

INSTALLATION INSTRUCTIONS

Original Issue Date: 12/04

Model: **RDT, HDT, and KSS-J Automatic Transfer Switches**

Market: **ATS**

Subject: **Programmable Exerciser Kits GM47597-KA1, -KA2, KA3, -KP1, -KP2, and -KP3; GM48913; GM48919, and GM64108 (GM38798-KA1, -KA2, KP1, KP2, discontinued*)**

Introduction

Use the Programmable Exerciser Kit with the following transfer switch models:

- RDT
- HDT
- KSS-J with Decision-Maker® MPAC 750 Controller

Service kits are also available to replace the exercise timer on transfer switches equipped with S340 controls.

Figure 1 shows the programmable exerciser timer. See Figure 3 through Figure 5 for illustrations of installed exerciser timers.

Use the programmable exerciser kit to schedule generator set exercise runs in addition to the weekly or biweekly exercise set through the ATS controls. The programmable exerciser kit can also be used for peak shaving by scheduling the system to start the generator set and transfer the load at selected times and days.

Optional Accessory Board GM38796-KA1 or -KP1 is required for connection and operation of the programmable exerciser kit on Model RDT transfer switches.

The programmable exerciser kits include programmable timer GM64027 or GM64028, mounting hardware, and connecting leads as required.

Read the entire installation procedure and compare the kit parts with the parts list at the end of this publication before beginning installation. Perform the steps in the order shown. The installation and wiring must comply with the National Electrical Code and applicable local codes.

* Discontinued kits. See page 13 for instructions.

Timer Features

- 24 hour/7 day timing combined
- 8 on/off operations daily, up to 56 switching (on or off) cycles per week
- 5 year lithium battery for backup power
- 24 hour display (military time or AM/PM)
- Manual override
- Skip a day feature

Programmable Timer Specifications	
Switching	SPDT
Switch rating	16 A @ 45°C; 10 A @ 55°C
Supply voltage	120VAC, 50/60 Hz (GM60427) 240VAC, 50/60 Hz (GM64028) 5-year lithium backup battery
Rated power	3.5 VA
Operating temperature range	-10°C to 55°C (-14°F to 131°F)
Connections	6.3 x 0.8 tab terminals
Shortest switch time	1 minute



Figure 1 Programmable Exerciser GM64027 (120V) and GM64028 (240V)

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.

(Decision-Maker® 3+ and 550 Generator Set Controllers)

Disabling the generator set. Accidental starting can cause severe injury or death. Before working on the generator set or equipment connected to the set, disable the generator set as follows: (1) Press the generator set off/reset button to shut down the generator set. (2) Disconnect the power to the battery charger, if equipped. (3) Remove the battery cables, negative (-) lead first. Reconnect the negative (-) lead last when reconnecting the battery. Follow these precautions to prevent the starting of the generator set by the remote start/stop switch.

(RDC, DC, RDC2, DC2, Decision-Maker® 3000, 3500 and 6000 Generator Set Controllers)

⚠ DANGER

Hazardous voltage. Will cause severe injury or death.

Disconnect all power sources before opening the enclosure.

⚠ DANGER

Hazardous voltage. Will cause severe injury or death.

Only authorized personnel should open the enclosure.

Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

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.

1 Kit Application Notes

Figure 2 lists the available programmable exerciser kits and their applications. Kits include the programmable exerciser timer and mounting hardware.

To replace the older style timer GM39330 on the 200 Amp service entrance rated model RDT, service kit GM64108 is required. The service kit includes a retrofit mounting panel that is required for timer replacement on the 200 Amp service entrance rated Model RDT only.

Service kits are also available for exerciser replacement on transfer switches equipped with S340 controls.

Kit Number	Application
GM47597-KP2	100-200 Amp Model RDT
GM47597-KP1	400 Amp Model RDT; 200 and 400 Amp Model RDT SE *
GM47597-KP3	Model KSS-J with Decision-Maker® MPAC 750 Controller
GM48913	Service Kit for S340 Controls, 120 VAC
GM48919	Service Kit for S340 Controls, 240 VAC
GM64108	Service Kit for 200 Amp RDT SE * (replaces timer GM39330)
GM38798-KA1, -KA2, -KP1, -KP2	Kits with timer GM39330. Discontinued; see page 13.

* SE = Service Entrance Model

Figure 2 Programmable Exerciser Kit Application

2 Installation Procedure

Note: For factory-installed exerciser kits, proceed to section 5.

1. Disable the generator set to prevent accidental starting:
 - a. Shutdown the generator set by either moving the generator set master switch to OFF or by pressing the OFF/RESET button on the generator set controller.
 - b. Disconnect power to the battery charger, if equipped.
 - c. Disconnect the generator set engine starting battery, negative (-) lead first.
2. Disconnect power to the transfer switch before opening the ATS enclosure.

2.1 Mounting, 100-200 Amp Model RDT

See Figure 3.

1. Install timer mounting bracket GM64057 over the controller bracket as shown in Figure 3. Use the existing controller bracket nuts to secure the timer mounting bracket to the bottom 2 studs.
2. Insert the timer through the opening in the bracket. Secure the timer to the four standoffs using four mounting screws X-49-2 provided with the kit.
3. Proceed to the Wiring Section for timer connections.

Note: For 100 Amp models: Insert the lead ring terminals through the slot under the bus and under the flat washer on the load lug. See Figure 3.

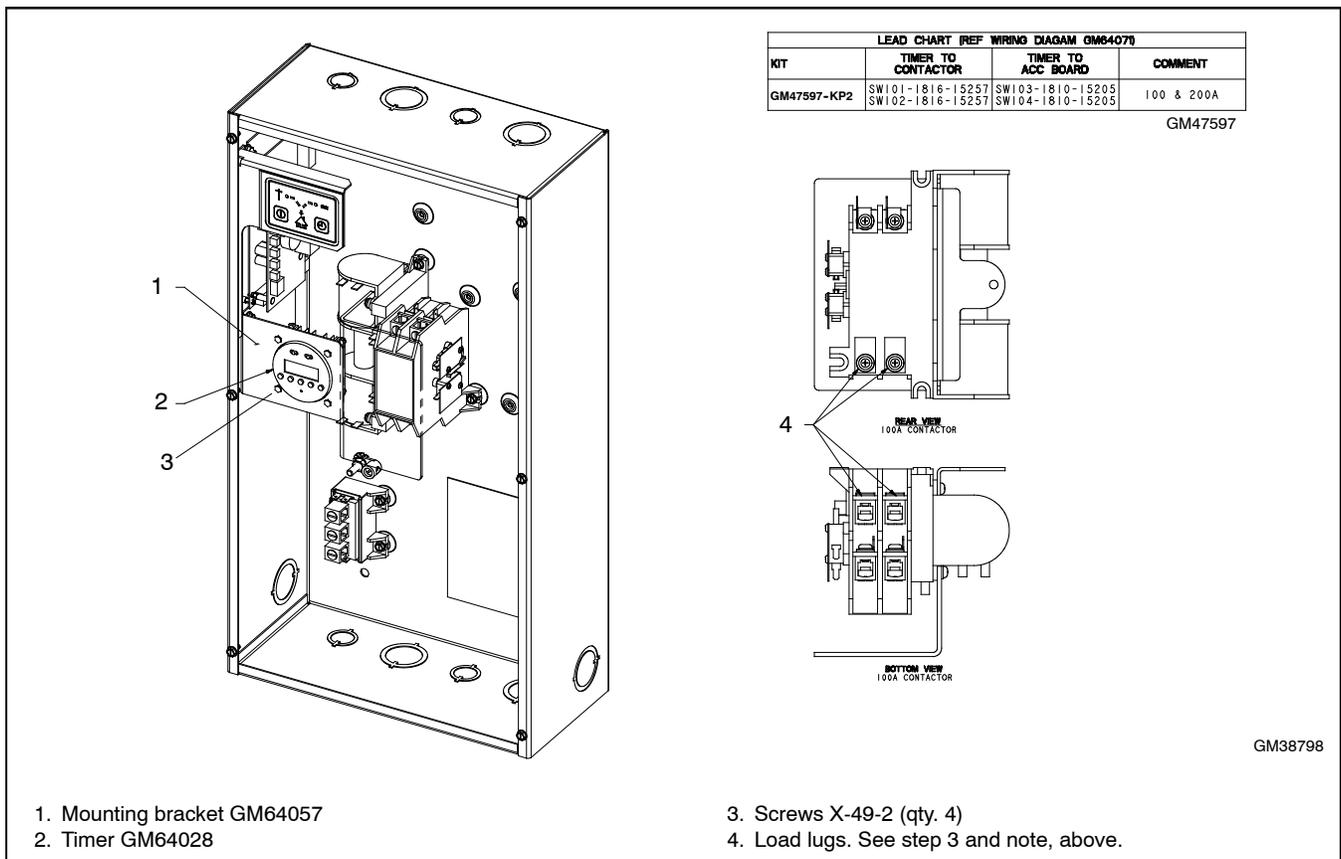


Figure 3 Mounting, 100-200 Amp Model RDT

2.2 Mounting, 400 Amp Model RDT, Service Entrance Rated 200 Amp or 400 Amp Model RDT

See Figure 4.

