8.4 Alarm and Warning Table

Alarm No.	Abbr.	Name	Description	Motion (Note)
10	UV	UNDER VOLTAGE	This alarm occurs if input supply voltage goes down below the specified level, or if instantaneous power failure lasting for over 15 ms occurs.	A
12	ME1	MEMORY ERROR 1	This alarm occurs if read from, or write to internal memory for controller system control does not go normally (memory is checked when the control unit is turned on).	A
13	CE	EXT. CLOCK ERROR	This alarm occurs if error occurs in access time (2-ports memory), due to failure in external clock, during NC mode operation with FR-SGJ connected to M300 series CNC through bus line.	A
15	ME2	MEMORY ERROR 2	This alarm occurs if 2-port memory for data communication (when FR-SGJ is connected to M300 series CNC) does not function properly.	A
21	NS2	NO SIGNAL SPINDLE ENC.	This alarm occurs if signal from encoder for orientation is not input, or not at normal level.	A
22				
23	OSE	ERROR EXCESS SPEED	This alarm occurs if deviation of true motor speed is excessively large from command speed.	A
24	MCF	MAIN CIRCUIT FAULT	This alarm occurs if main circuit does not work properly.	A
25	BCF	BRAKING CIRCUIT FAULT	This alarm occurs in case of trouble with braking circuit.	A
27	CPUE	CPU ERROR (DIVISION ERROR)	This alarm occurs if error occurs in arithmetic operation (division) by CPU, due to improperly set parameter.	A
30	GF	GROUND DETECT	This alarm occurs if either the amp output U, V, W phases is grounded.	A
31	OS	OVER SPEED	This alarm occurs if motor speed exceeds 115% of the maximum motor speed.	A
32	OC	OVER CURRENT	This alarm occurs if current larger than the specified maximum current flows into FR-SGJ.	A
33	OV	OVER VOLTAGE	If voltage on main circuit capacitor exceeds the specified maximum level, due to regenerative energy, during deceleration of motor.	A
34	DP	DATA PARITY	This alarm occurs if parity error occurs in data transmission between M300 series CNC and FR-SGJ (when FR-SGJ is connected to CNC through bus line).	A
35	DE	DATA ERROR	This alarm occurs when error movement command has been given from the CNC (when FR-SGJ is connected to CNC through bus line).	A
36	TE	TRANSFER ERROR	This alarm occurs if data transfer does not go satisfactorily (when FR-SGJ is connected to CNC through bus line.)	A
37	PE	PARAMETER ERROR	This alarm occurs if set parameter value is out of the permissible range (this check is made when the control unit is turned on).	A

Continued on the next page.

Alarm No.	Abbr.	Name	Description	Motion (Note)
45	OHF	OVER HEAT AMP. (CONTROL UNIT)	This alarm occurs if ambient temperature is excessively high, or main circuit semi-conductor overheats, due to overload or stop of cooling fan.	A
46	OHM	OVERHEAT MOTOR OR RESISTOR UNIT	This alarm occurs if motor overheats due to overload or stop of motor cooling fan.	A
51	OL	OVERLOAD ALARM	This alarm occurs when operated continuously longer than the set time with an excessive load.	A
52	OD	ERROR EXCESS POSITION	This alarm occurs if difference (error) between referenced stop position and true stop position is excessively large.	A
55	EMA	EXTERNAL EMERGENCY STOP ALARM	This alarm occurs when an emergency stop signal is input from external sources when the external emergency stop signal (alarm signal output) is valid.	B1
56	OA	OTHER AXIS ALARM	This alarm occurs if trouble occurs with other servo axis (when FR-SGJ is connected to CNC through bus line).	A
57	OPE	OPTION CARD ERROR	This alarm occurs if "sync. TAP", "C-axis control" or "index" signal is input though FR-SGJ is not equipped with the corresponding option card.	A
W1	WOL	WARNING OVERLOAD	This warning occurs when a level over 80% of the overload alarm is detected.	C
E4	WPE	WARNING PARA-METER ERROR	This warning arises if parameter setting is beyond the specified limit.	C
E7	NCE	NC EMERGENCY	• If emergency stop signal is input to FR-SGJ from CNC (when FR-SGJ is connected to CNC through bus line), this warning is given. • If emergency stop signal is input from external signal source (when parameter #42 (BSL) is set so that external emergency signal is acceptable), this warning is given.	B2

Note: If protective function listed above is activated, Alarm No. is displayed by 7-segment and the following occurs.

Motion A : Control unit base current is shut off, main circuit contactor opens and the motor stops after coasting. Fault signal contact FA-FC opens.

