INSTALLATION INSTRUCTIONS

Original Issue Date: **11/10**
Model: **GLS-1, GTS-1, K-1, and KB-1 Automatic Transfer Switches**
Market: **ATS**
Subject: **S340 to MPAC™ 1500 Controller Conversion Kit GM77250-S**

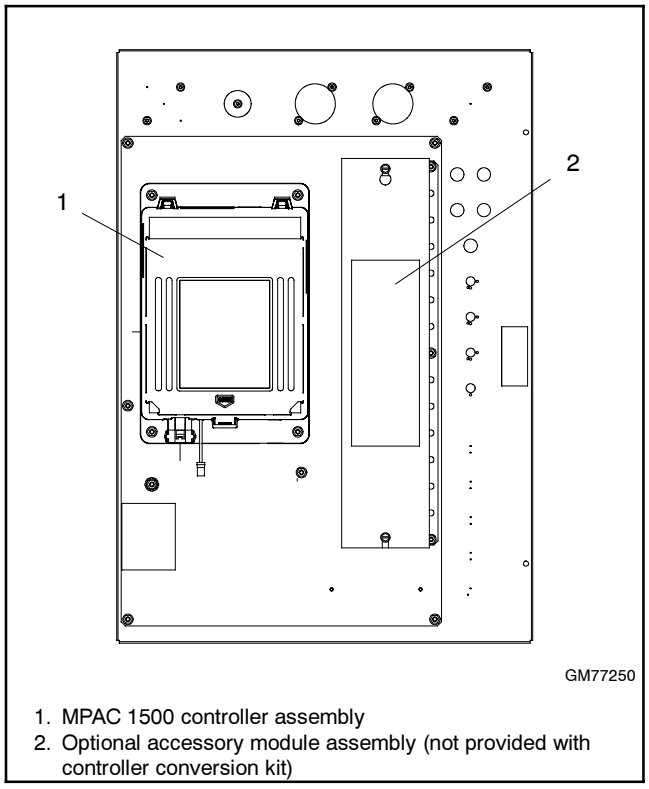
Introduction

Use conversion kit GM77250-S to replace the S340 controller with an MPAC™ 1500 controller on the standard-transition automatic transfer switch models listed above. See Figure 7 to interpret the transfer switch model designation.

Note: Do not use this conversion kit on programmed-transition models.

See Figure 1 for an illustration of the installed kit. See Figure 2 for controller identification, if necessary.

Note: Do not discard these instructions after kit installation. Keep this document with the transfer switch documentation for future reference.



1. MPAC 1500 controller assembly
2. Optional accessory module assembly (not provided with controller conversion kit)

Figure 1 MPAC™ 1500 Controller Conversion Kit, Installed

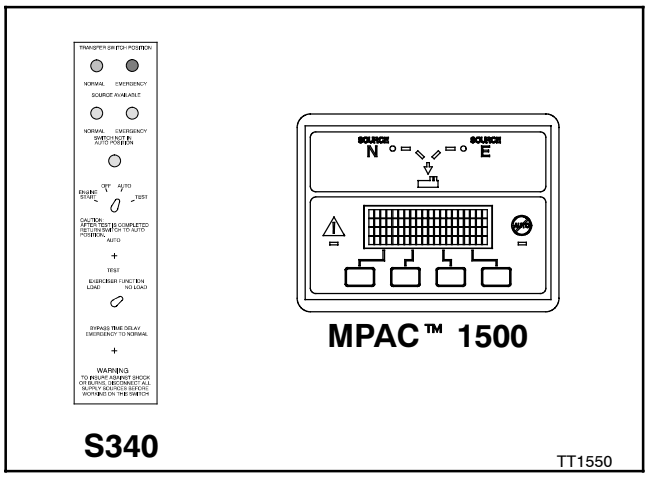


Figure 2 Controller Identification

Tools Required

- Phillips® screwdriver
- Small flat tip screwdriver
- Wire cutter
- 7/16 nut driver
- 11/32 nut driver
- 5/16 nut driver
- Jigsaw or reciprocating saw to cut an opening in the enclosure door
- Gray (ANSI 61) touch-up paint

Read the entire installation procedure and compare the kit parts with the parts list in this publication before beginning installation. Refer to the wiring diagrams at the end of this publication as needed during the installation. Perform the steps in the order shown.

Current Sensing

If current sensing is required (i.e. for current [amps] monitoring and display), obtain the appropriately rated current sensing kit before starting the controller kit installation procedure. If the transfer switch is equipped with current transformers (CTs), they will need to be replaced with the new current transformers for use with the MPAC™ 1500 controller. See Figure 3 for available current sensing kit numbers. Check the amp rating and number of phases of the transfer switch and select the closest current sensing kit with an equal or higher amp rating.

Current Sensing Kit Number	Kit Description	
	Amps	Phases
GM47965-S19	1000	3
GM47965-S20	1200	3
GM47965-S21	2000	3
GM47965-S22	3000	3
GM47965-S23	1000	1
GM47965-S24	1200	1
GM47965-S25	200	3
GM47965-S26	200	1
GM47965-S27	400	3
GM47965-S28	400	1

Figure 3 Current Sensing Kits

Controller Accessories

Many functions that required optional accessories with the S340 controller are integrated into the MPAC™ 1500 controller operation. For example, an active time delay can be ended by pressing a button on the MPAC™ 1500 controller. Separate time delay override switches are not required. See Figure 4 for accessory information.

S340	MPAC™ 1500
Time Delays	Integrated
Test Switch	Integrated
Override Switches	Integrated
Current Meter (amps)	Current sensing kit required (see Figure 3)
Plant Exerciser	Integrated
Voltage/Frequency Meters	Integrated
Load Shed Contact	Integrated load control function (one output connection required)
Phase Rotation Protection	Integrated
In-Phase Monitor	Integrated
Audible Alarm	Alarm module required

Figure 4 Accessories

Accessory Modules

Optional accessory modules are listed in Figure 5. One module mounting kit holds up to five accessory modules.

Module Accessories	Part Number
Module Mounting Assembly *	GM46258-S
Standard I/O Module	GM46888-S
High Voltage/Current I/O Module	GM46890-S
Alarm Module	GM40808-S
External Battery Supply Module	GM46889-S
* One mounting assembly holds up to 5 modules.	

Figure 5 Module Accessories for MPAC™ 1500

Other Accessories

Other MPAC™ 1500 accessories are available. See Figure 6. Contact your local distributor/dealer for more information.

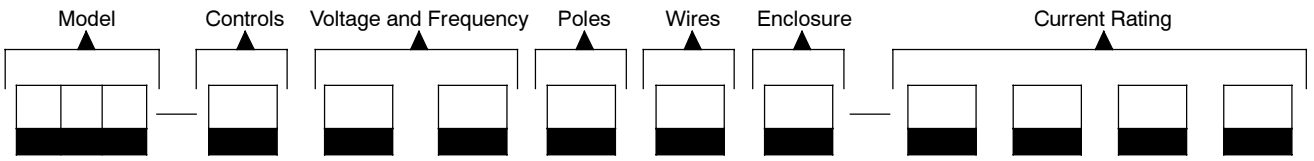
Other MPAC 1500 Accessories	Part Number
Controller Disconnect Switch	GM46770-S3
Supervised Transfer Control Switch †	GM40807-S1
Remote Annunciator	GM52650-KP1
† Includes alarm module GM40808-S.	

Figure 6 Other Accessories

Model Designation

To interpret the transfer switch model designation, see the model designation chart in Figure 7. Codes for the model GLS, GTS, K and KB switches are combined in the model designation chart. Some codes do not apply to all models.

Model Designation



Kohler® Model Number Key

This chart explains the Kohler® transfer switch model numbering code system. The sample model number shown is for a Model K automatic transfer switch that uses a 600 volt maximum contactor power switching device with S340 solid-state electrical controls rated at 240 volts, 60 hertz, 1 phase, 2 poles, and 3 wires in a NEMA type 1 enclosure with a current rating of 800 amps. Not all possible combinations are available.

SAMPLE MODEL NUMBER

K-164231-0800

Model (1 to 3 letters)
GLS: Model GLS 600 volt maximum, 40-400 Amp automatic transfer switch
GTS: Model GTS 250 volt maximum, 40-200 Amp automatic transfer switch
K: Model K automatic transfer switch
KN: Model KN non-automatic transfer switch
KB: Model KB bypass and isolation transfer switch

Electrical Controls (Logic Controller)
1: S340 controls, standard transition

Voltage and Frequency (other codes are possible)

240 VAC max:	**600 VAC max:**	
21: 110 Volts, 50 Hz	53: 220 Volts, 60 Hz	67: 190 Volts, 50Hz
22: 120 Volts, 60 Hz	60: 600 Volts, 60 Hz	68: 208 Volts, 60 Hz
23: 220 Volts, 50 Hz	61: 110 volts, 50 Hz	69: 440 Volts, 60 Hz
24: 240 Volts, 60 Hz	62: 120 Volts, 60 Hz	70: 400 Volts, 50 Hz
27: 190 Volts, 50 Hz	63: 220 Volts, 50 Hz	71: 380 Volts, 50 Hz
28: 208 Volts, 60 Hz	64: 240 Volts, 60 Hz	72: 380 Volts, 60 Hz
	65: 550 Volts, 60 Hz	73: 416 Volts, 50 Hz
	66: 480 Volts, 60 Hz	

Number of Poles and Phases
2: 2 pole, 1 phase 3: 3 pole, 3 phase 4: 3 pole, 1 phase
5: 3 pole, 3 phase with overlapping neutral contacts

Number of Wires
3: 3 Wire 4: 4 Wire

Enclosure
0: Open unit 1: NEMA type 1 2: NEMA type 12
3: NEMA type 3R 4: NEMA type 1 CSA* 7: Open unit CSA*
* CSA versions available only up to 2000 amperes

Current Rating
Numbers indicate the current rating of switch in amperes

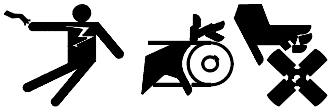
Note: Some codes do not apply to all models.

Figure 7 Model Designation Key

Safety Precautions

Observe the following safety precautions while installing the kit.

⚠ WARNING



Accidental starting.
Can cause severe injury or death.

Disconnect the battery cables before working on the generator set. Remove the negative (-) lead first when disconnecting the battery. Reconnect the negative (-) lead last when reconnecting the battery.

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or connected equipment, disable the generator set as follows: (1) Move the generator set master switch to the OFF position. (2) Disconnect the power to the battery charger. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent starting of the generator set by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer.

⚠ DANGER

Hazardous voltage.
Will cause severe injury or death.

Disconnect all power sources before opening the enclosure.

Servicing the transfer switch. Hazardous voltage can cause severe injury or death. Deenergize all power sources before servicing. Turn off the main circuit breakers of all transfer switch power sources and disable all generator sets as follows: (1) Move all generator set master controller switches to the OFF position. (2) Disconnect power to all battery chargers. (3) Disconnect all battery cables, negative (-) leads first. Reconnect negative (-) leads last when reconnecting the battery cables after servicing. Follow these precautions to prevent the starting of generator sets by an automatic transfer switch, remote start/stop switch, or engine start command from a remote computer. Before servicing any components inside the enclosure: (1) Remove all jewelry. (2) Stand on a dry, approved electrically insulated mat. (3) Test circuits with a voltmeter to verify that they are deenergized.

NOTICE

Foreign material contamination. Cover the transfer switch during installation to keep dirt, grit, metal drill chips, and other debris out of the components. Cover the solenoid mechanism during installation. After installation, use the manual operating handle to cycle the contactor to verify that it operates freely. Do not use a screwdriver to force the contactor mechanism.

Installation Procedure

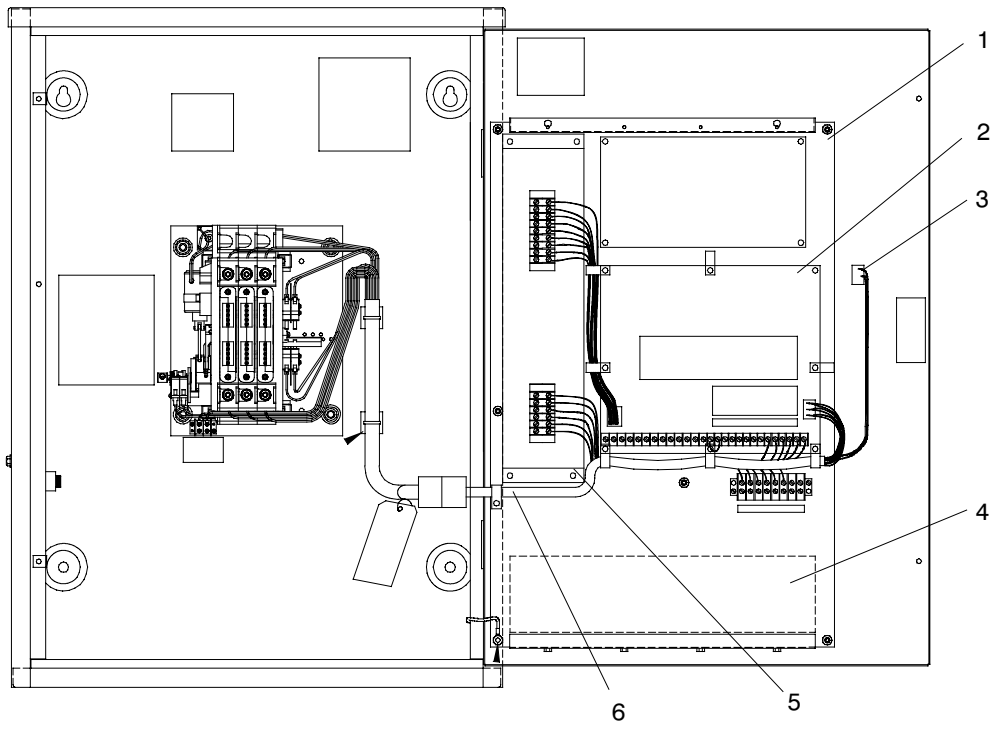
Note: The photos and diagrams shown in this procedure represent a typical transfer switch. They may not be an exact match for your ATS model.

1. Place the generator set master switch in the OFF position.
2. Disconnect the power to the battery charger, if equipped.
3. Disconnect the generator set engine starting battery(ies), negative (–) lead first.
4. Disconnect power from the transfer switch on both sources, Normal and Emergency.
5. If the transfer switch is equipped with current transformers (CTs), remove all CTs from the power lines of the ATS.
6. Disconnect and remove the TEST pushbutton. See Figure 8.
7. Disconnect and remove any other optional switches. See Figure 9.
8. If the transfer switch is equipped with meters, disconnect and remove all meters. See Figure 9.

   Separate meters are not required with the MPAC 1500 controller. Voltage, frequency, and current (amps) are shown on the controller display.

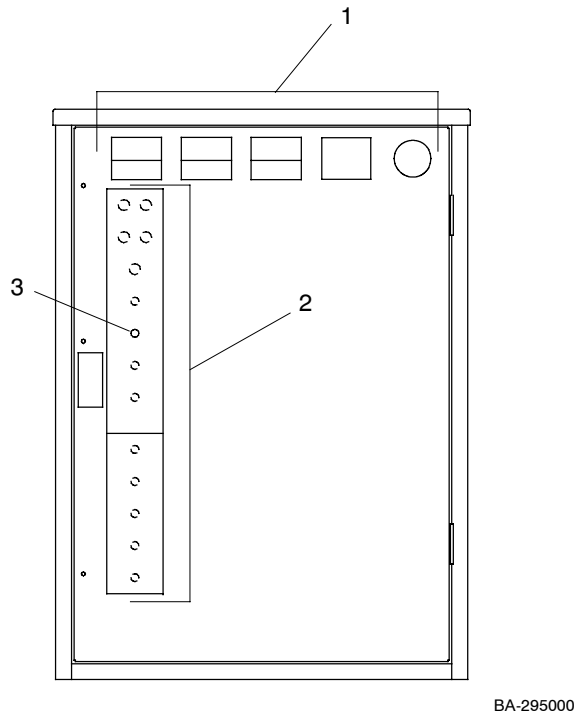
   Note: For current monitoring and display, a current sensing kit is required. See Figure 3.
9. Disconnect any other accessories mounted on the inner panel. See Figure 8 and Figure 9.

Note: For installation of optional accessories (such as input/output [I/O] or alarm modules), refer to the instructions provided with the accessory kit or to the MPAC™ 1500 Operation/Installation manual, TP-6714.



1. Inner panel
2. Test switch
3. S340 controller assembly
4. Optional accessories
5. Transformer assembly
6. Controller harness

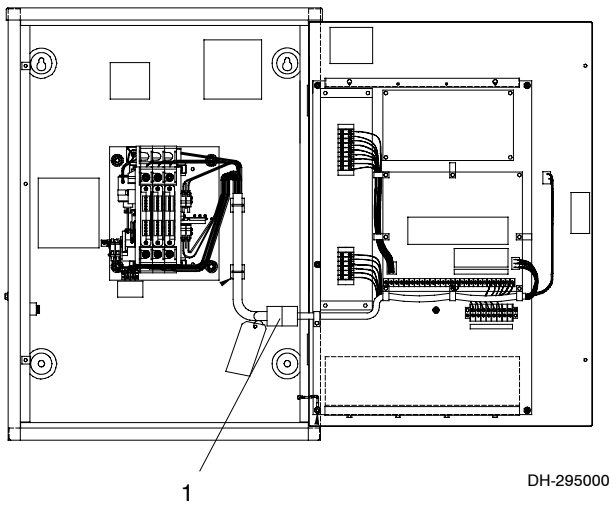
Figure 8 Model GLS-1 ATS with S340 Controls



1. Meters
2. Optional switches and lamps may be installed in this area
3. Test switch

Figure 9 S340 Controller with Optional Accessories

10. Disconnect the contactor harness from the S340 controller at plug P1. See Figure 10.



1. P1 connection

Figure 10 Disconnect P1

11. Remove the mounting screws to remove the controller and the inner panel from the enclosure door.

12. Modify the existing enclosure door as described below.

    a. Remove the door from the enclosure. Place the door on a bench or other work surface.

    b. Use new mounting plate GM77130 as a template to mark the opening for the MPAC™ 1500 controller onto the inside of the enclosure door. See Figure 11.

    c. Remove the mounting plate and cut out the opening in the door.

    d. Remove any burrs and use ANSI 61 gray touch-up paint on any bare metal surfaces to prevent rust.

    e. Reinstall the door onto the enclosure.

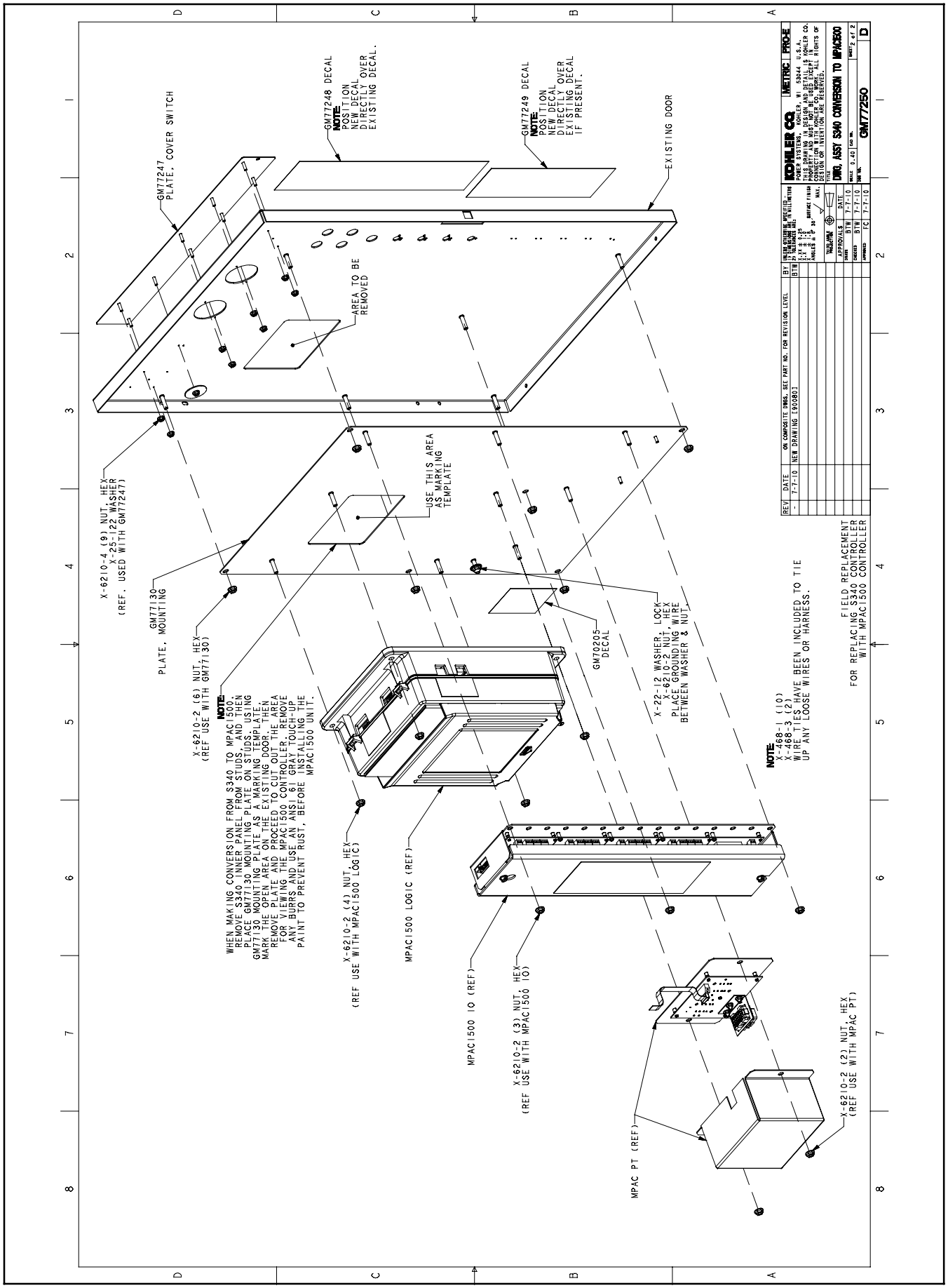
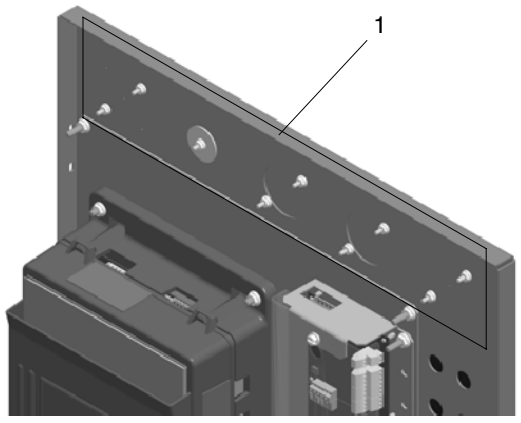


Figure 11 Conversion Kit Assembly

Note: Refer to Figure 11 during kit installation.

