PRODUCT DRAWING YORK INTERNATIONAL CORPORATION P.O. Box 1592, York, PA 17405	Supersedes: Nothing	FORM 160.00-PW3 (398)
	WIRING DIAGRAM, MILLENNIUM VARIABLE SPEED DRIVE CU-CZ, 5CN-5CS WITH OPTIONAL HARMONIC FILTER	
CONTRACTOR _____ ORDER NO. _____ YORK CONTRACT NO. _____ YORK ORDER NO. _____	PURCHASER _____ JOB NAME _____ LOCATION _____ ENGINEER _____	
☐ REFERENCE DATE _____	☐ APPROVAL DATE _____	☐ CONSTRUCTION DATE _____

NOTES

1. Field wiring to be in accordance with the National Electrical Code as well as all other applicable codes and specifications.

2. Terminal board connection points are indicated by numbers within a square i.e. [1]. 1TB main power connection points are indicated by numbers within a hexagon i.e. ⟨L1⟩. Component terminal markings are indicated by numbers within a circle i.e. (2). Numbers adjacent to circuit lines are the circuit identification numbers.

3. Terminals L1, L2, L3 and GRD are the main power input terminals and are field connected (see note 6). Terminals T1, T2 and T3 are the compressor motor load power terminals and are factory connected on factory packaged units.

4. The three-phase solid state motor overload protection system provides motor overcurrent protection at 105% full load amps.

5. See the applicable YORK Control Center wiring diagram Product Drawing Forms:
   - YT Style H - 160.48-PA21
   - YK Style C - 160.49-PW9
   - YK Style D - 160.52-PW3

6. Field wiring connections per Product Drawing Forms:
   - YT Style H - 160.48-PA15
   - YK Style C - 160.49-PW12
   - YK Style D - 160.49-PW12

7. Elementary Diagram does not show all components relating to the optional harmonic filter components. The Connection Diagram does show all the components relating to the optional harmonic filter. Refer to pages 10, 11 & 11A for wiring related specifically to the optional filter.

LEGEND FOR VARIABLE SPEED DRIVE (See pages 1 - 9)

C1 - C30	CAPACITORS, FILTER, 8800 µf, 450 VDC
C37 - C42	CAPACITORS, FILM, 1.0 µf, 1200 VDC
C43 - C57	CAPACITORS, FILM, 0.2 µf, 1000 VDC
C61 - C66	CAPACITORS, DV/DT, 0.047 µf, 1600 VDC
1FU - 3FU	SEMI-CONDUCTOR FUSES, 1100A, 700V: GOULD SHAWMUT *A3-66C 1100TS OR FERRAZ -6.6URD33TTF1100
4FU - 6FU	SCRTRIGGER / OIL PUMP MOTOR FUSES
7FU - 10FU	CONTROL SUPPLY TRANSFORMER PRIMARY FUSES, 10A, 500V: BUSS FNQ-10
11FU	EXTERNAL CONTROL SUPPLY TRANSFORMER SECONDARY FUSE, 20A, 500V: BUSS FNQ-20
12FU	INTERNAL CONTROL SUPPLY TRANSFORMER SECONDARY FUSE, 20A, 500V: BUSS FNQ-20
13FU	INTERNAL CONTROL SUPPLY TRANSFORMER SECONDARY FUSE, 7A, 500V: BUSS FNQ-7
1L	INDUCTOR, DCLINK, 1125 A, 145 µH
1M - 2M	CONTACTORS, PRECHARGE, 600 VAC, 25 A
Q1 - Q18	DUAL IGBT MODULES, 1200 V, 150 A
1RES - 2 RES	RESISTORS, PRECHARGE, 35 Ω, 500 W
3RES - 4RES	RESISTORS, BLEEDER, 750 Ω, 225 W
5RES - 10RES	DV/DT RESISTORS, 10 Ω, 50 W
11RES - 13RES	RESISTORS, PRECHARGE (HARMONIC FILTER) 10 Ω, 375 W
RT1 - RT6	HEATSINK THERMISTOR TEMPERATURE SENSORS
1SCR - 3SCR	SCR / DIODE MODULES, 1200 V, 500 A
1R	RELAY, COOLING FANS AND PUMP
2R	RELAY, CONTROL
1SW	CIRCUIT BREAKER, 600 V, 1200 A
1T - 2T	120 VAC, 2 KVA CONTROL POWER TRANSFORMER
3T	24 VAC, 75VA CONTROL TRANSFORMER
4T - 6T	OUTPUT CURRENT TRANSFORMERS
7T - 8T	INPUT CURRENT TRANSFORMERS
1TB	TERMINAL BLOCKS, FACTORY WIRING
2TB - 3TB	TERMINAL BLOCKS, FIELD WIRING
⟩——	JACK J1 - 1 ETC...
——⟩	PLUG, P1 - 1 ETC...

