PARTS AND OPERATION MANUAL

MQ POWER DCA-150SSJU DCA-150SSJU2 WHISPERWATT™ GENERATOR

Parts List No. M3870300254
Revision #3 (09/07/01)

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PARTS DEPARTMENT:
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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

SERVICE DEPARTMENT
800/835-2551 or 310/537-3700
FAX: 310/638-8046

WARRANTY DEPARTMENT
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FAX: 310/638-8046

MAIN
800/421-1244 or 310/537-3700
FAX: 310 - 537-3927

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NOTE

Specification and part number are subject to change without notice.

- **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!

Extra Fax Discount for Domestic USA Dealers Only

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%

Up to 5% extra savings!

UPS Special
For faxed orders only

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

Now! Direct TOLL-FREE access to our Parts Department!

Toll-free nationwide:

800-421-1244

Toll-free FAX:

800/6-PARTS-7 • 800-672-7877

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-150SSJU 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 or drugs or alcohol.

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

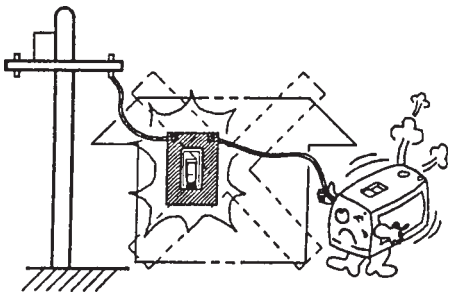
Always refuel in a well-ventilated area, away from sparks and open flames.

- 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.

CAUTION:

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

CAUTION:



- **Backfeed to a utility system can cause electrocution and.or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is opened.**

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

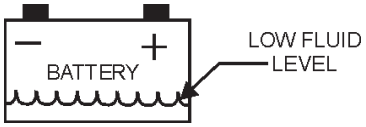
1. **Radiator Cap -** Removing the radiator cap while the engine is hot will result in high pressurized, boiling water to gush out of the radiator, causing severe scalding to any persons in the general area of the generator.
2. **Coolant Drain Plug -** Removing the coolant drain plug while the engine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

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 ***John Deere 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.

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

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 jackknifing. Smooth, gradual starts and stops will improve gas milage.
- Avoid sharp turns to prevent rolling.
- Remove wheel stand when transporting.
- **DO NOT** transport generator with fuel in tank.

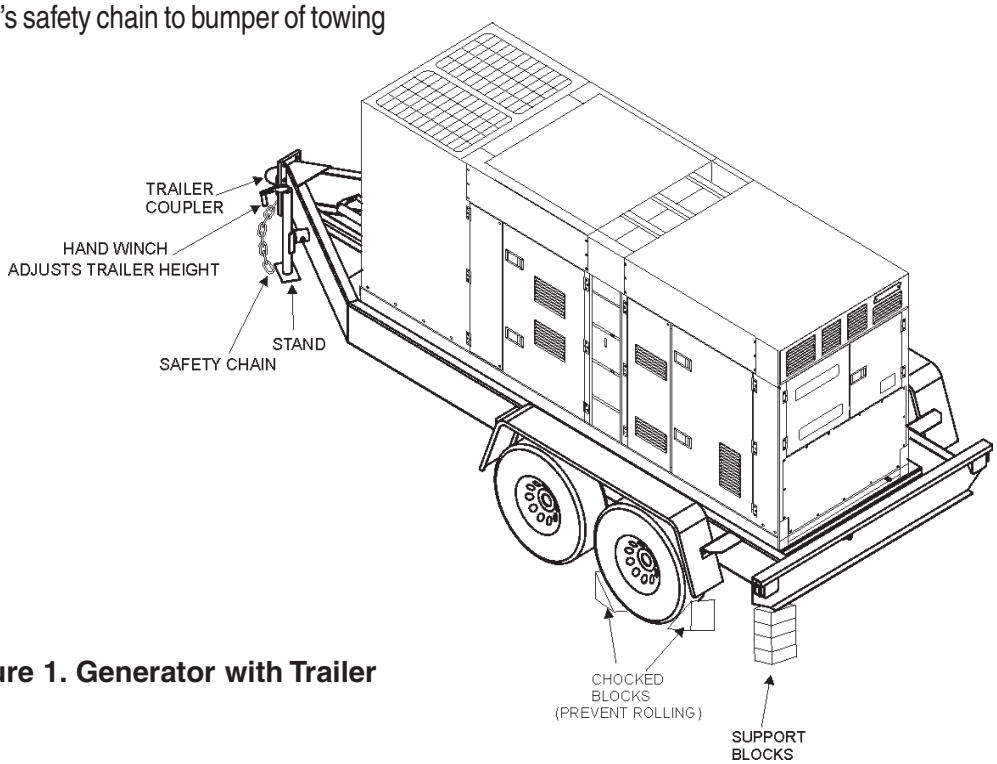


Figure 1. Generator with Trailer

CAUTION:

ALWAYS make sure the trailer is in good operating condition. Check the tires for proper inflation and wear. Also check the wheel lug nuts for proper tightness.

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

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

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

Use the following definitions while reading Table 1.

1. **Fuel Cell -** Provides an adequate amount of fuel for the equipment in use. Fuel cells must be empty when transporting equipment.
2. **Braking System -** System employed in stopping the trailer. Typical braking systems are electric, surge, hydraulic, hydraulic-surge and air.
3. **GVWR-** Gross Vehicle Weight Rating (GVWR), is the maximum number of pounds the trailer can carry, including the fuel cell (empty).
4. **Frame Length -** This measurement is from the ball hitch to the rear bumper (reflector).
5. **Frame Width -** This measurement is from fender to fender.
6. **Jack Stand -** Trailer support device with maximum pound requirement from the tongue of the trailer.
7. **Coupler** - Type of hitch used on the trailer for towing.
8. **Tire Size -** Indicates the diameter of the tire in inches (10,12,14, etc.), and the width in millimeters (175,185,205, etc.). The tire diameter must match the diameter of the tire rim.
9. **Tire Ply -** The tire ply (layers) number is rated in letters; 2-ply,4-ply,6-ply, etc.
10. **Wheel Hub -** The wheel hub is connected to the trailer's axle.
11. **Tire Rim -** Tires are mounted on a tire rim. The tire rim must match the size of the tire.
12. **Lug Nuts -** Used to secure the wheel to the wheel hub. Always use a torque wrench to tighten down the lug nuts. See Table 4 and Figure 5 for lug nut tightening and sequence.
13. **Axle -** Indicates the maximum weight the axle can support in pounds, and the diameter of the axle expressed in inches (see Table 3 on page 17). Please not that some trailers have a double axle. This will be shown as 2-6000 lbs., meaning two axles with a total weight capacity of 6000 pounds.
14. **Suspension -** Protects the trailer chassis from shock transmitted through the wheels. Types of suspension used are leaf, Q-flex, and air ride.
15. **Electrical -** Electrical connectors (looms) are provided with the trailer so the brake lights and turn signals can be connected to the towing vehicle. See page 16 for proper wiring connections.
16. **Application -** Indicates which units can be employed on a particular trailer.

Table 1. Specifications							
MODEL	**APPLICATION**	**FUEL CELL**	**BRAKE SYSTEM**	**GVWR**	**FRAME LENGTH**	**FRAME WIDTH**	**JACK STAND**
TRLR-10W	SDW225, SGW250,TLW300	NO	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-10	DCA10, TLG12, DCA-15	NO	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-10XF	DCA10, TLG-12, DCA15, TLW-300	52 GAL	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-225W	WELDERS, DA7000SS	NO	NO	2200LBS	85"	42"	800LB. FULL TILT WHEEL
TRLR-BLW400	BLW-400	NO	ELECTRIC	2700LBS	W/MAST 154" W/O 124"	55" (78" TALL)	800LB. FULL TILT WHEEL
TRLR-50X	DCA-25	NO	NO	2700LBS	124"	55"	800LB. FULL TILT WHEEL
TRLR-50XF	DCA-25	41 GAL	NO	2700LBS	124"	55"	800LB. FULL TILT WHEEL
TRLR-70W	DCA-45, -60, 70	NO	SURGE	7000LBS	186"	77"	2000LB. FLAT PAD
TRLR-70X	DCA-45, -60, 70	OPT	SURGE	7000LBS	138"	66"	2000LB. FLAT PAD
TRLR-70XF	DCA-45, -60, 70	53 GAL	SURGE	7000LBS	138"	66"	2000LB. FLAT PAD
TRLR-100XF	DCA-100, 125	150 GAL	HYDRAULIC SURGE	7000LBS	190"	76"	2000LB. FLAT PAD
TRLR-85/125	DCA-85, 100, 125	145 GAL	HYDRAULIC	10000LBS	186"	77"	2000LB. FLAT PAD
TRLR-150XF	DCA-150, 180	200 GAL	HYDRAULIC SURGE	11160LBS	204"	84"	5000 LB. FLAT PAD
TRLR-220XF	DCA-220	250 GAL	HYDRAULIC SURGE	14000LBS	222"	83"	5000 LB. FLAT PAD
TRLR-300XF	DCA-300	250 GAL	HYDRAULIC SURGE	18000LBS	238"	83"	5000 LB. FLAT PAD
TRLR-400XF	DCA-400	350 GAL	ELECTRIC	18000LBS	238"	83"	5000 LB. FLAT PAD
TRLR-600XF	DCA-600, 800	550 GAL	AIR	30000LBS	384"	96"	5000 LB. FLAT PAD
TRLR-800SX	DCA-600, 800	550 GAL	AIR	30000LBS	384"	96"	5000 LB. FLAT PAD

Table 1. Specifications (Con't)							
MODEL	**COUPLER**	**TIRES**	**WHEELS**	**AXLE**	**HUBS**	**SUSPENSION**	**ELECTRICAL**
TRLR-10W	2" BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.50"	2200# 2X2	5 LUG	3 LEAF	4 WIRE LOOM W/ 4 POLE FLAT
TRLR-10	2"BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.5"	2200#2X2	5 LUG	3 LEAF	4 POLE FLAT
TRLR-10XF	2"BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.5"	2200#2X2	5 LUG	3 LEAF	4 POLE FLAT
TRLR-225W	2"BALL CLASS 2 ADJUSTABLE	175-13B	13X4.5"	2200#2X2	5 LUG	Q FLEX	4 POLE FLAT
TRLR-BLW 400	2"BALL CLASS 2 ADJUSTABLE	175-13C	13 X 4.5"	2200#2X2	5 LUG	3 LEAF	4 POLE FLAT
TRLR-50X	2" BALL CLASS	B78-13LRC	13"X4.50"	3500lbs. 2-3/8"	5 LUG	4 LEAF	4 POLE RUBBER FLAT
TRLR-50XF	2" BALL CLASS	B78-13LRC	13"X4.50"	3500lbs. 2-3/8"	5 LUG	4 LEAF	4 POLE RUBBER FLAT
TRLR-70W	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500lbs. 3"	5 LUG	5 LEAF	4 POLE RUBBER FLAT
TRLR-70X	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500lbs 3"	5 LUG	5 LEAF	4 POLE RUBBER FLAT
TRLR-70XF	2" BALL CLASS 3" ADJUSTABLE	205-14C BIAS (4)	14"X5"	3500lbs. 3"	5 LUG	5 LEAF	4 POLE RUBBER FLAT
TRLR-100XF	ADJUSTABLE 2-5/6 OPT 3" EYE	205-15C BIAS (4)	14"X5.5"	3500lbs 3"	5 LUG	5 LEAF	4 WIRE LOOM
TRLR-85/125	ADJUSTABLE 2-5/6 OPT 3" EYE	ST225/75R15D RADIAL (4)	14"x6"	(2)-6000lbs	6 LUG	7 LEAF	4 WIRE LOOM
TRLR-150XF	3" BALL EYE	750-16 E BIAS (4)	16"X7"	(2)-6000lbs	8 LUG	7 LEAF	4 WIRE LOOM
TRLR-220XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(4)	16"X7"	(2)-7000lbs	8 LUG	Q FLEX	4 WIRE LOOM
TRLR-300XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(6)	16"X7"	(2)-6000lbs	8 LUG	Q FLEX	4 WIRE LOOM
TRLR-400XF	3" EYE ADJUSTABLE	ST235/85R16E RADIAL(6)	16"X7"	(3)-7000lbs.	8 LUG	Q FLEX	4 WIRE LOOM
TRLR-600XF	5TH WHEEL	ST215/75R17.5H RADIAL (8)	16"X7"	(3)-10000lbs	8 LUG	7 LEAF	6 WIRE LOOM
TRLR-800AR	5TH WHEEL	ST215/75R17.5H RADIAL (8)	16"X7"	(3)-10000lbs	8 LUG	AIR-RIDE	6 WIRE LOOM

Brakes

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

Electric Brakes

Electrically actuated brakes (Figure 2) are similar to hydraulic brakes. The basic difference is that hydraulic brakes are actuated by an electromagnet.

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

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

Road testing is necessary in order to properly synchronize the towing vehicle's braking to the trailer's braking. Brake lockup, grabbiness, or harshness is due to lack of synchronization between the tow vehicle and the trailer being towed or under-adjusted brakes.

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

Figure 2 displays the major electric brake components that will require inspection and maintenance. Please inspect these components as required. Refer to Table 5 for electric brake troubleshooting guidelines.

Electric Brake Adjustment

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

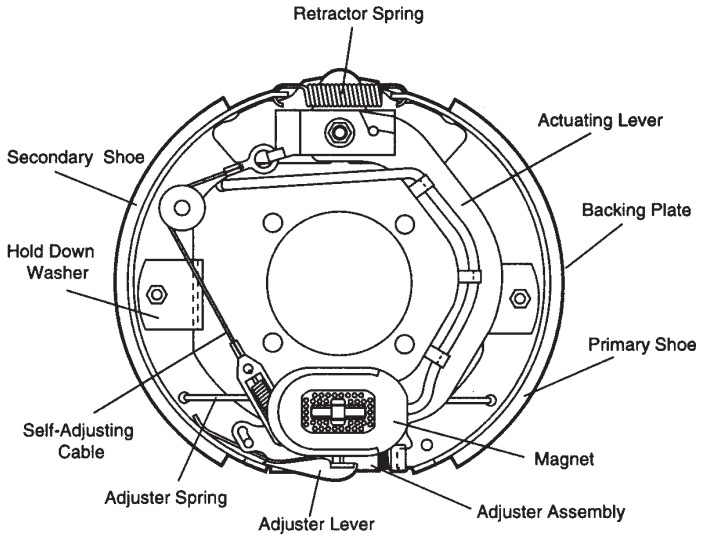


Figure 2. Electrical Brake Components

Hydraulic/Air/Surge Brakes

Hydraulic brakes (Figure 3) should not require any special attention with the exception of routine maintenance such as shoe and lining replacement. These brakes can be adjusted in the same manner as electric brakes. Brake lines should be periodically checked for cracks, kinks, or blockage.

Figure 3 below displays the major hydraulic/air/surge brake components that will require inspection and maintenance. Inspect these components as required using steps 1 through 6 as referenced in the electric brake adjustments section. Reference Table 6 for hydraulic brake troubleshooting guidelines.

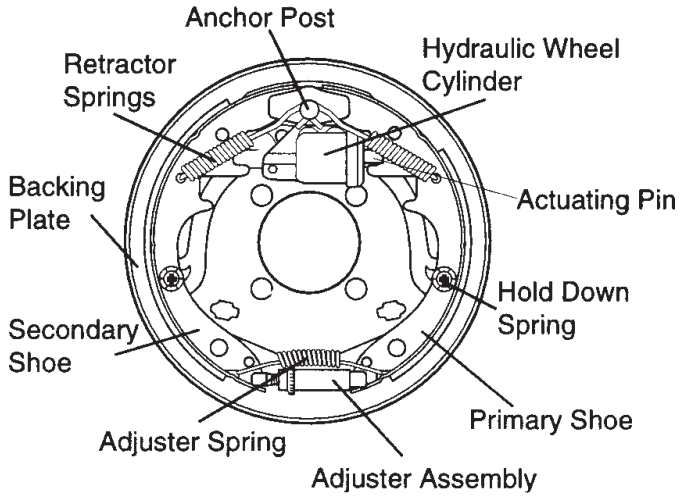


Figure 3. Hydraulic Brake Components

Tires/Wheels/Lug Nuts

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

CAUTION:

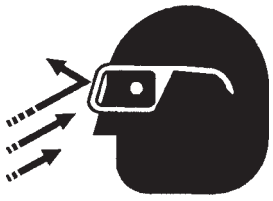
DO NOT attempt to repair or modify a wheel. DO NOT install an inner tube to correct a leak through the rim. If the rim is cracked, the air pressure in the inner tube may cause pieces of the rim to explode (break off) with great force and cause serious eye or bodily injury.

Tire Wear/Inflation

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

Table 2 (Tire Wear Troubleshooting) will help pinpoint the causes and solutions of tire wear problems.

CAUTION:



NOTE

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

TABLE 2. TIRE WEAR TROUBLESHOOTING

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

Suspension

The leaf suspension springs and associated components (Figure 4) should be visually inspected every 6,000 miles for signs of excessive wear, elongation of bolt holes, and loosening of fasteners. Replace all damaged parts (suspension) immediately. Torqued suspension components as detailed in Table 3.

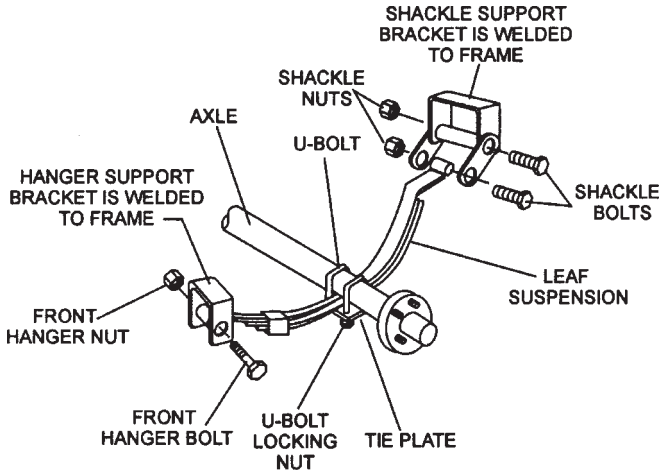


Figure 4. Suspension Components

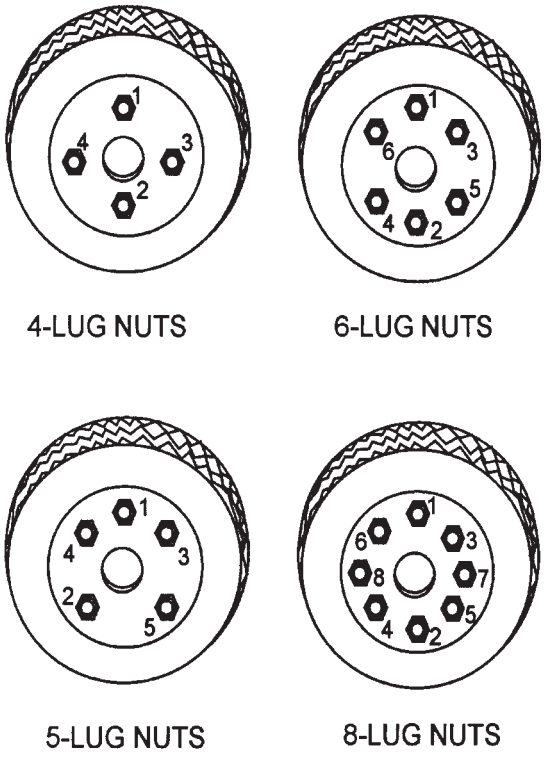
Table 3. Suspension Torque Requirements	
Item	**Torque (Ft.-Lbs.)**
3/8" U-BOLT	MIN-30 MAX-35
7/16" U-BOLT	MIN-45 MAX-60
1/2" U-BOLT	MIN-45 MAX-60
SHACKLE BOLT SPRING EYE BOLT	SNUG FIT ONLY. PARTS MUST ROTATE FREELY. LOCKING NUTS OR COTTER PINS ARE PROVIDED TO RETAIN NUT-BOLT ASSEMBLY.
SHOULDER TYPE SHACKLE BOLT	MIN-30 MAX-50

Lug Nut Torque Requirements

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

1. Start all wheel lug nuts by hand.
2. Torque all lug nuts in sequence. See Figure 5. **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Table 4.
3. After first road use, retorque all lug nuts in sequence. Check all wheel lug nuts periodically for continued safe operation.

Table 4. Tire Torque Requirements			
Wheel Size	First Pass FT-LBS	Second Pass FT-LBS	Third Pass FT-LBS
12"	20-25	35-40	50-65
13"	20-25	35-40	50-65
14"	20-25	50-60	90-120
15"	20-25	50-60	90-120
16"	20-25	50-60	90-120



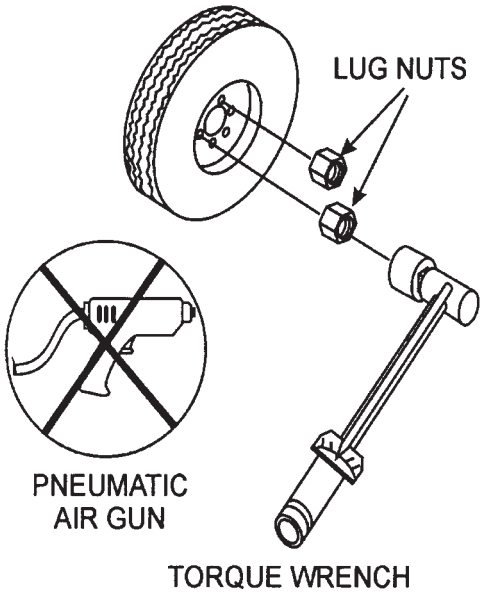
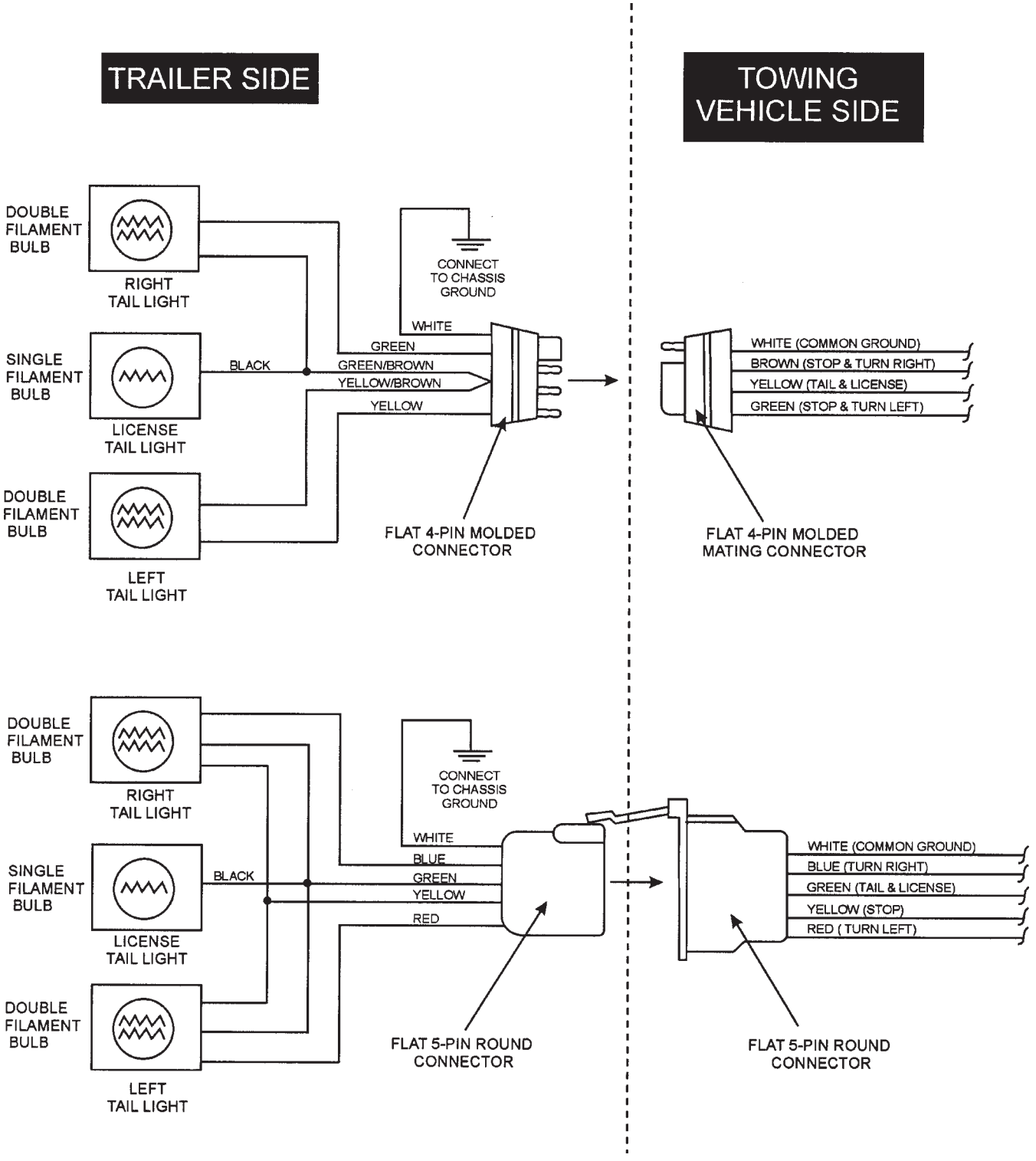


Figure 5. Lug Nut Tightening Sequence

NOTE

NEVER use an pneumatic air gun to tighten wheel lug nuts.

DCA-150SSJU — TRAILER WIRING DIAGRAM

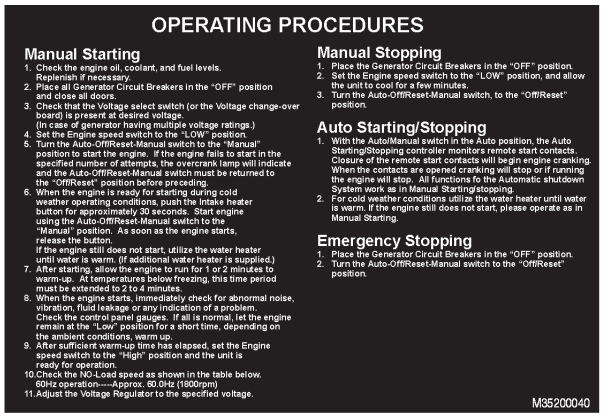


NOTE:
LIGHTS ARE ORIENTED FROM THE DRIVER'S SEAT

Table 5. Electric Brake Troubleshooting		
Symptom	**Possible Cause**	**Solution**
No Brakes or Intermittent Brakes	Any open circuits or broken wires?	Find and correct.
	Any short circuits?	Find and correct.
	Faulty controller?	Test and correct.
	Any loose connections?	Find and repair.
	Ground wire secure?	Find and secure.
Weak Brakes or Brakes Pull to One Side	Grease or oil on magnets or linings?	Clean or replace.
	Connections corroded?	Clean and correct cause of corrosion.
	Brake drums scored or grooved?	Machine or replace.
	Brakes synchronized?	Correct.
Locking Brakes	Brake components loose, bent or broken?	Replace components.
	Brake drums out-of-round?	Replace.
Noisy Brakes	System lubricated?	Lubricate.
	Brake components correct?	Replace and correct.
Dragging Brakes	Bearings of the wheel adjusted?	Adjust.

Table 6. Hydraulic Brake Troubleshooting		
Symptom	**Possible Cause**	**Solution**
No Brakes	Brake line broken or kinked?	Repair or replace.
Weak Brakes or Brakes Pull to One Side	Brake lining glazed?	Reburnish or replace.
	Trailer overloaded?	Correct weight.
	Brake drums scored or grooved?	Machine or replace.
	Tire pressure correct?	Inflate all tires equally.
	Tires unmatched on the same axle?	Match tires.
Locking Brakes	Brake components loose, bent or broken?	Replace components.
	Brake drums out-of-round?	Replace.
Noisy Brakes	System lubricated?	Lubricate.
	Brake components correct?	Replace and correct.
Dragging Brakes	Brake lining thickness correct or in right wrong position?	Install new shoes and linings.
	Enough brake fluid or correct fluid?	Replace rubber parts fill with dot4 fluid.