1. Replace the existing mounting bracket with bracket GM64055 provided with the kit. See Figure 4.
2. Insert the timer through the opening in the bracket. Secure the timer to the four standoffs using four mounting screws X-49-2 provided with the kit.
3. Proceed to the Wiring Section for timer connections.

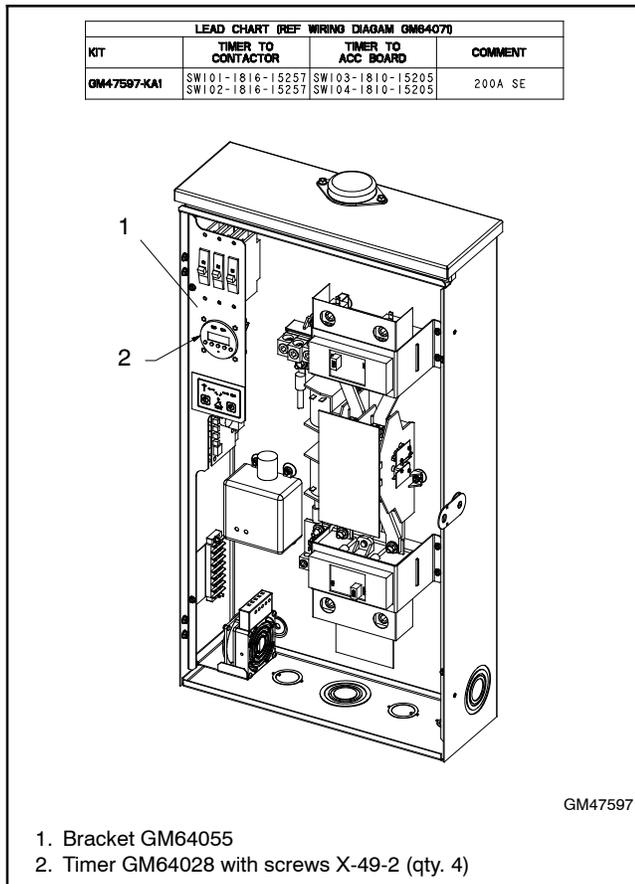


Figure 4 Mounting, 400 Amp Model RDT or 200 Amp and 400 Amp Service Entrance Rated Model RDT

2.3 Mounting, Models KSS-J with Decision-Maker® MPAC 750 Controller

1. Align the mounting holes on the timer bracket GM89060 with the two mounting studs on the inside of the transfer switch box. See Figure 5.
1. Secure the timer kit to the studs with the two X-6210-2 nuts provided with the kit. See Figure 5.
2. Proceed to the Wiring Section 3.2 for timer connections.

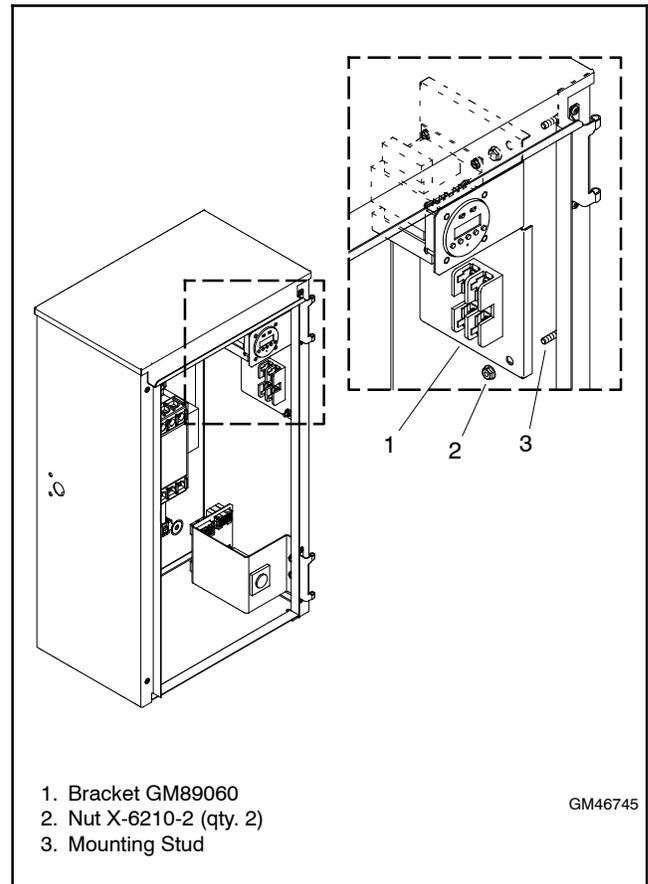


Figure 5 Mounting, Models KSS-J with Decision-Maker® MPAC 750

2.4 Service Kit GM64108, Retrofit Timer Replacement Kit for the Service Entrance Rated 200 Amp Model RDT

See Figure 6 and Figure 7. Use Service Kit GM64108 to replace an old style timer GM39330 with timer GM64028. The service kit includes retrofit mounting panel GM64074.

Tools Required:

- Electric drill with 1/4 in. chuck (minimum)
- 1/4 inch dia. drill bit

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.

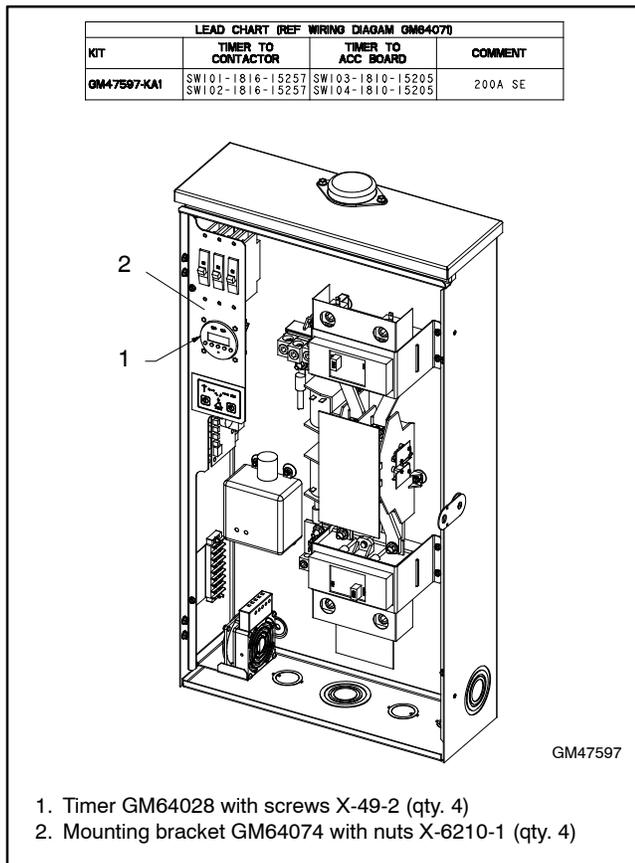


Figure 6 Retrofit Timer Replacement Service Kit GM64108 for Service Entrance-Rated 200 Amp Model RDT

1. Using the dimensions in Figure 7 or retrofit panel GM64074 as a guide, mark four holes on the existing mounting bracket at the locations of the four studs on the retrofit panel. Cover the components inside the enclosure to protect them

from metal drill chips. Drill four 1/4 inch diameter holes through the existing mounting bracket at the marked locations.

2. Align and insert the mounting studs on the retrofit mounting bracket through the newly drilled holes on the existing mounting bracket. Thread nuts X-6210-1 onto the mounting studs to secure. See Figure 6 and Figure 7.
3. Secure the timer to the four standoffs using the four mounting screws X-49-2 provided with the kit.
4. Proceed to the Wiring Section for timer connections.

