



GE Motors & Industrial Systems

VME BACKPLANE BOARD DS200VPBLG1A_ _

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FUNCTIONAL DESCRIPTION

INTRODUCTION

The DS200VPBLA__ VME Backplane Board (VPBL) is the VME backplane for the J2 and J3 sections of the equipment's card cage. The J1 section is a commercially purchased product.

FUNCTIONAL SPECIFICATIONS

The VPBL board is multilayer and the analog and digital power planes are kept separate. There are power distribution and bypass capacitors at each power connection at each slot.

Figure 1 displays the board layout of the VPBL board in the J2 and J3 sections of the VME board rack.

SAFETY SYMBOL LEGEND



Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in personal injury or death.



Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in damage to or destruction of equipment

NOTE Indicates an essential or important procedure, practice, condition, or statement.

Section J2

Section J2 supports a number of boards:

- Digital Signal Processor Control Board (DS200 DSPC) with daughterboards in slot J1.
- I/O extender with daughterboards in slot J3, to the right of the DSPC.
- Up to three Gate Distribution and Status Boards (DS200 FCGD) in slots J5, J7, and J9.

Mate-n-Lock is a trademark of AMP, Inc.

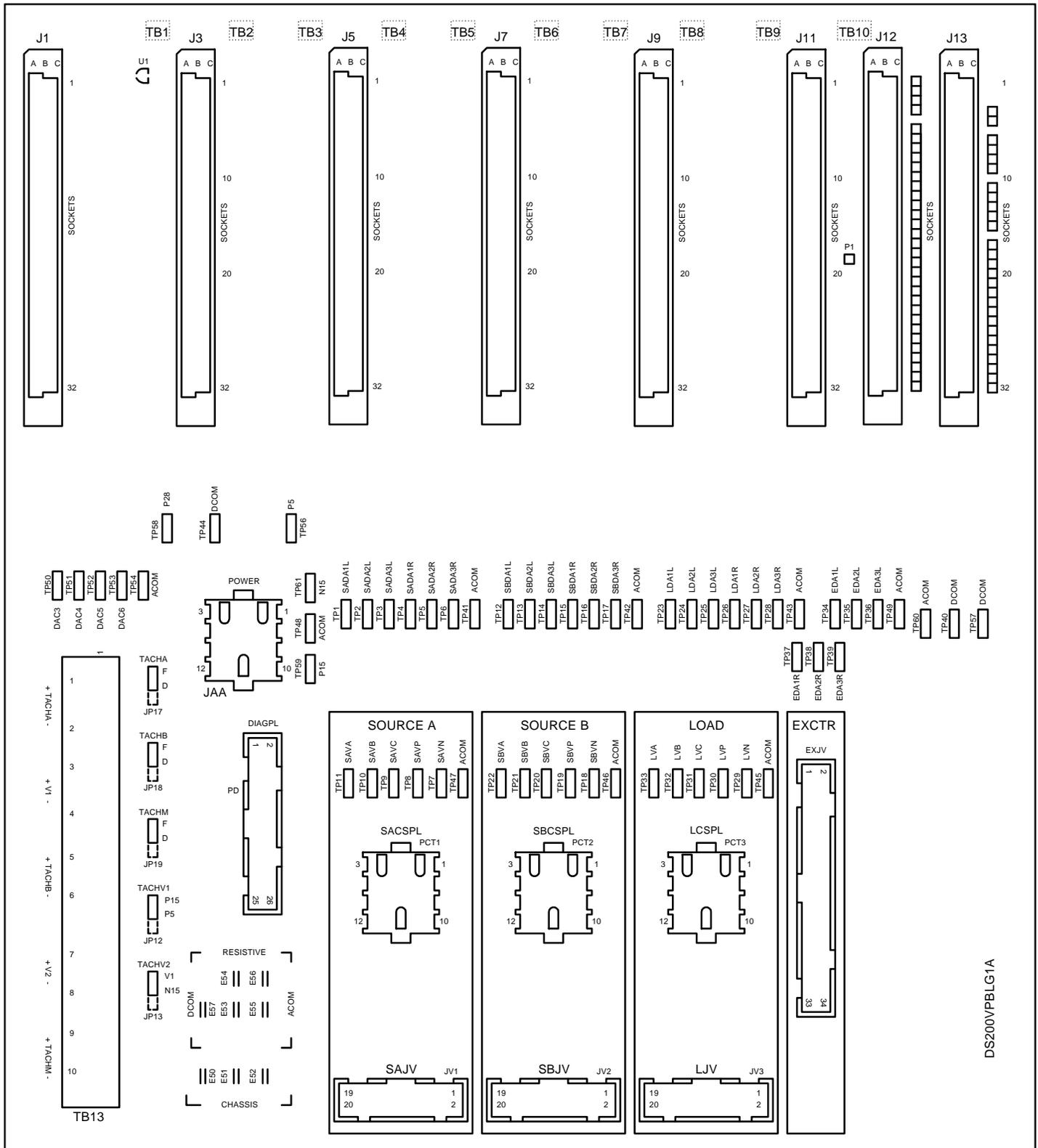


Figure 1. VPBL Board Layout Drawing.

- One exciter board in slot J11.
- Two spare slots, J12 and J13.

All slots, except Slot 1, have the slot identification number (ID) permanently hardwired at the P2 connector. Only control signals on the digital bus, such as the 16 MHz clock signal, terminate at the end of slots. The pins in the B row of the J2 connectors are only connected to the P5 and DCOM pins.