13. Install the conversion kit mounting plate (GM77130). Use seven lock washers (X-22-7) and seven nuts (X-6210-4) to install the mounting plate as shown in Figure 11. Install three flat washers (X-25-122) with three nuts (X-6210-2) as shown.

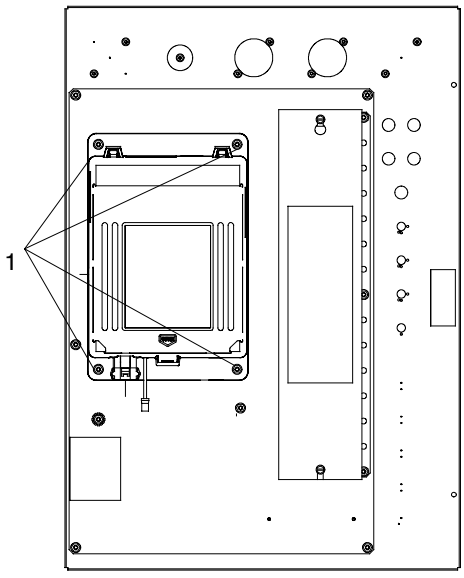
14. Install the switch cover plate (GM77247) on the outside of the enclosure door. Use one washer X-25-122 and nine nuts X-6210-4 to install the cover plate as shown in Figure 11 and Figure 12.



1. Switch cover plate mounting hardware

Figure 12 Switch Cover Plate GM77247

15. Install the MPAC 1500 controller assembly (GM46733-1) onto the conversion kit mounting plate using four nuts X-6210-2. See Figure 13.



1. Controller mounting studs and nuts X-6210-2(qty. 4)

Figure 13 Controller Assembly Installation

16. See Figure 14 for ground connections. Use green grounding lead LK-1212-1515 to connect the ground stud on the conversion panel to the ground lug on the door. Using lock washer X-22-12, connect the ground wires to the ground stud on the door. Place the grounding wires between the washer and the nut.

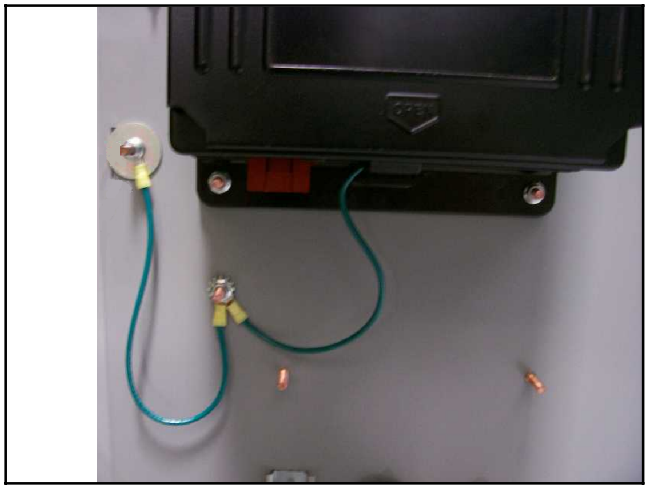
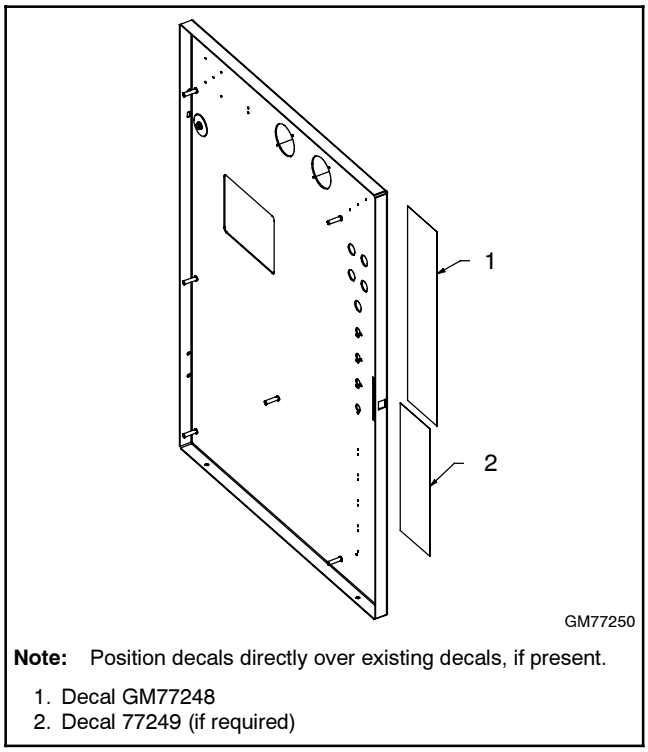


Figure 14 Ground Lead Connections

17. With the surfaces clean and dry, affix conversion kit decals GM77248 and GM77249 over the old decals on the outside of the enclosure door, if present. See Figure 15.



Note: Position decals directly over existing decals, if present.

1. Decal GM77248
2. Decal 77249 (if required)

Figure 15 Decal Installation

18. Connect P24 of the conversion kit harness GM71472 to the contactor harness, which was disconnected from the S340 controller in step 10. See Figure 10 and Figure 16.

19. Connect P1 of the conversion kit harness to P1 of the MPAC™ 1500 controller. See Figure 17.

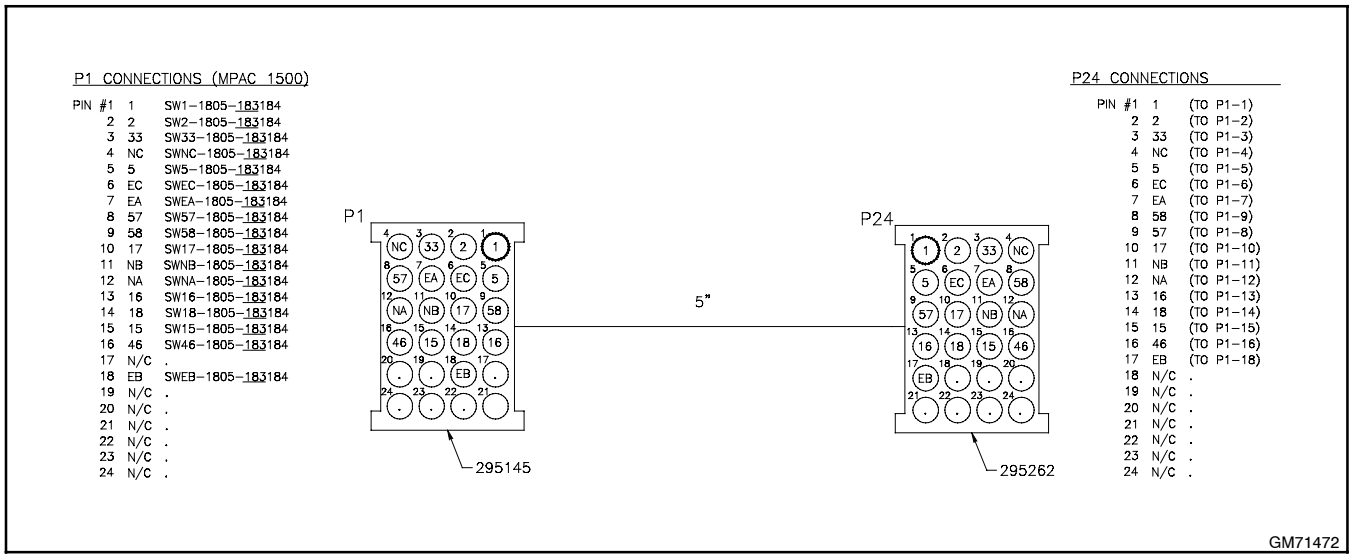


Figure 16 Conversion Kit Harness

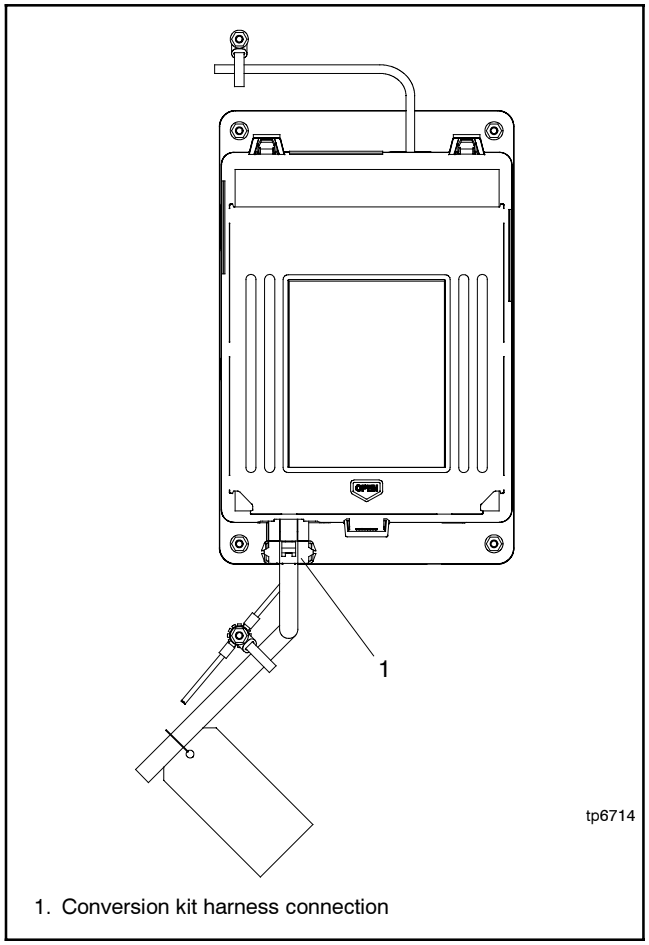
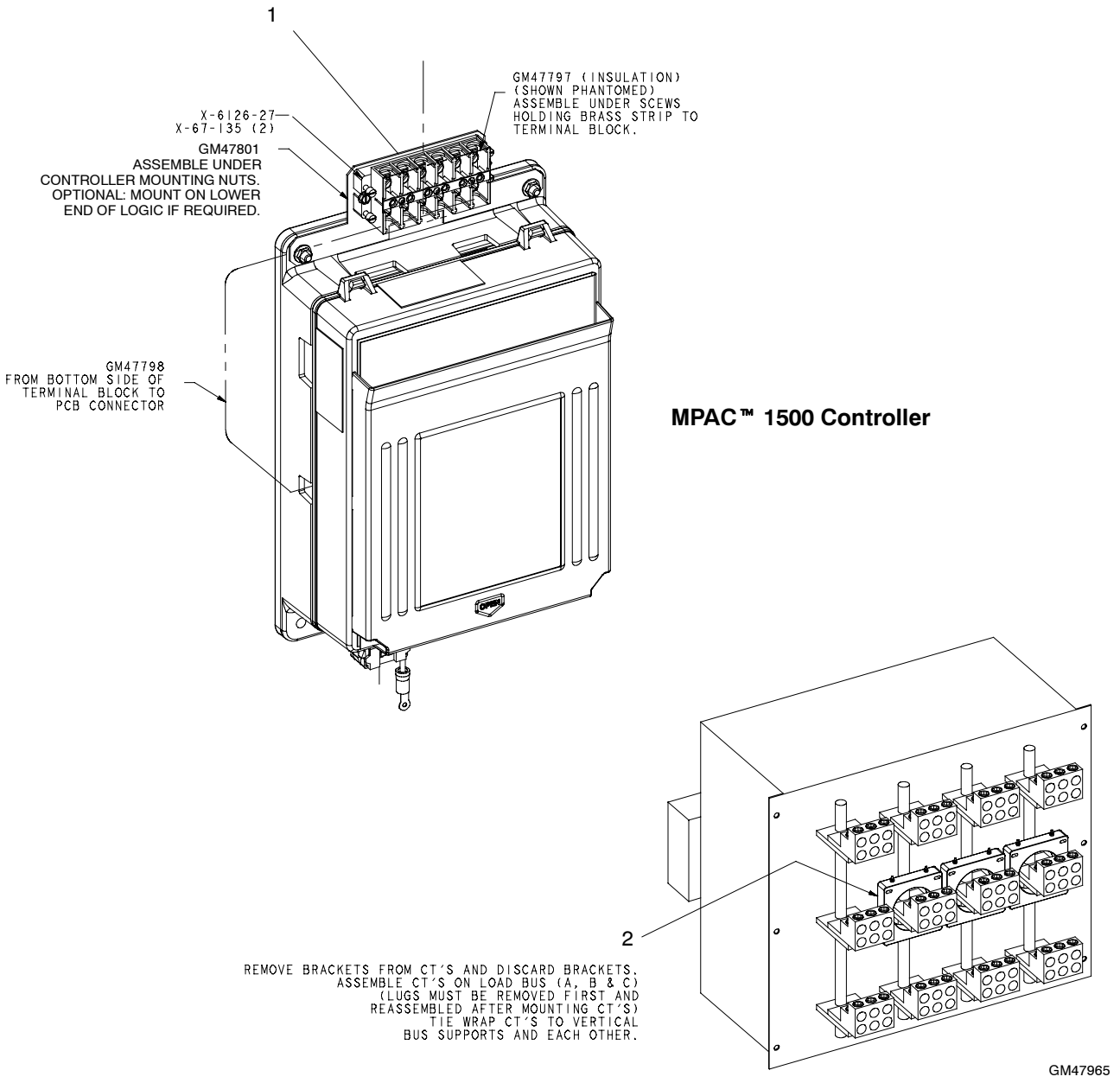


Figure 17 Connection to MPAC™ 1500 Controller

20. If current sensing is required (i.e. for current [amps] monitoring and display), obtain the appropriately rated current sensing kit and install according to Figure 18.

21. Connect the current transformers as shown in Figure 19. See Figure 3 or the Parts List for current sensing kit numbers.



NOTES:

HI SIDE OF CT'S MUST ALWAYS FACE TOWARD THE CONTACTOR.
Route CT harness neatly to controller with controller/contactor harness. Use cable ties as necessary.
See wiring diagram GM47803 (Figure 19).

1. Connect harness GM40562 (10 ft. harness). See Figure 19 for electrical connections.
2. Current transformers. See Parts List for part numbers.

Figure 18 Current Sensing Kit Installation

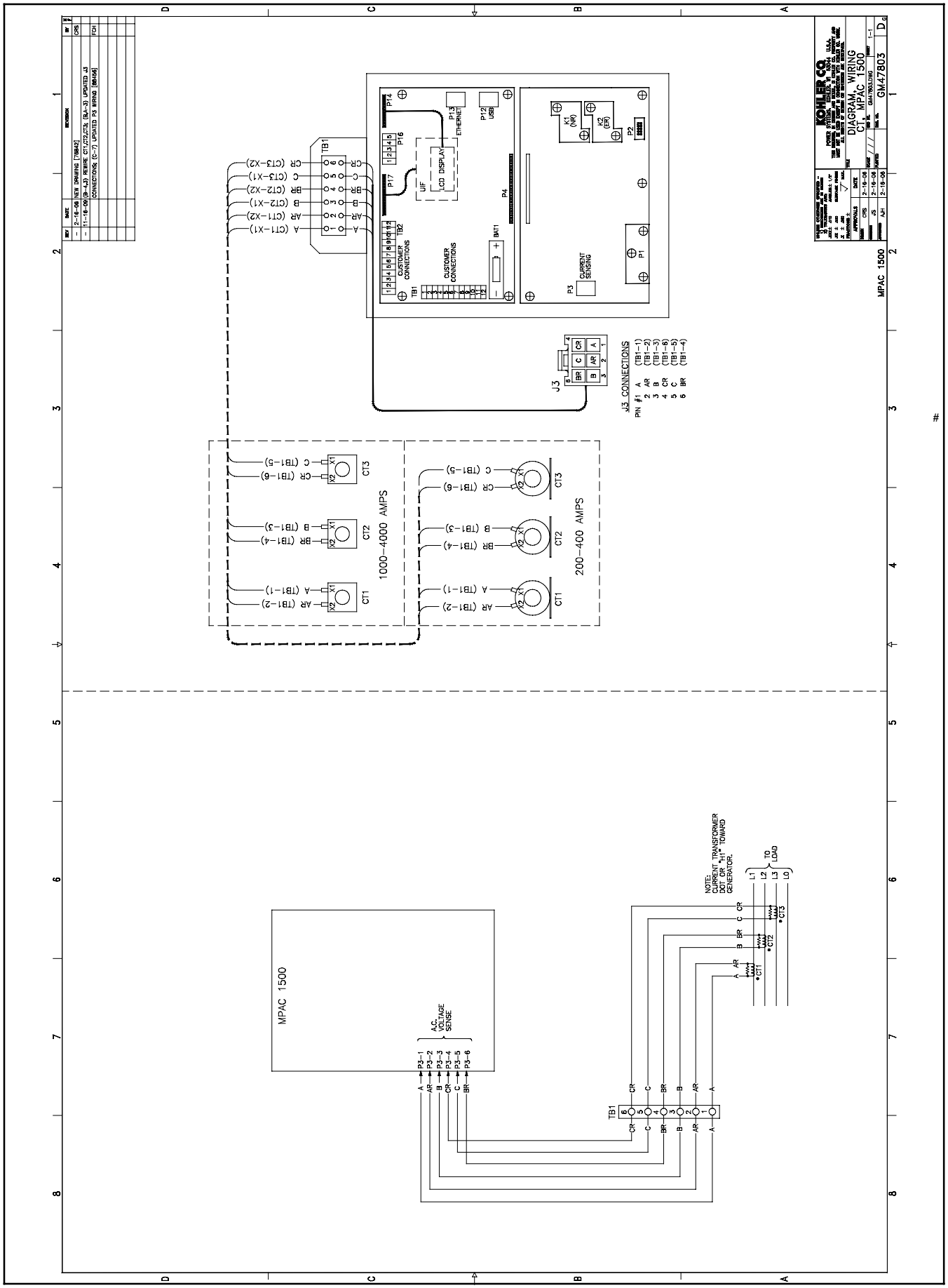


Figure 19 Current Sensing Kit Wiring Diagram, GM47803

22. Record the required information on decal GM70205. See Figure 20. See Figure 3 for the current sensing kit and Figure 23 for the wiring diagram number.