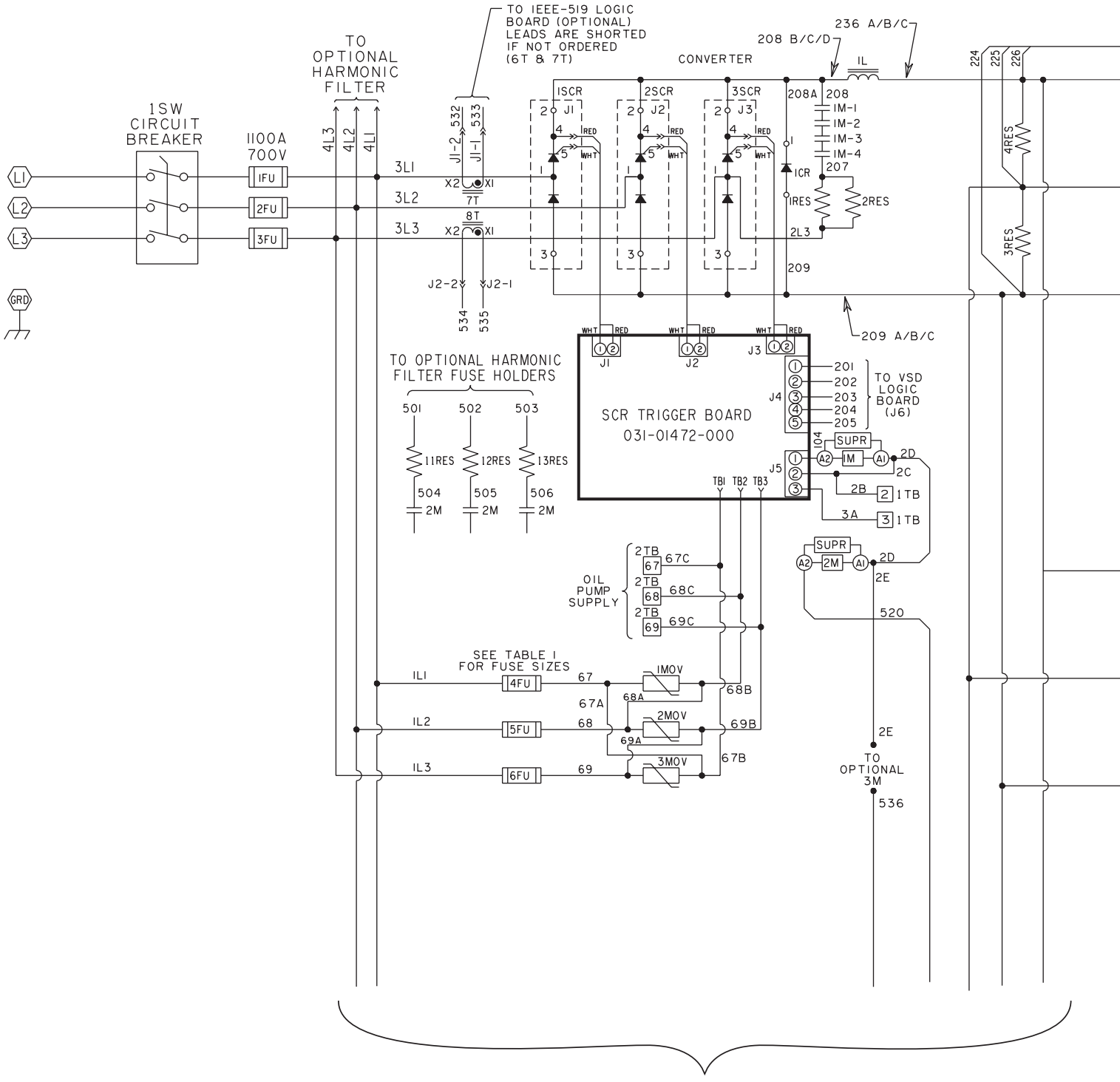
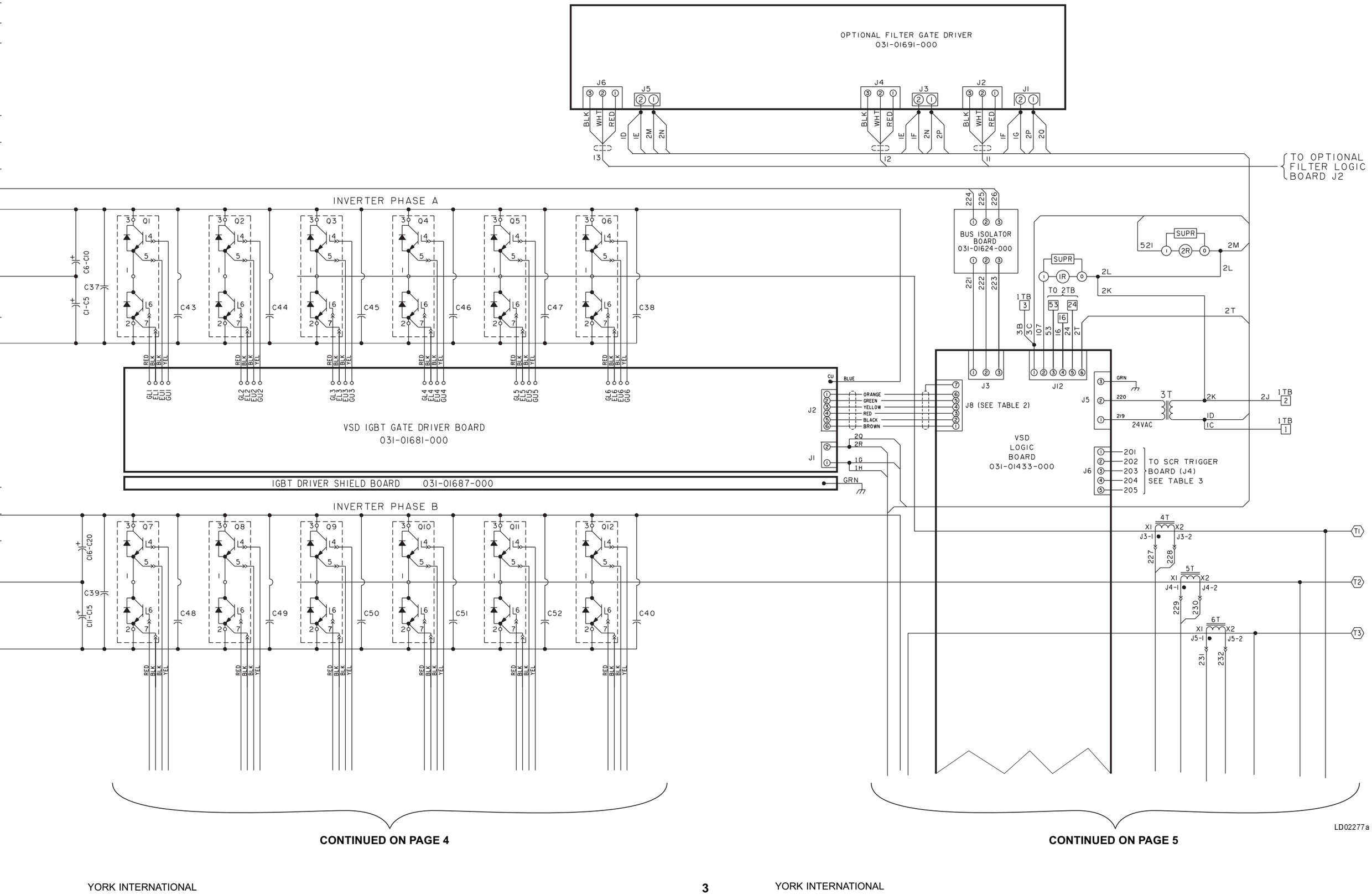


FIG. 1 – ELEMENTARY DIAGRAM (TOP)
035-14633 (REV. B)

