6.3 Drive Alarms, Faults, and Errors

◆ Types of Alarms, Faults, and Errors

Check the digital operator for information about possible faults if the drive or motor fails to operate. *Refer to Using the Digital Operator on page 157*.

If problems occur that are not covered in this manual, contact the nearest Yaskawa representative with the following information:

- Drive model
- Software version
- Date of purchase
- Description of the problem

Table 6.8 contains descriptions of the various types of alarms, faults, and errors that may occur while operating the drive.

Table 6.8 Types of Alarms, Faults, and Errors

Type	Drive Response
Faults	When the drive detects a fault: • The digital operator displays text indicating the specific fault and the ALM indicator LED remains lit until the fault is reset. • The fault interrupts drive output and the motor coasts to a stop. • Some faults allow the user to select the stopping method when the fault occurs. • Fault output terminals MA-MC will close, and MB-MC will open. The drive will remain inoperable until the fault is cleared. *Refer to Fault Reset Methods on page 447*.
Minor Faults and Alarms	When the drive detects an alarm or a minor fault: • The digital operator displays text indicating the specific alarm or minor fault, and the ALM indicator LED flashes. • The drive continues running the motor, although some alarms allow the user to select a stopping method when the alarm occurs. • A multi-function contact output set to be tripped by a minor fault (H2- □□ = 10) closes. If the output is set to be tripped by an alarm, the contact will not close. • The digital operator displays text indicating a specific alarm and the ALM indicator LED flashes. Remove the cause of the problem to reset a minor fault or alarm.
Operation Errors	An operation error occurs when parameter settings conflict or do not match hardware settings (such as with an option card). When the drive detects an operation error: • The digital operator displays text indicating the specific error. • Multi-function contact outputs do not operate. The drive will not operate the motor until the error has been reset. Correct the settings that caused the operation error to clear the error.
Tuning Errors	Tuning errors occur while performing Auto-Tuning. When the drive detects a tuning error: • The digital operator displays text indicating the specific error. • Multi-function contact outputs do not operate. • Motor coasts to stop. Remove the cause of the error and repeat the Auto-Tuning process.
Copy Function Errors	Copy Function Errors occur when using the digital operator or the USB Copy Unit to copy, read, or verify parameter settings. • The digital operator displays text indicating the specific error. • Multi-function contact outputs do not operate. Pressing any key on the digital operator will clear the fault. Investigate the cause of the problem (such as model incompatibility) and try again.

◆ Alarm and Error Displays

■ Faults

Table 6.9 gives an overview of possible fault codes. Conditions such as overvoltages can trip faults and alarms. It is important to distinguish between faults and alarms to determine the proper corrective actions.

When the drive detects a fault, the ALM indicator LED lights, the fault code appears on the digital operator, and the fault contact MA-MB-MC triggers. An alarm is present if the ALM LED blinks and the fault code on the digital operator flashes. *Refer to Minor Faults and Alarms on page 402* for a list of alarm codes.

Table 6.9 Fault Displays

Digital Operator Display		Name	Page
boL	boL	Braking Transistor Overload Fault	404
bUS	bUS	Option Communication Error	404
CE	CE	MEMOBUS/Modbus Communication Error	404
CF	CF	Control Fault	405
CoF	CoF	Current Offset Fault	405
CPF00, CPF01 <1>	CPF11 to CPF14	Control Circuit Error	405
	CPF16 to CPF19	Control Circuit Error	405
CPF02	CPF02	A/D Conversion Error	405
CPF03	CPF03	Control Board Connection Error	405
CPF06 <1>	CPF06	EEPROM Memory Data Error	406
CPF07, CPF08	CPF07, CPF08	Terminal Board Connection Error	406
CPF11	CPF11	RAM Fault	406
CPF12	CPF12	FLASH Memory Fault	406
CPF13	CPF13	Watchdog Circuit Exception	406
CPF14	CPF14	Control Circuit Fault	406
CPF16	CPF16	Clock Fault	406
CPF17	CPF17	Timing Fault	406
CPF18	CPF18	Control Circuit Fault	406
CPF19	CPF19	Control Circuit Fault	407
CPF20, CPF21 <2>	CPF20, CPF21	Control Circuit Error	407
CPF22	CPF22	Hybrid IC Error	407
CPF23	CPF23	Control Board Connection Error	407
CPF24	CPF24	Drive Unit Signal Fault	407
CPF25	CPF25	Terminal Board Not Connected	407
CPF26 to CPF35, CPF40 to CPF45 <3>	CPF26 to CPF35, CPF40 to CPF45	Control Circuit Error	407
dEv	dEv	Speed Deviation (for Control Mode with PG and OLV/PM without PG)	407
dv1	dv1	Z Pulse Fault	408
dv2	dv2	Z Pulse Noise Fault Detection	408
dv3	dv3	Inversion Detection	408
dv4	dv4	Inversion Prevention Detection	408
dv7	dv7	Initial Polarity Estimation Timeout	408

Digital Operator Display		Name	Page
dWFL	dWFL	DriveWorksEZ Fault	409
dWF1 <4>	dWF1	EEPROM Memory DriveWorksEZ Data Error	409
E5	E5	MECHATROLINK Watchdog Timer Error	409
EF0	EF0	Option Card External Fault	409
EF1 to EF8	EF1 to EF8	External Fault (input terminal S1 to S8)	409
Err	Err	EEPROM Write Error	410
FAn	FAn	Internal Fan Fault	410
FbH	FbH	Excessive PID Feedback	410
FbL	FbL	PID Feedback Loss	411
GF	GF	Ground Fault	411
LF	LF	Output Phase Loss	411
LF2	LF2	Current Imbalance	411
LF3 <3>	LF3	Power Unit Output Phase Loss 3	411
LSo <5>	LSo	LSo Fault	412
nSE	nSE	Node Setup Error	411
oC	oC	Overcurrent	412
oFA00 <6>	oFA00	Option Card Connection Error at Option Port CN5-A	413
oFA01	oFA01	Option Card Fault at Option Port CN5-A	414
oFA03 to oFA06	oFA03 to oFA06	Option Card Error Occurred at Option Port CN5-A	414
oFA10, oFA11	oFA10, oFA11	Option Card Error (CN5-A)	414
oFA12 to oFA17	oFA12 to oFA17	Option Card Connection Error (CN5-A)	414
oFA30 to oFA43	oFA30 to oFA43	Comm Option Card Connection Error (CN5-A)	414
oFb00 <6>	oFb00	Option Card Fault at Option Port CN5-B	414
oFb01	oFb01	Option Card Fault at Option Port CN5-B	414
oFb02	oFb02	Option Card Fault at Option Port CN5-B	414
oFb03, oFb11	oFb03, oFb11	Option card error occurred at Option Port CN5-B	414
oFb12 to oFb17	oFb12 to oFb17	Option card error occurred at Option Port CN5-B	414

Digital Operator Display		Name	Page
oFC00 <6>	oFC00	Option Card Connection Error at Option Port CN5-C	415
oFC01	oFC01	Option Card Fault at Option Port CN5-C	415
oFC02	oFC02	Option Card Fault at Option Port CN5-C	415
oFC03, oFC11	oFC03, oFC11	Option Card Error Occurred at Option Port CN5-C	415
oFC12 to oFC17	oFC12 to oFC17	Option Card Error Occurred at Option Port CN5-C	415
oFC50 to oFC55	oFC50 to oFC55	Option Card Error Occurred at Option Port CN5-C	415
oH	oH	Heatsink Overheat	415
oH1	oH1	Overheat 1 (Heatsink Overheat)	416
oH3	oH3	Motor Overheat Alarm (PTC input)	416
oH4	oH4	Motor Overheat Fault (PTC input)	416
oH5 <3>	oH5	Motor Overheat (NTC Input)	416
oL1	oL1	Motor Overload	417
oL2	oL2	Drive Overload	417
oL3	oL3	Overtorque Detection 1	418
oL4	oL4	Overtorque Detection 2	418
oL5	oL5	Mechanical Weakening Detection 1	418
oL7	oL7	High Slip Braking oL	418
oPr	oPr	External Digital Operator Connection Fault	418
oS	oS	Overspeed	418
ov	ov	Overvoltage	419
PF	PF	Input Phase Loss	420

Digital Operator Display		Name	Page
PGo	PGo	PG Disconnect (for Control Mode with PG)	420
PGoH	PGoH	PG Hardware Fault (when using PG-X3)	420
rF	rF	Braking Resistor Fault	420
rH	rH	Braking Resistor Overheat	421
rr	rr	Dynamic Braking Transistor	421
SC	SC	Output Short Circuit or IGBT Fault	421
SEr	SEr	Too Many Speed Search Restarts	421
STo	STo	Pull-Out Detection	422
SvE	SvE	Zero Servo Fault	422
THo <3>	THo	Thermistor Disconnect	422
UL3	UL3	Undertorque Detection 1	422
UL4	UL4	Undertorque Detection 2	422
UL5	UL5	Mechanical Weakening Detection 2	423
UnbC <3>	UnbC	Current Unbalance	423
Uv1 <3> <6>	Uv1	DC Bus Undervoltage	423
Uv2 <6>	Uv2	Control Power Supply Voltage Fault	423
Uv3 <6>	Uv3	Undervoltage 3 (Soft-Charge Bypass Circuit Fault)	424
Uv4 <3>	Uv4	Gate Drive Board Undervoltage	424
voF	voF	Output Voltage Detection Fault	424

<1> Displayed as CPF00 when occurring at drive power up. When one of the faults occurs after successfully starting the drive, the display will show CPF01.

<2> Displayed as CPF20 when occurring at drive power up. When one of the faults occurs after successfully starting the drive, the display will show CPF21.

<3> Detected in models 4A0930 and 4A1200.

<4> Available in drive software versions PRG: 1018 and later.

<5> This function prevents continuous operation in reverse when using high frequency injection (n8-57 = 1) in AOLV/PM (A1-02 = 6) with a motor for which no motor code has been entered (it does not only prevent reverse operation). Set L8-93, L8-94, and L8-95 to low values within range of erroneous detection to quickly detect undesirable reverse operation.

<6> Fault histories are not kept when CPF00, CPF01, CPF06, CPF24, oFA00, oFb00, oFC00, Uv1, Uv2, or Uv3 occur.

■ Minor Faults and Alarms

Refer to *Table 6.10* for an overview of possible alarm codes. Conditions such as overvoltages can trip faults and alarms. It is important to distinguish between faults and alarms to determine the proper corrective actions.

When the drive detects an alarm, the ALM indicator LED blinks and the alarm code display flashes. Most alarms trigger a digital output programmed for alarm output (H2-☐☐ = 10). A fault (not an alarm) is present if the ALM LED lights without blinking. *Refer to Faults on page 400* for information on fault codes.

