PARTS AND OPERATION MANUAL

Table of Contents

MQ POWER WHISPERWATT™ GENERATOR MODEL DCA-70SSJU

General Electric Equipment Rental (GEER)

PARTS LIST No. M2872300204
S/N UP TO 7302400 - 1999 VERSION
S/N FROM 7302401` - 2000 VERSION

Revision #2 (03/14/01)

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

⚠WARNING⚠

CALIFORNIA--Proposition 65 Warning

Engine exhaust and some of its constituents are know 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
800/835-2551 or 310/537-3700
FAX: 310/638-8046

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

TABLE OF CONTENTS

MQPower DCA70SSJU AC Generator

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!

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%

Extra Fax Discount for Domestic USA Dealers Only

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-70SSJU 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.

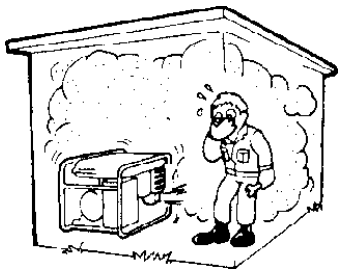
- **NEVER** operate this equipment under the influence or drugs or alcohol.

- **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.

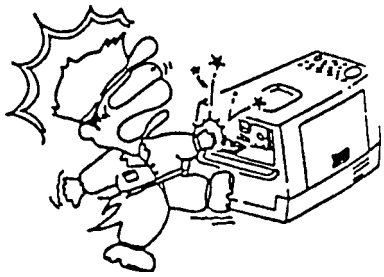


CAUTION:

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

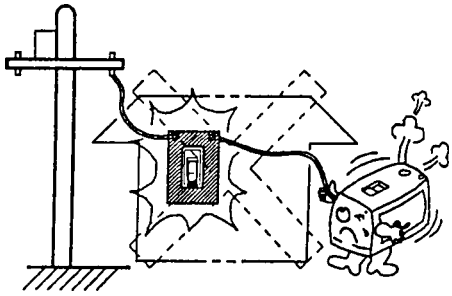
- Always use extreme caution when working with **flammable** liquids. When refueling, **stop the engine** and allow it to cool. **DO NOT** smoke around or near the machine. Fire or explosion could result from fuel vapors, or if fuel is spilled on a hot engine.
- **NEVER** operate the generator in an 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.

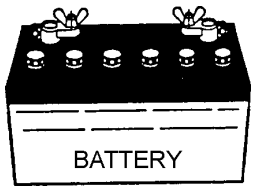
2. **Coolant Drain Plug -** Removing the coolant drain plug while the engine is hot will result in hot coolant to gush out of the coolant drain plug, therefore causing severe scalding to any persons in the general area of the generator.
3. **Engine Oil Drain Plug -** Removing the engine oil drain plug 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.
- Remember the maximum speed unless otherwise posted for highway towing is **45 MPH**. 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.

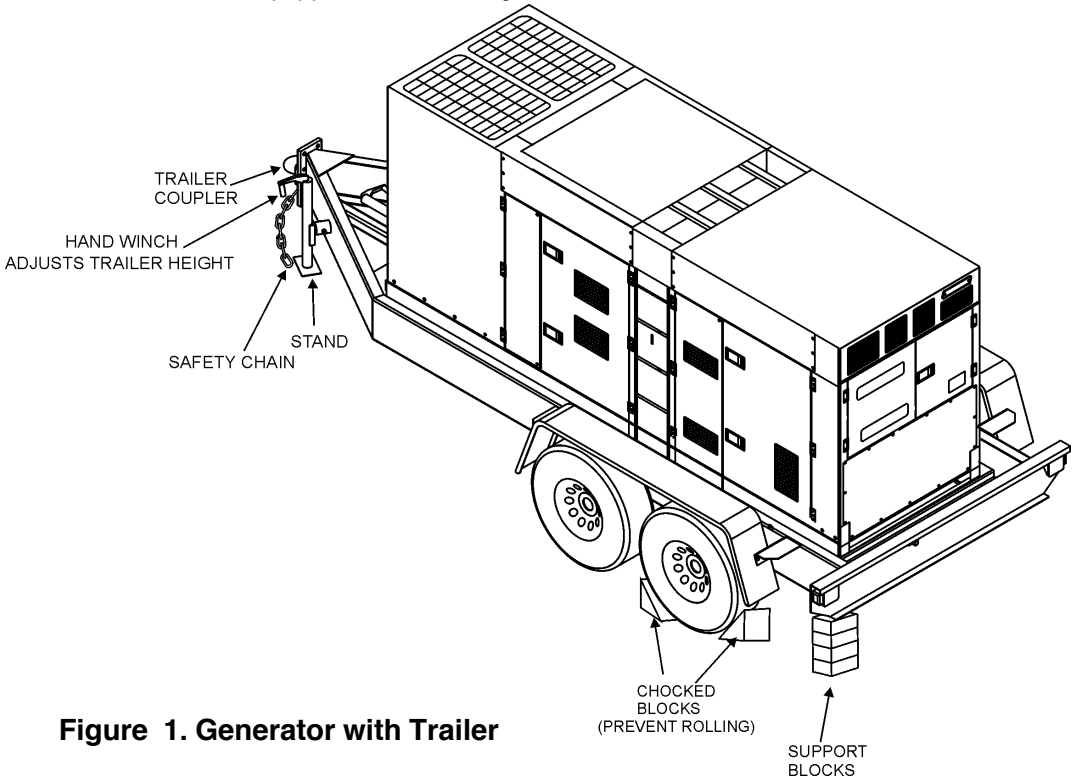


Figure 1. Generator with Trailer

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

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

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

Use the following definitions with 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 measurment 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 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). 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 shocks 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.
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-10-15	TLG-12, DCA15, TLW-300	NO	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-10X	TLG-12, DCA15, TLW-300	NO	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-10XF	TLG-12, DCA15, TLW-300	51 GAL	NO	1900LBS	96"	50"	800LB. FULL TILT WHEEL
TRLR-225W	DCA-10	NO	NO	2200LBS	85"	42"	800LB. FULL TILT WHEEL
BLW-400	BLW-400	NO	ELECTRIC	2700LBS	W/MAST 154" W/O 124"	55" (78" TALL)	800LB. FULL TILT WHEEL
TRLR-15XF	DCA-15	41 GAL	NO	2700LBS	124"	55"	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-25SBT	DCA-25	NO	NO	2990LBS	120"	66"	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-10-15W	2" BALL CLASS 2 ADJUSTABLE	175-13C	13"X4.50"	2200# 2X2	5 LUG	3 LEAF	4 WIRE LOOM W/ 4 POLE FLAT
TRLR-10X	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
BLW 400	2"BALL CLASS 2 ADJUSTABLE	175-13C	13 X 4.5"	2200#2X2	5 LUG	3 LEAF	4 POLE FLAT
TRLR-15XF	2" BALL CLASS	B78-13LRC	13"X4.50"	3500# 2-1/2"	5 LUG	4 LEAF	4 POLE RUBBER 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:

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

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

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

Figure 2 displays the major electric brake components that will require inspection and maintenance. Please inspect these components as required. Reference 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.

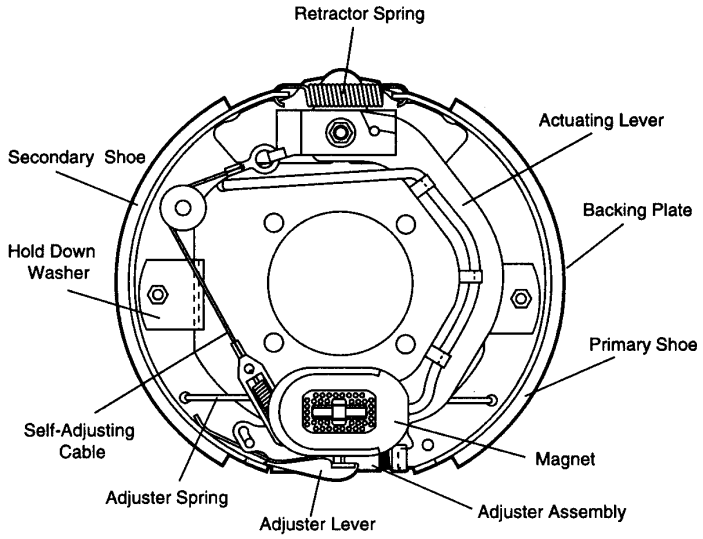


Figure 2. Electric Brake Components

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 requrie inspection and maintenance. Please 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.

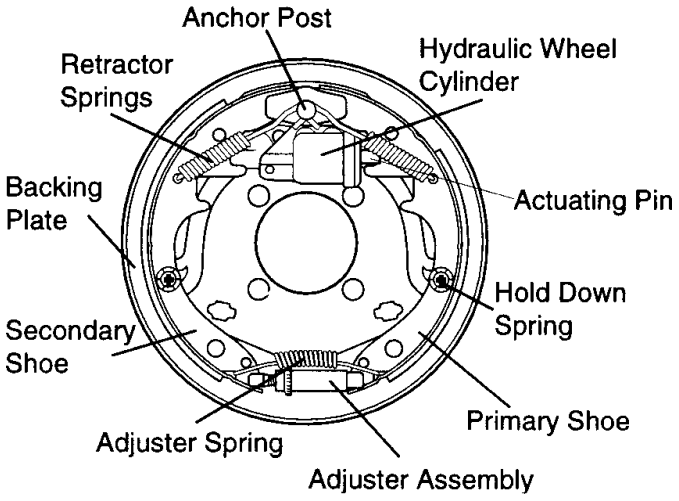


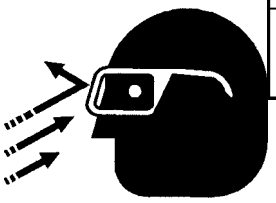
Figure 3. Hydraulic Brake Components

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

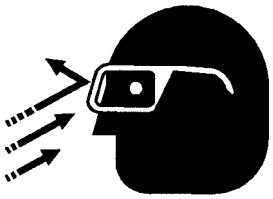


Tire Wear/Inflation

Tire inflation pressure is themost important factor in tire life. Pressure should be checked cold before operation DO NOTbleed air from tires when they ar hot. Check inflation pressure weekly during use to insure the maximum tire life and 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 camber or overloading.	Make sure load does not exceed axle rating. Align wheels.
	Toe Wear	Incorrect toe-in.	Align wheels.
	Cupping	Out-of-balance.	Check bearing adjustment and balance tires.
	Flat Spots	Wheel lockup & tire skidding.	Avoid sudden stops when possible and adjust brakes.

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.

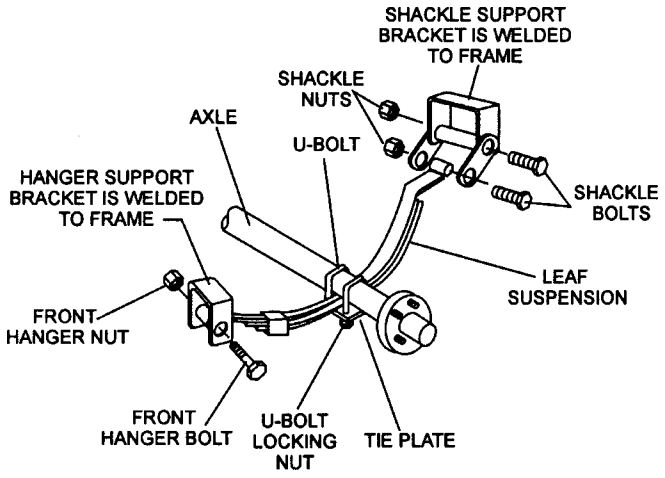


Figure 4. Suspension Components

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 attachement 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.

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

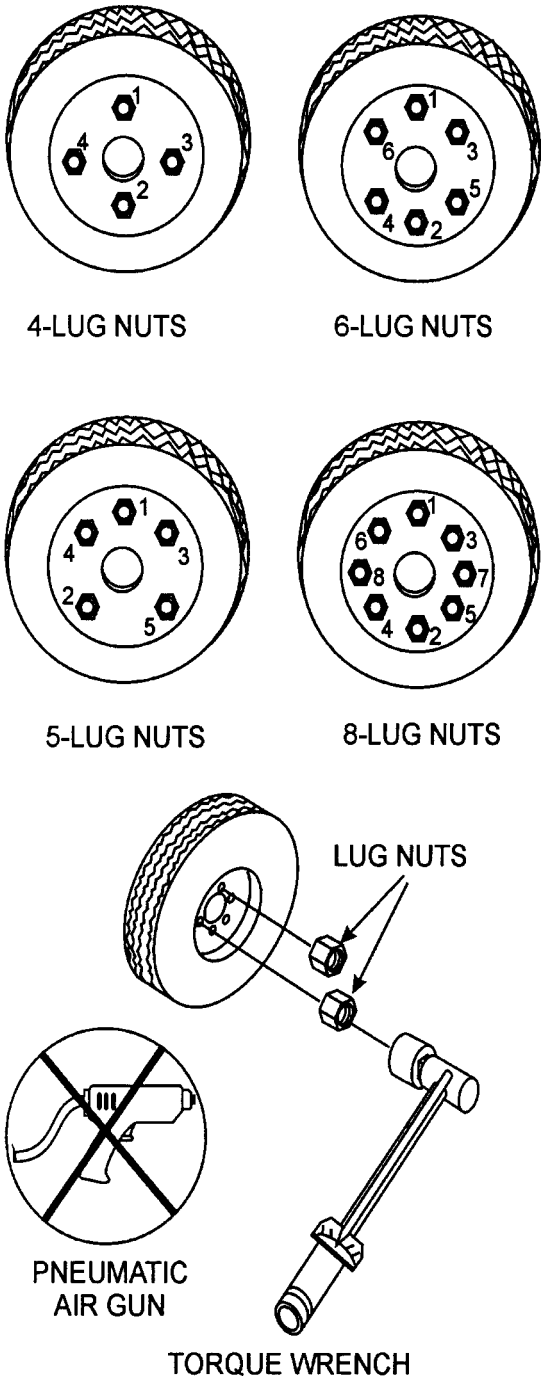


Figure 5. Lug Nut Tightening Sequence

NOTE

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

DCA-70SSJU — TRAILER-WIRING DIAGRAM

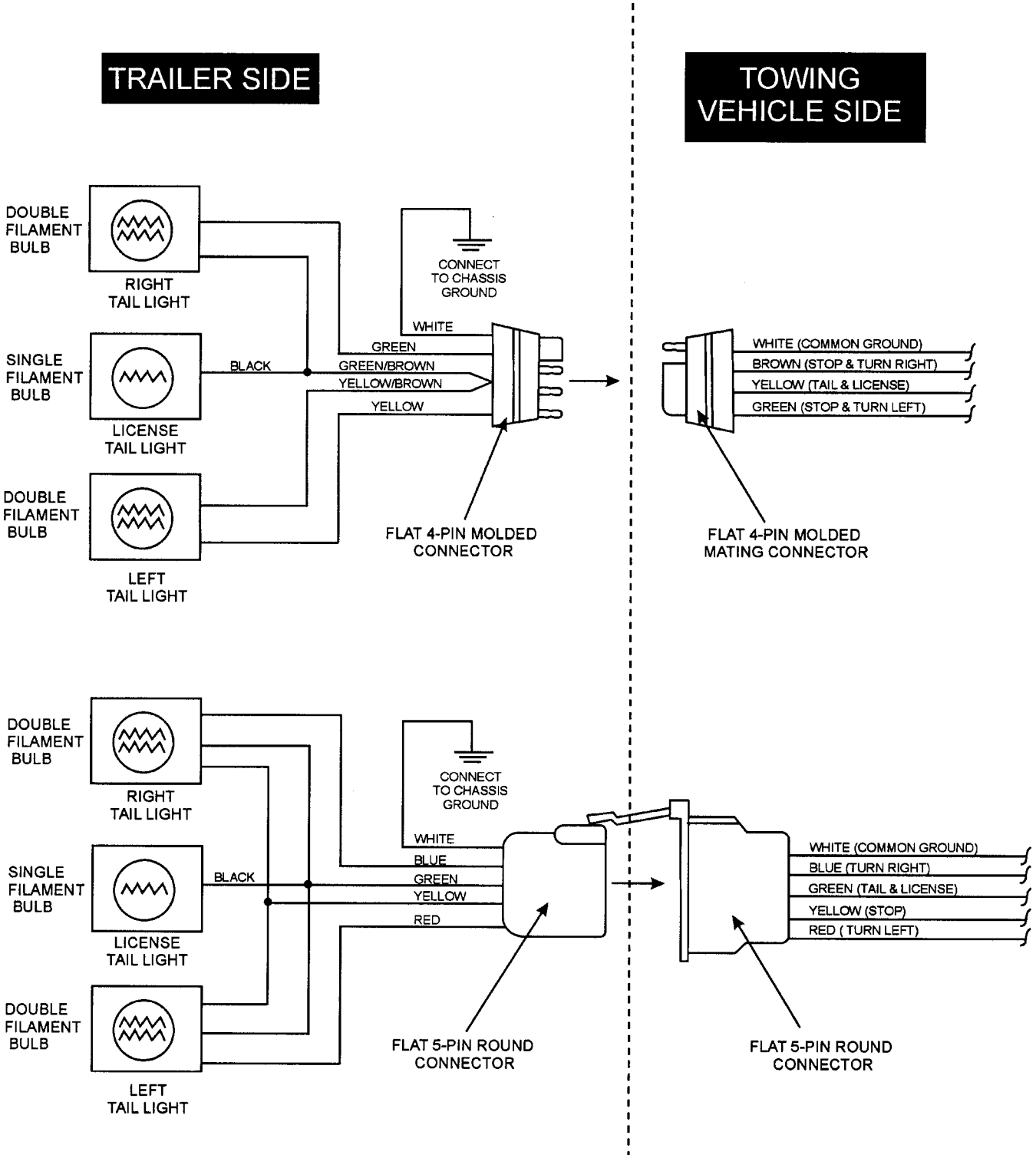
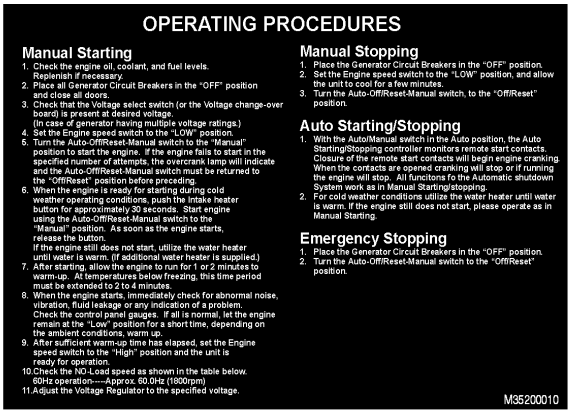


Table 5. Electric Brake Troubleshooting		
Symptom	**Possible Cause**	**Solution**
No Brakes or Intermittent Brakes	Any open circuits or broken wires?	Find and correct.
	Any short circuits?	Find and correct.
	Faulty controller?	Test and correct.
	Any loose connections?	Find and repair.
	Ground wire secure?	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.

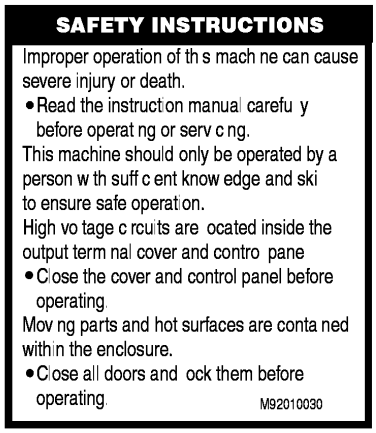
Table 6. Hydraulic Brake Troubleshooting		
Symptom	Possible Cause	Solution
No Brakes	Brake line broken or kinked?	Repair or replace.
Weak Brakes or Brakes Pull to One Side	Brake lining glazed?	Reburnish or replace.
	Trailer overloaded?	Correct weight.
	Brake drums scored or grooved?	Machine or replace.
	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.

