The connection is normal.		Investigate item 7.			
7	Check the repeatability.	The alarm is not repeated.		Investigate item 9.			
		The alarm is repeated sometimes.		Investigate item 8.			
		The alarm is always repeated.		Investigate item 8.			
8	Connect to another normal axis driver, and check whether the fault is on the unit side or scale side.	The alarm is on the unit side.		Replace the drive unit.			
		The alarm is on the detector.		Replace the motor (the detector).			
9	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.		Monitor the state for a while.			
		An abnormality was found in the ambient environment.		Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

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Alarm No.	34	CNC communication CRC error: An error was detected in the data sent from the CNC to the driver.	Alarm check timing			
			f1	F2	f3	f4
			–	○	○	○
Investigation details		Investigation results	Remedies			
1	Wiggle the connection cables by hand between the CNC and drive unit, between the battery unit and drive unit, and between the drive units to see if any of the connectors are loose. Check whether any force is being applied on the connectors.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 2.			
2	Turn the power OFF, and check the connection of the communication cables listed in item 1. Try replacing the cables with normal ones.	There is a connection fault.	Replace the communication cable.			
		The connection is normal.	Investigate item 3.			
3	Check whether the CNC and drive unit software versions have been changed recently.	The version was changed.	Replace with the original software version.			
		The version was not changed.	Investigate item 4.			
4	Try replacing with another unit to determine whether the fault is on the CNC side or units side.	The alarm is on the unit side.	Replace the drive unit.			
		The driver is not the cause.	Investigate item 5.			
5	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the MCP card on the CNC side.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	35	CNC communication data error: An error was detected in the movement command data from the CNC.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	–
Investigation details		Investigation results	Remedies			
1	Check the alarm No. "34" items.					

Alarm No.	36	CNC communication, communication error: The communication from the CNC was cut off.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	–
Investigation details		Investigation results	Remedies			
1	Check the alarm No. "34" items.					

Alarm No.	37	Initial parameter error: An illegal parameter was detected in the parameters sent when the CNC power was turned ON.	Alarm check timing			
			f1	f2	f3	f4
			–	○	–	○
Investigation details		Investigation results	Remedies			
1	The illegal parameter No. will appear on the CNC Diagnosis screen, so check that servo parameter with the parameter adjustment procedures.	The parameter is incorrect.	Set to the correct parameter.			
		The parameter is correct.	Investigate item 3.			
		The parameter No. is not 1 to 64.	If the No. is 101, check investigation item 2.			
2	Check whether the servo parameter (PIT) (RNG1) (RNG2) (PC1) and (PC2) combination is illegal, or whether the setting range is exceeded.	The combination is illegal, or the setting range is exceeded.	Refer to the parameter settings in the specifications and to the supplements, and set to the correct values.			
		The parameter is correct.	Investigate item 3.			
3	Check the alarm No. "34" items.					

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Alarm No. 38	CNC communication protocol error 1: An error was detected in the communication frame sent from the CNC.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "34" items.					

Alarm No. 39	CNC communication protocol error 2 An error was detected in the axis information data sent from the CNC.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "34" items.					

Alarm No. 3A	Overcurrent: An excessive current was detected in the motor drive current.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "32" items.					

Alarm No. 3B	Power module overheat: The power module's temperature protection function activated.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Turn the unit power ON again, and confirm the rotation of the fan. Note) Assure more than 10 seconds for the time from when the power is turned OFF till when it is turned ON. For the fan used for the drive unit, assuring more than 10 seconds for the time from when the power is turned OFF till when it is turned ON is required.	The fan is rotating, and an alarm did not occur again. The fan did not rotate. Or, an alarm occurred again.	Continue to use. The power may be turned ON without assuring more than 10 seconds for the time from when the power is turned OFF till when it is turned ON. Leave for more than 10 seconds or more, and turn the power ON again.			
2	Confirm adhesion of cutting oil or cutting chips, etc. at the fan. Or check if there is any abnormality such as low rotation speed.	Large amounts of cutting oil or cutting chips, etc., are adhered, or the rotation is slow. The fan is rotating properly.	Clean or replace the fan. Investigate item 3.			
3	Check whether the heat dissipating fins are dirty.	Cutting oil or cutting chips, etc., are adhered, and the fins are clogged. The fins are normal.	Clean the fins. Investigate item 4.			
4	Measure the drive unit's ambient temperature.	55°C or more Less than 55°C.	Improve the ventilation and cooling for the power distribution panel. Investigate item 5.			
5	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	If the alarm occurs even after the unit temperature has dropped, replace the unit. Take remedies according to the causes of the abnormality. Ex. High temperature: Check the cooling fan. Incomplete grounding: Additionally ground.			

