INSTALLATION INSTRUCTIONS

Original Issue Date: **3/16**
Model: **GLS-1, GTS-1, K-1, and KB-1 Automatic Transfer Switches**
Market: **ATS**
Subject: **S340 to Decision-Maker® MPAC 1500 Controller Conversion Kit GM99332-S1**

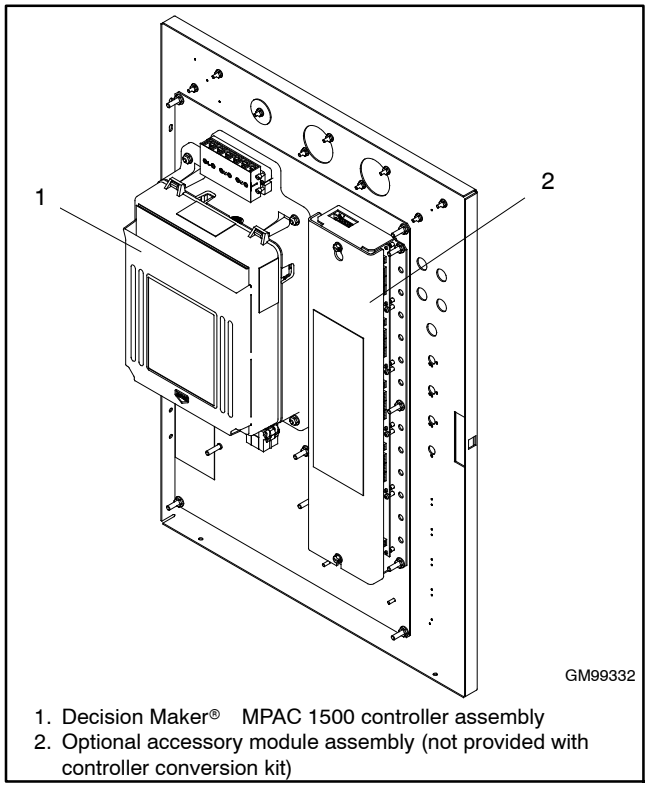
Introduction

Use conversion kit GM99332-S1 to replace the S340 controller with a Decision-Maker® 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. Decision Maker® MPAC 1500 controller assembly
2. Optional accessory module assembly (not provided with controller conversion kit)

Figure 1 Decision-Maker® MPAC 1500 Controller Conversion Kit, Installed

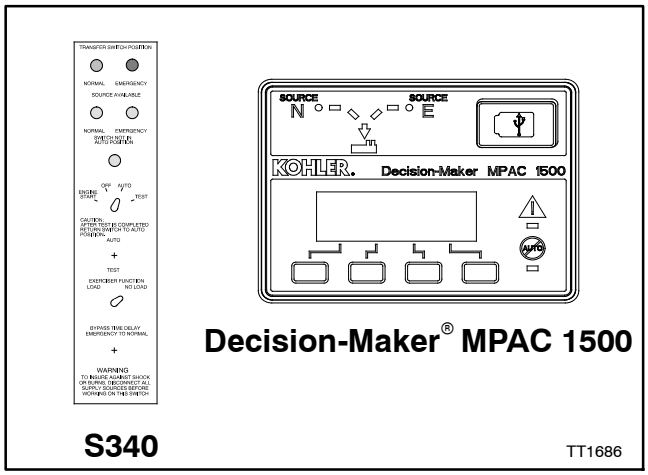


Figure 2 Controller Identification

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.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KOHLERPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

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 Decision-Maker® 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.

Kit Description		Current Sensing Kit Number
Amps	Phases	
200	3	GM89028-S3
200	1	GM89028-S21
400	3	GM89028-S6
400	1	GM89028-S24
1000	3	GM89028-S8
1000	1	GM89028-S26
1200	3	GM89028-S11
1200	1	GM89028-S28
2000	3	GM89028-S15
3000	3	GM89028-S17

Figure 3 Current Sensing Kits

Controller Accessories

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

S340	Decision-Maker® 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.

Accessory Module s	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 Accessory Modules for Decision-Maker® MPAC 1500

Other Accessories

Other Decision-Maker® 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
† Includes alarm module GM40808-S.	

Figure 6 Other Accessories

Availability is subject to change without notice. Kohler Co. reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler® generator set distributor for availability.

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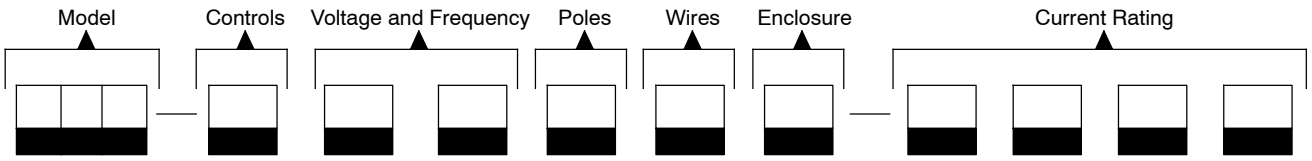
Model Designation

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

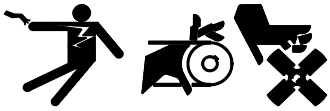
Note: Some codes do not apply to all models.

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.

⚠ 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) Press the generator set off/reset button to shut down the generator set. (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.

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

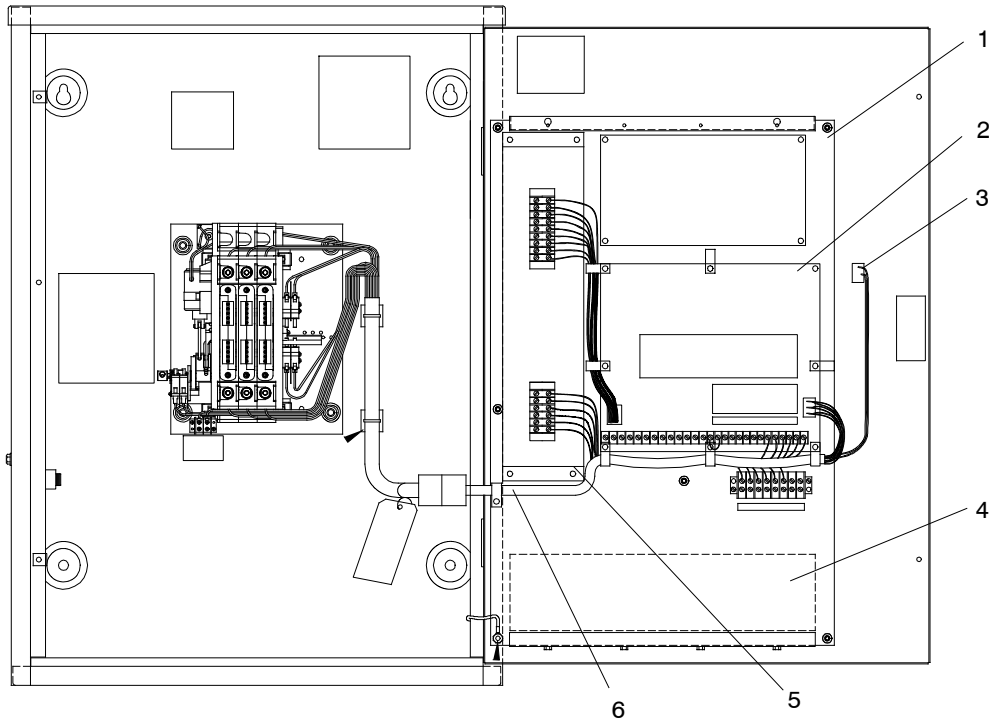
Note: The photos and diagrams shown in this procedure represent a typical transfer switch. They may not be an exact match for your ATS model.

1. Place the generator set master switch in the OFF position or press the OFF/RESET button on the generator set controller.
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.

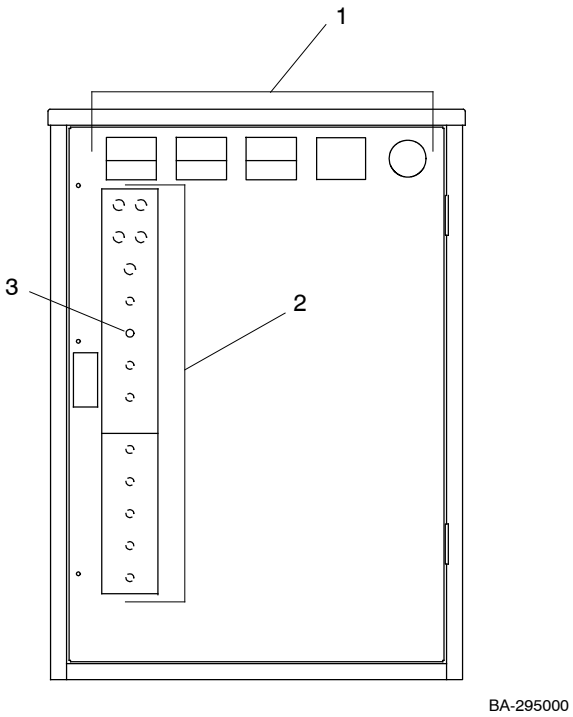
   Note: For current monitoring and display, a current sensing kit is required. See Figure 3.
9. Disconnect any other accessories mounted on the inner panel. See Figure 8 and Figure 9.

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 Decision-Maker® MPAC 1500 Operation/Installation manual, TP-6883.



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

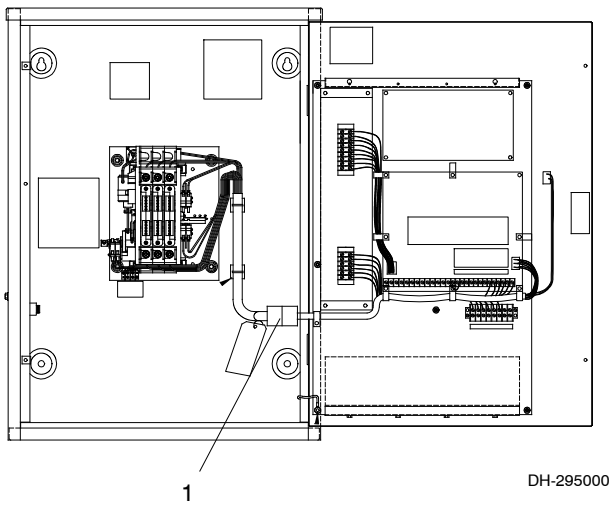
Figure 8 Model GLS-1 ATS with S340 Controls



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 Decision-Maker® 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.

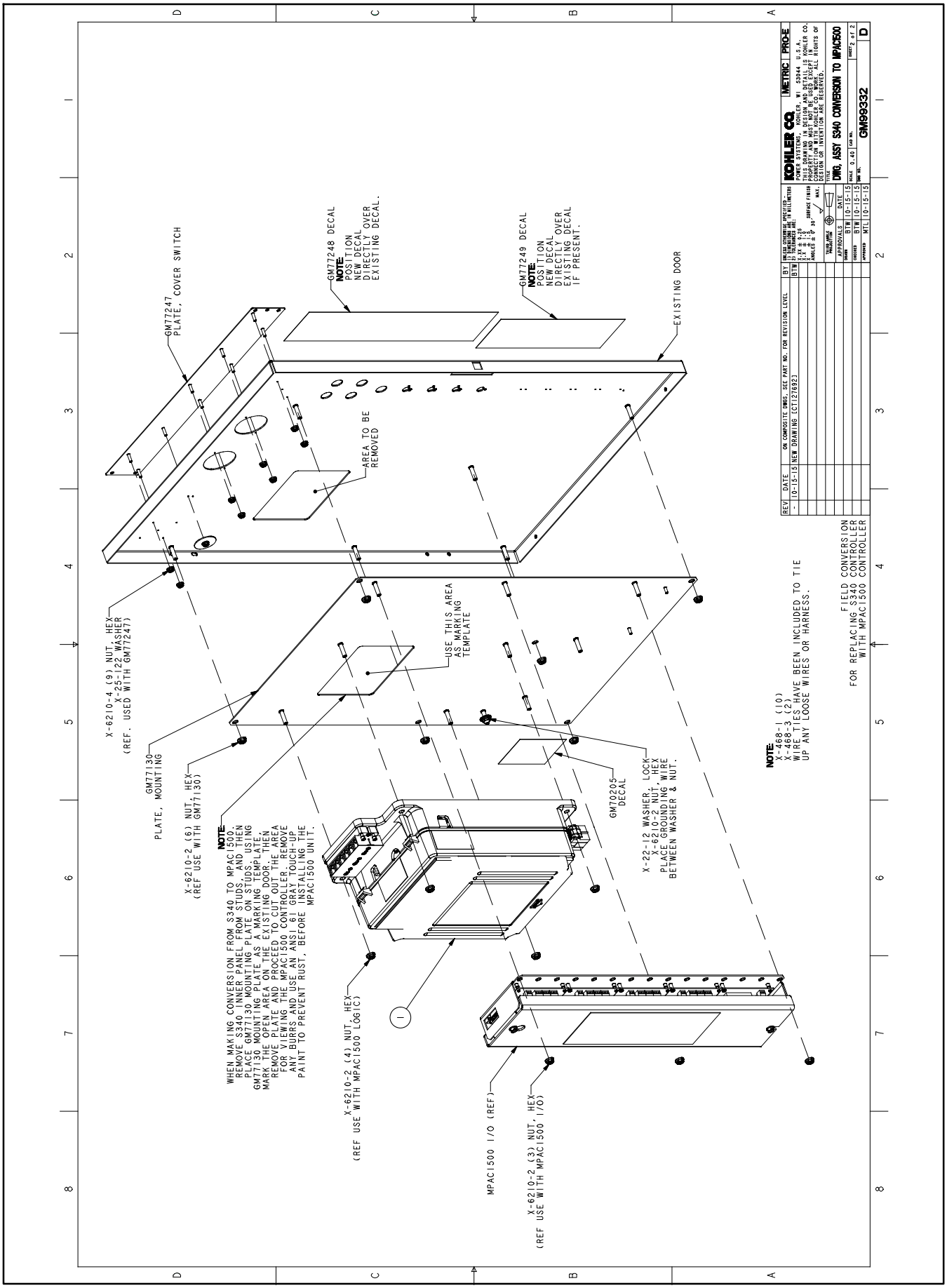
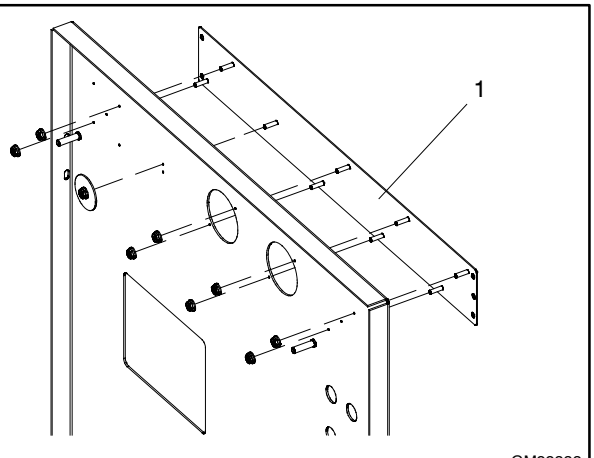


Figure 11 Conversion Kit Assembly

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.

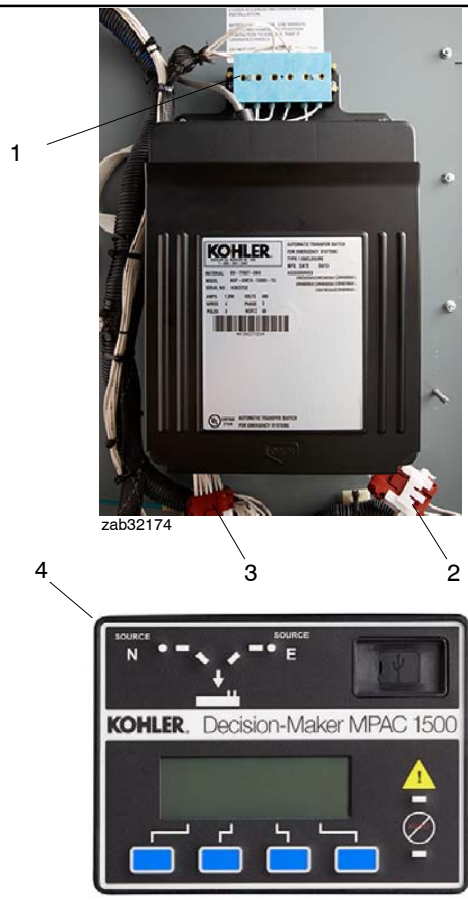
14. Install the switch cover plate (GM77247) on the outside of the enclosure door. Use one washer X-25-122 and nine nuts X-6210-4 to install the cover plate as shown in Figure 11 and Figure 12.



