

PARTS AND OPERATION MANUAL

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MQ POWER DCA-25SSIU PORTABLE GENERATOR (Standard)

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PARTS LIST NO. M1870000264

Revision #0(10/18/00)



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WARNING



CALIFORNIA — Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

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

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FAX: 310/638-8046

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800/835-2551 or 310/537-3700

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NOTE

***Specification and part number
are subject to change without
notice.***

PARTS ORDERING PROCEDURES

- 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:
 - UPS Ground
 - UPS Second Day or Third Day*
 - UPS Next Day*
 - Federal Express Priority One (please provide us with your Federal Express account number)*
 - Airborne Express*
 - Truck or parcel post

**Normally shipped the same day the order is received, if prior to 2PM west coast time.*

Earn Extra Discounts when you order by FAX!

All parts orders which include complete part numbers and are received by fax qualify for the following extra discounts:

Number of line items ordered	Additional Discount
1-9 items	3%
10+ items**	5%

Get special freight allowances when you order 10 or more line items via FAX! **

- UPS Ground Service at no charge for freight
- PS Third Day Service at one-half of actual freight cost

No other allowances on freight shipped by any other carrier.

**Common nuts, bolts and washers (all items under \$1.00 list price) do not count towards the 10+ line items.

DISCOUNTS ARE SUBJECT TO CHANGE

Fax order discount and UPS special programs revised June 1, 1995

**Extra Fax Discount
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RULES FOR SAFE OPERATION

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-25SSIU portable 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 of 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.

- Manufacturer does not assume responsibility for any accident due to equipment modifications.

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

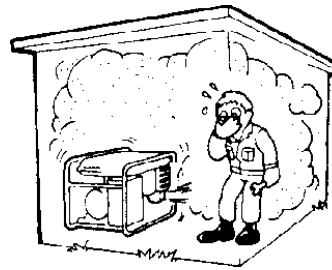
- Always check the machine for loosened threads or bolts before starting.

- **NEVER** 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 adding fuel or 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.



CAUTION:



- Always refuel in a well-ventilated area, away from sparks and open flames.

- Always use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool. **DO NOT** smoke around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.

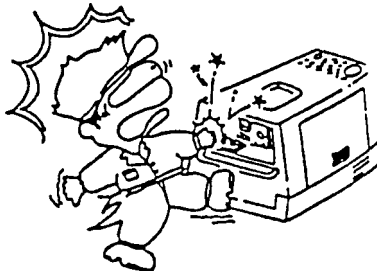
- **NEVER** operate the generator in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe *bodily harm or even death*.

- Topping-off to filler port is dangerous, as it tends to spill fuel.



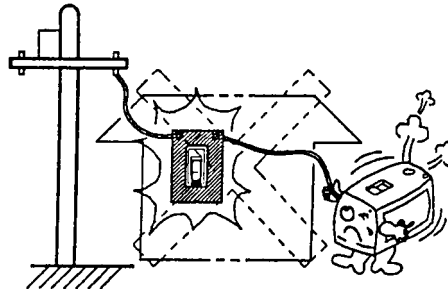
RULES FOR SAFE OPERATION

CAUTION:



■ **NEVER** touch output terminals during operation. This is extremely dangerous. Always stop the machine when contact with the output terminals is required.

CAUTION:



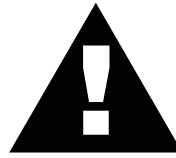
■ **Never** connect the generator to house wiring. This is illegal and very dangerous. Electrical shock could occur causing damage to the generator and bodily harm even death.

CAUTION:



■ **Never** use damaged or worn cables when connecting power tools or 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.

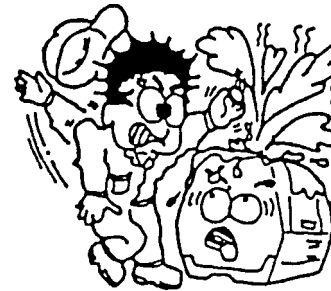
CAUTION:



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.

RULES FOR SAFE OPERATION

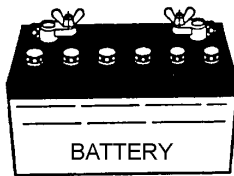
Battery

CAUTION:



Never over fill the battery with water above the upper limit.

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 booster cables in good working condition. Repair or replace all worn cables.
5. Always recharge the battery in an open 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.

- **NEVER** Run engine without air filter. Severe engine damage may occur.
- Always service air cleaner frequently to prevent carburetor malfunction.
- Always disconnect the battery before performing service on the generator.
- Always be sure the operator is familiar with proper safety precautions and operations techniques before using generator.
- Always store equipment properly when not in use. Equipment should be stored in a clean, dry location out of the reach of children.
- **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 ***Isuzu Engine Owner's Manual*** for engine technical questions or information.

Loading and Unloading (Crane)

- Before lifting, make sure the generator's lifting hook is secure and that there is no apparent damage to the generator itself (loose screws, nuts and bolts). If any part is loose or damaged, please take corrective action before lifting.
- Always drain fuel prior to lifting.
- Always make sure crane or lifting device has been properly secured to the hook of guard frame on generator.
- **NEVER** lift the machine while the engine is running.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- When lifting the generator, always use the balanced center-point suspension hook and lift straight upwards.
- **NEVER** allow any person or animal to stand underneath the machine while lifting.
- When loading the generator on a truck, be sure to use the front and back frame bars as a means to secure the generator during transport.

RULES FOR SAFE OPERATION

Transporting

- Always shutdown engine before transporting.
- Tighten fuel tank cap securely.
- Drain fuel when transporting generator over long distances or bad roads.
- Always tie-down the generator during transportation by securing the generator.
- If generator is mounted on a trailer, make sure trailer complies with all local and state safety transportation laws. See page 10 for basic towing procedures.

Emergencies

- Always know the location of the nearest **fire extinguisher** and **first aid kit**. Know the location of the nearest telephone. Also know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**.

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.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, coolant, fuel, and fuel filters.
- **DO NOT** use plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil, coolant or fuel directly onto the ground, down a drain or into any water source.

DCA-25SSIU — TOWING RULES FOR SAFE OPERATION

Towing Safety Precautions

CAUTION :



Check with your county or state safety towing regulations department before towing your generator.

To reduce the possibility of an accident while transporting the generator on public roads, always make sure the trailer (Figure 1) 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).
- **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. 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 chain to bumper of towing vehicle.
- **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 *chocked blocks* underneath wheel to prevent **rolling**, while parked.
- Place *support blocks* underneath the trailer's bumper to prevent **tipping**, while parked.
- Use the trailer's hand winch to adjust the height of the trailer, then insert locking pin to lock wheel stand in place, while parked.
- Avoid sudden stops and starts. This can cause skidding, or jack-knifing. Smooth, gradual starts and stops will improve gas mileage.
- Avoid sharp turns to prevent rolling.
- Remove wheel stand when transporting.
- **DO NOT** transport generator with fuel in tank.

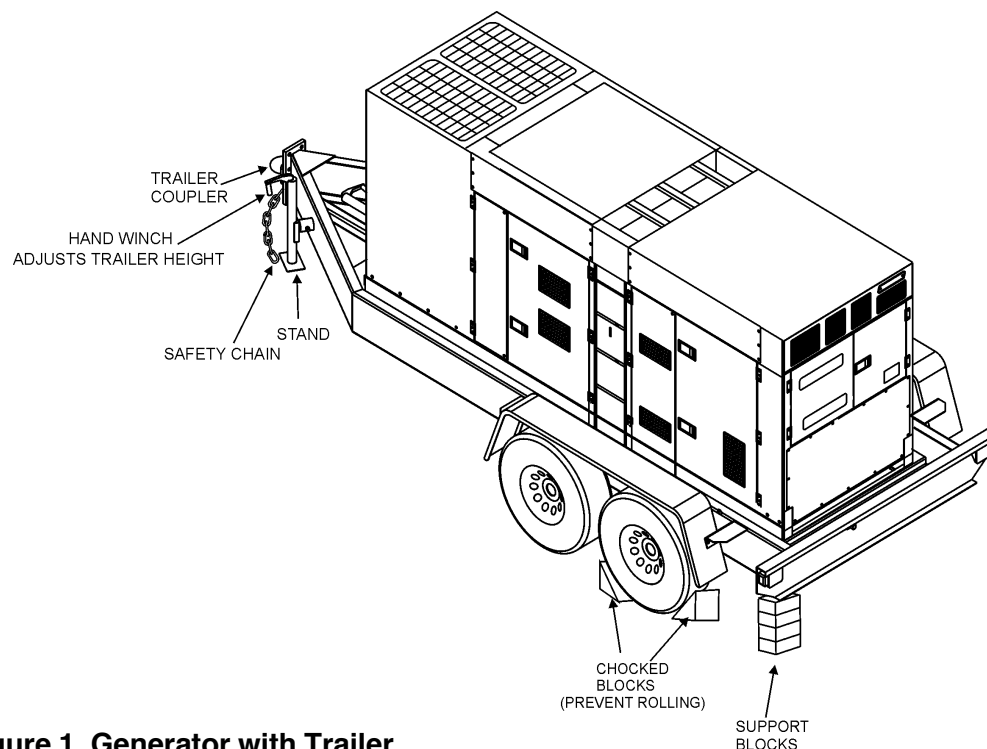


Figure 1. Generator with Trailer

DCA-25SSIU — GENERATOR DECALS

The DCA -25SSIU 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.

OPERATING PROCEDURES

Manual Starting

1. Check the engine oil, coolant, and fuel levels. Replenish if necessary.
2. Place all Generator Circuit Breakers in the "OFF" position and close all doors.
3. Check that the Voltage select switch (or the Voltage change-over board) is present at desired voltage.
(In case of generator having multiple voltage ratings.)
4. Set the Engine speed switch to the "LOW" position.
5. Turn the Auto-Off/Reset-Manual switch to the "Manual" position to start the engine. If the engine fails to start in the specified number of attempts, the overcrank lamp will indicate and the Auto-Off/Reset-Manual switch must be returned to the "Off/Reset" position before proceeding.
6. When the engine is ready for starting during cold weather operating conditions, push the Intake heater button for approximately 30 seconds. Start engine using the Auto-Off/Reset-Manual switch to the "Manual" position. As soon as the engine starts, release the button.
If the engine still does not start, utilize the water heater until water is warm. (If additional water heater is supplied.)
7. After starting, allow the engine to run for 1 or 2 minutes to warm-up. At temperatures below freezing, this time period must be extended to 2 to 4 minutes.
8. When the engine starts, immediately check for abnormal noise, vibration, fluid leakage or any indication of a problem. Check the control panel gauges. If all is normal, let the engine remain at the "Low" position for a short time, depending on the ambient conditions, warm up.
9. After sufficient warm-up time has elapsed, set the Engine speed switch to the "High" position and the unit is ready for operation.
10. Check the NO-Load speed as shown in the table below.
60Hz operation—Approx. 50 Hz (1500rpm)
11. Adjust the Voltage Regulator to the specified voltage.

Manual Stopping

1. Place the Generator Circuit Breakers in the "OFF" position.
2. Set the Engine speed switch to the "LOW" position, and allow the unit to cool for a few minutes.
3. Turn the Auto-Off/Reset-Manual switch, to the "Off/Reset" position.

Auto Starting/Stopping

1. With the Auto/Manual switch in the Auto position, the Auto Starting/Stopping controller monitors remote start contacts. Closure of the remote start contacts will begin engine cranking. When the contacts are opened cranking will stop or if running the engine will stop. All functions of the Automatic shutdown System work as in Manual Starting/stopping.
2. For cold weather conditions utilize the water heater until water is warm. If the engine still does not start, please operate as in Manual Starting.

Emergency Stopping

1. Place the Generator Circuit Breakers in the "OFF" position.
2. Turn the Auto-Off/Reset-Manual switch to the "Off/Reset" position.

M35200010

P/N M3552000103

SAFETY INSTRUCTIONS

Improper operation of this machine can cause severe injury or death.

- Read the instruction manual carefully before operating or servicing.

This machine should only be operated by a person with sufficient knowledge and skill to ensure safe operation.

High voltage circuits are located inside the output terminal cover and control panel.

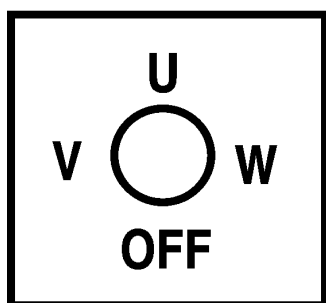
- Close the cover and control panel before operating.

Moving parts and hot surfaces are contained within the enclosure.

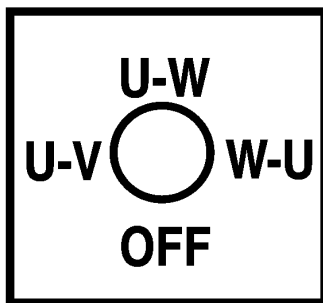
- Close all doors and lock them before operating.

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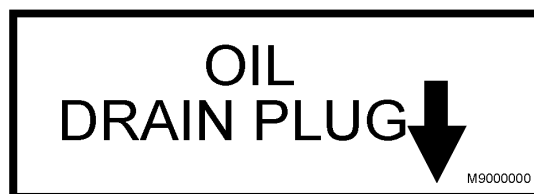
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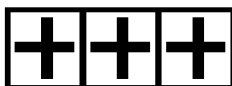
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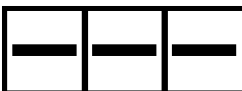
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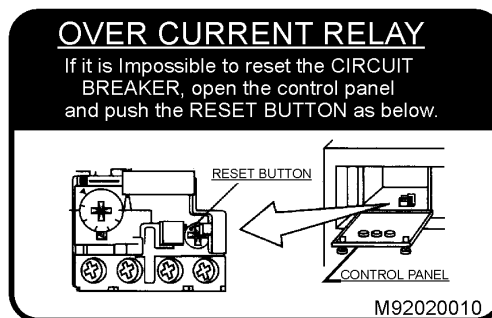
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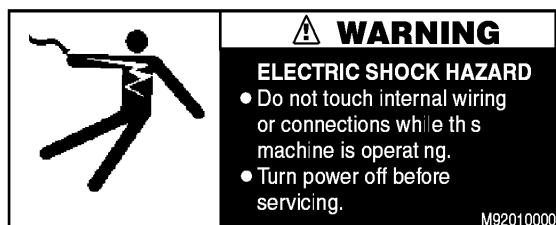


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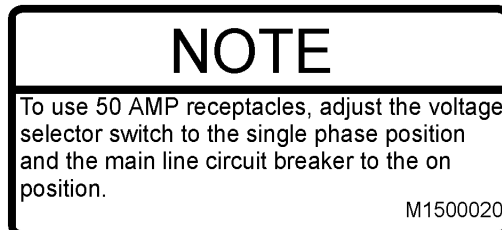
DCA-25SSIU — GENERATOR DECALS



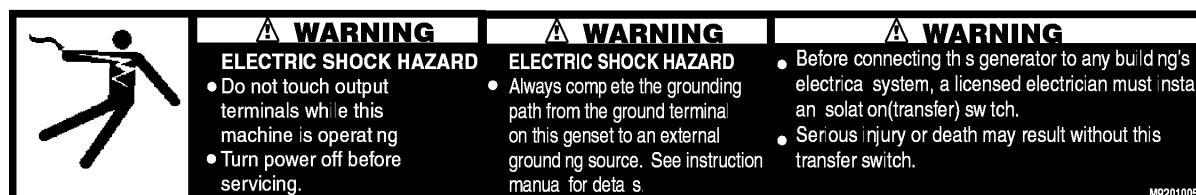
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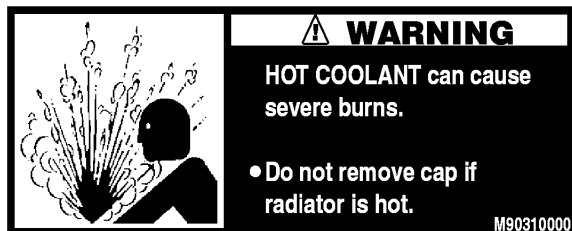
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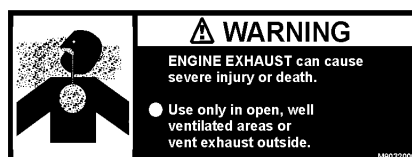
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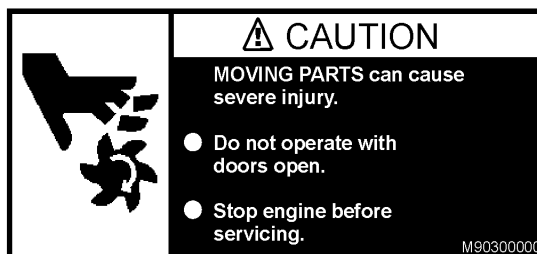
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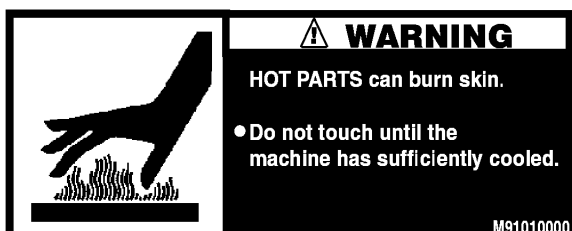
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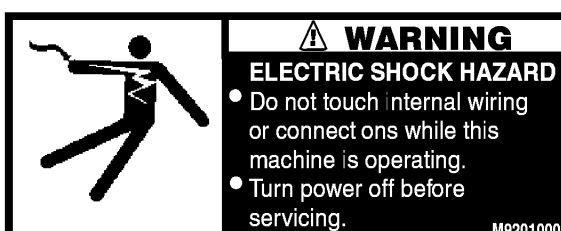
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P/N M9510100004



P/N M9520100004

DCA-25SSIU — SPECIFICATIONS

Table 1. Specifications		
Generator Specifications		
Model	DCA-25SSIU	
Type	Revolving field, self ventilated, open protected type synchronous	
Armature Connection	Star with Neutral	Zig Zag
Phase	3	Single
Standby Output	26.5 KVA (21.2 KW)	15.3KW
Prime Output	25 KVA (20 KW)	14.4KW
Voltage	240V or 480V	240/120V
Frequency	60 Hz	
Speed	1800 rpm	
Power Factor	0.8	1
Aux. AC Power	Single Phase, 60 Hz	
Voltage	120 V	
Output	4.8 KW (2.4 KW x 2)	
Engine Specifications		
Model	Isuzu QD-6(C240)	
Type	4 Cycle, water-cooled, swirl combustion chamber	
No. of Cylinders	4 cylinders	
Bore x Stroke	3.38 in. x 4 in. (86 mm x 102 mm)	
Rated Output	30.6HP/1800 rpm	
Displacement	144 cu. in. (2369cc)	
Starting	Electric	
Coolant Capacity	2.9 gal. (11 liters)	
Lube Oil Capacity	1.45 gal. (5.5 liters)	
Fuel Consumption	1.65 gal. (6.3L)/hr at full load	1.3 gal. (5.0L)/hr at 3/4 load
	0.9 gal. (3.4L)/hr at 1/2 load	0.6 gal. (2.3L)/hr at 1/4 load
Battery	12V- 70AH	
Fuel	#2 Diesel Fuel	

DCA-25SSIU — GENERAL INFORMATION

DCA-25SSIU FAMILIARIZATION

Generator

The MQ Power Model DCA-25SSIU is a 20 kW **generator** 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.

Engine Operating Panel

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

- Tachometer
- Water Temperature Gauge
- Oil Pressure Gauge
- Charging Ammeter Gauge
- Fuel level gauge
- Engine Throttle Lever
- Pre-Heat Light
- Alarm Lights
- Panel Light
- Panel Light Switch
- Starter Switch

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

Output Terminal Panel

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

- Three 120/240V output receptacles, 50 amp
- Two 120V input receptacles, 20 amp
- 3 Load Circuit Breakers 240V @50 amps
- 2 Load GFCI Circuit Breakers 120V@ 20amps

Control Box

The "Control Box" is provided with the following:

- Main Circuit Breaker 60 amps
- Over-Current Relay

Open Delta Excitation System

The DCA-25SSIU 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.

Engine

The **DCA-25SSIU** is powered by a 4 cycle, water cooled, turbocharged Isuzu QD60(C640) **diesel** engine. This engine is designed to meet every performance requirement for the generator. Reference Table 1, page13 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-25SSIU generator are addressed on the following pages.

Mechanical Governor System

The mechanical governor system control the RPM of the engine. When the engine demands increase or decrease, the mechanical governor system regulates the frequency variation to $\pm 1.5\%$. The electronic governor option increases frequency variation to $\pm .25\%$.