Machine Safety Decals

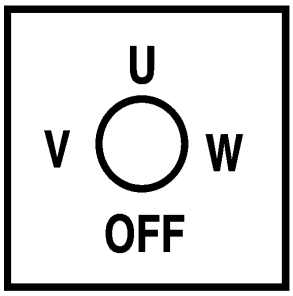
The DCA-70SSJU generator is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. The illustration below and on the preceding pages shows the decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



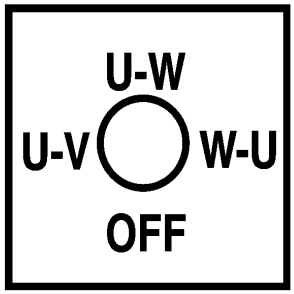
P/N M3552000103



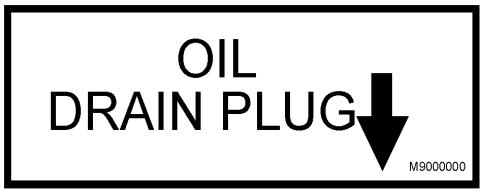
P/N M9520100304



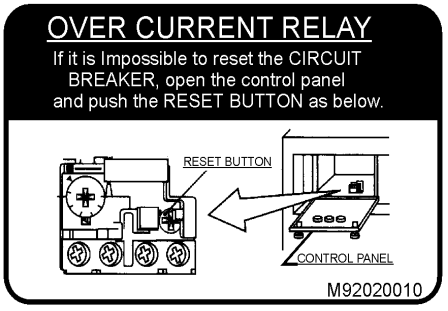
P/N M9520000104



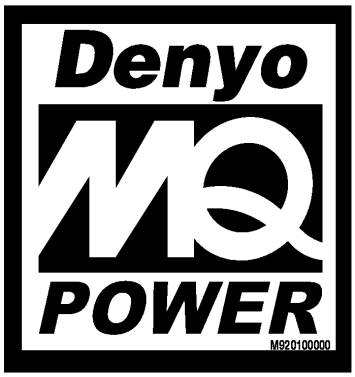
P/N M9520000204



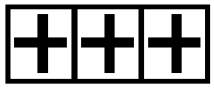
P/N M950000004



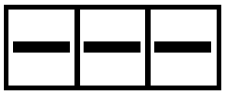
P/N M9520200104



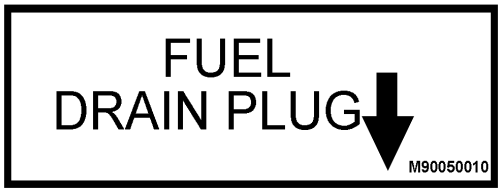
P/N M9510200002



P/N M9500300104



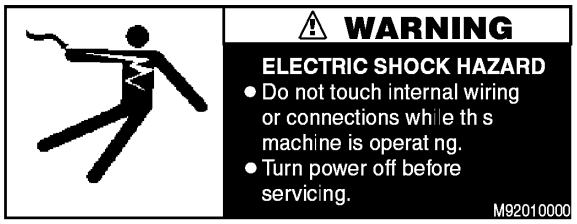
P/N M9500300004



P/N M9500500104

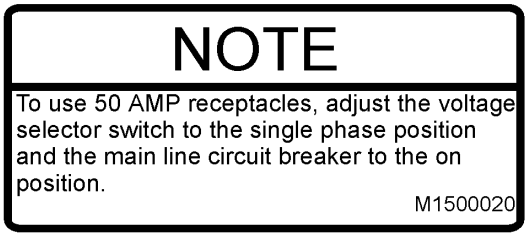
P/N M9500500004

P/N M9503000103

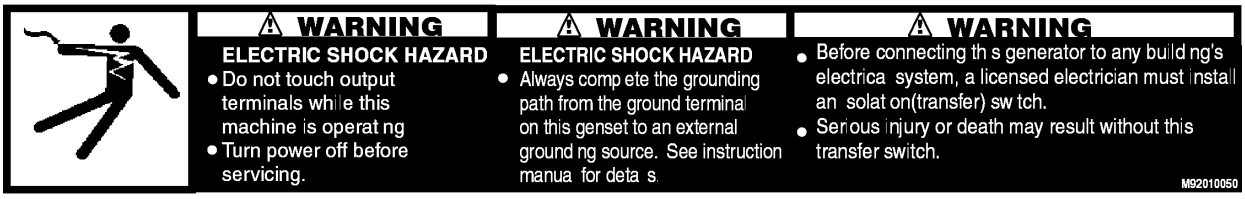


P/N M9520100004

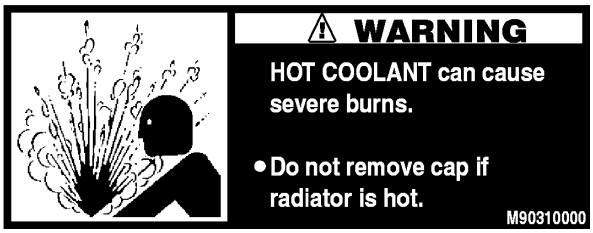
P/N M9520100401



P/N M1550000204



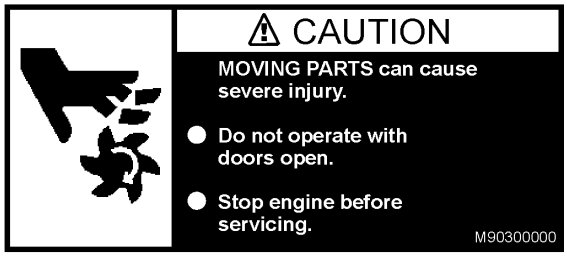
P/N M9520100503



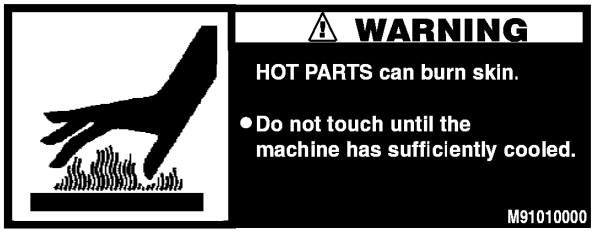
P/N M9503100004

P/N M9503200004

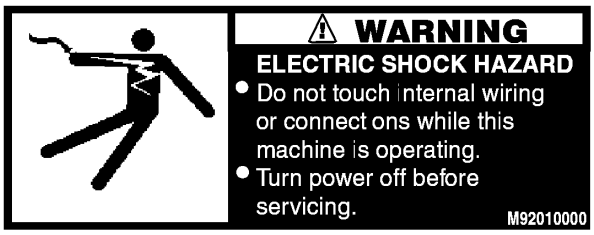
P/N M9520100204



P/N M9503000004



P/N M9510100004



P/N M9520100004

Table 7. Specifications		
Generator Specifications		
Model	DCA-70SSJU	
Type	Revolving field, self ventilated, open protected type synchronous generator	
Armature Connection	Star with Neutral	Zig Zag
Phase	3	Single
Standby Output	77 KVA (61.6 KW)	44 KW
Prime Output	70 KVA (56 KW)	40KW
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 4045TF 150	
Type	4 Cycle, water-cooled, direct injection, turbo-charged	
No. of Cylinders	4 cylinders	
Bore x Stroke	4.19 in. x 5 in. (106 mm x 127 mm)	
Rated Output	90HP/1800 rpm	
Displacement	274 cu. in. (4500 cc)	
Starting	Electric	
Coolant Capacity	6.9 gal. (26 liters)	
Lube Oil Capacity	3.4 gal. (13 liters)	
Fuel Consumption	4.7 gal. (17.9L)/hr at full load	3.5 gal. (13.3L)/hr at 3/4 load
	2.6 gal. (9.9L)/hr at 1/2 load	1.6 gal. (6.1L)/hr at 1/4 load
Battery	12V- 120AH	
Fuel	#2 Diesel Fuel	

DCA-70SSJU FAMILIARIZATION

Generator

The MQ Power Model DCA-70SSJU is a 62 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
- Battery Switch(2000 version)
- Pre-Heat Button
- Fuel Gauge
- Ignition Switch
- MPEC Module(2000 version)

Generator Control Panel

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

- Output Voltage Adjustment Knob
- Frequency Meter (Hz)
- AC Ammeter (Amps)
- AC Voltmeter (Volts)
- Ammeter Change-Over Switch
- Voltmeter Change-Over Switch
- Wattmeter(2000 version)
- Panel Light
- Panel Light Switch

Output Terminal Panel

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

- Three 240/139V output receptacles, 50 amp
- Two 120V input receptacles, 20 amp
- 3 Load Circuit Breakers 265V @65 amps
- 2 Load GFCI Circuit Breakers 265V@ 20amps

Control Box

The "Control Box" is provided with the following:

- Main Circuit Breaker 175 amps
- Over-Current Relay

Microprocessor Controlled Alarm System

The DCA-70SSJU generator is equipped with various alarms and LED status indicators. These alarms and status indicators are provided to add safety to the generator when operating under normal conditions. The DCA-70SSJU generator is designed to shutdown in the event of low oil, high coolant temperature, low battery and other operation conditions that may cause severe damage to the generator.

Open Delta Excitation System

The DCA-70SSJU 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-70SSJU** is powered by a 4 cycle, water cooled, turbocharged JOHN DEERE Model 4045TF150 ***diesel*** engine. This engine is designed to meet every performance requirement for the generator. Reference Table 1, page 13 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-70SSJU generator are addressed on the following pages.

Electronic Governor System

The electronic governor system replaces the standard mechanical governor system. The frequency regulation improves from ±3.0% regulation with the mechanical governor to ±0.25% regulation with the electronic governor system.

Jacket Water Heater

The jacket water heater is a 1500-watt heater designed to keep the coolant warm in the engine block for fast starts and load acceptance. The heater is thermostatically controlled and once an acceptable engine temperature is achieved it will cycle on and off, operating only about 1/3 of the time, which makes it more efficient than the direct block type heater. It is designed to keep the engine coolant between 100 and 120 degrees fahrenheit.

Under normal conditions, 20 to 15 minutes is required to raise the engine temperature of a cold engine to 100 degrees fahrenheit.

NOTE:

The jacket water heater can be serviced if not functioning propertly.

Battery Charger

The battery charger will operate in a 'BOOST' mode until the battery's current acceptance falls to 70% of the charger's rating. The charger will then go into a 'FLOAT' mode, where it discharges a lower voltage until an AC failure, or the battery is discharged.

Water Separator Filter

The DCA-70SSJU generator is equipped with a fuel water separator. This unit is designed to prevent dirt, rust, algae, varnishes and water from entering the fuel system.

This unit may have a water separator system designed with two filters connected in parallel (2000 version, see Figure 6). These two filters can be configured in a variety of ways to filter water from the fuel system.

For best results it is best to have both filters active (ON) at the same time or use only one filter, and use the other filter as a reserve, that way you can use the filters alternately every time the filter element is replaced.

Collection Bowl Water Drainage

Inspect or drain the water in the collection bowl daily. The collection bowl must be drained before contaminants reach the bottom of the turbine.

To drain the collection bowl perform the following:

1. Open the self-venting drain to evacuate contaminants with a suitable collection container in place.
2. Prime the unit by removing the filter lid and filling with clean fuel.
3. Replace the filter lid and snugly tighten the T-handle by hand only.

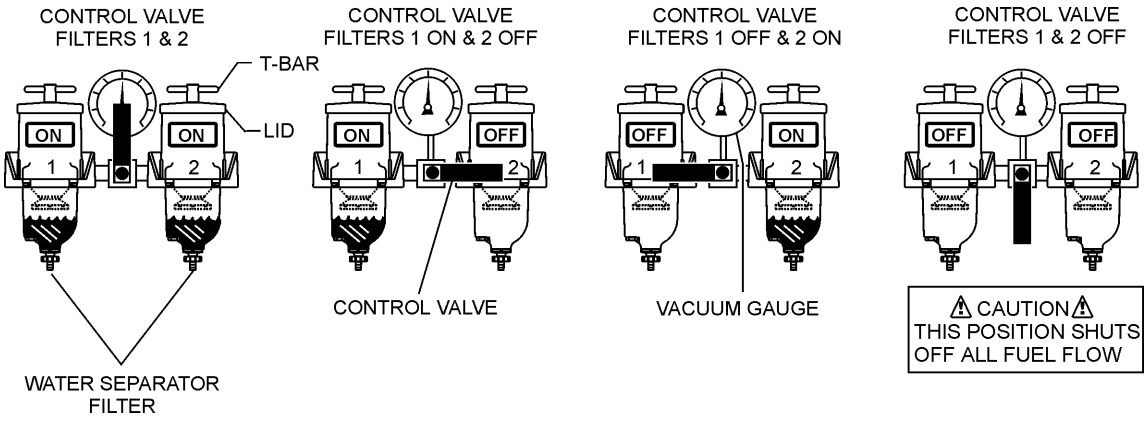


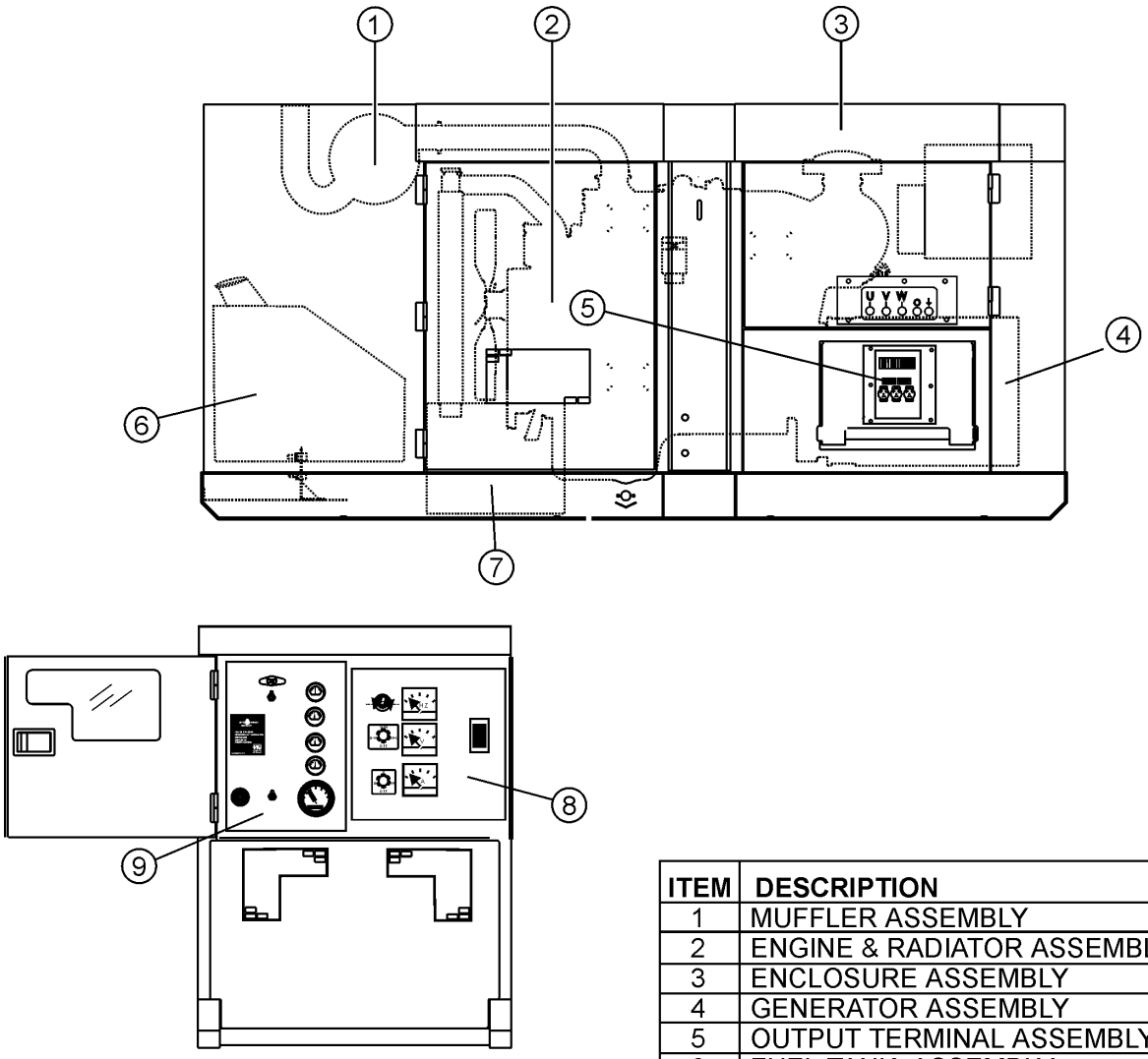
Figure 6. Water Separator Filter

CAUTION :

ALWAYS unplug the jacket water heater before servicing.

CAUTION:

DO NOT turn the control valve while the generator is in operation. This may stop fuel flow to the generator if both filters are set to the OFF position.



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	CONTROL PANEL ASSEMBLY
9	ENGINE OPERATING PANEL ASSEMBLY

Figure 7. Major Components

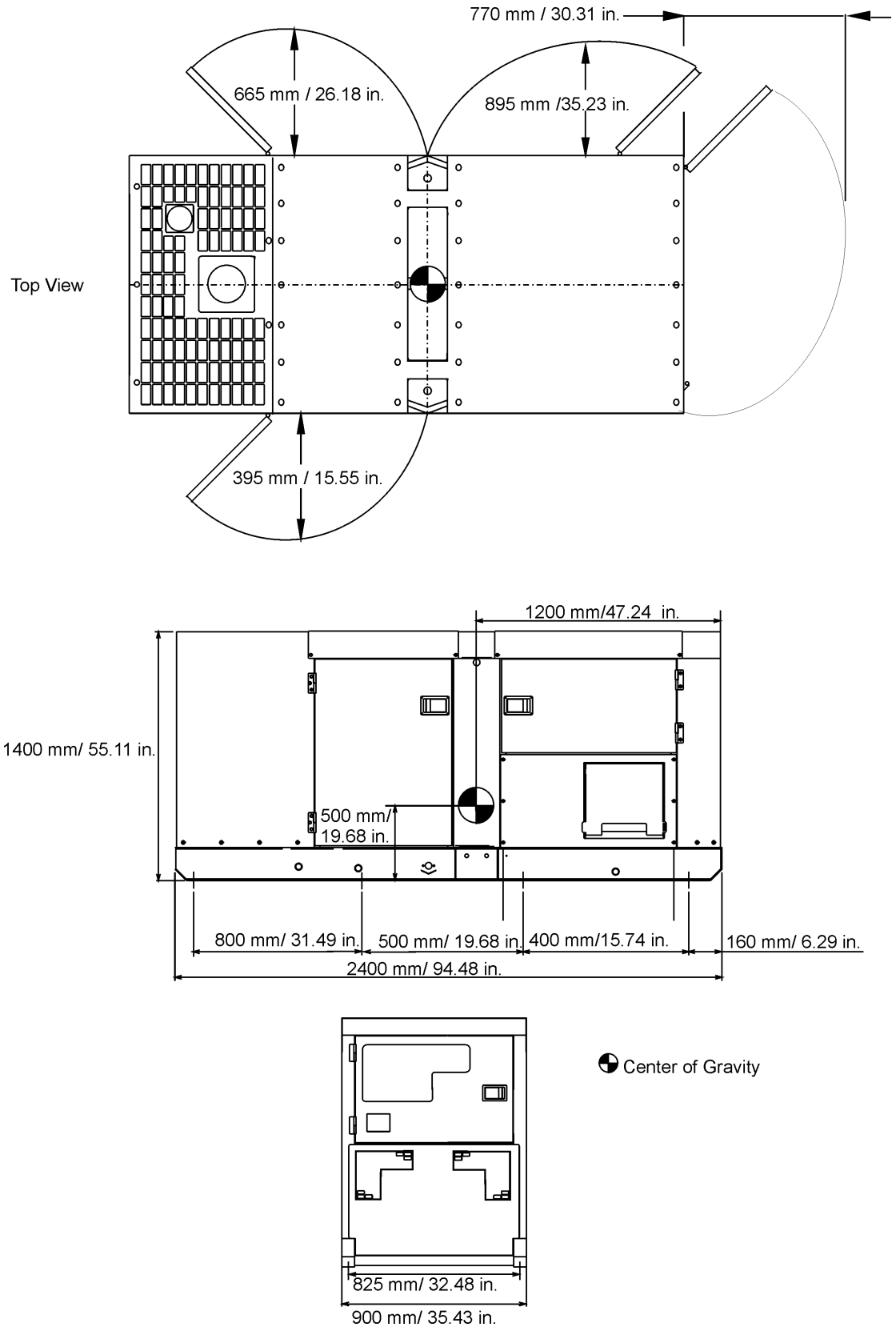
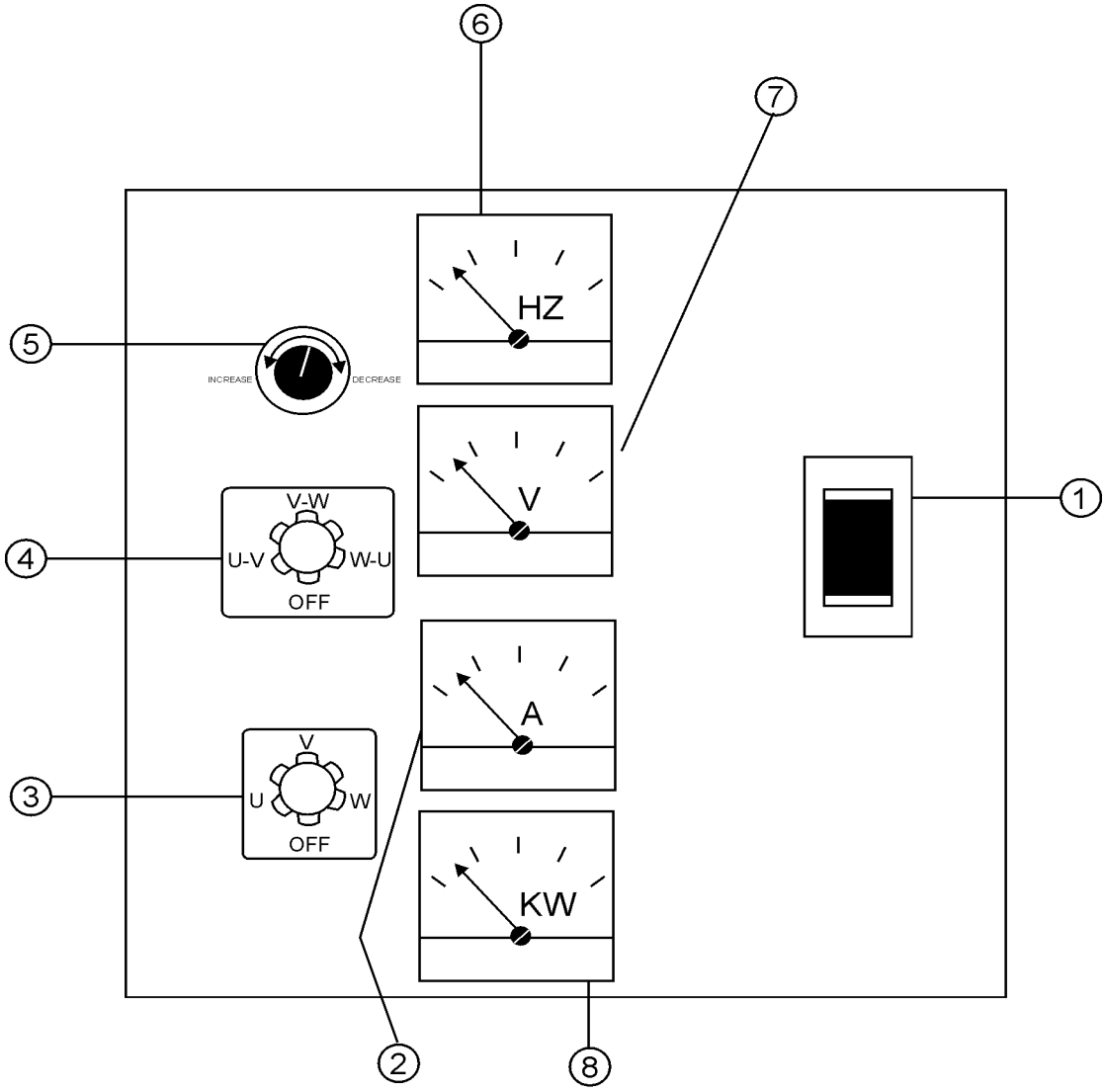