1. Switch cover plate mounting hardware

Figure 12 Switch Cover Plate GM77247

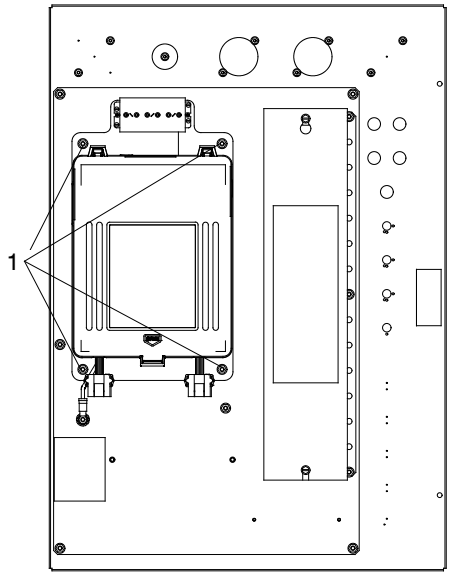
Note: The illustrations in the following steps may not show the latest controller design. See Figure 13 for the updated current sensing kit terminal block, harness connection, and programmed-transition interface board connection.



1. Current sensing terminal block with insulation and harness (optional)
2. Programmed-transition interface board connection (programmed- and closed-transition models only)
3. Contactor harness
4. Controller user interface

Figure 13 Decision-Maker® MPAC Controller Updated Features

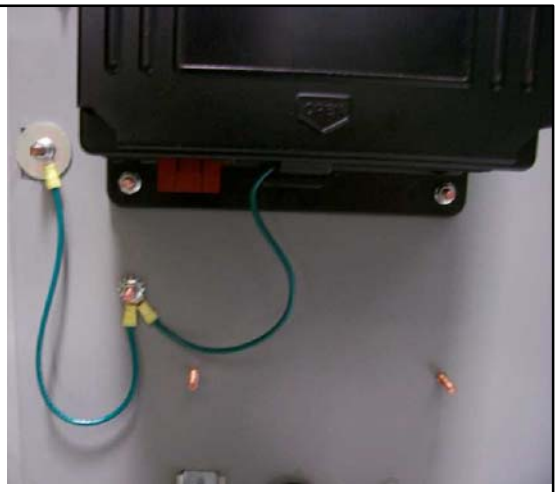
15. Install the Decision-Maker® MPAC 1500 controller assembly (GM85884-1) onto the conversion kit mounting plate using four nuts X-6210-2. See Figure 14.



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

Figure 14 Controller Assembly Installation

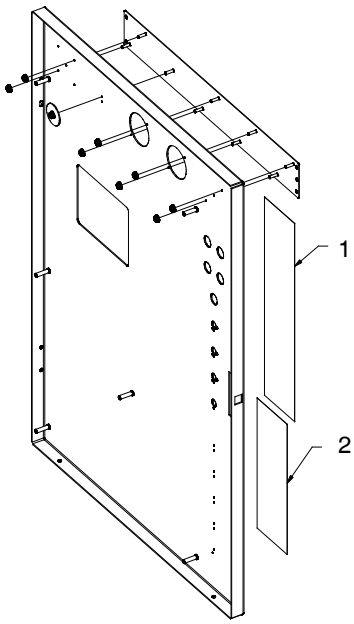
16. See Figure 15 for ground connections. Use green grounding lead LK-1212-1515 to connect the ground stud on the conversion panel to the ground lug on the door. Using lock washer X-22-12, connect the ground wires to the ground stud on the door. Place the grounding wires between the washer and the nut.



Note: This photo does not show the latest controller design. See Figure 13.

Figure 15 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 16.



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

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

Figure 16 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 17.

19. Connect P1 of the conversion kit harness to P1 of the Decision-Maker® MPAC 1500 controller. See Figure 18.

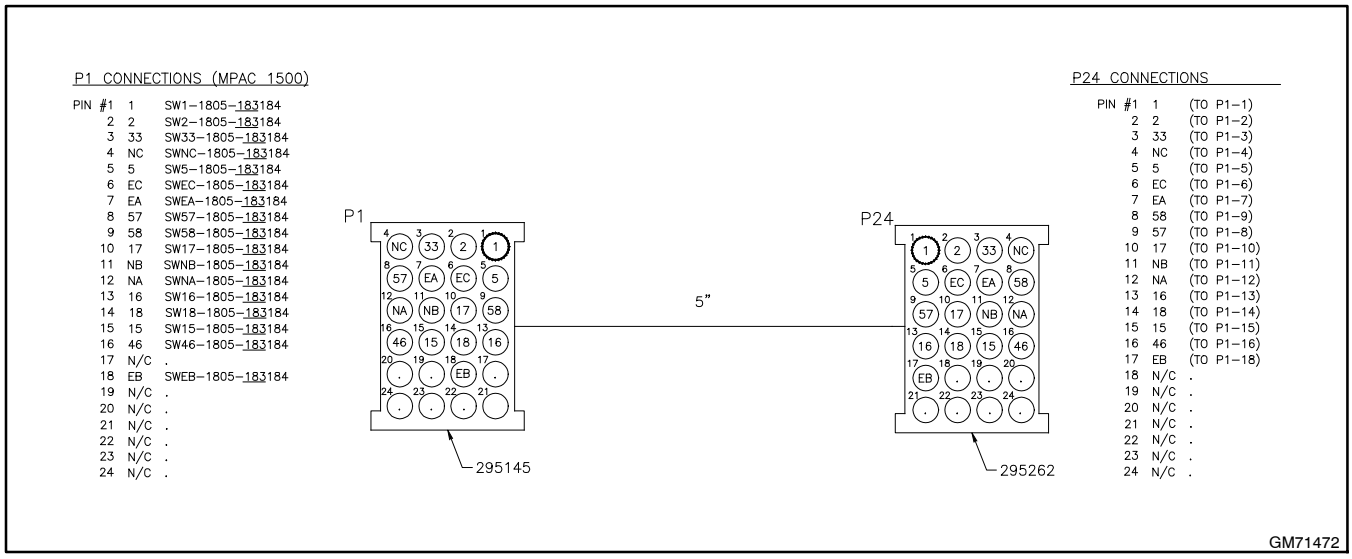


Figure 17 Conversion Kit Harness

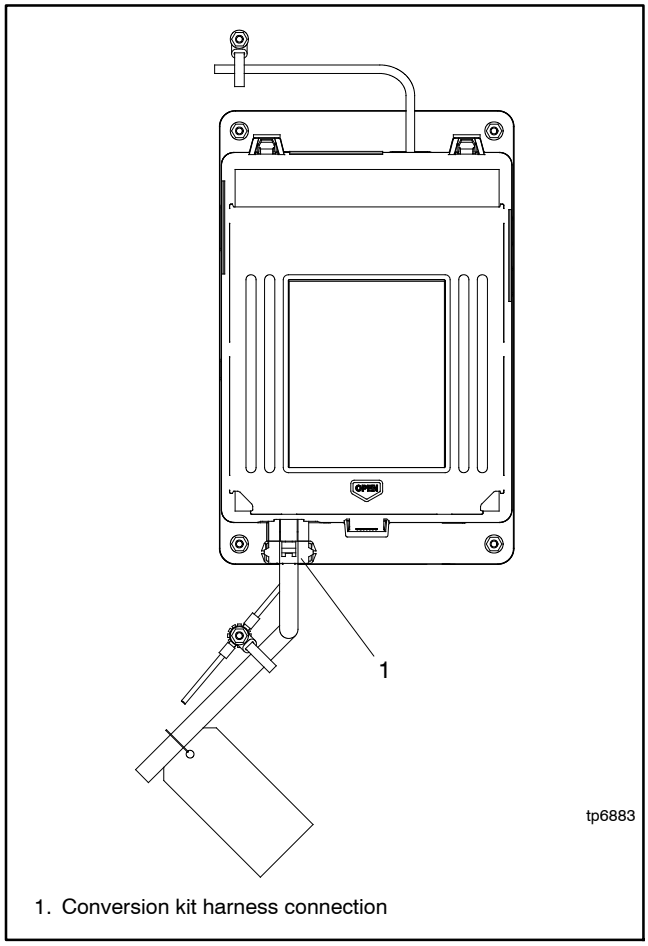


Figure 18 Connection to Decision-Maker® MPAC 1500 Controller

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 19.

21. Connect the current transformers as shown in Figure 20. See Figure 3 or the Parts List for current sensing kit numbers.

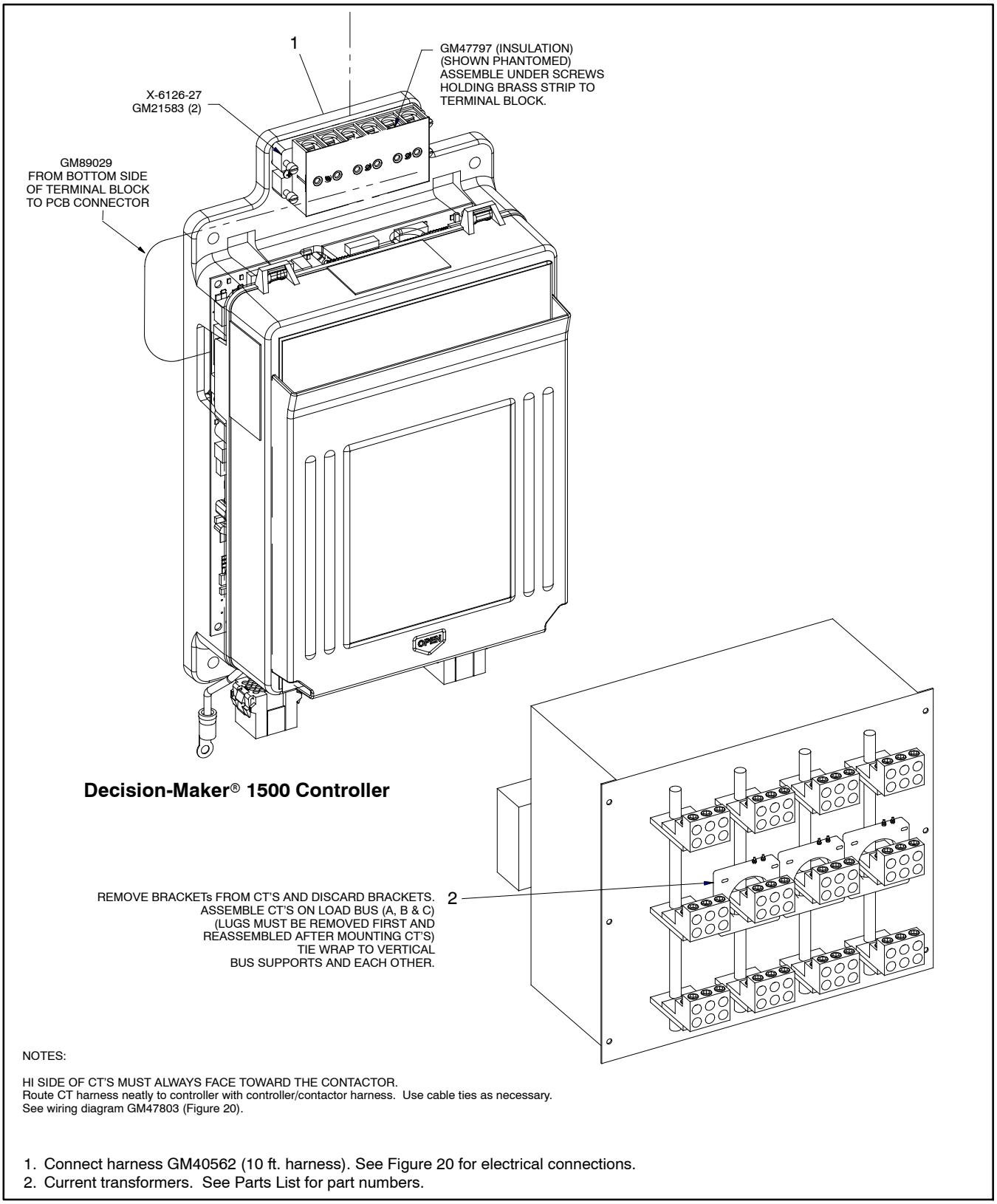


Figure 19 Current Sensing Kit Installation

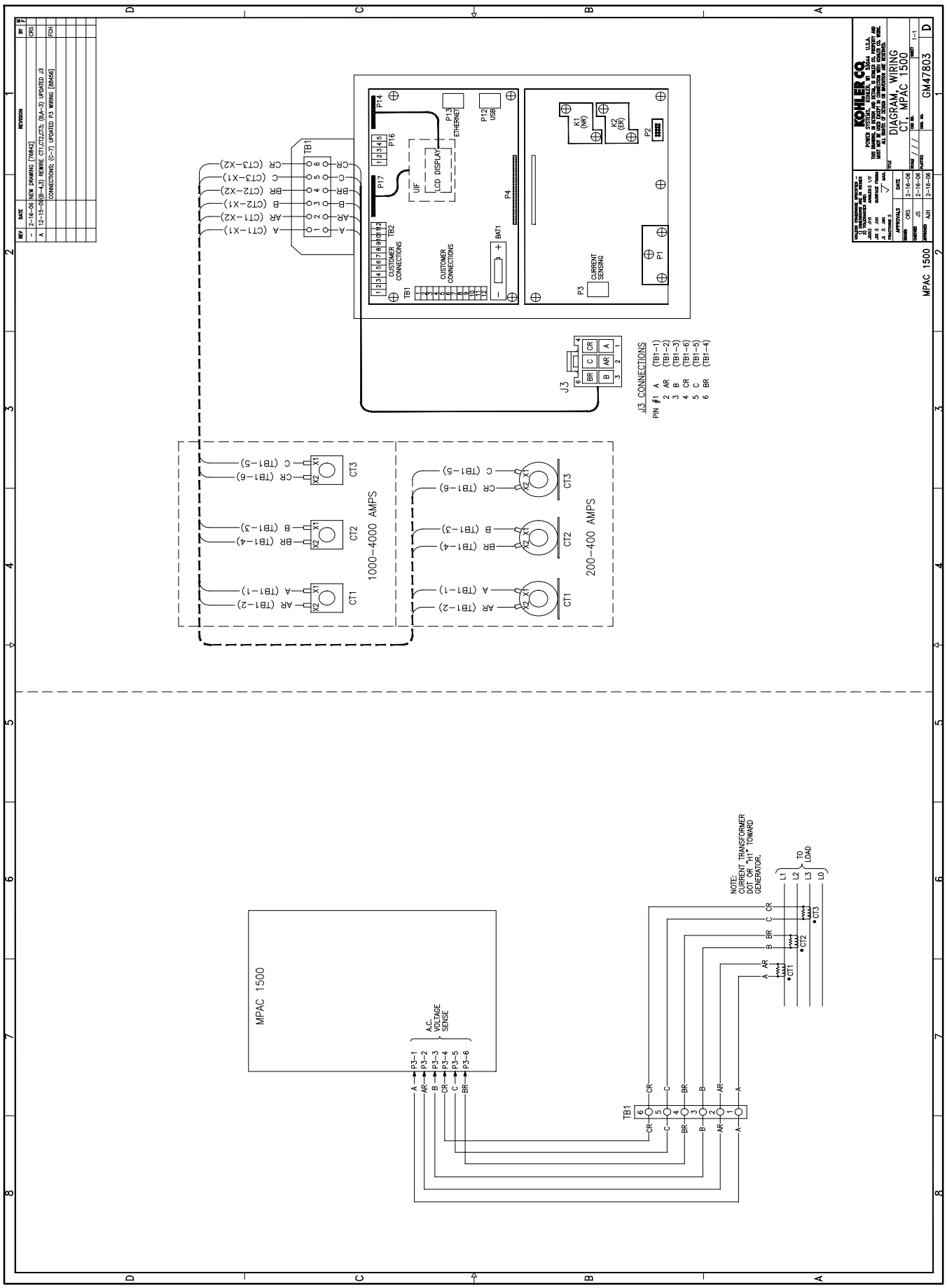


Figure 20 Current Sensing Kit Wiring Diagram, GM47803

22. Record the required information on decal GM70205. See Figure 21. See Figure 3 for the current sensing kit and Figure 24 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 22.