23. Verify that the surface is clean and dry, and place decal GM70205 on the mounting plate as shown in Figure 21.

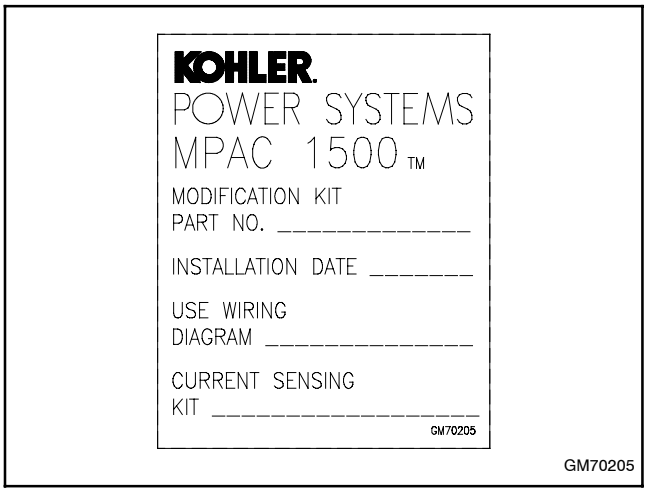
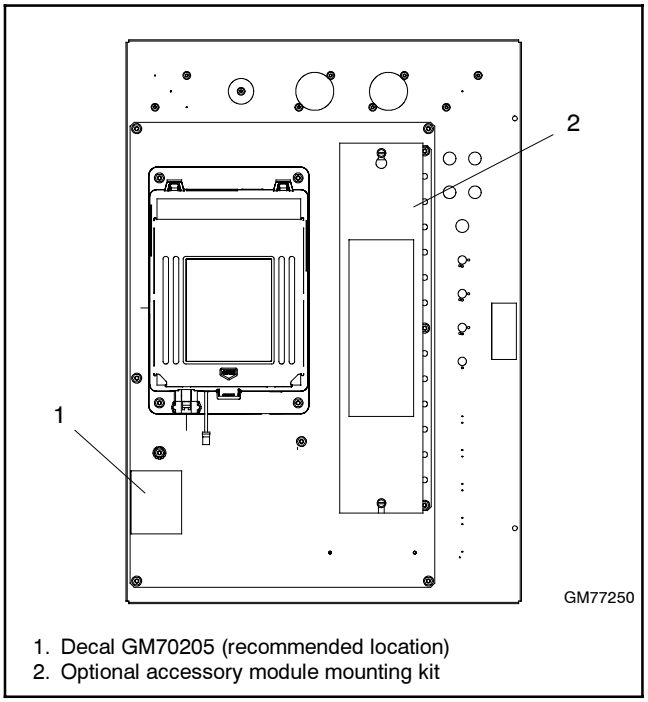


Figure 20 Decal GM70205



1. Decal GM70205 (recommended location)
2. Optional accessory module mounting kit

Figure 21 Decal GM70205 Location

24. If optional accessory modules are used, attach the accessory mounting kit to the conversion kit mounting plate (GM77130). See Figure 21. Then refer to instruction sheet TT-1449, provided with the accessory mounting kit, to install and connect the modules.

25. For installation of other optional accessories, refer to the instructions provided with the accessory kit or see the MPAC™ 1500 Operation Manual, TP-6714.

26. Reconnect power to the transfer switch.

27. Check that the generator set master switch is in the OFF position.

28. Reconnect the generator set engine starting battery, negative (–) lead last.

29. Reconnect power to the battery charger, if equipped.

30. On the MPAC™ 1500 controller, program the system parameters shown in Figure 22. Refer to the transfer switch nameplate for the ATS ratings. Also check time delays and and other settings that affect the ATS operation. See TP-6714, Operation Manual, for instructions.

System Parameter	Factory Setting
Standard or programmed transition	Set these parameters to match the transfer switch †
Single/three phase	
Operating voltage	
Operating frequency (50 or 60 Hz)	
Rated current	
Phase rotation	ABC
Commit to transfer (yes or no)	No
Operating mode: Generator-to-Generator, Utility-to-Generator, or Utility-to-Utility	Utility-to-Generator
In-phase monitor	Disabled
In-phase monitor transfer angle	5°
† See the ATS nameplate.	

Figure 22 System Parameters

31. Run the operation tests outlined in Operation Manual TP-6714 to verify system operation.

32. Keep these installation instructions and wiring diagrams with the transfer switch documentation for future reference.

Parts Lists

S340 to MPAC™ 1500 Conversion Kit

Kit: GM77250-S		
Qty.	**Description**	**Part Number**
1	Logic, MPAC1500 Assembly	GM46733-1
1	Decal, Kohler Power Systems MPAC-1500	GM70205
1	Harness, Wiring Controller	GM71472
1	Plate, Mounting	GM77130
1	Plate, Cover Switch	GM77247
1	Decal ATS S340 to MPAC1500 Conversion	GM77248
1	Decal ATS S340 to MPAC1500 Conversion	GM77249
1	Dwg, Assy S340 Conversion to MPAC1500	GM77250
1	Lead	LK-1212-1515
1	O/M MPAC 1500 Controls , ATS	TP-6714
1	Installation Instructions	TT-1550
1	Washer, lock .262 ID x .743 in. OD	X-22-12
5	Cable tie	X-468-1
2	Cable tie, nylon	X-468-3
16	Nut, flange spiralock, 1/4-20	X-6210-2
9	Nut, flange whiz, 8-32	X-6210-4

Current Sensing Kit Parts

		Part Quantity									
		Kit number GM47965:									
		-S19	**-S20**	**-S21**	**-S22**	**-S23**	**-S24**	**-S25**	**-S26**	**-S27**	**-S28**
Description	**Part Number**	1000 A 3 ph	1200 A 3 ph	2000 A 3 ph	3000 A 3 ph	1000 A 1 ph	1200 A 1 ph	200 A 3 ph	200 A 1 ph	400 A 3 ph	400 A 1 ph
Harness, CT 10 FT.	GM40562	1	1	1	1	1	1	1	1	1	1
Transformer, Current	GM47788							3	2		
Transformer, Current	GM47789									3	2
Transformer, Current	GM47790	3				2					
Transformer, Current	GM47791		3				2				
Transformer, Current	GM47792			3							
Transformer, Current	GM47793				3						
Insulation, Terminal Block	GM47797	1	1	1	1	1	1	1	1	1	1
Harness, CT	GM47798	1	1	1	1	1	1	1	1	1	1
Bracket, Terminal Block Mounting	GM47801	1	1	1	1	1	1	1	1	1	1
Diagram, Wiring CT MPAC 1500	GM47803	1	1	1	1	1	1	1	1	1	1
Drawing, Assembly Current Sensing	GM47965	1	1	1	1	1	1	1	1	1	1
Terminal Block	X-6126-27	1	1	1	1	1	1	1	1	1	1
Screw, Hex, Washer, Thread-forming	X-67-135	2	2	2	2	2	2	2	2	2	2

Transfer Switch Wiring Diagrams

The schematic diagrams and wiring diagrams for the transfer switches with MPAC™ 1500 controls are arranged in numerical order on the following pages. Find your model and the corresponding drawing numbers in Figure 23.

To interpret the transfer switch model designation, see the model designation chart in Figure 7. Codes for the model GLS, GTS, K and KB switches are combined in the model designation chart. Some codes do not apply to all three models.

The schematic and wiring diagram drawing numbers for the transfer switch with S340 controls are shown in Figure 23 for reference only. Those drawings are not included in this document. Refer to the original documentation provided with the transfer switch for S340 drawings, if necessary.

			S340 Drawing Numbers (for reference only)		MPAC 1500 Conversion Drawings	
ATS Model *	**Poles***	**Amps**	**Schematic**	**Wiring Diagram**	**Schematic**	**Wiring Diagram**
GTS-1	2	40-200	362114	362109	GM77113	GM78557
	3					
	4†					
GLS-1	2	40-200	362172	362164	GM77114	GM77115 Sheet 1
	3					
	4†					
	2	225-400	362172	362164	GM77114	GM77115 Sheet 2
	3					
	4†					
K-1	2	30-800	295075	295079	GM77214	GM77215
	3	30-4000	295074	295078	GM77216	GM77217
	4†					
KB-1	2	150-400	294149	294263	GM77237	GM77240
	3	150-400	294149	294150	GM77237	GM77238
	4†					
	2	600-800	297662	297663	GM77233	GM77234
	3	600-800	297664	297665	GM77235	GM77236
	4†					

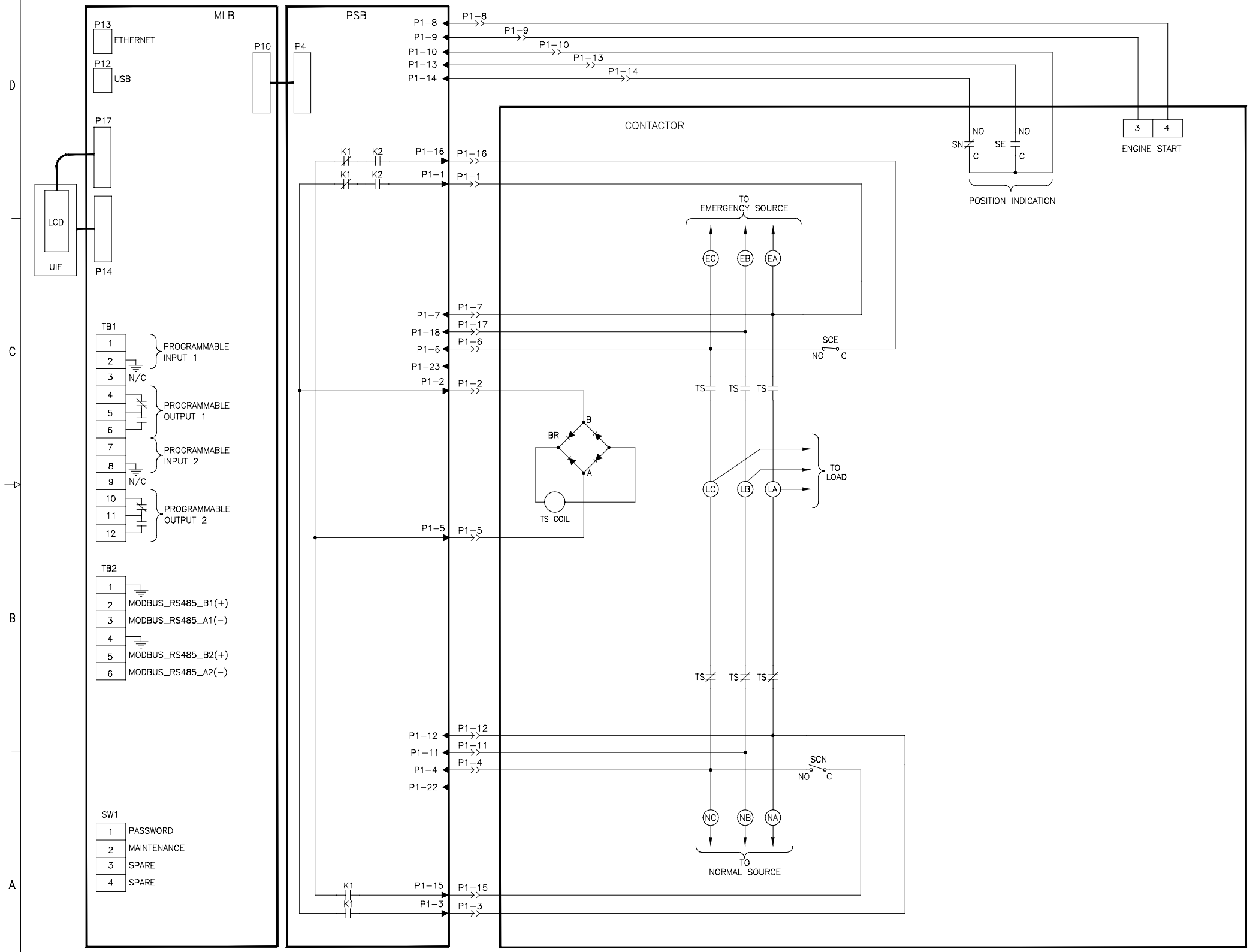
* See Figure 7 to interpret the model designation, if necessary.

† 3 pole, 3 phase with overlapping neutral

Note: Drawings are arranged in numerical order on the following pages.

Figure 23 Drawing Numbers

REV	DATE	REVISION	BY	M F
–	7–06–10	NEW DRAWING [90080]	FCH	
A	9–30–10	(A–1) GM78557 WAS GM77115 [90202]	FCH	



LEGEND

BR – BRIDGE RECTIFIER
K(#) – RELAY
LCD – LIQUID CRYSTAL DISPLAY
MLB – MAIN LOGIC BOARD
P(#) – PLUG
PSB – POWER SUPPLY BOARD
SCE – COIL CLEARING CONTATC (EMERGENCY)
SCN – COIL CLEARING CONTACT (NORMAL)
SE – SWITCH POSITION CONTACT (EMERGENCY POSITION)
SN – SWITCH POSITION CONTACT (NORMAL POSITION)
TB1 – CUSTOMER CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
TS – TRANSFER SWITCH
UIF – USER INTERFACE
SW(#) – DIP SWITCH

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.

FOR WIRING DIAGRAM SEE DWR. GM78557

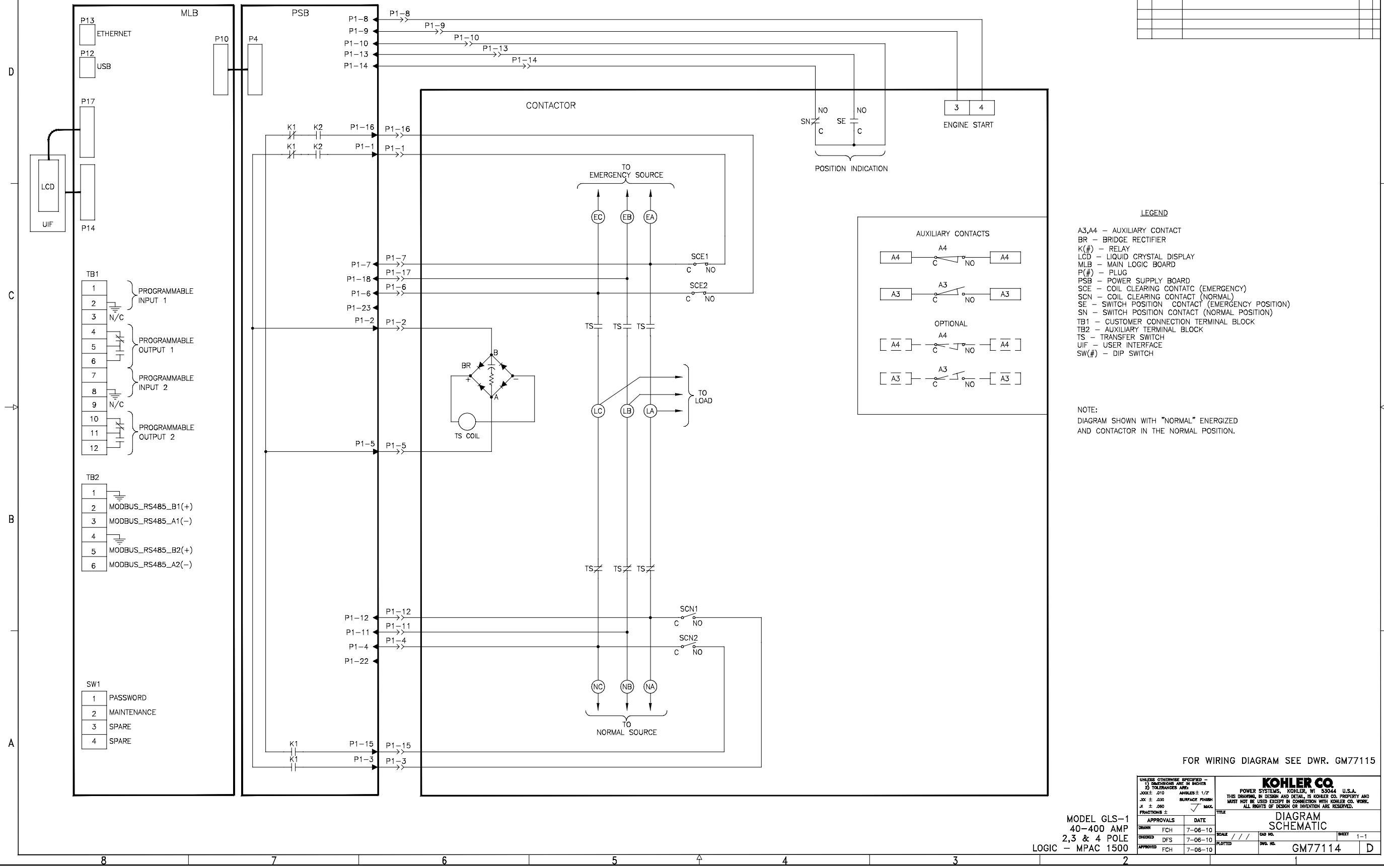
MODEL GTS
40–200 AMP
2,3 & 4 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	7–06–10
CHECKED DFS	7–06–10
APPROVED FCH	7–06–10

TITLE: DIAGRAM SCHEMATIC
SCALE: / / /
CAD NO.
SHEET 1–1
PLOTTED
DWG. NO. GM77113 D

REV	DATE	REVISION	BY	M F
–	7–06–10	NEW DRAWING [90090]	FCH	



LEGEND

A3,A4 – AUXILIARY CONTACT
BR – BRIDGE RECTIFIER
K(#) – RELAY
LCD – LIQUID CRYSTAL DISPLAY
MLB – MAIN LOGIC BOARD
P(#) – PLUG
PSB – POWER SUPPLY BOARD
SCE – COIL CLEARING CONTATC (EMERGENCY)
SCN – COIL CLEARING CONTACT (NORMAL)
SE – SWITCH POSITION CONTACT (EMERGENCY POSITION)
SN – SWITCH POSITION CONTACT (NORMAL POSITION)
TB1 – CUSTOMER CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
TS – TRANSFER SWITCH
UIF – USER INTERFACE
SW(#) – DIP SWITCH

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.

FOR WIRING DIAGRAM SEE DWR. GM77115

MODEL GLS–1
40–400 AMP
2,3 & 4 POLE
LOGIC – MPAC 1500

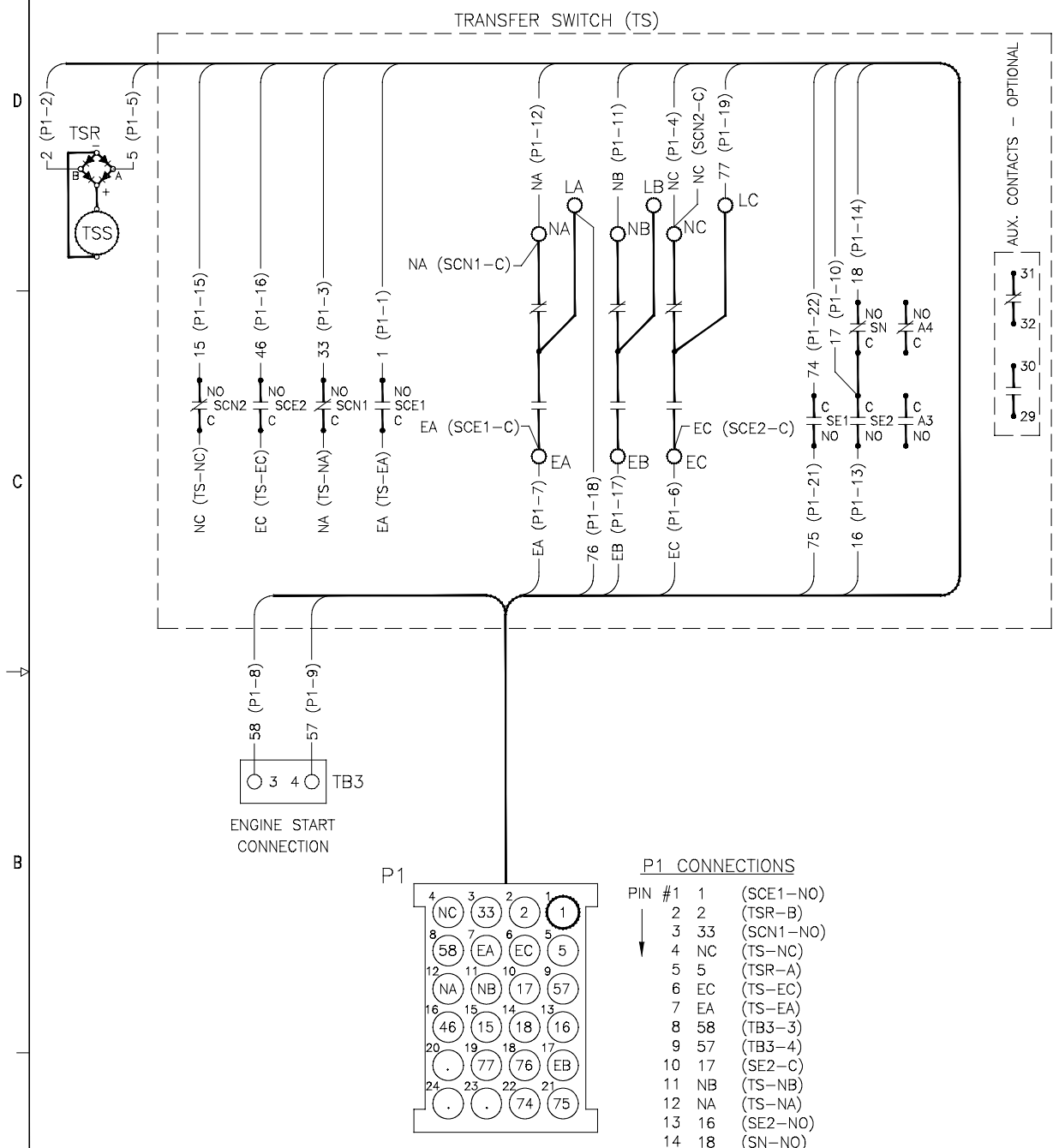
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	7–06–10
CHECKED DFS	7–06–10
APPROVED FCH	7–06–10

