



GE Drive Systems

INSTRUCTIONS

531 XI 21 PCRA_G_
531 XI 22PCNA_G_
531X123PCHA_G_
531X308PCSA_G_

POWER CONNECTION CARDS

Renewal Part

IMPORTANT
INFORMATION

CAUTION: To ensure proper operation of the motor drive controller, these instructions must be followed for proper set-up and installation of this replacement card.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to General Electric Company.

SAFETY PRECAUTIONS

WARNING-SHOCK AND BURN HAZARD: Always disconnect power to the drive before removing or inserting a printed circuit card. Failure to do so may cause serious injury to personnel and damage to the drive or the driven machinery.

CAUTION: Treat all cards with static sensitive handling techniques. Use "grounding" strap when changing cards and store cards in the anti-static bags they are shipped in.

NOTE: *Read all WARNINGS, CAUTIONS, and NOTES in the pertinent drive Instruction Book (GEK) prior to removing or installing any card.*

CARD REPLACEMENT PROCEDURE

1. Carefully disconnect all cables
2. Release all hold-down tabs (see Figure 1) and remove card.
3. Set all jumpers on the replacement card exactly as the jumpers on the failed card except where instructed otherwise by this bulletin.
4. Install the new card verifying that all tabs snap tightly into position.
5. Reconnect all cables verifying that they are properly seated at both ends.
6. Set all potentiometers in the same physical position as the potentiometers on the failed card and fine tune as required per instructions in the "Adjustments Section" of the applicable drive instruction book.