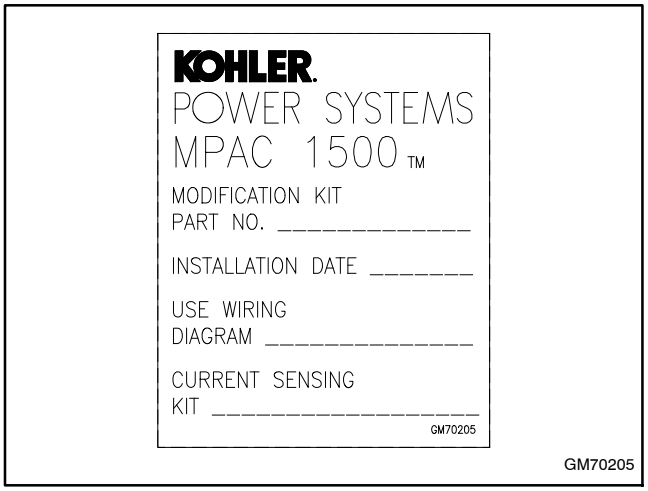
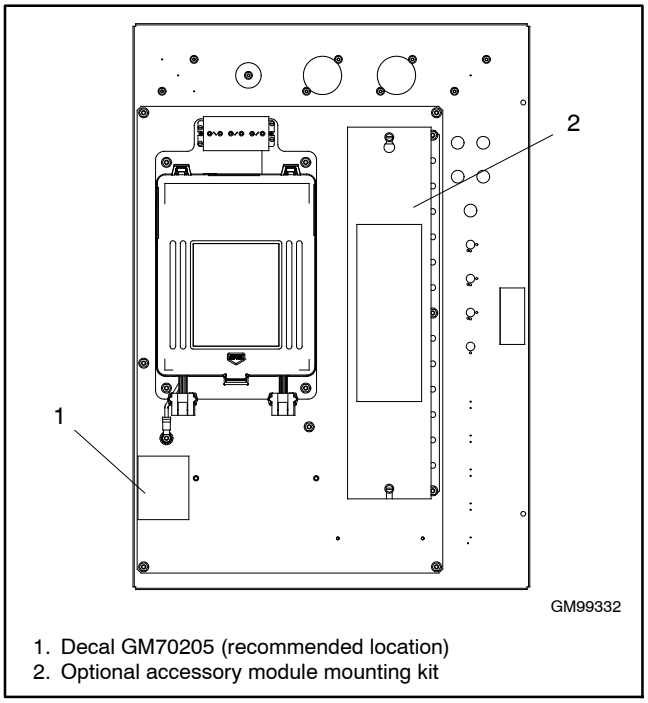


Figure 21 Decal GM70205



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

Figure 22 Decal GM70205 Location

24. If optional accessory modules are used, attach the accessory mounting kit to the conversion kit mounting plate (GM77130). See Figure 22. 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 Decision-Maker® MPAC 1500 Operation Manual, TP-6883.

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 Decision-Maker® MPAC 1500 controller, program the system parameters shown in Figure 23. 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-6883, 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 23 System Parameters

31. Run the operation tests outlined in Operation Manual TP-6883 to verify system operation.

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

Parts Lists

S340 to Decision-Maker® MPAC 1500 Conversion Kit

Kit: GM99332-S1		
Qty.	**Description**	**Part Number**
1	Decal, KPS 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	MPAC 1500 Assembly	GM85884-1
1	Lead	LK-1212-1515
1	O/M MPAC 1500 Controls , ATS	TP-6883
1	Installation Instructions	TT-1686
1	Washer, lock .262 ID x .743 in. OD	X-22-12
10	Cable tie	X-468-1
2	Cable tie, nylon	X-468-3
14	Nut, flange spiralock, 1/4-20	X-6210-2
9	Nut, flange whiz, 8-32	X-6210-4

Current Sensing Kit Parts

Description	Part Number	Part Quantity									
		Kit number GM89028:									
		-S3	-S6	-S8	-S11	-S15	-S17	-S21	-S24	-S26	-S28
		200 A 3 ph	400 A 3 ph	1000 A 3 ph	1200 A 3 ph	2000 A 3 ph	3000 A 3 ph	200 A 1 ph	400 A 1 ph	1000 A 1 ph	1200 A 1 ph
Screw, Plastic Tapping	GM21583	2	2	2	2	2	2	2	2	2	2
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						3	
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
Bracket, CT Mounting	GM47800										1
Diagram, Wiring CT MPAC 1500	GM47803	1	1	1	1	1	1	1	1	1	1
Drawing, Assembly Current Sensing	GM89028	1	1	1	1	1	1	1	1	1	1
Harness, CT	GM89029	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
Nut, Flange Spirallock	X-6210-2										4
Screw, Thread Forming	X-67-114										8

Transfer Switch Wiring Diagrams

The schematic diagrams and wiring diagrams for the transfer switches with Decision-Maker® MPAC 1500 controls are arranged in alpha-numeric order on the following pages. Find your model and the corresponding drawing numbers in Figure 24.

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 24 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.

ATS Model *	Poles*	Amps	S340 Drawing Numbers (for reference only)		MPAC 1500 Conversion Drawings	
			Schematic	Wiring Diagram	Schematic	Wiring Diagram
GTS-1	2	40–200	362114	362109	GM99391	GM99393
	3					
	4†					
GLS-1	2	40–200	362172	362164	GM100332	GM99392 Sheet 1
	3					
	4†					
	2	225–400	362172	362164	GM100332	GM99392 Sheet 2
	3					
	4†					
K-1	2	30–800	295075	295079	GM100333	GM100334
	3	30–4000	295074	295078	GM100335	GM100336
	4†					
KB-1	2	150–400	294149	294263	GM100341	GM100343
	3	150–400	294149	294150	GM100341	GM100342
	4†					
	2	600–800	297662	297663	GM100337	GM100338
	3	600–800	297664	297665	GM100339	GM100340
	4†					

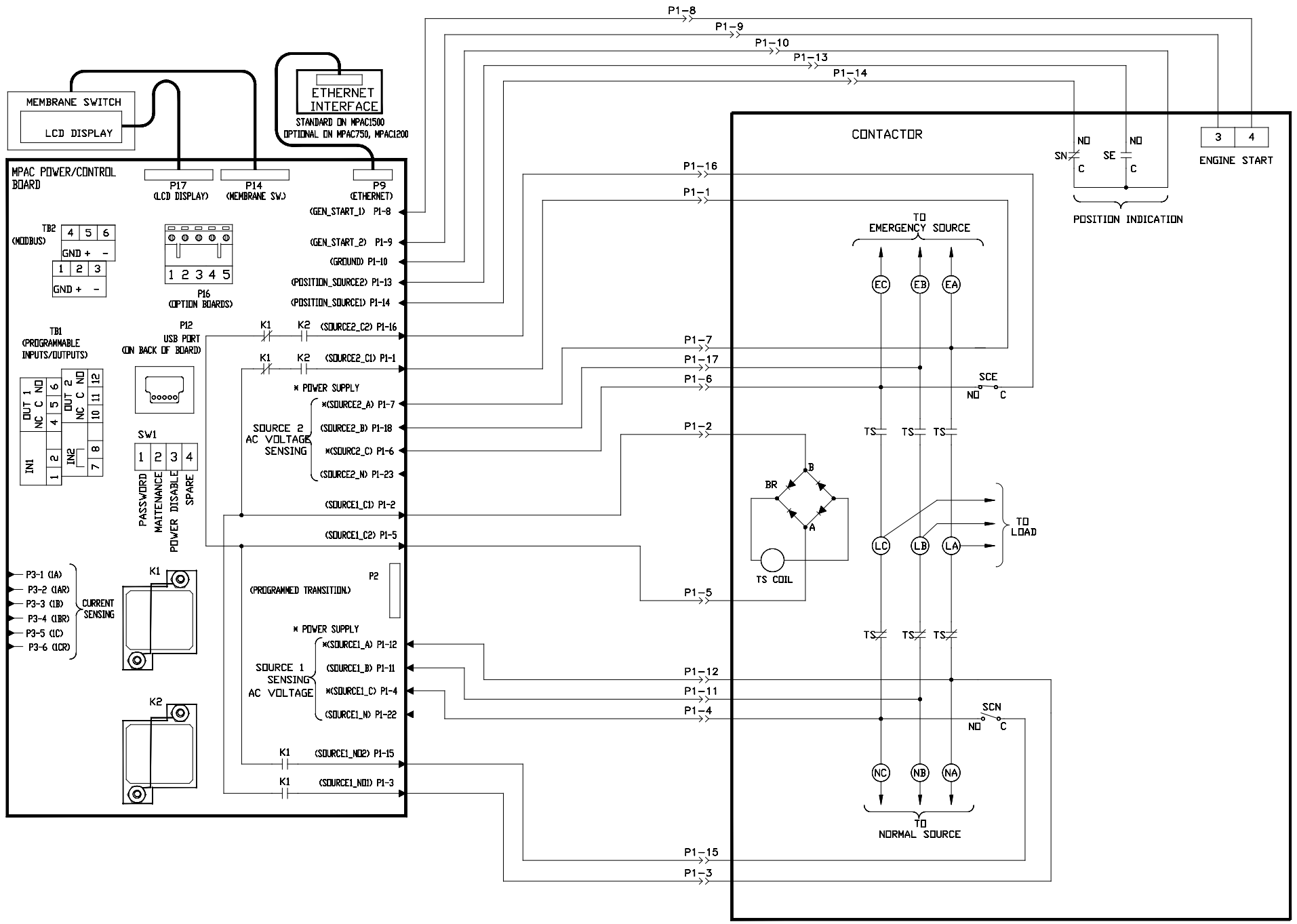
* See Figure 7 to interpret the model designation, if necessary.

† 3 pole, 3 phase with overlapping neutral

Note: Drawings are arranged in alpha-numeric order on the following pages.

Figure 24 Drawing Numbers

REV	DATE	REVISION	BY	N F
-	1-7-16	NEW DRAWING (CT1306643)	BTW	



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. GM99393

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 ± .020 SURFACE FINISH .X ± .060 MAX. FRACTIONS±

APPROVALS	DATE
DRAWN BTW	1-7-16
CHECKED HCC	1-7-16
APPROVED MTL	1-7-16

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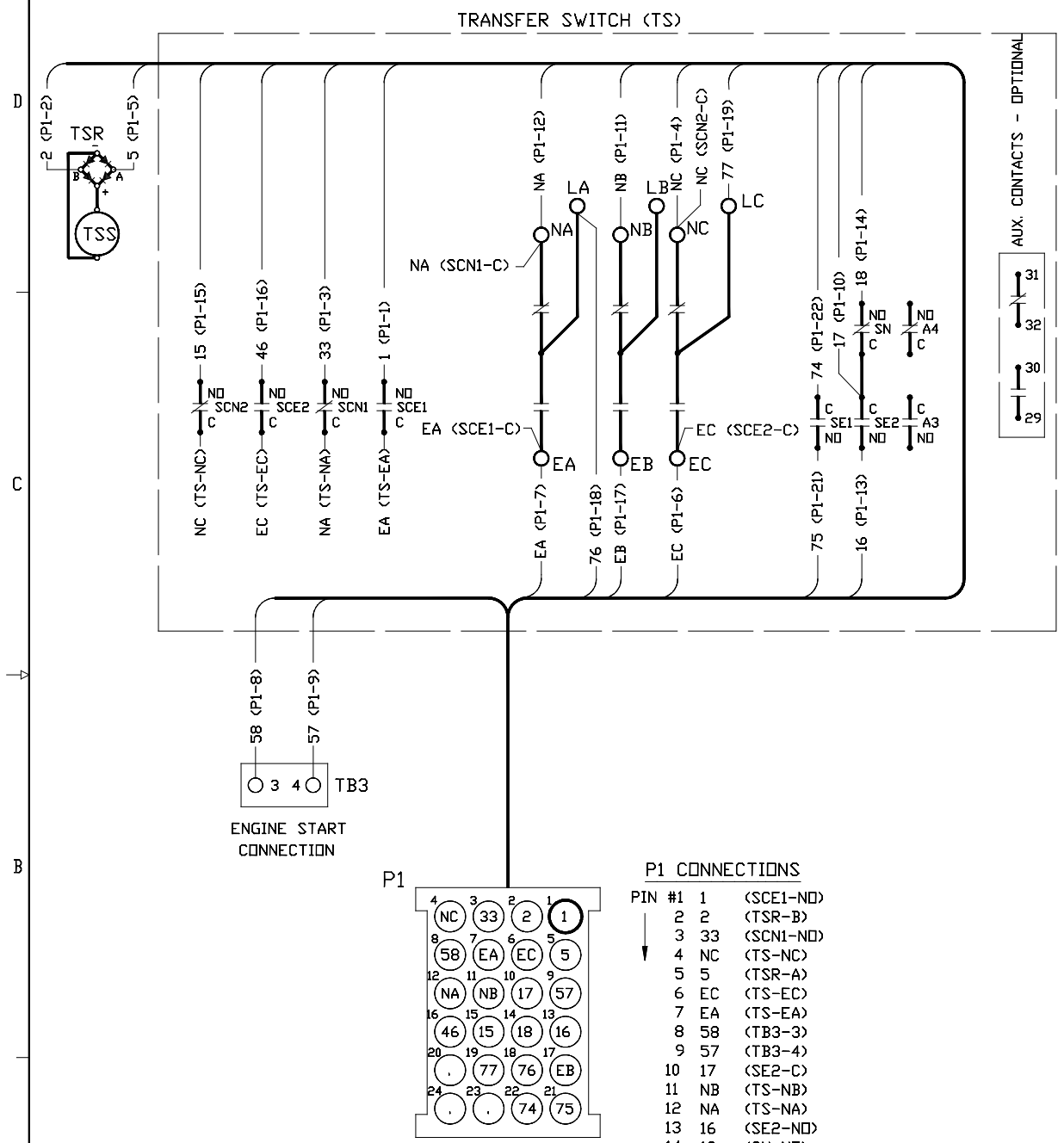
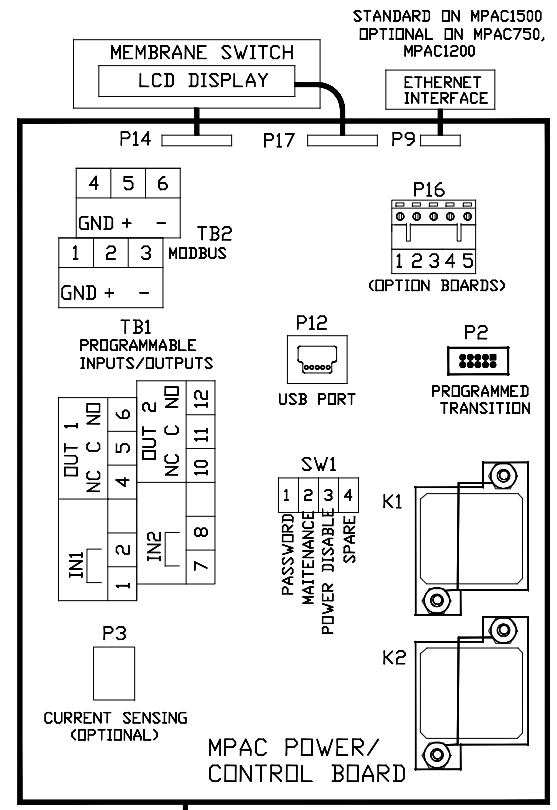
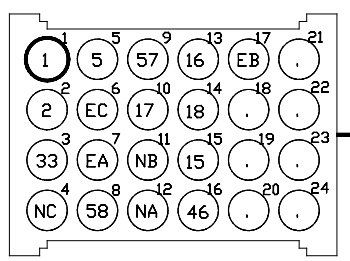
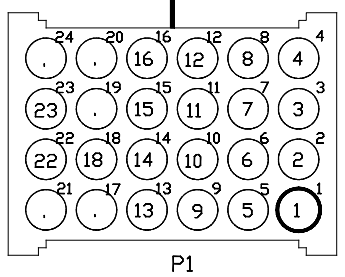
TITLE: DIAGRAM SCHEMATIC
SCALE: / / / CAD NO.
SHEET 1-1
PLOTTED DWG. NO. GM99391 D

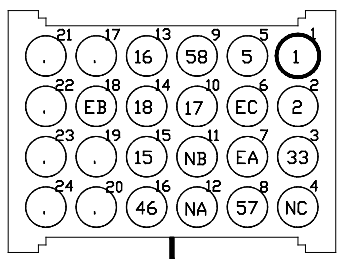
REV	DATE	REVISION	BY	N F
-	1-7-16	NEW DRAWING (CT1306431)	BTW	











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
40-150 AMP
LOGIC - MPAC1500
600V CLASS
FOR SCHEMATIC DIAGRAM SEE GM100241