DCA-25SSIU — MAJOR COMPONENTS

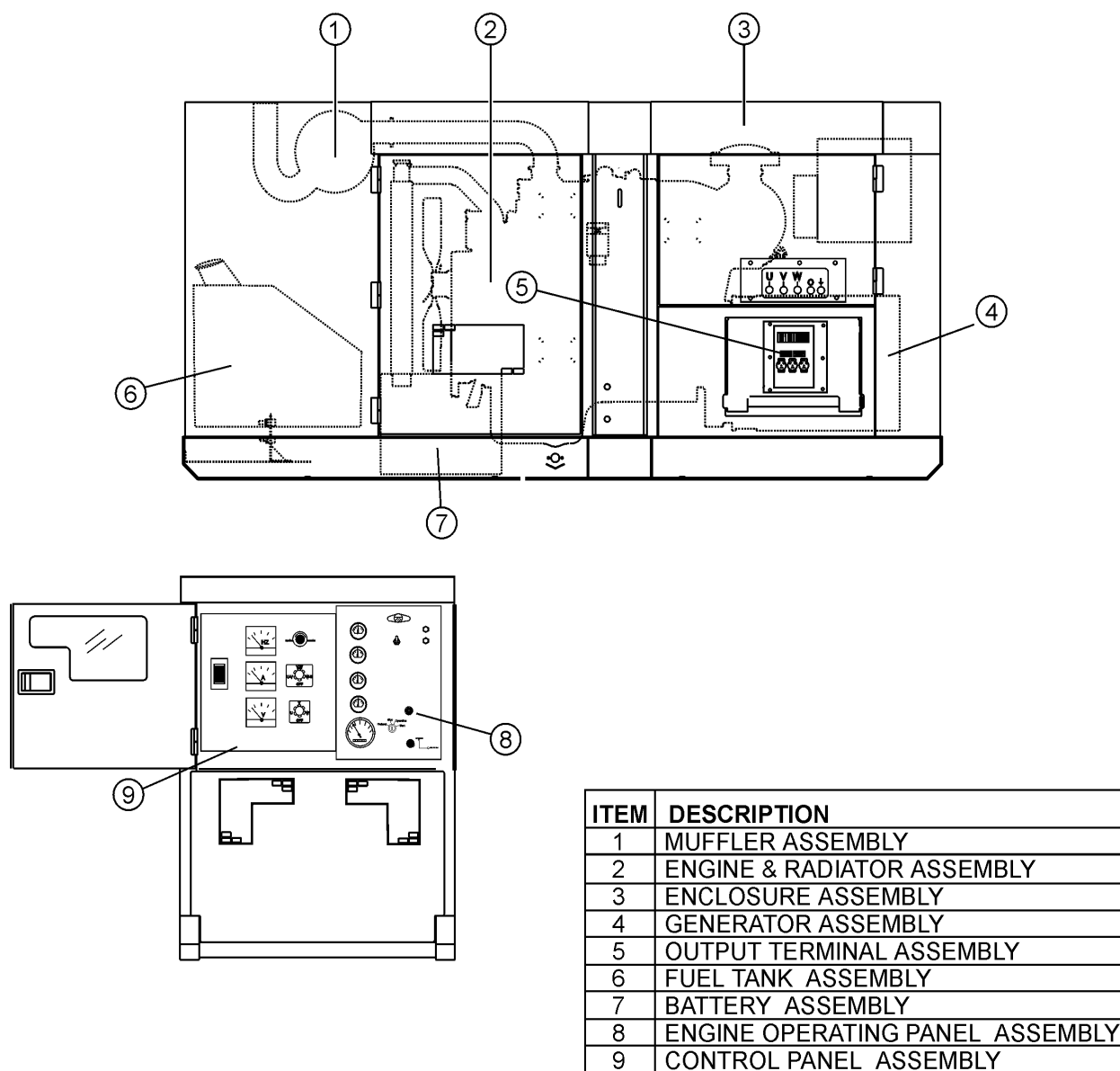
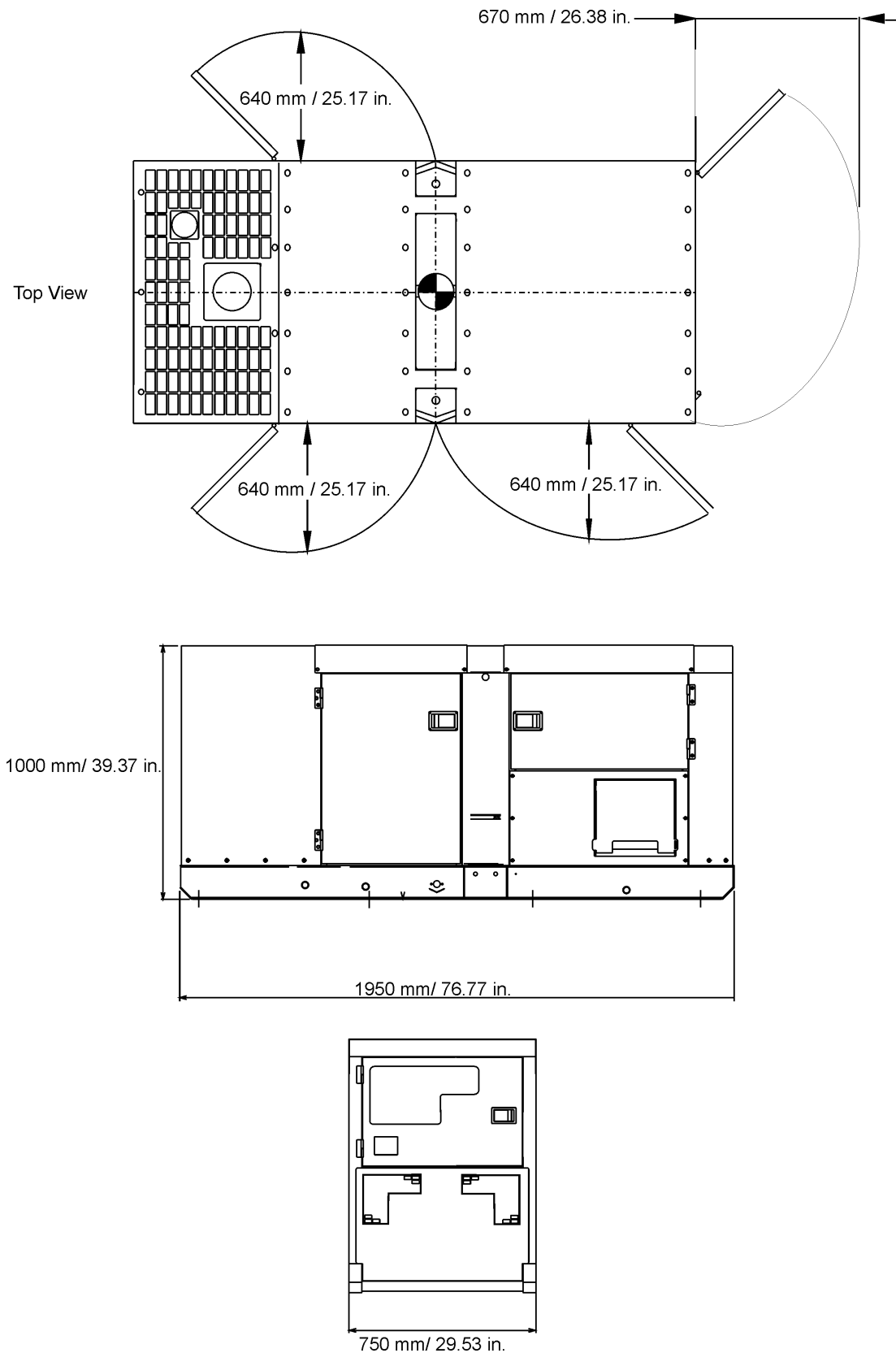
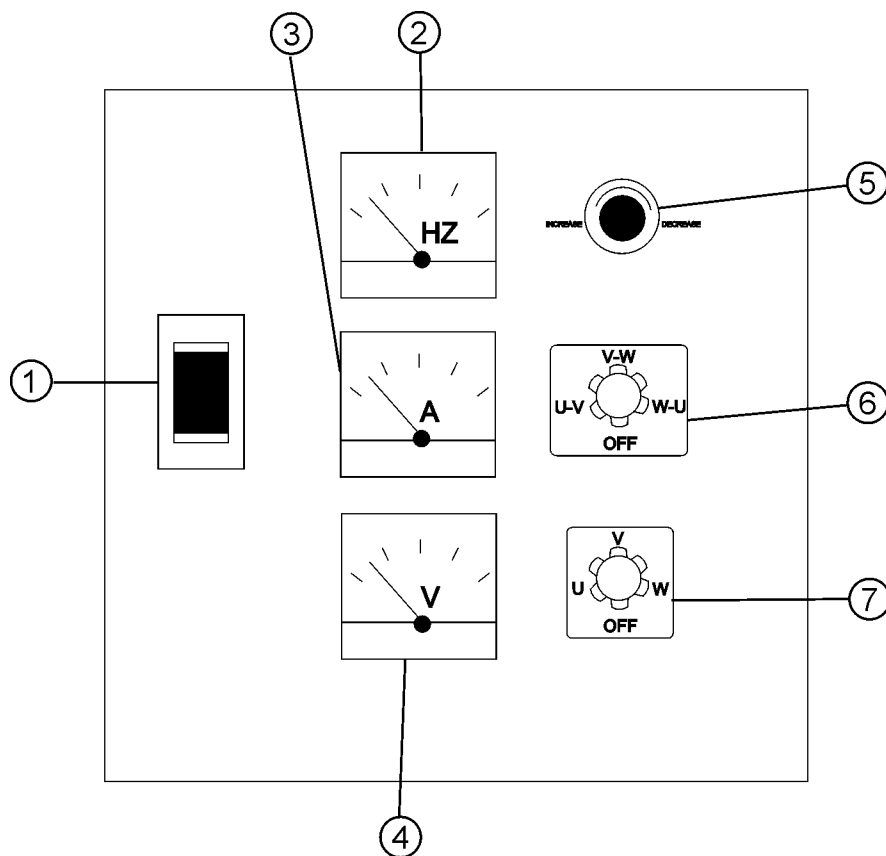


Figure 2. Major Components

DCA-25SSIU — DIMENSIONS (TOP, SIDE AND FRONT)**Figure 3. Dimensions**

[illegible]

DCA-25SSIU — CONTROL PANEL

NO	ITEM
1	CIRCUIT BREAKER
2	FREQUENCY METER
3	AC AMMETER
4	AC VOLTMETER
5	VOLTAGE REGULATOR
6	CHANGE-OVER SWITCH, AMMETER
7	CHANGE-OVER SWITCH, VOLTMETER

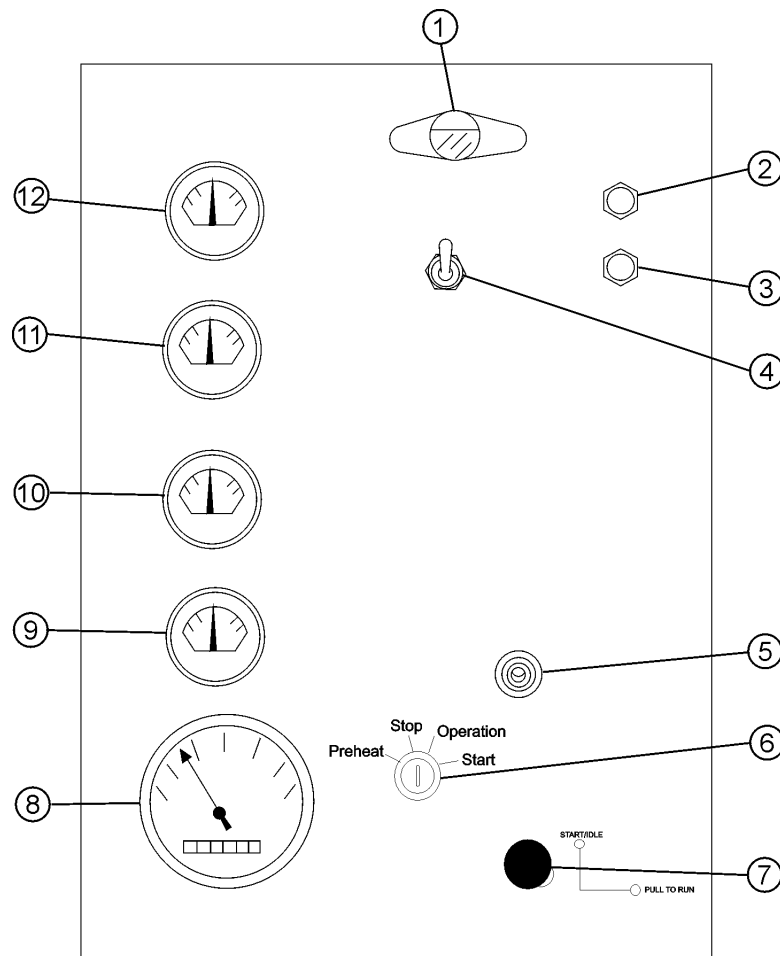
Figure 4. Control Panel

DCA-25SSIU — CONTROL PANEL

The definitions below describe the controls and functions of the DCA-25SSIU " **Control Panel** " (Figure 4).

1. **Main Circuit Breaker** – This three-pole, 60 amp main breaker is provided to protect the UNV voltage output terminals from overload.
2. **Frequency Meter** – Indicates the output frequency in hertz (Hz). Normally 60 Hz $\pm$ 1 Hz .
3. **AC Ammeter** – Indicates the amount of current the load is drawing from the generator.
4. **AC Voltmeter** – Indicates the single phase output voltage present at the UNV terminals.
5. **Voltage Regulator Control** – Allows manual adjustment of the generator's output voltage.
6. **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.
7. **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.

DCA-25SSIU — ENGINE OPERATING PANEL



NO	ITEM
1	PANEL LIGHT
2	OIL PRESSURE INDICATOR
3	WATER TEMPERATURE INDICATOR
4	PANEL LIGHT SWITCH
5	PREHEAT INDICATOR
6	IGNITION SWITCH
7	ENGINE THROTTLE LEVER
8	TACHOMETER
9	FUEL GAUGE
10	CHARGING AMMETER GAUGE
11	WATER TEMPERATURE GAUGE
12	OIL PRESSURE GAUGE

Figure 5. Engine Operating Panel

DCA-25SSIU — ENGINE OPERATING PANEL

The definitions below describe the controls and functions of the DCA-25SSIU " **Engine Operating 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. **Oil Pressure Indicator** - This light will luminate if the oil pressure exceeds 35 psi and will shut off the engine.
3. **Water Temperature Indicator** - This light will luminate if the water temperature exceeds 215° and will shut off the engine.
4. **Panel light switch**- When activated, will turn on control panel light.
5. **Pre-Heat Indicator** - This light will luminate once the engine is warmed to an operating temperature.
6. **Ignition Switch** - This switch is used with a key to start, preheat, and stop the engine..
7. **Engine Throttle Lever** - To change the speed of the engine from idle to high, pull and turn the handle.
8. **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.
9. **Fuel Gauge** - Indicates amount of diesel fuel available
10. **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.
11. **Water Temperature Gauge** – During normal operation this gauge should read between 165° to 215°.
12. **Oil Pressure Gauge** – Normal operation should be about 25 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.

DCA-25SSIU — OUTPUT TERMINAL PANEL

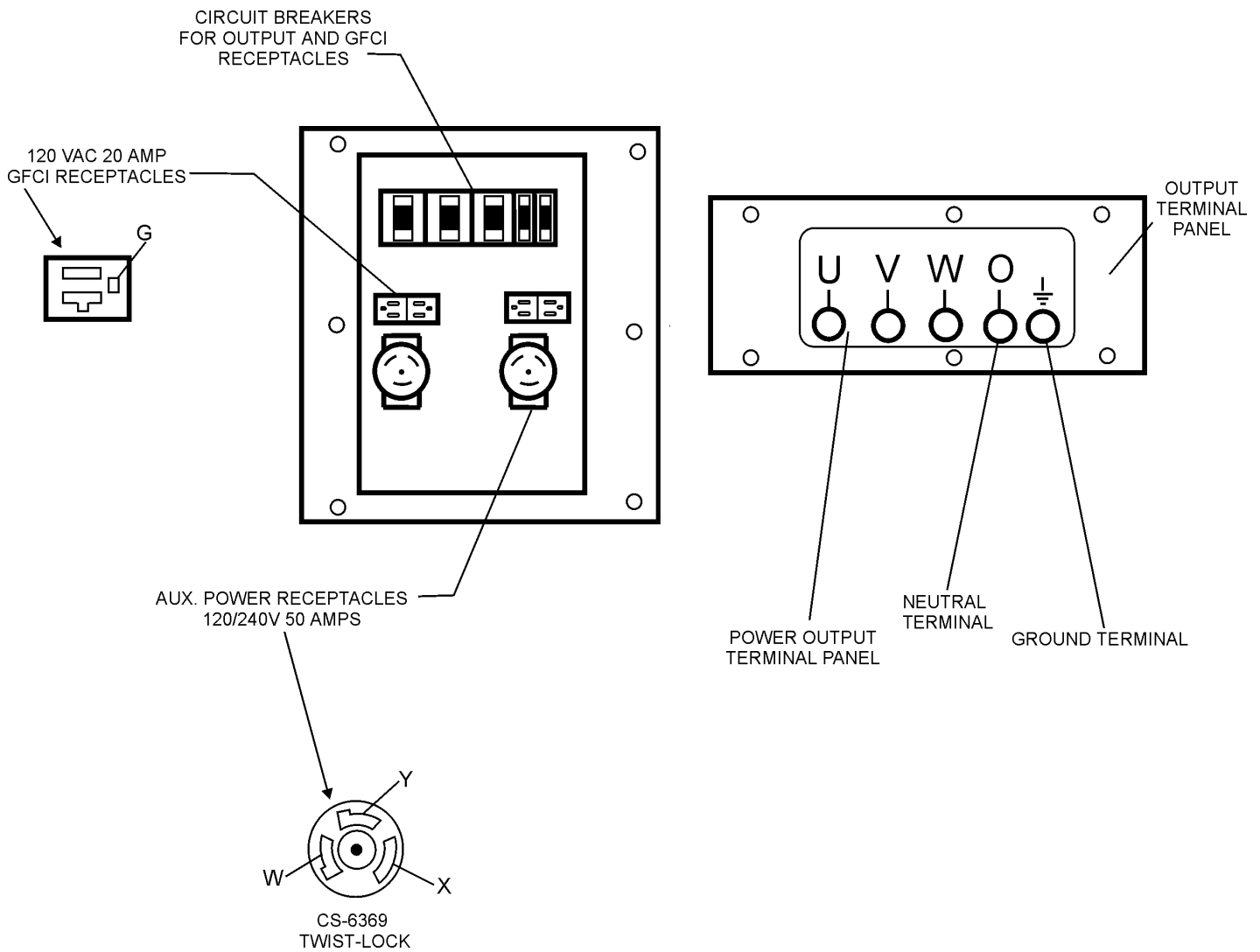


Figure 6. Output Terminal Panel

DCA-25SSIU — OUTPUT TERMINAL VOLTAGE SELECTION

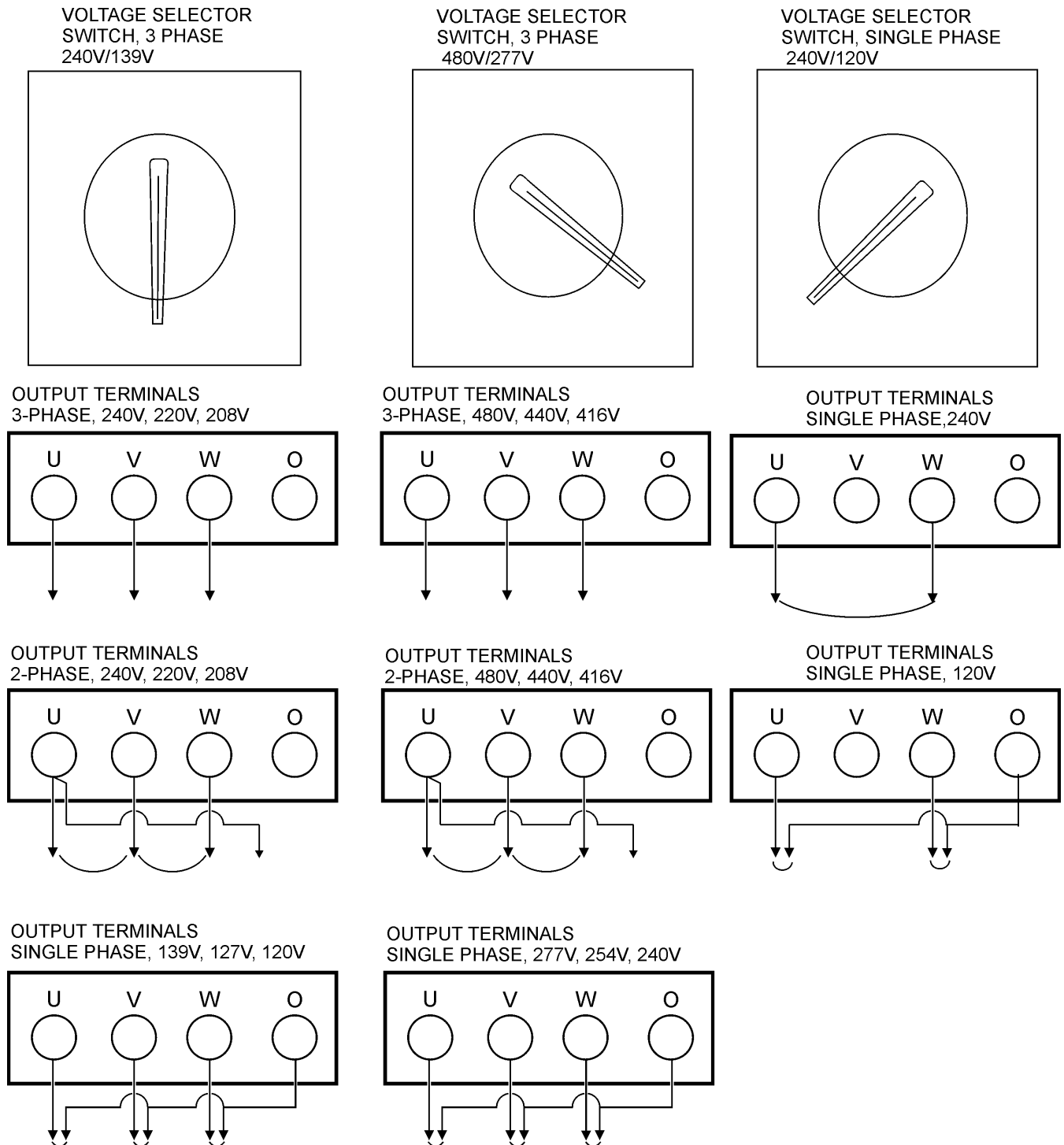


Figure 7. Output Terminal Voltage Selection

DCA-25SSIU — INSTALLATION

Outdoor Installation

Install the generator in a location where it will not be exposed to rain or sunshine. Make sure the generator is on secure level ground so it cannot slide or shift around. Also install the generator so the exhaust will not be discharged in the direction of nearby homes.