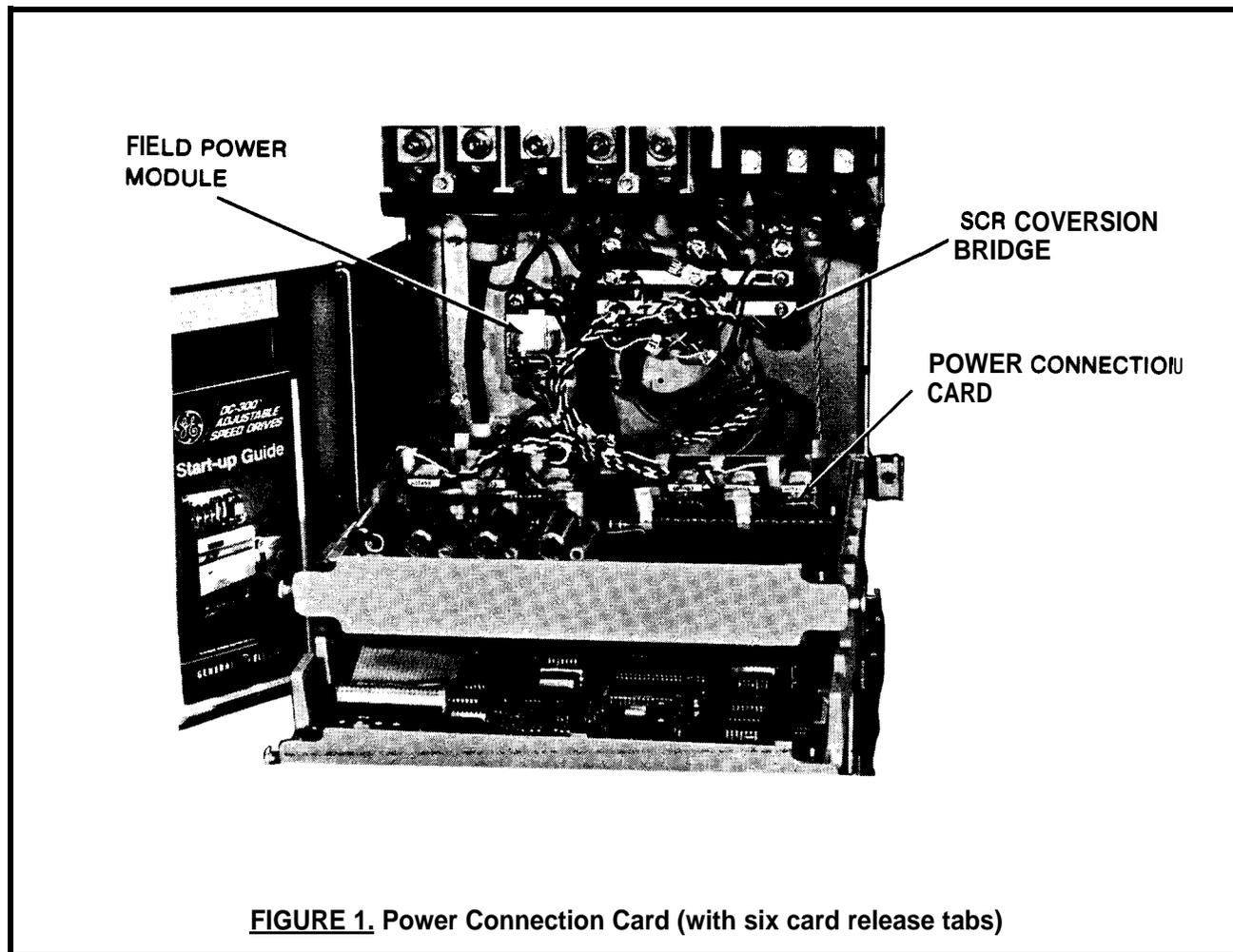


FIGURE 1. Power Connection Card (with six card release tabs)

JUMPER CONFIGURATION

This circuit card is a functional replacement for the cards specified in the tables provided in these instructions. In order to incorporate design enhancements while continuing to provide **compatibility** with a variety of previous designs, changes in card layout (including the relocation, addition or deletion of certain jumpers) may have been required. Jumper locations are shown in Figures 2, 3, 4, and 5. Using the jumper listings provided with the drive (refer to the CUSTOM INSTRUCTION BOOK) and the card which is being replaced as guides, configure the jumpers of the new card as follows:

1. Locate the card numbers for the old and replacement cards by referring to the appropriate table.
 - The part number for the card is printed on a white label that is affixed to the card and begins with the number "531X". This is NOT the number "F531X. . ." which is silkscreened directly on the circuit board.
2. Cross reference between the card number and configuration jumpers per Tables 2, 2A, 2B, and 2C. Entries indicate the following:
 - Y** Jumper is provided.
 - N** Jumper is NOT provided.
 - N/A** Not applicable.
3. Set jumpers listed as provided on both cards in the same position on the replacement card as they were on the card being replaced, (unless instructed otherwise in the notes provided with the table).
 - Other jumpers should be set as indicated in the referenced notes,
 - See Table 1 for a functional description of the jumpers (for all cards).
4. Record any jumper setting changes on the Jumper Listing provided with the drive (located in the drive door pocket with the Parameter List).

IMPORTANT: Certain versions of cards may have a part number suffix such as "S" or "H", instead of "G". These cards are functionally identical to the "G" version. When ordering spare or replacement cards, be sure to use the part number on the card or on the Renewal Parts List provided with the drive.