Section J3

The J3 area is used for external connections that are not on board fronts because of space or other restrictions. These include connections to the current transformers (CT) and their associated burden resistors, and Voltage Scaling Feedback Board (DS200 NATO) connections for the FCGD.

The J3 area also establishes the power connections to the backplane. Stab connectors are available in the J3 area for establishing various grounding schemes.

APPLICATION DATA

I/O DEFINITIONS, J2

There are eight VME-type connectors in section J2. Six of these (J1, J3, J5, J7, J9, and J11) are arranged with double-wide spacing. J12 and J13, are spaced single-wide, and provide room for future capability enhancements. The signal names assigned to each pin in each connector are listed in Tables 10 – 17. Pins that are not connected are not listed.

I/O DEFINITIONS, J3

Diagnostics Connector

DIAGPL is a 26-pin discrete cable connector used for diagnostics. It provides I/O connection to the processor on J1. The pin names, nomenclatures, and descriptions are listed in Table 2.

Power / Voltage Analog Signal Connectors

The VPBL board provides connections for analog signals that indicate the current and voltage status of two source and one load power bridges. **Current** signals are generated by two current transformers (CT) in each bridge

wired through a current sensor interface board, and connect to the VPBL board using three Mate-n-Lock™ connectors.

The attenuated **voltage** signals are generated by a voltage feedback scaling board, and connect to the VPBL board using three 20-pin ribbon connectors.

Source A. Table 3 lists the pin names, nomenclatures, and descriptions for connector SAJV, which handles scaled voltage signals from Source A. Table 4 lists the pin names, nomenclatures, and descriptions for Mate-n-Lock connector SACSPL, which handles the current signals from Source A.

Source B. Table 5 lists the pin names, nomenclatures, and descriptions for connector SBJV, which handles scaled voltage signals from Source B. Table 6 lists the pin names, nomenclatures, and descriptions for Mate-n-Lock connector SBCSPL, which handles the current signals from Source B.

Load. Table 7 lists the pin names, nomenclatures, and descriptions for connector LJV, which handles scaled voltage signals from the load. Table 8 lists the pin names, nomenclatures, and descriptions for Mate-n-Lock connector LCSPL, which handles the current signals from the load.

Power Connector

The VPBL uses JAA, a 12-pin Mate-n-Lock for power supply connection. The pin-out is defined in Table 9.

Tachometer Settings

Terminal Block. A 12-pin terminal block, TB13, passes tachometer signals to the CPU at J1. The name, nomenclature, and description of each of these is listed in Table 18.

Jumpers. Tachometer signal processing is configured using jumpers. The names and descriptions of these jumpers, and the values of their settings, are listed in Table 21.

Grounding Stab Connectors

Stab connectors in the J3 area establish the grounding schemes. The name, nomenclature, and description of each of these is listed in Table 19.

Exciter Connection

A 34-pin ribbon connector, EXJV, handles signals for an external exciter bridge. The name, nomenclature, and description of each of these pins is listed in Table 20.

Power bugs

Ten power bugs electrically connect the VPBL to the P1 backplane. Since these are on the back side of the board, they are numbered (TB1 – TB10) with reversed (mirror image) lettering on the front of the board. The name, nomenclature, and description of each of these is listed in Table 22.

TESTPOINTS

Sixty spring-loop testpoints provide access to the analog and digital signals generated by the three phases of ac on the two sources (input power), and the positive and negative dc outputs. These testpoints and the signals they offer access to are listed in Table 1. Testpoints 55 and 62 – 118 are assigned to pins in the J2 connectors, and are for factory use only.

Table 1. VPBL Testpoints

Name	Nomenclature	Description
TP1	SADA1L	For factory test use only
TP2	SADA2L	For factory test use only
TP3	SADA3L	For factory test use only
TP4	SADA1R	For factory test use only
TP5	SADA2R	For factory test use only
TP6	SADA3R	For factory test use only
TP7	SAVN	Attenuated N dc voltage from Source A
TP8	SAVP	Attenuated P dc voltage from Source A
TP9	SAVC	Attenuated Phase C ac voltage from Source A
TP10	SAVB	Attenuated Phase B ac voltage from Source A
TP11	SAVA	Attenuated Phase A ac voltage from Source A
TP12	SBDA1L	For factory test use only
TP13	SBDA2L	For factory test use only
TP14	SBDA3L	For factory test use only
TP15	SBDA1R	For factory test use only
TP16	SBDA2R	For factory test use only
TP17	SBDA3R	For factory test use only
TP18	SBVN	Attenuated N dc voltage from Source B
TP19	SBVP	Attenuated P dc voltage from Source B
TP20	SBVC	Attenuated Phase C ac voltage from Source B
TP21	SBVB	Attenuated Phase B ac voltage from Source B
TP22	SBVA	Attenuated Phase A ac voltage from Source B
TP23	LDA1L	For factory test use only
TP24	LDA2L	For factory test use only
TP25	LDA3L	For factory test use only
TP26	LDA1R	For factory test use only
TP27	LDA2R	For factory test use only
TP28	LDA3R	For factory test use only
TP29	LVN	Attenuated N dc voltage from Load
TP30	LVP	Attenuated P dc voltage from Load
TP31	LVC	Attenuated Phase C ac voltage from Load