FORM 160.00-PW3



CONTINUED ON PAGE 4

CONTINUED ON PAGE 5

CONTINUED FROM PAGE 2

TABLE 1	
UNIT STYLE	FUSING - 4FU, 5FU, 6FU
YT	5A, 500V, BUSS FNQ-5
YK	7A, 500V, BUSS FNQ-7

TABLE 2
VSD LOGIC BOARD - J8, J9, J10 PINOUT

CONNECTOR PIN	SHIELDED CABLE WIRE COLOR	FUNCTION
1	BRN	FAULT
2	BLK	GROUND
3	RED	+5V
4	YEL	UPPER PHASE, IN
5	GRN	LOWER PHASE, IN
6	ORG	SW, +7.5V
7	DRAIN WIRE **	SHIELD

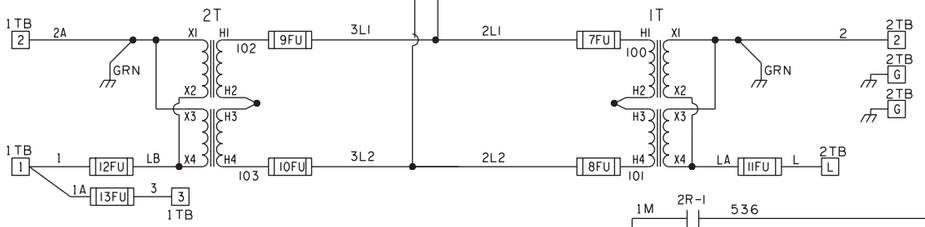


TABLE 3
VSD LOGIC BOARD - J6 PINOUT

CONNECTOR PIN	FUNCTION
1	+5V FEED
2	PH LOSS OUT
3	PRECHG IN
4	SCRTRIG IN
5	7.5V FEED

TABLE 4
OPTONAL FILTER LOGIC BOARD - J3 PINOUT

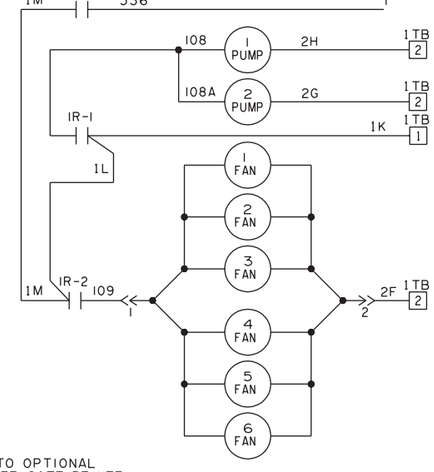
CONNECTOR PIN	IDENTIFIER	FUNCTION
1	*532	TO 6T-X2
2	*533	TO 6T-XI
3	*534	TO 7T-X2
4	*535	TO 7T-XI
5	WHITE	TO 1DCCT - OPTION
6	RED	TO 1DCCT - OPTION
7	BLK	TO 1DCCT - OPTION
8	GRN	TO 1DCCT - OPTION
9	GRN	TO 2DCCT - OPTION
10	RED	TO 2DCCT - OPTION
11	BLK	TO 2DCCT - OPTION
12	WHITE	TO 2DCCT - OPTION

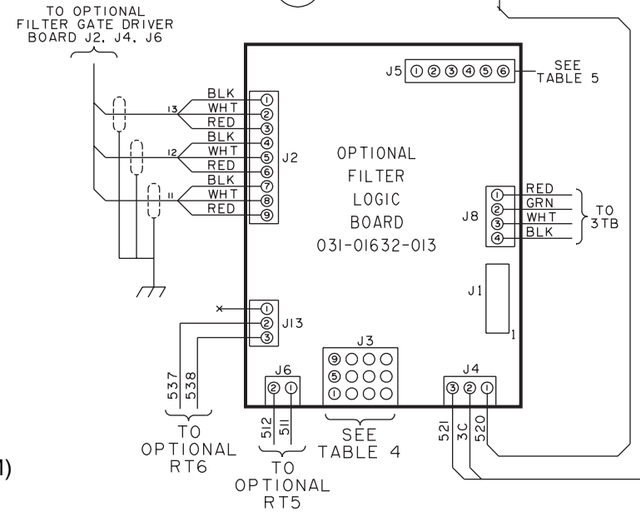
TABLE 5
OPTONAL FILTER LOGIC BOARD - J5 PINOUT

CONNECTOR PIN	IDENTIFIER	FUNCTION
1	*522	TO J2-1, OPTIONAL 1625 BOARD
2	*523	TO J2-2, OPTIONAL 1625 BOARD
3	*524	TO J2-3, OPTIONAL 1625 BOARD
4	*528	TO J2-3, OPTIONAL 1624 BOARD
5	*527	TO J2-2, OPTIONAL 1624 BOARD
6	*526	TO J2-1, OPTIONAL 1624 BOARD

* SAME PIN NUMBERS ARE USED AT BOTH ENDS OF CABLE
** NOT CONNECTED AT GATE DRIVER BOARD END

LD02277c





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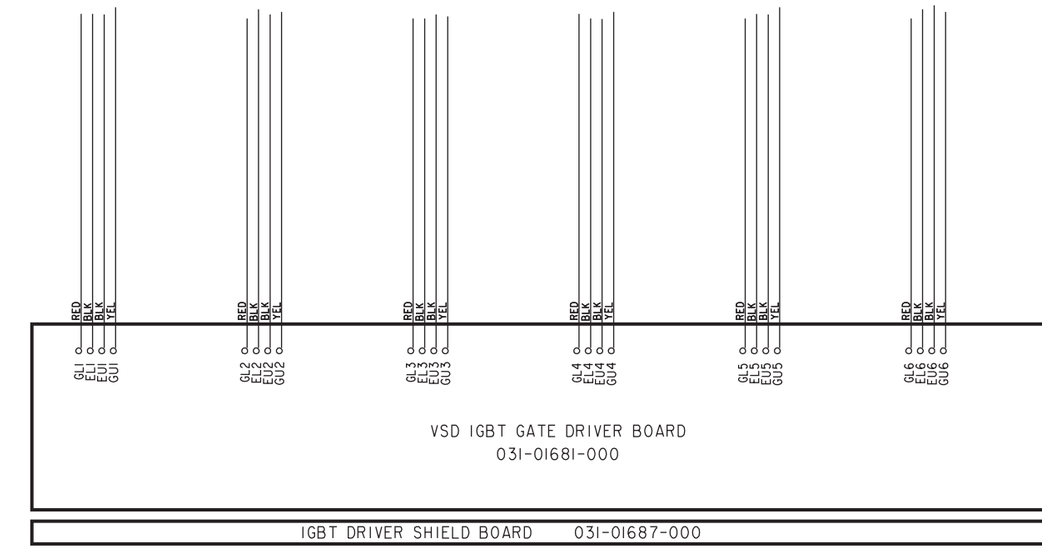


