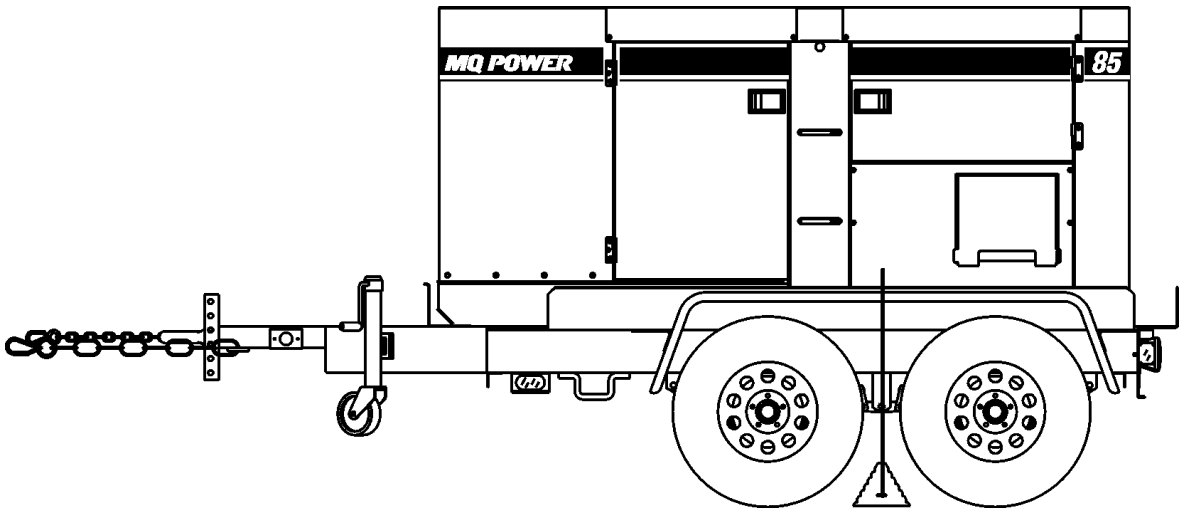
PARTS AND OPERATION MANUAL

MQ POWER
DCA-85SSJU
WHISPERWATT™
TRAILER MOUNTED
PORTABLE
GENERATOR



Revision #2 (04/09/03)

MULTIQUIP INC.
18910 WILMINGTON AVE.
CARSON, CALIFORNIA 90746
310-537-3700
800-421-1244
FAX:310-537-3927

PARTS DEPARTMENT:
800-427-1244
FAX: 800-672-7877

SERVICE DEPARTMENT:
800-835-2551
FAX:310-638-8046

E-mail:mq@multiquip.com • www:multiquip.com

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

PARTS DEPARTMENT
800-427-1244 or 310-537-3700
FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT
800-421-1244
FAX: 310- 537-4259

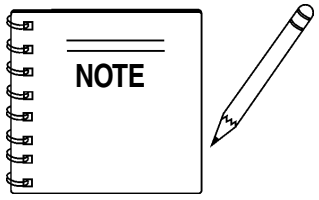
TECHNICAL ASSISTANCE
800-478-1244
FAX: 310- 631-5032

WARRANTY DEPARTMENT
888-661-4279, or 310-661-4279
FAX: 310- 537-1173

TABLE OF CONTENTS

MQ Power DCA-85SSJU Trailer Mounted AC Generator

Trailer 70S



Specification and part number are subject to change without notice.

When ordering parts, please supply the following information:

- ❒ **Dealer account number**
- ❒ **Dealer name and address**
- ❒ **Shipping address (if different than billing address)**
- ❒ **Return fax number**
- ❒ **Applicable model number**
- ❒ **Quantity, part number and description of each part**
- ❒ **Specify preferred method of shipment:**
  - ✓ FedEx or UPS Ground
  - ✓ FedEx or UPS Second Day or Third Day
  - ✓ FedEx or UPS Next Day
  - ✓ Federal Express Priority One
  - ✓ DHL
  - ✓ Truck

Note: Unless otherwise indicated by customer, all orders are treated as "Standard Orders", and will ship within 24 hours. We will make every effort to ship "Air Shipments" the same day that the order is received, if prior to 2PM west coast time. "Stock Orders" must be so noted on fax or web forms.

Here's how to get help...

Please have the model and serial number on hand when calling.

Parts Department
800-427-1244 — Fax: 800-672-7877
310-537-3700 — Fax: 310-637-3284

Mayco Parts
800-306-2926 — Fax: 800-672-7877
310-537-3700 — Fax: 310-637-3284

Service Department
800-478-1244 — Fax: 310-537-4259
310-537-3700

MQ Power Service Department
800-835-2551 — Fax: 310-638-8046
310-537-3700

Warranty Department
800-421-1244, Ext. 279 — Fax: 310-537-1173
310-537-3700, Ext. 279

Multiquip's Main Phone Numbers
800-421-1244 — Fax: 310-537-3927
310-537-3700

Place Your Parts Order Via Web or Fax For Even More Savings!

Extra Discounts!

All parts orders which include complete part numbers and are received by our automated web parts order system, or by fax qualify for the following extra discounts:

Ordered via	Standard orders	Stock orders ($750 list and above)
Fax	3%	10%
Web	5%	10%

*Special freight allowances when you order 10 or more line items via Web or Fax!***

FedEx Ground Service ***at no charge for freight***

No other allowances on freight shipped by any other carrier.

NOTE: DISCOUNTS ARE SUBJECT TO CHANGE

MULTIQUIP INC.
18910 WILMINGTON AVENUE
POST OFFICE BOX 6254
CARSON, CALIFORNIA 90749
310-537-3700 • 800-421-1244
FAX: 310-537-3927
E-MAIL: mq@multiquip.com
WWW: multiquip.com

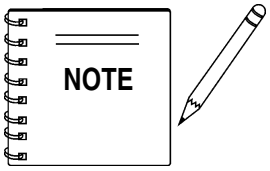
Direct TOLL-FREE access to our Parts Department:

Toll-free nationwide — 800-427-1244

DCA85SSJU — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in injury to yourself and others.



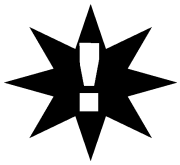
This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the MQ Power ***Model DCA85SSJU WHISPERWATT™ GENERATOR.*** **Before using this GENERATOR, ensure that the operating individual has read and understands all instructions in this manual.**

SAFETY MESSAGE ALERT SYMBOLS

The three (3) Safety Messages shown below will inform you about potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: **DANGER**, **WARNING**, or **CAUTION**.

DANGER: You **WILL** be **KILLED** or SERIOUSLY injured if you **DO NOT** follow directions.

WARNING: You **CAN** be **KILLED** or SERIOUSLY injured if you **DO NOT** follow directions.



CAUTION: You **CAN** be injured if you **DO NOT** follow directions.

Potential hazards associated with the DCA85SSJU generator operation will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols.

HAZARD SYMBOLS

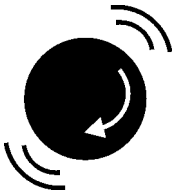
Rotating Parts

NEVER operate equipment with covers, or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury.

Accidental Starting

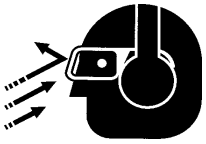
ALWAYS place the power source, circuit breakers or ON/OFF switch in the **OFF** position, when the generator is not in use, unless connected to transfer switch.

Over-Speed Conditions



NEVER tamper with the factory settings of the engine governor settings. Personal injury and damage to the engine or equipment can result if operating speed ranges above maximum allowable.

Sight and Hearing Hazard



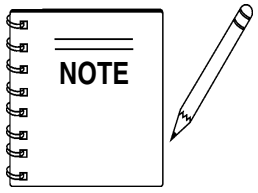
ALWAYS wear approved eye and hearing protection when required.

Respiratory Hazard

ALWAYS wear approved respiratory protection when required.

Equipment Damage Messages

Other important messages are provided throughout this manual to help prevent damage to your generator, other property, or the surrounding environment.



This generator, other property, or the surrounding environment could be damaged if you do not follow instructions.

Table 1. Generator Specifications		
Model	**DCA-85SSJU**	
Type	Revolving field, self ventilated, open protected type synchronous generator	
Armature Connection	**Star with Neutral**	**Zig Zag**
Phase	3	Single
Prime Output	82 KVA (65.6 KW)	60KW
Voltage	208V or 480V	240/120V
Main Circuit Breaker (1)	250 Amps	
GFCI Circuit Breaker (2)	20 Amps	
Hubble Circuit Breaker (3)	50 Amps	
Frequency	60 Hz	
Speed	1800 rpm	
Power Factor	0.8	1.0
Hubble Receptacle Output Voltage	1Ø 240V CS-6369 (3)	
GFCI Receptacle Output Voltage	1Ø 120V NEMA 5-20 (2)	
GFCI Receptacle Output Power	2.4 KW per receptacle (2)	
Hubble Receptacle Output Power	12 KW per receptacle (3)	

Table 2. Engine Specifications		
Model	**JOHN DEERE 4045 TF 250**	
Type	4 cycle, water-cooled, direct injection, turbo-charged	
No. of Cylinders	4 cylinders	
Bore x Stroke	4.19 in. x 5 in. (106 mm x 127 mm)	
Rated Output	102HP/1800 rpm	
Displacement	274 cu. in. (4,500 cc)	
Starting	Electric 12VDC	
Coolant Capacity	6.9 gal. (26 liters) plus 2 quarts in retaining tank	
Lube Oil Capacity	14.5 quarts (13.5 liters)	
Interal Fuel Tank Capacity	40 gallons (151 liters)	
Trailer Fuel Tank Capacity	53 gallons (201 liters)	
Fuel System Consumption	5.3 gallons per hour at full load	85 useable fuel gallons (16 hours operation at full load)
Battery	12V BCI Group 27	
Fuel	#2 Diesel Fuel	

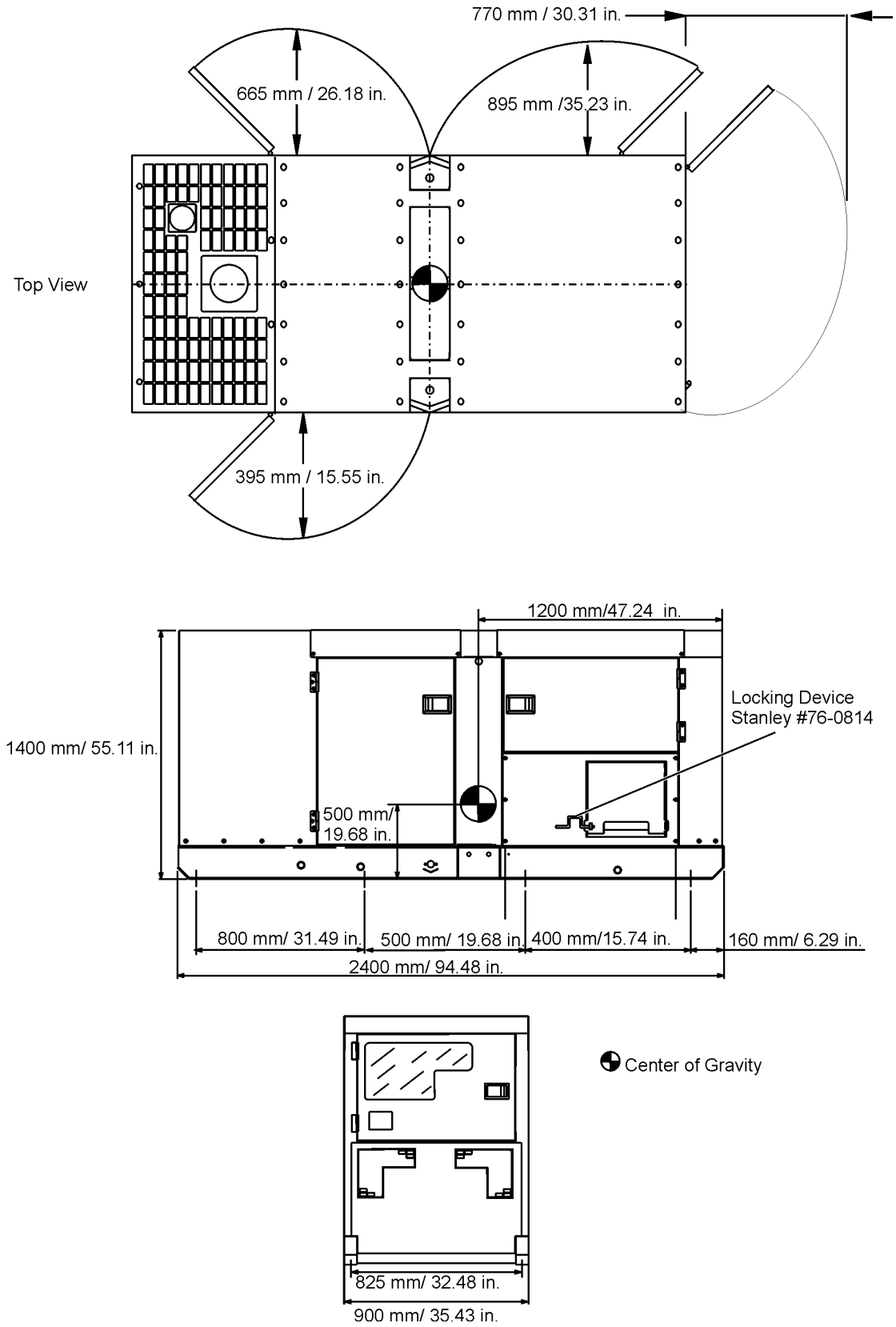


Figure 1. Dimensions (Generator)

Trailer Information

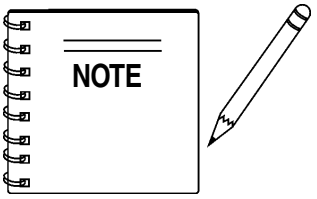
Table 3 listed below provides the trailer specifications for the DCA85SSJU generator-set trailer. Table 4 provides the fuel capacity for both the primary and secondary fuel tanks.

Table 3. Trailer Specifications

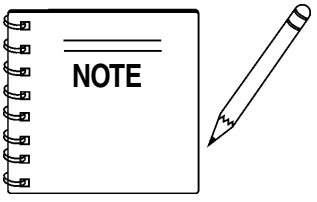
MODEL	FUEL TANK ONLY	BRAKE SYSTEM	GVWR	FRAME LENGTH	FRAME WIDTH	JACK STAND
TRLR-70S	53 gallons (201 liters)	12 VDC electric	6,000 lbs. (2,721 Kg.)	143.75 in. (3.65 meters)	67 in. (1.70 meters)	5,000 lbs. (2,268 Kg.)

Table 3. Trailer Specifications (Continued)

MODEL	COUPLER	TIRES	WHEELS	AXLE	HUBS	SUSPENSION	ELECTRICAL
TRLR-70S	Pintle Ring	ST205-750X14C	14" X 5.5"	Two 3000 lbs. (1,360 Kg)	5"	5 LEAF	Cole Hersee 6 Pin #1258



This generator is capable of running for 16 hours at full load when filled with 85 gallons of fuel.



Test battery quarterly with midtronics start battery tester model #400.

Minimum battery voltage required for cranking is 10 VDC.

Table 4. Fuel Tank Capacity

Tank	Location	Fuel Capacity
Primary Trailer	Trailer	53 gallons (201 liters)
Secondary	Internal	40 gallons (151 liters)

Total fuel capacity 93 gallons (352 liters)

Useable fuel 85 gallons (321 liters)

16 hours of operation at full load.

Battery Information

The Table 5 listed below provides the battery specifications for the DCA85SSJU generator.

Table 5. Battery Characteristics and Cross Reference

Model	Battery Type	New Battery BCI Type	Minimum Cranking Volts	Cold Crank Amps at 0°F	Volume of Acid (gal)	Weight Dry lbs.	Dimensions LxWxH (inch)	Optional Battery BCI Type
DCA85SSJU Battery	27-775	27	10VDC	720A	1.5	29	12.06 x 6.81 x 8.88	31

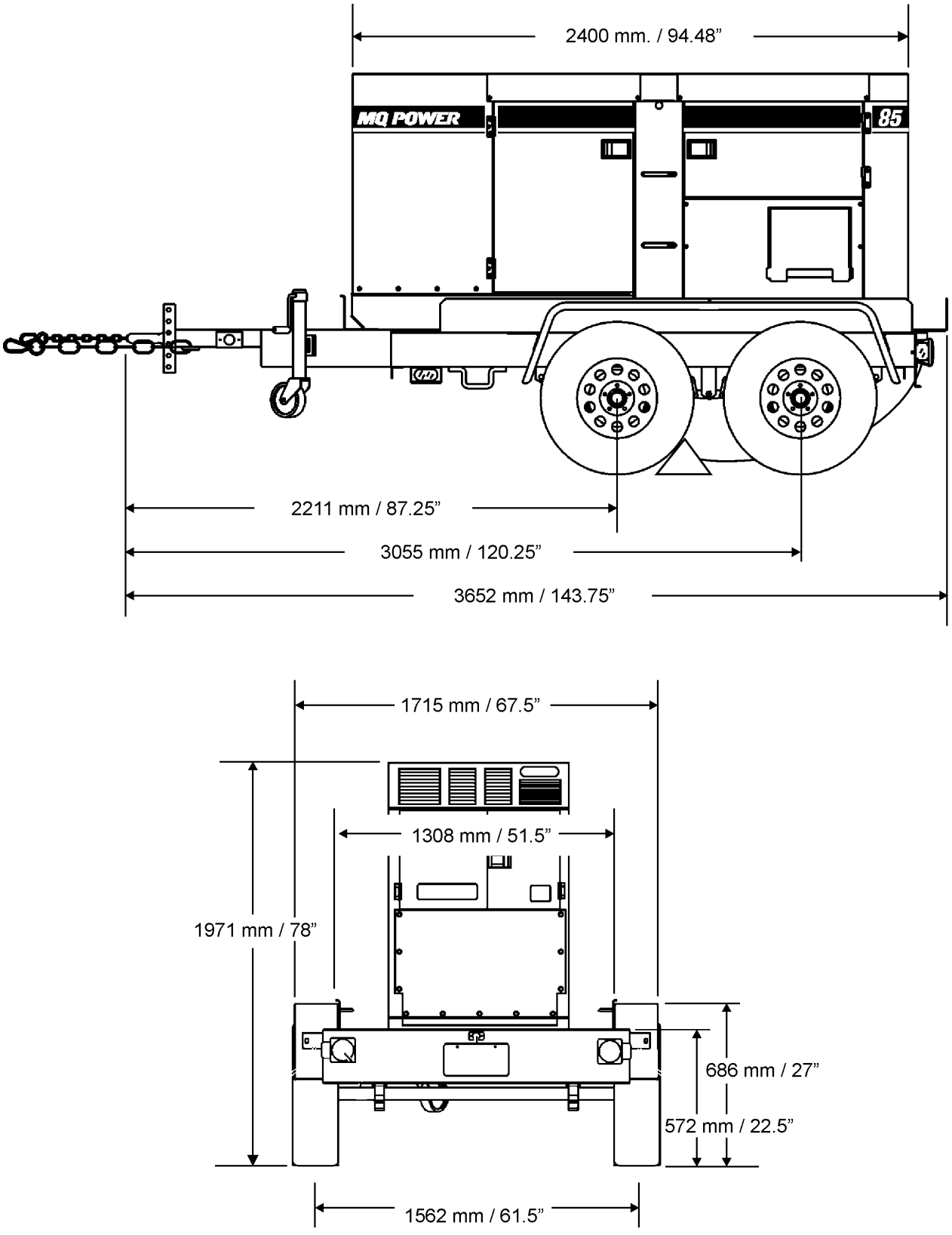


Figure 2. Dimensions (Generator/Trailer)

CAUTION:

Failure to follow instructions in this manual may lead to serious injury or even death! This equipment is to be operated by trained and qualified personnel only! This equipment is for industrial use only.

The following safety guidelines should always be used when operating the **DCA-85SSJU Generator**:

GENERAL SAFETY

■ **DO NOT** operate or service this equipment before reading this entire manual.

■ This equipment should not be operated by persons under 18 years of age.

■ **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.

■ **NEVER** operate this equipment when not feeling well due to fatigue, illness or taking medicine.

■ **NEVER** operate this equipment under the influence or drugs or alcohol.

■ **NEVER** use accessories or attachments, which are not recommended by MQ Power for this equipment. Damage to the equipment and/or injury to user may result.

■ Manufacture does not assume responsibility for any accident due to equipment modifications.

■ Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.

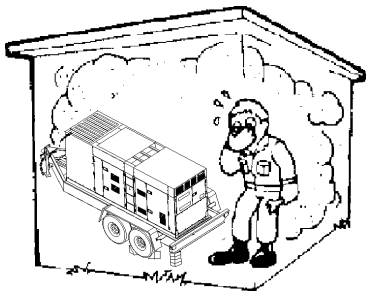
■ **ALWAYS** check the machine for loosened threads or bolts before starting.

■ **NEVER** operate the generator in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe ***bodily harm or even death***.

■ **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or generator.

■ **High Temperatures** – Allow the engine to cool before performing service and maintenance functions. Contact with ***hot!*** components can cause serious burns.

■ The engine of this generator requires an adequate free flow of cooling air. ***NEVER*** operate the generator in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause serious damage to the generator or engine and may cause injury to people. The generator engine gives off **DEADLY** carbon monoxide gas.



■ **ALWAYS** make sure generator is properly grounded.

■ **NEVER** use gas piping as an electrical ground.

■ **DO NOT** place hands or fingers inside generator engine compartment when engine is running.

■ **ALWAYS** make sure generator installation is accordance with ***national and local electrical codes***.

■ **ALWAYS** have a qualified electrician perform the pump wiring installation.

■ **NEVER** power cables or cords ***lay in wate***r.

■ **NEVER** ***stand in water*** while AC power from the generator is being transfer to a load.

■ **NEVER** use a defective or frayed power cable. Check the cable for cuts in the insulation.

■ **NEVER** use a extension cord that is frayed or damaged where the insulation has been cut.

■ **ALWAYS** make certain that proper extension cord has been selected for the job See Table 7.

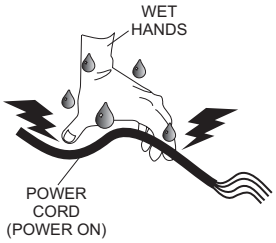
■ The electrical voltage required to operate the generator can cause severe injury or even death through physical contact with live circuits. Turn all circuit breakers **OFF** before performing maintenance on the generator.

- **ALWAYS** make sure that electrical circuits are properly ***grounded*** per the ***National Electrical Code*** (NEC) and local codes before operating generator. Severe ***injury*** or ***death!*** by electrocution can result from operating an ungrounded generator.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operations techniques before using generator.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
- **ALWAYS** read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.

DANGER:

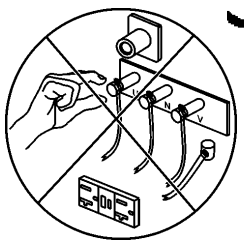
Never use damaged or worn cables when connecting equipment to the generator. Make sure power connecting cables are securely connected to the generator's output terminals, insufficient tightening of the terminal connections may cause damage to the generator and electrical shock.

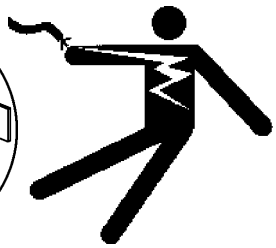
DANGER:



NEVER grab or touch a live power cord with wet hands , the possibility exist of electrical shock, electrocution, and even ***death!***

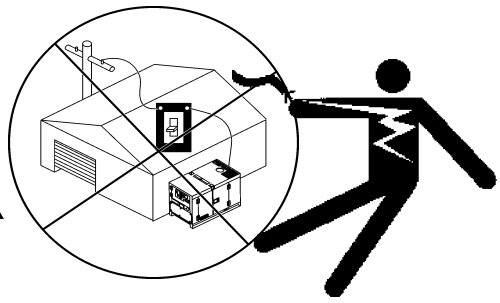
DANGER:





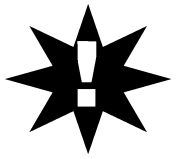
- **NEVER** touch output terminals during operation. This is extremely dangerous. **ALWAYS** stop the machine and place the circuit breaker in the "**OFF**" position when contact with the output terminals is required. There exist the possibility of ***electrocution, electrical shock or burn, which can cause severe bodily harm or even death***!

DANGER:



- Backfeed to a utility system can cause ***electrocution*** and or property damage. **DO NOT** connect to any building's electrical system except through an approved device or after building main switch is opened. **ALWAYS** have a licensed electrician perform the installation

CAUTION:



DO NOT touch or open any of the below mentioned components while the generator is running. Always allow sufficient time for the engine and generator to cool before performing maintenance.

Radiator

1. **Radiator Cap -** Removing the radiator cap while the engine is hot will result in high pressurized, boiling water to gush out of the radiator, causing severe scalding to any persons in the general area of the generator.
2. **Coolant Drain Plug -** Removing the coolant drain plug while the engine is hot will result in hot coolant to gush out of the coolant drain plug, therefore causing severe scalding to any persons in the general area of the generator.
3. **Engine Oil Drain Plug -** Removing the engine oil drain plug while the engine is hot will result in hot oil to gush out of the oil drain plug, therefore causing severe scalding to any persons in the general area of the generator.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- **ALWAYS** allow the machine a proper amount of time to cool before servicing.

- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and always replace broken parts.

- **NEVER** Run engine without air filter. Severe engine damage may occur.
- **ALWAYS**service air cleaner frequently to prevent engine malfunction.
- **ALWAYS** disconnect the ***negative*** *battery terminal* before performing service on the generator.
- **ALWAYS** be sure the operator is familiar with proper safety precautions when operating the generator set.
- **ALWAYS** store equipment properly when not in use.
- **DO NOT** leave the generator running in the ***manual mode*** unattended.
- **DO NOT** allow unauthorized people to operate this equipment.
- **ALWAYS** read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
- Refer to the ***John Deere Engine Owner's Manual*** for engine technical questions or information.

DANGER:

Pay close attention to ventilation when operating the generator inside tunnels and caves. The engine exhaust contains noxious elements. Engine exhaust must be routed to a ventilated area.

Generator Grounding

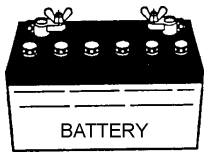
To guard against electrical shock and possible damage to the equipment, it is important to provide a good **EARTH** ground.

Article 250 (Grounding) of the ***National Electrical Code*** (NEC) provides guide lines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

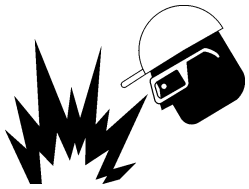
ALWAYS be sure to use the ground terminals(green) when connecting a load. Refer to page 28 for AC Connections.

Battery

The battery contains acids that can cause injury to the eyes and skin. To avoid eye irritation, ***always*** wear safety glasses. Use well insulated gloves when picking up the battery. Use the following guidelines when handling the battery:



1. **DO NOT** drop the battery. There is the possibility of risk that the battery may explode.
2. **DO NOT** expose the battery to open flames, sparks, cigarettes etc. The battery contains combustible gases and liquids. If these gases and liquids come in contact with a flame or spark, an explosion could occur.



3. **ALWAYS** keep the battery charged. If the battery is not charged a buildup of combustible gas will occur.
4. **ALWAYS** keep battery charging and cables in good working condition. Repair or replace all worn cables.
5. **ALWAYS** recharge the battery in an vented air environment, to avoid risk of a dangerous concentration of combustible gases.
6. In case the battery liquid (dilute sulfuric acid) comes in contact with ***clothing or skin***, rinse skin or clothing immediately with plenty of water.
7. In case the battery liquid (dilute sulfuric acid) comes in contact with your **eyes**, rinse eyes immediately with plenty of water, then contact the nearest doctor or hospital, and seek medical attention.

Transporting

- **ALWAYS** shutdown engine before transporting.
- Tighten both fuel tank caps securely.
- If generator is mounted on a trailer, make sure trailer complies with all local and state safety transportation laws. See next page "***Towing Safety Precautions***" for basic towing techniques.

Towing Safety Precautions

CAUTION :

Conform to ***Department of Transportation*** (**DOT**) ***Safety Towing Regulations*** before towing generator.

To reduce the possibility of an accident while transporting the generator on public roads, always make sure the trailer that supports the generator and the towing vehicle are in good operating condition and both units are mechanically sound.

The following list of suggestions should be used when towing your generator:

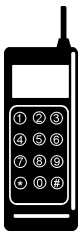
- Make sure the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer "gross vehicle weight rating" (GVWR) of 6,000 lbs.
- **ALWAYS** inspect the hitch and coupling for wear. **NEVER** tow a trailer with defective hitches, couplings, chains etc.
- Check the tire air pressure on both towing vehicle and trailer. ***Trailer tires should be inflated to 50 psi cold***. Also check the tire tread wear on both vehicles.
- **ALWAYS** make sure the trailer is equipped with a "**Safety Chain**".
- **ALWAYS** attach trailer's safety chains to towing vehicle properly.
- **ALWAYS** make sure the vehicle and trailer directional, backup, brake, and trailer lights are connected and working properly.
- The maximum speed for highway towing is **45 MPH** unless posted otherwise. Recommended off-road towing is not to exceed **10 MPH** or less depending on type of terrain.
- Place ***chock blocks*** underneath wheel to prevent **rolling**, while parked.
- Use the trailer's swivel jack to adjust the trailer height to a level position while parked.
- Avoid sudden stops and starts. This can cause skidding, or jack-knifing. Smooth, gradual starts and stops will improve towing.
- Avoid sharp turns.
- Trailer should be adjusted to a level position at all times when towing.
- Raise and lock trailer wheel stand in up position when transporting.
- DOT Requirements include the following:
  - Connect and test electric brake operation.
  - Secure portable power cables in cable tray with tie wraps.

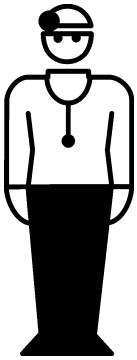
Emergencies

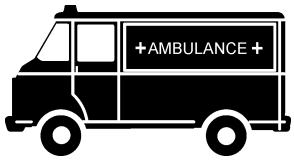
- **ALWAYS** know the location of the nearest ***fire extinguisher.***

- **ALWAYS** know the location of the nearest and ***first aid kit.***

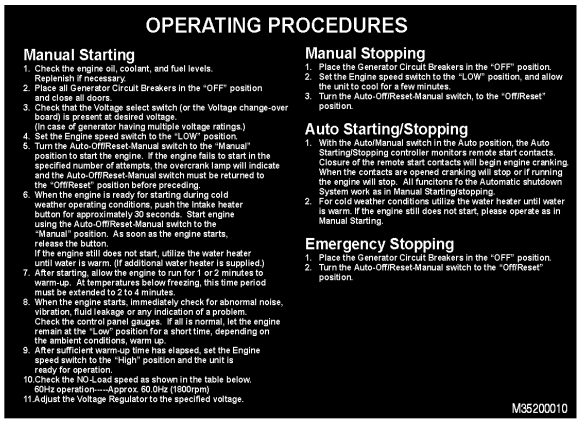
- In emergencies ***always*** know the location of the nearest phone or ***keep a phone on the job site***. Also know the phone numbers of the nearest ***ambulance***, ***doctor*** and ***fire department***. This information will be invaluable in the case of an emergency.