Table 6.10 Minor Fault and Alarm Displays

Digital Operator Display		Name	Minor Fault Output (H2-☐☐ = 10)	Page
AEr	AEr	Station Address Setting Error (CC-Link, CANopen, MECHATROLINK)	YES	425
bb	bb	Baseblock	No output <2>	425
boL	boL	Braking Transistor Overload Fault	YES	425
bUS	bUS	Option Card Communications Error	YES	425
CALL	CALL	Serial Communication Transmission Error	YES	426
CE	CE	MEMOBUS/Modbus Communication Error	YES	426
CrST	CrST	Cannot Reset	YES	426
CyC	CyC	MECHATROLINK Comm. Cycle Setting Error	YES	426
dEv	dEv	Excessive Speed Deviation (for Control Mode with PG)	YES	427
dnE	dnE	Drive Disabled	YES	427
dWAL	dWAL	DriveWorksEZ Fault	YES	409
E5	E5	MECHATROLINK Watchdog Timer Error	YES	409
EF	EF	Forward/Reverse Run Command Input Error	YES	427
EF0	EF0	Option Card External Fault	YES	427
EF1 to EF8	EF1 to EF8	External Fault (input terminal S1 to S8)	YES	427
FAn	FAn	Internal Fan Fault	YES	409
FbH	FbH	Excessive PID Feedback	YES	428
FbL	FbL	PID Feedback Loss	YES	428
Hbb	Hbb	Safe Disable Signal Input <4>	YES	428
HbbF	HbbF	Safe Disable Signal Input <4>	YES	429
HCA	HCA	Current Alarm	YES	429
LT-1	LT-1	Cooling Fan Maintenance Time	No output <1>	429
LT-2	LT-2	Capacitor Maintenance Time	No output <1>	429
LT-3	LT-3	Soft Charge Bypass Relay Maintenance Time	No output <1>	429
LT-4	LT-4	IGBT Maintenance Time (50%)	No output <1>	430
oH	oH	Heatsink Overheat	YES	430
oH2	oH2	Drive Overheat Warning	YES	430
oH3	oH3	Motor Overheat	YES	430
oH5 <3>	oH5	Motor Overheat	YES	430
oL3	oL3	Overtorque 1	YES	431
oL4	oL4	Overtorque 2	YES	431
oL5	oL5	Mechanical Weakening Detection 1	YES	431
oS	oS	Overspeed	YES	431
ov	ov	DC Bus Overvoltage	YES	431
PASS	PASS	MEMOBUS/Modbus Test Mode Complete	No output	432
PGo	PGo	PG Disconnect (for Control Mode with PG)	YES	432
PGoH	PGoH	PG Hardware Fault (when using PG-X3)	YES	432
rUn	rUn	Motor Switch during Run	YES	432
SE	SE	MEMOBUS/Modbus Test Mode Fault	YES	432
THo <3>	THo	Thermistor Disconnect	YES	432
TrPC	TrPC	IGBT Maintenance Time (90%)	YES	433
UL3	UL3	Undertorque Detection 1	YES	433
UL4	UL4	Undertorque Detection 2	YES	433
UL5	UL5	Mechanical Weakening Detection 2	YES	423
Uv	Uv	Undervoltage	YES	433
voF	voF	Output Voltage Detection Fault	YES	433

<1> Output when H2-☐☐ = 2F.

<2> Baseblock alarm “bb” will not activate a digital output programmed for minor fault H2-0☐= 10. Set H2-0☐ = 8 or 1B to activate a digital otuput for “bb”.

<3> Detected in models 4A0930 and 4A1200.

<4> Terminals H1, H2, DM+, and DM- on 600 V class models are designed to the functionality, but are not certified to IEC/EN 61800-5-1, ISO/EN 13849 Cat. 3, IEC/EN 61508 SIL2, Insulation coordination: class 1.

■ Operation Errors

Table 6.11 Operation Error Displays

Digital Operator Display		Name	Page
oPE01	oPE01	Drive Capacity Setting Fault	434
oPE02	oPE02	Parameter Setting Range Error	434
oPE03	oPE03	Multi-Function Input Selection Error	434
oPE04	oPE04	Initialization Required	435
oPE05	oPE05	Initialization Required	435
oPE06	oPE06	Control Method Selection Error	435
oPE07	oPE07	Multi-Function Analog Input Selection Error	436
oPE08	oPE08	Parameter Selection Error	436
oPE09	oPE09	PID Control Selection Fault	436
oPE10	oPE10	V/f Data Setting Error	437
oPE11	oPE11	Carrier Frequency Setting Error	437
oPE13	oPE13	Pulse Monitor Selection Error	437
oPE15	oPE15	Torque Control Setting Error	437
oPE16	oPE16	Energy Saving Constants Error	437
oPE18	oPE18	Online Tuning Parameter Setting Error	437
oPE20	oPE20 <1>	PG-F3 Setting Error	438

<1> Available in drive software versions PRG: 1018 and later.

■ Auto-Tuning Errors

Table 6.12 Auto-Tuning Error Displays

Digital Operator Display		Name	Page
End1	End1	Excessive V/f Setting	439
End2	End2	Motor Iron-Core Saturation Coefficient	439
End3	End3	Rated Current Setting Alarm	439
End4	End4	Adjusted Slip Calculation Error	439
End5	End5	Resistance Tuning Error	439
End6	End6	Leakage Inductance Alarm	439
End7	End7	No-Load Current Alarm	440
Er-01	Er-01	Motor Data Error	440
Er-02	Er-02	Minor Fault	440
Er-03	Er-03	STOP Button Input	440
Er-04	Er-04	Line-to-Line Resistance Error	440
Er-05	Er-05	No-Load Current Error	440
Er-08	Er-08	Rated Slip Error	441
Er-09	Er-09	Acceleration Error	441
Er-10	Er-10	Motor Direction Error	441
Er-11	Er-11	Motor Speed Error	441
Er-12	Er-12	Current Detection Error	441
Er-13	Er-13	Leakage Inductance Error	442
Er-14	Er-14	Motor Speed Error 2	442
Er-15	Er-15	Torque Saturation Error	442
Er-16	Er-16	Inertia ID Error	442
Er-17	Er-17	Reverse Prohibited Error	442
Er-18	Er-18	Induction Voltage Error	442
Er-19	Er-19	PM Inductance Error	442
Er-20	Er-20	Stator Resistance Error	442
Er-21	Er-21	Z Pulse Correction Error	443
Er-25	Er-25 <1>	High Frequency Injection Parameter Tuning Error	443

<1> Available in drive software versions PRG: 1018 and later.

■ Errors and Displays When Using the Copy Function

Table 6.13 Copy Errors

Digital Operator Display		Name	Page
CoPy	CoPy	Writing Parameter Settings (flashing)	444
CPEr	CPEr	Control Mode Mismatch	444
CPyE	CPyE	Error Writing Data	444
CSEr	CSEr	Copy Unit Error	444
dFPS	dFPS	Drive Model Mismatch	444
End	End	Task Complete	444
iFEr	iFEr	Communication Error	444
ndAT	ndAT	Model, Voltage Class, Capacity Mismatch	445
rdEr	rdEr	Error Reading Data	445
rEAd	rEAd	Reading Parameter Settings (Flashing)	445
vAEr	vAEr	Voltage Class, Capacity Mismatch	445
vFyE	vFyE	Parameter settings in the drive and those saved to the copy function are not the same	445
vrFy	vrFy	Comparing Parameter Settings (Flashing)	445

6.4 Fault Detection

◆ Fault Displays, Causes, and Possible Solutions

Faults are detected for drive protection, and cause the drive to stop while toggling the form-C output associated with terminals MA-MB-MC. Remove the cause of the fault and manually clear the fault before attempting to run the drive again.

Table 6.14 Detailed Fault Displays, Causes, and Possible Solutions

Digital Operator Display		Fault Name
boL	boL	Braking Transistor Overload Fault
		The braking transistor reached its overload level.
Cause		**Possible Solution**
The wrong braking resistor is installed		Select the correct braking resistor.
Use a regen converter, regen unit, braking unit, or other device to connect the +1 or +3 terminal to the - terminal.		Set L8-55 to 0 to disable Internal Braking Transistor Protection.
The braking transistor use rate is high (i.e., the regen converter is large or the repetition frequency is high).		• Change to a CDBR type braking unit. • Change to a regen converter. • Increase the deceleration time.
The braking transistor inside the drive is faulty.		Replace the drive.

Digital Operator Display		Fault Name
bUS	bUS	Option Communication Error
		• The connection was lost after establishing initial communication. • Only detected when the run command frequency reference is assigned to an option card.
Cause		**Possible Solution**
No signal was received from the PLC		• Check for faulty wiring. • Correct the wiring. • Check for disconnected cables and short circuits and repair as needed.
Faulty communications wiring or an existing short circuit		
Communication data error occurred due to noise		• Check the various options available to minimize the effects of noise. • Counteract noise in the control circuit, main circuit, and ground wiring. • Ensure that other equipment such as switches or relays do not cause noise. Use surge absorbers if necessary. • Use only recommended cables or other shielded line. Ground the shield on the controller side or the drive input power side. • Separate all communication wiring from drive power lines. Install an EMC noise filter to the drive power supply input.
The option card is damaged		Replace the option card if there are no problems with the wiring and the error continues to occur.
The option card is not properly connected to the drive		• The connector pins on the option card do not line up properly with the connector pins on the drive. • Reinstall the option card.

Digital Operator Display		Fault Name
CE	CE	MEMOBUS/Modbus Communication Error
		Control data was not received for the CE detection time set to H5-09.
Cause		**Possible Solution**
Faulty communications wiring or an existing short circuit		• Check for faulty wiring. • Correct the wiring. • Check for disconnected cables and short circuits and repair as needed.
Communication data error occurred due to noise		• Check the various options available to minimize the effects of noise. • Counteract noise in the control circuit, main circuit, and ground wiring. • Use only recommended cables or other shielded line. Ground the shield on the controller side or the drive input power side. • Ensure that other equipment such as switches or relays do not cause noise. Use surge suppressors if required. • Separate all communication wiring from drive power lines. Install an EMC noise filter to the drive power supply input.

Digital Operator Display		Fault Name
CF	CF	Control Fault
		The torque limit was reached continuously for three seconds after the Stop command was input and deceleration was not possible in OLV Control.
Cause		**Possible Solution**
Motor parameters are set improperly		Check the motor parameter settings and repeat Auto-Tuning.
Torque limit is too low		Set the torque limit to the most appropriate setting (L7-01 through L7-04).
Load inertia is too big		• Adjust the deceleration time (C1-02, C1-04, C1-06, C1-08). • Set the frequency to the minimum value and interrupt the Run command when the drive finishes decelerating.

Digital Operator Display		Fault Name
CoF	CoF	Current Offset Fault
		Drive starts operation while the current-detection circuit failure, or the induced voltage remains in the motor (coasting and after rapid deceleration).
Cause		**Possible Solution**
The drive performed a current offset adjustment while the motor was rotating		• The set value exceeds the allowable setting range while the drive automatically adjusts the current offset. This happens when attempting to restart a PM motor that is coasting to stop. • Set b3-01 to 1 to enable Speed Search at Start. • Perform Speed Search 1 or 2 (H1-□□ = 61 or 62) via one of the external terminals. **Note:** Speed Searches 1 and 2 are the same when using OLV/PM.
Hardware problem		If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF00 or CPF01	CPF11 to CPF14 CPF16 to CPF19	Control Circuit Error
Cause		**Possible Solution**
There is a self-diagnostic error in the control circuit		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
Connector on the operator is damaged		Replace the operator.

Digital Operator Display		Fault Name
CPF02	CPF02	A/D Conversion Error
		An A/D conversion error or control circuit error occurred.
Cause		**Possible Solution**
Control circuit is damaged		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF03	CPF03	Control Board Connection Error
		Connection error between the control board and the drive
Cause		**Possible Solution**
There is a connection error		• Turn off the power and check the connection between the control board and the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
Drive fails to operate properly due to electrical signal interference		• Check the various options available to minimize the effects of noise. • Counteract noise in the control circuit, main circuit, and ground wiring. • Use only recommended cables or other shielded line. Ground the shield on the controller side or the drive input power side. • Ensure that other equipment such as switches or relays do not cause noise. Use surge suppressors if required. • Separate all communication wiring from drive power lines. Install an EMC noise filter to the drive power supply input.

Digital Operator Display		Fault Name
CPF06	CPF06	EEPROM Memory Data Error
		Error in the data saved to EEPROM
Cause		**Possible Solution**
There is an error in EEPROM control circuit		• Turn off the power and check the connection between the control board and the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
The power supply was switched off while parameters were being saved to the drive		Reinitialize the drive (A1-03 = 2220, 3330).

Digital Operator Display		Fault Name
CPF07	CPF07	Terminal Board Connection Error
CPF08	CPF08	
Cause		**Possible Solution**
There is a faulty connection between the terminal board and the control board		• Turn off the power and reconnect the terminal board. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF11	CPF11	RAM Fault
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF12	CPF12	FLASH Memory Fault
		Problem with the ROM (FLASH memory)
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF13	CPF13	Watchdog Circuit Exception
		Self-diagnostics problem.
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF14	CPF14	Control Circuit Fault
		CPU error (CPU operates incorrectly due to interference, etc.)
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF16	CPF16	Clock Fault
		Standard clock error.
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF17	CPF17	Timing Fault
		A timing error occurred during an internal process.
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF18	CPF18	Control Circuit Fault
		CPU error. Non-Maskable Interrupt (An unusual interrupt was triggered by interference, etc.)

Digital Operator Display		Fault Name
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF 19	CPF19	Control Circuit Fault
		CPU error (Manual reset due to interference, etc.)
Cause		**Possible Solution**
Hardware is damaged.		Replace the drive.