Alarm No. 43	Feedback error 2: An excessive deviation of the feedback amount for the motor side detector and machine side detector was detected in the 2-scale 2-motor (2-amplifier) control.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	-
	Investigation details	Investigation results	Remedies			
1	Check items 3 and following for alarm No. "2A".					

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Alarm No.	46	Motor overheat: A temperature error was detected in the motor being driven. (°C) (Temperature exceeded 100°C)	Alarm check timing			
			f1	f2	f3	f4
			-	○	○	-
	Investigation details	Investigation results	Remedies			
1	Check whether the specifications provide the motor thermal.	The specifications do not provide the motor thermal.	Investigate item 2.			
		The specifications provide the motor thermal.	Investigate item 3.			
2	Check the servo parameter (SV034) setting value.	The parameter is not set correctly.	Correctly set SV034/mohm			
		The parameter is set correctly.	Investigate item 3.			
3	Check the repeatability.	The alarm is repeated within one minute after startup.	Investigate item 5.			
		The alarm is repeated sometimes after operating for a while.	Investigate item 4.			
4	Check the motor temperature when the alarm occurs.	The motor is hot.	Ease the operation pattern. ↓ If the problem is not solved, check investigation item 5.			
		The motor is not high.	Investigate item 5.			
5	Wiggle the connectors by hand to check whether the detector connectors (unit side and motor side cannon) are disconnected.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 6.			
6	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.			
		The connection is normal.	Investigate item 7.			
7	Connect to another normal axis unit, and check whether the fault is on the unit side.	The alarm is on the unit side.	Replace the drive unit.			
		The alarm occurs even when the unit is replaced.	Investigate item 8.			
8	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the motor.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	48	Scale CPU error: The CPU of the absolute position linear scale connected to the motor side is not operating correctly.	Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Wiggle the connectors by hand to check whether the absolute position linear scale connectors (unit side and scale side) are disconnected.	The connector is disconnected (or loose).	Correctly install.			
		The connector is not disconnected.	Investigate item 2.			
2	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.			
		The connection is normal.	Investigate item 3.			
3	Connect to another normal axis unit, and check whether the fault is on the unit side or scale side.	The alarm is on the unit side.	Replace the drive unit.			
		The alarm is on the absolute position linear scale side.	Investigate item 4.			
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the absolute position linear scale.			
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

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Alarm No.	Scale overspeed: The absolute position linear scale connected to the motor side detected a speed of 45m/sec or more when the CNC power was turned ON.	Alarm check timing			
		f1	f2	f3	f4
49		-	○	-	-
	Investigation details	Investigation results	Remedies		
1	Check that the system is an absolute position linear scale specification system.	The system is not the absolute position linear scale specifications.	Correctly set the SV025: MTYP parameter.		
		The system is the absolute position linear scale specifications.	Investigate item 2.		
2	Check whether the machine was operating when the alarm occurred.	The machine was operating.	Check the motor's mechanical brakes and machine system.		
		The machine was not operating.	Investigate item 3.		
3	Wiggle the connectors by hand to check whether the absolute position linear scale connectors (unit side and scale side) are disconnected.	The connector is disconnected (or loose).	Correctly install.		
		The connector is not disconnected.	Investigate item 4.		
4	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.		
		The connection is normal.	Investigate item 5.		
5	Connect to another normal axis unit, and check whether the fault is on the unit side or detector side.	The alarm is on the unit side.	Replace the drive unit.		
		The alarm is on the absolute position linear scale side.	Investigate item 6.		
6	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the absolute position linear scale.		
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.		