The DCA-150SSJU 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.



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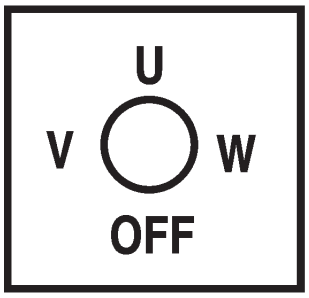

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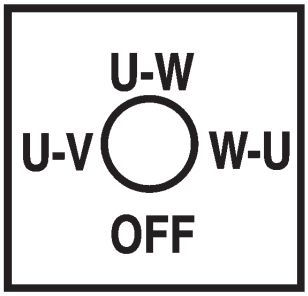

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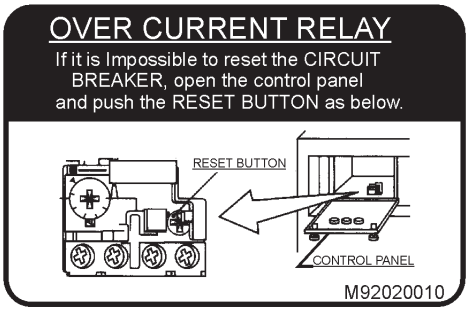

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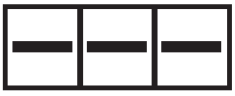

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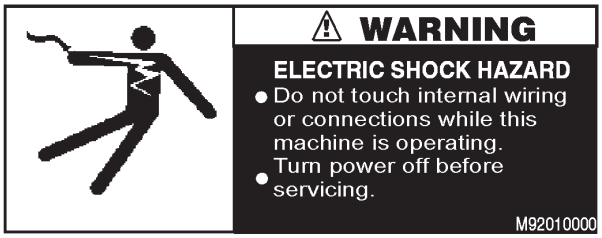

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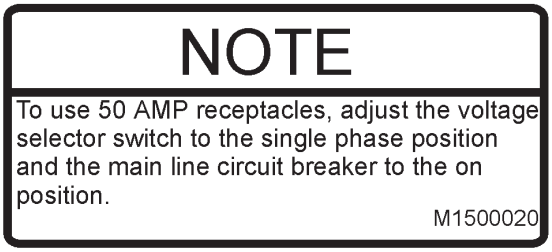

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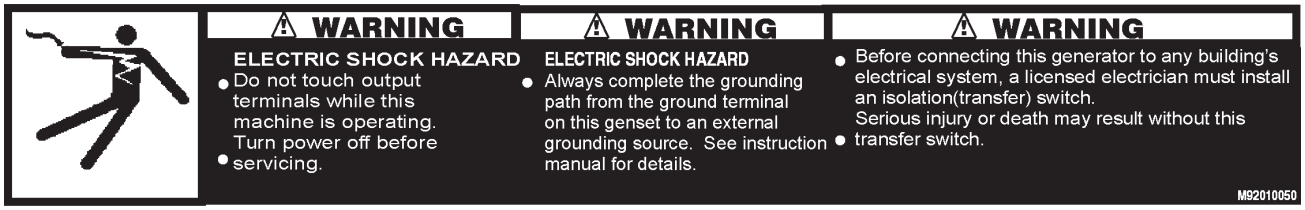

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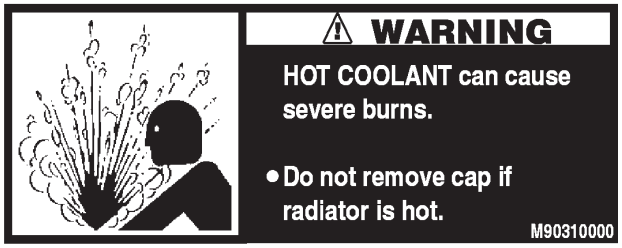

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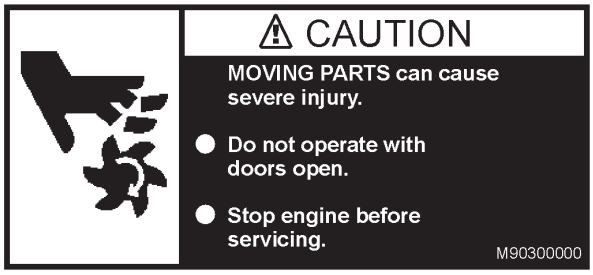

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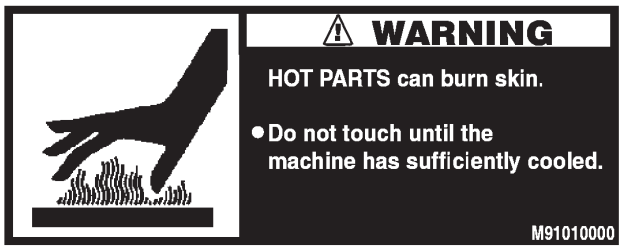

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Table 7. Specifications		
Generator Specifications		
Model	DCA-150SSJU	
Type	Revolving field, self ventilated, open protected type synchronous generator	
Armature Connection	**Star with Neutral**	**Zig Zag**
Phase	3	Single
Standby Output	165 KVA (132 KW)	96KW
Prime Output	150 KVA (120 KW)	87KW
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	JOHN DEERE 6081 TF 001	
Type	4-cycle, water-cooled, direct injection, turbo-charged	
No. of Cylinders	6 cylinders	
Bore x Stroke	4.57 in. x 5.08 in. (116 mm x 129 mm)	
Rated Output	190HP/1800 rpm	
Displacement	494 cu. in. (8100 cc)	
Starting	Electric	
Coolant Capacity	8.2 gal. (31 liters)	
Lube Oil Capacity	8.5 gal. (32 liters)	
Fuel Consumption	9.7 gal. (36.7L)/hr at **full load**	7.5 gal. (28.3L)/hr at **3/4 load**
	5.3 gal. (20L)/hr at **1/2 load**	3.5 gal. (13.2L)/hr at **1/4 load**
Battery	12V- 225AHx1	
Fuel	#2 Diesel Fuel	

DCA-150SSJU FAMILIARIZATION

Generator

The MQ Power Model DCA-150SSJU is a 120 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 Control Panel

The “Engine Control Panel” is provided with the following:

- Tachometer
- Water Temperature Gauge
- Oil Pressure Gauge
- Charging Ammeter Gauge
- Engine Speed Switch
- Auto/On/Off Engine Controller(if applicable)
- Pre-Heat Button
- Pre-Heat Lamp
- Key Ignition starter
- Fuel Gauge
- Panel Light
- Panel Light Switch

Generator Control Box

The “Generator Control Box” 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
- Main Circuit Breaker 400 amps
- Over-Current Relay
- Voltage Selector Switch

Output Terminal Panel

The “Output Terminal Panel” is provided with the following:

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

Open Delta Excitation System

The DCA-150SSJU 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-150SSJU** is powered by a 4 cycle, water cooled, turbocharged John Deere 6081TF001 diesel engine. This engine is designed to meet every performance requirement for the generator. Reference Table 7, page 23 for engine specifications.

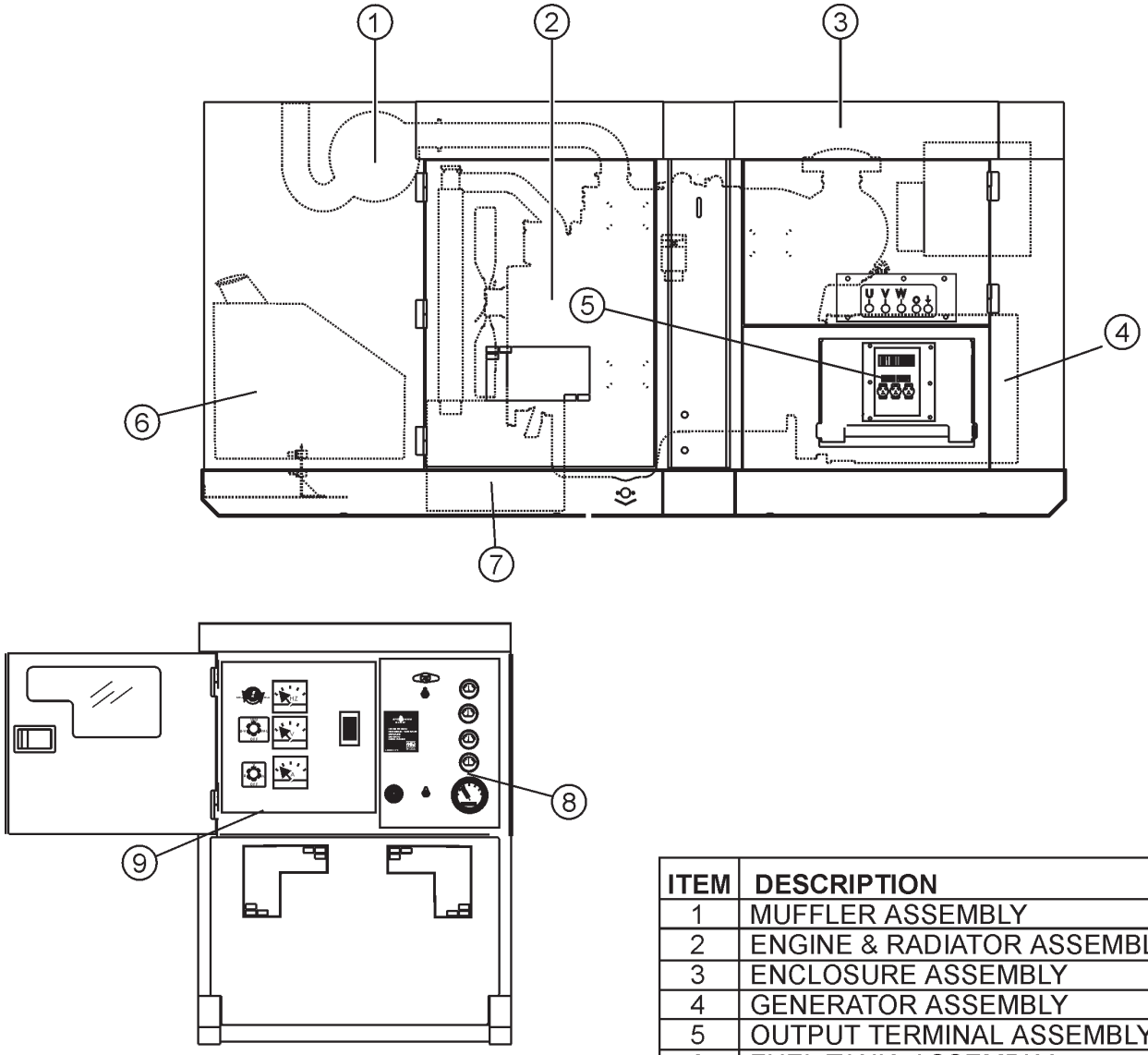
In keeping with MQ Power's policy of constantly improving its products, the specifications quoted herein are subject to change without prior notice.

The basic controls and indicators for the DCA-150SSJU generator are addressed on the following pages.

Electronic Governor System

The electronic governor system is made up of two parts, an electronic controller that monitors frequency variation as the load increases and decreases and an electronic actuator that controls the engine throttle. The frequency is regulated at ±0.25 to help protect sensitive equipment.

NOTE PAGE



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

Figure 6. Major Components

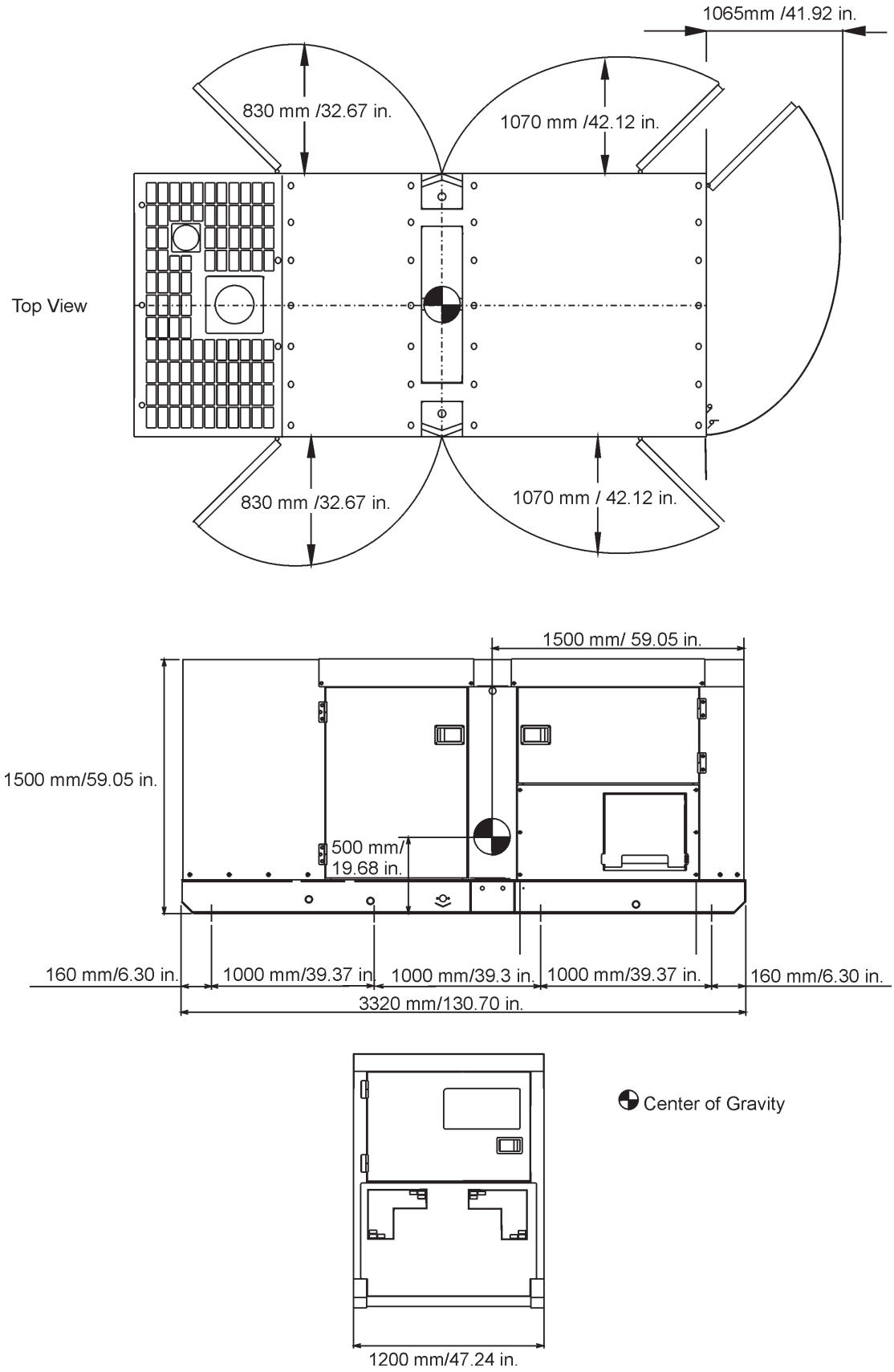
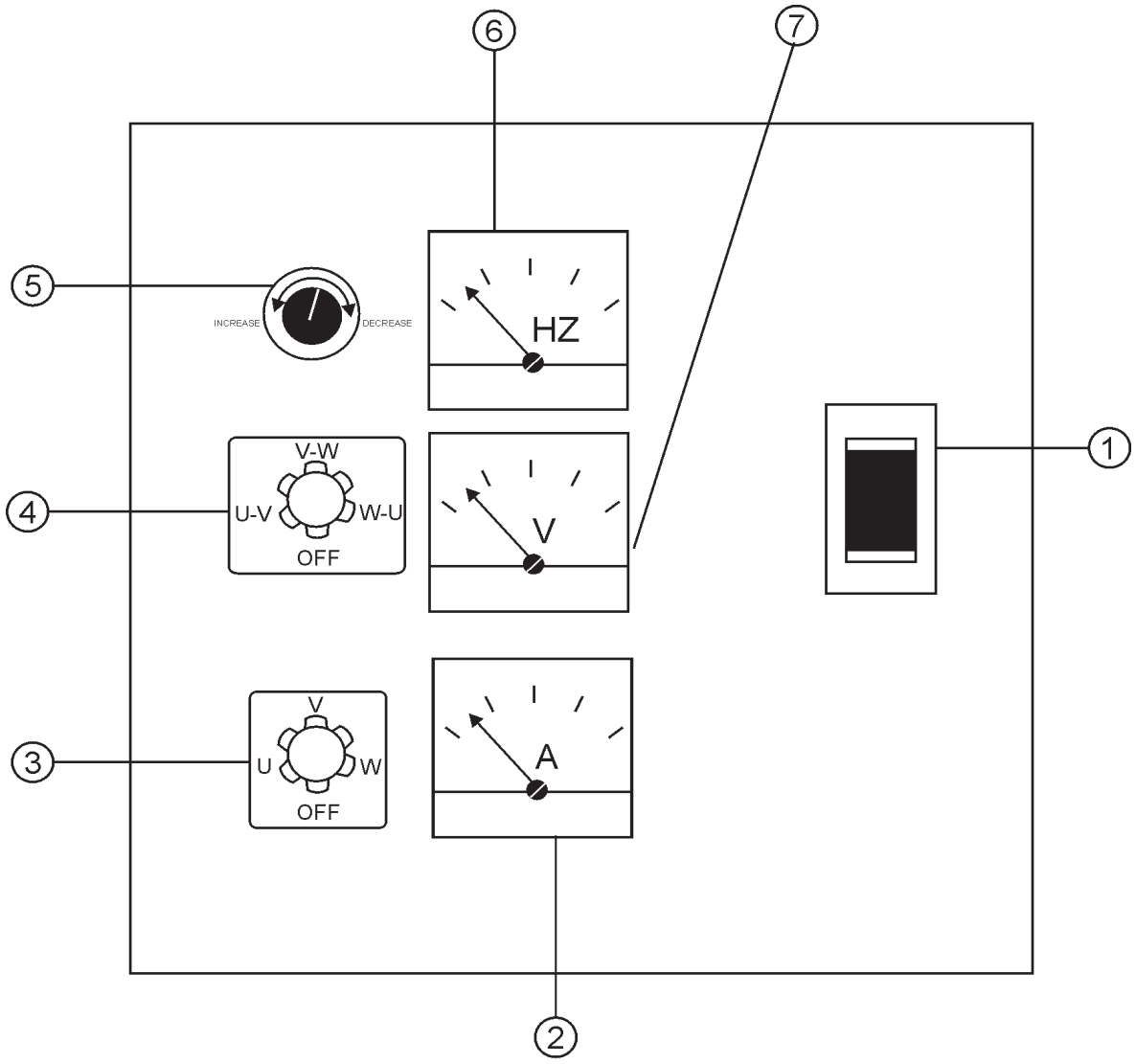


Figure 7. Dimensions

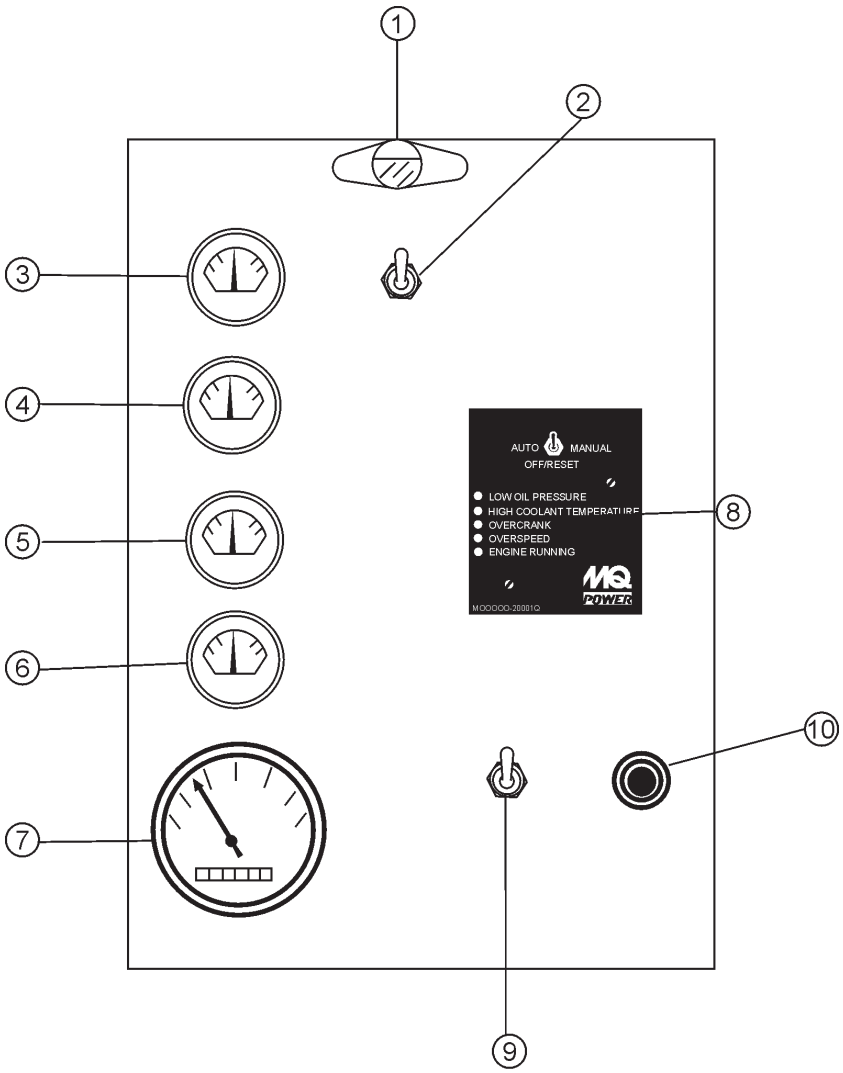


NO	DESCRIPTION
1	CIRCUIT BREAKER
2	AC AMMETER
3	AMMETER CHANGE-OVER SWITCH
4	VOLTMETER CHANGE-OVER SWITCH
5	VOLTAGE REGULATOR
6	FREQUENCY METER
7	AC VOLTMETER

Figure 8. Control Panel

The definitions below describe the controls and functions of the DCA-150SSJU " ***Control Panel*** " (Figure 8).

1. **Main Circuit Breaker –** This three-pole, 400 amp main breaker is provided to protect the UVW voltage output terminals from overload.
2. **AC Ammeter –** Indicates the amount of current the load is drawing from the generator.
3. **Ammeter Change-Over Switch –** This switch allows the AC ammeter to indicate the current flowing to the load connected to any phase of the output terminals, or to be switched off.
4. **Voltmeter Change-Over Switch –** This switch allows the AC Voltmeter to indicate phase to phase voltage between any two phases of the output terminals, or to be switched off.
5. **Voltage Regulator Control –** Allows adjustment of the generator's output voltage.
6. **Frequency Meter –** Indicates the output frequency in hertz (Hz). Normally 63Hz. with a calibration difference of $\pm$0.5% with the mechanical governor or $\pm$0.25% with the electronic governor.
7. **AC Voltmeter –** Indicates the single phase output voltage present at the UVW terminals.



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NO	DESCRIPTION
1	PANEL LIGHT
2	PANEL LIGHT SWITCH
3	OIL PRESSURE GAUGE
4	WATER TEMPERATURE GAUGE
5	CHARGING AMMETER
6	FUEL GAUGE
7	TACHOMETER
8	AUTO/ON/OFF ENGINE CONTROLLER
9	ENGINE SPEED SWITCH
10	PREHEAT BUTTON

Figure 9. Engine Operating Panel

DCA-150SSJU — ENGINE OPERATING PANEL (With Engine Controller)

The definitions below describe the controls and functions of the DCA-150SSJU " ***Engine Operating Panel*** " with Serial Number greater than7600090 (Figure 9).

1. **Panel light -** Normally used in dark places or at night. When activated, panel will luminate. When the generator is not in use, turn the panel light switch to the 'OFF' position.
2. **Panel light switch**- When activated, will turn on panel light.
3. **Oil Pressure Gauge –** During normal operation this gauge be should read 42 to 71 psi. When starting the generator the oil pressure may read slightly higher, but after the engine warms up the oil pressure should return within that range.
4. **Water Temperature Gauge –** During normal operation this gauge be should read 165°-203°F.
5. **Charging Ammeter Gauge –** Indicates the current being supplied by the engine's alternator which provides current for generator's control circuits and battery charging system.
6. **Fuel Gauge** - Indicates amount of diesel fuel available.
7. **Tachometer –** Indicates engine speed in RPM's for 60 Hz operation. This meter should indicate 1800 RPM's when the rated load is applied. In addition a built in hour meter will record the number of operational hours that the generator has been in use.
8. **Auto Start Controller –** This controller will indicated with LEDs that an engine fault has been detected. When a fault has been detected the controller will evaluate the fault will shutdown the generator if it may be damaging to the engine.

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

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

B. Low Oil Pressure – Indicates the engine pressure has fallen below 15 psi. The oil pressure is detected using variable resistive values from the oil pressure sending unit. This is considered a ***major*** fault.

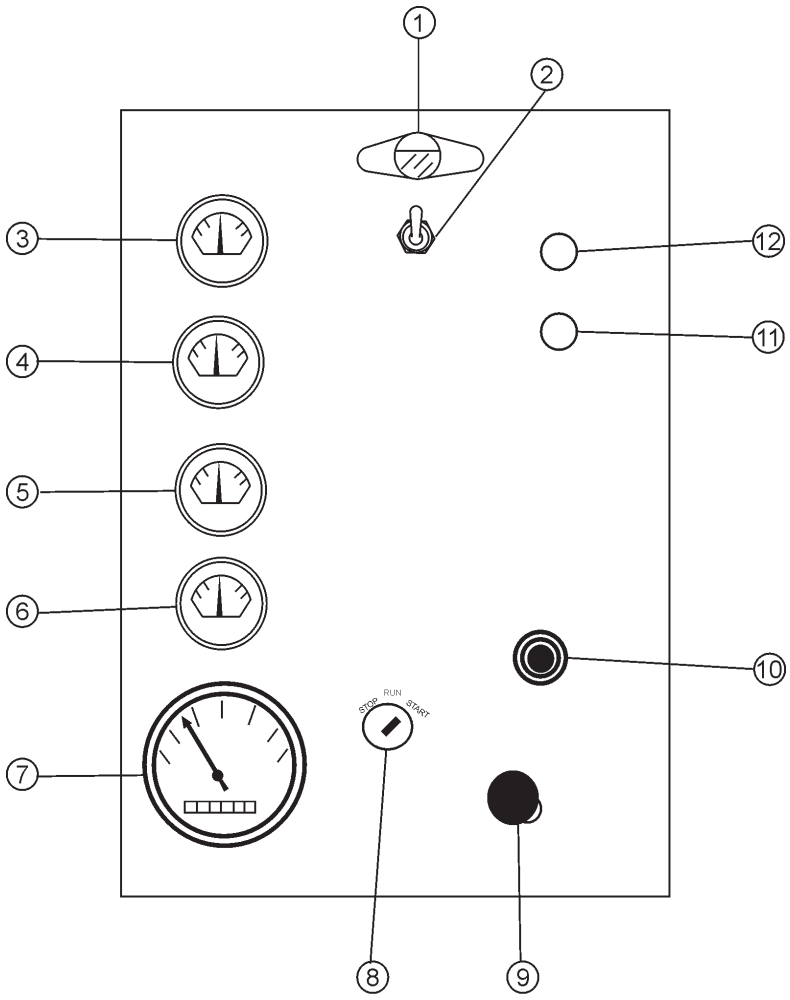
C. High Coolant Temperature – Indicates the engine temperature has exceeded 215°F. The engine temperature is detected using variable resistive values from the temperature sending unit. This is considered a ***major*** fault.