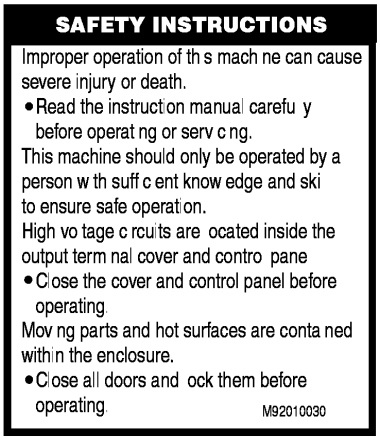




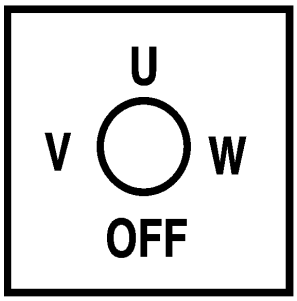
The DCA-85SSJU generator is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. The illustration below and on the preceding pages show the decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



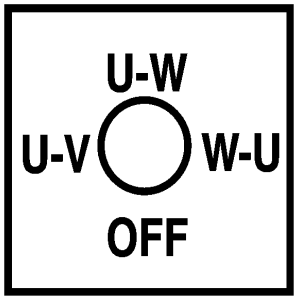
P/N M3552000103



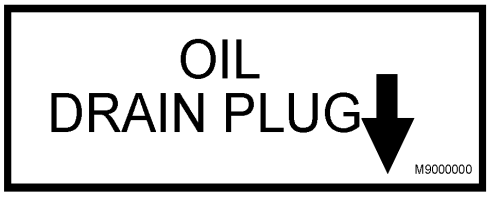
P/N M9520100304



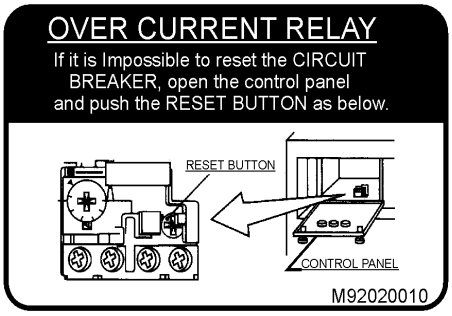
P/N M9520000104



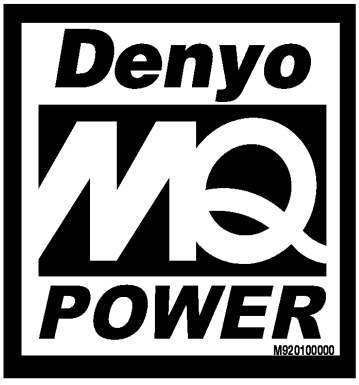
P/N M9520000204



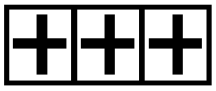
P/N M950000004



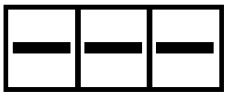
P/N M9520200104



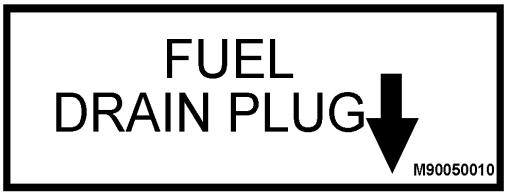
P/N M9510200002



P/N M9500300104



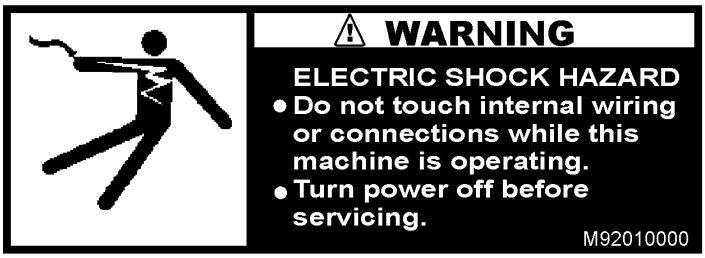
P/N M9500300004



P/N M9500500104

P/N M9500500004

P/N M9503000103



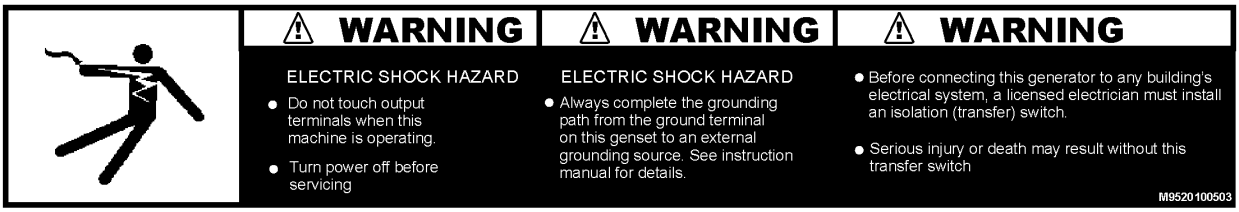
P/N M9520100004

FUELING INSTRUCTIONS

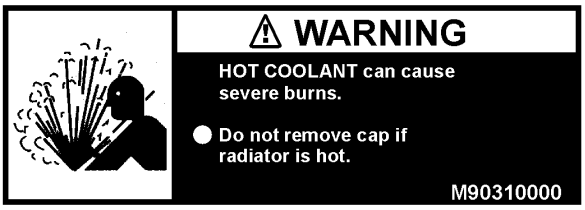
For best results:
1. Elevate trailer tongue slightly.
2. Fill trailer tank first
3. Fill generator tank next

Optimum venting will be achieved as a result of this procedure.

P/N TBD



P/N M9520100503

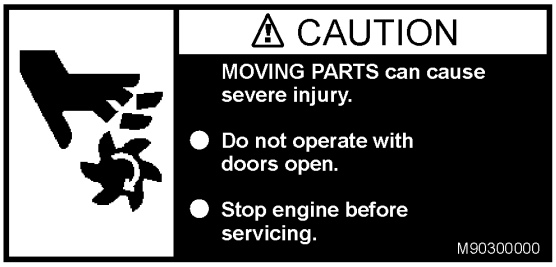


P/N M9503100004

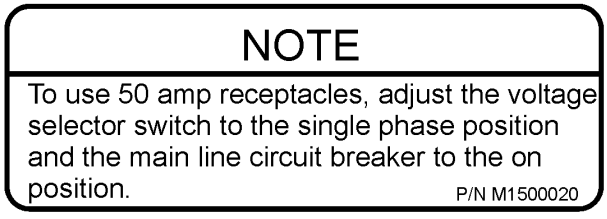
P/N M9503200004

P/N M9520100404

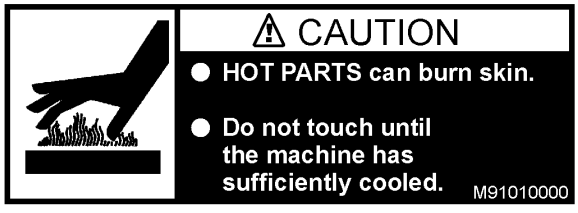
P/N M9520100204



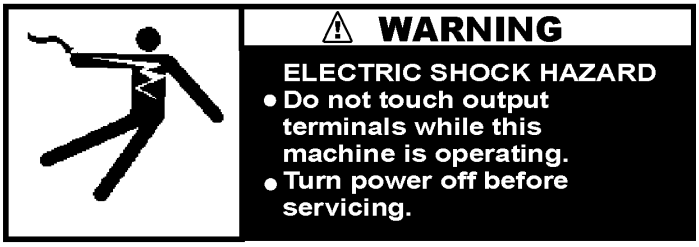
P/N M9503000004



P/N M1550000204



P/N M9510100004



P/N M9520100503

DCA-85SSJU FAMILIARIZATION

Generator

The DCA-85SSJU is a 60 kW ***generator*** at 208V 3Ø that is designed as a high quality portable (requires a trailer for transport) power source for telecom sites, lighting facilities, power tools, submersible pumps and other industrial and construction machinery.

Generator Control Panel

The "Generator Control Panel" is provided with the following:

- Output Voltage Adjustment Knob
- Frequency Meter (Hz)
- AC Ammeter (Amps)
- AC Voltmeter (Volts)
- Ammeter Change-Over Switch
- Voltmeter Change-Over Switch
- 3-Pole 250 Amp Main Circuit Breaker

Engine Control Panel

The "Engine Control Panel" is provided with the following:

- Tachometer
- Water Temperature Gauge
- Oil Pressure Gauge
- Charging Ammeter Gauge
- Engine Speed Switch
- Microprocessor Engine Controller (engine controller)
- Pre-Heat Button
- Panel Light
- Panel Light Switch
- Fuel Gauge Power Switch
- Fuel Guage Selector Switch (Upper and Lower Tank)

Output Terminal Panel

The "Output Terminal Panel" is provided with the following:

- Three 240V output receptacles (CS-6369), 50 amp
- Three AUX. Circuit Breakers 50 amps @ 250V
- Two 120V output receptacles, (GFCI), 20 amp
- Two GFCI Circuit Breakers 20 amps @120V
- Five Output Terminal Lugs (3Ø Power)

Open Delta Excitation System

The DCA-85SSJU generator is equipped with the state of the art "***Open-Delta***" excitation system. The open delta system consist of an electrically independent winding wound among stationary windings of the AC output section.

There are four leads: A, B, C and D. During light loads, the power to the ***Automatic Voltage Regulator*** (AVR) is supplied from the leads parallel connections of B&C. When loads increase, the AVR switches and accepts power from leads A&D. The output of leads A&D increase proportionally with load. This of adding the voltages to each phase provides better voltage response during heavy loads.

The connections of the AVR to the AC output windings are for sensing only. No power is required from these windings.

The open-delta design provides virtually unlimited excitation current, offering maximum motor starting capabilities. The excitation does not have a "***fixed ceiling***" and responds according the demands of the required load.

Microprocessor Controlled Alarm System

The DCA-85SSJU generator is equipped with various alarms and LED status indicators. These alarms and status indicators are provided to add safety to the generator when operating under normal conditions. The DCA-85SSJU generator is designed to shutdown in the event of low oil, high coolant temperature, low battery and other operation conditions that may cause severe damage to the engine.

Engine

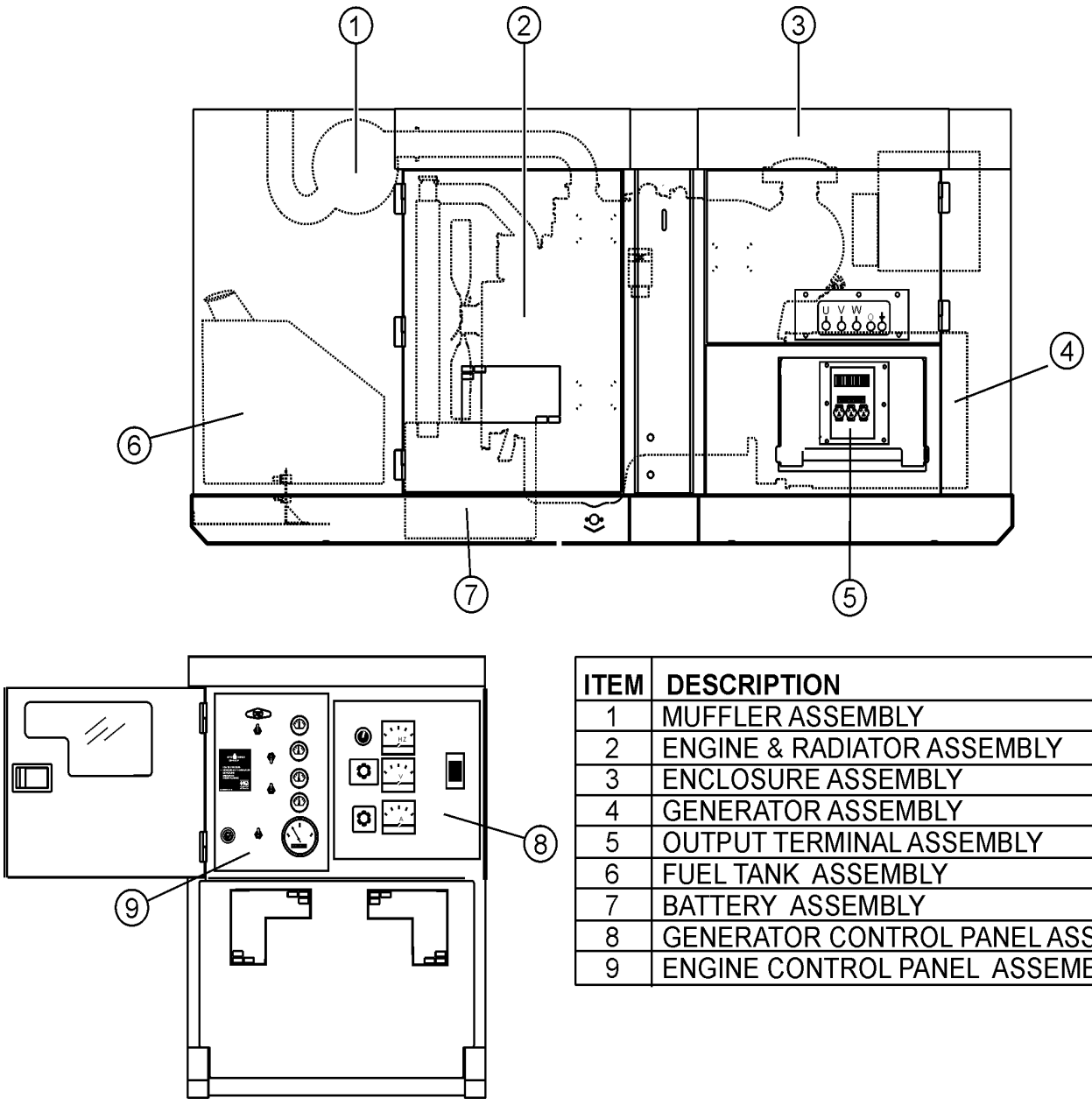
The **DCA-85SSJU** is powered by a 4 cycle, water cooled, turbocharged ***JOHN DEERE Model 4045TF 250 diesel*** engine. This engine is designed to meet every performance requirement for the generator. Reference Table 6, page 20 for engine specifications.

In keeping with Multiquip's policy of constantly improving its products, the specifications quoted herein are subject to change without prior notice.

The basic controls and indicators for the DCA-85SSJU generator are addressed on the following pages.

Extension Cables

When electric power is to be provided to various tools or loads at some distance from the generator, extension cords are normally used. Cables should be sized to allow for distance in length and amperage so that the voltage drop between the generator and point of use (load) is held to a minimum. Use the cable selection chart (Table 7) as a guide for selecting proper cable size.



ITEM	DESCRIPTION
1	MUFFLER ASSEMBLY
2	ENGINE & RADIATOR ASSEMBLY
3	ENCLOSURE ASSEMBLY
4	GENERATOR ASSEMBLY
5	OUTPUT TERMINAL ASSEMBLY
6	FUEL TANK ASSEMBLY
7	BATTERY ASSEMBLY
8	GENERATOR CONTROL PANEL ASSEMBLY
9	ENGINE CONTROL PANEL ASSEMBLY

Figure 3. Generator Major Components

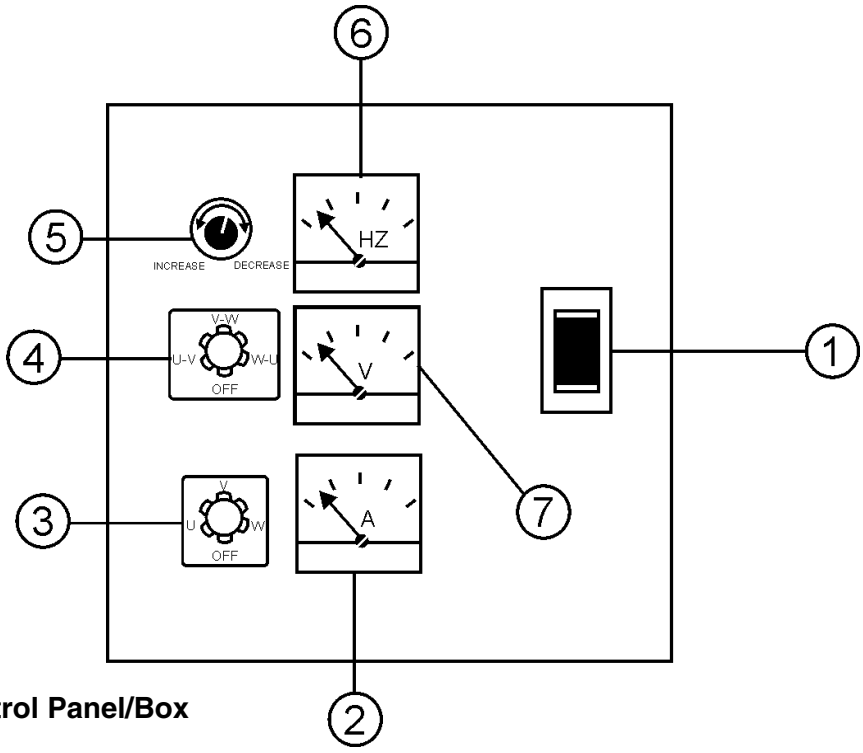


Figure 4. Generator Control Panel/Box

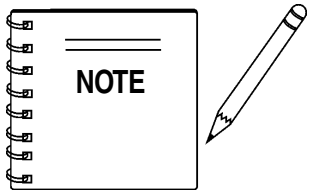
The definitions below describe the controls and functions of the DCA-85SSJU " ***Generator Control Panel*** " (Figure 4).

1. **Main Circuit Breaker –** This three-pole, 250 amp main breaker is provided to protect the **UVWO** output terminals from overload.
2. **AC Ammeter –** Indicates the amount of current the load is drawing from the generator per leg selected by the ammeter phase-selector switch.
3. **Ammeter Change-Over Switch –** This switch allows the AC ammeter to indicate the current flowing to the load connected to any phase of the output terminals, or to be switched off. This switch does not effect the generator output in any fashion, it is for current reading only.
4. **Voltmeter Change-Over Switch –** This switch allows the AC voltmeter to indicate phase to phase voltage between any two phases of the output terminals or to be switched off.
5. **Voltage Regulator Control –** Allows ±15% manual adjustment of the generator's output voltage.
6. **Frequency Meter –** Indicates the output frequency in hertz (Hz). Normally 60 Hz ±1 Hz .
7. **AC Voltmeter –** Indicates the output voltage present at the **UVWO** terminals.

Located behind the generator control panel is the ***Generator Control Box***. This box contains some of the necessary electronic components required to make the genertator function.

The "**Control Box**" is equipped with the following major components:

- Over-Current Relay
- Voltage Rectifer
- Starter Relay
- Engine Controller (Computer Controlled)
- Current Transformer
- Voltage Selector Switch



Remember the ***overcurrent relay*** monitors the current flowing from the **UWVO** output terminals to the load.

In the event of a short circuit or over current condition, it will automatically trip the main 250 amp breaker.

To restore power to the **UWVO** output terminals, press the ***reset*** button on the overcurrent relay and place the ***main*** circuit breaker in the ***closed*** position (**ON**).

NOTE PAGE

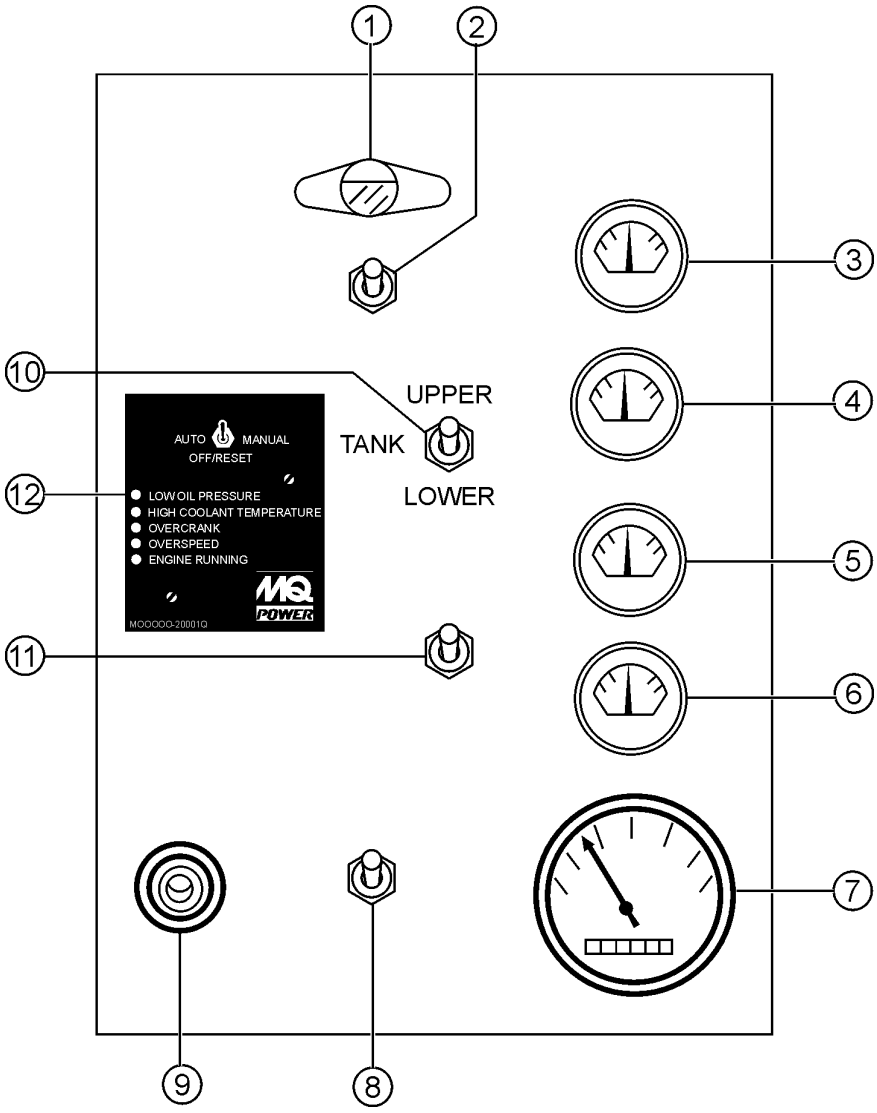


Figure 5. Engine Control Panel

The definitions below describe the controls and functions of the DCA-85SSJU " ***Engine Control Panel*** " (Figure 5).

1. **Panel light -** Normally used in dark places or at night. When activated, panel will luminate. When the generator is not in use, turn the panel light switch to the 'OFF' position.
2. **Panel light switch**- When activated, will turn on control panel light.
3. **Oil Pressure Gauge –** Normal operation should be about 42~71 psi. When starting the generator the oil pressure may read a bit higher, but after the engine warms up the oil pressure should return to normal.
4. **Water Temperature Gauge –** During normal operation this gauge be should read between 165°F to 203°F.
5. **Charging Ammeter Gauge –** Indicates the current being supplied by the engine's alternator which provides current for generator's control circuits and battery charging system.
6. **Fuel Gauge** - Indicates amount of diesel fuel available in the selected tank (upper or lower).
7. **Tachometer –** Indicates engine speed in RPM's for 60 Hz operation. This meter should indicate ***1800 RPM's*** when the rated load is applied. In addition a built in hour meter will record the number of operational hours that the generator has been in use.
8. **Engine Speed Switch-** This handle will change the speed of the engine from high to low.
9. **Pre-Heat Button –** Press hold this button until the preheat lamp is lit (**ON**).
10. **Fuel Tank Guage Selector Switch –** This two way switch allows the operator to select the upper (generator) or lower (trailer) fuel tank to be displayed on the fuel gauge.
11. **Fuel Gauge Power Switch –** When the unit is not running, the operator may activate this momentary switch to supply dc power to the fuel gauge.
12. **Auto/Stop Manual Engine Controller –** Has a vertical row of status LED's , that when lit, indicate that an engine malfunction (fault), has been detected. When a fault has been detected the engine controller will evaluate the fault and all major faults will shutdown the generator. During ***cranking cycle*** , The controller will attempt to crank the engine for 10 seconds before disengaging.If the engine does not engage (start) by the third attempt, the engine will be shutdown by the engine controller's " Over Crank Protection" mode. If the engine engages at a speed (RPM's) that is not safe, the engine controller will shutdown the engine by initializing the "Over Speed Protection" mode.

Also the engine controller will shutdown the generator in the event of low oil pressure, high coolant temperature, low coolant level, and loss of magnetic pickup. These conditions can be observed by monitoring the LED status indicators on the front of the engine controller module.

A. Off/Manual/Auto Switch – This switch controls the running of the generator. If this switch is left in the "OFF" position, the generator will not run. When this switch is set to the ***manual*** position, the generator will start immediately.

If the generator is to be connected to a building's AC power source via a transfer switch (isolation), place the switch in the ***auto*** position. In this position the transfer switch will monitor the AC line output from the building's power source. (2 wire start circuit)

B. Low Oil Pressure Shutdown – Indicates the engine pressure has fallen below 15 psi. The oil pressure is detected using variable resistive values from the oil pressure sending unit. The operating range is 15-60 psi.

C. High Coolant Temperature Shutdown – Indicates the engine temperature has exceeded 215°F. The engine temperature is detected using variable resistive values from the temperature sending unit. This is considered a ***major*** fault.

D. Overcrank Shutdown – Indicates the unit has attempted to start a pre- programmed number of times, and has failed to start. The number of cycles and duration are programmable. It is preset at 3 cycles with a 10 second duration. This is considered a ***major*** fault.

E. Overspeed Shutdown – Indicates the engine is running at an unsafe speed. This is considered a ***major*** fault.

F. Engine Running – Indicates that engine is running at a safe operating speed.

DCA-85SSJU — OUTPUT TERMINAL PANEL FAMILIARIZATION

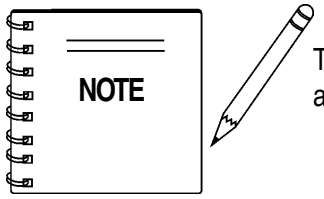
Output Terminal Familiarization

The "***Output Terminal Panel***" (Figure 6) is provided with the following:

- Three (3) 240V output receptacles, 50 amp
- Three (3) Circuit Breakers 240V @50 amps
- Two (2) 120V GFCI receptacles, 20 amp
- Two (2) GFCI Circuit Breakers 120V@ 20 amps
- One Main Circuit Breaker 250V @250 amps
- Five (5) Output Terminal Lugs

Output Terminal Panel

The ***Output Terminal Panel*** (Figure 6) shown below is located on the right-hand side (left from control panel) of the generator. Lift up on the cover to gain access to receptacles and terminal lugs.



Terminal legs "**O**" and "**Ground**" are considered ***bonded grounds***.

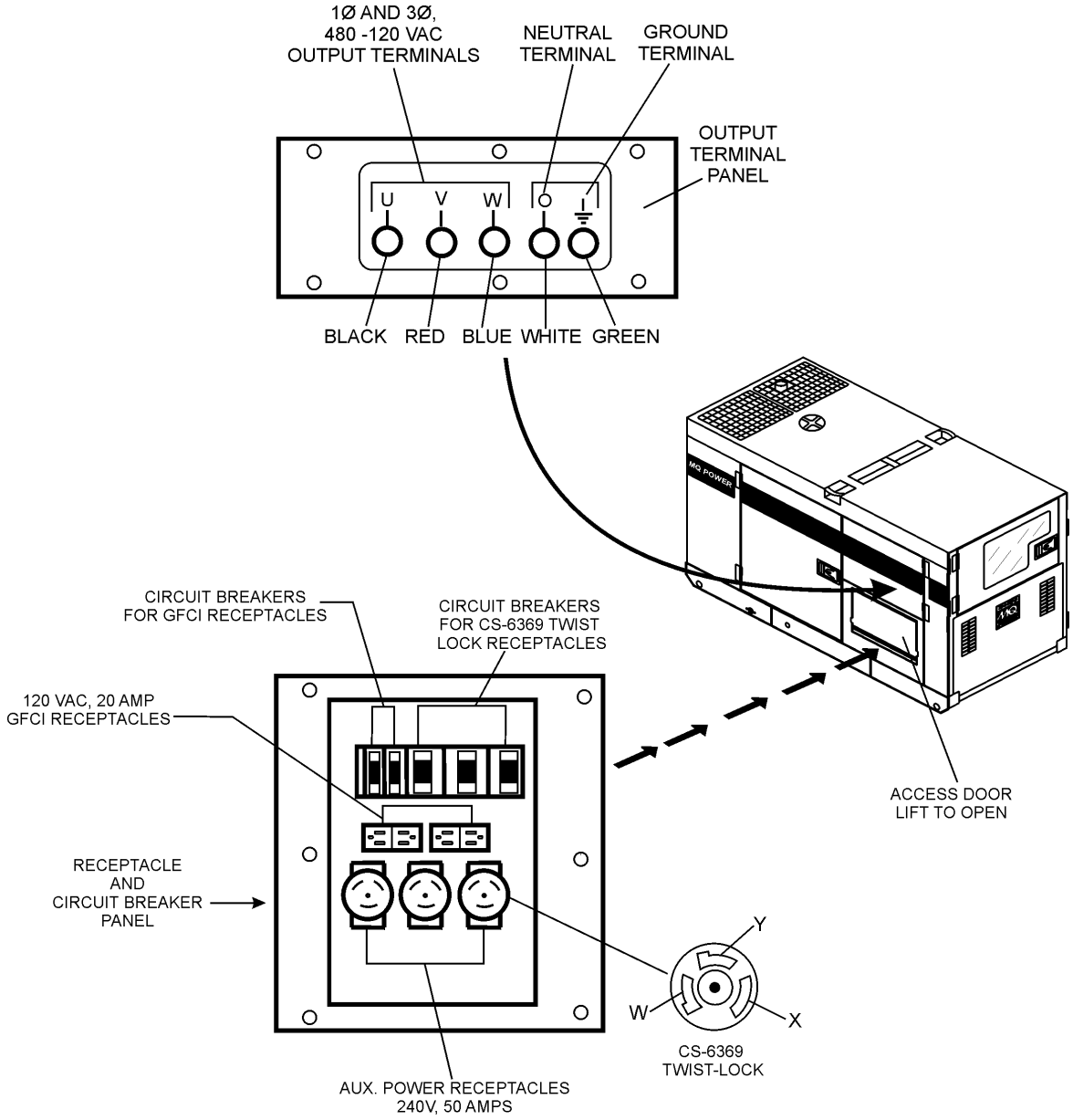


Figure 6. Output Terminal Panel

120 VAC GFCI Receptacles

There are two 120 VAC, 20 amp GFCI (Duplex Nema 5-20R) recepacles provided on the output terminal panel. These receptacles can be accessed in **any** ***voltage selector switch*** position. Each receptacle is protected by a 20 amp circuit breaker. These breakers are located directly above the GFCI receptacles. Remember the load output (current) of both GFCI receptacles is dependent on the load requirements of the UVWO terminals.

Pressing the ***reset*** button resets the GFCI receptacle after being tripped. Pressing the "***Test Button***" (See Figure 7) in the center of the receptacle will check the GFCI function. Both receptacles should be tested at least once a month.

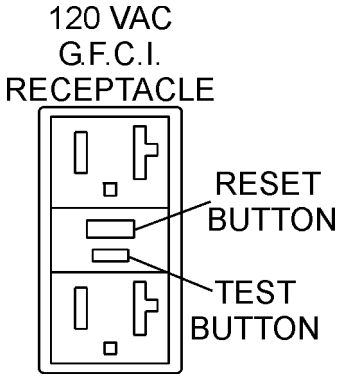


Figure 7. G.F.C.I. Receptacle

Twist Lock Dual Voltage 120/240 VAC Receptacles

There are three 240 VAC, 50 amp auxilliary twist-lock (CS-6369) recepacles (Figure 8) provided on the output terminal panel. These receptacles can ***only*** be accessed when the voltage selector switch is placed in the ***single-phase 240/ 120 position.***

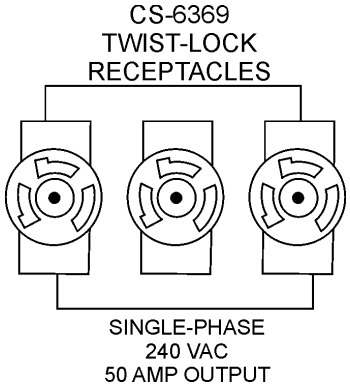


Figure 8. 240 VAC Twist-Lock Auxiliary Receptacles

Each auxilliary receptacle is protected by a 50 amp circuit breaker. These breakers are located directly above the GFCI receptacles. Remember the load output (current) on all three receptacles is dependent on the load requirements of the UVWO terminals.

Turn the ***voltage regulator control knob*** (Figure 9) on the control panel to obtain the desired voltage. Turning the knob clockwise will ***increase*** the voltage, turning the knob counter-clockwise will ***decrease*** the voltage.

Figure 9. Voltage Regulator Control Knob

Removing the Plastic Face Plate (UVWO Terminals)

The UVWO terminal lugs are protected by a plastic face plate cover (Figure 10). Un-lock the locking latch, and lift the terminal cover to gain access to the plastic face plate. Remove the screws securing the face plate to the terminal enclosure, then lift the plastic hinged face plate.

After the load wires have been securely attached to the UVWO terminals, reinstall the plastic face plate. Place the terminal cover in the down position and secure the locking latch.