Table 1. VPBL Testpoints – Continued

Name	Nomenclature	Description
TP32	LVB	Attenuated Phase B ac voltage from Load
TP33	LVA	Attenuated Phase A ac voltage from Load
TP34	EDA1L	For factory test use only
TP35	EDA2L	For factory test use only
TP36	EDA3L	For factory test use only
TP37	EDA1R	For factory test use only
TP38	EDA2R	For factory test use only
TP39	EDA3R	For factory test use only
TP40	DCOM	Digital common ground
TP41	ACOM	Analog common ground
TP42	ACOM	Analog common ground
TP43	ACOM	Analog common ground
TP44	DCOM	Digital common ground
TP45	ACOM	Analog common ground
TP46	ACOM	Analog common ground
TP47	ACOM	Analog common ground
TP48	ACOM	Analog common ground
TP49	ACOM	Analog common ground
TP50	DAC3	Digital to Analog converter output signal #3
TP51	DAC4	Digital to Analog converter output signal #4
TP52	DAC5	Digital to Analog converter output signal #5
TP53	DAC6	Digital to Analog converter output signal #6
TP54	ACOM	Analog common ground
TP56	P5	+5 V dc
TP57	DCOM	Digital common ground
TP58	P28	+28 V dc
TP59	P15	+15 V dc
TP60	ACOM	Analog common ground
TP61	N15	-15 V dc

Table 2. Diagnostic Connector DIAGPL

Name	Nomenclature	Description
PD-1	N15I	-15 V dc internal
PD-2	ADIN1P	Analog to Digital converter input signal # 1, +
PD-3	ADIN1N	Analog to Digital converter input signal #1, -
PD-4	ACOMI	Analog common ground, isolated
PD-5	DCOMI	Digital common ground, isolated
PD-6	DAC1	Digital to Analog converter output signal # 1
PD-7	DAC2	Digital to Analog converter output signal #2
PD-8	DAC3	Digital to Analog converter output signal #3
PD-9	DAC4	Digital to Analog converter output signal #4
PD-10	DAC5	Digital to Analog converter output signal #5
PD-11	DAC6	Digital to Analog converter output signal #6
PD-12	DCOMI	Digital common ground, isolated
PD-13	DSPIO	Digital signal processor I/O test point output
PD-14	P5I	+5 V dc internal

Table 2. Diagnostic Connector DIAGPL – Continued

Name	Nomenclature	Description
PD-15	DIN1	Digital input #1
PD-16	DIN2	Digital input #2
PD-17	DIN3	Digital input #3
PD-18	P5I	+5 V dc internal
PD-19	DOUT1	Digital output logic signal #1
PD-20	DOUT2	Digital output logic signal #2
PD-21	DOUT3	Digital output logic signal #3
PD-22	DCOMI	Digital common ground, isolated
PD-23	ACOMI	Analog common ground, isolated
PD-24	ADIN2P	Analog to Digital converter input signal # 2, +
PD-25	ADIN2N	Analog to Digital converter input signal #2, -
PD-26	P15I	+15 V dc internal

Table 3. Connector SAJV: Source A Voltage Feedback From NATO

Name	Nomenclature	Description
JV1-1	ACOMI	Analog common ground, isolated
JV1-2	SGND	Signal ground
JV1-3	ACOMI	Analog common ground, isolated
JV1-4	SATTDN	Attenuated signal, dc negative
JV1-5	ACOMI	Analog common ground, isolated
JV1-6	SATTDPC	Attenuated signal, dc positive
JV1-7	ACOMI	Analog common ground, isolated
JV1-8	SATTC	Attenuated signal, ac, phase C
JV1-9	ACOMI	Analog common ground, isolated
JV1-10	SATTB	Attenuated signal, ac, phase B
JV1-11	ACOMI	Analog common ground, isolated
JV1-12	SATTA	Attenuated signal, ac, phase A
JV1-13	ACOMI	Analog common ground, isolated
JV1-14	SGND	Signal ground
JV1-20	JV1CHK	Cable plugged-in check

Table 4. Connector SACSPL: Source A FSCA - CT

Name	Nomenclature	Description
PCT1-8	SCTA1	Source 1 current transformer, phase A ac
PCT1-9	SCTAGND	Source 1 current transformer, phase A ground
PCT1-10	SCTC1	Source 1 current transformer, phase C ac
PCT1-11	SCTCGND	Source 1 current transformer, phase C ground
PCT1-12	SCTCHK	Cable plugged-in check

Table 5. Connector SAJV: Source B Voltage Feedback From NATO

Name	Nomenclature	Description
JV2-1	ACOMI	Analog common ground, isolated
JV2-2	SGND	Signal ground
JV2-3	ACOMI	Analog common ground, isolated
JV2-4	S2ATTDCN	Attenuated signal, dc negative
JV2-5	ACOMI	Analog common ground, isolated
JV2-6	S2ATTDCP	Attenuated signal, dc positive
JV2-7	ACOMI	Analog common ground, isolated
JV2-8	S2ATTC	Attenuated signal, ac, phase C
JV2-9	ACOMI	Analog common ground, isolated
JV2-10	S2ATTB	Attenuated signal, ac, phase B
JV2-11	ACOMI	Analog common ground, isolated
JV2-12	S2ATTA	Attenuated signal, ac, phase A
JV2-13	ACOMI	Analog common ground, isolated
JV2-14	SGND	Signal ground
JV2-20	JV1CHK	Cable plugged-in check

Table 6. Connector SACSPL: Source A FSCA - CT

Name	Nomenclature	Description
PCT2-8	S2CTA1	Source 2 current transformer, phase A ac
PCT2-9	S2CTAGND	Source 2 current transformer, phase A ground
PCT2-10	S2CTC1	Source 2 current transformer, phase C ac
PCT2-11	S2CTGND	Source 2 current transformer, phase C ground
PCT2-12	S2CTCHK	Cable plugged-in check