Digital Operator Display		Fault Name
CPF20 or CPF21	CPF20 or CPF21	Control Circuit Error
Cause		**Possible Solution**
Hardware is damaged		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF22	CPF22	Hybrid IC Failure
Cause		**Possible Solution**
Hybrid IC failure on the power board		• Cycle power to the drive. • If the problem continues, replace the power board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the power board.

Digital Operator Display		Fault Name
CPF23	CPF23	Control Board Connection Error
		Connection error between the control board and the drive
Cause		**Possible Solution**
Hardware is damaged		• Turn off the power and check the connection between the control board and the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF24	CPF24	Drive Unit Signal Fault
		The drive capacity cannot be detected correctly (drive capacity is checked when the drive is powered up).
Cause		**Possible Solution**
Hardware is damaged		If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
CPF25	CPF25	Terminal Board Not Connected
Cause		**Possible Solution**
Terminal board is not connected correctly		Reconnect the terminal board to the connector on the drive, then cycle the power to the drive.

Digital Operator Display		Fault Name
CPF26 to CPF35 CPF40 to CPF45	CPF26 to CPF35 CPF40 to CPF45	Control Circuit Error
		CPU error
Cause		**Possible Solution**
Hardware is damaged		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
dEv	dEv	Speed Deviation (for Control Mode with PG and AOLV/PM without PG)
		The deviation between the speed reference and speed feedback is greater than the setting in F1-10 for longer than the time set to F1-11.

Digital Operator Display	Fault Name
Cause	**Possible Solution**
Load is too heavy	Reduce the load.
Acceleration and deceleration times are set too short	Increase the acceleration and deceleration times (C1-01 through C1-08).
The load is locked up	Check the machine.
Parameters are not set appropriately	Check the settings of parameters F1-10 and F1-11.
Incorrect speed feedback scaling when using terminal RP as speed feedback input in V/f control	• Set H6-02 to the same value as the speed feedback signal frequency when the motor runs at maximum speed. • Adjust the speed feedback signal using parameters H6-03 through H6-05. • Make sure the speed feedback signal frequency does not exceed the maximum input frequency of terminal RP.
Motor brake is engaged	Ensure the motor brake releases properly.

Digital Operator Display		Fault Name
dv1	dv1	Z Pulse Fault (CLV/PM control mode only)
		The motor turned one full rotation without the Z Pulse being detected.
Cause		**Possible Solution**
PG encoder is disconnected, improperly wired, or the PG option card or PG encoder are damaged		• Make sure the PG encoder is properly connected and all shielded lines are properly grounded. • If the problem continues after cycling power, replace the PG option card or the PG encoder.

Digital Operator Display		Fault Name
dv2	dv2	Z Pulse Noise Fault Detection (CLV/PM control mode only)
		The Z Pulse is out of phase by more than 5 degrees for 10 consecutive revolutions.
Cause		**Possible Solution**
Noise interference along the PG cable		Separate the PG cable lines from the source of the noise.
PG cable is not wired properly		Rewire the PG encoder and properly ground all shielded lines.
PG option card or the PG encoder are damaged		If the problem continues after cycling power, replace the PG option card or the PG encoder.

Digital Operator Display		Fault Name
dv3	dv3	Inversion Detection (CLV/PM control mode only)
		The torque reference and acceleration are in opposite directions and the speed reference and actual motor speed differ by more than 30% for the number of times set to F1-18.
Cause		**Possible Solution**
The Z Pulse offset is not set properly to E5-11		Set the value for Δθ to E5-11 as specified on the motor nameplate. Replacing the PG encoder or changing the application to rotate the motor in reverse requires readjustment of the Z-pulse offset. (T2-01 = 3)
An external force on the load side caused the motor to move		• Make sure the motor is rotating in the proper direction. • Identify and fix any problems on the load side causing the motor to rotate in the opposite direction.
Noise interference along the PG cable affecting the A or B pulse		Properly rewire the PG encoder and connect all lines including shielded line.
PG encoder is disconnected, improperly wired, or the PG option card or PG encoder are damaged		
Rotational direction for the PG encoder set to F1-05 is the opposite of the motor line order		Properly connect the motor lines for each phase (U, V, W).

Digital Operator Display		Fault Name
dv4	dv4	Inversion Prevention Detection (CLV/PM control mode only)
		Pulses indicate that the motor is rotating in the opposite direction of the speed reference. Set the number of pulses to trigger inverse detection to F1-19. **Note:** Set F1-19 to 0 to disable inverse detection in applications where the motor may rotate in the opposite direction of the speed reference.
Cause		**Possible Solution**
The Z Pulse offset is not set properly to E5-11		• Set the value for Δθ to E5-11 as specified on the motor nameplate. • If the problem continues after cycling power, replace the PG option card or the PG encoder. Replacing the PG encoder or changing the application to rotate the motor in reverse requires readjustment of the Z-pulse offset. (T2-01 = 3)

Digital Operator Display	Fault Name
Electrical signal interference along the PG cable affecting the A or B pulse	• Make sure the motor is rotating in the proper direction. • Identify and fix any problems on the load side causing the motor to rotate in the opposite direction.
PG encoder is disconnected, improperly wired, or the PG option card or PG encoder are damaged	• Rewire the PG encoder and properly connect all lines including shielded line. • If the problem continues after cycling power, replace the PG option card or the PG encoder.

Digital Operator Display		Fault Name
dv7 <1>	dv7	Initial Polarity Estimation Timeout
Cause		**Possible Solution**
Disconnection in the motor coil winding		• Measure the motor line-to-line resistance and replace the motor if the motor coil winding is open.
Loose output terminals		• Check for loose terminals. Apply the tightening torque specified in this manual to fasten the terminals. *Refer to Main Circuit Wire Gauges and Tightening Torques on page 129* for details. • Ensure that monitor U6-57 displays a value greater than 819 during the initial test runs for the application to prevent the drive from incorrectly determining motor polarity. If U6-57 shows a value less than 819, increase the polarity judge current level set in parameter n8-84.

<1> Available in drive software versions PRG: 1015 and later.

Digital Operator Display		Fault Name
dWAL	dWAL	DriveWorksEZ Fault
dWFL	dWFL	
Cause		**Possible Solution**
Fault output by DriveWorksEZ		Correct the cause of the fault.

Digital Operator Display		Fault Name
dWF1	dWF1	EEPROM Memory DriveWorksEZ Data Error
		There is an error in the DriveWorksEZ program saved to EEPROM.
Cause		**Possible Solution**
Problem with EEPROM data.		Reinitialize the drive (A1-03 = 2220, 3330) and download the DriveWorksEZ program again.
There is an error in the EEPROM control circuit.		• Turn the power off and check the connection between the control board and the drive. • If the problem continues, replace either the control board or the entire drive and then download the DriveWorksEZ program. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

Digital Operator Display		Fault Name
E5	E5	MECHATROLINK Watchdog Timer Error
		The watchdog timed out.
Cause		**Possible Solution**
Data has not been received from the PLC		Execute DISCONNECT or ALM_CLR, then issue a CONNECT command or SYNC_SET command and proceed to phase 3. Refer to the SI-T3 Option Technical Manual for more details on troubleshooting.

Digital Operator Display		Fault Name
EF0	EF0	Option Card External Fault
		An external fault condition is present.
Cause		**Possible Solution**
An external fault was received from the PLC and F6-03 is set to a value other than 3.		• Remove the cause of the external fault. • Remove the external fault input from the PLC.
Problem with the PLC program		Check the PLC program and correct problems.

Digital Operator Display		Fault Name
EF1	EF1	External Fault (input terminal S1)
		External fault at multi-function input terminal S1.
EF2	EF2	External Fault (input terminal S2)
		External fault at multi-function input terminal S2.
EF3	EF3	External Fault (input terminal S3)
		External fault at multi-function input terminal S3.

Digital Operator Display		Fault Name
EF4	EF4	External Fault (input terminal S4)
		External fault at multi-function input terminal S4.
EF5	EF5	External Fault (input terminal S5)
		External fault at multi-function input terminal S5.
EF6	EF6	External Fault (input terminal S6)
		External fault at multi-function input terminal S6.
EF7	EF7	External Fault (input terminal S7)
		External fault at multi-function input terminal S7.
EF8	EF8	External Fault (input terminal S8)
		External fault at multi-function input terminal S8.
Cause		**Possible Solution**
An external device tripped an alarm function		Remove the cause of the external fault and reset the fault.
Wiring is incorrect		• Properly connect the signal lines to the terminals assigned for external fault detection (H1-□□ = 20 to 2B). • Reconnect the signal line.
Multi-function contact input setting is incorrect		• Check for unused terminals set for H1-□□ = 20 to 2B (External Fault). • Change the terminal settings.

Digital Operator Display		Fault Name
Err	Err	EEPROM Write Error
		Data cannot be written to the EEPROM
Cause		**Possible Solution**
Noise has corrupted data while writing to the EEPROM		• Press "ENTER" on the digital operator. • Correct the parameter setting. • Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
Hardware problem		If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
FAn	FAn	Internal Fan Fault
		Fan or magnetic contactor failure (detected when L8-32 = 0 to 2)
Cause		**Possible Solution**
Internal cooling fan has malfunctioned		• Cycle power to the drive. • Check for fan operation. • Verify the cumulative operation time of the fan with monitor U4-03, and verify the cumulative operation time of the fan maintenance timer with U4-04. • If the cooling fan has exceeded its expected performance life or is damaged in any other way, replace the fan.
Fault detected in the internal cooling fan or magnetic contactor to the power supply.		• Cycle power to the drive. • If the fault continues to occur, replace the power board/gate drive board or the entire drive. • Contact Yaskawa or a Yaskawa representative for instructions on replacing the power board/gate drive board.

Digital Operator Display		Fault Name
FbH	FbH	Excessive PID Feedback
		PID feedback input is greater than the level set to b5-36 for longer than the time set to b5-37. Set b5-12 to 2 or 5 to enable fault detection.
Cause		**Possible Solution**
Parameters are set inappropriately		Check b5-36 and b5-37 settings.
Incorrect PID feedback wiring		Correct the wiring.
There is a problem with the feedback sensor		• Check the sensor on the control side. • Replace the sensor if damaged.

Digital Operator Display		Fault Name
FbL	FbL	PID Feedback Loss
		PID feedback loss detection is programmed to trigger a fault (b5-12 = 2 or 5) and the PID feedback level is below the detection level set to b5-13 for longer than the time set to b5-14.
Cause		**Possible Solution**
Parameters are set inappropriately		Check b5-13 and b5-14 settings.
Incorrect PID feedback wiring		Correct the wiring.
There is a problem with the feedback sensor		• Check the sensor on the control side. • Replace the sensor if damaged.

Digital Operator Display		Fault Name
GF	GF	Ground Fault
		• A current short to ground exceeded 50% of rated current on the output side of the drive. • Setting L8-09 to 1 enables ground fault detection.
Cause		**Possible Solution**
Motor insulation is damaged		• Check the insulation resistance of the motor. • Replace the motor.
A damaged motor cable is creating a short circuit		• Check the motor cable. • Remove the short circuit and reapply power to the drive
		• Check the resistance between the cable and the ground terminal ⏚. • Replace the cable.
Excessive leakage current at the drive output		• Reduce the carrier frequency. • Reduce the amount of stray capacitance.
The drive performed a current offset adjustment while the motor was rotating		• The set value exceeds the allowable setting range while the drive automatically adjusts the current offset. This generally only happens when attempting to restart a PM motor that is coasting to stop. • Set b3-01 to 1 to enable Speed Search at Start. • Perform Speed Search 1 or 2 (H1-□□ = 61 or 62) via one of the external terminals. **Note:** Speed Searches 1 and 2 are the same when using OLV/PM.
Hardware problem		If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
LF	LF	Output Phase Loss
		• Phase loss on the output side of the drive. • Setting L8-07 to 1 or 2 enables Phase Loss Detection.
Cause		**Possible Solution**
The output cable is disconnected		• Check for wiring errors and properly connect the output cable. • Correct the wiring.
The motor winding is damaged		• Check the resistance between motor lines. • Replace the motor if the winding is damaged.
The output terminal is loose		• Apply the tightening torque specified in this manual to fasten the terminals. *Refer to Main Circuit Wire Gauges and Tightening Torques on page 129* for details.
The rated current of the motor being used is less than 5% of the drive rated current		Check the drive selection and motor capacities.
An output transistor is damaged		If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
A single-phase motor is being used		The drive cannot operate a single phase motor.