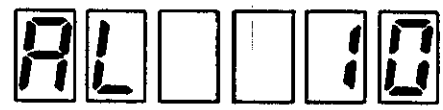
Motion B : Motor is decelerated by regenerative brake and stops. After motor stops, base current is interrupted. In this case, whether fault signal contact FA-FC opens or not depends on parameter setting.
B1: Contact FA-FC opens
B2: Contact FA-FC closed

Motion C : Only warning is displayed (operation can be continued).

8.5 Countermeasures against Each Phenomenon

8.5.1 "Alarm/warning" display by LED

(1) UNDER VOLTAGE



This alarm appears if voltage under 170V lasts for longer than 15 ms.

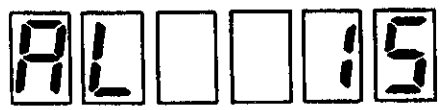
Cause	Checkup	Remedy
Power supply capacity insufficient	This alarm appears when speed is changed or load is excessive.	Increase capacity of power supply.
Interval between turning off and on AC power supply short	AC power supply should be turned on in minimum 1 sec. after turning off.	Prolong AC power supply off time.
Card SGJ-CA/CB not in good condition	It should be checked if this alarm is reproducible. Replace the card SGJ-CA/CB in use with a new card to check if the same alarm occurs again. Use the previous card SGJ-CA/CB again to check if the same alarm occurs again.	Replace the card SGJ-CA/CB.

(2) MEMORY ERROR 1

This display appears if reading from, or writing to the memory incorporated in the controller cannot be done successfully.

Cause	Checkup	Remedy
ROM loaded improperly	Visually check that all pins of ROM are put into the socket properly.	Load ROM properly.
Card SGJ-CA/CB trouble	Check card SGJ-CA/CB.	Replace the card SGJ-CA/CB.

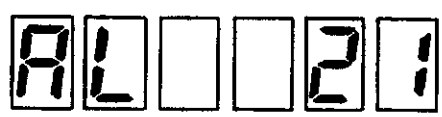
(3) MEMORY ERROR 2



This display appears if the buffer for bus-connection with M3/L3 CNC, M300 series, does not function properly.

Cause	Checkup	Remedy
Bus-connection cable defective	Replace the cable in use with a new cable to check.	Replace the cable.
Card SGJ-CB trouble	After making sure this alarm is reproducible, replace the card SGJ-CB in use with a new card to check.	Replace the card SGJ-CB.

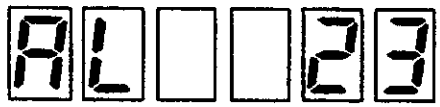
(4) NO SIGNAL SPINDLE ENC.



This alarm appears if signal from the orientation encoder is not input correctly.

Cause	Checkup	Remedy
Trouble with encoder or encoder cable	Check waveform of signal feed back from encoder, using a synchroscope. Card SGJ-OR Card SGJ-DA CH3 ~ CH7	Replace the defective encoder or cable.
Mis-connection of cable	Visual check	Correct the connection.
Error in parameter setting	Although the control system has no encoder type orientation function, parameter OSL (#41) is set to "1".	Set parameter OSL (#41) to "0".
Card trouble	After making sure this alarm is reproducible, replace the cards SGJ-OR and SGJ-DA to check.	Replace the cards SGJ-OR and SGJ-DA.

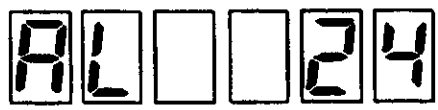
(5) ERROR EXCESS SPEED



This alarm occurs if deviation of true motor speed from the specified speed is larger than 50 rpm, lasting for 12 sec. or longer.

Cause	Checkup	Remedy
Motor wiring improper	Motor cable connection (U, V and W) is not correct.	Connect, the motor cable in correct phase sequence.
Error in parameter setting	"Motor constant" parameter [MSL] (#2) setting does not meet the motor used.	Change parameter setting.
GD^2 excessively large	It takes more than 6 sec. for acceleration to the maximum motor speed from zero speed.	Increase setting of parameter [SETM] (#52).
Overload	Load (read on load meter) is larger than 120%.	Decrease the load. Lighten the cutting amount.
Trouble with CON2 cable or motor built-in encoder	Rotate the motor shaft with "ready" signal turned off with hand and check speed indication by the LED. (Lower value, excess variation)	Replace the CON2 cable or motor built-in encoder.
Trouble with card SGJ-CA/CB	After making sure this alarm is reproducible, replace the card SGJ-CA/CB in use with a new card to check.	Replace the card SGJ-CA/CB.
Trouble with control unit	Speed can not be increased to desired speed in open loop control mode. Check speed indication by the LED.	Replace the control unit.