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

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

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

9. **Throttle Handle -** This handle controls the speed of the engine (low or high).
10. **Pre-Heat Button –** This is to pre-heat the engine under extreme cold conditions.



UP TO S/N760090

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

Figure 10. Engine Operating Panel

The definitions below describe the controls and functions of the DCA-150SSJU " ***Engine Operating Panel*** " (Figure 10).

1. **Panel light -** Normally used in dark places or at night. When activated, panel will luminate. When the generator is not in use, turn the panel light switch to the 'OFF' position.
2. **Panel light switch**- When activated, will turn on control panel light.
3. **Oil Pressure Gauge –** During normal operation this gauge be should read between 42 to 71 psi. When starting the generator the oil pressure may read slightly higher, but after the engine warms up the oil pressure should return within the normal range.
4. **Water Temperature Gauge –** During normal operation this gauge be should read between 165° to 203° F.
5. **Charging Ammeter Gauge –** Indicates the current being supplied by the engine's alternator which provides current for generator's control circuits and battery charging system.
6. **Fuel Gauge** - Indicates amount of diesel fuel available.
7. **Tachometer –** Indicates engine speed in RPM's for 60 Hz operation. This meter should indicate 1800 RPM's when the rated load is applied. In addition a built in hour meter will record the number of operational hours that the generator has been in use.
8. **Ignition Switch -** This switch is used to turn on or off the engine with a key.
9. **Throttle Handle -** This handle controls the speed of the engine (low or high).
10. **Pre-Heat Button –** This is to pre-heat the engine under extreme cold conditions.
11. **Water Temperature Indicator -** This light indicates the water temperature is too high and will shut down the engine.
12. **Oil Pressure Indicator -** This light indicates the oil pressure is either too high or too low and will shut down the engine.

OUTPUT TERMINAL PANEL FAMILIARIZATION

Output Terminal Panel

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

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

Output Terminal Panel

The Output Control Panel (See Figure 14) is located on the right hand side (left from control panel) of the generator. The UVW lugs are protected by a face plate cover that can be secured in the close position by a pad lock. (See Figure 11).

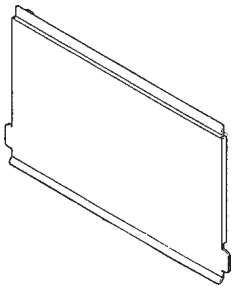


FIGURE 11. Output Terminal Cover

120 Volt Receptacle

Two GFCI Duplex Nema 5-20R (120V, 20 Amp) receptacle is provided on the output terminal. This receptacle can be used anytime the generator is in operation. The receptacle is controlled by the circuit breaker located on the control panel.

Pressing the reset button resets the receptacle after being tripped. Pressing the "Test Button" (See Figure 12) in the center of this receptacle will check the GFCI function. The receptacle should be tested at least once a month.

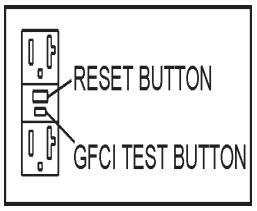


FIGURE 12. GFCI Test Button

Connecting Load

Loads can be connected to the generator by the UVW Lugs or the convenience receptacles. (See Figure 13). Make sure to read the operation manual before attempting to connect a load to the generator.

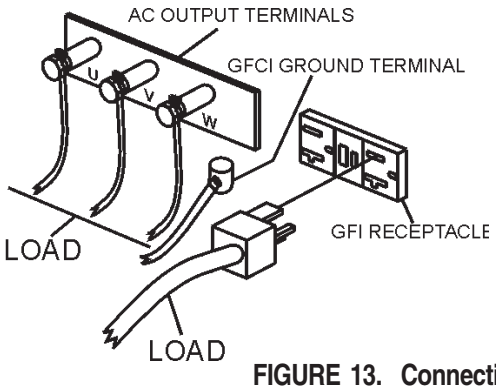


FIGURE 13. Connecting Load

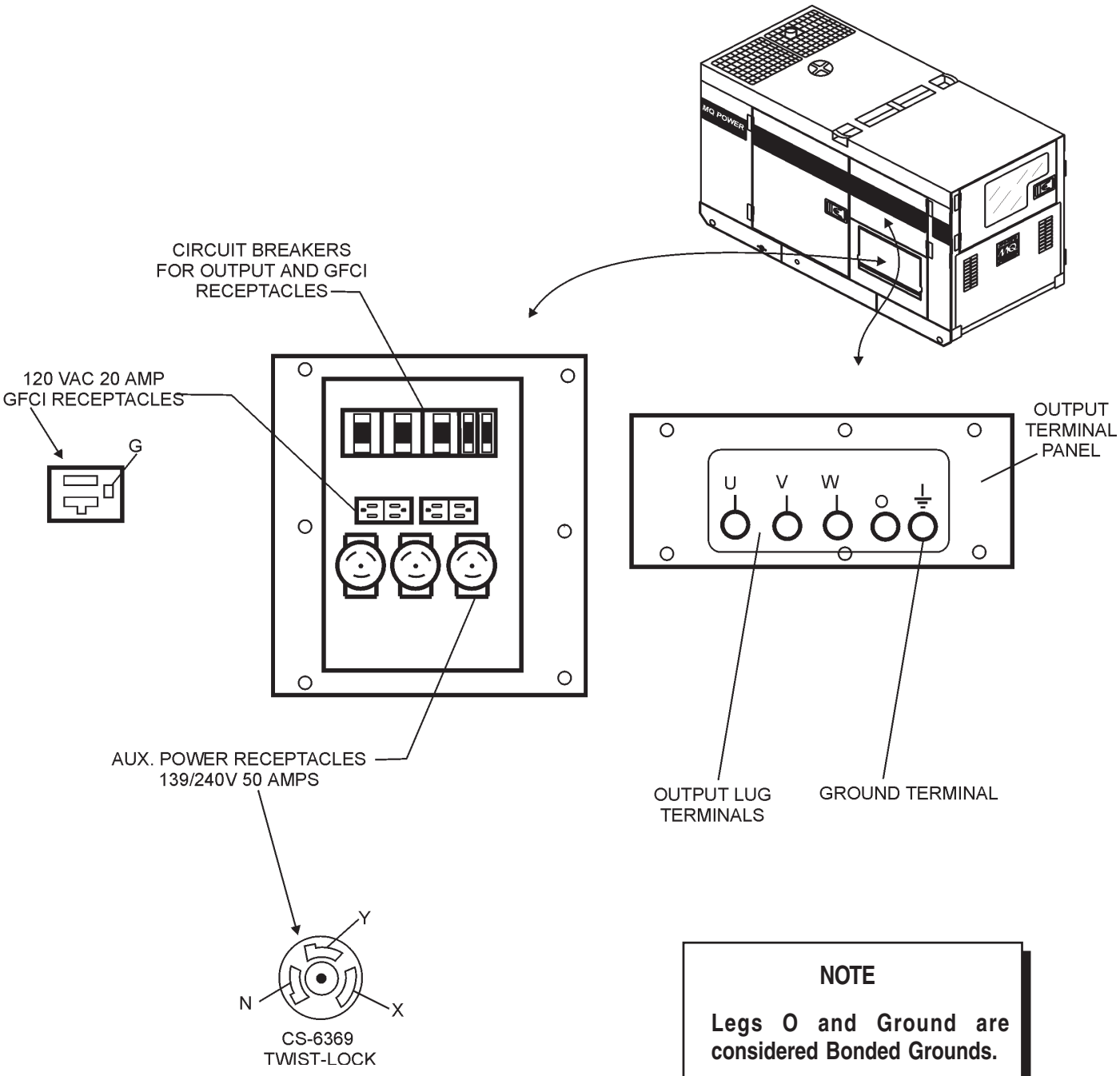
Circuit Breakers

To protect the generator from an overload, a 3-pole, 400 amp, ***main*** circuit breaker is provided to protect the UVW output terminals from overload. In addition two single-pole, 20 amp ***GFCI*** circuit breakers are provided to protect the GFCI receptacles from overload. Three 50 amp ***load*** circuit breakers have also been provided to protect the load side of the generator from overload. Make sure to switch ***ALL*** circuit breakers to the "OFF" position prior to starting the engine.

Maximum Output

The entire load connected to the UVW Lugs, all four slots in the duplex receptacles, and the must not exceed 132 kW in standby or 120 kW in prime output.

Twist Lock Dual Voltage Receptacles - To use these receptacles, place the voltage selector switch in the single phase 240/120 voltage position and adjust the output voltage to 240 volts with the voltage regulator on the Control Panel. Place the voltmeter change-over switch to the U-W position and the ammeter change-over switch to the U or W to read the output.



NOTE

Legs O and Ground are considered Bonded Grounds.

FIGURE 14. Output Terminal Panel

Output Terminal Panel Available Voltages

A wide range of voltages are available to supply load to many different applications. Voltages may be selected by using the voltage selector switch and how you hookup your hard wire connection to the generator. To obtain some of the voltages listed, fine adjustment with the Voltage Regulator on the control panel is necessary. See the table below (Table 8) for a list of available voltages the generator is able to supply.

TABLE 8. VOLTAGES AVAILABLE						
3 PHASE VOLTAGE (SWITCHABLE)	208 VOLT	220 VOLT	240 VOLT	416 VOLT	440 VOLT	480 VOLT
SINGLE PHASE (SWITCHABLE)	120 VOLT	127 VOLT	139 VOLT	240 VOLT	254 VOLT	277 VOLT

Voltage Selector Switch

The voltage selector switch is located above the UVWO Hard Wire Hookup Panel. It has been provided for ease of voltage selection.

CAUTION :

NEVER switch Voltage Selector Switch position while the engine is engaged.

Voltage Selector Switch Locking Button

The voltage selector switch has a locking button to protect the generator and generator load from being switched while the engine is running. To lock the Voltage Selector Switch, press in the red button located on the Voltage Selector Switch, and use a pad lock to hold it into this position.

Over Current Relay

An over current relay is connected to the circuit breaker. In an over current situation, both the circuit breaker and the over current relay may trip. If the circuit breaker can not be reset, the reset button on the over current relay must be pressed. The over current relay is located in the control box.

Maximum Amps

The following table show the maximum amps the entire generator can provide. Do not exceed the maximum amps listed. (See Table 9)

Table 9. Maximum Amps	
Model:	**DCA150SSJU**
Rated Voltage	**Maximum Amps**
Single Phase 120 Volt	333.3 amps (4 wire)
Single Phase 240 Volt	166.7 amps (4 wire)
Three Phase 240 Volt	361 amps
Three Phase 480 Volt	180 amps

Receptacle Use

When the UVWO terminals are providing power, the receptacle power available decrease. Do not exceed receptacle power available listed on Table 10.

Table 10. Receptacle Use		
Power in Use		**Receptacle Power Available**
240/480V 3-Phase	**240/120V Single Phase or Twist Lock CS6369**	**GFCI Duplex NEMA 5-20R 120V**
KVA	**KW**	**KW**
150	87	0
146	85.8	1.2
142	84.6	2.4
138	83.4	3.6
133	82.2	4.8

How to read the output terminal gauges.
The gauges and knobs on the control panel **DO NOT** effect the generator output in any fashion. They are there to simply help the operator observe how much power is being supplied produced at the UVWO legs.

When the voltage selector switch is in the 240/120V position (see Figure 15), place the AC Voltmeter Change-over switch to the W-U position and the AC ammeter Change-over Switch to the U or W position to read the output on the selected leg.

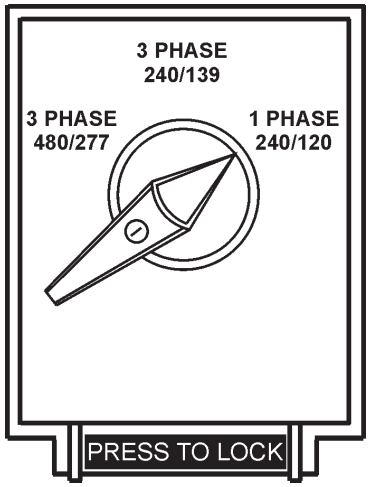


FIGURE 15. Voltage Selector Switch 240/120V Single Phase Position

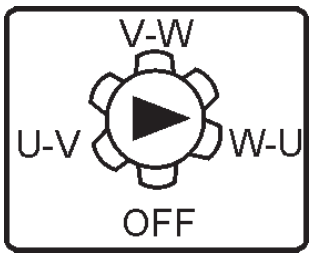


FIGURE 16. AC Voltmeter Change-over switch (Reading the W-U leg on the output terminal panel)

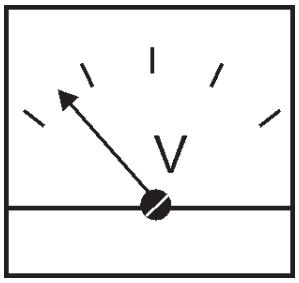


FIGURE 17. AC Voltmeter Gauge (Volt reading on W-U Lug)

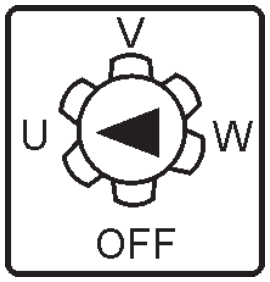


FIGURE 18. AC Ammeter Change-over Switch (Reading the U leg on the output terminal panel)

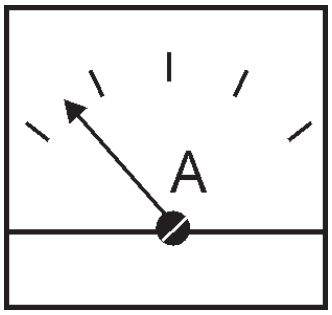


FIGURE 19. AC Ammeter (Amp reading on U lug)

NOTE

When using plural single phase voltages, make sure to balance the load on each of the single phase legs.

240/120V Hard Wire Hookup

The output terminal panel, when suppling single phase 120 volts, will provide three legs available with 333.3 amps each on three different circuits. (See Figure 21 below.) The voltage selector switch must be set at the single phase 240/120V position. (See Figure 20 below.)

The output terminal panel, when suppling single phase 240 volts, will provide one leg only with 166.7 amps available. (See Figure 21 below.) The voltage selector switch must be set at the single phase 240/120V position. (See Figure 20 below.)

480/240V Hard Wire Hookup

The output terminal panel, when suppling three phase 240 volts, will provide one circuit available at 361 amps with any two wires plus the ground. (See Figure 23 below.) The voltage selector switch must be set at the three phase 480/277V position. (See Figure 22 below.)

The output terminal panel, when suppling 3 phase 480 volts, will provide one circuit available at 180 amps available with all three wires plus ground. (See Figure 23 below.) The voltage selector switch must be set at the three phase 480/277V position. (See Figure 22 below.)

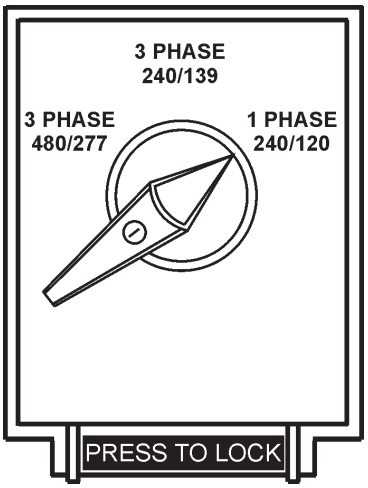


FIGURE 20. Voltage Selector Switch 240/120V Single Phase Position

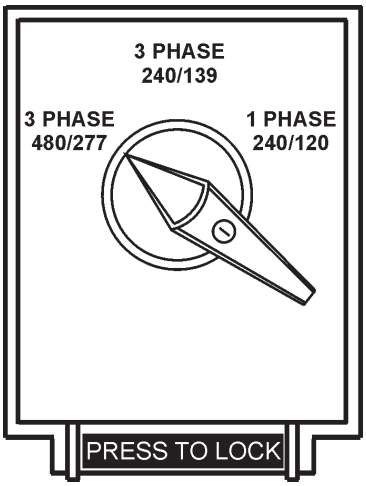


FIGURE 22. Voltage Selector Switch 480/277V Three Phase Position

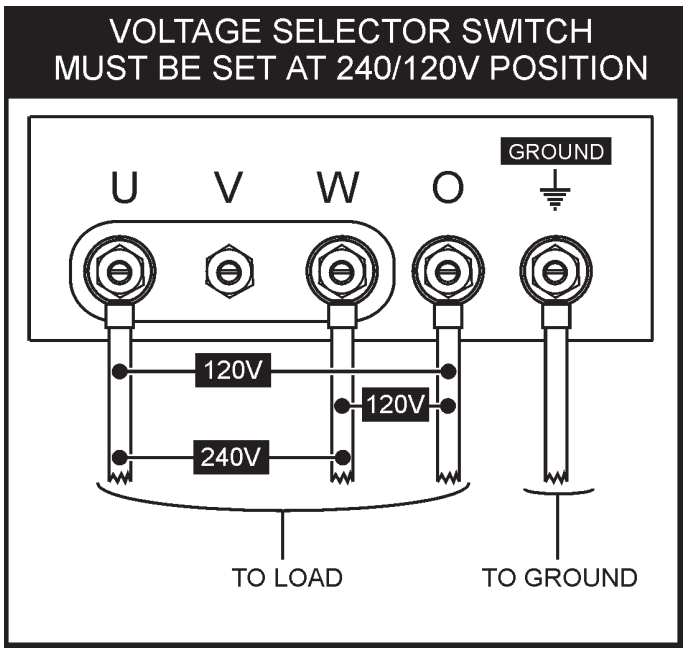


FIGURE 21. Hard Wire Hookup at 240/120V Position

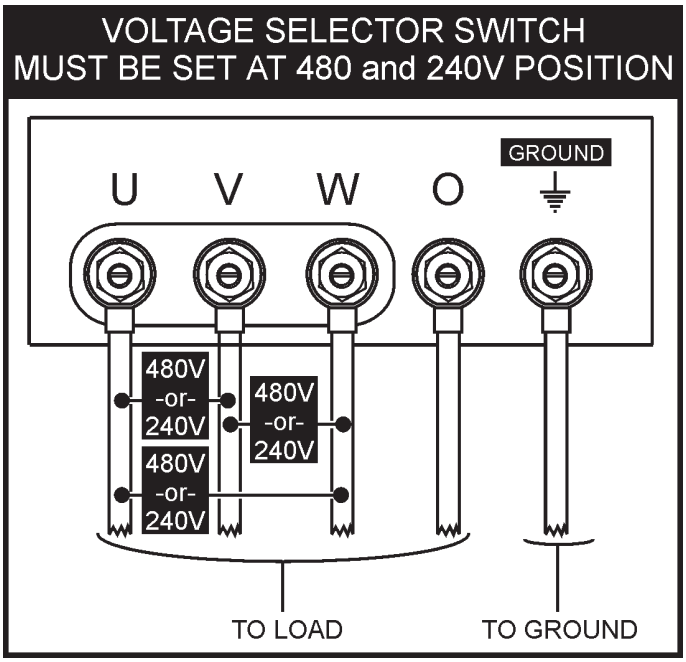


FIGURE 23. Hard Wire Hookup at 480/240V Position

Voltage Selector Switch- 3 Phase 480/277V Position
The following are additional voltages available when the voltage selector switch is in the 3 phase 480/277V position. (See Figure 24 below.)

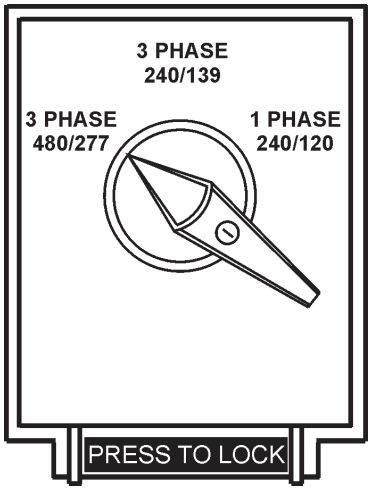


FIGURE 24. Voltage Selector Switch 480/277V Single Phase Position

FIGURE 25. Voltage Regulator Knob

3 Phase, 480V, 440V, or 416 Volt
The following connection, with the voltage selector switch locked into the 3 phase 480/277V position (See Figure 24), can offer **THREE PHASE** power at 480V, 440V, or 416V. After hooking up the hard wires to the lugs as shown in Figure 26 below, 480V will be the voltage with the Voltage Regulator Knob turned toward maximum. 440 volt will be reached when the Voltage Regulator Knob is turned down, and 416 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 25).

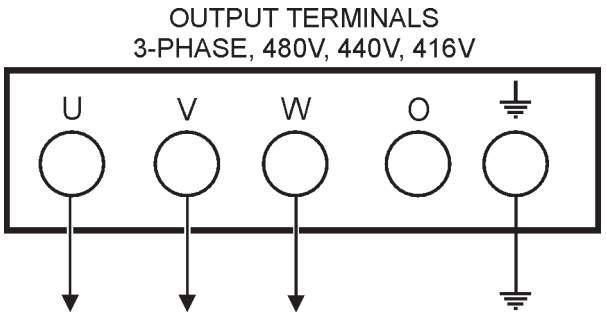


FIGURE 26. Hard Wire Hookup for Three Phase 480V, 440V, or 416V

Single Phase: 480V, 440V, or 416 Volt
The following connection, with the voltage selector switch locked into the 3 phase 480/277V position (See Figure 27), can offer **SINGLE PHASE** power at 480V, 440V, or 416V. After hooking up the hard wires to the lugs as shown in Figure 27 below, 480V will be the voltage with the Voltage Regulator Knob turned toward maximum. 440 volt will be reached when the Voltage Regulator Knob is turned down, and 416 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 25).

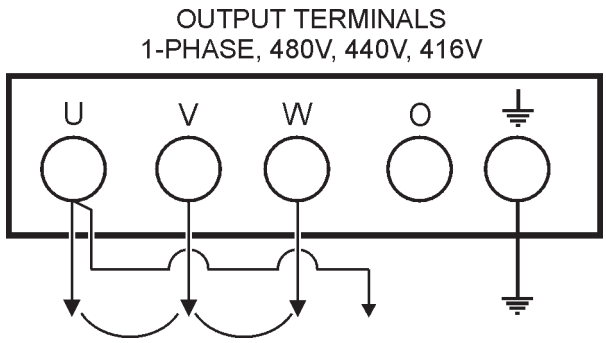


FIGURE 27. Hard Wire Hookup for Single Phase 480V, 440V, or 416V

Single Phase: 277V, 254V, or 240V
The following connection, with the voltage selector switch locked into the 3 phase 480/277V position (See Figure 28), can offer **SINGLE PHASE** power at 277V, 254V, or 240V. After hooking up the hard wires to the lugs as shown in Figure 28 below, 277V will be the voltage with the Voltage Regulator Knob turned toward maximum. 254 volt will be reached when the Voltage Regulator Knob is turned down, and 240 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 25).

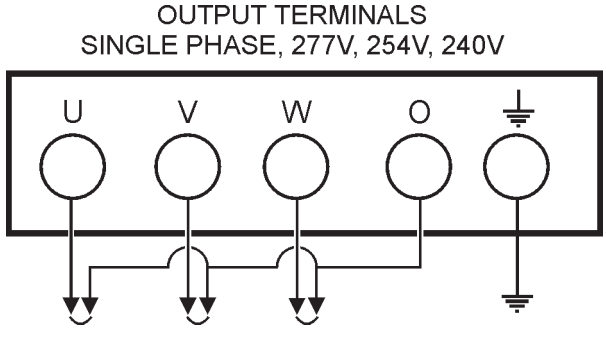


FIGURE 28. Hard Wire Hookup for Single Phase 277V, 254V, or 240V

Voltage Selector Switch- 3 Phase 240/139V Position
The following are additional voltages available when the voltage selector switch is in the 3 phase 240/139V position. (See Figure 29 below.)

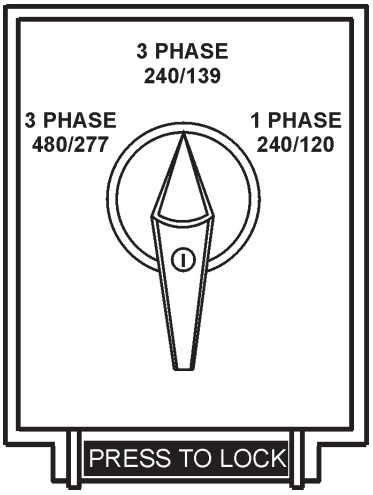


FIGURE 30. Voltage Regulator Knob located on the control panel

FIGURE 29. Voltage Selector Switch 240/139V Three Phase Position

3 Phase, 240V, 220V, or 208 Volt
The following connection, with the voltage selector switch locked into the 3 phase 240/139V position (See Figure 29), can offer **THREE PHASE** power at 240V, 220V, or 208V. After hooking up the hard wires to the lugs as shown in Figure 31 below, 240V will be the voltage with the Voltage Regulator Knob turned toward maximum. 220 volt will be reached when the Voltage Regulator Knob is turned down, and 208 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 30).

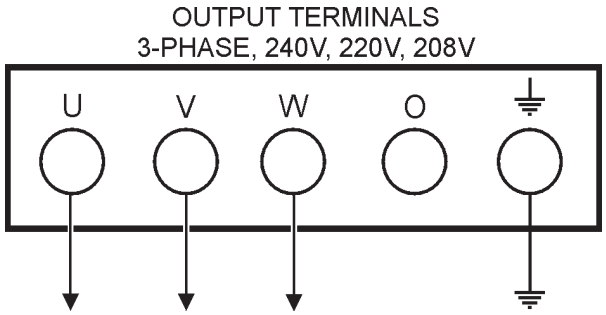


FIGURE 31. Hard Wire Hookup for Three Phase 240V, 220V, or 208V

Single Phase: 240V, 220V, or 208 Volt
The following connection, with the voltage selector switch locked into the 3 phase 240/139V position (See Figure 32), can offer **SINGLE PHASE** power at 240V, 220V, or 208V. After hooking up the hard wires to the lugs as shown in Figure 32 below, 240V will be the voltage with the Voltage Regulator Knob turned toward maximum. 220 volt will be reached when the Voltage Regulator Knob is turned down, and 208 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 30).

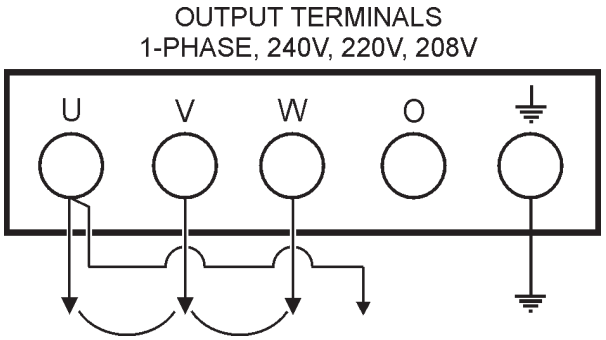


FIGURE 32. Hard Wire Hookup for Single Phase 240V, 220V, or 208V

Single Phase: 139V, 127V, or 120V
The following connection, with the voltage selector switch locked into the 3 phase 240/139V position (See Figure 33), can offer **SINGLE PHASE** power at 139V, 127V, or 120V. After hooking up the hard wires to the lugs as shown in Figure 33 below, 139V will be the voltage with the Voltage Regulator Knob turned toward maximum. 127 volt will be reached when the Voltage Regulator Knob is turned down, and 120 volt when the Voltage Regulator Knob is toward the lowest setting (See Figure 30).

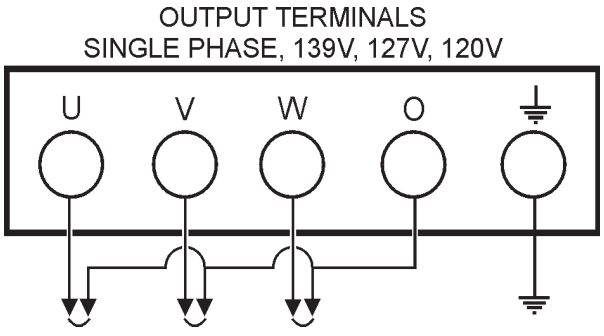


FIGURE 33. Hard Wire Hookup for Single Phase 139V, 127V, or 120V

Voltage Selector Switch- Single Phase 240/120V Position

The following are additional voltages available when the voltage selector switch is in the single phase 240/120V position. (See Figure 34 below.)

