Onan

Operator's Manual

RST 60/100/200
Automatic Transfer Panel

Printed U.S.A.

913-0104 6-99

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⚠WARNING

INCORRECT SERVICE OR REPLACEMENT OF PARTS CAN RESULT IN DEATH, SEVERE PERSONAL INJURY, AND/OR EQUIPMENT DAMAGE. SERVICE PERSONNEL MUST BE QUALIFIED TO PERFORM ELECTRICAL AND/OR MECHANICAL SERVICE.

Safety Precautions

This manual includes the following symbols to indicate potentially dangerous conditions. Read the manual carefully and know when these conditions exist. Then take the necessary steps to protect personnel and the equipment.

⚠ DANGER ***This symbol warns of immediate hazards that will result in severe personal injury or death.***

⚠ WARNING ***This symbol refers to a hazard or unsafe practice that can result in severe personal injury or death.***

⚠ CAUTION ***This symbol refers to a hazard or unsafe practice that can result in personal injury or product or property damage.***

High voltage in transfer panel components presents serious shock hazards that can result in severe personal injury or death. Read and follow these suggestions.

Keep the transfer panel cabinet closed and locked. Make sure only authorized service personnel have access to the cabinet.

Due to the serious shock hazard from high voltages within the cabinet, all service and adjustments to the transfer panel must be performed only by an electrician or authorized service personnel.

Instructions to Authorized Service Personnel

If the cabinet must be opened for any reason:

1. Move the operation selector switch on the generator set to OFF.

   If the transfer panel is equipped with the 3-Wire Start Option, move the toggle switch to the Stop position.

2. Remove the AC power source to the cabinet.
3. Disconnect the starting batteries of the generator set (remove the ground [–] lead first).

Place rubber insulative mats on dry wood platforms over metal or concrete floors when working on any electrical equipment. Do not wear damp clothing (particularly wet shoes) or allow skin surfaces to be damp when handling any electrical equipment.

Jewelry is a good conductor of electricity and should be removed when working on the electrical equipment.

Do not work on this equipment when mentally or physically fatigued, or after consuming alcohol or any drug that makes the operation of equipment unsafe.

Operator's Manual

Introduction

The RST™ Automatic Transfer Panel is completely automatic and requires no operator involvement.

Keep the transfer panel door securely closed at all times and make sure only qualified service personnel have access to the cabinet.

The following section describes the basic automatic transfer switch operation.

⚠WARNING ***High voltage inside the transfer panel presents serious shock hazards that can result in severe personal injury or death. Service and adjustments must only be performed by an electrician or authorized service personnel.***

TRANSFER PANEL APPLICATION

Transfer panels are an essential part of a building's standby or emergency power system. The Normal power source, commonly the utility line, is backed up by an Emergency power source, often an electric generating set. The transfer panel supplies the electrical load with power from either of these two power sources.

The load is connected to the common of the transfer panel (Figure 1-1). Under normal conditions, the load is supplied with power from the Normal source (as illustrated). When the Normal power source is interrupted, the load is transferred to the Emergency power source. When Normal power returns, the load is retransferred to the Normal power source. The automatic transfer and retransfer of the load are the two basic functions of a transfer panel.

AUTOMATIC TRANSFER PANELS

Automatic transfer panels, capable of automatic operation without operator involvement, perform the following basic functions:

1. Sense the interruption of the Normal power source.
2. Send a start signal to the generator set (Emergency power source).
3. Transfer the load to the Emergency power source.
4. Sense the return of the Normal power source.
5. Retransfer the load to the Normal power source.
6. Send a stop signal to the generator set.