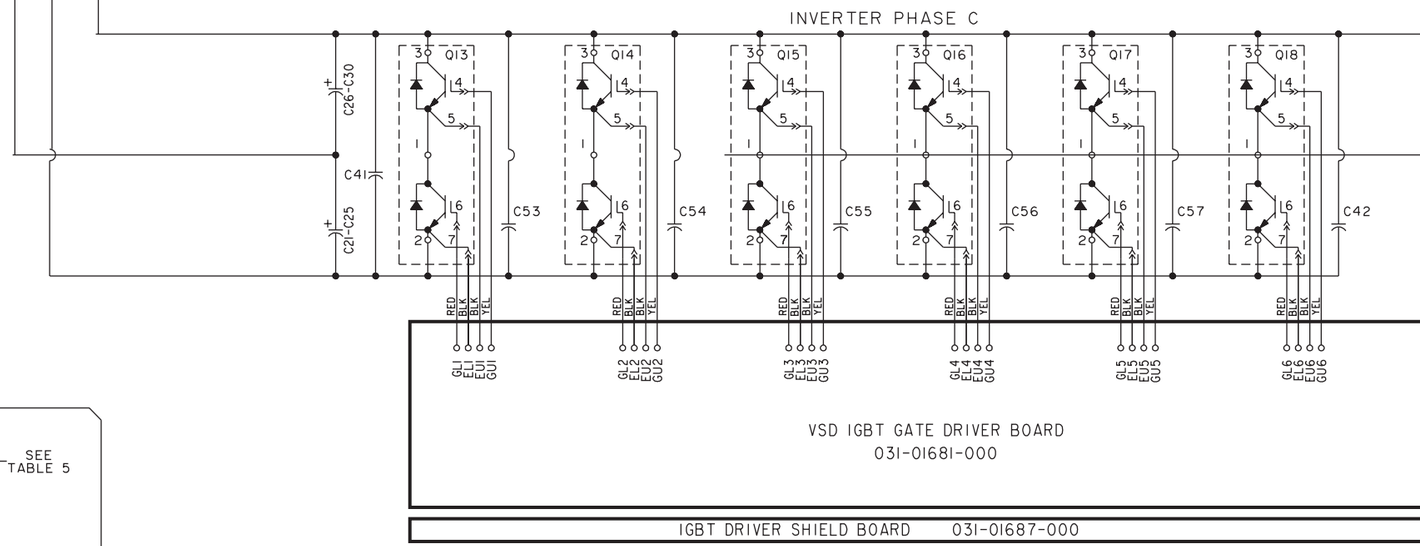
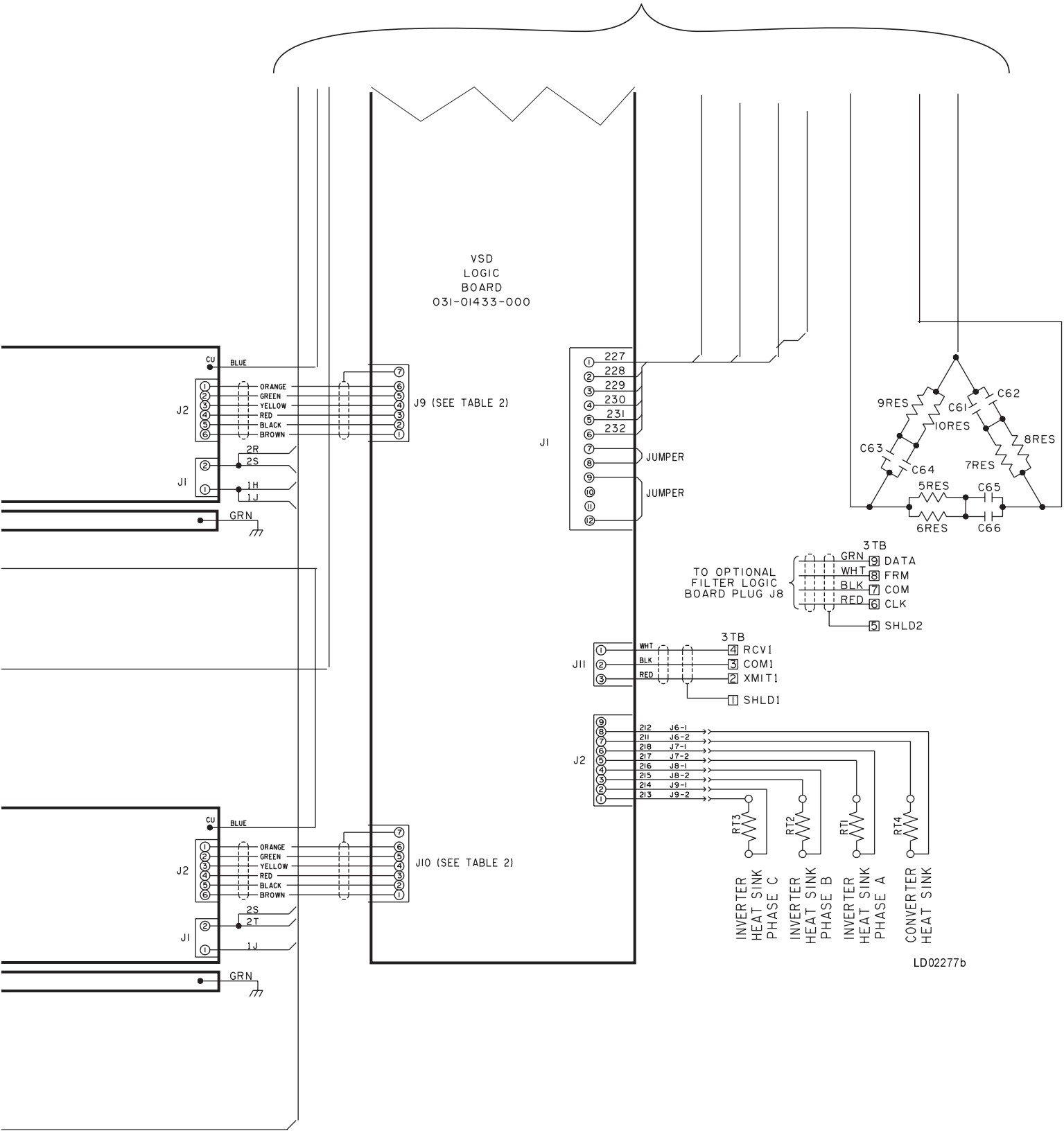