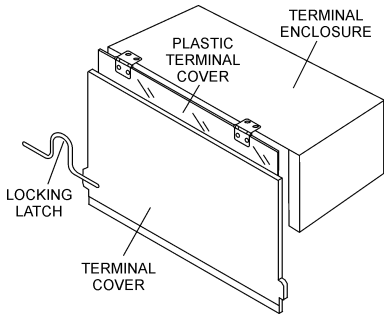


Figure 10. Plastic Face Plate (UVWO Terminals)

Connecting Loads

Loads can be connected to the generator by the **UVWO** terminal lugs or the convienience receptacles. (See Figure 11). Make sure to read the operation manual before attempting to connect a load to the generator.

To protect the UVWO output terminals from overload, a 3-pole, 250 amp, ***main*** circuit breaker is provided. Make sure to switch ***ALL*** circuit breakers to the "**OFF**" position prior to starting the engine.

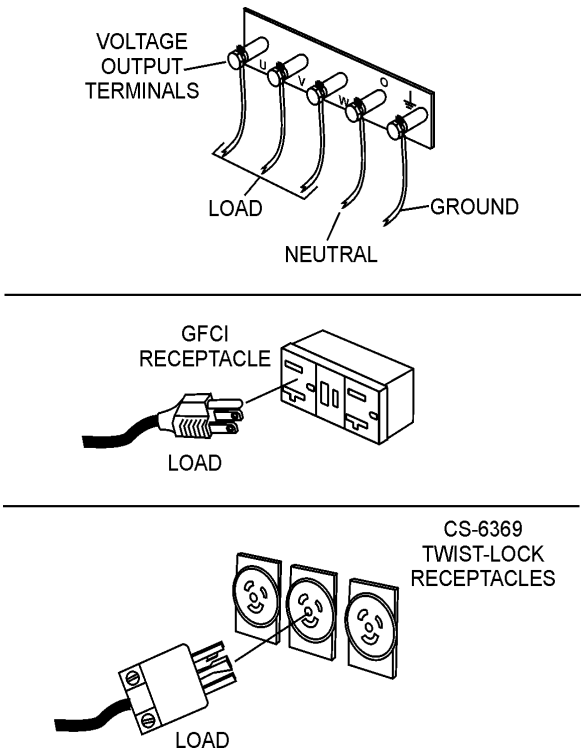


Figure 11. Connecting Loads

Over Current Relay

An ***over current relay*** (Figure 12) is connected to the main circuit breaker. In the event of an overload, both the circuit breaker and the over current relay may trip. If the circuit breaker can not be reset, the ***reset button*** on the over current relay must be pressed. The over current relay is located in the control box.

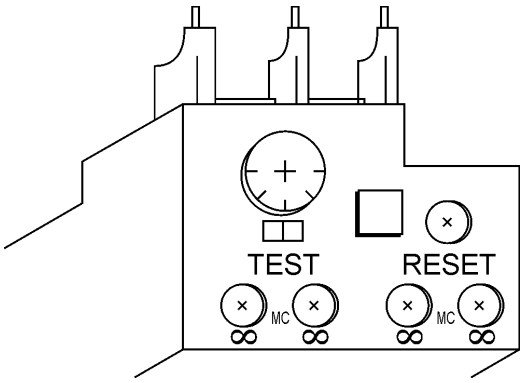
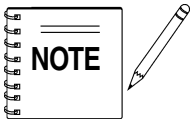


Figure 12. Over Current Relay

Single Phase Load

Always be sure to check the nameplate on the generator and equipment to insure the wattage, amperage and frequency requirements are satisfactorily supplied by the generator for operating the equipment.

Generally, the wattage listed on the nameplate of the equipment is its rated output. Equipment may require 130—150% more wattage than the rating on the nameplate, as the wattage is influenced by the efficiency, power factor and starting system of the equipment.



If wattage is not given on the equipment's name plate, approximate wattage may be determined by multiplying nameplate voltage by the nameplate amperage.

WATTS = VOLTAGE x AMPERAGE

The power factor of this generator is 0.8. See Table 6 below when connecting loads.

Table 6. Power Factor By Load

Type Of Load	Power Factor
Single-phase induction motors	0.4 - 0.75
Electric heaters, incandescent lamps	1.0
Fluorescent lamps, mercury lamps	0.4 - 0.9
Electronic devices, communication equipment	1.0
Common power tools	0.8

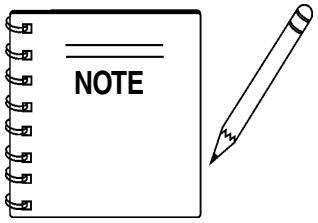
Table 7. Extension Cable Selection (60 Hz, Single Phase Operation)

Current in Amperes	Load In Watts		Maximum Allowable Cable Length			
	At 120 Volts	At 240 Volts	#10 Wire	#12 Wire	#14 Wire	#16 Wire
2.5	300	600	1000 ft.	600 ft.	375 ft.	250 ft.
5	600	1200	500 ft.	300 ft.	200 ft.	125 ft.
7.5	900	1800	350 ft.	200 ft.	125 ft.	100 ft.
10	1200	2400	250 ft.	150 ft.	100 ft.	
15	1800	3600	150 ft.	100 ft.	65 ft.	
20	2400	4800	125 ft.	75 ft.	50 ft.	
30	3600	7200	75 ft.	50 ft.	35 ft.	
CAUTION: Equipment damage can result from low voltage.						

Three Phase Load

When calculating the power requirements for 3-phase power use the following equation:

$$KVA = \frac{\text{VOLTAGE X AMPERAGE X } 1.732}{1000}$$



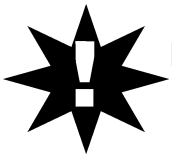
Motors and motor-driven equipment draw much greater current for starting than during operation.

An inadequate size connecting cable which cannot carry the required load can cause a voltage drop which can burn out the appliance or tool and overheat the cable. See Table 7.

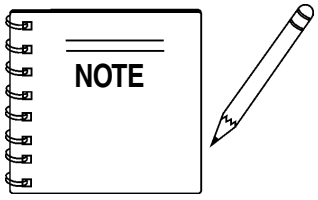
- When connecting a resistance load such as an incandescent lamp or electric heater, a capacity of up to the generating set's rated output (kW) can be used.
- When connecting a fluorescent or mercury lamp, a capacity of up to the generating set's rated output (kW) multiplied by 0.6 can be used.
- When connecting an electric drill or other power tools, pay close attention to the required starting current capacity.

When connecting ordinary power tools, a capacity of up to the generating set's rated output (kW) multiplied by 0.8 can be used.

CAUTION:



Before connecting this generator to any building's electrical system, a ***licensed electrician*** must install an ***isolation (transfer) switch***. Serious injury or death may result without this transfer switch.



If 3Ø load (kVA) is not given on the equipment nameplate, approximate 3Ø load output maybe determined by multiplying voltage by amperage by 1.732.

Generator Output Voltages

A wide range of voltages are available to supply voltage for many different applications. Voltages are selected by using the ***voltage selector*** switch (Figure 13). To obtain some of the voltages as listed in Table 8 will require a fine adjustment using the ***voltage regulator*** (VR) ***control knob*** located on the control panel.

Table 8. Generator Output Voltages						
3Ø-Phase	208V	220V	240V	416V	440V	480V

Voltage Selector Switch

The ***voltage selector*** switch (Figure 13) is located above the UVWO Hard Wire Hook-up Panel. It has been provided for ease of voltage selection.

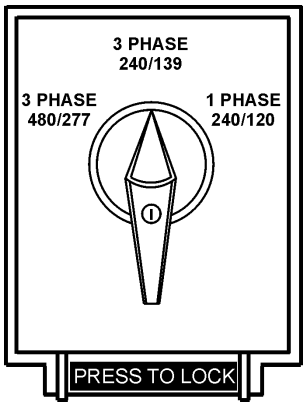


Figure 13. Voltage Selector Switch

Voltage Selector Switch Locking Button

The voltage selector switch has a locking button to protect the generator and load from being switched while the engine is running. To lock the voltage selector switch, ***press*** and ***hold*** the ***red button*** located at the bottom of the switch.

CAUTION :

NEVER change the position of the ***voltage selector switch*** while the engine is running. **ALWAYS** place circuit breaker in the open position before selecting voltage.

Generator Amperage

Tables 9 and 10 describe the generator's current output capability for both 1Ø-phase and 3Ø phase applications.

Table 9. Generator Ampere Ratings — 1Ø		
kW	**240V**	**120V**
20	83	166
25	104	208
30	225	250
35	145	291
40	166	333
45	187	375
50	208	417
60 (Max)	250	500

Table 10. Generator Ampere Ratings — 3Ø			
kW	**208V**	**240V**	**480V**
20	59	60	30
25	87	75	38
30	104	90	45
35	121	105	53
40	139	120	60
45	156	136	68
50	174	152	76
60	208	181	99

GFCI Receptacle Load Capability

The load capability of the GFCI receptacles is directly related to the voltage being supplied at either the UVWO terminals or the 3 twist lock auxilliary receptacles.

Tables 11 and 12 show what amount of current is available at the GFCI receptacles when the UVWO terminals and twist lock receptacles are in use. Be careful that your load does not to exceed the available current capability at the receptacles.

Table 11. GFCI Receptacle Load Capability	
KVA in Use (UVWO Terminals)	Available Load Current (AMPS)
3Ø 240/480V	GFCI Duplex NEMA 5-20R 120V
82	0
77.8	5 amps per receptacle
73.7	10 amps per receptacle
69.5	15 amps per receptacle
65.4	20 amps per receptacle

Table 12. GFCI Receptacle Load Capability	
KW in Use Twist-Lock (CS6369)	Available Load Current (AMPS)
1Ø 240/120V	GFCI Duplex NEMA 5-20R 120V
60	0
58.8	5 amps per receptacle
57.6	10 amps per receptacle
56.4	15 amps per receptacle
55.2	20 amps per receptacle

How to Read the Output Terminal Gauge.

The gauge and selector switch on the control panel **DO NOT** effect the generator output . They are provided to help observe how much power is being supplied, produced at the UVWO terminals lugs.

When the Voltage selector switch is in the 3Ø,240/139V position (See Figure 14), place the ***AC Voltmeter Change-Over Switch*** (Figure 15) to the W-U position and the ***AC Ammeter Change-Over Switch*** (Figure 17) to the U or W position to read the output on the selected leg.

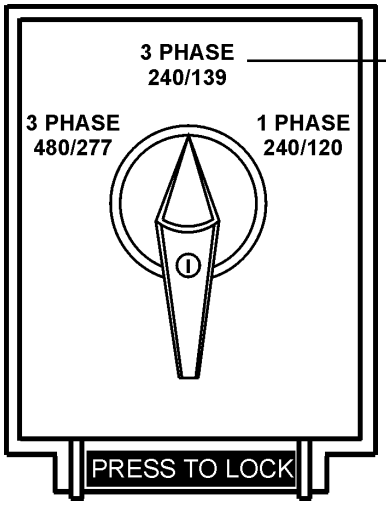


Figure 14. Voltage Selector Switch 240/139V Three Phase Position (for 3Ø, 208V, 120V voltage)

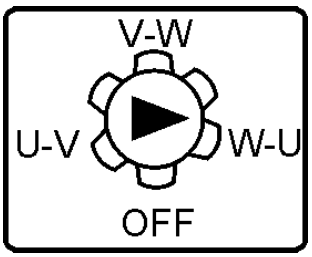


Figure 15. AC Voltmeter

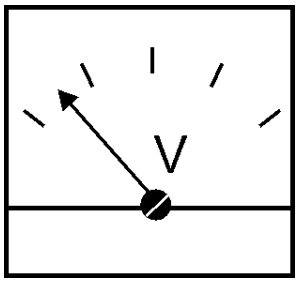


Figure 16. AC Voltmeter Gauge (Volt reading on W-U Lug)

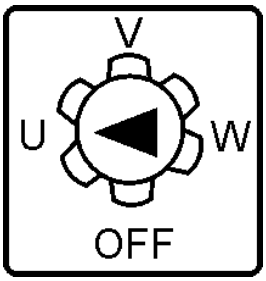


Figure 17. AC Ammeter

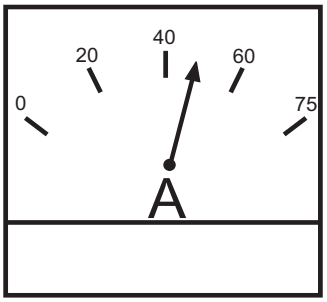
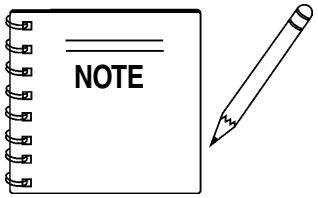


Figure 18. AC Ammeter (Amp reading on U lug)



The ***ammeter*** and ***voltmeter*** gauges are only active when the UVWO terminals are in use.

UVWO Terminal Output Voltages

Various output voltages can be obtained using the UVWO output terminal lugs. The voltages at the terminals are dependent on the position of the ***Voltage Selector Switch*** and the adjustment of the ***Voltage Regulator Control Knob***.

Remember the voltage selector switch determines the ***range*** of the output voltage. The voltage regulator (VR) allows the user to increase or decrease the selected voltage.

3Ø 240/139 UVWO Terminal Output Voltages

1. Place the voltage selector switch in the 3Ø 240/139 position as shown in Figure 19.

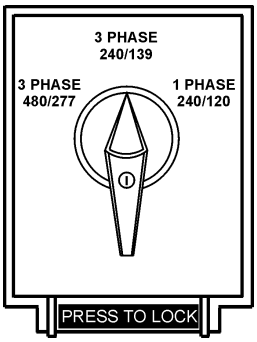


Figure 19. Voltage Selector Switch 240/139V Three-Phase Position

2. Connect the load wires to the UVWO terminals as shown in Figure 20.

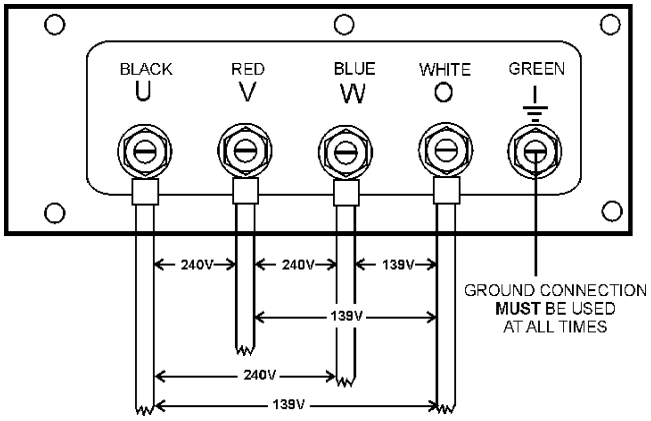


Figure 20. UVWO Terminal Lugs 240/139V Three Phase Connections

3. Turn the voltage regulator knob (Figure 21) clockwise to increase voltage output, turn counterclockwise to decrease voltage output.

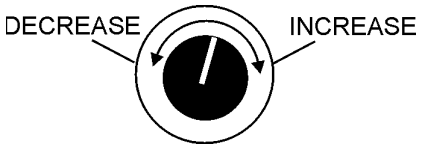
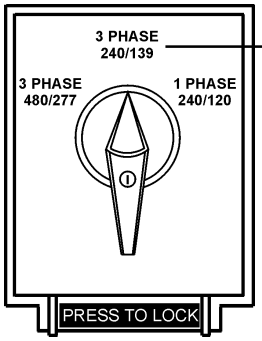


Figure 21. Voltage Regulator Knob (139V/240V)

3Ø 208V/1Ø120V UVWO Terminal Output Voltages

1. Place the voltage selector switch in the 3Ø 240/139 position as shown in Figure 22.



Use this position for 3Ø-208 or 1Ø120V.

Figure 22. Voltage Selector Switch 3Ø-208V/1Ø-120V Three-Phase Position

2. Connect the load wires to the UVWO terminals as shown in Figure 23.

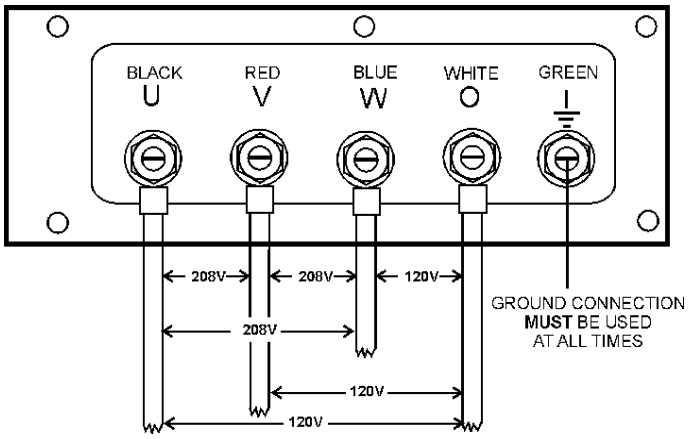


Figure 23. UVWO Terminal Lugs 3Ø-208V/120V Connections

3. Turn the voltage regulator knob (Figure 24) clockwise to increase voltage output, turn counterclockwise to decrease voltage output.

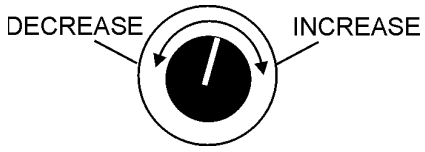
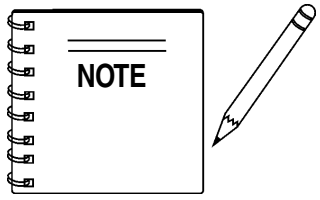


Figure 24. Voltage Regulator Knob (208V)



To achieve a 3Ø 208V output the voltage selector switch must be in the 3Ø-240/139 position and the voltage regulator must be adjusted to 208V.

3Ø 480/277 UVWO Terminal Output Voltages

1. Place the voltage selector switch in the 3Ø 480/277 position as shown in Figure 25.

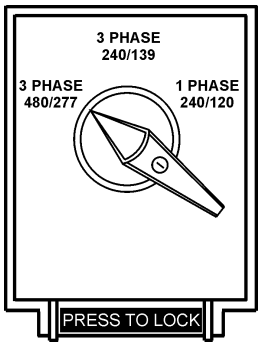


Figure 25. Voltage Selector Switch 480/277V Three-Phase Position

2. Connect the load wires to the UVWO terminals as shown in Figure 26.

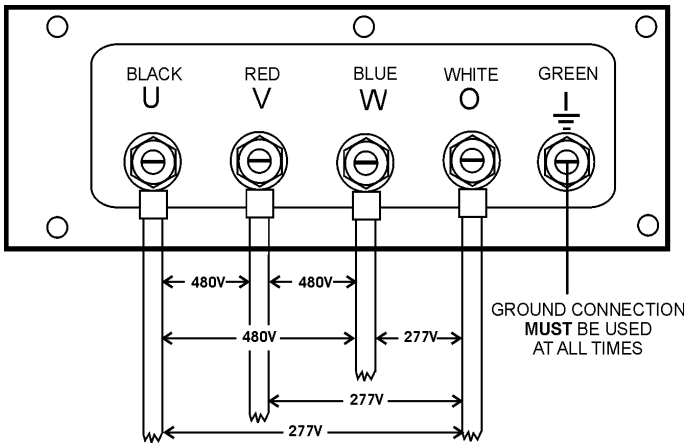


Figure 26. UVWO Terminal Lugs 240/139V Three Phase Connections

3. Turn the voltage regulator knob (Figure 21) clockwise to increase voltage output, turn counterclockwise to decrease voltage output.

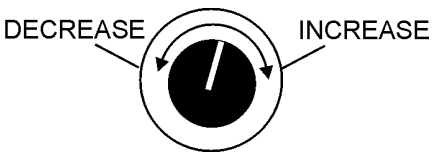


Figure 27. Voltage Regulator Knob (139V/240V)

1Ø 240V/120V UVWO Terminal Output Voltages

1. Place the voltage selector switch in the 1Ø 240/120 position as shown in Figure 28.

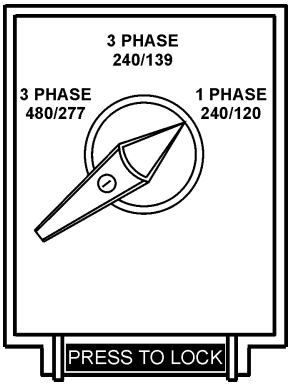


Figure 28. Voltage Selector Switch 240/120V Single-Phase Position

2. Connect the load wires to the UVWO terminals as shown in Figure 29.

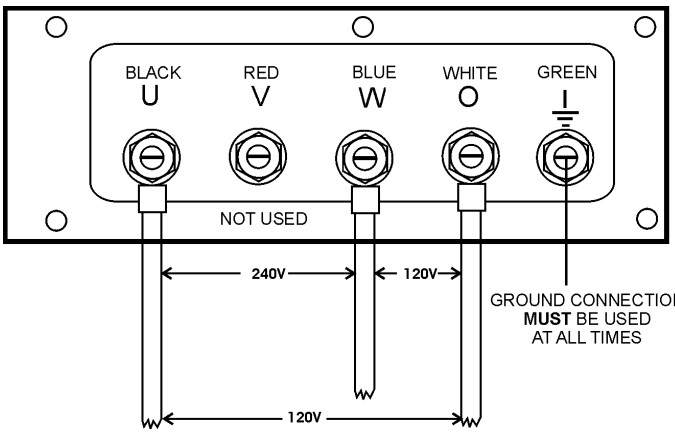


Figure 29. UVWO Terminal Lugs 1Ø-240V/120V Connections

3. Turn the voltage regulator knob (Figure 21) clockwise to increase voltage output, turn counterclockwise to decrease voltage output.

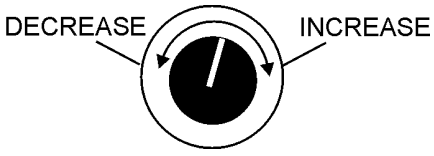


Figure 30. Voltage Regulator Knob (1Ø-240/120V)

Circuit Breakers

To protect the generator from an overload, a 3-pole, 250 amp, ***main*** circuit breaker is provided to protect the UVW output terminals from overload. In addition two single-pole, 20 amp ***GFCI*** circuit breakers are provided to protect the GFCI receptacles from overload. Three 50 amp ***load*** circuit breakers have also been provided to protect the auxiliary receptacles from overload. Make sure to switch ***ALL*** circuit breakers to the "**OFF**" position prior to starting the engine.

Lubrication Oil

Fill the engine crankcase with lubricating oil through the filler hole, but **DO NOT** overfill. Make sure the generator is level. and verify that the oil level is maintained between the two notches (Figure 31) on the dipstick. See Table 13 for proper selection of engine oil.

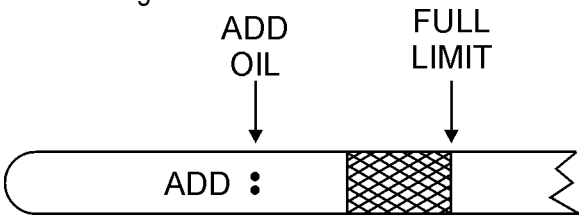


Figure 31. Engine Oil Dipstick

When checking the engine oil, be sure to check if the oil is clean. If the oil is not clean, drain the oil by removing the oil drain plug, and refill with the specified amount of oil as outlined in the **John Deere Engine Owner's Manual.** Oil should be warm before draining.

Other types of motor oils may be substituted if they meet the following requirements:

- API Service Classification CH-4
- API Service Classification CG-4
- API Service Classification CF-4
- ACEA Specification E3
- ACEA Specification E2

Table 13. Recommended Motor Oil

Temperature Range	Type Oil
122°F ~ 5°F (50°C ~ -15°C)	SAE 15W-40
86°F ~ -22°F (30°C ~ -30°C)	SAE 5W-30

Fuel Check

DANGER :

Fuel spillage on a hot engine can cause a ***fire*** or ***explosion***. If fuel spillage occurs, wipe up the spilled fuel completely to prevent fire hazards. ***NEVER!*** smoke around or near the generator.

ALWAYS fill the fuel tank with clean and fresh ***#2 diesel fuel.*** **DO NOT** fill the fuel tanks beyond their capacities.

Pay attention to the fuel tank capacity when replenishing fuel.The fuel tank cap must be closed tightly after filling. Handle fuel in a safety container. If the container does not have a spout, use a funnel. Wipe up any spilled fuel immediately.

REFILLING THE FUEL SYSTEM

The DCA85SSJU genset has a double fuel tank system (Figure 32), which consists of an internal generator fuel tank, and a trailer mounted fuel tank.

WARNING:

ONLY properly trained personel who have read and understand this section should refill the double fuel tank system.
Use #2 Diesel Fuel.

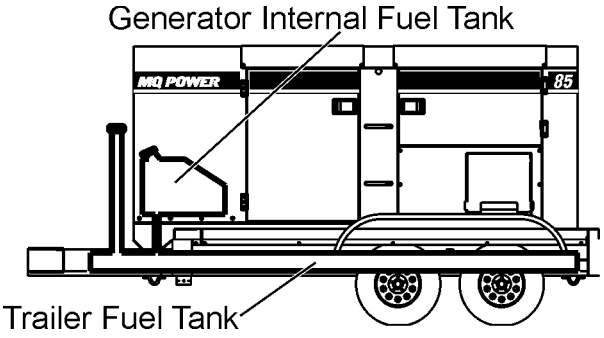


Figure 32. Double Fuel Tank System

Refueling Procedure:

1. **Verify fuel level** by operating upper/lower Fuel Selector Switch located on generator control panel (Figure 5). See Table 2 for fuel capacity.

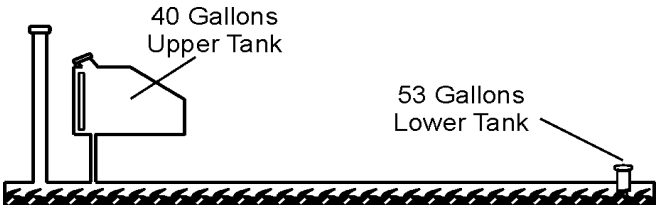
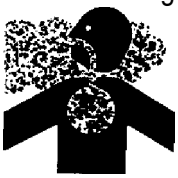


Figure 33. Verify Fuel Level

DANGER:

Diesel fuel and its vapors are dangerous to your health and the surrounding environment. Avoid skin contact and/or inhaling fumes.



2. **Level tanks –** make sure fuel cells are level with the ground. Failure to do so will cause fuel to spill from tank before reaching full capacity. See Figure 34.

WARNING:

ALWAYS! place trailer on firm level ground before refueling.

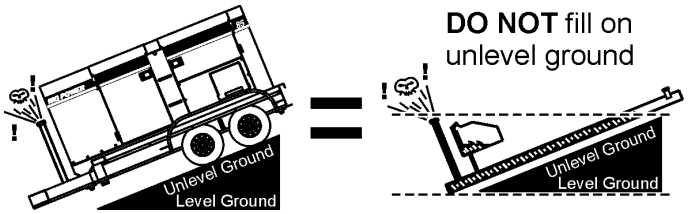
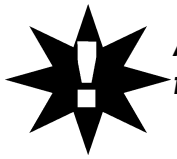


Figure 34. Only Fill on Level Ground

3. **Trailer Fuel Tank First –** The trailer fuel tank is the primary fuel tank and holds a larger capacity of fuel. The fuel in the trailer will be filtered and sent to the engine. ***ALWAYS*** fill trailer fuel tank (Figure 35) first.

CAUTION:



ALWAYS! fill trailer tank ***first*** with ***#2 diesel fuel***, before filling secondary internal tank.

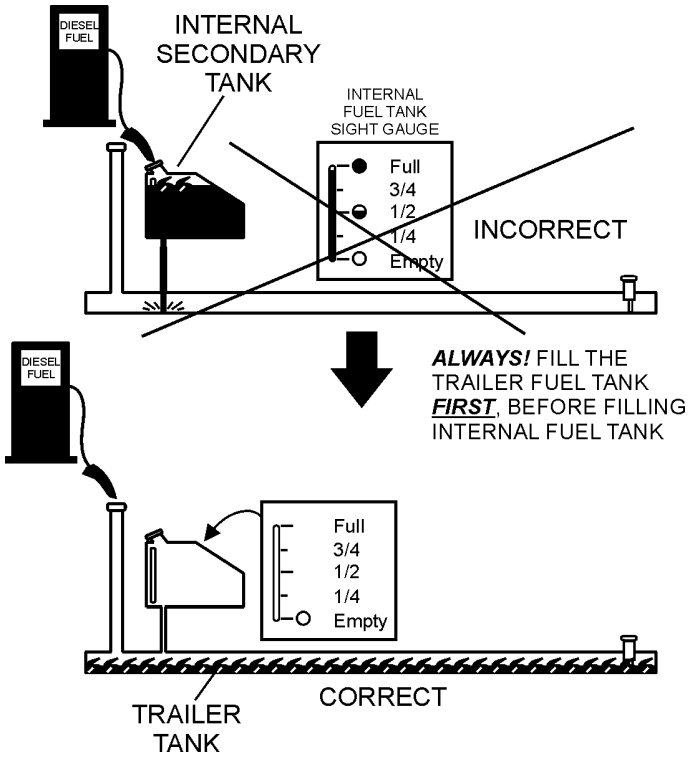
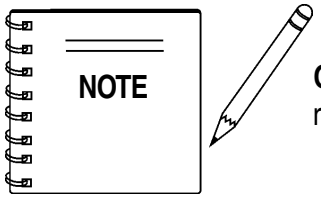
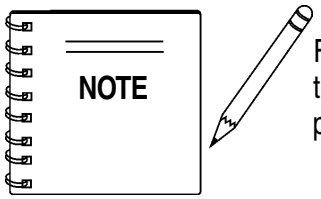


Figure 35. Fuel Tank Filling Order



ONLY! use ***#2 diesel fuel*** when refueling.



Fuel from the secondary inner tank will eventually drain into the primary trailer tank.

4. **NEVER overfill trailer fuel tank –** It is important to read the trailer fuel gauge when filling trailer fuel tank. **DO NOT** wait for fuel to rise in filler neck. See Figure 36.

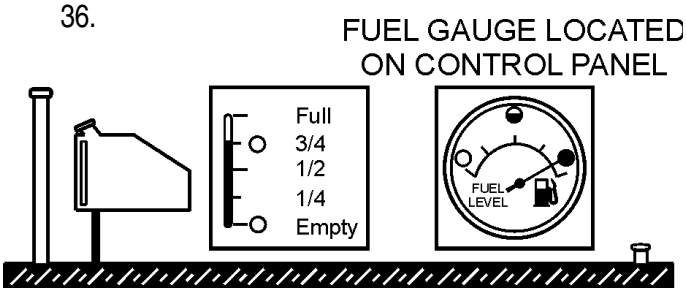


Figure 36. Full Trailer Tank

WARNING:

DO NOT OVER-FILL fuel system. Leave room for fuel expansion . Fuel expands when heated.

5. Once the trailer tank is full, the ***secondary inner tank*** can be filled (See Figure 37). Notice how the trailer filler tube level rises when the internal tank is filled.

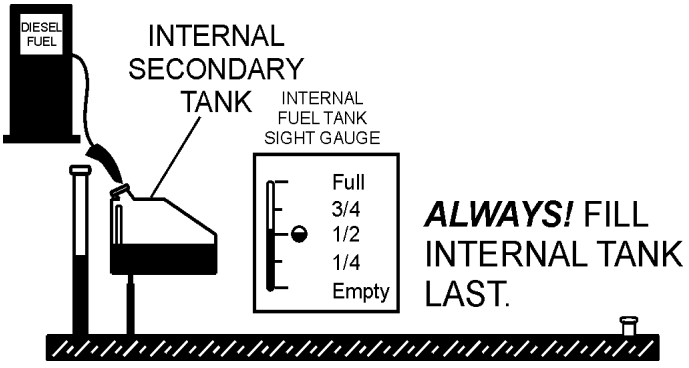


Figure 37. Filling Secondary Internal Fuel Tank

6. Figure 38 below reflects a full fuel system.

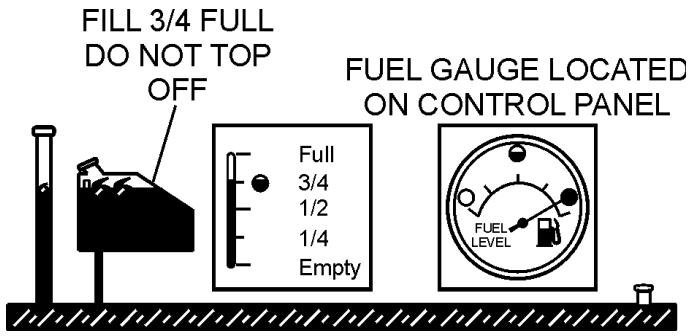


Figure 38. Full Fuel System

7. Fuel from the engine return line will drain into the secondary internal fuel tank. This fuel will eventually drain into the primary trailer tank in order to return to the engine.

