

# KOHLER MPAC Automatic Transfer Switch Setup For Generator to Generator Application

1. Connect PC to ATS via null modem cable or RS485
2. Energize ATS
3. Start the set up program by clicking on the *start* button on the lower left corner of the PC and selecting *programs, setup program, MPAC 1000 setup program*
4. Enter user name (ATS) and password (T340) **these are case sensitive**
5. Go to connection toolbar and scroll down to *connect*, click on it check that the icon in the lower left corner of the PC screen shows that the PC is connected to the ATS controller
6. Go to windows toolbar and select *new window*, select *date/time*, double click date and set date and time
7. Go to windows toolbar and select *new window*, *source info*, double click *source info* screen, check to make sure system voltage for normal and emergency is correct, check to insure phase rotation is correct (generator must be running to check phase rotation) phase rotation **must match for both generators** (change phase A and C to change phase rotation) **CAUTION: DO NOT CONNECT GENERATORS TO THE LOAD UNTIL PHASE ROTATION AND SYSTEM VOLTAGE IS CORRECT OR DAMAGE TO EQUIPMENT WILL OCCUR!**
8. Go to windows toolbar and select *new window*, *system summary*, double click window,
9. Set mode of operation to generator to generator
  - A) Leave transition mode as *open*
  - B) Deselect *peak shave*
  - C) Enable *in phase* monitor and set to 5 deg. Leading. Press OK to save
10. Go to windows toolbar and select *new window*, *programmable input / output*, double click window
  - A) Change *main logic board terminal input strip # 1* to *remote common fault* (common fault for generator N)
  - B) Change *main logic board terminal input strip # 2* to *remote common fault* (common fault for generator E)
  - C) Change *main logic board programmable output* to *start source N generator*
  - D) Set *input/output modules output # 1* to *standby source available*
  - E) Set *input/output modules output # 2* to *exerciser started*
  - F) Click OK to save
11. Go to windows toolbar and select *new window*, *system info* and enter designation, location, branch description, load description per company requirements

# **KOHLER MPAC ATS**

## **Generator-to-Generator Wiring**

### **Instructions**

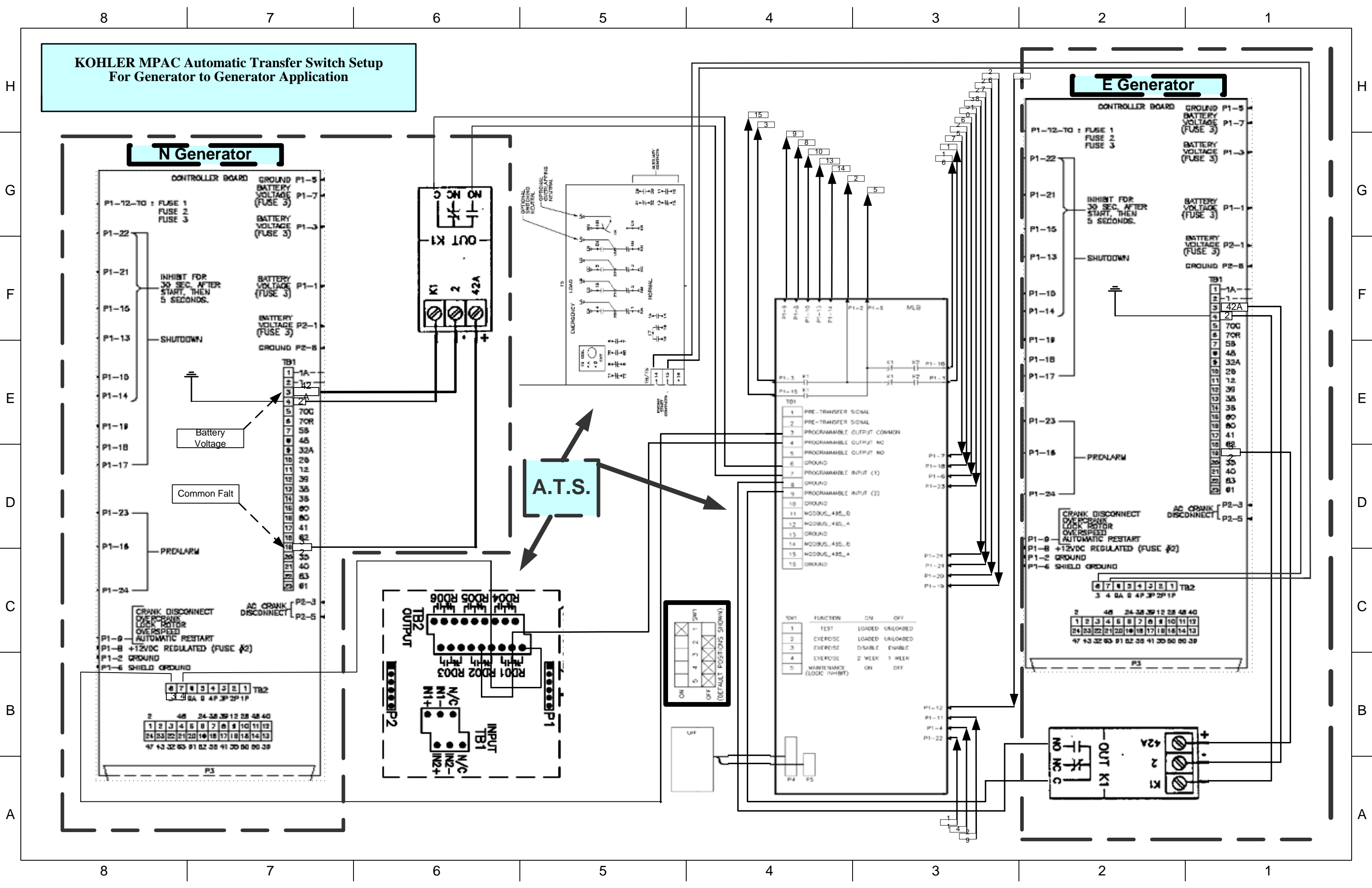
1. Generator “N” start terminals are TB2 3 and 4 (generator “N” is connected to the normal source of the ATS) the start terminals are located in the generator controller (TB2)
2. Connect generator “N” start wire # 3 to the ATS TB1 terminal 3 (TB1 is located on the left side of the ATS controller)
3. Connect ATS TB1 terminal 4 to RDO 1 Common terminal (located on the I/O module board)
4. Install a jumper wire from RDO 1 Common terminal to RDO 2 Common terminal
5. Install a jumper wire from RDO 1 Normally Closed terminal to RDO 2 Normally Closed terminal
6. Install a wire from RDO 2 Normally Closed terminal to generator “N” Start terminal 4
7. Install 2 wires from generator “N”, common fault relay (located in the black box behind the generator controller) terminals “C” and “NO” to the ATS TB1 programmable input 1 (terminals 6 & 7)
8. Connect generator “E” start wire # 3 to the ATS start terminal 15 (located on the lower left side of the ATS contactor) “look for red label marked as such”
9. Connect generator “E” start wire # 4 to the ATS start terminal 14 (located on the lower left side of the ATS contactor) “look for red label marked as such”
10. Install 2 wires from the generator “E” common fault relay (located in the black box behind the generator controller) to the ATS TB1 programmable input 2 (terminals 8 & 9)