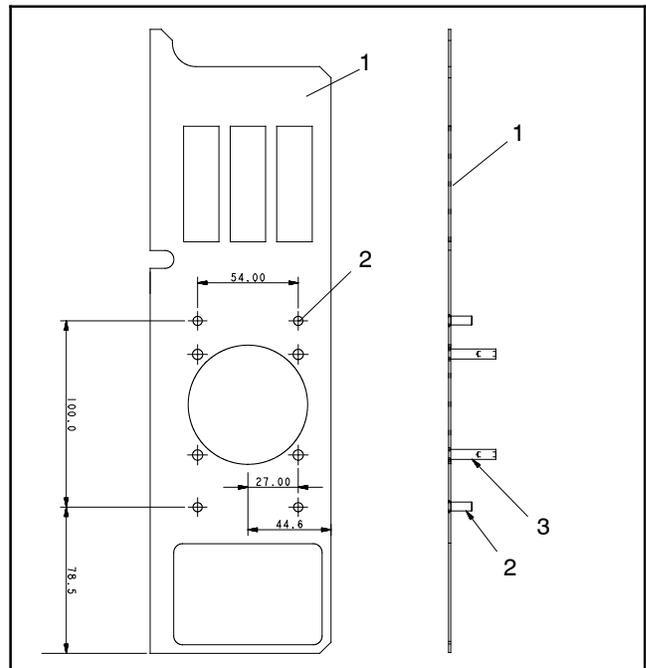
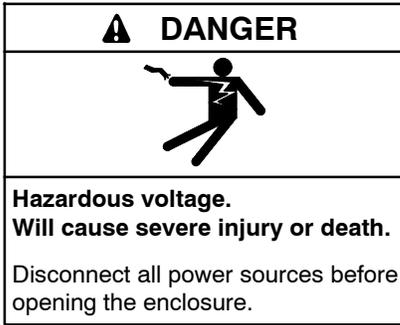


Figure 7 Retrofit Mounting Panel GM64074

3 Wiring



Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

Wiring must comply with the National Electrical Code and applicable local codes.

Note: Check that the supply voltage matches the voltage marked on the unit. Wiring to incorrect voltage will void the warranty.

3.1 RDT Models

1. Verify that power has been disconnected as described in Section 2, Installation Procedure.
2. Use the leads supplied with the kit to connect the timer according to the wiring diagrams. See Figure 8.

Note: For 100 Amp models: Insert the lead ring terminals through the slot under the bus and under the flat washer on the load lug. See Figure 3.

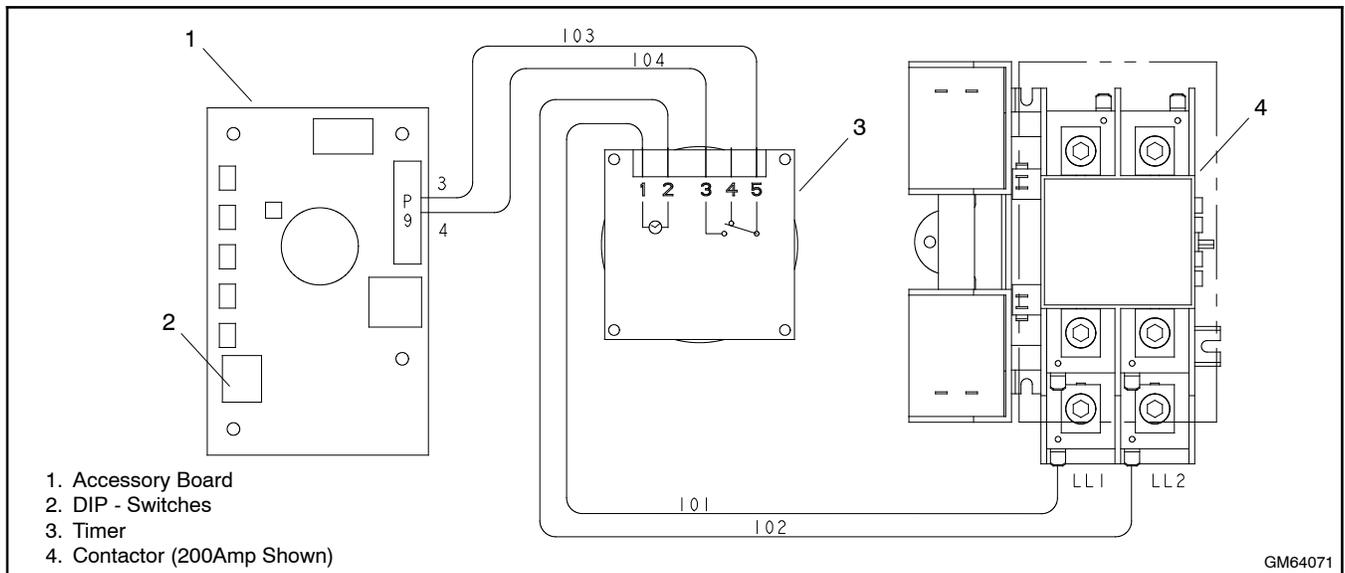


Figure 8 Wiring Diagram for RDT Models

3.2 KSS-J Models with Decision-Maker® MPAC 750 Controllers

1. Verify that power has been disconnected as described in Section 2, Installation Procedure.
2. Use harness leads GM91325, supplied, to connect the exercise kit according to the wiring diagram in Figure 10. Connect the timer to the controller (leads 103 and 104) and connect the fuse block to the contactor (leads LA and LC). Use piggyback terminals 233704 at the contactor if needed.
3. Connect the transformer to supply the correct voltage to the timer. Configure the primary and

secondary transformer connections for the corresponding system voltage. See Figure 9 and Figure 11.

System Voltage	Transformer Connections	
	Primary	Secondary
208	H1, H2	X1, X4
220-240	H1, H2	X1, X3
380-416	H1, H3	X1, X3
480	H1, H4	X1, X3

Figure 9 Transformer Wiring Configuration Chart

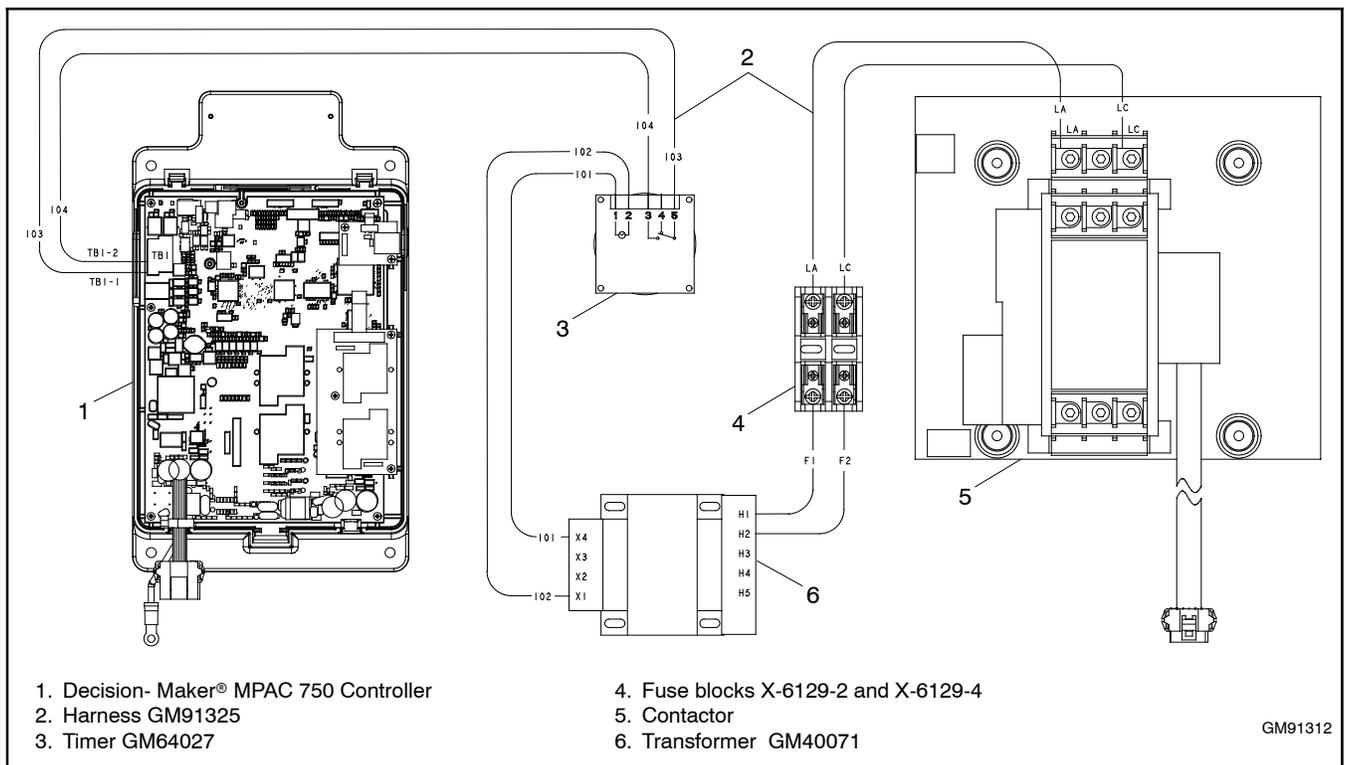


Figure 10 Wiring Diagram for KSS-J Models with Decision-maker® MPAC 750 Controller