Figure 8. Dimensions

NOTE PAGE

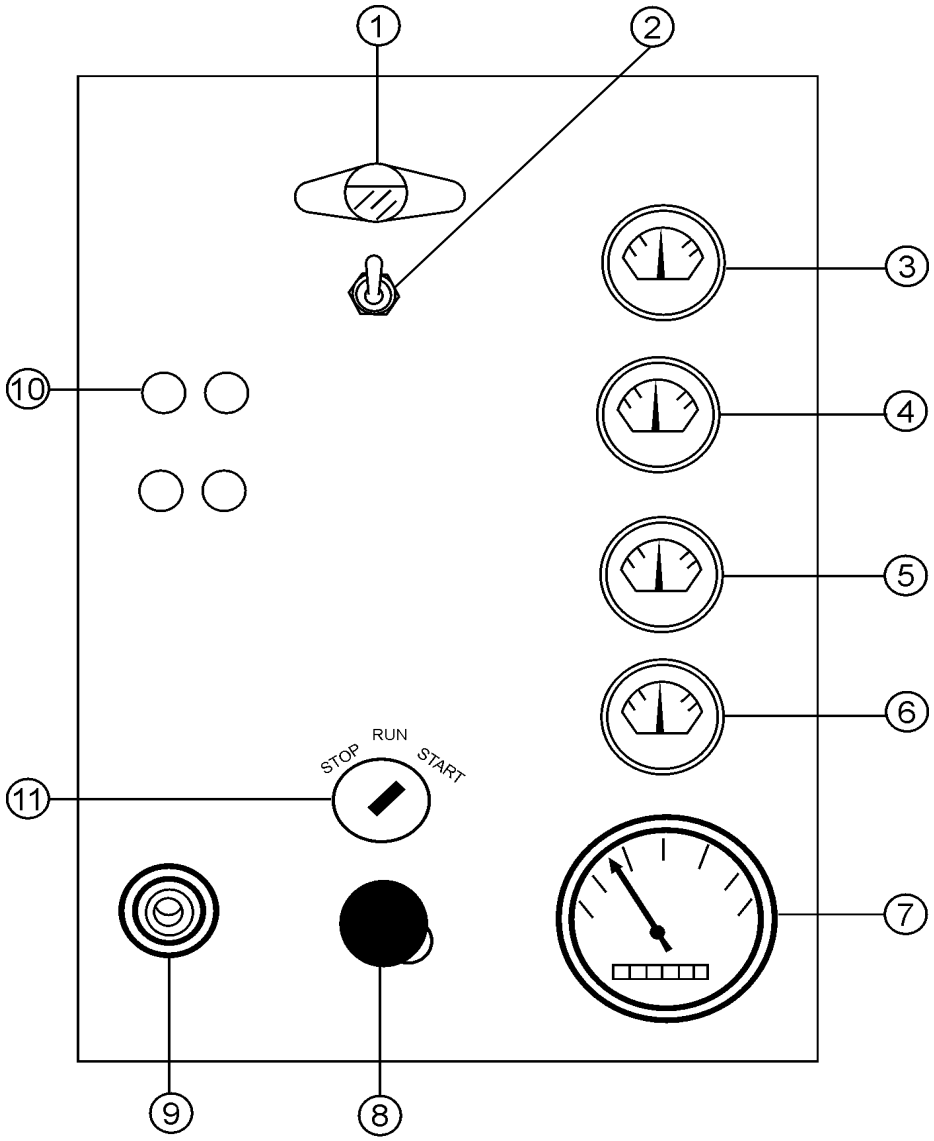


NO	DESCRIPTION
1	CIRCUIT BREAKER
2	AC AMMETER
3	AMMETER CHANGE-OVER SWITCH
4	VOLTMETER CHANGE-OVER SWITCH
5	VOLTAGE REGULATOR
6	FREQUENCY METER
7	AC VOLTMETER
8	AC WATTMETER (2000 VERSION)

Figure 9. Control Panel

The definitions below describe the controls and functions of the DCA-70SSJU " ***Control Panel*** " (Figure 9).

1. **Main Circuit Breaker –** This three-pole, 175 amp main breaker is provided to protect the UNV 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 manual adjustment of the generator's output voltage.
6. **Frequency Meter –** Indicates the output frequency in hertz (Hz). Normally 60 Hz ±1 Hz .
7. **AC Voltmeter –** Indicates the single phase output voltage present at the UNV terminals.
8. **AC Wattmeter -** Indicats the output power of the generator.



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	THROTTLE LEVER
9	PREHEAT BUTTON
10	INDICATOR LIGHTS
11	IGNITION SWITCH

Figure 10. Engine Operating Panel

The definitions below describe the controls and functions of the 1999 version of the DCA-70SSJU " ***Engine Operating Panel*** " (Figure 10).

1. **Panel Light –** Normally used in dark areas or at night time. When activated, panel lights will illuminate. When the generator is not in use be sure to 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 in the "GREEN" zone. When starting the generator the oil pressure mar read a little bit higher, but after the engine warms up the oil pressure should return to the green zone.
4. **Water Temperature Gauge –** During normal operation this gauge be should read in the "GREEN" zone.
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. **Engine Throttle Handle -** This lever controls the speed of the engine (low or high).
9. **Pre-Heat Button –** Press hold this button until the pre-heat lamp is lit (ON).

PRE-HEAT BUTTON

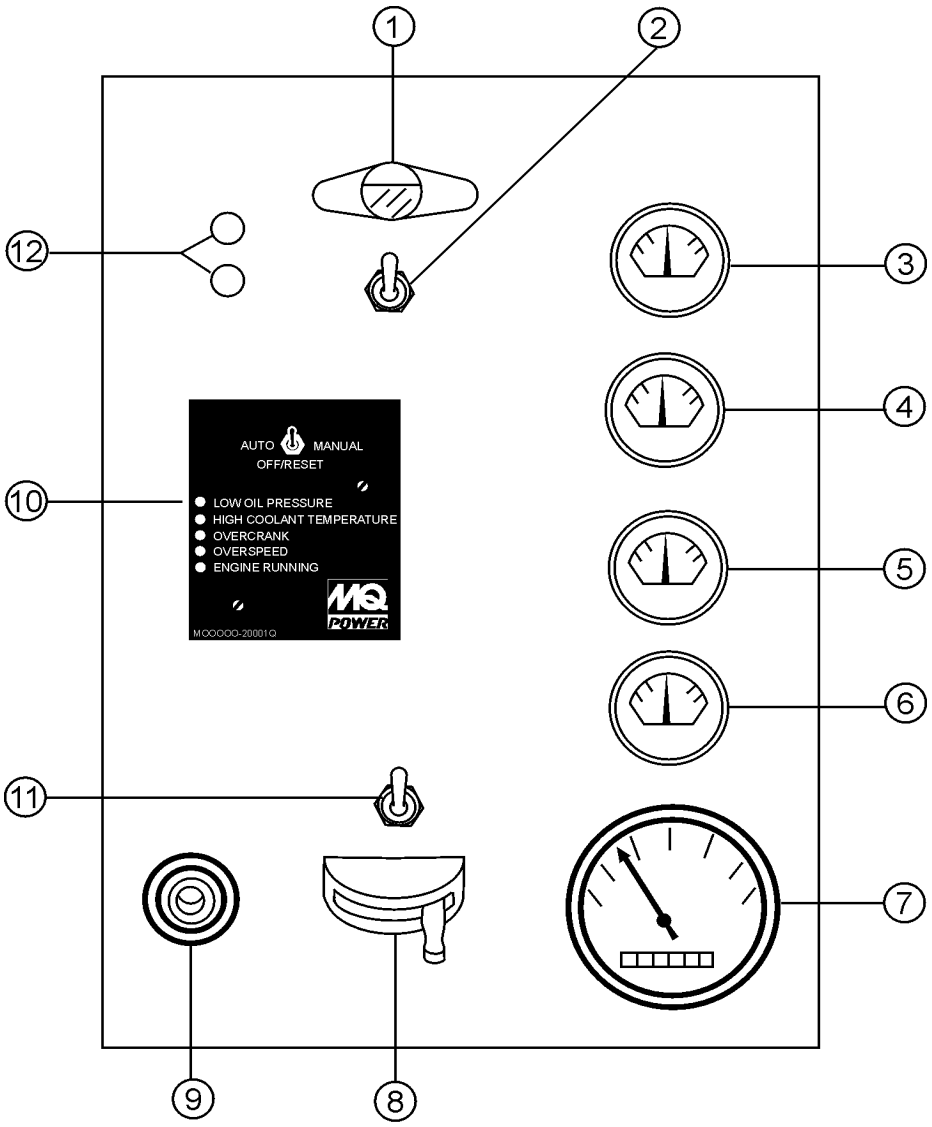
10. **Indicator lights–** When lit, indicates an engine malfunction (fault), has been detected. When a fault has been detected, this will shut down the engine.

A. **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.

B. **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.

C. **Fuel Leak Detection –** Indicates the unit detects a fuel leak in the sub-tank liner.

D. **Low Fuel Warning –** Indicates the fuel is dangerously low.

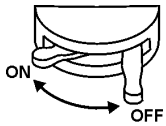


NO	DESCRIPTION
1	PANEL LIGHT
2	PANEL LIGHT SWITCH
3	OIL PRESSURE GAUGE
4	WATER TEMPERATURE GAUGE
5	CHARGING AMMETER
6	FUEL GAUGE
7	TACHOMETER
8	BATTERY SWITCH
9	PREHEAT BUTTON
10	AUTO/START/STOP CONTROLLER
11	ENGINE SPEED SWITCH
12	ALARM LAMPS

Figure 11. Engine Operating Panel

The definitions below describe the controls and functions of the 2000 version of the DCA-70SSJU " ***Engine Operating Panel*** " (Figure 11).

1. **Panel Light –** Normally used in dark areas or at night time. When activated, panel lights will illuminate. When the generator is not in use be sure to 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 in the “GREEN” zone. When starting the generator the oil pressure mar read a little bit higher, but after the engine warms up the oil pressure should return to the green zone.
4. **Water Temperature Gauge –** During normal operation this gauge be should read in the “GREEN” zone.
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. **Battery Switch -** This switch turns on and off the battery.
9. **Pre-Heat Button –** Press hold this button until the pre-heat lamp is lit (ON).
10. **MPEC – Microprocessor Engine Control Module –** (MPEC) has a vertical row of status LED's (Figure12), that when lit, indicate that an engine malfunction (fault), has been detected. When a fault has been detected the MPEC will evaluate the fault and all major faults will shutdown the generator.



BATTERY SWITCH


PRE-HEAT BUTTON

Figure 12. MPEC Module

During ***cranking cycle*** , The MPEC will attempt to crank the engine for 10 seconds before disengaging. If the engine does not engage (start) by the third attempt, the engine will be shut-down by the MPEC's " Over Crank Protection" mode. If the engine engages at a speed (RPM's) that is not safe, the MPEC will shut-down the engine by initializing the "Over Speed Protection" mode.

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

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

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

11. **Engine Speed Switch -** This switch changes the speed of the engine (high and low).

12. **Indicator lamps** - These lamps indicate any other malfunctions not detected by the MPEC:

    A. Fuel Leak Dectection Lamp - This lamp indicates there is a fuel leak between the sub-tank and fuel tank.

    B. Low Fuel Warning Lamp - This lamp indicates the fuel level is dangerously low.

NOTE PAGE

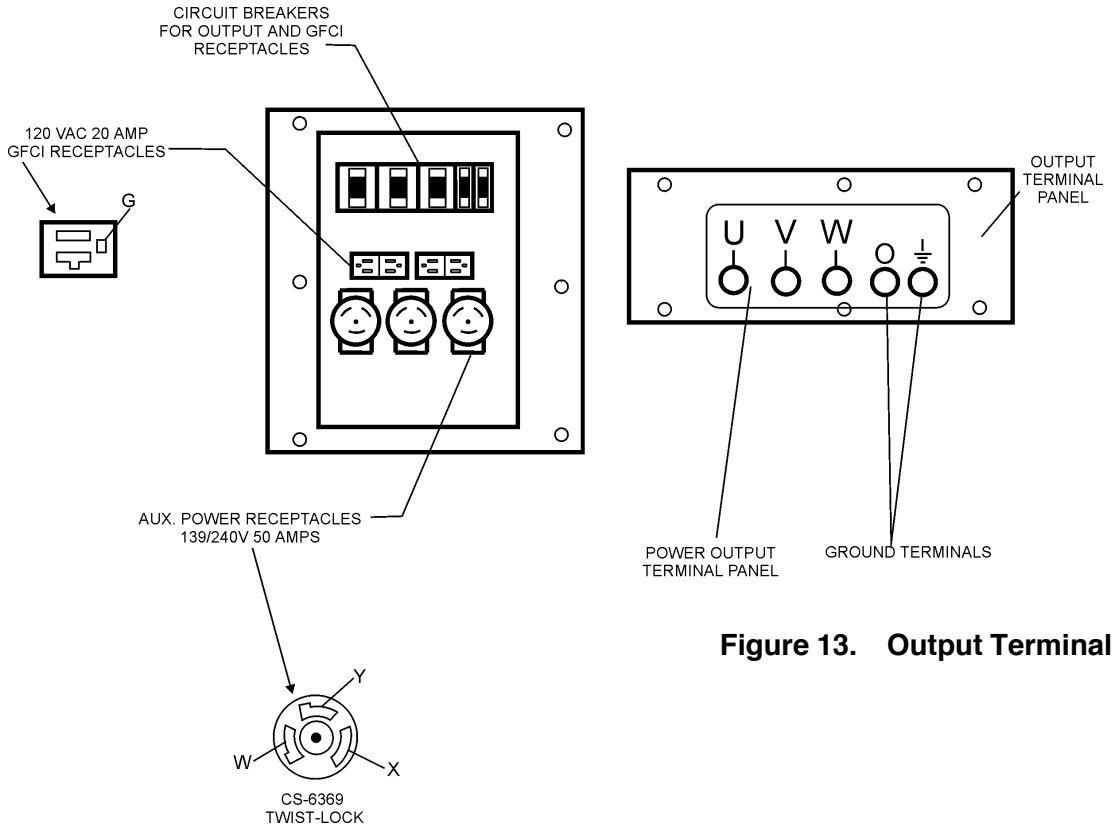


Figure 13. Output Terminal Panel

120V Receptacles - These receptacles can be used anytime the generator is in operation. They are controlled by the circuit breakers above them.

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 (see figure 9). Place the voltmeter change-over switch to the U-W positon and the ammeter change-over switch to the U or W to read the output.

Table 8. Receptacle Use

Power in Use		Receptacle Power Available
240/480V 3-Phase	240/120V Single Phase or Twist Lock CS6369	Duplex NEMA 5-20R 120V
70	40.4	0
65.8	39.2	1.2
61.7	38.0	2.4
57.5	36.8	3.6
53.4	35.6	4.8

DCA-70SSJU — OUTPUT TERMINAL VOLTAGE SELECTION

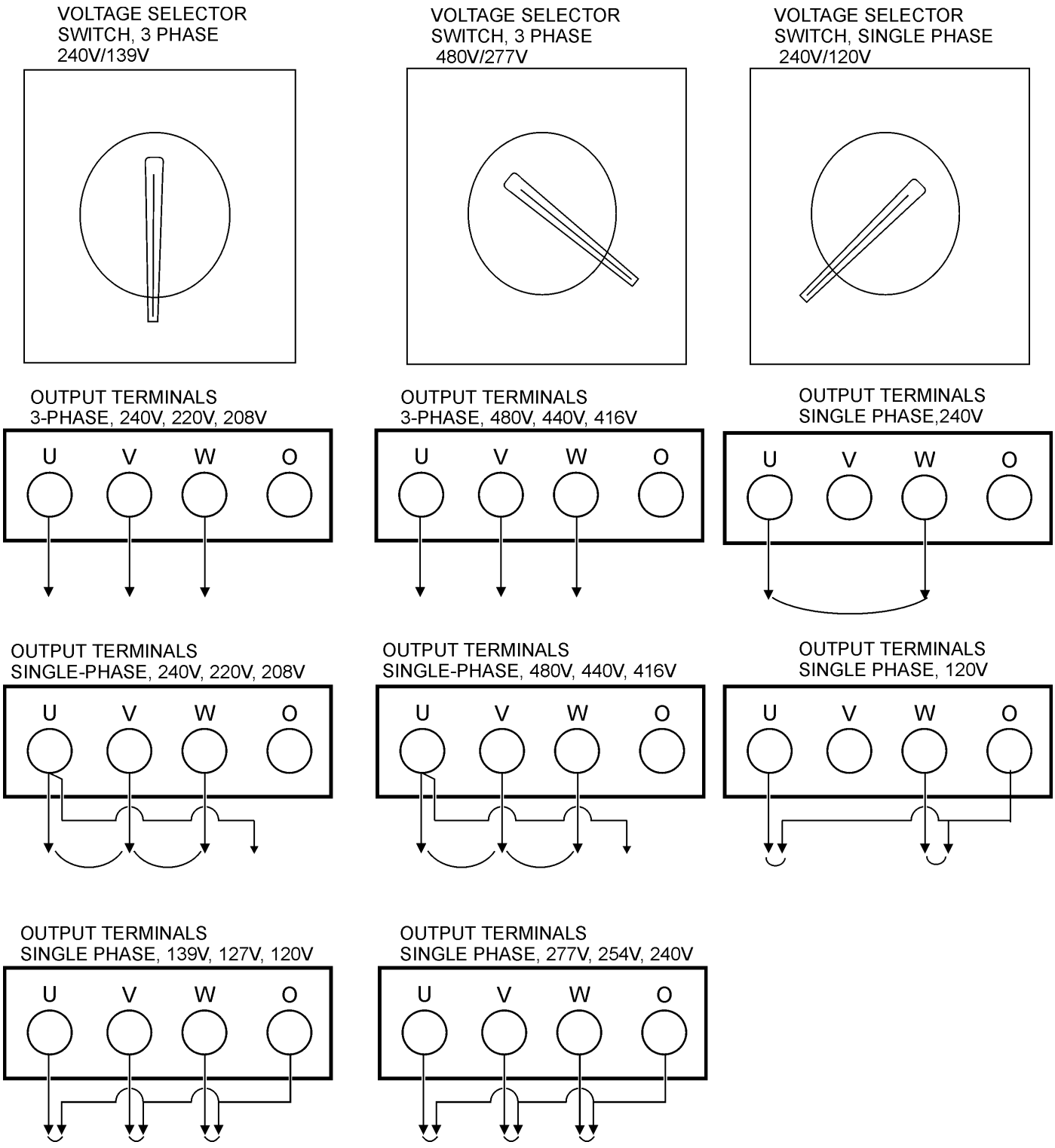


Figure 14. Output Terminal Voltage Selection

Outdoor Installation

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

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

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

CAUTION :

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

Indoor Installation

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

CAUTION :

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

Generator Grounding

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

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

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

1. Use one of the following wire types to connect the generator to earth ground.
   a. Copper - 10 AWG (5.3 mm^2) or larger.
   b. Aluminum - 8 AWG (8.4 mm^2) or larger.
2. When grounding the generator (Figure 15) 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.

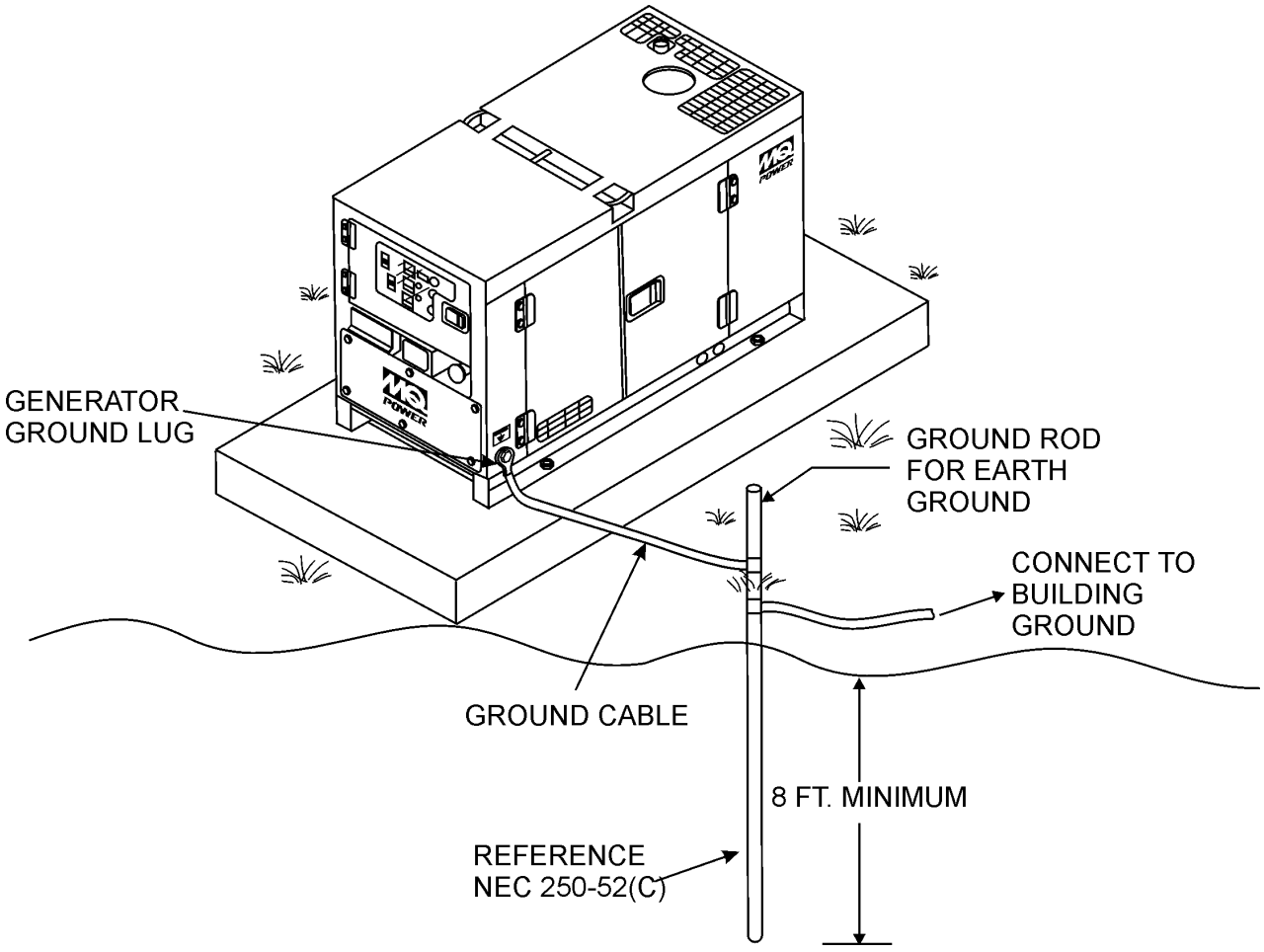


Figure 15. Typical Generator Grounding Application

General Inspection Prior to Operation

The DCA-70SSJU 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 9) as a guide for selecting proper cable size.