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

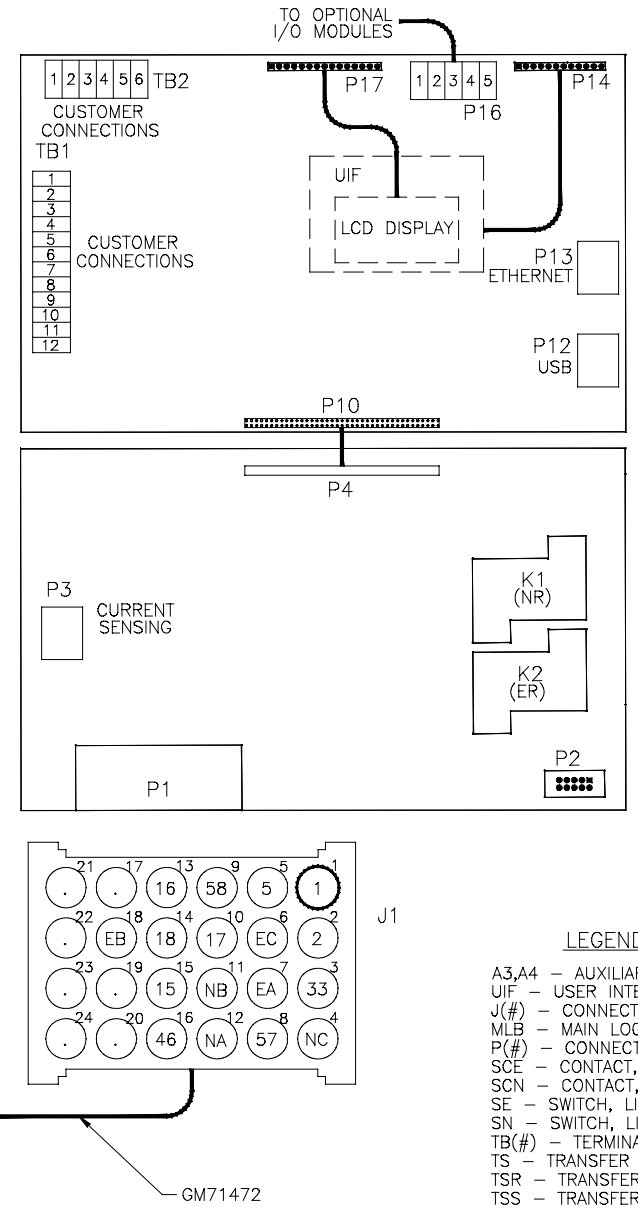
TITLE: DIAGRAM SCHEMATIC
SCALE: / / /
CAD NO.
SHEET 1–1
PLOTTED
DWG. NO. GM77114 D

REV	DATE	REVISION	BY	M F
–	7-06-10	NEW DRAWING [90080]	FCH	
A	9-30-10	(A-2) DELETED GTS & GM77113 FROM TITLE BLOCK [90202]	FCH	



P1 CONNECTIONS

PIN #		
1	1	(SCE1–NO)
2	2	(TSR–B)
3	33	(SCN1–NO)
4	NC	(TS–NC)
5	5	(TSR–A)
6	EC	(TS–EC)
7	EA	(TS–EA)
8	58	(TB3–3)
9	57	(TB3–4)
10	17	(SE2–C)
11	NB	(TS–NB)
12	NA	(TS–NA)
13	16	(SE2–NO)
14	18	(SN–NO)
15	15	(SCN2–NO)
16	46	(SCE2–NO)
17	EB	(TS–EB)
18	76	(TS–LA)
19	77	(TS–LC)
20	N/C	.
21	75	(SE1–NO)
22	74	(SE1–C)
23	N/C	.
24	N/C	.



LEGEND

A3,A4 – AUXILIARY CONTACT
UIF – USER INTERFACE
J(#) – CONNECTOR (JACK)
MLB – MAIN LOGIC BOARD
P(#) – CONNECTOR (PLUG)
SCE – CONTACT, COIL CLEARING – EMERGENCY
SCN – CONTACT, COIL CLEARING – NORMAL
SE – SWITCH, LIMIT – EMERGENCY POSITION
SN – SWITCH, LIMIT – NORMAL POSITION
TB(#) – TERMINAL BLOCK
TS – TRANSFER SWITCH (CONTACTOR)
TSR – TRANSFER SWITCH (RECTIFIER)
TSS – TRANSFER SWITCH (SOLENOID)

MODEL GTS
40–150 AMP
LOGIC – MPAC1500
600V CLASS
FOR SCHEMATIC DIAGRAM SEE GM77114

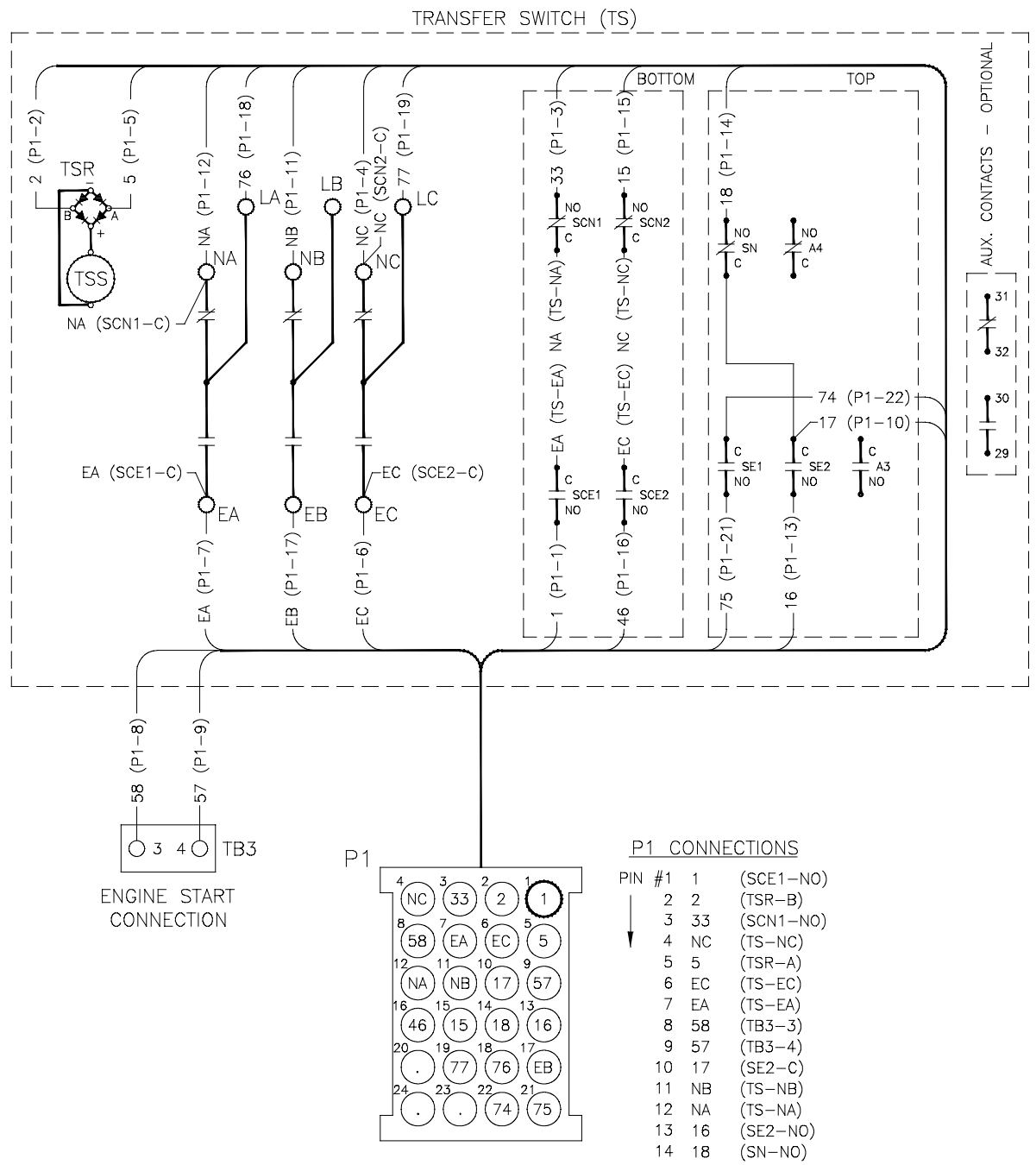
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX± .010 ANGLES± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS		DATE
DRAWN	FCH	7-06-10
CHECKED	DFS	7-06-10
APPROVED	FCH	7-06-10

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

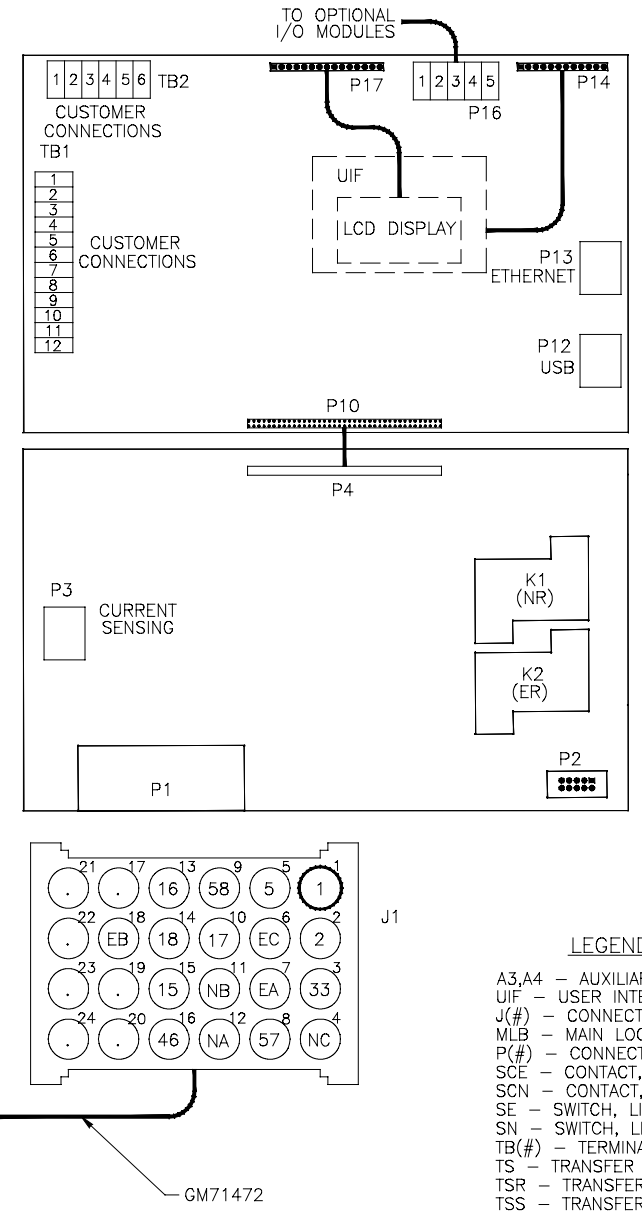
TITLE: WIRING DIAGRAM, INTERCONNECTION
SCALE: NONE | CAD NO. | SHEET 1-2
PLOTTED | DWG NO. GM77115 | D

REV	DATE	REVISION	BY	M F
–	7-06-10	NEW DRAWING [90080]	FCH	
A	9-30-10	(A-2) DELETED GTS & GM77113 FROM TITLE BLOCK [90202]	FCH	



P1 CONNECTIONS

PIN #		
1	1	(SCE1–NO)
2	2	(TSR–B)
3	33	(SCN1–NO)
4	NC	(TS–NC)
5	5	(TSR–A)
6	EC	(TS–EC)
7	EA	(TS–EA)
8	58	(TB3–3)
9	57	(TB3–4)
10	17	(SE2–C)
11	NB	(TS–NB)
12	NA	(TS–NA)
13	16	(SE2–NO)
14	18	(SN–NO)
15	15	(SCN2–NO)
16	46	(SCE2–NO)
17	EB	(TS–EB)
18	76	(TS–LA)
19	77	(TS–LC)
20	N/C	.
21	75	(SE1–NO)
22	74	(SE1–C)
23	N/C	.
24	N/C	.



LEGEND

A3,A4 – AUXILIARY CONTACT
UIF – USER INTERFACE
J(#) – CONNECTOR (JACK)
MLB – MAIN LOGIC BOARD
P(#) – CONNECTOR (PLUG)
SCE – CONTACT, COIL CLEARING – EMERGENCY
SCN – CONTACT, COIL CLEARING – NORMAL
SE – SWITCH, LIMIT – EMERGENCY POSITION
SN – SWITCH, LIMIT – NORMAL POSITION
TB(#) – TERMINAL BLOCK
TS – TRANSFER SWITCH (CONTACTOR)
TSR – TRANSFER SWITCH (RECTIFIER)
TSS – TRANSFER SWITCH (SOLENOID)

MODEL GLS–1
225–400 AMP
LOGIC – MPAC1500
600V CLASS
FOR SCHEMATIC DIAGRAM SEE GM77114

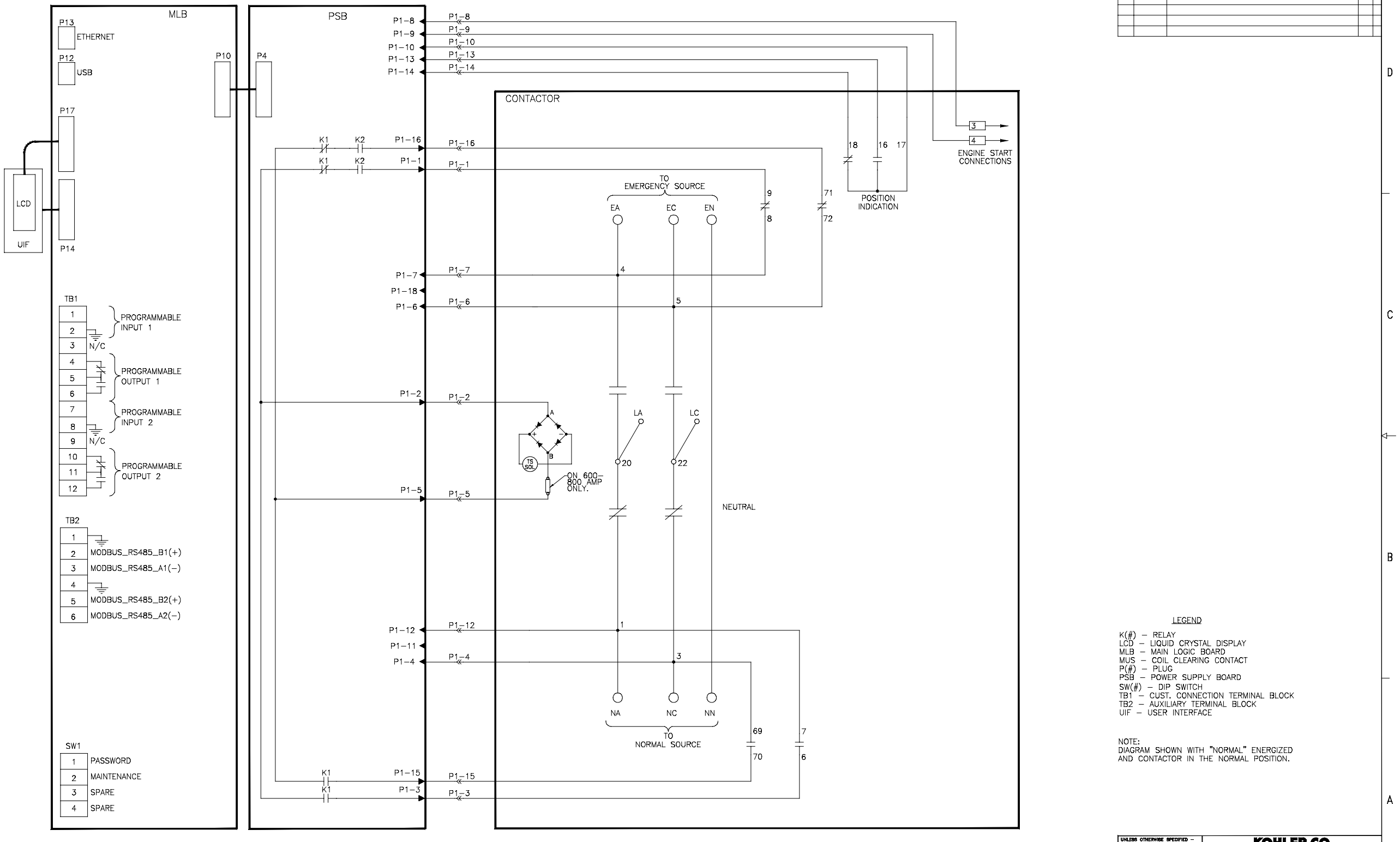
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX± .010 ANGLES± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS		DATE
DRAWN	FCH	7–06–10
CHECKED	DFS	7–06–10
APPROVED	FCH	7–06–10

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: WIRING DIAGRAM, INTERCONNECTION
SCALE: NONE | CAD NO. | SHEET 2–2
PLOTTED | DWG. NO. GM77115 | D

REV	DATE	REVISION	BY	M F
–	7–07–10	NEW DRAWING [90080]	FCH	



LEGEND

K(#) – RELAY
LCD – LIQUID CRYSTAL DISPLAY
MLB – MAIN LOGIC BOARD
MUS – COIL CLEARING CONTACT
P(#) – PLUG
PSB – POWER SUPPLY BOARD
SW(#) – DIP SWITCH
TB1 – CUST. CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
UIF – USER INTERFACE

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED
AND CONTACTOR IN THE NORMAL POSITION.

MODEL K–1
30–800 AMPS
2 POLE
LOGIC – MPAC 1500
FOR WIRING DIAGRAM SEE DWR. GM77215

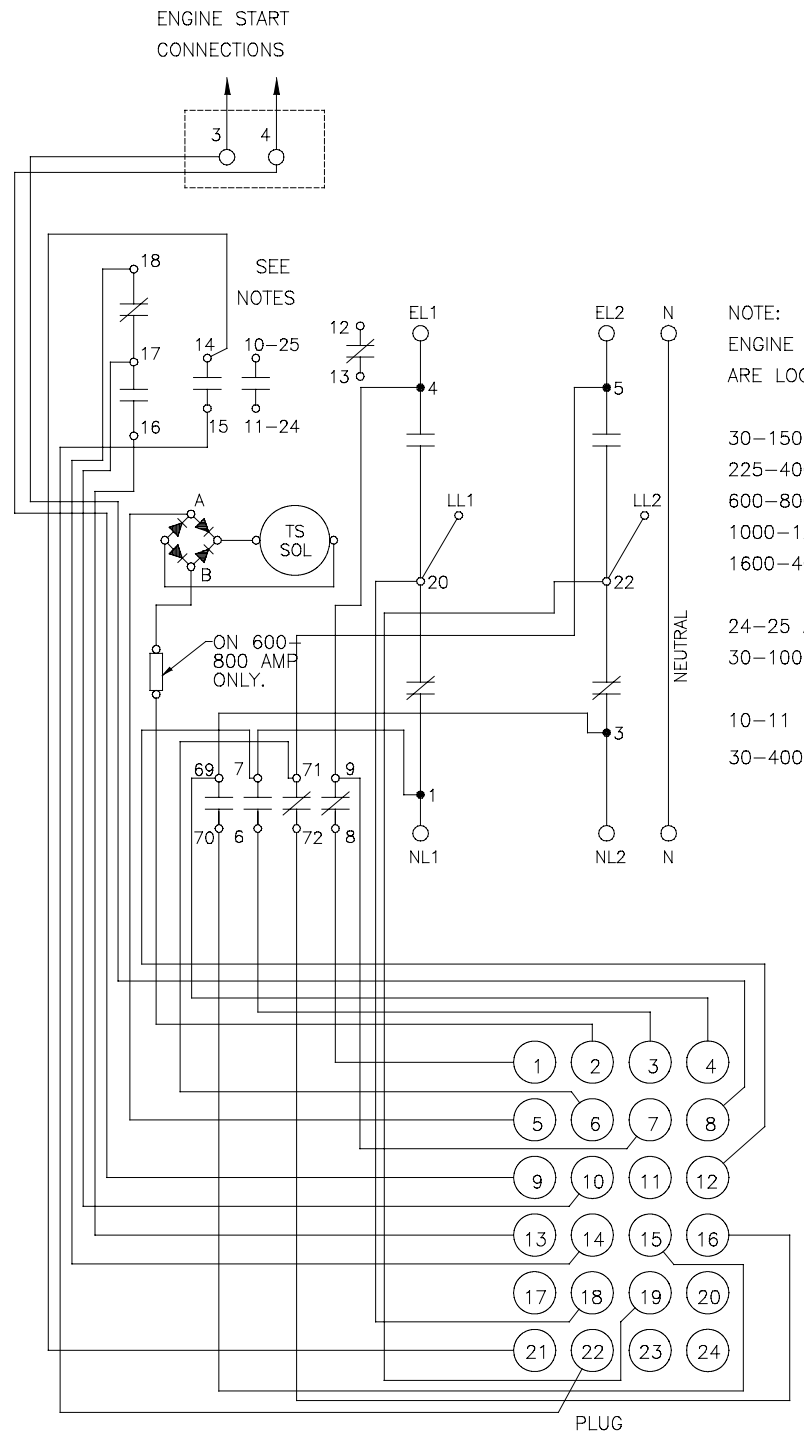
UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	7–07–10
CHECKED DFS	7–07–10
APPROVED FCH	7–07–10

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE: DIAGRAM, SCHEMATIC
SCALE: / / / | CAD NO. | SHEET 1–1
PLOTTED | DWG. NO. GM77214 | D

REV	DATE	REVISION	BY	MF
–	7–07–10	NEW DRAWING [90080]	FCH	

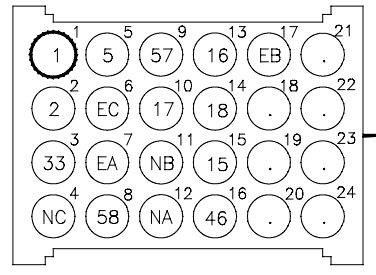


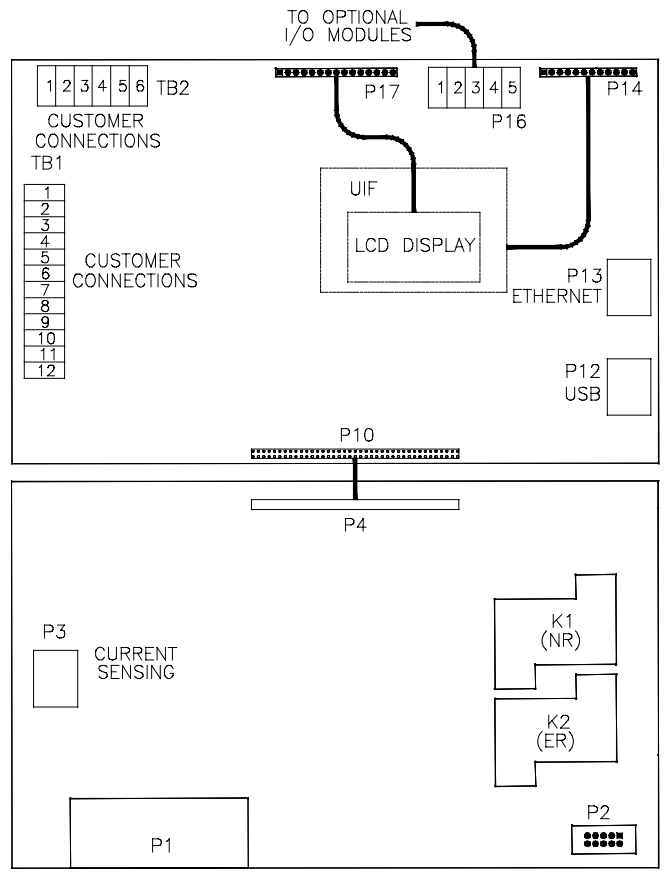
NOTE:
ENGINE START TERMINALS 3 & 4 ARE LOCATED ON CONTACTOR.

