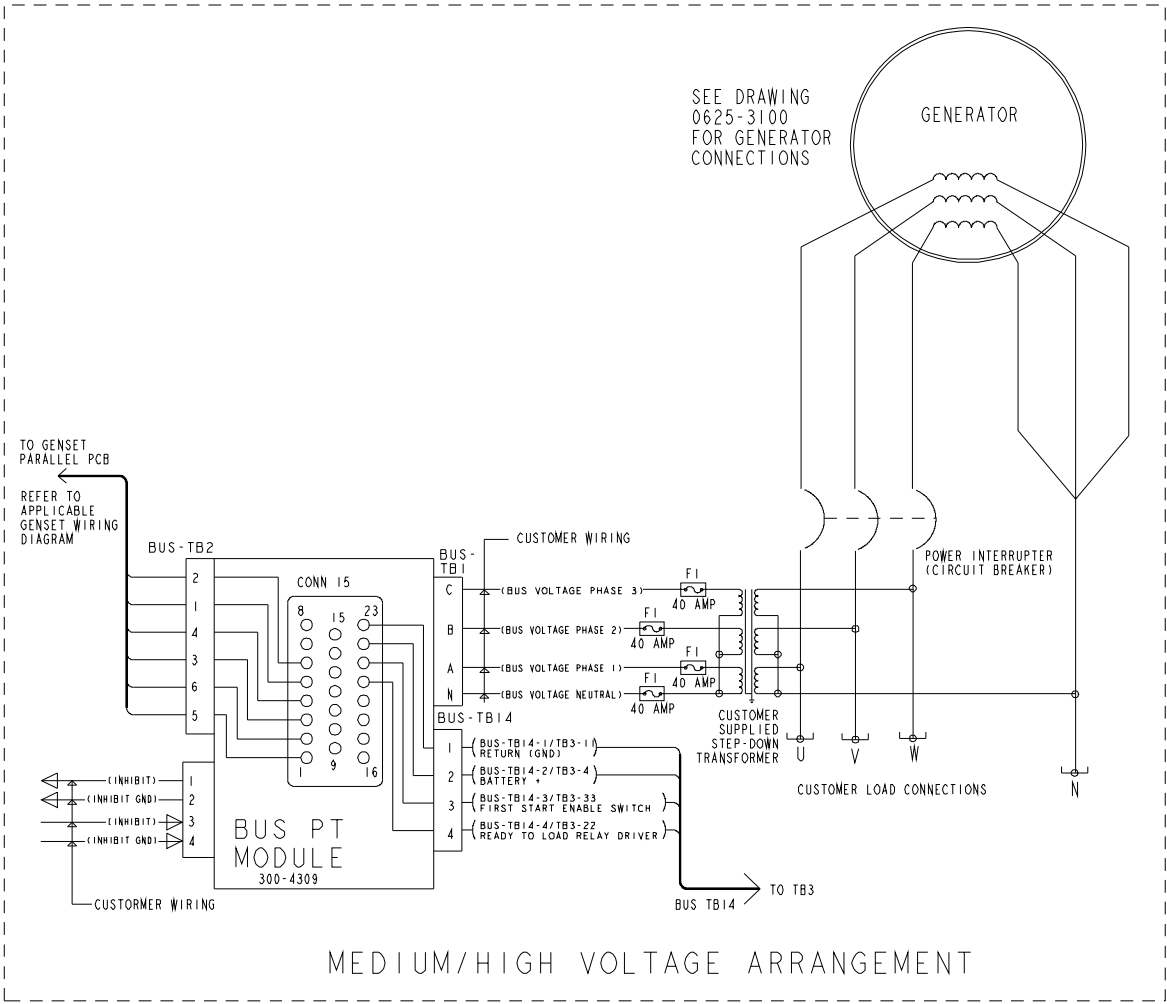