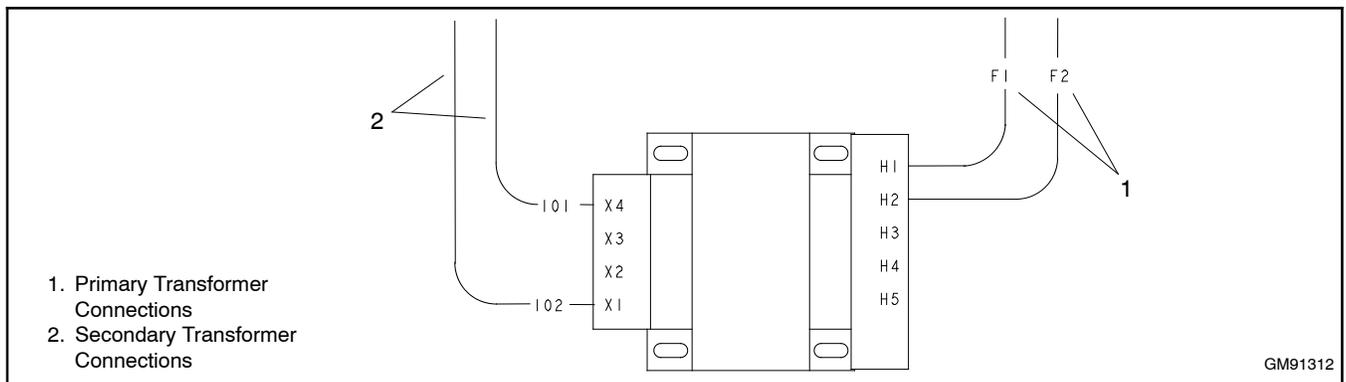


Figure 11 Diagram Detail, Transformer Wiring Configuration (208 V shown; see Figure 9 for other voltages)

4 Service Kits GM48913 and GM48919

Use the service kit GM48913 (120VAC) or GM48919 (240VAC) to replace failed exercise timers on transfer switches equipped with S340 controls. The service kits include the exercise timer GM64027, timer enclosure GM64054, and a DIN rail for timer mounting. See Figure 12 and Figure 13.

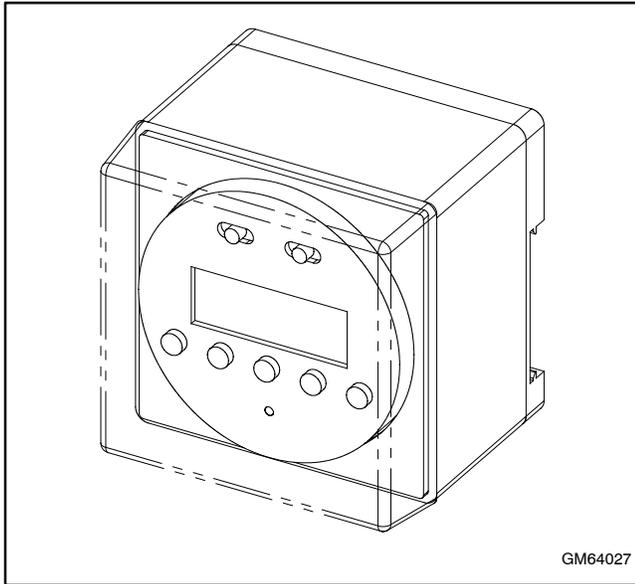


Figure 12 Timer with Enclosure

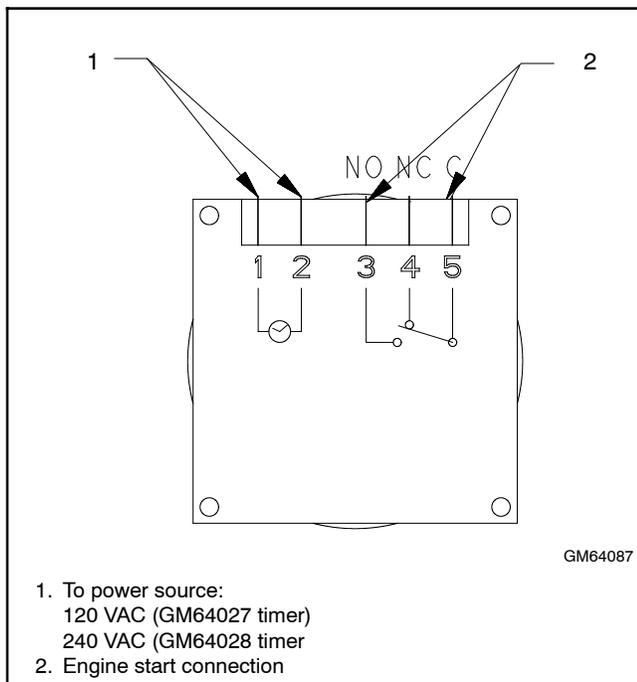


Figure 13 Wiring Diagram for Service Kits GM48913 and GM48919

5 Setup

After connecting the wiring leads, the controllers must be set for loaded or unloaded exercise. Follow the specific instructions below for either the RDT or KSS-J model transfer switches.

Note: Changing the type of exercise (loaded or unloaded) that is run by the exercise timer does not affect the type of exercise that is set by the transfer switch controller.

5.1 Setup for RDT Models

On RDT model transfer switches, the exercise timer must be set manually to run either loaded or unloaded exercises. Set DIP switch #2 on the Accessory Board to select loaded or unloaded exercise runs. See Figure 14. See Figure 8 for the location of the DIP switches on the accessory board.

- Set DIP switch #2 to the OFF position to run the generator set without transferring the load, or
- Set DIP switch #2 to the ON position to start the generator set and transfer the load during exercise runs. For peak shave applications, set the DIP switch to the ON position.

DIP Switch		OFF (open)	ON (closed)
2	Loaded Exercise	Unloaded	Loaded

Figure 14 Accessory Board DIP Switch Setting

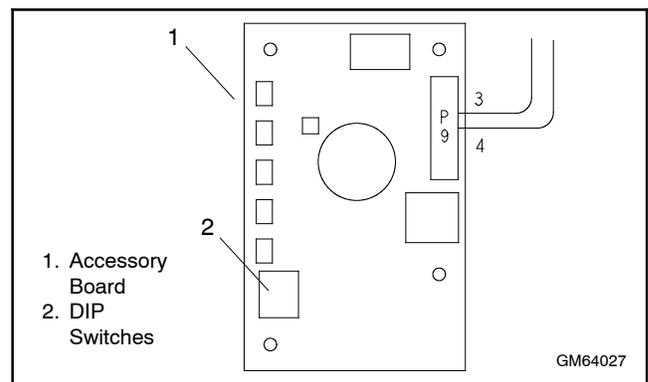


Figure 15 Detail, Dip Switch Location

5.2 Setup for KSS-J with Decision-Maker® MPAC 750

On KSS-J model transfer switches, use SiteTech™ software to change the default setting (unloaded) for exercises that are run by the exercise timer. Kohler SiteTech is available to Kohler authorized distributors and dealers. For detailed information on using SiteTech software, see the SiteTech operation manual, TP-6701.

Note: On the MPAC 750 controller, the default setting for the exercise timer will be unloaded.

Note: The exerciser timer uses the remote test feature to provide the exerciser timer functionality. If necessary, an exercise started by the programmable exerciser can be stopped locally by pressing and holding the TEST button on the MPAC 750 controller for about two seconds.

1. Reconnect power as described in Section 6.
2. Use a USB cable to connect the Decision-Maker® MPAC 750 controller to your personal computer.
3. Launch the SiteTech software.
4. Select **Prog. Inputs** at the top of the screen.
5. For **Mainboard Input 1**, select **Remote Test** from the drop-down menu. See Figure 16.
6. Select **Parameters** at the top of the screen.
7. Scroll down to **Accessory Setup A1** and click on the arrow to expand the menu. See Figure 17.
8. Find **Accessory Setup A1 Remote Test Load** in the list and select either **Loaded** or **Unloaded** from the drop-down menu in the second column.
9. Select **Apply Changes** from the top menu to set the changes and complete the procedure.