WARNING:

It is recommended to only fill the internal secondary take to 3/4 full in order to allow for fuel return, fuel expansion, and to avoid spillage. See Figure 39 for fuel expansion.

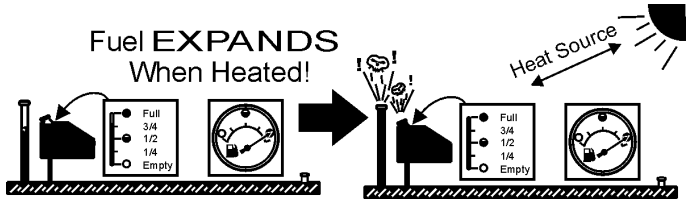


Figure 39. Fuel Expansion

Coolant (Ethylane Glycol [Green] / Water — 50/50 mix)

Use only drinkable tap water. If hard water or water with many impurities is used, the inside of the engine and radiator may become coated with deposits and cooling efficiency will be reduced.

An anticorrosion additive added to the water will help prevent deposits and corrosion in the cooling system. See the engine manual for further details.

CAUTION :

If adding coolant/antifreeze mix to the radiator, do not remove the radiator cap until the unit has completely cooled.

Day-to-day addition of coolant is done from the recovery tank. When adding coolant to the radiator, **DO NOT** remove the radiator cap until the unit has completely cooled. See Table 14 for engine, radiator, and recovery tank coolant capacities. Make sure the coolant level in the recovery tank is always between the "**H**" and the "**L**" markings.

Table 14. Coolant Capacity	
Engine and Radiator	6.9 Gal. (26 liters)
Recovery Tank	2 Quarts (1.9liters)

Operation Freezing Weather

When operating in freezing weather, be certain the proper amount of antifreeze (Table 15) has been added.

Table 15. Anti-Freeze Operating Temperatures				
Vol % Anti-Freeze	Freezing Point		Boiling Point	
	°C	°F	°C	°F
50	-37	-34	108	226

Cleaning the Radiator

The engine may overheat if the radiator fins become overloaded with dust or debris. Periodically clean the radiator fins with compressed air. Cleaning inside the machine is dangerous, so clean only with the engine turned off and the ***negative*** battery terminal disconnected.

Air Cleaner

Periodic cleaning/replacement is necessary. Inspect it in accordance with the **John Deere Engine Owner's Manual.**

Fan Belt Tension

A slack fan belt may contribute to overheating, or to insufficient charging of the battery. Inspect the fan belt for damage and wear and adjust it in accordance with the **John Deere Engine Owner's Manual.**

The fan belt tension is proper if the fan belt bends 7 to 10 mm (Figure 40) when depressed with the thumb as shown below.

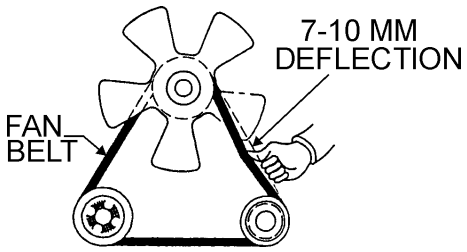


Figure 40. Fan Belt Tension

CAUTION :

NEVER! place hands near the belts or fan while the generator set is running.

Battery

This unit is of negative ground **DO NOT** connect in reverse. Check to see whether the battery cables are loose. Poor contact may result in poor starting or malfunctions. ***Always*** keep the terminals firmly tightened. Coating the terminals with an approved battery terminal treatment compound. Replace battery with only recommended type battery. The battery type used in this generator BCI Group 27.

Battery Cable Installation

ALWAYS be sure the battery cables (Figure 41) are properly connected to the battery terminals as shown below. The ***RED*** cable is connected to the positive terminal of the battery, and the **BLACK** cable is connected to the negative terminal of the battery.

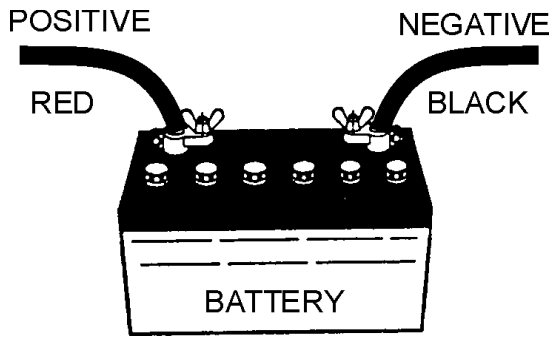


Figure 41. Battery Connections

CAUTION :

ALWAYS disconnect the negative terminal **FIRST** and reconnect negative terminal **LAST**.

When connecting battery do the following:

1. **DO NOT** connect the battery cables to the battery terminals when the ***Off/Manual/Auto*** switch is in either the manual or auto position (**ON**). **ALWAYS** make sure that the Off/Manual/Auto switch is in the **OFF** position when connecting the battery.
2. Place a small amount of battery terminal treatment compound around both battery terminals. This will ensure a good connection and will help prevent corrosion around the battery terminals.

NOTE

If the battery cable is connected incorrectly, electrical damage to the generator will occur. Pay close attention to the polarity of the battery when connecting the battery.

CAUTION :

Inadequate battery connections may cause poor starting of the generator, and create other malfunctions.

Wiring

Inspect the entire generator for bad or worn electrical wiring or connections. If any wiring or connections are exposed (insulation missing) replace wiring immediately.

Piping and Hose Connection

Inspect all piping, oil hose, and fuel hose connections for wear and tightness. Tighten all hose clamps and check hoses for leaks.

If any hose (fuel or oil) lines are defective replace them immediately.

WARNING:

The engine's exhaust contains harmful emissions. ***ALWAYS have adequate ventilation when operating***. Direct exhaust away from nearby personnel.

BEFORE STARTING

Generator and Control Panel

CAUTION:

NEVER! manually start the engine with the main, GFCI or auailliary circuit breakers in the **ON** (closed) position.

1. Be sure and place the ***main, G.F.C.I.*** and ***aux.*** circuit breakers (Figure 42) in the "**OFF**" position prior to starting the engine.

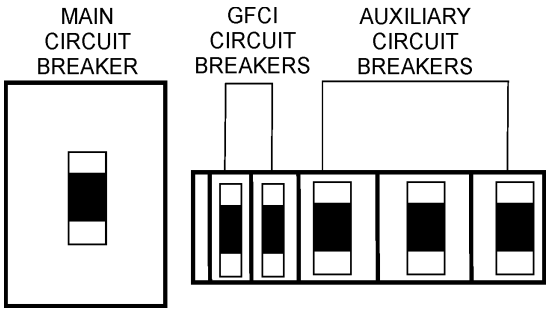


Figure 42. Main, Aux. and GFCI Circuit Breakers

2. Connect the load to the UVWO terminals or auxiliary receptacles as shown un Figure 43. These load connection points can be found on the output terminal panel. To gain access to the UVWO terminals or other power receptacles, unlock the access cover and lift the door.

   The UVWO terminals are protected by a plastic cover, remove this cover to gain access to the terminals. Tighten terminal nuts securely to prevent load wires from slipping out.

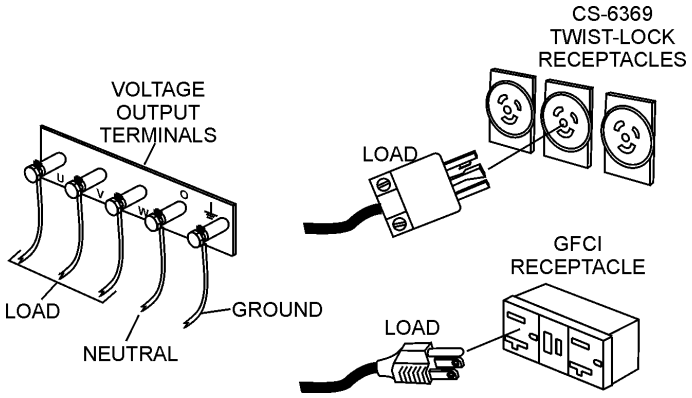


Figure 43. Load Connections

3. Close all engine enclosure doors (Figure 44).

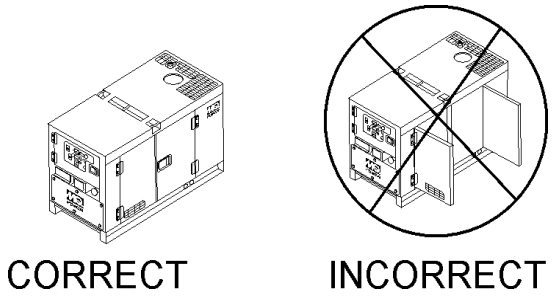


Figure 44. Engine Enclosure Doors

4. When starting the generator in **COLD** weather conditions, press and hold the engine preheat button (Figure 45).

Figure 45. Engine Pre-Heat Button

5. Place the voltage selector switch in the desired voltage position (Figure 46).

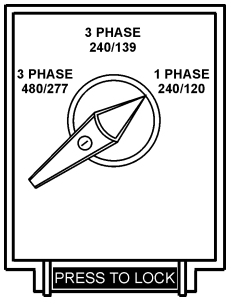


Figure 46. Voltage Selection Switch

6. Set engine speed switch to 'Low' (Figure 47).

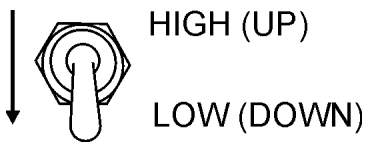


Figure 47. Engine Speed Switch (low)

7. Place the Auto-Off/Reset-Manual switch in the "***Manual"*** position to start the engine (Figure 48). Once the engine starts, let the engine run for 1-2 minutes. Listen for any abnormal noises.

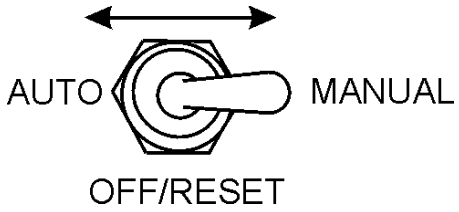


Figure 48. Auto-Off/Reset-Manual Switch

8. Once the engine is warm and the engine is running properly, set the engine speed switch to 'High' (Figure 49).

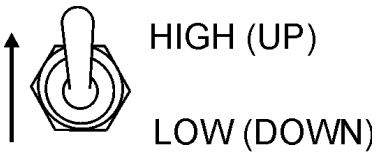


Figure 49. Engine Speed Switch (high)

9. The generator's frequency meter (Figure 50) displays the 60 cycle output frequency in **HERTZ**.

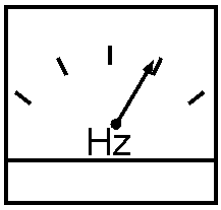


Figure 50. Frequency Meter (Hz)

10. The generator's voltage meter (Figure 51) displays the 120 VAC in **VOLTS**. If the voltage is not within the specified frequency tolerance,

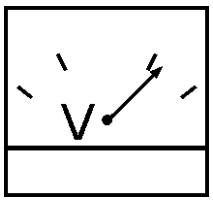


Figure 51. Voltmeter

11. Use the voltage adjustment control knob (Figure 52) to increase or decrease the desired voltage.

Figure 52. Voltage Adjust Control Knob

12. The ammeter (Figure 53) will indicate zero amps with no load applied. When a load is applied, this meter will indicate the amount of current that the load is drawing from the generator.

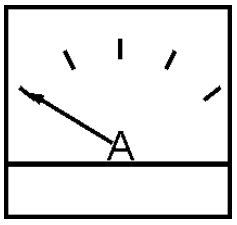


Figure 53. Ammeter (No Load)

13. The engine oil pressure gauge (Figure 54) will indicate the oil pressure (kg/ cm^2) of the engine. Under normal operating conditions the oil pressure is approximately

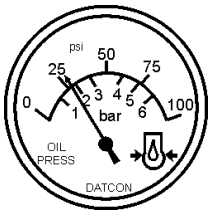


Figure 54. Oil Pressure Gauge

14. The coolant temperature gauge (Figure 55) will indicate the coolant temperature. Under normal operating conditions the coolant temperature is between 165 and 215 degrees Fahrenheit.

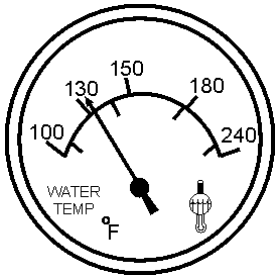


Figure 55. Coolant Temperature Gauge

15. The tachometer (Figure 56) will indicate the speed of the engine when the generator is operating. Under normal operating conditions this speed is approximately 1800 RPM's.

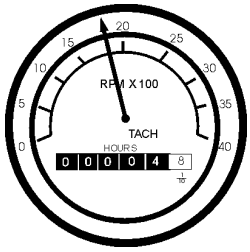


Figure 56. Engine Tachometer

16. Turn the ***main***, ***GFCI***, and ***aux***. circuit breakers to the "ON" position (Figure 57).

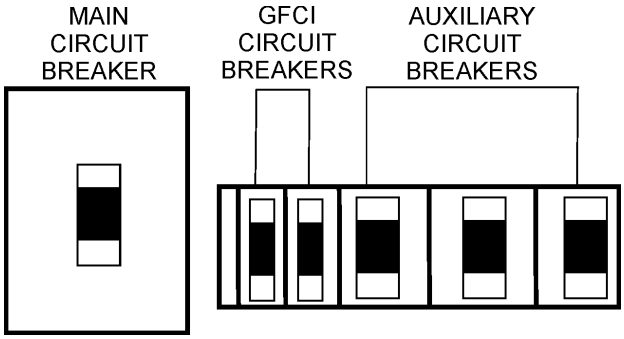


Figure 57. Main, AUX. and GFCI Circuit Breakers (ON)

17. Observe the generator's ammeter (Figure 58) and verify it reads the anticipated amount of current with respect to the load. The ammeter will only display a current reading if the load is in use.

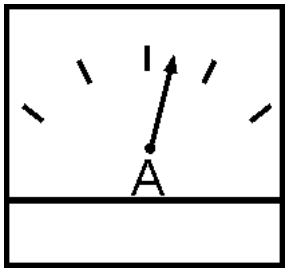


Figure 58. Ammeter (Load)

18. The generator will run until manually stopped or an abnormal condition occurs.

DANGER:

Before connecting this generator to any building's electrical system, a **licensed electrician** must install an ***isolation*** (transfer) ***switch***. Serious ***injury*** or ***death*** may result without this transfer switch.

CAUTION:

When connecting the generator to a isolation (transfer) switch, **ALWAYS** have power applied to the generator's internal battery charger. This will ensure that the engine will not fail due to a dead battery.

WARNING:

When running the generator in the **AUTO** mode, remember the generator can start up at any time without warning. **NEVER** attempt to perform any maintenance when the generator is in the auto mode.

When starting generator in **AUTO** mode use the "***Manual Start-up***" procedure except where noted (see below).

1. Perform steps 1 through 6 in the ***Before Starting*** section (pages 35-36) as outlined in the ***Manual Starting Procedure***.
2. Set the engine speed switch (Figure 59) to the "**High**" position.

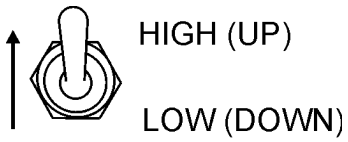


Figure 59. Engine Speed Switch (High)

3. Place the Off/Manual/Auto switch (Figure 60) in the **AUTO** position .

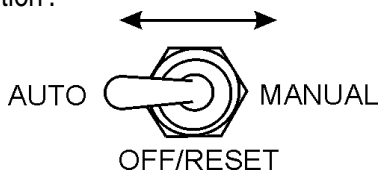


Figure 60. Off/Manual Auto Switch (AUTO)

The ***Engine Speed Switch*** **must** be set to the "**High**" position when running in the ***Auto-Start*** mode. Failing to set the switch in the proper position can result in damage to your generator when it turns on.

4. Continue to follow the steps outlined in the "***Manual Start-up"*** procedure (start at step 9, page 36).

EMERGENCY SHUTDOWN

To shutdown the generator, use the following procedure:

1. Switch the **MAIN**, **AUX** and **GFCI**. circuit breakers (Figure 61) to the " **OFF** " position.

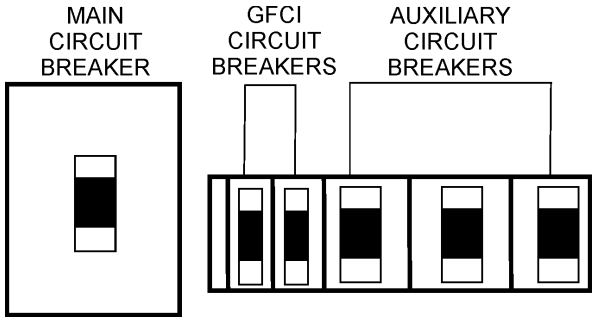


Figure 61. Main, AUX. and GFCI Circuit Breakers (OFF)

2. Set the engine speed switch (Figure 62) to the idle (low) position.

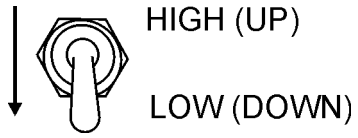
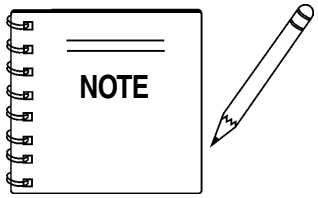


Figure 62. Engine Speed Switch

3. Let the engine cool by running it for 3-5 minutes with no load applied.
4. Turn the Auto-Off/Reset-Manual switch from the engine controller to "***OFF/Reset***" position (Figure 63).

Figure 63. Off/Manual Auto Switch

5. Remove all loads from the generator.



When the generator is set in the " **AUTO** " mode, the generator will ***automically start*** in the event of comercial power falling below a prescribed level by means of a contact closure that is generated automatically by a transfer switch.

NOTE PAGE

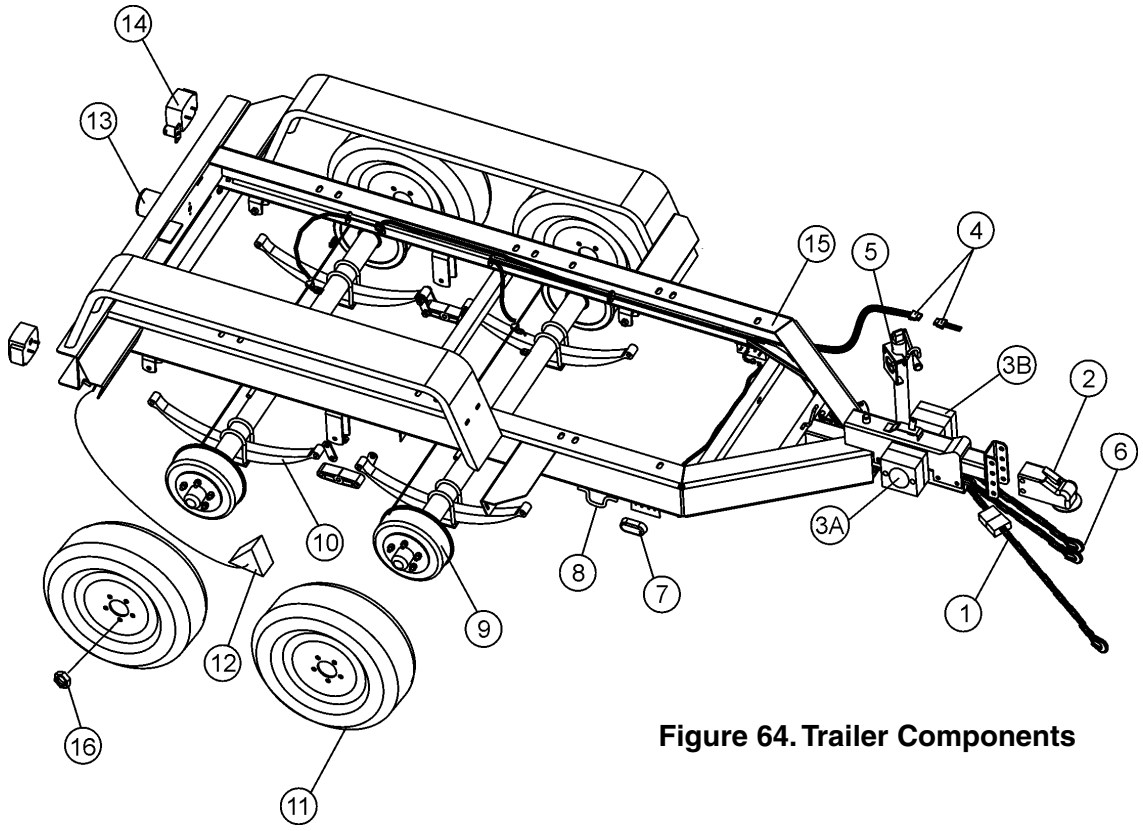


Figure 64. Trailer Components

Figure 64 illustrates the location of the major components for the DCA-85SSJU trailer. The function of each component is described below:

1. **Break-Away Switch –** In the event the trailer becomes disconnected from the towing vechicle this switch will activate the electric brake system on the trailer.
2. **Tow Hitch Coupler –** Requires a 2-inch ball hitch or a 3-inch pintle. Capable of towing 5,000 lbs.

3A. **Control Box –** Cole-Hersey 6-pin trailer connector.

3B. **Control Box –** 2 in. 20A-twistlock, breakaway.

4. **Trailer Light Wire Harness –** Connect to towing vechicle brake light system.
5. **Tow End Jack Stand –** Use this jack stand to level and support the trailer.
6. **Trailer Saftey Chain – ALWAYS** attach safety chain to the towing vehicle. **NEVER!** tow the trailer with the safety chain unattached.
7. **Side Marker Lights – ALWAYS** check and make sure both the right and left maker lights are functioning correctly before towing.
8. **Tie Down Transport Point –** Attach a chain or suitable tie-down device to this point when transporting is required.
9. **Electric Brake/Wheel Hub –** Electric brakes are used on this trailer.
10. **Axle/Suspension Assembly –** This trailer uses a 2-axle (3,000 lbs. ea.), 5 leaf type suspension.
11. **Tires –** This trailer uses four ST205-750 x14C type tires.
12. **Chock Blocks –** Place these blocks under trailer wheel to prevent rolling.
13. **License Plate light – ALWAYS** check and make sure the light is functioning correctly before towing.
14. **Tail/Brake Lights – ALWAYS** check and make sure both the right and left running lights are functioning correctly before towing.
15. **Cable Tray –** Trailer's electrical wires and portable power cables are routed through this tray. Secure cables and electrical wires with tie wraps.
16. **Lug Nuts -** Used to secure the wheel to the wheel hub. Always use a torque wrench to tighten down the lug nuts. See Table 18 and Figure 66 for lug nut tightening and tightening sequence.

CAUTION:

ALWAYS make sure the trailer is in good operating condition. Check the tires for proper inflation (**50 psi cold**) and tire wear. Also check the wheel lug nuts for proper tightness (**100 lbs.** torque) and for proper electronic brake operation.

This section is intended to provide the user with trailer service and maintenance information. The service and maintenance guidelines referenced in this section apply a wide range of trailers. Remember, periodic inspection of the trailer will ensure safe towing of the equipment and will prevent damage to the equipment and personal injury.

It is the purpose of this section to cover the major maintenance components of the trailer. The following trailer components will be discussed in thie section:

- Electric Brakes
- Tires
- Lug Nut Torquing
- Suspension
- Electrical
- Brake Troubleshooting Tables

Reference Table 3 on page 8 for these additional trailer definitions.

1. **Lower Fuel Tank –** Lower tank is primary source of fuel for generator. Capacity is 53 gallons (201 liters)
2. **Braking System –** This trailer incorporates an electric braking systems. Which is actuated from the towing vehicle controller.
3. **GVWR –** Gross Vehicle Weight Rating (GVWR) is the maximum number of pounds the trailer can carry, including the fuel tank. Maximum GVWR for this trailer is 6,000 lbs.
4. **Frame Length –** This measurement is from the pintle hitch to the rear bumper (reflector) and gives the entire trailer length. See trailer dimensions, page 9, Figure 2.
5. **Frame Width -** This measurement is from frender to fender and gives the entire trailer width.

Brakes

The brakes should be inspected the first 200 miles of operation. This will allow the brake shoes and drums to seat properly. After the first 200 mile interval, inspect the brakes every 3,000 miles. If driving over rough terrain, inspect the brakes more frequently.

Electric Brakes

Electrically actuated brakes are similar to hydraulic brakes. The basic difference is that electric brakes are actuated by an electromagnet.

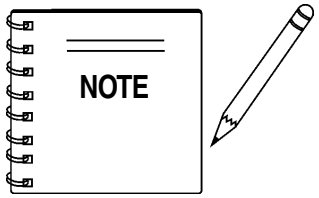
Listed below are some of the advantages that electric brakes have over hydraulic brakes:

- Brake system can be manually adjusted to provide the corrected braking capability for varying road and load conditions
- Brake system can be modulated to provide more or less braking force, thus easing the brake load on the towing vehicle
- Brake system has very little lag time between the time the vehicle's brakes are actuated and the trailer's brakes are actuated
- Brake system can provide an independent emergency brake system called a "***Break Away***" switch

Remember in order to properly synchronize the tow vehicle's braking to the trailer's braking, can only be accomplished by road testing. Brake lockup, grabbiness or harshness is due to lack of synchronization between the tow vehicle and the trailer being towed or under-adjusted brakes.

Before any brake synchronizations adjustments can be made, the trailer brakes should be burnished-in by applying the brakes 20-30 times with approximately a 20 m.p.h. decrease in speed, e.g. 40 m.p.h. to 20 m.p.h. Allow ample time for brakes to cool between application. This allows the brake shoes to slightly be seated into the brake drum surface

Figure 65 displays the major electric brake components that will require inspection and maintenance. Please inspect these components as required.



Reference Tables 23 and 24 for "***Electric Brake***" troubleshooting"

Electric Brake Adjustment

1. Place the trailer on jack stands. Make sure the jack stands are placed on secure level ground.
2. Check the wheel and drum for free rotation.
3. Remove the adjusting hole cover from the adjusting slot at the bottom brake backing plate.
4. With a screwdriver or standard adjusting tool, rotate the star wheel of the adjuster assembly to expand the brake shoes.
5. Adjust the brake shoes outward until the pressure of the lining against the wheel drum makes the wheel difficult to turn.
6. Rotate the star wheel in the opposite direction until the wheel rotates freely with slight lining drag.
7. Replace the adjusting hole cover and lower the trailer to the ground.
8. Repeat steps 1 through 6 on the remaining brakes.

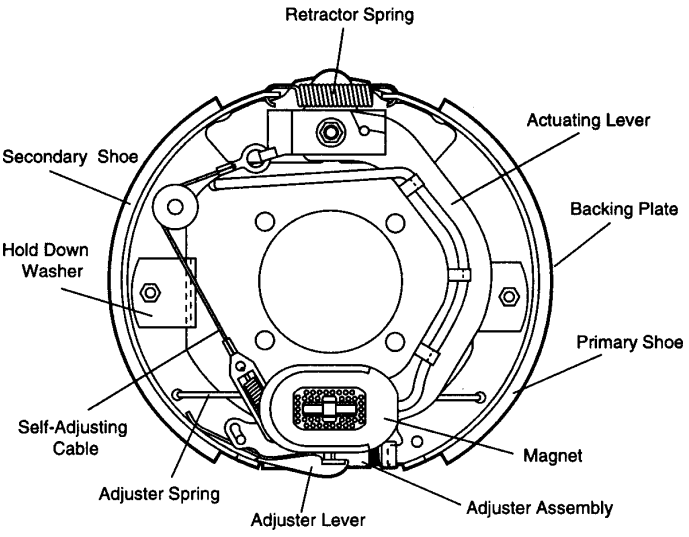
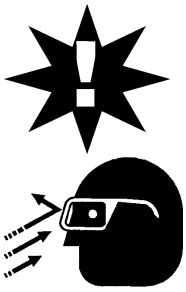


Figure 65. Electrical Brake Components

Tires/Wheels/Lug Nuts

Tires and wheels are a very important and critical components of the trailer. When specifying or replacing the trailer wheels it is important the wheels, tires, and axle are properly matched.

CAUTION:



DO NOT attempt to repair or modify a wheel. **DO NOT** install in inner tube to correct a leak through the rim. If the rim is cracked, the air pressure in the inner tube may cause pieces of the rim to explode (break off) with great force and cause serious eye or bodily injury.

Tire Wear/Inflation

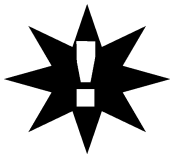
Tire inflation pressure is the most important factor in tire life. Pressure should be checked to ***50 psi cold*** before operation. **DO NOT** bleed air from tires when they are hot. Check inflation pressure weekly during use to insure the maximum tire life and tread wear.

Table 16 (Tire Wear Troubleshooting) will help pinpoint the causes and solutions of tire wear problems.

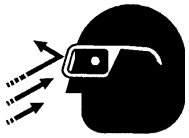
TABLE 16. TIRE WEAR TROUBLESHOOTING

WEAR PATTERN		CAUSE	SOLUTION
	Center Wear	Over Inflation.	Adjust pressure to particular load per tire manufacturer.
	Edge Wear	Under Inflation.	Adjust pressure to particular load per tire manufacturer.
	Side Wear	Loss of camber or overloading.	Make sure load does not exceed axle rating. Align wheels.
	Toe Wear	Incorrect toe-in.	Align wheels.
	Cupping	Out-of-balance.	Check bearing adjustment and balance tires.
	Flat Spots	Wheel lockup & tire skidding.	Avoid sudden stops when possible and adjust brakes.

CAUTION:



ALWAYS wear ***safety glasses*** when removing or installing force fitted parts. Failure to comply may result in serious injury.



Suspension

The leaf suspension springs and associated components (Figure 66) should be visually inspected every 6,000 miles for signs of excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged parts (suspension) immediately. Torqued suspension components as detailed in Table 17.

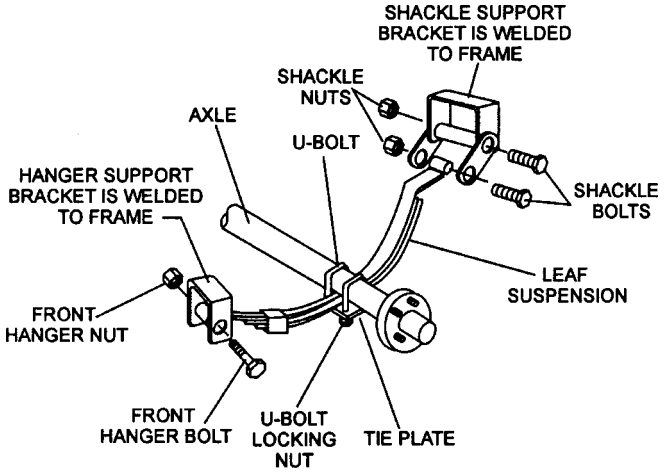


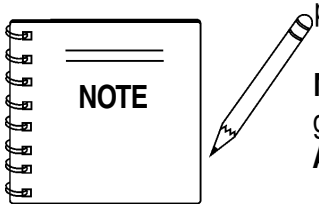
Figure 66. Major Suspension Components

Table 17. Suspension Torque Requirements	
ITEM	**TORQUE (FT.-LBS.)**
3/8" U-BOLT	MIN-30 MAX-35
7/16" U-BOLT	MIN-45 MAX-60
1/2" U-BOLT	MIN-45 MAX-60
SHACKLE BOLT S P R I N G E Y E BOLT	SNUG FIT ONLY. PARTS MUST ROTATE FREELY. LOCKING NUTS OR COTTER PINS ARE PROVIDED TO RETAIN NUT-BOLT ASSEMBLY.
SHOULDER TYPE SHACKLE BOLT	MIN-30 MAX-50

Lug Nut Torque Requirements

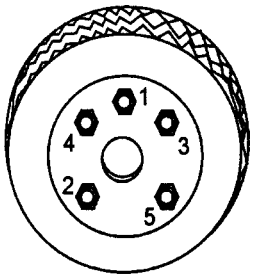
It is extremely important to apply and maintain proper wheel mounting torque on the trailer. Be sure to use only the fasteners matched to the cone angle of the wheel. Proper procedure for attachment of the wheels is as follows:

1. Start all wheel lug nuts by hand.
2. Torque all lug nuts in sequence. See Figure 66. **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Table 18.
3. After first road use, retorque all lug nuts in sequence. Check all wheel lug nuts periodically.