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

APPROVALS		DATE
DRAWN	BTW	1-7-16
CHECKED	MTL	1-7-16
APPROVED	MTL	1-7-16

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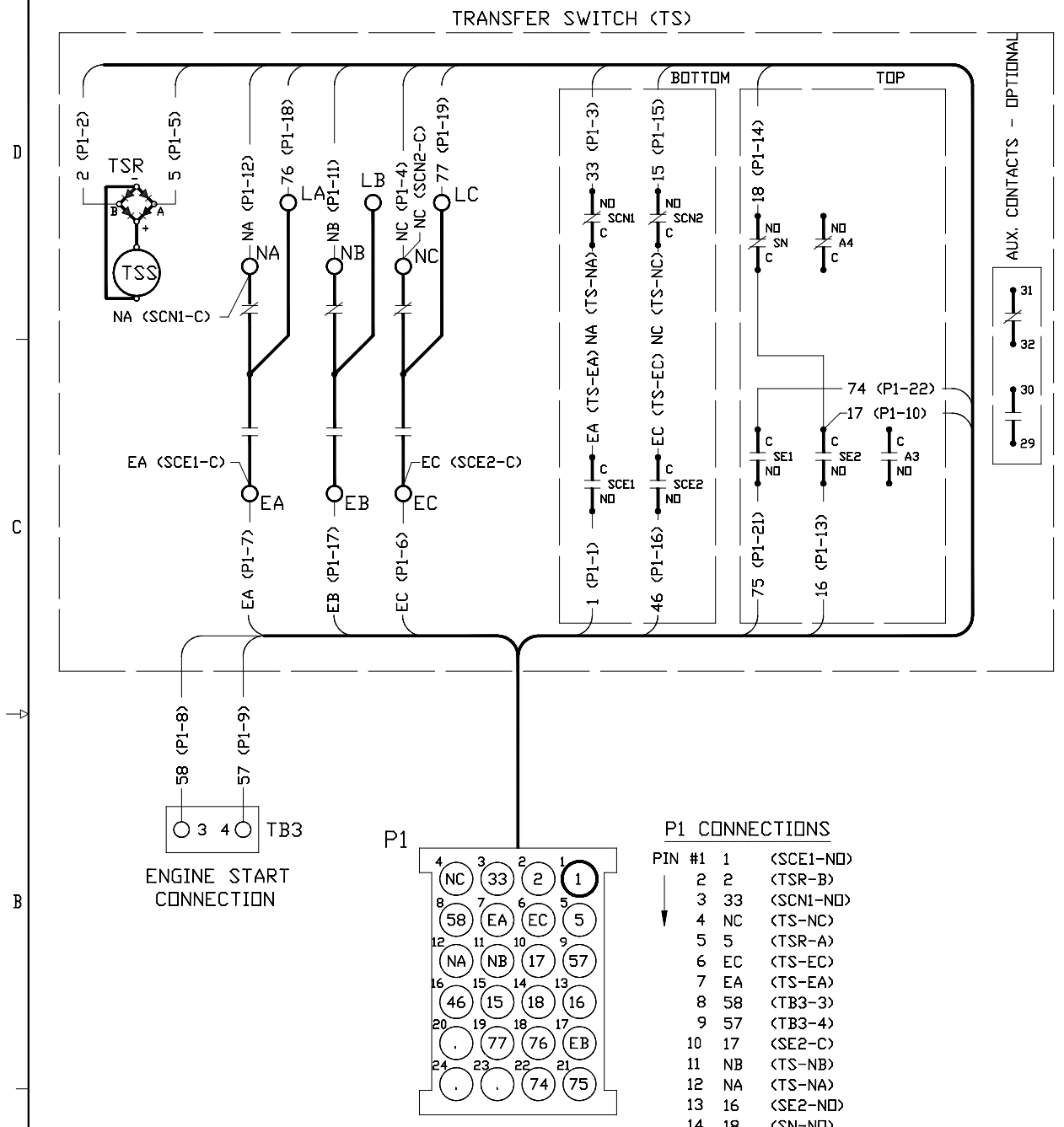
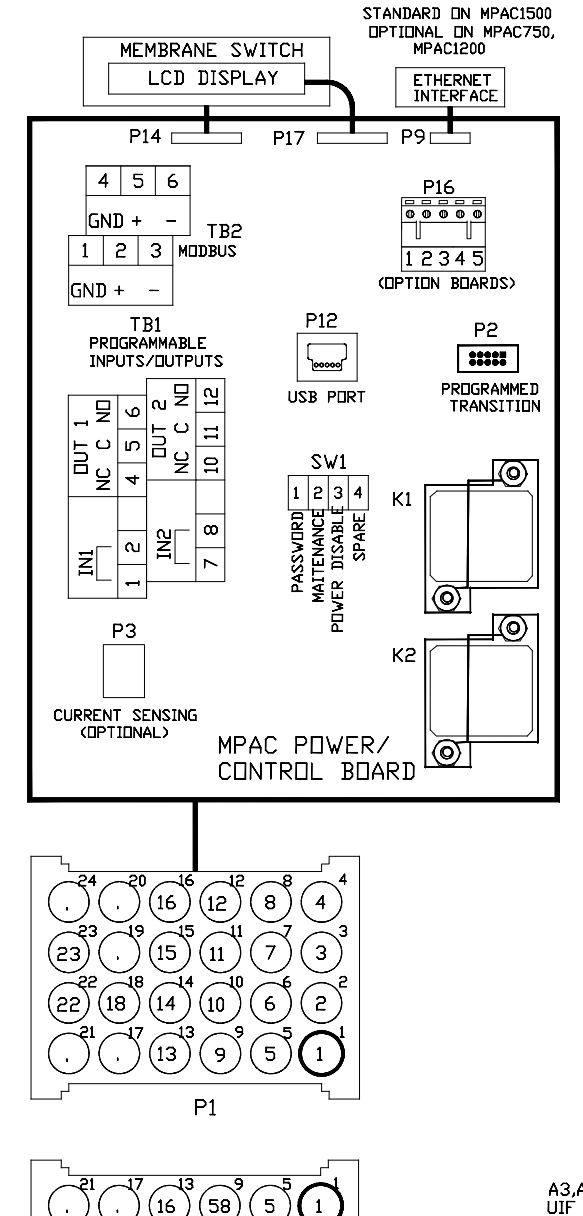
TITLE: WIRING DIAGRAM, INTERCONNECTION

SCALE: NONE | CAD NO. | SHEET 1-2

PLOTTED | DWG NO. GM99392 | D

REV	DATE	REVISION	BY	N F
-	1-7-16	NEW DRAWING (CT1306431)	BTW	





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 - DIMENSIONS ARE IN INCHES - TOLERANCES ARE: .XXX ± .010, .XX ± .030, .X ± .060, FRACTIONS ±, ANGLES ± 1/2, SURFACE FINISH 125 MAX

APPROVALS	DATE
DRAWN BTW	1-7-16
CHECKED MTL	1-7-16
APPROVED MTL	1-7-16

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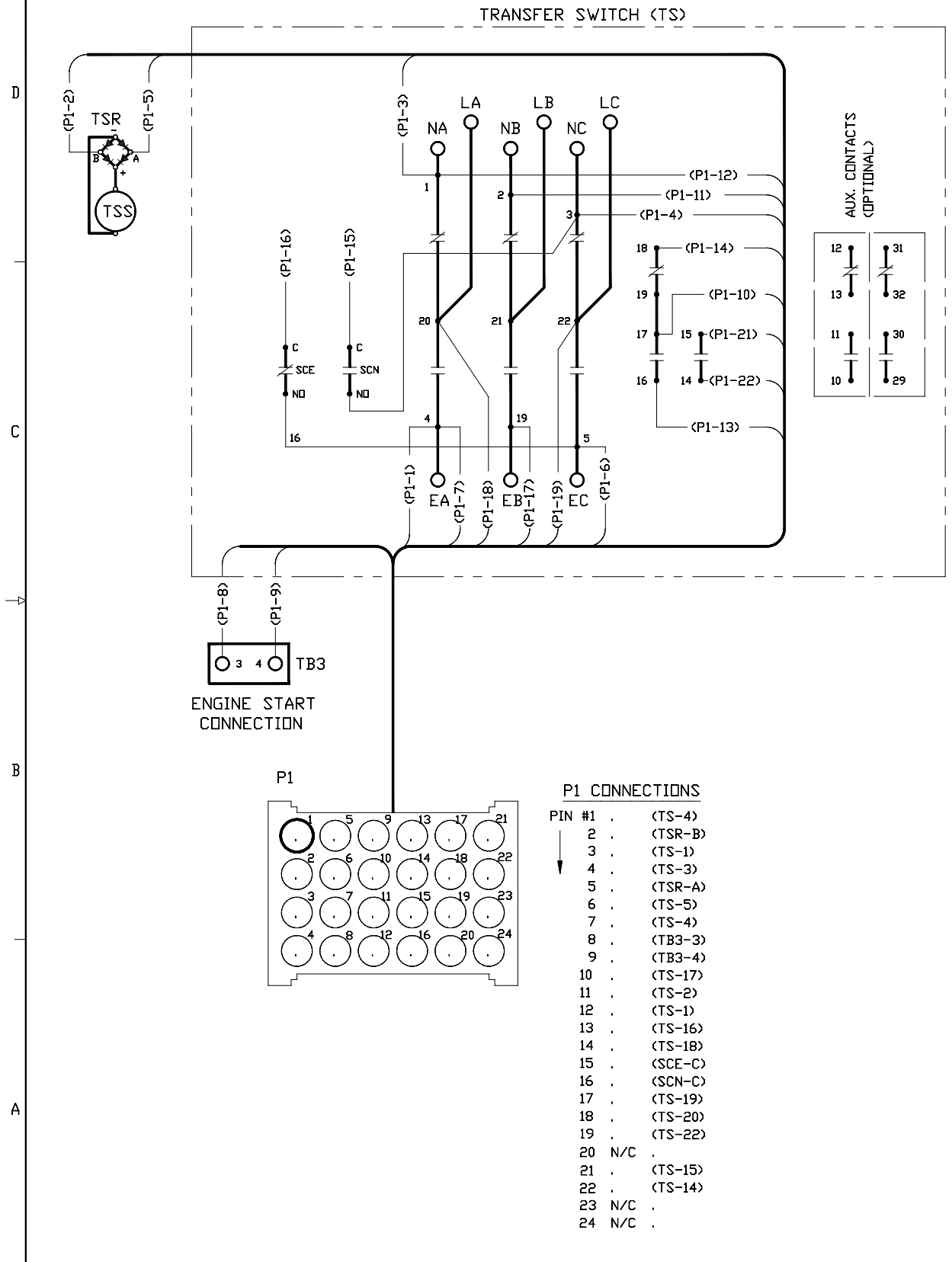
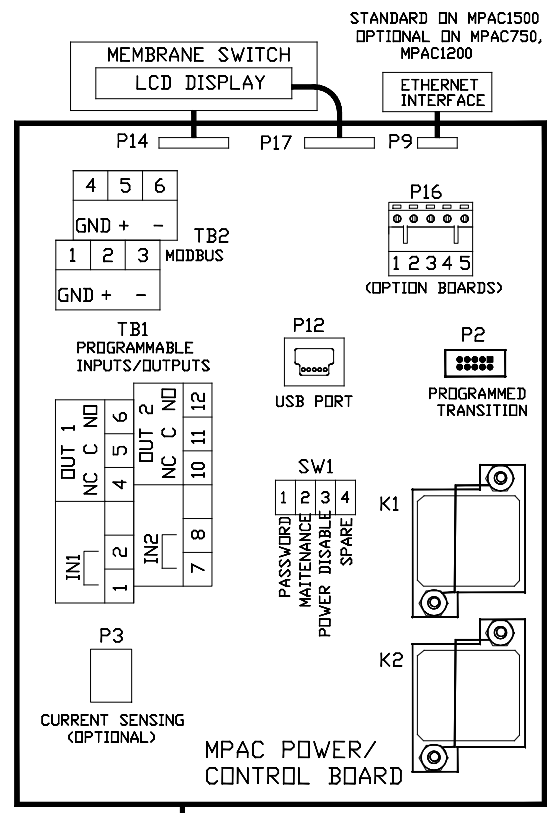
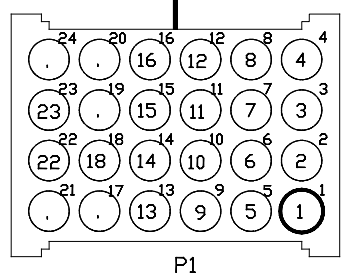
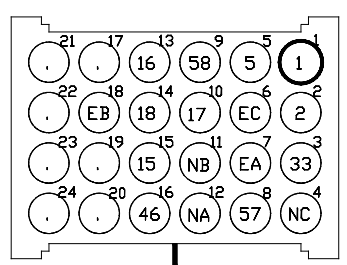
TITLE: WIRING DIAGRAM, INTERCONNECTION
SCALE: NONE | CAD NO. | SHEET 2-2
PLOTTED | DWG NO. GM99392 | D

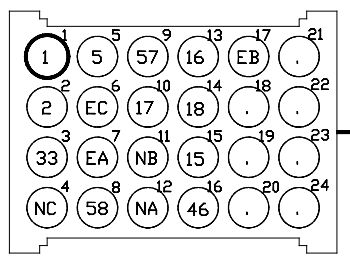
REV	DATE	REVISION	BY	N F
-	1-7-16	NEW DRAWING (CT1306431)	BTW	











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	.

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)

GM71472

MODEL GTS 40-200 AMP
LOGIC - MPAC1500
250V CLASS

FOR SCHEMATIC DIAGRAM SEE GM99391

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 BTW	1-7-16
CHECKED MTL	1-7-16
APPROVED MTL	1-7-16

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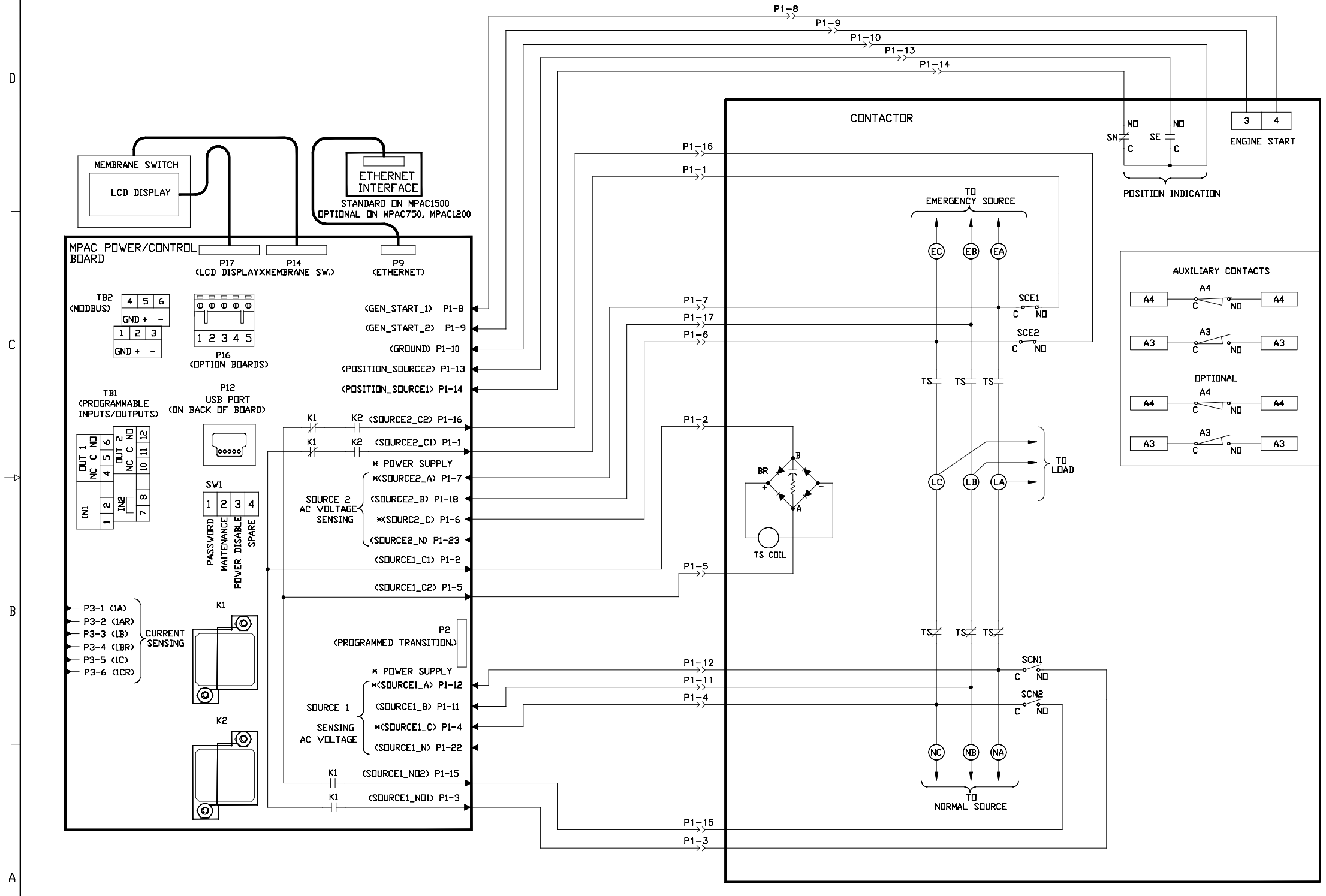
TITLE: WIRING DIAGRAM, INTERCONNECTION

SCALE: NONE | CAD NO. | SHEET 1-1

PLOTTED | DWG NO. GM99393 | D

REV	DATE	REVISION	BY	N F
-	2-5-16	NEW DRAWING (CT1305903)	BTW	



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. GM100334

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

UNLESS OTHERWISE SPECIFIED - DIMENSIONS ARE IN INCHES - TOLERANCES ARE: .XXX ± .010, .XX ± .020, .X ± .060, FRACTIONS ±, ANGLES ± 1/2°, SURFACE FINISH MAX.

