Supplement for Instruction Manual D2-3217 GP2000 Variable Torque Controllers

50 HP @ 208 VAC M/N 2VU01050
75 KW @ 380 VAC M/N 2VU31075
75 KW @ 415 VAC M/N 2VU11075
125 HP @ 460 VAC M/N 2VU41125
125 HP @ 575 VAC M/N 2VU51125

VS DRIVES

Instruction Manual D2-3266-1

December, 1993

RELIANCE ELECTRIC

Introduction To This Supplement

DANGER

ONLY QUALIFIED ELECTRICAL PERSONNEL FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THIS EQUIPMENT AND THE HAZARDS INVOLVED SHOULD INSTALL, ADJUST, OPERATE, AND/OR SERVICE THIS EQUIPMENT. READ AND UNDERSTAND THIS SUPPLEMENT AND INSTRUCTION MANUAL D2-3217 IN THEIR ENTIRETY BEFORE PROCEEDING. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN SEVERE BODILY INJURY OR LOSS OF LIFE.

The products described in this supplement are manufactured by Reliance Electric Industrial Company.

This supplement provides basic information on:

- **Controller Model Numbers:**

2VU01050	208VAC	50HP
2VU31075	380VAC	75KW
2VU11075	415VAC	75KW
2VU41125	460VAC	125HP
2VU51125	575VAC	125HP

- **Controller Ratings**
- **Identifying the Controller**
- **Controller Specifications**
- **Installing A-C Branch Circuit Protection**
- **Kit Descriptions and Wiring**
- **Replacement Parts List Tables**

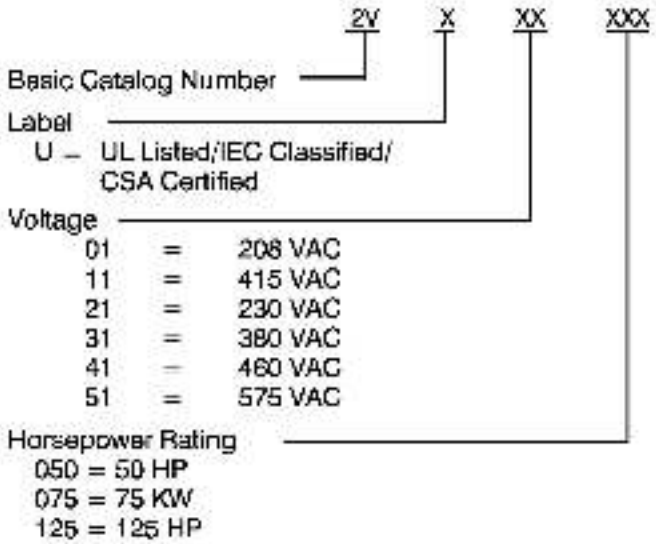
Each section detailed in this supplement shows what information differs from that given for model numbers described in Instruction Manual D2-3217. Follow all guidelines and procedures given in Instruction Manual D2-3217, unless otherwise stated or specified here.

Identify the Controller

(Replaces same section in Instruction Manual D2-3217, Page 1:1)

Each Reliance Electric GP2000 Variable Torque Controller can be positively identified by its Model Number (for standard controller) or Sales Order Number (for customer-specified controller). This number appears on the shipping label and is stamped on the controller nameplate. Refer to this number whenever discussing the equipment with Reliance Electric personnel.

The standard Model Number describes the controller as follows:



Controller Kits

(Replaces Table 2-1 in Instruction Manual D2-3217, Page 2:8)