Circuit Breakers

To protect the generator from an overload, a 3-pole, 175 amp, ***main*** circuit breaker is provided to protect the UNV output terminals from overload. In addition two single-pole, 20 amp ***GFCI*** circuit breakers are provided to protect the GFCI receptacles from overload. Three 50 amp ***load*** circuit breakers have also been provided to protect the load side of the generator from overload. Make sure to switch ***ALL*** circuit breakers to the "OFF" position prior to starting the engine.

NOTE

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

Table 9. Cable Selection (60 Hz, Single Phase Operation)

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

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 16) on the dipstick. See Table 10 for proper selection of engine oil.

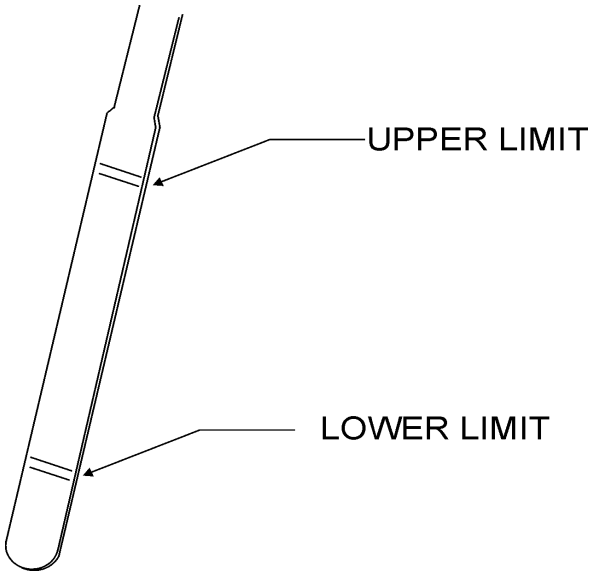


Figure 16. Engine Oil Dipstick

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 10. Recommended Motor Oil

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

CAUTION :

When adding coolant or antifreeze to the radiator, do not remove the radiator cap until the unit has completely cooled.

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

Table 10. Coolant Capacity	
Engine and Radiator	6.9 Gal. (26 liters)
Reserve Tank	2 Quarts (1.9liters)

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

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

NOTE

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

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

Air Cleaner
Periodic cleaning/replacement is necessary. Inspect it in accordance with the **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 17) when depressed with the thumb as shown below.

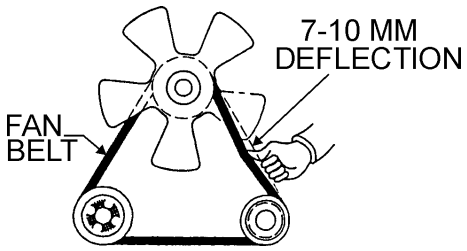


Figure 17. Fan Belt Tension

CAUTION :

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

Battery
This unit is of negative ground **DO NOT** connect in reverse. Always maintain battery fluid level between the specified marks. Battery life will be shortened, if the fluid level is not properly maintained. Add only distilled water when replenishment is necessary.
The battery is sufficiently charged if the specific gravity of the battery fluid is 1.28 (at 68°F). If the specific gravity should fall to 1.245 or lower, it indicates the battery is discharged and needs to be recharged or replaced.
Check to see whether the battery cables are loose. Poor contact may result in poor starting or malfunctions. Always keep the terminals firmly tightened.

Battery Cable Installation

ALWAYS be sure the battery cables (Figure 18) 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.

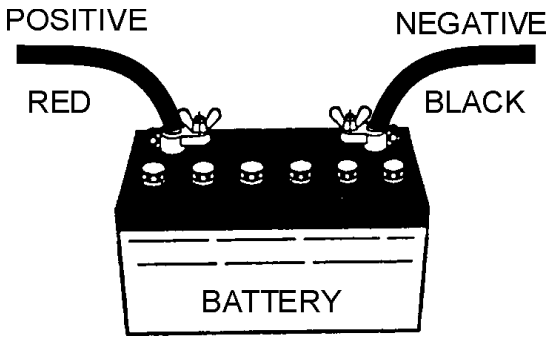


Figure 18. Battery Connections

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.

When connecting battery do the following:

1. **DO NOT** connect the battery cables to the battery terminals when the ***Off/Manual/Auto*** switch is in either the manual or auto position (ON). **ALWAYS** make sure that the Off/Manual/Auto switch is in the OFF position when connecting the battery.
2. Place a small amount of 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.

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.

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 1.0. See Table 6. below when connecting loads.

Table 13. 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

Three Phase Load

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

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

CAUTION:

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

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

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

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 10 on page 37).
3. Check the coolant level in the radiator and subtank. Replenish with antifreeze as necessary. Always maintain the coolant level between the **FULL** and **LOW** markings on the coolant container. Be sure that the radiator cap is fastened securely.
4. Check the fuel level on the fuel gauge. If fuel is low, fill the fuel tank with clean fresh unleaded automotive diesel. If diesel spillage occurs, completely wipe up the spilled fuel immediately.

Before Starting

Generator and Control Panel

CAUTION:

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

1. Be sure to disconnect the electrical load and switch the ***main, load*** and ***G.F.C.I.*** circuit breakers (Figure 19) to the "OFF" position prior to starting the engine.

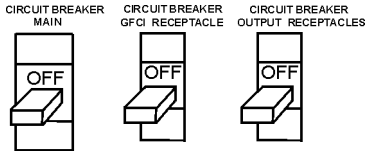


Figure 19. Main, GFCI and Load Circuit Breakers

2. Connect the load to the UNV terminals as shown in Figure 20. These terminals can be found on the output terminal panel, (see page 32, Figure 8). To gain access to the output terminals lift the UNV cover. Tighten terminal nuts securely to prevent load wires from slipping out.

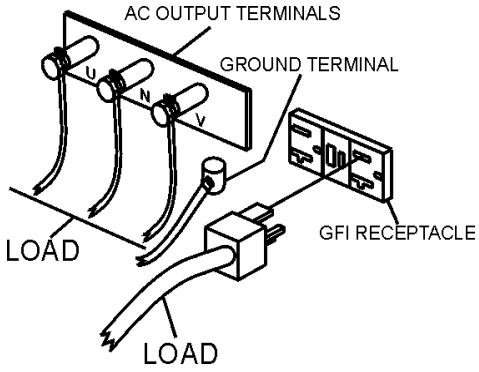


Figure 20. UNV Terminal Lugs (Load)

3. Connect the negative battery cable (BLACK) to the negative post on the battery (Figure 21).

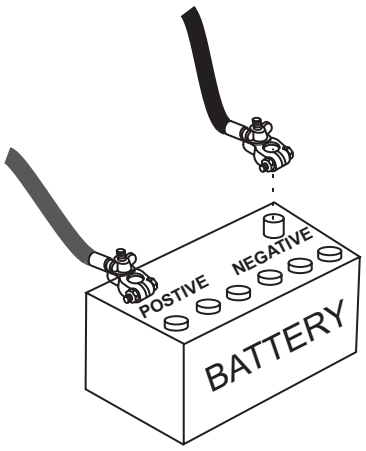


Figure 21. Battery Connections

4. Close all engine enclosure doors (Figure 22).

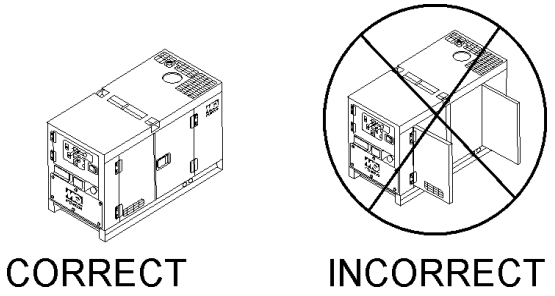


Figure 22. Engine Enclosure Doors

5. Set the terminal switch to desired phase for load being used.

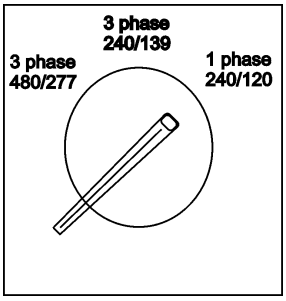


Figure 23. Terminal Switch

6. Before starting the generator, press the preheat button (during cold conditions).
7. For 1999 Version: Turn the key to the right to 'Start' (Figure24). Once the engine starts, release the key.

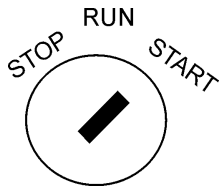


Figure 24. Ignition Switch (START)

8. Set the engine throttle lever to 'high'.

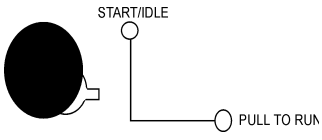


Figure 25. Engine Throttle Lever 'High'

8. For 2000 Version: Switch the battery switch to "ON".

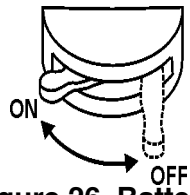


Figure 26. Battery Switch 'ON'

6. Place the Off/Manual/Auto switch (Figure 27) in the **MANUAL** position (down). The engine will begin to crank.

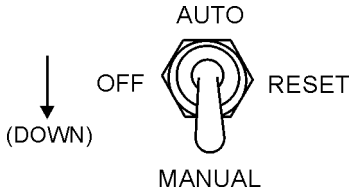


Figure 27. Off/Manual/Auto Switch (Manual)

7. After engine starts, verify that the "**Engine Running**" status LED (Figure 28) on the MPEC.

Figure 28. Microprocessor Engine Controller (MPEC)

8. Set the engine speed switch to 'high'.

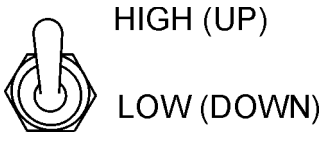


Figure 29. Engine Speed Switch 'HIGH'

8. The ammeter (Figure 30) will indicate zero amps with no load applied. When a load is applied, this meter will indicate the amount of current that the load is drawing from the generator.

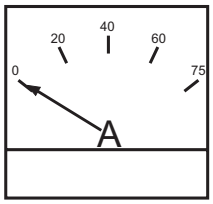


Figure 30. Ammeter (No Load)

9. The engine oil pressure gauge (Figure 31) will indicate the oil pressure (kg/ cm^2) of the engine. Under normal operating conditions the oil pressure is approximately 25 psi.

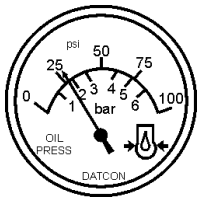


Figure 31. Oil Pressure Gauge

10. The water temperature gauge (Figure 32) will indicate the coolant temperature. Under normal operating conditions the coolant temperature is between 165 and 215 degrees fahrenheit.

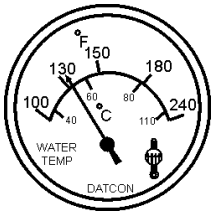


Figure 32. Coolant Temperature Gauge

11. The battery voltage gauge (Figure 33) will indicate the voltage of the battery when the generator is operating. Under normal operating conditions this voltage is between 11.2 and 15.2 volts.

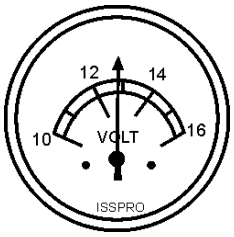


Figure 33. Battery Voltage Gauge

12. If there are no abnormal problems shown on the MPEC LED display, turn both the MAIN and GFCI circuit breakers to their ON position (Figure 34).

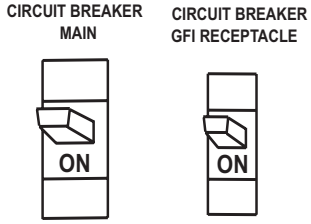


Figure 34. Main and GFCI Circuit Breakers

13. Observe at the generator's ammeter (Figure 35) and verify that 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.

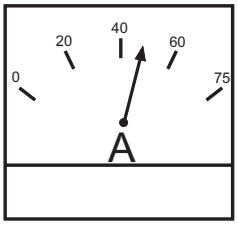


Figure 35. Ammeter (Load)

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

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.

CAUTION:

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

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 5 (Before Starting, page 41-42) as outlined in the manual starting procedure.
2. Place the Off/Manual/Auto switch (Figure 36) in the **AUTO** position (up).

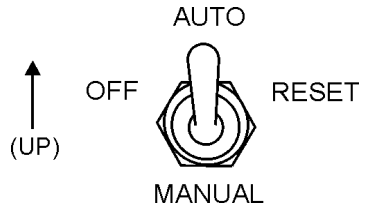


Figure 36. Off/Manual Auto Switch (AUTO)

3. Continue to follow the steps outline in the manual start-up procedure (start at step 9, page 42).

Engine Shutdown

To shut-down the generator use the following procedure:

1. For 1999 Version: Place both the **MAIN** and **GFCI** circuit breakers to the "OFF position"(Figure 37).

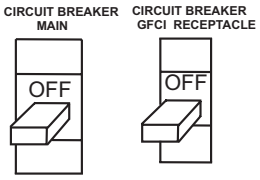


Figure 37. GFCI and Main Circuit Breaker (OFF)

2. Releasse the engine throttle handle to the low position. Let the engine cool by running 3-5 minutes.

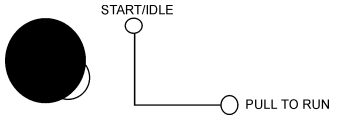


Figure 38. Engine Throttle Lever 'IDLE'

3. Turn the ignition switch to the lieft and remove key.

4. Remove the load from the UNV terminal strip (Figure 19).

5. For 2000 Version: Place both the **MAIN** and **GFCI** circuit breakers to the "OFF position"(Figure 39).

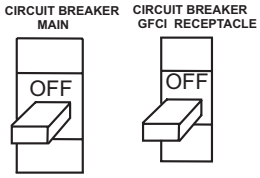


Figure 39. GFCI and Main Circuit Breaker (OFF)

6. Switch the engine switch to low. Let the engine cool by running 3-5 minutes.

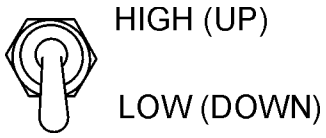


Figure 40. Engine Speed Switch 'LOW'

7. Place the Off/Manual/Auto Switch (Figure 41) in the "**OFF/ RESET**" position

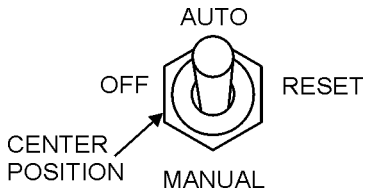


Figure 41. Off/Manual Auto Switch (OFF)

8. Verify that the "Engine Running" status LED on the Microprocessor Engine Control Module (MPEC) display is "OFF" (not lit).

9. Turn the battery switch to the"OFF" position.

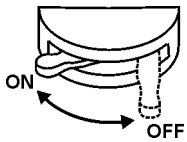


Figure 42. Battery Switch 'OFF'

10. Remove the load from the UNV terminal strip (Figure 19).

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 (std. or heavy duty types), and wash in kerosene or liquid detergent and hot water. Wrap foam element in a cloth and squeeze dry. Wipe heavy duty paper element dry with toweling. Saturate element with kerosene; squeeze excess from foam element. Wipe excess from heavy duty paper element.

Fuel Addition

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

Removing Water from the Tank

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

Air Removal

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

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

Service Daily

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

Cleaning the Fuel Strainer

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

Check Oil Level

Check the crankcase oil level prior to each use, or when the fuel tank is filled. Insufficient oil may cause severe damage to the engine. Make sure the generator is level. The oil level must be between the two notches on the dipstick as shown on page 27, Figure 10.

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.

Water Separator Filter

Replace the water separator filter (Figure 43) every 500 hours if two filters are being used. If one filter is being used, replace every 250 hours.

The filters should also be replace if the vacuum gauge indicates between 6 to 10 inches of mercury (in Hg.)

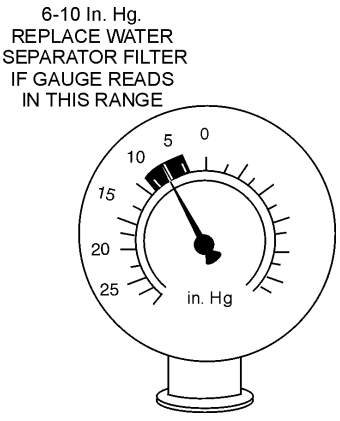


Figure 43. Water Separator Gauge

To replace the ***water separator filter*** element perform the following:

1. Remove the lid from the filter housing. Remove the element by holding the module handle and slowly pulling upward with a twisting motion.
2. Replace the lid gasket with the one supplied with the new filter element. Apply a coating of clean fuel or motor oil to seal prior to reassembly. Insert the new filter element with a slow downward twisting motion.
3. Fill the unit with clean fuel, then set the lid back on top of the filter housing, and tighten snugly using the T-bar handle.
4. Start the engine and check for any leaks. If any leaks occur with the engine running, turn the engine off and fix the leak.

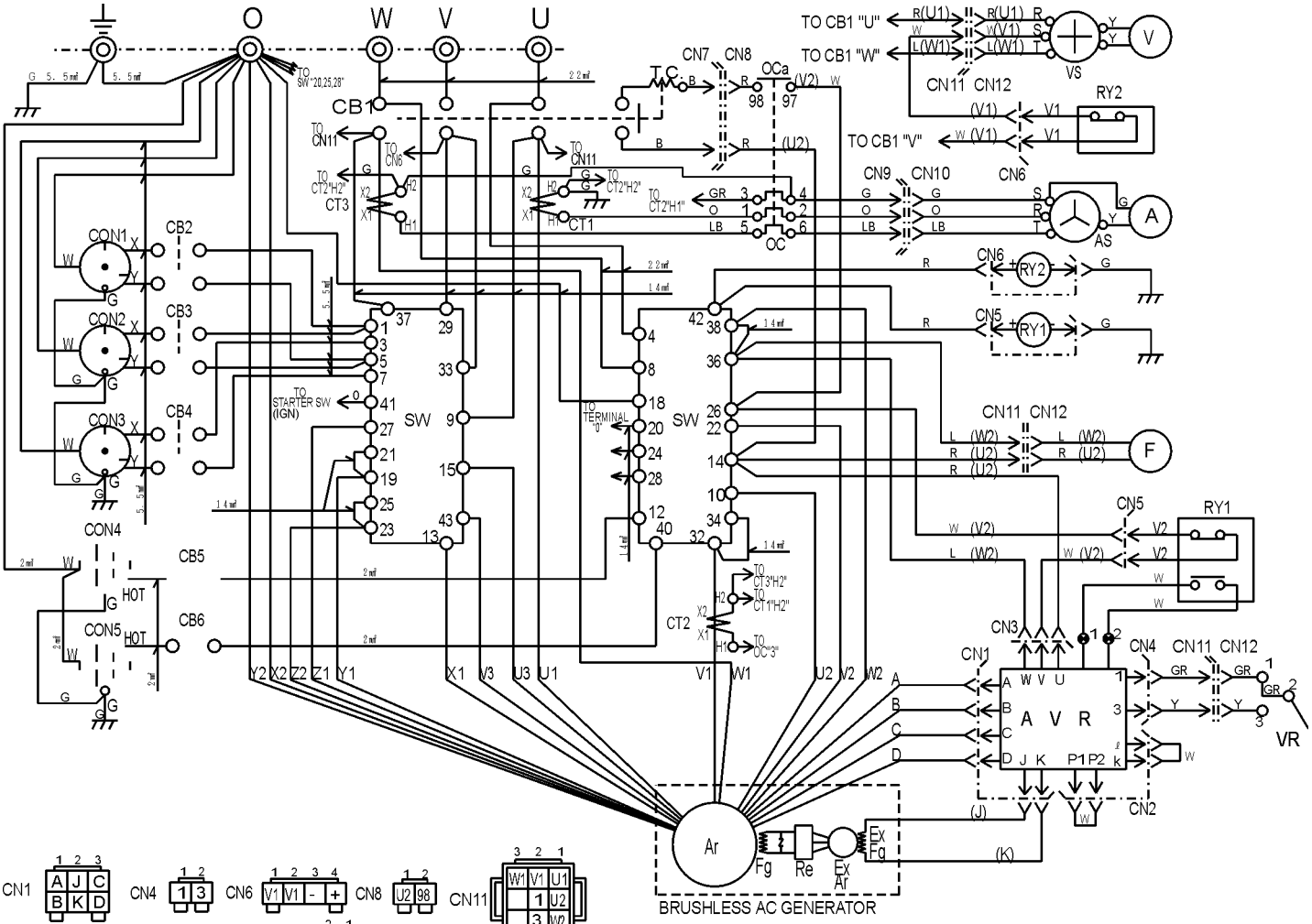
INSPECTION / MAINTENANCE		10 Hrs DAILY	250 Hrs	500 Hrs	1000 Hrs
ENGINE	Check Engine Fluid Levels	X			
	Check Air Cleaner	X			
	Check Battery Acid Level	X			
	Check Fan Belt Condition	X			
	Check for Leaks	X			
	Check for Loosening of Parts	X			
	Check Water Separator	X			
	Check Blow-by Oil Mist Tank	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 Water Separator Element *3		(X)	X	
	Clean Radiator and Check Coolant Protection Level			X	
	Replace Air Filter Element				X
	Change Corrosion Resistor				X
	Check all Hoses and Clamps				X
	Clean Inside of Fuel Tank				X
GENERATOR	Measure Insulation Resistance Over 3M ohms		X		

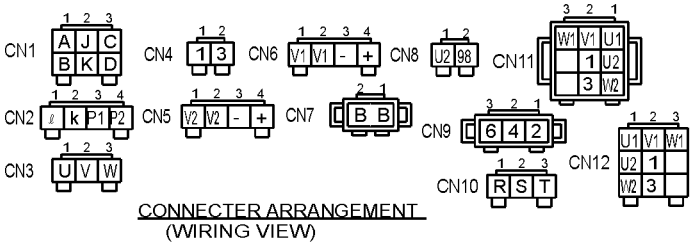
*1 Replace engine oil anf filter at 100 hours, first time only.