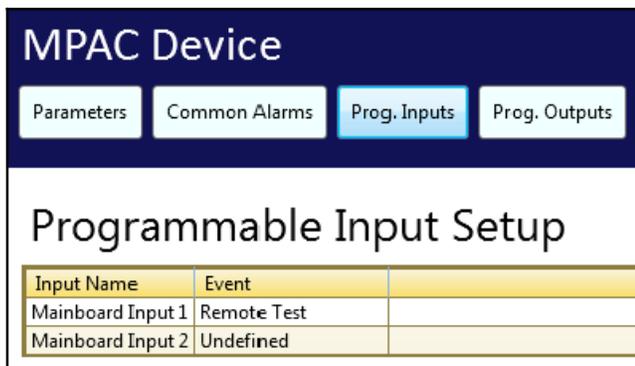


Figure 16 SiteTech Software, Programming Exercise Timer

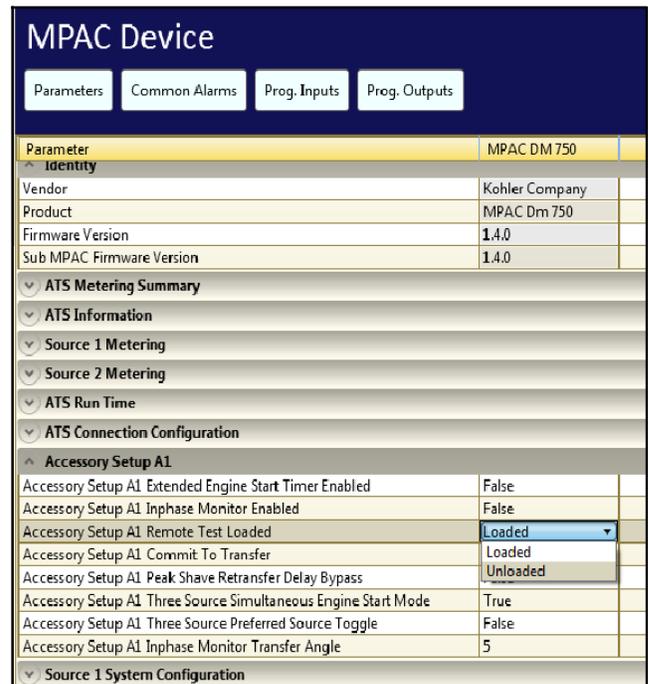
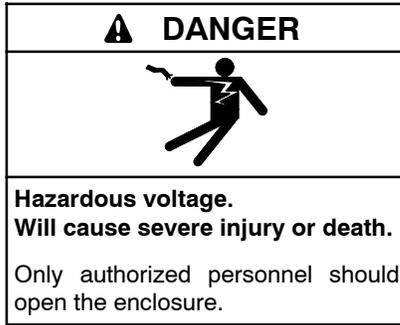


Figure 17 SiteTech Software, Programming Exercise Timer

6 Reconnect Power

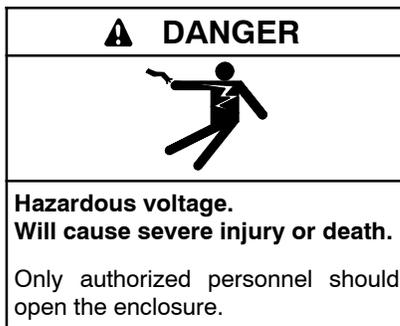


Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

Reconnect power to the system.

1. Install the transfer switch enclosure door(s).
2. Reconnect power to the transfer switch.
3. Reconnect the generator set engine starting battery, negative (-) lead last.
4. Reconnect power to the battery charger, if equipped.

7 Programming and Operation



Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

Remove the transfer switch enclosure door(s) to access the programmable exerciser. Do not contact electrical connections when programming the exerciser.

Note: A lithium battery provides 5 year backup power. The timer can be programmed after installation before reconnecting power to the transfer switch.

7.1 Setting the timer

The timer provides flexible timing for daily and/or weekly programming. The single-channel timer combines 24 hour/7 day timing.

Each exercise period requires separate programming of the ON and OFF time. Up to 8 on/off operations are allowed for each day for a total of up to 56 switching cycles per week.

Be sure to program an off cycle after every on cycle.

The minimum time setting is 1 minute.

Setting the current time and day

1. Slide RUN switch to left symbol of clock face.
2. Press the 1...7 button until the arrow points to current day (1=Monday, 2=Tuesday, etc.). Press the h (hour) and m (minute) buttons to set the current time. Pay attention to the AM/PM indicator. The PM indicator shows from noon to 11:59 p.m.
3. Slide the RUN switch to run. The clock colon between the hours and minutes blinks when the clock is running.

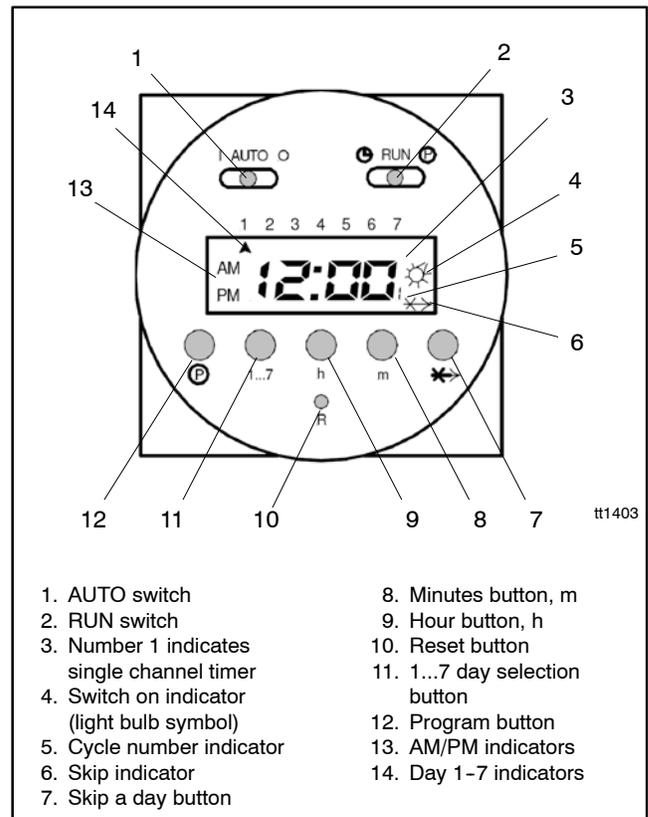


Figure 18 Timer Switches and Display

7.2 Programming the Exercise Cycles

Use the procedures in the following sections to program up to 8 on/off events for each day of the week.

After all exercise cycles have been programmed, slide the RUN switch to the RUN position. The clock colon will blink.

7.2.1 Day Selection

For each on or off cycle, you will need to set the day or days of the week. To save time you can set up each on/off cycle for one day, Monday through Friday, weekends only, all days except Sunday, or the entire week. This can save a lot of time when programming the on and off cycles.

1. Slide the RUN switch to P.
2. Press the 1...7 button seven times and notice a single arrow will move in steps below the 1-7 numbers, indicating the individual days of the week
3. Press the 1...7 button again to see days 1 to 5 highlighted with arrows (Monday through Friday).
4. Press 1...7 again to see arrows highlighting 6 and 7 (weekends).
5. Press 1...7 again to see arrows highlighting all days except Sunday.
6. Press 1...7 again to see arrows highlighting all days of the week.

7.2.2 Programming an ON cycle

1. Slide the RUN switch to P. The lower number 1 indicates this is the first switch cycle and a bulb icon indicates a switch on condition (circuit closes).

Note: Odd numbers indicate a switch-on cycle.

2. Press the 1....7 button until arrows point to selected day(s) you want this ON cycle to occur. See Section 7.2.1, Day Selection, for instructions to choose days of the week.
3. Press the h and m buttons to show the desired switch-on time, noting the AM/PM indicator.

Note: After each ON cycle, be sure to program a corresponding OFF cycle for the same days of the week.

7.2.3 Programming an OFF cycle

1. Slide the RUN switch to P. Press the P button. The switch cycle number changes to 2 and the bulb blinks, indicating switch-off (circuit opens).

Note: Even numbers indicate a switch-off cycle.

2. Press the 1...7 button until the arrows point to the selected day(s) you want this OFF cycle to occur.
3. Press h and m buttons to select the switch-off time.

To program another exercise cycle, press the lower P button to advance to the next cycle and return to step 2 of Section 7.2.2.

After programming the on and off cycles, slide the RUN switch to the RUN position. The clock colon will blink.

7.2.4 Setting error

If EEE appears, a setting error exists. The switch cycle number in error is shown.

1. Slide set switch to P.
2. Press P button until the cycle with the error is shown. Review this and the next setting and correct the error.
3. Slide the set switch to RUN.

7.2.5 Clear any setting

1. Slide the RUN switch to P.
2. Press the lower P button to move to the switch on cycle you want to clear.
3. Press the P and X→ (skip) buttons simultaneously and hold until the time display shows 00:00. Repeat for the corresponding switch off cycle. This on/off cycle is now inactive.

7.2.6 Clear all settings

To erase all settings, press R.

7.3 Operation

7.3.1 Autorun mode

1. Set the time and day and desired switch cycles.
2. Slide set switch to RUN and mode switch to AUTO. Switching will begin with the next switch-on set time.