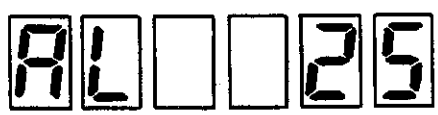
(6) MAIN CIRCUIT FAULT



This alarm occurs if the main circuit is not in good condition.

Cause	Checkup	Remedy
Trouble with card SGJ-CA/CB	Replace the card SGJ-CA/CB with a new card to check.	Replace the card with a new one.
Trouble with control unit	If the same alarm occurs again with a new card SGJ-CA/CB, the control unit is likely to be defective.	Replace the control unit.

(7) BREAKING CIRCUIT FAULT



This alarm occurs if the braking circuit does not function properly.

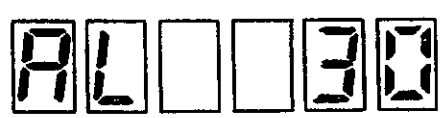
Cause	Checkup	Remedy
Trouble with card SGJ-CA/CB	Replace the card SGJ-CA/CB with a new one to check.	Replace the card SGJ-CA/CB.
Trouble with control unit	If the same alarm occurs again with a new card SGJ-CA/CB, the control unit is likely to be defective.	Replace the control unit.

(8) CPU ERROR

This alarm occurs if in the CPU calculation a calculation that could be divided by 0 was carried out or the division answer overflowed.

Cause	Checkup	Remedy
The gear ratio parameter setting is mistaken.	Check and compare the enclosed "Parameter setting list".	Properly set the parameter.
The parameter regarding the speed loop gain is mistaken VKP, VKI, ORS1.	Check and compare the enclosed "Parameter setting list". When bus line connected with M300 and M3/L3, check the NC display spindle parameter also.	Properly set the parameter.
The bus-connection connector (CN1A) joint with the NC is not securely connected.	Will be corrected when the cable is reinserted.	Secure the connector connection and the tightening of the fixing screws.
Error in the cable bus-connecting with the NC.	Will be corrected when the cable is replaced.	Replace the cable.
When using the special motor (when #02 is set to 2), the motor constant #81 to #AF is incorrect.	Check and compare the enclosed "Parameter setting list".	Properly set the parameter.

(9) PHASES GROUND DETECT



This alarm occurs if either the amp output U, V, W phases is grounded.

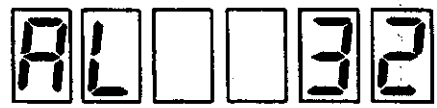
Cause	Checkup	Remedy
Error in the motor output wire.	Check the resistivity value between the terminal block TE1 UVW terminals and the motor earth with a tester.	Replace the defective wire.
Error in the card.	Will be corrected when the SGJ-CA/CB card is replaced.	Replace the SGJ-CA/CB card.

(10) OVER SPEED

This alarm appears if motor speed exceeds 115% of the rated speed.

Cause	Checkup	Remedy
Parameter setting improper	The motor maximum speed setting is under 1000 rpm.	If the setting is too low, speed detection range is narrow (15%) and therefore this alarm is likely to occur. Increase setting of maximum speed parameter [TSP] (#31).
Speed detection signal distorted by noise	Observe the signal from CH17 and 16 (common CH22) of SGJ-CA/CB, using an oscilloscope, to check for signal. Check if shielding of cable between motor and CON2 is disconnected.	Use a continuous cable to assure continuous shielding.
Trouble with motor built-in encoder	Observe the signal from CH17 and 16 (common CH22) of SGJ-CA/CB, using an oscilloscope. When motor runs at 1500 rpm, the signal should be sinusoidal-wave signal at the following frequency: $\frac{1500}{60} \times 256 = 6.4$ kHz	Replace the motor built-in encoder.
Trouble with position loop	This alarm occurs due to out of control in sync. TAP, sync. control, or other position loop operation.	Set parameter [ORS2] (position loop detector direction) properly.
	Gear ratio parameter GRA1 to GRA4, GRB1 to GRB4, is not set properly (parameter setting is smaller than 100).	Set gear ratio parameter 100 or more (refer to "Parameter setting list)".

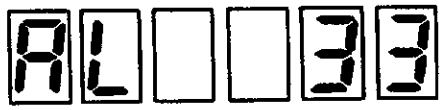
(11) OVER CURRENT



This alarm appears if overcurrent flows to the control unit.