Alarm No.	Absolute position detection circuit error: An error was detected in the scale or scale side circuit of the absolute position linear scale connected to the motor side.	Alarm check timing			
		f1	f2	f3	f4
4A		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "49" items.				

Alarm No.	Incremental position detection circuit error: A speed exceeding the max. movement speed of the absolute position linear scale connected to the motor side was detected.	Alarm check timing			
		f1	f2	f3	f4
4B		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check whether the machine was operating when the alarm occurred.	The machine was operating.	Investigate item 3.		
		The machine was not operating.	Investigate item 2.		
2	Check whether the operation is normal at low-speeds.	The machine was operating.	Investigate item 3.		
		The machine was not operating.	Check the wiring and the parameters at power ON.		
3	Check whether the connector is disconnected from the unit side or scale side.	The connector is disconnected (or loose).	Correctly install.		
		The connector is not disconnected.	Investigate item 4.		
4	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault.	Replace the detector cable.		
		The connection is normal.	Investigate item 5.		
5	Connect to another normal axis unit, and check whether the fault is on the unit side or detector side.	The alarm is on the unit side.	Replace the drive unit.		
		The alarm is on the absolute position linear scale side.	Investigate item 6.		
6	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the motor (the linear scale).		
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.		



CAUTION

Do not drive the motor with a drive unit having a capacity exceeding the motor capacity. The motor could be demagnetized.

8. Troubleshooting

Alarm No.	50	Overload 1: The servomotor or servo drive unit load level obtained from the motor current reached the overload level set with the overload detection level (SV022:OLL).	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the servo parameter (OLL) setting value. Standard setting value OLL: 150.	The value differs from the standard setting value. The value is the standard setting value.	When not using special specifications, set the value to the standard setting value. Investigate item 2.			
2	Check the motor temperature when the alarm occurs.	The motor is hot. The motor is not high.	Ease the operation pattern. ↓ If the problem is not solved, check investigation item 3. Investigate item 3.			
3	Check whether the motor is hunting.	The motor is hunting. The motor is not hunting.	Refer to the adjustment procedures and readjust. • Check the cable wiring and connector connection. • Check for incorrect parameter settings. • Adjust the gain. ↓ If the problem is not resolved, check investigation item 4. Investigate item 4.			
4	Connect to another normal axis unit, and check whether the fault is on the unit side.	The alarm is on the unit side. The alarm occurs even when the unit is replaced.	Replace the drive unit. Investigate item 5.			
5	Check whether the current value on the CNC Servo Monitor screen is an abnormally large value when stopped and operating.	An abnormal value is displayed. A correct value is displayed.	Check the machine system. Investigate item 6.			
6	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the motor (the detector). Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