Table 7. Connector LJV: Load Voltage Feedback From NATO

Name	Nomenclature	Description
JV3-1	ACOMI	Analog common ground, isolated
JV3-2	SGND	Signal ground
JV3-3	ACOMI	Analog common ground, isolated
JV3-4	LATTDCN	Attenuated signal, dc negative
JV3-5	ACOMI	Analog common ground, isolated
JV3-6	LATTDCP	Attenuated signal, dc positive
JV3-7	ACOMI	Analog common ground, isolated
JV3-8	LATTC	Attenuated signal, ac, phase C
JV3-9	ACOMI	Analog common ground, isolated
JV3-10	LATTB	Attenuated signal, ac, phase B
JV3-11	ACOMI	Analog common ground, isolated
JV3-12	LATTA	Attenuated signal, ac, phase A
JV3-13	ACOMI	Analog common ground, isolated
JV3-14	SGND	Signal ground
JV3-20	JV1CHK	Cable plugged-in check

Table 8. Connector LCSPL: Load - CT

Name	Nomenclature	Description
PCT3-8	LCTA1	Load side current transformer, phase A ac
PCT3-9	LCTAGND	Load side current transformer, phase A ground
PCT3-10	LCTC1	Load side current transformer, phase C ac
PCT3-11	LCTCGND	Load side current transformer, phase C ground
PCT3-12	LEMCHK	Cable plugged-in check

Table 9. Power Supply Connector JAA

Name	Nomenclature	Description
JAA-1	LVSH	Low voltage power supply status line
JAA-2	LVSL	Low voltage power supply status line
JAA-3	R5H	+5 V dc sensing line
JAA-4	R5L	+5 V dc sensing line
JAA-5	P5I	+5 V dc, isolated
JAA-6	DCOMI	Digital common ground, isolated
JAA-7	DCOMI	Digital common ground, isolated
JAA-8	P28I	+28 V dc, isolated
JAA-9	P5I	+5 V dc, isolated
JAA-10	P15I	+15 V dc, isolated
JAA-11	N15I	-15 V dc, isolated
JAA-12	ACOMI	Analog common ground, isolated

Table 10. VME Connector J1

Name	Nomenclature	Description
J1-A1	DCOM	Digital common ground
J1-A2	DCOM	Digital common ground
J1-A3	0TRIPS	Zero trip signal from source
J1-A4	CTRLN2	Interlock feedback signal, DDTB
J1-A5	CTRLN1	+5 V dc
J1-A6	LVSSHX	Status signal from power supply
J1-A7	DCOM	Digital common ground
J1-A10	ACOM	Analog common ground
J1-A12	DCOM	Digital common ground
J1-A13	P15	+15 V dc
J1-A16	N15	-15 V dc
J1-A19	DAC1	Digital to Analog converter output signal #1
J1-A20	ADIN1P	Analog to Digital converter input signal #1, +
J1-A21	ADIN1N	Analog to Digital converter input signal #1, -
J1-A22	DCOM	Digital common ground
J1-A23	ADIN2P	Analog to Digital converter input signal #2, +
J1-A24	ADIN2N	Analog to Digital converter input signal #2, -
J1-A25	DIN1	Digital input signal #1
J1-A26	DIN2	Digital input signal #2
J1-A27	DIN3	Digital input signal #3

Table 10. VME Connector J1 – Continued

Name	Nomenclature	Description
J1-A28	TACH1P	Polarity signal #1, representing timing from pulse tachometer (+)
J1-A29	TACH2P	Polarity signal #2, representing timing from pulse tachometer (+)
J1-A30	TACH3P	Polarity signal #3, representing timing from pulse tachometer (+)
J1-A31	DCOM	Digital common ground
J1-A32	P5	+5 V dc
J1-B1	P5	+5 V dc
J1-B2	DCOM	Digital common ground
J1-B12	DCOM	Digital common ground
J1-B13	P5	+5 V dc
J1-B22	DCOM	Digital common ground
J1-B31	DCOM	Digital common ground
J1-B32	P5	+5 V dc
J1-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J1-C2	16 MHZ	Clock signal
J1-C3	OTRIPL	Zero trip signal from load
J1-C4	0KILLG	Zero kill gating signal
J1-C5	DCOM	Digital common ground
J1-C6	LVSLX	+5 V dc
J1-C12	DCOM	Digital common ground
J1-C18	DSPIO	Digital signal processor I/O test point output
J1-C19	DAC2	Digital to Analog converter output signal #2
J1-C20	DAC3	Digital to Analog converter output signal #3
J1-C21	DAC4	Digital to Analog converter output signal #4
J1-C22	DCOM	Digital common ground
J1-C23	DAC5	Digital to Analog converter output signal #5
J1-C24	DAC6	Digital to Analog converter output signal #6
J1-C25	DOUT1	Digital output logic signal #1
J1-C26	DOUT2	Digital output logic signal #2
J1-C27	DOUT3	Digital output logic signal #3
J1-C28	TACH1N	Polarity signal #1, representing timing from pulse tachometer (-)
J1-C29	TACH2N	Polarity signal #2, representing timing from pulse tachometer (-)
J1-C30	TACH3N	Polarity signal #3, representing timing from pulse tachometer (-)
J1-C31	DCOM	Digital common ground
J1-C32	P5	+5 V dc