Cause	Checkup	Remedy
Motor constant parameter set improperly	Parameter [MSL] (#2) setting does not meet motor in use.	Set parameter [MSL] (#2) properly.
Overload	Load (read on load meter) is larger than 120% of rated load.	Reduce the load.
Motor wiring improper	Motor wiring is incorrect. • Loose terminal screw • U, V or W lead grounded • Short-circuit of motor leads (U, V, or W)	Correct motor wiring.
Motor coil layer-short, or grounding	Measure insulation resistance. Insulation resistance should be less than 1 MΩ.	Replace the motor.
Power supply capacity insufficient	Check if AC input voltage (R, S, T) goes down below 170V during acceleration/deceleration or load state.	Use power supply of larger capacity (refer to the Standard Specification). Operation FR-SGJ with limited torque and reduced output.
Trouble with card SGJ-CA/CB	Make sure the same alarm is reproducible and then replace the card SGJ-CA/CB in use with a new one to check.	Replace the card SGJ-CA/CB.
Trouble with control unit	If the same alarm occurs again even when a new card SGJ-CA/CB is used, the control unit is likely to be defective.	Replace the control unit.

(12) OVER VOLTAGE



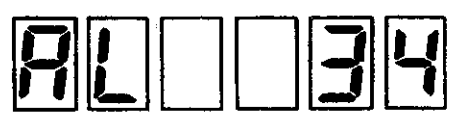
This alarm appears if voltage across rectifier capacitor is excessive (due to excessively large regenerative energy).

Cause	Checkup	Remedy
Wrong wiring	Resistor unit is not connected to FR-SGJ.	Connect resistor unit.
Motor constant parameter set improperly	Parameter [MSL] (#2) setting does not meet motor in use.	Set parameter [MSL] (#2) properly.
Trouble with resistor unit	Resistance measured across R1 and R2 of resistor unit is improper, or zero (open circuit). 30Ω for 2.2K and 3.7K control unit 15Ω for 5.5K and 7.5K control unit	Replace the resistor unit.
Trouble with card SGJ-CA/CB	Replace the card SGJ-CA/CB card with a new one to check.	Replace the card SGJ-CA/CB.
Trouble with control unit	The control unit will be defective if the same alarm occurs again even after the remedy described above.	Replace the control unit.

(13) DATA PARITY and TRANSFER ERROR

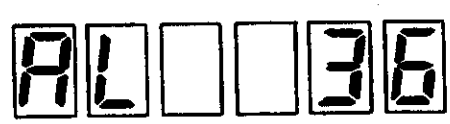
DATA PARITY

This alarm appears if parity error occurs in data communication between M300 series M3/L3 CNC and FR-SGJ.



TRANSFER ERROR

This alarm appears if data are not transferred correctly in data communication between M300 series M3/L3 CNC and FR-SGJ.



Cause	Checkup	Remedy
Connector engaged loosely	Cable connector is not engaged securely or connector mounting screw is loose.	Engage connector securely and tighten all screws.

Continued on the next page.

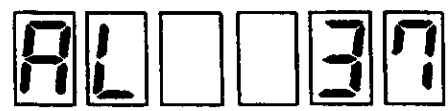
Cause	Checkup	Remedy
Trouble with terminal resistor	Check if this alarm occurs on the servo axis when spindle amplifier is disconnected and the resistor is connected to servo axis.	Replace the terminal resistor.
Trouble with bus-line cable	Exchange cable for servo axis control with cable for spindle amplifier to check.	Replace the bus-line cable.
Trouble with card SGJ-CB	Check if alarm disappears if the card SGJ-CB is replaced with a new one.	Replace the card SGJ-CB.

(14) DATA ERROR and PARAMETER ERROR

DATA ERROR

This alarm appears when movement command is larger than the specified limit in operation of FR-SGJ connected to M300, M3/L3 CNC.

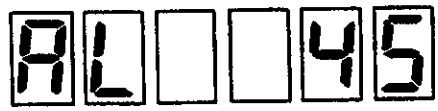
PARAMETER ERROR



This alarm appears when parameter setting is larger than the specified limit in operation of FR-SGJ connected to M300, M3/L3 CNC.

Cause	Checkup	Remedy
Parameter setting error Programming error	1. Check that spindle parameter settings meet the order list. 2. Check the program.	1. Correct parameter setting. 2. Correct program.
Parameter setting improper	The parameter GRA 1 to 4 and GRB 1 to 4 values are below 100 on the spindle parameter display.	Change the setting value so the GRA 1 to 4 and GRB 1 to 4 values are over 100.