APPROVALS	DATE
DRAWN BTW	2-5-16
CHECKED HCC	2-5-16
APPROVED MTL	2-5-16

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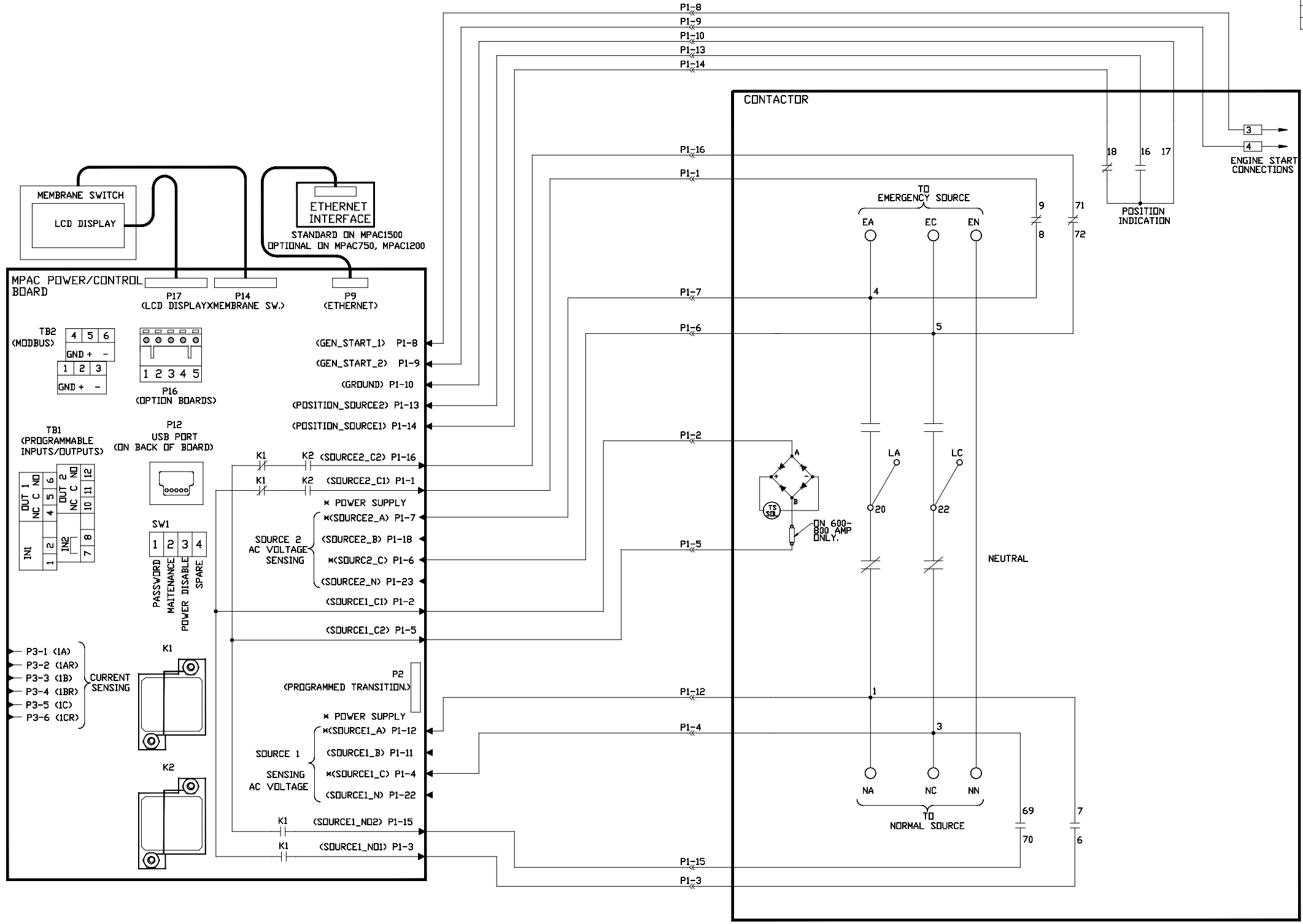
TITLE: DIAGRAM SCHEMATIC
SCALE: / / /
CAD NO.
SHEET 1-1
PLOTTED
DWG. NO. GM100332 D

REV	DATE	REVISION	BY	NT
-	2-5-16	NEW DRAWING (CT1305901	BTW	



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. GM100334

UNLESS OTHERWISE SPECIFIED - DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
.XXX ± .010 ANGLES ± 1/2°
.XX ± .030 SURFACE FINISH 125 MAX.
.X ± .060
FRACTIONS ±

APPROVALS	DATE
DRAWN BTW	2-5-16
CHECKED HCC	2-5-16
APPROVED MTL	2-5-16

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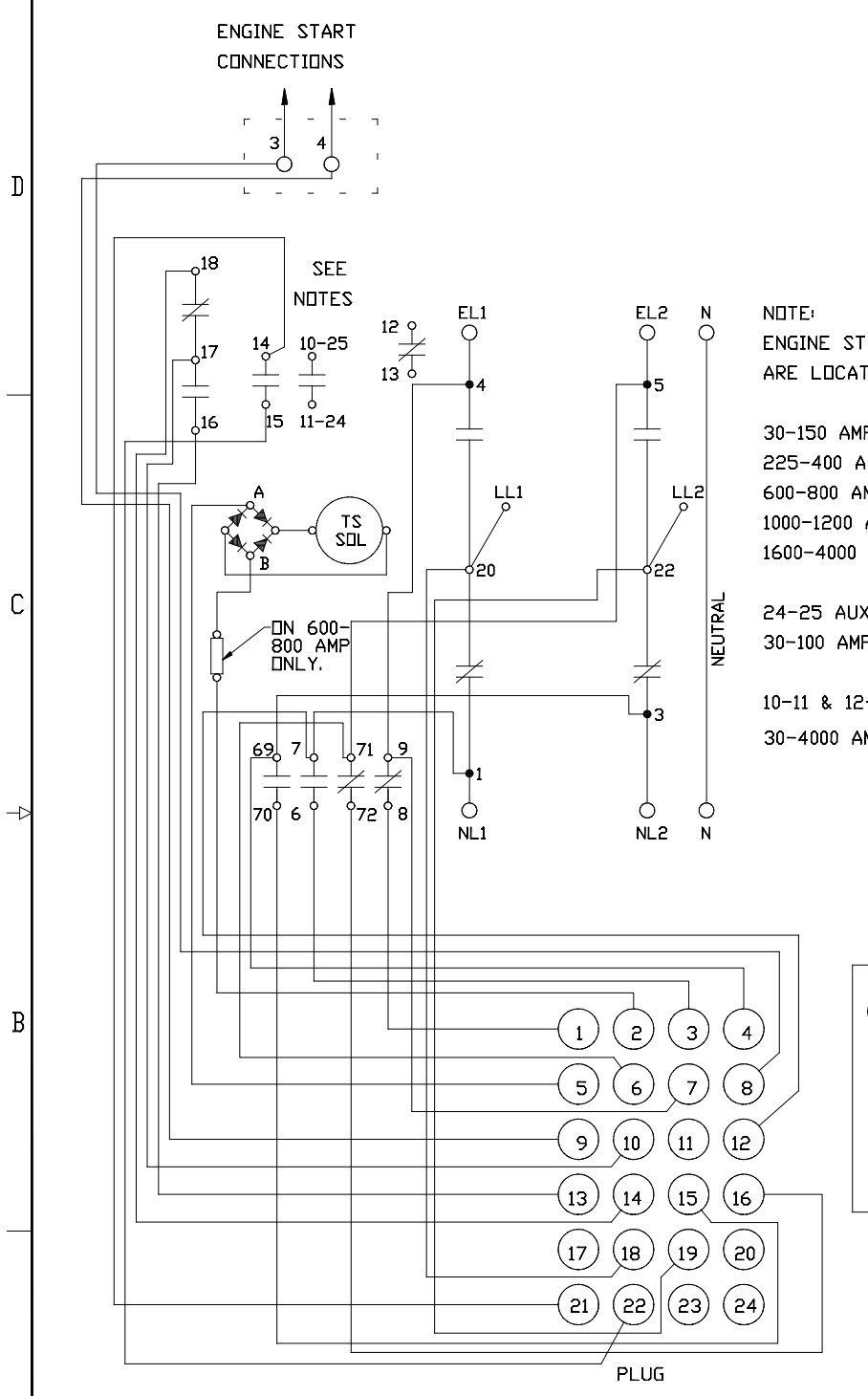
TITLE: DIAGRAM, SCHEMATIC
SCALE: / / / CAD NO. SHEET 1-1
PLOTTED DWG. NO. GM100333 D

REV	DATE	REVISION	BY	M E
-	2-8-16	NEW DRAWING [CT1305901	BTW	

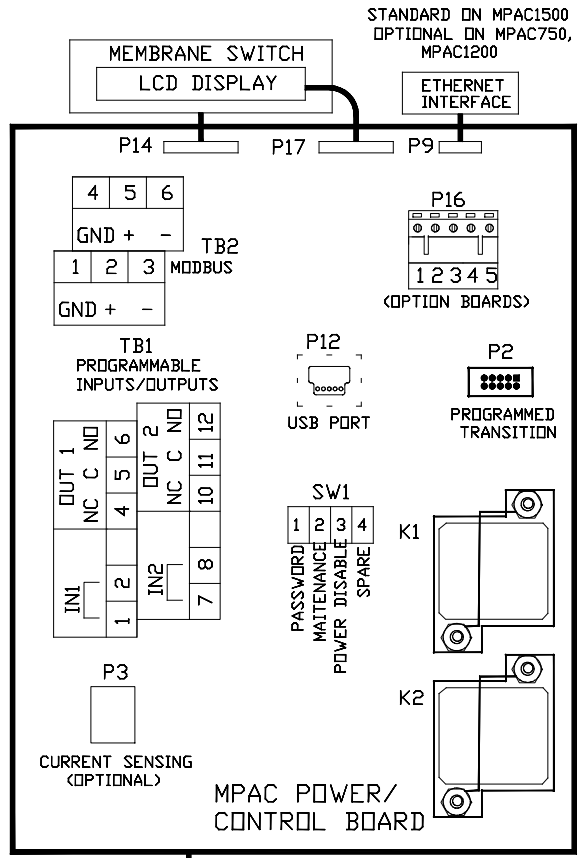


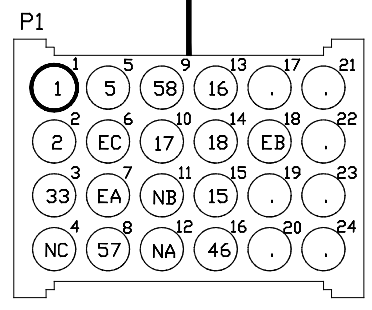
NOTE:
ENGINE START TERMINALS 3 & 4
ARE LOCATED ON CONTACTOR.

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 DWG. GM100333

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	BTW	2-8-16
CHECKED	HCC	2-8-16
APPROVED	MTL	2-8-16

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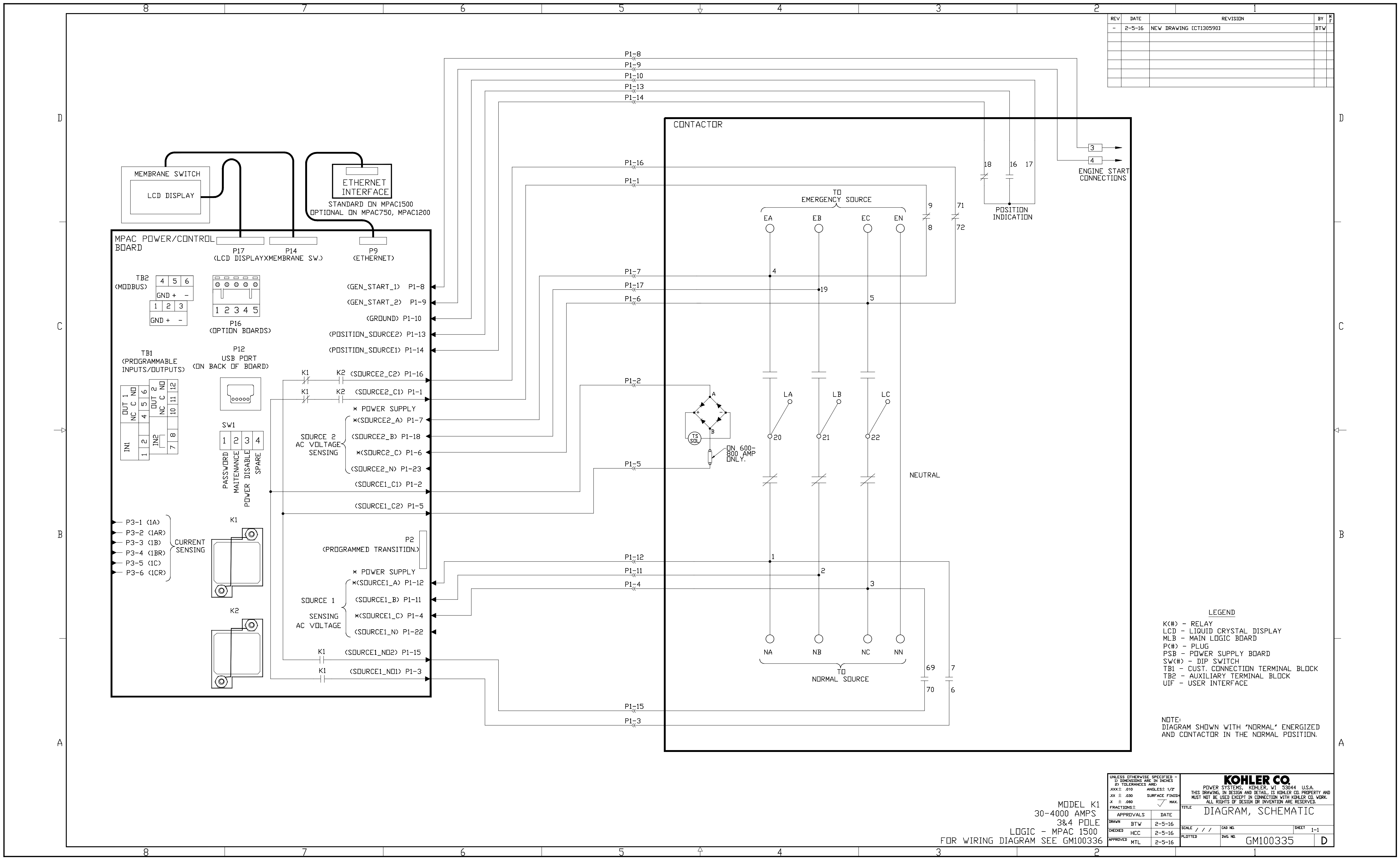
TITLE: DIAGRAM, WIRING