Table 11. VME Connector J3

Name	Nomenclature	Description
J3-A1	DCOM	Digital common ground
J3-A2	DCOM	Digital common ground
J3-A4	CTRLN2	Interlock feedback signal, DDTB
J3-A7	DCOM	Digital common ground
J3-A10	ACOM	Analog common ground
J3-A13	P15	+15 V dc
J3-A16	N15	-15 V dc
J3-B1	P5	+5 V dc
J3-B2	DCOM	Digital common ground
J3-B12	DCOM	Digital common ground
J3-B13	P5	+5 V dc
J3-B22	DCOM	Digital common ground
J3-B31	DCOM	Digital common ground
J3-B32	P5	+5 V dc
J3-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J3-C2	16 MHZ	Clock signal
J3-C5	DCOM	Digital common ground
J3-C6	SLOTID3	(Not connected)
J3-C7	SLOTID4	(Not connected)
J3-C8	SLOTID5	(Not connected)
J3-C10	ACOM	Digital common ground
J3-C16	ACOM	Analog common ground

Table 12. VME Connector J5

Name	Nomenclature	Description
J5-A1	DCOM	Digital common ground
J5-A2	DCOM	Digital common ground
J5-A4	CTRLN2	Interlock feedback signal, DDTB
J5-A5	P5	+5 V dc
J5-A6	DCOM	Digital common ground
J5-A7	DCOM	Digital common ground
J5-A10	ACOM	Analog common ground
J5-A11	JV1CHK	Cable plugged-in check
J5-A12	SCTCHK	Cable plugged-in check
J5-A13	P15	+15 V dc
J5-A16	N15	-15 V dc
J5-A17	SSD1DAL	For factory test use only
J5-A18	SSD2DAL	For factory test use only
J5-A19	SSD3DAL	For factory test use only
J5-A20	SATTA	Signal, attenuated ac, phase A
J5-A21	SATTB	Signal, attenuated ac, phase B
J5-A22	SATTC	Signal, attenuated ac, phase C
J5-A23	SATTDPC	Signal, attenuated dc, positive
J5-A24	SATTDNC	Signal, attenuated dc, negative
J5-A29	SCTA1	For factory test use only
J5-A30	SCTAGND	For factory test use only
J5-A31	SCTC1	For factory test use only
J5-A32	SCTCGND	For factory test use only
J5-B1	P5	+5 V dc
J5-B2	DCOM	Digital common ground
J5-B12	DCOM	Digital common ground
J5-B13	P5	+5 V dc
J5-B22	DCOM	Digital common ground
J5-B31	DCOM	Digital common ground
J5-B32	P5	+5 V dc
J5-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J5-C2	16 MHZ	Clock signal
J5-C3	0TRIPS	Zero trip signal from source
J5-C4	0KILLG	Zero kill gating signal
J5-C5	DCOM	Digital common ground
J5-C6	P5	+5 V dc
J5-C7	DCOM	Digital common ground
J5-C8	DCOM	Digital common ground
J5-C10	DCOM	Digital common ground
J5-C16	ACOM	Analog common ground
J5-C17	SSD1DAR	For factory test use only
J5-C18	SSD2DAR	For factory test use only
J5-C19	SSD3DAR	For factory test use only

Table 13. VME Connector J7

Name	Nomenclature	DeS2cription
J7-A1	DCOM	Digital common ground
J7-A2	DCOM	Digital common ground
J7-A4	CTRLN2	Interlock feedback signal, DDTB
J7-A5	P5	+5 V dc
J7-A6	DCOM	Digital common ground
J7-A7	DCOM	Digital common ground
J7-A10	ACOM	Analog common ground
J7-A11	JV2CHK	Cable plugged-in check
J7-A12	S2CTCHK	Cable plugged-in check
J7-A13	P15	+15 V dc
J7-A16	N15	-15 V dc
J7-A17	S2SD1DAL	For factory test use only
J7-A18	S2SD2DAL	For factory test use only
J7-A19	S2SD3DAL	For factory test use only
J7-A20	S2ATTA	Signal, attenuated ac, phase A
J7-A21	S2ATTB	Signal, attenuated ac, phase B
J7-A22	S2ATTC	Signal, attenuated ac, phase C
J7-A23	S2ATTDCP	Signal, attenuated dc, positive
J7-A24	S2ATTDCN	Signal, attenuated dc, negative
J7-A29	S2CTA1	For factory test use only
J7-A30	S2CTAGND	For factory test use only
J7-A31	S2CTC1	For factory test use only
J7-A32	S2CTCGND	For factory test use only
J7-B1	P5	+5 V dc
J7-B2	DCOM	Digital common ground
J7-B12	DCOM	Digital common ground
J7-B13	P5	+5 V dc
J7-B22	DCOM	Digital common ground
J7-B31	DCOM	Digital common ground
J7-B32	P5	+5 V dc
J7-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J7-C2	16 MHZ	Clock signal
J7-C3	0TRIPS	Zero trip signal from source
J7-C4	0KILLG	Zero kill gating signal
J7-C5	DCOM	Digital common ground
J7-C6	P5	+5 V dc
J7-C7	DCOM	Digital common ground
J7-C8	DCOM	Digital common ground
J7-C10	DCOM	Digital common ground
J7-C16	ACOM	Analog common ground
J7-C17	S2SD1DAR	For factory test use only
J7-C18	S2SD2DAR	For factory test use only
J7-C19	S2SD3DAR	For factory test use only