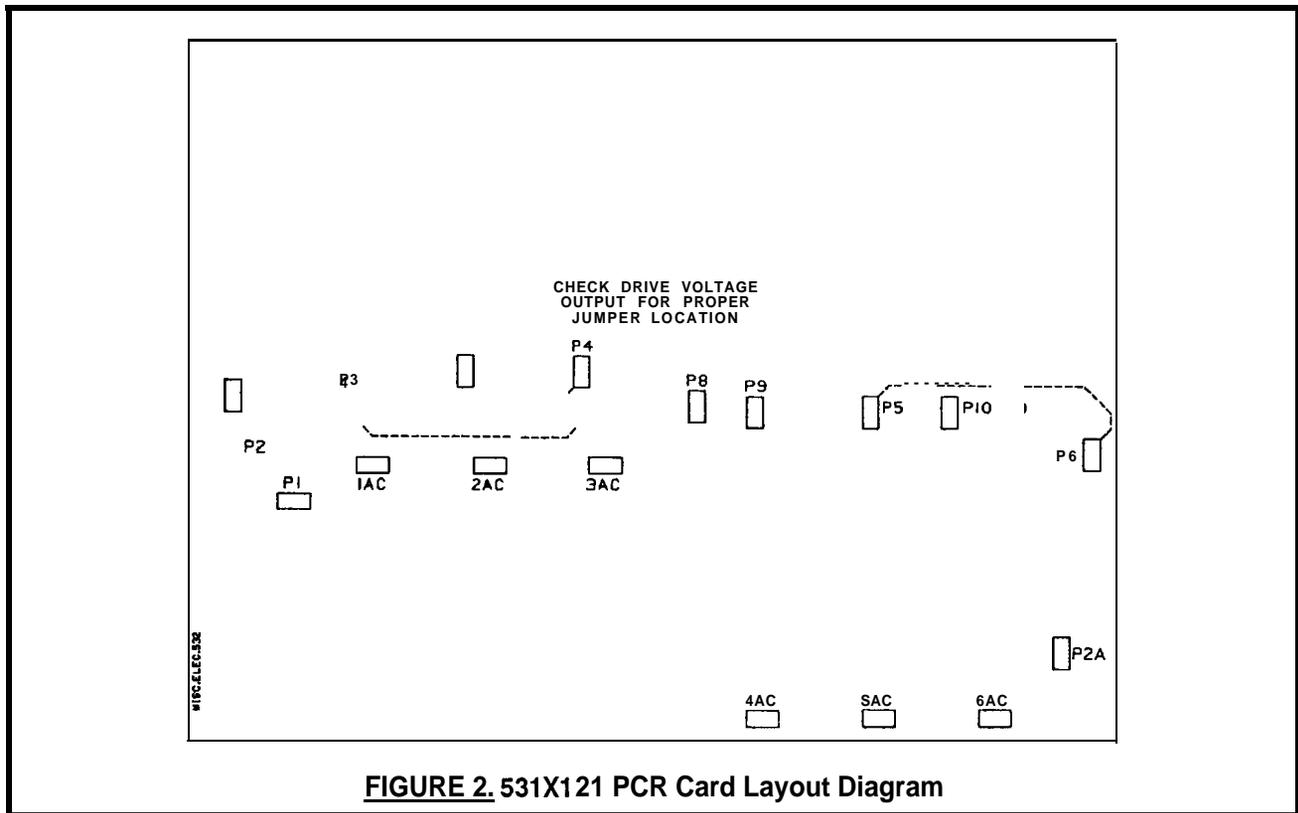


FIGURE 2. 531X121 PCR Card Layout Diagram

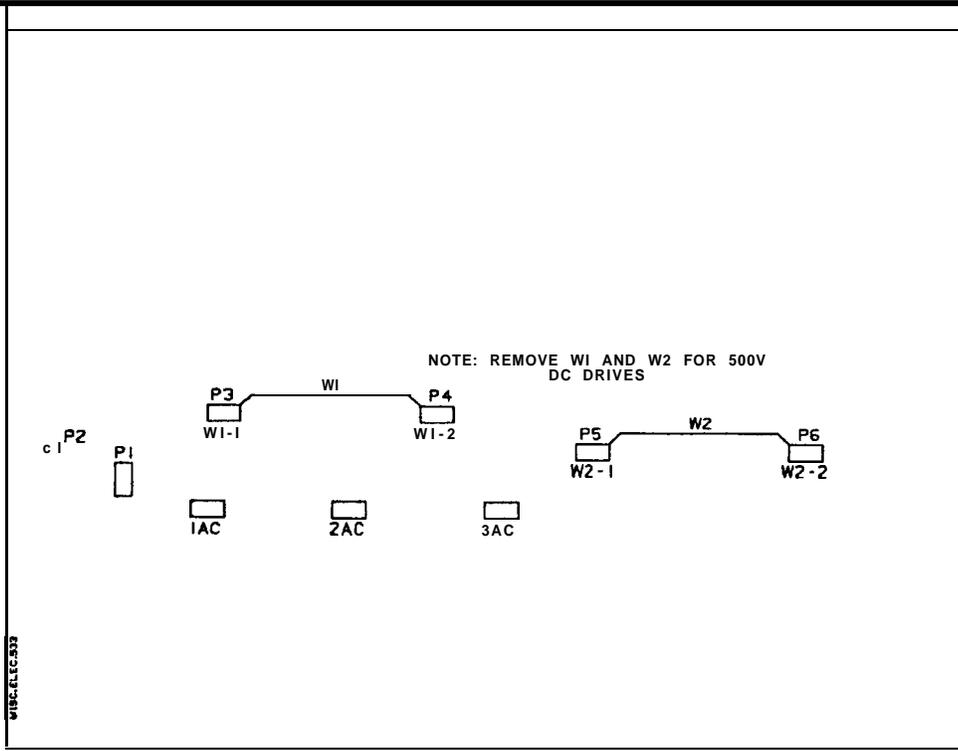


FIGURE 3. 531X122PCN Card Layout Diagram

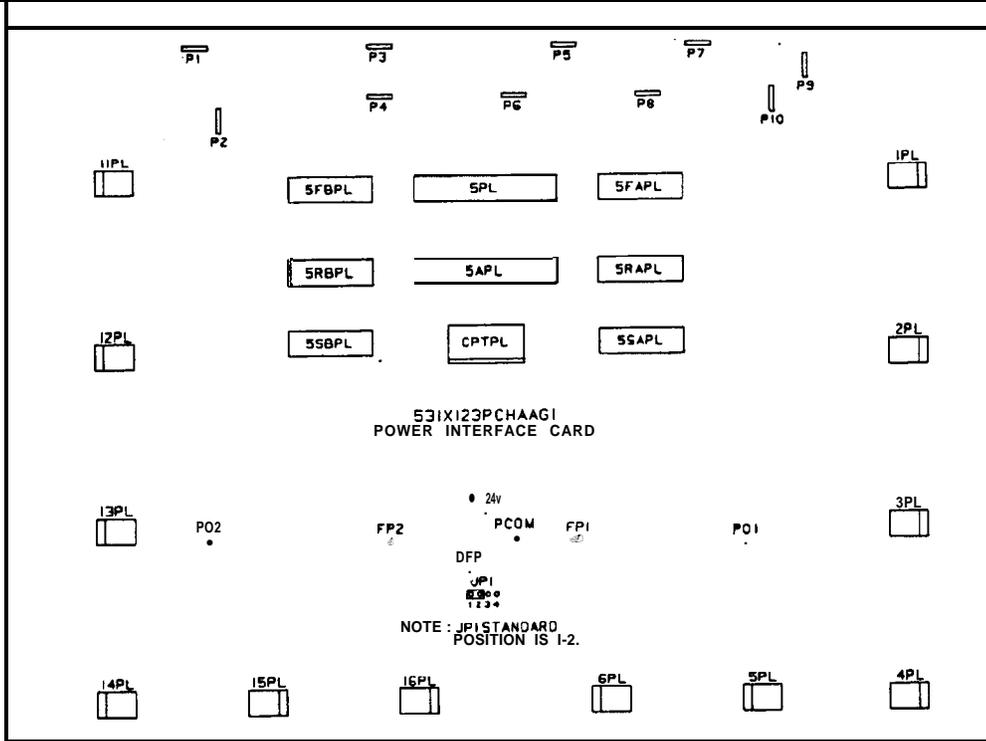


FIGURE 4. 531X123PCH Card Layout Diagram

TABLE 1: JUMPER DESCRIPTION - POWER CONNECTION CARDS

<u>C a r d</u>	<u>T</u>	<u>Jumper</u> <u>or Pot</u>	<u>Num-</u> <u>ber</u>	<u>Description/Position</u>		
Power Connect Cards (531XI 21 PCR)	Jumper	JP1 JP2		JP1 and JP2 select DC armature voltage range and must be stabbed on to the appropriate posts, P3 - P10. NOTE: <i>Scaling range is dependent on which group is being used.</i>		
					<u>Jumper</u> <u>Position</u>	<u>G1/G4</u> <u>Voltage</u>
		<u>JP1</u>	<u>JP2</u>			
		OPEN	OPEN	500	700	240
		P4-P8	P5-P9	450	630	210
		P3-P7	P6-P10	400	550	170
		P4-P7	P5-P10	340	570	150
		P7-P8	P9-P10	290	500	120