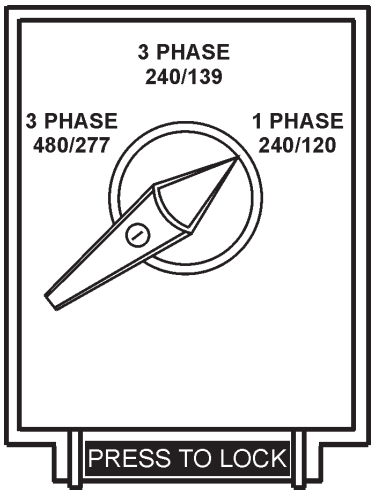


FIGURE 34. Voltage Selector Switch 240/120V Single Phase Position

FIGURE 35. Voltage Regulator Knob located on the control panel

Single Phase, 240 Volt

The following connection, with the voltage selector switch locked into the single phase 240/120V position (See Figure 34), will offer **SINGLE PHASE** power at 240V. After hooking up the hard wires to the lugs as shown in Figure 36 below, use the Voltage Regulator Knob to fine tune to 240V. (See Figure 35).

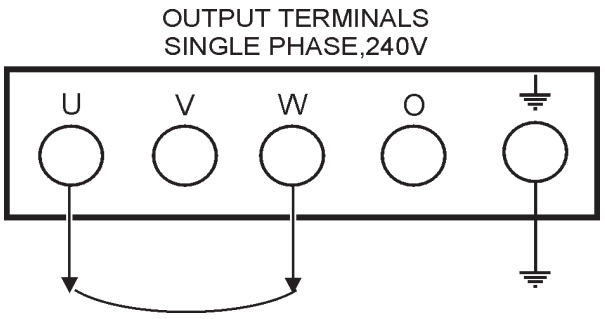


FIGURE 36. Hard Wire Hookup for Single Phase 240 volt

Single Phase: 120 Volt

The following connection, with the voltage selector switch locked into the single phase 240/120V position (See Figure 34), will offer **SINGLE PHASE** power at 120V. After hooking up the hard wires to the lugs as shown in Figure 37 below, use the Voltage Regulator Knob to fine tune to 120V. (See Figure 35).

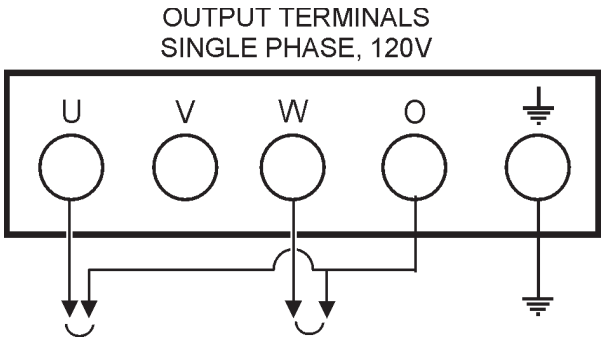


FIGURE 37. Hard Wire Hookup for Single Phase, 120 volt

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 that it cannot slide or shift around. Also install the generator in a manner so that 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 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.

Mounting

The generator must be mounted on a solid foundation (such as concrete) and set firmly on the foundation to isolate vibration of the generator when it is running. The generator must set at least 6 inches above the floor or grade level (in accordance to NFPA 110, Chapter 5-4.1). DO NOT remove the metal skids on the bottom of the generator. They are to resist damage to the bottom of the generator and to maintain alignment.

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 mm^2) or larger.
   b. Aluminum - 8 AWG (8.4 mm^2) or larger.
2. When grounding the generator (Figure 38) 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.

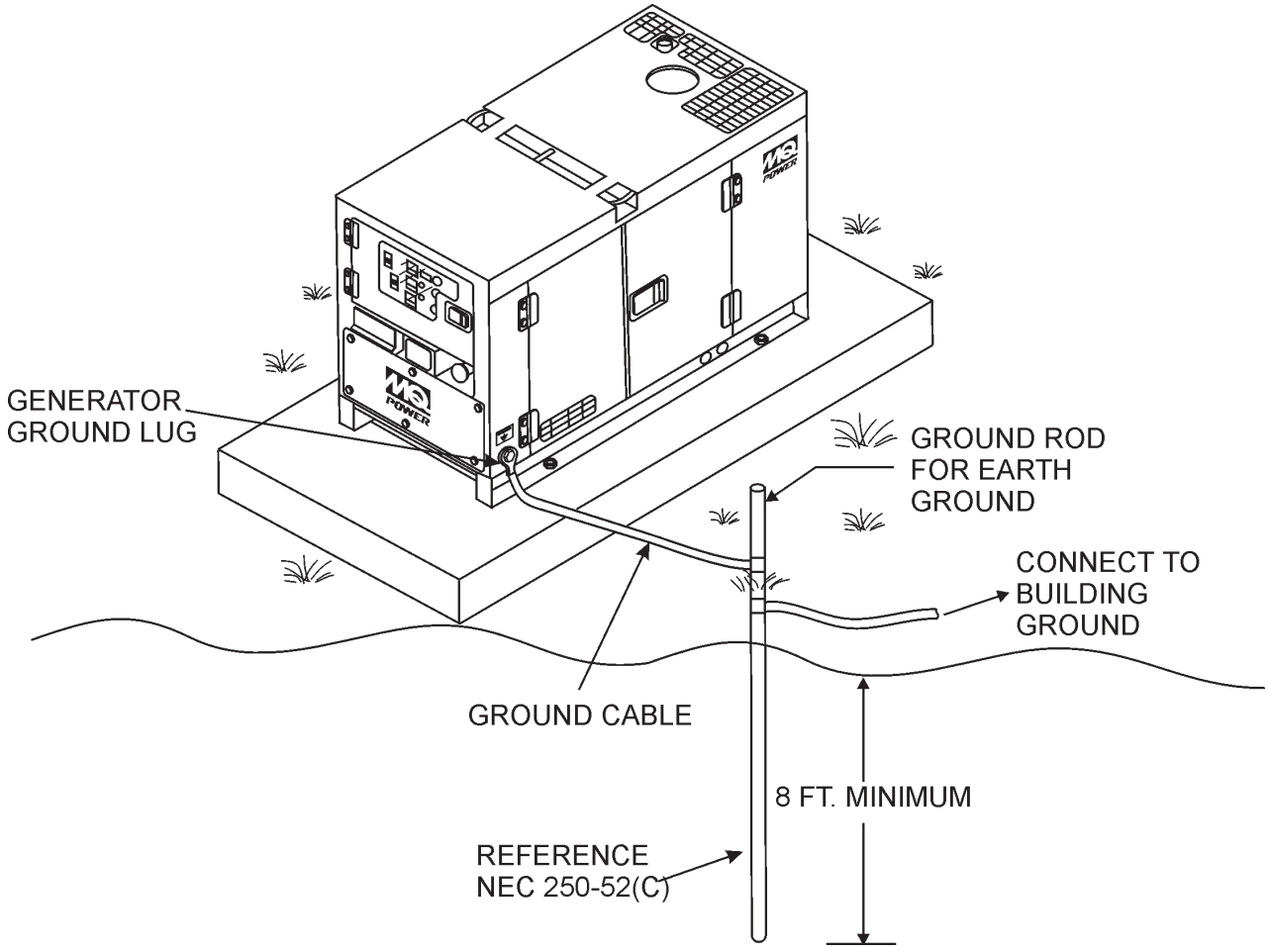


Figure 38. Typical Generator Grounding Application

CAUTION :

Always check Local, State, and Federal laws before grounding generator set.

General Inspection Prior to Operation

The DCA-150SSJU 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 11) as a guide for selecting proper cable size.

Circuit Breakers

To protect the generator from an overload, a 3-pole, 400 amp, ***main*** circuit breaker is provided to protect the UVW output terminals from overload. In addition two single-pole, 20 amp ***GFCI*** circuit breakers are provided to protect the GFCI receptacles from overload. Three 50 amp ***load*** circuit breakers have also been provided to protect the 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.

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 39) on the dipstick. See Table 12 for proper selection of engine oil.

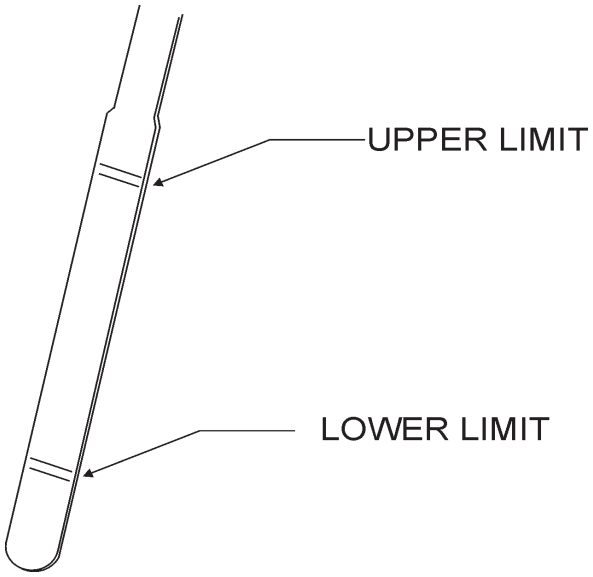


Figure 39. Engine Oil Dipstick

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 **John Deere Engine Owner'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 23, Specification Table 7.

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 12. Recommended Motor Oil

Temperature Range	Type Oil
22°F ~ -8°F (50°C ~ -15°C)	SAE 15w-40
86°F ~ -22°F (30°C ~ -30°C)	SAE 5W-30
Below -22°F (-15°C)	SAE 0W-30

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 13 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 13. Coolant Capacity	
Engine and Radiator	10.9 Gal. (41 Liters)
Reserve Tank	2 Quarts (11.9 Liters)

Operation in Freezing Weather
When operating in freezing weather, be certain the proper amount of antifreeze (Table 14) has been added.

Table 14. 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 antifreeze is mixed with water, the antifreeze 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 **John Deere Engine Owner's Manual.**

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

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

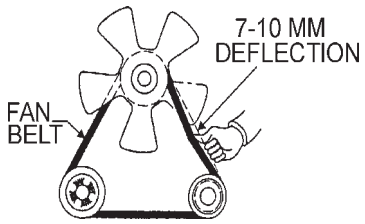


Figure 40. Fan Belt Tension

CAUTION :

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

Battery
This unit is of negative ground **DO NOT** connect in reverse. 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.

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.

Battery Cable Installation

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

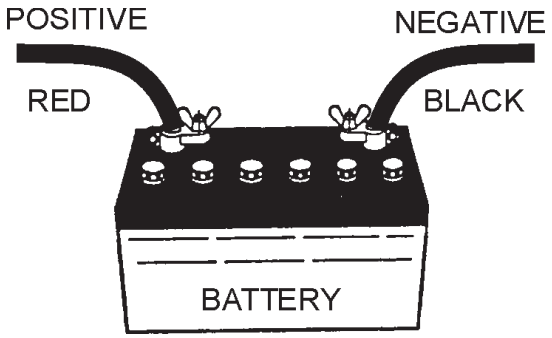


Figure 41. Battery Connections

CAUTION :

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.

Before connecting battery do the following:

1a. **DO NOT** connect the battery cables to the battery terminals when the ***Off/Manual/Auto*** switch is in either the manual or auto position (ON) if the generator is installed with a microprocessor engine controller. **ALWAYS** make sure that the Off/Manual/Auto switch is in the "OFF" position when connecting the battery.

1b. If the generator is equipped with an ignition switch, make sure turned to the "OFF" position and the key is removed from the switch.

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.

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.

Ether Canister Operation (During Cold Conditions)

To bleed the ether, crank the engine for at least two revolutions, then momentarily depress the starting aid button while the engine is cranking. If the engine does not start, repeat the cranking process using only short bursts of ether only while the engine is cranking. Stop injecting the fluid after then engine starts. If the engine begins to die during the first few minutes of operation, inject another small shot of ether.

CAUTION :

Use only ether starting fluid while the engine is turning or damage may occur.

WARNING :

Ether is highly flammable. Do not use near open fires, flames, or sparks.

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-V position and the AC Ammeter change-over switch to If the generator is equipped with an ignition switch, make sure turned to the "OFF" position and the key is removed from the 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.

WATTS = VOLTAGE x AMPERAGE

The power factor of this generator is 0.8. See Table 15. 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, mecury 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:

$$KVA = \frac{VOLTAGE \times AMPERAGE \times 1.732}{1000}$$

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.

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

CAUTION:

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

NOTE

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

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 12 on page 45).
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 diesel fuel. 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 42) to the "OFF" position prior to starting the engine.

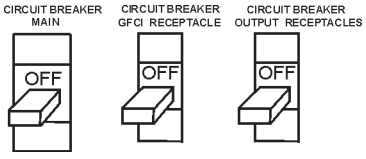


Figure 42. Main, GFCI and Load Circuit Breakers

2. Connect the load to the UVW terminals as shown in Figure 40. These terminals can be found on the output terminal panel, (see page 35 Figure 14). To gain access to the output terminals lift the UVW cover. Tighten terminal nuts securely to prevent load wires (Figure 43) from slipping out.

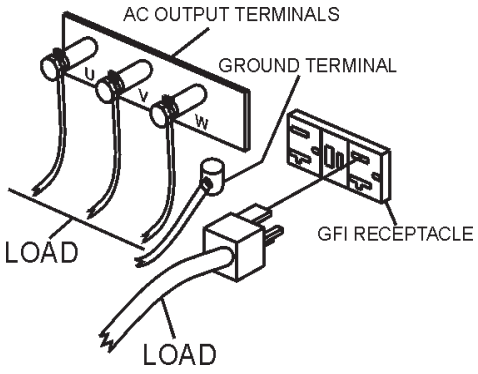


Figure 43. UVW Terminal Lugs (Load)

3. Connect the negative battery cable (BLACK) to the negative post on the battery (Figure 44).

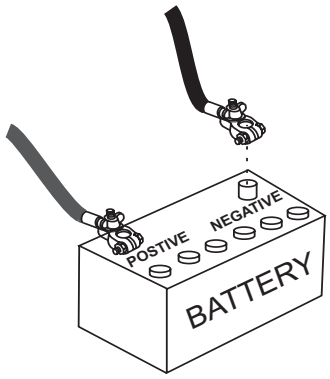


Figure 44. Battery Connections

4. Close all engine enclosure doors (Figure 45).

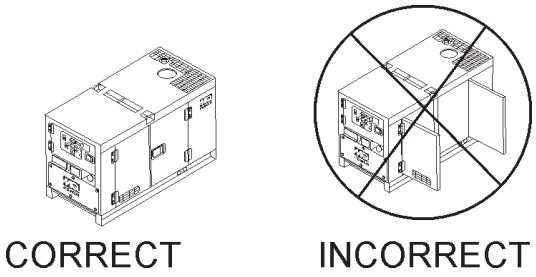


Figure 45. Engine Enclosure Doors

5. When starting the generator in **COLD** weather conditions, press and hold the engine preheat button (Figure 46).

Figure 46. Engine Pre-Heat Button

6. Check the voltage selector switch to desired position. (Figure 47)

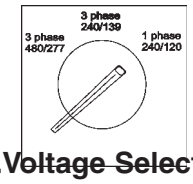


Figure 47. Voltage Selector Switch

7. Check the engine throttle lever is in 'low' position (Figure 48).

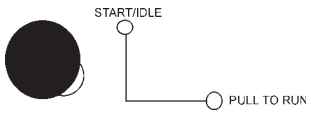


Figure 48. Engine Throttle Lever (low)

8. Turn the key to 'Start' until the engine starts (Figure 49). Then release the key to 'Run'.

Figure 49. Ignition Switch (Start)

9. Let the engine warm up for a few minutes. Then pull and turn the throttle lever to the right to set the engine speed to 'high' (Figure 50).

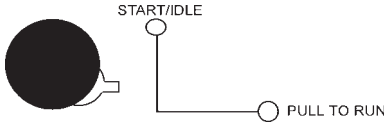


Figure 50. Engine Throttle Lever (high)

10. The generator's frequency meter (Figure 51) displays the 60 cycle output frequency in **HERTZ**.

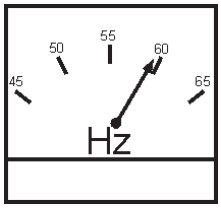


Figure 51. Frequency Meter (Hz)

11. The generator's voltage meter (Figure 52) displays the 120 VAC in **VOLTS**. If the voltage is not within the specified frequency tolerance, use the voltage adjustment control knob (Figure 53) to increase or decrease the desired voltage.

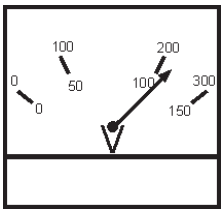


Figure 52. Voltage Meter (Volts)

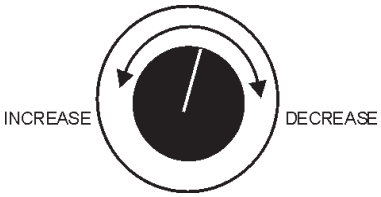


Figure 53. Voltage Adjust Control Knob

12. The ammeter (Figure 54) 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.

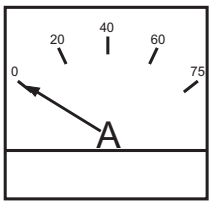


Figure 54. Ammeter (No Load)

13. The engine oil pressure gauge (Figure 55) will indicate the oil pressure of the engine. Under normal operating conditions the oil pressure is approximately 41 to 71 psi.

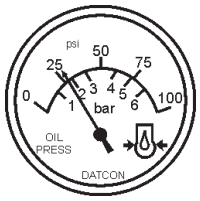


Figure 55. Oil Pressure Gauge

14. The coolant temperature gauge (Figure 56) will indicate the coolant temperature. Under normal operating conditions the coolant temperature is approximately 215ºF.

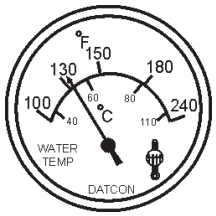


Figure 56. Coolant Temperature Gauge

15. The tachometer (Figure 57) will indicate the speed of the engine when the generator is operating. Under normal operating conditions this speed is approximately 1800 RPM's.

Figure 57. Engine Tachometer

16. Turn the MAIN, GFCI and LOAD circuit breakers to their ON position (Figure 58).

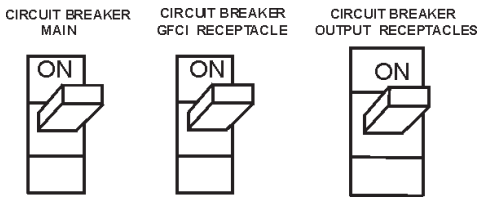


Figure 58. Main and GFCI Circuit Breakers

17. Observe the generator's ammeter (Figure 59) 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.

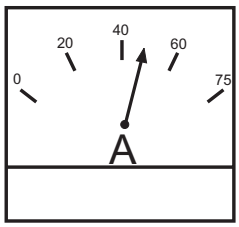


Figure 59. Ammeter (Load)

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

Begin start-up procedure 1-3 on page 49.

4. Close all engine enclosure doors (Figure 60).

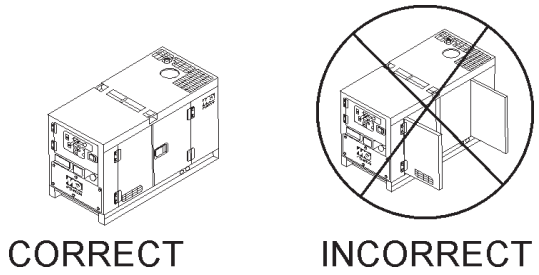


Figure 60. Engine Enclosure Doors

5. When starting the generator in **COLD** weather conditions, press and hold the engine preheat button (Figure 61).

Figure 61. Engine Pre-Heat Button

6. Check the voltage selector switch to desired position. (Figure 61).

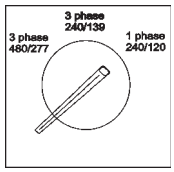


Figure 62.Voltage Selector Switch

7. Check the engine throttle switch is in 'low' position (Figure 63).

Figure 63. Engine Switch (LOW)

8. Place the Off/Manual/Auto switch (Figure 64) in the **MANUAL** position. The engine will start cranking.

Figure 64. Off/Manual/Auto Switch (Manual)

9. After engine starts, verify that the "**Engine Running**" status LED (Figure 65) on the Engine Controller display is "ON" (lit). If any faults light, the engine will shut down. See troubleshooting tables for guidance.

Figure 65. Engine Controller Running Status LED

10. Let the engine warm up for a few minutes. Change the idle switch to "HIGH" (Figure 66).

Figure 66. Engine Switch (HIGH)

11. The generator's frequency meter (Figure 67) displays the 60 cycle output frequency in **HERTZ**.

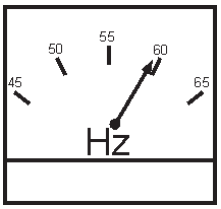


Figure 67. Frequency Meter (Hz)

12. The generator's voltage meter (Figure 68) displays the 120 VAC in **VOLTS**. If the voltage is not within the specified frequency tolerance, use the voltage adjustment control knob (Figure 69) to increase or decrease the desired voltage.

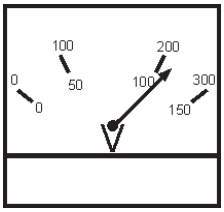


Figure 68. Voltage Meter (Volts)

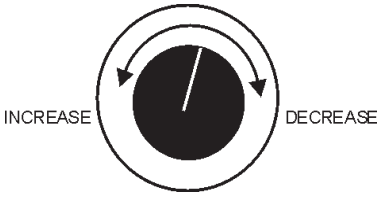


Figure 69. Voltage Adjust Control Knob

13. The ammeter (Figure 70) 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.

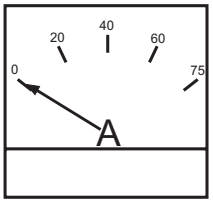


Figure 70. Ammeter (No Load)

14. The engine oil pressure gauge (Figure 71) will indicate the oil pressure of the engine. Under normal operating conditions the oil pressure is approximately 41 to 71 psi.

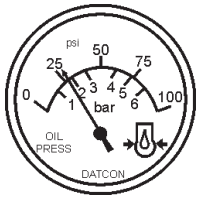


Figure 71. Oil Pressure Gauge

15. The coolant temperature gauge (Figure 72) will indicate the coolant temperature. Under normal operating conditions the coolant temperature is approximately 215°F..

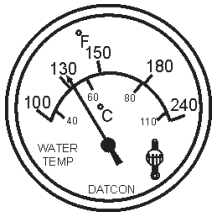


Figure 72. Coolant Temperature Gauge

16. The tachometer (Figure 73) will indicate the speed of the engine when the generator is operating. Under normal operating conditions this speed is approximately 1800 RPM's.

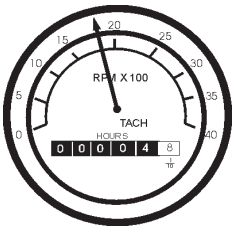


Figure 73. Engine Tachometer

17. Turn the MAIN, GFCI and LOAD circuit breakers to their ON position (Figure 74).

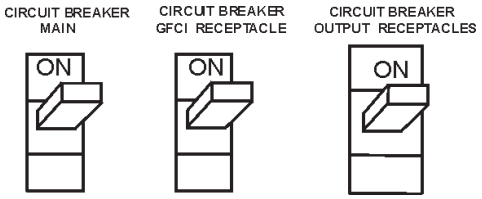


Figure 74. Main and GFCI Circuit Breakers

18. Observe the generator's ammeter (Figure 75) 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.

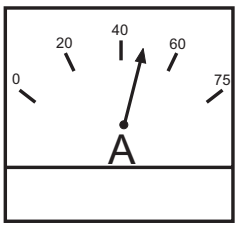


Figure 75. Ammeter (Load)

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

With an Engine Controller, starting the generator in the "**AUTO**" mode is similar to starting the generator in the "**MANUAL**" mode, with a few exceptions.

CAUTION:

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

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

1. Perform steps 1 through 7 (page 52) as outlined in the manual starting procedure.
2. Place the Off/Manual/Auto switch (Figure 74) in the **AUTO** position .

Figure 74. Off/Manual Auto Switch (AUTO)

3. Continue to follow the steps outline in the manual start-up procedure (start at step 11, page 32).

CAUTION:

If the generator is in auto mode, the engine may crank and attempt to start without warning. KEEP ALL UNAUTHORIZED PERSONNEL AWAY.

ENGINE SHUTDOWN (Key)

To shutdown the generator, use the following procedure:

1. Switch both the MAIN, GFCI and LOAD circuit breakers (Figure 75) to the “OFF” position.

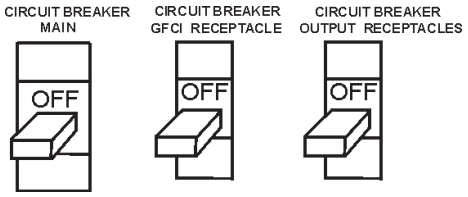


Figure 75. Main, GFCI and Load circuit breakers

2. Set the engine throttle lever to the idle (low) position.
3. Let the engine cool by running it for 3-5 minutes with no load applied.
4. Turn the starter switch to “STOP” position (Figure 76).

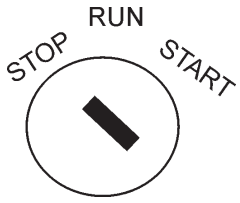


Figure 76. Starter Switch (Stop Position)

5. Remove the load from the UVW terminal strip.

ENGINE SHUTDOWN (Engine Controller)

To shutdown the generator, use the following procedure:

1. Switch both the MAIN, GFCI and LOAD circuit breakers (Figure 77) to the “OFF” position.

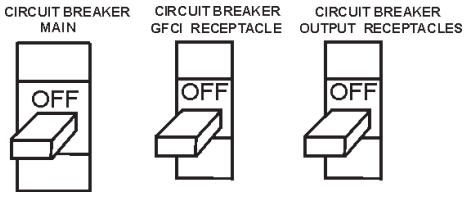


Figure 77. Main, GFCI and Load circuit breakers

2. Set the engine idle to (low) position.
3. Let the engine cool by running it for 3-5 minutes with no load applied.
4. Place the Off/Manual/Auto Switch (Figure 78) in the "**OFF/RESET**" position.

Figure 78. Off/Manual Auto Switch (OFF)

5. Verify that the "Engine Running" status LED (Figure 79) on the Auto/On/Offf Engine Controller display is "OFF" (not lit).

Figure 79. Engine Controller Status LED (OFF)

6. Remove the load from the UVW terminal strip.

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. Replace if any damage or unable to clean.

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/Change Oil

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 27, Figure 9.

To change the oil, remove oil plug located on the bottom of the generator. Make sure the to use an oil recycle container to catch the oil. Replace oil plug. Remove the oil filter located on the left side of the generator. Remove oil filter gasket and clean filter mounting pad. Lubricate gasket with small amount of oil and install new oil filter. Tighten filter with 1/4 turn after gasket contacts filter housing. DO NOT overtighten.

Fill with correct oil through oil filler located on the left side of the generator (see page Table for proper oil and specification table for proper amount). Crank engine (without starting) for 30 seconds to ensure proper lubrication. Start engine and check for leaks. Stop engine and check oil level.

Replacing Fuel Filter

Close shut-off valve. Throroughly clean fuel filter assembly and surrounding area. Loosen drain plug and drain fuel into a suitable container. Firmly grasp the retaining ring and rotate it counterclockwise 1/4 turn. Remove ring with filter element. Inspect filter mounting base for cleanliness. Install new filter element onto mounting base. Be sure element is properly indexed and firmly seated on base. It may be necessary to rotate filter for correct alignment.