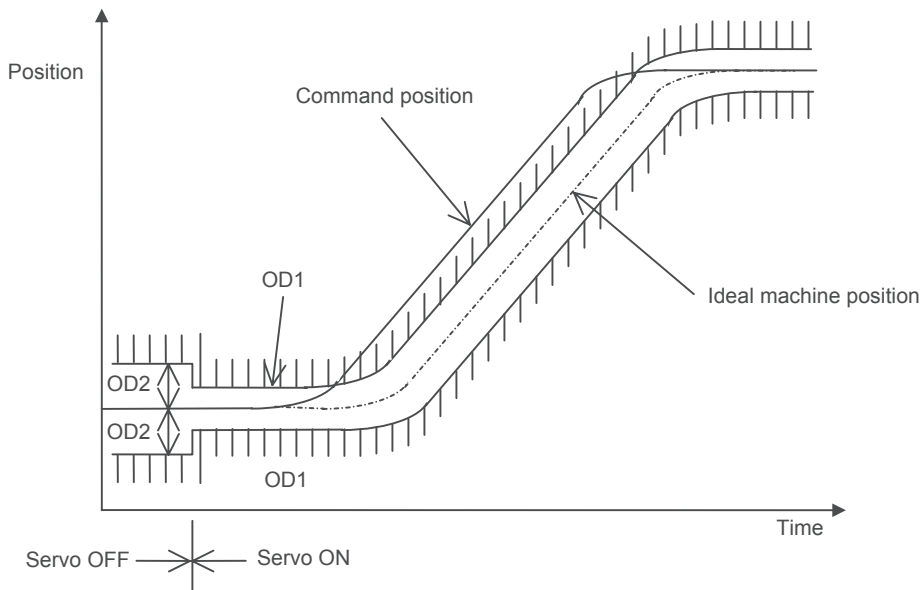
Alarm No.	51	Overload 2: A current command exceeding 95% of the drive units max. capacity continued for 1 sec. or more.	Alarm check timing			
			f1	f2	f3	f4
			–	–	○	–
	Investigation details	Investigation results	Remedies			
1	Check whether the PN power is supplied to the drive unit. • Check the axis for which the alarm is occurring and the axis farthest from the power supply.	The voltage is being supplied. The voltage is not being supplied.	Investigate item 3. Investigate item 2.			
2	Check whether the power supply unit's CHARGE lamp is lit, and the PN terminal voltage.	There is no voltage at the PN terminal. (The lamp is not lit.) There is voltage at the PN terminal.	Check the power supply unit. Check the PN wiring between the units.			
3	Check whether the current value on the CNC Servo Monitor screen is an abnormally large value during acceleration/deceleration.	The max. value is exceeding the x level given on the previous page. A correct value is displayed.	Increase the acceleration/deceleration time constant to lower to approx. 80% of the limit value. Investigate item 4.			
4	Check items 3 and following for alarm No. "50".					

8. Troubleshooting

Alarm No.	52	Excessive error 1: The difference of the ideal position and actual position exceeded the parameter SV023:OD1 (or SV053:OD3) at servo ON.	Alarm check timing			
			f1	f2	f3	f4
			-	-	○	-
Investigation details		Investigation results	Remedies			
1	Check whether the PN power is supplied to the drive unit. • Check the axis for which the alarm is occurring and the axis farthest from the power supply.	The voltage is being supplied.	Investigate item 3.			
		The voltage is not being supplied.	Investigate item 2.			
2	Check whether the power supply unit's CHARGE lamp is lit, and the PN terminal voltage.	There is no voltage at the PN terminal. (The lamp is not lit.)	Check the power supply unit.			
		There is voltage at the PN terminal.	Check the PN wiring between the units.			
3	Check the servo parameter (OD1) setting value.	The value differs from the standard setting value.	When not using special specifications, set the value to the standard setting value.			
		The value is the standard setting value.	Investigate item 4.			
4	Check items 3 and following for alarm No. "50".					

Supplement

Depending on the ideal machine position in respect to the command position, the actual machine position could enter the actual shaded section shown below, which is separated more than the distance set in OD1.