		P3-P4	P5-P6	240	420	80
		P3-P8	P6-P9	190	350	50
Power Connect Cards (531XI 22 PCN)	Jumper	JP1 JP2		JP1 and JP2 select DC armature voltage range and must be stabbed on to the appropriate posts, P3 - P6. NOTE: <i>Scaling range is dependent on which group is being used.</i>		
					<u>Jumper</u> <u>Position</u>	<u>G1</u> <u>Voltage</u>
		<u>JP1</u>	<u>JP2</u>			
		OPEN	OPEN	500	700	
		P3-P4	P5-P6	240	550	
Power Connect Cards (531XI 23 PCH)	Jumper	JP1		This selects the SCR firing power enable. 1-2: Controlled by drives delayed firing power (DFP) 2-3: Always enabled (firing power = +24 volt source) 3-4: Always disabled (for test purposed only)		
	Jumper	JP2 JP3		JP2 and JP3 select DC armature voltage range and must be stabbed on to the appropriate posts, P3 - P10. NOTE: <i>Scaling ranges are dependent on which group is being used.</i>		
					<u>Jumper</u> <u>Position</u>	<u>G1</u> <u>Voltage</u>
		<u>JP2</u>	<u>JP3</u>			
		OPEN	OPEN	630	700	
		P6-P8	P5-P7	530	570	
		P8-P10	P7-P9	500	630	
		P4-P6	P3-P5	470	550	
		P6-P10	P5-P9	400	500	
		P4-P8	P3-P7	370	420	
	P4-P10	P3-P9	240	350		

TABLE 1: JUMPER DESCRIPTION - POWER CONNECTION CARDS
(cont.)

<u>C a r d</u>	<u>T</u>	<u>Jumper</u>	<u>Post</u>	<u>Num- ber</u>	<u>Description/Position</u>
Power Connect Card <u>J531 X308PCS)</u>		Jumper		JP1 JP2	JP1 and JP2 select DC armature voltage range and must be stabbed on to the appropriate posts, P3 - P10. NOTE: <i>Scaling ranges are dependent on which group is being used.</i>
		<u>Jumper</u>			<u>G1/G3</u> <u>Voltage</u>
					<u>G2/G4</u> <u>Voltage</u>
		<u>JP1</u>	<u>JP2</u>		
		OPEN	OPEN		630
		P4-P8	P5-P9		580
		P3-P7	P6-P10	5 7 0	550
		P4-P7	P5-P10	5 5 0	500
		P7-P8	P9-P10	5 0 0	390
		P3-P4	P5-P6		290
		P3-P8	P6-P9		240