SCALE: / / / | CAD NO: | SHEET: 1-1
PLOTTED | DWG NO: GM100334 | C G


REV | DATE | REVISION | BY
- | 2-5-16 | NEW DRAWING [CT130590] | BTW
CONTACTOR
TO EMERGENCY SOURCE
EA EB EC EN
TO NORMAL SOURCE
NA NB NC NN
NEUTRAL
LA LB LC
ON 600-800 AMP ONLY.
TS SOL
ENGINE START CONNECTIONS
POSITION INDICATION
MEMBRANE SWITCH
LCD DISPLAY
ETHERNET INTERFACE
STANDARD ON MPAC1500
OPTIONAL ON MPAC750, MPAC1200
MPAC POWER/CONTROL BOARD
P17 (LCD DISPLAY)
P14 (MEMBRANE SW.)
P9 (ETHERNET)
TB2 (MODBUS)
P16 (OPTION BOARDS)
TB1 (PROGRAMMABLE INPUTS/OUTPUTS)
P12 USB PORT (ON BACK OF BOARD)
SW1
PASSWORD
MAITENANCE
POWER DISABLE
SPARE
(GEN_START_1) P1-8
(GEN_START_2) P1-9
(GROUND) P1-10
(POSITION_SOURCE2) P1-13
(POSITION_SOURCE1) P1-14
(SOURCE2_C2) P1-16
(SOURCE2_C1) P1-1
* POWER SUPPLY
*(SOURCE2_A) P1-7
(SOURCE2_B) P1-18
*(SOURCE2_C) P1-6
(SOURCE2_N) P1-23
SOURCE 2 AC VOLTAGE SENSING
(SOURCE1_C1) P1-2
(SOURCE1_C2) P1-5
P2 (PROGRAMMED TRANSITION)
* POWER SUPPLY
*(SOURCE1_A) P1-12
(SOURCE1_B) P1-11
*(SOURCE1_C) P1-4
(SOURCE1_N) P1-22
SOURCE 1 SENSING AC VOLTAGE
(SOURCE1_NO2) P1-15
(SOURCE1_NO1) P1-3
P3-1 (1A)
P3-2 (1AR)
P3-3 (1B)
P3-4 (1BR)
P3-5 (1C)
P3-6 (1CR)
CURRENT SENSING
K1
K2
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 GM100336
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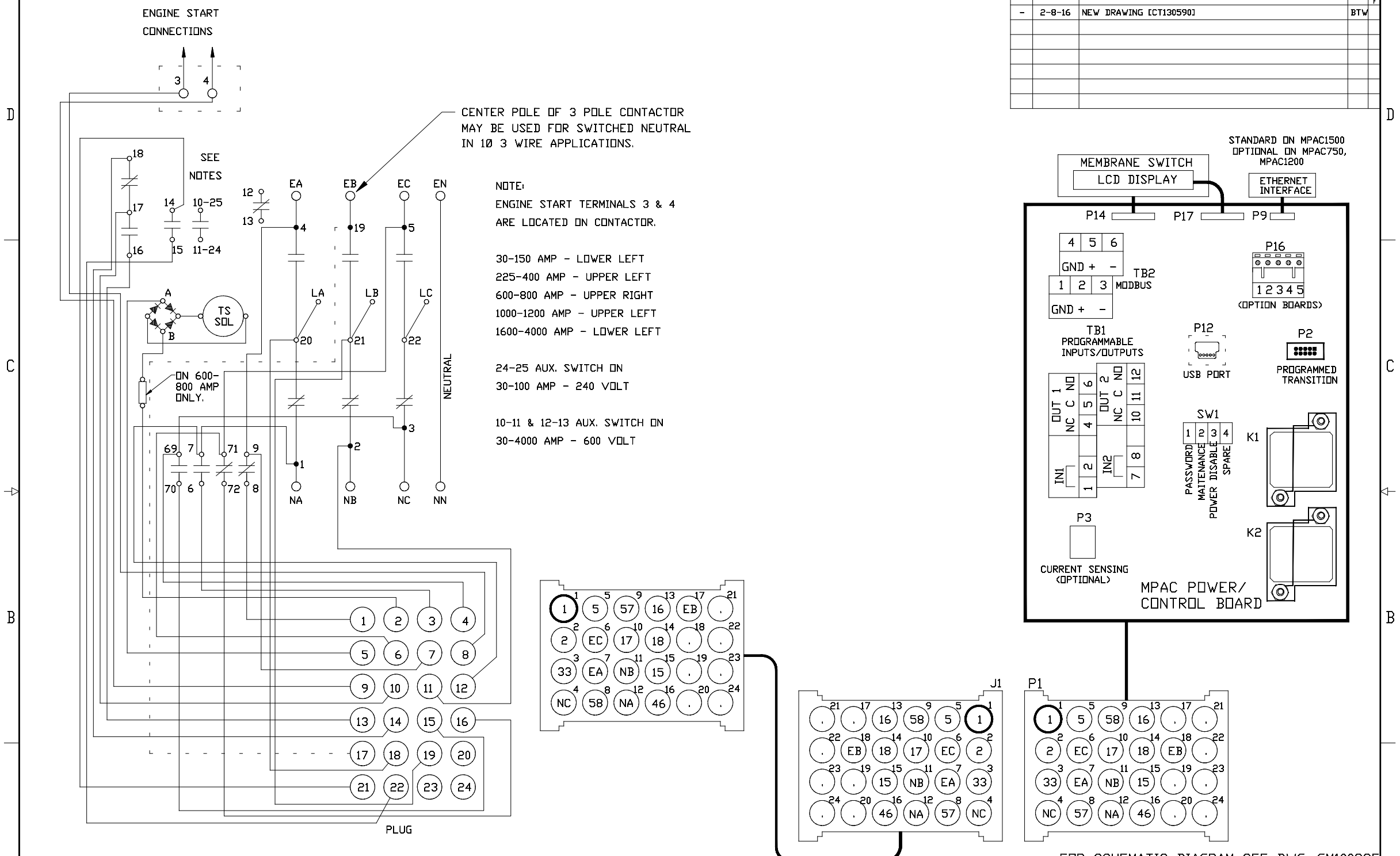
DIAGRAM, SCHEMATIC
DRAWN BTW 2-5-16
CHECKED HCC 2-5-16
APPROVED MTL 2-5-16
SHEET 1-1
GM100335
D

REV	DATE	REVISION	BY	M E
-	2-8-16	NEW DRAWING [CT1305901	BTW	



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	BTW	2-8-16
CHECKED	HCC	2-8-16
APPROVED	MTL	7-07-10

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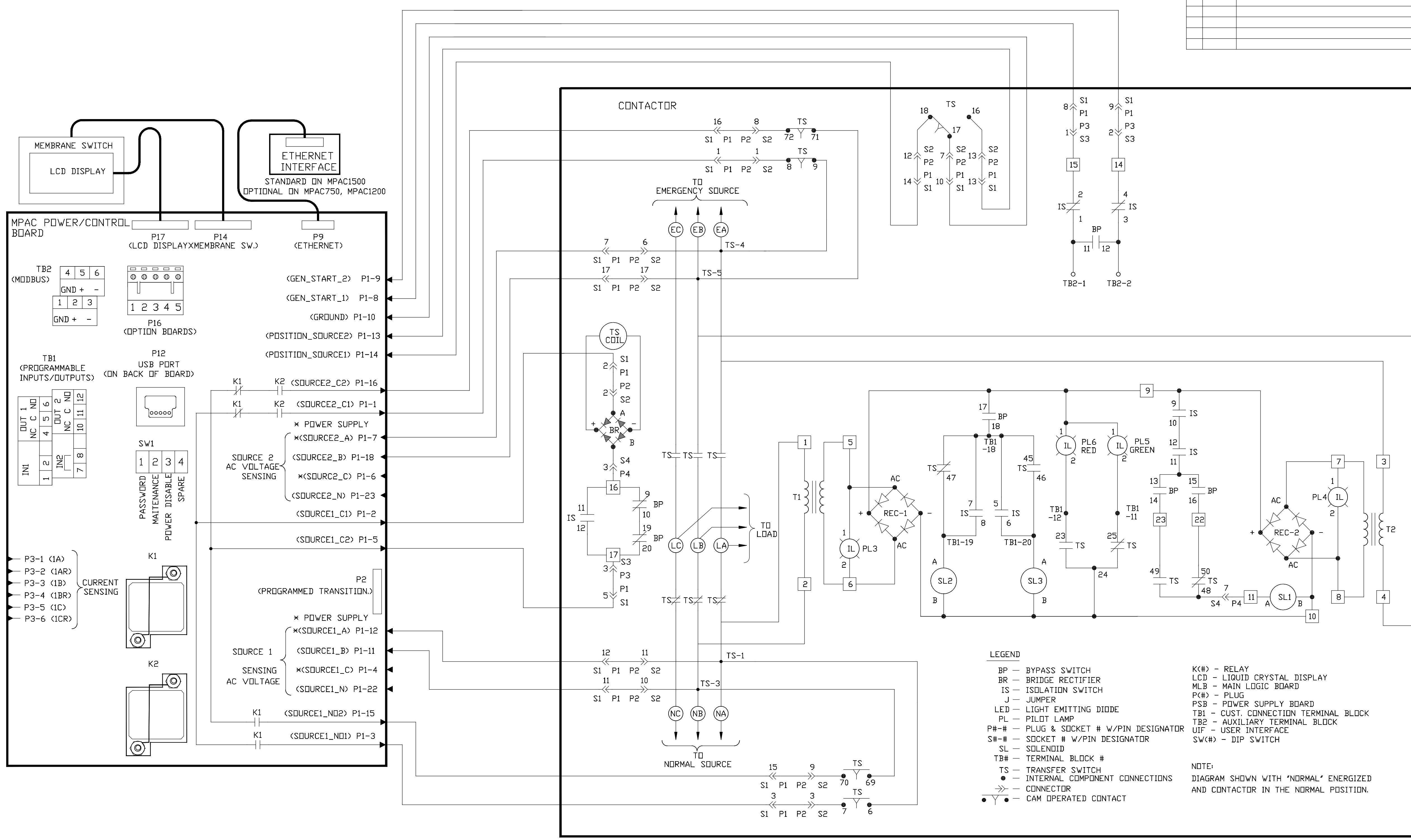
TITLE: DIAGRAM, WIRING
SCALE: / / /
CAD NO:
SHEET: 1-1
PLOTTED:
DWG. NO: GM100336
C G



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. GM100338

REV	DATE	REVISION	BY
-	2-5-16	NEW DRAWING [CT130590]	BTW

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	BTW	2-5-16
CHECKED	HCC	2-5-16
APPROVED	MTL	2-5-16

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POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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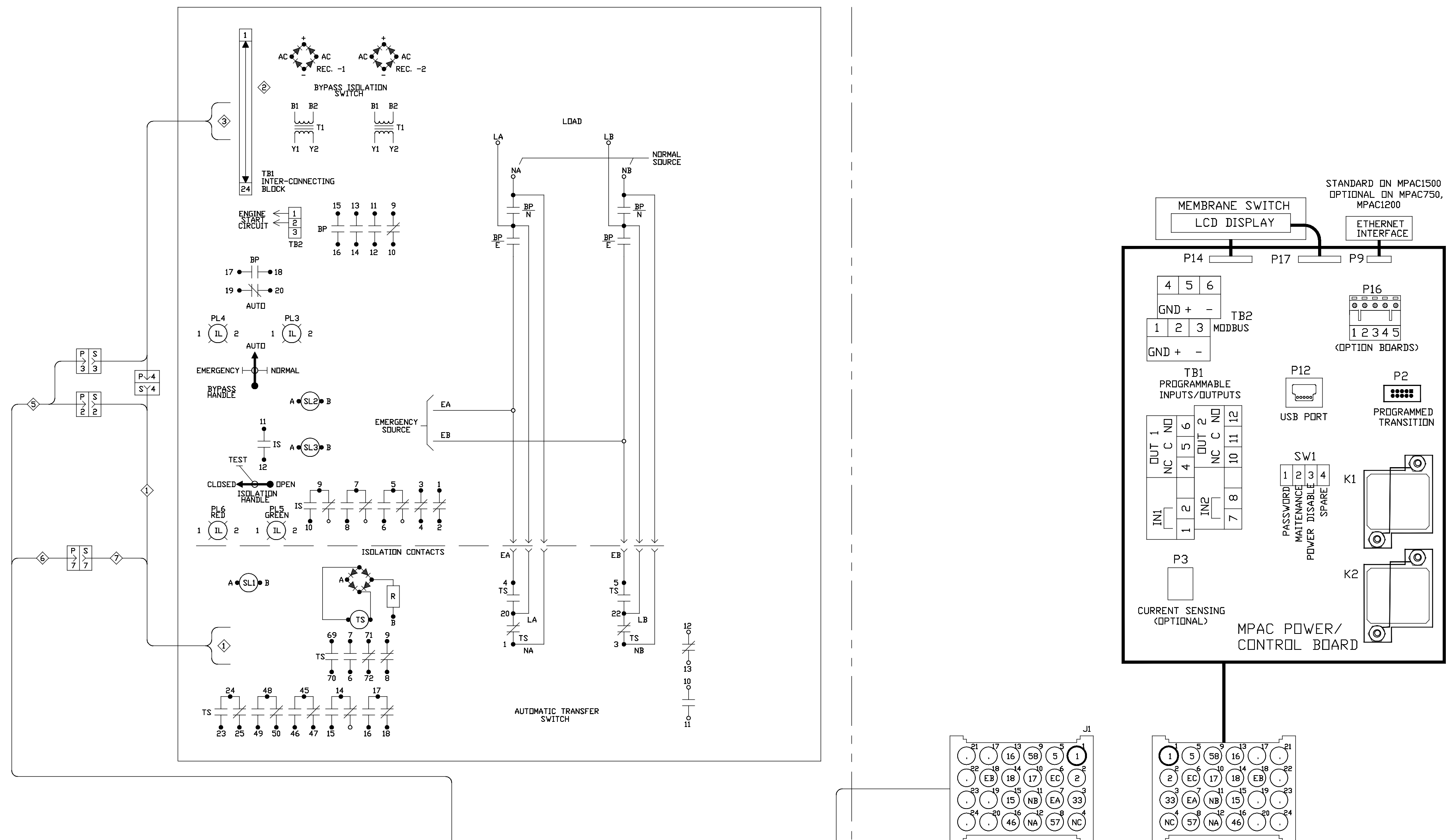
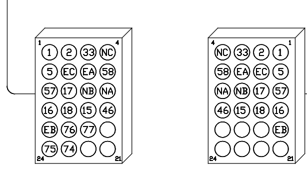
TITLE: DIAGRAM SCHEMATIC
SCALE / / / SHEET 1-1
DWG NO. GM100337 D

REV	DATE	REVISION	BY
-	2-8-16	NEW DRAWING [CT130590]	BTW





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

WIRE NO.	BYPASS-ISOLATION SWITCH, STATIONARY WIRING ②
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
28	TB1-17, BP-9, IS-11
27	TB2-2, BP-12, IS-3
26	TB2-1, BP-11, IS-1
25	BP-13, BP-15, IS-10
24	TB1-7, PL4-1
23	TB1-8, PL4-2
22	TB1-6, PL3-2
21	TB1-5, PL3-1
20	TB1-22, BP-16
19	TB1-23, BP-14
18	TB1-21, SL1-A
17	SL2-A, TB1-19, IS-8
16	SL3-A, TB1-20, IS-6
15	TB1-18#, BP-18, IS-7
	TB1-18, IS-5
14	TB1-1, NA
12	TBI-12, PL6-2
11	TB1-11, PL5-2
9	TB1-16, BP-20, IS-12
8	TBI-14, IS-4
7	TB1-15, IS-2
6	TB1-3, EA
5	TB1-4, EB
4	TB1-2, NB

WIRE NO.	BYPASS-ISOLATION SWITCH, CONNECTION TB1, S3, & P4 ③
32	TB1-13, S3-4
28	TB1-17, P4-3
20	TB1-22, P4-9
19	TB1-23, P4-8
18	TB1-21, P4-7
17	TB1-19, P4-6
16	TB1-20, P4-5
15	TB1-18, P4-4
12	TB1-12, P4-11
12	TB1-12, S3-6
11	TB1-11, P4-10
11	TB1-11, S3-5
9	TB1-16, S3-3
8	TB1-14, S3-2
8	TB1-14, P4-2
7	TB1-15, S3-1
7	TB1-15, P4-1

WIRE NO.	LOGIC BOARD HARNESS S1 ④
NC	S1-4, TB3-NC
NB	S1-11, TB3-NB
NA	S1-12, TB3-NA
EC	S1-6, TB3-EC
EB	S1-17, TB3-EB
EA	S1-7, TB3-EA
77	S1-19, TB6-77
76	S1-18, TB6-76
75	S1-21, TB6-75
74	S1-22, TB6-74
58	S1-8, TB4-58
57	S1-9, TB4-57
46	S1-16, P8-4
33	S1-3, P8-6
18	S1-14, TB4-18
17	S1-10, TB4-17
16	S1-13, TB4-16
15	S1-15, P8-3
5	S1-5, P8-2
2	S1-2, P8-5
1	S1-1, P8-1

WIRE NO.	INTER-CONNECTING HARNESS P1, P2, & P3 ⑤
34	P1-16, P2-8
33	P1-15, P2-9
32	P1-24, P3-4
14	P1-12, P2-11
13	P1-11, P2-10
12	P1-13, P3-6
11	P1-14, P3-5
10	P1-10, P2-7
9	P1-5, P3-3
8	P1-9, P3-2
7	P1-8, P3-1
6	P1-7, P2-6
5	P1-6, P2-5
4	P1-4, P2-4
3	P1-3, P2-3
2	P1-2, P2-2
1	P1-1, P2-1

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

WIRE NO.	A.T.S. TO HARNESS S7 ⑦
EB	TS-19, S7-4
77	TS-21, S7-6
76	TS-20, S7-5
75	TS-15, S7-2
74	TS-14, S7-1

AUX. CONT.	ISOLATION HANDLE POSITION: 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

AUX. CONT.	BYPASS HANDLE POSITION: EMERG.	800-100	AUTO	100-800	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

O=OPEN CONTACT X=CLOSED CONTACT

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.