Cleaning and Installing Ether Canister

Remove safety cap from ether canister. Remove spray nozzle from canister. Remove the old canister assembly from the solenoid and properly dispose the old canister. Install the new canister and canister assembly to the solenoid.

CAUTION:

Ether is highly flammable. Do not use near open fires, flames, or sparks. Do not leave the canister assembly valve open.

TABLE 16.

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	
	Replace Ether Canister			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
GENERATO-R	Measure Insulation Resistance Over 3M ohms		X		

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

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

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.

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

TABLE 17. ENGINE TROUBLESHOOTING (part 1)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine does not start, black or gray exhaust gas, or deficient engine output.	Overloaded?	Lessen the load.
	Air in the fuel system?	Bleed system.
	Water in the fuel system?	Remove water from fuel tank.
	Fuel pipe clogged?	Clean fuel pipe.
	Uneven fuel injection?	Repair or replace the injection pump.
	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.
	Engine parts seizing?	Repair or replace.
	Incorrect injection timing?	Adjust timing.
	Deficient compression?	Adjust top clearance
	Piston ring and liner worn or stuck?	Replace.

TABLE 17. ENGINE TROUBLESHOOTING (part 2)

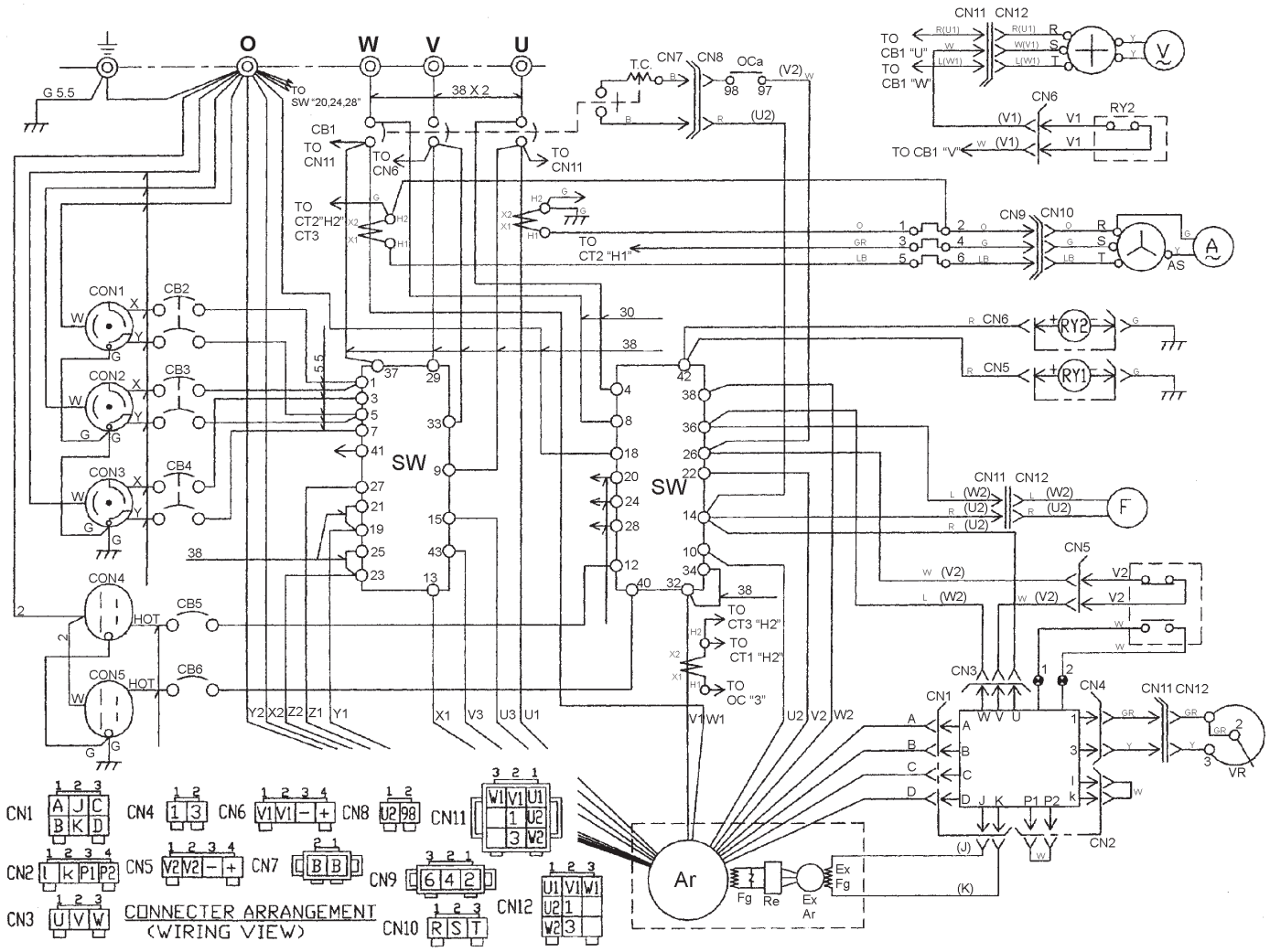
SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine revolution is not smooth.	Fuel leak due to loose injection pipe retaining nut?	Tighten nut.
	Injection pump malfunctioning?	Repair or replace.
	Incorrect nozzle opening pressure?	Adjust.
	Injection nozzle stuck or clogged?	Repair or replace.
	Fuel over flow pipe clogged?	Clean.
	Governor malfunctioning?	Repair or replace.
	Compression leak?	Replace head gasket, tighten cylinder head bolt, glow plug and nozzle holder.
Engine speed rises and no voltage is present in AC power source.	Defective rotor?	Replace rotor.
	No voltage present in AC power source?	Replace rectifier (RE1).
	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?	Replace circuit breaker.
Engine speed rises and battery discharges too soon.	Defective engine regulator?	Replace regulator.
	Defective wiring?	Repair wiring.
Engine speed rises but engine seems overloaded.	Defective alternator?	Repair or replace alternator.
	Damage alternator bearing?	Replace alternator bearings.

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 (Table 18) and Atuo/On/Off Engine Controller Trouble shooting (if applicable) (Table 19) . If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 18. ENGINE CONTROLLER TROUBLESHOOTING

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

DCA-150SSJU — WIRING DIAGRAM (GENERATOR)



Sym.	DESIGNATION
Ar	Main Generator Armature Winding
Fg	Main Generator Field Winding
ExAr	Exciter Armature Winding
ExFg	Exciter Field Winding
Re	Rectifier
AVR	Automatic Voltage Regulator
VR	Voltage Regulator (Rheostat)
CT	Current Transformer
AS	Change-Over Switch, Ammeter
A	Ammeter
VS	Change-Over Switch, Voltmeter
V	Voltmeter
F	Frequency Meter
CB	Circuit Breaker
CON	Receptacle
OC	Over Current Relay

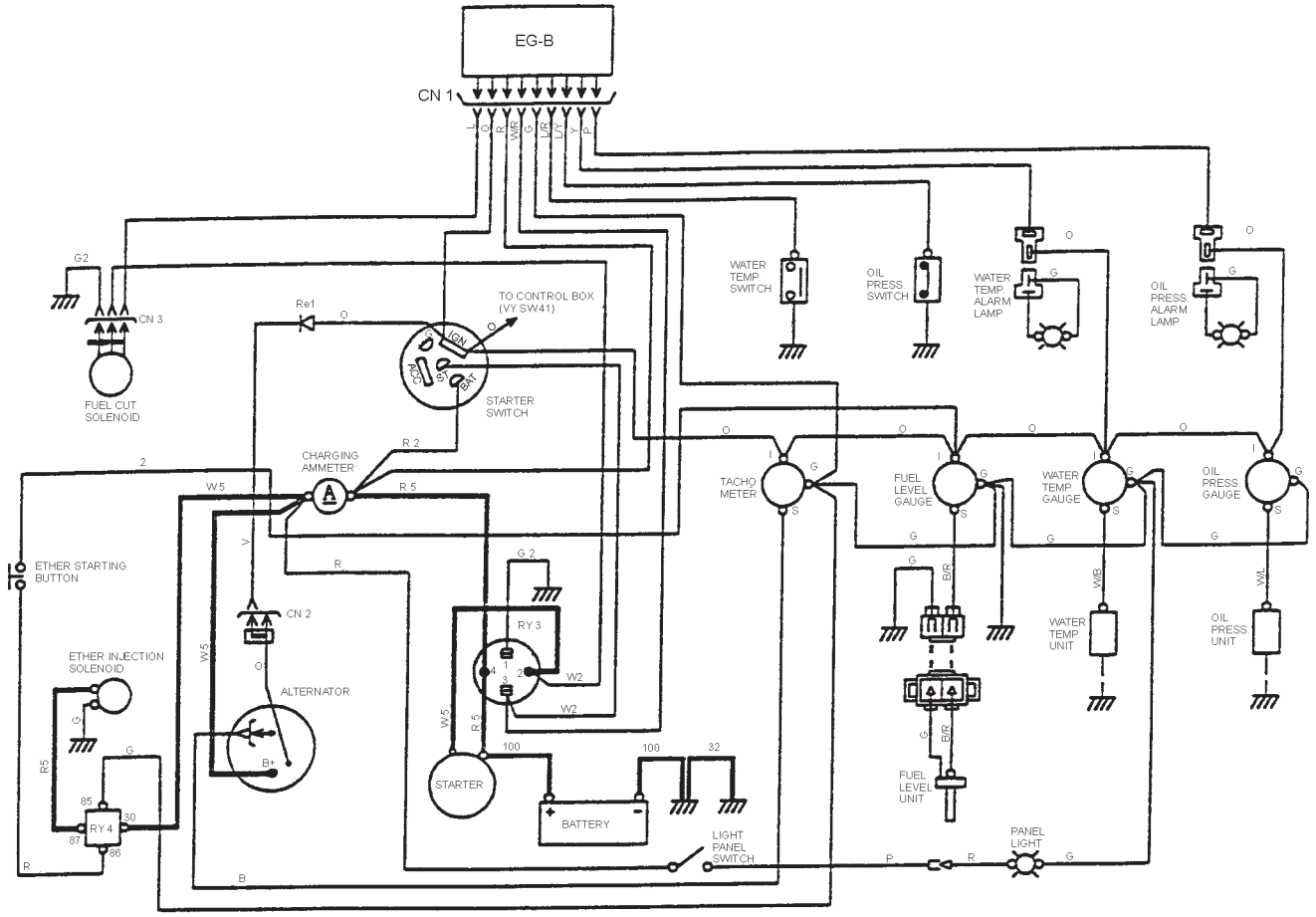
WIRE SIZE:
100: KIV OR MLFC 100mm²
38: KIV OR MLFC 38mm²
5: DESIGNATED COLOR AV 5mm²
2: DESIGNATED COLOR AV 2mm²

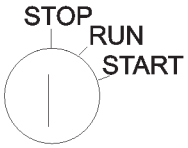
WITH NO DESIGNATION, USE AV 1.25mm²
LEAD OF DESIGNATED COLOR.

COLOR CODE:

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-150SSJU — WIRING DIAGRAM (ENGINE W/ STARTER SWITCH)





KEY CONNECTION DIAGRAM

	BAT	ACC	IGN	ST	GRD
STOP	○				
RUN	○	○	○		
START	○		○	○	

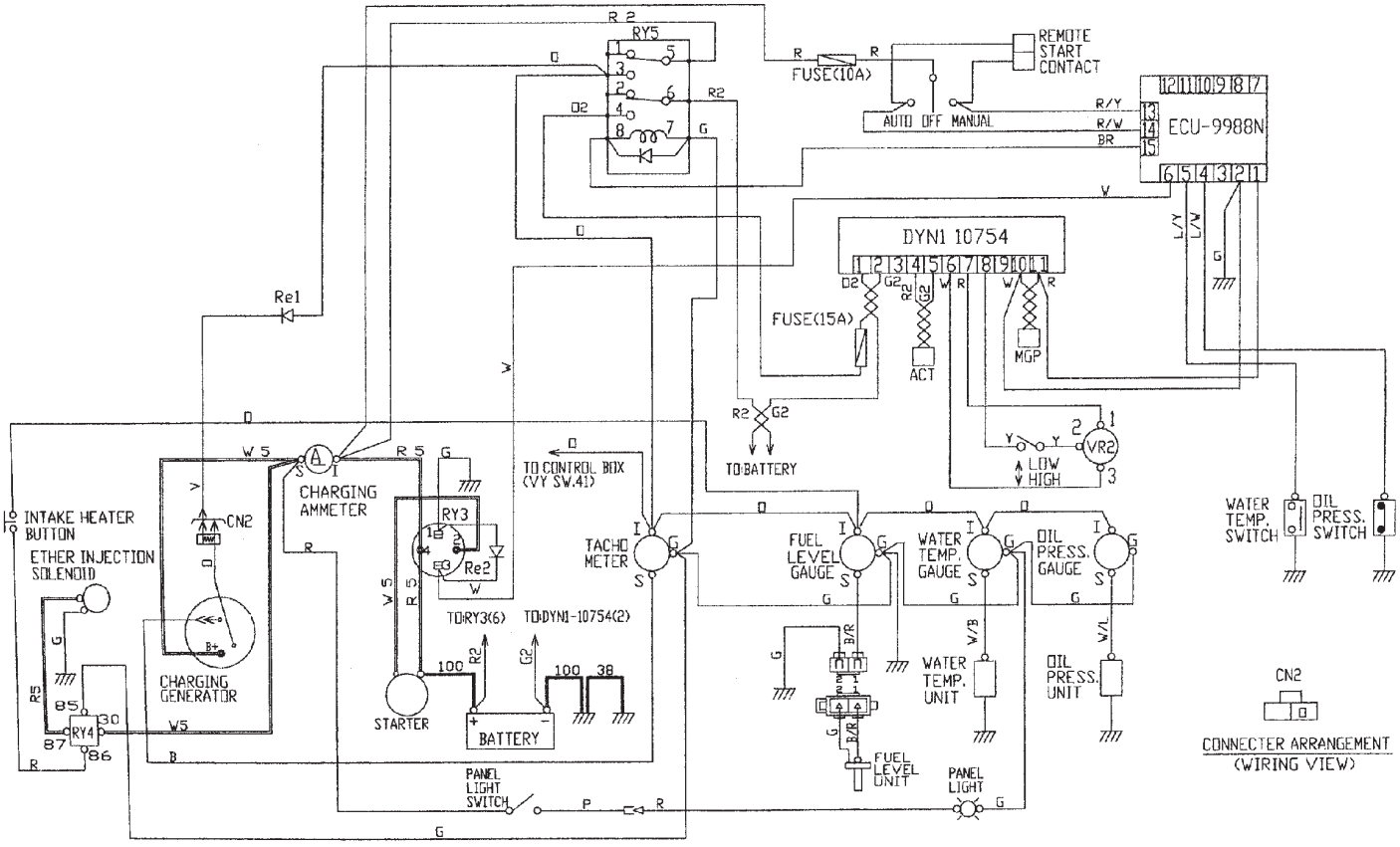
WIRE SIZE:
100: KIV OR MLFC 100mm²
38: KIV OR MLFC 38mm²
5: DESIGNATED COLOR AV 5mm²
2: DESIGNATED COLOR AV 2mm²

WITH NO DESIGNATION, USE AV 1.25mm²
LEAD OF DESIGNATED COLOR.

COLOR CODE:

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-150SSJU — WIRING DIAGRAM (ENGINE WITH CONTROLLER)



WIRE SIZE:
100: KIV OR MLFC 100mm²
38: KIV OR MLFC 38mm²
5: DESIGNATED COLOR AV 5mm²
2: DESIGNATED COLOR AV 2mm²

WITH NO DESIGNATION, USE AV 1.25mm²
LEAD OF DESIGNATED COLOR.

COLOR CODE:

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		

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 n, 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.

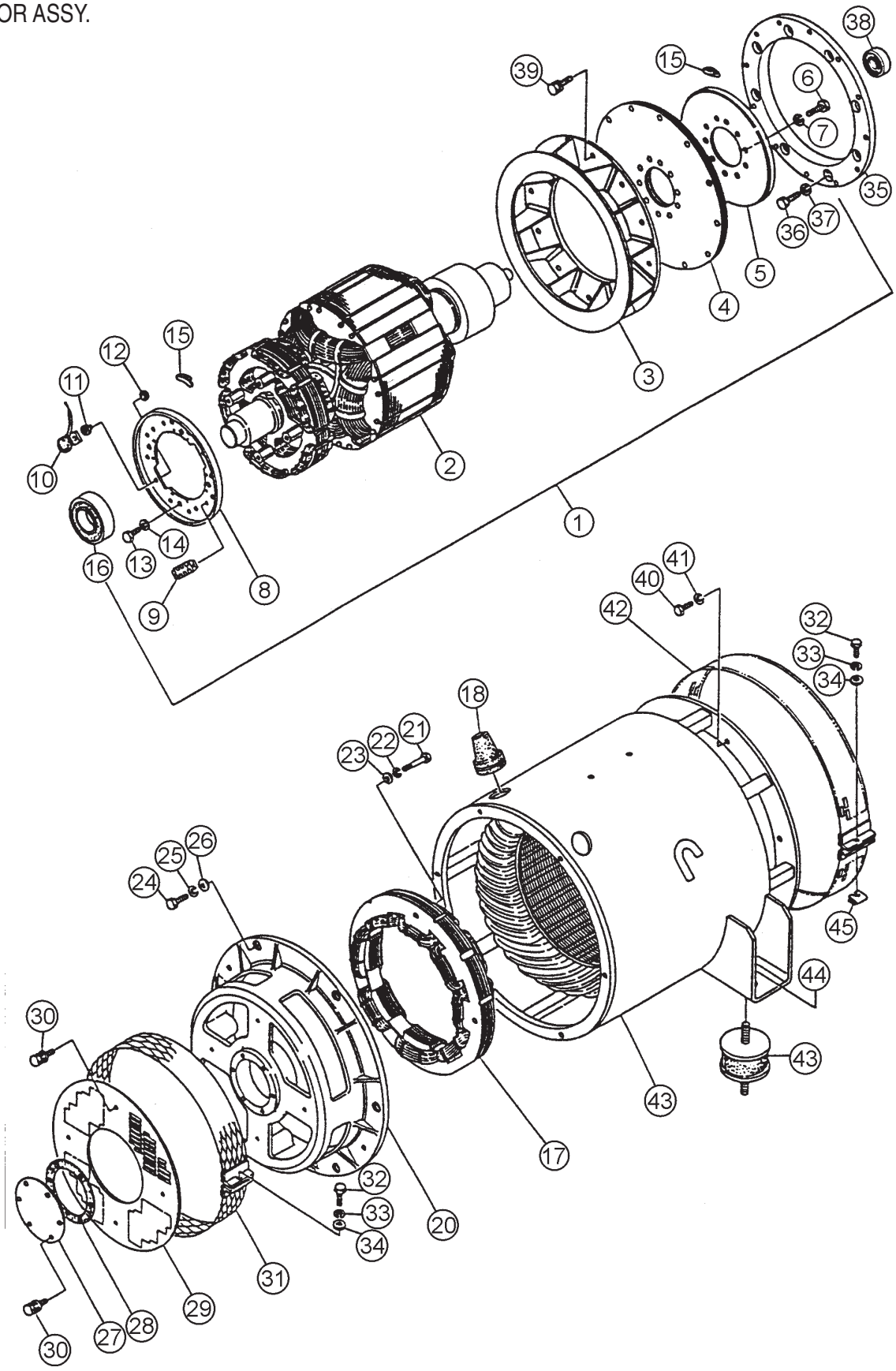
DCA-150SSJU W/JOHN DEERE 6081TF001 diesel ENGINE

1 to 5 Units

Qty.	P/N	Description
10	0602046379	AIR FILTER
10	0602042591	FUEL FILTER
10	0602041291	OIL FILTER
1	0601808803	CIRCUIT BREAKER
2	0602011492	ENGINE FAN BELT
1	0602100056	SWITCH, STARTER
5	AR51481	KEY SET, STARTER SWITCH (2)
2	0602122281	OIL SWITCH
1	M3310500203	RADIATOR HOSE (UPPER)
1	M3310500303	RADIATOR HOSE (LOWER)
1	0605505070	FUEL CAP
1	0601820671	AUTOMATIC VOLTAGE REGULATOR
1	0601808815	MAIN CIRCUIT BREAKER
1	0601808804	CIRCUIT BREAKER
1	0602103092	PILOT LAMP
2	0601810245	BULB, PILOT LAMP
1	0602011068	CAP, RADIATOR
1	0602122271	UNIT, OIL PRESSURE
1	0602123261	UNIT, WATER TEMPERATURE
1	0602121080	CHARGING AMMETER

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

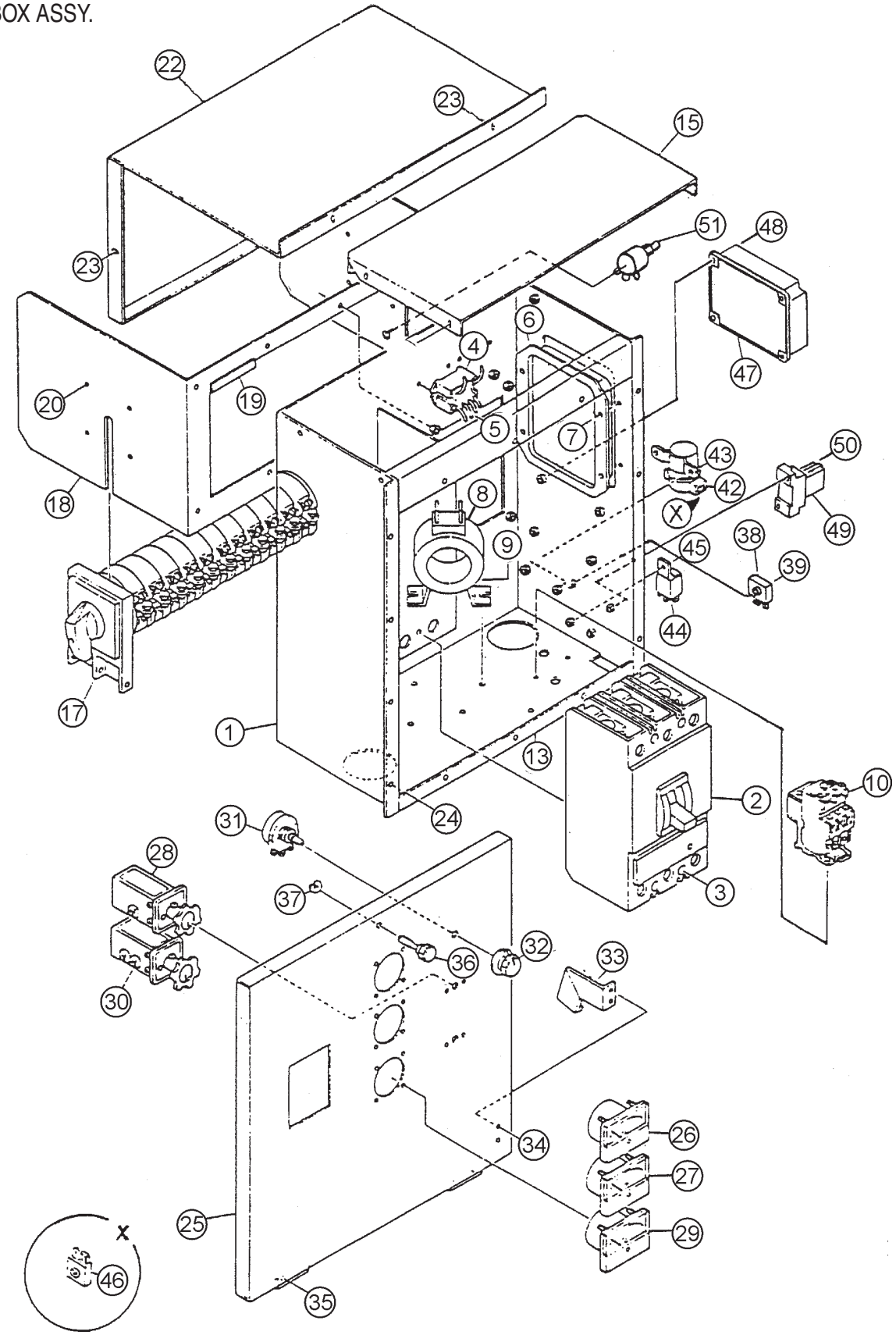
GENERATOR ASSY.



GENERATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	C0110000102	ROTOR ASS'Y	1	
2		FIELD ASS'Y	1	
3	8131070013	FAN	1	
4	8131611914	COUPLING DISK	8	
5	8131015003	BALANCING PLATE	1	
6	0012112035	HEX. HEAD BOLT	10	
7	0042612000	LOCK WASHER	10	
8	8101026013	SET PLATE RECTIFIER	1	
9	0601821349	RECTIFIER	2	PT 3610
10	0601822601	SERGE ABSORBER	1	ERZ- M14JK621A
11	8001020004	INSULATOR WASHER	1	
12	8001020504	INSULATOR WASHER	1	
13	0010110020	HEX. HEAD BOLT	4	
14	0040010000	LOCK WASHER	4	
15	0601000209	BALANCING WEIGHT KIT	1	
16	0076506312	CERAMIC BEARING	1	6312 SN34 DDU C3
17	C0130000003	STATOR ASS'Y	1	
18	0845041804	GROMMET	2	
19	8131315202	END BRACKET	1	
20	8101350013	FIELD ASS'Y. EXCITER	1	
21	0012110060	HEX. HEAD BOLT	4	
22	0042610000	LOCK WASHER	4	
23	031110160	PLAIN WASHER	4	REPLACES 0041210000
24	0010112035	HEX. HEAD BOLT	6	
25	0040012000	LOCK WASHER	6	
26	031112230	PLAIN WASHER	6	REPLACES 0041212000
27	8131310104	COVER, BEARING	1	
28	8131312204	GASKET BEARING	1	
29	8131331003	COVER, END BRACKET	1	
30	0105050616	HEX. HEAD BOLT	10	REPLACES 0017106012
31	8101333003	COVER, END BRACKET	1	
32	0010106030	HEX. HEAD BOLT	2	
33	0040006000	LOCK WASHER	2	
34	952404470	PLAIN WASHER	2	REPLACES 0041206000
35	M3163400303	COUPLING RING	1	
36	0013904064	HEX. HEAD BOLT	8	S/N 7600001 TO 7600036
	0343204230	HEX. HEAD BOLT	8	S/N7600037~
37	EM923344	LOCK WASHER	8	REPLACES 0043604000
38	0070506306	BEARING	1	6306ZZ
39	0012810030	HEX. HEAD BOLT	12	
40	0013904032	HEX. HEAD BOLT	12	S/N7600001 TO 7600036
	0343204120	HEX. HEAD BOLT	12	S/N7600037~
41	EM923344	LOCK WASHER	12	REPLACES 0043604000
42	C0131300004	COVER, FAN	1	
43	0605000013	RUBBER SUSPENSION	2	
44	0030016000	HEX. NUT	2	
	0040016000	LOCK WASHER	2	
45	020106050	NUT	1	REPLACES 0600815000

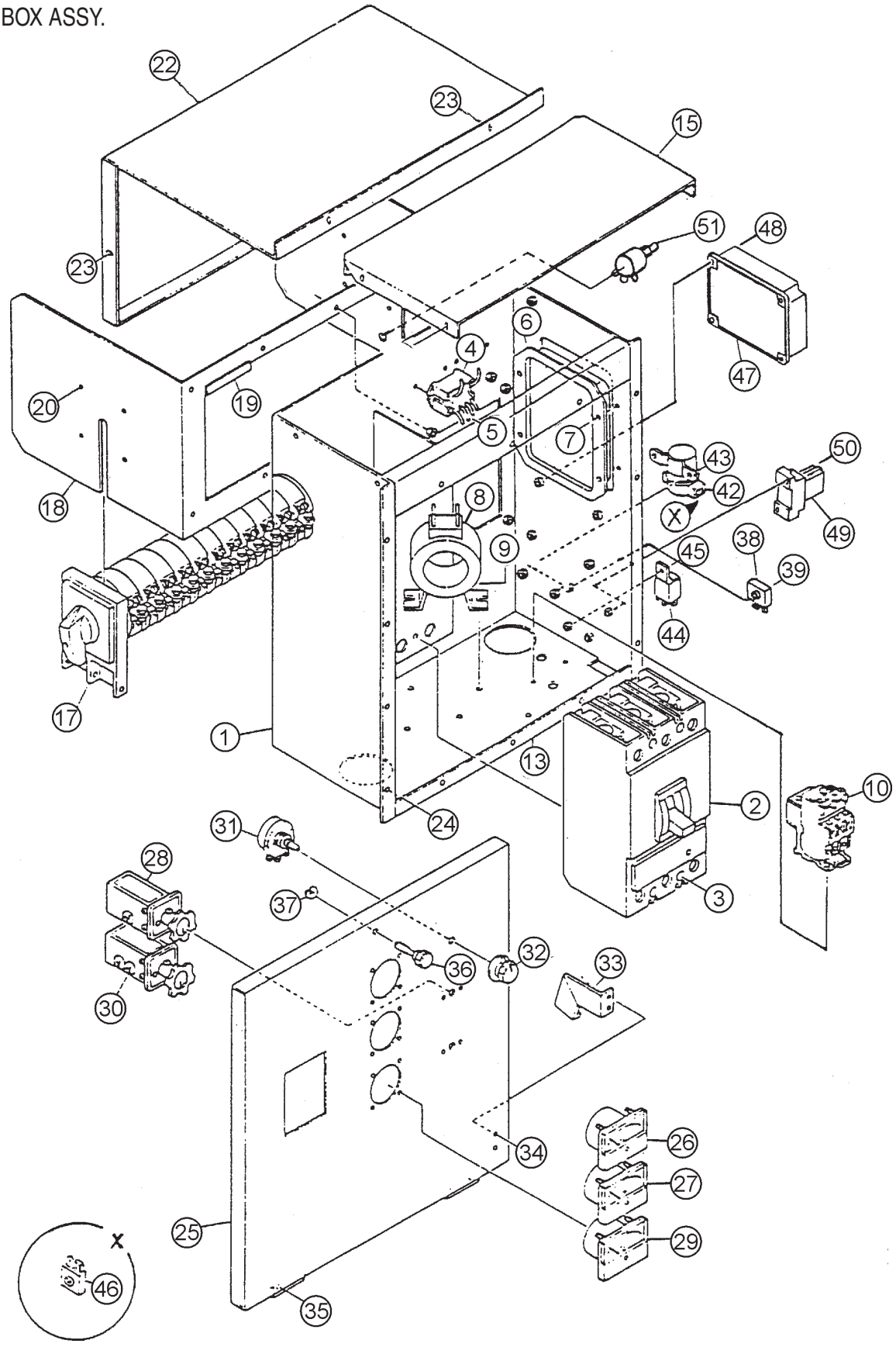
CONTROL BOX ASSY.