The installation site must be relatively free from moisture and dust. All electrical equipment should be protected from excessive moisture. Failure to do will result in deterioration of the insulation and will result in short circuits and grounding.

Foreign materials such as dust, sand, lint and abrasive materials have a tendency to cause excessive wear to the engine and alternator parts.

CAUTION :

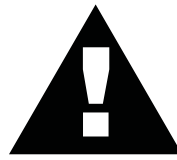


Pay close attention to ventilation when operating the generator inside tunnels and caves. The engine exhaust contains noxious elements. Engine exhaust must be routed to a ventilated area.

Indoor Installation

Exhaust gases from diesel engines are extremely poisonous. Whenever an engine is installed indoors the exhaust fumes must be vented to the outside. The engine should be installed at least two feet from any outside wall. Using an exhaust pipe which is too long or too small can cause excessive back pressure which will cause the engine to heat excessively and possibly burn the valves.

CAUTION :



An electric shock may happen when vibrators are used. Pay close attention to handling when operating vibrators and always use rubber boots and gloves to insulate the body from electrical shock.

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.

NEC articles 250-64(b) and 250-66 set the following grounding requirements:

1. Use one of the following wire types to connect the generator to earth ground.
 - a. Copper - 10 AWG (5.3 mm²) or larger.
 - b. Aluminum - 8 AWG (8.4 mm²) or larger.
2. When grounding the generator (Figure 8) connect the ground cable between the lock washer and the nut on the generator and tighten the nut fully. Connect the other end of the ground cable to earth ground.
3. NEC article 250-52(c) specifies that the earth ground rod should be buried a minimum of 8 ft. into the ground.

NOTE

When connecting the generator to any buildings electrical system **ALWAYS** consult with a licensed electrician.

DCA-25SSIU — INSTALLATION

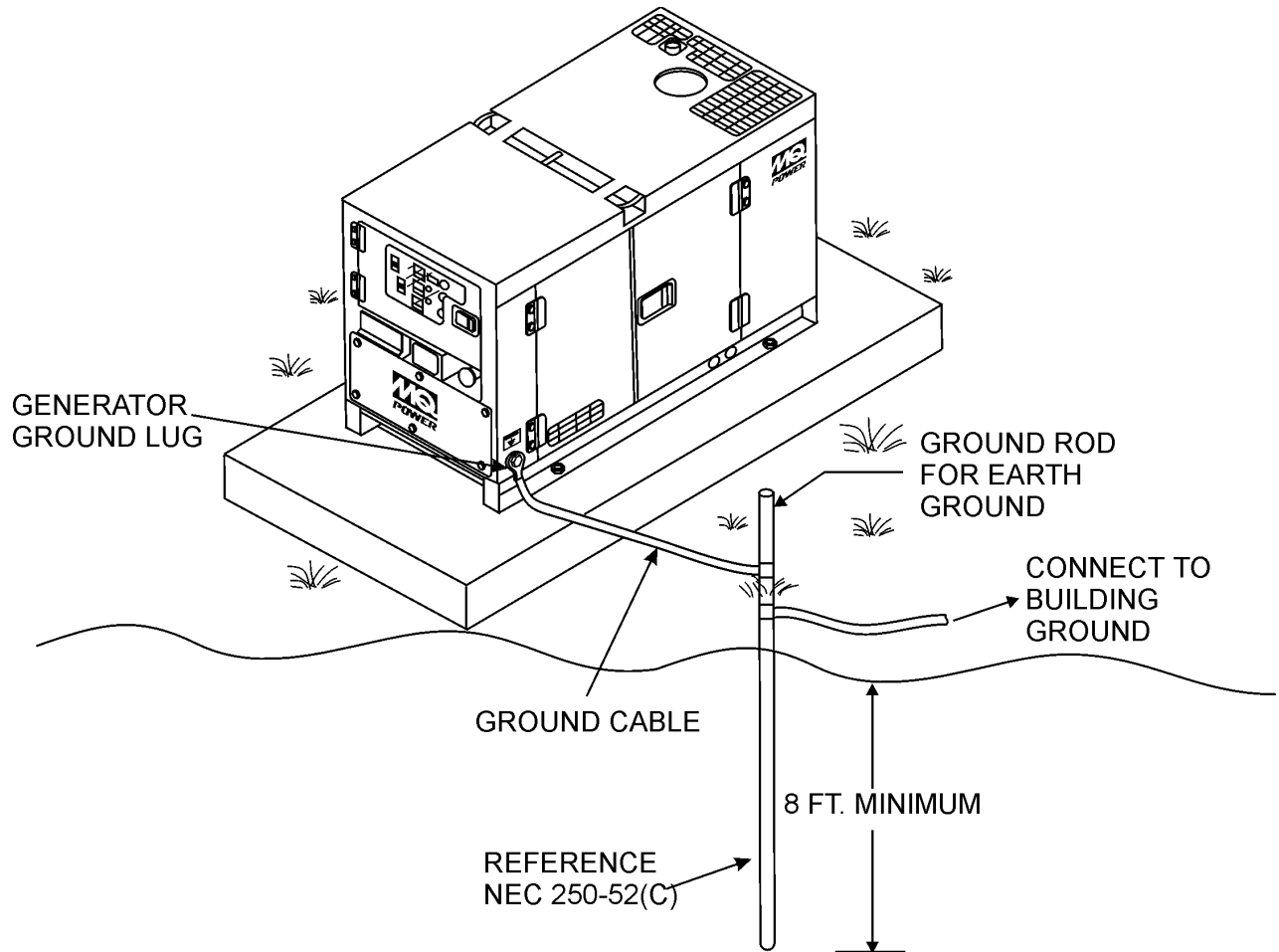


Figure 8. Typical Generator Grounding Application

DCA-25SSIU — PRE-SETUP

General Inspection Prior to Operation

The DCA-25SSIU generator has been thoroughly inspected and accepted prior to shipment from the factory. However, be sure to check for damaged parts or components, or loose nuts and bolts, which could have occurred in transit.

Extension Cable

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 Guide (Table 2) as a guide for selecting proper cable size.

Circuit Breakers

To protect the generator from an overload, a 3-pole, 60 amp, **main** circuit breaker is provided to protect the UNV 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 load side of the generator from overload. Make sure to switch **ALL** circuit breakers to the "OFF" position prior to starting the engine.

NOTE

ALWAYS consult with a licensed electrician for correct extension cord wire size.

Table 2. 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.	
CAUTION: Equipment damage can result from low voltage.						

DCA-25SSIU — PRE-SETUP**Lubrication Oil**

Fill the engine crankcase with lubricating oil through the filler hole, but do not overfill. Make sure the generator is level. With the dipstick inserted all the way, but without being screw into the filler hole, verify that the oil level is maintained between the two notches (Figure 9) on the dipstick. See Table 3 for proper selection of engine oil.

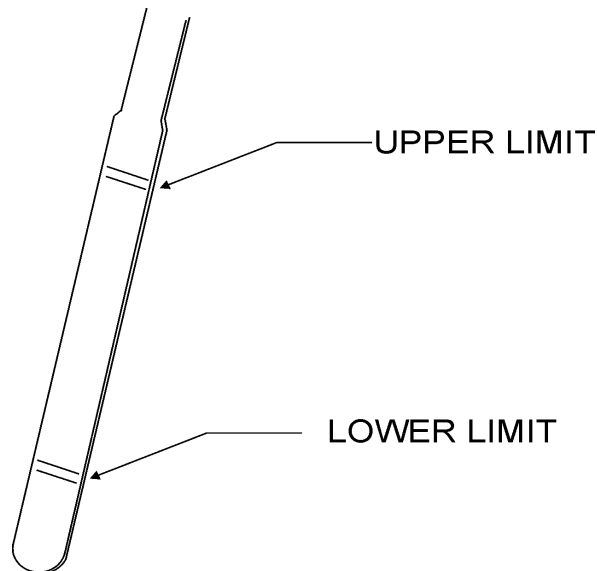


Figure 9. Engine Oil Dipstick

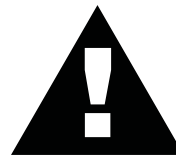
When checking the engine oil, be sure to check if the oil is clean and viscous. If the oil is not clean, drain the oil by removing the oil drain plug, and refill with the specified amount of oil as outlined in the **Isuzu Engine Operator's Manual**.

Fuel

Fill the fuel tank with clean and fresh **diesel fuel**. **DO NOT** fill the tank beyond capacity.

Pay attention to the fuel tank capacity when replenishing fuel. Refer to the fuel tank capacity listed on page 13, Specification Table 1.

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.

CAUTION:

Never fill the fuel tank while the engine is running or in the dark. Diesel spillage on a hot engine can cause a fire or explosion. If diesel spillage occurs, wipe up the spilled diesel completely to prevent fire hazards.

Coolant

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.

Table 3. Recommended Motor Oil

Temperature Range	Type Oil
104° F ~ 23° F (40° C ~ -5°C)	SAE 30
23° F ~ 5° F (-5° C ~ -15°C)	SAE 20 or SAE 10W-30
Below 5° C (-15°)	SAE 10W or SAE 10W-30

DCA-25SSIU — PRE-SETUP**CAUTION :**

When adding coolant or antifreeze 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 reserve tank. When adding coolant to the radiator, **DO NOT** remove the radiator cap until the unit has completely cooled. See Table 4 for engine, radiator, and reserve tank coolant capacities. Make sure the coolant level in the reserve tank is always between the "H" and the "L" markings.

Table 4. Coolant Capacity

Engine and Radiator	2.9 Gal. (11 Liters)
Reserve Tank	0.95 Gal. (1 Liter)

Operation in Freezing Weather

When operating in freezing weather, be certain the proper amount of antifreeze (Table 5) has been added.

Table 5. Anti-Freeze Operating Temperatures

Vol % Anti-Freeze	Freezing Point		Boiling Point	
	°C	°F	°C	°F
40	-24	-12	106	222
50	-37	-34	108	226

NOTE

When the anti-freeze is mixed with water, the anti-freeze mixing ratio must be less than 50%.

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 battery disconnected.

Air Cleaner

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

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

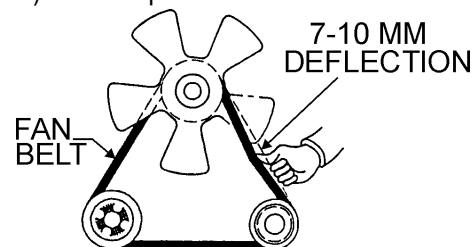


Figure 10. Fan Belt Tension

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. Always maintain battery fluid level between the specified marks. Battery life will be shortened, if the fluid level is not properly maintained. Add only distilled water when replenishment is necessary.

The battery is sufficiently charged if the specific gravity of the battery fluid is 1.28 (at 68 °F). If the specific gravity should fall to 1.245 or lower, it indicates the battery is discharged and needs to be recharged or replaced.

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 a thin film of grease will help inhibit corrosion.

DCA-25SSIU — PRE-SETUP**Battery Cable Installation**

ALWAYS be sure the battery cables (Figure 11) 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.

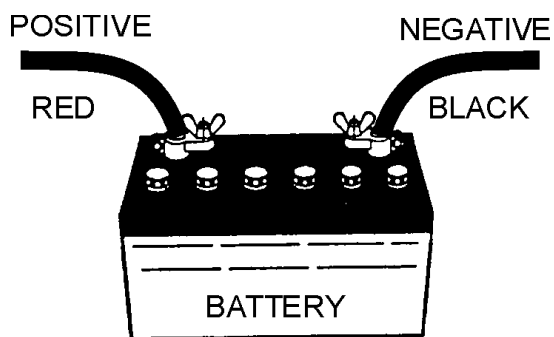


Figure 11. Battery Connections

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.

CAUTION :

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.

When connecting battery do the following:

1. **DO NOT** connect the battery cables to the battery terminals when the key is in the ignition switch. **ALWAYS** make sure that ignition switch is in the 'OFF' position or the key is removed from the ignition switch when connecting the battery.
2. Place a small amount of grease around both battery terminals. This will ensure a good connection and will help prevent corrosion around the battery terminals.

DCA-25SSIU — LOAD APPLICATION

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.

When the voltage selector switch is in single phase (240/120V position), place the AC voltmeter change-over switch to the U-W position and the AC ammeter change over-switch to the U or W position to read the output.

NOTE

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

$$\text{WATTS} = \text{VOLTAGE} \times \text{AMPERAGE}$$

The power factor of this generator is 1.0. See Table 6. below when connecting loads.

Table 6. Power Factor By Load

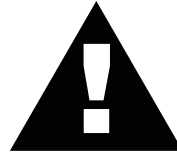
Type Of Load	Power Factor
Single-phase induction motors	0.4 - 0.75
Electric heaters, incandescent lamps	1.0
Fluorescent lamps, mercury lamps	0.4 - 0.9
Electronic devices, communication equipment	1.0
Common power tools	0.8

Three Phase Load

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

$$\text{KVA} = \frac{\text{VOLTAGE} \times \text{AMPERAGE} \times \sqrt{3}}{1000}$$

CAUTION:



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.

- 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.

If wattage is not available on the equipment, approximate wattage may be determined by multiplying the nameplate voltage by the nameplate amperage for three-phase:
 $\text{WATTS} = 1.732 \times \text{VOLTAGE} \times \text{AMPERAGE}$

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.

NOTE

If output (kVA) is not given on the equipment nameplate, approximate output may be determined by multiplying voltage by amperage by $\sqrt{3}$

DCA-25SSIU — GENERATOR START-UP PROCEDURE

WARNING:



The engine's exhaust contains harmful emissions. **ALWAYS** ventilate the exhaust when operating inside tunnels, excavations or buildings. Direct exhaust away from nearby personnel.

Before Starting Engine

1. Check the lubricating oil level prior to starting the engine. Make sure the generator is level. The oil level must be maintained between two notches on the dipstick.
2. When there is not enough lubricating oil, fill the crankcase with high grade motor oil. Use a high quality detergent oil classified CC or higher (See Table 3 on page 27).
3. Check the coolant level in the radiator and subtank. Replenish with antifreeze as necessary. Always maintain the coolant level between the **FULL** and **LOW** markings on the coolant container. Be sure that the radiator cap is fastened securely.
4. Check the fuel level on the fuel gauge. If fuel is low, fill the fuel tank with clean fresh unleaded automotive diesel. If diesel spillage occurs, completely wipe up the spilled fuel immediately.

Before Starting

Generator and Control Panel

CAUTION:



NEVER start the engine with the **main**, **GFCI** or **load** circuit breakers in the **ON** position.

1. Be sure to disconnect the electrical load and switch the **main**, **load** and **G.F.C.I.** circuit breakers (Figure 12) to the "OFF" position prior to starting the engine.

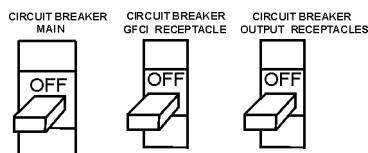


Figure 12. Main, GFCI and Load Circuit Breakers

2. Connect the load to the UNV terminals as shown in Figure 13. These terminals can be found on the output terminal panel, (see page 22 Figure 6). To gain access to the output terminals lift the UNV cover. Tighten terminal nuts securely to prevent load wires from slipping out.

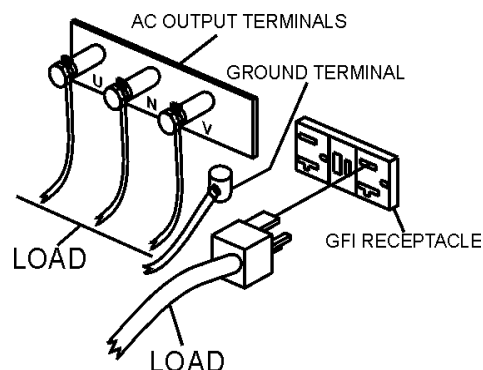


Figure 13. UNV Terminal Lugs (Load)

3. Connect the negative battery cable (BLACK) to the negative post on the battery (Figure 14).

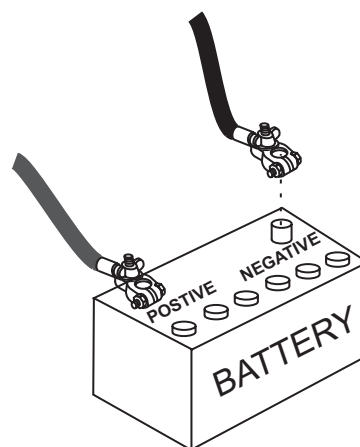


Figure 14. Battery Connections

DCA-25SSIU — GENERATOR START-UP PROCEDURE

4. Close all engine enclosure doors (Figure 15).

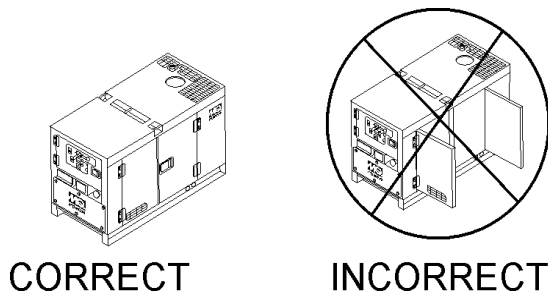


Figure 15. Engine Enclosure Doors

5. Check the voltage selection switch (Figure 16) is at the desired voltage.

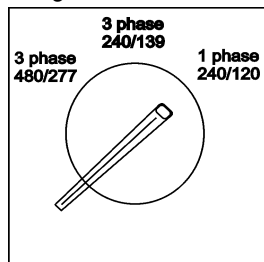


Figure 16. Voltage Selection Switch

6. Make sure the engine throttle (Figure 17) is in 'start/idle'.

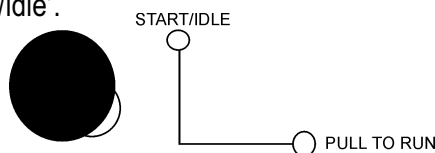


Figure 17. Engine Throttle Lever (low)

7. Turn the ignition key to preheat (Figure 18), until the preheat indicator turns on.

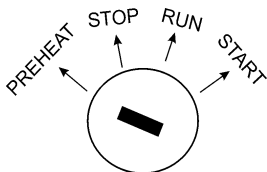


Figure 18. Ignition Switch 'PREHEAT'

8. Once the preheat indicator lights, turn the ignition key to 'START' until the engine starts (Figure 19). Then release the key to 'RUN'.