Digital Operator Display		Fault Name
LF2	LF2	Output Current Imbalance
		One or more of the phases in the output current are lost.
Cause		**Possible Solution**
Phase loss has occurred on the output side of the drive		• Check for faulty wiring or poor connections on the output side of the drive. • Correct the wiring.
Terminal wires are loose on the output side of the drive		Apply the tightening torque specified in this manual to fasten the terminals. *Refer to Main Circuit Wire Gauges and Tightening Torques on page 129* for details.

Digital Operator Display	Fault Name
The output circuit is damaged	If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.
Motor impedance or motor phases are uneven	• Measure the line-to-line resistance for each motor phase. Ensure all values match. • Replace the motor.

Digital Operator Display		Fault Name
LF3 <1>	LF3	Power Unit Output Phase Loss 3
		• Phase loss occurred on the output side • Setting L8-78 to 1 enables Power Unit Output Phase Loss Protection
Cause		**Possible Solution**
The gate drive board in the power unit is damaged.		Cycle the power supply. *Refer to Diagnosing and Resetting Faults on page 446* for details. If the fault continues to occur, replace the gate drive board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the gate drive board.
Cable to the current detection circuit in the power unit is damaged or not connected properly.		Check for incorrect wiring and correct any wiring mistakes.
Cable between the output rector and the power unit is loose or not connected.		Contact Yaskawa or your nearest sales representative for instructions.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Fault Name
LSo <1>	LSo	LSo Fault
		Pull-out has been detected at low speed.
Cause		**Possible Solution**
The incorrect motor code has been entered.		• Enter the correct motor code for the PM motor being used into E5-01. • For special-purpose motors, enter the correct data to all E5 parameters according to the test report provided for the motor.
The load is too heavy.		• Reduce the load. • Use a larger drive.
The drive incorrectly detected the position of the motor poles.		• Make sure some external force is not rotating the motor at start. • Enable Speed Search Selection at start. (b3-01 = 1). • If the value displayed in U6-57 is lower than 819, then set the polarity judge current (n8-84) higher than the default value.
Values set to parameters L8-93, L8-94, and L8-95 are incorrect.		• Increase the value set to L8-93. • Increase the value set to L8-94. • Increase the value set to L8-95.

<1> This function prevents continuous operation in reverse when using high frequency injection (n8-57 = 1) in AOLV/PM (A1-02 = 6) with a motor for which no motor code has been entered (it does not only prevent reverse operation). Set L8-93, L8-94, and L8-95 to low values within range of erroneous detection to quickly detect undesirable reverse operation.

Digital Operator Display		Fault Name
nSE	nSE	Node Setup Error
		A terminal assigned to the node setup function closed during run.
Cause		**Possible Solution**
The node setup terminal closed during run.		Stop the drive when using the node setup function.
A Run command was issued while the node setup function was active.		

Digital Operator Display		Fault Name
oC	oC	Overcurrent
		Drive sensors detected an output current greater than the specified overcurrent level.

Digital Operator Display	Fault Name
Cause	**Possible Solution**
The motor has been damaged due to overheating or the motor insulation is damaged	• Check the insulation resistance. • Replace the motor.
One of the motor cables has shorted out or there is a grounding problem	• Check the motor cables. • Remove the short circuit and reapply power to the drive.
	• Check the resistance between the motor cables and the ground terminal ⏚. • Replace damaged cables.
The drive is damaged	• Check the drive output side short circuit for a broken output transistor B1 and U/T1, V/T2, W/T3 – and U/T1, V/T2, W/T3 • Contact your Yaskawa representative or nearest Yaskawa sales office.
The load is too heavy	• Measure the current flowing into the motor. • Replace the drive with a larger capacity drive if the current value exceeds the rated current. • Determine if there is sudden fluctuation in the current level. • Reduce the load to avoid sudden changes in the current level or switch to a larger drive.
The acceleration or deceleration times are too short	Calculate the torque needed during acceleration relative to the load inertia and the specified acceleration time. If it is not possible to set the proper amount of torque, make the following changes: • Increase the acceleration time (C1-01, C1-03, C1-05, C1-07) • Increase the S-curve characteristics (C2-01 through C2-04) • Increase the capacity of the drive.
The drive is attempting to operate a specialized motor or a motor larger than the maximum size allowed	• Check the motor capacity. • Ensure that the rated capacity of the drive is greater than or equal to the capacity rating found on the motor nameplate.
Magnetic contactor (MC) on the output side of the drive has turned on or off	Set up the operation sequence so the MC does not trip while the drive is outputting current.
V/f setting is not operating as expected	• Check the ratios between the voltage and frequency. • Set parameters E1-04 through E1-10 appropriately (E3-04 through E3-10 for motor 2). • Lower the voltage if it is too high relative to the frequency.
Excessive torque compensation	• Check the amount of torque compensation. • Reduce the torque compensation gain (C4-01) until there is no speed loss and less current.
Drive fails to operate properly due to electrical signal interference	• Review the possible solutions provided for handling electrical signal interference. • Review the section on handling noise interference on page *453* and check the control circuit lines, main circuit lines, and ground wiring.
Overexcitation gain is set too high	• Check if the fault occurs simultaneously with overexcitation function operation. • Consider motor flux saturation and reduce the value of n3-13 (Overexcitation Deceleration Gain).
Run command was applied while motor was coasting	• Set b3-01 to 1 to enable Speed Search at Start. • Program the Speed Search command input through one of the multi-function contact input terminals (H1-□□ = 61 or 62).
The wrong motor code has been entered for OLV/PM (Yaskawa motors only) or the motor data are wrong	• Enter the correct motor code to E5-01. • Set E5-01 to FFFF if using a non-Yaskawa PM motor. Set the correct motor data to the E5-□□ parameters or perform Auto-Tuning.
The overcurrent level has exceeded the value set to L8-27 (PM control modes)	Correct the value set to overcurrent detection gain (L8-27).
The motor control method and motor do not match	• Check the control mode. • For IM motors, set A1-02 to 0, 1, 2, or 3. • For PM motors, set A1-02 to 5, 6, or 7.
The rated output current of the drive is too small	Use a larger drive.

Digital Operator Display		Fault Name
oFA00	oFA00	Option Card Connection Error at Option Port CN5-A
		Option compatibility error
Cause		**Possible Solution**
The option card installed into port CN5-A is incompatible with the drive		Check if the drive supports the option card to be installed. Contact Yaskawa for assistance.

Digital Operator Display	Fault Name
A PG option card is connected to option port CN5-A	PG option cards are supported by option ports CN5-B and CN5-C only. Connect the PG option card to the correct option port.

Digital Operator Display		Fault Name
oFA01	oFA01	Option Card Fault at Option Port CN5-A
		Option not properly connected
Cause		**Possible Solution**
The option card connection to port CN5-A is faulty		• Turn off the power and reconnect the option card. • Check if the option card is properly plugged into the option port. Make sure the card is fixed properly. • If the option is not a communication option card, try to use the card in a different option port. If the option card works properly in a different option port, CN5-A is damaged, and the drive requires replacement. If the error persists (oFb01 or oFC01 occur), replace the option card.

Digital Operator Display		Fault Name
oFA03 to oFA06	oFA03 to oFA06	Option Card Error Occurred at Option Port CN5-A
oFA10, oFA11	oFA10, oFA11	
oFA12 to oFA17	oFA12 to oFA17	Option Card Connection Error (CN5-A)
oFA30 to oFA43	oFA30 to oFA43	Communication Option Card Connection Error (CN5-A)
Cause		**Possible Solution**
Option card or hardware is damaged		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
oFb00	oFb00	Option Card Fault at Option Port CN5-B
		Option compatibility error
Cause		**Possible Solution**
The option card installed into port CN5-B is incompatible with the drive		Make sure the drive supports the option card to be installed. Contact Yaskawa for assistance.
A communication option card has been installed in option port CN5-B		Communication option cards are only supported by option port CN5-A. It is not possible to install more than one communication option.

Digital Operator Display		Fault Name
oFb01	oFb01	Option Card Fault at Option Port CN5-B
		Option not properly connected
Cause		**Possible Solution**
The option card connection to port CN5-B is faulty		• Turn off the power and reconnect the option card. • Check if the option card is properly plugged into the option port. Make sure the card is fixed properly. • Try to use the card in a different option port (in case of a PG option, use port CN5-C). If the option card works properly in a different option port, CN5-B is damaged, and the drive requires replacement. If the error persists (oFA01 or oFC01 occur), replace the option card.

Digital Operator Display		Fault Name
oFb02	oFb02	Option Card Fault at Option Port CN5-B
		Same type of option card is currently connected
Cause		**Possible Solution**
An option card of the same type is already installed in option port CN5-A		Except for PG options, only one of each option card type can only be installed simultaneously. Make sure only one type of option card is connected.
An input option card is already installed in option port CN5-A		Install a communication option, a digital input option, or an analog input option. More than one of the same type of card cannot be installed simultaneously.

Digital Operator Display		Fault Name
oFb03 to oFb11	oFb03 to oFb11	Option card error occurred at Option Port CN5-B
oFb12 to oFb17	oFb12 to oFb17	
Cause		**Possible Solution**

Digital Operator Display	Fault Name
Option card or hardware is damaged	• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
oFC00	oFC00	Option Card Connection Error at Option Port CN5-C
		Option compatibility error
Cause		**Possible Solution**
The option card installed into port CN5-C is incompatible with the drive		Confirm that the drive supports the option card to be installed. Contact Yaskawa for assistance.
A communication option card has been installed in option port CN5-C		Communication option cards are only supported by option port CN5-A. It is not possible to install more than one communication option.

Digital Operator Display		Fault Name
oFC01	oFC01	Option Card Fault at Option Port CN5-C
		Option not properly connected
Cause		**Possible Solution**
The option card connection to port CN5-C is faulty.		• Turn the power off and reconnect the option card. • Check if the option card is properly plugged into the option port. Make sure the card is fixed properly. • Try to use the card in a different option port (in case of a PG option, use port CN5-B). If the option card works properly in a different option port, CN5-C is damaged, and the drive requires replacement. If the error persists (oFA01 or oFb01 occur), replace the option card.

Digital Operator Display		Fault Name
oFC02	oFC02	Option Card Fault at Option Port CN5-C
		Same type of option card is currently connected
Cause		**Possible Solution**
An option card of the same type is already installed in option port CN5-A or CN5-B.		Except for PG options, only one of each option card type can only be installed simultaneously. Make sure only one type of option card is connected.
An input option card is already installed in option port CN5-A or CN5-B.		Install a communication option, a digital input option, or an analog input option. More than one of the same type of card cannot be installed simultaneously.
Three PG option boards are installed.		A maximum of two PG option boards can be used simultaneously. Remove the PG option board installed into option port CN5-A.

Digital Operator Display		Fault Name
oFC03 to oFC11	oFC03 to oFC11	Option Card Error Occurred at Option Port CN5-C
oFC12 to oFC17	oFC12 to oFC17	
Cause		**Possible Solution**
Option card or hardware is damaged		• Cycle power to the drive. • If the problem continues, replace the control board or the entire drive. Contact Yaskawa or a Yaskawa representative for instructions on replacing the control board.

Digital Operator Display		Fault Name
oFC50 to oFC55	oFC50 to oFC55	Option Card Error Occurred at Option Port CN5-C
Cause		**Possible Solution**
Option card or hardware is damaged		Refer to the option manual for details.

Digital Operator Display		Fault Name
oH	oH	Heatsink Overheat
		The heatsink temperature exceeded the overheat pre-alarm level set to L8-02. The default value for L8-02 is determined by drive model selection (o2-04).
Cause		**Possible Solution**
Surrounding temperature is too high		• Check the temperature surrounding the drive. Verify temperature is within drive specifications. • Improve the air circulation within the enclosure panel. • Install a fan or air conditioner to cool the surrounding area. • Remove anything near the drive that might be producing excessive heat.

Digital Operator Display	Fault Name
Load is too heavy	• Measure the output current. • Decrease the load. • Lower the carrier frequency selection (C6-02).
Internal cooling fan is stopped	• Replace the cooling fan. • After replacing the cooling fan, set parameter o4-03 to 0 to reset the cooling fan maintenance.