CONTROL BOX ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M3246700814	WIRE HARNESS, GENERATOR	1	
1	M3213000302	CONTROL BOX	1	S/N7600001 TO 7600036
	M3213000312	CONTROL BOX	1	S/N7600037 TO 7600090
	M3213000322	CONTROL BOX	1	S/N7600091~
2	0601808815	CIRCUIT BREAKER	1	LAF364001021 3P 400A
3	0021006080	MACHINE SCREW	4	
4	0601823863	RELAY UNIT	2	MSA9013A
5	0021304015	MACHINE SCREW	4	REPLACES 0027104015
6	0601820671	AUTOMATIC VOLTAGE REGULATOR	1	NTA- 5A- 2DB
7	0027105010	MACHINE SCREW	4	S/N7600001 TO 7600036
	0027105015	MACHINE SCREW	4	S/N7600037~
8	0601806127	CURRENT TRANSFORMER	3	814- 943 300/5A
9	011808015	MACHINE SCREW	6	REPLACES 0027106015
10	0601820845	OVER CURRENT RELAY	1	LR2D1308
11	0601820846	OVER CURRENT RELAY	1	LA7D1064
12	M1260600004	FITTING BRACKET	1	S/N7600001 TO 7600036
13	0021304015	MACHINE SCREW	2	REPLACES 0027104015
	0207004000	HEX. NUT	2	
14	0027104010	MACHINE SCREW	2	S/N7600001 TO 7600036
15	M3213500013	CONTROL BOX COVER	1	S/N7600001 TO 7600036
	M3213500013	CONTROL BOX COVER	1	S/N7600014~
16	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
17	M3923100014	SELECTOR SWITCH	1	VY- 200
18	M3213600203	SWITCH BRACKET	1	
19	0330000370	EDGES	2	REPLACES 0330000370
20	0027104010	MACHINE SCREW	4	
21	011106015	HEX. HEAD BOLT	8	REPLACES 0016906015
22	M3213600304	SWITCH COVER	1	
23	011106015	HEX. HEAD BOLT	4	REPLACES 0016906015
24	0016906015	HEX. HEAD BOLT	13	
	0040506000	TOOTHED WASHER	1	
25	M3223000303	CONTROL PANEL	1	
26	0601807630	FREQUENCY METER	1	264250DJDJ9
27	0601808954	AC AMMETER	1	260240LSLS1JBZ
28	0601801040	CHANGE - OVER SWITCH, AMMETER	1	SL - 2AS
29	0601806814	AC VOLTMETER	1	264230SJSJ9
30	0601801041	CHANGE - OVER SWITCH, VOLTMETER	1	SL - 2VS
31	0601840073	RHEOSTAT (VOLTAGE REGULATOR)	1	RA20A2SE102BJ
32	0601840121	KNOB	1	
33	M1223100004	STOPPER	1	
34	0027105015	MACHINE SCREW	2	S/N7600001 TO 7600036
	0027105010	MACHINE SCREW	2	S/N7600037~
35	0027105015	MACHINE SCREW	4	S/N7600001 TO 7600036
	0027105010	MACHINE SCREW	4	S/N7600037~

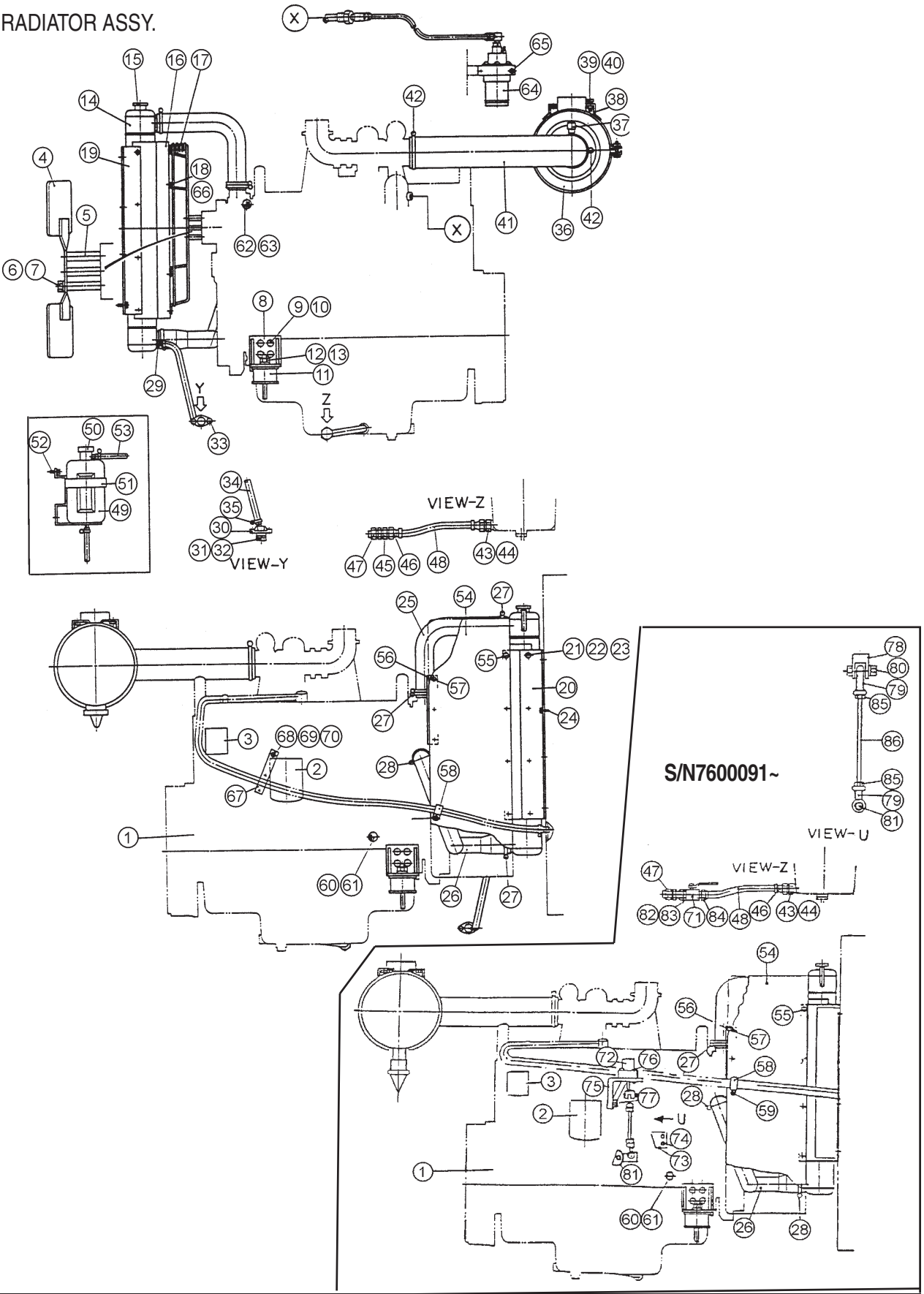
CONTROL BOX ASSY.



CONTROL BOX ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
36	M9220100004	SET SCREW	1	
37	0080200007	SNAP RING	1	
38	0601821370	RECTIFIER	1	REPLACES 0601823240; DE 4503
39	0027104020	MACHINE SCREW	1	
40	0602200478	EMERGENCY RELAY	1	S/N7600001 TO 7600090;1070160603
41	0027105040	MACHINE SCREW	2	S/N7600001 TO 7600090
42	0602202592	STARTER RELAY	1	AT141011
43	011808015	MACHINE SCREW	2	REPLACES 0027106015
44	0602202597	RELAY	1	AL81719
45	0027105015	MACHINE SCREW	1	
46	0601823240	RECTIFER	1	S/N7600091~; DE4503
47	DYN110754000012	CONTROLLER	1	S/N7600091~; REPLACES 0602202546
48	0027105015	MACHINE SCREW	1	S/N7600091~
49	LY2D12VD	RELAY	1	S/N7600091~; REPLACES 0601827656
	0601823109	BASE	1	S/N7600091~; PTF08AE
	PYCA1	CLIP	2	S/N7600091~; REPLACES 0601824400
50	0027104020	MACHINE SCREW	2	S/N7600091~
51	0601840240	POTENIOMETER	1	S/N7600091~; 73JB5000 2W 5k

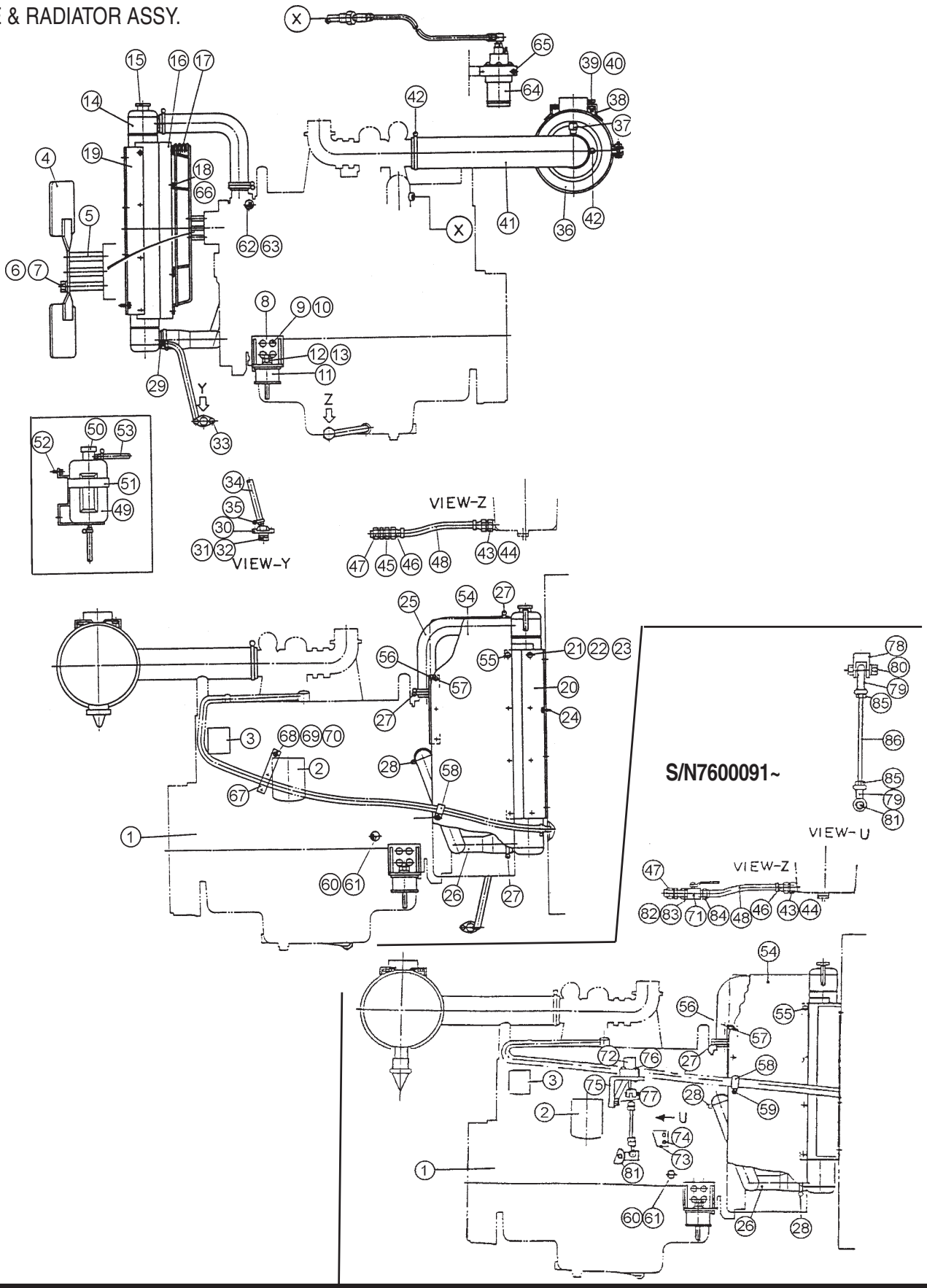
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3923200024	ENGINE	1	JOHN DEERE 6081TF; S/N7600001 to 7600108
	M3925200024	ENGINE	1	JOHN DEERE 6081TF; S/N7600109~
	0602011492	FAN BELT	1	2402
2	0602041291	ELEMENT, OIL FILTER	1	RE57394
3	0602042591	ELEMENT, FUEL FILTER	1	AR86745
4	0602060012	BLOWER FAN	1	REPLACES 0602060002; RE20967
5	0602061001	FAN SPACER	1	S/N7600001 TO 7600120;R128767
	0602061002	FAN SPACER	1	S/N7600121~;R100676
6	0013904178	HEX HEAD BOLT	6	S/N7600001 TO 7600120
	0343304350	HEX. HEAD BOLT	6	S/N7600121~
7	0043004000	LOCK WASHER	6	
8	M3303200003	ENGINE FOOT	2	
9	0013907076	HEX HEAD BOLT	8	
10	0043007000	LOCK WASHER	8	
11	0605000011	RUBBER SUSPENSION	2	
12	0030016000	HEX NUT	2	
13	0040016000	LOCK WASHER	2	
14	0602012720	RADIATOR	1	S/N7600001 TO 7600120;RE65161
	0602012724	RADIATOR	1	S/N7600121~; C2810060002
15	0602011068	CAP	1	S/N7600001 TO 7600120
	0602011066	CAP	1	S/N7600121~; C89C0225010
16	0602010691	SHROUD	1	S/N7600001 TO 7600120;R132912
	0602010692	SHROUD	1	S/N7600121~; C2810064100
17	0602010795	FAN COVER	1	S/N7600001 TO 7600120;C2810044210
	0602010796	FAN COVER	1	S/N7600121~;C2810064200
18	012210025	HEX HEAD BOLT	8	REPLACES 0016910025; S/N7600001 TO 7600120
	0343003070	HEX. HEAD BOLT	5	S/N7600121~
	0043003000	LOCK WASHER	5	S/N7600121~
	0043103000	PLAIN WASHER	5	S/N7600121~
19	M3310200604	RADIATOR BRACKET	1	S/N7600001 TO 7600120
20	M3310200504	RADIATOR BRACKET	1	S/N7600001 TO 7600120
21	0013003019	HEX HEAD BOLT	8	S/N7600001 TO 7600120
22	0043003000	LOCK WASHER	8	S/N7600001 TO 7600120
23	0043103000	PLAIN WASHER	8	S/N7600001 TO 7600120
24	011008020	HEX HEAD BOLT	8	REPLACES 0016908020
25	M3310500203	RADIATOR HOSE	1	S/N7600001 TO 7600120
	M3310500603	RADIATOR HOSE	1	S/N7600121~
26	M3310500303	RADIATOR HOSE	1	S/N7600001 TO 7600120
	M3310500706	RADIATOR HOSE	1	S/N7600121~

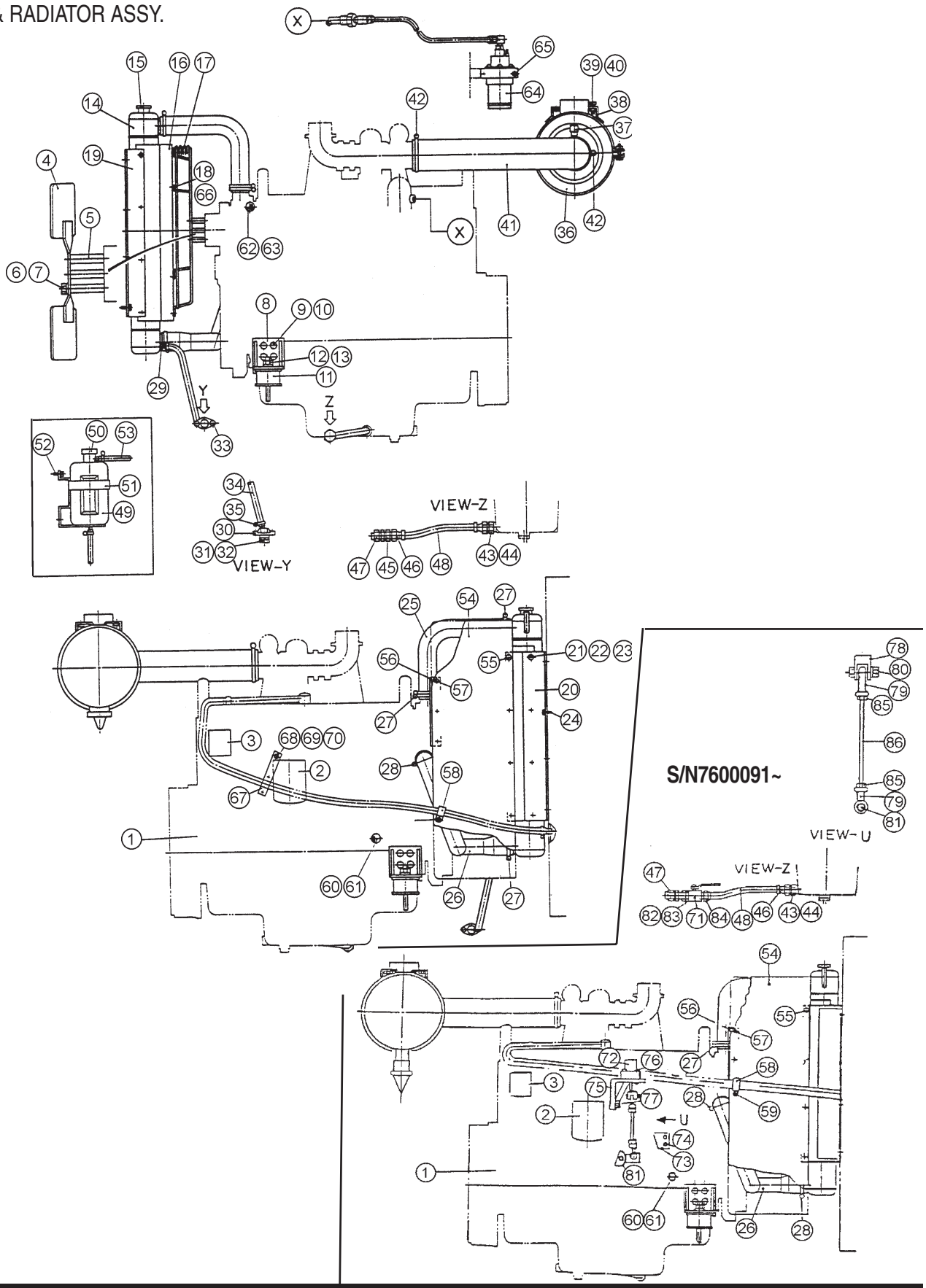
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
27	0605515148	HOSE BAND	3	S/N7600001 TO 7600120
	0605515148	HOSE BAND	1	S/N7600121~
28	0605515147	HOSE BAND	1	S/N7600001 TO 7600120
	0605515147	HOSE BAND	3	S/N7600121~
29	0605512194	HOSE JOINT	1	S/N7600001 TO 7600120
30	7812014003B	DRAIN JOINT	1	S/N7600001 TO 7600120; REPLACES M2320300103
31	M9200200004	DRAIN BOLT	1	S/N7600001 TO 7600120
32	0150000018	O RING	1	S/N7600001 TO 7600120
33	011206020	HEX HEAD BOLT	2	S/N7600001 TO 7600120; REPLACES 0016906020
34	0191300730	DRAIN HOSE	1	S/N7600001 TO 7600120
35	0605515189	HOSE BAND	2	S/N7600001 TO 7600120
36	0602046255	AIR CLEANER	1	S/N7600001 TO 7600141;FWG120063
	0602046583	AIR CLEANER	1	S/N7600142~; FRG110206
	0602046379	ELEMENT, AIR CLEANER	1	S/N7600001 TO 7600141; XLP18- 2035
	0602046680	ELEMENT, AIR CLEANER	1	S/N7600142~; P532966
37	0602040650	INDICATOR, AIR CLEANER	1	RBX002252
38	0602040591	BAND, AIR CLEANER	2	S/N7600001 TO 7600141
	0602040555	BAND, AIR CLEANER	2	S/N7600142~; P004079
39	011008020	HEX HEAD BOLT	4	REPLACES 0016908020
40	020108060	HEX NUT	4	REPLACES 0207008000
41	M3373100103	HOSE , AIR CLEANER	1	S/N7600001 TO 7600141
	M3373100113	HOSE, AIR CLEANER	1	S/N7600142~
42	0605515200	HOSE BAND	2	S/N7600001 TO 7600141
	0605515200	HOSE BAND	1	S/N7600142~
43	0602022564	ADAPTER	1	
44	0602021165	O RING	1	
45	0602022562	UNION	1	S/N7600001 TO 7600090
46	0602022792	SWIVEL	1	
47	0602021070	CAP	1	
48	0602021572	DRAIN HOSE	1	S/N7600001 TO 7600090
	0269200390	DRAIN HOSE	1	S/N760091~; 83610 L=390
49	M9300000203	RESERVE TANK	1	
50	0802010900	CAP, RESERVE TANK	1	REPLACES 0602010900
51	M3316100104	BRACKET, RESERVE TANK	1	
52	011008020	HEX HEAD BOLT	2	REPLACES 0016908020
53	0193601200	HOSE	1	
54	M3313100104	RADIATOR COVER	1	S/N7600001 TO 7600120

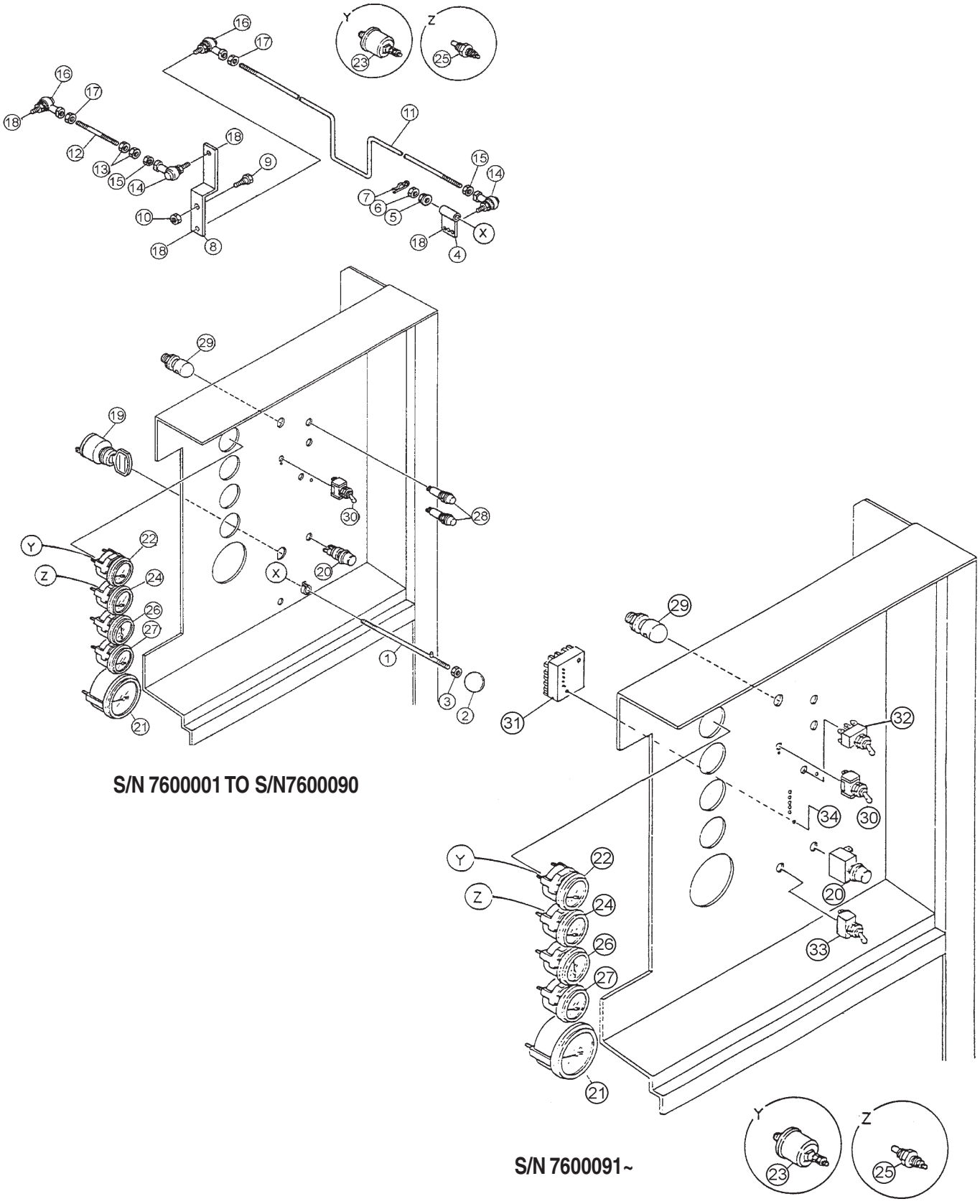
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M3313100304	RADIATOR COVER	1	S/N7600121~
	M3493600004	ACOUSTIC SHEET	1	S/N7600001 TO 7600120
	M3493600014	ACOUSTIC SHEET	1	S/N7600121~
55	011008020	HEX HEAD BOLT	4	REPLACES 0016908020
56	M3483400104	ALTERNATOR COVER	1	
57	011008020	HEX HEAD BOLT	3	REPLACES 0016908020
58	0602220911	CLAMP	1	
59	011008020	HEX HEAD BOLT	1	REPLACES 0016908020
60	0602122281	OIL SWITCH	1	17189- 39011
61	M9200100704	ADAPTER	1	
62	0602123282	WATER SWITCH	1	15181- 83041
63	M9200100404	ADAPTER	1	
64	0602014298	ETHER KIT	1	AR68492
65	011106015	HEX HEAD BOLT	2	REPLACES 0016906015
66	0041216000	PLAIN WASHER	8	S/N7600001 TO 7600120
67	M3326200004	HOSE BRACKET	1	S/N7600001 TO 7600090
68	0013003019	HEX HEAD BOLT	1	S/N7600001 TO 7600090
69	0043003000	LOCK WASHER	1	S/N7600001 TO 7600090
70	0043103000	PLAIN WASHER	1	S/N7600001 TO 7600090
71	0605511395	VALVE	1	S/N7600091~; XV500P8
72	DYNC10502000012	ACTUATOR	1	S/N7600091~; REPLACES 0602150095
73	M3356200203	STOPPER BRACKET	1	S/N7600091~
74	0016906020	HEX. HEAD BOLT	2	S/N7600091~
75	M3356200103	ACTUATOR BRACKET	1	S/N7600091~
76	0343502009	CAP SCREW	4	S/N7600091~
	0036302000	HEX. HEAD NUT	4	S/N7600091~
	0043002000	LOCK WASHER	4	S/N7600091~
	0343003008	HEX. HEAD BOLT	2	S/N7600091~
	0043003000	LOCK WASHER	2	S/N7600091~
77	0602180090	CLEVIS	1	S/N7600091~
78	0602180290	ROD END	2	S/N7600091~
79	0343002010	HEX. HEAD BOLT	2	S/N7600091~
	0036302000	HEX. HEAD BOLT	2	S/N7600091~
	0043002000	LOCK WASHER	2	S/N7600091~
80	M3356100004	THROTTLE LEVER	1	S/N7600091~
81	0603306590	CONNECTOR	1	S/N7600091~;10WFTXS
82	0603300285	ROCK NUT	1	S/N7600091~; 10WLN
83	0603306395	HOSE JOINT	1	S/N7600091~; 30182810
84	0036302000	HEX. HEAD NUT	2	S/N7600091~
85	M3356300004	THROTTLE THREAD	1	S/N7600091~
86	0605515231	HOSE BAND	1	S/N7600142~; 5080