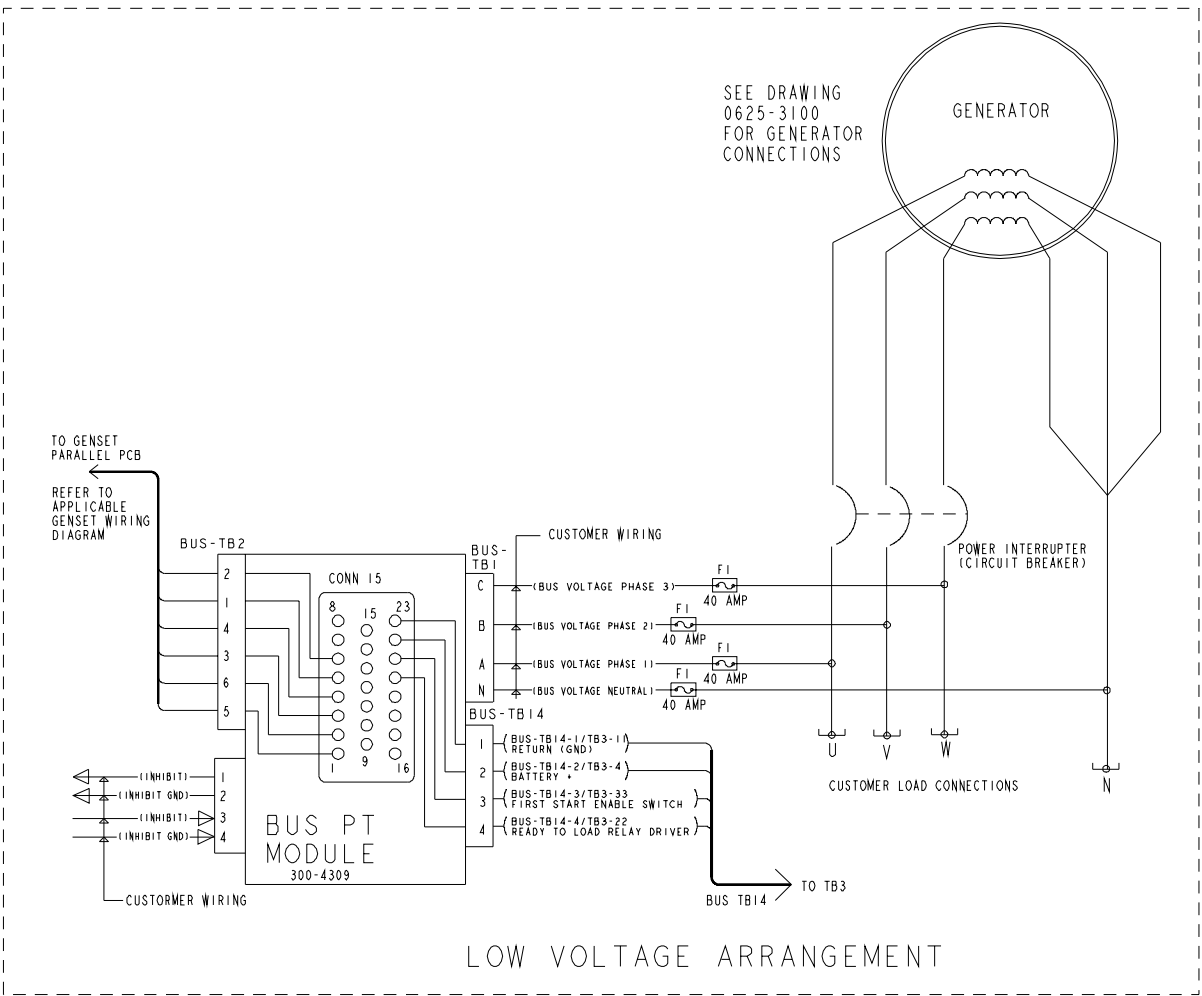