FIG. 1 (Cont'd) – ELEMENTARY DIAGRAM (BOTTOM)
035-14633 (REV. B)

CONTINUED FROM PAGE 3A



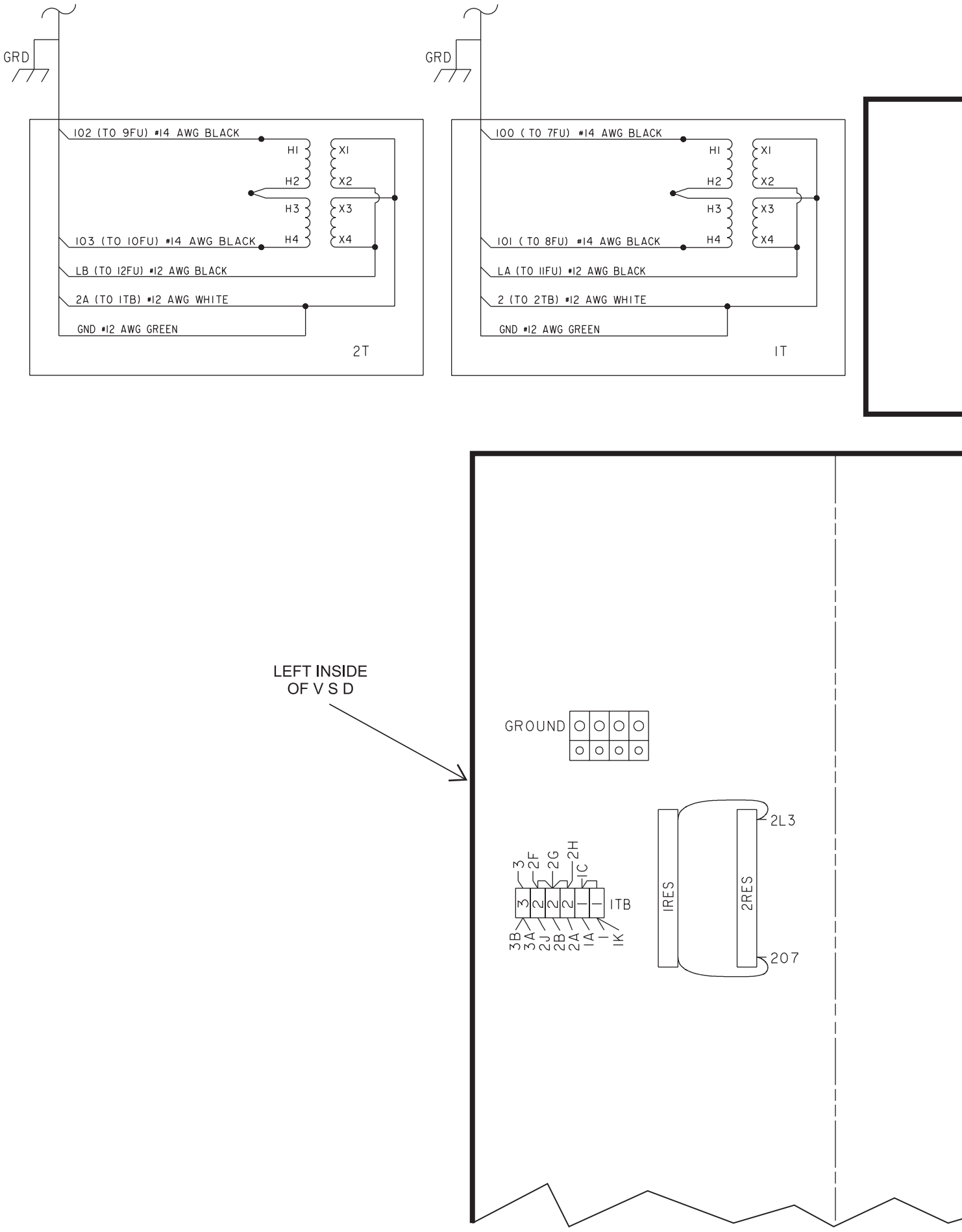


FIG. 2 – CONNECTION DIAGRAM (TOP)
035-14633 (REV. B)