7.3.2 To switch the override ON

Slide mode switch to I. The switch remains on indefinitely (circuit closed).

Note: Setting the override to ON (I) will signal the generator set to run continuously.

7.3.3 To switch the override OFF

Slide the mode switch to 0. The switch remains off indefinitely (circuit open).

Note: The generator set will not exercise on schedule if the override is set to OFF (0).

7.3.4 Skip a cycle

In automatic run mode, press the X→ button to skip the next program.

8 Programming Worksheet

Use the following worksheet to plan on and off switching cycles for each exercise run. Program an off cycle after each on cycle.

Cycle	On/Off	AM/PM	h	m	Day(s)
<i>Ex. 1</i>	<i>On</i>	<i>AM</i>	<i>7</i>	<i>20</i>	<i>1-5</i>
<i>Ex. 2</i>	<i>Off</i>	<i>AM</i>	<i>7</i>	<i>50</i>	<i>1-5</i>
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

9 Exerciser GM39330

The older style programmable timer GM39330 shown in Figure 19 is no longer available. Instructions for the GM39330 timer are provided in this section for reference.



Figure 19 Programmable Exerciser GM39330 (no longer available)

Programmable Exerciser Specifications	
Output	1 SPDT relay with dry contacts
Switch rating	16A 277VAC resistive
Supply voltage	208/240VAC, 50/60Hz ; 100 hour capacitor backup of memory and display
Power required	4VA
Ambient temperature range	-28°C to 60°C (-20°F to 140°F)
Connection	1/4 in. quick connects 10 - 24 AWG
Accuracy	±4 minutes per year
Shortest switch time	1 minute

Figure 20 GM39330 Specifications

The Programmable Exerciser is programmable for 24-hour or 7-day schedules. Follow the instructions in this document to install (if not factory-installed) and program the exerciser.

9.1 Installation Procedure, Exerciser GM39330

For installed kits (GM38798-KA1 and -KA2), start with the ATS Setup section and then proceed to the programming instructions.

1. Disable the generator set to prevent accidental starting:
 - a. Disconnect power to the battery charger, if equipped.
 - b. Disconnect the generator set engine starting battery, negative (-) lead first.
2. Disconnect power to the transfer switch before opening the ATS enclosure.

9.1.1 Mounting

Mount the programmable exerciser on the bracket provided with the kit as shown in Figure 22.

1. Install the mounting bracket as shown in Figure 22.
2. Insert the exerciser through the opening in the bracket. With a screwdriver, press down and turn the outer screws until the flanges are in position to fasten the unit in the bracket, then release.
3. Insert plugs into the unused holes. See Figure 21.