Digital Operator Display		Fault Name
oH1	oH1	Overheat 1 (Heatsink Overheat)
		The heatsink temperature exceeded the drive overheat level. Overheat level is determined by drive capacity (o2-04).
Cause		**Possible Solution**
Surrounding temperature is too high		• Check the temperature surrounding the drive. • Improve the air circulation within the enclosure panel. • Install a fan or air conditioner to cool the surrounding area. • Remove anything near the drive that might be producing excessive heat.
Load is too heavy		• Measure the output current. • Lower the carrier frequency selection (C6-02). • Reduce the load.

Digital Operator Display		Fault Name
oH3	oH3	Motor Overheat Alarm (PTC Input)
		• The motor overheat signal to analog input terminal A1, A2, or A3 exceeded the alarm detection level. • Detection requires setting multi-function analog inputs H3-02, H3-10, or H3-06 to E.
Cause		**Possible Solution**
Motor has overheated		• Check the size of the load, the accel/decel times, and the cycle times. • Decrease the load. • Increase the acceleration and deceleration times (C1-01 through C1-08).
		• Adjust the preset V/f pattern (E1-04 through E1-10) by reducing E1-08 and E1-10. • Do not set E1-08 and E1-10 too low. This reduces load tolerance at low speeds.
		• Check the motor rated current. • Enter the motor rated current to parameter E2-01 as indicated on the motor nameplate. • Ensure the motor cooling system is operating normally. • Repair or replace the motor cooling system.

Digital Operator Display		Fault Name
oH4	oH4	Motor Overheat Fault (PTC Input)
		• The motor overheat signal to analog input terminal A1, A2, or A3 exceeded the fault detection level. • Detection requires setting multi-function analog inputs H3-02, H3-10, or H3-06 to E.
Cause		**Possible Solution**
Motor has overheated		• Check the size of the load, the accel/decel times, and the cycle times. • Decrease the load. • Increase the acceleration and deceleration times (C1-01 through C1-08).
		• Adjust the preset V/f pattern (E1-04 through E1-10) by reducing E1-08 and E1-10. • Do not set E1-08 and E1-10 too low. This reduces load tolerance at low speeds.
		• Check the motor rated current. • Enter the motor rated current to parameter E2-01 as indicated on the motor nameplate. • Ensure the motor cooling system is operating normally. • Repair or replace the motor cooling system.

Digital Operator Display		Fault Name
oH5 <1>	oH5	Motor Overheat (NTC Input)
		The motor temperature exceeded the level set to L1-16 (or L1-18 for motor 2)
Cause		**Possible Solution**
Motor has overheated		• Reduce the load. • Check the ambient temperature.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Fault Name
oL 1	oL1	Motor Overload
		The electronic motor overload protection tripped
Cause		**Possible Solution**
Load is too heavy		Reduce the load. **Note:** Reset oL1 when the U4-16 value falls below 100.0%. U4-16 value must be less than 100.0% before oL1 can be reset.
Cycle times are too short during acceleration and deceleration		Increase the acceleration and deceleration times (C1-01 through C1-08).
A general-purpose motor is driven below the rated speed with a high load		• Reduce the load. • Increase the speed. • If the motor is supposed to operate at low speeds, either increase the motor capacity or use a motor specifically designed to operate in the desired speed range.
V/f characteristics (voltage and frequency) are not suitable		Set the V/f pattern setting parameters (E1-04 to E1-10) to match the motor characteristics.
The wrong motor rated current is set to E2-01		• Check the motor-rated current. • Enter the motor rated current to parameter E2-01 as indicated on the motor nameplate.
Multiple motors are running off the same drive		Set L1-01 to 0 to disable the motor protection function and then install a thermal relay to each motor.
The electrical thermal protection characteristics and motor overload characteristics do not match		• Check the motor characteristics. • Correct the type of motor protection that has been selected (L1-01). • Install an external thermal relay.
The electrical thermal relay is operating at the wrong level		• Check the current rating listed on the motor nameplate. • Check the value set for the motor rated current (E2-01).
Motor overheated by overexcitation operation		• Overexcitation increases the motor loss and the motor temperature. Excessive duration of overexcitation may cause motor damage. Prevent excessive overexcitation operation or apply proper cooling to the motor. • Reduce the excitation deceleration gain (n3-13). • Set L3-04 (Stall Prevention during Deceleration) to a value other than 4. • Set n3-23 (Overexcitation Operation Selection) to 0 (disabled).
Parameters related to Speed Search are set incorrectly		• Check values set to Speed Search related parameters. • Adjust the Speed Search current and Speed Search deceleration times (b3-02 and b3-03 respectively). • After Auto-Tuning, set b3-24 to 1 to enable Speed Estimation Speed Search.
Output current fluctuation due to power supply loss		Check the power supply for phase loss.

Digital Operator Display		Fault Name
oL2	oL2	Drive Overload
		The thermal sensor of the drive triggered overload protection.
Cause		**Possible Solution**
Load is too heavy		Reduce the load.
Acceleration or deceleration time is too short		Increase the settings for the acceleration and deceleration times (C1-01 through C1-08).
V/f characteristics (voltage) are not suitable		Set the V/f pattern setting parameters (E1-04 to E1-10) to match the motor characteristics.
Drive capacity is too small		Replace the drive with a larger model.
Overload occurred when operating at low speeds		• Reduce the load when operating at low speeds. • Replace the drive with a model that is one frame size larger. • Lower the carrier frequency (C6-02).
Excessive torque compensation		Reduce the torque compensation gain in parameter C4-01 until there is no speed loss but less current.
Parameters related to Speed Search are set incorrectly		• Check the settings for all Speed Search related parameters. • Adjust the current used during Speed Search (b3-03) and the Speed Search deceleration time (b3-02). • After Auto-Tuning, set b3-24 to 1 to enable Speed Estimation Speed Search.
Output current fluctuation due to input phase loss		Check the power supply for phase loss.

Digital Operator Display		Fault Name
oL3	oL3	Overtorque Detection 1
		The current has exceeded the value set for Torque Detection Level 1 (L6-02) for longer than the allowable time (L6-03).
Cause		**Possible Solution**
Parameter settings are not appropriate for the load		Check L6-02 and L6-03 settings.
Fault on the machine side (e.g., machine is locked up)		Check the status of the load. Remove the cause of the fault.

Digital Operator Display		Fault Name
oL4	oL4	Overtorque Detection 2
		The current has exceeded the value set for Torque Detection Level 2 (L6-05) for longer than the allowable time (L6-06).
Cause		**Possible Solution**
Parameter settings are not appropriate for the load		Check the settings of parameters L6-05 and L6-06.

Digital Operator Display		Fault Name
oL5	oL5	Mechanical Weakening Detection 1
		Overtorque occurred, matching the conditions specified in L6-08.
Cause		**Possible Solution**
Overtorque triggered mechanical weakening detection level set to L6-08		Identify the cause of mechanical weakening.

Digital Operator Display		Fault Name
oL7	oL7	High Slip Braking oL
		The output frequency stayed constant for longer than the time set to n3-04 during High Slip Braking.
Cause		**Possible Solution**
Excessive load inertia		• Reduce deceleration times in parameters C1-02, C1-04, C1-06, and C1-08 for applications that do not use High Slip Braking. • Use a braking resistor to shorten deceleration time.
Motor is driven by the load		
Something on the load side is restricting deceleration		
The overload time during High Slip Braking is too short		• Increase parameter n3-04 (High-slip Braking Overload Time). • Install a thermal relay and increase the setting of n3-04 to maximum value.

Digital Operator Display		Fault Name
oPr	oPr	External Digital Operator Connection Fault
		The external operator has been disconnected from the drive. **Note:** An oPr fault will occur when all of the following conditions are true: • Output is interrupted when the operator is disconnected (o2-06 = 1). • The Run command is assigned to the operator (b1-02 = 0 and LOCAL has been selected).
Cause		**Possible Solution**
External operator is not properly connected to the drive		• Check the connection between the operator and the drive. • Replace the cable if damaged. • Turn off the drive input power and disconnect the operator. Reconnect the operator and reapply drive input power.

Digital Operator Display		Fault Name
oS	oS	Overspeed
		The motor speed feedback exceeded the F1-08 setting.
Cause		**Possible Solution**
Overshoot is occurring		• Reduce the C5-01, Speed Control Proportional Gain 1, setting and increase the C5-02, Speed Control Integral Time 1, setting. • If using Closed Loop Vector mode, enable Feed Forward and perform Inertia Auto-Tuning.

Digital Operator Display	Fault Name
Incorrect speed feedback scaling if terminal RP is used as speed feedback input in V/f control	• Set H6-02 to the value of the speed feedback signal frequency when the motor runs at the maximum speed. • Adjust the input signal using parameters H6-03 through H6-05.
Incorrect number of PG pulses has been set	Check and correct parameter F1-01.
Inappropriate parameter settings	Check the setting for the overspeed detection level and the overspeed detection time (F1-08 and F1-09).

Digital Operator Display		Fault Name
oU	ov	Overvoltage Voltage in the DC bus has exceeded the overvoltage detection level. • For 200 V class drives: approximately 410 V • For 400 V class drives: approximately 820 V (740 V when E1-01 is less than 400) • For 600 V class drives: approximately 1040 V
Cause		**Possible Solution**
Deceleration time is too short and regenerative energy is flowing from the motor into the drive		• Increase the deceleration time (C1-02, C1-04, C1-06, C1-08). • Install a dynamic braking resistor or a dynamic braking resistor unit. • Set L3-04 to 1 to enable stall prevention during deceleration. Stall Prevention is enabled as the default setting.
Fast acceleration time causes the motor to overshoot the speed reference		• Check if sudden drive acceleration triggers an overvoltage alarm. • Increase the acceleration time. • Use longer S-curve acceleration and deceleration times. • Enable the Overvoltage Suppression function (L3-11 = 1). • Lengthen the S-curve at acceleration end.
Excessive braking load		The braking torque was too high, causing regenerative energy to charge the DC bus. Reduce the braking torque, use a dynamic braking option, or lengthen decel time.
Surge voltage entering from the drive input power		Install a DC link choke. **Note:** Voltage surge can result from a thyristor convertor and phase advancing capacitor using the same input power supply.
Ground fault in the output circuit causes the DC bus capacitor to overcharge		• Check the motor wiring for ground faults. • Correct grounding shorts and reapply power.
Improper parameters related to Speed Search (including Speed Search after a momentary power loss and after a fault restart)		• Check the settings for Speed Search-related parameters. • Enable Speed Search restart function (b3-19 greater than or equal to 1, up to 10). • Adjust the current level during Speed Search and the deceleration time (b3-02 and b3-03 respectively). • Perform Stationary Auto-Tuning for line-to-line resistance and then set b3-14 to 1 to enable Speed Estimation Speed Search.
Drive input power voltage is too high		• Check the voltage. • Lower drive input power voltage within the limits listed in the specifications.
The braking transistor or braking resistor are wired incorrectly		• Check braking transistor and braking resistor wiring for errors. • Properly rewire the braking resistor device.
PG cable is disconnected		Reconnect the cable.
PG cable wiring is wrong		Correct the wiring.
Electrical signal interference along the PG encoder wiring		Separate the wiring from the source of the electrical signal interference. Often, the source is the output lines from the drive.
Drive fails to operate properly due to electrical signal interference		• Review the list of possible solutions provided for controlling electrical signal interference. • Review the section on handling electrical signal interference on page *453* and check the control circuit lines, main circuit lines, and ground wiring.
Load inertia is set incorrectly		• Check the load inertia settings when using KEB, overvoltage suppression, or Stall Prevention during deceleration. • Adjust the load inertia ratio in L3-25 to better match the load.
Braking function is being used in OLV/PM		Connect a braking resistor.
Motor hunting occurs		• Adjust the parameters that control hunting. • Set the gain for Hunting Prevention (n1-02). • Adjust the AFR time constant (n2-02 and n2-03). • Adjust the speed feedback detection suppression gain for PM motors (n8-45) and the time constant for pull-in current (n8-47).