NEVER! use an pneumatic air gun to tighten wheel lug nuts. **ALWAYS** use torque wrench.

Table 18. Tire Torque Requirements			
Wheel Size	First Pass FT-LBS	Second Pass FT-LBS	Third Pass FT-LBS
14"	20-25	50-60	90-120



5-LUG NUTS

Figure 67. Wheel Lug Nuts Tightening Sequence

General Inspection

Prior to each use, the generating set should be cleaned and inspected for deficiencies. Check for loose, missing or damaged nuts, bolts or other fasteners. Also check for fuel or oil leaks.

Engine, Fuel, Oil and Coolant (Refer to the Engine Instruction Manual)

Air Cleaner

Every 50 hours: Remove air cleaner element and clean heavy duty paper element with kerosene, or foam element with liquid detergent and hot water. Wrap foam element in a cloth and squeeze dry. For heavy duty paper element, wipe excess kerosene with towel.

If engine is operating in ***very dusty and dry grass*** conditions, a clogged air cleaner will result in high fuel consumption, loss of power and excessive carbon buildup in the combustion chamber. Clean air cleaner ***daily***.

Fuel Addition

Add diesel fuel (the grade may vary according to season and locations).

Removing Water from the Tank

After prolonged use, water and other impurities accumulate in the bottom of the tank. Occasionally remove the drain cock and drain the contents. During cold weather, the greater the empty volume inside the tank, the easier it is for water to condense. This can be reduced by always keeping the tank as full as possible.

Air Removal

If air enters the fuel injection system of a diesel engine, starting becomes impossible. After running out of fuel, or after disassembling the fuel system, bleed the system according to the following procedure.

To restart after running out of fuel, turn the key switch to the "**START**" position for 15-30 seconds. Try again, if needed. This unit is equipped with an automatic air bleeding system.

Cleaning the Fuel Strainer

Clean the fuel strainer if it contains dust or water. Remove dust or water in the strainer cap and wash it in diesel. Securely fasten the fuel strainer cap so that fuel will not leak. Check the fuel strainer every 200 hours of operation or once a month.

Check Oil Level

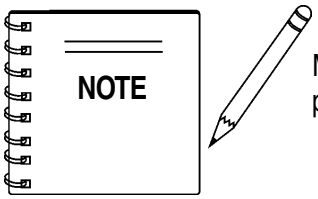
Check the crankcase oil level prior to each use, or when the fuel tank is filled. Insufficient oil may cause severe damage to the engine. Make sure the generator is level. The oil level must be between the two notches on the dipstick as shown on page 30, Figure 31.

Maintenance - Table 19

INSPECTION / MAINTENANCE		DAILY	250 Hrs	500 Hrs	1000 Hrs
ENGINE	Check Engine Fluid Levels	X			
	Check Air Cleaner	X			
	Check Battery Terminals	X			
	Check Fan Belt Condition	X			
	Check for Leaks	X			
	Check for Loosening of Parts	X			
	Replace Engine Oil and Oil Filter[1]		X		
	Clean Air Filter		X		
	Drain Bottom of Fuel Tank		X		
	Clean Unit, Inside and Outside		X		
	Change Fuel Filter[2]			X	
	Clean Radiator and Check Coolant Protection Level			X	
	Replace Air Filter Element				X
	Change Corrosion Resistor				X
	Check all Hoses and Clamps				X
	Clean Inside of Fuel Tank				X
GENERATOR	Measure Insulation Resistance Over 3M ohms		X		

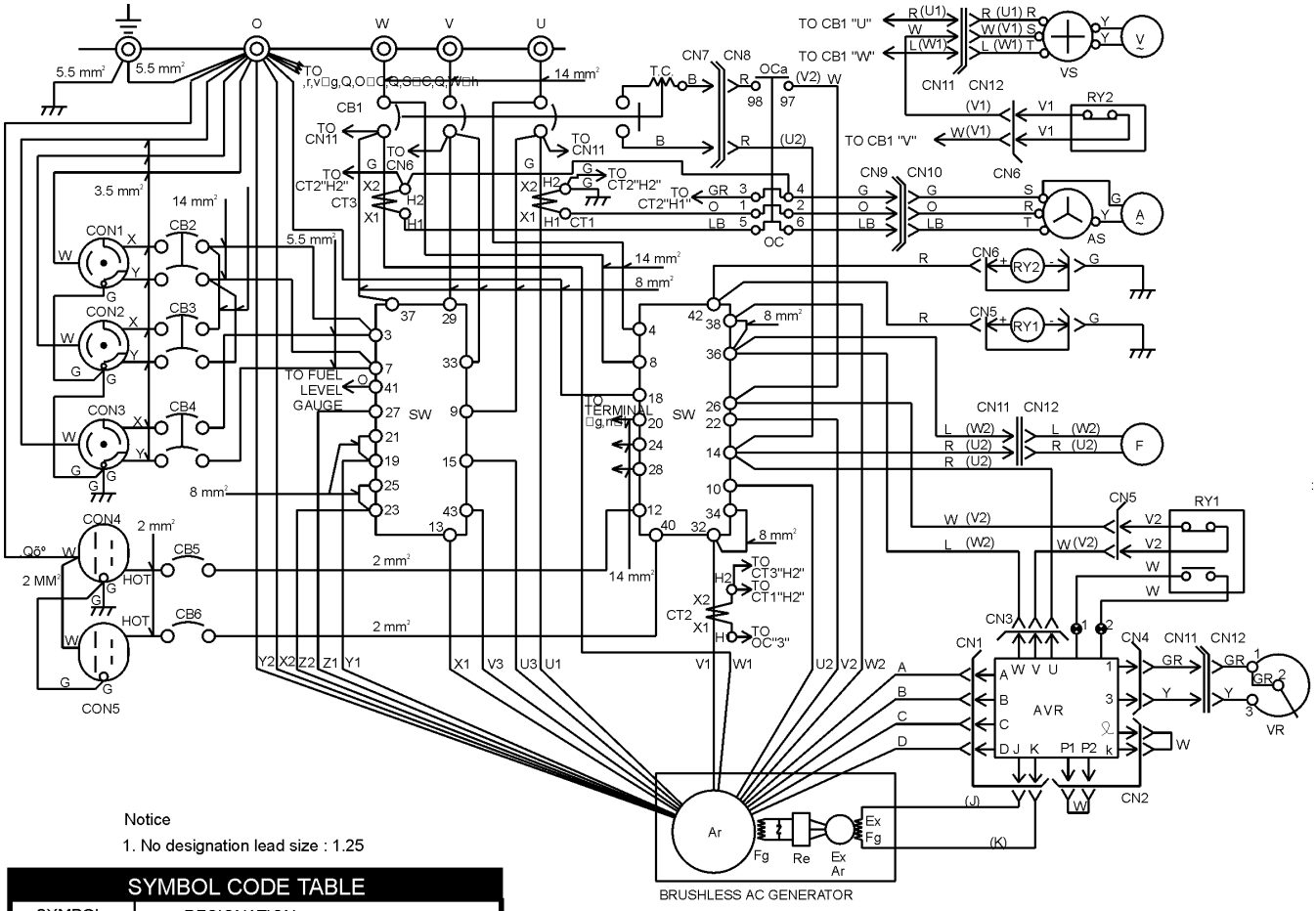
1 Replace engine oil and oil filter at 100 hours, first time only.

2 Replace fuel filter at 250 Hours, first time only.



Maintenance/inspection should be performed at hours shown or yearly.

DCA-85SSJU — GENERATOR WIRING DIAGRAM



Notice

1. No designation lead size : 1.25

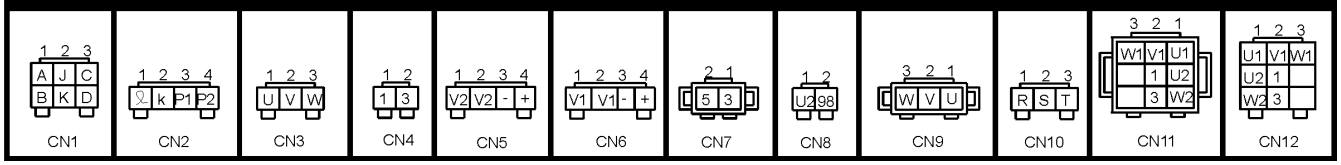
SYMBOL CODE TABLE

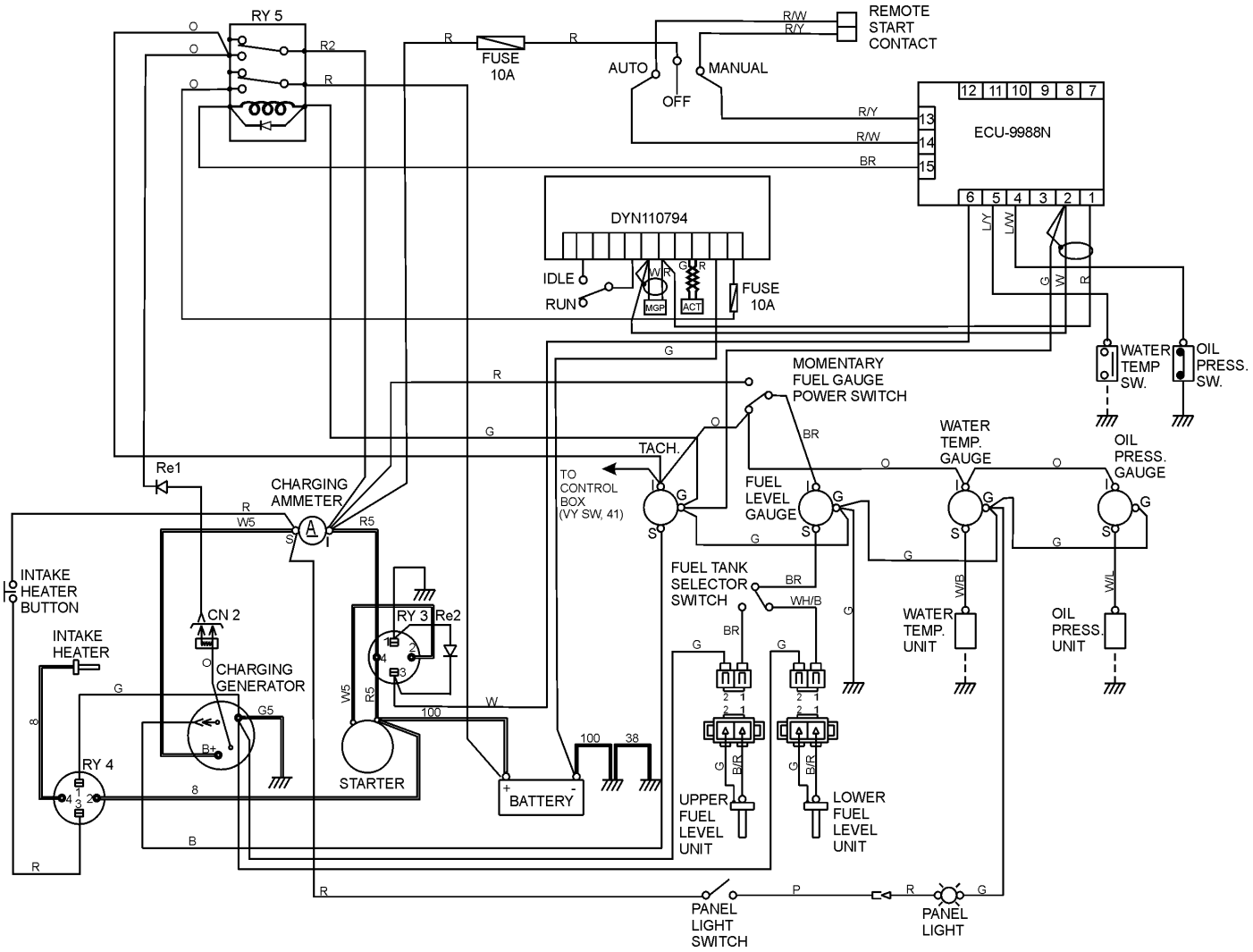
SYMBOL	DESIGNATION
Ar	MAIN GENERATOR ARMATURE WINDING
Fg	MAIN GENERATOR FIELD WINDING
ExAr	EXCITER ARMATURE WINDING
ExFg	EXCITER FIELD WINDING
Re	RECTIFIER
AVR	AUTOMATIC VOLTAGE REGULATOR
VR	VOLTAGE REGULATOR (RHEOSTAT)
CT 1,2,3	CURRENT TRANSFORMER
AS	CHANGE-OVER SWITCH,AMMETER
A	AC.AMMETER
VS	CHANGE-OVER SWITCH,VOLTMETER
V	AC.VOLTMETER
F	FREQUENCY METER
Cb1	CIRCUIT BREAKER
CB 2,3,4	CIRCUIT BREAKER
CB 5,6	CIRCUIT BREAKER
CON 1,2,3	RECEPTACLE
CON 4,5	RECEPTACLE
OC	OVER CURRENT RELAY
SW	SELECTOR SWITCH
RY1,2	RELAY UNIT

COLOR CODE TABLE

CODE/ WIRE COLOR			
B	BLACK	R	RED
L	BLUE	W	WHITE
BR	BROWN	Y	YELLOW
G	GREEN	LB	LIGHT BLUE
GR	GRAY	LG	LIGHT GREEN
V	VIOLET	O	ORANGE
P	PINK		

CONNECTOR ARRANGEMENT (WIRING VIEW)



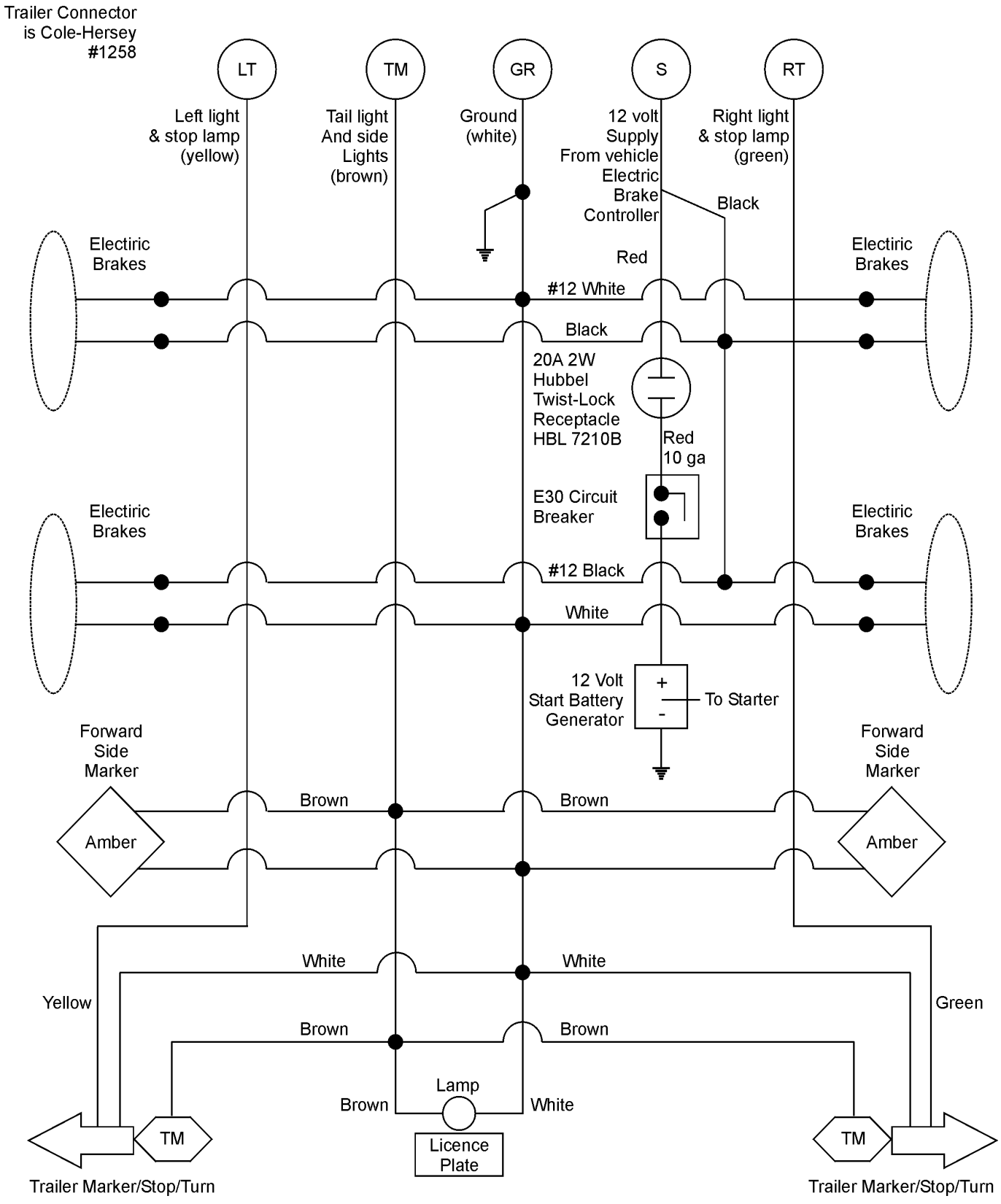


WIRE SIZE	COLOR CODE			
60: 60 mm²		WIRE COLOR		WIRE COLOR
38: 38 mm²	B	BLACK	R	RED
5: 5 mm²	L	BLUE	W	WHITE
2: 2 mm²	BR	BROWN	Y	YELLOW
No: 1.25 mm²	G	GREEN	LB	LIGHT BLUE
	GR	GREY	LG	LIGHT GREEN
	V	VIOLET	O	ORANGE
	P	PINK		

= SEALED CABLE

CN2

CONNECTOR ARRANGEMENT (WIRING VIEW)


Trailer Connector
is Cole-Hersey
#1258
LT
TM
GR
S
RT
Left light
& stop lamp
(yellow)
Tail light
And side
Lights
(brown)
Ground
(white)
12 volt
Supply
From vehicle
Electric
Brake
Controller
Black
Right light
& stop lamp
(green)
Red
Electiric
Brakes
Electiric
Brakes
#12 White
Black
20A 2W
Hubbel
Twist-Lock
Receptacle
HBL 7210B
Red
10 ga
E30 Circuit
Breaker
Electiric
Brakes
Electiric
Brakes
#12 Black
White
12 Volt
Start Battery
Generator
+
-
To Starter
Forward
Side
Marker
Forward
Side
Marker
Brown
Brown
Amber
Amber
White
White
Yellow
Green
Brown
Brown
Lamp
Brown
White
TM
Licence
Plate
TM
Trailer Marker/Stop/Turn
Trailer Marker/Stop/Turn

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, use the tables shown for diagnosis based on the Engine Troubleshooting (Table 20). If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 20. ENGINE TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine does not start.	No fuel?	Replenish fuel.
	Air in the fuel system?	Bleed system.
	Water in the fuel system?	Remove water from fuel tank.
	Fuel pipe clogged?	Clean fuel pipe.
	Fuel filter clogged?	Clean or change fuel filter.
	Excessively high viscosity of fuel or engine oil at low temperature?	Use the specified fuel or engine oil.
	Fuel with low cetane number?	Use the specified fuel.
	Fuel leak due to loose injection pipe retaining nut?	Tighten nut.
	Incorrect injection timing?	Adjust.
	Fuel cam shaft worn?	Replace.
	Injection nozzle clogged?	Clean injection nozzle.
	Injection pump malfunctioning?	Repair or replace.
	Seizure of crankshaft, camshaft, piston, cylinder liner or bearing?	Repair or replace.
	Compression leak from cylinder?	Replace head gasket, tighten cylinder head bolt, glow plug and nozzle holder.
	Improper valve timing?	Correct or replace timing gear.
	Piston ring and liner worn?	Replace.
	Excessive valve clearance?	Adjust.
	Battery Malfunction?	Replace / Recharge
	Battery not charged?	Check battery charger for AC power / DC output
Starter does not run.	Starter malfunctioning?	Repair or replace.
	Wiring disconnected?	Connect wiring.

TABLE 20. ENGINE TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine revolution is not smooth.	Fuel filter clogged or dirty?	Clean or change.
	Air cleaner clogged?	Clean or change.
	Fuel leak due to loose injection pipe retaining nut?	Tighten nut.
	Injection pump malfunctioning?	Repair or replace.
	Incorrect nozzle opening pressure?	Adjust.
	Injection nozzle stuck or clogged?	Repair or replace.
	Fuel over flow pipe clogged?	Clean.
	Governor malfunctioning?	Repair.
Either white or blue exhaust gas is observed.	Excessive engine oil?	Reduce to the specified level.
	Piston ring and liner worn or stuck?	Repair or replace.
	Incorrect injection timing?	Adjust.
	Deficient compression?	Adjust top clearance.
Either black or dark gray exhaust gas is observed.	Overload?	Lessen the load.
	Low grade fuel used?	Use the specified fuel.
	Fuel filter clogged?	Clean or change.
	Air cleaner clogged?	Clean or change.
	Deficient nozzle injection?	Repair or replace the nozzle.
Deficient output.	Incorrect injection timing?	Adjust.
	Engine's moving parts seem to be seizing?	Repair or replace.
	Uneven fuel injection?	Repair or replace the injection pump.
	Deficient nozzle injection?	Repair or replace the nozzle.
	Compression leak?	Replace head gasket, tighten cylinder head bolt, glow plug and nozzle holder.

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, use the tables shown for diagnosis based on the Generator Troubleshooting (Table121 or Engine Controller Troubleshooting (Table 22). If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 21. GENERATOR TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
No Voltage Output	AC Voltmeter defective?	Check output voltage using a voltmeter.
	Is wiring connection loose?	Check wiring and repair.
	Is AVR defective?	Replace if necessary.
	Defective Rotating Rectifier?	Check and replace.
Low Voltage Output	Is engine speed correct?	Turn engine throttle lever to "High".
	Is wiring connections loose?	Check wiring and repair.
	Defective AVR?	Replace if necessary.
High Voltage Output	Is wiring connections loose?	Check wiring and repair.
	Defective AVR?	Replace if necessary.
Circuit Breaker Tripped	Short Circuit in load?	Check load and repair.
	Over current?	Confirm load requirements and reduce.
	Defective circuit breaker?	Check and replace.
	Over current Relay actuated?	Confirm load requirement and replace.

TABLE 22. ENGINE CONTROLLER TROUBLESHOOTING

Sympton	Possible Cause	Solution
Low oil pressure light is on.	Low oil level?	Fill oil level.
	Oil pressure sending unit failure?	Replace oil pressure sending unit.
	Time delay malfuntion in controller?	Refer to dealer.
	Wire shorted?	Inspect/repair wire.
Low coolant level light is on.	Low coolant level?	Fill coolant level.
	Sending unit failure?	Replace sending unit.
	Low battery voltage?	Replace/charge battery.
High coolant temperture light is on.	Fan belt tension incorrect?	Tighten/replace fan belt.
	Air flow is not circulation through radiator?	Clean/repair radiator grill.
	Doors open?	Close doors.
	Exhaust leaking?	Replace/repair gaskets or faulty part.
	Generator being overloaded?	Check/reduce load.
	Thermostat failure?	Replace thermostat.
	Air intake blocked?	Clear all air intakes.
	Temperature switch failure?	Replace temperature switch.
Overcrank light is on.	No or low Fuel?	Fill fuel level.
	Engine Controller needs to be calibrated?	Refer to dealer.
Overspeed light is on.	RPM engine speed too high?	Adjust RPM.
	Governor actuator needs to be adjusted?	Adjust governor actuator.
	Governor controller needs to be adjusted?	Adjust governor controller.
	Engine Controller needs to be calibrated?	Refer to dealer.
Loss of MPU (magnetic pick up) light(s) or on.	MPU out of adjustment?	Adjust MPU.
	MPU dirty?	Clean MPU.

Table 23. Electric Brake Troubleshooting		
Symptom	**Possible Cause**	**Solution**
No Brakes or Intermittent Brakes	Any open circuits or broken wires?	Find and correct.
	Any short circuits?	Find and correct.
	Faulty controller?	Test and correct.
	Any loose connections?	Find and repair.
	Ground wire secure?	Find and secure.
Weak Brakes or Brakes Pull to One Side	Grease or oil on magnets or linings?	Clean or replace.
	Connections corroded?	Clean and correct cause of corrosion.
	Brake drums scored or grooved?	Machine or replace.
	Brakes synchronized?	Correct.
Locking Brakes	Brake components loose, bent or broken?	Replace components.
	Brake drums out-of-round?	Replace.
Noisy Brakes	System lubricated?	Lubricate.
	Brake components correct?	Replace and correct.
Dragging Brakes	Bearings of the wheel adjusted?	Adjust.

Table 24. Electric Brake Data		
ELECTRIC TEST	**LOCATION**	**CORRECT READING**
OHM Measurement	All Four Brake Shoes (Connected in parallel)	1.3 Ohms
OHM Measurement	Individual Brake Shoe	3.8 Ohms

EXPLANATION OF CODE IN REMARKS COLUMN

How to read the marks and remarks used in this parts book.

Items Found In the "Remarks" Column

Serial Numbers-Where indicated, this indicates a serial number range (inclusive) where a particular part is used.

Model Number-Where indicated, this shows that the corresponding part is utilized only with this specific model number or model number variant.

Items Found In the "Items Number" Column

All parts with same symbol in the number column, *, #, +, %, or ■, belong to the same assembly or kit.

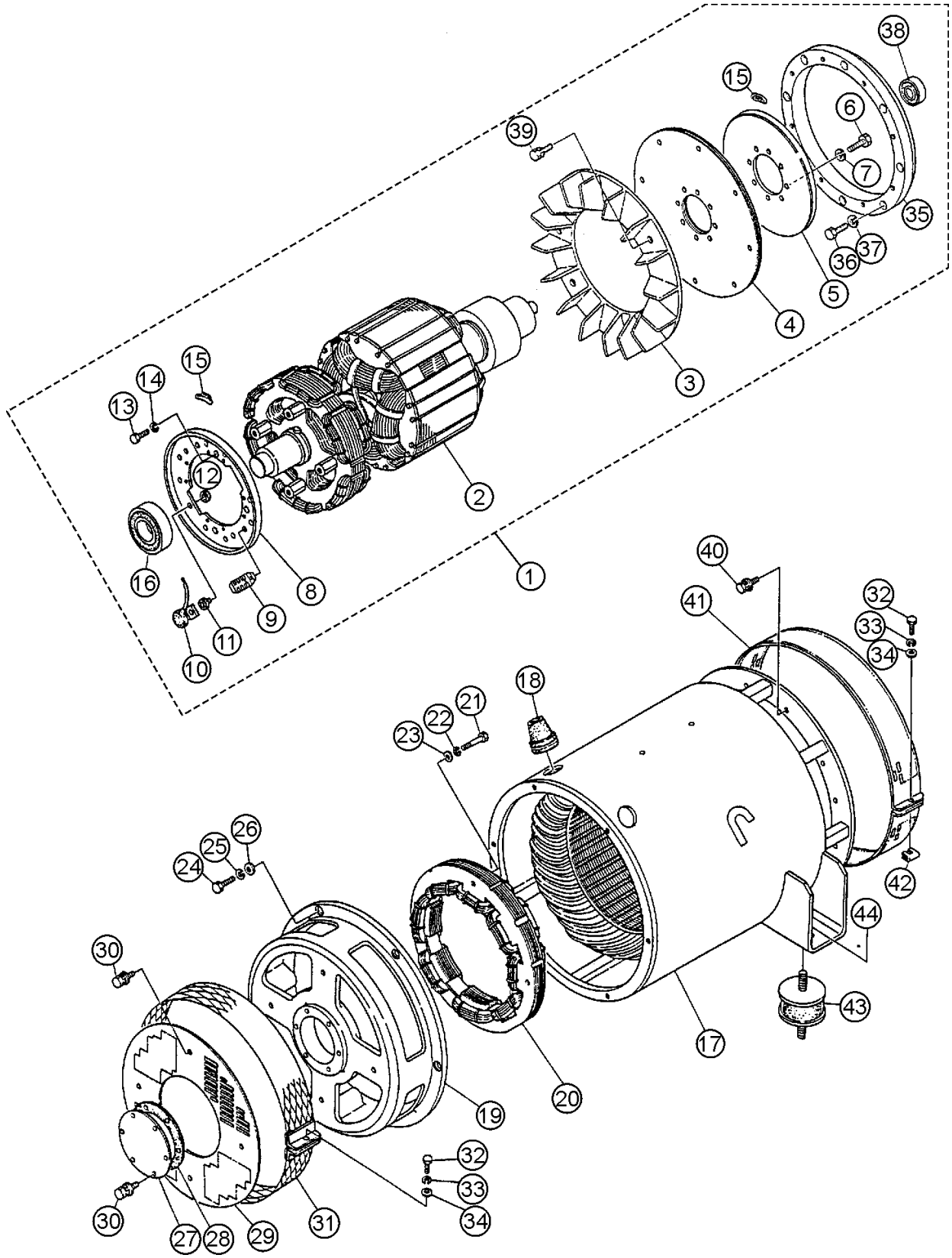
Note: If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

DCA-85SSJU W/JOHN DEERE DIESEL ENGINE

1 to 5 Units

Qty.	P/N	Description
10	0602046365	AIR FILTER
10	0602042590	FUEL FILTER
10	0602041290	OIL FILTER
1	0601808803	CIRCUIT BREAKER 20 AMP
2	0602011490	ENGINE FAN BELT
2	0602122281	OIL SWITCH
1	M2310500503	RADIATOR HOSE (UPPER)
1	M23105006031	RADIATOR HOSE (LOWER)
1	0601820671	AUTOMATIC VOLTAGE REGULATOR
1	0601808814	GENERATOR MAIN CIRCUIT BREAKER
1	0601810141	PILOT LAMP
2	0601810261	BULB, PILOT LAMP
1	0602122272	UNIT, OIL PRESSURE
1	0602123261	UNIT, WATER TEMPERATURE
3	0602042420	IN LINE FUEL FILTER

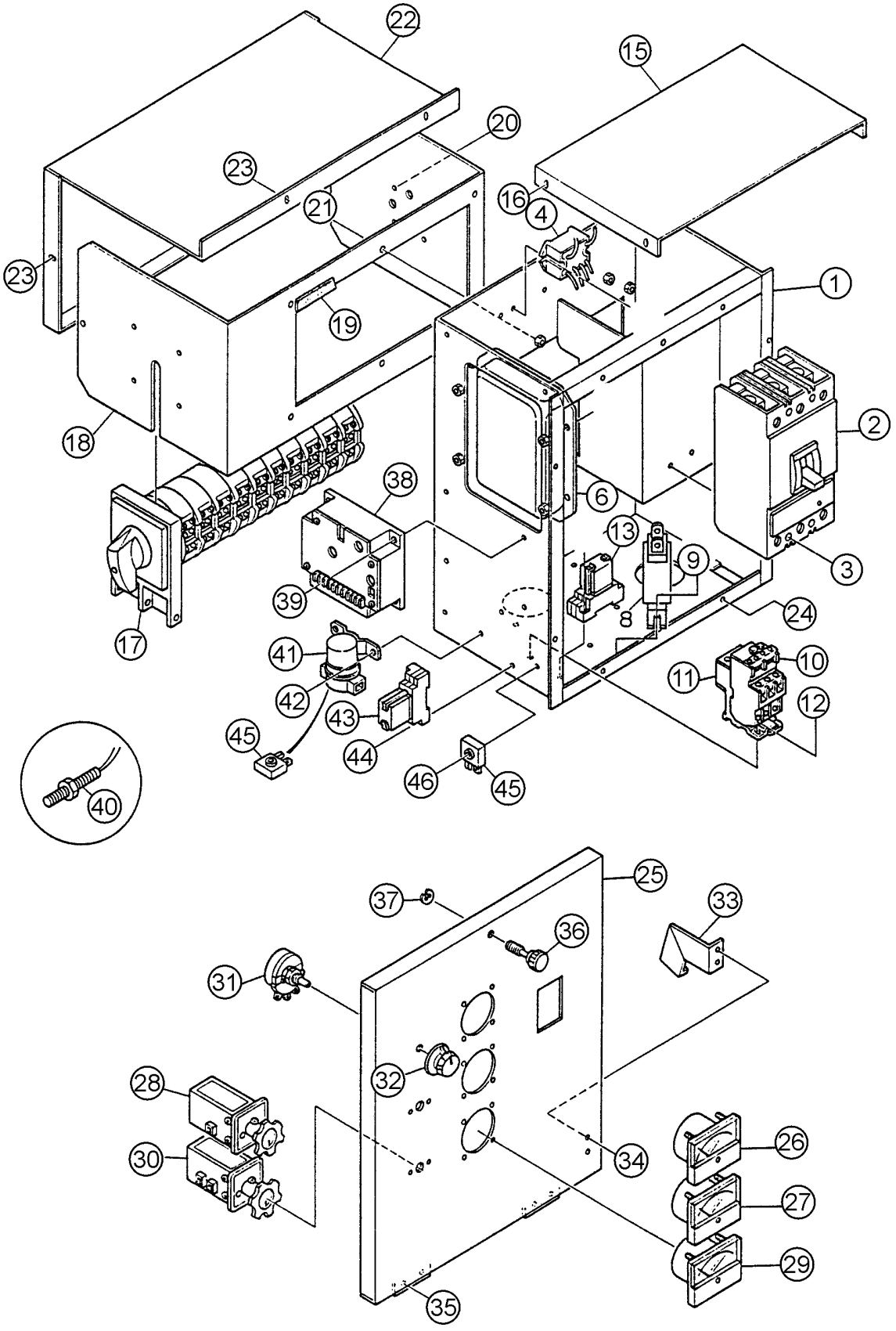
GENERATOR ASSY.



GENERATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	B6110000102	ROTOR ASS'Y	1	INCLUDES ITEMS W/*
2*	TBD	FIELD ASS'Y	1	
3*	8101070033	FAN	1	
4*	8101611004	COUPLING DISK	5	
5*	8101015003	BALANCING PLATE	1	
6*	012010030	HEX. HEAD BOLT	8	REPLACES 0012110030
7*	0042510000	LOCK WASHER	8	
8*	030210250	SET PLATE, RECTIFIER	1	REPLACES 8101026013
9*	0601821349	RECTIFIER	2	PT 3610
10*	0601822601	SURGE ABSORBER	1	ERZ- M14JK621A
11*	8001020004	INSULATOR WASHER	1	
12*	8001020504	INSULATOR WASHER	1	
13*	0010110020	HEX. HEAD BOLT	4	
14*	0040010000	LOCK WASHER	4	
15*	0601000209	BALANCING WEIGHT KIT	1	
16*	0071906311	BEARING	1	6311 DDU C3
17	B6130000203	STATOR ASS'Y	1	
18	0845041804	GROMMET	2	
19	8101315202	END BRACKET	1	
20	8101350013	FIELD ASS'Y, EXCITER	1	
21	0012110070	HEX. HEAD BOLT	4	
22	0042610000	LOCK WASHER	4	
23	031110160	PLAIN WASHER	4	REPLACES 0041210000
24	0010110035	HEX. HEAD BOLT	6	
25	0040010000	LOCK WASHER	6	
26	031110160	PLAIN WASHER	6	REPLACES 0041210000
27	8101310014	COVER, BEARING	1	
28	8131312014	GASKET, BEARING	1	
29	8101331003	COVER, END BRACKET	1	
30	0105050616	HEX. HEAD BOLT	10	REPLACES 0017106012
31	8101333003	COVER, END BRACKET	1	
32	0010106030	HEX. HEAD BOLT	2	
33	0040006000	LOCK WASHER	2	
34	952404470	PLAIN WASHER	2	REPLACES 0041206000
35*	8101614003A	COUPLING RING	1	REPLACES M2163400003
36*	0343204170	HEX. HEAD BOLT	8	
37*	EM923344	LOCK WASHER	8	REPLACES 0043604000
38	0070506306	BEARING	1	6306ZZ
39*	0012810035	HEX. HEAD BOLT	8	
40	0012810030	HEX. HEAD BOLT	12	
41	8111332014	COVER, FAN	1	
42	020106050	NUT	1	REPLACES 0600815000
43	0605000010	RUBBER SUSPENSION	2	
44	0030012000	HEX. NUT	2	
	0040012000	LOCK WASHER	2	
	031112230	PLAIN WASHER	2	REPLACES 0041212000

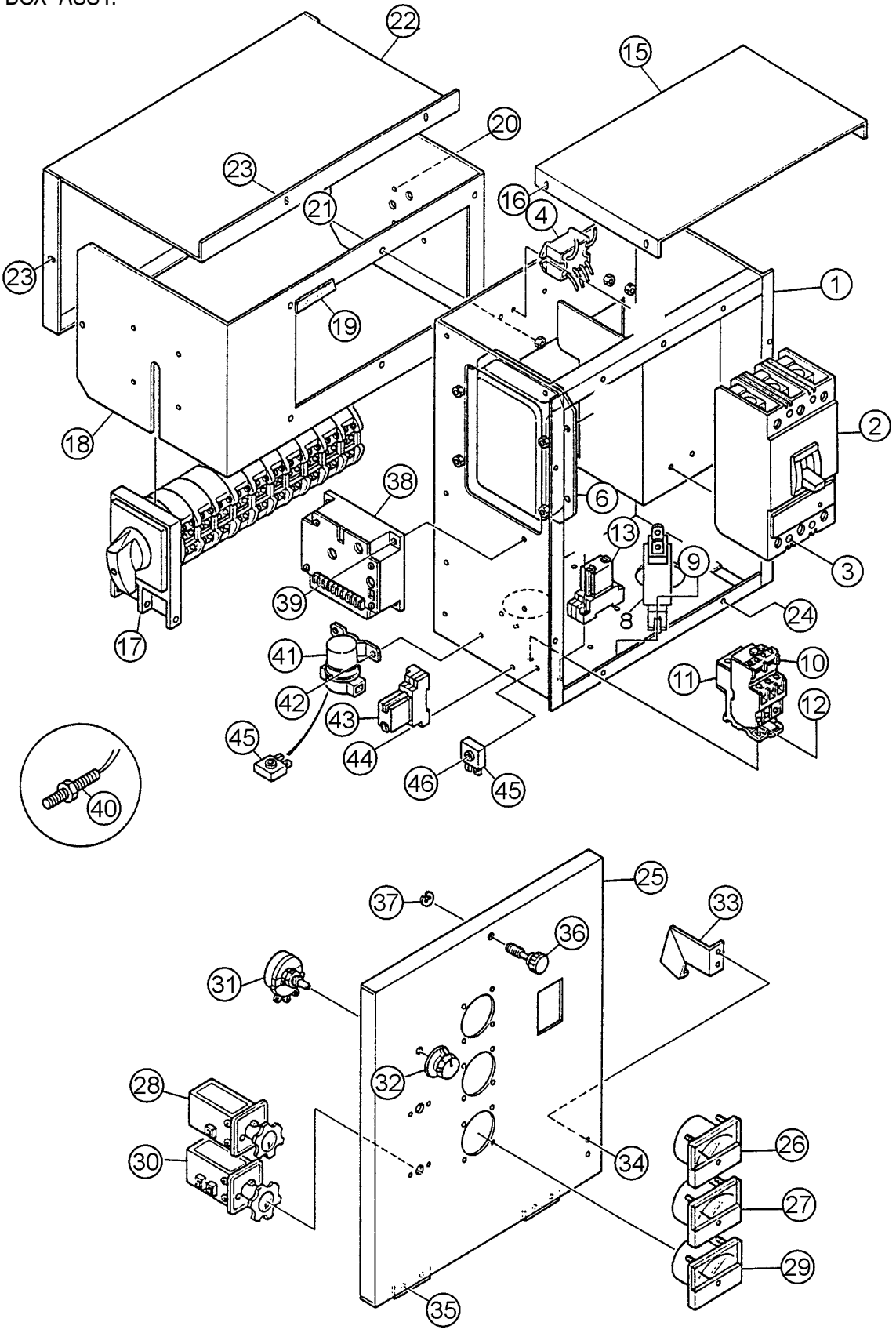
CONTROL BOX ASSY.



CONTROL BOX ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2248700104	WIRE HARNESS, GENERATOR	1	
1	M2215000002	CONTROL BOX	1	
2	0601808814	CIRCUIT BREAKER	1	KAF362501021 3P 250A
3	0021005080	MACHINE SCREW	4	
4	0601823863	RELAY UNIT	2	MSA9013A
5	0021304015	MACHINE SCREW	4	REPLACES 0027104015
6	0601820671	AUTOMATIC VOLTAGE REGULATOR	1	NTA5A2DB
7	0027105015	MACHINE SCREW	4	
8	0601806118	CURRENT TRANSFORMER	3	814943 200 /5A
9	011808015	MACHINE SCREW	6	REPLACES 0027106015
10	0601820846	OVER CURRENT RELAY	1	LA7D1064
11	0601820845	OVER CURRENT RELAY	1	LR2D1308
12	0021304015	MACHINE SCREW	2	REPLACES 0027104015
	0030004000	HEX. NUT	2	REPLACES 0207004000
13	LY2US12VD	RELAY	1	REPLACES 0601823768
	PTF08AE	BASE	1	REPLACES 0601823109
	PYCA1	CLIP	2	REPLACES 0601824400
14	0027104020	MACHINE SCREW	2	
15	M2213500103	CONTROL BOX COVER	1	
16	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
17	M3923100004	SELECTOR SWITCH	1	VY 125
18	M2215600003	SWITCH BRACKET	1	
19	EDGEGES3	EDGING 1.9’	2	REPLACES 0330000295
20	0027103010	MACHINE SCREW	4	
21	011106015	HEX. HEAD BOLT	6	REPLACES 0016906015
22	M2215600104	SWITCH COVER	1	
23	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
24	011106015	HEX. HEAD BOLT	8	REPLACES 0016906015
	0040506000	TOOTHED WASHER	1	
25	M2223000103	CONTROL PANEL	1	
26	0601807630	FREQUENCY METER 264250DJDJ9	1	UP TO S/N 7700090
	0601807641	FREQUENCY METER FCF645~65Hz 240V	1	S/N 7700091~;

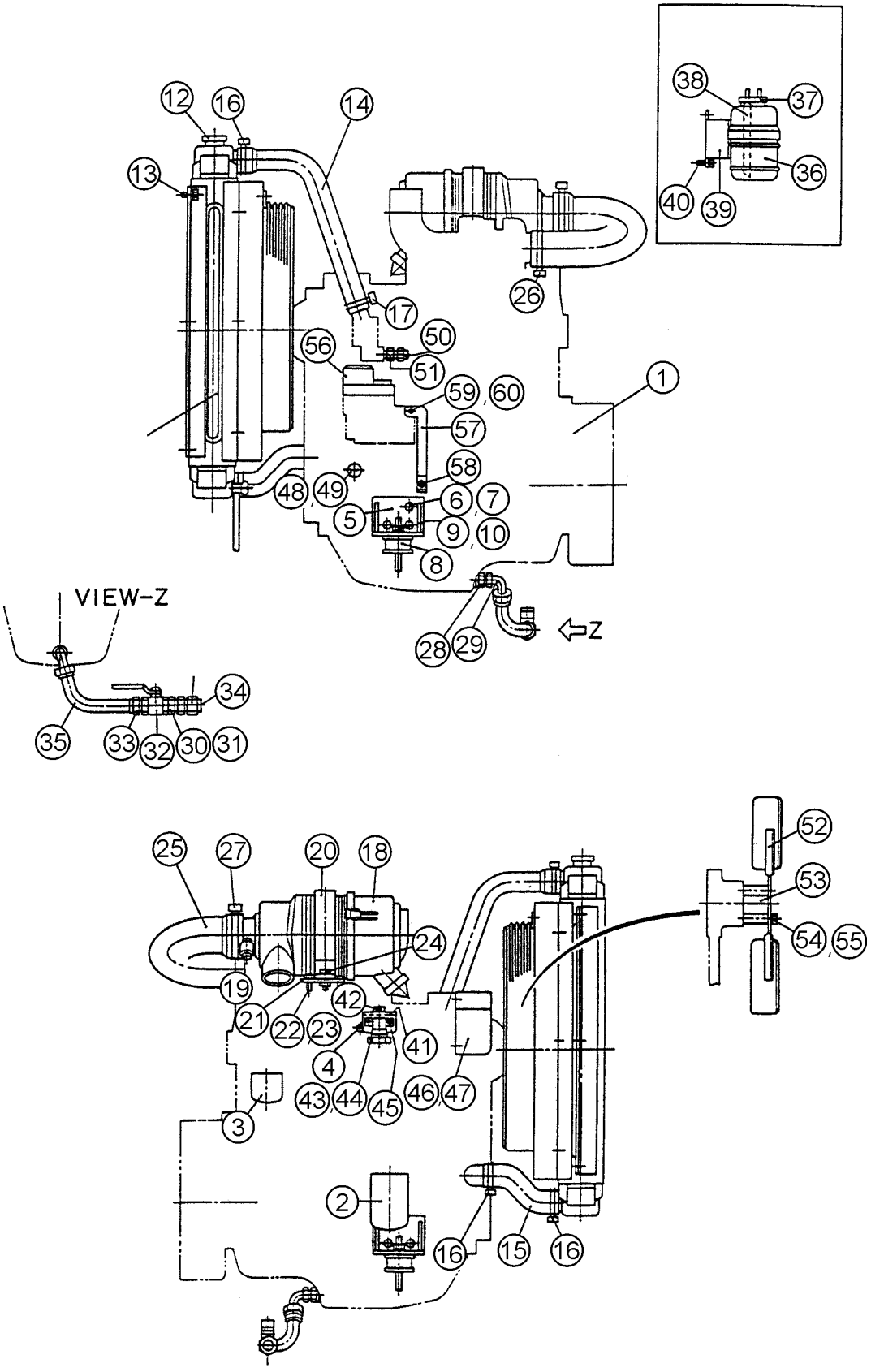
CONTROL BOX ASSY.



CONTROL BOX ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
27	0601808953	AC AMMETER 260240LSLS1JCA	1	UP TO S/N7700090; 0601808988
		AC AMMETER ACF6 0-800A, 0-400A/5A	1	S/N7700091~;
28	0601801040	CHANGE- OVER SWITCH, AMMETER	1	SL- 2AS
29	0601806813	AC VOLTMETER	1	UP TO S/N 7700090;260244SJSJ1
29	0601806859	AC VOLTMETER	1	S/N7700091~; SCF6 0-600V
30	0601801041	CHANGE- OVER SWITCH, VOLTMETER	1	SL- 2VS
31	0601840073	RHEOSTAT (VOLTAGE REGULATOR)	1	RA20A2SE102BJ 2W 1K OHM
32	0601840121	KNOB	1	
33	M1223100004	STOPPER	1	
34	0027105010	MACHINE SCREW	2	
35	0027105010	MACHINE SCREW	4	
36	M9220100004	SET SCREW	1	
37	0080200007	SNAP RING	1	
38	DYN110794000012	CONTROLLER	1	REPLACES 0602202599
39	0027105015	MACHINE SCREW	4	
40	0602120485	SPEED SENSOR	1	MPS6724
41	0602202592	STARTER RELAY	1	AT141011
42	011808015	MACHINE SCREW	2	REPLACES 0027106015
43	LY2DDC12V	RELAY	1	REPLACES 0601827656
	PTF08AE	BASE	1	REPLACES 0601823109
	PYCA1	CLIP	2	REPLACES 0601824400
44	0027104020	MACHINE SCREW	2	
45	0601821370	RECTIFIER	2	REPLACES 0601823240
46	0027104020	MACHINE SCREW	1	

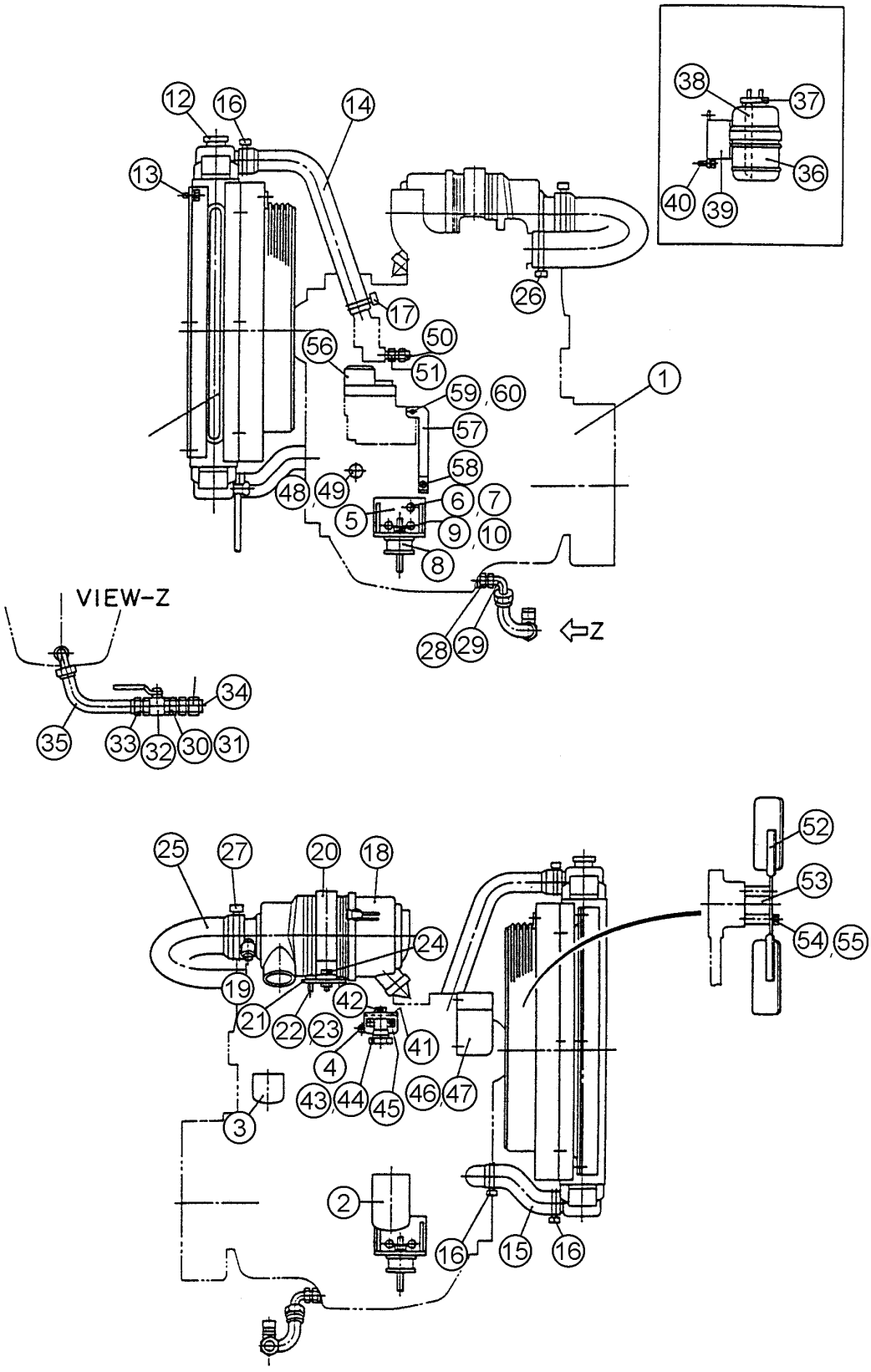
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M2925200014	ENGINE	1	JOHN DEERE 4045TF250
	0602011490	FAN BELT	1	
2	0602041290	ELEMENT, OIL FILTER	1	RE59754A
3	0602042590	ELEMENT, FUEL FILTER	1	RE62418
4	0602014297	ELECTRIC HEATER	1	RE29658
5	M2303200303	ENGINE FOOT	2	
6	011008020	HEX. HEAD BOLT	6	REPLACES 0010312030
7	0040012000	LOCK WASHER	6	
8	0605000009	RUBBER SUSPENSION	2	
9	0030012000	HEX. NUT	2	
10	0040012000	LOCK WASHER	2	
11	0602012743	RADIATOR	1	C2810030001
12	0602011065	CAP	1	C89C0115010
13	0015908020	HEX. HEAD BOLT	6	
14	M2310500503	RADIATOR HOSE, UPPER	1	
15	M2310500603	RADIATOR HOSE, LOWER	1	
16	0605515147	HOSE BAND	3	
17	0605515201	HOSE BAND	1	
18	0602046582	AIR CLEANER	1	FPG082527
	0602046365	ELEMENT, AIR CLEANER	1	P828889
19	0602040651	INDICATOR, AIR CLEANER	1	RBX002352
20	0602040554	BAND, AIR CLEANER	1	
21	M2375200004	BRACKET, AIR CLEANER	1	
22	011008020	HEX. HEAD BOLT	4	REPLACES 0016908020
23	020108060	HEX. NUT	4	REPLACES 0207008000
24	0016908030	HEX. HEAD BOLT	2	
25	M2375100003	HOSE, AIR CLEANER	1	
26	0605515146	HOSE BAND	1	
27	0605515200	HOSE BAND	1	
28	0602022563	ADAPTER	1	
29	0602022561	90 ELBOW	1	
30	0603306590	CONNECTOR	1	
31	0603300285	ROCKNUT	1	
32	0605511395	VALVE	1	
33	0603306395	HOSE JOINT	1	
34	0602021070	CAP, #10 HYDRAULIC FITTING	1	
35	0269200600	DRAIN HOSE	1	
36	M9300000103	RESERVE TANK	1	
37	M9300100003	CAP, RESERVE TANK	1	

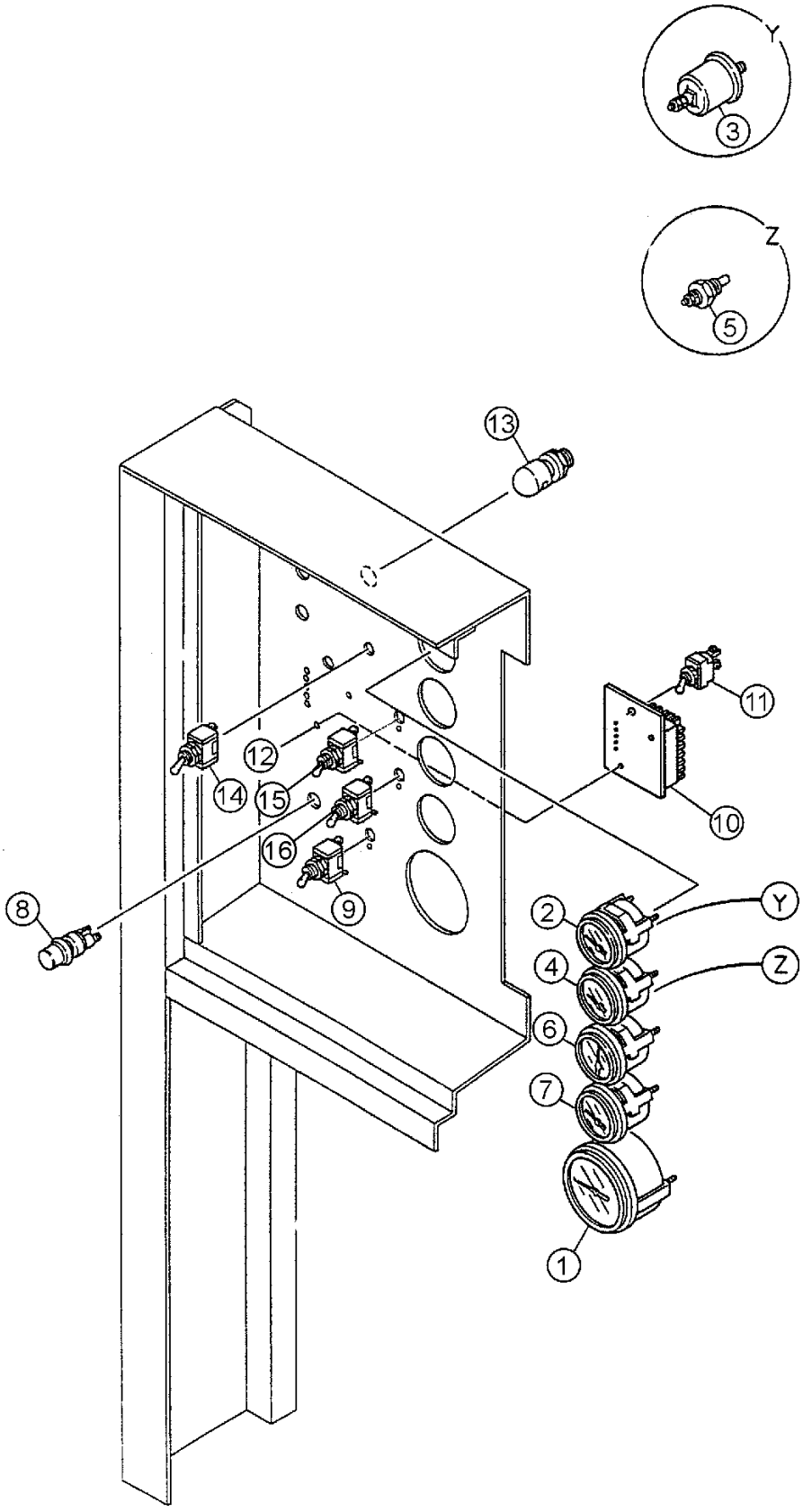
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
38	0199100175	HOSE	1	
39	M2316100114	BRACKET, RESERVE TANK	1	REPLACES M2316100204
40	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
41	M2260600024	RELAY BRACKET	1	
42	012210020	HEX. HEAD BOLT	1	REPLACES 0017110020
43	0602202592	RELAY	1	AT141011
44	020106050	HEX. NUT	2	REPLACES 0030006000
45	011808015	MACHINE SCREW	2	REPLACES 0027106015
46	M2483400014	ALTENATOR COVER	1	
47	011206020	HEX. HEAD BOLT	2	REPLACES 0016906020
48	0602122281	OIL SWITCH	1	1718939011
49	M9200100704	ADAPTER	1	
50	0602123282	WATER SWITCH	1	1518183041
51	M9200100404	ADAPTER	1	
52	0602060000	BLOWER FAN	1	REPLACES 0602060011
53	0602061000	FAN SPACER	1	R81911
54	0012110095	HEX. HEAD BOLT	4	
55	030210250	LOCK WASHER	4	REPLACES 0042510000
56	DYNC70025000012	ACTUATOR	1	REPLACES 0602150093
57	M3356200004	STOPPER BRACKET	1	
58	012210020	HEX. HEAD BOLT	1	REPLACES 0017110020
59	011206020	HEX. HEAD BOLT	1	REPLACES 0017106020
60	0207006000	HEX. NUT	1	

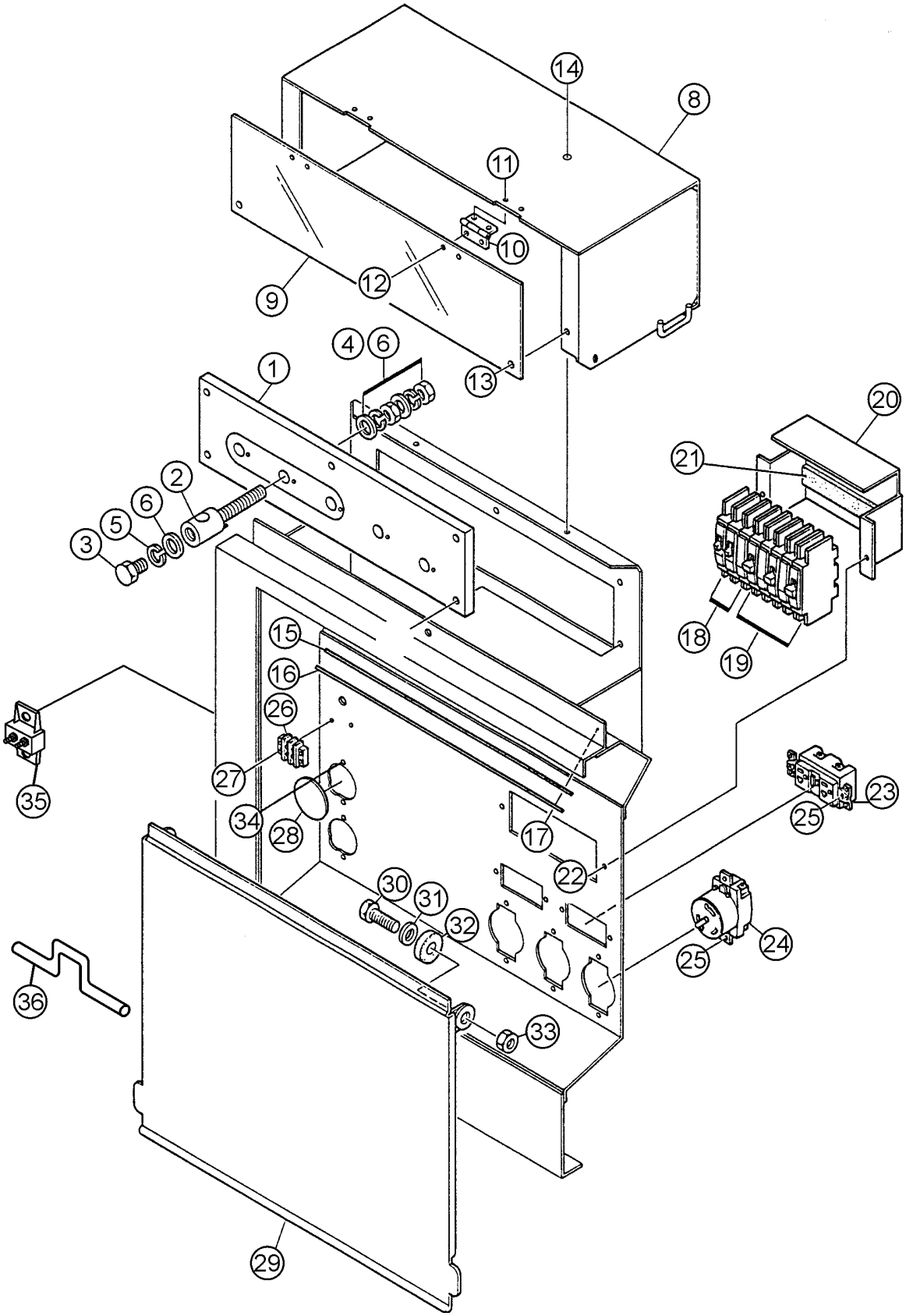
ENGINE OPERATING PANEL ASSY.