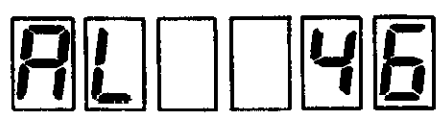
(15) OVER HEAT AMP.



This alarm appears if thermal protector of control unit (installed on cooling fan).

Cause	Checkup	Remedy
Overload	1. Check motor for load condition. 2. Check motor start/stop frequency.	1. Lighten load. 2. Decrease start/stop frequency.
High ambient temperature	Measure the ambient temperature.	If the ambient temperature is higher than 55°C, appropriate provision should be made to cool.
Trouble with control unit cooling fan	Cooling fan does not work properly or remains stopped.	Replace the cooling fan.
Heat radiating fins dirty	Check if heat radiating fins on the back of FR-SGJ are heavily dirtied.	Clean the fins.
Fuse blown out	Check if fuse is blown out.	Replace the fuse.
	If new fuse is blows out again.	Refer to "Alarm 46".

(16) OVER HEAT MOTOR OR RESISTOR UNIT



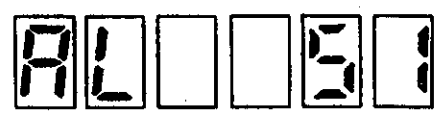
OHS1/OHS2 discontinuous

Cause	Checkup	Remedy
24V power supply short circuit	Check if the alarm disappears when the power is turned on with CON1, CON5, CONC and CONCA disengaged.	Correct the wiring. Open collector/emitter settings should meet input interface for speed command and position command 12-bit signals. (Refer to the STANDARD SPECIFICATION)
Wrong wiring	Voltage is not output across terminals A and B (at top of FR-SGJ).	Correct the wiring.

Continued on the next page.

Cause	Checkup	Remedy
Overload	1. Check motor for load condition. 2. Check frequency of start/stop.	1. Lighten load. 2. Reduce start/stop frequency.
Trouble with motor cooling fan	Fan does not run satisfactorily, or remains stopped.	Repair or replace the fan.
Motor air inlet clogged	Check cooling air flow.	Clean the air inlet.
Trouble with motor thermosensor (thermoswitch)	Check if the thermosensor does not reset when the motor fan is operated for 15 to 16 min. with the motor stopped.	1. Shortcircuit OHS1–OHS2 to continue operation (provisional remedy). 2. Replace the motor.
Fuse blown out	Check if the fan remains stopped due to blown out fuse.	Replace the fuse.
	If the new fuse is blown out again, 1. Check wiring of motor cooling fan and resistor unit cooling fan (short circuit, grounding fault, etc.).	Replace the wiring with new one.
Trouble with resistor unit cooling fan	Check if resistor unit cooling fan is in standstill or does not run satisfactorily.	Replace the cooling fan.
Trouble with resistor unit thermosensor (thermoswitch)	Check if thermosensor does not reset when the cooling fan is operated for 15 to 16 min. with the motor stopped.	Replace the resistor unit.

(17) OVERLOAD alarm



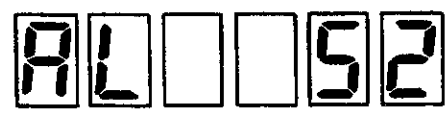
This alarm appears when operated continuously longer than the set time with an excessive load.

Cause	Checkup	Remedy
Was used exceeding the motor continuous rating.	The motor is hot when touched. Try to decrease the load. Decrease the heavy cutting time ratio.	Lighten the load.
The motor is locked.	The motor stops with heavy cutting. The load meter is larger than 120%.	Lighten the load.

Continued on the next page.

Cause	Checkup	Remedy
Parameters #F8 OLL, #F9 OLT are inappropriate.	Check the standard setting value. OLL: 110 OLT: 600	Correct to the parameter as shown at the left.
Error in the motor wiring.	The wiring around the motor is incorrect. The U, V, W wiring is incorrect. The U, V, W wiring is short-circuiting.	Correct the wiring.
Error in the CON2 cable or motor built-in encoder.	When the motor is turned manually with the "ready" signal off, the 7 segment LED rotation number display is incorrect. (The value is 0 or small. The changes in the value is great.)	Replace either the CON2 cable or motor built-in encoder.
Error in the card SGJ-CA/CB.	Will be corrected when the card SGJ-CA/CB is replaced.	Replace the card SGJ-CA/CB.

(18) ERROR EXCESS POSITION



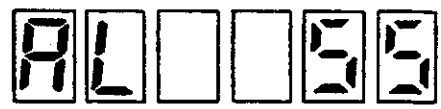
This alarm appears if deviation of true stop position from commanded stop position is excessive in orientation stop operation or position control loop operation.

