All Drive Types	PF7000A	PF7000B	PF7000C	Marine Drive	Heat pipe Drive	Fault Message	Fault Code	Description	Recommended Action(s)
X						Adaptr1 ForceFlt	26	There has been a loss of communication between the identified DPI adapter and the customer's communication network. The communication between the drive and the DPI adapter may still be active. This is a requirement for DPI communications. If the loss of communication from the network to the adapter is required to be a warning, this must be set in the adapter itself, not within the drive.	• Verify the customer network is properly communicating with the device. • Check DPM status LEDs and compare to the information in the User Manual. • Change the adapter if all attempts to restore communication fail. • Cycle control power.
X						Adaptr2 ForceFlt	27		
X						Adaptr3 ForceFlt	28		
X						Adaptr4 ForceFlt	29		
X						Adaptr5 ForceFlt	30		
X						Adaptr6 ForceFlt	31		
						Ambient OvrTemp	182	NOT ACTIVE	
						Ambient LowTemp	183	NOT ACTIVE	
						Ambient FbrOptic	184	NOT ACTIVE	
						Ambient Sensor	185	NOT ACTIVE	
X						Arbitration Loss	602	The number of Arbitration Loss faults has exceeded the maximum allowable level.	• Check the DCSL communication wiring and shielding.
X						Auxiliary Prot'n	37	Standard External Fault/Warning Input included to allow the end user to install a protective relay/system status contact that can activate a drive fault or warning, depending on configuration of Aux Prot Class (P445). The message means that the drive has detected a fault triggered by the input wired in the auxiliary input of the XIO card.	• Check the device responsible for the auxiliary contact to this input, and investigate the cause of the open contact status. • Check the 120V signal through the external device. • Check the XIO board inputs and parameter status bits. • Check the 120V wiring and the XIO card. • For firmware revisions 10.002 and earlier: If more than one of the following faults appear with the same time stamp (P32. . .37), check the externally-supplied 120V UPS is shut off or has voltage sag. • Verify there is voltage to AC input #4 on the ACB board.
X						Bypass CtctrOpen	168	The bypass contactor was opened without a command from the drive. Verify the contactor feedback and the 120V wiring to the ACB.	• Because the drive system needs to have complete control over all contactors, investigation of the specific contactor fault is required. • Verify contactor feedback. • Verify the control power circuit for the contactor. • Check permissive string to the contactor control relay (refer to drawing). • Check contactor/breaker for physical malfunction (auxiliaries). • Check ACB inputs and outputs at J1.
X						Bypass IsoSwClsd	175	The bypass isolation switch is closed when it was expected to be open. Verify the isolation switch mechanical set up and the 120V wiring to the ACB. Depending on the operating mode of the drive, ensure that the switch is in the proper position.	• Depending on the mode of operation (Normal, System Test, Open-Circuit Test, DC Current Test, or Open-Loop), there are specific states for all the possible system isolation switches (Refer to the description of parameter 141 Hardware Options1. Be sure the isolation switches are in the proper position. • Verify wiring feedback. • Verify isolation switch mechanical auxiliary setup. • READ ASSOCIATED DESCRIPTION.
X						Bypass IsoSwOpen	172	The bypass isolation switch is open when it was expected to be closed. Verify the isolation switch mechanical set up and the 120V wiring to the ACB. Depending on the operating mode of the drive, ensure that the switch is in the proper position.	