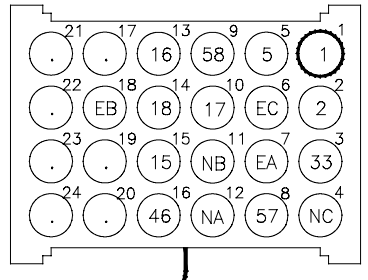
30–150 AMP – LOWER LEFT
225–400 AMP – UPPER LEFT
600–800 AMP – UPPER RIGHT
1000–1200 AMP – UPPER LEFT
1600–4000 AMP – LOWER LEFT

24–25 AUX. SWITCH ON
30–100 AMP – 240 VOLT

10–11 & 12–13 AUX. SWITCH ON
30–4000 AMP – 600 VOLT







FOR SCHEMATIC DIAGRAM SEE DWR. GM77214

MODEL K–1
30–800 AMP
2 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

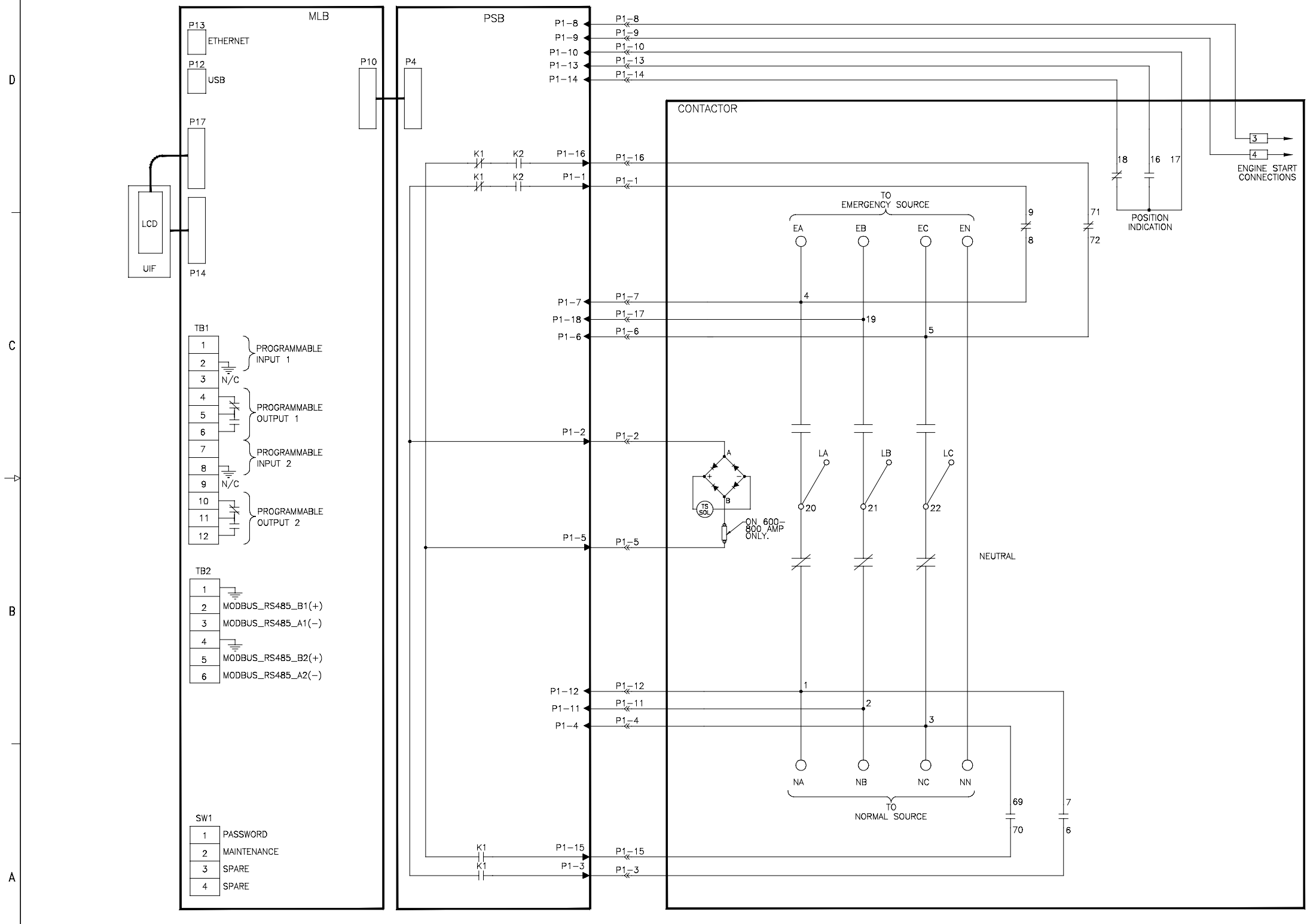
APPROVALS		DATE
DRAWN	FCH	7–07–10
CHECKED	DFS	7–07–10
APPROVED	FCH	7–07–10

KOHLER CO.
GENERATOR DIVISION, KOHLER, WI 53044 U.S.A.

TITLE: DIAGRAM, WIRING

SCALE: / / / | CAD NO. | SHEET 1–1
PLOTTED | DWG. NO. GM77215 | C G

REV	DATE	REVISION	BY	M F
–	7–07–10	NEW DRAWING [90080]	FCH	



LEGEND

K(#) – RELAY
LCD – LIQUID CRYSTAL DISPLAY
MLB – MAIN LOGIC BOARD
P(#) – PLUG
PSB – POWER SUPPLY BOARD
SW(#) – DIP SWITCH
TB1 – CUST. CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
UIF – USER INTERFACE

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.

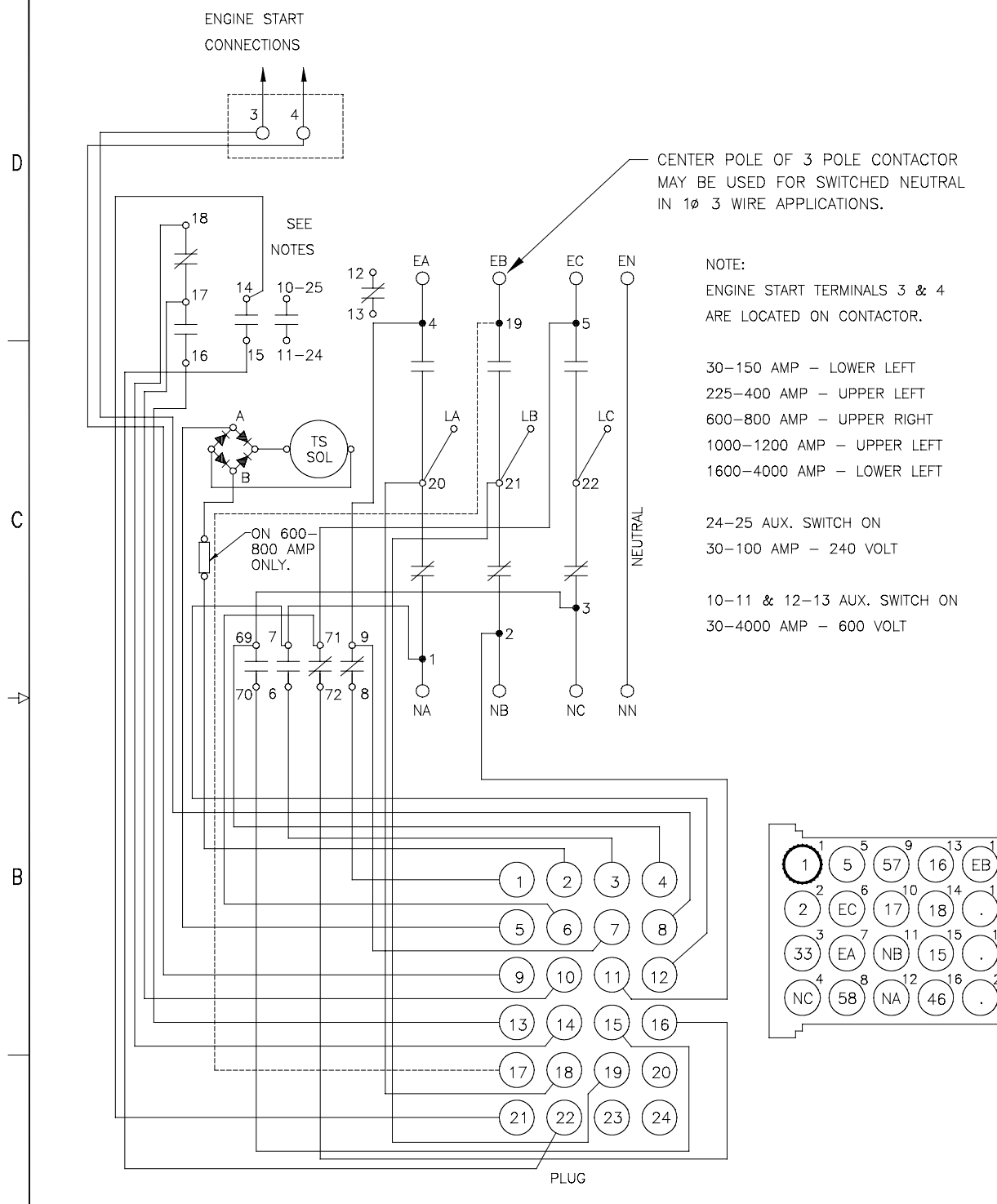
MODEL K1
30–4000 AMPS
3&4 POLE
LOGIC – MPAC 1500
FOR WIRING DIAGRAM SEE GM77217

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	7–07–10
CHECKED DFS	7–07–10
APPROVED FCH	7–07–10

TITLE: DIAGRAM, SCHEMATIC
SCALE: /// CAD NO. SHEET 1–1
PLOTTED DWG. NO. GM77216 D

REV	DATE	REVISION	BY	M E
–	7–07–10	NEW DRAWING [90080]	FCH	



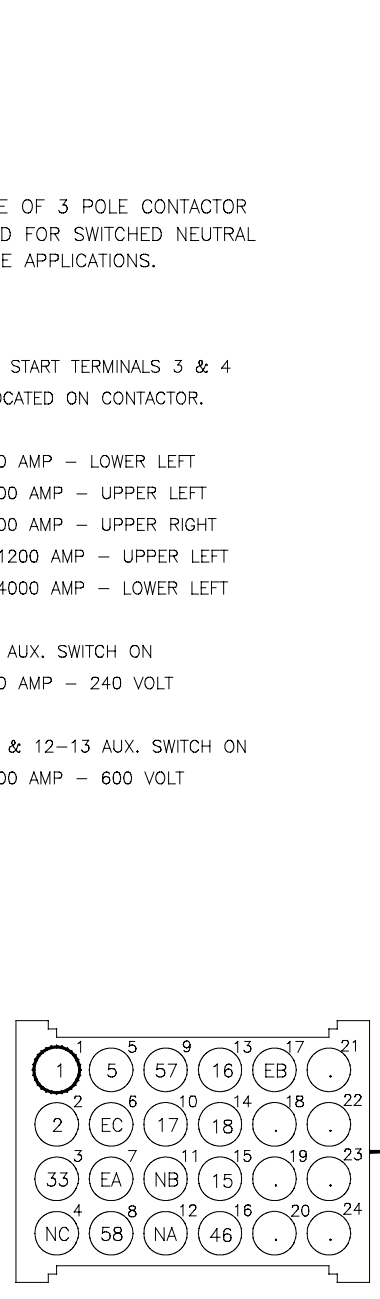
CENTER POLE OF 3 POLE CONTACTOR MAY BE USED FOR SWITCHED NEUTRAL IN 1ø 3 WIRE APPLICATIONS.

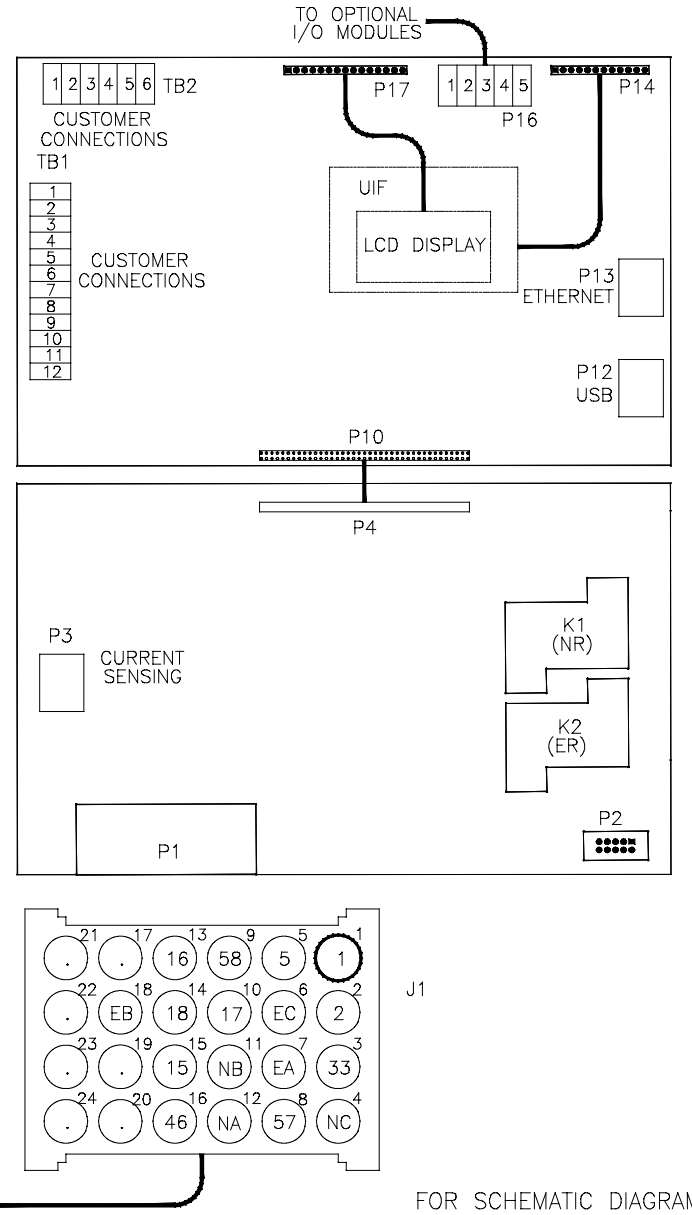
NOTE:
ENGINE START TERMINALS 3 & 4 ARE LOCATED ON CONTACTOR.

30–150 AMP – LOWER LEFT
225–400 AMP – UPPER LEFT
600–800 AMP – UPPER RIGHT
1000–1200 AMP – UPPER LEFT
1600–4000 AMP – LOWER LEFT

24–25 AUX. SWITCH ON
30–100 AMP – 240 VOLT

10–11 & 12–13 AUX. SWITCH ON
30–4000 AMP – 600 VOLT





J1

FOR SCHEMATIC DIAGRAM SEE DWR. GM77216

MODEL K–1
30–4000 AMP
3&4 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

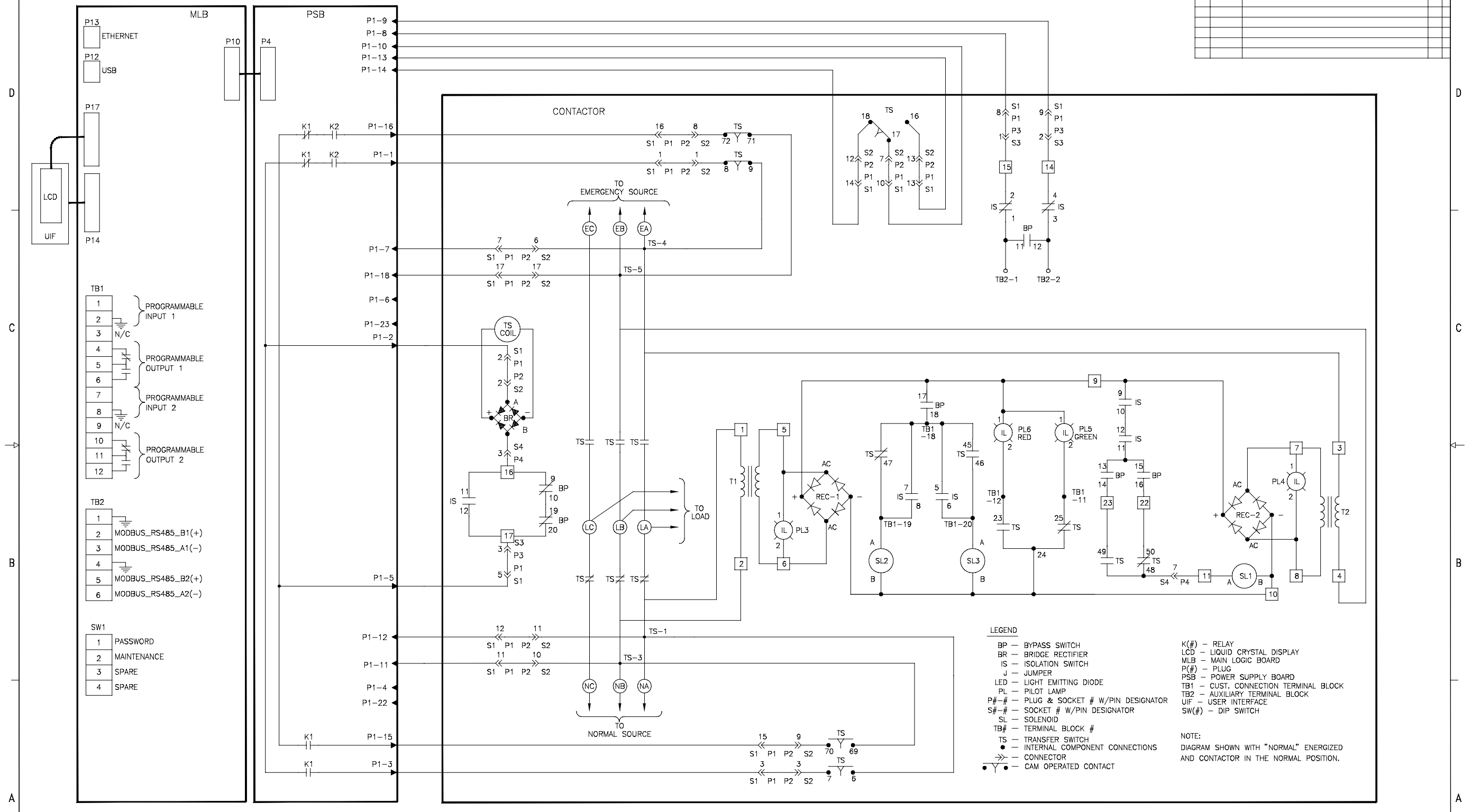
APPROVALS		DATE
DRAWN	FCH	7–07–10
CHECKED	DFS	7–07–10
APPROVED	FCH	7–07–10

KOHLER CO.
GENERATOR DIVISION, KOHLER, WI 53044 U.S.A.