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

*3 Refer to the item "Water Separator Filter".

DCA-70SSJU — GENERATOR WIRING DIAGRAM





CONNECTER ARRANGEMENT
(WIRING VIEW)

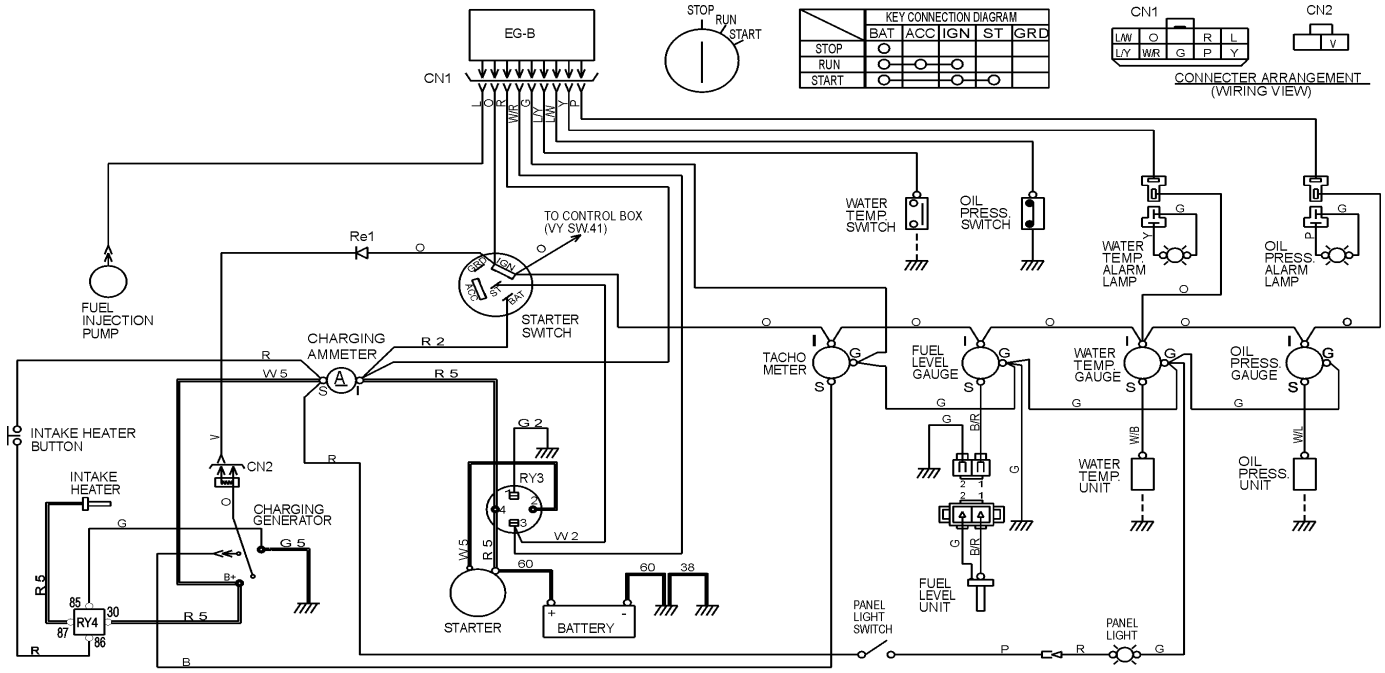
Notice :
1. No designation lead size : 1.25

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

SYMBOL	DESIGNATION
Ar	MAIN GENERATOR ARMATURE WINDING
Fg	MAIN GENERATOR FIELD WINDING
ExAr	EXCITER ARMATURE WINDING
ExFg	EXCITER FIELD WINDING
Re	RECTIFIER
AVR	AUTOMATIC VOLTAGE REGULATOR
VR	VOLTAGE REGULATOR (RHEOSTAT)
CT 1,2,3	CURRENT TRANSFORMER
AS	CHANGE-OVER SWITCH,AMMETER
A	AC.AMMETER
VS	CHANGE-OVER SWITCH,VOLTMETER
V	AC.VOLTMETER
F	FREQUENCY METER
CB1	CIRCUIT BREAKER
CB2,3,4	CIRCUIT BREAKER
CB5,6	CIRCUIT BREAKER
CON1,2,3	RECEPTACLE
CON4,5	RECEPTACLE
OC	OVER CURRENT RELAY
SW	SELECTOR SWITCH
RY1,2	RELAY UNIT

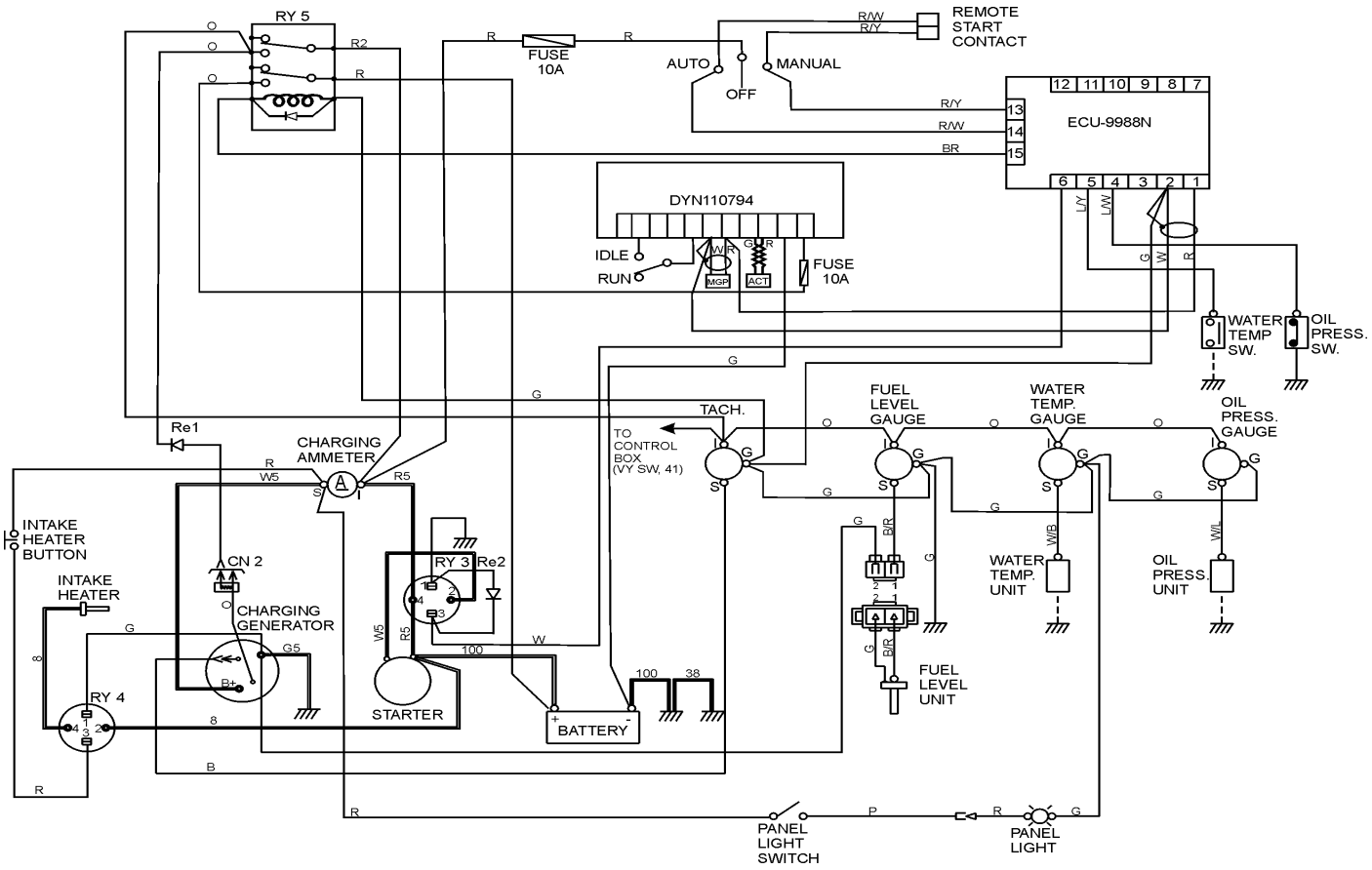
NOTE PAGE

DCA-70SSJU — ENGINE WIRING DIAGRAM (WITH IGNITION SWITCH)



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

DCA-70SSJU — ENGINE WIRING DIAGRAM (WITH MPEC)



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

= SEALED CABLE

CN2

CONNECTOR ARRANGEMENT (WIRING VIEW)

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

TABLE 14. ENGINE TROUBLESHOOTING

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

TABLE 14. ENGINE TROUBLESHOOTING (CONTINUED)

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

DCA-70SSJU — TROUBLESHOOTING (GENERATOR/ENGINE)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, use the tables shown for diagnosis based on the Engine and Radiator Troubleshooting (Table15) or MPEC Troubleshooting (Table 16). If the problem cannot be remedied, consult our company's business office or service plant.

TABLE 15. ENGINE & GENERATOR TROUBLESHOOTING

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

TABLE 16. MPEC 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 MPEC?	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.
	MPEC 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.
	MPEC 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.

EXPLANATION OF CODE IN REMARKS COLUMN

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

Items Found In the "Remarks" Column

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

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

Items Found In the "Items Number" Column

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

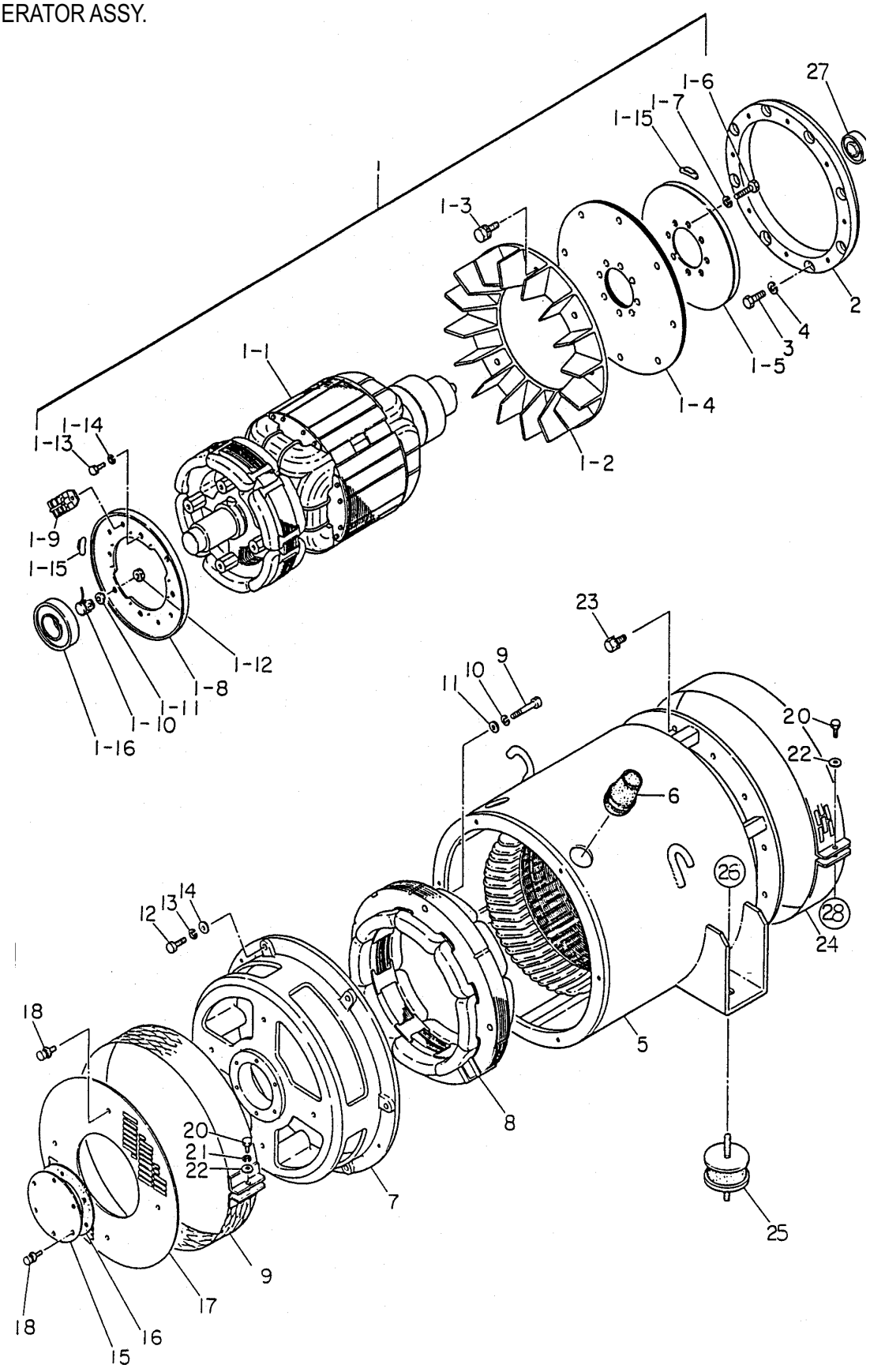
Note: If more than one of the same reference number is listed, the last one listed indicates newest (or latest) part available.

DCA-70SSJU W/JOHN DEERE 4045TF150 DIESEL ENGINE 1 TO 5 UNITS

Qty.	P/N	Description	
1	0601808812	CIRCUIT BREAKER	
1	0601820671	AUTOMATIC VOLTAGE REGULATOR	
1	M2923100004	SELECTOR SWITCH	
2	47130106	KNOB, SELECTOR SWITCH	
1	0601840073	RHEOSTAT, VOLTAGE REGULATOR	
1	0601840121	KNOB, RHEOSTAT	
3	0602011490	FAN BELT	
20	0602041290	OIL FILTER	
20	0602042590	FUEL FILTER	
10	0602046357	AIR ELEMENT	
1	M2310500503	RADIATOR HOSE	
1	M2310500603	RADIATOR HOSE	
1	0602021070	RADIATOR CAP	
1	0602100056	STARTER SWITCH	S/N UP TO 7302400
1	KEYDENYO70	KEY, STARTER SWITCH	S/N UP TO 7302400
1	ECU9988N	ENGINE CONTROLLER	S/N FROM 7302401~
1	0602103091	LAMP, PILOT ALARM	
1	0601810245	BULB, PILOT LAMP	
1	0602123263	WATER TEMPERATURE UNIT	
1	0602122272	OIL PRESSURE UNIT	
1	0605505070	FUEL TANK CAP	
5	0602042420	FUEL TANK IN-LINE FILTER	
1	1625165103	BONNET CAP	
1	1625165204	BONNET CAP CHAIN ASSEMBLY	

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.

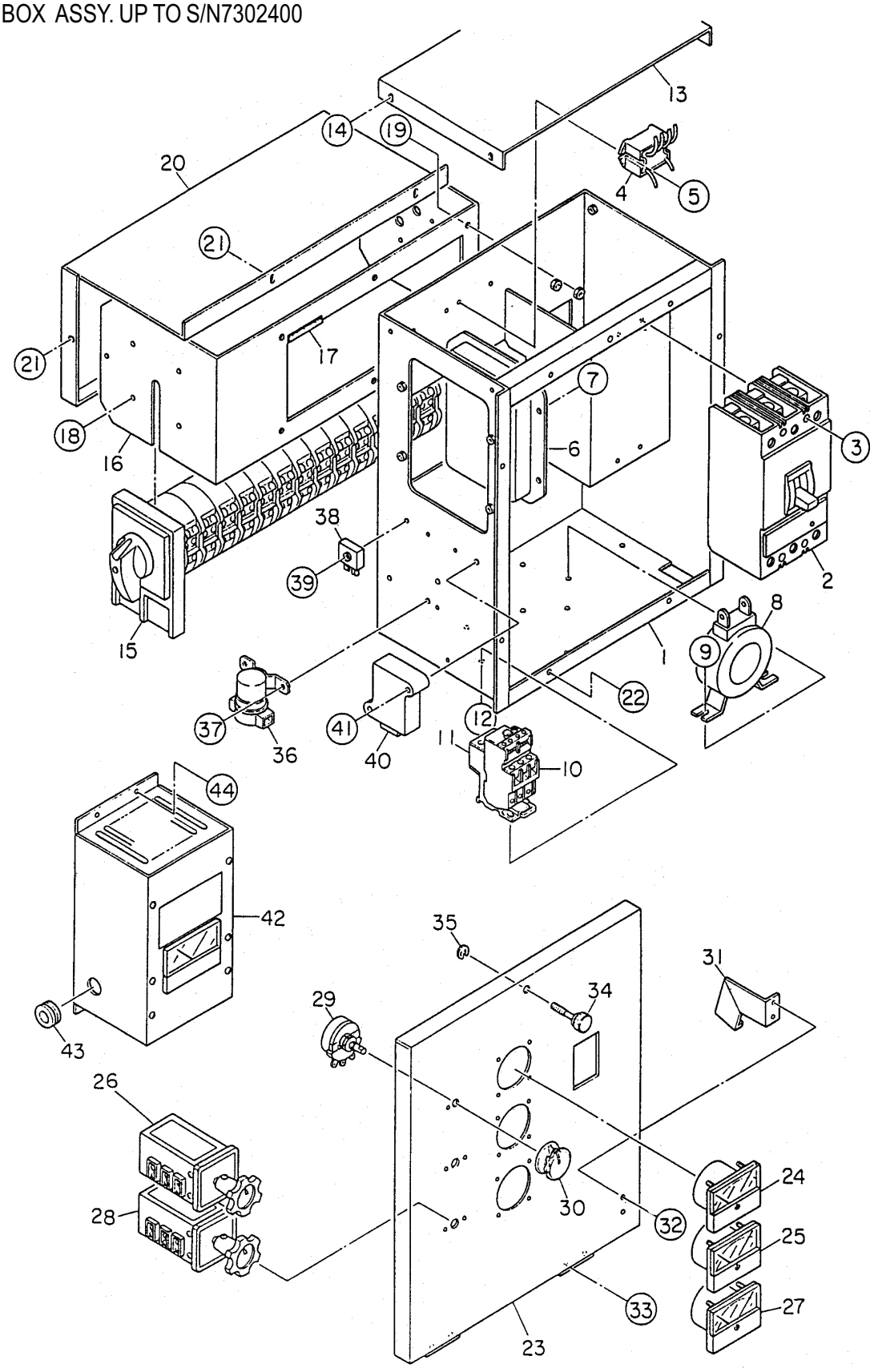


GENERATOR ASSEMBLY

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	B5110100602	ROTOR ASSY	1	
1-1		FIELD ASSY	1	
1-2	8101070033	FAN	1	
1-3	0012810030	HEX HEAD BOLT	8	UP TO S/N7302400
1-3	0012810035	HEX. HEAD BOLT	8	FROM S/N7302401~
1-4	8101611004	COUPLING DISK	5	
1-5	8101015003	BALANCING PLATE	1	
1-6	012010030	HEX HEAD BOLT	8	REPLACES 0012110030
1-7	0042610000	LOCK WASHER	8	
1-8	8101026013	SET PLATE RECTIFIER	1	
1-9	0601821349	RECTIFIER	2	PT3610
1-10	0601822601	SURGE ABSORBER	1	ERZ-M14JK621A
1-11	8001020004	INSULATOR WASHER	1	
1-12	8001020504	INSULATOR WASHER	1	
1-13	0010110020	HEX HEAD BOLT	4	
1-14	0040010000	LOCK WASHER	4	
1-15	0601000209	BALANCING WEIGHT KIT	1	
1-16	0071906311	BEARING	1	6311DDUC3
2	8101614003A	COUPLING RING	1	REPLACES M2163400003
3	0343204170	HEX HEAD BOLT	8	
4	EM923344	LOCK WASHER	8	REPLACES 0043604000
5	B5130100303	STATOR ASSY	1	
6	0845041904	GROMMET	2	
7	8101315202	END BRACKET	1	
8	8101350013	FIELD ASSY EXCITER	1	
9	0012110070	HEX HEAD BOLT	4	
10	0042610000	LOCK WASHER	4	
11	031110160	PLAIN WASHER	4	REPLACES 0041210000
12	0010110045	HEX HEAD BOLT	6	
13	0040010000	LOCK WASHER	6	
14	031110160	PLAIN WASHER	6	REPLACES 0041210000
15	8101310014	COVER, BEARING	1	
16	8131312014	GASKET, BEARING	1	
17	8101331003	COVER, END BRACKET	1	
18	0017106012	HEX HEAD BOLT	10	
19	8101333003	COVER, END BRACKET	1	
20	0010106030	HEX HEAD BOLT	2	
21	0040006000	LOCK WASHER	1	
22	952404470	PLAIN WASHER	2	REPLACES 0041206000
23	0012810030	HEX HEAD BOLT	12	
24	8111332014	COVER, FAN	1	
25	0604000010	RUBBER SUSPENSION	2	
26	0030012000	HEX NUT	2	
	0040012000	LOCK WASHER	2	
	031112230	PLAIN WASHER	2	REPLACES 0041212000
27	0070506306	BEARING	1	6306ZZ
28	020106050	NUT	1	REPLACES 0600815000

DCA-70SSJU -- CONTROL BOX ASSY.