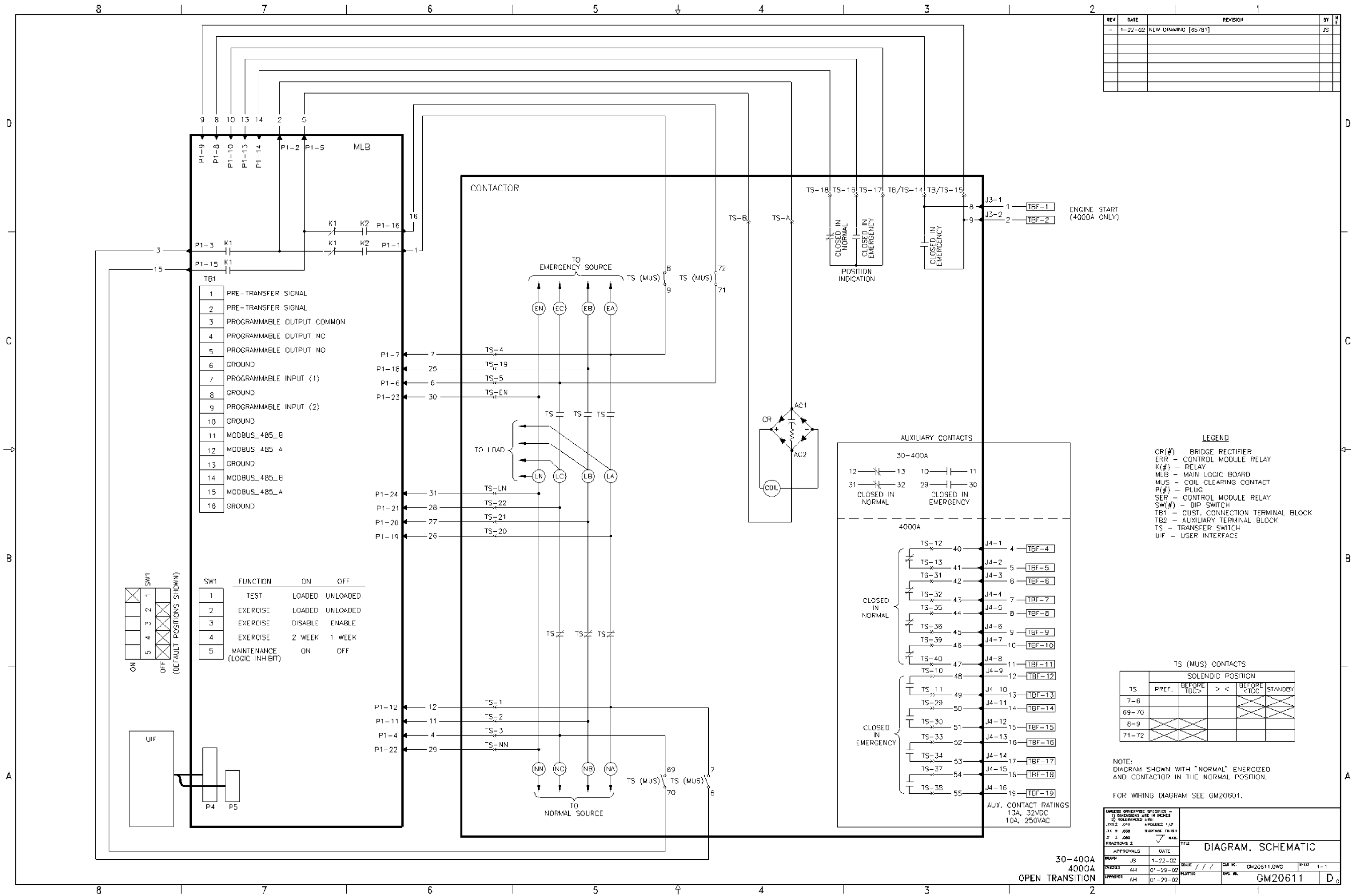
# KOHLER MPAC Automatic Transfer Switch Setup For Generator to Generator Application