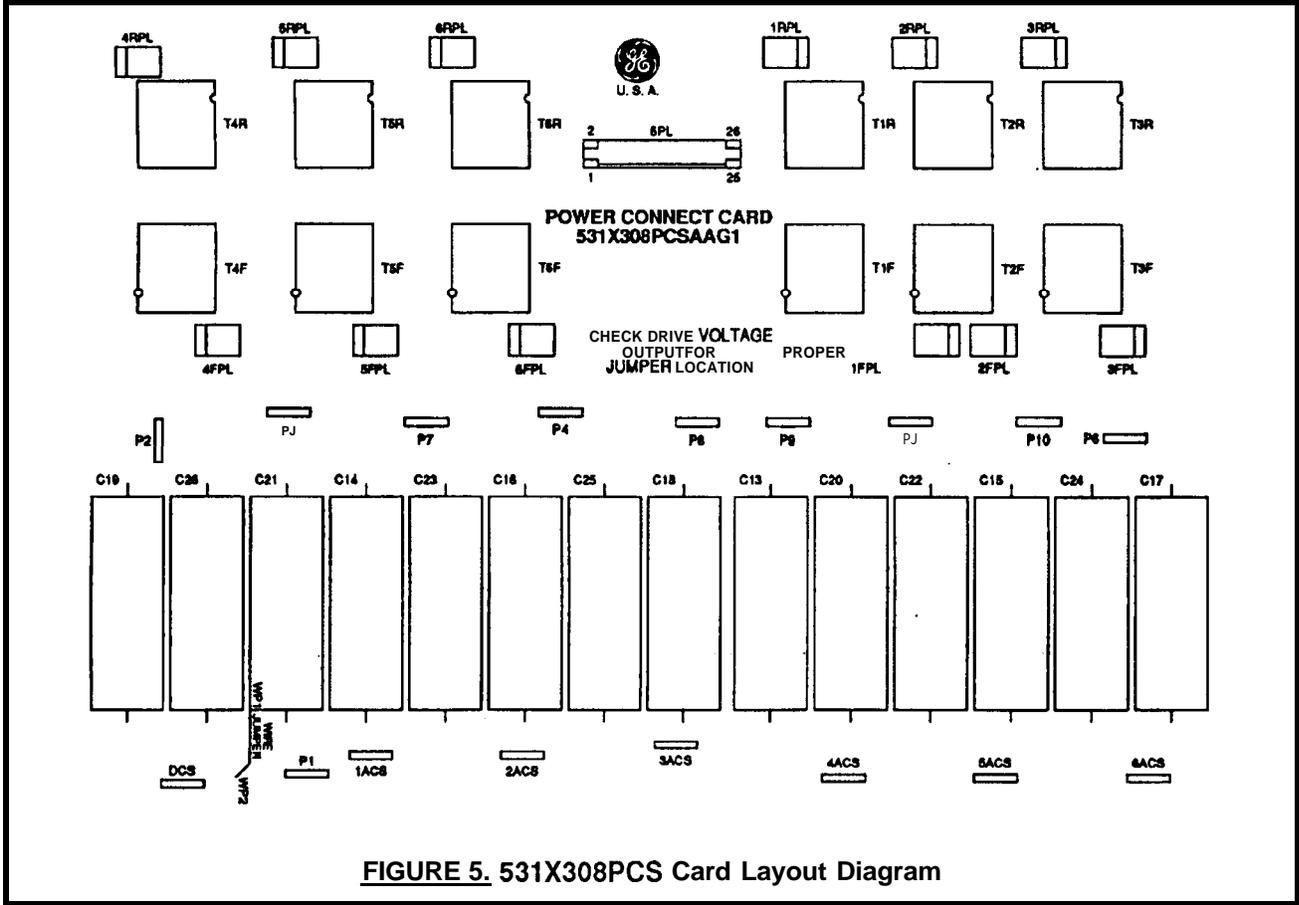


FIGURE 5. 531X308PCS Card Layout Diagram

TABLE 2: 531X121 PCRA_G_ HARD JUMPER MATRIX

Jumper Pair	<u>P3-P4</u> <u>P5-P6</u>	<u>P4-P8</u> <u>P5-P9</u>	<u>P3-P7</u> <u>P6-P10</u>	<u>P4-P7</u> <u>P5-P10</u>	<u>P7-P8</u> <u>P9-P10</u>	<u>P3-P8</u> <u>P6-P9</u>
Group						
AAG1	Y	N	N	N	N	N
ABG1	NA	NA	NA	NA	NA	NA
ACG1	Y	N	N	N	N	N
ADG1	Y	N	N	N	N	N
AEG1	Y	Y	Y	Y	Y	Y
AFG1	Y	Y	Y	Y	Y	Y
AGG1, AGG4	Y	Y	Y	Y	Y	Y
AHG1, AHG4	Y	Y	Y	Y	Y	Y
AJG1, AJG4	Y	Y	Y	Y	Y	Y
AKG1, AKG4	Y	Y	Y	Y	Y	Y
AAG2	Y	N	N	N	N	N
ABG2	NA	NA	NA	NA	NA	NA
ACG2	Y	N	N	N	N	N
ADG2	Y	N	N	N	N	N
AEG2	Y	Y	Y	Y	Y	Y
AFG2	Y	Y	Y	Y	Y	Y
AGG2	Y	Y	Y	Y	Y	Y
AHG2	Y	Y	Y	Y	Y	Y
AJG2	Y	Y	Y	Y	Y	Y
AKG2	Y	Y	Y	Y	Y	Y
AAG3	NA	NA	NA	NA	NA	NA
ABG3	NA	NA	NA	NA	NA	NA
ACG3	NA	NA	NA	NA	NA	NA
ADG3	NA	NA	NA	NA	NA	NA
AEG3	Y	Y	Y	Y	Y	Y
AFG3	Y	Y	Y	Y	Y	Y
AGG3	Y	Y	Y	Y	Y	Y
AHG3	Y	Y	Y	Y	Y	Y
AJG3	Y	Y	Y	Y	Y	Y
AKG3	Y	Y	Y	Y	Y	Y

Y = Jumper present; Set jumper in same position on new card as was on old card.
 N = Jumper not present.
 NA = Not applicable.

TABLE 2A: 531X122PCNA_G_ HARD JUMPER MATRIX

<u>Jumper Pair</u>	<u>P3-P4</u> <u>P5-P6</u>	<u>Jumper Pair</u>	<u>P3-P4</u> <u>P5-P6</u>
W	Y	Group	
ABG1	NA	AAG2	N A
ACG1	Y	ABG2	NA