CONTROL BOX ASSY. UP TO S/N7302400

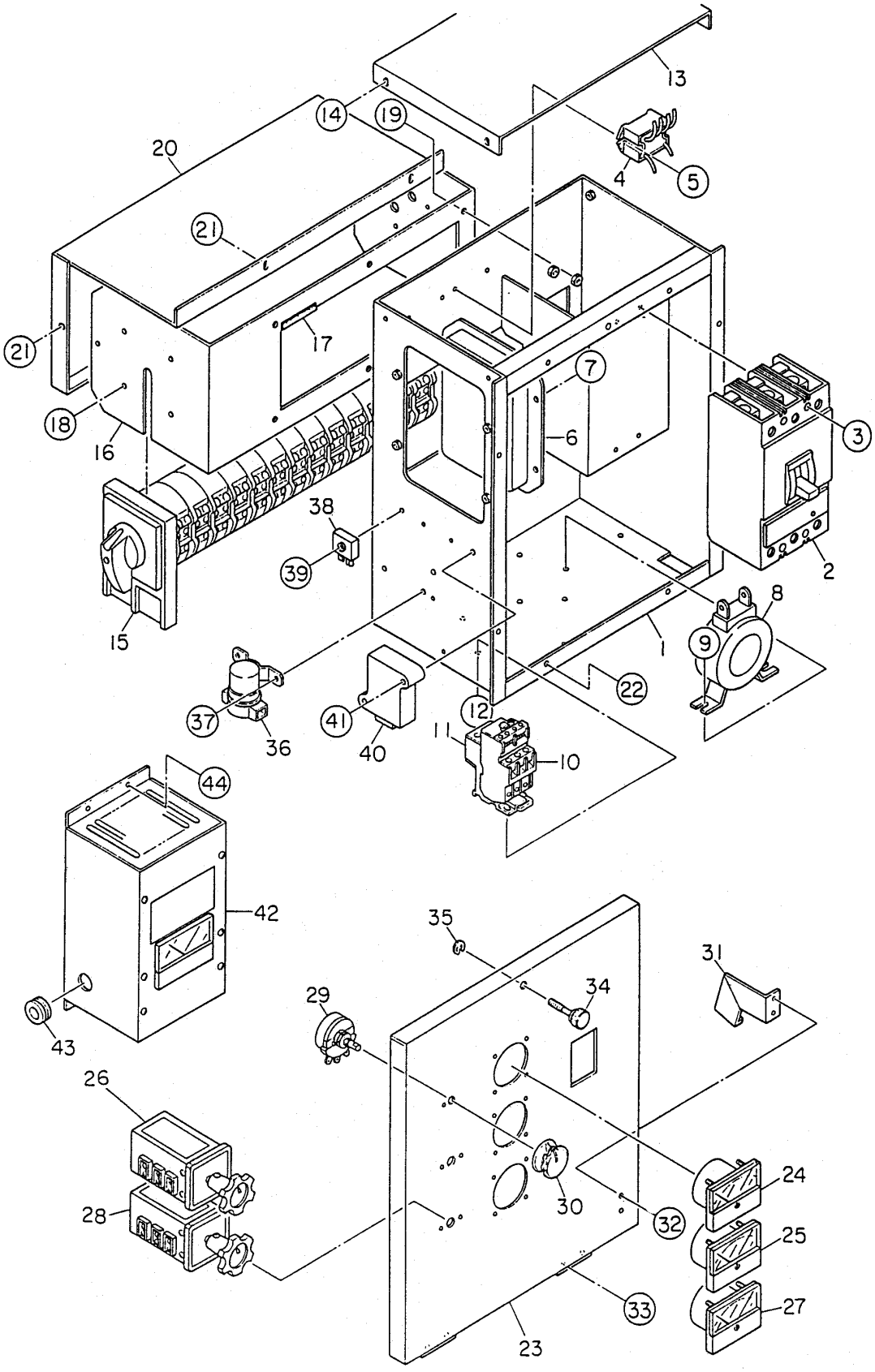


DCA-70SSJU -- CONTROL BOX ASSY.

CONTROL BOX ASSEMBLY UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2246700024	WIRE HARNESS, GENERATOR	1	
1	M2213000122	CONTROL BOX	1	
2	0601808812	CIRCUIT BREAKER	1	KAF3617510213P175A
3	0021005080	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	0027105015	MACHINE SCREW	4	
8	0601806139	CURRENT TRANSFORMER	3	814-943 150/5A
9	011106015	MACHINE SCREW	6	REPLACES 0027106015
10	0601820845	OVER CURRENT RELAY	1	LR2D1308
11	0601820846	OVER CURRENT RELAY	1	LA7D1064
12	0021304015	MACHINE SCREW	2	REPLACES 0027104015
	0030004000	HEX NUT	2	REPLACES 0207004000
13	M2213500103	CONTROL BOX COVER	1	
14	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
15	M2923100004	SELECTOR SWITCH	1	VY-80/S
16	M2213600213	SWITCH BRACKET	1	
17	EDGEGES	EDGING	2	REPLACES 0330000295
18	0027103010	MACHINE SCREW	4	
19	011106015	HEX HEAD BOLT	6	REPLACES 0016906015
20	M2213600314	SWITCH COVER	1	
21	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
22	011106015	HEX HEAD BOLT	8	REPLACES 0016906015
	0040506000	TOOTHED WASHER	1	
23	M2223000103	CONTROL PANEL	1	
24	0601807630	FREQUENCY METER	1	264250DJD9
25	0601808955	AC AMMETER	1	260240LSX1JBP
26	0601801040	CHANGE-OVER SWITCH, AMMETER	1	SL-2AS
27	0601806813	AC VOLTMETER	1	260244SJS1
28	0601801041	CHANGE-OVER SWITCH, VOLTMETER	1	SL-2VS
29	0601840073	RHEOSTAT, VOLTAGE REGULATOR	1	RA20A2SE102BJ 2W 1K
30	0601840121	KNOB	1	
31	M1223100004	STOPPER	1	
32	0027105010	MACHINE SCREW	2	
33	0027105010	MACHINE SCREW	4	
34	0845056404	SET SCREW	1	REPLACES M9220100004

CONTROL BOX ASSY. UP TO S/N7302400

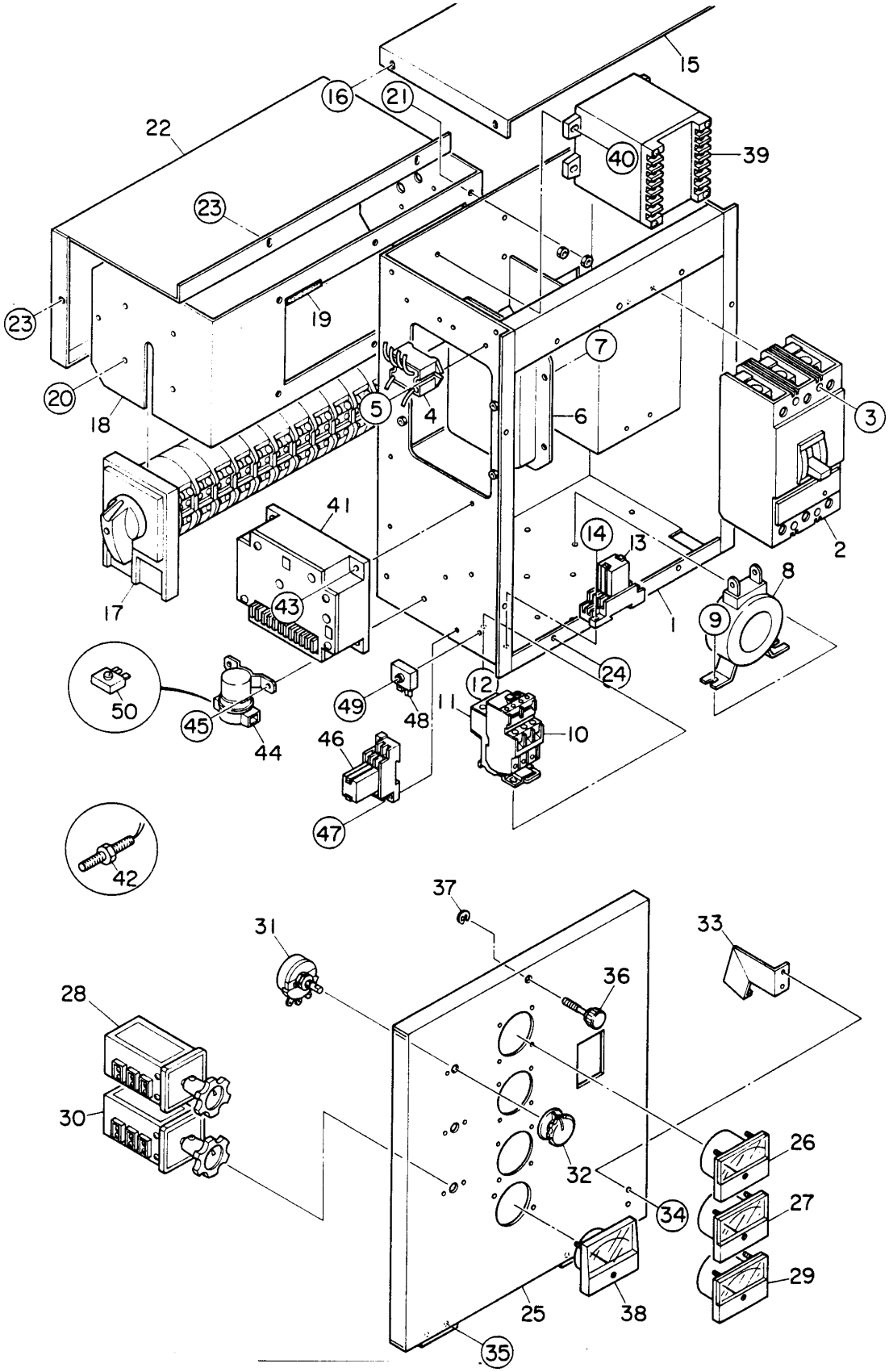


DCA-70SSJU -- CONTROL BOX ASSY.

CONTROL BOX ASSY. UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
35	0080200007	SNAP RING	1	
36	0602202592	STARTER RELAY	1	AT141011
37	011106015	MACHINE SCREW	2	REPLACES 0027106015
38	0601821370	RECTIFIER	1	DE4503; REPLACES 0601823240
39	0027104020	MACHINE SCREW	1	
40	0602200478	EMERGENCY RELAY	1	1070160602.3
41	0027105040	MACHINE SCREW	2	
42	LC125002	BATTERY CHARGER	1	REPLACES 0601823092
43	0601851795	GROMMET	1	
44	0021304015	MACHINE SCREW	4	REPLACES 0027104015

CONTROL BOX ASSY. FROM S/N7302401~

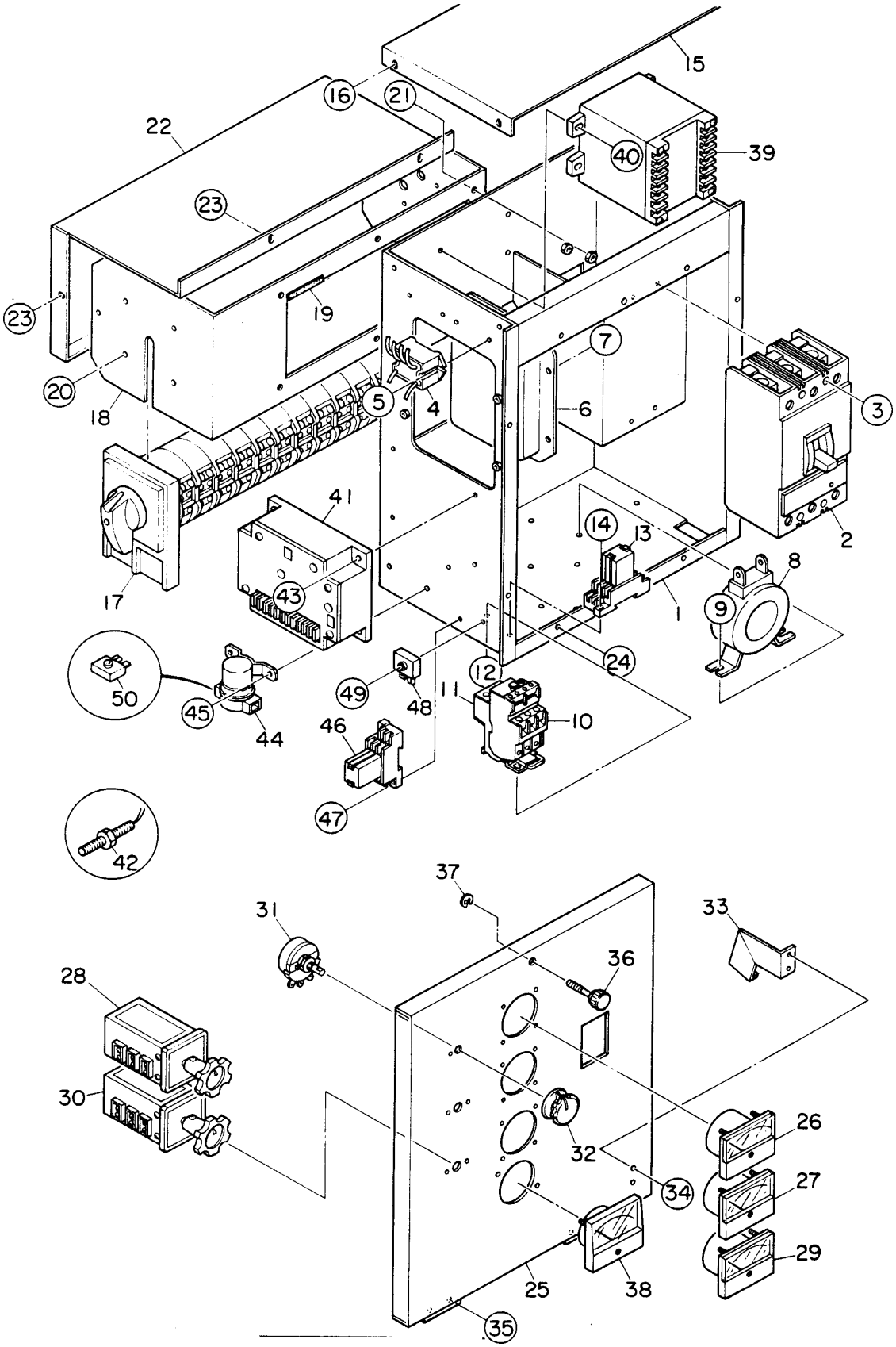


DCA-70SSJU -- CONTROL BOX ASSY.

CONTROL BOX ASSY. FROM S/N7302401~

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2248700204	WIRE HARNESS, GENERATOR	1	
1	M2215000203	CONTROL BOX	1	
2	0601808812	CIRCUIT BREAKER	1	KAF361751021 3P 157A
3	0021005080	MACHINE SCREW	4	
4	0601823863	RELAY UNIT	2	MSA9013A
5	0027104016	MACHINE SCREW	4	
6	0601820671	AUTOMATIC VOLTAGE REGULATOR	1	NTA5A2DB
7	0027105016	MACHINE SCREW	4	
8	0601806139	CURRENT TRANSFORMER	3	814943 150/5A
9	0027106016	MACHINE SCREW	6	
10	0601820845	OVER CURRENT RELAY	1	LR2D1308
11	0601820846	OVER CURRENT RELAY	1	LA7D1064
12	0027104016	MACHINE SCREW	2	
	0030004000	HEX. NUT	2	REPLACES 0207004000
13	LY2US12VD	RELAY	1	REPLACES 0601823768
	PTF08AE	RELAY BASE	1	REPLACES 0601823109
	PYCA1	RELAY CLIP	2	REPLACES 0601824400
14	0027104020	MACHINE SCREW	2	
15	M2213500103	CONTROL BOX COVER	1	
16	0016906016	HEX. HEAD BOLT	4	
17	M2923100004	SELECTOR SWITCH	1	VY80/S
18	M2213600213	SWITCH BRACKET	1	
19	EDGEGES	EDGING	2	REPLACES 0330000295
20	0027104010	MACHINE SCREW	4	
21	0016906016	HEX. HEAD BOLT	6	
22	M2213600314	SWITCH COVER	1	
23	0016906016	HEX. HEAD BOLT	4	
24	0016906016	HEX. HEAD BOLT	8	
	0040506000	TOOTHED WASHER	1	
25	M2225000003	CONTROL PANEL	1	
26	0601807630	FREQUENCY METER	1	264250DJDJ9
27	0601808955	AC AMMETER	1	260240LSX1JBP
28	0601801040	CHANGE-OVER SWITCH, AMMETER	1	SL2AS
29	0601806813	AC VOLTMETER	1	260244SJS1
30	0601801041	CHANGE-OVER SWITCH, VOLTMETER	1	SL2VS
31	060184073	RHEOSTAT (VOLTAGE REGULATOR)	1	RA20A2SE102BJ 2W 1kOHM

CONTROL BOX ASSY. FROM S/N7302401~

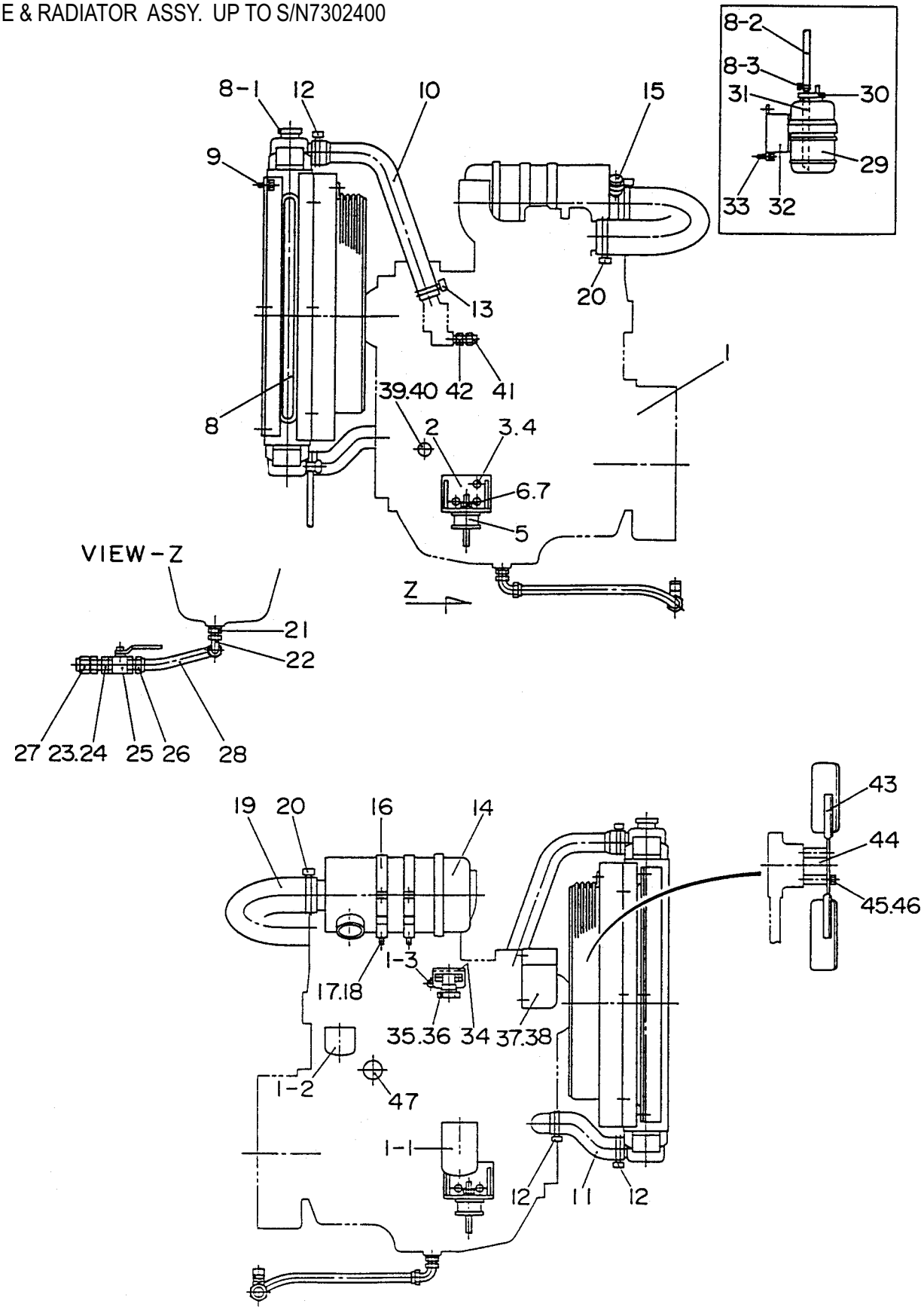


DCA-70SSJU -- CONTROL BOX ASSY.