All Drive Types	PF7000A	PF7000B	PF7000C	Marine Drive	Heat pipe Drive	Fault Message	Fault Code	Description	Recommended Action(s)
X						Input Prot'n #1	32	Standard external fault/warning input included allowing the end-user to install a protective relay (for example, input feed protection relay) auxiliary contact that can activate a drive fault or warning, depending on configuration of InputProt1 Class (P440).	• Check device responsible for the auxiliary contact to this input and investigate the fault indicated by the device's fault message. • Investigate internal and external causes for this fault code. • Check the 120V signal through the external device. • Check the XIO board inputs and parameter status bits. • For firmware revisions 10.002 and earlier: If more than one of the following faults appear with the same time stamp (P32…37), check the externally-supplied 120V UPS is shut off or has voltage sag. • Verify there is voltage to AC input #4 on the ACB board.
X						InputProt'n #2	36	Standard external fault/warning input included allowing the end-user to install a protective relay (for example, input feed protection relay) auxiliary contact that can activate a drive fault or warning, depending on configuration of InputProt2 Class (P444).	• Check device responsible for the auxiliary contact to this input and investigate the fault indicated by the device's fault message. • Investigate internal and external causes for this fault code. • Check the 120V signal through the external device. • Check the XIO board inputs and parameter status bits. • **REVISION 9003 and higher,** this input is dedicated to line filter capacitor protection. An open circuit on this input will trigger the line filter capacitor protection. For additional information, see fault code 135 • For firmware revisions 10.002 and earlier: If more than one of the following faults appear with the same time stamp (P32…37), check the externally-supplied 120V UPS is shut off or has voltage sag. • Verify there is voltage to AC input #4 on the ACB board.
X						Inv A1 Fault	677	Inverter A1 fault: The inverter OIBBS diagnostic subsystem has detected a fault.	• Ensure the OIB2s are installed in the OIBBS. • Cycle the control power. • If the same fault still trips the drive, contact the manufacturer for the OIBBS spare parts for replacement.
X						Inv A1 PwrSupply	678	Inverter A1 power supply out of range: The inverter OIBBS diagnostic subsystem has detected a fault. A1 boost converter output voltage is out of range.	• Ensure OIB2s are installed in the OIBBS. • Cycle the control power. • If the same fault still trips the drive, contact the manufacturer for the OIBBS spare parts for replacement.
X						InvA2D Convrsion	189	This fault indicates that the analog to digital converters on the ACB were not able to completely transmit the data to the slave processor using the DMA within the sampling period.	• Cycle control power to see if the fault remains, and replace the ACB or DPM.
X						Inv A2GateBufFlt	679	Inverter A2 gate buffer fault: The inverter OIBBS diagnostic subsystem has detected a fault. A2, the gate buffer has detected a fault.	• Verify all the connection to the inverter OIBBS. • Cycle the control power. • If the same fault still trips the drive, contact the manufacturer for the OIBBS spare parts for replacement.
X						InvAnlg SelfTest	186	On power up the drive has detected that dc offset on some analog feedback channels is high. The offending channels are indicated by parameters InvAnlg SelfTst1 (P96) and InvAnlg SelfTst2 (P251) in the Diagnostic group.	• Cycle control power to see if the fault remains, and replace the ACB if necessary. • Using a multimeter, check the DC offset on the circuit when this fault is present. The feedbacks that cause this fault can be determined by looking at parameter (P96 and P251) in the Diagnostic group. • See Technical Note PF7000_GEN-12, **Line/Motor ADC/DAC Faults on Initial Power-Up** • See Technical Note PF7000-4th Gen_Gen 34 **Troubleshooting 'InvAnlg SelfTst2' Fault**

All Drive Types	PF7000A	PF7000B	PF7000C	Marine Drive	Heat pipe Drive	Warning Message	Warning Code	Description	Recommended Action(s)
						NVRAM Cleared	96	The drive parameters are corrupt and have been initialized to default values. This happened either during a firmware upgrade or if the battery was low. Reload the parameters into the drive	• Reload the parameters from terminal memory, DriveTools, Flashcard, or from a hardcopy.
						Output CtctrOpen	186	The output contactor is open even though it has been commanded to close.	• Verify the contactor feedback and the 120V wiring to the ACB. • The drive may be in auto-restart mode following loss of medium voltage. • Be sure the associated starter unit is set to Normal mode. • Verify the feedback from the contactor status (normally control relay auxiliary and contactor mechanical auxiliary) is wired properly and powered. • Verify that there is control power to the contactor. • Verify the associated ACB I/O. • Verify that the holding coil or closing coil is not shorted. • Review the contactor control wiring. • These warnings may also occur during the auto restart feature, as the loss of power may also result in the inability to hold in the contactor during the outage.
						Output CtctrClsd	187	The output contactor is closed even though it has been commanded to open. Verify normal mode of starter the contactor feedback and the 120V wiring to the ACB.	
						Output IsoSwClsd	194	The input isolation switch is closed when it is expected to be open. The switch should be open in System, Gate and Open Circuit test.	• In DC Current test modes, the isolation switches are expected to be closed for DC Current test; although only the input contactor is required the test will run with warnings if the switches are open. • Be sure the isolation switches are in the proper position for the specific operating mode (Refer to the description of parameter 141 – **Hardware Option1** in the parameters manual). • Verify the feedback wiring. • Verify isolation switch mechanical auxiliary setup.
						Output IsoSwOpen	191	The output isolation switch is open when it is expected to be closed. The switch should be closed in Normal, DC Current test and Open Loop modes.	
						Parameter Range	97	The parameter value loaded from the NVRAM or the DIM is outside the valid range and has been set to default value. The offending parameter number has been stored in Parameter Error (P597). Enter the correct value.	• If this was a result of an INIT operation, contact the factory. • If this was a result of a LOAD operation, correct the parameter value and perform a SAVE operation. • Check the settings on the DIM to determine whether it is limiting the parameter's max or min values.

