

Onan

Service Manual 25 to 180 kW

UR Generators And Controls

Troubleshooting and Test Procedures For

- **Generators**
 - **Regulator**
 - **Controls**
-

900-0150

10-78

Printed in U.S.A.

Safety Precautions

The following symbols in this manual highlight conditions potentially dangerous to service personnel, or equipment. Read this manual carefully. Know when these conditions can exist. Then take necessary steps to protect personnel as well as equipment.

WARNING *This symbol is used throughout the manual to warn of possible serious personal injury.*

CAUTION *This symbol refers to possible equipment damage.*

PROTECT AGAINST MOVING PARTS

Avoid moving parts of the unit. Avoid use of loose jackets, shirts or sleeves due to danger of becoming caught in moving parts.

Make sure all nuts and bolts are secure. Keep power shields and guards in position.

If you must make adjustments while the unit is running, use extreme caution around hot manifolds,

moving parts, etc.

Do not work on this equipment when mentally or physically fatigued.

GUARD AGAINST ELECTRIC SHOCK

Disconnect electric power before removing protective shields or touching electrical equipment. Use rubber insulative mats placed on dry wood platforms over floors that are metal or concrete when around electrical equipment. Do not wear damp clothing (particularly wet shoes) or allow skin surfaces to be damp when handling electrical equipment.

Disconnect batteries to prevent accidental engine start. Jewelry is a good conductor of electricity and should be removed before working on electrical equipment.

Use extreme caution when working on electrical components. High voltages cause injury or death.

Follow all state and local codes. To avoid possible personal injury or equipment damage, a qualified electrician or an authorized service representative must perform installation and all service.

WARNING

EXHAUST GAS IS DEADLY!

Exhaust gases contain carbon monoxide, a poisonous gas that might cause unconsciousness and death. It is an odorless and colorless gas formed during combustion of hydrocarbon fuels. Symptoms of carbon monoxide poisoning are:

- Dizziness
- Headache
- Weakness and Sleepiness
- Vomiting
- Muscular Twitching
- Throbbing in Temples

If you experience any of these symptoms, get out into fresh air immediately, shut down the unit and do not use until it has been inspected.

The best protection against carbon monoxide inhalation is proper installation and regular, frequent visual and audible inspections of the complete exhaust system. If you notice a change in the sound or appearance of exhaust system, shut the unit down immediately and have it inspected and repaired at once by a competent mechanic.

UR
GENERATORS AND CONTROLS
25 kW - 180 kW

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ONAN RECOMMENDS THAT ALL SERVICE, INCLUDING
INSTALLATION OF REPLACEMENT PARTS, BE PERFORMED
BY QUALIFIED PERSONNEL.

INTRODUCTION

FOREWORD

This manual provides troubleshooting and repair information for ONAN series UR generators. It is intended to provide the maintenance technician, serviceman or Onan distributor with a logical procedure to enable him to systematically locate and repair malfunctions in the generator and control systems. This information is not applicable to the prime mover; refer to the engine manufacturer's manual.

Repair information is not extensive because the plug-in solid-state printed circuit modules lend themselves more to replacement than repair. ONAN does not recommend repair of the printed circuit module, except at the factory and has initiated a return/exchange service, obtainable through distributors, whereby faulty modules can be returned and exchanged for good units. For more information, contact your distributor or the ONAN service department.

CAUTION Application of meters or high heat soldering irons to modules by other than qualified personnel can result in unnecessary and expensive damage.

This manual is arranged as follows:

1. **GENERATOR** - Section I contains general specifications on the UR generator, troubleshooting guides and procedures for testing and repairing of the early UR generator with VR22 exciter regulator and general informa-

tion on later UR generator. Section II contains troubleshooting information for the later model UR generator where the exciter diode rectifier assembly has been relocated into the control panel. Refer to Table 1 for a description of the appropriate section for your generator.

2. **CONTROLS** - Section III contains troubleshooting guides and procedures for testing and repairing the system controls. A description of the components and an analysis of the module circuitry is included.

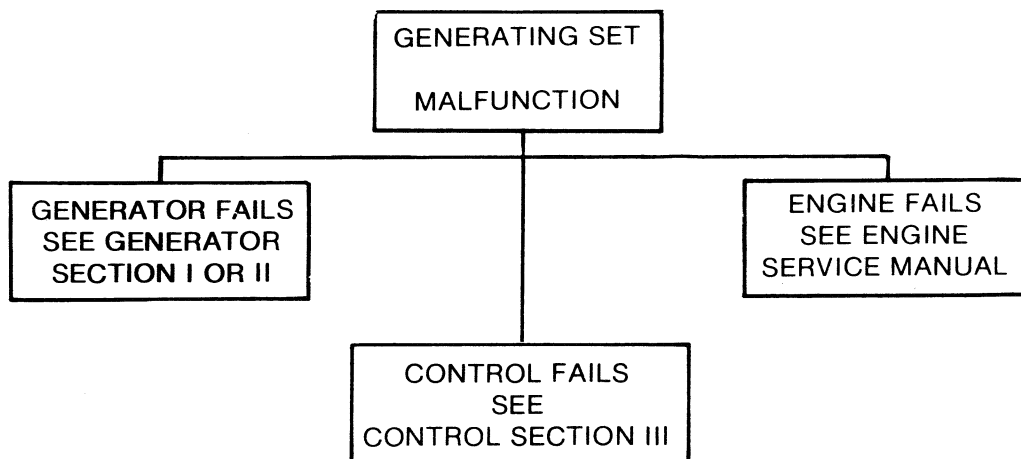
TEST EQUIPMENT

Most of the tests outlined in this manual can be performed with an AC-DC multimeter such as a Simpson 260 VOM.

Other suggested test instruments are —

- ONAN multitester Part No. 420-0303
- Wheatstone or Kelvin bridge

CAUTION Exercise care when purchasing a foreign made VOM. Some units deliver +9VDC, others, +22VDC to the circuit under test on R x 1 scale. Maximum recommended voltage is +1.5VDC. Damage to solid state devices can result from excessive voltage application.



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