CONTROL BOX ASSY. FROM S/N7302401~

NO.	PART NO.	PART NAME	QTY.	REMARKS
32	0601840121	KNOB	1	
33	M1223100004	STOPPER	1	
34	0027105010	MACHINE SCREW	2	
35	0027105010	MACHINE SCREW	4	
36	M9220100004	SET SCREW	1	
37	0080200007	SNAP RING	1	
38	0601870519	AC WATTMETER	1	LXK8C -0.1~1mA/-8~80kW
39	0601808505	WATTMETER TRANDUCER	1	ST283S34
40	0027105020	MACHINE SCREW	4	
41	DYN110794000012	CONTROLLER	1	REPLACES 0602202599
42	0602120485	SPEED SENSOR	1	MPS6724
43	0027105016	MACHINE SCREW	4	
44	0602202592	STARTER RELAY	1	AT141011
45	0027106016	MACHINE SCREW	2	
46	LY2DDC12V	RELAY	1	REPLACES 0601827656
	PTF08A	RELAY BASE	1	REPLACES 0601823109
	PYCA1	RELAY CLIP	2	REPLACES 0601824400
47	0027104020	MACHINE SCREW	2	
48	0601823240	RECTIFIER	1	DE4503
49	0027104020	MACHINE SCREW	1	
50	0601823240	RECTIFIER	1	DE4503

ENGINE & RADIATOR ASSY. UP TO S/N7302400



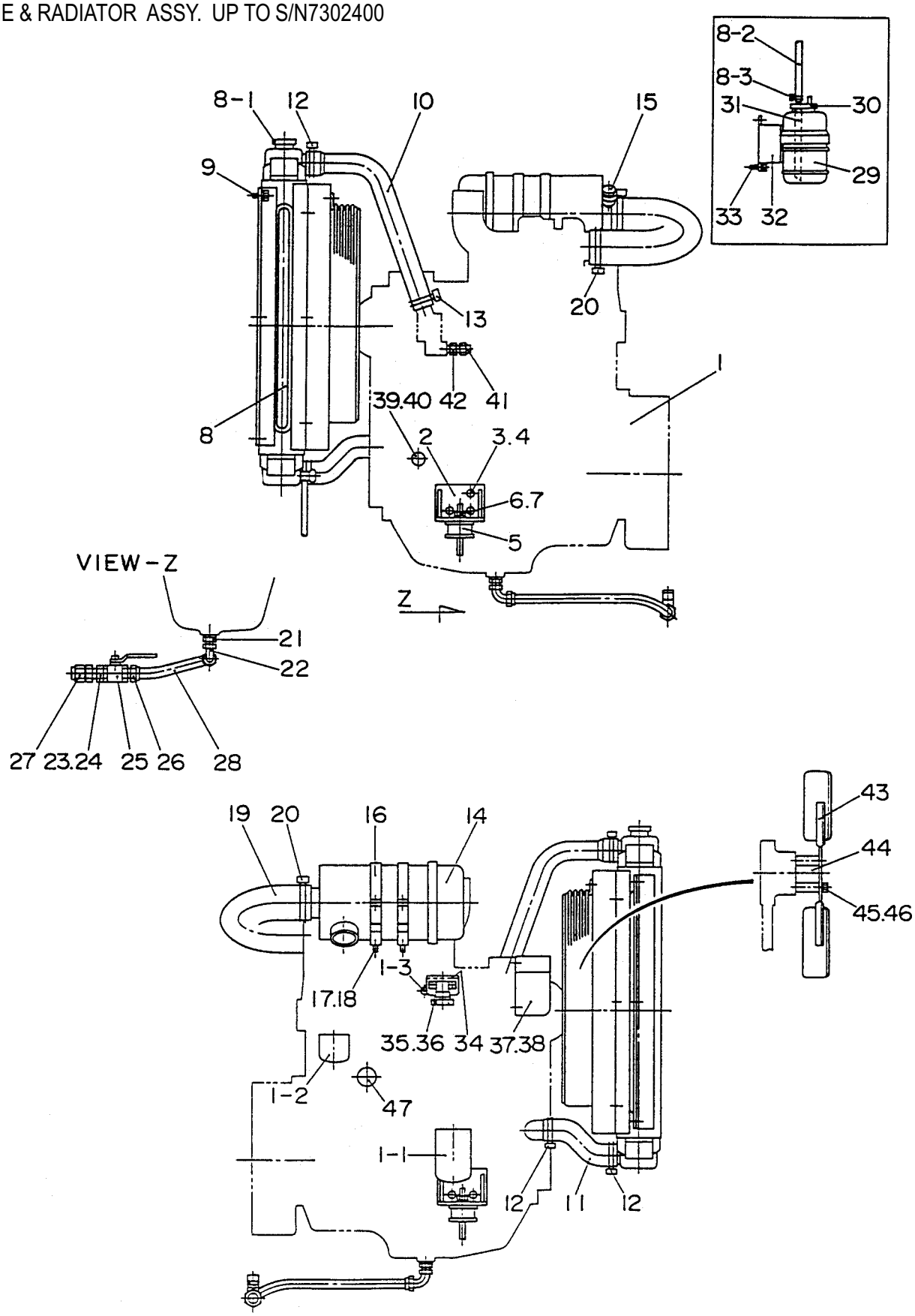
DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M2923200004	ENGINE	1	JOHN DEERE 4045TF
	0602011490	FAN BELT	1	
1-1	0602041290	ELEMENT, OIL FILTER	1	RE59754A
1-2	0602042590	ELEMENT, FUEL FILTER	1	RE62418
1-3	0602014297	ELECTRIC HEATER	1	RE29658
2	M2303200303	ENGINE FOOT	2	
3	031151240	HEX HEAD BOLT	6	REPLACES 0010312030
4	0040012000	LOCK WASHER	6	
5	0605000009	RUBBER SUSPENSION	2	
6	0030012000	HEX NUT	2	
7	0040012000	LOCK WASHER	2	
8	0602011999	RADIATOR	1	C281-003-0000
8-1	0602011065	CAP	1	C89C-011-5010
8-2	0602014192	HOSE	1	
8-3	0602014394	HOSE BAND	2	
9	0111008020	HEX HEAD BOLT	6	REPLACES 0016908020
10	M2310500503	RADIATOR HOSE	1	
11	M2310500603	RADIATOR HOSE	1	
12	0605515147	HOSE BAND	3	5032
13	0605515201	HOSE BAND	1	5028
14	0602046233	AIR CLEANER	1	FWG08-0061
	0602046357	ELEMENT, AIR CLEANER	1	P18-1054
15	0602040650	INDICATOR, AIR CLEANER	1	
16	0602040590	BAND, AIR CLEANER	2	
17	011008020	HEX HEAD BOLT	4	REPLACES 0016908020
18	020108060	HEX NUT	4	REPLACES 0207008000
19	M2373100103	HOSE, AIR CLEANER	1	
20	0605515146	HOSE BAND	2	
21	0602022563	ADAPTER	1	
22	0602022561	90 ELBOW	1	
23	0603306590	CONNECTOR	1	
24	0603300285	ROCKNUT	1	
25	0605511395	VALVE	1	
26	0603306395	HOSE JOINT	1	
27	0602021070	CAP	1	
28	0269200600	DRAIN HOSE	1	
29	M9300000103	RESERVE TANK	1	
30	0802081104	CAP, RESERVE TANK	1	REPLACES M9300100003
31	0199100175	HOSE	1	
32	M2316100114	BRACKET, RESERVE TANK	1	REPLACES M2316100204
33	011008020	HEX HEAD BOLT	2	REPLACES 0016908020
34	M2260600024	RELAY BRACKET	1	
35	0602202592	RELAY	1	AT141011

DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. UP TO S/N7302400



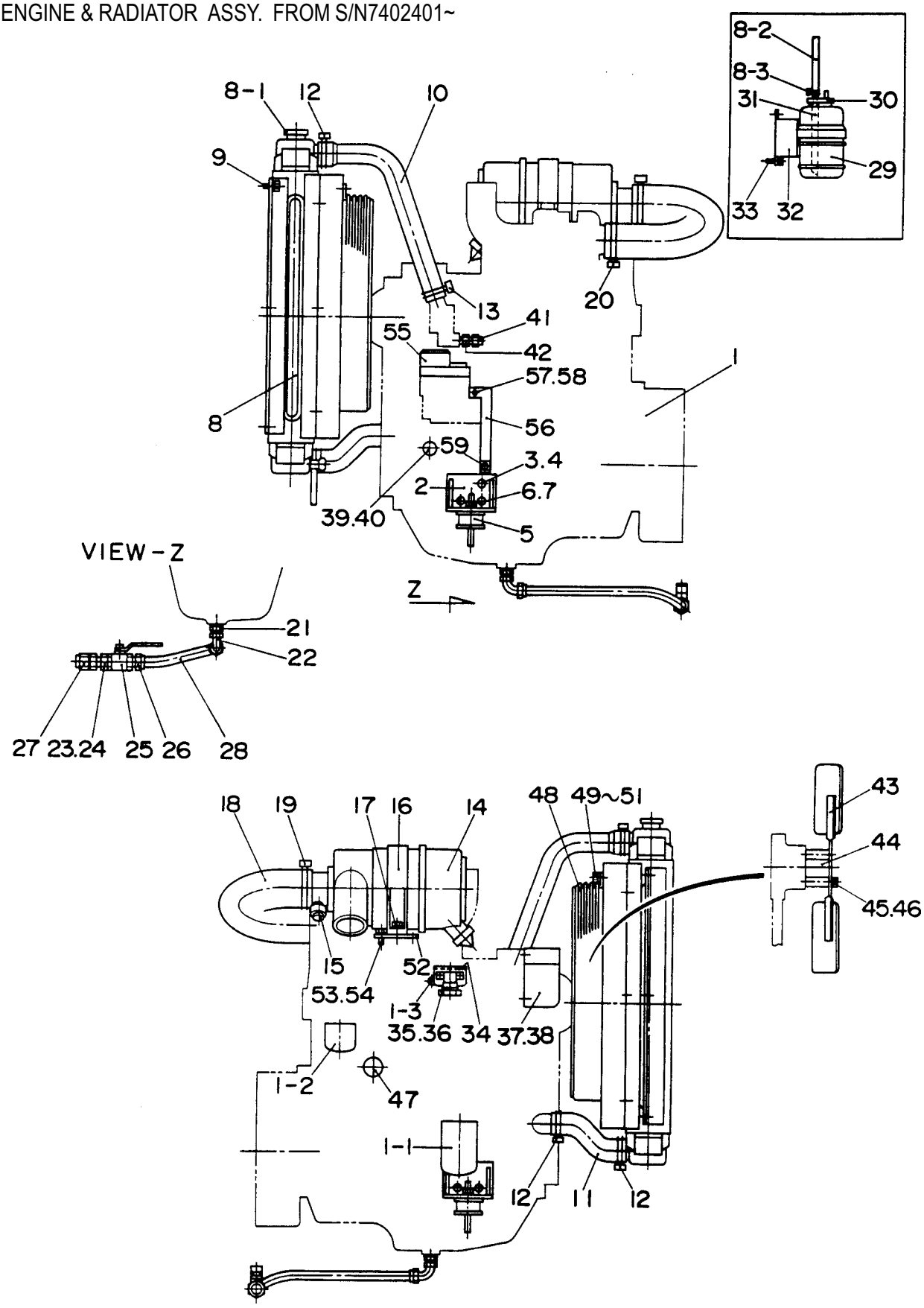
DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. UP TO S/N 7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
36	011106015	MACHINE SCREW	2	REPLACES 0027106015
37	M2483400014	ALTERNATOR COVER	1	
38	011206020	HEX HEAD BOLT	2	REPLACES 0016906020
39	0602122281	OIL SWITCH	1	17189-39011
40	M9200100704	ADAPTER	1	
41	0602123282	WATER SWITCH	1	15181-83041
42	M9200100404	ADAPTER	1	
43	0602060011	BLOWER FAN	1	320606
44	0602061000	FAN SPACER	1	R81911
45	0012110095	HEX HEAD BOLT	4	
46	030210250	LOCK WASHER	4	REPLACES 0042510000
47	0602014299	WATER HEATER	1	RE42138

DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. FROM S/N7402401~

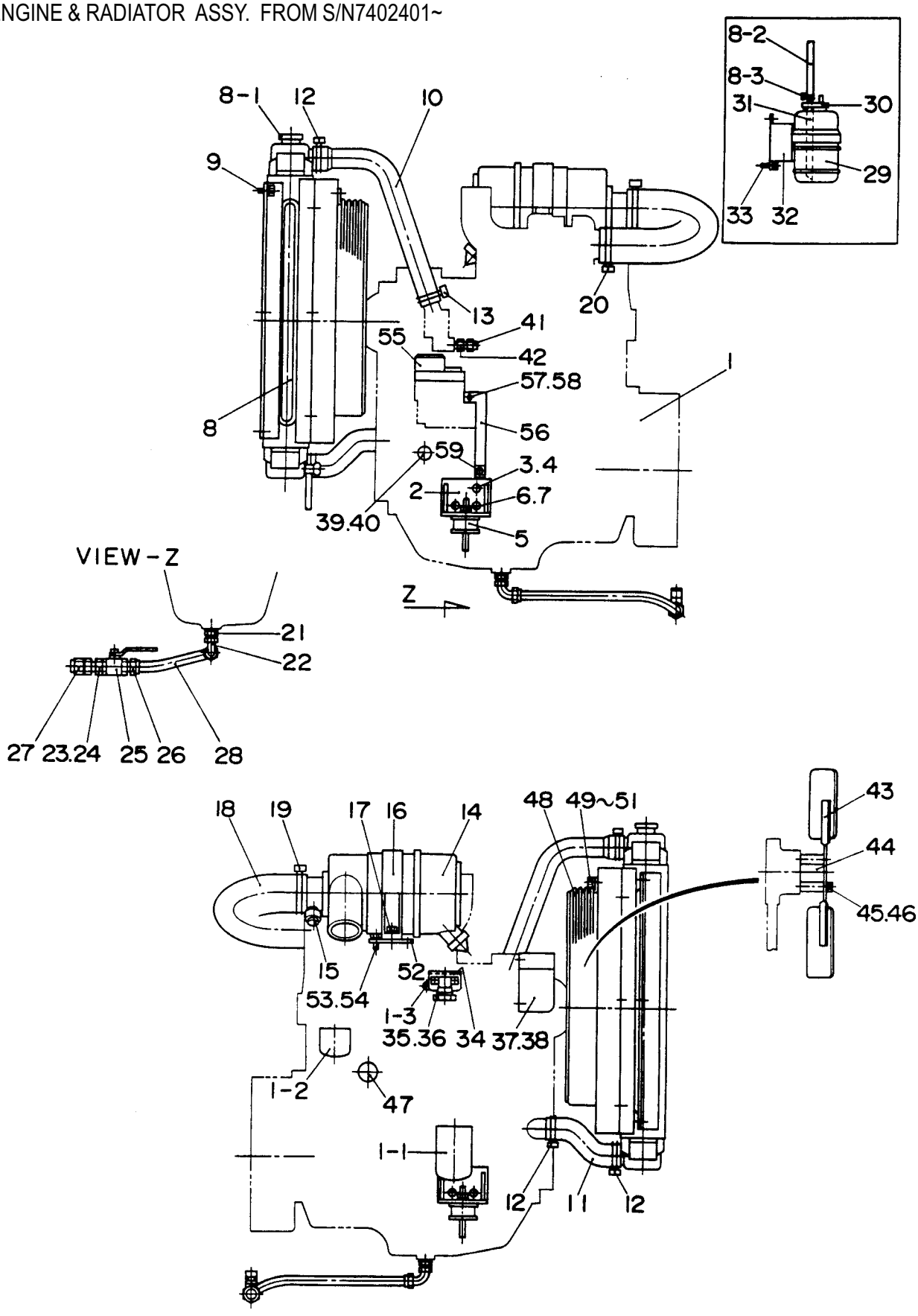


DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. FROM S/N7402401~

NO.	PART NO.	ITEM	QTY.	REMARKS
1	M2923200004	ENGINE	1	JOHN DEERE 4045TF
	0602011490	FAN BELT	1	
1-1	0602041290	ELEMENT, OIL FILTER	1	RE59754A
1-2	0602042590	ELEMENT, FUEL FILTER	1	RE62418
1-3	0602014297	ELECTRIC HEATER	1	RE29658
2	M2303200303	ENGINE FOOT	2	
3	0131151240	HEX. HEAD BOLT	6	REPLACES 0042510000
4	0040012000	LOCK WASHER	6	
5	0060500009	RUBBER SUSPENSION	2	
6	0030012000	HEX. NUT	2	
7	0040012000	LOCK WASHER	2	
8	0602012743	RADIATOR	1	C28100300001
8-1	0602011065	CAP	1	C89C0115010
8-2	0602014192	HOSE	1	C84H4201950
8-3	0602014394	HOSE BAND	2	C1210015160
9	011008020	HEX. HEAD BOLT	6	REPLACES 0016908020
10	M2310500503	RADIATOR HOSE	1	
11	M2310500603	RADIATOR HOSE	1	
12	0605515147	HOSE BAND	3	
13	0605515201	HOSE BAND	1	
14	0602046582	AIR CLEANER	1	FPG082527
	0602046365	ELEMENT, AIR CLEANER	1	P828889
15	0602040651	INDICATOR, AIR CLEANER	1	RBX002352
16	0602040554	BAND, AIR CLEANER	1	P777732
17	0016908030	HEX. HEAD BOLT	2	
18	M237510003	HOSE, AIR CLEANER	1	
19	0605515200	HOSE BAND	1	
20	0605515146	HOSE BAND	1	
21	0602022563	ADAPTER	1	
22	0602022561	90^{O} ELBOW	1	
23	0603306590	CONNECTOR	1	
24	0603300285	ROCKNUT	1	
25	0605511395	HOSE JOINT	1	
27	0602021070	CAP	1	
28	0269200600	DRAIN HOSE	1	
29	M9300000103	RESERVE TANK	1	

ENGINE & RADIATOR ASSY. FROM S/N7402401~



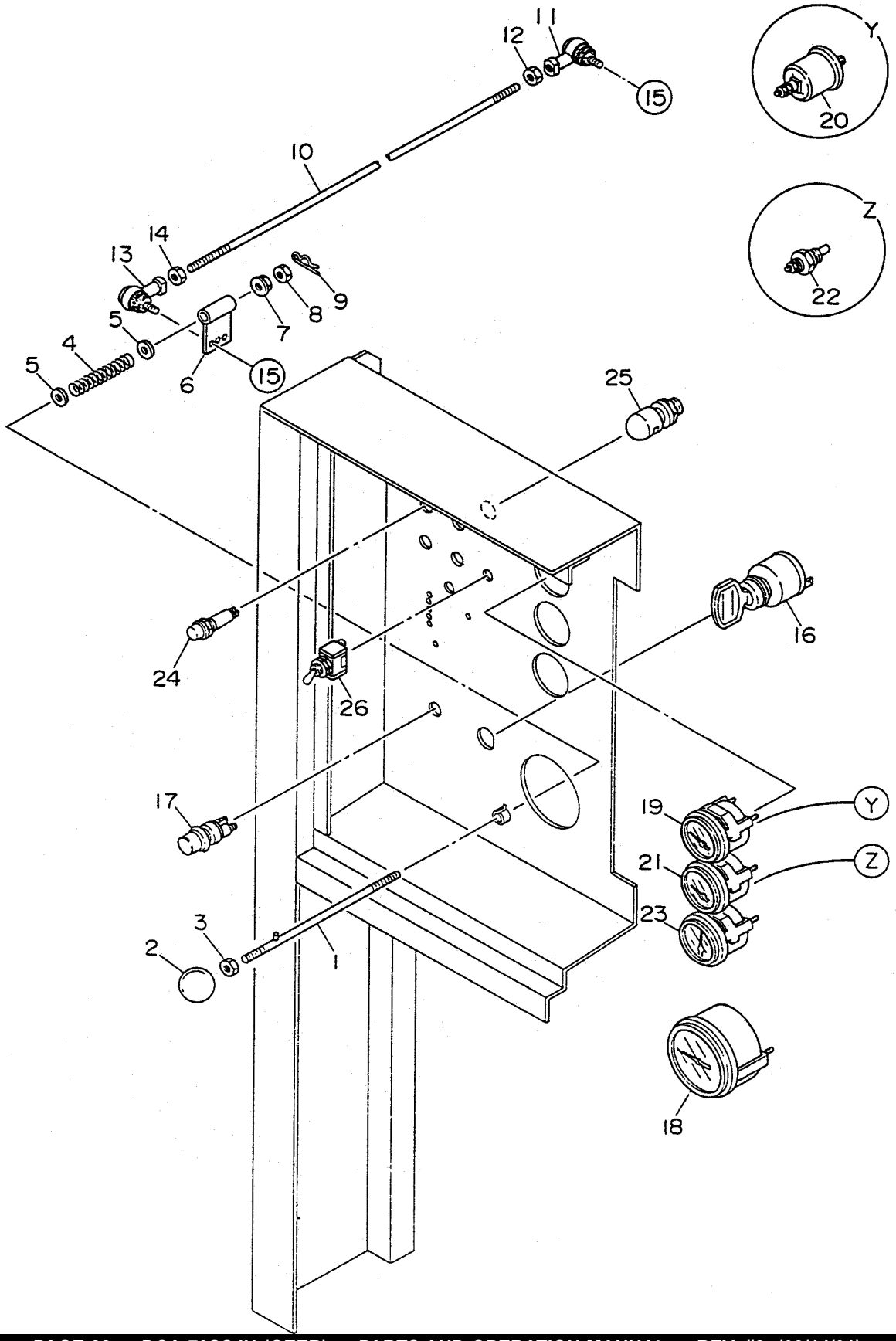
DCA-70SSJU -- ENGINE AND RADIATOR ASSY.

ENGINE & RADIATOR ASSY. FROM S/N7402401~

NO.	PART NO.	ITEM	QTY.	REMARKS
30	M9300100003	CAP, RESERVE TANK	1	
31	0199100175	HOSE	1	
32	M2316100114	BRACKET, RESERVE TANK	1	REPLACES M2316100204
33	011008020	HEX. HEAD BOLT	2	REPLACES 0016908020
34	M2260600024	RELAY BRACKET	1	
35	0602202592	RELAY	1	AT141011
36	0027106016	MACHINE SCREW	2	
37	M2483400014	ALTERNATOR COVER	1	
38	011206020	HEX. HEAD BOLT	2	REPLACES 0016906020
39	0602122281	OIL SWITCH	1	1718939011
40	M9200100704	ADAPTER	1	
41	0602123282	WATER SWITCH	1	1518183041
42	M9200100404	ADAPTER	1	
43	0602060011	BLOWER FAN	1	320606
44	0602061000	FAN SPACER	1	R81911
45	0012110095	HEX. HEAD BOLT	4	
46	030210250	LOCK WASHER	4	REPLACES 0042510000
47	0602014299	WATER HEATER	1	RE42138
48	0602010794	FAN COVER	1	C2810034200
49	0643003070	HEX. HEAD BOLT	5	
50	0043003000	LOCK WASHER	5	
51	0043103000	PLAIN WASHER	5	
52	M2375200004	BRACKET, AIR CLEANER	1	
53	011008020	HEX. HEAD BOLT	4	REPLACES 0016908020
54	020108060	HEX. NUT	4	REPLACES 0207008000
55	DYNC70025000012	ACTUATOR	1	REPLACES 0602150093
56	M3356200004	STOPPER BRACKET	1	
57	011206020	HEX. HEAD BOLT	1	REPLACES 0017106020
58	0207006000	HEX. NUT	1	
59	012210020	HEX. HEAD BOLT	1	REPLACES 0017110020

DCA-70SSJU -- ENGINE OPERATING ASSY.