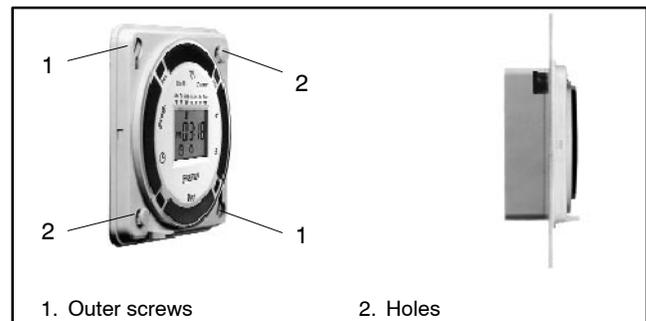


Figure 21 Mounting Flanges

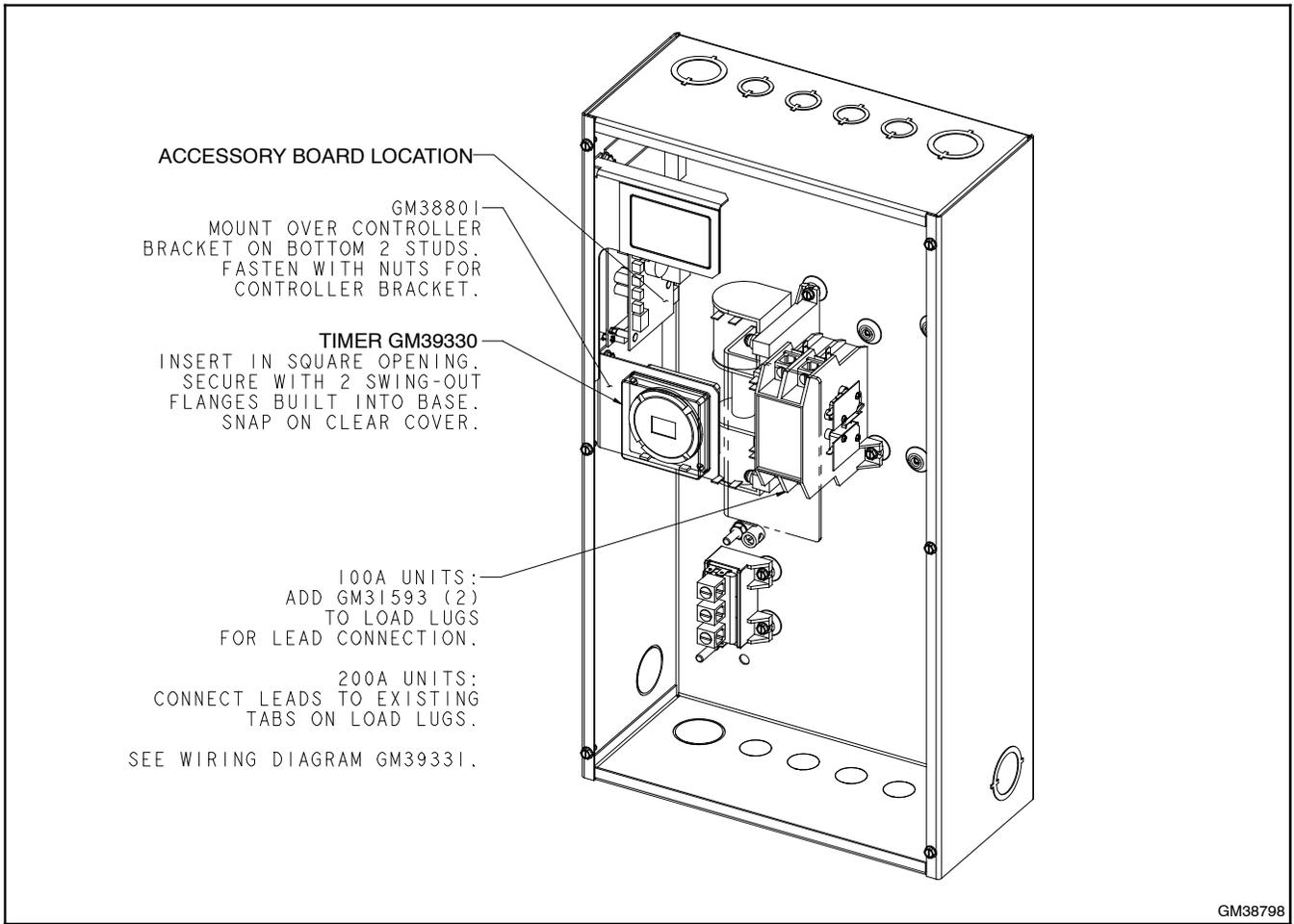


Figure 22 Mounting

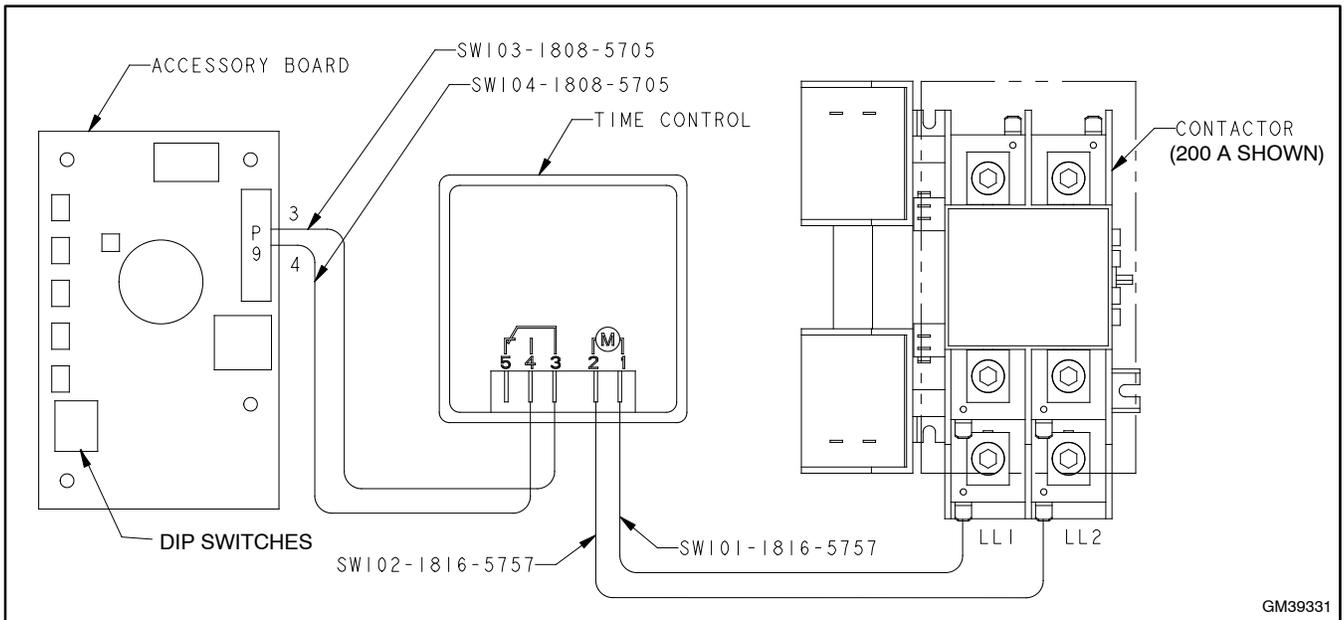


Figure 23 Wiring Diagram

9.1.2 Wiring

Wiring must comply with the National Electrical Code and applicable local codes.

Note: Check that the supply voltage matches the voltage marked on the unit. Wiring to incorrect voltage will void the warranty.

1. Verify that power has been disconnected as described above.
2. Use the leads supplied with the kit to connect the exerciser according to the wiring diagram in Figure 23.

9.2 ATS Setup, Exerciser GM39330

Set DIP switch #2 on the Accessory Board to select loaded or unloaded programmed exercise runs. See Figure 22 and Figure 23 for the location of the DIP switches on the accessory board.

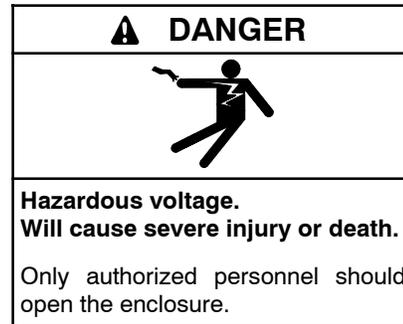
- Set DIP switch #2 to the OFF position to run the generator set without transferring the load. See Figure 24, or
- Set DIP switch #2 to the ON position to start the generator set and transfer the load during programmed exercise runs. For peak shave applications, set the DIP switch to the ON position.

DIP switch #2 does not affect the exercise period that is set by pressing the Exercise button on the ATS controller.

DIP Switch		OFF (open)	ON (closed)
2	Loaded Exercise	Unloaded	Loaded

Figure 24 Accessory Board DIP Switch Setting

9.3 Operating Instructions, Exerciser GM39330



Short circuits. Hazardous voltage/current can cause severe injury or death. Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while making adjustments or repairs. Remove all jewelry before servicing the equipment.

The programmable exerciser must have power connected in order to set the time and program the unit.

1. Install the transfer switch enclosure door(s).
2. Reconnect power to the transfer switch.
3. Reconnect the generator set engine starting battery, negative (-) lead last.
4. Reconnect power to the battery charger, if equipped.
5. Remove the transfer switch enclosure door(s) to access the programmable exerciser. Do not contact electrical connections when programming the exerciser.

9.3.1 Key Description

See Figure 19 for key locations and Figure 25 for descriptions of the keys.

Key	Description
	Setting the Time/Automatic Run Mode Prog.
Prog.	Program Mode
Res.*	Reset: Clears all programs and time Select ON or OFF in Prog. Mode, Manual Override in Run Mode
	Select ON or OFF in Prog. Mode, Manual Override in Run Mode
±1h*	Manual Daylight Change Key
h	Setting the Hour (12:- - AM)
m	Setting the Minute (12:01 AM)
Day	Set Day(s) for time and programs

* Recessed keys; use a pen point to press.

Figure 25 Key Description

9.3.2 LCD Display Elements

The LCD incorporates a number of different elements to display various data and information. See Figure 26.

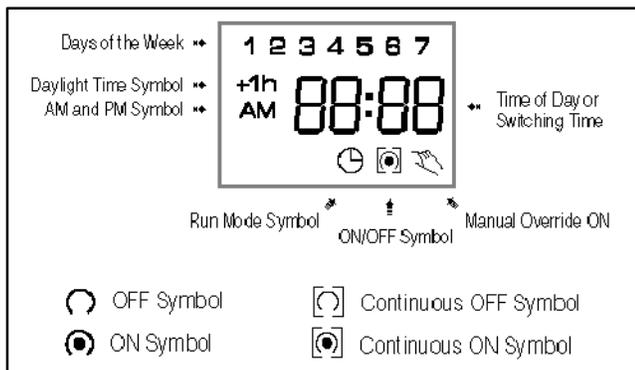


Figure 26 LCD Display

9.3.3 Selecting AM/PM or Military Time

Note: Before proceeding with setting the time and programming the unit, press the reset key to clear all data from the memory.

After pressing reset, the display may show AM (right). The numbered day symbols will be flashing on and off. If the display does not show AM, it is in military time mode (00:00 to 23:59). To change to AM/PM mode, press and hold the **h** key and press the **±1h** key once. AM will appear in display. If display is in AM mode and military mode is desired, press and hold the **h** key, press the **±1h** key once.

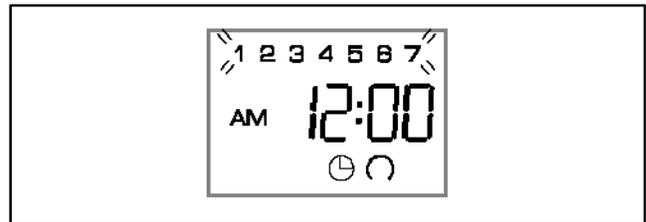


Figure 27 Time Display

9.3.4 Setting the Time

Note: If the **h** and **m** keys are held down longer than 2 seconds, the numbers will advance rapidly.

Press and hold the  key during the following: (If daylight savings time is in effect, press **±1h** first).

1. Press **h** to advance to the current hour (while holding down the  key).
2. Press **m** to advance to the current minute (while holding down the  key).
3. Press **Day** repeatedly to advance to current day (while holding down the  key).

9.3.5 Manual Daylight Time Changeover

Each year, in the Spring, press **±1h** to advance the time an hour. In the Fall, press **±1h** to set back an hour.

9.4 Programs, Exerciser GM39330

The Programmable Exerciser will accept up to 20 programs. A program consists of:

- An ON or OFF command
- Time of day (hour and minute)
- Single day or multiple days

Each exercise period requires two programs: one ON command to start the generator set, and a separate OFF command to stop the generator set.

Note: Do not program an ON command without also programming an OFF command.

A programmed OFF command will not transfer the load or shut down the generator set if the utility (normal) power is not available.

Multiple on or off events may be programmed. For example, Program 1 may turn the generator set ON at 10:00 PM Mon.-Fri. Program 2 may turn the generator set OFF at 10:30 PM Mon.-Fri.

Loaded/unloaded exercise: The setting of DIP switch #2 on the Accessory Board determines whether the load is transferred to the generator set during the programmed exercise runs. See ATS Setup.

Note: An exercise period that is scheduled by pressing the Exercise button on the ATS controller is not affected by the programmable exerciser or the DIP switch setting.

When programming is complete, snap the clear plastic cover over the exerciser. Replace the transfer switch enclosure door(s).

9.4.1 Programming 24 Hour or 7 Day Schedules

It is helpful to write out the program schedules before beginning. See Figure 28 on page 17.

The current time of day and day of week must be set before programming. See Setting the Time.

Programming Notes

- If the days are flashing, it indicates the day of the week was not set when setting the time. The timer cannot be programmed unless the day of the week is entered.
- If the programmed ON time is earlier in the day than the current time, press  once to turn the timer on. The timer does not look back to determine if it should be on or off after programming.
- If 24 hour time control (same schedule every day of the week) is desired, ignore the the **Day** key.
- If an ON or OFF symbol is not entered, the ON symbol will flash, and the program will not be accepted.

9.4.2 Day Key Selections

Press Day Key	Display Shows	Days
0 times	1 2 3 4 5 6 7	Every day
1 time	1 2 3 4 5 6	Monday-Saturday
2 times	1 2 3 4 5	Monday-Friday
3 times	6 7	Saturday and Sunday
4 times	1	Monday
5 times	2	Tuesday
6 times	3	Wednesday
7 times	4	Thursday
8 times	5	Friday
9 times	6	Saturday
10 times	7	Sunday

Prog	On/Off	h	m	Day(s)
1	On	7 am	20	Mon., Tue., Wed., Thurs., Fri.