REL NO	LTR	NO	REVISION	ZONE	DWN	CKD	APVD	DATE
FRD25434	A	1	PRODUCTION RELEASE	-	LJK	LN	LN	11-10-05

CUSTOMER CONNECTIONS

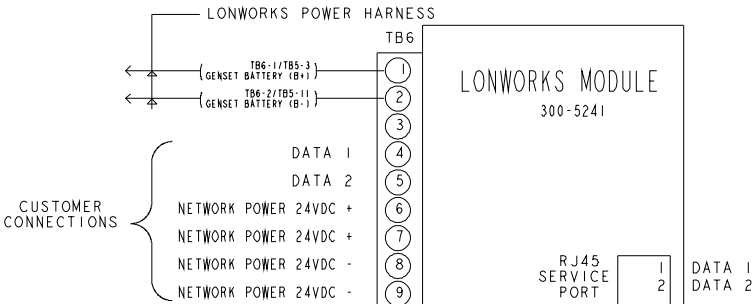
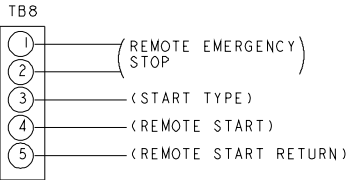


MEDIUM/HIGH VOLTAGE ARRANGEMENT



LOW VOLTAGE ARRANGEMENT

CUSTOMER CONNECTIONS ON BASE PCB



LONWORKS OPTION

NOTE:
1. FOR INTERCONNECTION DETAILS, REFER TO SPECIFIC COMPONENT WIRING DIAGRAMS.

QTY	ITEM	PART NO	DESCRIPTION OR MATERIAL
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS			
SIM TO			
DO NOT SCALE PRINT			
CONFIDENTIAL			
FOR INTERPRETATION OF DIMENSIONS AND TOLERANCES, SEE ASME Y14.5M-1994			
ANG TOL: ± 1.0° SCALE: 1/1			
DQKAA			
PGF			
D			
0630_3226			
1 OF 2			
A			

CUMMINS POWER GENERATION	
1400 73RD AVENUE NE, MINNEAPOLIS, MN 55432	
WD-INTERCONNECTION	
(CUSTOMER CONNECTIONS-PCC 3201)	