CAUTION

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8. Troubleshooting

Alarm No.	53	Excessive error 2: The difference of the ideal position and actual position exceeded parameter SV026:OD2 at servo OFF.	Alarm check timing			
			f1	f2	f3	f4
			–	○	–	–
	Investigation details	Investigation results	Remedies			
1	Check the servo parameter (OD2) setting value.	The value differs from the standard setting value. The value is the standard setting value.	When not using special specifications, set the value to the standard setting value. Investigate item 2.			
2	Check whether the machine is moving during servo OFF.	The machine was operating. The machine was not operating.	Check the machine and mechanical brakes. Investigate item 3.			
3	Wiggle the communication cable between the CNC and final connector by hand to check whether the detector connectors (unit side and CNC side) are disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 4.			
4	Turn the power OFF, and check the communication cable connection with a tester. Try replacing with normal cables.	There is a connection fault. The connection is normal.	Replace the communication cable. Investigate item 5.			
5	Replace with another normal axis unit, and check whether the fault is in the unit.	The alarm is on the unit side. The alarm occurs even when the unit is replaced.	Replace the drive unit. Replace the MCP card on the CNC side. ↓ If the problem is not resolved, check investigation item 6.			
6	Wiggle the connectors by hand to check whether the detector connectors (unit side and motor side) are disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 7.			
7	Turn the power OFF, and check the detector cable connection with a tester.	There is a connection fault. The connection is normal.	Replace the detector cable. Investigate item 8.			
8	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the motor. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	54	Excessive error 3: The motor current is not flowing when the excessive error alarm 1 was detected.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	–
	Investigation details	Investigation results	Remedies			
1	Check whether the PN power is supplied to the driver. • Check the axis for which the alarm is occurring and the axis farthest from the power supply.	The voltage is being supplied. The voltage is not being supplied.	Investigate item 3. Investigate item 2.			
2	Check whether the power supply unit's CHARGE lamp is lit, and the PN terminal voltage.	There is no voltage at the PN terminal. (The lamp is not lit.) There is voltage at the PN terminal.	Check the power supply unit. Check the PN wiring between the units.			
3	Check whether the motor power line is connected to the motor. • Disconnect the power line from the terminal block, and check between UVW with a tester.	The power line is not connected or is disconnected. The power line is correctly connected.	Increase the acceleration/deceleration time constant to lower to approx. 80% of the limit value. Investigate item 4.			
4	Replace with another normal unit, and check whether the fault is in the unit.	The alarm is on the unit side. The alarm is on the motor side.	Replace the drive unit. Replace the motor.			



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8. Troubleshooting

Alarm No. 58	Collision detection 0: A collision detection method 1 error was detected during the G0 modal (rapid traverse). (A disturbance torque exceeding the tolerable disturbance torque was detected.)	Alarm check timing			
		f1	f2	f3	f4
		-	-	○	-
	Investigation details	Investigation results	Remedies		
1	Check whether the collision detection function is being used. Check whether the machine is colliding.	The collision detection function is not being used.	Investigate item 2.		
		The motor is colliding.	Improve so that the machine does not collide.		
		The collision detection is being used, but the machine is not colliding.	Investigate item 3.		
2	Check the parameter. Is SV060 (TLTM) set to "0"?	The setting is incorrect.	Set SV060 (TLMT) to "0".		
3	Check whether the current during normal rapid traverse acceleration/ deceleration has reached the current limit value, or whether it is 90% or more of the limit value.	The current is 90% or more of the current limit value.	Lengthen the time constant, and check investigation item 4.		
		The current is less than 90% of the current limit value.	Investigate item 4.		
4	Readjust the collision detection function, and then operate. (Refer to the separate collision detection function specifications.)	The alarm does not occur.	_____		
		The alarm occurs.	Investigate item 5.		
5	Is the machine or current vibrating?	They are vibrating.	Eliminate the vibration by adjusting the gain, and check investigation item 4.		
		They are not vibrating.	Investigate item 6.		
6	Raise the detection level.	The alarm does not occur.	If the problem is not resolved even after replacing the drive unit, raise the level.		
		The alarm occurs.	Replace the drive unit.		

Alarm No. 59	Collision detection 1: A collision detection method 1 error was detected during the G1 modal (cutting feed). (A disturbance torque exceeding the tolerable disturbance torque was detected.)	Alarm check timing			
		f1	f2	f3	f4
		-	-	○	-
	Investigation details	Investigation results	Remedies		
1	Check whether the collision detection function is being used. Check whether the machine is colliding.	The collision detection function is not being used.	Investigate item 2.		
		The motor is colliding.	Improve so that the machine does not collide.		
		The collision detection is being used, but the machine is not colliding.	Investigate item 2.		
2	Check the parameter. Is SV060 (TLTM) set to "0"?	The setting is incorrect.	Set SV060 (TLMT) to "0".		
3	Check whether the current during normal rapid traverse acceleration/ deceleration has reached the current limit value, or whether it is 90% or more of the limit value.	The current is 90% or more of the current limit value.	Lengthen the time constant, and check investigation item 4.		
		The current is less than 90% of the current limit value.	Investigate item 4.		
4	Readjust the collision detection function, and then operate. (Refer to the separate collision detection function specifications.)	The alarm does not occur.	_____		
		The alarm occurs.	Investigate item 5.		
5	Is the machine or current vibrating?	They are vibrating.	Eliminate the vibration by adjusting the gain, and check investigation item 4.		
		They are not vibrating.	Investigate item 6.		
6	Raise the detection level.	The alarm does not occur.	If the problem is not resolved even after replacing the drive unit, raise the level.		
		The alarm occurs.	Replace the drive unit.		