All Drive Types	PF7000A	PF7000B	PF7000C	Marine Drive	Heat pipe Drive	Warning Message	Warning Code	Description	Recommended Action(s)
						PFC Disabled	214	The power factor compensation feature has been automatically disabled. This feature is disabled under the following conditions: • During dynamic braking • During over speed operating conditions • During sync/de-synch period • If line filter capacitor per unit is equal to or greater than 0.55 pu • When operating in an autotune function the feature (will not be used however will remain enabled) • When using the 'Standard' option and running up to 50% speed for 30 minutes • When using the 'Standard' option and commanding a speed greater than 50% where the drive is running in SVM for 5 minutes • When HPTC mode is enabled	• Read the description to understand why this feature could have been disabled. • Contact MV Product Support.
						PFC IdcLimit	227	Maximum DC current limit for power factor compensation has been reached.	• No further power factor correction is possible under these conditions. • Check the drive load, speed, line and motor voltage. • Contact the factory.
						PFC Flux Limit	228	Flux command has been limited to avoid high motor voltage or current.	• The power factor cannot be compensated further. • Check the drive load, speed, line and motor voltage. • Contact the factory.
						Phantom Alarm	102	Development error: An unused bit in fault/warning word has been detected. It is due to noise interference on the control boards. Contact the factory.	• Check for a noise/grounding issue. • Verify all board connections. • Contact the factory.
						Process Var Loss	229	Feedback from the process is not valid.	• Check the process sensor, 4…20 mA or 0…10V input to the drive. • Check the wiring at interface module (IFM).
			X			Pump Failure (C-FRAME ONLY)	33	This warning is for liquid cool drives. The drive has detected a pump failure in the cooling circuit.	• Verify the pump overload settings and conditions. • Verify the pump control relay status and auxiliary contact signals.
						Queues Cleared	100	The drive cleared the fault and warning queues due to a firmware upgrade.	• No action is required.
						R Stator High	61	Autotune R stator (P219) measured during the autotune test was higher than 0.50 pu, indicating the presence of extremely long motor leads.	• Refer to the Commissioning chapter in the PowerFlex 7000 Medium Voltage AC Drives User Manual for autotune procedures, results and actions. • Be sure the motor windings are connected properly.
						RAM Battery Low	166	The battery power on the NVRAM is low.	• Save the parameters in the drive terminal and replace the battery.
						Rec AC Cur Gain	174	The current gain calculated for DC link current sensing is lower than expected.	• Verify that the HECS ratio and burden resistor match the drive/motor ratings.

Spare Parts

This appendix lists the available spare parts for the PowerFlex® 7000 medium voltage drive.

Components and Related Part Numbers

Item	Description	Part Number
Batteries	DPM Battery	346567-Q01
Control Boards		
ACB	Analog Control Board for 18 Pulse Drive	80190-560-01-R
ACB	Analog Control Board for NON 18 Pulse Drive	80190-560-02-R
DPM	Drive Processor Board	80190-580-01-R
XIO	External Input / Output board (120…240V AC)	80190-300-01-R
XIO	External Input / Output board (12…24V AC)	80190-300-02-R
Power Electronics		
SGCT single device		
400A	Single 400A SGCT	81004-286-51-R
800A	Single 800A SGCT	81001-450-51-R
1500A	Single 1500A SGCT	81001-451-61-R
1750A	Single 1750A SGCT	81001-451-71-R
SGCT Matched set of two		
400A	Matched set of two 400A SGCT	81004-286-52-R
800A	Matched set of two 800A SGCT	81001-450-52-R
1500A	Matched set of two 1500A SGCT	81001-451-62-R
1750A	Matched set of two 1750A SGCT	81001-451-72-R
SGCT Matched set of three		
400A	Matched set of three 400A SGCT	81004-286-53-R
800A	Matched set of three 800A SGCT	81001-450-53-R
1500A	Matched set of three 1500A SGCT	81001-451-63-R
1750A	Matched set of three 1750A SGCT	81001-451-73-R
SGCT Matched set of four		
1750A	Matched set of four 1750A SGCT, marine drive Dynamic Brake	81001-451-74-R
SCR single device		
350A	Single 350A SCR	81001-335-71-R
800A	Single 800A SCR	81003-437-51-R