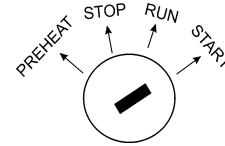


Figure 19. Ignition Switch 'START'

9. Pull the engine throttle and turn to the right until the metal stop rests against the control panel (Figure 20).

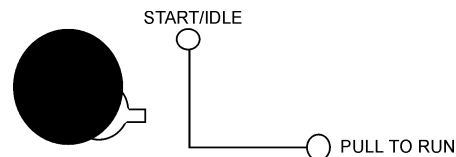


Figure 20. Engine Throttle Lever (high)

10. The generator's frequency meter (Figure 21) displays the 60 cycle output frequency in HERTZ.

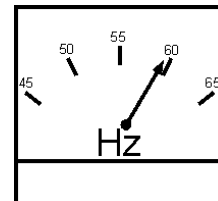


Figure 21. Frequency Meter (Hz)

11. The generator's voltage meter (Figure 22) displays the 120 VAC in **VOLTS**. If the voltage is not within the specified frequency tolerance, use the voltage adjustment control knob (Figure 23) to increase or decrease the desired voltage.

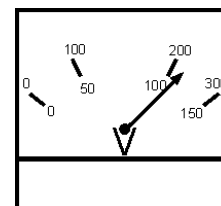


Figure 22. Voltage Meter (Volts)

DCA-25SSIU — GENERATOR START-UP PROCEDURE

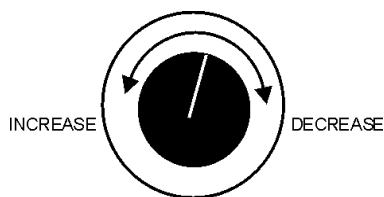


Figure 23. Voltage Adjust Control Knob

12. The ammeter (Figure 24) 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's alternator.

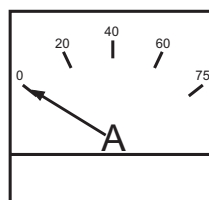


Figure 24. Ammeter (No Load)

13. The engine oil pressure gauge (Figure 25) will indicate the oil pressure (kg/ cm²) of the engine. Under normal operating conditions the oil pressure is approximately 25 psi.

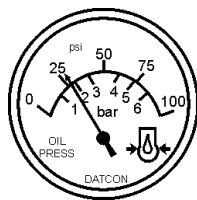


Figure 25. Oil Pressure Gauge

14. The coolant temperature gauge (Figure 26) will indicate the coolant temperature. Under normal operating conditions the coolant temperature is between 165 and 215 degrees fahrenheit.

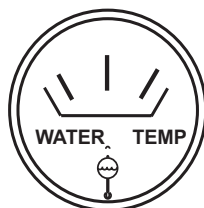


Figure 26. Coolant Temperature Gauge

15. The tachometer (Figure 27) will indicate the speed of the engine when the generator is operating. Under normal operating conditions this speed is approximately 1800 RPM's.

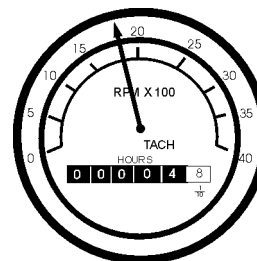


Figure 27. Engine Tachometer

16. Turn the MAIN, GFCI and LOAD circuit breakers to their ON position (Figure 28).

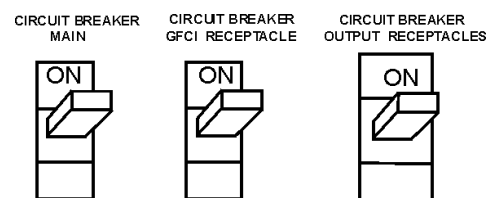


Figure 28. Main and GFCI Circuit Breakers

17. Observe the generator's ammeter (Figure 29) 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.

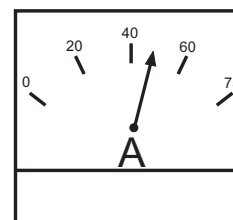


Figure 29. Ammeter (Load)

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

DCA-25SSIU — GENERATOR SHUT-DOWN PROCEDURE

ENGINE SHUTDOWN

To shutdown the generator, use the following procedure:

1. Switch both the MAIN, GFCI and LOAD circuit breakers (Figure 30) to the "OFF" position.

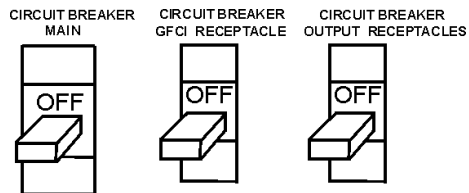


Figure 30. Main, GFCI and Load circuit breakers

2. Set the engine throttle lever to (low) position.
3. Let the engine cool by running it for 3-5 minutes with no load applied.
4. Turn the ignition key to 'STOP' (Figure 31).

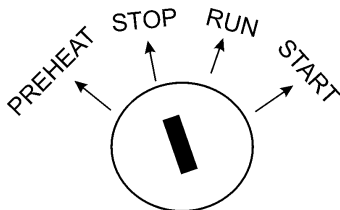


Figure 31. Ignition Switch 'STOP'

5. Remove the load from the UNV terminal strip.

[illegible]

DCA-25SSIU — MAINTENANCE

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 Side, 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.

Fuel Addition

Add diesel fuel (the grade may vary according to season and locations). Always pour through the mesh filter.

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.

Service Daily

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.

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 in page 29, Figure 9.

Generator Storage

For storage of the generator for over 30 days, the following is required:

- Drain the fuel tank completely.
- Completely drain the oil from the crankcase and refill with fresh oil.
- Clean all external parts of the generator with a cloth.
- Cover the generating set and store in a clean, dry place.

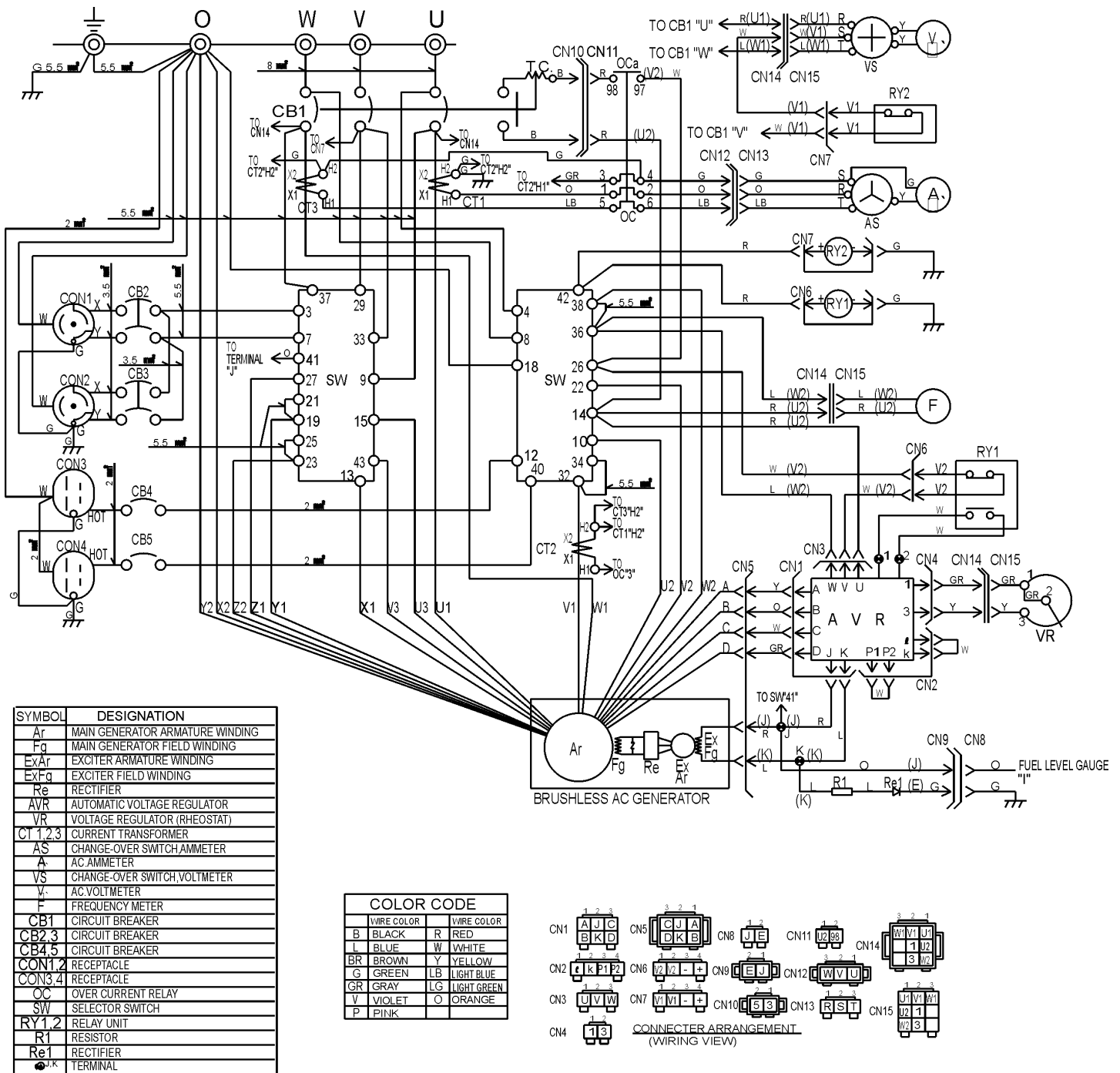
DCA-25SSIU — MAINTENANCE

INSPECTION / MAINTENANCE		10 Hrs DAILY	250 Hrs	500 Hrs	1000 Hrs
ENGINE	Check Engine Fluid Levels	X			
	Check Air Cleaner	X			
	Check Battery Acid Level	X			
	Check Fan Belt Condition	X			
	Check for Leaks	X			
	Check for Loosening of Parts	X			
	Replace Engine Oil and 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		

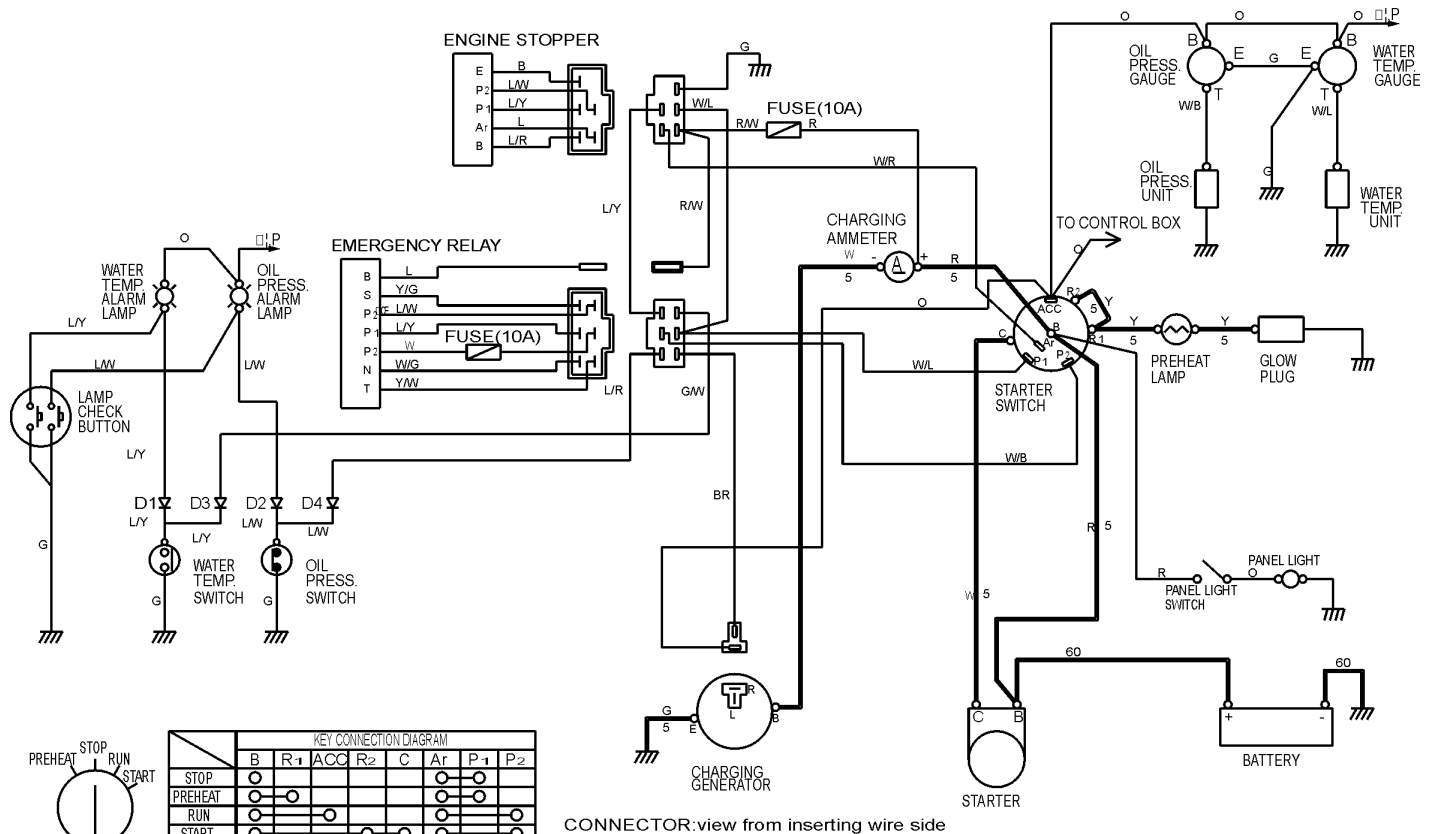
*¹ Replace engine oil and filter at 100 hours, first time only.

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

DCA-25SSIU — GENERATOR WIRING DIAGRAM



DCA-25SSIU — ENGINE WIRING DIAGRAM



KEY CONNECTION DIAGRAM							
	B	R ₁	ACC	R ₂	C	A _r	P ₁ P ₂
STOP	○	○	○	○	○	○	○
PREHEAT	○	○	○	○	○	○	○
RUN	○	○	○	○	○	○	○
START	○	○	○	○	○	○	○

WIRE SIZE	COLOR CODE	
60: 60 mm ²	WIRE COLOR	WIRE COLOR
5: 5 mm ²	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	

DCA-25SSIU — TROUBLESHOOTING (ENGINE)

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 7). If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 7. 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.
Starter does not run.	Battery discharged?	Charge battery.
	Starter malfunctioning?	Repair or replace.
	Key switch malfunctioning?	Repair or replace.
	Wiring disconnected?	Connect wiring.

DCA-25SSIU — TROUBLESHOOTING (ENGINE)

TABLE 7. 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.

DCA-25SSIU — TROUBLESHOOTING (GENERATOR/ENGINE)

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 and Radiator Troubleshooting (Table8)). If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 8. ENGINE & GENERATOR TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine fails to start and starter does not rotated.	Dead battery?	Replace battery.
	Defective starter switch?	Replace switch.
	Fuse F5 burned out?	Replace fuse.
Engine fails to start and starter rotates.	Broken pre-heat circuit?	Check pre-heat circuit.
	No fuel?	Add fuel.
	Defective wiring?	Check wiring.
Engine starts and remains at low speed.	Clogged fuel strainer?	Clean or replace.
	Clogged air cleaner?	Clean or replace.
	Disconnected wiring?	Check and repair wiring.
Engine speed rises and no voltage is present n AC power source.	No voltage present in AC power source?	Replace rectifier (RE1).
	Defective rotor?	Replace rotor.
	Defective voltmeter?	Replace voltmeter.
	Disconnected wiring?	Check and repair wiring.
	Layer short-circuit in armature winding?	Replace armature.
Engine speed rises and AC power voltage is too low or cannot be used.	Defective circuit breaker (protector)?	Replace circuit breaker (protector).
	Layer short-circuit, broken wires in armature winding?	Repair or replace armature.
Engine speed rises and battery discharges too soon.	Defective engine regulator?	Replace regulator.
	Defective wiring?	Repair or replace wiring.
Engine speed rises and engine seems overloaded.	Defective alternator?	Repair or replace alternator.
	Damaged alternator bearing?	Replace alternator bearings.

[illegible]

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-25SSIU — SUGGESTED SPARE PARTS

DCA-25SSIU W/SUZU C240 DIESEL ENGINE 1 TO 3 UNITS

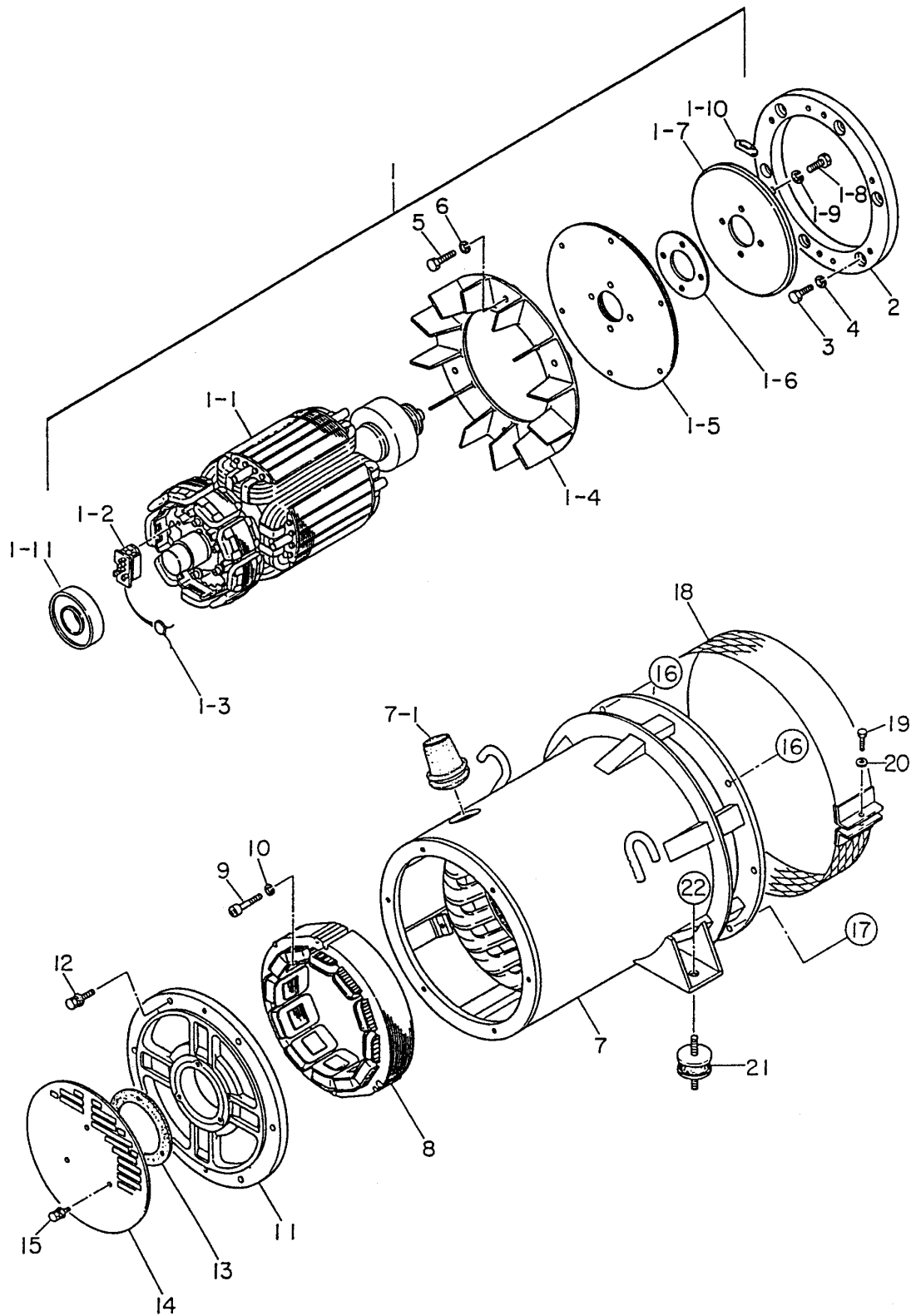
Qty.	P/N	Description
10	0602046356	CIRCUIT BREAKER
20	X132400150	FUEL FILTER
20	8970246071	OIL FILTER
5	5136710400	FAN BELT
1	8943768300	WATER PUMP
2	9136140430	WATER PUMP GASKET
2	1823100080	STARTER SWITCH
5	KEYISUZUF	STARTER SWITCH KEY
3	0602122272	OIL SENDING UNIT
2	5137700221	THERMOSTAT
2	X137130020	THERMOSTAT GASKET
2	0602014504	RADIATOR HOSE (UPPER)
2	0602014601	RADIATOR HOSE (LOWER)
1	0605505070	FUEL CAP
8	9825119783	GLOW PLUGS
2	5153110060	INJECTOR NOZZLES
1	5825500422	EMERGENCY RELAY
1	5819000200	STOPPER ENGINE
1	5812003411	ALTERNATOR
1	8944532120	STARTER
1	0601820671	AUTOMATIC VOLTAGE REGULATOR
1	0601808810	MAIN CIRCUIT BREAKER
1	0601840073	VOLTAGE REGULATOR (RHEOSTAT)
1	M1923100004	SELECTOR SWITCH
1	47130106	SELECTOR SWITCH KNOB
2	0601810245	PREHEAT LAMP BULB

NOTE

Part number on this Suggested Spare Parts list may supercede/replace the P/N shown in the text pages of this book.