Alarm No. 5A	Collision detection 2: A collision detection method 2 error was detected.	Alarm check timing			
		f1	f2	f3	f4
		-	-	○	-
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "58" items.				

8. Troubleshooting

Alarm No.	80	HR unit connection error: An incorrect connection or cable breakage was detected in the MDS-B-HR connected to the motor side.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details		Investigation results		Remedies	
1	Wiggle the connectors by hand to check whether the MDS-B-HR connectors (unit side, HR side and linear scale side) are disconnected.		The connector is disconnected (or loose). The connector is not disconnected.		Correctly install. Investigate item 2.	
2	Turn the power OFF, and check the connection of the detector cables (between driver I/F units and between I/F unit and scale) with a tester.		There is a connection fault. The connection is normal.		Replace the communication cable. Investigate item 3.	
3	Connect with another normal axis unit (or MDS-B-HR) and check whether the fault is on the unit side or MDS-B-HR (linear scale) side.		The alarm is on the unit side. The alarm is on the MDS-B-HR (linear scale) side.		Replace the drive unit. Investigate item 4.	
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)		No abnormality is found in particular. An abnormality was found in the ambient environment.		Replace MDS-B-HR (linear scale). Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.	

Alarm No.	81	HR unit HSS communication error: The MDS-B-HR connected to the motor side detected an error in the communication with the absolute position linear scale.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details		Investigation results		Remedies	
1	Check the alarm No. "80" items.					

Alarm No.	83	HR unit scale judgment error: The MDS-B-HR connected to the motor side could not judge the analog frequency of the connected linear scale.	Alarm check timing			
			f1	f2	f3	f4
			–	○	○	○
	Investigation details		Investigation results		Remedies	
1	Wiggle the connectors by hand to check whether the MDS-B-HR connectors (unit side, HR side, linear scale side and MD side) are disconnected.		The connector is disconnected (or loose). The connector is not disconnected.		Correctly install. Investigate item 2.	
2	Turn the power OFF, and check the connection of the detector cables (between driver and I/F units, between I/F unit and scale and between I/F unit and pole detector) with a tester.		There is a connection fault. The connection is normal.		Replace the communication cable. Investigate item 3.	
3	Connect with another normal axis unit (or MDS-B-HR) and check whether the fault is on the unit side or MDS-B-HR (linear scale or MDS-B-MD) side.		The alarm is on the unit side. The alarm is on the MDS-B-HR (linear scale or MDS-B-MD) side.		Replace the drive unit. Investigate item 4.	
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)		No abnormality is found in particular. An abnormality was found in the ambient environment.		Replace MDS-B-HR (linear scale or MDS-B-MD). Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.	



CAUTION

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8. Troubleshooting

Alarm No.	84	HR unit CPU error: The CPU of the MDS-B-HR connected to the motor side is not operating correctly.	Alarm check timing			
			f1	f2	f3	f4
			○	—	—	—
	Investigation details	Investigation results	Remedies			
1	Wiggle the connectors by hand to check whether the MDS-B-HR connectors (unit side and HR side) are disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 2.			
2	Turn the power OFF, and check the connection of the detector cables (between drive unit and I/F units) with a tester.	There is a connection fault. The connection is normal.	Replace the communication cable. Investigate item 3.			
3	Connect with another normal axis unit and check whether the fault is on the unit side or MDS-B-HR side.	The alarm is on the unit side. The alarm is on the MDS-B-HR side.	Replace the drive unit. Investigate item 4.			
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace MDS-B-HR. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

Alarm No.	85	HR unit data error: An error was detected in the analog interpolation data of the MDS-B-HR connected to the motor side.	Alarm check timing			
			f1	f2	f3	f4
			—	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "80" items.					