## N Generator

## E Generator

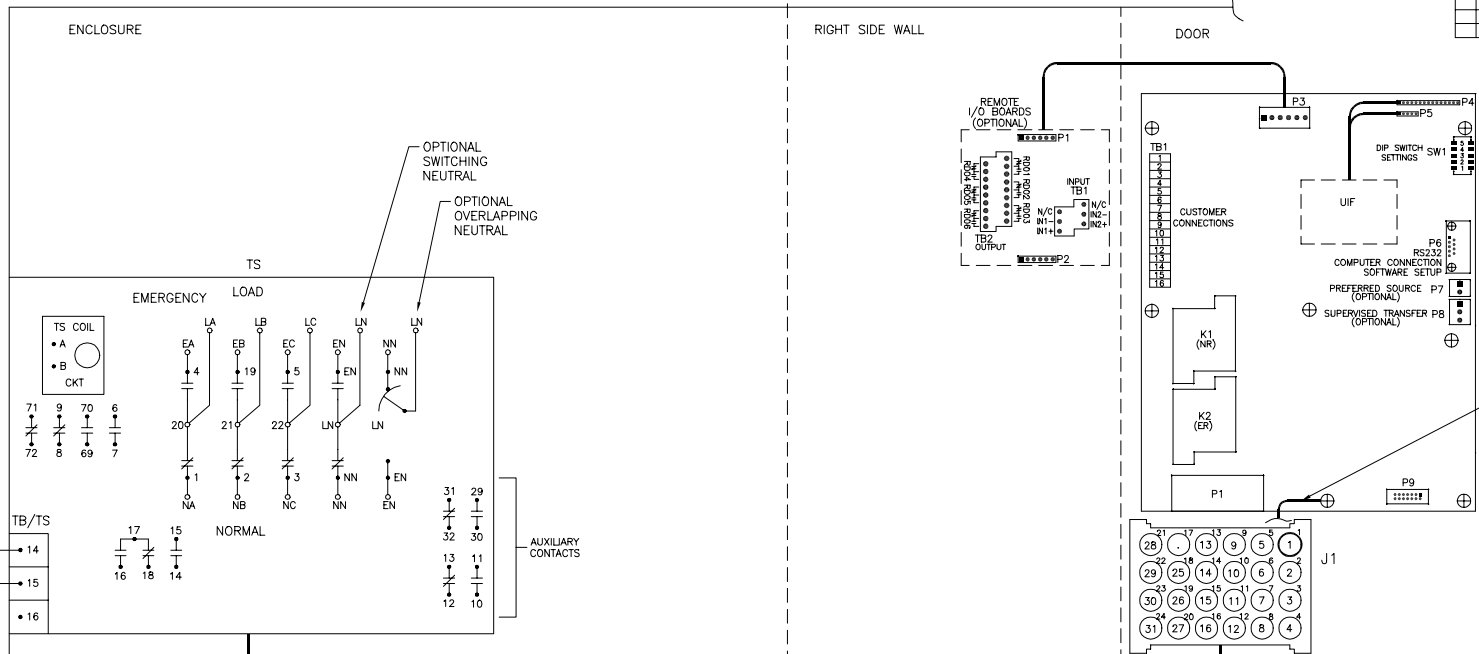
## A.T.S.





Schematic Diagram, Standard, Open Transition, 30-400A and 4000A, GM20611

REV	DATE	REVISION	BY	APP
-	7-26-01	NEW DRAWING [65781]	JS	



**LEGEND**  
 K(#) - RELAY  
 J(#) - CONNECTOR  
 P(#) - PLUG  
 TB - TERMINAL BLOCK  
 TS - TRANSFER SWITCH  
 UIF - USER INTERFACE

**J1 CONNECTIONS (CONTACTOR TO MAIN LOGIC BOARD)**

1 1	(TS-8)	13 13	(TS-16)
2 2	(TS-A)	14 14	(TS-18)
3 3	(TS-6)	15 15	(TS-70)
4 4	(TS-3)	16 16	(TS-72)
5 5	(TS-B)	17	N/C
6 6	(TS-5)	18 25	(TS-19)
7 7	(TS-4)	19 26	(TS-20)
8 8	(TB/TS-14)	20 27	(TS-21)
9 9	(TB/TS-15)	21 28	(TS-22)
10 10	(TS-17)	22 29	(TS-NN)
11 11	(TS-2)	23 30	(TS-EN)
12 12	(TS-1)	24 31	(TS-LN)