Figure 28 Programming Worksheet, Timer GM39330

EXAMPLE

The following example demonstrates how to program different on and off times. Typically, the generator set should be exercised once a week.

Program 1: ON at 1:00 AM Monday thru Saturday

Program 2: OFF at 1:30 AM Monday thru Friday

Program 3: OFF at 2:00 AM Saturday

Three programs need to be entered.

Press the **Prog.** key only once. The display appears as shown in Figure 29.

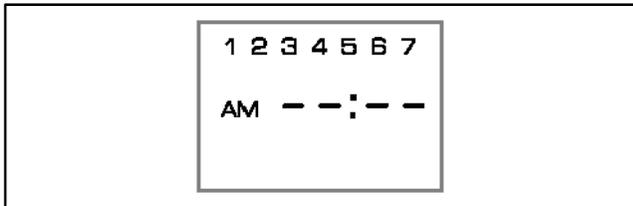


Figure 29 Display after **Prog.** Key is Pressed

Program 1 (ON at 1:00 AM Monday thru Saturday):

Press  key once	ON symbol  appears
Press h key	to 01AM
Press m key once	to 00
Press Day key once	1 2 3 4 5 6 is displayed
Press Prog. key to enter	

Program 2 (OFF at 1:30 AM Monday thru Friday):

Press  key twice	OFF symbol  appears
Press h key	to 01AM
Press m key	to 30
Press Day key two times	1 2 3 4 5 is displayed
Press Prog. key to enter	

Program 3 (OFF at 2:00 AM Saturday):

Press  key twice	OFF symbol  appears
Press h key	to 02AM
Press m key once	to 00
Press Day key 9 times	until only 6 is displayed
Press Prog. key to enter	
Press  key to enter	

9.4.3 Reviewing Programs

To review the programs at any time, press **Prog.** key. Programs will appear in the order they were entered with repeated presses of the **Prog.** key. After all programs have been reviewed, the blank display will appear to allow entering another program. Another press of the **Prog.** key will display the number of free programs available, such as **Fr 16** if 4 programs have been entered.

9.4.4 Changing A Program

Select the program to be changed with the **Prog.** key. A new set of days may be selected with the **Day** key just as in initial programming. Hour and minute can be changed with the **h** and **m** keys. Press **Prog.** or  key to store the new program.

9.4.5 Deleting A Program

To delete only one or a few programs:

1. Press **Prog.** key until the desired program is displayed.
2. Press **m** key to **:59** and press once more to blank out.
3. Press **h** key to **11PM** and press once more to blank out.
4. Press  key. Display will flash for several seconds and then enter the Run Mode.

Note: Using the reset key will delete ALL programs, the time of day, and day of the week.

9.5 Manual Override, Exerciser GM39330

9.5.1 Temporary Override

While in the Run Mode, pressing the  key once will reverse the output; ON to OFF or OFF to ON. The  symbol appears in the display to indicate a temporary override. At the next scheduled switching time, automatic control resumes, eliminating the override.

Pressing the override key will turn the generator set on at unprogrammed times. Be sure to press the override key again to turn the generator set off.

Note: If the override key is not pressed a second time to turn the unit off, the generator set will run until the next programmed OFF event.

9.5.2 Continuous Override

While in the Run Mode:

- Pressing the  key twice will turn the output to ON permanently.  symbol appears in display.
- Pressing the  key three times will turn the output OFF permanently.  symbol appears in display.
- To terminate a continuous override, press the  key until  appears in the display.

9.6 Troubleshooting, Exerciser GM39330

PROBLEM: Days are flashing, pressing  key turns output ON and OFF, and pressing any other key does nothing.

SOLUTION: *Time of Day* and *Day of Week* have not been set. See *Setting the Time*.

This is the condition after a reset. If the timer is found in this condition after it has been installed, programmed and operating for a while, it may indicate that electrical noise or voltage transients have disrupted the microprocessor causing a loss of program information. Contact the factory if the problem persists.

A second but unlikely cause of program loss is a power failure with the backup capacitor low or dead. Check by disconnecting power and monitoring how long the capacitor keeps the time of day in the display. Typically, the capacitor will maintain the time and programs for 4 days, but not more than 5 days.

PROBLEM: Time of day was set while holding the  key down, but days are still flashing.

SOLUTION: Current day of week was not set while holding down the  key. See *Setting the Time*.

PROBLEM: It is 10:00 AM and an ON program for 8:00 AM was entered, but the output is not ON. Display shows the  and  symbols.

SOLUTION: After programming, the timer does not look back to determine if it should be ON. Press the  key (temporary override) to turn the output ON;  appears in display. The timer will assume automatic operation at the next programmed event.

PROBLEM: A program for 8:00 AM Monday thru Friday was entered, but it will not accept it and  is flashing.

SOLUTION: ON  or OFF  was not entered as part of the program. ON or OFF must be selected.

9.7 Parts Lists, Exerciser GM39330 (no longer available)

Exerciser, Programmable 100A

Kit: GM38798-KA1, -KP1		
Qty.	Description	Part Number
1	Timer	GM39330
2	Terminal, ATS Lug Sensing	GM31593
1	Bracket, Timer Mounting	GM38801
1	Diagram, Wiring	GM39331
1	Lead	SW101-1816-5757
1	Lead	SW102-1816-5757
1	Lead	SW103-1808-5705
1	Lead	SW104-1808-5705

Exerciser, Programmable 200A

Kit: GM38798-KA2, -KP2		
Qty.	Description	Part Number
1	Timer	GM39330
1	Bracket, Timer Mounting	GM38801
1	Diagram, Wiring	GM39331
1	Lead	SW101-1816-5757
1	Lead	SW102-1816-5757
1	Lead	SW103-1808-5705
1	Lead	SW104-1808-5705

10 Parts Lists

Exerciser, Programmable, 100-200 Amp RDT

Kit: GM47597-KP2		
Qty.	Description	Part Number
1	Dwg, Assy Programmable Exerciser	GM47597
1	Timer, Exercise, 240V	GM64028
1	Bracket, Exerciser 100-200A	GM64057
1	Diagram, Wiring	GM64071
1	Lead	SW101-1816-15257
1	Lead	SW102-1816-15257
1	Lead	SW103-1810-15205
1	Lead	SW104-1810-15205
4	Screw, Machine	X-49-2

Exerciser, Programmable, 400 Amp RDT, 200 Amp RDT SE, 400 Amp RDT SE

Kit: GM47597-KP1		
Qty.	Description	Part Number
1	Control, Time Electronic 240VAC	GM64028
1	Bracket, Timer Mounting	GM64055
1	Diagram, Wiring	GM64071
1	Lead	SW101-1816-15257
1	Lead	SW102-1816-15257
1	Lead	SW103-1810-15205
1	Lead	SW104-1810-15205
4	Screw	X-49-2

Exerciser, Programmable, 200 Amp RDT SE Service Kit

Kit: GM64108		
Qty.	Description	Part Number
1	Control, Time Electronic 240 VAC	GM64028
1	Panel	GM64074
1	Diagram, Wiring	GM64071
1	Lead	SW101-1816-15257
1	Lead	SW102-1816-15257
1	Lead	SW103-1816-15205
1	Lead	SW104-1816-15205
4	Screw	X-49-2
4	Nut	X-6210-1

Exerciser, Programmable, Model KSS-J with Decision-Maker® MPAC 750

Kit: GM47597-KP3		
Qty.	Description	Part Number
2	Terminal, piggyback, male	233704
1	Transformer	GM40071
1	Timer, Exercise, 120V	GM64027
1	Bracket, Exerciser	GM89060
1	Harness, Programmable Exerciser Leads	GM91325
4	Screw, Machine	X-49-2
1	Fuse block	X-6129-2
2	Fuse block	X-6129-9
2	Fuse, 1 Amp, 600 V	X-6135-1
2	Nut, flange spirallock, 1/4-20	X-6210-2
6	Screw, hex washer, thread-forming	X-67-113

Exerciser, Programmable, 120 VAC Service Kit

Kit: GM48913		
Qty.	Description	Part Number
1	Rail, DIN	GM48806
1	Control, Time Electronic 120 VAC	GM64027
1	Enclosure, Timer	GM64054
1	Diagram, Wiring	GM64087
2	Screw	X-67-113

Exerciser, Programmable, 240 VAC Service Kit

Kit: GM48919		
Qty.	Description	Part Number
1	Rail, DIN	GM48806
1	Control, Time Electronic 240 VAC	GM64028
1	Enclosure, Timer	GM64054
1	Diagram, Wiring	GM64087
2	Screw	X-67-113

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