Alarm No.	86	HR unit pole error: An error was detected in the pole data of the MDS-B-HR connected to the motor side.	Alarm check timing			
			f1	f2	f3	f4
			—	○	○	○
	Investigation details	Investigation results	Remedies			
1	Wiggle the connectors by hand to check whether the MDS-B-HR connectors (unit side, HR side and MD side) are disconnected.	The connector is disconnected (or loose). The connector is not disconnected.	Correctly install. Investigate item 2.			
2	Turn the power OFF, and check the connection of the detector cables (between drive unit and I/F units and between I/F unit and pole detector) with a tester.	There is a connection fault. The connection is normal.	Replace the communication cable. Investigate item 3.			
3	Connect with another normal axis unit (or MDS-B-HR) and check whether the fault is on the unit side or MDS-B-HR (MDS-B-MD) side.	The alarm is on the unit side. The alarm is on the MDS-B-HR (MDS-B-MD) side.	Replace the drive unit. Investigate item 4.			
4	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace MDS-B-HR (MDS-B-MD). Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.			

8. Troubleshooting

Alarm No. 88	Watch dog: The servo drive software processing time did not end within the specified time.	Alarm check timing			
		f1	f2	f3	f4
		○	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check whether the servo software version has been changed recently.	The version was changed. The version was not changed.	Replace with the original software version. Investigate item 2.		
2	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular. An abnormality was found in the ambient environment.	Replace the drive unit. Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.		

Alarm No. 89	HR unit connection error (SUB): An incorrect connection or cable breakage was detected in the MDS-B-HR connected to the machine side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "80" items.				

Alarm No. 8A	HR unit HSS communication error (SUB): The MDS-B-HR connected to the machine side detected an error in the communication with the absolute position linear scale.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "80" items.				

Alarm No. 8C	HR unit scale judgment error (SUB): The MDS-B-HR connected to the machine side could not judge the analog frequency of the connected linear scale.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "83" items.				

Alarm No. 8D	HR unit CPU error (SUB): The CPU of the MDS-B-HR connected to the machine side is not operating correctly.	Alarm check timing			
		f1	f2	f3	f4
		○	-	-	-
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "84" items.				

Alarm No. 8E	HR unit data error (SUB): An error was detected in the analog interpolation data of the MDS-B-HR connected to the machine side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "80" items.				

Alarm No. 8F	HR unit pole error (SUB): An error was detected in the pole data of the MDS-B-HR connected to the machine side.	Alarm check timing			
		f1	f2	f3	f4
		-	○	○	○
	Investigation details	Investigation results	Remedies		
1	Check the alarm No. "86" items.				

8. Troubleshooting

Alarm No.	93	Absolute position fluctuation: A fluctuation exceeding the tolerable value was detected in the absolute position detected when the CNC power is turned ON.		Alarm check timing			
				f1	f2	f3	f4
				–	○	–	–
	Investigation details	Investigation results	Remedies				
1	Check whether the connector is disconnected from the unit side or detector side.	The connector is disconnected (or loose).	Correctly install.				
		The connector is not disconnected.	Investigate item 2.				
2	Turn the power OFF, and check the connection of the detector cables with a tester.	There is a connection fault.	Replace the communication cable.				
		The connection is normal.	Investigate item 3.				
3	Check the repeatability. Carry out zero point return again.	The alarm is not repeated.	If no abnormality is found with investigation item 5, continue use.				
		The alarm is always repeated. Or, the state returns to normal once, but then is repeated sometimes.	Investigate item 4.				
4	Connect with another normal axis unit and check whether the fault is on the unit side.	The alarm is on the unit side.	Replace the drive unit.				
		The alarm occurs even when the unit is replaced.	Investigate item 5.				
5	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace the motor (detector).				
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.				