FOR SCHEMATIC DIAGRAM SEE GM20611

UNLESS OTHERWISE SPECIFIED: 1/8" DIMENSIONS UNLESS NOTED JOINTS: 200 SURFACE FINISH JOINTS: 200 SURFACE FINISH JOINTS: 200 SURFACE FINISH JOINTS: 200 SURFACE FINISH JOINTS: 200 SURFACE FINISH		<b>KOHLER CO.</b> POWER SYSTEMS, KOHLER, WI 53044 U.S.A. THIS DRAWING IS ISSUED AND VALID. IT KOHLER CO. PROPERTY AND MUST NOT BE USED WITHOUT THE WRITTEN CONSENT OF KOHLER CO. WORK ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.	
<b>MODEL K          OPEN TRANSITION          30-150A</b>		<b>DIAGRAM, WIRING</b>	
APPROVALS: JS DATE: 7-26-01 DESIGNED: AH DATE: 01-29-02 CHECKED: AH DATE: 01-29-02	SCALE: / / / SHEET: 1-1 DWG. NO.: GM20601.DWG PART NO.: GM20601	1-1 D	

## ACCESSORIES

### COMMON FAULT RELAY (Optional) DEC 3+

This board provides a dry set of contacts to activate customer supplied remote alarms, shunt trips, indicators or other accessory devices if any one of various preselected fault conditions occur.

The relay will energize if the generator set is running and an input signal common to the generator set ground potential (-) is directed to the K1 terminal. Once energized the relay will remain latched until the system is reset by the main controller switch.

A common signal will be provided from terminal 32A if any of the following five faults occur:

- 36 HIGH ENGINE TEMP.**
- 38 LOW OIL PRESSURE**
- 39 OVERSPEED**
- 26 AUXILLIARY IND.**
- 48 EMERGENCY STOP**

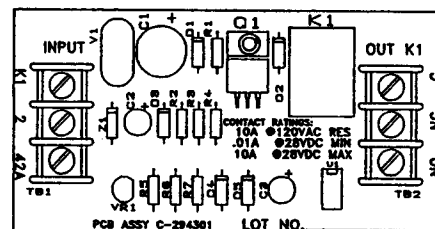
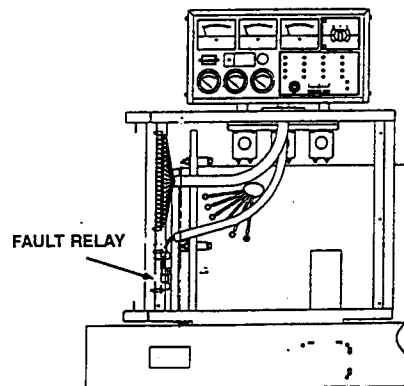
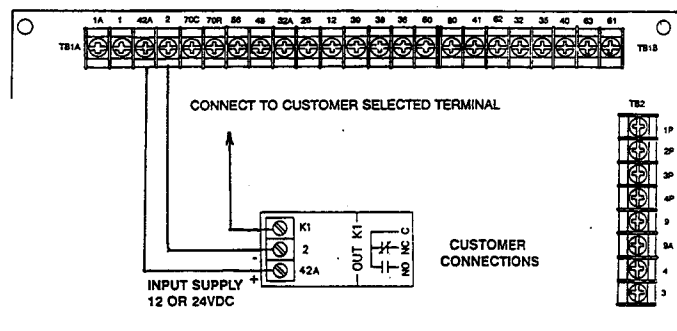
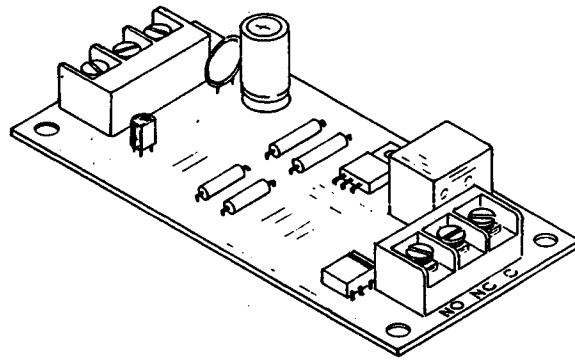
A common signal will be provided from terminal 32 if any of the following occur.