FOR SCHEMATIC DIAGRAM SEE DWG. GM100337

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	BTW	2-8-16
CHECKED	HCC	2-8-16
APPROVED	MTL	2-8-16

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

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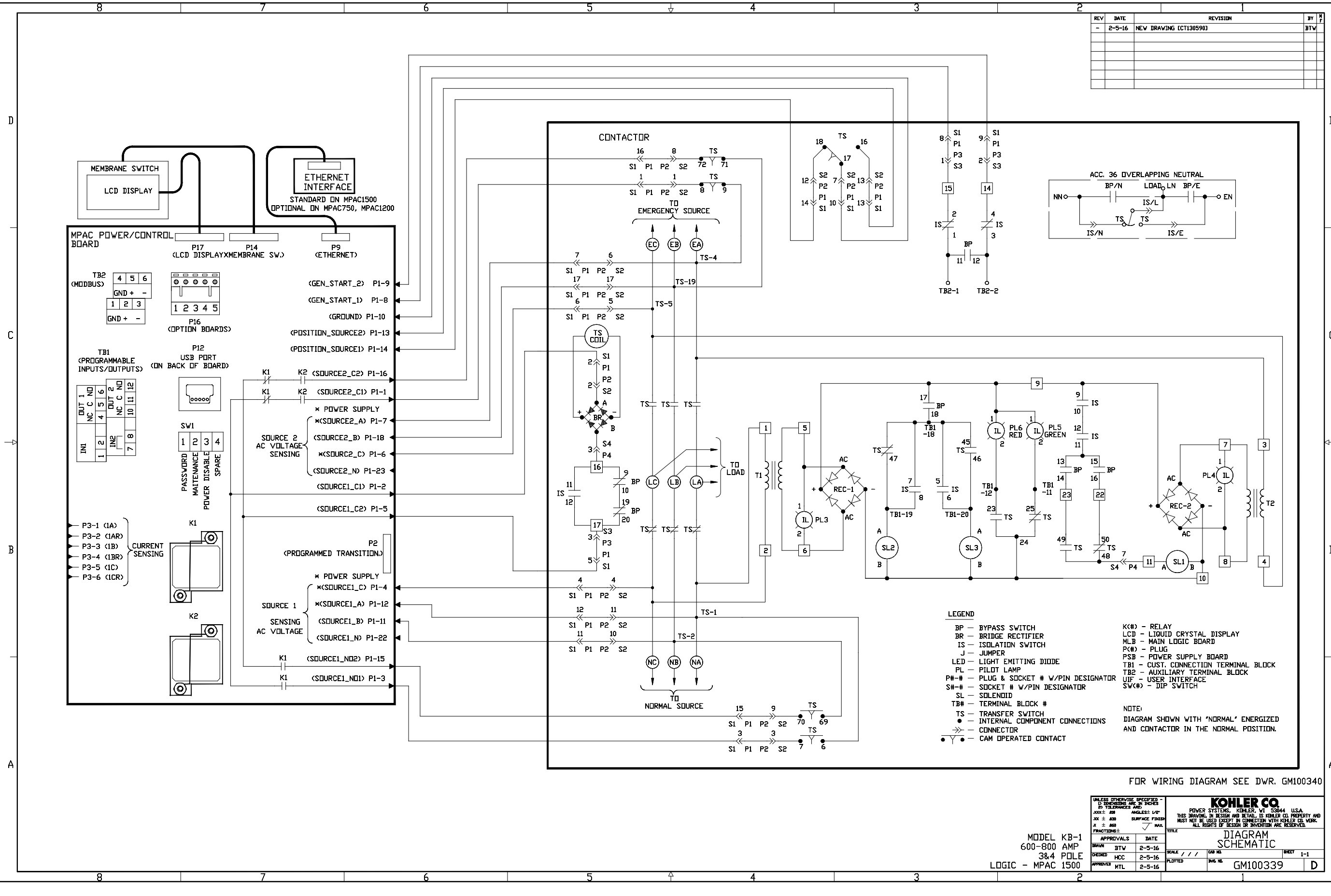
TITLE: DIAGRAM, WIRING

SCALE / / / — CAD NO. — SHEET 1-1
PLOTTED — DWG. NO. GM100338 — D

REV	DATE	REVISION	BY	N F
-	2-5-16	NEW DRAWING (CT1305903)	BTW	



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. GM100340

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

UNLESS OTHERWISE SPECIFIED - DIMENSIONS ARE IN INCHES - TOLERANCES ARE: FRACTIONS ± ; .XX ± .02 ; .XXX ± .010 ; ANGLES ± 1/2° ; SURFACE FINISH 125 MAX

APPROVALS	DATE
DRAWN BTW	2-5-16
CHECKED HCC	2-5-16
APPROVED MTL	2-5-16

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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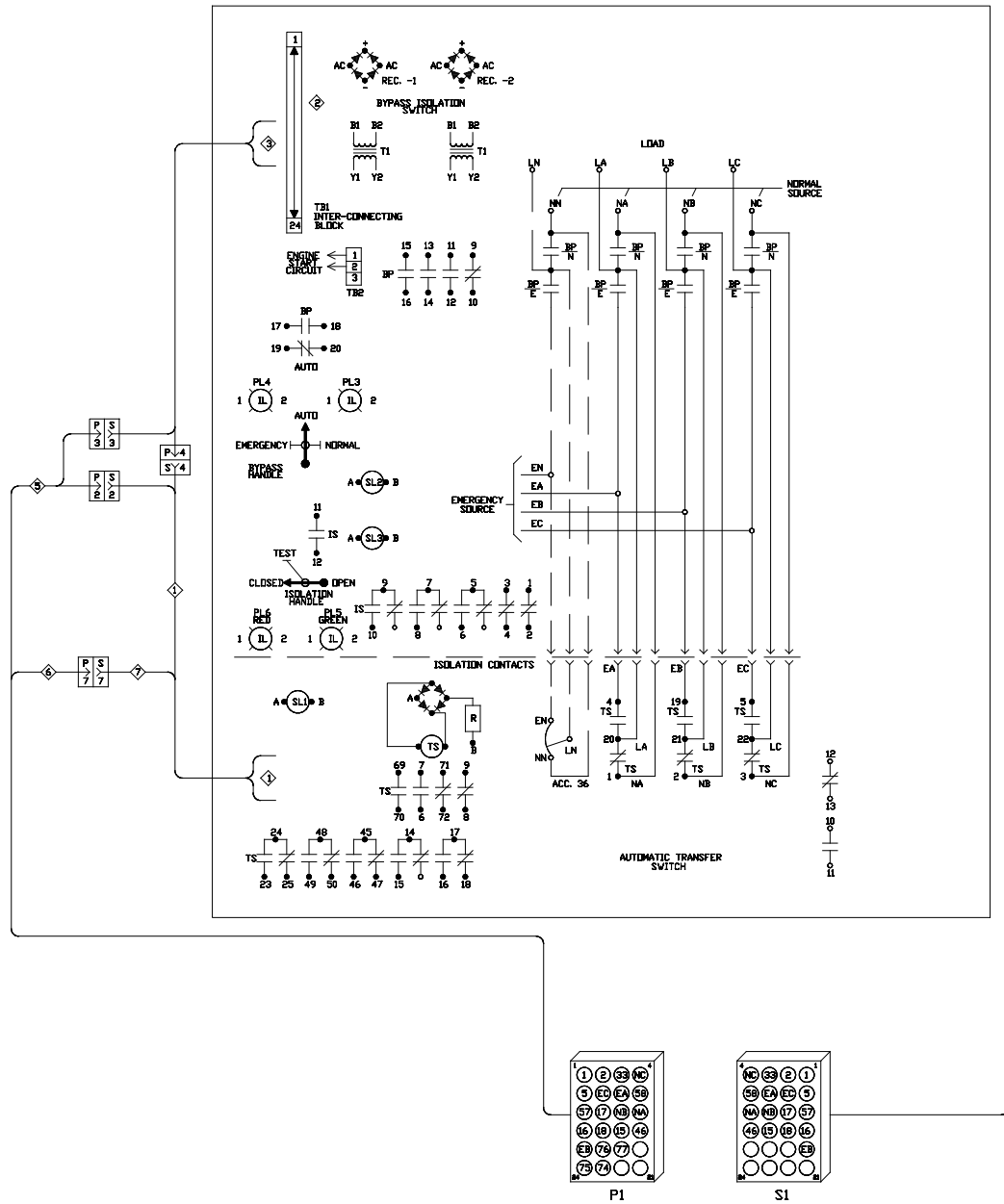
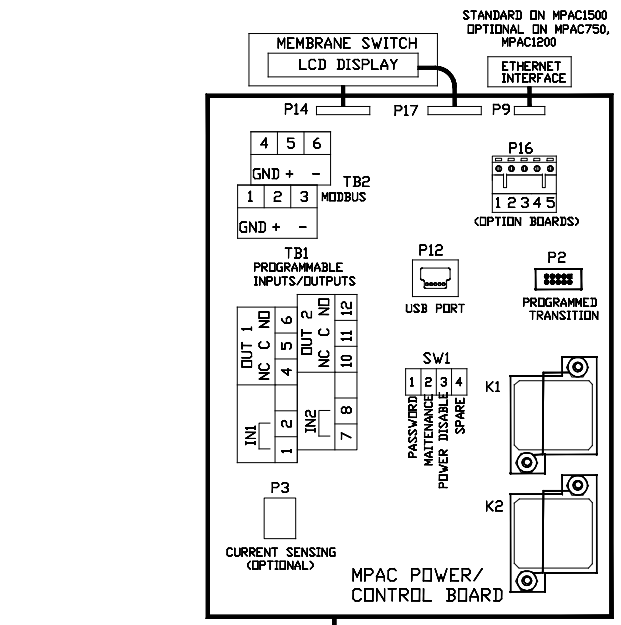
TITLE: DIAGRAM SCHEMATIC
SCALE: / / /
CAD NO.
SHEET 1-1
PLOTTED
DWG NO. GM100339 D

REV	DATE	REVISION	BY	N F
-	2-8-16	NEW DRAWNIG [CT1305901	BTW	





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
TBI - 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 ⑥
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 LOCKO 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.

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 TBI, 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	AUX. CONT.	BYPASS HANDLE POSITION			
													D=OPEN CONTACT		X=CLOSED CONTACT	
		32	TBI-13, PL5-1, PL6-1													
		31	TBI-10, SL1-B													
		31	SL3-B, TBI-10, SL2-B													
		30	TBI-9, BP-17, IS-9													
		29	BP-18, BP-19													
34	TS-72, S2-8	28	TBI-17, BP-9, IS-11													
33	TS-70, S2-9	27	TB2-2, BP-12, IS-3													
28	TS-8, 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	TBI-7, PL4-1			NB	S1-11, TB3-NB			EB	P7-4, P1-17					
18	TS-48, S4-7	23	TBI-8, PL4-2			NA	S1-12, TB3-NA			77	P7-6, P1-19					
17	TS-47, S4-6	22	TBI-6, PL3-2			EC	S1-6, TB3-EC			76	P7-5, P1-18	11-12	D	X	D	
16	TS-46, S4-5	21	TBI-5, PL3-1	32	TBI-13, S3-4	EB	S1-17, TB3-EB	34	P1-16, P2-8	75	P7-2, P1-21	9-10	D	X	D	
15	TS-45, S4-4	20	TBI-22, BP-16	28	TBI-17, P4-3	EA	S1-7, TB3-EA	33	P1-15, P2-9	74	P7-1, P1-22	7-8	D	X	X	
14	TS-1, TS-7	19	TBI-23, BP-14	20	TBI-22, P4-9	77	S1-19, TB6-77	32	P1-24, P3-4			5-6	D	X	X	
14	TS-1, S2-11	18	TBI-21, SL1-A	19	TBI-23, P4-8	76	S1-18, TB6-76	14	P1-12, P2-11	WIRE NO.	HARNESS P7 TO P1 ⑥	3-4	X	X	D	
13	TS-2, S2-10	17	SL2-A, TBI-19, IS-8	18	TBI-21, P4-7	75	S1-21, TB6-75	13	P1-11, P2-10			1-2	X	X	D	
12	TS-16, S2-13	16	SL3-A, TBI-20, IS-6	17	TBI-19, P4-6	74	S1-22, TB6-74	12	P1-13, P3-6			AUX. CONT.	CLOSED		TEST	OPEN
11	TS-18, S2-12	15	TBI-189, BP-18, IS-7	16	TBI-20, P4-5	58	S1-8, TB4-58	11	P1-14, P3-5				ISOLATION HANDLE POSITION			
10	TS-17, S2-7		TBI-18, IS-5	15	TBI-18, P4-4	57	S1-9, TB4-57	10	P1-10, P2-7							
6	TS-4, TS-9	14	TBI-1, NA	12	TBI-12, P4-11	46	S1-16, P8-4	9	P1-5, P3-3							
6	TS-4, S2-6	12	TBI-12, PL6-2	12	TBI-12, S3-6	33	S1-3, P8-6	8	P1-9, P3-2							
5	TS-5, TS-71	11	TBI-11, PL5-2	11	TBI-11, P4-10	18	S1-14, TB4-18	7	P1-8, P3-1							
5	TS-5, S2-5	9	TBI-16, BP-20, IS-12	11	TBI-11, S3-5	17	S1-10, TB4-17	6	P1-7, P2-6			19-20	D	D	X	D	D
4	TS-3, TS-69	8	TBI-14, IS-4	9	TBI-16, S3-3	16	S1-13, TB4-16	5	P1-6, P2-5	EB	TS-19, S7-4	17-18	D	X	D	X	D
4	TS-3, S2-4	7	TBI-15, IS-2	8	TBI-14, S3-2	15	S1-15, P8-3	4	P1-4, P2-4	77	TS-21, S7-6	15-16	D	D	D	X	X
3	TS-6, S2-3	6	TBI-3, EA	8	TBI-14, P4-2	5	S1-5, P8-2	3	P1-3, P2-3	76	TS-20, S7-5	13-14	X	X	D	D	D
2	TS-4, S2-2	5	TBI-4, EB	7	TBI-13, S3-1	2	S1-2, P8-5	2	P1-2, P2-2	75	TS-15, S7-2	11-12	X	X	D	D	D
1	TS-8, S2-1	4	TBI-2, NB	7	TBI-15, P4-1	1	S1-1, P8-1	1	P1-1, P2-1	74	TS-14, S7-1	9-10	D	D	X	D	D
												AUX. CONT.	EMERG.	600-100	AUTO	100-600	NORM.
													BYPASS HANDLE POSITION				

FOR SCHEMATIC DIAGRAM SEE DWG. GM100339

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

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

APPROVALS	DATE
DRAWN BTW	2-8-16
CHECKED HCC	2-8-16
APPROVED MTL	2-8-16

KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
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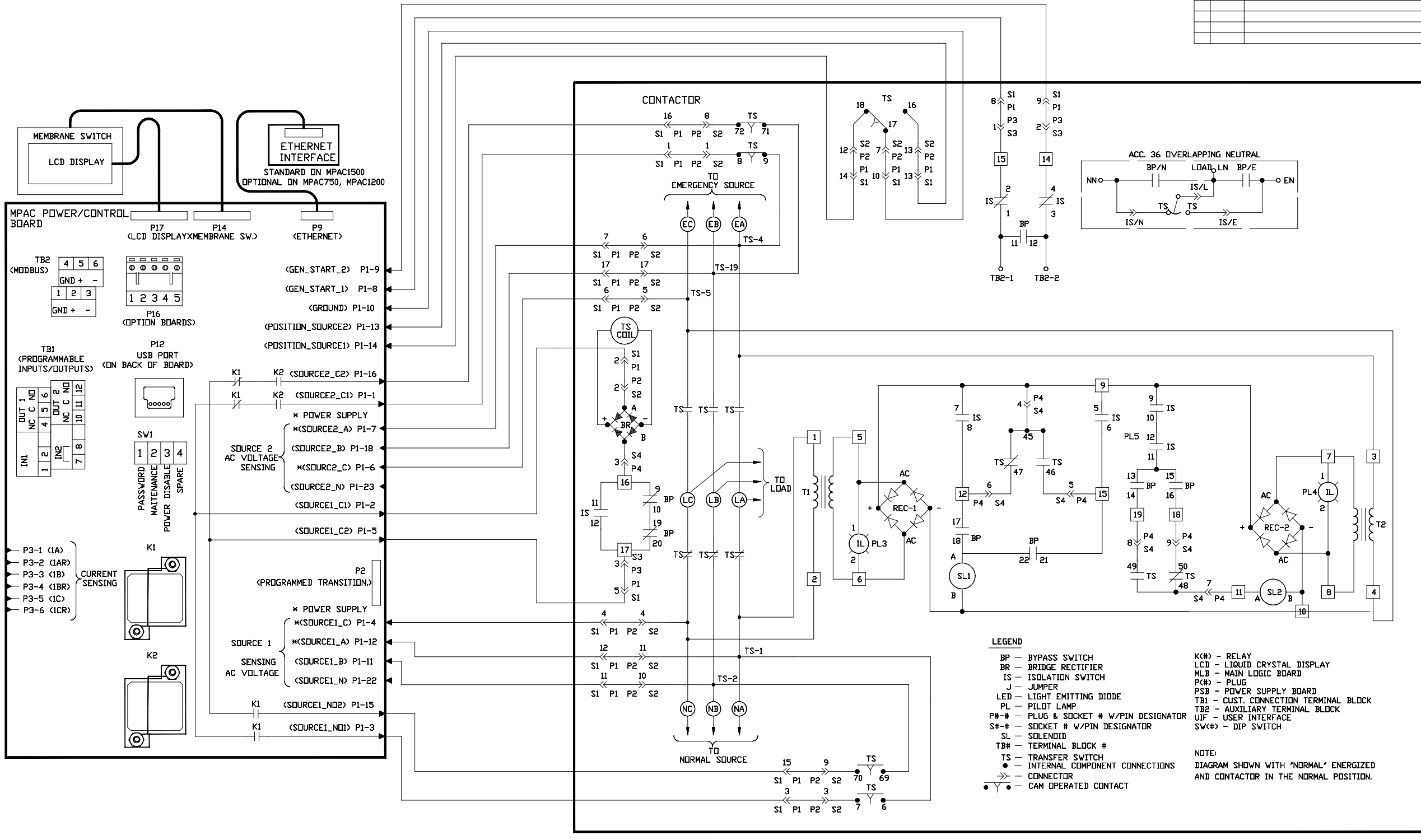
TITLE: DIAGRAM, WIRING

SCALE: / / / | CAD NO. | SHEET 1-1
PLOTTED | DWG NO. GM100340 | D

REV	DATE	REVISION	BY	N F
-	2-5-16	NEW DRAWING (CT1305903)	BTW	



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. GM100343 & GM100342

MODEL KB-1
150-400 AMP
2,3 & 4 POLE
LOGIC - MPAC 1500

UNLESS OTHERWISE SPECIFIED - DIMENSIONS ARE IN INCHES - TOLERANCES ARE: .XXX ± .010 ANGLES ± 1/2° .XX ± .030 SURFACE FINISH 125 MAX. FRACTIONS ±