ENGINE OPERATING PANEL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2357200062	WIRE HARNESS, ENGINE	1	
1	0602120096	TACHOMETER	1	103678
2	0602122093	OIL PRESSURE GAUGE	1	100174
3	0602122272	UNIT, OIL PRESSURE	1	108497
4	0602123092	WATER TEMPERATURE GAUGE	1	100182
5	0602123261	UNIT, WATER TEMPERATURE	1	0202500
6	0602121080	CHARGING AMMETER	1	100158
7	0602125090	FUEL GAUGE	1	100176
8	0601831585	PREHEAT BUTTON	1	44047
	0601831586	CAP	1	44053
9	0601831395	ENGINE SPEED SWITCH	1	7302K36
10	ECU9988NJD	ENGINE CONTROLLER	1	REPLACES 0602202545
11	82608	SWITCH	1	REPLACES 0601831340
12	0027104035	MACHINE SCREW	2	
	0030004000	HEX. NUT	2	REPLACES 0207004000
13	0601810141	PANEL LIGHT	1	9826800370
14	0601831330	SWITCH, PANEL LIGHT	1	900001
15	2FB54-73XG	SWITCH, CARLING IPDT ON/ON TOGGLE	1	VERIZON SUPPLIED
15	2X465	SWITCH, GRANGER IPDT ON/ON TOGGLE	1	VERIZON SUPPLIED
16	7510K7	SWITCH, IPDT MOMENTARY ON/ON	1	VERIZON SUPPLIED

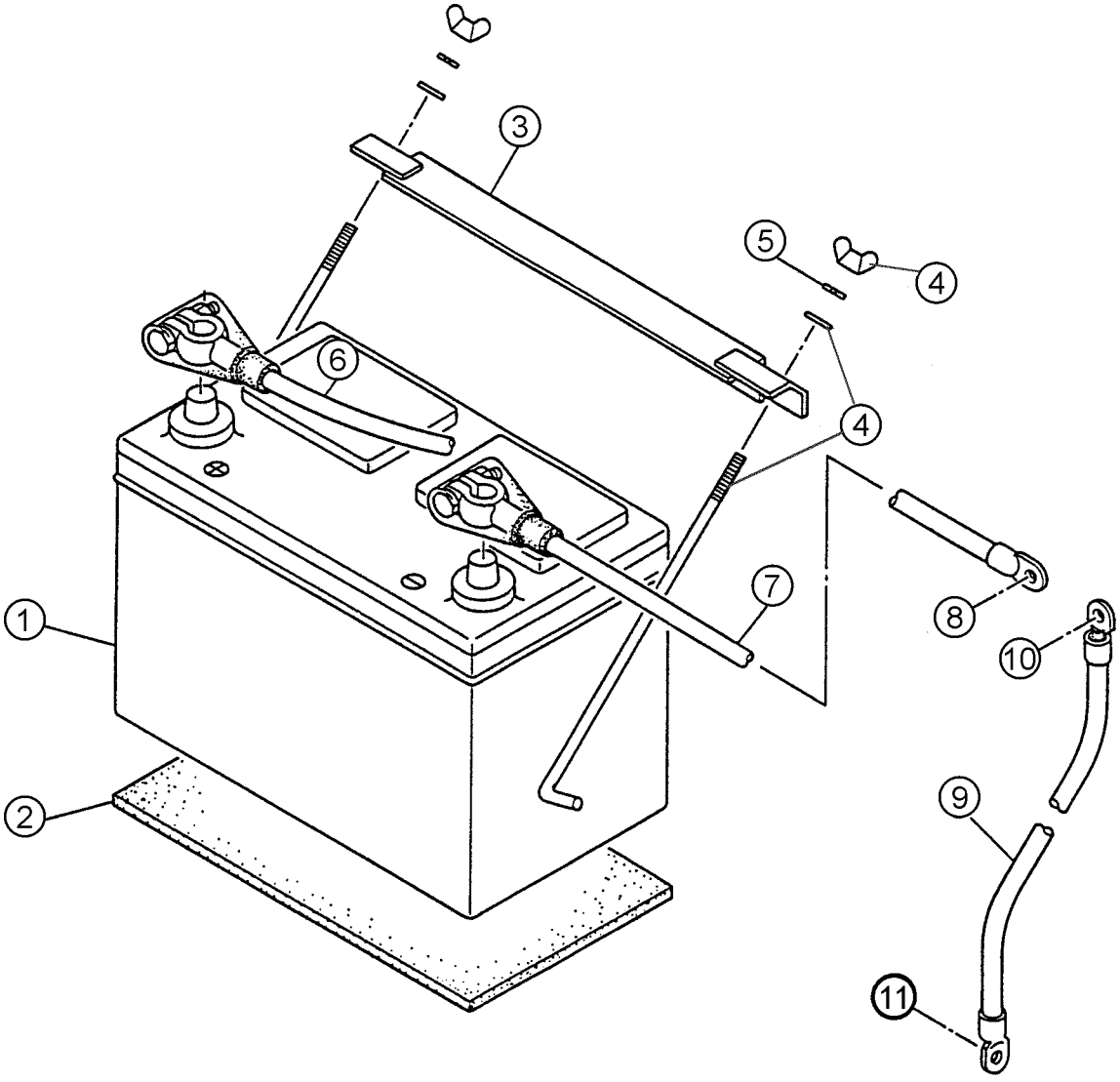
OUTPUT TERMINAL ASSY.



OUTPUT TERMINAL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3230700003	TERMINAL PANEL	1	
2	M9220100304	OUTPUT TERMINAL BOLT	5	
3	0801830804	TIE BOLT	5	REPLACES M9220100404
4	0039316000	HEX. NUT	10	
5	0040016000	LOCK WASHER	15	
6	0041416000	PLAIN WASHER	20	
7	0012108035	HEX. HEAD BOLT	5	REPLACES 0016908035
8	M2238100003	TERMINAL COVER	1	
9	M3236100104	OUTPUT WINDOW	1	
10	0605010040	HINGE	2	
11	0027103010	MACHINE SCREW	4	
	0207003000	HEX. NUT	4	REPLACES 0030003000
	S8413	PLAIN WASHER	4	REPLACES 0041203000
12	0027103010	MACHINE SCREW	4	
	0207003000	HEX. NUT	4	REPLACES 0030003000
13	011106015	HEX. HEAD BOLT	2	REPLACES 0016906015
14	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
15	M3236400004	CABLE OUTLET COVER	1	
16	M3236300004	SUPPORTER, CABLE OUTLET COVER	1	
17	011106015	HEX, HEAD BOLT	6	REPLACES 0016906015
18	0601808803	CIRCUIT BREAKER	2	QUO 120B 1P 20A
19	0601808804	CIRCUIT BREAKER	3	QOU 250B 2P 50A
20	M1260700304	BREAKER FITTING COVER	1	
21	0222100150	CUSHION RUBBER	1	
22	011106015	HEX. HEAD BOLT	2	REPLACES 0016906015
23	0601812597	RECEPTACLE;GF530EM 125V 20AX2	2	REPLACES 0601812598
24	0601811034	RECEPTACLE;CS6369 250V 50A;	3	REPLACES 0601812538
25	0021304015	MACHINE SCREW	10	REPLACES 0027104015
	0030004000	HEX. NUT	10	REPLACES 0207004000
26	0601815194	TERMINAL BLOCK	1	601- GP- 02
27	0021304015	MACHINE SCREW	2	REPLACES 0027104015
28	0603306775	BLIND PLUG	2	9563K95
29	M2455400003	TERMINAL COVER	1	
30	012212045	HEX. HEAD BOLT	2	REPLACES 0010112045
31	031112230	PLAIN WASHER	2	REPLACES 0041212000
32	M9310200004	STAY RUBBER	2	
33	0030012000	HEX. NUT	2	
34	0021304015	MACHINE SCREW	4	REPLACES 0027104015
35	E30	ELECTRIC BRAKE CIRCUIT BREAKER	1	POLLAK E30
36	76-0814	STANLEY LOCK	1	

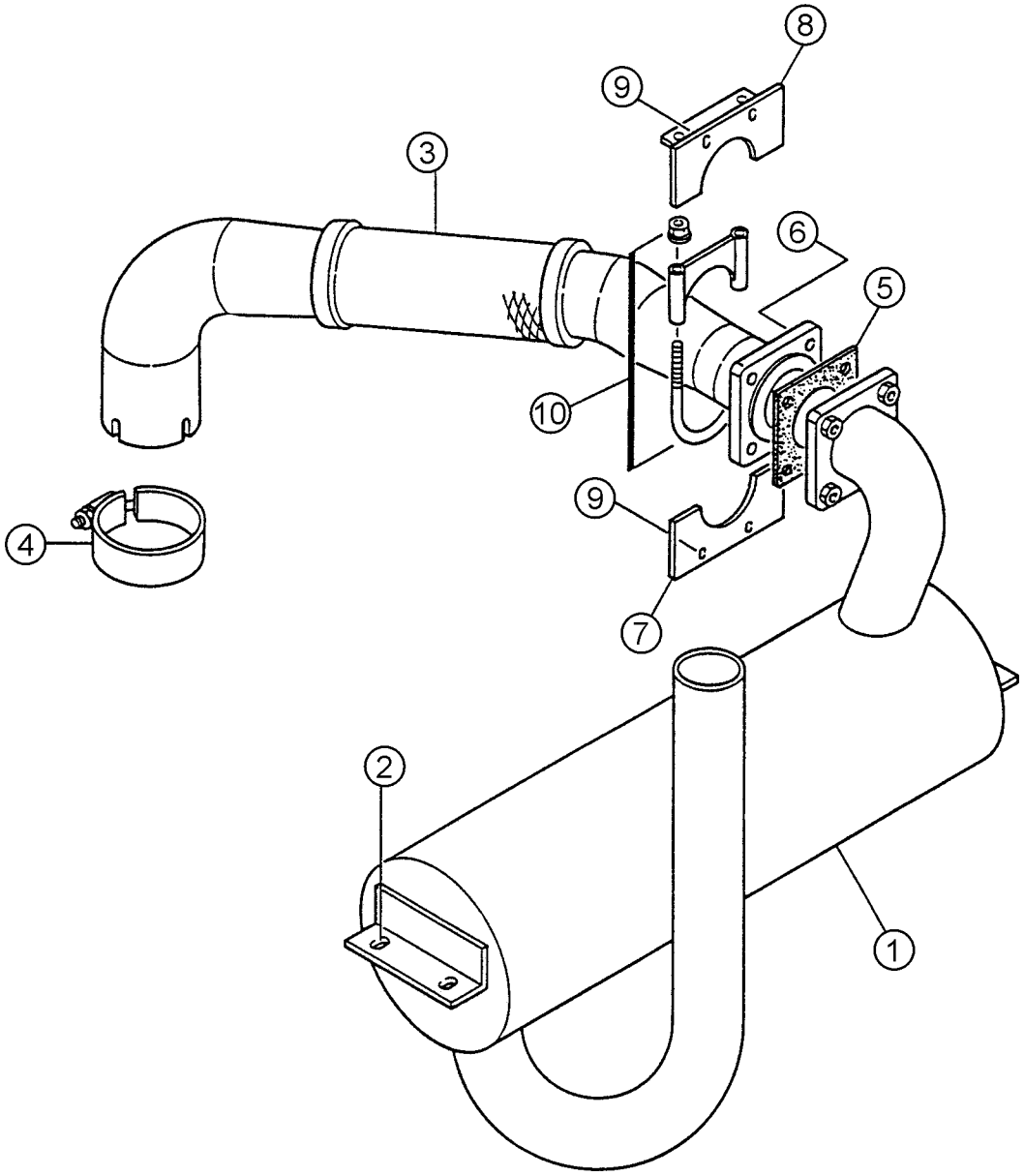
BATTERY ASSY.



BATTERY ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	551010280	BATTERY, GROUP 27	1	REPLACES 0602220187
2	M9310500014	BATTERY SHEET	1	
3	M9103000304	BATTERY BAND	1	
4	06022209020	BATTERY BOLT SET	2	
5	0040006000	LOCK WASHER	2	
6	M1346400204	BATTERY CABLE	1	
7	M2346400104	BATTERY CABLE	1	
8	011008020	HEX. HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	
9		CABLE	1	MAKE LOCALLY
10	0017112025	HEX. HEAD BOLT	1	
	0040512000	TOOTHED WASHER	1	
11	012210020	HEX. HEAD BOLT	1	REPLACES 0017110020
	0040510000	TOOTHED WASHER	1	

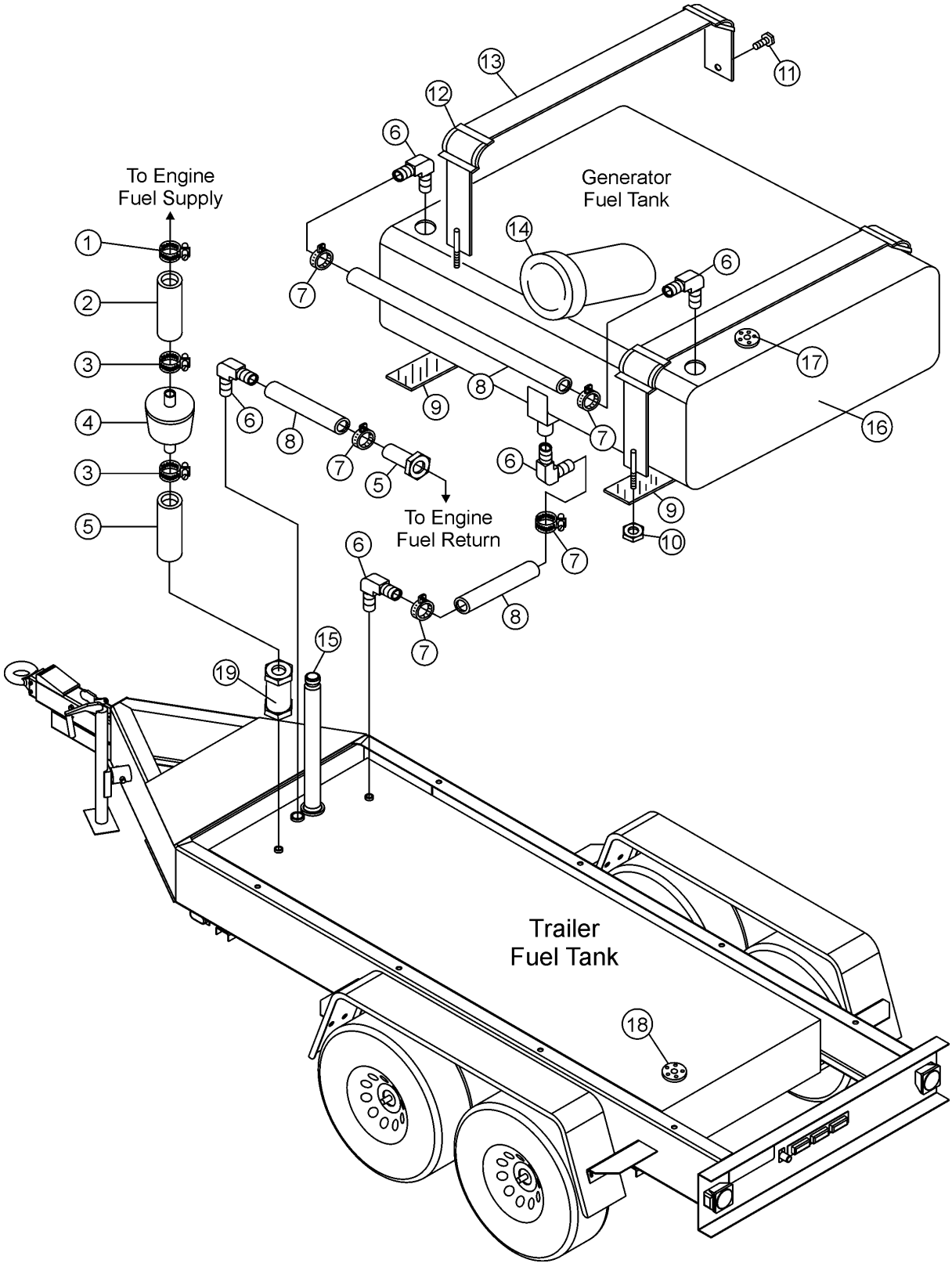
MUFFLER ASSY.



MUFFLER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0602300166	MUFFLER	1	
2	012210025	HEX. HEAD BOLT	4	REPLACES 0016910025
3	M2335000003	EXHAUST PIPE	1	
4	0602325066	CLAMP	1	
5	M2333200004	GASKET	1	REPLACES M2333200014
6	0016908040	HEX. HEAD BOLT	4	
7	M2330400314	COVER	1	
8	M2333399913	BRACKET	1	
9	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
10	0602326060	U BOLT SET	1	

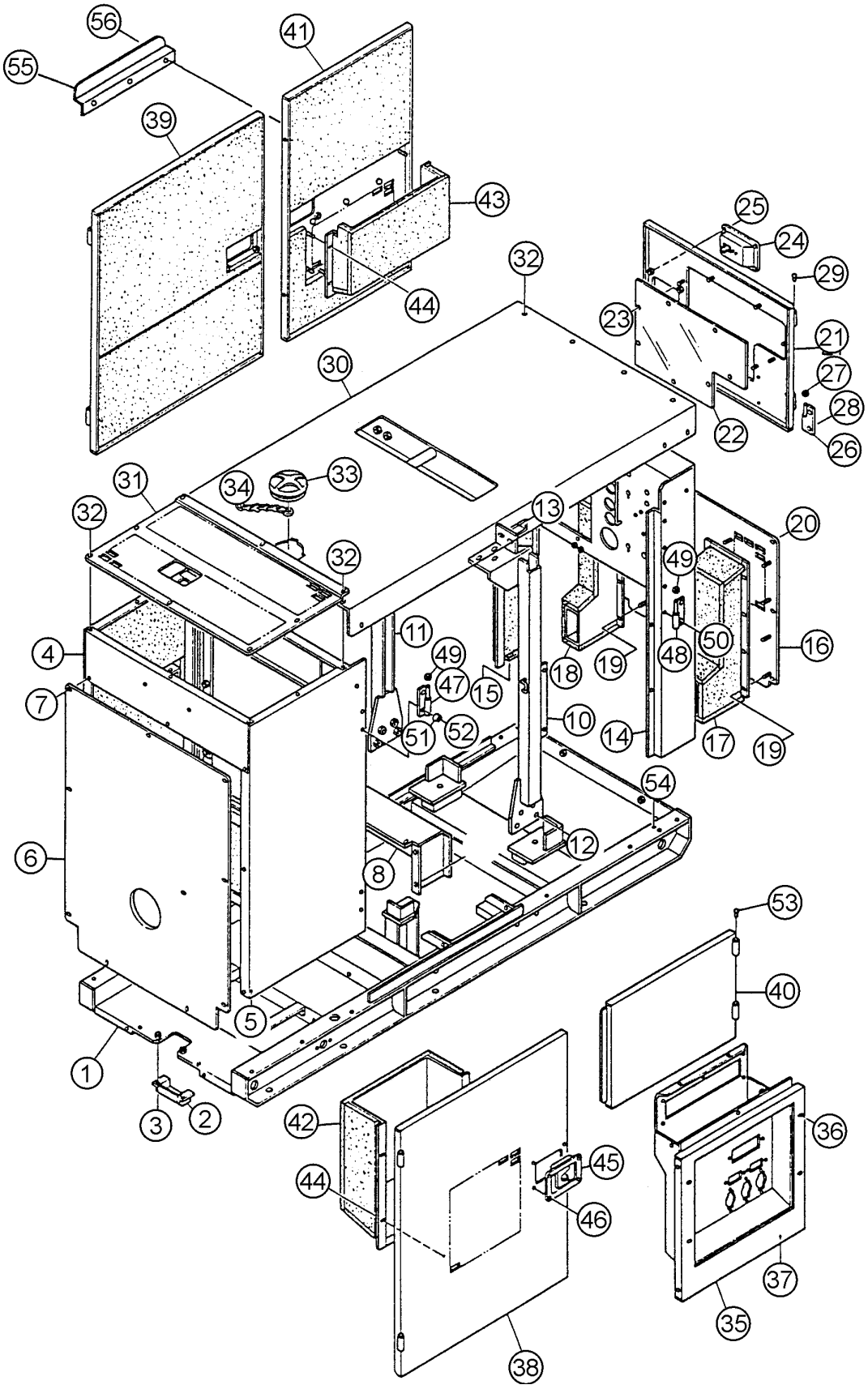
FUEL TANK ASSY.



FUEL TANK ASSY.

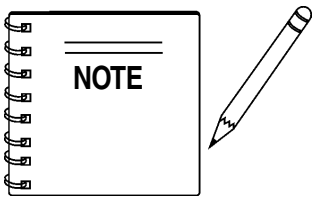
NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0605515189	HOSE BAND	1	
2	0191300450	SUCTION HOSE	1	
3	060551509	HOSE BAND	5	
4	0602042420	IN-LINE FUEL FILTER	1	
5	0602042601	LEAK- OFF LINE	1	
6	80639	90° ELBOW	6	
7	88719	HOSE CLAMP, 3/4" ID	5	
8	0191302000	HOSE	2	
9	0222100178	RUBBER SHEET	2	
10	0207308000	HEX NUT	2	
11	0016908020	HEX HEAD BOLT	2	
12	M9310500104	SUPPORTER SHEET	2	
13	M3363200104	TANK BAND	2	
14	0605505070	INNER TANK LOCKING CAP	1	
15	305255	TRAILER LOCKING CAP	1	
16	M2363000102	FUEL TANK	1	
17	0605501090	SENSOR, ELECTRIC FUEL LEVEL	1	
18	0300111959	SENSING UNIT, FUEL TANK	1	
19	TBD	CHECK VALVE 3/8 X 3/8"	1	

ENCLOSURE ASSY.



ENCLOSURE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M2415000203	BASE	1	
2	M1413400004	UNDER COVER	1	
3	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
4	M2425000003	FRONT FRAME	1	
	M2495100503	ACOUSTIC SHEET	1	
5	011008020	HEX. HEAD BOLT	6	REPLACES 0016908020
6	M2423200214	COVER, FRONT FRAME	1	
	M2495100404	ACOUSTIC SHEET	1	
7	011008020	HEX. HEAD BOLT	11	REPLACES 0016908020
8	M2423200313	INNER COVER, FRONT FRAME	1	
9	011008020	HEX.HEAD BOLT	7	REPLACES 0016908020
10	M2435000203	CENTER FRAME	1	
11	M2433000303	CENTER FRAME	1	
12	0010114030	HEX. HEAD BOLT	8	
	030214350	LOCK WASHER	8	REPLACES 0040014000
	031114260	PLAIN WASHER	8	REPLACES 0041214000
13	012212030	HEX. HEAD BOLT	10	REPLACES 0017112030
14	M2445000103	REAR FRAME	1	
	M2493300904	ACOUSTIC SHEET	1	
15	011008020	HEX. HEAD BOLT	4	REPLACES 0016908020
16	M2445300003	REAR COVER	1	
17	M2445300103	DUCT, REAR COVER	1	
	M2495300504	ACOUSTIC SHEET	1	
18	M2445300203	DUCT, REAR COVER	1	
	M2495300004	ACOUSTIC SHEET	1	
19	0207006000	HEX. NUT	16	
20	011008020	HEX. HEAD BOLT	9	REPLACES 0016908020
21	M2443200123	REAR DOOR	1	
22	M1443600204	WINDOW PLATE	1	
23	020106050	HEX. NUT	8	REPLACES 0207306000
	952404470	PLAIN WASHER	8	REPLACES 0041206000
24	B9114000002	DOOR HANDLE ASS'Y	1	REPLACES M9113000002
25	0027106016	MACHINE SCREW	4	REPLACES 0021806015
	0030006000	HEX. NUT	4	
26	M9110100204	HINGE	2	
27	M9116100004	WASHER	2	
28	011008020	HEX. HEAD BOLT	3	REPLACES 0016908020
29	0845031504	BLIND PLUG	2	REPLACES M9310000004

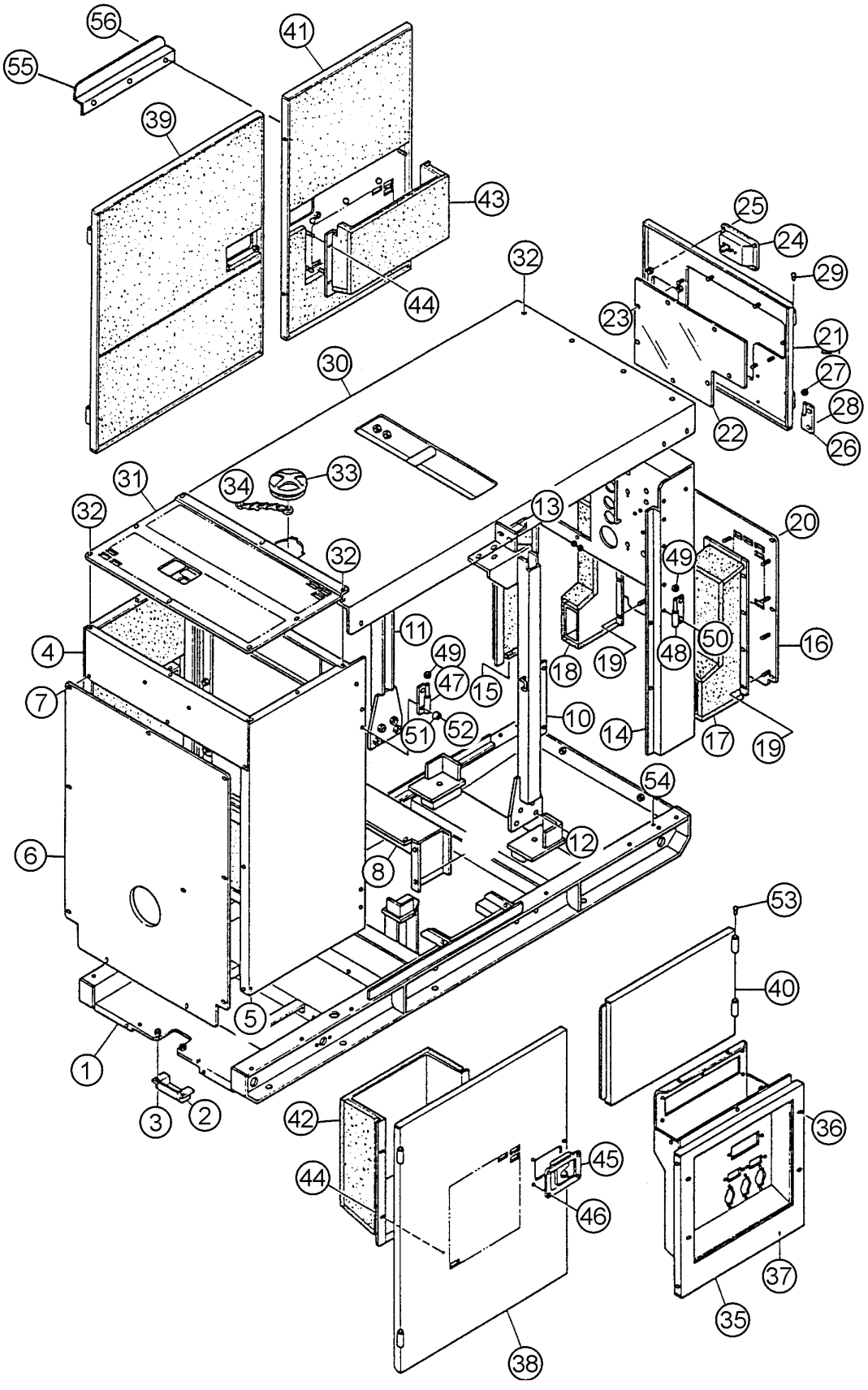


ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER WHEN ORDERING ANY PAINTED PANEL TO INDICATE COLOR OF UNIT:

1-ORANGE
2-WHITE
3 -SPECTRUM GRAY
4 -SUNBELT GREEN
5 -BLACK
6 -CATERPILLAR YELLOW
7 -CATO GOLD
8 -RED

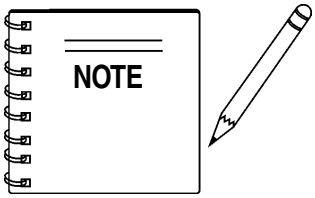
THE SERIAL NUMBER MAY BE REQUIRED.

ENCLOSURE ASSY.



ENCLOSURE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
30	M2463000202	ROOF PANEL	1	
	M2493500123	ACOUSTIC SHEET	1	
31	M2463500114	OVER COVER, FRONT FRAME	1	
32	011008020	HEX. HEAD BOLT	18	REPLACES 0016908020
33	1625165103	BONNET CAP	1	REPLACES M9310000103
34	1625165204	CHAIN ASS'Y	1	REPLACES M1483600204
35	M2455200103	SPLASHER PANEL	1	
	M2493300804	ACOUSTIC SHEET	1	
36	011208060	HEX. HEAD BOLT	4	REPLACES 0016908055
37	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
38	M2455000003	SIDE DOOR	1	
	M2493400904	ACOUSTIC SHEET	1	
39	M2453000603	SIDE DOOR	1	
	M2493401104	ACOUSTIC SHEET	1	
40	M2455000103	SIDE DOOR	1	
	M2495400304	ACOUSTIC SHEET	1	
41	M2455000203	SIDE DOOR	1	
	M2495400004	ACOUSTIC SHEET	1	
42	M2453300503	DUCT	1	
	M2493401004	ACOUSTIC SHEET	1	
43	M2455300003	DUCT	1	
	M2495400404	ACOUSTIC SHEET	1	
44	020706000	HEX. NUT	13	
45	B9114000002	DOOR HANDLE ASS'Y	3	REPLACES M19113000002
46	0027106016	MACHINE SCREW	12	REPLACES 0021806015
	020106050	HEX. NUT	12	REPLACES 0030006000
47	M9110100204	HINGE	4	
48	M9110100304	HINGE	4	
49	M9116100004	WASHER	8	
50	011008020	HEX. HEAD BOLT	9	REPLACES 0016908020
51	0601850097	DOOR STOPPER	8	
52	0027208025	MACHINE SCREW	8	
53	0845031504	BLIND PLUG	8	REPLACES M9310000004
54	011008020	HEX. HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	
55	M2455600004	DOOR BRACKET	1	
56	0016906015	HEX. HEAD BOLT	3	

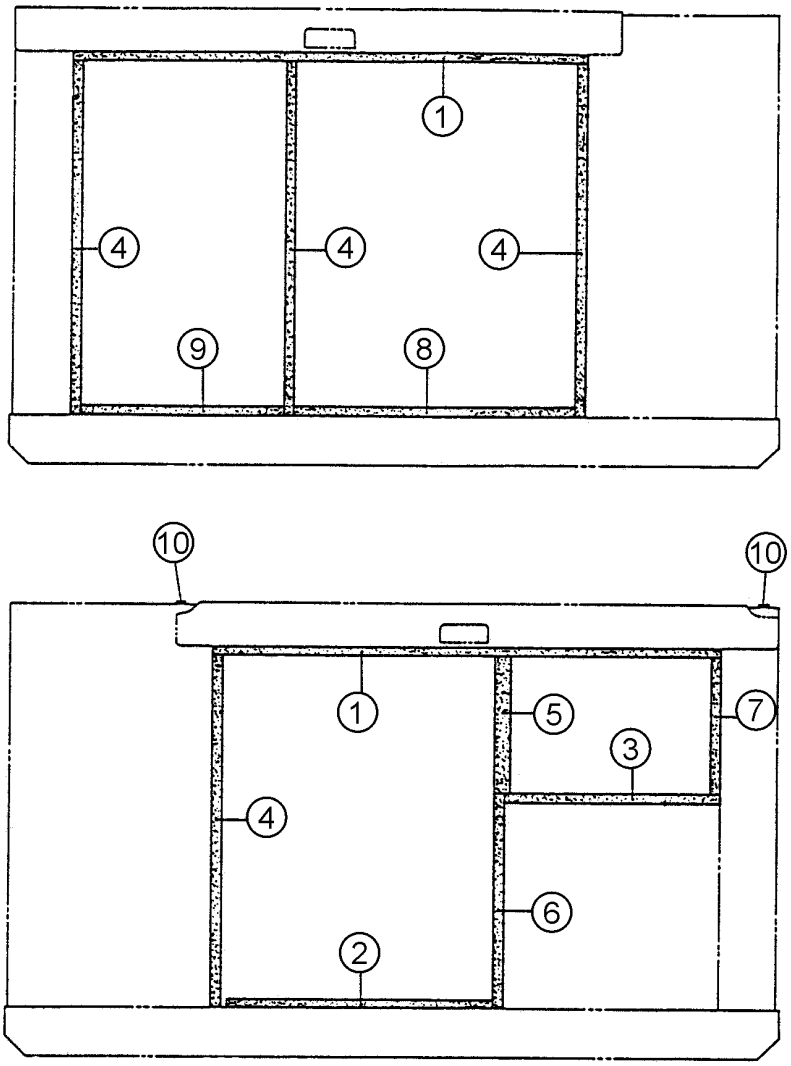


ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER WHEN ORDERING ANY PAINTED PANEL TO INDICATE COLOR OF UNIT:

1-ORANGE
2-WHITE
3 -SPECTRUM GRAY
4 -SUNBELT GREEN
5 -BLACK
6 -CATERPILLAR YELLOW
7 -CATO GOLD
8 -RED

THE SERIAL NUMBER MAY BE REQUIRED.