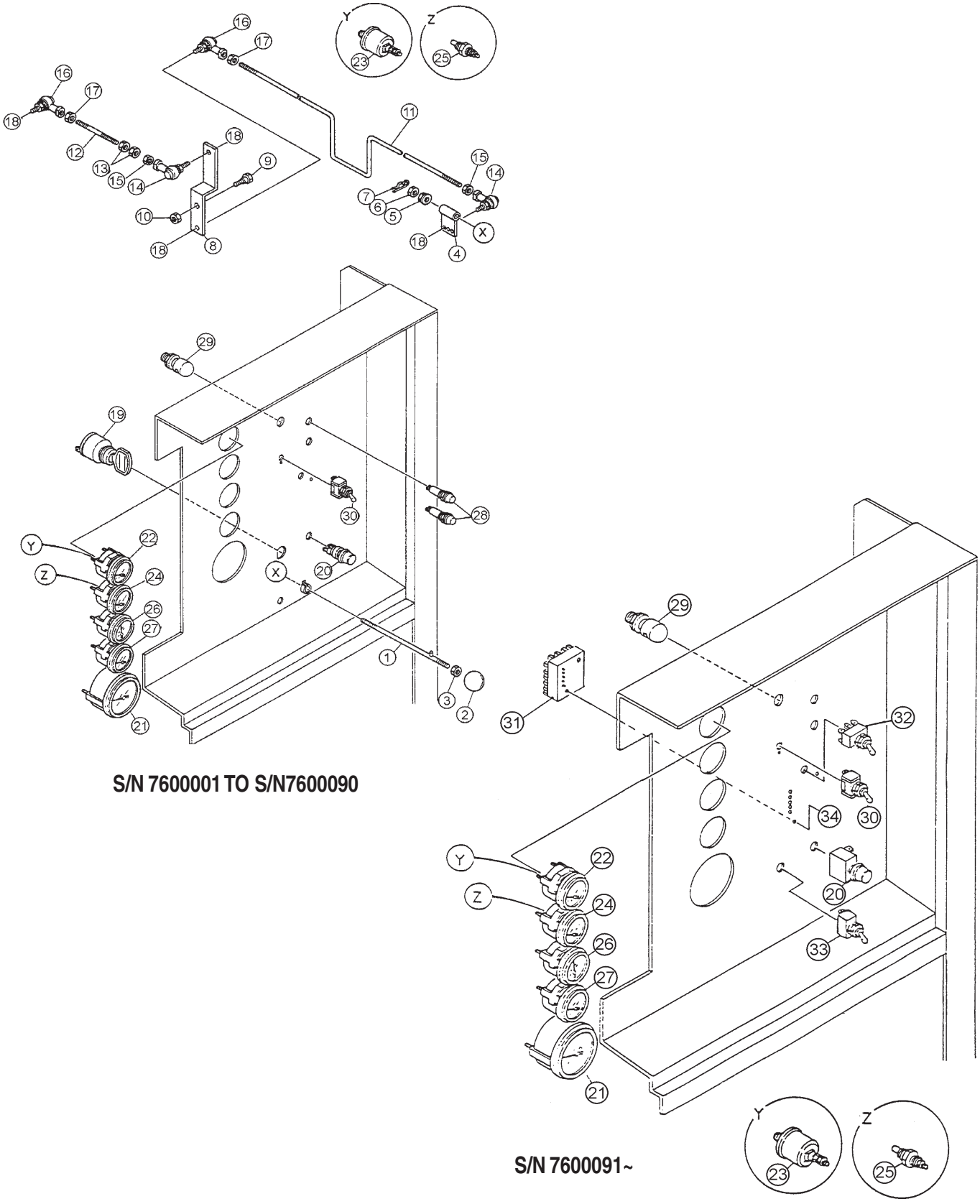
ENGINE OPERATING PANEL ASSY.



ENGINE OPERATING PANEL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M3357200112	WIRE HARNESS, ENGINE	1	S/N7600001 TO 7600090
	M3357200122	WIRE HARNESS, ENGINE	1	S/N7600091 TO 7660108
	M3357200132	WIRE HARNESS, ENGINE	1	S/N7600109~
1	M1354300304	SLIDE LEVER	1	S/N7600001 TO 7600090
2	0601840190	KNOB	1	S/N7600001 TO 7600090; REPLACES M9320000004
3	020108060	HEX NUT	1	S/N7600001 TO 7600090; REPLACES 0036003000
4	M1354200004	BRACKET	1	S/N7600001 TO 7600090
5	020108060	HEX NUT	1	S/N7600001 TO 7600090; REPLACES 0207008000
6	020108060	HEX NUT	1	S/N7600001 TO 7600090; REPLACES 0030008000
7	0605010550	SNAP PIN	1	S/N7600001 TO 7600090
8	M3354600004	GOVERNOR LEVER	1	S/N7600001 TO 7600090
9	M3354600104	GOVERNOR BOLT	1	S/N7600001 TO 7600090
10	0036203000	HEX NUT	1	S/N7600001 TO 7600090
11	M3354300204	GOVERNOR ROD	1	S/N7600001 TO 7600090
12	M3354300304	GOVERNOR ROD	1	S/N7600001 TO 7600090
13	020108060	HEX NUT	2	S/N7600001 TO 7600090; REPLACES 0030008000
14	0602180106	BALL JOINT	2	S/N7600001 TO 7600090
15	020108060	HEX NUT	2	S/N7600001 TO 7600090; REPLACES 0030008000
16	0602180107	BALL JOINT	2	S/N7600001 TO 7600090
17	020108060	HEX NUT	2	S/N7600001 TO 7600090; REPLACES 0036508000
18	0207006000	HEX NUT	4	S/N7600001 TO 7600090
	952404470	PLAIN WASHER	4	S/N7600001 TO 7600090; REPLACES 0041206000
19	0602100056	STARTER SWITCH	1	S/N7600001 TO 7600090; AR58126
	0602100028	SET NUT	1	S/N7600001 TO 7600090; R44342
	0602100029	SET WASHER	1	S/N7600001 TO 7600090; A4827R
20	0601831594	COLD STARTING BUTTON	1	S/N7600001 TO 7600036; R39554
	0601831585	COLD STARTING BUTTON	1	S/N7600037~; 44047
	0601831584	CAP	1	T55585; S/N7600001 TO 7600036
	0601831588	CAP	1	S/N7600037~; 44053
21	0602120096	TACHOMETER	1	103678

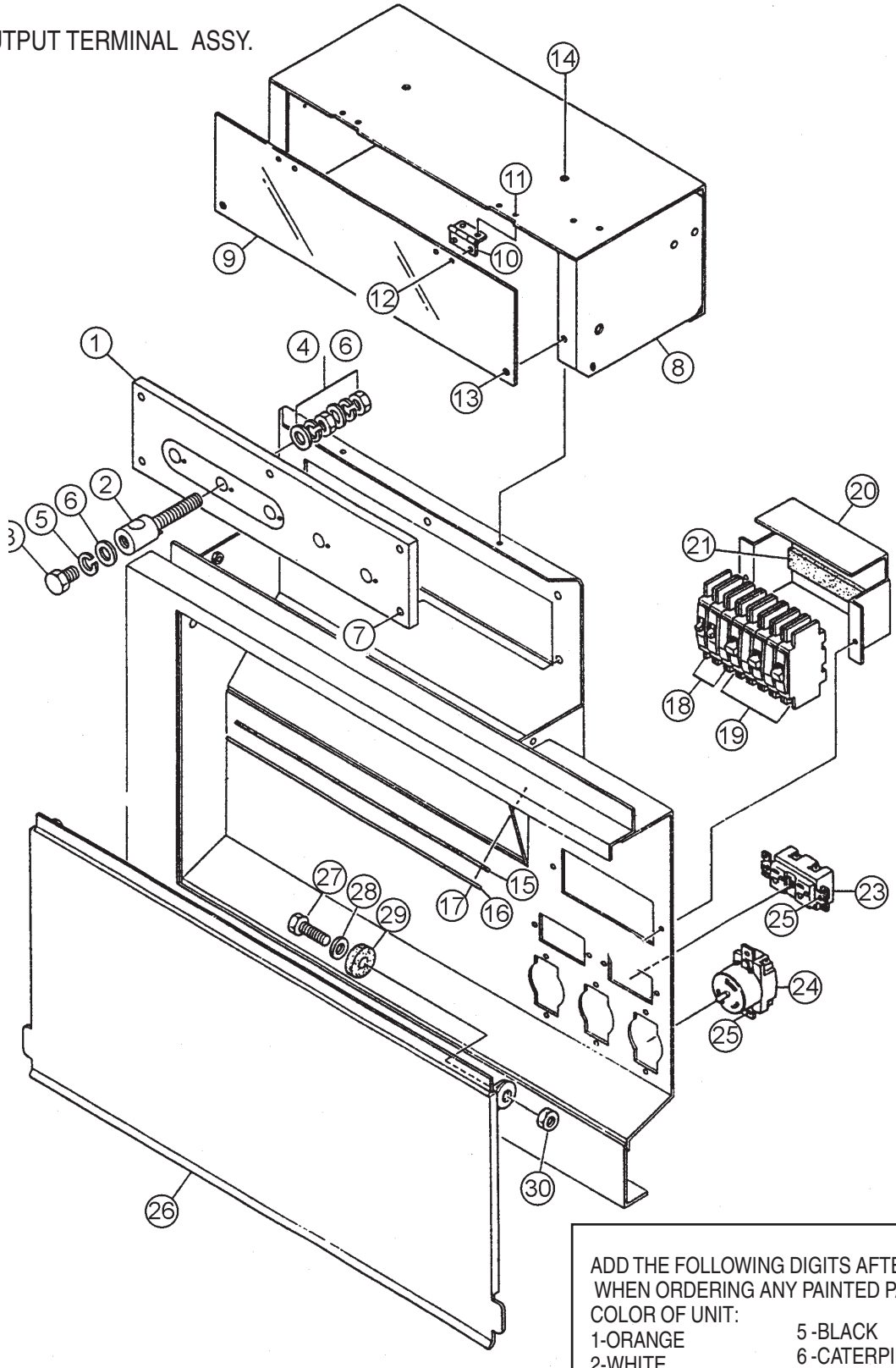
ENGINE OPERATING PANEL ASSY.



ENGINE OPERATING PANEL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
22	0602122093	OIL PRESSURE GAUGE	1	100174
23	0602122272	UNIT, OIL PRESSURE	1	S/N7600001 TO 7600036;105965; REPLACES 0602122271
	0602122272	UNIT, OIL PRESSURE;	1	S/N7600037~;108497
24	0602123092	WATER TEMPERATURE GAUGE	1	100182
25	0602123261	UNIT, WATER TEMPERATURE;	1	0202500
26	0602121080	CHARGING AMMETER	1	100158
27	0602125090	FUEL GAUGE	1	100176
28	0602103092	ALARM LAMP	2	S/N7600001 TO 7600090; PL- 05
	0601810245	BULB	2	S/N7600001 TO 7600090; E- 10 T- 10 DC18V
29	0601810141	PANEL LIGHT	1	98268- 00370
30	0601831330	SWITCH, PANEL LIGHT	1	90- 0001
31	ECU9988N	ENGINE CONTROLLER	1	S/N 7600091~ REPLACES 0602202546
32	0601831340	SWITCH	1	S/N760091~;7562K4
33	0601831395	SWITCH	1	S/N7600091~; 7602K36
34	0027104035	MACHINE SCREW	2	S/N7600091~
	0207004000	HEX. NUT	2	S/N7600091~

OUTPUT TERMINAL ASSY.



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

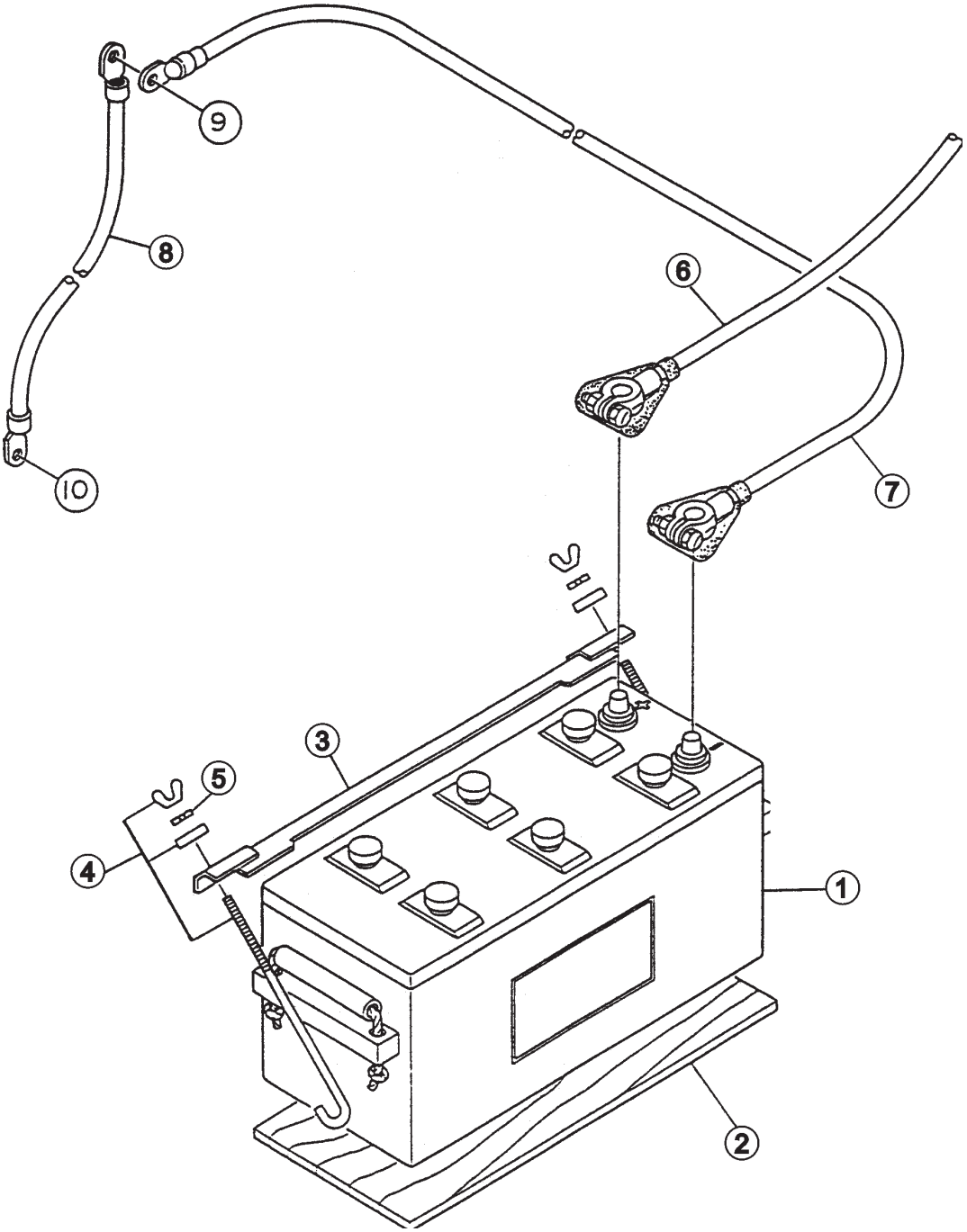
1-ORANGE
2-WHITE
3 -SPECTRUM GRAY
4 -SUNBELT GREEN
5 -BLACK
6 -CATERPILLAR YELLOW
7 -CATO GOLD
8 -RED

THE SERIAL NUMBER MAY BE REQUIRED.

OUTPUT TERMINAL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3230700003	TERMINAL PANEL	1	
2	M9220100304	OUTPUT TERMINAL BOLT	5	
3	0801830804	TIE BOLT	5	REPLACES M9220100404
4	0039316000	HEX NUT	10	
5	0040016000	LOCK WASHER	15	
6	0041416000	PLAIN WASHER	20	
7	0012108035	HEX HEAD BOLT	5	REPLACES 0016908035
8	M3236100303	TERMINAL COVER	1	S/N 7600001 TO 7600090
	M3238100103	TERMINAL COVER	1	S/N7600091~
9	M3236100104	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	0027103010	MACHINE SCREW	4	
	0207003000	HEX NUT	4	REPLACES 0030003000
13	0112206020	HEX HEAD BOLT	2	REPLACES 0016906020
14	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
15	M3236400004	CABLE OUTLET COVER	1	
16	M3236300004	SUPPORTER, CABLE OUTLET COVER	1	
17	011206020	HEX HEAD BOLT	6	REPLACES 0016906020
18	0601808803	CIRCUIT BREAKER	2	QOU 120B 1P 20A
19	0601808804	CIRCUIT BREAKER	3	QOU 250B 2P 50A
20	M1260700304	BREAKER FITTING COVER	1	
21	0222100150	CUSHION RUBBER	1	
22	011206020	HEX HEAD BOLT	2	REPLACES 0016906020
23	0601812597	RECEPTACLE	2	REPLACES 0601812598; GF530EM 125V 20A X 2
24	0601811034	RECEPTACLE	3	REPLACES 0601812538; CS6369 250V 50A
25	0021304015	MACHINE SCREW	10	REPLACES 0027104015
	0030004000	HEX NUT	10	REPLACES 0207004000
26	M3236100213	TERMINAL COVER	1	
27	012212045	HEX HEAD BOLT	2	REPLACES 0010112045
28	031112230	PLAIN WASHER	2	REPLACES 0041212000
29	M9310200004	STAY RUBBER	2	
30	0030012000	HEX NUT	2	
31	0603306775	PLUG	2	S/N7600091~
32	0027104015	MACHINE SCREW	4	S/N7600091~
33	0601815194	TERMINAL	1	S/N7600091~; 601GP02
34	0027104015	MACHINE SCREW	2	S/N7600091~

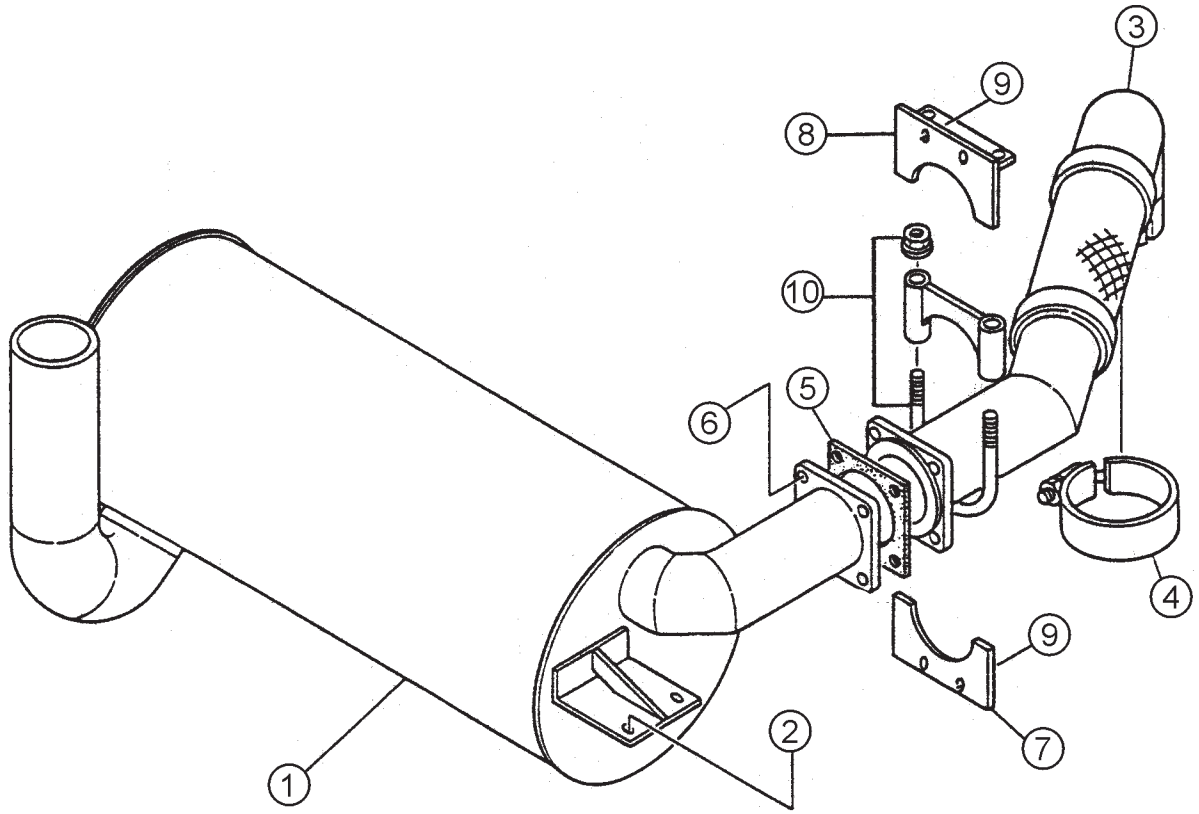
BATTERY ASSY.



BATTERY ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0602220196	BATTERY	1	4D- 2
2	M9310500404	BATTERY SHEET	1	
3	M9103000504	BATTERY BAND	1	
4	0602220921	BATTERY BOLT SET	2	
5	0040006000	LOCK WASHER	2	
6	M3346900204	BATTERY CABLE	1	S/N7600001 TO 7600003
	M3346900214	BATTERY CABLE	1	S/N7600004
	M3346900214	BATTERY CABLE	1	
7	M3346900104	BATTERY CABLE	1	REPLACES M3346900304
8		CABLE	1	
9	0013007025	HEX HEAD BOLT	1	
	0043007000	LOCK WASHER	1	
	0043107000	PLAIN WASHER	1	
	0040516000	TOOTHED WASHER	1	
10	012210020	HEX HEAD BOLT	1	REPLACES 0017110020
	0040510000	TOOTHED WASHER	1	

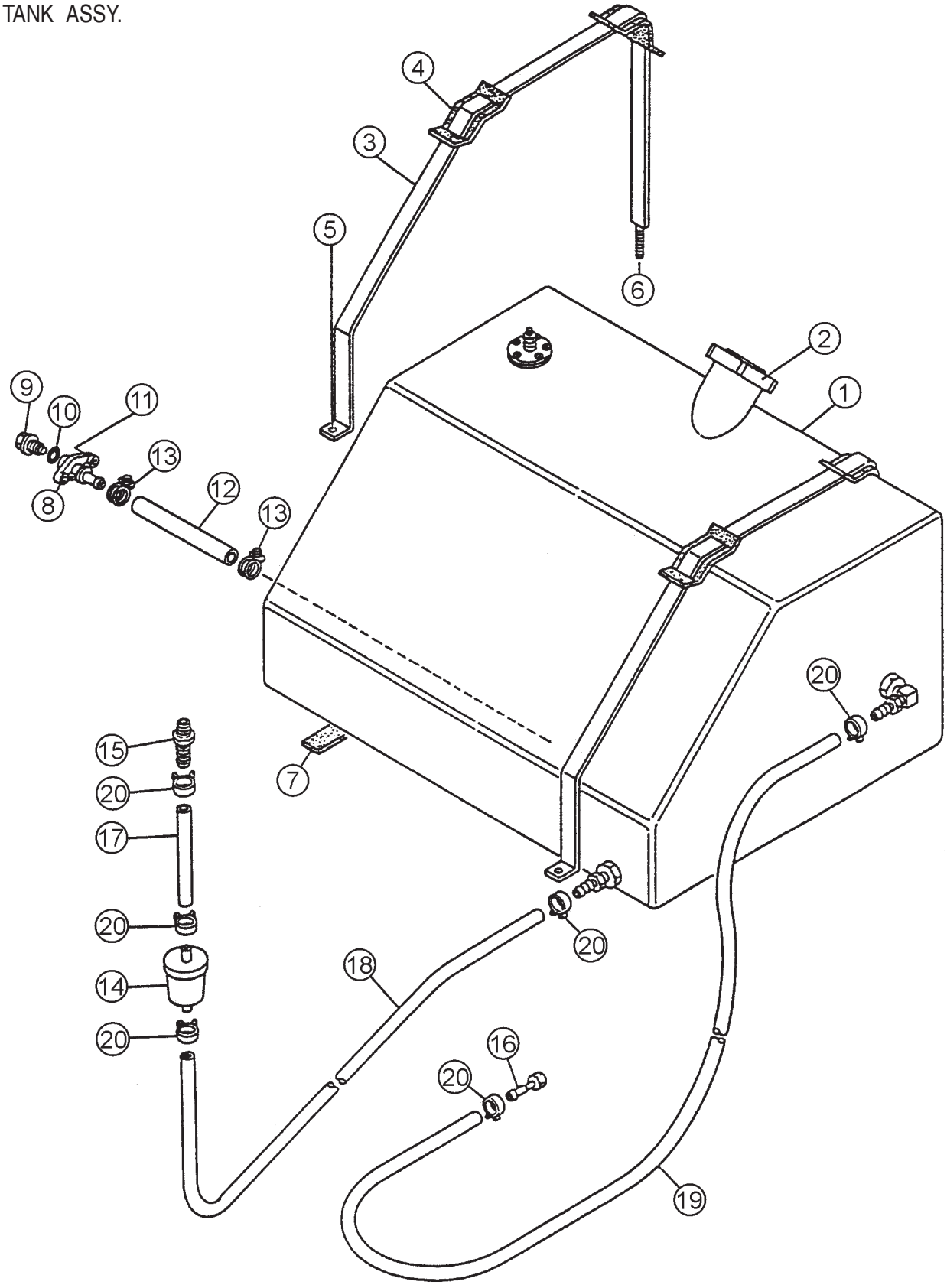
MUFFLER ASSY.