APPROVALS	DATE
DRAWN BTW	2-5-16
CHECKED HCC	2-5-16
APPROVED MTL	2-5-16

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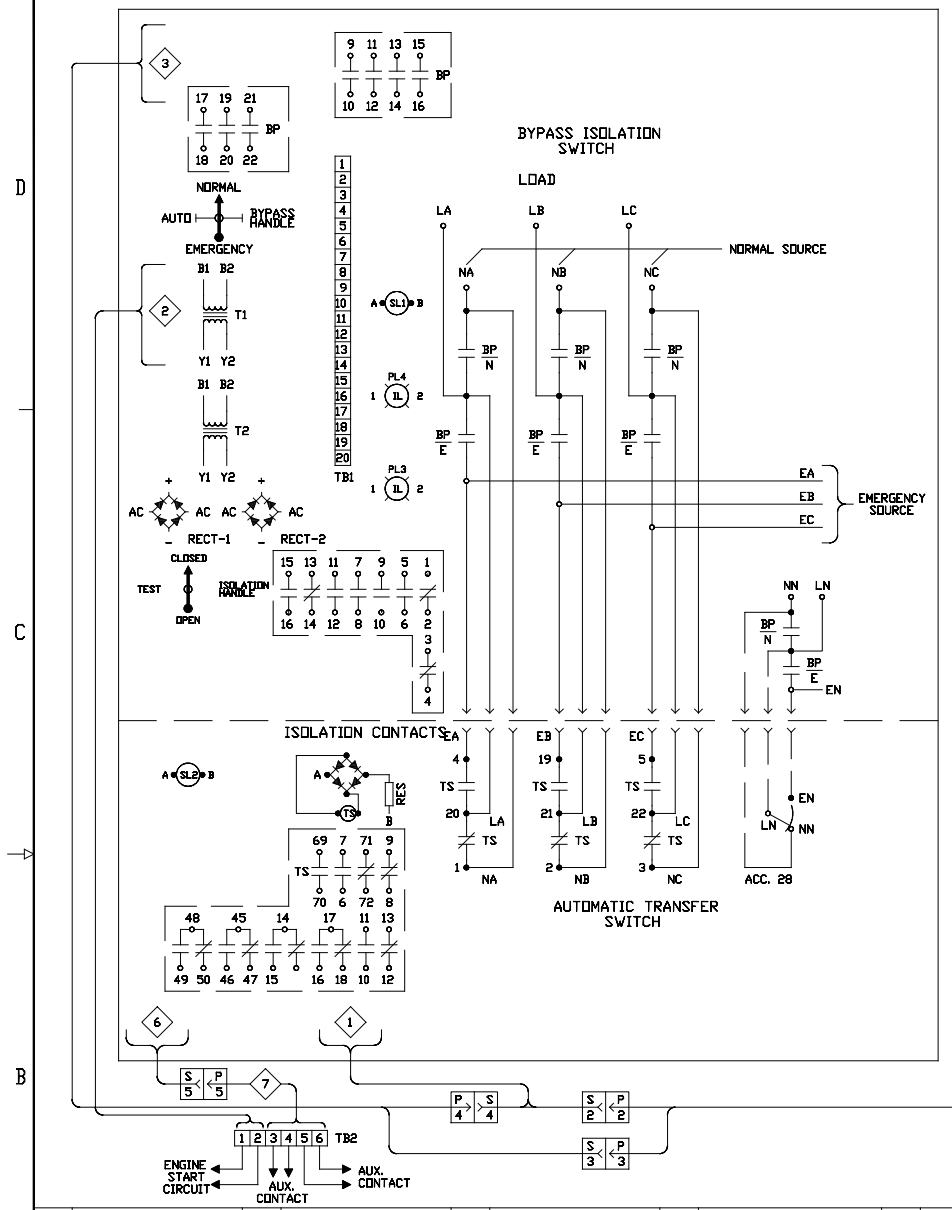
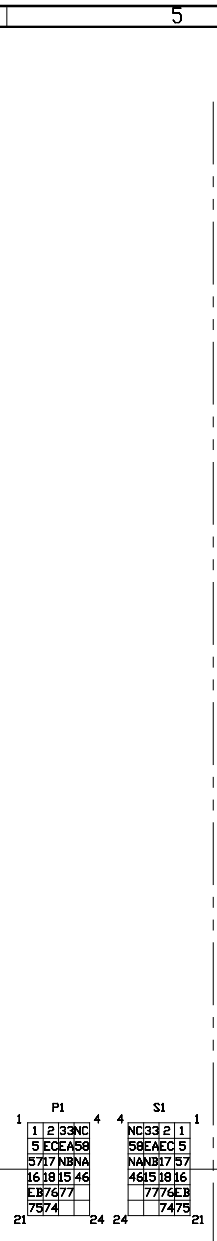
TITLE: DIAGRAM SCHEMATIC

SCALE / / / | CAD NO. | SHEET 1-1

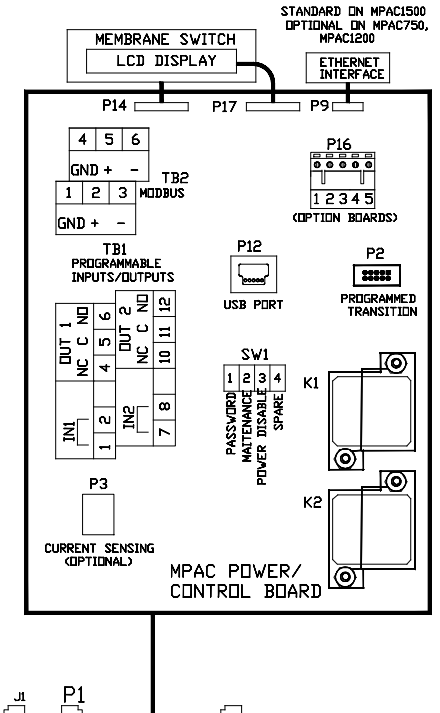
PLOTTED | DWG NO. GM100341 | D

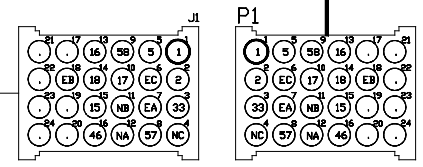
REV	DATE	REVISION	BY	N F
-	2-8-16	NEW DRAWING [CT1305901]	BTW	





DOOR





WIRE NO.	A.T.S. ON PANEL WIRE CONNECTIONS TO ① S2, S4 & S5	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	○=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
13	TS-2 , S2-10	77	S1-19 , TB6-77	33	P1-15 , P2-9	22	TB1-6 , PL3-2		EMERG. 80○-10○ AUTO. 10○-80○ NORM.
14	TS-1 , S2-11	EA	S1-7 , TB5-EA	34	P1-16 , P2-8	23	TB1-8 , PL4-2	9-10	0 0 X ○ ○
14	TS-1 , TS-7	EB	S1-17 , TB5-EB	74	P1-22 , P2-22	24	TB1-7 , PL4-1	11-12	X X ○ ○ ○
16	TS-46 , S4-5	EC	S1-6 , TB5-EC	75	P1-21 , P2-21	25	BP-13 , BP-15 , IS-11	13-14	X X ○ ○ X
17	TS-47 , S4-6	NA	S1-12 , TB5-NA	76	P1-18 , P2-18	26	TB2-1 , BP-11 , IS-1	15-16	○ ○ ○ X X
18	TS-48 , S4-7	NB	S1-11 , TB5-NB	77	P1-19 , P2-19	27	TB2-2 , BP-12 , IS-3	17-18	○ ○ ○ X ○
19	TS-49 , S4-8	NC	S1-4 , TB5-NC	EB	S1-17 , P2-17	28	TB1-16 , BP-9 , IS-13	19-20	○ ○ X ○ ○
20	TS-50 , S4-9					29	BP-10 , BP-19	21-22	○ X ○ ○ ○
28	TS-8 , S4-3					30	TB1-9 , IS-5 , IS-7 , IS-9	AUX. CONT.	ISOLATION HANDLE POSITION
30	TS-45 , S4-4					31	TB1-10 , SL1-B , SL2-B		CLOSED TEST OPEN
33	TS-70 , S2-9	WIRE NO.	A.T.S. AUX. ⑥	WIRE NO.	A.T.S. AUX. ⑦	35	IS-12 , IS-10	1-2	X X ○
34	TS-72 , S2-8					36	IS-14 , IS-16	3-4	X X ○
EB	TS-19 , S2-17	37	TS-10 , S5-1	37	TB2-3 , P5-1			5-6	○ X X
LA	LA , S2-18	38	TS-11 , S5-2	38	TB2-4 , P5-2			7-8	○ X X
LC	LC , S2-19	39	TS-12 , S5-3	39	TB2-5 , P5-3			9-10	X X ○
		40	TS-13 , S5-4	40	TB2-6 , P5-4			11-12	○ X X
								13-14	X X ○
								15-16	○ 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. OPERATION'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 LOCKS 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 DWG. GM100341

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

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

APPROVALS		DATE
DRAWN	BTW	2-8-16
CHECKED	HCC	2-8-16
APPROVED	MTL	2-8-16

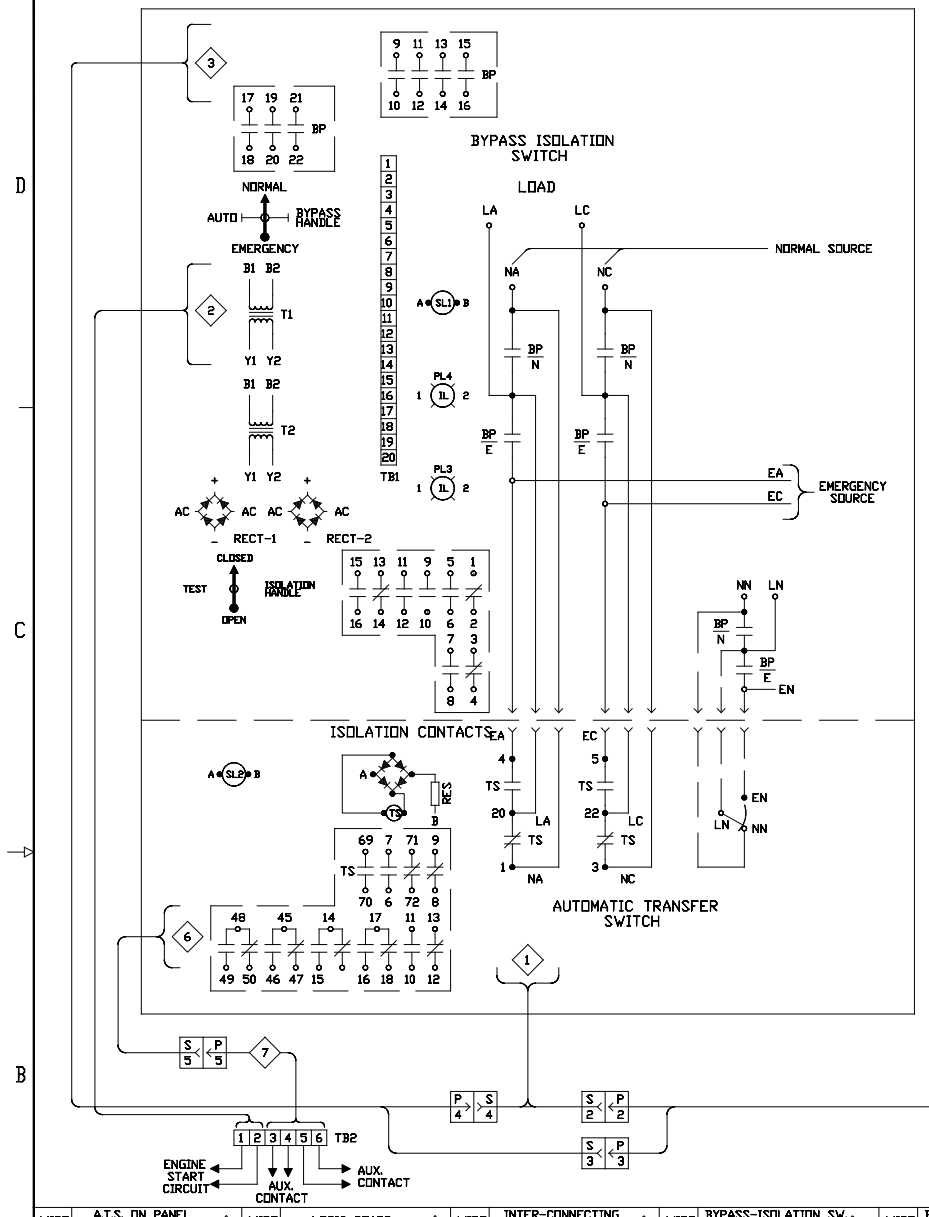
KOHLER CO.
POWER SYSTEMS, KOHLER, WI 53044 U.S.A.
THIS DRAWING, IN DESIGN AND DETAIL, IS KOHLER CO. PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH KOHLER CO. WORK. ALL RIGHTS OF DESIGN OR INVENTION ARE RESERVED.

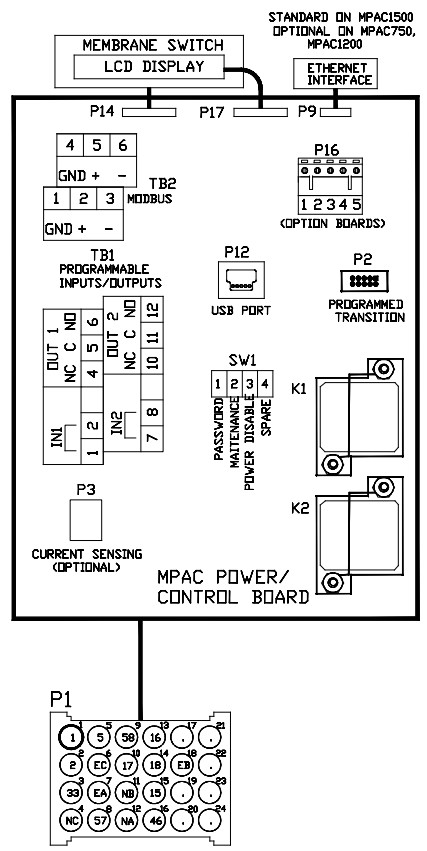
TITLE: DIAGRAM, WIRING

SCALE: / / / | CAD NO. | SHEET 1-1

PLOTTED | DWG NO. GM100342 | D

REV	DATE	REVISION	BY	N F
-	2-8-16	NEW DRAWING [CT1305901]	BTW	





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	D=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
13	TS-2 , S2-10	77	S1-19 , TB6-77	33	P1-15 , P2-9	22	TB1-6 , PL3-2		EMERG. 80D-10D AUTO. 10D-80D NORM.
14	TS-1 , S2-11	EA	S1-7 , TB5-EA	34	P1-16 , P2-8	23	TB1-8 , PL4-2	9-10	0 0 X D D
14	TS-1 , TS-7	EB	S1-17 , TB5-EB	74	P1-22 , P2-22	24	TB1-7 , PL4-1	11-12	X X D D D
16	TS-46 , S4-5	EC	S1-6 , TB5-EC	75	P1-21 , P2-21	25	BP-13 , BP-15 , IS-11	13-14	X X D D D
17	TS-47 , S4-6	NA	S1-12 , TB5-NA	76	P1-18 , P2-18	26	TB2-1 , BP-11 , IS-1	15-16	D D D X X
18	TS-48 , S4-7	NB	S1-11 , TB5-NB	77	P1-19 , P2-19	27	TB2-2 , BP-12 , IS-3	17-18	D D D X D
19	TS-49 , S4-8	NC	S1-4 , TB5-NC	EB	S1-17 , P2-17	28	TB1-16 , BP-9 , IS-13	19-20	D D X D D
20	TS-50 , S4-9					29	BP-10 , BP-19	21-22	D X D D D
28	TS-8 , S4-3					30	TB1-9 , IS-5 , IS-7 , IS-9	AUX. CONT.	ISOLATION HANDLE POSITION
30	TS-45 , S4-4					31	TB1-10 , SL1-B , SL2-B		CLOSED TEST OPEN
33	TS-70 , S2-9	WIRE NO.	A.T.S. AUX. ⑥	WIRE NO.	A.T.S. AUX. ⑦	35	IS-12 , IS-10	1-2	X X D
34	TS-72 , S2-8					36	IS-14 , IS-16	3-4	X X D
EB	TS-19 , S2-17	37	TS-10 , S5-1	37	TB2-3 , P5-1			5-6	D X X
LA	LA , S2-18	38	TS-11 , S5-2	38	TB2-4 , P5-2			7-8	D X X
LC	LC , S2-19	39	TS-12 , S5-3	39	TB2-5 , P5-3			9-10	X X D
		40	TS-13 , S5-4	40	TB2-6 , P5-4			11-12	D X X
								13-14	X X D
								15-16	D X X

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FOR SCHEMATIC DIAGRAM SEE DWG. GM100341

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

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

APPROVALS		DATE
DRAWN	BTW	2-8-16
CHECKED	HCC	2-8-16
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SCALE: / / / CAD NO. SHEET 1-1

PLOTTED DWG NO. GM100343 D