DCA-25SSIU --- GENERATOR ASSY.

GENERATOR ASSY.



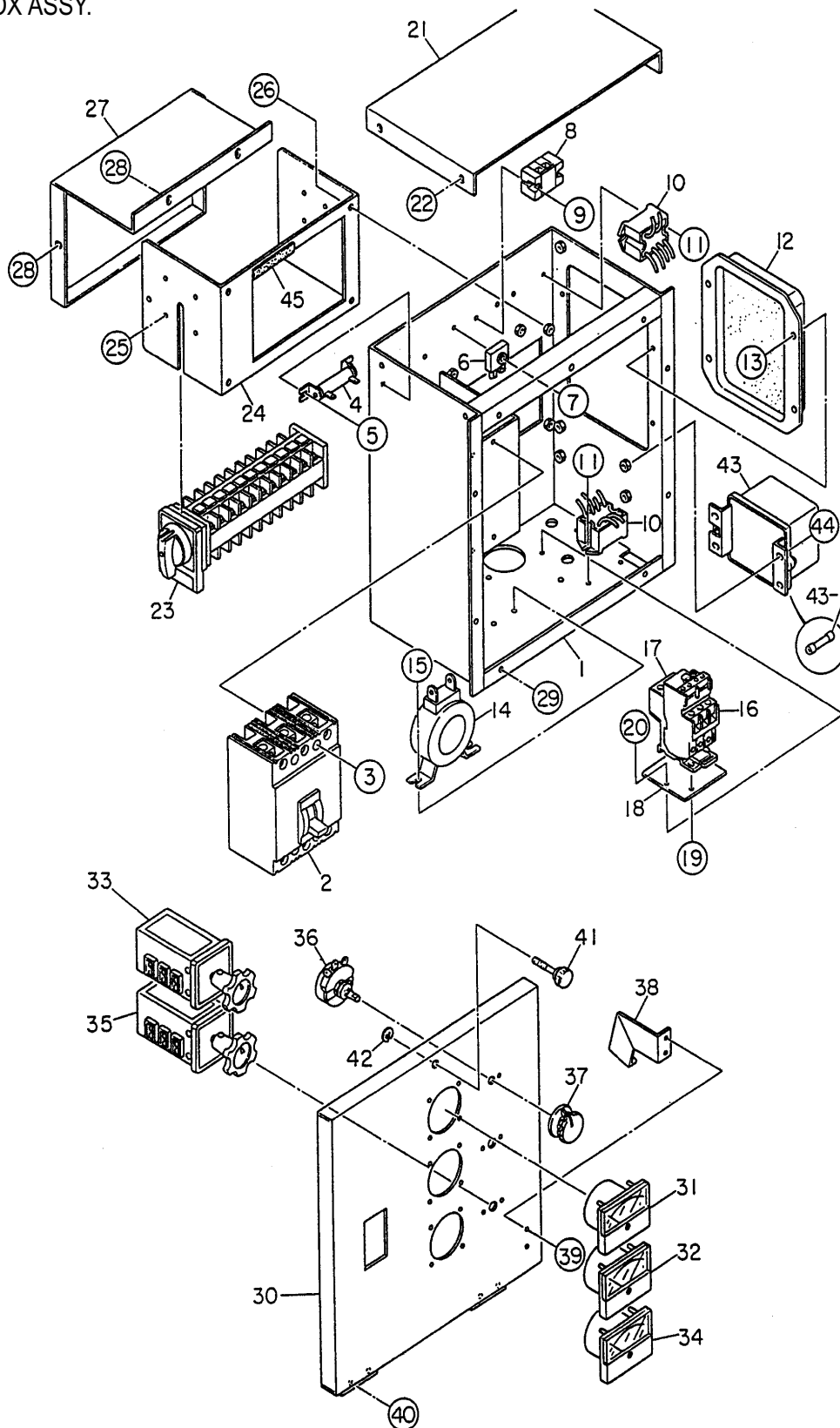
DCA-25SSIU --- GENERATOR ASSY.

GENERATOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	8351000002	ROTOR ASSY.	1	
1-1		FIELD ASSY.	1	
1-2	7961025004	RECTIFIER	1	
1-3	0601822630	SURGE ABSORBER	1	TNR26G471K
1-4	8001070003	FAN	1	
1-5	8351611004	COUPLING DISK	2	
1-6	8351612004	WASHER, COUPLING HUB	1	
1-7	8351615003	BALANCING PLATE	1	
1-8	0105091025	HEX. HEAD BOLT	4	REPLACES 0010310025
1-9	0042610000	LOCK WASHER	4	
1-10	0601000209	BALANCING WEIGHT KIT	1	
1-11	042006308	BEARING	1	6308DDUC3; REPLACES 0071906308
2	8351614003	COUPLING RING	1	REPLACES M1163400103
3	0012108025	HEX. HEAD BOLT	6	
4	0042508000	LOCK WASHER	6	
5	0012108035	HEX. HEAD BOLT	6	
6	0042508000	LOCK WASHER	6	
7	B1130100203	STRATOR ASSY.	1	
7-1	0845041904	GROMMET	1	
8	8351350103A	FIELD ASSY. EXCITER	1	REPLACES 8351350103
9	0016008045	HEX. SOCKET HAD CAP SCREW	3	
10	0042508000	LOCK WASHER	3	
11	8351315003	END BRACKET	1	
12	011208035	HEX. HEAD BOLT	6	REPLACES 0017108035
13	8351312004	PACKING	1	
14	8351331004	COVER, SUCTION	1	
15	0017106016	HEX. HEAD BOLT	3	
16	0105051045	HEX. HEAD BOLT	2	S/N7100001 TO 7102574; REPLACES 0012110045
	0012310045	HEX. HEAD BOLT	2	S/N7102575~
	0207010000	HEX. NUT	2	
	030210250	LOCK WASHER	2	S/N7100001 TO 7102574; REPLACES 0042510000
	020310080	HEX.NUT	2	REPLACES 0030010000
17	0012110040	HEX. HEAD BOLT	4	S/N7100001 TO 7102574
	0012310040	HEX. HEAD BOLT	4	S/N7102575~
	0207010000	HEX. NUT	4	
	030210250	LOCK WASHER	4	S/N7100001 TO 7102574; REPLACES 0042510000
18	8351332004	COVER, FAN	1	
19	0010106030	HEX.HEAD BOLT	1	
20	952404470	PLAIN WASHER	1	REPLACES 0041206000
21	0605000008	RUBBER SUSPENSION	2	EA1009
22	0030012000	HEX NUT	2	
	0040012000	LOCK WASHER	2	
	031112230	PLAIN WASHER	2	REPLACES 0041212000

DCA-25SSIU --- CONTROL BOX ASSY.

CONTROL BOX ASSY.



DCA-25SSIU --- CONTROL BOX ASSY.**CONTROL BOX ASSY.**

NO.	PART NO.	ITEM	QTY.	REMARKS
1	M1246700514	WIRE HARNESS, GENERATOR	1	
	M1213000202	CONTROL BOX	1	S/N7100001 TO 7102144
	M1213000212	CONTROL BOX	1	S/N7102145 TO 7102314
	M1213000222	CONTROL BOX	1	S/N7102315~
2	0601808810	CIRCUIT BREAKER	1	FAF340601021 3P 60A
3	021005080	MACHINE SCREW	4	
4	0601842384	RESISTOR	1	GG20W 50 OHM
5	0027104010	MACHINE SCREW	2	
6	0601821370	RECTIFIER	3	DE4503; REPLACES 0601823240
7	0021004040	MACHINE SCREW	1	
	0040004000	LOCK WASHER	1	
	031104080	PLAIN WASHER	1	REPLACES 0041204000
8	0601815925	TERMINAL BOARD	1	202HB SP
9	0027104020	MACHINE SCREW	2	
10	0601823863	RELAY UNIT	2	MSA9013A
11	0021304015	MACHINE SCREW	4	REPLACES 0027104015
12	0601820671	AUTOMATIC VOLTAGE REGULATOR	1	NTA5A2DB
13	0027105010	MACHINE SCREW	4	S/N7100001 TO 7102574
	0027105015	MACHINE SCREW	4	S/N7102575~
14	0601806115	CURRENT TRANSFORMER	3	812943 50/5A
15	011808015	MACHINE SCREW	6	REPLACES 0027106015
16	0601820845	OVER CURRENT RELAY	1	LR2D1308
17	0601820846	OVER CURRENT RELAY	1	LR7D1064
18	M1260600004	FITTING BRACKET	1	S/N7100001 TO 7102314
19	0021304015	MACHINE SCREW	2	S/N7100001 TO 7102314; REPLACES 0027104015
	0030004000	HEX. NUT	2	REPLACES 0207004000
20	0027104010	MACHINE SCREW	2	
21	M1213500203	CONTROL BOX COVER	1	
22	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
23	M1923100004	SELECTOR SWITCH	1	VY40
24	M1213600104	SWITCH BRACKET	1	S/N7100001 TO 7102144
	M1213600114	SWITCH BRACKET	1	S/N7102145
25	0027103010	MACHINE SCREW	4	
26	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015

ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER
WHEN ORDERING ANY PAINTED PANEL TO INDICATE

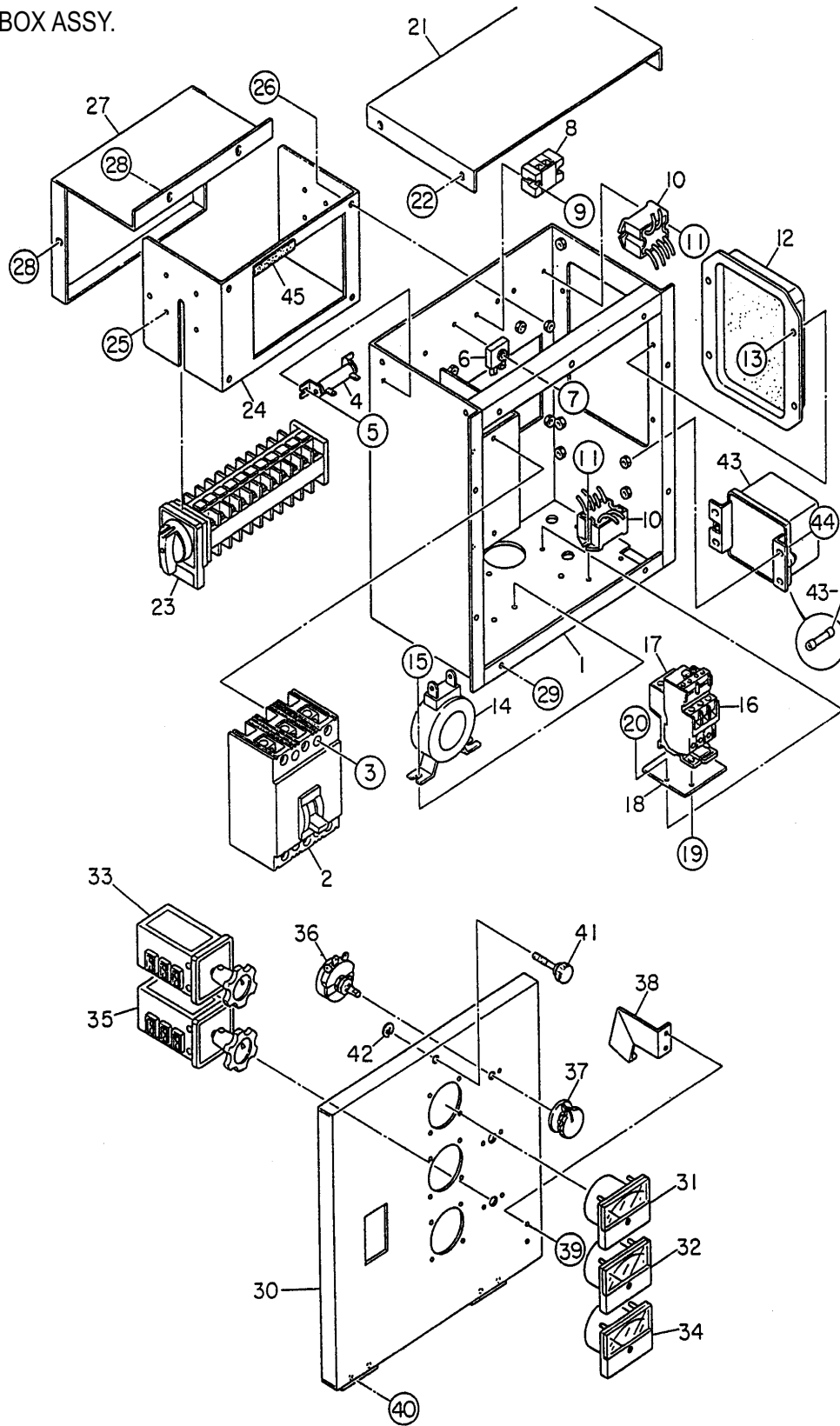
COLOR OF UNIT:

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- CONTROL BOX ASSY.

CONTROL BOX ASSY.



DCA-25SSIU --- CONTROL BOX ASSY.

CONTROL BOX ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
27	M1213600004	SWITCH COVER.....	1	S/N7100001 TO 7102144
	M1213600014	SWITCH COVER.....	1	S/N7102145~
28	011106015	HEX. HEAD BOLT	4	S/N7100001 TO 7102059; REPLACES 0016906015
	011106015	HEX. HEAD BOLT	3	S/N7102059~; REPLACES 0016906015
29	0016906015	HEX. HEAD BOLT	8	
	0040506000	TOOTHED WASHER	1	
30	M1223000203	CONTROL PANEL	1	
31	0601807696	FREQUENCY METER	1	2SFRQ55/23020 S/N7100001 TO 7101169; REPLACES 0601807696
	0601807630	FREQUENCY METER	1	264250DJDJ9 S/N7101170~
32	0601808952	AC AMMETER	1	260240LSNT1; REPLACES 0601808991
33	0601801040	CHANGE-OVER SWITCH, AMMETER	1	SL2AS
34	0601806896	AC VOLTMETER	1	2SAVC600 S/N7100001 TO 7101169
	0601806813	AC VOLTMETER	1	260244SJSJ1 S/N7101170~
35	0601801041	CHANGE-OVER SWITCH VOLTMETER	1	SL2VS
36	0601840073	RHEOSTAT (VOLTAGE REGULATOR)	1	RA20A2SE102BJ 2W 1K OHM
37	0601840121	KNOB	1	
38	M122310004	STOPPER	1	
39	0027105015	MACHINE SCREW	2	S/N7100001 TO 7102674
	0027105010	MACHINE SCREW	2	S/N7102675~
40	0027105015	MACHINE SCREW	4	S/N7100001 TO 7102674
	0027105010	MACHINE SCREW	4	S/N7102675~
41	M9220100004	SET SCREW	1	
42	0080200007	SNAP RING	1	
43	5825500422	EMERGENCY RELAY	1	REPLACES 0602200400
43-1	06018020132	FUSE	1	
44	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
45	0330000160	EDGING	2	S/N7100131~

ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER
WHEN ORDERING ANY PAINTED PANEL TO INDICATE

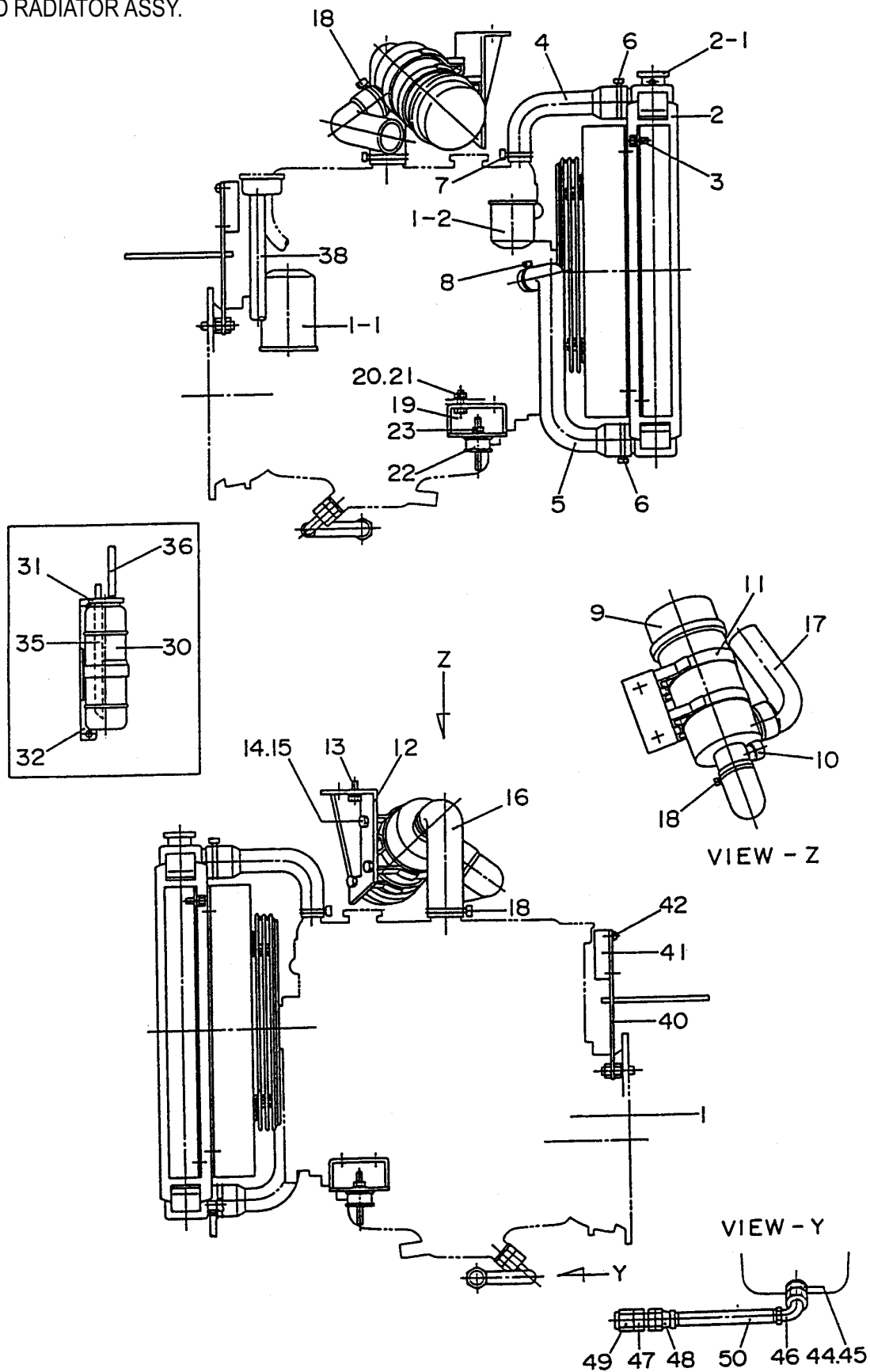
COLOR OF UNIT:

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU ENGINE AND RADIATOR ASSY.

ENGINE AND RADIATOR ASSY.