Cause	Checkup	Remedy
Parameter (orientation of encoder) setting improper.	Check if alarm is removed when bit 8 of parameter [ORS2] is inversed in encoder orientation.	Set parameter [ORS2] properly.
	Check if alarm is removed when bit E of parameter [ORS] is inversed.	
Encoder orientation adjustment improper	Check if alarm is removed when value of parameter [CSP] is halved.	Set parameter [CSP] properly.
Sync. TAP adjusted improperly	Check if alarm is removed when sync. TAP command time constant is increased.	Set time constant TAP-Tℓ properly.
Trouble with encoder	Stop position is valiable in each oriented stop (encoder type). (Check the encoder shaft.)	Replace the encoder.

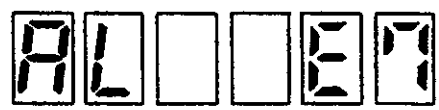
Continued on the next page.

Cause	Checkup	Remedy
Trouble with card SGJ-OR, SGJ-DA	Check if alarm is removed when card SGJ-OR, SGJ-DA is replaced with a new one.	Replace card SGJ-OR, SGJ-DA.
Parameter adjustment	The alarm does not occur when parameter [PG1] and [PG2] are increased two-fold.	Adjust [PG1] [PG2] [CSP] following the section 3.8 Adjustment of Oriented Function.
Belt slip	The belt slips from the oil.	Wipe off the oil on the belt and pulley, and make it not slip.

(19) EXTERNAL EMERGENCY STOP alarm



(20) EMERGENCY STOP, EXTERNAL EMERGENCY STOP



Cause	Checkup	Remedy	Remarks
Parameter mis-setting	The external emergency stop is treated as a warning instead of an alarm.	By setting the parameter #42 [BSL] bit 0 to 0, the emergency stop "E7" that does not handle alarms can be changed.	
Specifications change	The CON1 emergency stop signal is not used.	Parameter #42 bit 1: 1 → 0	Bus-line connection
		Parameter #60 ~ 64 (Auxiliary input) Data "4" → "0" (Refer to the STANDARD SPECIFICATION for details.)	S-analog type

8.5.2 Troubles that are not displayed by LED

(1) No alarm display appears, but motor does not start.

Cause	Checkup	Remedy
Miswiring or wire disconnection	Check the wiring.	Correct the wiring.
Input power supply (voltage improper	Check the input power supply (200V 50Hz or 200 to 230V 60Hz in all 3 phases).	Use the specified power supply.
Control power supply improper	Measure the control power supply voltage, using a multimeter and check terminals.	Replace card SGJ-CA/CB.
Required signal not input	Check if contactor closes (clicks when contactor is closed).	Input "ready" signal.
	Check that start signal (SRN, SRI or ORC) is input within 1 sec. after "ready" signal is input.	Signal input sequence should be changed so that start signal is input in 2 to 3 sec. after "ready" signal turns on. (For details, see specifications.)
Speed command signal remains zero. (Input signal is improper.)	Rotate motor shaft to make sure motor is under "servo lock" condition. 1. Signals SRN and SRI turn on at the same time. 2. "slimit" or "smax" (NC display parameter) is set at "0". 3. "Analog/digital select" signal is on. 4. The input interface (open collector, emitter) setting (connection) with the speed selection signal function specifications does not match the specifications.	1. Change the program so that SRN and SRI do not turn on at the same time. 2. Set "slimit" and "smax" properly. 3. Turn off "analog/digital select" signal. 4. Set (connect) according to the input interface.
Orientation signal ON	Orientation signal (ORA) is on.	Turn off orientation signal.
Parameter inappropriate	Rotates when the cushion time parameter [CSN] is set to the standard value 300 ms.	Set [CSN] and [TSP] to the appropriate value.
	Rotates when the motor maximum speed parameter [TSP] is set to over 2000 rpm.	

(2) No alarm display appears, but motor rotates slowly (acceleration is impossible), or large sound arises in motor

Cause	Checkup	Remedy
Miswiring of motor	Check wire connection to output terminals U, V and W of FR-SGJ (phase sequence).	Correct the wiring.
Input power supply (voltage) improper	Check the input power supply in all 3 phases.	Use the correct specified power supply.
Speed command signal input from external signal source is incorrect.	Check if motor speed does not increase in accordance with speed command signal.	Remedy the external speed command signal circuit.
Trouble with motor built-in encoder/CON2 cable or motor built-in encoder	When motor shaft is turned by hand with "ready" signal turned off, speed display by the 7-segment LED readout is not in accordance with motor shaft rotation.	Check the motor built-in encoder/CON2 cable. Replace the motor built-in encoder.