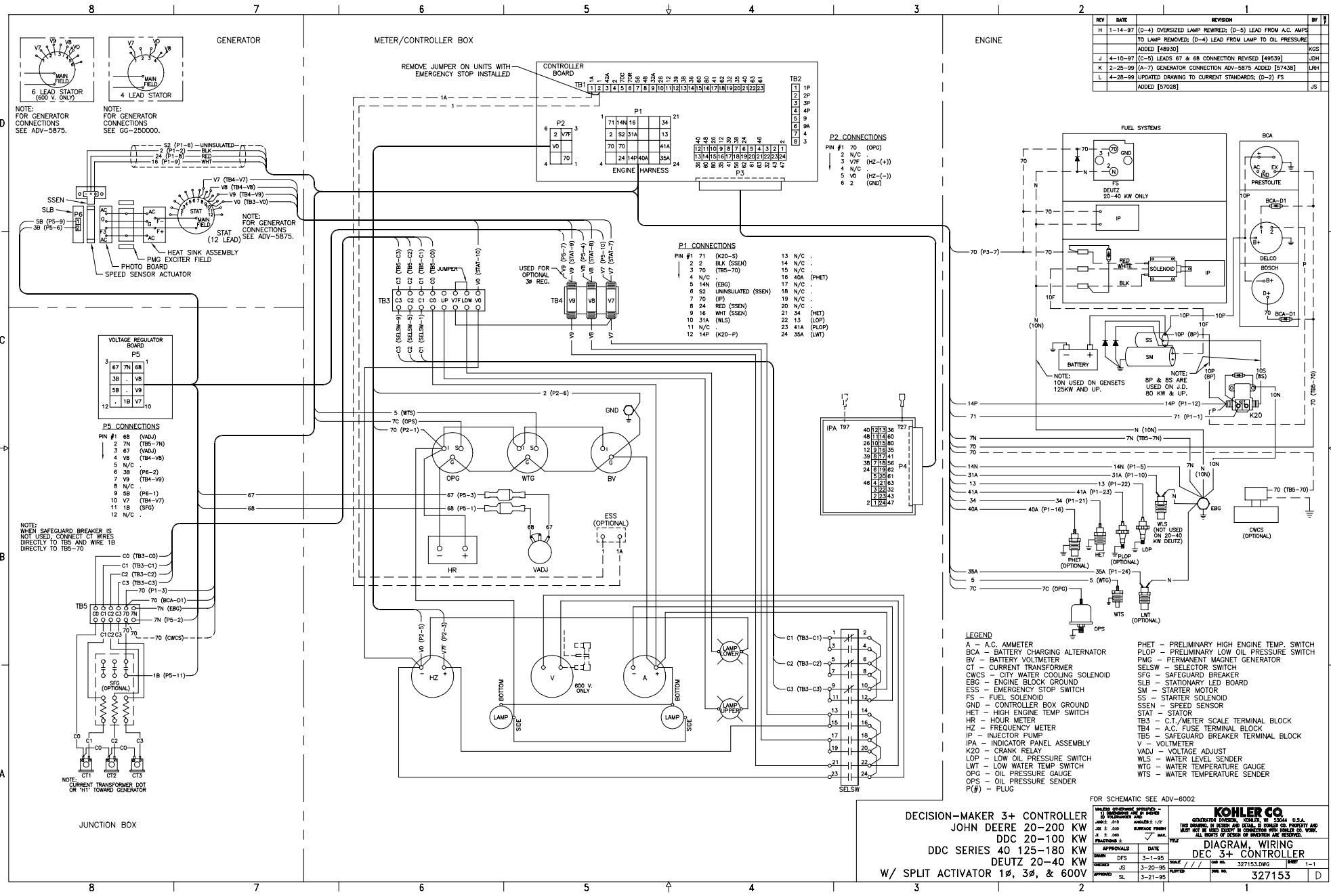
- 36 HIGH ENGINE TEMP**
- 38 LOW OIL PRESSURE**
- 39 OVERSPEED**
- 26 AUXILLIARY**
- 12 OVERCRANK**
- 35 LOW WATER TEMP.**
- 40 PRE-HIGH ENG. TEMP.**
- 41 PRE-LOW OIL PRESSURE**
- 56 AIR DAMPER**

Any of the above can be selected as a single monitored condition if desired.

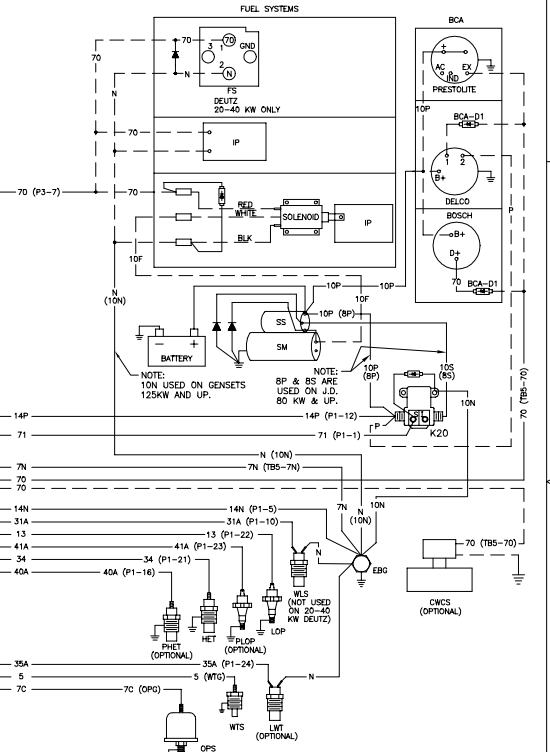
Maximum resistive loads up to 10A @ 120vac can be applied to the output terminals. The relay contacts are gold flashed to allow use of low current draw devices. (.01A @ 28vdc min.)