Table 14. VME Connector J9

Name	Nomenclature	Description
J9-A1	DCOM	Digital common ground
J9-A2	DCOM	Digital common ground
J9-A4	CTRLN2	Interlock feedback signal, DDTB
J9-A5	P5	+5 V dc
J9-A6	DCOM	Digital common ground
J9-A7	DCOM	Digital common ground
J9-A10	ACOM	Analog common ground
J9-A11	JV3CHK	Cable plugged-in check
J9-A12	LEMCHK	Cable plugged-in check
J9-A13	P15	+15 V dc
J9-A16	N15	-15 V dc
J9-A17	LSD1DAL	For factory test use only
J9-A18	LSD2DAL	For factory test use only
J9-A19	LSD3DAL	For factory test use only
J9-A20	LATTA	Signal, attenuated ac, phase A
J9-A21	LATTB	Signal, attenuated ac, phase B
J9-A22	LATTC	Signal, attenuated ac, phase C
J9-A23	LATTDCP	Signal, attenuated dc, positive
J9-A24	LATTDCN	Signal, attenuated dc, negative
J9-A26	LEMP15	For factory test use only
J9-A27	LEMPCOM	For factory test use only
J9-A28	LEMN15	For factory test use only
J9-A29	PLEM1	For factory test use only
J9-A30	NLEM1	For factory test use only
J9-A31	PLEM2	For factory test use only
J9-A32	NLEM2	For factory test use only
J9-B1	P5	+5 V dc
J9-B2	DCOM	Digital common ground
J9-B12	DCOM	Digital common ground
J9-B13	P5	+5 V dc
J9-B22	DCOM	Digital common ground
J9-B31	DCOM	Digital common ground
J9-B32	P5	+5 V dc
J9-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J9-C2	16 MHZ	Clock signal
J9-C3	0TRIPS	Zero trip signal from source
J9-C4	0KILLG	Zero kill gating signal
J9-C5	DCOM	Digital common ground
J9-C6	P5	+5 V dc
J9-C7	DCOM	Digital common ground
J9-C8	DCOM	Digital common ground
J9-C10	DCOM	Digital common ground
J9-C16	ACOM	Analog common ground
J9-C17	LSD1DAR	For factory test use only
J9-C18	LSD2DAR	For factory test use only
J9-C19	LSD3DAR	For factory test use only

Table 15. VME Connector J11

Name	Nomenclature	Description
J11-A1	DCOM	Digital common ground
J11-A2	DCOM	Digital common ground
J11-A4	CTRLN2	Interlock feedback signal, DDTB
J11-A5	P5	+5 V dc
J11-A6	P5	+5 V dc
J11-A7	DCOM	Digital common ground
J11-A10	ACOM	Analog common ground
J11-A11	JV4CHK	Cable plugged-in check
J11-A13	P15	+15 V dc
J11-A16	N15	-15 V dc
J11-A17	ESD1DAL	For factory test use only
J11-A18	ESD2DAL	For factory test use only
J11-A19	ESD3DAL	For factory test use only
J11-A20	EATTEN1	Attenuated voltage signal # 1
J11-A21	EATTEN4	Attenuated voltage signal # 4
J11-A22	EATTEN3	Attenuated voltage signal # 3
J11-A23	EATTEN6	Attenuated voltage signal # 6
J11-A24	EATTEN5	Attenuated voltage signal # 5
J11-A25	EATTEN2	Attenuated voltage signal # 2
J11-A29	EPIFBK	Current feedback, (+)
J11-A30	ENIFBK	Current feedback, (-)
J11-B1	P5	+5 V dc
J11-B2	DCOM	Digital common ground
J11-B12	DCOM	Digital common ground
J11-B13	P5	+5 V dc
J11-B22	DCOM	Digital common ground
J11-B31	DCOM	Digital common ground
J11-B32	P5	+5 V dc
J11-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J11-C2	16 MHZ	Clock signal
J11-C3	0TRIPL	Zero trip signal from load
J11-C4	0KILLG	Zero kill gating signal
J11-C5	DCOM	Digital common ground
J11-C6	DCOM	Digital common ground (SLOTID3)
J11-C7	P5	+5 V dc (SLOTID4)
J11-C8	DCOM	Digital common ground (SLOTID5)
J11-C10	ACOM	Analog common ground
J11-C13	P28	+28 V dc
J11-C16	ACOM	Analog common ground
J11-C17	ESD1DAR	For factory test use only
J11-C18	ESD2DAR	For factory test use only
J11-C19	ESD3DAR	For factory test use only
J11-C20	ECOM	Common chassis ground

Table 15. VME Connector J11 – Continued

Name	Nomenclature	Description
J11-C21	SIG1	Firing pulse signal #1
J11-C22	ECOM	Common chassis ground
J11-C23	SIG4	Firing pulse signal #4
J11-C24	ECOM	Common chassis ground
J11-C25	SIG3	Firing pulse signal #3
J11-C26	ECOM	Common chassis ground
J11-C27	SIG6	Firing pulse signal #6
J11-C28	ECOM	Common chassis ground
J11-C29	SIG2	Firing pulse signal #2
J11-C30	ECOM	Common chassis ground
J11-C31	SIG5	Firing pulse signal #5

Table 16. VME Connector J12

Name	Nomenclature	Description
J12-A1	DCOM	Digital common ground
J12-A2	DCOM	Digital common ground
J12-A4	CTRLN2	Interlock feedback signal, DDTB
J12-A5	DCOM	Digital common ground (SLOTID1)
J12-A6	DCOM	Digital common ground (SLOTID2)
J12-A7	DCOM	Digital common ground
J12-A10	ACOM	Analog common ground
J12-A13	P15	+15 V dc
J12-A16	N15	-15 V dc
J12-B1	P5	+5 V dc
J12-B2	DCOM	Digital common ground
J12-B12	DCOM	Digital common ground
J12-B13	P5	+5 V dc
J12-B22	DCOM	Digital common ground
J12-B31	DCOM	Digital common ground
J12-B32	P5	+5 V dc
J12-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J12-C2	16 MHZ	Clock signal
J12-C4		Not Connected (SLOTID1)
J12-C5	DCOM	Digital common ground (SLOTID2)
J12-C6	P5	+5 V dc (SLOTID3)
J12-C7	P5	+5 V dc (SLOTID4)
J12-C8	DCOM	Digital common ground (SLOTID5)
J12-C10	ACOM	Analog common ground
J12-C16	ACOM	Analog common ground