(3) True speed does not meet command speed.

Cause	Checkup	Remedy
Adjustment improper	Adjustment is not made for S-analog speed command.	Correct spindle parameter setting (NC display). (Refer to Item 3.5)
External speed command signal improper	Voltage of speed command signal from external signal source does not change linearly from 0V to 10V. (Analog input: CH31 to AG)	Remedy the external speed command signal circuit.
S command code improper	BCD code is output instead of binary code for S command (machine parameter "Sbin" is set at "0").	Binary code should be used for S command. (Set "Sbin" to "1")
A different speed command is valid.	Up-to-speed signal is ON. • The S-analog command is valid.	
	• The digital speed command is valid.	Check the digital speed command type (#05 DSR).
	• The speed selection signal function is selected. (Parameter #10DTYP = 1)	Review the CONC, CONCA signals.
	• The S-analog signal is input with the bus-line connection.	S-analog signals cannot be input with bus-line connection.
	• The polygonal cutting function is valid. (Parameter #10DTYP = 2)	Turn parameter #10DTYP = 0, and run.

(4) Required torque cannot be obtained.
Perform check in accordance with (1), (2) and (5).

(5) It takes longer time to start the motor.

Cause	Checkup	Remedy
Load increased	Check the load condition.	Lighten the load.

(6) "Up-to-speed" signal is not output (for DIO interface with NC)

Cause	Checkup	Remedy
Trouble with output circuit of card SGJ-CA	Check that "up-to-speed" flag (external output in DIAGNOSIS mode) turns on when motor speed reaches the preset speed. If the flag turns on, the output circuit is defective.	Replace the card SGJ-CA.

(7) Data sent from the NC is not accepted.
Interlock turns on because "up-to-speed" signal is not output properly.
Check the control sequence and perform check in accordance with (6).

(8) "Speed detection" signal is not output (for DIO interface with NC).

Cause	Checkup	Remedy
Trouble with card SGJ-CA	Check that "speed detection" flag (external output in DIAGNOSIS mode) turns on when motor speed is below the preset speed. If the flag turns on, the output circuit is defective.	Replace the card SGJ-CA.

(9) "Zero speed" signal is not output (for DIO interface with NC).

Cause	Checkup	Remedy
Trouble with card SGJ-CA	Check that "zero speed" flag (external output in DIAGNOSIS mode) turns on when motor speed is below 25 rpm or 50 rpm. If the flag turns on, the output circuit is defective.	Replace the card SGJ-CA.

(10) Speed range cannot be changed (for DIO interface with NC).
"Speed detection" and/or "zero speed" signal is not output properly.
Perform check in accordance with (8) an (9).

(11) The motor stops when loaded.

Cause	Checkup	Remedy
Overload	The load meter shows over 120%.	Decrease the load.
The torque is limited.	Will rotate correctly when parameter [TLM] is set to 100.	Turn off the torque limit signal. • Connector CON1 47, 48 pin • Check the bus-line connection signal (refer to the Standard Specifications unit-to-unit connection diagram.)

(12) The sound and vibration is great.

Cause	Checkup	Remedy
Adjust the alarm 23 section.		
Refer to "(14) The gear sound and belt flapping sound is great."		

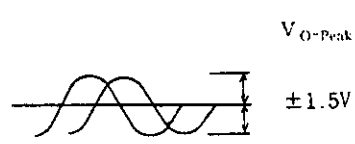
(13) The operation during deceleration is not correct.
Enters the free run state midway.

Cause	Checkup	Remedy
The SET signal is OFF.	The cushion time is increased by 10 seconds, and still enters the coasting state with (parameter = [CSN]) during deceleration (at the same time before changing the cushion time.)	Replace the SET signal relay.
The belt slips.	• The output signal ZS enters the coasting state after turning ON. • When the S command is set to zero in the M03 state, the spindle continues to rotate at the point where the motor stopped. • Correct when the motor unit singly decelerates.	• Readjust the belt tension. • Wipe off any dirt on the belt. • Replace the belt.

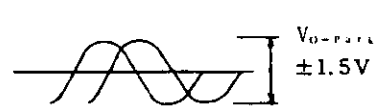
(14) The gear sound and belt flapping sound is great.