Model Number	Voltage Rating	HP/KW	Factory/Field Installed	Description	Instruction Manual Number
1RG5003	All	All	Both	V-3 Regulator Upgrade Kit	D2-3269
1SC4000	All	All	Both	Rail Interface Card	D2-3170
1TP3000	All	All	Both	Reference Trim Pot	D2-3213
1RS3000	All	All	Both	Remote Operator Station	D2-3214
3DM4000	All	All	Both	Remote Digital Meter	D2-3169
1CR4100	All	All	Both	Inverter Disconnect	D2-3245
1PE4100	All	All	Both	P-E Transducer	D2-3248
1RR4100	All	All	Factory	Remote Reference Selector	None[6]
1FB4100	All	All	Factory	Output Feedback (4-20mA)	None[6]
1GB4100	All	All	Factory	Gain/Bias Reference Adjustment	None[6]
1BM4000	All	All	Both	BPM AC Motor Blower	D2-3254
2FU4100	All	All	Both	Inverter Fuse Kit	D2-3249
1CN4125	All	All	Factory	Output Contactor Kit[7]	None
1LF4125	All	All	Factory	Line Reactor and Fuse Kit[7]	None
2DB2010[2]	230	10HP[4]	Both	Dynamic Braking Kit	D2-3178
2DB2010[2]	208	10HP[4]	Both	Dynamic Braking Kit	D2-3178
2DC2010[5]	230	10HP[4]	Both	Dynamic Braking Kit	D2-3178
2DC2010[5]	208	10HP[4]	Both	Dynamic Braking Kit	D2-3178
2DB4020[2]	460	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DB4020[2]	415	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DB4020[2]	380	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DC4020[5]	460	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DC4020[5]	415	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DC4020[5]	380	20HP[4]	Both	Dynamic Braking Kit	D2-3179
2DB5020[2]	575	20HP[4]	Both	Dynamic Braking Kit	D2-3180
2DC5020[5]	575	20HP[4]	Both	Dynamic Braking Kit	D2-3180
1ML4125[1]	460	125HP	Factory	Motor Overload Kit [2]	None[6]
	415	75KW			
	380	75KW			
	208	50HP			
5KU4100	All	All	Factory	Side Cabinet Kit	None
1BU5125	575	125HP	Factory	Bypass Circuit Cabinet	None
1BU4125	460	125HP	Factory	Bypass Circuit Cabinet	None
1BU1075	415	75KW	Factory	Bypass Circuit Cabinet	None
1BU3075	380	75KW	Factory	Bypass Circuit Cabinet	None
1BU0050	208	50HP	Factory	Bypass Circuit Cabinet	None

(1) Must include Side Cabinet Kit.
(2) U/L
(3) Note: Controller contains internal electronic motor overload, but an electro-mechanical motor overload (such as this kit) may be required for local codes.
(4) Up to (5) Dynamic Braking Kits can be wired together to increase DB capability (see Figure 3-8 or 4-11 in D2-3217).
(5) CSA
(6) See Section 7, D2-3217, for information on these factory installed kits.
(7) Refer to "Kit Descriptions and Wiring" later in this supplement for information on these factory installed kits.

Variable Torque Controller Specifications

(Replaces Table 2-2 in Instruction Manual D2-3217, Page 2:10)

Controller Ratings

Controller Model Number	Controller 3-Phase Input Volts	Nominal HP/ KW	Controller Input KVA	Input Amps at Rated Output Amps[2]	Maximum Controller Output Amps
2VU01050	208	50HP[3]	59	163	151
2VU01075	380	75KW[3]	106	163	151
2VU11075	415	75KW[3]	117	163	151
2VU41125	460	125HP[3]	130	163	151
2VU51125	575	125HP	143	143	125

(*) Some manufacturers motor current ratings may exceed output current rating of controller. If so, size controller to next HP rating.
(2) Controller "Maximum" input amps are given for distribution systems which can supply short circuit current between 85,001 – 42,000 amps at the controller's input terminals. For distribution systems below 85,001 amps, see Table 3-5 in Instruction Manual D2-3217.
(3) Ratings at 40° C

A-C Line Distribution System Capacity

(Replaces Table 2-3 in Instruction Manual D2-3217, Page 2:10)

Input Voltage	Maximum Distribution System Capacity[1]
208	750 KVA
380	1400 KVA
415	1500 KVA
460	1700 KVA
575	2100 KVA

(*) Assumes 5% transformer impedance.

Service Conditions

(Replaces same bullets from same section in Instruction Manual D2-3217, Page 2:10)

- Ambient Temperature: −10°C to 40°C (14°F to 131°F)
- A-C Line Distribution system capacity: (See Table 2-3) Maximum symmetrical fault current capacity must not exceed 42,000 amps. Class J, time delay fuses must be installed internally or upstream in the distribution system.