Input power supply 42A and 2 is to the relay coil only and not intended to power customer supplied indicator loads.





REV	DATE	REVISION	BY
H	1-14-97	(D-4) OVERSIZED LAMP REWIRED; (D-5) LEAD FROM A.C. AMPS TO LAMP REMOVED; (D-4) LEAD FROM LAMP TO OIL PRESSURE ADDED [48930]	KOS
J	4-10-97	(C-3) LEADS 67 & 68 CONNECTION REVISED [48938]	LWH
K	2-25-99	(A-7) GENERATOR CONNECTION ADV-5875 ADDED [57438]	LRH
L	4-28-99	UPDATED DRAWING TO CURRENT STANDARDS; (D-2) FS ADDED [57028]	JS



- LEGEND**
- A - A.C. AMMETER
  - BCA - BATTERY CHARGING ALTERNATOR
  - BV - BATTERY VOLTMETER
  - CT - CURRENT TRANSFORMER
  - CWCS - CITY WATER COOLING SOLENOID
  - EBC - ENGINE BLOCK GROUND
  - ESS - EMERGENCY STOP SWITCH
  - FS - FUEL SOLENOID
  - GND - CONTROLLER BOX GROUND
  - HET - HIGH ENGINE TEMP SWITCH
  - HR - HOUR METER
  - HZ - FREQUENCY METER
  - IP - INJECTOR PUMP
  - IPA - INDICATOR PANEL ASSEMBLY
  - K20 - CRANK RELAY
  - LOP - LOW OIL PRESSURE SWITCH
  - LWT - LOW WATER TEMP SWITCH
  - OPG - OIL PRESSURE GAUGE
  - OPS - OIL PRESSURE SENDER
  - P(#) - PLUG
  - PHET - PRELIMINARY HIGH ENGINE TEMP SWITCH
  - PLOG - PRELIMINARY LOW OIL PRESSURE SWITCH
  - PMG - PERMANENT MAGNET GENERATOR
  - SELV - SELECTOR SWITCH
  - SFB - SAFEGUARD BREAKER
  - SLB - STATIONARY LED BOARD
  - SM - STARTER MOTOR
  - SS - STARTER SOLENOID
  - SSEN - SPEED SENSOR
  - STAT - STATOR
  - TB3 - C./METER SCALE TERMINAL BLOCK
  - TB4 - A.C. FUSE TERMINAL BLOCK
  - TB5 - SAFEGUARD BREAKER TERMINAL BLOCK
  - V - VOLTMETER
  - VADJ - VOLTAGE ADJUST
  - WLS - WATER LEVEL SENDER
  - WTG - WATER TEMPERATURE GAUGE
  - WTS - WATER TEMPERATURE SENDER

DECISION-MAKER 3+ CONTROLLER  
 JOHN DEERE 20-200 KW  
 DDC SERIES 40 125-180 KW  
 DEUTZ 20-40 KW  
 W/ SPLIT ACTIVATOR 1Ø, 3Ø, & 600V