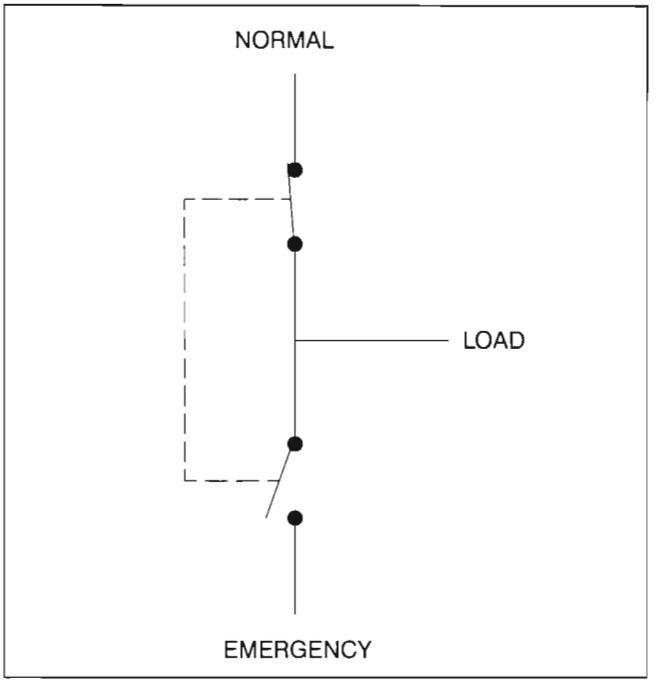


FIGURE 1. LOAD TRANSFER PANEL (TYPICAL FUNCTION)

MODEL IDENTIFICATION

Identify your model by referring to the Model and Specification number as shown on the nameplate. Electrical characteristics are shown on the lower portion of the nameplate, which is located on the cabinet door.

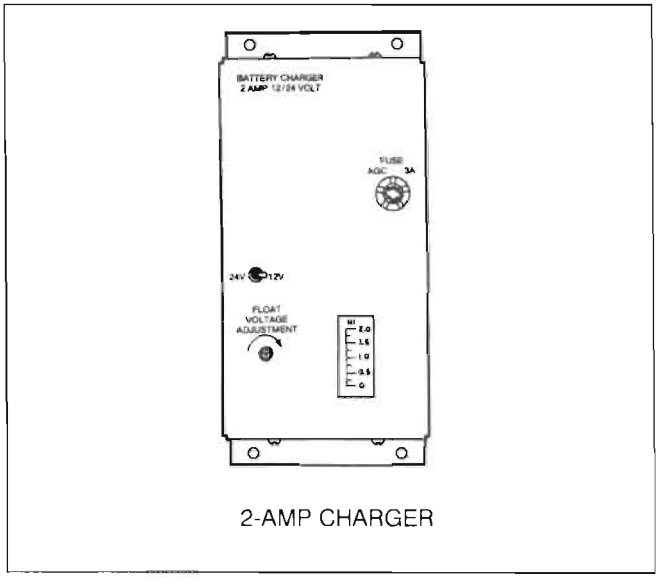
If it is necessary to contact a dealer or distributor regarding the transfer panel, always give the complete Model, Specification, and Serial number. This information is necessary to properly identify your unit among the many types being manufactured.

FLOAT BATTERY CHARGER

A float-charge battery charger (Figure 2) regulates its charge voltage to continuously charge without damage to the battery. As the battery approaches full charge, the charging current automatically tapers to zero amperes or to steady-state load on the battery.

The battery charger is rated for 2 amperes at 12 or 24 VDC.

The 2-ampere battery charger has an ammeter to indicate charging current and a fuse to protect the battery charger circuit.



2-AMP CHARGER

FIGURE 2. BATTERY CHARGER

OPTIONS

Two aftermarket kits are available for the RST Transfer Panel. These kits must be installed by qualified service personnel only.

- 2-to-3 Wire Start Kit – Enables the transfer panel to start and stop a three-wire start generator set.
- Exerciser Clock Kit – Starts and runs the generator set at programmable intervals for selected durations.

Exerciser Clock

The exerciser clock kit is used to start and run the generator set at programmable intervals and for selected durations.

The generator and transfer panel should be exercised at least 30 minutes a month. For exerciser clock installation and programming changes, please contact your authorized Cummins/Onan dealer.

Three-Wire Start

An optional three-wire starting control kit enables the transfer panel to start and stop a three-wire start generator set. Three-wire starting logic is similar to a single-pole, double-throw switch. A common is closed to one side to send a start signal, and to the opposite side to send a stop signal. In addition to start and stop functions, the control has an overcrank relay, a preheat relay, two Timing Lamps, a Lockout Lamp, a Reset Switch, an Auto/Stop/Handcrank Switch and a Preheat Timer On-Off Switch.