TITLE: DIAGRAM, WIRING

SCALE /// | CAD NO. | SHEET 1–1
PLOTTED | DWG. NO. GM77217 | C G

REV	DATE	REVISION	BY	M F
–	7–07–10	NEW DRAWING [90080]	FCH	



LEGEND

- BP — BYPASS SWITCH
- BR — BRIDGE RECTIFIER
- IS — ISOLATION SWITCH
- J — JUMPER
- LED — LIGHT EMITTING DIODE
- PL — PILOT LAMP
- P#–# — PLUG & SOCKET # W/PIN DESIGNATOR
- S#–# — SOCKET # W/PIN DESIGNATOR
- SL — SOLENOID
- TB# — TERMINAL BLOCK #
- TS — TRANSFER SWITCH
- ● — INTERNAL COMPONENT CONNECTIONS
- ≫ — CONNECTOR
- ●Y● — CAM OPERATED CONTACT
- K(#) — RELAY
- LCD — LIQUID CRYSTAL DISPLAY
- MLB — MAIN LOGIC BOARD
- P(#) — PLUG
- PSB — POWER SUPPLY BOARD
- TB1 — CUST. CONNECTION TERMINAL BLOCK
- TB2 — AUXILIARY TERMINAL BLOCK
- UIF — USER INTERFACE
- SW(#) — DIP SWITCH

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.

FOR WIRING DIAGRAM SEE DWR. GM77234

MODEL KB–1
600–800 AMP
2 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 .X ± .090 FRACTIONS ± SURFACE FINISH MAX.

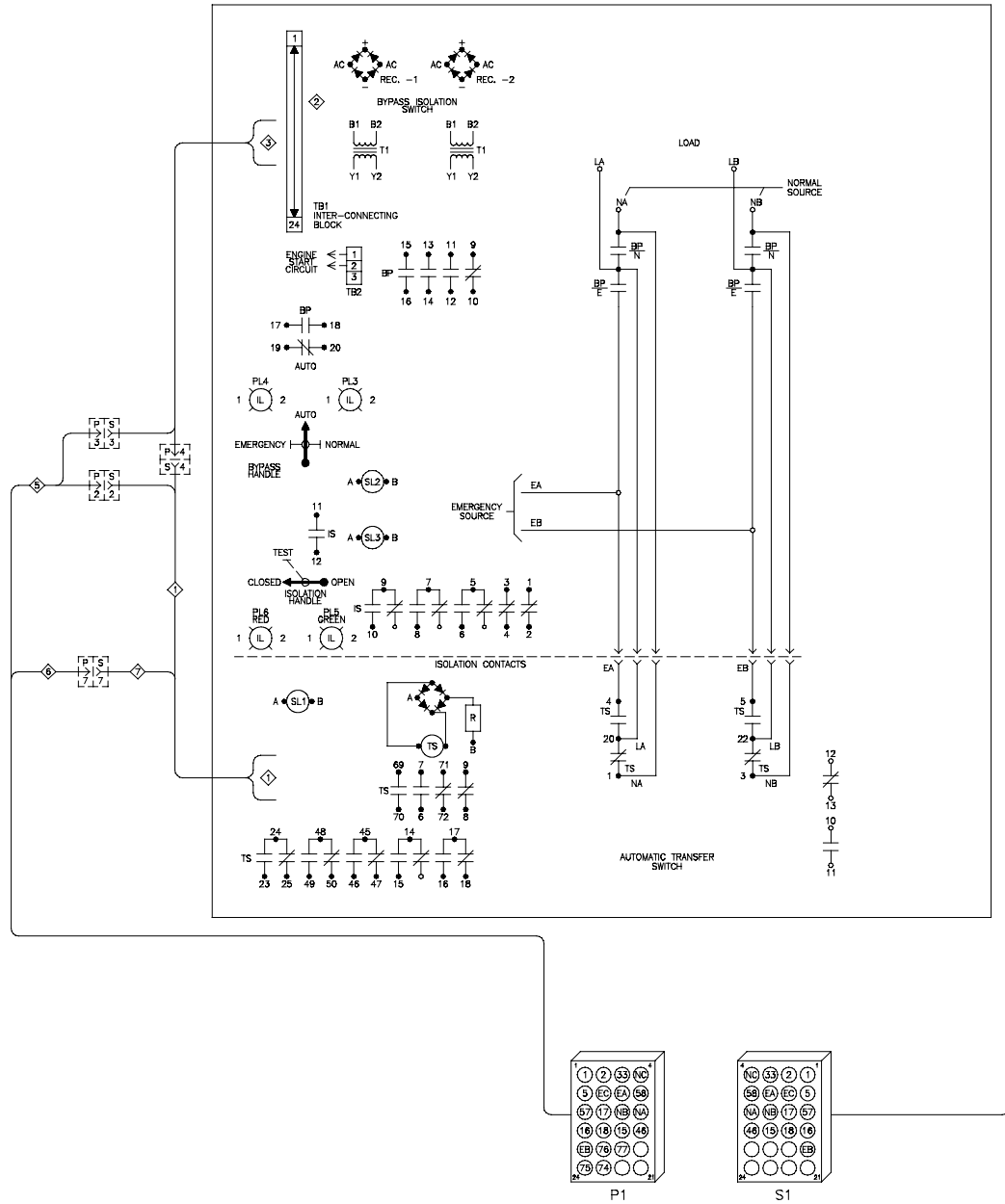
APPROVALS		DATE
DRAWN	FCH	7–07–10
CHECKED	DFS	7–07–10
APPROVED	FCH	7–07–10

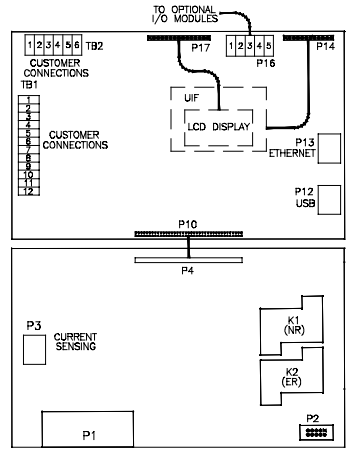
TITLE: DIAGRAM SCHEMATIC

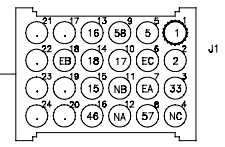
SCALE / / / | CAD NO. | SHEET 1–1

PLOTTED | DWG. NO. GM77233 | D

REV	DATE	REVISION	BY	M F
–	7-07-10	NEW DRAWING [90080]	FCH	







LEGEND

ACC – ACCESSORY
BP – BYPASS SWITCH
GR – GREEN
IL – INDICATING LIGHT
J – JUMPER
PL – PILOT LIGHT
P# – PLUG NUMBER
R – RED
RECT – RECTIFIER
RES – RESISTOR
S# – SOCKET NUMBER
SL – SOLENOID
T – TRANSFORMER
TB – TERMINAL BOARD
TS – TRANSFER SWITCH
LCD – LIQUID CRYSTAL DISPLAY
TB1 – CUST. CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
UIF – USER INTERFACE

NOTE:
1. SWITCH SHOWN DE-ENERGIZED CONNECTED TO NORMAL SOURCE.
2. THIS SIGN INDICATES A BRANCH CIRCUIT #
3. CONNECTION POINTS THAT HAVE BOTH CUSTOMER CONNECTIONS AND FACTORY CONNECTIONS ARE SHOWN OPEN AS CUSTOMER CONNECTION POINTS.
4. OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE SWITCH.
5. MATING PLUG AND SOCKET TERMINAL NUMBERS MATCH WHEN PLUGGED TOGETHER.
6. SL1 – (SOLENOID LOCK) TO PREVENT CONNECTING ATS UNLESS SOURCE TO LOAD IS SAME AS SOURCE BYPASSED.
7. SL2, SL3 – ALLOW BYPASS ONLY TO THE SOURCE TO WHICH THE TRANSFER SWITCH LOAD IS CONNECTED.

WIRE NO.	A.T.S. ON PANEL WIRE CONNECTIONS TO S2 & S4 ①	WIRE NO.	BYPASS-ISOLATION SWITCH STATIONARY WIRING ②	WIRE NO.	BYPASS-ISOLATION SWITCH CONNECTION TB1, S3, & P4 ③	WIRE NO.	LOGIC BOARD HARNESS S1 ④	WIRE NO.	INTER-CONNECTING HARNESS P1, P2, & P3 ⑤	WIRE NO.	A.T.S. TO HARNESS S7 ⑦
34	TS–72, S2–8	32	TB1–13, PL5–1, PL6–1								
33	TS–70, S2–9	31	TB1–10, SL1–B								
28	TS–8, S4–3	31	SL3–B, TB1–10, SL2–B								
20	TS–50, S4–9	30	TB1–9, BP–17, IS–9								
19	TS–49, S4–8	29	BP–10, BP–19								
18	TS–48, S4–7	28	TB1–17, BP–9, IS–11								
17	TS–47, S4–6	27	TB2–2, BP–12, IS–3								
16	TS–46, S4–5	26	TB2–1, BP–11, IS–1								
15	TS–45, S4–4	25	BP–13, BP–15, IS–10			NC	S1–4, TB3–NC				
14	TS–1, TS–7	24	TB1–7, PL4–1			NB	S1–11, TB3–NB			EB	P7–4, P1–17
13	TS–1, S2–11	23	TB1–8, PL4–2			NA	S1–12, TB3–NA			77	P7–6, P1–19
12	TS–2, S2–10	22	TB1–6, PL3–2			EC	S1–6, TB3–EC			76	P7–5, P1–18
11	TS–18, S2–12	21	TB1–5, PL3–1	32	TB1–13, S3–4	EB	S1–17, TB3–EB	34	P1–16, P2–8	75	P7–2, P1–21
10	TS–17, S2–7	20	TB1–22, BP–16	28	TB1–17, P4–3	EA	S1–7, TB3–EA	33	P1–15, P2–9	74	P7–1, P1–22
9	TS–4, TS–9	19	TB1–23, BP–14	20	TB1–22, P4–9	77	S1–19, TB6–77	32	P1–24, P3–4	WIRE NO.	HARNESS P7 TO P1 ⑥
8	TS–5, S2–6	18	TB1–21, SL1–A	19	TB1–23, P4–8	76	S1–18, TB6–76	14	P1–12, P2–11		
7	TS–3, TS–71	17	SL2–A, TB1–19, IS–8	18	TB1–21, P4–7	75	S1–21, TB6–75	13	P1–11, P2–10		
6	TS–5, S2–5	16	SL3–A, TB1–20, IS–6	17	TB1–19, P4–6	74	S1–22, TB6–74	12	P1–13, P3–6		
5	TS–3, S2–4	15	TB1–18, BP–18, IS–7	16	TB1–20, P4–5	58	S1–8, TB4–58	11	P1–14, P3–5		
4	TS–3, TS–69	8	TB1–14, IS–4	9	TB1–16, S3–3	57	S1–9, TB4–57	10	P1–10, P2–7		
3	TS–6, S2–3	6	TB1–3, EA	8	TB1–14, P4–2	5	S1–5, P8–2	3	P1–3, P2–3	76	TS–20, S7–5
2	TS–A, S2–2	5	TB1–4, EB	7	TB1–15, S3–1	2	S1–2, P8–5	2	P1–2, P2–2	75	TS–15, S7–2
1	TS–8, S2–1	4	TB1–2, NB	7	TB1–15, P4–1	1	S1–1, P8–1	1	P1–1, P2–1	74	TS–14, S7–1

AUX. CONT.	CLOSED	TEST	OPEN
	ISOLATION HANDLE POSITION		
11–12	0	X	0
9–10	0	X	0
7–8	0	X	X
5–6	0	X	X
3–4	X	X	0
1–2	X	X	0

AUX. CONT.	EMERG.	80°–10°	AUTO	10°–80°	NORM.
	BYPASS HANDLE POSITION				
19–20	0	0	X	0	0
17–18	0	X	0	X	0
15–16	0	0	0	X	X
13–14	X	X	0	0	0
11–12	X	X	0	0	0
9–10	0	0	X	0	0

O=OPEN CONTACT X=CLOSED CONTACT

FOR SCHEMATIC DIAGRAM SEE DWR. GM77233

MODEL KB-1
600-800 AMP
2 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	7-07-10
CHECKED DFS	7-07-10
APPROVED FCH	7-07-10

TITLE: DIAGRAM, WIRING
SCALE: / / / SHEET 1–1
CAD NO.
PLOTTED DWG. NO. GM77234 D

REV	DATE	REVISION	BY	M F
–	7–07–10	NEW DRAWING [90080]	FCH	

MLB
P13 ETHERNET
P12 USB
P17
LCD
UIF
P14
P10
P4
PSB
P1–9
P1–8
P1–10
P1–13
P1–14
P1–16
P1–1
P1–7
P1–18
P1–6
P1–23
P1–2
P1–5
P1–4
P1–12
P1–11
P1–22
P1–15
P1–3
K1 K2

TB1
1 PROGRAMMABLE INPUT 1
2 N/C
3
4 PROGRAMMABLE OUTPUT 1
5
6
7 PROGRAMMABLE INPUT 2
8 N/C
9
10 PROGRAMMABLE OUTPUT 2
11
12

TB2
1
2 MODBUS_RS485_B1(+)
3 MODBUS_RS485_A1(–)
4
5 MODBUS_RS485_B2(+)
6 MODBUS_RS485_A2(–)

SW1
1 PASSWORD
2 MAINTENANCE
3 SPARE
4 SPARE

CONTACTOR
TO EMERGENCY SOURCE
EC EB EA
TS–4
TS–19
TS–5
TS–1
TS–2
NC NB NA
TO NORMAL SOURCE
TS COIL
BR
LC LB LA
TO LOAD
T1
REC–1
REC–2
PL3
SL1 SL2 SL3
PL6 RED
PL5 GREEN
PL4
T2
TB1–18 TB1–19 TB1–20
TB1–12 TB1–11
TB2–1 TB2–2
BP IS TS

ACC. 36 OVERLAPPING NEUTRAL
BP/N LOAD LN BP/E
NN EN
IS/L
TS TS
IS/N IS/E

LEGEND
BP — BYPASS SWITCH
BR — BRIDGE RECTIFIER
IS — ISOLATION SWITCH
J — JUMPER
LED — LIGHT EMITTING DIODE
PL — PILOT LAMP
P#–# — PLUG & SOCKET # W/PIN DESIGNATOR
S#–# — SOCKET # W/PIN DESIGNATOR
SL — SOLENOID
TB# — TERMINAL BLOCK #
TS — TRANSFER SWITCH
● — INTERNAL COMPONENT CONNECTIONS
— CONNECTOR
— CAM OPERATED CONTACT

K(#) — RELAY
LCD — LIQUID CRYSTAL DISPLAY
MLB — MAIN LOGIC BOARD
P(#) — PLUG
PSB — POWER SUPPLY BOARD
TB1 — CUST. CONNECTION TERMINAL BLOCK
TB2 — AUXILIARY TERMINAL BLOCK
UIF — USER INTERFACE
SW(#) — DIP SWITCH

NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.

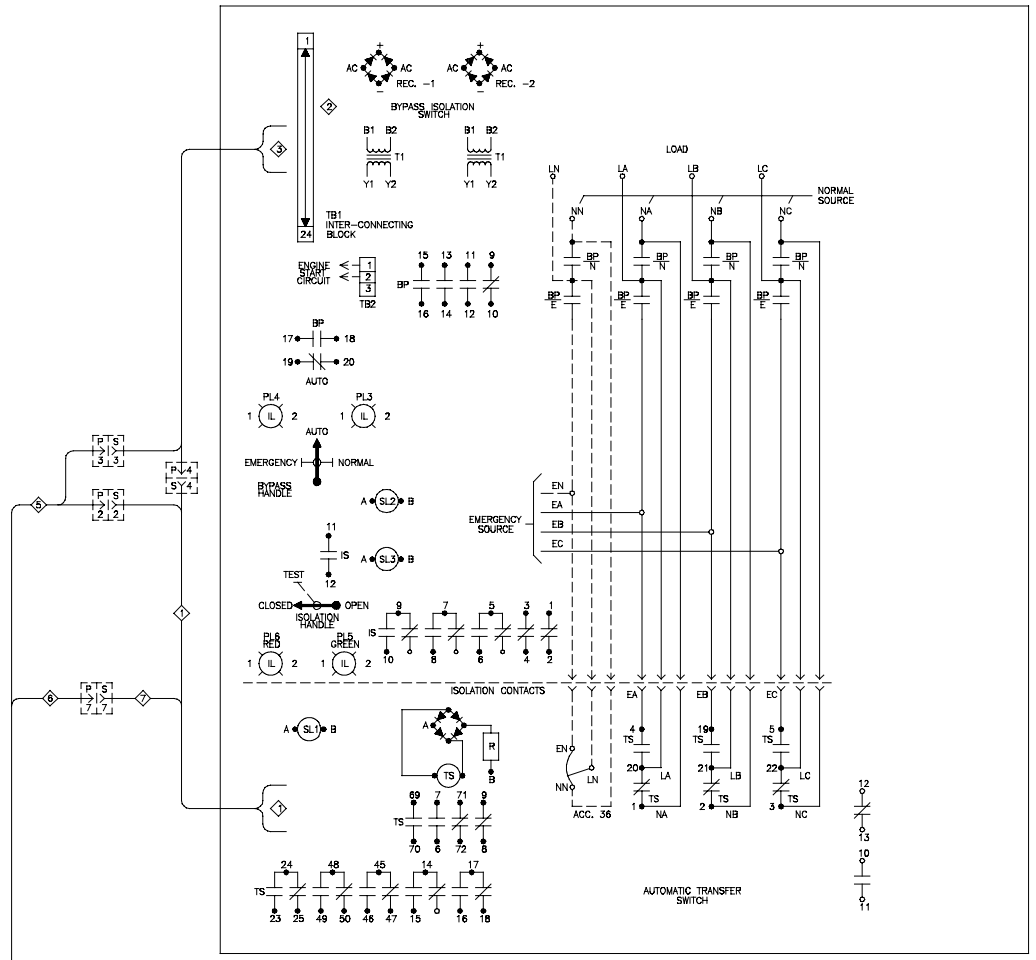
FOR WIRING DIAGRAM SEE DWR. GM77236

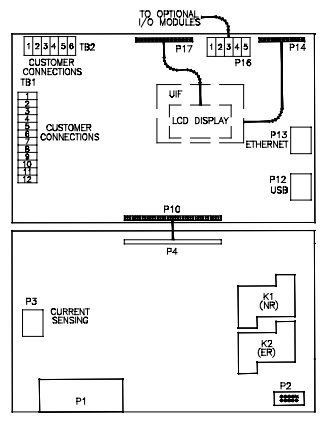
MODEL KB–1
600–800 AMP
3&4 POLE
LOGIC – MPAC 1500

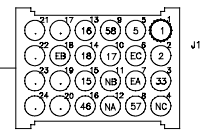
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .090 MAX. FRACTIONS ±

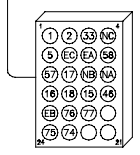
APPROVALS	DATE
DRAWN FCH	7–07–10
CHECKED DFS	7–07–10
APPROVED FCH	7–07–10

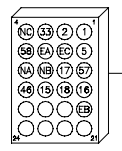
TITLE: DIAGRAM SCHEMATIC
SCALE / / / CAD NO. SHEET 1–1
PLOTTED DWG. NO. GM77235 D