6		5
TABULATION TB3		
TB3-	FUNCTION	DESCRIPTION
1-4	B+	24VDC/10 AMPS BATTERY VOLTAGE SUPPLY
5-6	SWITCHED B+	24VDC/10 AMPS BATTERY VOLTAGE SUPPLY, AVAILABLE WHEN GENSET IS RUNNING
7-8	DELAYED OFF SWITCHED B+	24VDC/10 AMPS BATTERY VOLTAGE SUPPLY, AVAILABLE WHEN GENSET IS RUNNING. CONFIGURABLE DELAYED OFF IS TYPICALLY USED FOR FUEL SHUTOFF
9-12	GND	BATTERY NEGATIVE
13	CONFIGURABLE INPUT #1	CONFIGURABLE INPUT USED TO INITIATE A WARNING OR SHUTDOWN CONDITION. APPLY WITH (TB3-17/18) TO ACTIVATE
14	CONFIGURABLE INPUT #2	CONFIGURABLE INPUT USED TO INITIATE A WARNING OR SHUTDOWN CONDITION. APPLY WITH (TB3-17/18) TO ACTIVATE
15	CONFIGURABLE INPUT #3	CONFIGURABLE INPUT USED TO INITIATE A WARNING OR SHUTDOWN CONDITION. APPLY WITH (TB3-17/18) TO ACTIVATE
16	CONFIGURABLE INPUT #4	CONFIGURABLE INPUT USED TO INITIATE A WARNING OR SHUTDOWN CONDITION. APPLY WITH (TB3-17/18) TO ACTIVATE
17	CONFIGURABLE INPUT RETURN	RETURN PATH FOR CONFIGURABLE INPUTS. (TB3-13,14,15,16)
19	RELAY COIL SOURCE	SWITCHED 24VDC POWER SUPPLY. USE ON THE HIGH SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH A RELAY DRIVER. PROVIDES A MINIMUM 800ma OF CURRENT
21-22	READY TO LOAD RELAY DRIVER	ACTIVATES WHEN GENSET HAS REACHED 90% OF FREQUENCY. USE ON THE LOW SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH A RELAY COIL SOURCE (TB3-19/20)
23	LOAD DUMP RELAY DRIVER	ACTIVATES AT A CONFIGURABLE LOAD LEVEL OR UNDER FREQUENCY CONDITION. USE ON THE LOW SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH A RELAY COIL SOURCE (TB3-19/20)
24	COMMON SHUTDOWN RELAY DRIVER	ACTIVATES ON ANY GENSET SHUTDOWN CONDITION. USE ON THE LOW SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH A RELAY COIL SOURCE (TB3-19/20)
25	SPARE	
26	SPARE	
27	SPARE	
28	MODEM RELAY DRIVER	PROVIDES A CONFIGURABLE METHOD OF CONTROLLING AND CYCLING POWER TO AN EXTERNAL MODEM. USE ON THE LOW SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH RELAY COIL SOURCE (TB3-19/20)
29	COMMON WARNING RELAY DRIVER	ACTIVATES ON ANY WARNING CONDITION. USE ON THE LOW SIDE OF THE CUSTOMER SUPPLIED RELAY COIL IN CONJUNCTION WITH A RELAY COIL SOURCE (TB3-19/20)
30	LOCAL LOW FUEL INPUT	PROVIDES A LOW FUEL INDICATION FOR GENSETS SUPPLIED WITH A DAY TANK OR AN INTEGRATED FUEL TANK. SWITCH RETURN WITH TB3-31
31	LOCAL LOW FUEL RETURN	SWITCH RETURN FOR LOCAL LOW FUEL INPUT (TB3-30)
32-33	FIRST START INPUT	FOR PARALLELLING APPLICATIONS, CONNECTS TO REMOTE MASTER START SENSOR OR BUS PT I/MODULE WITH FIRST START SENSOR
34	LOAD DEMAND INPUT	FOR MULTIPLE GENSET PARALLEL APPLICATIONS. INPUT ALLOWS GENSET TO RAMP TO NO LOAD, OPEN BREAKER AND SHUT DOWN. REMOVING INPUT CAUSES GENSET TO START, SYNCHRONIZE, CLOSE BREAKER, AND RAMP TO LOAD. APPLY WITH SWITCH RETURN (TB3-38/39)
35	SINGLE MODE ENABLE INPUT	FOR SINGLE GENSET PARALLEL POWER TRANSFER (PLT) APPLICATIONS ONLY. APPLY WITH SWITCH RETURN (TB3-38/39) TO ENABLE MODE
36	RAMP LOAD/UNLOAD SWITCH	USED WITH MULTIPLE GENSETS IN PARALLEL IN CONJUNCTION WITH A MASTER CONTROL OR OTHER PLC DEVICE. APPLY SWITCH RETURN (TB3-38/39) TO LOAD/UNLOAD GENSET AS LOAD PROFILE DICTATES
37	REMOTE LOW FUEL INPUT	PROVIDES A LOW FUEL INDICATION FOR GENSETS THAT ARE NOT FITTED WITH AN INTEGRATED FUEL TANK. APPLY SWITCH RETURN TB3-38/39 TO ACTIVATE
38-39	SWITCH RETURN	SWITCH RETURN FOR TB3-34, 35, 36, AND 37
40	SYNC ENABLE INPUT	FOR USE IN SINGLE MODE PLT APPLICATIONS ONLY. INPUT SIGNALS GENSET TO SYNCHRONIZE WITH UTILITY
41	LOAD GOVERN KW+ INPUT	ALLOWS A REMOTE DEVICE TO CONTROL KW LOAD ON GENSET WHILE UTILITY PARALLELED. ANALOG INPUT 0-5VDC
42	LOAD GOVERN KW-	RETURN LINE LOAD GOVERN KW
43	LOAD GOVERN KVAR+ INPUT	ALLOWS A REMOTE DEVICE TO CONTROL KVAR LOAD ON GENSET WHILE UTILITY PARALLELED. ANALOG INPUT 0-5VDC. THIS INPUT IS DEFAULTED TO "DISABLED" AND IS ENABLED WITH INPOWER
44	LOAD GOVERN KVAR-	RETURN LINE LOAD GOVERN KVAR