TOP
OF V S D

PUMP 2 PUMP 1

108A 108

2G 2H

FILTER GATE DRIVER - TOP VIEW
031-01691-000

PH3 PH2 PH1

BLK WHT RED J6 J4 J2

J5 J3 J1

ID IE 2M 2N IE IF 2N 2P IF IG 2P 2Q

PHASE A
VSD IGBT GATE DRIVER
TOP VIEW

PIN 1. ORANGE GREEN YELLOW RED BLACK BROWN J2

031-01681-000

2Q 2R IG IH J1

PHASE B
VSD IGBT GATE DRIVER
TOP VIEW

PIN 1. ORANGE GREEN YELLOW RED BLACK BROWN J2

031-01681-000

2R 2S IH IJ J1

PHASE C
VSD IGBT GATE DRIVER
TOP VIEW

PIN 1. ORANGE GREEN YELLOW RED BLACK BROWN J2

031-01681-000

2S 2T IJ J1

RIGHT INSIDE
OF V S D

511 512

RT5 FILTER

531A 529A

RT6 537 538

531 529

14RES 15RES

530

517 518 519

IC ID 2J 2K PRI 3T SEC 219 220 LINE LOAD

108 108A IK IL 2K 2L IR SUPR

109 IL IM 107

529 530 531 526 527 528 J1 031-01624-000 J2

224 225 226 221 222 223 J1 031-01624-000 J2

2L 2M 2R SUPR

536 IM 521

109 2F

FAN
ASSY

C66 8RES 9RES 10RES

7RES C61 C62 6RES

C64 C63 5RES

507 507A 508 508A 509 509A

3M SUPR

501 501B 502 502B 536 503 503B

524 523 522 21 1C 1 501A 502A 503A 031-01625-000

501 501A 502 502A 503 503A

IIRES I2RES I3RES

504 505 506

501B 502B 503B

14FU 15FU 16FU

4L1 4L2 4L3

ISW

IDCCT

517 517

FILTER LOGIC BD. DCCTI BLK WHT RED GRN 3 4 5 6 BLK WHT RED - M +

518 518

2DCCT

519 519

1TI 2TI 3TI

4T

X2 X1 228 227

224 225 226

1TI 2TI 3TI

225A

209A 236A

2 RTI 217 218

PHASE A

INSIDE
OF V S D

CONTINUED ON PAGES 7B, 8 & 9

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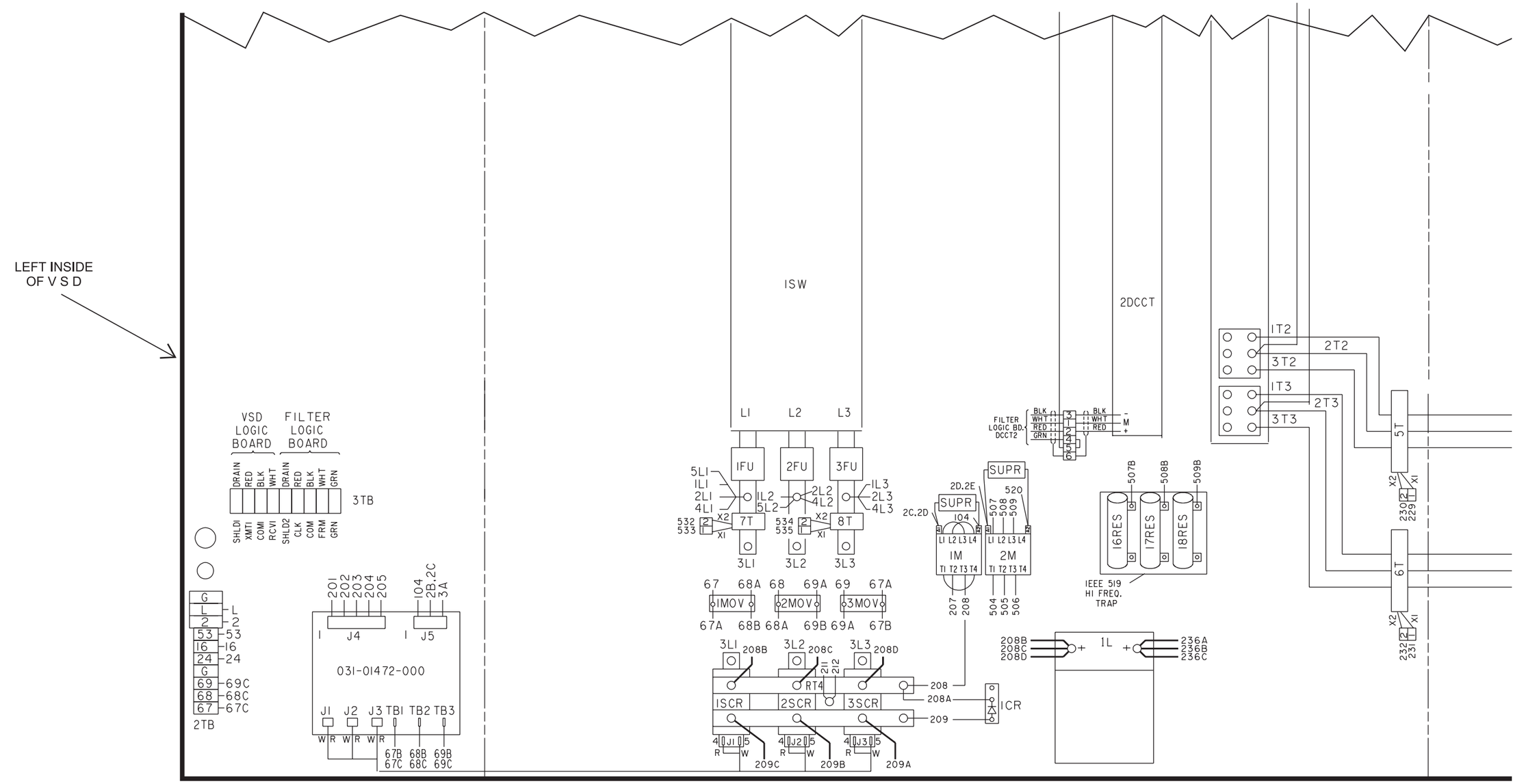
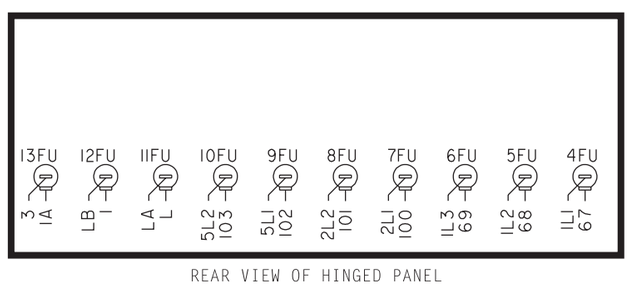
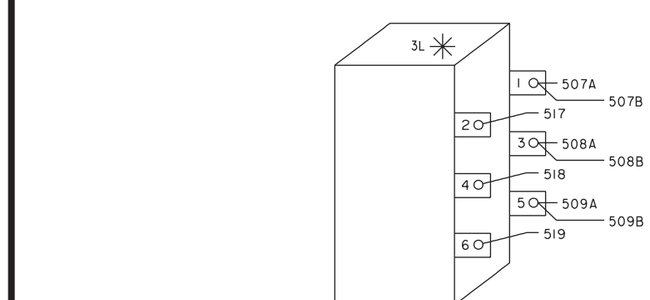
CONTINUED FROM PAGES 6, 7 & 7A