MUFFLER ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3330100202	MUFFLER	1	S/N7600001 TO 7600030
	0602300168	MUFFLER	1	S/N7600031~
2	012210025	HEX HEAD BOLT	4	REPLACES 0016910025
3	M3333000503	EXHAUST PIPE	1	
4	0602325066	CLAMP	1	
5	M3333200104	GASKET	1	
6	0017110050	HEX HEAD BOLT	4	
7	M3330400804	COVER	1	
8	M3330400903	BRACKET	1	
9	011008020	HEX HEAD BOLT	4	REPLACES 0016908020
10	0602326062	U BOLT SET	1	

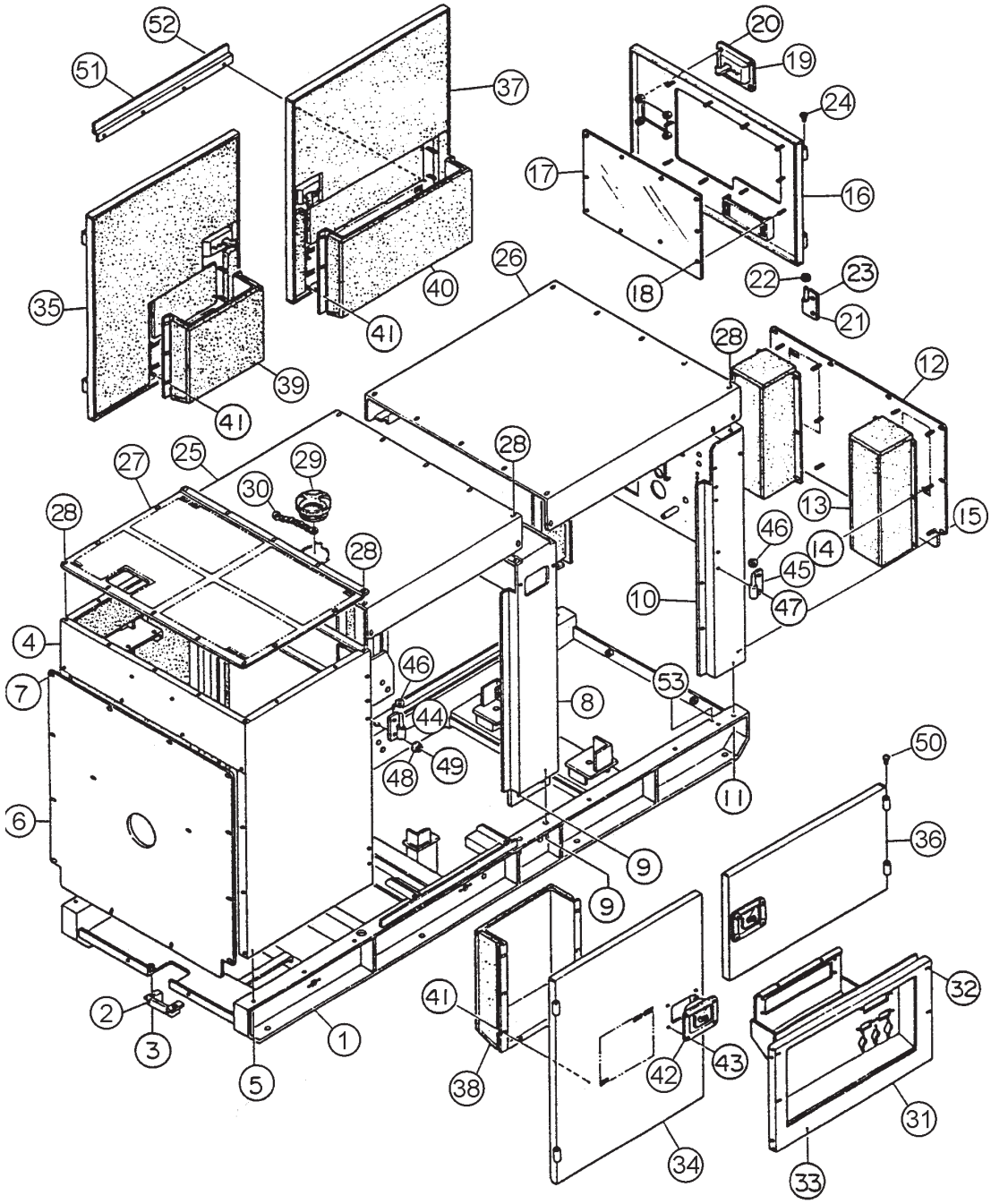
FUEL TANK ASSY.



FUEL TANK ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3363000402	FUEL TANK	1	
1-1	0605505070	CAP, FUEL TANK	1	
2	M3363200204	TANK BAND	2	
3	M9310500104	SUPPORTER SHEET	4	
4	011008020	HEX HEAD BOLT	2	REPLACES 0016908020
5	0207308000	HEX NUT	2	
6	0222100660	RUBBER SHEET	2	
7	1502025103C	DRAIN JOINT	1	REPLACES M9200000003
8	M9200200004	DRAIN BOLT	1	
9	0150000018	O RING	1	
10	011206020	HEX HEAD BOLT	2	REPLACES 0016906020
11	M1363400104	DRAIN HOSE	1	
12	0605515198	HOSE BAND	2	
13	0602042420	FUEL FILTER	1	PTG15P
14	0605512195	HOSE JOINT	1	S/N760001 TO 7600036
14	0602022793	HOSE JOINT	1	S/N7600037~
15	0602042601	LEAK - OFF LINE	1	67050
16	0191300100	SUCTION HOSE	1	
17	0191300900	SUCTION HOSE	1	
18	0191302400	RETURN HOSE	1	
19	0605515109	HOSE BAND	6	

ENCLOSURE ASSY.



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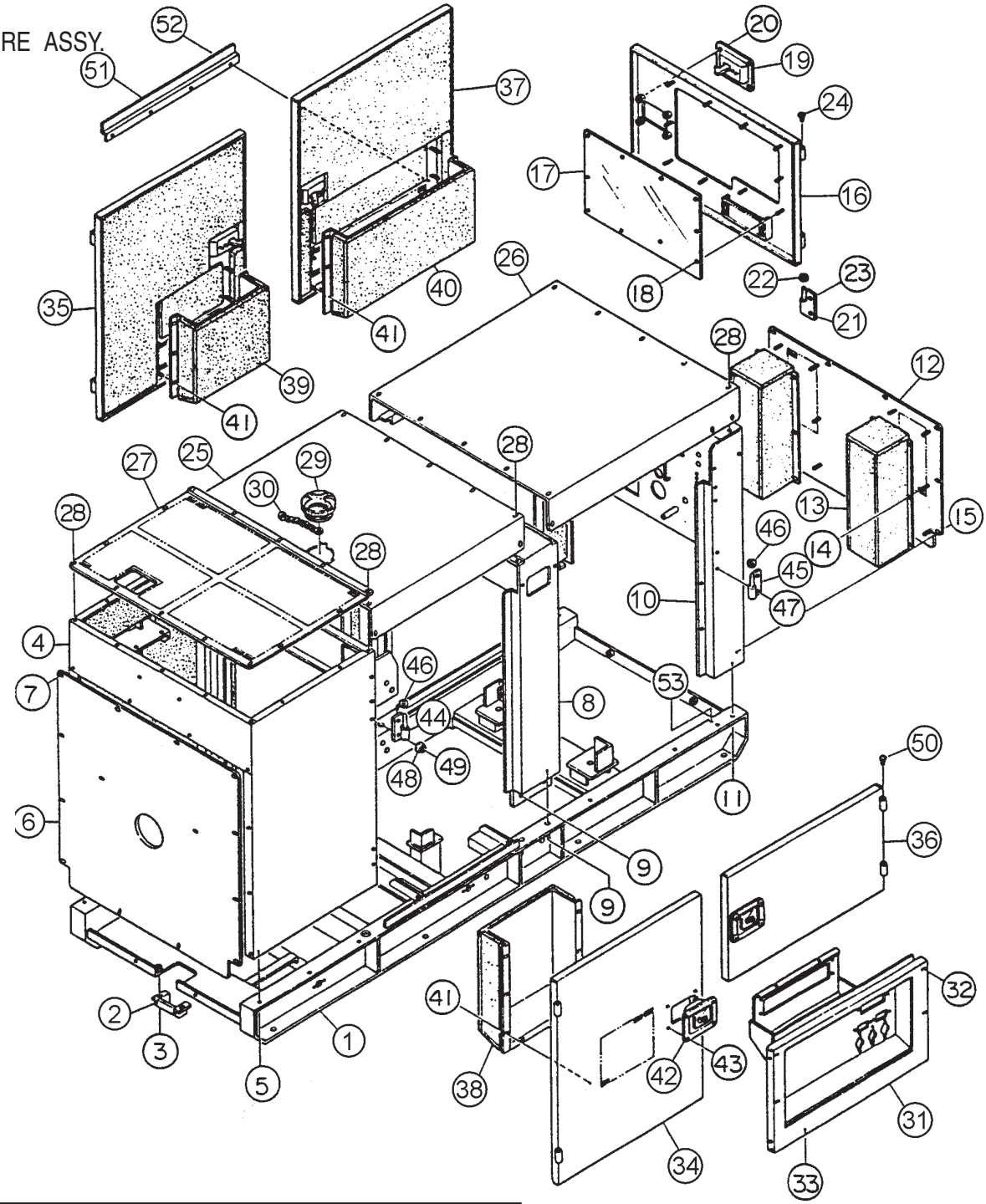
ENCLOSURE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M3413000402	BASE	1	S/N7600001 TO 7600120
	M3413000412	BASE	1	S/N7600121~
2	M1413400004	UNDER COVER	1	
3	011008020	HEX HEAD BOLT	2	REPLACES 0016908020
4	M3423000502	FRONT FRAME	1	S/N7600001 TO 7600120
	M3423000512	FRONT FRAME	1	S/N7600121~
	M3493101703	ACOUSTIC SHEET	1	
5	012210025	HEX HEAD BOLT	6	REPLACES 0016910025
6	M3423200304	COVER, FRONT FRAME	1	
	M3493103104	ACOUSTIC SHEET	1	
7	011008020	HEX HEAD BOLT	16	REPLACES 0016908020
8	M3433000312	CENTER FRAME	1	
	M3493200304	ACOUSTIC SHEET	1	
9	0010114045	HEX HEAD BOLT	12	S/N7600001 TO 7600012
	0010114040	HEX HEAD BOLT	12	S/N7600013~
	020114110	HEX NUT	12	REPLACES 0030014000
	030214350	LOCK WASHER	24	REPLACES 0040014000
	031114260	PLAIN WASHER	24	REPLACES 0041214000
10	M3443000402	REAR FRAME	1	S/N7600001 TO 7600090
	M3443000412	REAR FRAME	1	S/N7600091~
	M3493301504	ACOUSTIC SHEET	1	
11	012210025	HEX HEAD BOLT	4	REPLACES 0016910025
12	M3443300603	REAR COVER	1	
	M3493302204	ACOUSTIC SHEET	2	
13	M3443300503	DUCT, REAR COVER	2	
	M3493301804	ACOUSTIC SHEET	1	
14	0207006000	HEX NUT	12	
15	011008020	HEX HEAD BOLT	12	REPLACES 0016908020
16	M3443200203	REAR DOOR	1	S/N7600001 TO 7600036
	M3443200213	REAR DOOR	1	S/N7600037~
17	M3443600104	WINDOW PLATE	1	
18	020106050	HEX NUT	10	REPLACES 0207306000
	952404470	PLAIN WASHER	10	REPLACES 0041206000
19	B9114000002	DOOR HANDLE ASSY	1	REPLACES M9113000002
20	0021806015	MACHINE SCREW	4	REPLACES 0021806015
	020106050	HEX NUT	4	REPLACES 0030006000
21	M9110100204	HINGE	2	
22	M9116100004	WASHER	2	
23	011008020	HEX HEAD BOLT	3	REPLACES 0016908020
24	0845031504	BLIND PLUG	2	REPLACES M9310000004
25	M3463100303	ROOF PANEL	1	
	M3493501203	ACOUSTIC SHEET	1	

ENCLOSURE ASSY.



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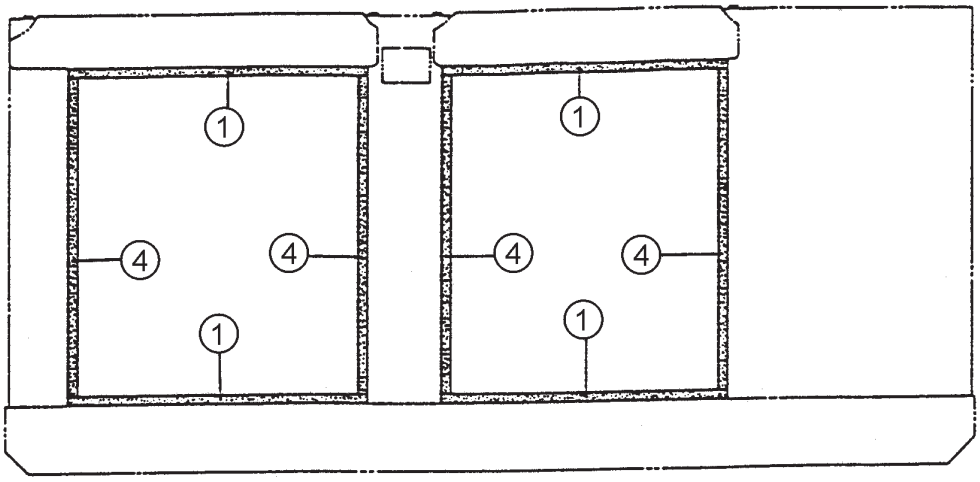
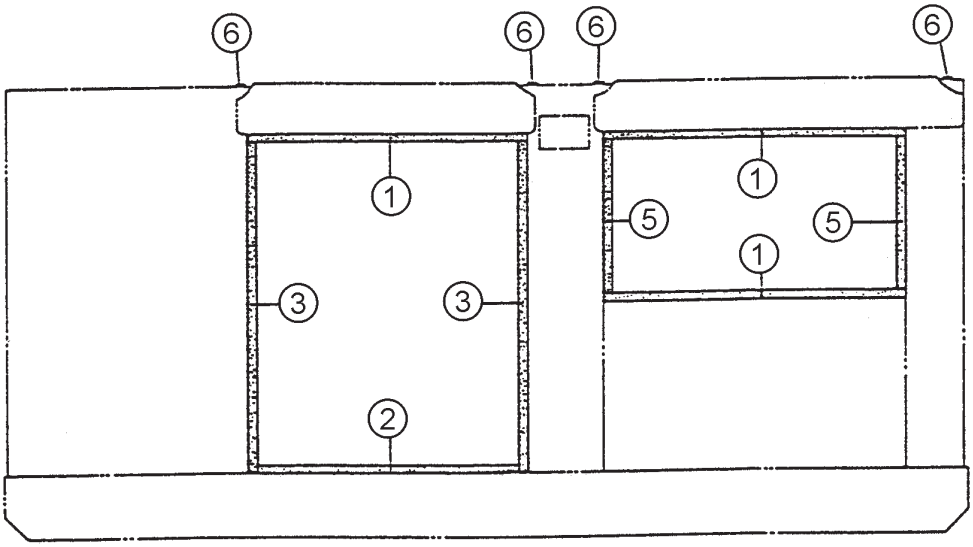
THE SERIAL NUMBER MAY BE REQUIRED.

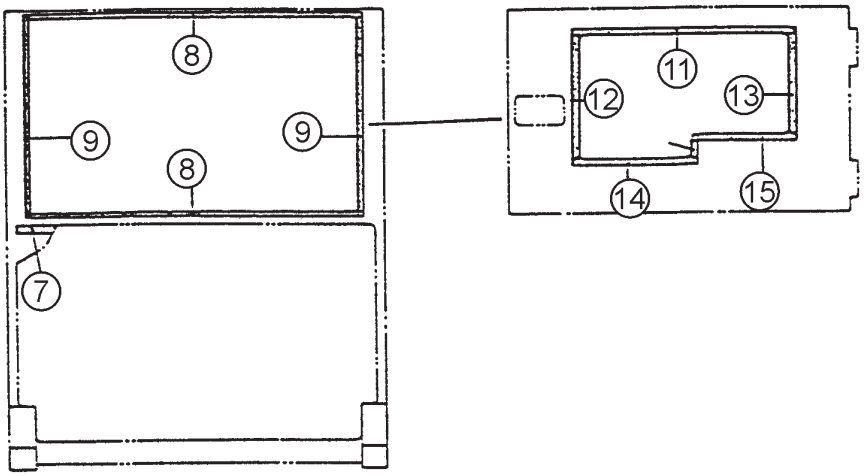
ENCLOSURE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
26	M3463200202	ROOF PANEL	1	S/N7600001 TO 7600141
	M3493501603	ACOUSTIC SHEET	1	S/N7600001 TO 7600141
	M3463200212	ROOF PANEL	1	S/N7600142~
	M3493501613	ACOUSTIC SHEET	1	S/N7600142~
27	M3463500204	OVER COVER, FRONT FRAME	1	
28	011008020	HEX HEAD BOLT	39	REPLACES 0016908020
29	1625165103	BONNET CAP	1	REPLACES M9310000103
30	1625165204	CHAIN ASS'Y	1	REPLACES M1483600204
31	M3453200312	SPLASHER PANEL	1	S/N7600001 TO 7600036
	M3453200322	SPLASHER PANEL	1	S/N7600037 TO 7600090
	M3453200332	SPLASHER PANEL	1	S/N7600091~
	M3493405504	ACOUSTIC SHEET	1	REPLACES M3493405514
32	011208060	HEX HEAD BOLT	4	REPLACES 0016908055
33	012210025	HEX HEAD BOLT	2	REPLACES 0016910025
34	M3453001103	SIDE DOOR	1	
	M3493403804	ACOUSTIC SHEET	1	
35	M3453001003	SIDE DOOR	1	
	M3493404404	ACOUSTIC SHEET	1	
36	M3453000903	SIDE DOOR	1	
	M3493405204	ACOUSTIC SHEET	1	
37	M3453000803	SIDE DOOR	1	
	M3493405304	ACOUSTIC SHEET	1	
38	M3453000803	DUCT	1	
	M3493406303	ACOUSTIC SHEET	1	
39	M3453300603	DUCT	1	
	M3493404804	ACOUSTIC SHEET	1	
40	M3453300203	DUCT	1	
	M3493407003	ACOUSTIC SHEET	1	
41	0207006000	HEX NUT	25	
42	B9114000002	DOOR HANDLE ASSY	4	REPLACES M9113000002
43	0027106016	MACHINE SCREW	16	REPLACES 0021806015
	020106050	HEX NUT	16	REPLACES 0030006000
44	M9110100204	HINGE	4	
45	M9110100304	HINGE	4	
46	M9116100004	WASHER	8	
47	011008020	HEX HEAD BOLT	9	REPLACES 0016908020
48	0601850097	DOOR STOPPER	8	
49	0027208025	MACHINE SCREW	8	
50	0845031504	BLIND PLUG	8	REPLACES M9310000004
51	M3453700004	DOOR BRACKET	1	
52	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
53	011008020	HEX HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	

RUBBER SEALS ASSY.



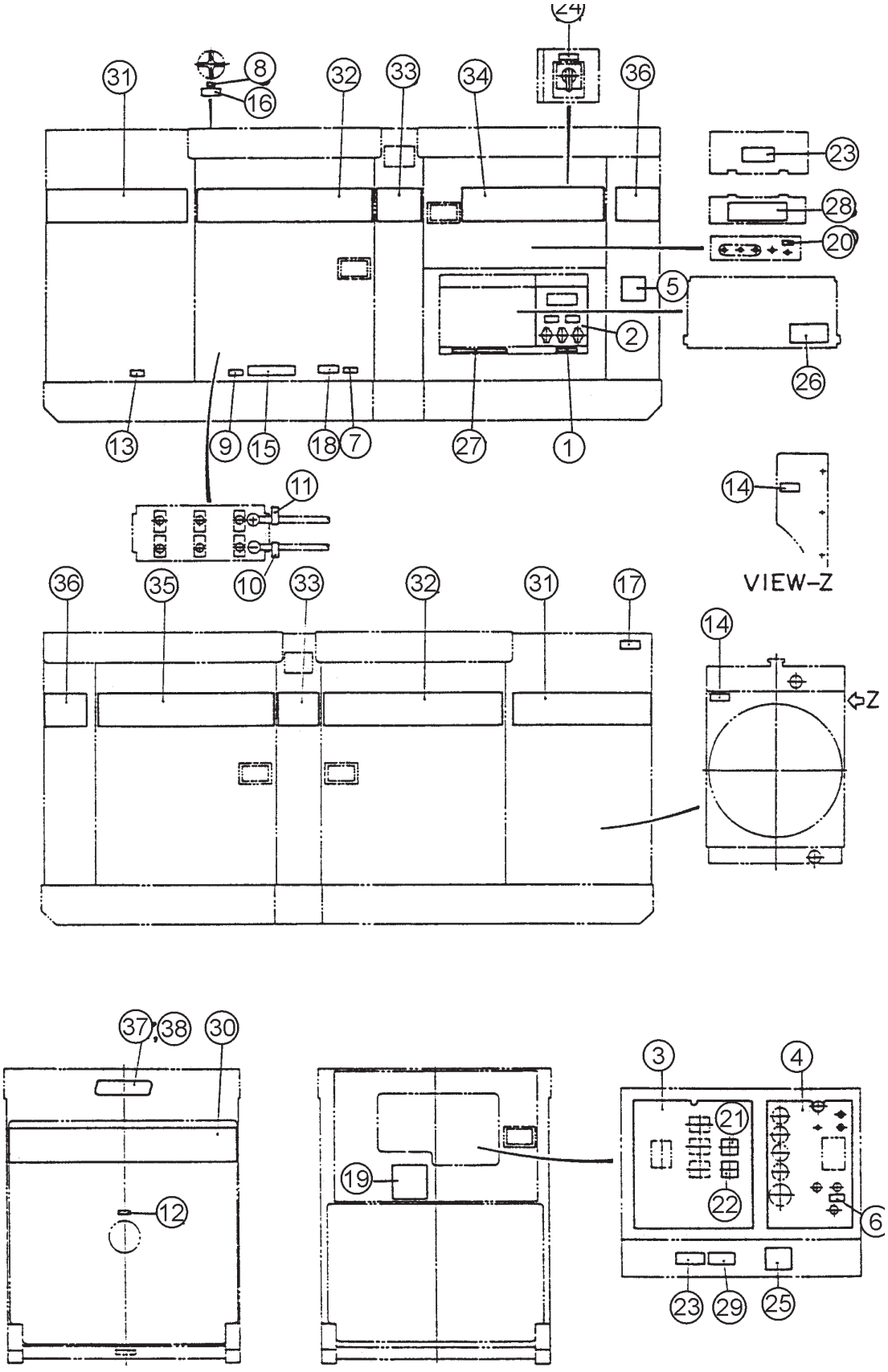




RUBBER SEALS ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0228900955	RUBBER SEAL	7	
2	0229200810	RUBBER SEAL	1	
3	0228901120	RUBBER SEAL	2	
4	0228901090	RUBBER SEAL	4	
5	0228900520	RUBBER SEAL	2	
6	0229201200	RUBBER SEAL	4	
7	0229201140	RUBBER SEAL	1	
8	0228801070	RUBBER SEAL	2	
9	0228800680	RUBBER SEAL	1	
10	0228800640	RUBBER SEAL	1	
11	0228100665	RUBBER SEAL	1	
12	0228100370	RUBBER SEAL	1	
13	0228100300	RUBBER SEAL	1	
14	0228100365	RUBBER SEAL	1	
15	0228100280	RUBBER SEAL	1	
16	0228100070	RUBBER SEAL	1	

NAME PLATE ASSY.



DCA-150SSJU —OPERATION AND SAFETY DECAL ASSY.

NAME PLATE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M1550000204	DECAL : NOTE	1	M15000020
2	M1550000703	DECAL : AUXILIARY OUTPUT	1	M15000070
3	M3550000602	DECAL : GENERATOR CONTROL	1	M35000060
4	M3550000702	DECAL : ENGINE OPERATING	1	M35000070; S/N7600001 TO 7600090
	M3550000712	DECAL; ENGINE OPERATING	1	S/N3500071; S/N7600091~
5	M3550000804	DECAL : NOTE	1	M35000080
6	M3550000904	DECAL : FOR COLD STARTING	1	M35000090; S/N7600001 TO 7600090
7	M9500000004	DECAL : OIL DRAIN PLUG	1	M90000000
8	M9500100004	DECAL : WATER	1	M90010000
9	M9500100104	DECAL : WATER DRAIN PLUG	1	M90010010; S/N7600001 TO 7600120
10	M9500300004	DECAL : -	1	M90030000
11	M9500300104	DECAL : +	1	M90030010
12	M9500500004	DECAL : DIESEL FUEL	1	M90050000
13	M9500500104	DECAL : FUEL DRAIN PLUG	1	M90050010
14	M9503000004	DECAL : CAUTION, MOVING PARTS	2	M90300000
15	M9503000103	DECAL : WATER - OIL CHECK	1	M90300010
16	M9503100004	DECAL : WARNING, HOT COOLANT	1	M90310000
17	M9503200004	DECAL : WARNING, EXHAUST	1	M90320000
18	M9510100004	DECAL : WARNING, HOT PARTS	1	M91010000
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, ELECTRICAL SHOCK	2	M92010000
24	M9520100204	DECAL : CAUTION, STOP ENGINE	1	M92010020A
25	M9520100304	DECAL : SAFETY INSTRUCTIONS	1	M92010030
26	M9520100404	DECAL : DANGER	1	M92010040
27	M9520100503	DECAL : WARNING, ELECTRICAL SHOCK	1	M92010050
28	M9520200003	DECAL : CONNECTIONS OF OUTPUT CABLE	1	M92020000
29	M9520200104	DECAL : OVER CURRENT RELAY	1	M92020010
30	M3560100903	STRIPE : WHISPERWATT	1	
31	M3560101003	STRIPE : MQ POWER	2	
32	M3560101103	STRIPE	2	
33	M3560101304	STRIPE	2	
34	M3560101203	STRIPE : 150	1	
35	M3560101403	STRIPE : 150	1	
36	M3560101504	STRIPE	2	
37	0600500090	EMBLEM	1	
38	0021106015	MACHINE SCREW	2	
39	M355200403	DECAL; OPERATING PROCEDURES	1	M35200040;
40	B1552000103	DECAL; CAUTION	2	B15200010
41	C9505300004	DECAL; CAUTION	1	C90530000
42	9039209064	DECAL; START CONTACT	1	S4468
43	C9502400004	DECAL; HIGH IDLE SPEED ADUST	1	C90240000
44	DCL160	DECAL; PROPOSITION 65 WARNING	1	

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

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

MINIMUM ORDER

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

RETURNED GOODS POLICY

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

1. A Returned Material Authorization must be approved by Multiquip prior to shipment.
2. To obtain a Return Material Authorization, a list must be provided to Multiquip Parts Sales that defines item numbers, quantities, and descriptions of the items to be returned.
    a. The parts numbers and descriptions must match the current parts price list.
    b. The list must be typed or computer generated.
    c. The list must state the reason(s) for the return.
    d. The list must reference the sales order(s) or invoice(s) under which the items were originally purchased.
    e. The list must include the name and phone number of the person requesting the RMA.
3. A copy of the Return Material Authorization must accompany the return shipment.
4. Freight is at the sender's expense. All parts must be returned freight prepaid to Multiquip's designated receiving point.
5. Parts must be in new and resalable condition, in the original Multiquip package (if any), and with Muiltiquip 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 not 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.

NOTE PAGE

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

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

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

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

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