4		3
TABULATION TB3		
TB3-	FUNCTION	DESCRIPTION
45	EXTERNAL KW/KVAR SHIELD	SHIELD TERMINATION POINT FOR LOAD GOVERN INPUTS
46	AUTO MODE OUTPUT	SWITCH BATTERY 24VDC, FUSED AT 5A. AVAILABLE WHEN GENSET IS IN AUTO MODE
47	GROUND FAULT INPUT	ACTIVATES A GROUND FAULT WARNING WHEN SWITCHED TO THE GROUND FAULT RETURN (TB3-48). USE IN CONJUNCTION WITH AN EXTERNAL GROUND FAULT RELAY
48	GROUND FAULT RETURN	RETURN LINE FOR GROUND FAULT INPUT
49	GROUND FAULT ANALOG INPUT	FUTURE FEATURE
50	GROUND FAULT METER RETURN	RETURN LINE FOR GROUND FAULT ANALOG INPUT
51	LOAD SHARE KW+	FOR ISOLATED BUS PARALLELING ONLY. KW LOAD SHARING LINES FOR POWER COMMAND GENSETS
52	LOAD SHARE KW-	RETURN FOR LOAD SHARE KW
53	LOAD SHARE KVAR+	FOR ISOLATED BUS PARALLELING ONLY. KVAR LOAD SHARING LINES FOR POWER COMMAND GENSETS
54	LOAD SHARE KVAR-	RETURN FOR LOAD SHARE KVAR
55	LOAD SHARE SHIELD	SHIELD TERMINATION POINT FOR LOAD SHARE KW AND LOAD SHARE KVAR LINES
56	GENSET BREAKER POSITION SWITCH INPUT	FOR PARALLELING AND POWER TRANSFER CONTROL APPLICATIONS. WHEN CLOSED INDICATES TO CONTROL THAT GENSET BREAKER IS CLOSED. USE WITH GENSET BREAKER SWITCH RETURN (TB3-58)
57	GENSET BREAKER INHIBIT SWITCH INPUT	FOR PARALLELING APPLICATIONS. WHEN CLOSED TO GENSET BREAKER SWITCH RETURN (TB3-50), GENSET BREAKER WILL OPEN, OR BE PREVENTED FROM CLOSING
58	GENSET BREAKER SWITCH RETURN	RETURN LINE FOR TB3-56/57
59	GENSET BREAKER OPEN COMMAND	FOR USE IN PARALLELING AND POWER TRANSFER CONTROL APPLICATIONS. NORMALLY CLOSED CONTACT THAT OPENS TO OPEN GENSET BREAKER. USE WITH TB3-60
60	GENSET BREAKER OPEN COMMAND RETURN	USE WITH TB3-59
61	GENSET BREAKER CLOSE COMMAND	FOR USE IN PARALLELING AND POWER TRANSFER CONTROL APPLICATIONS. NORMALLY OPEN CONTACT THAT CLOSSES TO CLOSE GENSET BREAKER. USE WITH TB3-62
62	GENSET BREAKER CLOSE COMMAND RETURN	USE WITH TB3-61
63	UTILITY BREAKER POSITION INPUT	FOR POWER TRANSFER CONTROL APPLICATIONS. WHEN CLOSED INDICATES TO CONTROL THAT UTILITY BREAKER IS CLOSED. USE WITH UTILITY BREAKER RETURN (TB3-65)
64	UTILITY BREAKER INHIBIT INPUT	FOR POWER TRANSFER CONTROL APPLICATIONS. WHEN CLOSED TO UTILITY BREAKER RETURN (TB3-65), UTILITY BREAKER WILL OPEN, OR BE PREVENTED FROM CLOSING
65	UTILITY BREAKER RETURN	USE WITH TB3-63/64
66	UTILITY BREAKER OPEN COMMAND	FOR POWER TRANSFER CONTROL APPLICATIONS. NORMALLY CLOSED CONTACT THAT OPENS TO OPEN UTILITY BREAKER. USE WITH TB3-67
67	UTILITY BREAKER OPEN COMMAND RETURN	USE WITH TB3-66
68	UTILITY BREAKER CLOSE COMMAND	FOR POWER TRANSFER CONTROL APPLICATIONS. NORMALLY OPEN CONTACT THAT CLOSSES TO CLOSE UTILITY BREAKER. USE WITH TB3-69
69	UTILITY BREAKER CLOSE COMMAND RETURN	USE WITH TB3-68
70	SYSTEM LOAD INPUT	FOR POWER TRANSFER CONTROL APPLICATIONS. ACCEPTS CT INPUT FOR MONITORING B PHASE CURRENT ON THE UTILITY BUS. USE UTILITY CT RETURN (TB3-72). A 3 OHM BURDEN RESISTOR IS CONNECTED ACROSS TB3-70 AND TB3-72
71	SPARE	
72	SYSTEM LOAD RETURN	USE WITH TB3-70