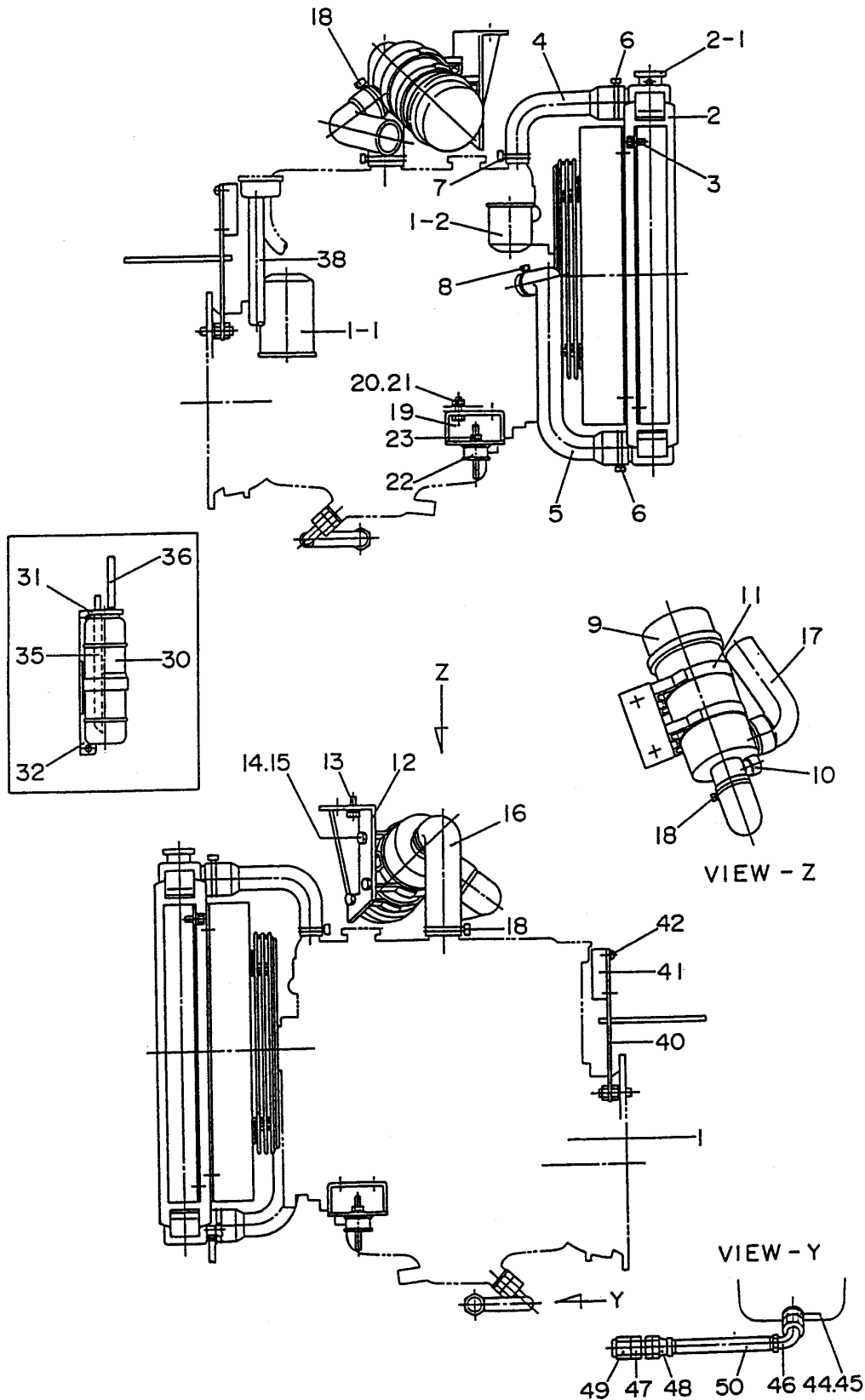
DCA-25SSIU ENGINE AND RADIATOR ASSY.**ENGINE AND RADIATOR ASSY.**

NO.	PART NO.	ITEM	QTY.	REMARKS
1	M1923200004	ENGINE	1	ISUZU QD60(C240) S/N7100001 TO 7102685
	M1925200004	ENGINE	1	ISUZU QD60(C240) S/N7102686~
	5136710400	FAN BELT	1	REPLACES 0602011401
1-1	8970246071	CARTRIDGE, OIL FILTER	1	REPLACES 0602041212
1-2	X132400150	CARTRIDGE, FUEL FILTER	1	REPLACES 0602042510
2	0602011996	RADIATOR	1	C2810010000
2-1	0602011065	CAP	1	C89C0115010
3	011008020	HEX. HEAD BOLT	6	REPLACES 0016908020
4	0602014504	RADIATOR HOSE	1	S/N7100001 TO 7101005
	M1310500103	RADIATOR HOSE	1	S/N7101006~
5	06020146010	RADIATOR HOSE	1	S/N7100001 TO 7101005
	M1310500203	RADIATOR HOSE	1	S/N7101006~
6	0602014334	HOSE BAND	2	S/N7100001 TO 7100050
	0605515147	HOSE BAND	2	S/N7100051~
7	0602014332	HOSE BAND	1	S/N7100001 TO 7100050
	0605515149	HOSE BAND	1	S/N7100051~
8	0602014333	HOSE BAND	1	S/N7100001 TO 7100050
	0605515149	HOSE BAND	1	S/N710051~
9	0602046231	AIR CLEANER	1	S/N7100001 TO S/N7104749
	0602046580	AIR CLEANER	1	S/N7104750~
	P182050	ELEMENT, AIR CLEANER	1	S/N7100001 TO S/N7104749; REPLACES 0602046356
	0602046321	ELEMENT, AIR CLEANER	1	S/N7104750~
10	0602040650	INDICATOR, AIR CLEANER	1	S/N7100001 TO S/N7104749
10	0602040651	INDICATOR, AIR CLEANER	1	S/N7104750~
11	0602040593	BAND, AIR CLEANER	2	S/N7100001 TO 7104749
11	0602040552	BAND, AIR CLEANER	1	S/N7104750~
12	M1373200003	BRACKET, AIR CLEANER	1	S/N7100001 TO S/N7104749
13	012210025	HEX. HEAD BOLT	2	S/N7100001 TO S/N7104749; REPLACES 0016910025
14	011008020	HEX. HEAD BOLT	4	S/N7100001 TO 7100050; REPLACES 0016908020
	0013003008	HEX. HEAD BOLT	4	S/N7100051 TO S/N7104749
	0016908030	HEX. HEAD BOLT	2	S/N7104750~
15	020108060	HEX. NUT	4	S/N7100001 TO 7100050; REPLACES 0207008000
	0036203000	HEX.NUT	4	S/N7100051 TO S/N7104749
	020108060	HEX.NUT	2	S/N7104750~; REPLACES 0207008000
	0043003000	LOCK WASHER	4	S/N710051 TO S/N7104749
	0043103000	PLAIN WASHER	4	S/N7100051 TO S/N7104749
16	8352032303	HOSE, AIR CLEANER	1	REPLACES M1373100103
17	M137310004	HOSE, AIR CLEANER	1	
18	0605515010	HOSE BAND	3	S/N7100001 TO S/N7100050
	060551547	HOSE BAND	3	S/N7100051~
19	M1303200004	ENGINE FOOT	2	

Full View

DCA-25SSIU ENGINE AND RADIATOR ASSY.

ENGINE AND RADIATOR ASSY.



DCA-25SSIU ENGINE AND RADIATOR ASSY.

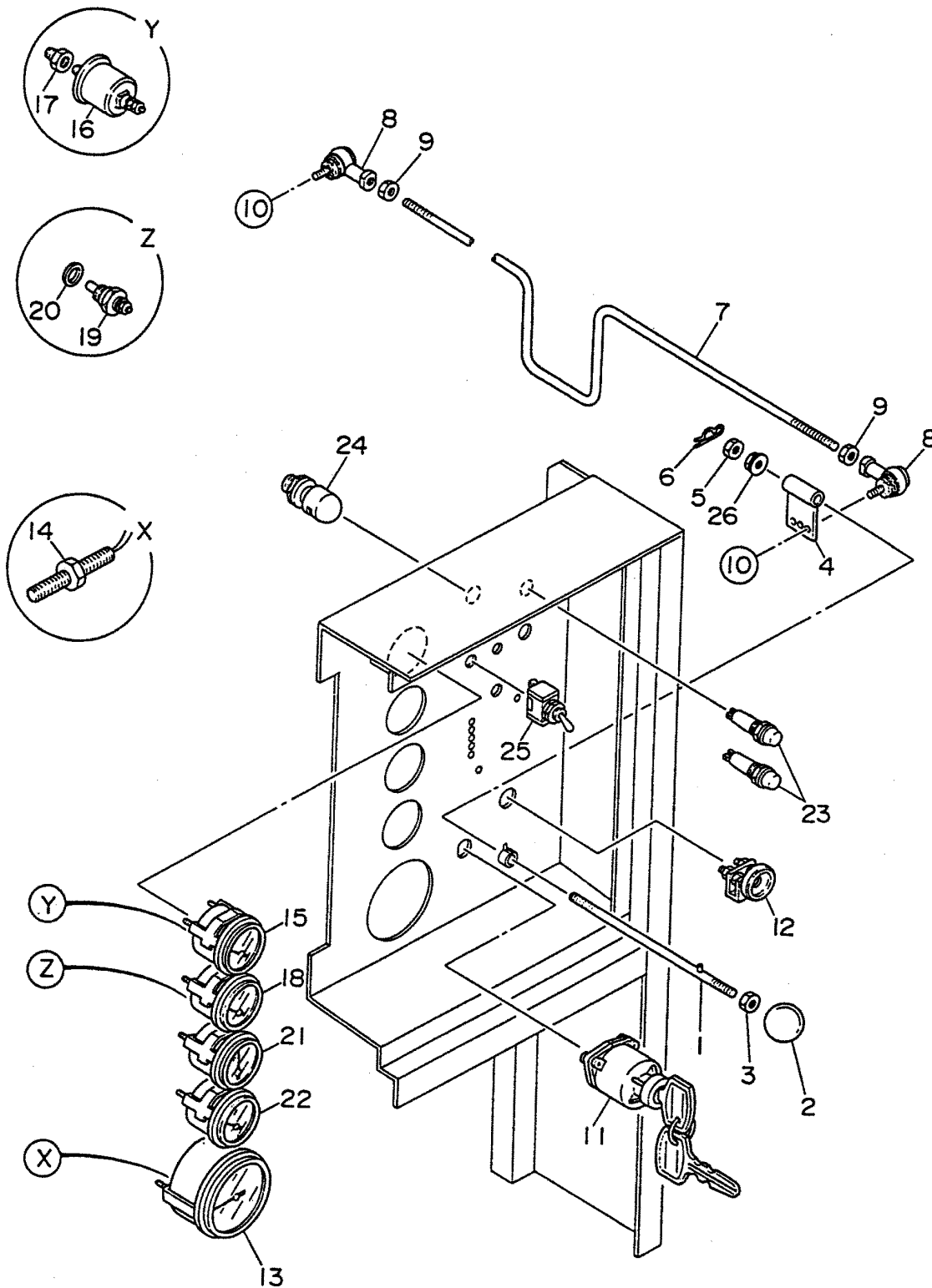
ENGINE AND RADIATOR ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
20	012010030	HEX. HEAD BOLT	4	REPLACES 0017110030
21	0207010000	HEX. NUT	4	
22	060500006	RUBBER SUSPENSION	2	EA1007
23	020701000	HEX. NUT	2	
24	M1320200003	DRAIN PIPE	1	S/N7100001 TO S/N7100130
25	M1320300204	PACKING,OIL PAN SIDE	1	S/N7100001 TO S/N7100130; REPLACES M1320300204
26	9095720240	PACKING	1	S/N7100001 TO S/N7100130; REPLACES 0602021107
27	M1320300104	JOINT BOLT	1	S/N7100001 TO S/N7100130
28	011206020	HEX. HEAD BOLT	2	S/N7100001 TO S/N7100130; REPLACES 0016906020
29	0207006000	HEX. NUT	2	S/N7100001 TO S/N7100130
30	M9300000003	RESERVE TANK	1	
31	M9300100003	CAP, RESERVE TANK	1	
32	M1316100204	BRACKET, RESERVE TANK	1	
33	0229200300	RUBBER CUSHION	1	S/N7100001 TO S/N7100150
34	011206020	HEX. HEAD BOLT	1	S/N7100001 TO S/N7100150; REPLACES 0016906020
35	0199100215	HOSE	1	
36	0193601450	HOSE	1	
37	0605515106	HOSE BAND	1	S/N7100001 TO S/N7100150
38	0194500600	HOSE	1	S/N7100001 TO S/N7100150
39	0605515003	HOSE BAND	2	S/N7100001 TO S/N7100150
40	M1483600503	CLAMP BAR	1	S/N7100001 TO S/N7101589; REPLACES M1483600103
	M1483600503	CLAMP BAR	1	S/N71010590~
41	5819000200	ENGINE STOPPER	1	REPLACES 06022108020
	06018020132	FUSE	1	
42	011808015	MACHINE SCREW	3	REPLACES 0027106015
43	0602220621	TERMINAL COVR	1	S/N7100001 TO S/N7100150
44	0602022560	ADAPTER	1	S/N7100131~
45	M1320300304	PACKING	1	S/N7100131~
46	0602025561	90° ELBOW	1	S/N7100131~
47	0602022562	UNION	1	S/N7100131 TO S/N7104749
48	0602022792	SWIVEL	1	S/N 7100131 TO S/N7104749
49	0602021070	CAP	1	S/N 7100131~
50	0602021570	DRAIN HOSE	1	S/N 7100131 TO S/N7104749
	0269200660	DRAIN HOSE	1	S/N7104750~
51	0603306395	HOSE JOINT	1	S/N7104750~
52	0603306590	CONNECTOR	1	S/N7104750~
53	0603300285	ROCK NUT	1	S/N7104750~
54	0605511395	VALVE	1	S/N7104750~

Full View

DCA-25SSIU --- ENGINE OPERATING PANEL ASSY.

ENGINE OPERATING PANEL ASSY.



DCA-25SSIU --- ENGINE OPERATING PANEL ASSY.

ENGINE OPERATING PANEL ASSY.

NO.	PART NO.	ITEM	QTY.	REMARKS
	M1357200102A	WIRE HARNESS, ENGINE	1	
1	M1354300304	SLIDE LEVER	1	
2	0601840190	KNOB	1	REPLACES M9320000004
3	020108060	HEX. NUT	1	REPLACES 0036003000
4	M1354200004	BRACKET	1	ASK CUST. SVC. FOR COLOR
5	020108060	HEX. NUT	1	REPLACES 0030008000
6	0605010503	SNAP PIN	1	
7	M1354300204	GOVERNOR ROD	1	
8	0602180106	BALL JOINT	2	LHSA8DE161
9	020108060	HEX. NUT	2	REPLACES 0030008000
10	0207006000	HEX. NUT	2	
	0041206000	PLAIN WASHER	2	
11	1823100080	STARTER SWITCH	1	REPLACES 0602100004
12	8944626110	PREHEAT LAMP	1	REPLACES 0602102066
13	0602120095	TACHOMETER	1	103680
14	0602120480	PICK UP, TACHOMETER	1	7154400
15	0602122093	OIL PRESSURE GAUGE	1	100174
16	0602122272	UNIT, OIL PRESSURE	1	102225; S/N7100001 TO S/N7101239; REPLACES 0602122207
17	M9200100004	ADAPTER	1	
18	0602123260	UNIT, WATER TEMPERATURE	1	100683
19	0602123260	UNIT, WATER TEMPERATURE	1	0209400
20	9095720140	PACKING	1	REPLACES 0602121109
21	0602121080	CHARGING AMMETER	1	100158
22	0602128090	FUEL GAUGE	1	100176
23	0602103092	ALARM LAMP	2	PL05
	0601810245	BULB	2	E10 T10 DC18V
24	0601810141	PANEL LIGHT	1	ISUZU 9826800370
25	0601831330	SWITCH, PANEL LIGHT	1	900001
26	020108060	HEX. NUT	1	REPLACES 0207008000

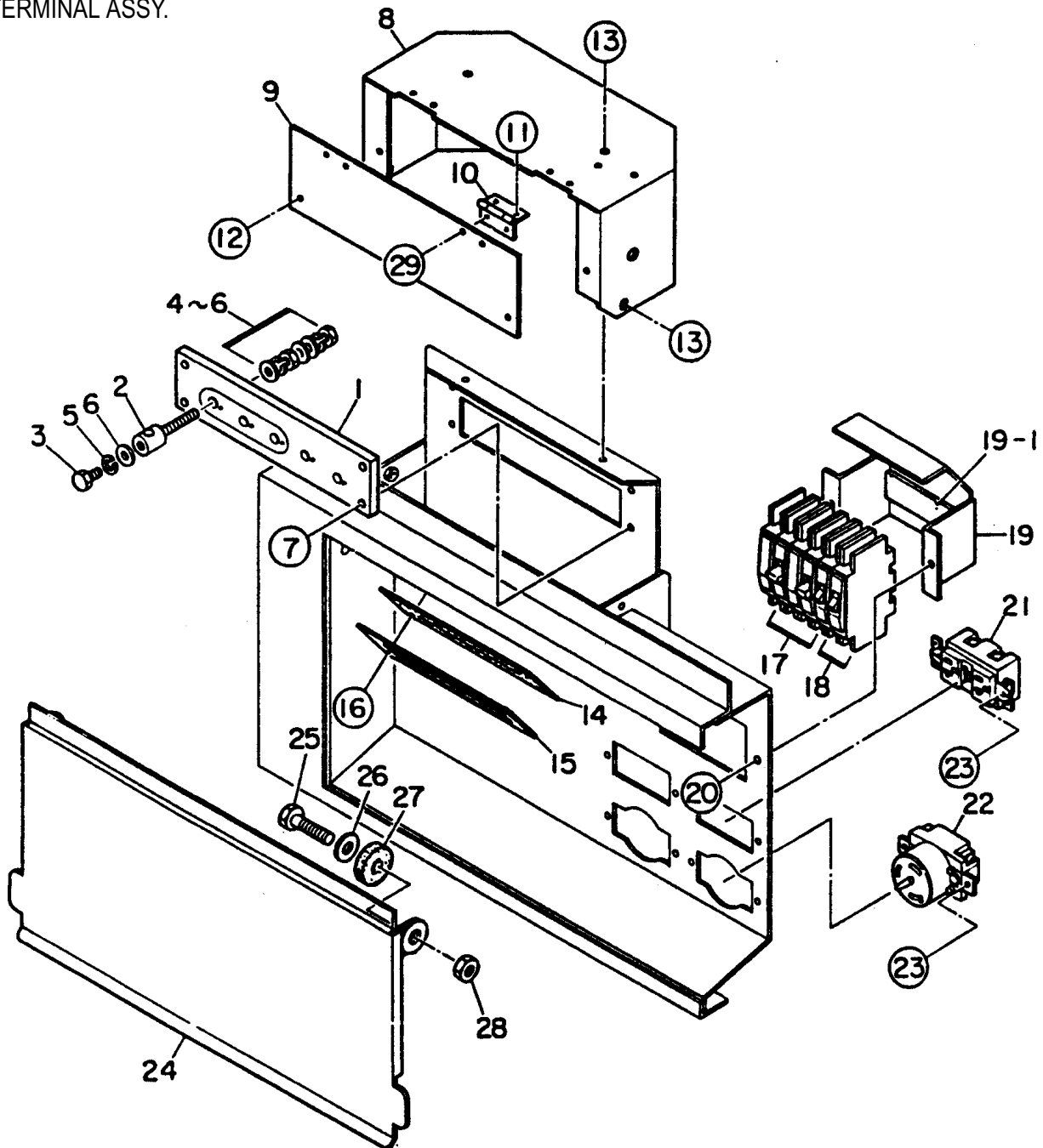
ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER
WHEN ORDERING ANY PAINTED PANEL TO INDICATE
COLOR OF UNIT:

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- OUTPUT TERMINAL ASSY.

OUTPUT TERMINAL ASSY.



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

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- OUTPUT TERMINAL ASSY.