Digital Operator Display		Fault Name
PF	PF	Input Phase Loss
		Drive input power has an open phase or has a large imbalance of voltage between phases. Detected when L8-05 is set 1 (enabled).
Cause		**Possible Solution**
There is phase loss in the drive input power		• Check for wiring errors in the main circuit drive input power. • Correct the wiring.
There is loose wiring in the drive input power terminals		• Ensure the terminals are tightened properly. • Apply the tightening torque as specified in this manual. *Refer to Main Circuit Wire Gauges and Tightening Torques on page 129* for details.
There is excessive fluctuation in the drive input power voltage		• Check the voltage from the drive input power. • Review the possible solutions for stabilizing the drive input power.
There is poor balance between voltage phases		Stabilize drive input power or disable phase loss detection.
The main circuit capacitors are worn		• Check the maintenance time for the capacitors (U4-05). • Replace the main capacitor(s) if U4-05 is greater than 90%. For instructions on replacing the capacitor(s), contact Yaskawa or a Yaskawa representative.
		Check for problems with the drive input power. If drive input power appears normal but the alarm continues to occur, replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

Digital Operator Display		Fault Name
PGo	PGo	PG Disconnect (for any control modes using a PG option card)
		No PG pulses are received for longer than the time set to F1-14.
Cause		**Possible Solution**
PG cable is disconnected		Reconnect the cable.
PG cable wiring is wrong		Correct the wiring.
PG has no power		Check the power line to the PG encoder.
PG encoder brake is clamped shut		Ensure the motor brake releases properly.

Digital Operator Display		Fault Name
PGoH	PGoH	PG Hardware Fault (detected when using a PG-X3 option card)
		PG cable is not connected properly.
Cause		**Possible Solution**
PG cable is disconnected		Reconnect the cable and check the setting of F1-20.

Digital Operator Display		Fault Name
rF	rF	Braking Resistor Fault
		The resistance of the braking resistor is too low.
Cause		**Possible Solution**
The proper braking resistor option has not been installed		Select a braking resistor option that it fits the drive braking transistor specification.
A regenerative converter, regenerative unit, or braking unit is being used and the ⊕1 or ⊕3 terminal is connected to ⊖ terminal		Set L8-55 to 0 to disable the braking transistor protection selection.

Digital Operator Display		Fault Name
rH	rH	Braking Resistor Overheat
		Braking resistor protection was triggered. Fault detection is enabled when L8-01 = 1 (disabled as a default).
Cause		**Possible Solution**
Deceleration time is too short and excessive regenerative energy is flowing back into the drive		• Check the load, deceleration time, and speed. • Reduce the load inertia. • Increase the deceleration times (C1-01 to C1-08). • Replace the dynamic braking option with a larger device that can handle the power that is discharged.
The duty cycle is too high		Check the duty cycle. Maximum of 3% duty cycle is available when L8-01 = 1.
Excessive braking inertia		Recalculate braking load and braking power. Reduce the braking load by adjusting braking resistor settings.
The braking operation duty cycle is too high		Check the braking operation duty cycle. Braking resistor protection for ERF-type braking resistors (L8-01 = 1) allows a braking duty cycle of maximum 3%.
The proper braking resistor has not been installed		• Check the specifications and conditions for the braking resistor device. • Select the optimal braking resistor.
Note: The magnitude of the braking load trips the braking resistor overheat alarm, NOT the surface temperature. Using the braking resistor more frequently than its rating permits will trip the alarm even when the braking resistor surface is not very hot.		

Digital Operator Display		Fault Name
rr	rr	Dynamic Braking Transistor
		The built-in dynamic braking transistor failed.
Cause		**Possible Solution**
The braking transistor is damaged		• Cycle power to the drive and check for reoccurrence of the fault. • Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.
The control circuit is damaged		

Digital Operator Display		Fault Name
SC <1>	SC	Output Short Circuit or IGBT Fault
		Short circuit or ground fault is detected. **Note:** Fault reset will not be received to prevent a short-circuit of the internal circuitry caused by the IGBP fault.
Cause		**Possible Solution**
The drive is damaged		• Check the drive output side short circuit for a broken output transistor B1 and U/T1, V/T2, W/T3 – and U/T1, V/T2, W/T3 • Contact your Yaskawa representative or nearest Yaskawa sales office.
Motor has been damaged from overheat or the motor insulation has been weakened.		Check the motor insulation resistance and replace the motor if continuity is detected.
The cable is damaged and is coming into contact with something causing a short circuit.		Check the motor power cable and repair any short circuits.
Hardware fault.		A short circuit or grounding fault on the drive output side has damaged the output transistors. Make sure drive output is not shorted as follows: B1←→U, V, W – ←→U, V, W The above short circuit will damage the output transistors. Contact your Yaskawa representative or sales offices for assistance.

<1> Available in drive software versions PRG: 1015 and later.

Digital Operator Display		Fault Name
SEr	SEr	Too Many Speed Search Restarts
		The number of Speed Search restarts exceeded the value set to b3-19.
Cause		**Possible Solution**
Parameters related to Speed Search are set to the wrong values		• Reduce the detection compensation gain during Speed Search (b3-10). • Increase the current level when attempting Speed Search (b3-17). • Increase the detection time during Speed Search (b3-18). • Repeat Auto-Tuning.

Digital Operator Display	Fault Name
The motor is coasting in the opposite direction of the Run command	Set b3-14 to 1 to enable Bi-Directional Speed Search.

Digital Operator Display		Fault Name
SEr o	STo	Pull-Out Detection
		Motor pull out or step out has occurred. Motor has exceeded its pull-out torque.
Cause		**Possible Solution**
The wrong motor code is set (Yaskawa motors only)		• Enter the correct motor code for the PM being used into E5-01. • For special-purpose motors, enter the correct data to all E5 parameters according to the test report provided for the motor.
Load is too heavy		• Increase the load inertia for PM motor (n8-55). • Increase the pull-in current during accel/decel (n8-51). • Reduce the load. • Use a larger motor and drive.
Load inertia is too heavy		Increase the load inertia for PM motor (n8-55).
Acceleration and deceleration times are too short		• Increase the acceleration and deceleration times (C1-01 through C1-08). • Increase the S-curve acceleration and deceleration times (C2-01).
Speed response is too slow		Increase the load inertia for PM motor (n8-55).

Digital Operator Display		Fault Name
SuE	SvE	Zero Servo Fault
		Position deviation during zero servo.
Cause		**Possible Solution**
Torque limit is set too low		Set the torque limit to an appropriate value using parameters L7-01 to L7-04.
Excessive load torque		Reduce the amount of load torque.
Electrical signal interference along PG encoder wiring		Check the PG signal for electrical signal interference.

Digital Operator Display		Fault Name
THo <1>	THo	Thermistor Disconnect
		The thermistor that detects motor temperature has become disconnected.
Cause		**Possible Solution**
The motor thermistor is not connected properly.		Check the thermistor wiring.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Fault Name
UL3	UL3	Undertorque Detection 1
		The current has fallen below the minimum value set for Torque Detection Level 1 (L6-02) for longer than the allowable time (L6-03).
Cause		**Possible Solution**
Parameter settings are not appropriate for the load		Check the settings of parameters L6-02 and L6-03.
There is a fault on the machine side		Check the load for any problems.

Digital Operator Display		Fault Name
UL4	UL4	Undertorque Detection 2
		The current has fallen below the minimum value set for Torque Detection Level 2 (L6-05) for longer than the allowable time (L6-06).
Cause		**Possible Solution**
Parameter settings are not appropriate for the load		Check L6-05 and L6-06 settings
There is a fault on the machine side		Check the load for any problems.

Digital Operator Display		Fault Name
UL5	UL5	Mechanical Weakening Detection 2
		The operation conditions matched the conditions set to L6-08.
Cause		**Possible Solution**
Undertorque was detected and matched the conditions for mechanical loss detection set to L6-08		Check the load side for any problems.

Digital Operator Display		Fault Name
UnbC <1>	UnbC	Current Unbalance
		Current flow has become unbalanced.
Cause		**Possible Solution**
The internal current sensor has detected a current unbalance situation.		• Check wiring • Check for damaged transistors. • Check for short circuits or grounding problems on the connected motor.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Fault Name
Uv1	Uv1	DC Bus Undervoltage
		One of the following conditions occurred while the drive was running: • Voltage in the DC bus fell below the undervoltage detection level (L2-05). • For 200 V class drives: approximately 190 V • For 400 V class drives: approximately 380 V (350 V when E1-01 is less than 400) • For 600 V class drives: approximately 475 V The fault is output only if L2-01 is set to 0 or 1 and the DC bus voltage has fallen below the level set to L2-05 for longer than the time set to L2-02.
Cause		**Possible Solution**
Input power phase loss		• The main circuit drive input power is wired incorrectly. • Correct the wiring.
One of the drive input power wiring terminals is loose		• Ensure there are no loose terminals. • Apply the tightening torque specified in this manual to fasten the terminals. ***Refer to Main Circuit Wire Gauges and Tightening Torques on page 129*** for details.
There is a problem with the voltage from the drive input power		• Check the voltage. • Correct the voltage to be within the range listed in drive input power specifications. • If there is no problem with the power supply to the main circuit, check for problems with the main circuit magnetic contactor.
The power has been interrupted		Correct the drive input power.
The main circuit capacitors are worn		• Check the maintenance time for the capacitors (U4-05). • Replace either the control board or the entire drive if U4-05 exceeds 90%. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.
The relay or contactor on the soft-charge bypass relay is damaged		• Cycle power to the drive and see if the fault reoccurs. • Check monitor U4-06 for the performance life of the soft-charge bypass relay. • Replace either the control board or the entire drive if U4-06 exceeds 90%. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

Digital Operator Display		Fault Name
Uv2	Uv2	Control Power Supply Voltage Fault
		Voltage is too low for the control drive input power.
Cause		**Possible Solution**
In drive models 2A0004 to 2A0056 or 4A0002 to 4A0031, L2-02 was changed from its default value without installing a Momentary Power Loss Ride-Thru unit		Correct the setting to L2-02 or install an optional Momentary Power Loss Ride-Thru unit.
Control power supply wiring is damaged		• Cycle power to the drive. Check if the fault reoccurs. • If the problem continues, replace the control board, the entire drive, or the control power supply. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

Digital Operator Display	Fault Name
Internal circuitry is damaged	• Cycle power to the drive. Check if the fault reoccurs. • If the problem continues, replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

Digital Operator Display		Fault Name
Uv3	Uv3	Undervoltage 3 (Soft-Charge Bypass Relay Fault)
		The soft-charge bypass relay failed.
Cause		**Possible Solution**
The relay or contactor on the soft-charge bypass relay is damaged		• Cycle power to the drive and see if the fault reoccurs. • Check monitor U4-06 for the performance life of the soft-charge bypass relay. • Replace either the control board or the entire drive if U4-06 exceeds 90%. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

Digital Operator Display		Fault Name
Uv4 <1>	Uv4	Gate Drive Board Undervoltage
		Voltage drop in the gate drive board circuit
Cause		**Possible Solution**
Not enough power is being supplied to the gate drive board.		• Cycle power to the drive and see if the fault reoccurs. ***Refer to Diagnosing and Resetting Faults on page 446*** for details. • If the problem continues, replace either the gate drive board or the entire drive. For instructions on replacing the gate drive board, contact Yaskawa or a Yaskawa representative.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Fault Name
voF	voF	Output Voltage Detection Fault
		Problem detected with the voltage on the output side of the drive.
Cause		**Possible Solution**
Hardware is damaged. Internal drive module MC / FAN overheat protection circuit board is due to abnormal ambient operating power.		• Lower ambient temperature. • Replace the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or a Yaskawa representative.

6.5 Alarm Detection

◆ Alarm Codes, Causes, and Possible Solutions

Alarms are drive protection functions that do not necessarily cause the drive to stop. After removing the cause of an alarm, the drive will return to the same status is was before the alarm occurred.

When an alarm has been triggered, the ALM light on the digital operator display blinks and the alarm code display flashes. If a multi-function output is set for an alarm (H2-☐☐ = 10), that output terminal will be triggered.

Note: If a multi-function output is set to close when an alarm occurs (H2-☐☐ = 10), it will also close when maintenance periods are reached, triggering alarms LT-1 through LT-4 (triggered only if H2-☐☐ = 2F).

Table 6.15 Alarm Codes, Causes, and Possible Solutions

Digital Operator Display		Minor Fault Name
AEr	AEr	Station Address Setting Error (CC-Link, CANopen, MECHATROLINK)
		Option card node address is outside of the acceptable setting range.
Cause		**Possible Solutions**
Station number is set outside the possible setting range.		• Set parameter F6-10 to the proper value when using a CC-Link option. • Set parameter F6-35 to the proper value when using a CANopen option.