Controller Application Data

(Replaces same bullets from same section in Instruction Manual D2-3217, Page 2:11)

- Maximum Load: 110% for one minute (based on controller nameplate rating)
- Current Limit Adjustment: 50 to 100% (based on controller nameplate rating)

Mounting the GP2000 Variable Torque Controller in User-Supplied Enclosure

(Replaces Table 3-1 from Instruction Manual D2-3217, Page 3:4)

Heat Generated By GP2000 Variable Torque Power Modules (without kits).

Volts	460/575	415/380	208
HP	125	75	50
Watts	2300	1900	1500

Install A-C Branch Circuit Protection

A-C Line Branch Circuit Protection With 3-Phase Input.

(Replaces Table 3-2 from Instruction Manual D2-3217, Page 3:7)

Controller Model Number	Controller HP/KW Range	Controller 3-Phase Input Volts	Max Input Current Rating (Amps)	Recommended Input Fuse Rating UL Class/Rating		Max Allowable Input Fuse Rating UL Class/Rating	
2VU01050	50HP	208	163	J	200	J	400[1]
2VU31075	75KW	380	163	J	200	J	400[1]
2VU11075	75KW	415	163	J	200	J	400[1]
2VU41125	125HP	460	163	J	200	J	400[1]
2VU51125	125HP	575	143	J	200	J	400[1]

(*) Controller has provisions for mounting up to 200A, J-type, time delay fuses internally. Fuses used above 200A must be mounted external from drive cabinet or in 5KU4100 Side Cabinet Kit.

Kit Descriptions and Wiring

- **Line Reactor and Fuse Kit**

The Model Number 1LF4125 Line Reactor and Input Fuse Kit is for Controllers rated at 125HP/575VAC, 125HP/460VAC, 75KW/415VAC, 75KW/380VAC, and 50HP/208VAC.

This kit consists of a Line Reactor rated for 125HP, an Input Disconnect Switch, and Input Fuses rated at 200A.

This kit is factory installed only, and requires the Model Number 5KU4100 (U/L rated) or 5KC4100 (CSA rated) Side Cabinet Kit for mounting.

The Line Reactor and Input Fuse Kit wiring is shown in Figure 1:

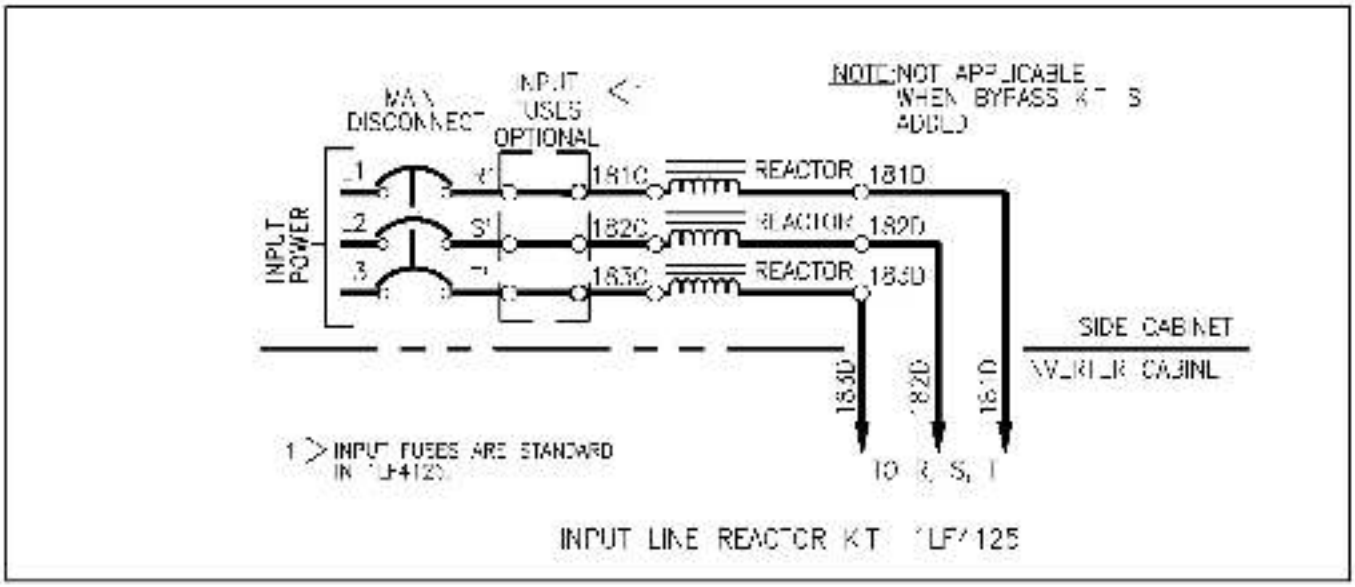


Figure 1. M/N 1LF4125, Line Reactor and Input Fuse Kit Wiring.

- **Output Contactor Kit**

  The Model Number 1CN4125 Output Contactor Kit is for Controllers rated 125HP/575VAC, 125HP/460VAC, 75KW/415VAC, 75KW/380VAC, and 50HP/208VAC.

  This kit consists of an output contactor rated for 125HP, wire harnesses, and a terminal block (TB20) for connections.

The contactor coil is powered from the Inverter transformer, 24VDC power supply. This kit requires an 1MI4000 Remote Meter Interface Kit, and a 5KU4100 (U/L rated) or a 5KC4100 (CSA rated) Side Cabinet Kit.

The 1MI4000 Remote Meter Interface Kit is used to control the time in which the contactor closes (and the controller starts) and opens. When the controller stops, terminals TB3 (36 & 37) are wired in series with the contactor coil and are responsible for pickup and release of the coil.

Function 28 (see I/M D2-3217, Section 6), needs to be programmed for selection #3. (Output Contactor Selection.)

This kit is factory installed only and requires the Side Cabinet Kit for mounting. See Figure 2 for wiring:

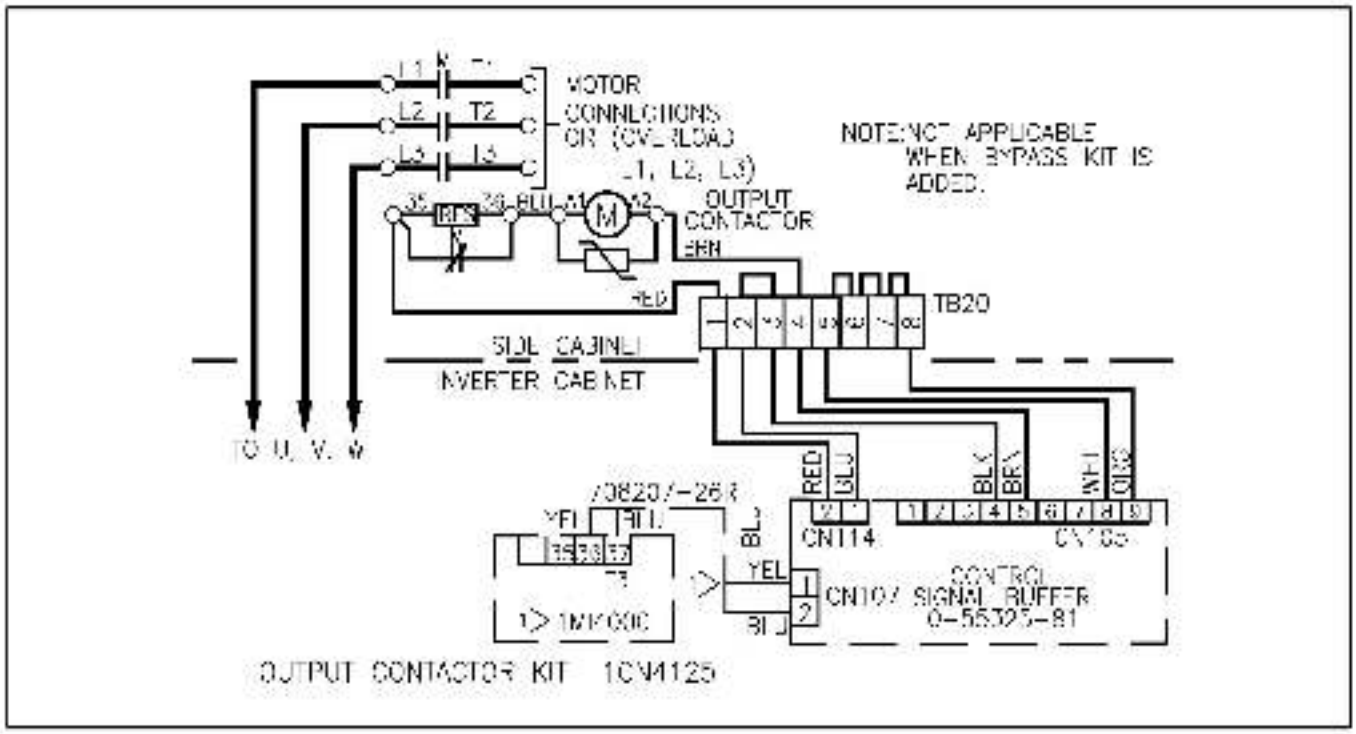


Figure 2. Output Contactor Kit Wiring.

Replacement Parts List

These replacement parts tables replace the tables in Section 8, in the D2-3217 Instruction Manual.

For Controllers rated at 50HP, 208VAC:

Description	Quantity	Part Number
Input Diode Module	3	701819-109AY
Transistor Module	6	602909-125AW
D-C Bus Capacitors	4	600442-29TA
Precharge Relay	2	705310-32M
Precharge Resistor	1	63481-11S
Voltage Detect Resistor	1	63481-102TFB
D-C Bus Fuse (1FU)	1	64676-130AZX(1)
Regulator PCB	1	0-48680-118
Tarzan Fan	2	69739-9S
GND Fault Sensor	1	64670-35R
Bus Clamp Ckt.	3	0-55325-85
Transistor Diode Assy.	6	611899-82S
Supp. Cap Assy.	6	612182-27R
Base Driver	1	0-55325-84
Keypad Assy.	1	612180-801R
Discharge Resistor	2	63481-6AY
Maps Power Supply	1	0-48680-215
Multiple Voltage PCB	1	0-55325-82
Ctrl. Fuses (2FU,3FU)	2	64676-64G(2)
Ctrl. Fuses (6-8FU)	3	64676-64K(3)
Ctrl. Fuses (4FU, 5FU)	2	64676-71E(4)
Ctrl. Fuse (9FU)	1	64676-71Q(5)
Current Sensors	3	600595-16CA
Inverter Thermostat	2	66012-11H
Diode Assembly	1	611899-5S
Precharge Cap. Assy.	1	612182-1R
Transformer Assy	1	411027-123R
Control Signal Buffer Board	1	0-55325-81
Remote Meter Interface Board	1	0-48680-312
Coast-Stop Switch	1	610281-12R

(1) 700V, 300A (Brush Semiconductor Fuse)
(2) 600V, 2A (Littelfuse, Type KDLR Class CC, Rejection)
(3) 600V, 4A (Littelfuse, Type LDR Class CC, Rejection
(4) 250/125V, 0.5A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)
(5) 250/125V, 3A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)

For Controllers rated at 75KW/380VAC, 75KW/415VAC, 125HP/460VAC:

Description	Quantity	Part Number
Input Diode Module	3	701819-109AY
Transistor Module	6	602909-125AW
D-C Bus Capacitors	4	600442-29TA
Precharge Relay	2	705310-32M
Precharge Resistor	1	63481-11S
Voltage Detector Resistor	1	63481-102TFB
D-C Bus Fuse (1FU)	1	64676-130AZX(1)
Regulator PCB	1	0-48680-11B
Tarzan Fan	2	69739-9S
GND Fault Sensor	1	64670-35R
Bus Clamp Ckt.	3	0-55325-B5
Transistor Diode Assy.	6	611899-82S
Supp. Cap Assy.	6	612182-27R
Base Driver	1	0-55325-B4
Keypad Assy.	1	612180-801R
Discharge Resistor	2	63481-6AY
Maps Power Supply	1	0-48680-213
Multiple Voltage PCB	1	0-55325-80
Ctrl. Fuses (2FU,3FU)	2	64676-64G(2)
Ctrl. Fuses (6-8FU)	3	64676-64G(3)
Ctrl. Fuses (4FU, 5FU)	2	64676-71E(4)
Ctrl. Fuse (9FU)	1	64676-71Q(5)
Current Sensors	3	600595-16CA
Inverter Thermostat	2	66012-11H
Diode Assembly	1	611899-5S
Precharge Cap. Assy.	1	612182-1R
Transformer Assy	1	411027-123S
Control Signal Buffer Board	1	0-55325-B1
Remote Meter Interface Board	1	0-48680-312
Coast-Stop Switch	1	610281-12R

(1) 700V, 300A (Brush Semiconductor Fuse)
(2) 600V, 2A (Littelfuse, Type KDLR Class CC, Rejection)
(3) 600V, 4A (Littelfuse, Type LDR Class CC, Rejection
(4) 250/125V, 0.5A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)
(5) 250/125V, 3A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)

For Controllers rated at 125HP/575VAC:

Description	Quantity	Part Number
Input Diode Module	3	701819-109AY
Transistor Module	6	602909-125AW
D-C Bus Capacitors	4	600442-28SV
Precharge Relay	2	705310-32M
Precharge Resistor	1	63481-11S
Voltage Detector Resistor	1	63481-102TFB
D-C Bus Fuse (1FU)	1	64676-140AZX
Regulator PCB	1	0-48680-118
Tarzan Fan	2	69739-9S
GND Fault Sensor	1	64670-35R
Bus Clamp Ckt.	3	0-55325-B5
Transistor Diode Assy.	6	611899-82S
Supp. Cap Assy.	6	612182-27S
Base Driver	1	0-55325-B4
Keypad Assy.	1	612180-801R
Discharge Resistor	2	63481-6BB
Maps Power Supply	1	0-48680-216
Multiple Voltage PCB	1	0-55325-83
Ctrl. Fuses (2FU,3FU)	2	64676-64G[2]
Ctrl. Fuses (6-8FU)	3	64676-64G[3]
Ctrl. Fuses (4FU, 5FU)	2	64676-71E[4]
Ctrl. Fuse (9FU)	1	64676-71Q[5]
Current Sensors	3	600595-16BC
Inverter Thermostat	2	66012-11H
Diode Assembly	1	611899-5S
Precharge Cap. Assy.	1	612182-1R
Transformer Assy	1	411027-123T
Control Signal Buffer Board	1	0-55325-B1
Remote Meter Interface Board	1	0-48680-312
Coast-Stop Switch	1	610281-12R

(1) 700V, 300A (Brush Semiconductor Fuse)
(2) 600V, 2A (Littelfuse, Type KDLR Class CC, Rejection)
(3) 600V, 4A (Littelfuse, Type LDR Class CC, Rejection
(4) 250/125V 0.5A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)
(5) 250/125V 3A (Littelfuse Type 239, or Bussman Type GMC, Slowblow, 5 x 20 mm glass fuse)

Replacement Parts List For Bypass Components (208–460 VAC):

Input Voltage/HP	Description	Quantity	Part Number
All	Input Reactor	1	608895-55H
All	Input Fuses (20FU, 21FU, 22FU)	3	64676-75BE
All	Inverter Contactor	1	705310-58BD
All	Bypass Contactor	1	705310-39BD
All	Overload Relay	1	64427-21C

Replacement Parts List For Bypass Components (575 VAC Only):

Input Voltage/HP	Description	Quantity	Part Number
575V/125HP	Input Reactor	1	608895-55J
575V/125HP	Input Fuses (20FU, 21FU, 22FU)	3	64676-75BC
575V/125HP	Inverter Contactor	1	705310-57AD
575V/125HP	Bypass Contactor	1	705310-58BD
575V/125HP	Overload Relay	1	64427-20C

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