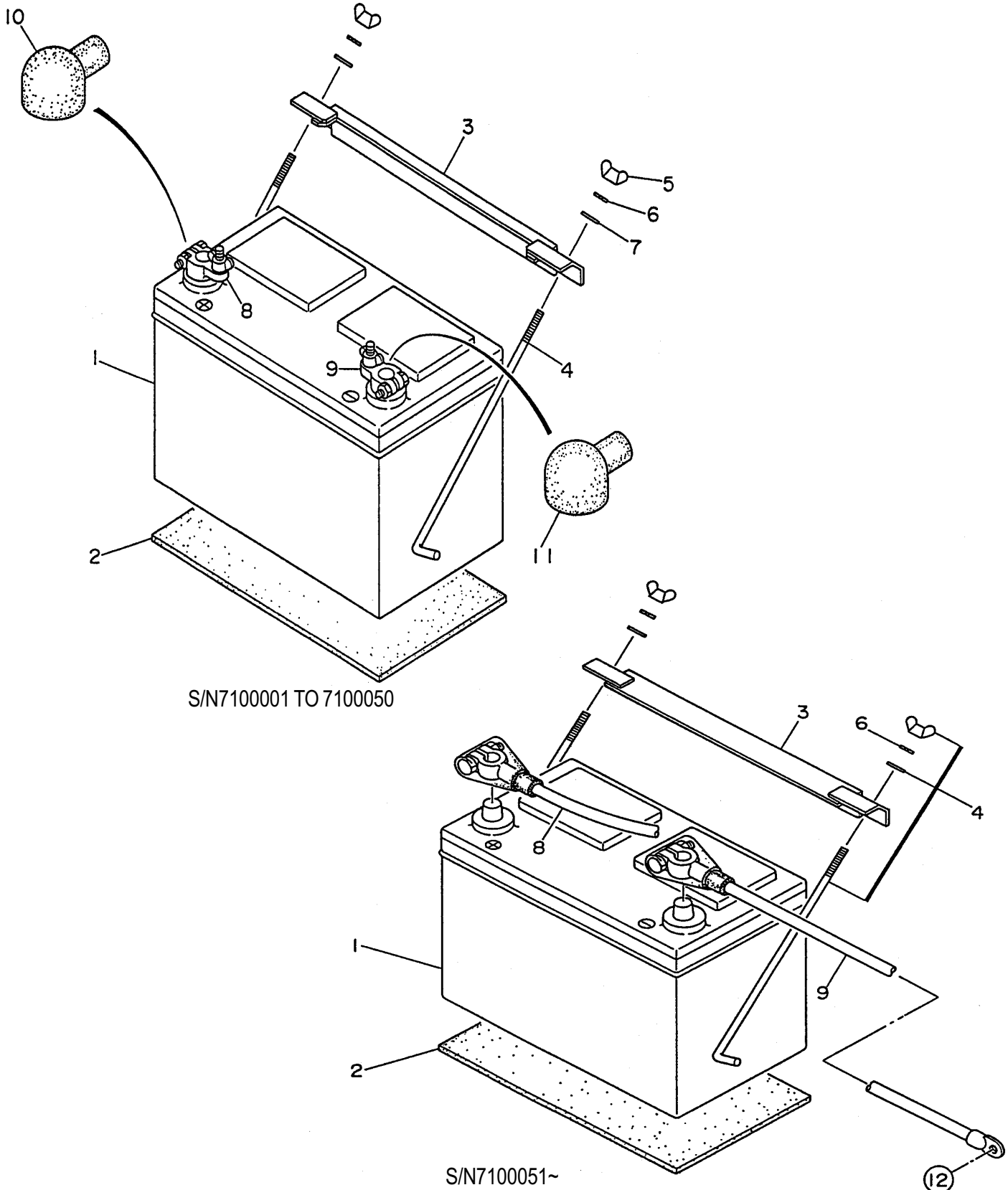
OUTPUT TERMINAL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY</u>	<u>REMARKS</u>
1	8091860103	TERMINAL PANEL	1	REPLACES M1230700003
2	0801830104A	OUTPUT TERMINAL BOLT	5	REPLACES M922000004
3	0801832204	TIE BOLT	5	REPLACES M9220000104
4	0039308000	HEX. NUT	10	
5	0040008000	LOCK WASHER	15	
6	0041408000	PLAIN WASHER	20	
7	011206020	HEX. HEAD BOLT	4	S/N7100001 TO S/N7102674; REPLACES 0016906025
	0016906020	HEX. HEAD BOLT	4	S/N7102675~
8	M1236100303	TERMINAL COVER	1	S/N7100001 TO S/N7102784
	M1236100313	TERMINAL COVER	1	S/N7102785~
9	M1236100404	OUTPUT WINDOW	1	
10	0605010040	HINGE	2	
11	0027103010	MACHINE SCREW	4	
	0207003000	HEX.NUT	4	REPLACES 0030003000
	58413	PLAIN WASHER	4	REPLACES 0041203000
12	011206020	HEX. HEAD BOLT	2	REPLACES 0016906020
13	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
14	M1236400004	CABLE OUTLET COVER	1	
15	M1236300004	SUPPORTER, CABLE OUTLET COVER	1	
16	011206020	HEX. HEAD BOLT	6	REPLACES 0016906020
17	0601808804	CIRCUIT BREAKER	2	QOU250B 2P 50A
18	06018088030	CIRCUIT BREAKER	2	QOU120B 1P 50A
19	M1260700204	BREAKER FITTING COVER	1	
19-1	0222100115	CUSHION RUBBER	1	
20	011206020	HEX. HEAD BOLT	2	REPLACES 0016906020
21	0601812597	RECEPTACLE	2	GF5342 125V 20AX2 S/N7100001 TO S/N7100725; REPLACES 0601812549
	0601812597	RECEPTACLE	2	GF530EM125V 20AX2 S/N7100726~; REPLACES 0601812598
22	0601811034	RECEPTACLE	2	CA6369 250V 50A ; REPLACES 0601812538
23	0021304015	MACHINE SCREW	8	REPLACES 0027104015
	0030004000	HEX. NUT	8	REPLACES 0207004000
24	M1236100503	TERMINAL COVER	1	
25	012212045	HEX.HEAD BOLT	2	REPLACES 0010112045
26	031112230	PLAIN WASHER	2	REPLACES 0041212000
27	M9310200004	STAY RUBBER	2	
28	0030012000	HEX. NUT	2	
29	0027103010	MACHINE SCREW	4	
	0207003000	HEX. NUT	4	REPLACES 0030003000

Full View

DCA-25SSIU --- BATTERY ASSY.

BATTERY ASSY.



DCA-25SSIU --- BATTERY ASSY.

BATTERY ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0602220185	BATTERY	1	427MF
2	M9310500014	BATTERY SHEET	1	
3	M9103000304	BATTERY BAND	1	
4	0602220920	BATTERY BOLT	2	S/N7100001 TO S/N7100050; REPLACES M9103200004
	M0602220920	BATTERY BOLT SET	2	BHL10J S/N7100051~
5	0037808000	WING NUT	2	S/N7100001 TO S/N7100050
6	0040008000	LOCK WASHER	2	S/N7100001 TO S/N7100050
	0040006000	LOCK WASHER	2	S/N7100051~
7	031108160	PLAIN WASHER	2	S/N7100001 TO S/N7100050; REPLACES 0041208000
8	0602220310	TERMINAL ASSY.	1	NO.9P S/N7100001 TO S/N7100050
	M134640004	BATTERY CABLE	1	S/N7100051~
9	0602220311	TERMINAL ASSY.	1	NO.9P S/N7100001 TO S/N7100050
	M1346400104	BATTERY CABLE	1	S/N7100051 TO S/N7101005
	M2346400104	BATTERY CABLE	1	S/N7101006~
10	M1346400004	TERMINAL COVER	1	S/N7100001 TO S/N7100050; REPLACES M9310000304
11	M1346400104	TERMINAL COVER	1	S/N7100001 TO S/N7100050; REPLACES M9310000204
12	0016910020	HEX. HEAD BOLT	1	S/N7100051~
	0040510000	TOOTHED WASHER	1	S/N7100051~

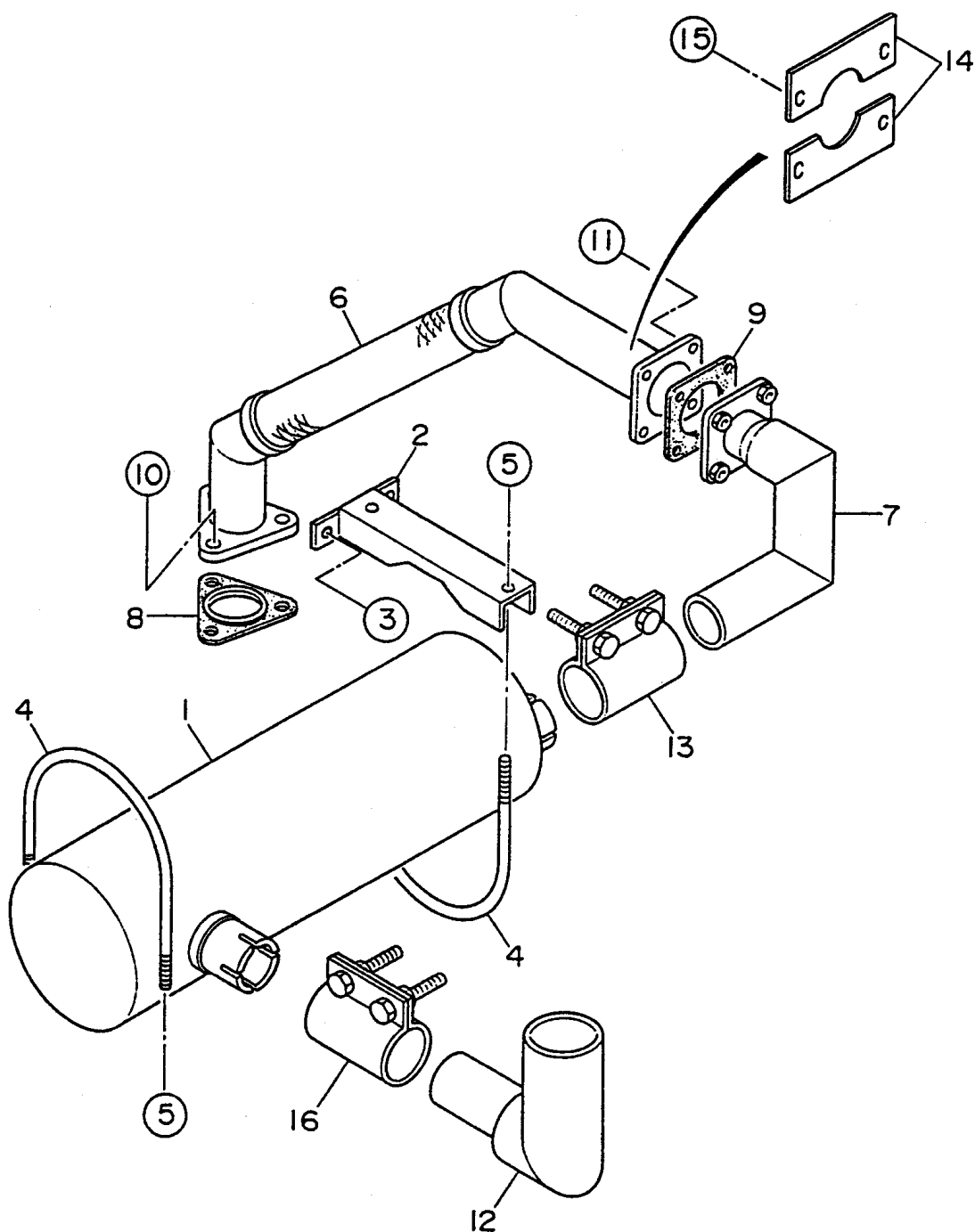
ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER
WHEN ORDERING ANY PAINTED PANEL TO INDICATE
COLOR OF UNIT:

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- MUFFLER ASSY.

MUFFLER ASSY.



DCA-25SSIU --- MUFFLER ASSY.

MUFFLER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0602300160	MUFFLER	1	MAM060249
2	M133040004	MUFFLER SUPPORTER	1	
3	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
4	M1330400104	U BOLT	2	
5	020108060	HEX. NUT	4	REPLACES 0037908000
	031108160	PLAIN WASHER	4	REPLACES 0041208000
6	M1333000703	EXHAUST PIPE	1	
7	M1333000803	EXHAUST PIPE	1	
8	8943811610	GASKET	1	REPLACES 0602320102
9	M1333200004	GASKET	1	S/N 7100001 TO S/N 7100865
	M1333200014	GASKET	1	S/N 7100866~
10	9098400850	HEX. NUT	3	REPLACES 0602323001
	0040010000	LOCK WASHER	3	
11	0016908035	HEX. HEAD BOLT	4	
12	M1333000604	TAIL PIPE	1	
13	0602325021	SEAL CLAMP	1	A20ATE
14	M1330400204	COVER	2	
15	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
16	0602325020	SEAL CLAMP	1	A20AFE

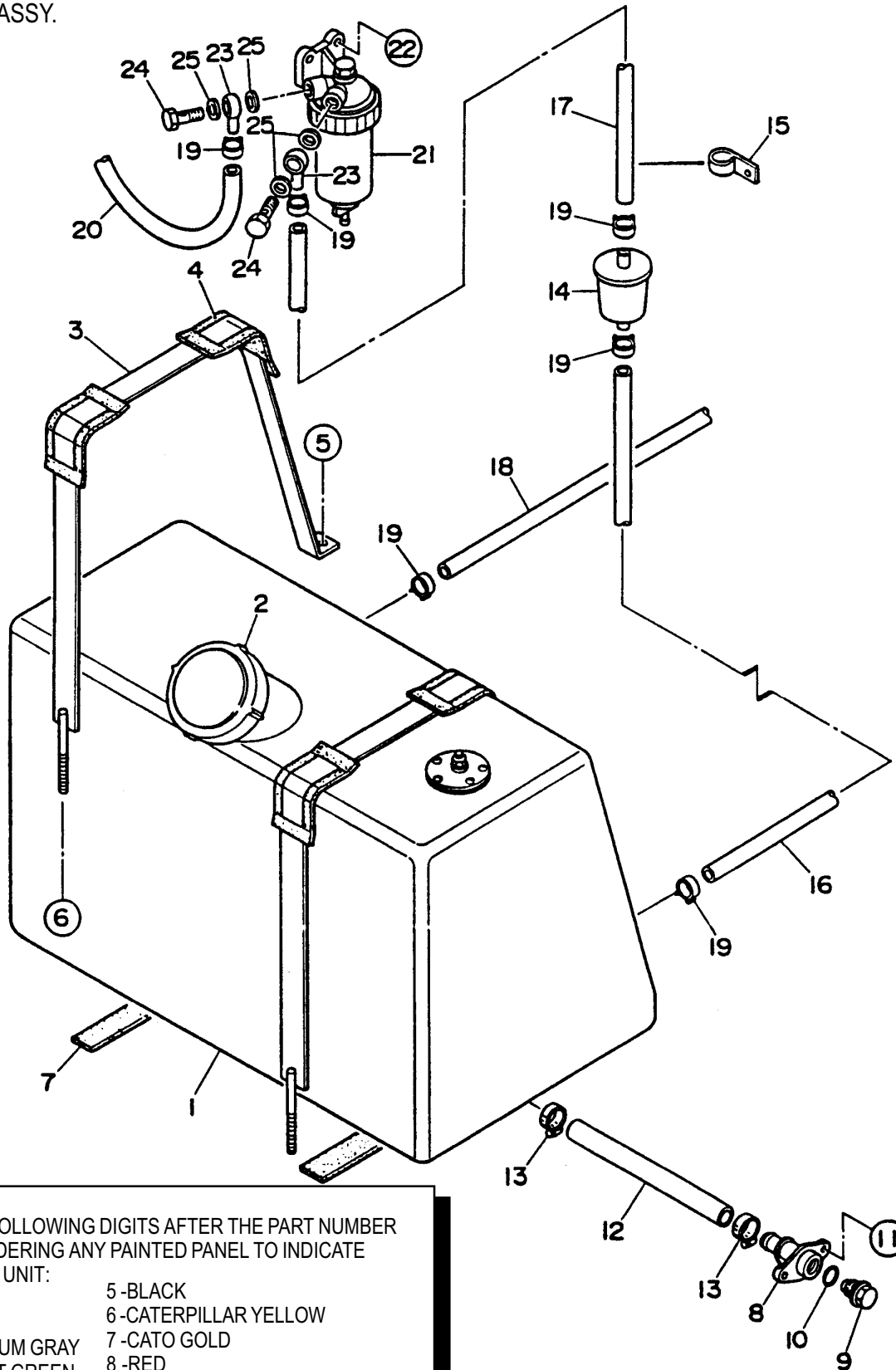
ADD THE FOLLOWING DIGITS AFTER THE PART NUMBER
WHEN ORDERING ANY PAINTED PANEL TO INDICATE
COLOR OF UNIT:

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- FUEL TANK ASSY.

FUEL TANK ASSY.



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

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- FUEL TANK ASSY.

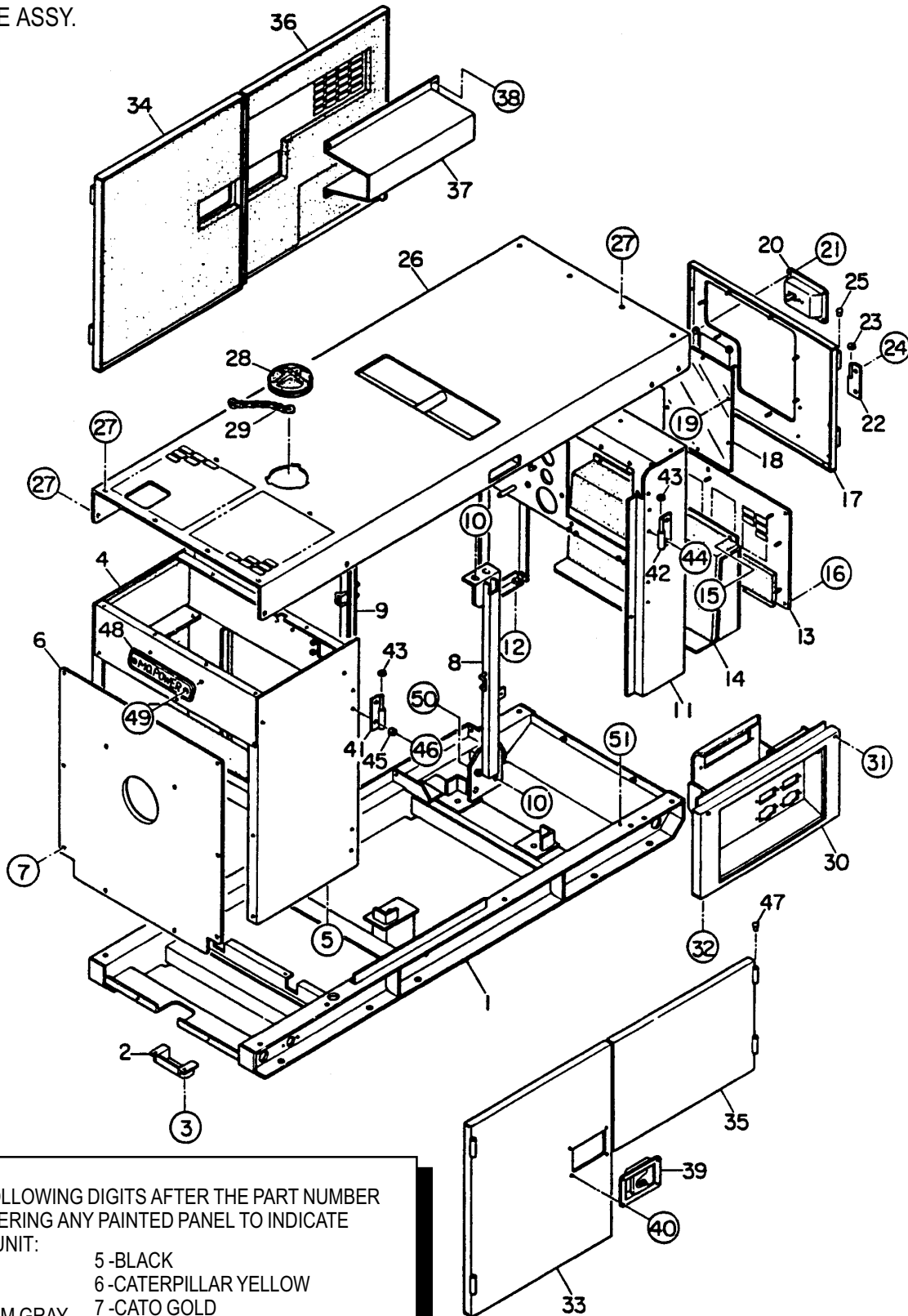
FUEL TANK ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	M1363000202	FUEL TANK	1	
2	0605505070	CAP, FUEL TANK	1	
3	M1363200004	TANK BAND	2	
4	M9310500104	SUPPORTER SHEET	4	
5	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
6	00379080000	HEX. NUT	2	S/N7100001 TO S/N7101449; REPLACES 0037908000
	0207308000	HEX. NUT	2	S/N7101450~
	031108160	PLAIN WASHER	2	S/N7100001 TO S/N7101449; REPLACES 0041208000
7	0222100080	RUBBER SHEET	4	
8	1502025103C	DRAIN JOINT	1	REPLACES M9200000003
9	M9200200004	DRAIN BOLT	1	
10	0150000018	O RING	1	
11	011206020	HEX. HEAD BOLT	2	REPLACES 0016906020
12	M1363400104	DRAIN HOSE	1	
13	06015515198	HOSE BAND	2	S/N7100001 TO S/N7101449; REPLACES 0605515064
	0605515198	HOSE BAND	2	S/N7101450~
14	0602042420	FUEL FILTER	1	PTG15P
15	0602220911	CLAMP	1	
16	0191300730	SUCTION HOSE	1	
17	0191300380	SUCTION HOSE	1	S/N7100001 TO S/N7102685
	0191300920	SUCTION HOSE	1	S/N7102686~
18	0191301060	RETURN HOSE	1	
19	0605515109	HOSE BAND	6	S/N7100001 TO S/N7102685
	0605515109	HOSE BAND	8	S/N7102686~
20	0191300520	SUCTION HOSE	1	S/N7102686~
21	1132008410	WATER SEDIMENTER	1	S/N7102686~; REPLACES 0602042512
22	0016908025	HEX. HEAD BOLT	2	S/N7102686~
23	5154115680	PIPE	2	S/N7102686~; REPLACES 0602042660 AND 5154112231
24	1096751460	JOINT BOLT	2	S/N7102686~; REPLACES 0602042620 AND 9099063251
25	9095720140	PACKING	4	S/N7102686~; REPLACES 0602042640

Full View

DCA-25SSIU --- ENCLOSURE ASSY.

ENCLOSURE ASSY.



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

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- ENCLOSURE ASSY.