INSIDE OF V S D

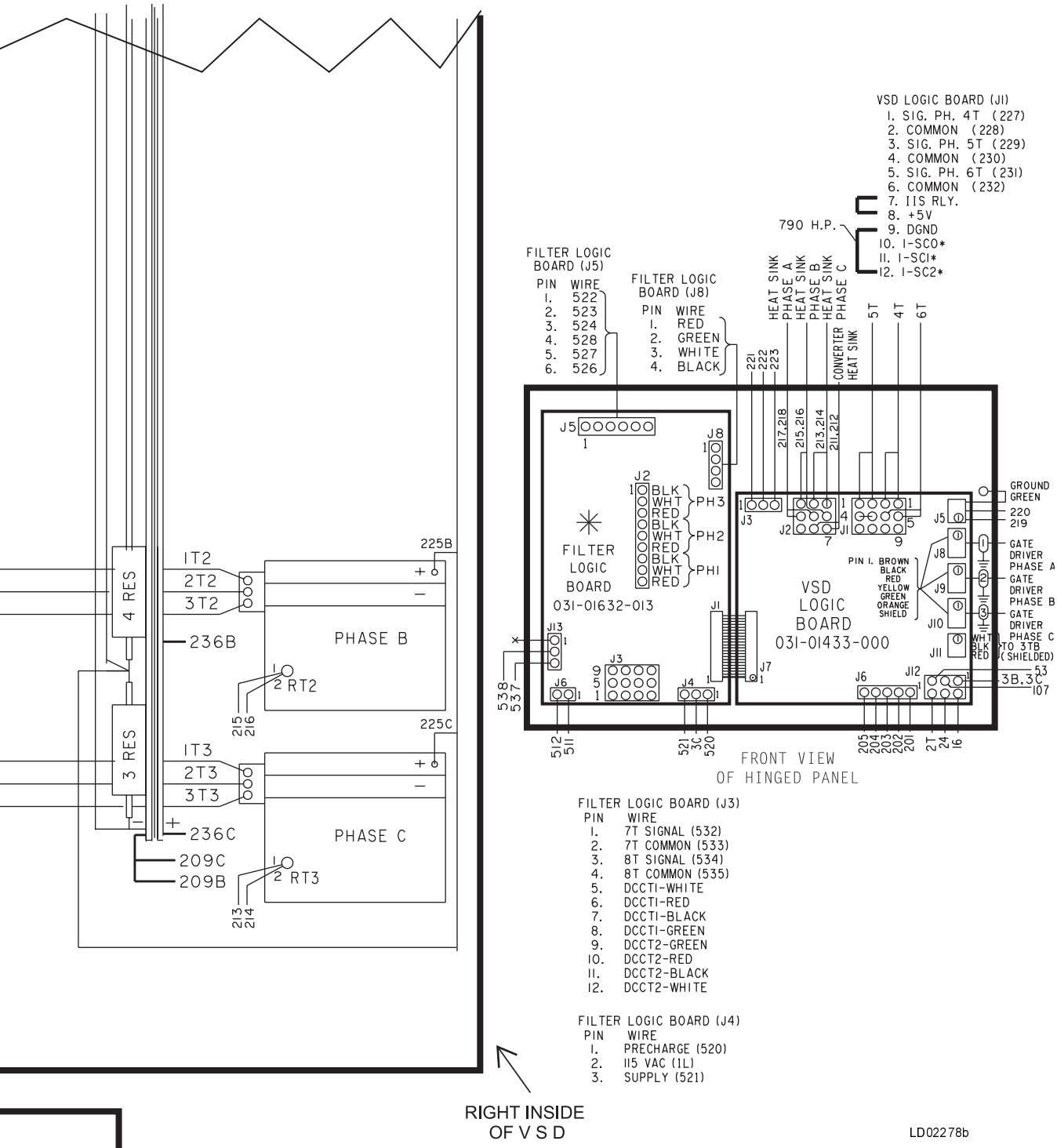


REAR VIEW OF HINGED PANEL



BOTTOM OF V S D

FIG. 2 (Cont'd) – CONNECTION DIAGRAM (BOTTOM)
035-14633 (REV. B)