ADG1	Y	ACG2	Y
AEG1	Y	ADG2	Y
AFG1	Y	AEG2	Y
AGG1	Y	AFG2	Y
AHG1	Y	AGG2	NA
AJG1	Y	AHG2	Y
AKG1	Y	AJG2	Y
ALG1	Y	AKG2	Y
		ALG2	Y

Y = Jumper present; Set jumper in same position on new card as was on old card.
 N = Jumper not present.
 NA = Not applicable.

TABLE 2B: 531X123PCHA_G_ HARD JUMPER MATRIX

<u>Jumper Pair</u>	<u>P6-P8</u> <u>P5-P7</u>	<u>P8-P10</u> <u>P7-P9</u>	<u>P4-P6</u> <u>P3-P5</u>	<u>P6-P10</u> <u>P5-P9</u>	<u>P4-P8</u> <u>P3-P7</u>	<u>P4-P10</u> <u>P3-P</u>
Group						
AAG1	Y	Y	Y	Y	Y	Y
ABG1	Y	Y	Y	Y	Y	Y
ACG1	Y	Y	Y	Y	Y	Y
ABG2	Y	Y	Y	Y	Y	Y
ACG2	Y	Y	Y	Y	Y	Y

Y = Jumper present; Set jumper in same position on new card as was on old card.
NOTE: Set jumper **JP1** in same position on new card as was on old card.

TABLE 2C: 531X308PCSA_G_ HARD JUMPER MATRIX

<u>Jumper Pair</u>	<u>P4-P8</u> <u>P5-P9</u>	<u>P3-P7</u> <u>P6-P10</u>	<u>P4-P7</u> <u>P5-P10</u>	<u>P7-P8</u> <u>P9-P10</u>	<u>P3-P4</u> <u>P5-P6</u>	<u>P3-P8</u> <u>P6-P9</u>
Group						
AAG1	Y	Y	Y	Y	Y	Y
AAG2	Y	Y	Y	Y	Y	Y
AAG3	Y	Y	Y	Y	Y	Y
AAG4	Y	Y	Y	Y	Y	Y

Y = Jumper present; Set jumper in same position on new card as was on old card.



GE Drive Systems

GEK-45148A (8/90)

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