Digital Operator Display		Minor Fault Name
bb	bb	Baseblock
		Drive output interrupted as indicated by an external baseblock signal.
Cause		**Possible Solutions**
External baseblock signal was entered via one of the multi-function input terminals (S1 to S8).		Check external sequence and baseblock signal input timing. **Note:** Baseblock alarm "bb" will not activate a digital output programmed for minor fault H2-0☐ = 10. Set H2-0☐ = 8 or 1B to activate a digital output for "bb".

Digital Operator Display		Minor Fault Name
boL	boL	Braking Transistor Overload Fault
		The braking transistor in the drive has been overloaded.
Cause		**Possible Solutions**
The proper braking resistor has not been installed.		Select the proper braking resistor.
Use a regen converter, regen unit, braking unit, or other device to connect the +1 or +3 terminal to the - terminal.		Set L8-55 to 0 to disable Internal Braking Transistor Protection.
The braking transistor's use rate is high (i.e., the regen converter is large or the repetition frequency is high).		• Change to a CDBR type braking unit. • Change to a regen converter. • Increase the deceleration time.
The braking transistor inside the drive is faulty.		Replace the drive.

Digital Operator Display		Minor Fault Name
bUS	bUS	Option Communication Error
		• The connection was lost after initial communication was established. • Assign a Run command frequency reference to the option.
Cause		**Possible Solutions**
Connection is broken or master controller stopped communicating.		• Check for faulty wiring. • Correct the wiring. • Check for disconnected cables and short circuits. Repair as needed.
Option is damaged.		If there are no problems with the wiring and the fault continues to occur, replace the option.
The option is not properly connected to the drive.		• The connector pins on the option are not properly lined up with the connector pins on the drive. • Reinstall the option.

Digital Operator Display	Minor Fault Name
A data error occurred due to noise.	• Check options available to minimize the effects of noise. • Take steps to counteract noise in the control circuit wiring, main circuit lines and ground wiring. • Try to reduce noise on the controller side. • Use surge absorbers on magnetic contactors or other equipment causing the disturbance. • Use recommended cables or some other type of shielded line. Ground the shield to the controller side or on the input power side. • Separate the wiring for communication devices from the drive input power lines. Install an EMC noise filter to the drive input power.

Digital Operator Display		Minor Fault Name
CALL	CALL	Serial Communication Transmission Error
		Communication has not yet been established.
Cause		**Possible Solutions**
Communications wiring is faulty, there is a short circuit, or something is not connected properly.		• Check for wiring errors. • Correct the wiring. • Check for disconnected cables and short circuits. Repair as needed.
Programming error on the master side.		Check communications at start-up and correct programming errors.
Communications circuitry is damaged.		• Perform a self-diagnostics check. • If the problem continues, replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.
Termination resistor setting is incorrect.		Install a termination resistor at both ends of a communication line. Set the internal termination resistor switch correctly on slave drives. Place DIP switch S2 to the ON position.

Digital Operator Display		Minor Fault Name
CE	CE	MEMOBUS/Modbus Communication Error
		Control data was not received correctly for two seconds.
Cause		**Possible Solutions**
A data error occurred due to noise.		• Check options available to minimize the effects of noise. • Take steps to counteract noise in the control circuit wiring, main circuit lines, and ground wiring. • Reduce noise on the controller side. • Use surge absorbers for the magnetic contactors or other components that may be causing the disturbance. • Use only recommended shielded line. Ground the shield on the controller side or on the drive input power side. • Separate all wiring for communication devices from drive input power lines. Install an EMC noise filter to the drive input power supply.
Communication protocol is incompatible.		• Check the H5 parameter settings and the protocol setting in the controller. • Ensure settings are compatible.
The CE detection time (H5-09) is set shorter than the time required for a communication cycle to take place.		• Check the PLC. • Change the software settings in the PLC. • Set a longer CE detection time using parameter H5-09.
Incompatible PLC software settings or there is a hardware problem.		• Check the PLC. • Remove the cause of the error on the controller side.
Communications cable is disconnected or damaged.		• Check the connector to make sure the cable has a signal. • Replace the communications cable.

Digital Operator Display		Minor Fault Name
CrST	CrST	Cannot Reset
Cause		**Possible Solutions**
Fault reset was being executed when a Run command was entered.		• Ensure that a Run command cannot be entered from the external terminals or option during fault reset. • Turn off the Run command.

Digital Operator Display		Minor Fault Name
CyC	CyC	MECHATROLINK Comm. Cycle Setting Error
		Comm. Cycle Setting Error was detected.
Cause		**Possible Solutions**
The controller is using a comm. cycle beyond the allowable setting range for the MECHATROLINK option.		Set the comm. cycle for the upper controller within the allowable setting range for the MECHATROLINK option.

Digital Operator Display		Minor Fault Name
dEv	dEv	Speed Deviation (when using a PG option card and AOLV/PM without PG)
		The deviation between the speed reference and speed feedback is greater than the setting in F1-10 for longer than the time in F1-11.
Cause		**Possible Solutions**
Load is too heavy		Reduce the load.
Acceleration and deceleration times are set too short.		Increase the acceleration and deceleration times (C1-01 through C1-08).
The load is locked up.		Check the machine.
Parameter settings are inappropriate.		Check the settings of parameters F1-10 and F1-11 .
Incorrect speed feedback scaling when using terminal RP as speed feedback input in V/f Control.		• Set H6-02 to value of the speed feedback signal frequency when the motor runs at the maximum speed. • Adjust the speed feedback signal using parameters H6-03 through H6-05. • Make sure the speed feedback signal frequency does not exceed the maximum input frequency of terminal RP.
The motor brake engaged.		Ensure the brake releases properly.

Digital Operator Display		Minor Fault Name
dnE	dnE	Drive Disabled
Cause		**Possible Solutions**
"Drive Enable" is set to a multi-function contact input (H1-□□ = 6A) and that signal was switched off.		Check the operation sequence.

Digital Operator Display		Minor Fault Name
EF	EF	Forward/Reverse Run Command Input Error
		Both forward run and reverse run closed simultaneously for longer than 0.5 s.
Cause		**Possible Solutions**
Sequence error		Check the forward and reverse command sequence and correct the problem. **Note:** When minor fault EF detected, motor ramps to stop.

Digital Operator Display		Minor Fault Name
EF0	EF0	Option Card External Fault
		An external fault condition is present.
Cause		**Possible Solutions**
An external fault was received from the PLC with F6-03 set to 3, which allows the drive to continue running after an external fault occurs.		• Remove the cause of the external fault. • Remove the external fault input from the PLC.
There is a problem with the PLC program.		Check the PLC program and correct problems.

Digital Operator Display		Minor Fault Name
EF1	EF1	External Fault (Input Terminal S1)
		External fault at multi-function input terminal S1.
EF2	EF2	External fault (input terminal S2)
		External fault at multi-function input terminal S2.
EF3	EF3	External fault (input terminal S3)
		External fault at multi-function input terminal S3.
EF4	EF4	External fault (input terminal S4)
		External fault at multi-function input terminal S4.
EF5	EF5	External fault (input terminal S5)
		External fault at multi-function input terminal S5.
EF6	EF6	External fault (input terminal S6)
		External fault at multi-function input terminal S6.
EF7	EF7	External fault (input terminal S7)
		External fault at multi-function input terminal S7.

Digital Operator Display		Minor Fault Name
EF8	EF8	External fault (input terminal S8)
		External fault at multi-function input terminal S8.
Cause		**Possible Solutions**
An external device has tripped an alarm function.		Remove the cause of the external fault and reset the multi-function input value.
Wiring is incorrect.		• Ensure the signal lines have been connected properly to the terminals assigned for external fault detection (H1-□□ = 2C to 2F). • Reconnect the signal line.
Multi-function contact inputs are set incorrectly.		• Check if the unused terminals have been set for H1-□□ = 2C to 2F (External Fault). • Change the terminal settings.

Digital Operator Display		Minor Fault Name
FAn	FAn	Internal Fan Fault
		Fan or magnetic contactor failure (detected when L8-32 = 3 or 4)
Cause		**Possible Solution**
Internal cooling fan has malfunctioned		• Cycle power to the drive. • Check for fan operation. • Verify the cumulative operation time of the fan with monitor U4-03, and verify the cumulative operation time of the fan maintenance timer with U4-04. • If the cooling fan has exceeded its expected performance life or is damaged in any other way, replace the fan.
Fault detected in the internal cooling fan or magnetic contactor to the power supply.		• Cycle power to the drive. • If the fault continues to occur, replace the power board/gate drive board or the entire drive. • Contact Yaskawa or a Yaskawa representative for instructions on replacing the power board/gate drive board.

Digital Operator Display		Minor Fault Name
FbH	FbH	Excessive PID Feedback
		The PID feedback input is higher than the level set to b5-36 for longer than the time set to b5-37, and b5-12 is set to 1 or 4.
Cause		**Possible Solutions**
Parameter settings for b5-36 and b5-37 are incorrect.		Check parameters b5-36 and b5-37.
PID feedback wiring is faulty.		Correct the wiring.
Feedback sensor has malfunctioned.		Check the sensor and replace it if damaged.
Feedback input circuit is damaged.		Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

Digital Operator Display		Minor Fault Name
FbL	FbL	PID Feedback Loss
		The PID feedback input is lower than the level set to b5-13 for longer than the time set to b5-14.
Cause		**Possible Solutions**
Parameter settings for b5-13 and b5-14 are incorrect.		Check parameters b5-13 and b5-14.
PID feedback wiring is faulty.		Correct the wiring.
Feedback sensor has malfunctioned.		Check the sensor and replace it if damaged.
Feedback input circuit is damaged.		Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

Digital Operator Display		Minor Fault Name
Hbb	Hbb	Safe Disable Signal Input <1>
		Both Safe Disable Input channels are open.
Cause		**Possible Solutions**
Both Safe Disable Inputs H1 and H2 are open.		• Check signal status at the input terminals H1 and H2. • Check the Sink/Source Selection for the digital inputs. • If the Safe Disable function is not utilized, determine if terminals H1-HC, and H2-HC are linked.

Digital Operator Display	Minor Fault Name
Internally, both Safe Disable channels are broken.	Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

<1> Terminals H1, H2, DM+, and DM- on 600 V class models are designed to the functionality, but are not certified to IEC/EN 61800-5-1, ISO/EN 13849 Cat. 3, IEC/EN 61508 SIL2, Insulation coordination: class 1.

Digital Operator Display		Minor Fault Name
HbbF	HbbF	Safe Disable Signal Input <1>
		One Safe Disable channel is open while the other channel is closed.
Cause		**Possible Solutions**
The signals to the Safe Disable inputs are wrong or the wiring is incorrect.		Check signal status at the input terminals H1 and H2. If the Safe Disable function is not utilized, terminals H1-HC, and H2-HC must be linked.
One of the Safe Disable channels is faulty.		Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

<1> Terminals H1, H2, DM+, and DM- on 600 V class models are designed to the functionality, but are not certified to IEC/EN 61800-5-1, ISO/EN 13849 Cat. 3, IEC/EN 61508 SIL2, Insulation coordination: class 1.

Digital Operator Display		Minor Fault Name
HCA	HCA	Current Alarm
		Drive current exceeded overcurrent warning level (150% of the rated current).
Cause		**Possible Solutions**
Load is too heavy.		Reduce the load for applications with repetitive operations (i.e., stops and starts), or use a larger drive.
Acceleration and deceleration times are too short.		• Calculate the torque required during acceleration and for the moment of inertia. • If the torque level is not right for the load, take the following steps: • Increase the acceleration and deceleration times (C1-01 through C1-08). • Use a larger drive.
A special-purpose motor is being used, or the drive is attempting to run a motor greater than the rated output current.		• Check the motor capacity. • Use a motor appropriate for the drive. Ensure the motor is within the rated output current range.
The current level increased due to Speed Search after a momentary power loss or while attempting to perform a fault restart.		The alarm will only appear briefly. There is no need to take action to prevent the alarm from occurring in such instances.