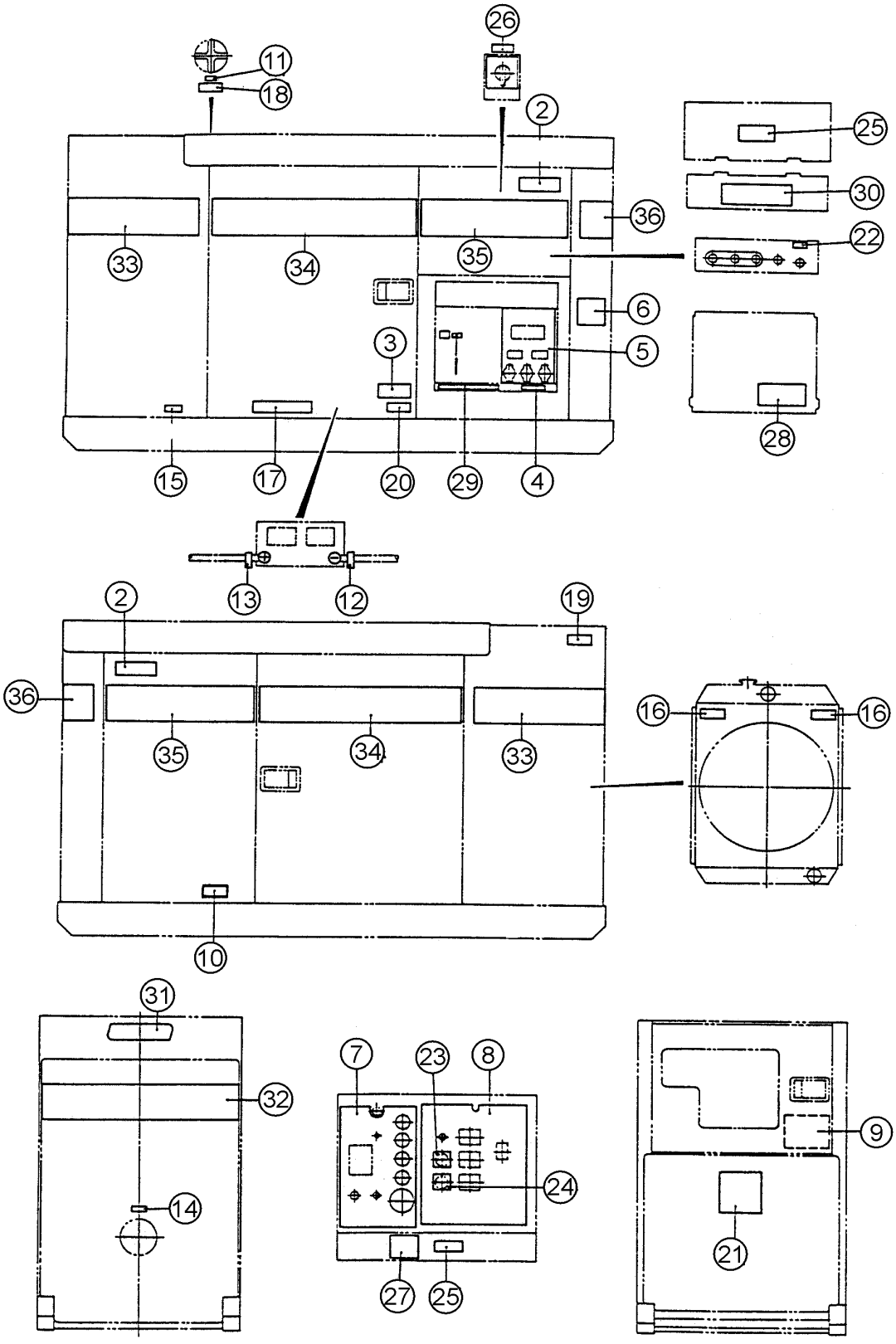
RUBBER SEALS ASSY.



RUBBER SEALS ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0228901580	SEAL RUBBER	2	
2	0229200825	SEAL RUBBER	1	
3	0228900670	SEAL RUBBER	1	
4	0228901090	SEAL RUBBER	4	
5	M2492300004	SEAL RUBBER	1	
6	0228800665	SEAL RUBBER	1	
7	0228900425	SEAL RUBBER	1	
8	0228900860	SEAL RUBBER	1	
9	0228900630	SEAL RUBBER	1	
10	0229200900	SEAL RUBBER	2	
11	0229200840	SEAL RUBBER	1	
12	0228800770	SEAL RUBBER	2	
13	0228800540	SEAL RUBBER	1	
14	0228800580	SEAL RUBBER	1	
15	0228100550	SEAL RUBBER	1	
16	0228100170	SEAL RUBBER	2	
17	0228100350	SEAL RUBBER	1	
18	0228100360	SEAL RUBBER	1	
19	0228100180	SEAL RUBBER	1	

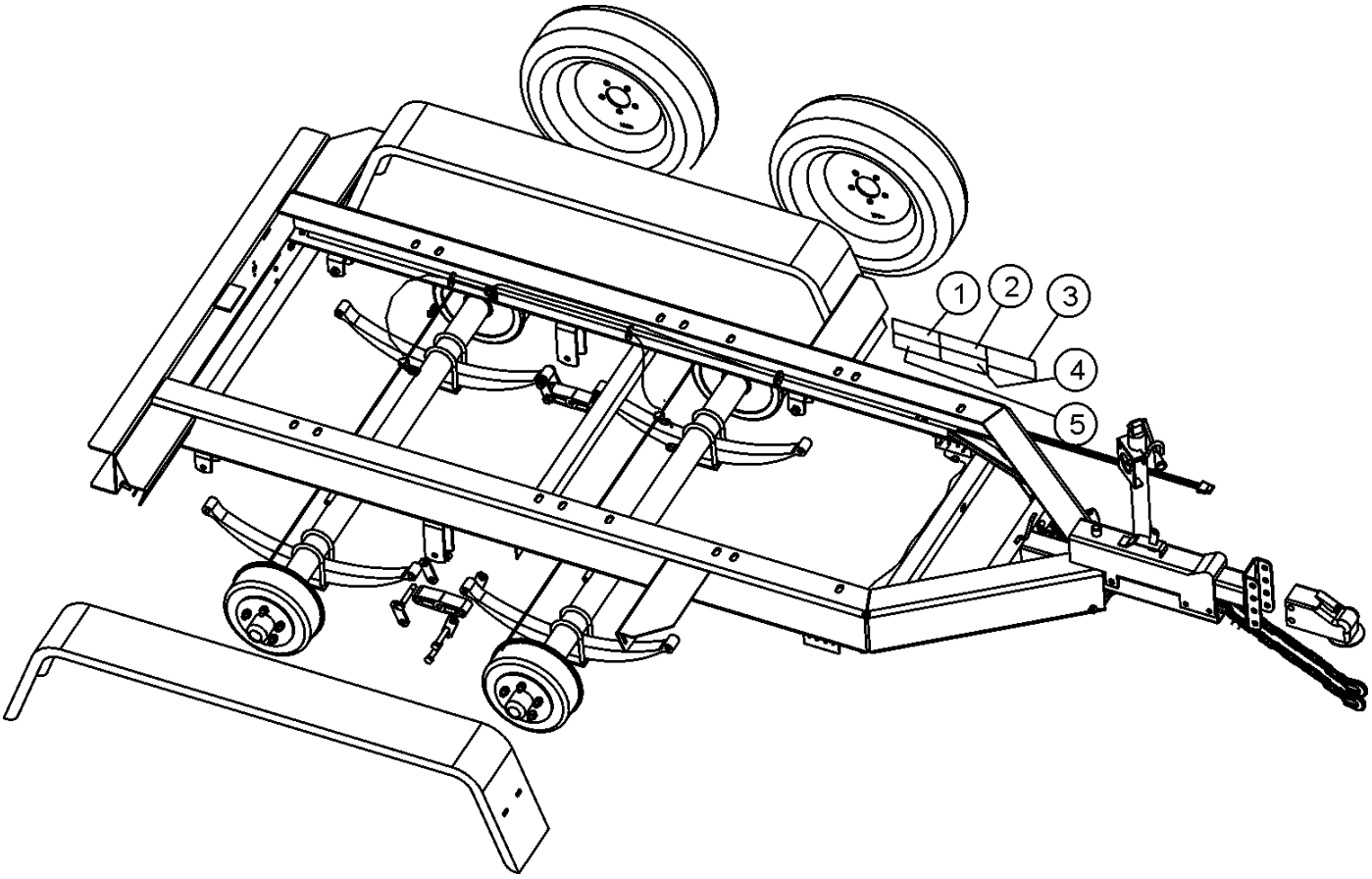
NAME PLATE ASSY.



NAME PLATE ASSY.

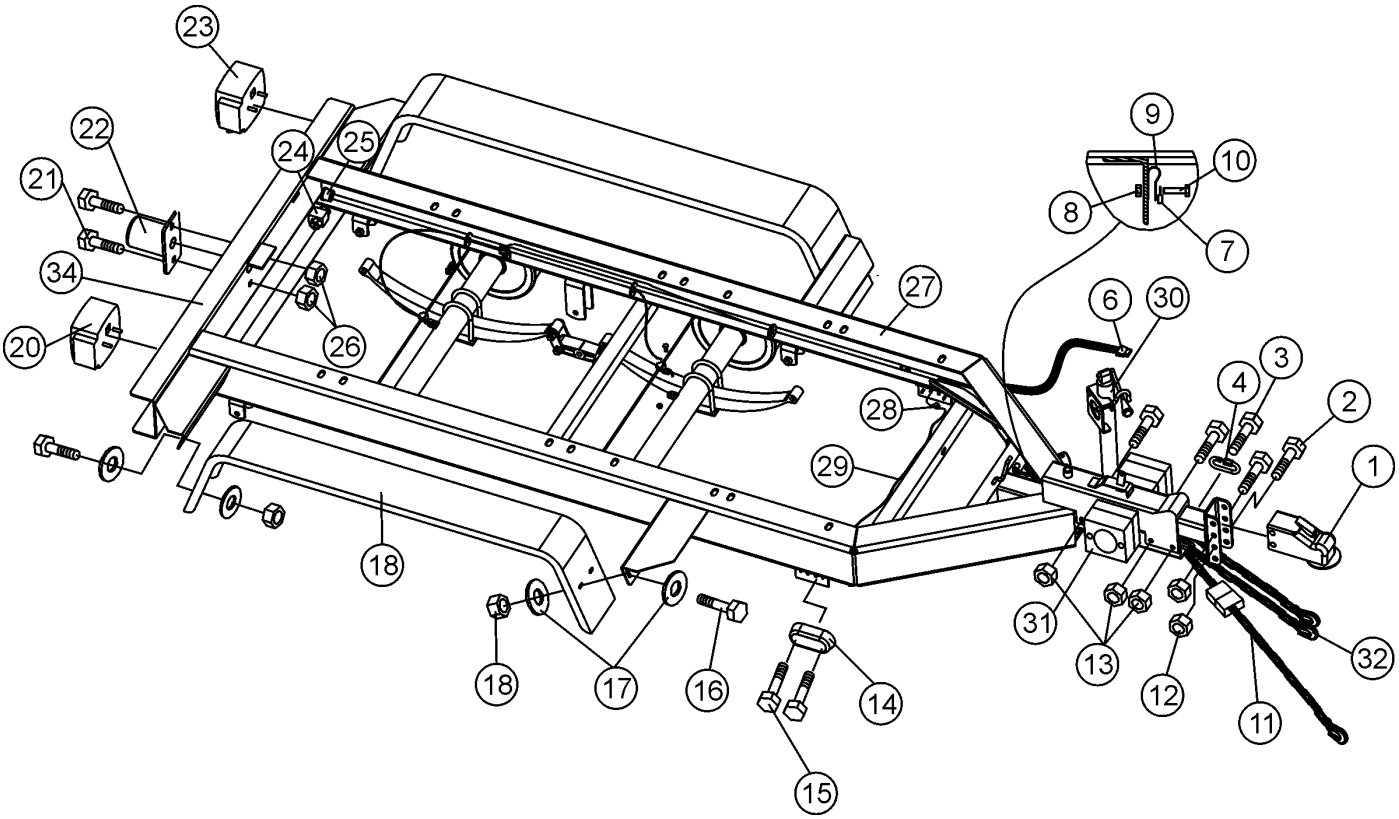
NO.	PART NO.	PART NAME	QTY.	REMARKS
1	9039209064	DECAL; START CONTACT	1	S- 4468
2	C9522100003	DECAL; CAUTION	2	C9221 0000
3	C9595300004	DECAL; CAUTION	1	C9053 0000
4	M1550000204	DECAL; NOTE	1	M1500 0020
5	M1550000703	DECAL; AUXILIARY OUTPUT	1	M1500 0070
6	M2552000104	DECAL; NOTE	1	M2520 0010
7	M2552000203	DECAL; ENGINE OPERATING	1	M2520 0020
8	M2552000303	DECAL; GENERATOR CONTROL	1	M2520 0030
9	M3552000103	DECAL; OPERATING PROCEDURES	1	M3520 0010
10	M9500000004	DECAL; OIL DRAIN PLUG	1	M9000 0000
11	M9500100004	DECAL; WATER	1	M9001 0000
12	M9500300004	DECAL; -	1	M9003 0000
13	M9500300104	DECAL; +	1	M9003 0010
14	M9500500004	DECAL; DIESEL FUEL	1	M9005 0000
15	M9500500104	DECAL; FUEL DRAIN PLUG	1	M9005 0010
16	M9503000004	DECAL; WARNING MOVING PARTS	2	M9030 0000
17	M9503000103	DECAL; WATER - OIL CHECK	1	M9030 0010
18	M9503100004	DECAL; WARNING HOT COOLANT	1	M9031 0000
19	M9503200004	DECAL; WARNING ENGINE EXHAUST	1	M9032 0000
20	M9510100004	DECAL; CAUTION HOT PARTS	1	M9101 0000
21	M9510200002	DECAL; MQ	1	M9102 0000
22	M9520000004	DECAL; GROUND	1	M9200 0000
23	M9520000104	DECAL; AMMETER CHANGE- OVER SWITCH	1	M9200 0010
24	M9520000204	DECAL; VOLTMETER CHANGE- OVER SWITCH	1	M9200 0020
25	M9520100004	DECAL; WARNING ELECTRIC SHOCK HAZARD	2	M9201 0000
26	M9520100204	DECAL; CAUTION	1	M9201 0020A
27	M9520100304	DECAL; SAFETY INSTRUCTIONS	1	M9201 0030
28	M9520100404	DECAL; DANGER HIGH VOLTAGE	1	M9201 0040
29	M9520100503	DECAL; WARNING	1	M9201 0050
30	M9520200003	DECAL; CONNECTION OF OUTPUT CABLE	1	M9292 0000
31	0600500090	EMBLEM	1	
	0021106015	MACHINE SCREW	2	
32	M2560100003	STRIPE; WHISPERWATT	1	
33	M2560100103	STRIPE; MQ POWER	2	
34	M2560100203	STRIPE	2	
35	M2560100403	STRIPE	2	
36	M2562100004	STRIPE; 85	2	

TRAILER DECAL PLACEMENT



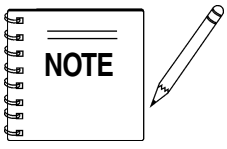
TRAILER DECAL PLACEMENT

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	29472	DECAL, ELECTRICAL WARNING	1	
2	29471	DECAL, COUPLER WARNING	1	
3	19066	TRLR70 VIN DECAL	1	
4	29473	DECAL, CHAIN WARNING	1	
5	29474	DECAL, LUG NUT WARNING	1	


23
22
24
25
21
34
20
26
27
9
10
8
7
6
30
4
3
2
1
28
29
18
31
13
32
12
11
18
17
16
14
15

TRAILER ASSY

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	29228	PINTLE	1	
2	9502	SCREW 5/8"x4-1/2"	2	
3	10306	SCREW 1/2"x4-1/2"	3	
4	13359	5/16" LINK	2	
6	29207	TRAILER WIRE HARNESS	1	
7	1319	1/4" TERMINAL RING	1	
8	10024	NYLOCK NUT 1/4"	1	
9	8126	HOSE SUPPORT CLAMP	1	
10	0730	SCREW 1/4"x1"	1	
11	1300-74	BREAK-AWAY SWITCH WARNER	1	VERIZON SUPPLIED
12	9503	NYLOCK NUT 5/8"	2	
13	10176	NYLOCK NUT 1/2"	3	
14	29241	SIDE MARKER LIGHT	2	
15	9509	SCREW, TEK 12x3/4"	4	
16	0205	SCREW, 3/8"x1"	8	
17	4001	FLAT WASHER 3/8"	16	
18	10133	NYLOCK NUT 3/8"	8	
19	19046	FENDER 8"x66"x14"	2	
20	29242	RIGHT SIDE(CURB) LIGHT	1	
21	5065B	SCREW, RHM 10-32x1/2"	2	
22	9514	LICENSE PLATE LIGHT	1	
23	29243	LEFT SIDE(ROAD) LIGHT	1	
24	19761	SPLICE TAP 14-18GA CLOSED (BLUE)	1	
25	9512	WIRING PLUG 1/2"	2	
26	10019	NYLOCK NUT 10-32	4	
27	19748	TRLR70 FRAME	1	
28	19762	SPLICE TAP 14-18GA OPEN (BROWN)	1	
29	60018	16GA WIRE	4	
30	19750	TRLR70 JACK	1	
31	TBD	CONTROL BOX ASSY, RACO#5320-0	1	
32	29233	CHAIN, TRAILER SAFTEY	2	

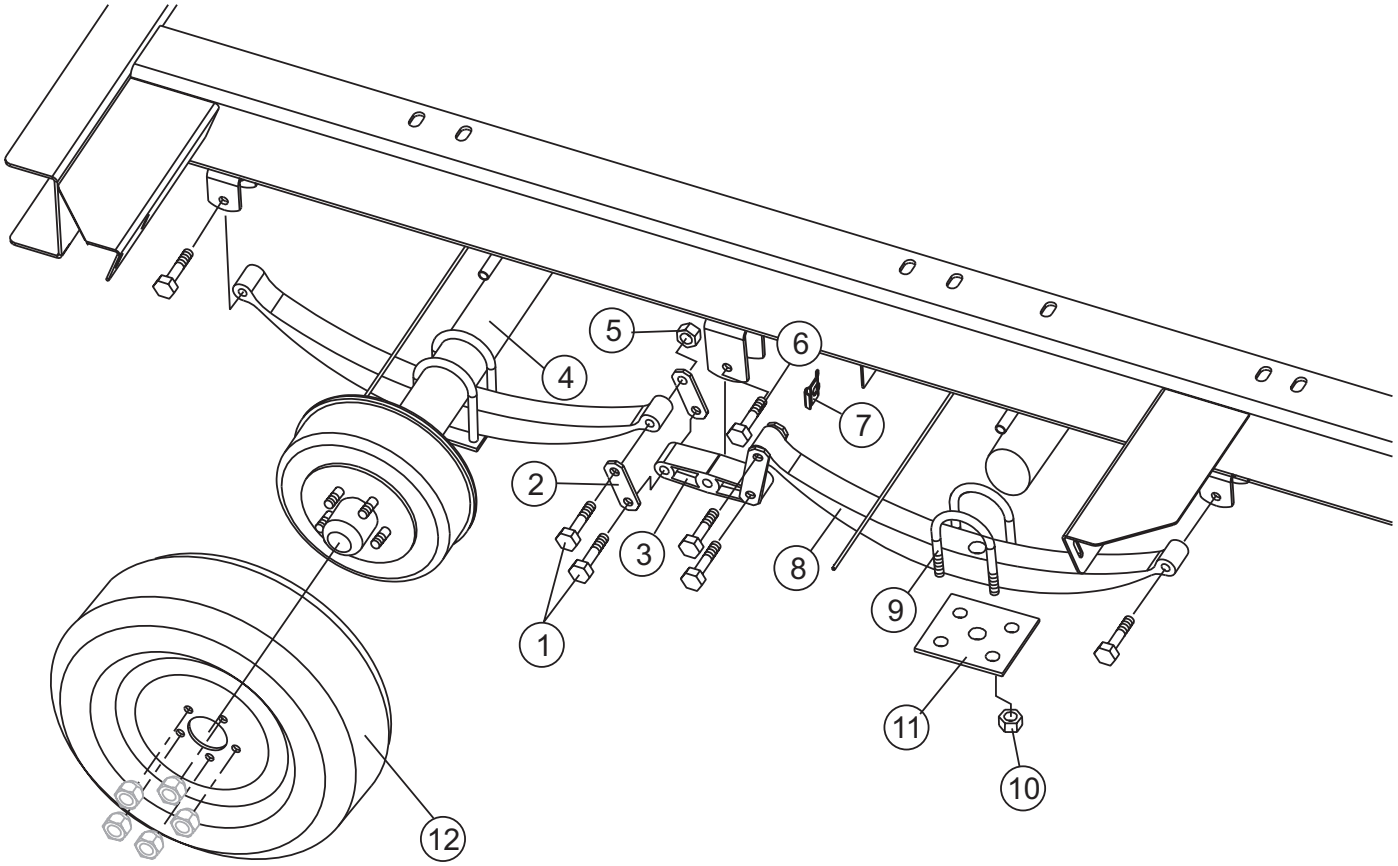


Break-away switch, item 11 is equipped with the following:

(A) Hubbell Twist Lock P/N 7102C20A

(B) Stawlowy 1/4" Quick Link P/N 64-7341-4J199

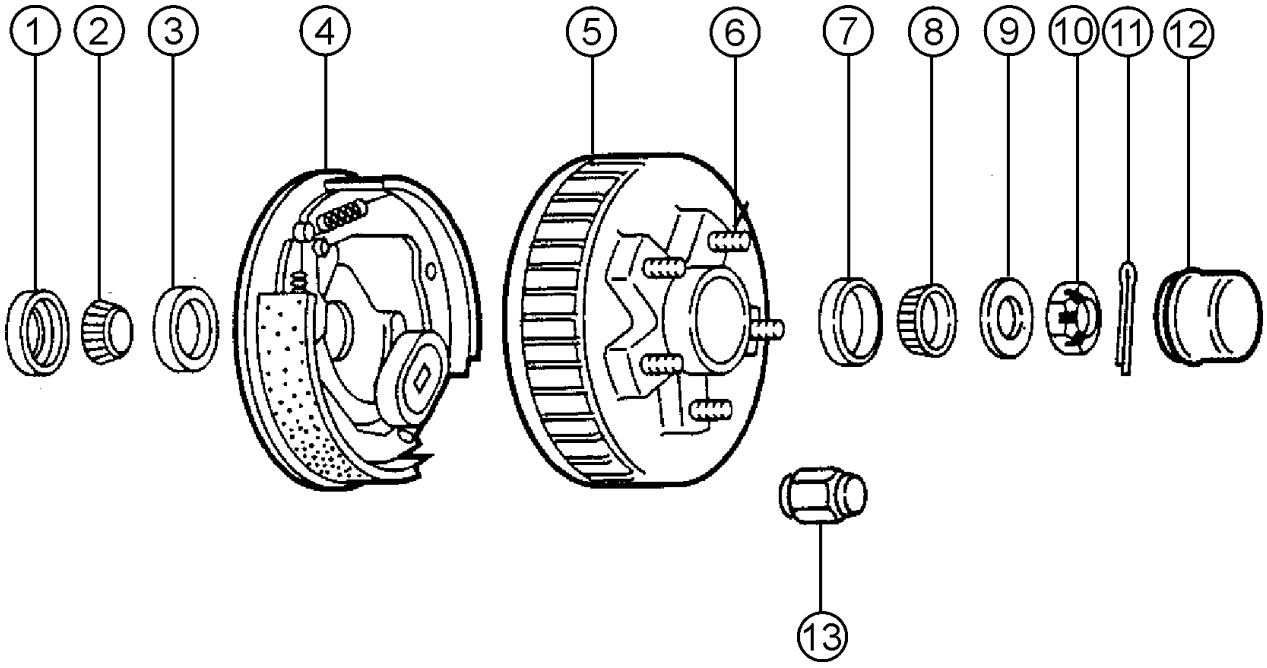
TRAILER SUSPENSION ASSY.



TRAILER SUSPENSION ASSY.

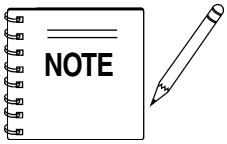
NO.	PART NO.	PART NAME	QTY.	REMARKS
1	29248	SCREW, HHC 9/16”	12	
2	29247	AXLE MOUNTING SHACKLE	8	
3	091329	ROCKER WITH BUSHING	2	
4	19070	AXLE	2	
5	29249	AXLE MOUNTING NUT 9/16”	14	
6	29317	AXLE MOUNTING SCREW 9/16”	2	
7	29226	SPRING TAB	3	
8	093255	SPRING ASSEMBLY	4	
9	091122	U-BOLT, 6 1/2” x 12	8	
10	090617	U-BOLT NUT	8	
11	19068	TIRE 205-75D14C 5x4-1/2”	4	

TRAILER HUB ASSY.



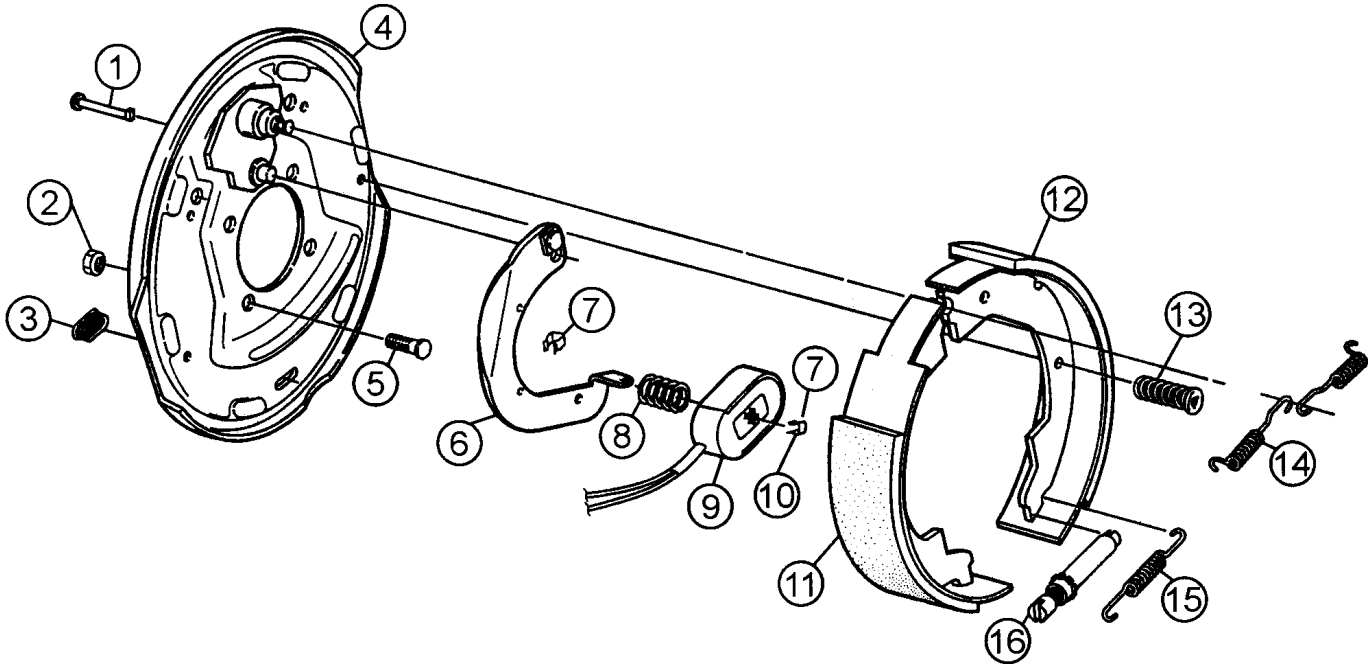
TRAILER HUB ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	363193ALKO	GREASE SEAL	1	
2	363192ALKO	INNER BEARING CONE, 68149	1	
3	363914ALKO	INNER BEARING CUP, L68111	1	
4		ELECTRIC BRAKE ASSY	1	SEE PAGES 92 AND 93
5	363219ALKO	HUB AND DRUM, 5 ON 4.5"	1	
6	363907ALKO	WHEEL STUD, 1/2" - 20	1	
7	363917ALKO	OUTER BEARING CUP, L44610	1	
8	363180ALKO	OUTER BEARING CONE, 44649	1	
9	363259ALKO	SPINDLE WASHER	1	
10	363257ALKO	SPINDLE NUT, 1" -14	1	
11	363258ALKO	COTTER PIN	1	
12	363182ALKO	GREASE CAP	1	
13	363909ALKO	WHEEL NUT - CAPPED	5	



QUANTITIES LISTED ARE PER WHEEL

ELECTRIC BRAKES ASSY.



ELECTRIC BRAKES ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	568094ALKO	SHOE HOLD-DOWN PIN	1	
2	363312ALKO	BRAKE MOUNTING NUT 7/16” - 20	1	
3	568089ALKO	PLUG ADJUSTER SLOT	1	
4	23106ALKO	BACKING PLATE ASSY, RIGHT	1	
	23105ALKO	BACKING PLATE ASSY, LEFT	1	
5	363900ALKO	BRAKE MOUNTING STUD 7/16” - 20	1	
6	568121ALKO	LEVER ASSEMBLY, RIGHT(SHOWN)	1	
	568122ALKO	LEVER ASSEMBLY, LEFT (NOT SHOWN)	1	
7	568092ALKO	WIRE CLIP	1	
8	568103ALKO	MAGNET SPRING	1	
9	568119ALKO	MAGNET	1	
10	568092ALKO	MAGNET CLIP	1	
11	568112ALKO	PRIMARY SHOE & LINING	1	
12	568117ALKO	SECONDARY SHOE & LINING	1	
13	568093ALKO	SHOE HOLD DOWN SPRING	1	
14	568097ALKO	SHOE RETRACTOR SPRINGPAIR	1	
15	568095ALKO	ADJUSTER SCREW SPRING	1	
16	568086ALKO	ADJUSTER SCREW SOCKET	1	

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

All parts orders will be shipped collect or prepaid with the charges added to the invoice. All shipments are F.O.B. point of origin. Multiquip's responsibility ceases when a signed manifest has been obtained from the carrier, and any claim for shortage or damage must be settled between the consignee and the carrier.

MINIMUM ORDER

The minimum charge for orders from Multiquip is $15.00 net. Customers will be asked for instructions regarding handling of orders not meeting this requirement.

RETURNED GOODS POLICY

Return shipments will be accepted and credit will be allowed, subject to the following provisions:

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
   a. The parts numbers and descriptions must match the current parts price list.
   b. The list must be typed or computer generated.
   c. The list must state the reason(s) for the return.
   d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
   e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.
5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Multiquip part numbers clearly marked.
6. The following items are not returnable:
   a. Obsolete parts. (If an item is in the price book and shows as being replaced by another item, it is obsolete.)
   b. Any parts with a limited shelf life (such as gaskets, seals, "O" rings, and other rubber parts) that were purchased more than six months prior to the return date.
   c. Any line item with an extended dealer net price of less than $5.00.
   d. Special order items.
   e. Electrical components.
   f. Paint, chemicals, and lubricants.
   g. Decals and paper products.
   h. Items purchased in kits.
7. The sender will be notified of any material received that is not acceptable.
8. Such material will be held for five working days from notification, pending instructions. If a reply is not received within five days, the material will be returned to the sender at his expense.
9. Credit on returned parts will be issued at dealer net price at time of the original purchase, less a 15% restocking charge.
10. In cases where an item is accepted, for which the original purchase document can not be determined, the price will be based on the list price that was effective twelve months prior to the RMA date.
11. Credit issued will be applied to future purchases only.

PRICING AND REBATES

Prices are subject to change without prior notice. Price changes are effective on a specific date and all orders received on or after that date will be billed at the revised price. Rebates for price declines and added charges for price increases will not be made for stock on hand at the time of any price change.

Multiquip reserves the right to quote and sell direct to Government agencies, and to Original Equipment Manufacturer accounts who use our products as integral parts of their own products.

SPECIAL EXPEDITING SERVICE

A $35.00 surcharge will be added to the invoice for special handling including bus shipments, insured parcel post or in cases where Multiquip must personally deliver the parts to the carrier.

LIMITATIONS OF SELLER'S LIABILITY

Multiquip shall not be liable hereunder for damages in excess of the purchase price of the item with respect to which damages are claimed, and in no event shall Multiquip be liable for loss of profit or good will or for any other special, consequential or incidental damages.

LIMITATION OF WARRANTIES

No warranties, express or implied, are made in connection with the sale of parts or trade accessories nor as to any engine not manufactured by Multiquip. Such warranties made in connection with the sale of new, complete units are made exclusively by a statement of warranty packaged with such units, and Multiquip neither assumes nor authorizes any person to assume for it any other obligation or liability whatever in connection with the sale of its products. Apart from such written statement of warranty, there are no warranties, express, implied or statutory, which extend beyond the description of the products on the face hereof.

NOTE PAGE

PARTS AND OPERATION MANUAL

HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL NUMBER ON-HAND WHEN CALLING

PARTS DEPARTMENT
800-427-1244 or 310-537-3700
FAX: 800-672-7877 or 310-637-3284

SERVICE DEPARTMENT
800-421-1244
FAX: 310- 537-4259

TECHNICAL ASSISTANCE
800-478-1244
FAX: 310- 631-5032

WARRANTY DEPARTMENT
888-661-4279, or 310-661-4279
FAX: 310- 537-1173

Manufactured for Multiquip Inc.
by
DENYO MANUFACTURING CO., USA

MULTIQUIP INC.
POST OFFICE BOX 6254
CARSON, CA 90749
310-537-3700 • 800-421-1244
FAX:310-537-3927
E-MAIL: mq@multiquip.com
WWW: multiquip.com

Atlanta • Boise • Dallas • Houston • Newark
Quebec, Canada • Manchester, UK • Rio De Janiero, BR • Guadalajara, MX