REV	DATE	REVISION	BY	M F
–	7-07-10	NEW DRAWNIG [90080]	FCH	

WIRE NO.	A.T.S. ON PANEL WIRE CONNECTIONS TO S2 & S4 ◇1	WIRE NO.	BYPASS-ISOLATION SWITCH. STATIONARY WIRING ◇2	WIRE NO.	BYPASS-ISOLATION SWITCH. CONNECTION TB1, S3, & P4 ◇3	WIRE NO.	LOGIC BOARD HARNESS S1 ◇4	WIRE NO.	INTER-CONNECTING HARNESS P1, P2, & P3 ◇5	WIRE NO.	A.T.S. TO HARNESS S7 ◇7
		32	TB1-13, PL5-1, PL6-1								
		31	TB1-10, SL1-B								
		31	SL3-B, TB1-10, SL2-B								
		30	TB1-9, BP-17, IS-9								
		29	BP-10, BP-19								
34	TS-72, S2-8	28	TB1-17, BP-9, IS-11								
33	TS-70, S2-9	27	TB2-2, BP-12, IS-3								
28	TS-B, S4-3	26	TB2-1, BP-11, IS-1								
20	TS-50, S4-9	25	BP-13, BP-15, IS-10			NC	S1-4, TB3-NC				
19	TS-49, S4-8	24	TB1-7, PL4-1			NB	S1-11, TB3-NB				
18	TS-48, S4-7	23	TB1-8, PL4-2			NA	S1-12, TB3-NA				
17	TS-47, S4-6	22	TB1-6, PL3-2			EC	S1-6, TB3-EC				
16	TS-46, S4-5	21	TB1-5, PL3-1	32	TB1-13, S3-4	EB	S1-17, TB3-EB	34	P1-16, P2-8		
15	TS-45, S4-4	20	TB1-22, BP-16	28	TB1-17, P4-3	EA	S1-7, TB3-EA	33	P1-15, P2-9		
14	TS-1, TS-7	19	TB1-23, BP-14	20	TB1-22, P4-9	77	S1-19, TB6-77	32	P1-24, P3-4		
14	TS-1, S2-11	18	TB1-21, SL1-A	19	TB1-23, P4-8	76	S1-18, TB6-76	14	P1-12, P2-11		
13	TS-2, S2-10	17	SL2-A, TB1-19, IS-8	18	TB1-21, P4-7	75	S1-21, TB6-75	13	P1-11, P2-10		
12	TS-16, S2-13	16	SL3-A, TB1-20, IS-6	17	TB1-19, P4-6	74	S1-22, TB6-74	12	P1-13, P3-6		
11	TS-18, S2-12	15	TB1-18#, BP-18, IS-7	16	TB1-20, P4-5	58	S1-8, TB4-58	11	P1-14, P3-5		
10	TS-17, S2-7		TB1-18, IS-5	15	TB1-18, P4-4	57	S1-9, TB4-57	10	P1-10, P2-7		
6	TS-4, TS-9	14	TB1-1, NA	12	TB1-12, P4-11	46	S1-16, P8-4	9	P1-5, P3-3		
6	TS-4, S2-6	12	TBI-12, PL6-2	12	TB1-12, S3-6	33	S1-3, P8-6	8	P1-9, P3-2		
5	TS-5, TS-71	11	TB1-11, PL5-2	11	TB1-11, P4-10	18	S1-14, TB4-18	7	P1-8, P3-1		
5	TS-5, S2-5	9	TB1-16, BP-20, IS-12	11	TB1-11, S3-5	17	S1-10, TB4-17	6	P1-7, P2-6		
4	TS-3, TS-69	8	TBI-14, IS-4	9	TB1-16, S3-3	16	S1-13, TB4-16	5	P1-6, P2-5	EB	TS-19, S7-4
4	TS-3, S2-4	7	TB1-15, IS-2	8	TB1-14, S3-2	15	S1-15, P8-3	4	P1-4, P2-4	77	TS-21, S7-6
3	TS-6, S2-3	6	TB1-3, EA	8	TB1-14, P4-2	5	S1-5, P8-2	3	P1-3, P2-3	76	TS-20, S7-5
2	TS-A, S2-2	5	TB1-4, EB	7	TB1-15, S3-1	2	S1-2, P8-5	2	P1-2, P2-2	75	TS-15, S7-2
1	TS-8, S2-1	4	TB1-2, NB	7	TB1-15, P4-1	1	S1-1, P8-1	1	P1-1, P2-1	74	TS-14, S7-1

WIRE NO.	HARNESS P7 TO P1 ◇6
EB	P7-4, P1-17
77	P7-6, P1-19
76	P7-5, P1-18
75	P7-2, P1-21
74	P7-1, P1-22

AUX. CONT.	CLOSED	TEST	OPEN
11-12	O	X	O
9-10	O	X	O
7-8	O	X	X
5-6	O	X	X
3-4	X	X	O
1-2	X	X	O
	ISOLATION HANDLE POSITION		

AUX. CONT.	EMERG.	80°-10°	AUTO	10°-80°	NORM.
19-20	O	O	X	O	O
17-18	O	X	O	X	O
15-16	O	O	O	X	X
13-14	X	X	O	O	O
11-12	X	X	O	O	O
9-10	O	O	X	O	O
	BYPASS HANDLE POSITION				

O=OPEN CONTACT X=CLOSED CONTACT

LEGEND

IS – ISOLATION SWITCH
P – PLUG
PL – PILOT LAMP
R – RESISTOR
REC – RECTIFIER
S – SOCKET
SL – SOLENOID
TB – TERMINAL BLOCK
T1 – TRANSFORMER
TS – TRANSFER SWITCH
LCD – LIQUID CRYSTAL DISPLAY
TB1 – CUST. CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
UIF – USER INTERFACE

NOTE:
1. SWITCH SHOWN DE-ENERGIZED CONNECTED TO NORMAL SOURCE.
2. THIS SIGN INDICATES A BRANCH CIRCUIT #
3. ○ INDICATES CUSTOMER CONNECTION POINTS.
4. ● INDICATES FACTORY CONNECTION POINTS.
5. CONNECTION POINTS THAT HAVE BOTH CUSTOMER CONNECTIONS AND FACTORY CONNECTIONS ARE SHOWN OPEN AS CUSTOMER CONNECTION POINTS.
6. OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE SWITCH.
7. MATING PLUG AND JACK TERMINAL NUMBERS MATCH WHEN PLUGGED TOGETHER.
8. SL1 – (SOLENOID LOCK) TO PREVENT CONNECTING ATS UNLESS SOURCE TO LOAD IS SAME AS SOURCE BYPASSED.
9. SL2, SL3 – ALLOW BYPASS ONLY TO THE SOURCE TO WHICH THE TRANSFER SWITCH LOAD IS CONNECTED.

FOR SCHEMATIC DIAGRAM SEE DWR. GM77235

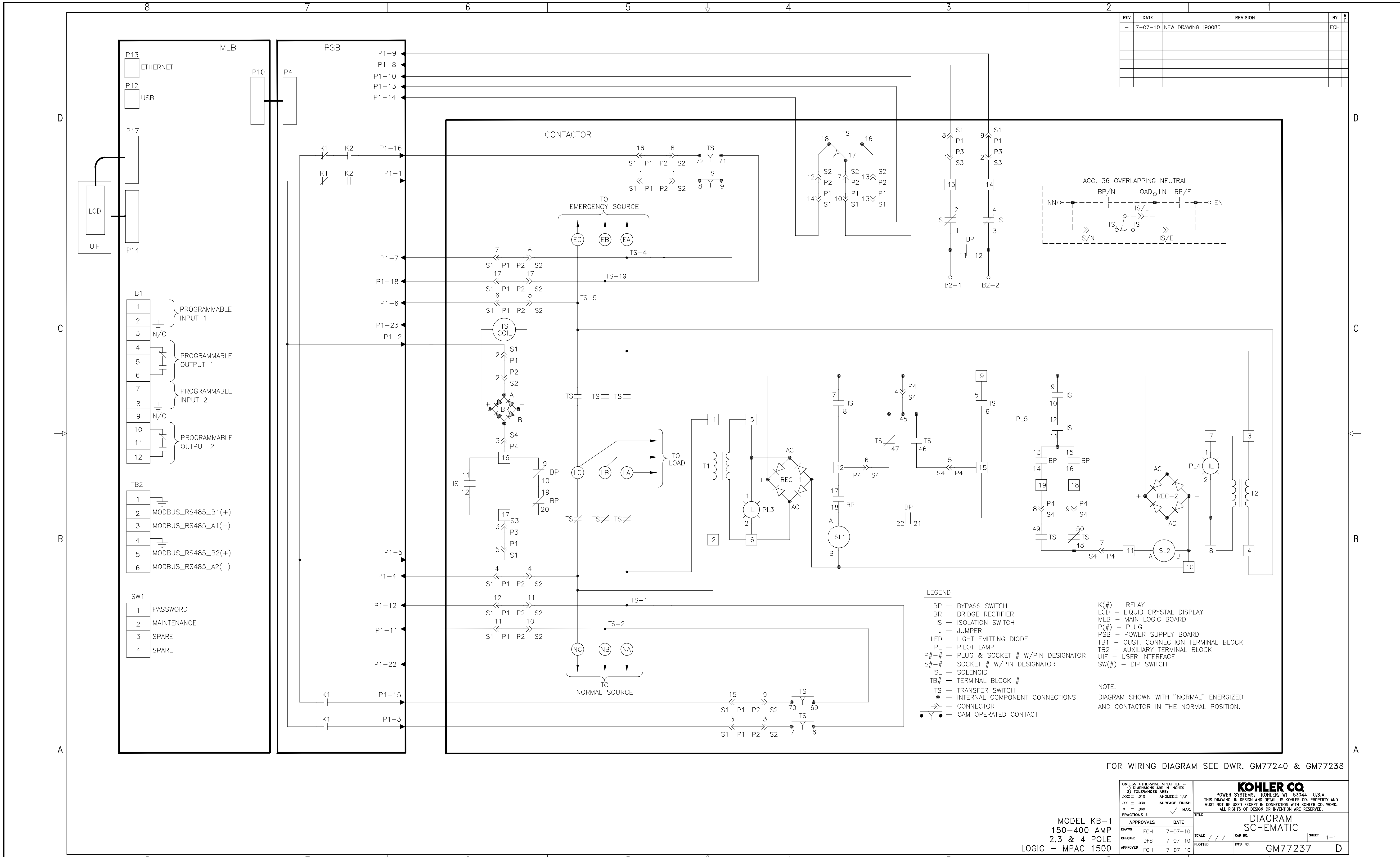
MODEL KB-1
600-800 AMP
3&4 POLE
LOGIC – MPAC 1500

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 √ MAX.
FRACTIONS ±

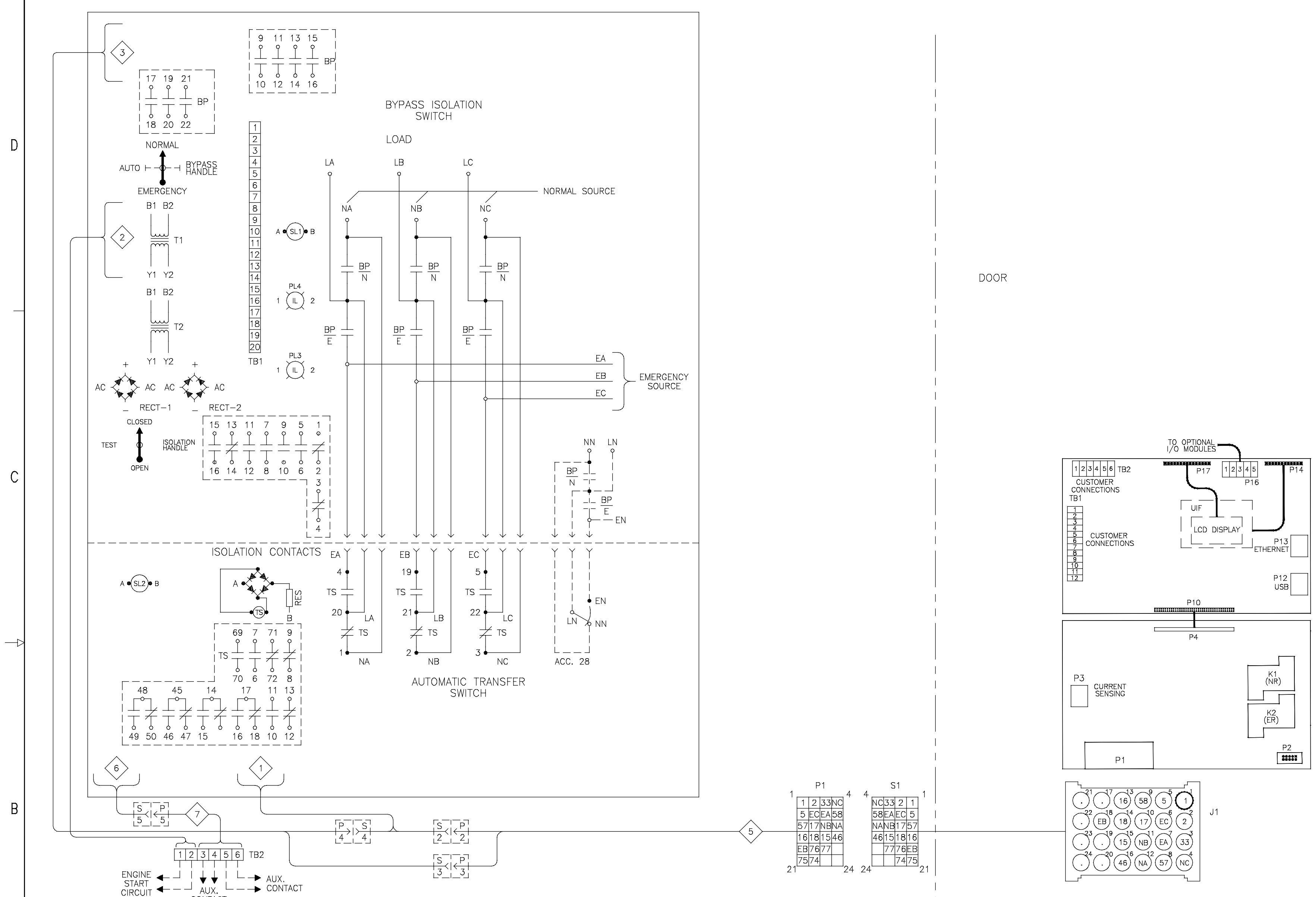
APPROVALS		DATE
DRAWN	FCH	7-07-10
CHECKED	DFS	7-07-10
APPROVED	FCH	7-07-10

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

TITLE DIAGRAM, WIRING
SCALE / / /
CAD NO.
SHEET 1-1
PLOTTED
DWG. NO. GM77236 D


MLB
PSB
CONTACTOR
P13 ETHERNET
P12 USB
P17
P14
LCD
UIF
P10
P4
TB1
PROGRAMMABLE INPUT 1
PROGRAMMABLE OUTPUT 1
PROGRAMMABLE INPUT 2
PROGRAMMABLE OUTPUT 2
N/C
TB2
MODBUS_RS485_B1(+)
MODBUS_RS485_A1(−)
MODBUS_RS485_B2(+)
MODBUS_RS485_A2(−)
SW1
PASSWORD
MAINTENANCE
SPARE
SPARE
TO EMERGENCY SOURCE
TO LOAD
TO NORMAL SOURCE
TS COIL
REC−1
REC−2
ACC. 36 OVERLAPPING NEUTRAL
TB2−1
TB2−2
LEGEND
BP — BYPASS SWITCH
BR — BRIDGE RECTIFIER
IS — ISOLATION SWITCH
J — JUMPER
LED — LIGHT EMITTING DIODE
PL — PILOT LAMP
P#−# — PLUG & SOCKET # W/PIN DESIGNATOR
S#−# — SOCKET # W/PIN DESIGNATOR
SL — SOLENOID
TB# — TERMINAL BLOCK #
TS — TRANSFER SWITCH
● — INTERNAL COMPONENT CONNECTIONS
— CONNECTOR
— CAM OPERATED CONTACT
K(#) — RELAY
LCD — LIQUID CRYSTAL DISPLAY
MLB — MAIN LOGIC BOARD
P(#) — PLUG
PSB — POWER SUPPLY BOARD
TB1 — CUST. CONNECTION TERMINAL BLOCK
TB2 — AUXILIARY TERMINAL BLOCK
UIF — USER INTERFACE
SW(#) — DIP SWITCH
NOTE:
DIAGRAM SHOWN WITH "NORMAL" ENERGIZED AND CONTACTOR IN THE NORMAL POSITION.
REV DATE REVISION BY
− 7−07−10 NEW DRAWING [900B0] FCH
FOR WIRING DIAGRAM SEE DWR. GM77240 & GM77238
MODEL KB−1
150−400 AMP
2,3 & 4 POLE
LOGIC − MPAC 1500
KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
THIS DRAWING, IN DESIGN AND DETAIL, IS KOHLER CO. PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH KOHLER CO. WORK. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.
DIAGRAM SCHEMATIC
DRAWN FCH 7−07−10
CHECKED DFS 7−07−10
APPROVED FCH 7−07−10
SHEET 1−1
GM77237 D

REV	DATE	REVISION	BY
–	7-07-10	NEW DRAWING [90080]	FCH



WIRE NO.	A.T.S. ON PANEL WIRE CONNECTIONS TO S2, S4 & S5 ◇1
1	TS-8 , S2-1
2	TS-A , S2-2
3	TS-6 , S2-3
4	TS-3 , S2-4
4	TS-3 , TS-69
5	TS-5 , S2-5
5	TS-5 , TS-71
6	TS-4 , S2-6
6	TS-4 , TS-9
7	TS-14 , S2-21
8	TS-15 , S2-22
10	TS-17 , S2-7
11	TS-18 , S2-12
12	TS-16 , S2-13
13	TS-2 , S2-10
14	TS-1 , S2-11
14	TS-1 , TS-7
16	TS-46 , S4-5
17	TS-47 , S4-6
18	TS-48 , S4-7
19	TS-49 , S4-8
20	TS-50 , S4-9
28	TS-8 , S4-3
30	TS-45 , S4-4
33	TS-70 , S2-9
34	TS-72 , S2-8
EB	TS-19 , S2-17
LA	LA , S2-18
LC	LC , S2-19

WIRE NO.	LOGIC BOARD HARNESS ◇4
1	S1-1 , P8-1
2	S1-2 , P8-5
5	S1-5 , P8-2
15	S1-15 , P8-3
16	S1-13 , TB4-16
17	S1-10 , TB4-17
18	S1-14 , TB4-18
33	S1-3 , P8-6
46	S1-16 , P8-4
57	S1-9 , TB4-57
58	S1-8 , TB4-58
74	S1-22 , TB6-74
75	S1-21 , TB6-75
76	S1-18 , TB6-76
77	S1-19 , TB6-77
EA	S1-7 , TB5-EA
EB	S1-17 , TB5-EB
EC	S1-6 , TB5-EC
NA	S1-12 , TB5-NA
NB	S1-11 , TB5-NB
NC	S1-4 , TB5-NC

WIRE NO.	A.T.S. AUX. ◇6
37	TS-10 , S5-1
38	TS-11 , S5-2
39	TS-12 , S5-3
40	TS-13 , S5-4

WIRE NO.	INTER-CONNECTING HARNESS P1, P2 & P3 ◇5
1	P1-1 , P2-1
2	P1-2 , P2-2
3	P1-3 , P2-3
4	P1-4 , P2-4
5	P1-6 , P2-5
6	P1-7 , P2-6
7	P1-8 , P3-1
8	P1-9 , P3-2
9	P1-5 , P3-5
10	P1-10 , P2-7
11	P1-14 , P2-12
12	P1-13 , P2-13
13	P1-11 , P2-10
14	P1-12 , P2-11
33	P1-15 , P2-9
34	P1-16 , P2-8
74	P1-22 , P2-22
75	P1-21 , P2-21
76	P1-18 , P2-18
77	P1-19 , P2-19
EB	S1-17 , P2-17

WIRE NO.	A.T.S. AUX. ◇7
37	TB2-3 , P5-1
38	TB2-4 , P5-2
39	TB2-5 , P5-3
40	TB2-6 , P5-4

WIRE NO.	BYPASS-ISOLATION SW. STATIONARY WIRING ◇2
4	TB1-2 , NC
5	TB1-4 , EC
6	TB1-3 , EA
7	TB1-14 , IS-2
8	TB1-13 , IS-4
9	TB1-17 , BP-20 , IS-15
14	TB1-1 , NA
15	BP-18 , BP-22 , SL1-A
16	TB1-15 , IS-6 , BP-21
17	TB1-12 , BP-17 , IS-8
18	TB1-11 , SL2-A
19	TB1-19 , BP-14
20	TB1-18 , BP-16
21	TB1-5 , PL3-1
22	TB1-6 , PL3-2
23	TB1-8 , PL4-2
24	TB1-7 , PL4-1
25	BP-13 , BP-15 , IS-11
26	TB2-1 , BP-11 , IS-1
27	TB2-2 , BP-12 , IS-3
28	TB1-16 , BP-9 , IS-13
29	BP-10 , BP-19
30	TB1-9 , IS-5 , IS-7 , IS-9
31	TB1-10 , SL1-B , SL2-B
35	IS-12 , IS-10
36	IS-14 , IS-16

WIRE NO.	BYPASS-ISOLATION SW. CONNECTION TB1, S3 & P4 ◇3
7	TB1-14 , P4-1
7	TB1-14 , S3-1
8	TB1-13 , S4-2
8	TB1-13 , S3-2
9	TB1-17 , S3-3
16	TB1-15 , P4-5
17	TB1-12 , P4-6
18	TB1-11 , P4-7
19	TB1-19 , P4-8
20	TB1-18 , P4-9
28	TB1-16 , P4-3
30	TB1-9 , P4-4

O=OPEN CONTACT X=CLOSED CONTACT

AUX. CONT.	BYPASS HANDLE POSITION: EMERG.	80°-10°	AUTO.	10°-80°	NORM.
9-10	O	O	X	O	O
11-12	X	X	O	O	O
13-14	X	X	O	O	O
15-16	O	O	O	X	X
17-18	O	O	O	X	O
19-20	O	O	X	O	O
21-22	O	X	O	O	O

AUX. CONT.	ISOLATION HANDLE POSITION: CLOSED	TEST	OPEN
1-2	X	X	O
3-4	X	X	O
5-6	O	X	X
7-8	O	X	X
9-10	X	X	O
11-12	O	X	X
13-14	X	X	O
15-16	O	X	X

LEGEND

- ACC – ACCESSORY
- BP – BYPASS SWITCH
- GR – GREEN
- IL – INDICATING LIGHT
- J – JUMPER
- PL – PILOT LIGHT
- P# – PLUG NUMBER
- R – RED
- RECT – RECTIFIER
- RES – RESISTOR
- S# – SOCKET NUMBER
- SL – SOLENOID
- T – TRANSFORMER
- TB – TERMINAL BOARD
- TS – TRANSFER SWITCH
- LCD – LIQUID CRYSTAL DISPLAY
- TB1 – CUST. CONNECTION TERMINAL BLOCK
- TB2 – AUXILIARY TERMINAL BLOCK
- UIF – USER INTERFACE

NOTE:

1. SWITCH SHOWN DE-ENERGIZED CONNECTED TO NORMAL SOURCE.
2. THIS SIGN INDICATES A BRANCH CIRCUIT #
3. CONNECTION POINTS THAT HAVE BOTH CUSTOMER CONNECTIONS AND FACTORY CONNECTIONS ARE SHOWN OPEN AS CUSTOMER CONNECTION POINTS.
4. OPERATOR'S MANUAL IS FURNISHED WITH EACH AUTOMATIC TRANSFER SWITCH. REFER TO THIS PUBLICATION PRIOR TO INSTALLATION AND OPERATION OF THE SWITCH.
5. MATING PLUG AND SOCKET TERMINAL NUMBERS MATCH WHEN PLUGGED TOGETHER.
6. SL1 – (SOLENOID LOCK) TO PREVENT CONNECTING ATS UNLESS SOURCE TO LOAD IS SAME AS SOURCE BYPASSED.
7. SL2, SL3 – ALLOW BYPASS ONLY TO THE SOURCE TO WHICH THE TRANSFER SWITCH LOAD IS CONNECTED.