✳ SUPPLIED WITH 519 FILTER OPTION

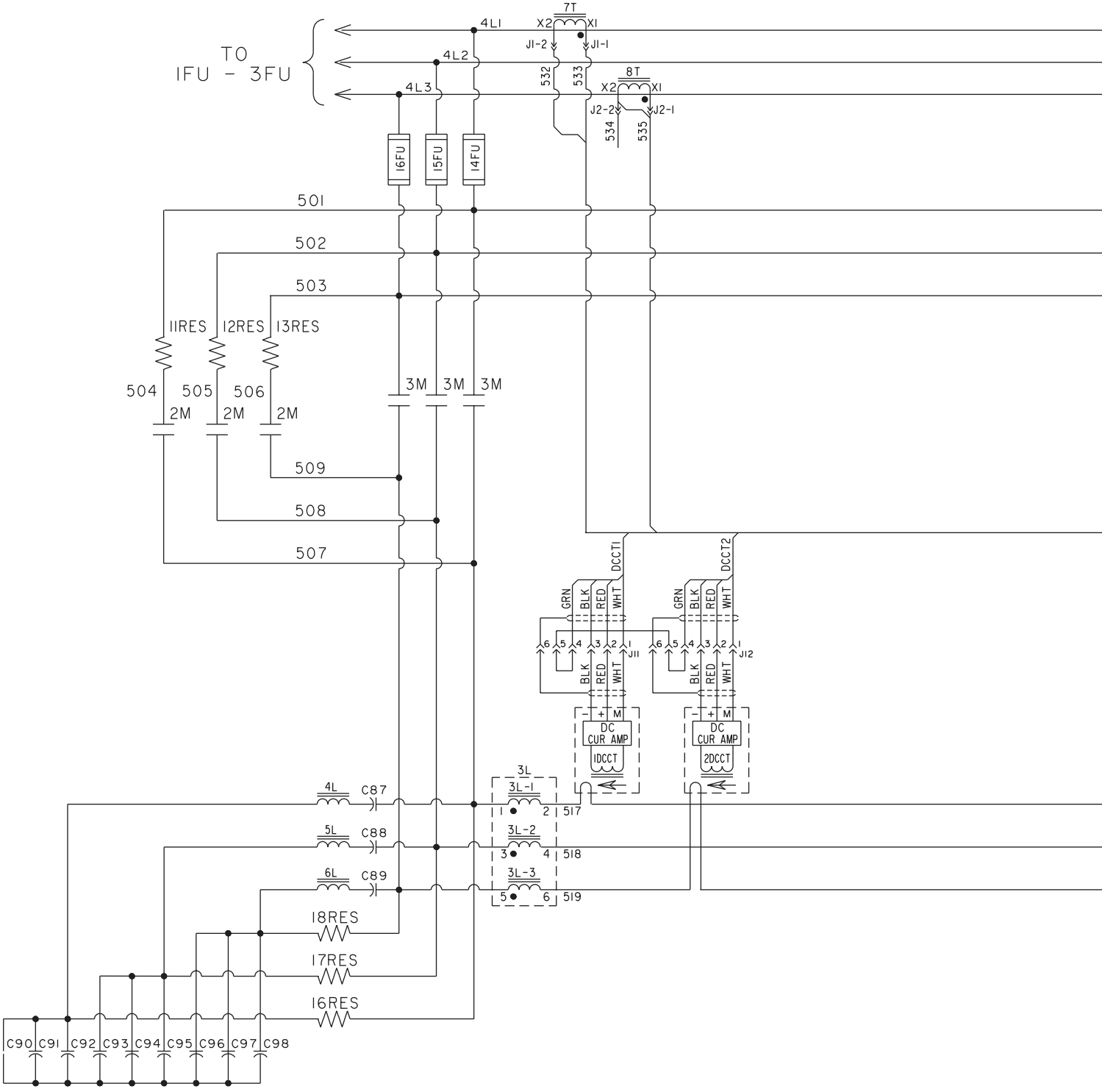
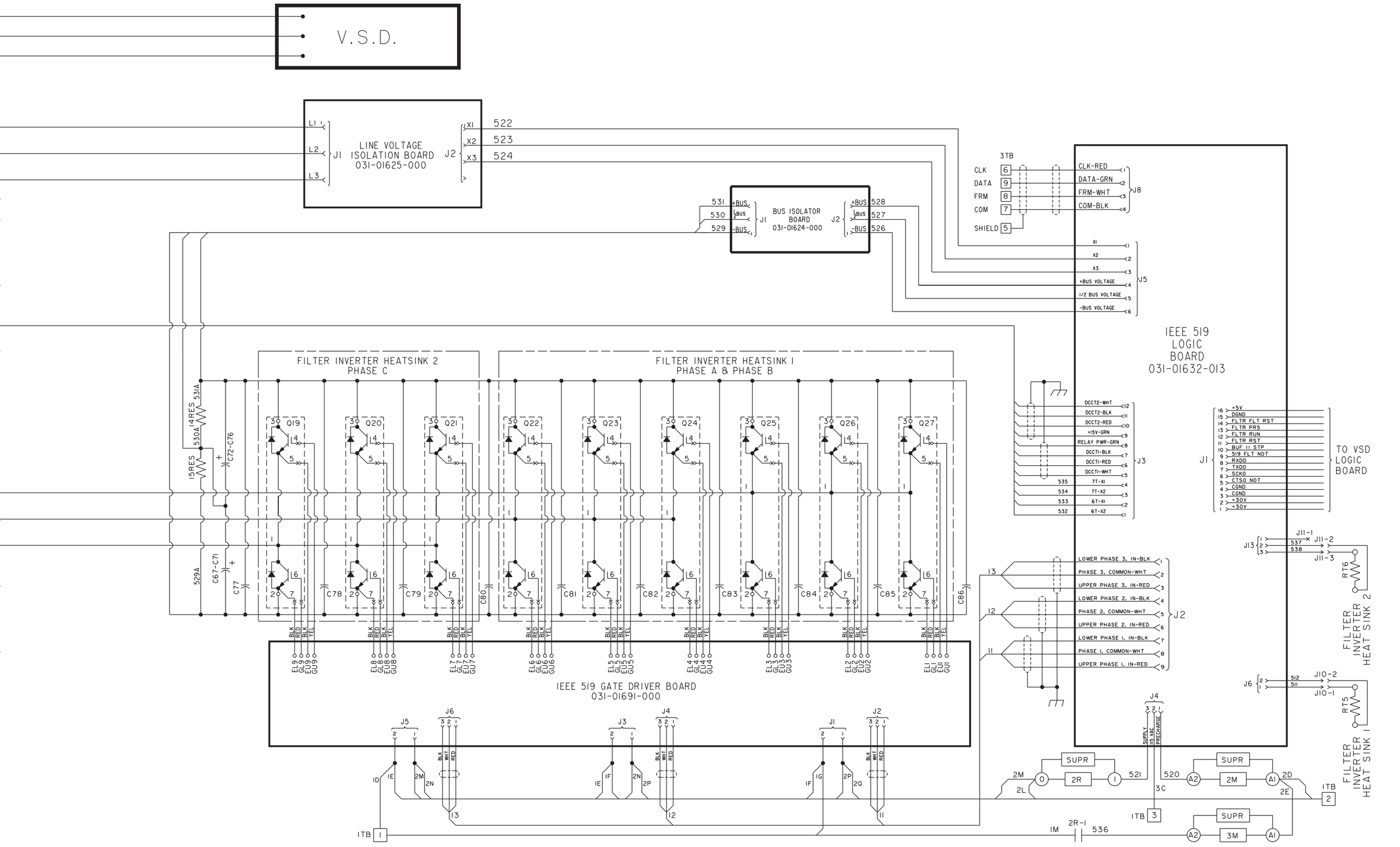


FIG. 3 – OPTIONAL HARMONIC FILTER ELEMENTARY DIAGRAM
035-14653 (REV. A)

FORM 160.00-PW3



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LEGEND FOR OPTIONAL HARMONIC FILTER (See pages 10 - 11A)

C67 - C76	CAPACITORS, FILTER, 8800 µf, 450 VDC
C77, C86	CAPACITORS, FILM, 0.2 µf, 1200 VDC
C78 - C85	CAPACITORS, FILM 0.2 µf, 1200 VDC
C87 - C89	CAPACITORS, FILM, 3.0 µf, 1000 VDC
C90 - C98	CAPACITORS, FILM, 25.0 µf, 450 VAC
1DCCT, 2DCCT	FILTER CURRENT TRANSDUCERS
14FU - 16FU	SEMICONDUCTOR FUSES, 300 A, 500 V: BUSSMANN FWH300B FERRAZ A050F300 LITTELFUSE L50S-300
3L	THREE PHASE INDUCTOR, 50 µh, 700 A
4L - 6L	INDUCTORS, 22 µh, 35 A
2M	CONTACTOR, PRECHARGE, 600 VAC, 25 A
3M	CONTACTOR, SUPPLY, 600 VAC, 350 A
Q19 - Q27	DUAL IGBT MODULES, 1200 V, 200 A
11RES - 13RES	RESISTORS, PRECHARGE (HARMONIC FILTER), 10 Ω, 375 W
14RES - 15RES	RESISTORS, BLEEDER, 1500 Ω, 225 W
16RES - 18 RES	RESISTORS, TRAP, 1.0 Ω, 375 W
7T, 8T	INPUT CURRENT TRANSFORMER
RT5, RT6	HEATSINK THERMISTOR TEMPERATURE SENSORS
1TB	TERMINAL BLOCK, FACTORY WIRING
3TB	TERMINAL BLOCK, FIELD WIRING
⟩——	JACK J1 - 1 ETC...
——⟩	PLUG, P1 - 1 ETC...

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