[illegible]

TABULATION TB8		
TB8-	FUNCTION	DESCRIPTION
1 2	REMOTE EMERGENCY STOP	OPEN THE CONNECTION BETWEEN THESE TERMINAL POSITIONS TO INITIATE AN EMERGENCY STOP. TERMINAL POSITIONS MUST BE SHORTED TOGETHER IF REMOTE EMERGENCY STOP IS NOT USED.
3	REMOTE START TYPE	DETERMINES START TYPE: OPEN = EMERGENCY START SEQUENCE. CLOSED = NORMAL START SEQUENCE. APPLY REMOTE START RETURN (TB8-5) TO CLOSE.
4	REMOTE START	APPLY REMOTE START RETURN (TB8-5) TO REMOTE START THE GENSET.
5	REMOTE START RETURN	RETURN LINE FOR REMOTE START TYPE AND REMOTE START.

						QTY		ITEM		PART NO		DESCRIPTION OR MATERIAL	
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS													
DIM		X ± 1		0.00 - 4.99 ± 0.15 / 0.08		DO NOT SCALE PRINT		CHN L. KAPLAN				CUMMINS POWER GENERATION 1603 73RD AVENUE, MN. MINNEAPOLIS, MN 55432	
X ± 0.8		HOLE		5.00 - 9.99 ± 0.20 / 0.10				DWD L. NAVARRETE					
XX ± 0.38				10.00 - 17.49 ± 0.25 / 0.13				APVD L. NAVARRETE		WD - INTERCONNECTION		(CUSTOMER CONNECTIONS-PCC 3201)	
ANG TOL ± 1.0°		SCALE: 1/1		17.50-24.99 ± 0.30 / 0.13				DATE 11-10-05		SITE CODE		PGF	
- CONFIDENTIAL - PROPERTY OF CUMMINS POWER GENERATION GROUP						FOR INTERPRETATION, SEE FIRST USED ON DRAWING AND TOLERANCES, SEE ASHRAE 114						SHEET 2 OF 2 DWO A	
						DQKAA						0630-3226	

Pro/ENGINEER

CUSTOMER CONNECTIONS (DESCRIPTIONS)