Digital Operator Display		Minor Fault Name
LT-1	LT-1	Cooling Fan Maintenance Time
		The cooling fan has reached its expected maintenance period and may need to be replaced. **Note:** The signal closes when the maintenance period ends if H2-☐☐ = 2F. The signal will not close if H2-☐☐ = 10.
Cause		**Possible Solutions**
The cooling fan has reached 90% of its expected performance life.		Replace the cooling fan and set o4-03 to 0 to reset the Maintenance Monitor.

Digital Operator Display		Minor Fault Name
LT-2	LT-2	Capacitor Maintenance Time
		The main circuit and control circuit capacitors are nearing the end of their expected performance life. **Note:** The signal closes when the maintenance period ends if H2-☐☐ = 2F. The signal will not close if H2-☐☐ = 10.
Cause		**Possible Solutions**
The main circuit and control circuit capacitors have reached 90% of their expected performance lives.		Replace the drive.

Digital Operator Display		Minor Fault Name
LT-3	LT-3	Soft Charge Bypass Relay Maintenance Time
		The DC bus soft charge relay is nearing the end of its expected performance life. **Note:** The signal closes when the maintenance period ends if H2-☐☐ = 2F. The signal will not close if H2-☐☐ = 10.

Digital Operator Display	Minor Fault Name
Cause	**Possible Solutions**
The DC bus soft charge relay has reached 90% of expected performance life.	Replace the drive.

Digital Operator Display		Minor Fault Name
LT-4	LT-4	IGBT Maintenance Time (50%)
		IGBTs have reached 50% of their expected performance life. **Note:** The signal closes when the maintenance period ends if H2-☐☐ = 2F. The signal will not close if H2-☐☐ = 10.
Cause		**Possible Solutions**
IGBTs have reached 50% of their expected performance life.		Check the load, carrier frequency, and output frequency.

Digital Operator Display		Minor Fault Name
oH	oH	Heatsink Overheat
		The temperature of the heatsink exceeded the overheat pre-alarm level set to L8-02 (90-100 °C). Default value for L8-02 is determined by drive model selection (o2-04).
Cause		**Possible Solutions**
Surrounding temperature is too high		• Check the surrounding temperature. • Improve the air circulation within the enclosure panel. • Install a fan or air conditioner to cool surrounding area. • Remove anything near drive that may cause extra heat.
Internal cooling fan has stopped.		• Replace the cooling fan. • After replacing the drive, set parameter o4-03 to 0 to reset the cooling fan operation time.
Airflow around the drive is restricted.		• Provide proper installation space around the drive as indicated in the manual. ***Refer to Installation Orientation and Spacing on page 54*** for details. • Allow for the proper space and ensure that there is sufficient circulation around the control panel.
		• Check for dust or other foreign materials clogging the cooling fan. • Clear debris caught in the fan that restricts air circulation.

Digital Operator Display		Minor Fault Name
oH2	oH2	Heatsink Overheat Warning
		"Heatsink Overheat Warning" was input to a multi-function input terminal, S1 through S8 (H1-☐☐= B).
Cause		**Possible Solutions**
An external device triggered an overheat warning in the drive.		Search for the device that tripped the overheat warning. Remove the cause of the problem.

Digital Operator Display		Minor Fault Name
oH3	oH3	Motor Overheat
		The motor overheat signal entered to a multi-function analog input terminal exceeded the alarm level (H3-02, H3-06 or H3-10 = E).
Cause		**Possible Solutions**
Motor thermostat wiring is faulty (PTC input).		Repair the PTC input wiring.
There is a fault on the machine side (e.g., the machine is locked up).		• Check the status of the machine. • Remove the cause of the fault.
Motor has overheated.		• Check the load size, accel/decel times, and cycle times. • Decrease the load. • Increase accel and decel times (C1-01 to C1-08). • Adjust the preset V/f pattern (E1-04 through E1-10). This involves reducing E1-08 and E1-10. **Note:** Refrain from lowering E1-08 and E1-10 excessively to prevent a reduction in load tolerance at low speeds. • Check the motor-rated current. • Enter motor-rated current on motor nameplate (E2-01). • Ensure the motor cooling system is operating normally. • Repair or replace the motor cooling system.

Digital Operator Display		Minor Fault Name
oH5 <1>	oH5	Motor Overheat (NTC Input)
		The motor temperature exceeded the level set to L1-16 (or L1-18 for motor 2)
Cause		**Possible Solutions**
Motor has overheated.		• Reduce the load. • Check the ambient temperature.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Minor Fault Name
oL3	oL3	Overtorque 1
		Drive output current (or torque in OLV, CLV, AOLV/PM, and CLV/PM) was greater than L6-02 for longer than the time set to L6-03.
Cause		**Possible Solutions**
Inappropriate parameter settings.		Check parameters L6-02 and L6-03.
There is a fault on the machine side (e.g., the machine is locked up).		• Check the status of the machine. • Remove the cause of the fault.

Digital Operator Display		Minor Fault Name
oL4	oL4	Overtorque 2
		Drive output current (or torque in OLV, CLV, AOLV/PM, CLV/PM) was greater than L6-05 for longer than the time set to L6-06.
Cause		**Possible Solutions**
Parameter settings are not appropriate.		Check parameters L6-05 and L6-06.
There is a fault on the machine side (e.g., the machine is locked up).		• Check the status of the machine being used. • Remove the cause of the fault.

Digital Operator Display		Minor Fault Name
oL5	oL5	Mechanical Weakening Detection 1
		Overtorque occurred, matching the conditions specified in L6-08.
Cause		**Possible Solutions**
Overtorque occurred, triggering the mechanical weakening level set to L6-08.		Check for the cause of mechanical weakening.

Digital Operator Display		Minor Fault Name
oS	oS	Overspeed
		The motor speed feedback exceeded the F1-08 setting.
Cause		**Possible Solutions**
Overshoot is occurring.		• Increase the settings for C5-01 (Speed Control Proportional Gain 1) and reduce C5-02 (Speed Control Integral Time 1). • If using a Closed Loop Vector mode enable Feed Forward Control and perform Inertia Auto-Tuning.
Incorrect speed feedback scaling if terminal RP is used as speed feedback input in V/f control		• Set H6-02 to value of the speed feedback signal frequency when the motor runs at the maximum speed. • Adjust the input signal using parameters H6-03 through H6-05.
Incorrect PG pulse number has been set		Check and correct parameter F1-01.
Inappropriate parameter settings.		Check the setting for the overspeed detection level and the overspeed detection time (F1-08 and F1-09).

Digital Operator Display		Minor Fault Name
ov	ov	DC Bus Overvoltage
		The DC bus voltage exceeded the trip point. • For 200 V class drives: approximately 410 V • For 400 V class drives: approximately 820 V (740 V when E1-01 is less than 400) • For 600 V class drives: approximately 1040 V
Cause		**Possible Solutions**
Surge voltage present in the drive input power.		• Install a DC link choke or an AC reactor. • Voltage surge can result from a thyristor convertor and a phase advancing capacitor operating on the same drive input power system.

Digital Operator Display	Minor Fault Name
The motor is short-circuited. Ground current has overcharged the main circuit capacitors via the drive input power.	• Check the motor power cable, relay terminals and motor terminal box for short circuits. • Correct grounding shorts and turn the power back on.
Electrical signal interference causes the drive to operate incorrectly.	• Review possible solutions for handling electrical signal interference. • Review section on handling electrical signal interference and check control circuit lines, main circuit lines and ground wiring. • If the magnetic contactor is identified as a source of electrical signal interference, install a surge protector to the MC coil.
	Set number of fault restarts (L5-01) to a value other than 0.
PG cable is disconnected.	Reconnect the cable.
PG cable wiring is wrong.	Correct the wiring.
Electrical signal interference along PG encoder wiring.	Separate PG wiring from the source of the interference (often output wiring from the drive).

Digital Operator Display		Minor Fault Name
PASS	PASS	MEMOBUS/Modbus Comm. Test Mode Complete
Cause		**Possible Solutions**
MEMOBUS/Modbus test has finished normally.		This verifies that the test was successful.

Digital Operator Display		Minor Fault Name
PGo	PGo	PG Disconnect (for Control Mode with PG)
		Detected when no PG pulses are received for a time longer than setting in F1-14.
Cause		**Possible Solutions**
PG cable is disconnected.		Reconnect the cable.
PG cable wiring is wrong.		Correct the wiring.
PG encoder does not have enough power.		Make sure the correct power supply is properly connected to the PG encoder.
Brake is holding the PG.		Ensure the brake releases properly

Digital Operator Display		Minor Fault Name
PGoH	PGoH	PG Hardware Fault (detected when using a PG-X3 option card)
		PG cable has become disconnected.
Cause		**Possible Solutions**
PG cable is disconnected.		Reconnect the cable and check the setting of F1-20.

Digital Operator Display		Minor Fault Name
rUn	rUn	Motor Switch during Run
		A command to switch motors was entered during run.
Cause		**Possible Solutions**
A motor switch command was entered during run.		Change the operation pattern so that the motor switch command is entered while the drive is stopped.

Digital Operator Display		Minor Fault Name
SE	SE	MEMOBUS/Modbus Communication Test Mode Error **Note:** This alarm will not trigger a multi-function output terminal that is set for alarm output (H2-□□ = 10).
Cause		**Possible Solutions**
A digital input set to 67H (MEMOBUS/ Modbus test) was closed while the drive was running.		Stop the drive and run the test again.

Digital Operator Display		Minor Fault Name
THo <1>	THo	Thermistor Disconnect
		The thermistor used to detect motor temperature has become disconnected.
Cause		**Possible Solutions**
The motor thermistor is not connected properly.		Check the thermistor wiring.

<1> Detected in models 4A0930 and 4A1200.

Digital Operator Display		Minor Fault Name
rrPC	TrPC	IGBT Maintenance Time (90%)
		IGBTs have reached 90% of their expected performance life.
Cause		**Possible Solutions**
IGBTs have reached 90% of their expected performance life.		Replace the drive.

Digital Operator Display		Minor Fault Name
UL3	UL3	Undertorque Detection 1
		Drive output current (or torque in OLV, CLV, AOLV/PM, and CLV/PM) less than L6-02 for longer than L6-03 time.
Cause		**Possible Solutions**
Inappropriate parameter settings.		Check parameters L6-02 and L6-03.
Load has dropped or decreased significantly.		Check for broken parts in the transmission system.

Digital Operator Display		Minor Fault Name
UL4	UL4	Undertorque Detection 2
		Drive output current (or torque in OLV, CLV, AOLV/PM, and CLV/PM) less than L6-05 for longer than L6-06 time.
Cause		**Possible Solutions**
Inappropriate parameter settings.		Check parameters L6-05 and L6-06.
The load has dropped or decreased significantly.		Check for broken parts in the transmission system.

Digital Operator Display		Minor Fault Name
Uv	Uv	Undervoltage
		One of the following conditions was true when the drive was stopped and a Run command was entered: • DC bus voltage dropped below the level specified in L2-05. • Contactor to suppress inrush current in the drive was opened. • Low voltage in the control drive input power. This alarm outputs only if L2-01 is not 0 and DC bus voltage is under L2-05.
Cause		**Possible Solutions**
Phase loss in the drive input power.		Check for wiring errors in the main circuit drive input power. Correct the wiring.
Loose wiring in the drive input power terminals.		• Ensure the terminals have been properly tightened. • Apply the tightening torque to the terminals as specified. ***Refer to Main Circuit Wire Gauges and Tightening Torques on page 129***.
There is a problem with the drive input power voltage.		• Check the voltage. • Lower the voltage of the drive input power so that it is within the limits listed in the specifications.
Drive internal circuitry is worn.		• Check the maintenance time for the capacitors (U4-05). • Replace either the control board or the entire drive if U4-05 exceeds 90%. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.
The drive input power transformer is too small and voltage drops when the power is switched on.		• Check for an alarm when the magnetic contactor, line breaker, and leakage breaker are closed. • Check the capacity of the drive input power transformer.
Air inside the drive is too hot.		Check the temperature inside the drive.
The CHARGE light is broken or disconnected.		Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.

Digital Operator Display		Minor Fault Name
voF	voF	Output Voltage Detection Fault
		There is a problem with the output voltage.
Cause		**Possible Solutions**
Hardware is damaged.		Replace either the control board or the entire drive. For instructions on replacing the control board, contact Yaskawa or your nearest sales representative.