Cause	Checkup	Remedy
Dynamic unbalance.	The same sound occurs when the motor is put into the coasting state from running at the maximum speed. (Refer to Item 8.2)	Review the dynamic balance of the spindle, motor axis pulley, and middle axis.
There is an oscillation point in the machine.	In the same coasting state as above, the noise increases at a certain speed.	Increase the machine rigidness and increase the oscillation frequency.
Great backlash	A banging of the gear occurs only once during deceleration and acceleration.	Shorten the backlash.

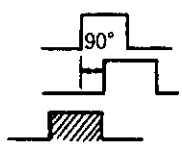
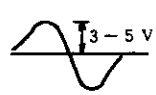
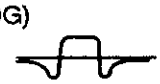
(15) The rotation is unstable.

Cause	Checkup	Remedy
The speed loop gain is inappropriate.	Large GD^2_L. (GD^2 is more than ten times the motor GD^2_M.) Will improve when parameter VKI is changed to 6.	Select the maximum value for parameter VKI. Raise VKI, and set the value that is 5% that of the value when the instability occurs.
Speed command (S-analog) noise.	The 7-segment display speed command is also unstable.	Enforce S-analog signal noise countermeasures.
Motor PLG signal noise	Measure CH31, 32 with an oscilloscope and the noise is superimposed.	Enforce motor PLG signal noise countermeasures.
Error in the motor built-in encoder	Signals on CH17 and 16 (CH22 for common) of card SGJ-CA/CB do not offset accurately. Normal waveform  Peak voltage of signal is not within ±1.5V.	Replace the motor.

(16) Speed cannot be increased over a certain speed.
Check the maximum speed setting.
Check if "override" signal is input.
Check if value of the load meter is excessively large (check the load conditions).

Cause	Checkup	Remedy
Dynamic unbalance	Large vibration and noise occur during coasting of motor.	Balance the control system and motor dynamically.
Insulation resistance decreased	Disconnect the power cable (R, S, T) and measure insulation resistance, using 500V megger (each grounding terminal screw should have been unfastened.) (a) Between entire main circuit and ground ..... At least 20 MΩ (Terminals R, S, T, U, V, W, MS1 and MS2, and E) (b) Between control circuit COM and ground ..... At least 20 MΩ (Terminal CH22 of card SGJ-CA/CB and E) (c) Between entire main circuit and control circuit COM ..... At least 20 MΩ	If insulation resistance is found decreased, identify the part where insulation is deteriorated and remedy.
Trouble with motor bearing	Turn the motor by hand to check.	Replace bearing.
Motor mounting screws loose	Check motor mounting screws for looseness.	Retighten screws.
Motor shaft runout	Check if any trace of physical damage is found on motor shaft.	Repair or replace the motor.
"Speed detection" signal noise	Signal on CH17 and 16 (CH22 for common) of card SGJ-CA/CB is distorted by noise.	Shield the cable between CON2 and motor built-in encoder (without discontinuity). Use a cable of larger size for motor.
S-analog speed command signal noise.	Signal on CH31 (CH22 for common) of card SGJ-CA is distorted by noise.	Shield the signal line properly.
Error in motor built-in encoder	Signals on CH17 and 16 (CH22 for common) of card SGJ-CA/CB do not offset accurately. Normal waveform  Peak voltage of signal is not within ±1.5V.	Replace the motor built-in encoder.

(17) Speed can be controlled normally, but spindle cannot be stopped in position (Orientation).

Cause	Checkup	Remedy
Speed can be decreased to "orientation stop" speed, but motor does not stop.	Check if position feedback encoder or magnesensor is in good condition. Run the motor under speed control to check position feedback signal. Check the signals on the following check pins of cards SGJ-OR, SGJ-DA while the motor is running forward. CH5 – CH8(DG) CH6 – CH8(DG) CH7 – CH8(DG) (Mark pulse)  Check on the following pins of card SGJ-OR, SGJ-DA while the motor is running forward. CH1 – CH8(DG)  CH2 – CH8(DG)  CONB(10) – CH8(DG) 	Replace the position detector or replace card SGJ-OR, SGJ-DA.
Orientation stop position in forward rotation deviates from orientation stop position in reverse rotation (during multipoint orientation stop).	Backlash in encoder is large.	Reduce the backlash.
Hunting occurs at stop.	Decrease parameter [PG1] and [PG2] settings to check.	Parameter #22 [PG2] Parameter #21 [PG1] Set these parameters properly.
Servo rigidness (stability) poor	Check gear ratio settings. Check parameter setting.	Increase speed control loop constant. ([VKP], [VKI] or [ORSI])
Overshoot in speed control		Decrease speed control loop constant. ([VKI])