PLANNED MAINTENANCE

Performing the yearly maintenance procedures in Table 1 will help achieve operational reliability of the transfer panel. The following procedures **must *ONLY* be performed by technically qualified service personnel,** following the procedures provided in the Service manual (913-0505). If repair or replacement of components is necessary, call your dealer or distributor.

⚠WARNING ***AC power within the cabinet and the rear side of the cabinet door presents a shock hazard that can cause severe personal injury or death. In addition, incorrect installation, service, or parts replacement can result in severe personal injury, death, and/or equipment damage. Therefore, all corrective service procedures must only be performed by technically qualified personnel, following the procedures provided in the Service Manual (913-0505).***

⚠WARNING ***The transfer panel presents a shock hazard that can cause severe personal injury or death unless all AC power is removed. Be sure to move the generator set operation selector switch to Stop, disconnect AC line power, disconnect the battery charger from its AC power source, and disconnect the starting battery (negative [–] lead first) before servicing.***

⚠WARNING ***Ignition of explosive battery gases can cause severe personal injury. Do not smoke or cause any spark, arc, or flame while servicing batteries.***

TABLE 1. ANNUAL MAINTENANCE

1. BEFORE SERVICING: DISCONNECT ALL SOURCES OF AC POWER

Disconnect both AC power sources from the transfer panel before continuing.

a. Turn the generator set operation selector switch to STOP. (The selector switch is located on the generator set control panel.)

b. ***Disconnect the battery charger from its AC power source.***

c. Then disconnect the set starting battery (negative [–] lead first).

2. CLEAN

a. Thoroughly dust and vacuum all controls, switching mechanism components, interior buswork, and connecting lugs.

b. Close the cabinet door and wash **exterior** surfaces with a damp sponge (mild detergent and water). ***Do not allow water to enter the cabinet, especially at lamps and switches.***

3. INSPECT

a. Check buswork and supporting hardware for carbon tracking, cracks, corrosion, or any other types of deterioration. If replacement is necessary, call your dealer or distributor.

b. Check stationary and movable contacts. If contact replacement is necessary, the procedures are described in section 4 of the Service manual (913-0505).

c. Check system hardware for loose connections. Tighten as indicated in step 4.

d. Check all control wiring and power cables (especially wiring between or near hinged door) for signs of wear or deterioration.

e. Check all control wiring and power cables for loose connections. Tighten as indicated in step 4.

f. Check the cabinet interior for loose hardware. Tighten as indicated in step 4.

TABLE 1 *continued*

4. PERFORM ROUTINE MAINTENANCE

a. Tighten buswork, control wiring, power cables, and system hardware, as necessary. Hardware torque values are given in section 4 of the Service manual (913-0505). Retorque all cable lug connections. Lug torque requirements are listed in section 1 of the Service manual.

5. CONNECT AC POWER AND CHECK OPERATION

a. Connect the set starting battery (negative [–] lead last). Connect the normal AC power source, enable the backup power source. If applicable, connect power to the battery charger.

b. Verify proper operation of the battery charger.

c. Test system operation as described in this section. Close and lock the cabinet door.

HOW TO OBTAIN SERVICE

When the transfer panel requires servicing, contact your nearest dealer or distributor. Factory-trained Parts and Service representatives are ready to handle all your service needs.

If unable to locate a dealer or distributor, consult the Yellow Pages. Typically, our distributors are listed under:

GENERATORS-ELECTRIC,
ENGINES-GASOLINE OR DIESEL, OR
RECREATIONAL VEHICLES-EQUIPMENT,
PARTS AND SERVICE.

For the name of your local Cummins®/Onan® or Onan-only distributor in the United States or Canada, call 1-800-888-ONAN. (This automated service utilizes touch-tone phones only.) By entering your area code and the first three digits of your local telephone number, you will receive the name and telephone number of the distributor nearest you.

For the name of your local Cummins-only distributor, or if you need more assistance, please call:

Onan Corporation
1-612-574-5000
7:30 AM to 4:00 PM
Central Standard Time, Monday – Friday

When contacting your distributor, always supply the complete Model Number and Serial Number as shown on the nameplate.

Cummins Power Generation
1400 73rd Avenue N.E.
Minneapolis, MN 55432
1-800-888-6626
763-574-5000 International Use
Fax: 763-528-7229

Power Generation