Alarm No.	9B	Pole shift warning: An error was detected in the pole shift amount set in servo parameter SV028.		Alarm check timing			
				f1	f2	f3	f4
				–	–	○	–
	Investigation details	Investigation results	Remedies				
1	Check whether the MDS-B-MD system is being used.	The system is not MDS-B-MD.	Investigate item 4.				
		The system is MDS-B-MD.	Investigate item 2.				
2	Check whether the warning occurred at the first movement after setting the servo parameter (SV028).	Movement is possible several times without a warning.	Investigate item 4.				
		The warning occurred at the first movement.	Investigate item 3.				
3	Carry out DC excitation again, and check the servo parameter (SV028) setting value.	The SV028 setting value is the same with the previous and current DC excitation.	Investigate item 4.				
		The SV028 setting value is different with the previous and current DC excitation.	Set SV028 to the current DC excitation value. ↓ If the problem is not resolved, check investigation item 4.				
4	Wiggle the connectors by hand to check whether the MDS-B-HR connectors (unit side, HR side and MD side) are disconnected.	The connector is disconnected (or loose).	Correctly install.				
		The connector is not disconnected.	Investigate item 5.				
5	Turn the power OFF, and check the connection of the detector cables (between drive unit I/F units and between I/F unit and pole detector) with a tester.	There is a connection fault.	Replace the communication cable.				
		The connection is normal.	Investigate item 6.				
6	Connect with another normal axis unit (or MDS-B-HR) and check whether the fault is on the unit side or MDS-B-HR (MDS-B-MD) side.	The alarm is on the unit side.	Replace the drive unit.				
		The alarm is on the MDS-B-HR (MDS-B-MD) side.	Investigate item 7.				
7	Check if there is any abnormality in the unit's ambient environment. (Ex. Ambient temperature, noise, grounding)	No abnormality is found in particular.	Replace MDS-B-HR (linear scale or MDS-B-MD).				
		An abnormality was found in the ambient environment.	Take remedies according to the causes of the abnormality. Ex. High temperature : Check the cooling fan. Incomplete grounding : Additionally ground.				

8. Troubleshooting

Alarm No. 9C	HR unit pole warning: An error was detected in the pole position data of the MDS-B-HR connected to the MAIN side after passing the Z phase.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "86" items.					

Alarm No. 9D	HR unit pole warning (SUB): An error was detected in the pole position data of the MDS-B-HR connected to the SUB side after passing the Z phase.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check the alarm No. "86" items.					

Alarm No. E1	Overload warning: An level 80% of the overload alarm 1 was detected.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the motor is hot.	The motor is not hot. The motor is hot.	Check the alarm No. "50" items. Investigate item 2.			
2	Check whether there is a problem during acceleration/deceleration operation.	Operation is possible without problem. There is a problem in the operation.	1. If possible, ease the operation pattern. 2. If an alarm does not occur with continued operation, continue in this state. Check investigation items 3 and following of alarm No. "50".			

Alarm No. E4	Parameter error warning: A parameter exceeding the setting range was set.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	-
	Investigation details	Investigation results	Remedies			
1	Set the correct values following the parameter adjustment procedures.					

Alarm No. E7	CNC emergency stop: An emergency stop signal is being sent from the CNC, or an alarm is occurring in another axis.		Alarm check timing			
			f1	f2	f3	f4
			-	○	○	○
	Investigation details	Investigation results	Remedies			
1	Check whether the CNC side emergency stop switch has been applied.	The emergency stop state is entered. Emergency stop has been canceled.	Investigate item 2. Investigate item 3.			
2	Cancel the emergency stop.	Operation starts normally. "E7" remains displayed.	Normal Investigate item 3.			
3	Check whether the terminator or battery unit is connected, or whether these are loose.	Pinpoint the cause of the fault. Normal	Correct the fault. Check the alarm No. "34" items.			



CAUTION

Do not drive the motor with a drive unit having a capacity exceeding the motor capacity. The motor could be demagnetized.