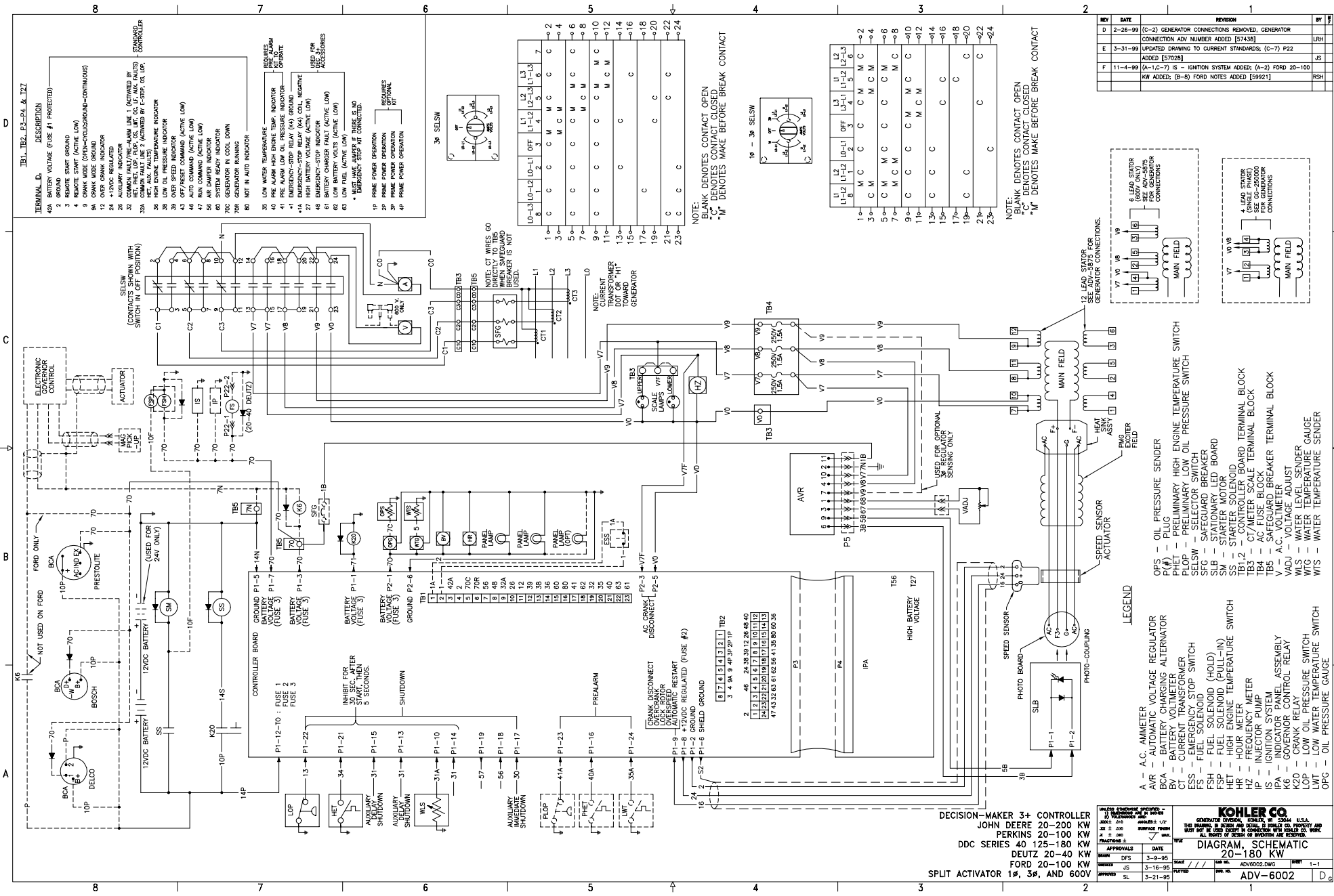
FOR SCHEMATIC SEE ADV-6002

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**DIAGRAM, WIRING**  
**DEC 3+ CONTROLLER**

REVISED	DATE	BY	CHKD
DESIGNED	3-1-85	SL	JS
DRAWN	3-20-95	JS	JS
APPROVED	3-21-95	SL	JS

327153



**TABLE 1: TB1, TB2, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24**

TERMINAL ID.	DESCRIPTION
40A	BATTERY VOLTAGE (FUSE #1 PROTECTED)
3	GROUND
4	REMOTE START (ACTIVE LOW)
5A	CRANK MODE (OPEN/CLOSE/GROUND-COMMONS)
5B	CRANK MODE (OPEN/CLOSE/GROUND-COMMONS)
11	OVER CRANK INDICATOR
24	+12VDC REGULATED
26	AUXILIARY INDICATOR
32	COMMON FAULT LAMP (ACTIVATED BY COMMON FAULT LAMP RELAY)
33A	COMMON FAULT LAMP 2 (ACTIVATED BY COMMON FAULT LAMP RELAY)
36	LOW OIL PRESSURE INDICATOR
38	LOW OIL PRESSURE INDICATOR
39	OVER SPEED INDICATOR
42	OFF-SPEED COMMAND (ACTIVE LOW)
43	OFF-SPEED COMMAND (ACTIVE LOW)
47	RAM DAMPER (ACTIVE LOW)
56	AIR DAMPER (ACTIVE LOW)
60	SYSTEM READY INDICATOR
70C	GENERATOR IN COOL DOWN
70E	GENERATOR RUNNING
80	NOT IN AUTO INDICATOR
35	LOW WATER TEMPERATURE
40	PRE-ALARM HIGH ENGINE TEMP. INDICATOR
41	PRE-ALARM LOW OIL PRESSURE INDICATOR
*1	EMERGENCY-STOP RELAY (NO) GROUND
*2	EMERGENCY-STOP RELAY (NC) GROUND
27	HIGH BATTERY VOLTAGE (ACTIVE LOW)
48	EMERGENCY-STOP INDICATOR
61	BATTERY CHARGER FAULT (ACTIVE LOW)
62	LOW BATTERY VOLTAGE (ACTIVE LOW)
63	LOW FUEL (ACTIVE LOW) THERE IS NO FUEL IN THE TANK
*3	EMERGENCY STOP AT CONNECTED
19	PRIME POWER OPERATION
3P	PRIME POWER OPERATION
4P	PRIME POWER OPERATION

**TABLE 2: TB1, TB2, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24**

TERMINAL ID.	DESCRIPTION
10-13	L0-L3 OFF
1	L1
2	L2
3	L3
4	L4
5	L5
6	L6
7	L7
8	L8
9	L9
10	L10
11	L11
12	L12
13	L13
14	L14
15	L15
16	L16
17	L17
18	L18
19	L19
20	L20
21	L21
22	L22
23	L23
24	L24

NOTE:  
 BLANK DENOTES CONTACT OPEN  
 DENOTES CONTACT CLOSED  
 "C" DENOTES MAKE BEFORE BREAK CONTACT  
 "M" DENOTES MAKE BEFORE BREAK CONTACT