Table 17. VME Connector J13

Name	Nomenclature	Description
J13-A1	DCOM	Digital common ground
J13-A2	DCOM	Digital common ground
J13-A4	CTRLN2	Interlock feedback signal, DDTB
J13-A5	P5	+5 V dc
J13-A6	P5	+5 V dc
J13-A7	DCOM	Digital common ground
J13-A10	ACOM	Analog common ground
J13-A13	P15	+15 V dc
J13-A16	N15	-15 V dc
J13-B1	P5	+5 V dc
J13-B2	DCOM	Digital common ground
J13-B12	DCOM	Digital common ground
J13-B13	P5	+5 V dc
J13-B22	DCOM	Digital common ground
J13-B31	DCOM	Digital common ground
J13-B32	P5	+5 V dc
J13-C1	IDDATA	Power/data pin used to query identity PROM of board in this socket
J13-C2	16 MHZ	Clock signal
J13-C5	DCOM	Digital common ground (SLOTID3)
J13-C6	DCOM	Digital common ground (SLOTID4)
J13-C7	DCOM	+5 V dc (SLOTID5)
J13-C10	ACOM	Analog common ground
J13-C16	ACOM	Analog common ground

Table 18. Terminal Block Connectors

Name	Nomenclature	Description
TB13-1	TACH1P	Phase A tach pulse input
TB13-2	TACH1N	Phase A tach pulse return
TB13-3	E0V1	Tach power supply V1 + (common-mode choke)
TB13-4	E0V2	Tach power supply V1 - (common-mode choke)
TB13-5	TACH2P	Phase B tach pulse input
TB13-6	TACH2N	Phase B tach pulse return
TB13-7	E1V1	Tach power supply V2 + (common-mode choke)
TB13-8	E1V2	Tach power supply V2 - (common-mode choke)
TB13-9	TACH3P	Pulse tach marker pulse input
TB13-10	TACH3N	Pulse tach marker pulse return

Table 19. Stab Connectors

Name	Nomenclature	Description
E-50 - 52	ECOM	Common chassis ground
E-53	DCOMI	Digital common ground, isolated
E-54	DCOMI	Digital common ground through a 50 ohm resistor
E-55	DCOMI	Digital common ground, isolated
E-56	ACOMI	Analog common ground through a 50 ohm resistor
E-57	ACOMI	Digital common ground, isolated

Table 20. Exciter Connector EXJV

Name	Nomenclature	Description
JV4-1	ECOM	Common chassis ground
JV4-2	SIG1	Firing pulse signal #1
JV4-3	ACOMI	Analog common ground, isolated
JV4-4	EATTEN1	Attenuated voltage signal # 1
JV4-5	ACOMI	Analog common ground, isolated
JV4-6	ACOMI	Analog common ground, isolated
JV4-7	ACOMI	Analog common ground, isolated
JV4-8	JV4CHK	Cable plugged-in check
JV4-9	SIG4	Firing pulse signal #4
JV4-10	ECOM	Common chassis ground
JV4-11	EATTEN4	Attenuated voltage signal # 4
JV4-12	ECOM	Common chassis ground
JV4-13	SIG3	Firing pulse signal #3
JV4-14	ECOM	Common chassis ground
JV4-15	EATTEN3	Attenuated voltage signal # 3
JV4-16	ACOMI	Analog common ground, isolated
JV4-17	ACOMI	Analog common ground, isolated
JV4-18	ACOMI	Analog common ground, isolated
JV4-19	ECOM	Common chassis ground
JV4-20	SIG6	Firing pulse signal #6
JV4-21	ECOM	Common chassis ground
JV4-22	EATTEN6	Attenuated voltage signal # 6
JV4-23	ECOM	Common chassis ground
JV4-24	SIG2	Firing pulse signal #2
JV4-25	ECOM	Common chassis ground
JV4-26	EATTEN2	Attenuated voltage signal # 2
JV4-27	EPIFBK	Current feedback, (+)
JV4-28	ACOMI	Analog common ground, isolated
JV4-29	ACOMI	Analog common ground, isolated
JV4-30	ENIFBK	Current feedback, (-)
JV4-31	SIG5	Firing pulse signal #5
JV4-32	ECOM	Common chassis ground
JV4-33	EATTEN5	Attenuated voltage signal # 5
JV4-34	ACOMI	Analog common ground, isolated

Table 21. Jumpers and Jumper Settings

Name	Description
TACHA	Configure pulse tach phase A (-) return F position adds 330 ohms to - input D position bypasses 330 ohm to input
TACHB	Configure pulse tach phase B (-) return F position adds 330 ohms to - input D position bypasses 330 ohm to input
TACHM	Configure pulse tach MARKER (-) return F position adds 330 ohms to - input D position bypasses 330 ohm to input
TACHV1	Configure pulse tach V1 (+) power select P15 position applies +15 V dc as V1 P5 position applies +5 V dc as V1
TACHV2	Configure pulse tach V2 (+) power select V1 position applies V1 as V2 N15 position applies -15 V dc as V2