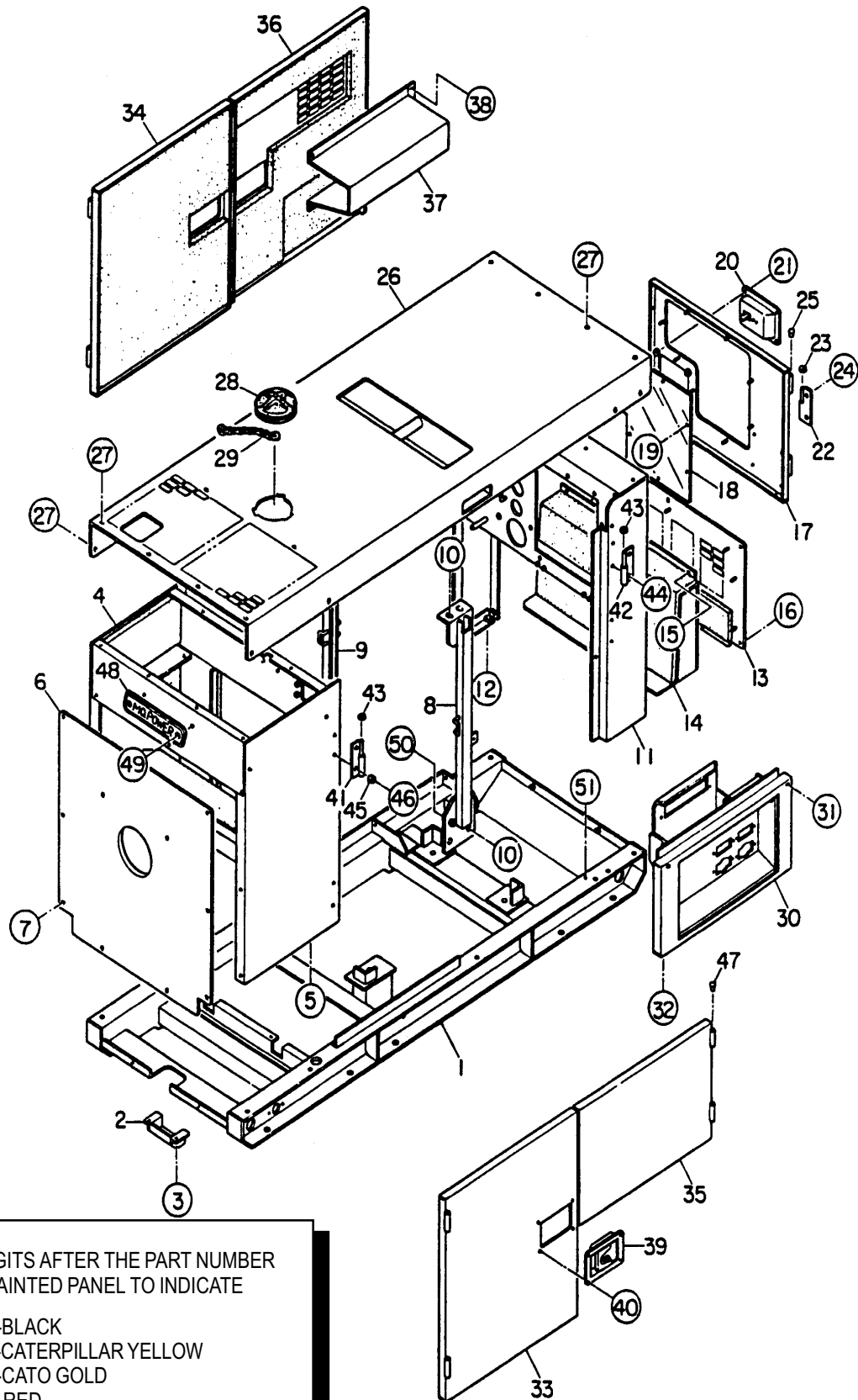
ENCLOSURE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	M1413000202	BASE	1	S/N7100001 TO S/N7100290
	M1413000212	BASE	1	S/N7100291 TO S/N7104749
	M1413000222	BASE	1	S/N7104750~
2	M1413400004	UNDER COVER	1	
3	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
4	M1423000302	FRONT FRAME	1	
	M1493100503	ACOUSTIC SHEET	1	
5	011008020	HEX.HEAD BOLT	4	REPLACES 0016908020
6	M1423200304	COVER, FRONT FRAME	1	
	M1493100604	ACOUSTIC SHEEET	1	
7	011008020	HEX HEAD BOLT	11	REPLACES 0016908020
8	M1433000203	CENTER FRAME	1	
9	M1433000303	CENTER FRAME	1	
10	0010114030	HEX. HEAD BOLT	8	
	030214350	LOCK WASHER	8	REPLACES 0040014000
	031114260	PLAIN WASHER	8	REPLACES 0041214000
11	M1443000502	REAR FRAME	1	
12	011008020	HEX. HEAD BOLT	4	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	
13	M1443300503	REAR COVER	1	S/N7100001 TO 7100290
	M1443300513	REAR COVER	1	S/N7100291~
	M1493300304	ACOUSTIC SHEET	1	
14	M1443300403	DUCT, REAR COVER	1	
	M1493300404	ACOUSTIC SHEET	1	
15	0207006000	HEX. NUT	7	
16	011008020	HEX. HEAD BOLT	6	S/N7100001 TO S/N7100290; REPLACES 0016908020
	011008020	HEX. HEAD BOLT	7	S/N7100291~; REPLACES 0016908020
17	M1443200603	REAR DOOR	1	S/N710001 TO S/N7101589
	M1443200613	REAR DOOR	1	S/N7101590~
18	M1443600004	WINDOW PLATE	1	S/N7100001 TO S/N7100725
	M1443600104	WINDOW PLATE	1	S/N7100726 TO S/N7101589
	M1443600114	WINDOW PLATE	1	S/N7101590~
19	020106050	HEX. NUT	6	S/N7100001 TO S/N7101449; REPLACES 0037906000
	0027306000	HEX. NUT	6	S/N7101450 TO S/N7101589
	0207306000	HEX. NUT	8	S/N7101590~
	952404470	PLAIN WASHER	12	S/N7100001 TO S/N7101449; REPLACES 0041206000
	952404470	PLAIN WASHER	6	S/N7101450 TO S/N7101589; REPLACES 0041206000

Full View

DCA-25SSIU --- ENCLOSURE ASSY.

ENCLOSURE ASSY.



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

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

THE SERIAL NUMBER MAY BE REQUIRED.

DCA-25SSIU --- ENCLOSURE ASSY.

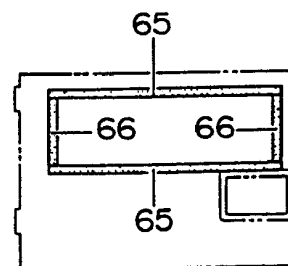
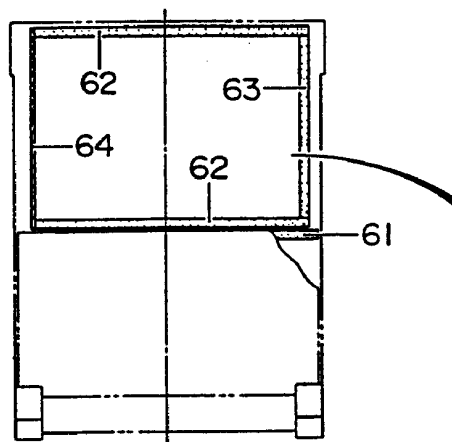
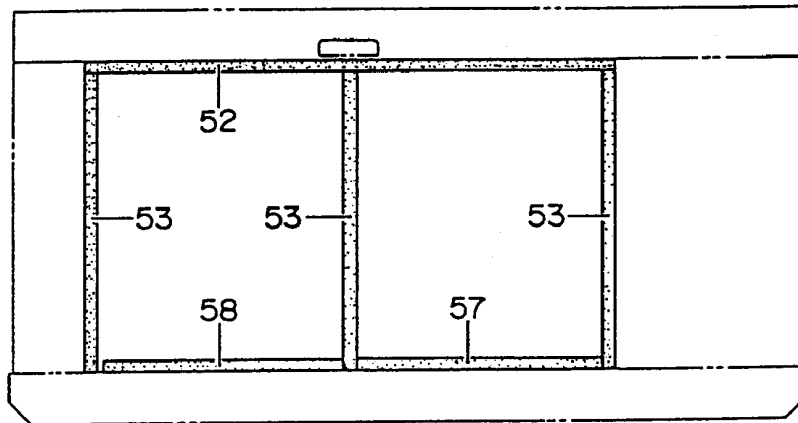
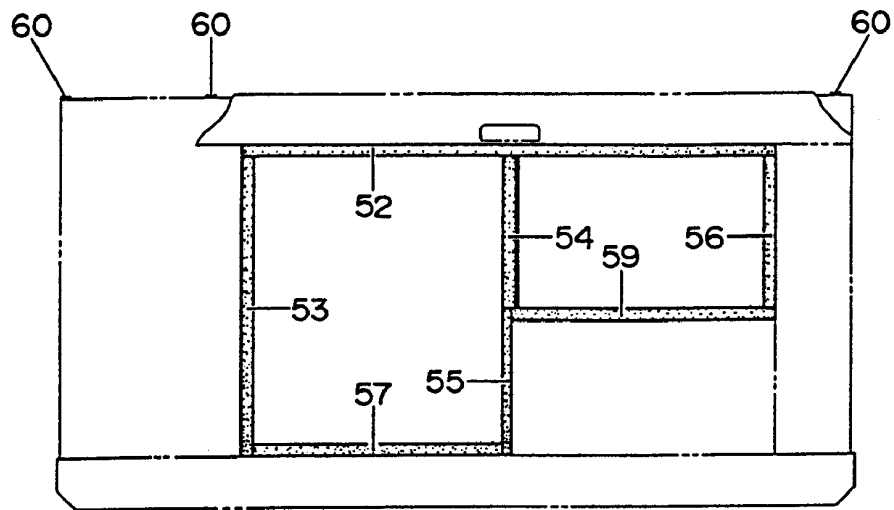
ENCLOSURE ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
	952404470	PLAIN WASHER	8	S/N7101590~; REPLACES 0041206000
20	M911300002	DOOR HANDLE ASSY.	1	
21	0021706015	MACHINE SCREW	4	
	020106050	HEX. NUT	4	REPLACES 0030006000
22	M9110100204	HINGE	2	
23	M9116100004	WASHER	2	
24	0021808020	MACHINE SCREW	3	
25	0845031504	BLIND PLUG	2	REPLACES M9310000004
26	M1463000202	ROOF PANEL	1	S/N7100000 TO S/N7104749
26	M1463000212	ROOF PANEL	1	S/N7104750~
	M1493500203	ACOUSTIC SHEET	1	S/N7100000 TO S/N7104749
	M1493500203	ACOUSTIC SHEET	1	S/N7104750~
27	011008020	HEX. HEAD BOLT	18	REPLACES 0016908020
28	1625165103	BONNET CAP	1	REPLACES M9310000103
29	1625165204	CHAIN ASSY.	1	REPLACES M1483600204
30	M1443100202	SPLASHER PANEL	1	S/N7100001 TO S/N7102784
	M1443100212	SPLASHER PANEL	1	S/N7102785
31	0016908050	HEX. HEAD BOLT	2	
32	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
33	M1453000703	SIDE DOOR	1	
	M1493400904	ACOUSTIC SHEET	1	
34	M1453000903	SIDE DOOR	1	
	M1493401004	ACOUSTIC SHEET	1	
35	M1453001003	SIDE DOOR	1	
	M1493401104	ACOUSTIC SHEET	1	
36	M1453000803	SIDE DOOR	1	
	M1493400804	ACOUSTIC SHEET	1	
37	M1453300503	DUCT	1	
38	0207006000	HEX. NUT	4	
39	B9114000002	DOOR HANDLE ASSY.	3	REPLACES M9113000002
40	0027106016	MACHINE SCREW	12	REPLACES 0021806015
	020106050	HEX. NUT	12	REPLACES 0030006000
41	M9110100204	HINGE	4	
42	M9110100304	HINGE	4	
43	M9116100004	WASHER	8	
44	0021808020	MACHINE SCREW	9	
45	0601850097	DOOR STOPPER	8	
46	0027208025	MACHINE SCREW	8	
47	0845031504	BLIND PLUG	8	REPLACES M9310000004
48	0600500090	EMBLEM	1	
49	0021106015	MACHINE SCREW	2	
50	012210025	HEX. HEAD BOLT	1	REPLACES 0016910025
	0040510000	TOOTHED WASHER	1	
51	011008020	HEX. HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	

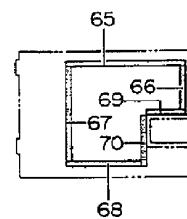
Full View

DCA-25SSIU --- RUBBER SEAL ASSY.

RUBBER SEAL ASSY.



S/N7100001 TO 7101589



S/N7101590~

DCA-25SSIU --- RUBBER SEAL ASSY.

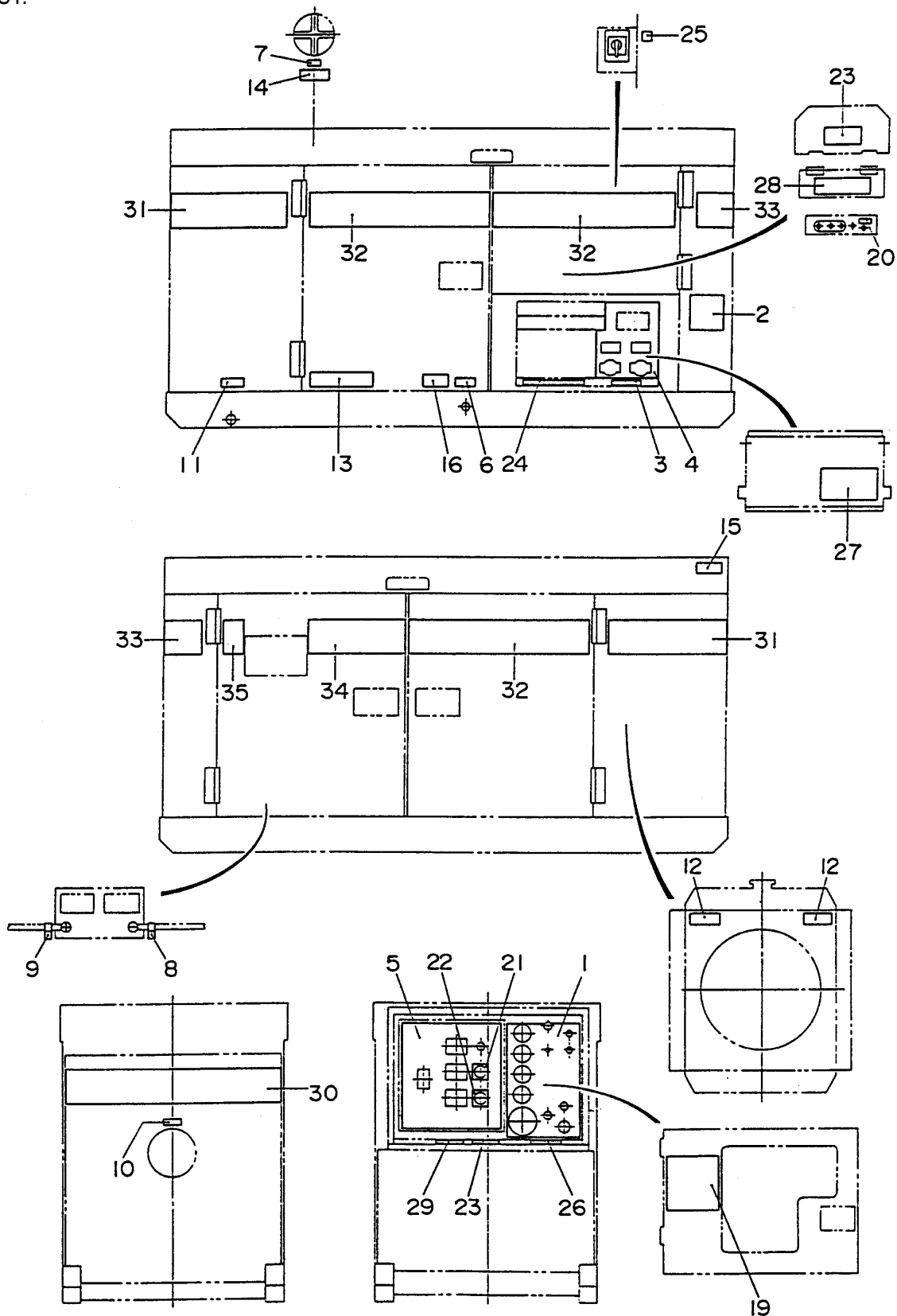
RUBBER SEAL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
52	0228910300	RUBBER SEAL	2	
53	0228900725	RUBBER SEAL	4	
54	M1490300004	RUBBER SEAL	1	
55	0228800360	RUBBER SEAL	1	
56	0228900370	RUBBER SEAL	1	
57	0228800605	RUBBER SEAL	2	
58	0229200595	RUBBER SEAL	1	
59	0228900645	RUBBER SEAL	1	
60	0229200750	RUBBER SEAL	3	S/N7100001 TO S/N7101589
	0229200750	RUBBER SEAL	2	S/N7101590~
61	0229200740	RUBBER SEAL	1	
62	0228800670	RUBBER SEAL	2	
63	0228800445	RUBBER SEAL	1	
64	0228800485	RUBBER SEAL	1	
65	0228100568	RUBBER SEAL	2	S/N7100001 TO S/N7101589
	0228100458	RUBBER SEAL	1	S/N7101590~
66	0228100170	RUBBER SEAL	2	S/N7100001 TO S/N7101589
	0228100171	RUBBER SEAL	1	S/N7101590~
67	0228100351	RUBBER SEAL	1	S/N7101590~
68	0228100285	RUBBER SEAL	1	S/N7101590~
69	0228100153	RUBBER SEAL	1	S/N7101590~
70	0228100180	RUBBER SEAL	1	S/N7101590~

Full View

DCA-25SSIU --- DECALS

DECAL ASSY.



DCA-25SSIU --- DECALS

DECAL ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>ITEM</u>	<u>QTY.</u>	<u>REMARKS</u>
1	M1550000003	DECAL; ENGINE OPERATING	1	M15000000
2	M1550000104	DECAL; NOTE	1	M15000010
3	M1550000204	DECAL; NOTE	1	M15000020
4	M1550000303	DECAL; AUXILLARY OUTPUT	1	M15000030
5	M1550000403	DECAL; GENERATOR CONTROL	1	M15000040
6	M9500000004	DECAL; OIL DRAIN PLUG	1	M90000000
7	M9500100004	DECAL; WATER	1	M90010000
8	M9500300004	DECAL; -	1	M90030000
9	M9500300104	DECAL; +	1	M90030010
10	M9500500004	DECAL; DIESEL FUEL	1	M90050000
11	M9500500104	DECAL; FUEL DRAIN PLUG	1	M90050010
12	M9503000004	DECAL; WARNING	2	M90300000
13	M9503000103	DECAL; WATER, OIL CHECK	1	M90300000
14	M9503100004	DECAL; WARNING	1	M90310000
15	M9503200004	DECAL; WARNING	1	M90320000
16	M9510100004	DECAL; CAUTION	1	M91010000
17	M9520100503	DECAL; WARNING	1	S/N7100001 TO 7100600; REPLACES M9510100104
18	M9520100503	DECAL; WARNING	1	S/N7100001 TO 7100600; REPLACES M9510100204
19	M9510200002	DECAL; MQ	1	M91020000
20	M9520000004	DECAL; GROUND	1	M92000000
21	M9520000104	DECAL; AMMETER CHANGE OVER SWITCH	1	M92000010
22	M9520000204	DECAL; VOLTMETER CHANGE OVER SWITCH ..	1	M92000020
23	M9520100004	DECAL; WARNING	2	M92010000
24	M9520100503	DECAL; WARNING	1	S/N7100001 TO 7100600; REPLACES M9520100104
	M9520100503	DECAL; WARNING	1	M92010050 M9100601~
25	M9520100204	DECAL; CAUTION	1	M92010020A
26	M9520100304	DECAL; SAFETY INSTRUCTIONS	1	M92010030
27	M9520100404	DECAL; DANGER	1	M92010040
28	M9520200003	DECAL; CONNECTION OF OUTPUT CABLE	1	M92020000
29	M9520200104	DECAL; OVER CURRENT RELAY	1	M92020010
30	M1560100403	STRIPE; WHISPERWATT	1	
31	M1560100303	STRIPE; MQ POWER	2	
32	M1560100004	STRIPE;	3	
33	M1560100504	STRIPE; 25	2	
34	M1560100104	STRIPE	1	
35	M1560100204	STRIPE	1	

Full view

Effective: July 1, 2000**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 listed in the parts price book 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 5 working days from notification, pending instructions. If a reply is not received within 5 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 \$20.00 to \$50.00 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 here under 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. A part 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.

[illegible]

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

800/835-2551 or 310/537-3700

FAX: 310/638-8046

WARRANTY DEPARTMENT

800/835-2551 or 310/537-3700

FAX: 310/638-8046

MAIN

800/421-1244 or 310/537-3700

FAX: 310/537-3927

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

SERVICE DEPARTMENT:

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