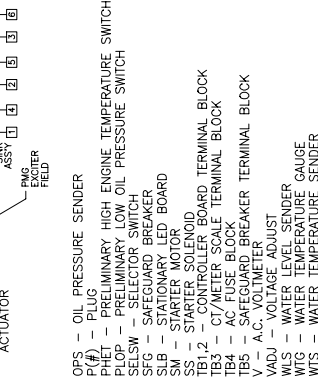
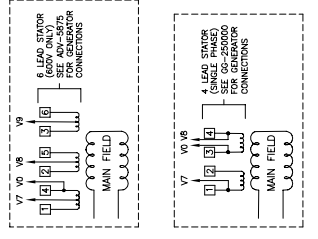
**TABLE 3: TB1, TB2, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24**

TERMINAL ID.	DESCRIPTION
1	M C C C C M M C
2	M C C C C M M C
3	M C C C C M M C
4	M C C C C M M C
5	M C C C C M M C
6	M C C C C M M C
7	M C C C C M M C
8	M C C C C M M C
9	M C C C C M M C
10	M C C C C M M C
11	M C C C C M M C
12	M C C C C M M C
13	M C C C C M M C
14	M C C C C M M C
15	M C C C C M M C
16	M C C C C M M C
17	M C C C C M M C
18	M C C C C M M C
19	M C C C C M M C
20	M C C C C M M C
21	M C C C C M M C
22	M C C C C M M C
23	M C C C C M M C
24	M C C C C M M C

NOTE:  
 DENOTES CONTACT OPEN  
 DENOTES CONTACT CLOSED  
 "C" DENOTES MAKE BEFORE BREAK CONTACT  
 "M" DENOTES MAKE BEFORE BREAK CONTACT

**REVISION HISTORY**

REV	DATE	REVISION	BY
D	2-26-99	(C-2) GENERATOR CONNECTIONS REMOVED, GENERATOR CONNECTION ADV NUMBER ADDED [57438]	LPH
E	3-31-99	UPDATED DRAWING TO CURRENT STANDARDS; (C-?) P22 ADDED [57020]	JS
F	11-4-99	(A-1,C-7) IS - IGNITION SYSTEM ADDED; (A-2) FORD 20-100	RSH
		KW ADDED; (B-8) FORD NOTES ADDED [59921]	



- LEGEND**
- A - A.C. AMMETER
  - AVR - AUTOMATIC VOLTAGE REGULATOR
  - BCA - BATTERY CHARGING ALTERNATOR
  - BV - BATTERY VOLT-METER
  - CT - CURRENT TRANSFORMER
  - SLSW - SELECTOR SWITCH
  - SFG - SAFEGUARD BREAKER
  - FSA - FUEL SOLENOID (HOLD)
  - FSP - FUEL SOLENOID (PULL-IN)
  - HET - HIGH ENGINE TEMPERATURE SWITCH
  - HZ - HOUR METER
  - HF - FREQUENCY METER
  - IP - INJECTOR PUMP
  - IS - IGNITION SYSTEM
  - IPA - INDICATOR PANEL ASSEMBLY
  - OPR - OPERATOR PANEL RELAY
  - K20 - CRANK RELAY
  - LGP - LOW OIL PRESSURE SWITCH
  - LWT - LOW WATER TEMPERATURE GAUGE
  - OPC - OIL PRESSURE SWITCH
  - OPS - OIL PRESSURE SENDER
  - P/4 - PLUG
  - PHE1 - PRELIMINARY HIGH ENGINE TEMPERATURE SWITCH
  - PHE2 - PRELIMINARY LOW ENGINE TEMPERATURE SWITCH
  - SLSW - SELECTOR SWITCH
  - SFG - SAFEGUARD BREAKER
  - SM - STATIONARY MOTOR
  - SM - STARTER MOTOR
  - STB1.1 - STARTER MOTOR BOARD TERMINAL BLOCK
  - STB1.2 - CONTROLLER BOARD TERMINAL BLOCK
  - STB3 - CT/METER SCALE TERMINAL BLOCK
  - STB4 - AC FUSE BLOCK
  - STB5 - SAFEGUARD BREAKER TERMINAL BLOCK
  - VADU - VOLTAGE ADJUST
  - V - A.C. VOLTMETER
  - WEG - WATER TEMPERATURE GAUGE
  - WTS - WATER TEMPERATURE SENDER

**DECISION-MAKER 3+ CONTROLLER**  
**JOHN DEERE 20-200 KW**  
**PERKINS 20-100 KW**  
**DDC SERIES 40 125-180 KW**  
**DEUTZ 20-40 KW**  
**FORD 20-100 KW**  
**SPLIT ACTIVATOR 19, 38, AND 600V**

**KOHLER CO.**  
 GENERATOR DIVISION, KOHLER, INC. 1500 N. W. 20th St., P.O. Box 1000, Palm Bay, FL 32909, U.S.A.  
 THE COMPANY IS ISO 9001 AND ISO 14001 REGISTERED WITH DNV GL. ALL TYPES OF EXPORT CONNECTIONS WILL BE MADE TO ORDER.  
**DIAGRAM, SCHEMATIC**  
**20-180 KW**  
 ADV6002.DWG  
 1-1

APPROVALS	DATE	REV
DFS	3-8-95	
JS	3-16-95	
SL	3-21-95	