MODEL KB-1
150-400 AMP
3&4 POLE
LOGIC – MPAC 1500

FOR SCHEMATIC DIAGRAM SEE DWR. GM77237

UNLESS OTHERWISE SPECIFIED –
1) DIMENSIONS ARE IN INCHES
2) TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH
.X ± .060 MAX.
FRACTIONS ±

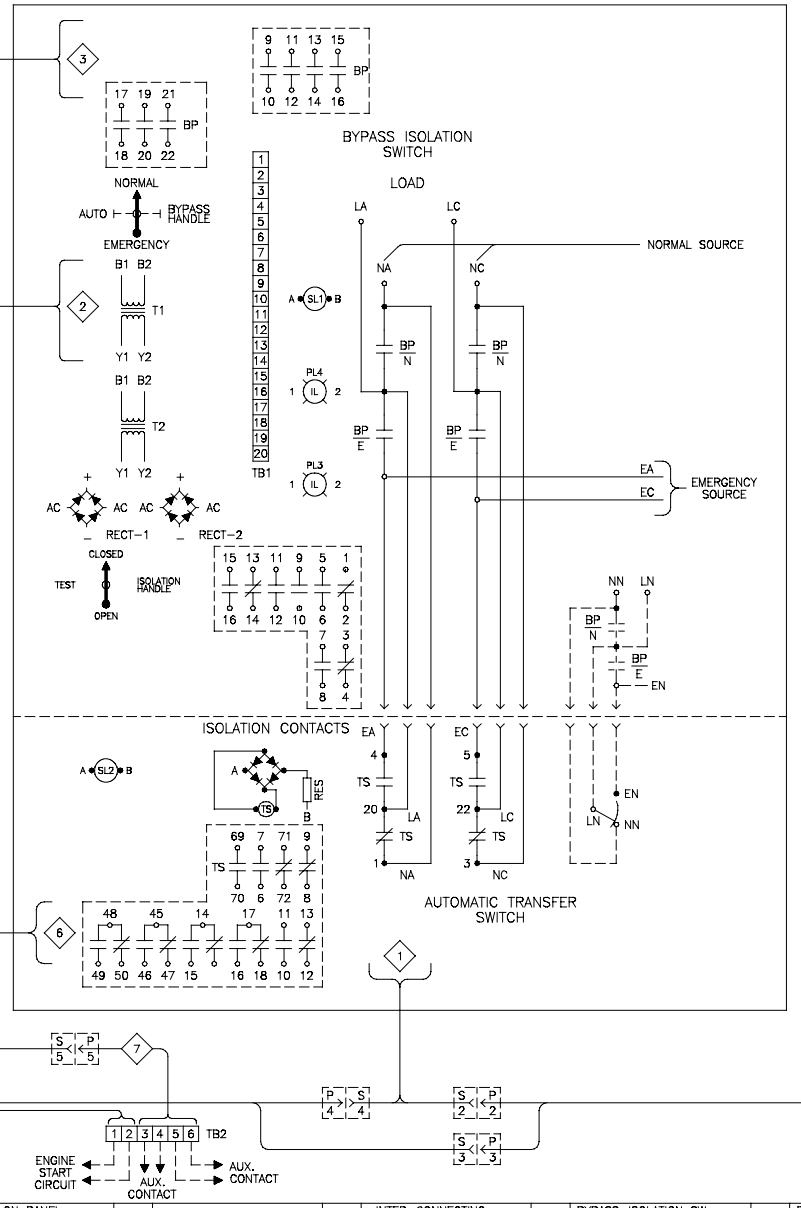
APPROVALS		DATE
DRAWN	FCH	7-07-10
CHECKED	DFS	7-07-10
APPROVED	FCH	7-07-10

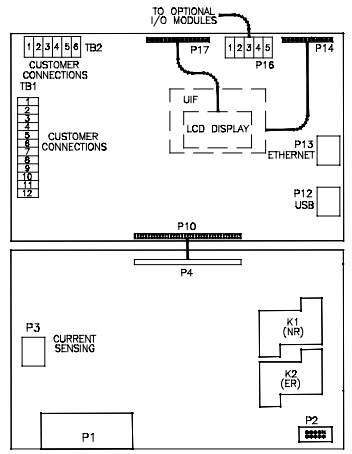
KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

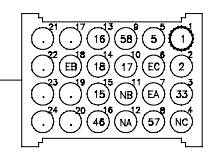
TITLE: DIAGRAM, WIRING

SCALE / / / CAD NO. SHEET 1-1
PLOTTED DWG. NO. GM77238 D

REV	DATE	REVISION	BY	M F
–	7–07–10	NEW DRAWING [90080]	FCH	







WIRE NO.	A.T.S. ON PANEL WIRE CONNECTIONS TO S2, S4 & S5 ⟨1⟩	WIRE NO.	LOGIC BOARD HARNESS ⟨4⟩	WIRE NO.	INTER–CONNECTING HARNESS P1, P2 & P3 ⟨5⟩	WIRE NO.	BYPASS–ISOLATION SW. STATIONARY WIRING ⟨2⟩	WIRE NO.	BYPASS–ISOLATION SW. CONNECTION TB1, S3 & P4 ⟨3⟩
1	TS–8 , S2–1	1	S1–1 , P8–1	1	P1–1 , P2–1	4	TB1–2 , NC	7	TB1–14 , P4–1
2	TS–A , S2–2	2	S1–2 , P8–5	2	P1–2 , P2–2	5	TB1–4 , EC	7	TB1–14 , S3–1
3	TS–6 , S2–3	5	S1–5 , P8–2	3	P1–3 , P2–3	6	TB1–3 , EA	8	TB1–13 , S4–2
4	TS–3 , S2–4	15	S1–15 , P8–3	4	P1–4 , P2–4	7	TB1–14 , IS–2	8	TB1–13 , S3–2
4	TS–3 , TS–69	16	S1–13 , TB4–16	5	P1–6 , P2–5	8	TB1–13 , IS–4	9	TB1–17 , S3–3
5	TS–5 , S2–5	17	S1–10 , TB4–17	6	P1–7 , P2–6	9	TB1–17 , BP–20 , IS–15	16	TB1–15 , P4–5
5	TS–5 , TS–71	18	S1–14 , TB4–18	7	P1–8 , P3–1	14	TB1–1 , NA	17	TB1–12 , P4–6
6	TS–4 , S2–6	33	S1–3 , P8–6	8	P1–9 , P3–2	15	BP–18 , BP–22 , SL1–A	18	TB1–11 , P4–7
6	TS–4 , TS–9	46	S1–16 , P8–4	9	P1–5 , P3–5	16	TB1–15 , IS–6 , BP–21	19	TB1–19 , P4–8
7	TS–14 , S2–21	57	S1–9 , TB4–57	10	P1–10 , P2–7	17	TB1–12 , BP–17 , IS–8	20	TB1–18 , P4–9
8	TS–15 , S2–22	58	S1–8 , TB4–58	11	P1–14 , P2–12	18	TB1–11 , SL2–A	28	TB1–16 , P4–3
10	TS–17 , S2–7	74	S1–22 , TB6–74	12	P1–13 , P2–13	19	TB1–19 , BP–14	30	TB1–9 , P4–4
11	TS–18 , S2–12	75	S1–21 , TB6–75	13	P1–11 , P2–10	20	TB1–18 , BP–16	O=OPEN CONTACT X=CLOSED CONTACT	
12	TS–16 , S2–13	76	S1–18 , TB6–76	14	P1–12 , P2–11	21	TB1–5 , PL3–1	AUX. CONT.	BYPASS HANDLE POSITION: EMERG.	60°–10°	AUTO.	10°–80°	NORM.
13	TS–2 , S2–10	77	S1–19 , TB6–77	33	P1–15 , P2–9	22	TB1–6 , PL3–2	9–10	0	0	X	0	0
14	TS–1 , S2–11	EA	S1–7 , TB5–EA	34	P1–16 , P2–8	23	TB1–8 , PL4–2	11–12	X	X	0	0	0
14	TS–1 , TS–7	EB	S1–17 , TB5–EB	74	P1–22 , P2–22	24	TB1–7 , PL4–1	13–14	X	X	0	0	0
16	TS–46 , S4–5	EC	S1–6 , TB5–EC	75	P1–21 , P2–21	25	BP–13 , BP–15 , IS–11	15–16	0	0	0	X	X
17	TS–47 , S4–6	NA	S1–12 , TB5–NA	76	P1–18 , P2–18	26	TB2–1 , BP–11 , IS–1	17–18	0	0	0	X	0
18	TS–48 , S4–7	NB	S1–11 , TB5–NB	77	P1–19 , P2–19	27	TB2–2 , BP–12 , IS–3	19–20	0	0	X	0	0
19	TS–49 , S4–8	NC	S1–4 , TB5–NC	EB	S1–17 , P2–17	28	TB1–16 , BP–9 , IS–13	21–22	0	X	0	0	0
20	TS–50 , S4–9					29	BP–10 , BP–19	AUX. CONT.	ISOLATION HANDLE POSITION: CLOSED	TEST	OPEN
28	TS–8 , S4–3					30	TB1–9 , IS–5 , IS–7 , IS–9	1–2	X	X	0
30	TS–45 , S4–4	WIRE NO.	A.T.S. AUX. ⟨6⟩	WIRE NO.	A.T.S. AUX. ⟨7⟩	31	TB1–10 , SL1–B , SL2–B	3–4	X	X	0
33	TS–70 , S2–9	37	TS–10 , S5–1	37	TB2–3 , P5–1	35	IS–12 , IS–10	5–6	0	X	X
34	TS–72 , S2–8	38	TS–11 , S5–2	38	TB2–4 , P5–2	36	IS–14 , IS–16	7–8	0	X	X
EB	TS–19 , S2–17	39	TS–12 , S5–3	39	TB2–5 , P5–3			9–10	X	X	0
LA	LA , S2–18	40	TS–13 , S5–4	40	TB2–6 , P5–4			11–12	0	X	X
LC	LC , S2–19							13–14	X	X	0
								15–16	0	X	X

LEGEND

ACC – ACCESSORY
BP – BYPASS SWITCH
GR – GREEN
IL – INDICATING LIGHT
J – JUMPER
PL – PILOT LIGHT
P# – PLUG NUMBER
R – RED
RECT – RECTIFIER
RES – RESISTOR
S# – SOCKET NUMBER
SL – SOLENOID
T – TRANSFORMER
TB – TERMINAL BOARD
TS – TRANSFER SWITCH
LCD – LIQUID CRYSTAL DISPLAY
TB1 – CUST. CONNECTION TERMINAL BLOCK
TB2 – AUXILIARY TERMINAL BLOCK
UIF – USER INTERFACE

NOTE:
1. SWITCH SHOWN DE–ENERGIZED CONNECTED TO NORMAL SOURCE.
2. THIS SIGN INDICATES A BRANCH CIRCUIT.
3. CONNECTION POINTS THAT HAVE BOTH CUSTOMER CONNECTIONS AND FACTORY CONNECTIONS ARE SHOWN OPEN AS CUSTOMER CONNECTION POINTS.
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5. MATING PLUG AND SOCKET TERMINAL NUMBERS MATCH WHEN PLUGGED TOGETHER.
6. SL1 – SOLENOID LOCK TO PREVENT CONNECTING ATS UNLESS SOURCE TO LOAD IS SAME AS SOURCE BYPASSED.
7. SL2, SL3 – ALLOW BYPASS ONLY TO THE SOURCE TO WHICH THE TRANSFER SWITCH LOAD IS CONNECTED.

FOR SCHEMATIC DIAGRAM SEE DWR. GM77237

MODEL KB–1
150–400 AMP
2 POLE
LOGIC – MPAC 1500

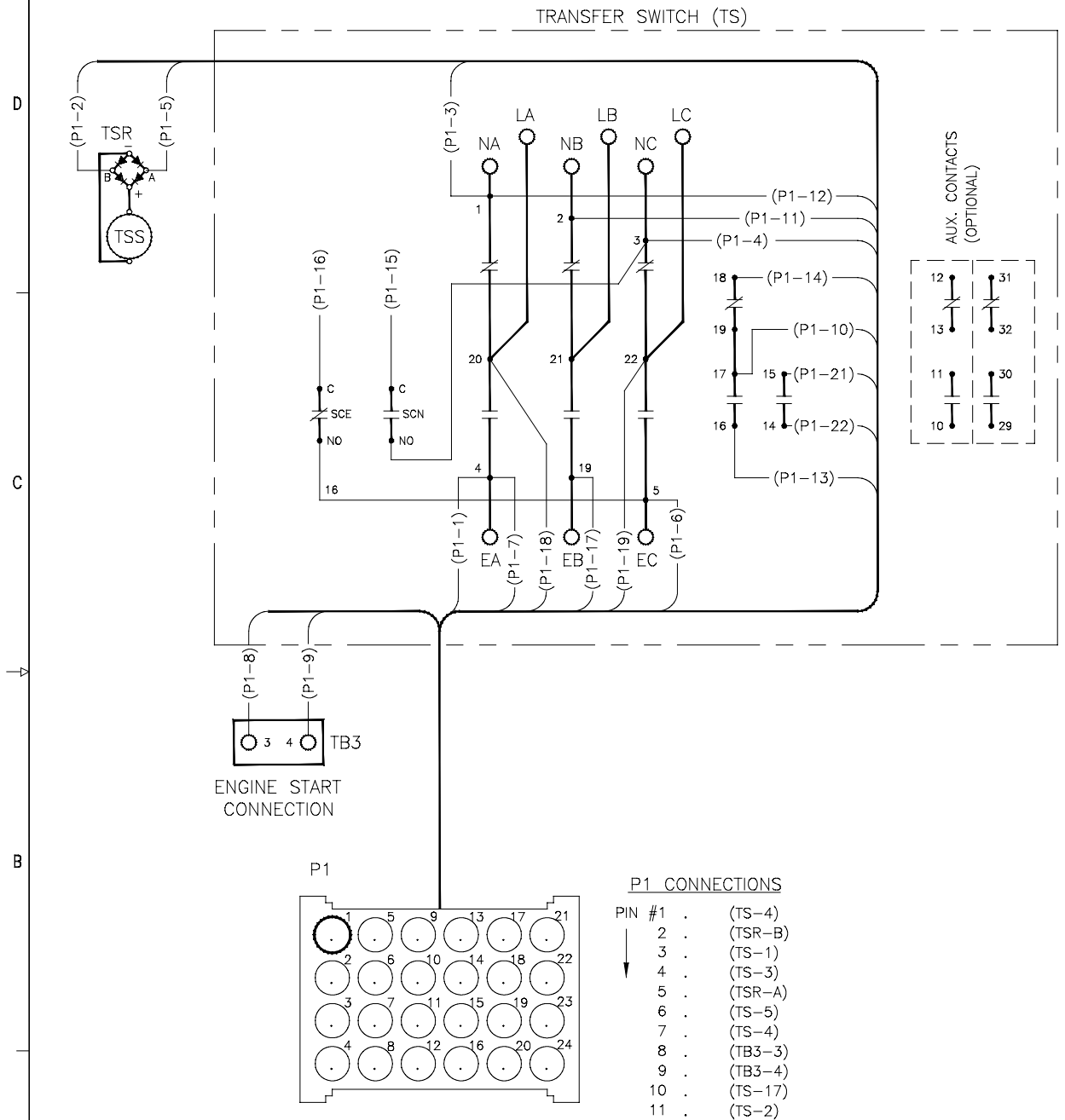
UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS		DATE
DRAWN	FCH	7–07–10
CHECKED	DFS	7–07–10
APPROVED	FCH	7–07–10

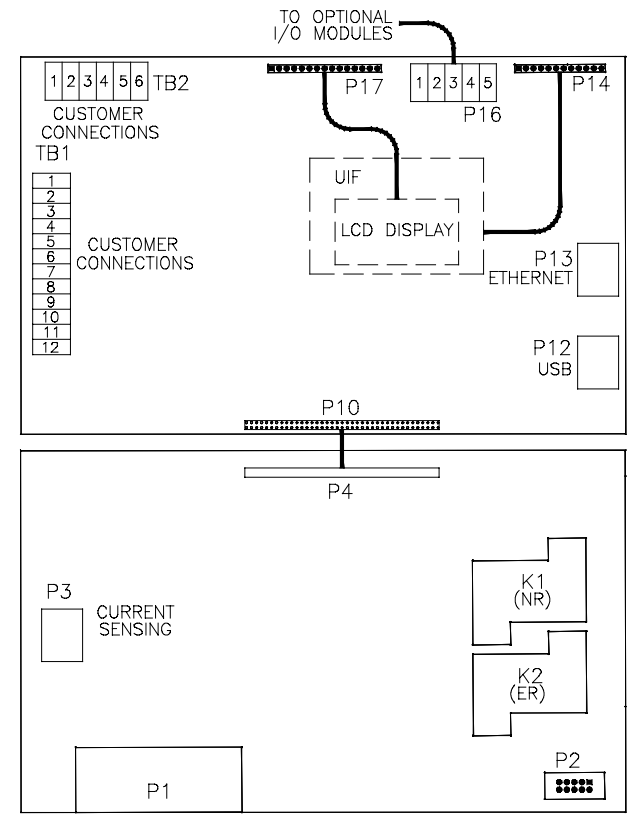
KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.

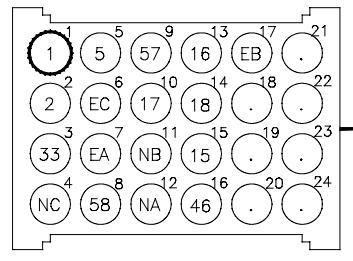
TITLE: DIAGRAM, WIRING
SCALE: / / / CAD NO. SHEET 1–1
PLOTTED DWG. NO. GM77240 D

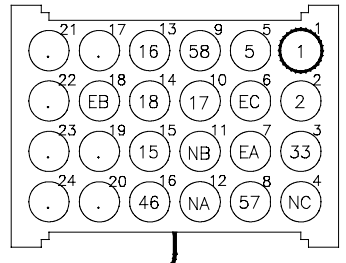
REV	DATE	REVISION	BY	M F
–	9–30–10	NEW DRAWING [90202]	FCH	



P1 CONNECTIONS		
PIN #1	.	(TS–4)
2	.	(TSR–B)
3	.	(TS–1)
4	.	(TS–3)
5	.	(TSR–A)
6	.	(TS–5)
7	.	(TS–4)
8	.	(TB3–3)
9	.	(TB3–4)
10	.	(TS–17)
11	.	(TS–2)
12	.	(TS–1)
13	.	(TS–16)
14	.	(TS–18)
15	.	(SCE–C)
16	.	(SCN–C)
17	.	(TS–19)
18	.	(TS–20)
19	.	(TS–22)
20	N/C	.
21	.	(TS–15)
22	.	(TS–14)
23	N/C	.
24	N/C	.







GM71472

LEGEND

A3,A4 – AUXILIARY CONTACT
UIF – USER INTERFACE
J(#) – CONNECTOR (JACK)
MLB – MAIN LOGIC BOARD
P(#) – CONNECTOR (PLUG)
SCE – CONTACT, COIL CLEARING – EMERGENCY
SCN – CONTACT, COIL CLEARING – NORMAL
SE – SWITCH, LIMIT – EMERGENCY POSITION
SN – SWITCH, LIMIT – NORMAL POSITION
TB(#) – TERMINAL BLOCK
TS – TRANSFER SWITCH (CONTACTOR)
TSR – TRANSFER SWITCH (RECTIFIER)
TSS – TRANSFER SWITCH (SOLENOID)

MODEL GTS
40–200 AMP
LOGIC – MPAC1500
250V CLASS
FOR SCHEMATIC DIAGRAM SEE GM77113

UNLESS OTHERWISE SPECIFIED – 1) DIMENSIONS ARE IN INCHES 2) TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH .X ± .060 MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN FCH	9–30–10
CHECKED DFS	9–30–10
APPROVED FCH	9–30–10

TITLE: WIRING DIAGRAM, INTERCONNECTION

SCALE NONE | CAD NO. | SHEET 1–1

PLOTTED | DWG. NO. GM78557 | D