Table 22. Power bugs

Name	Nomenclature	Description
TB1	P15	+15 V dc connection to J1 backplane (P12)
TB2	N15	-15 V dc connection to J1 backplane (N12)
TB3,5,7,11	P5	+5 V dc connections to J1 backplane
TB4,6,8,9	DCOM	Digital common ground connections to J1 backplane

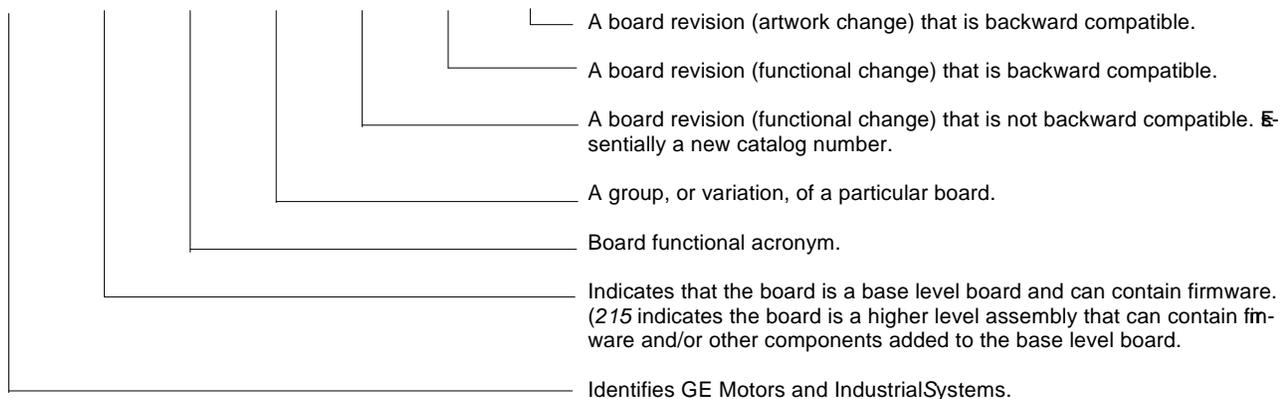
RENEWAL/WARRANTY REPLACEMENT

the VPBL is identified by part number DS200VPBLG#AAA. Figure 2 describes each digit in the part number.

BOARD IDENTIFICATION

A printed wiring board is identified by an alphanumeric part (catalog) number stamped on its edge. For example,

DS 200 VPBL G# A A A



NOTE

All digits are important when ordering or replacing any board.

Figure 2. Sample Board Part Number, DS Series

WARRANTY TERMS

The GE Motors & Industrial Systems Terms and Conditions brochure details product warranty information, including the **warranty period** and **parts and service coverage**.

The brochure is included with customer documentation. It may be obtained separately from the nearest GE Sales Office or authorized GE Sales Representative.

WARRANTY PARTS AND SERVICE

This board has no fuses or other end-user serviceable parts. If it fails, it needs to be replaced as a unit.

To obtain a replacement board, or service assistance, contact the nearest GE Service Office.

Please have the following information ready to exactly identify the **part** and **application**:

- GE requisition or shop order number
- LCI serial number and model number
- Board number and description

PROCEDURE FOR REPLACING BOARDS

WARNING

To prevent electric shock, turn off power to the board, then test to verify that no power exists in the board before touching it or any connected circuits.

CAUTION

To prevent equipment damage, do not remove boards or connections, or re-insert them, while power is applied to the drive.

Treat all boards as static-sensitive. Use a grounding strap when changing boards and always store boards in anti-static bags or boxes they were shipped in.

To replace a VPBL board:

1. **Turn off power.**
2. To remove the VPBL board, carefully disconnect all cables, as follows:
 - For ribbon cables without pull tabs, grasp the cable connector that mates with the board connector. Gently pull the cable connector loose.
 - For ribbon cables with pull tabs, carefully pull the tab.
 - For fiber-optic connectors, press the latch on the mating cable connector. Pull the connector only; do not pull the fiber-optic cable.
3. Remove all of the daughter boards plugged into the VPBL, following the customary procedures as described in the documentation for each of those boards (see Table 23).

CAUTION

Avoid dropping any hardware into the board or unit, which could cause damage.

4. Remove the screws holding the VPBL board.
5. Keep the VPBL board level and carefully remove it with both hands by pulling the board straight out.
6. Set jumpers on new board to match jumper settings on old board.
7. Install the new VPBL board, replacing all of the screws.
8. Replace all daughter boards, following the customary procedures as described in the documentation for each of those boards.
9. Reconnect all cables, ensuring that each connector is properly seated at both ends.

NOTE

Because of upgrades, boards of different revision levels may not contain identical hardware. However, GE Motors & Industrial Systems ensures backward compatibility of replacement boards.

Table 23. Related Documents

Document Number	Document Title	
GEI-100218	Analog-to-Digital Module Daughter Board	DS200ADMA
GEI-100219	Auxiliary I/O Signal Terminal Board	DS200DDTB
GEI-100220	Digital Signal Processor Control Board	DS200DSPC
GEI-100221	Gate Distribution and Status Board	DS200FCGD
GEI-100222	Current Sensor Interface Board	DS200FCSA
GEI-100223	Gate Pulse Amplifier Board	DS200FGPA
GEI-100224	High Voltage Gate Interface Board	DS200FHVA
GEI-100225	Voltage Feedback Scaling Board	DS200NATO
GEI-100226	Series 90™ Protocol Interface Daughter Board	DS200SNPA
GEI-100227	VME Backplane Board	DS200VPBL
GEK-105474	LCI Top Level Technical Description	



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