ENGINE OPERATING ASSY. UP TO S/N7302400

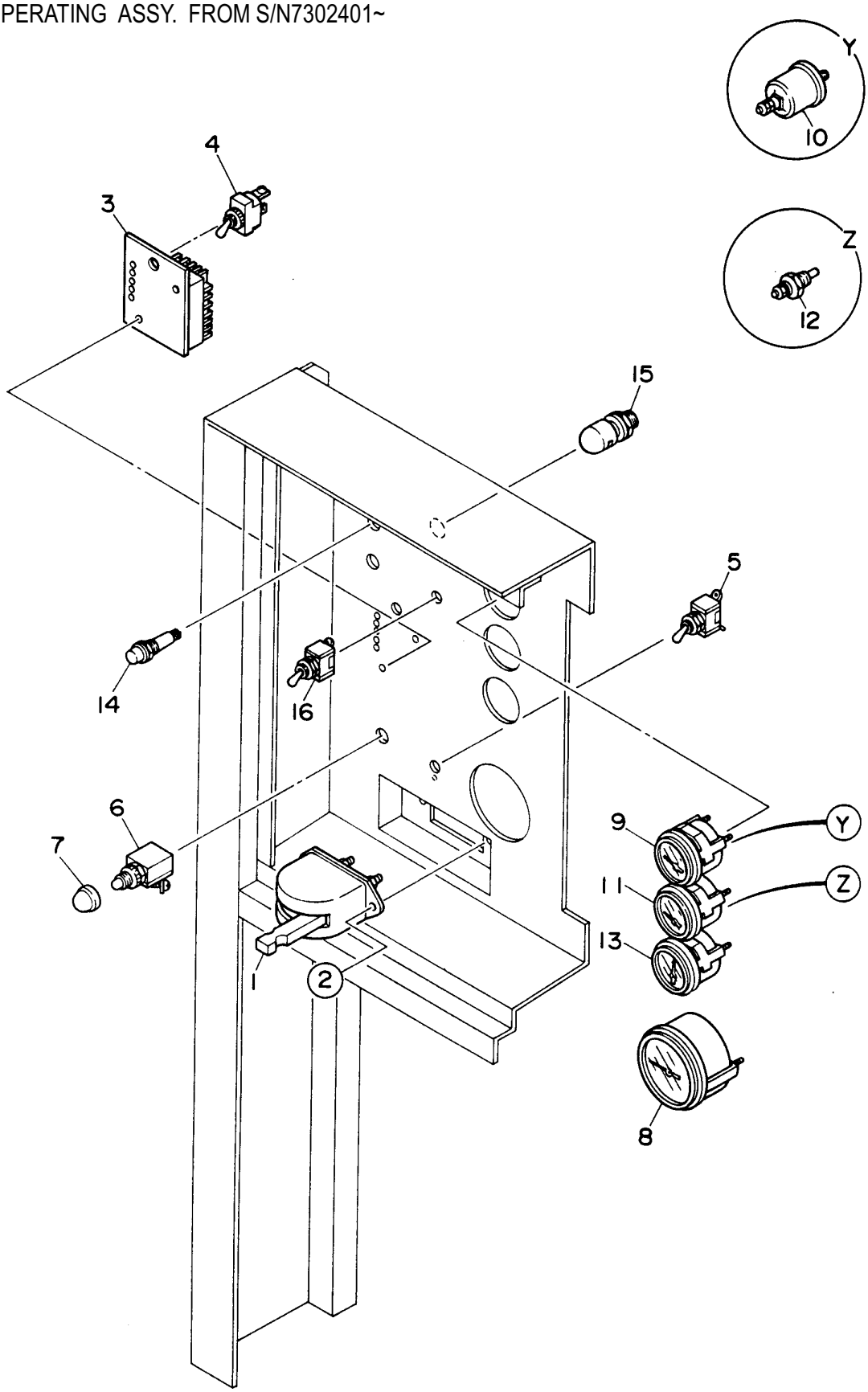


DCA-70SSJU -- ENGINE OPERATING ASSY.

ENGINE OPERATING PANEL ASSY. UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2359200002	WIRE HARNESS, ENGINE	1	
	M2359200103	WIRE HARNESS, ENGINE	1	
1	M1354300304	SLIDE LEVER	1	
2	0601840190	KNOB	1	REPLACES M9320000004
3	020108060	HEX NUT	1	REPLACES 0036003000
4	031108160	SPRING	1	REPLACES 0605804150
5	031108160	PLAIN WASHER	2	REPLACES 0041208000
6	M1354200004	BRACKET	1	
7	020108060	HEX NUT	1	REPLACES 0207008000
8	020108060	HEX NUT	1	REPLACES 0030008000
9	0605010550	SNAP PIN	1	
10	M2354300114	GOVERNOR ROD	1	
11	0602180106	BALL JOINT	1	
12	020108060	HEX NUT	1	REPLACES 0030008000
13	0602180107	BALL JOINT	1	
14	0039308000	HEX NUT	1	REPLACES 0036508000
15	0207006000	HEX NUT	2	
	952404470	PLAIN WASHER	2	REPLACES 0041206000
16	0602100056	STARTER SWITCH	1	AR58126
	0602100028	SET NUT	1	
	0602100029	SET WASHER	1	
17	0601831594	PREHEAT BUTTON; R39554	1	S/N7301371 TO S/N7301510
	0601831585	PREHEAT BUTTON; 44047	1	S/N7301511~
	0601831584	CAP; T55585	1	S/N7301371 TO S/N7301510
	0601831586	CAP; 44053	1	S/N7301511~
18	0602120096	TACHOMETER	1	103678
19	0602122093	OIL PRESSURE GAUGE	1	100174
20	0602122272	UNIT, OIL PRESSURE	1	108497
21	0602123092	WATER TEMPERATURE GAUGE	1	100182
22	0602123261	UNIT, WATER TEMPERATURE	1	02025-00
23	0602121080	CHARGING AMMETER	1	100158
24	0602103092	ALARM LAMP	4	PL-05
	0601810245	BULB	4	DC18V
25	0601810141	PANEL LIGHT	1	98268-00370
26	0601831330	SWITCH, PANEL LIGHT	1	90-0001

ENGINE OPERATING ASSY. FROM S/N7302401~



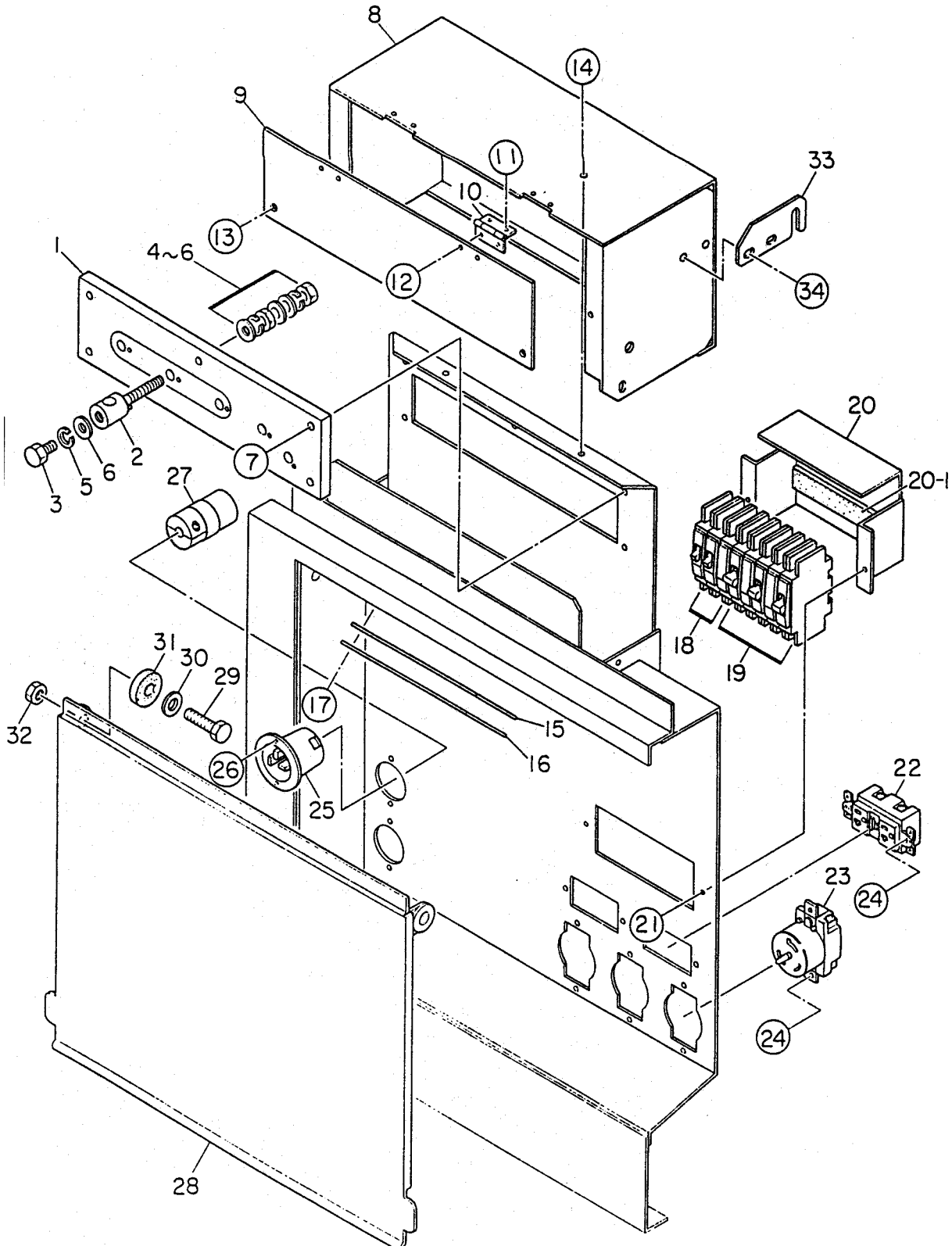
DCA-70SSJU -- ENGINE OPERATING ASSY.

ENGINE OPERATING ASSY. FROM S/N7302401~

NO.	PART NO.	PART NAME	QTY.	REMARKS
	M2357200062	WIRE HARNESS	1	
	0601802149	FUSE	2	10A
1	0602101000	BATTERY SWITCH	1	9827300090
2	0016908025	HEX/. HEAD BOLT	2	
3	ECU9988N	CONTROLLER	1	REPLACES 0602202545
4	82608	SWITCH	1	7562K4; REPLACES **T55585**
5	0601831395	ENGINE SPEED SWITCH	1	7302K36
6	0601831585	PREHEAT BUTTON	1	44047
7	0601831586	CAP	1	44053
8	0602120096	TACHOMETER	1	103678
9	0602122093	OIL PRESSURE GAUGE	1	100174
10	0602122272	UNIT, OIL PRESSURE	1	108497
11	0602123092	WATER TEMPERATURE GAUGE	1	100182
12	0602123261	UNIT, WATER TEMPERATURE	1	0202500
13	0602121080	CHARGINE AMMETER	1	100158
14	0602103092	ALARM LAMP	2	PL02
	0601810245	BULB	2	E10T10DC18V
15	0601810141	PANEL LIGHT	1	9826800370
16	0601831330	SWITCH, PANEL LIGHT	1	900001

DCA-70SSJU -- OUTPUT TERMINAL ASSY.

OUTPUT TERMINAL ASSY. UP TO S/N7302400

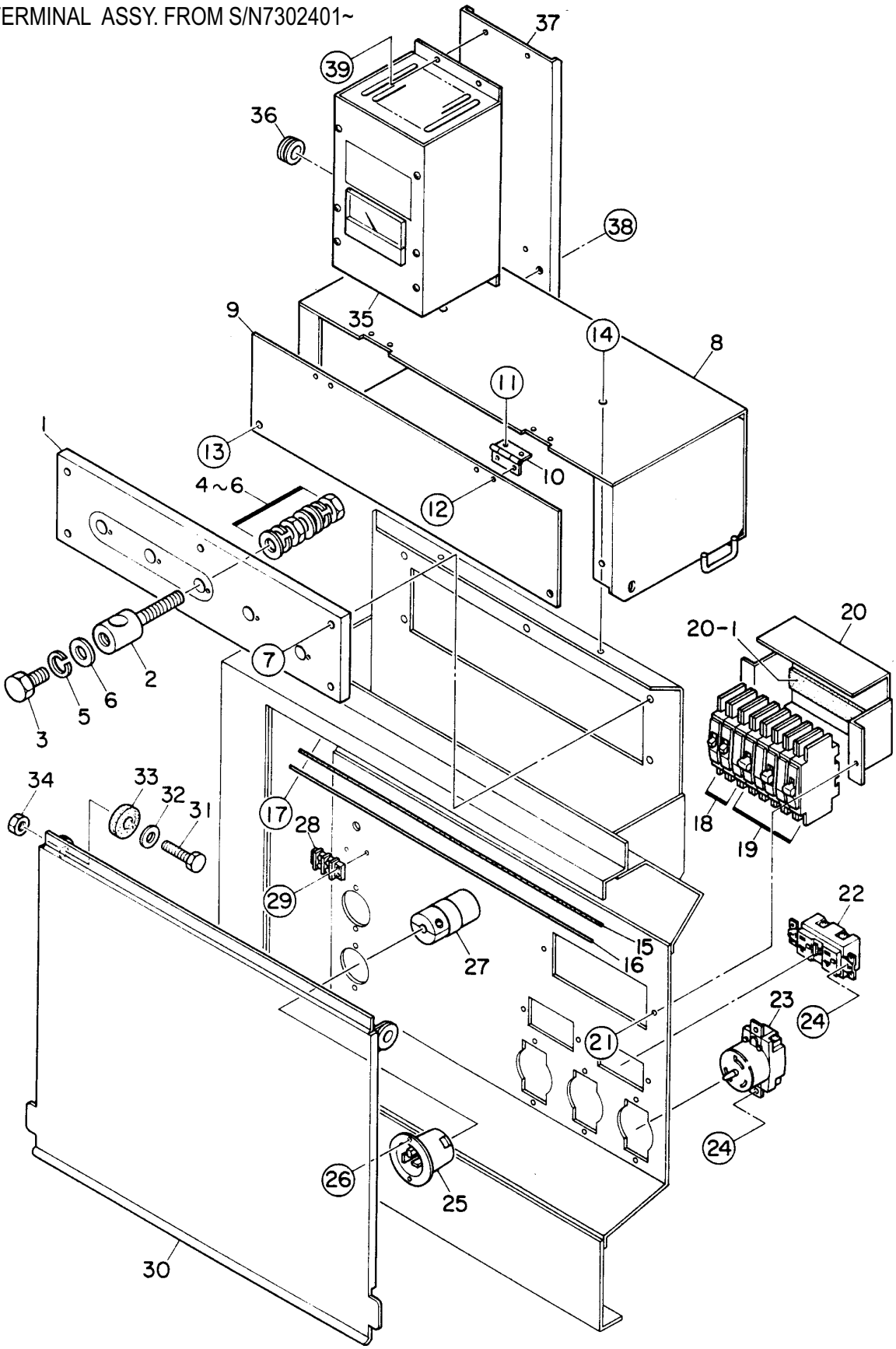


DCA-70SSJU -- OUTPUT TERMINAL ASSY.

OUTPUT TERMINAL ASSY. UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M2230700113	TERMINAL PANEL	1	
2	M2233000004	OUTPUT TERMINAL BOLT	5	
3	M2233100004	TIE BOLT	5	
4	0039312000	HEX NUT	10	
5	0040012000	LOCK WASHER	15	
6	0041412000	PLAIN WASHER	20	
7	0012108035	HEX HEAD BOLT	5	REPLACES 0016908035
8	M2236100433	TERMINAL COVER	1	
9	M2236100504	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	011206020	HEX HEAD BOLT	2	REPLACES 0016906020
14	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
15	M3236400004	CABLE OUTLET COVER	1	REPLACES M2236400004
16	M3236300004	SUPPORTER, CABLE OUTLET COVER	1	REPLACES M2236300004
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	
20-1	0222100150	CUSHION RUBBER	1	
21	011206020	HEX HEAD BOLT	2	REPLACES 0016906020
22	0601812597	RECEPTACLE	2	GF530EM 125V 20A X 2; REPLACES 0601812598
23	0601811034	RECEPTACLE	3	CS6369 250V 50A; REPLACES 0601812538
24	0021304015	MACHINE SCREW	10	REPLACES 0027104015
	0030004000	HEX NUT	10	REPLACES 0207004000
25	0601811189	RECEPTACLE	2	HBL5378C 125V 20A
26	0021304015	MACHINE SCREW	4	REPLACES 0027104015
	0030004000	HEX NUT	4	REPLACES 0207004000
27	0601812527	CONNECTOR	1	HBL5269C 125V 15A
28	M2236100303	TERMINAL COVER	1	
29	012212045	HEX HEAD BOLT	2	REPLACES 0010112045
30	031112230	PLAIN WASHER	2	REPLACES 0041212000
31	M9310200004	STAY RUBBER	2	
32	0030012000	HEX NUT	2	
33	M2354200004	SUPPORTER, GOVERNOR ROD	1	
34	011106015	HEX HEAD BOLT	2	REPLACES 0016906015

OUTPUT TERMINAL ASSY. FROM S/N7302401~

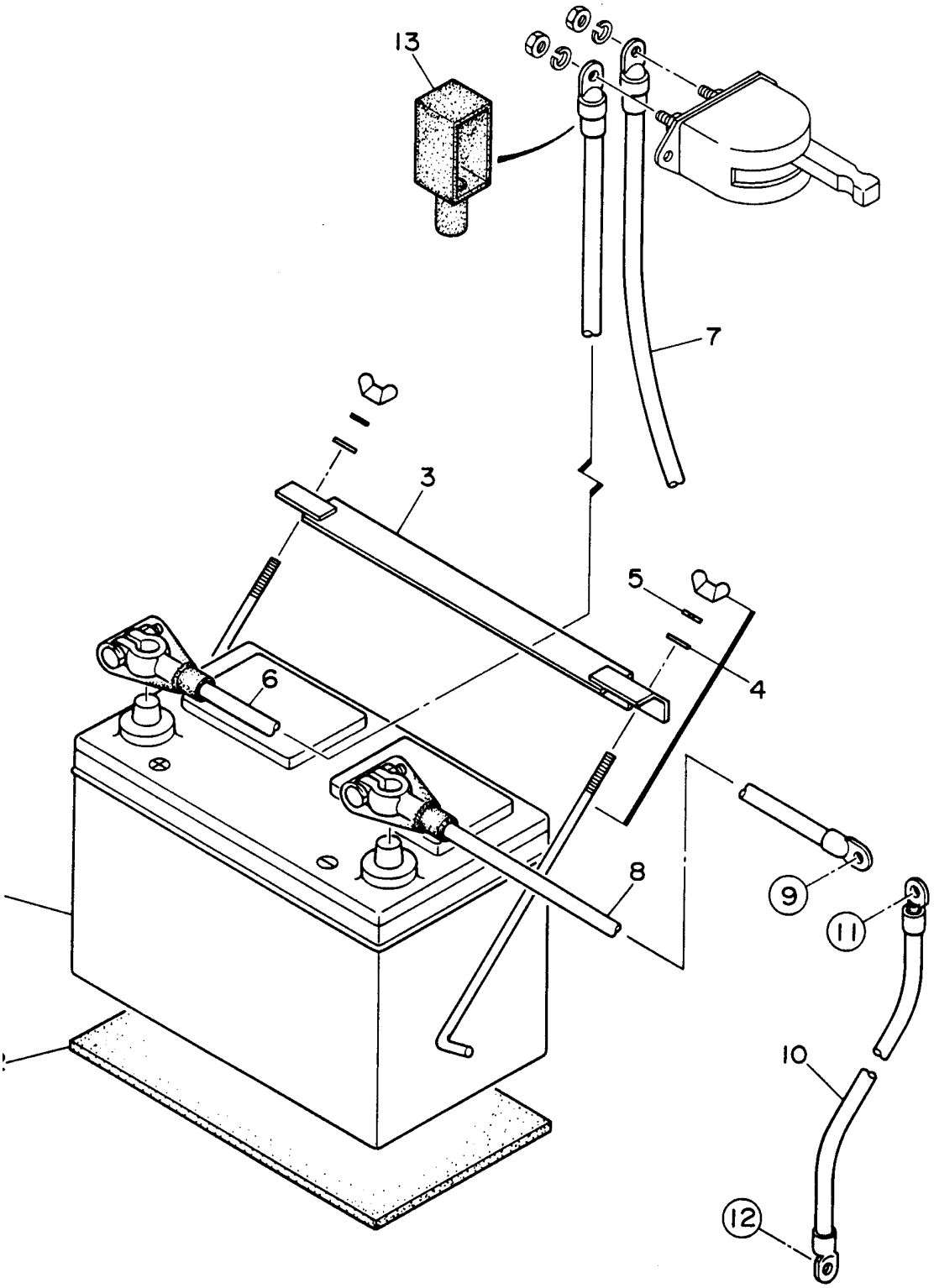


DCA-70SSJU -- OUTPUT TERMINAL ASSY.

OUTPUT TERMINAL ASSY. FROM S/N7302401~

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M323070003	TERMINAL PANEL	1	
2	M2235000004	OUTPUT TERMINAL BOLT	5	
3	0801830804	TIE SCREW	5	REPLACES M9220100404
4	0039316000	HEX. NUT	10	
5	0040016000	LOCK WASHER	15	
6	0041416000	PLAIN WASHER	20	
7	0012108035	HEX. HEAD BOLT	5	REPLACES 0016908035
8	M2238100003	TERMINAL COVER	1	
9	M3236100104	OUTPUT WINDOW	1	
10	0605010040	HINGE	2	
11	0027103010	MACHINE SCREW	4	
	0207003000	HEX. NUT	4	REPLACES 0030003000
	58413	PLAIN WASHER	4	REPLACES 0041203000
12	0027103010	MACHINE SCREW	4	
	0207003000	HEX. NUT	4	REPLACES 0030003000
13	01120	HEX. HEAD BOLT	2	REPLACES 0016906020
14	0016906016	HEX. HEAD BOLT	4	
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	QOU120B1P
19	0601808804	CIRCUIT BREAKER	3	QOU250B2P 50A
20	M1260700304	BREAKER FITTING COVER	1	
20-1	0222100150	CUSHION RUBBER	1	
21	0222100150	HEX. HEAD BOLT	2	REPLACES 0016906020
22	0601812598	RECEPTACLE;GF530EM125V 20AX2	2	REPLACES 0601812598
23	0601811034	RECEPTACLE;CS6369 250V 50A	3	REPLACES 0601812538
24	0027104016	MACHINE SCREW	10	
	0030004000	HEX. NUT	10	REPLACES 0207004000
25	0601811189	RECEPTACLE	2	HBL5378C 125V 20A
26	0027104016	MACHINE SCREW	4	
27	0601812527	CONNECTOR	1	HBL5269C 125V 15A
28	0601815194	TERMINAL	1	
29	0027104016	MACHINE SCREW	2	
30	M2455400003	TERMINAL COVER	1	
31	012212045	HEX. HEAD BOLT	2	REPLACES 0010112045
32	031112230	PLAIN WASHER	2	REPLACES 0041212000
33	M9310200004	STAY RUBBER	2	
34	0030012000	HEX. NUT	2	
35	LC125002	BATTERY CHARGER	1	REPLACES M0601823092
36	0601851795	GROMMET	1	
37	M2345000004	BRACKET, BATTERY CHARGER	1	
38	0016908025	HEX. HEAD BOLT	4	
39	0027104016	MACHINE SCREW	4	

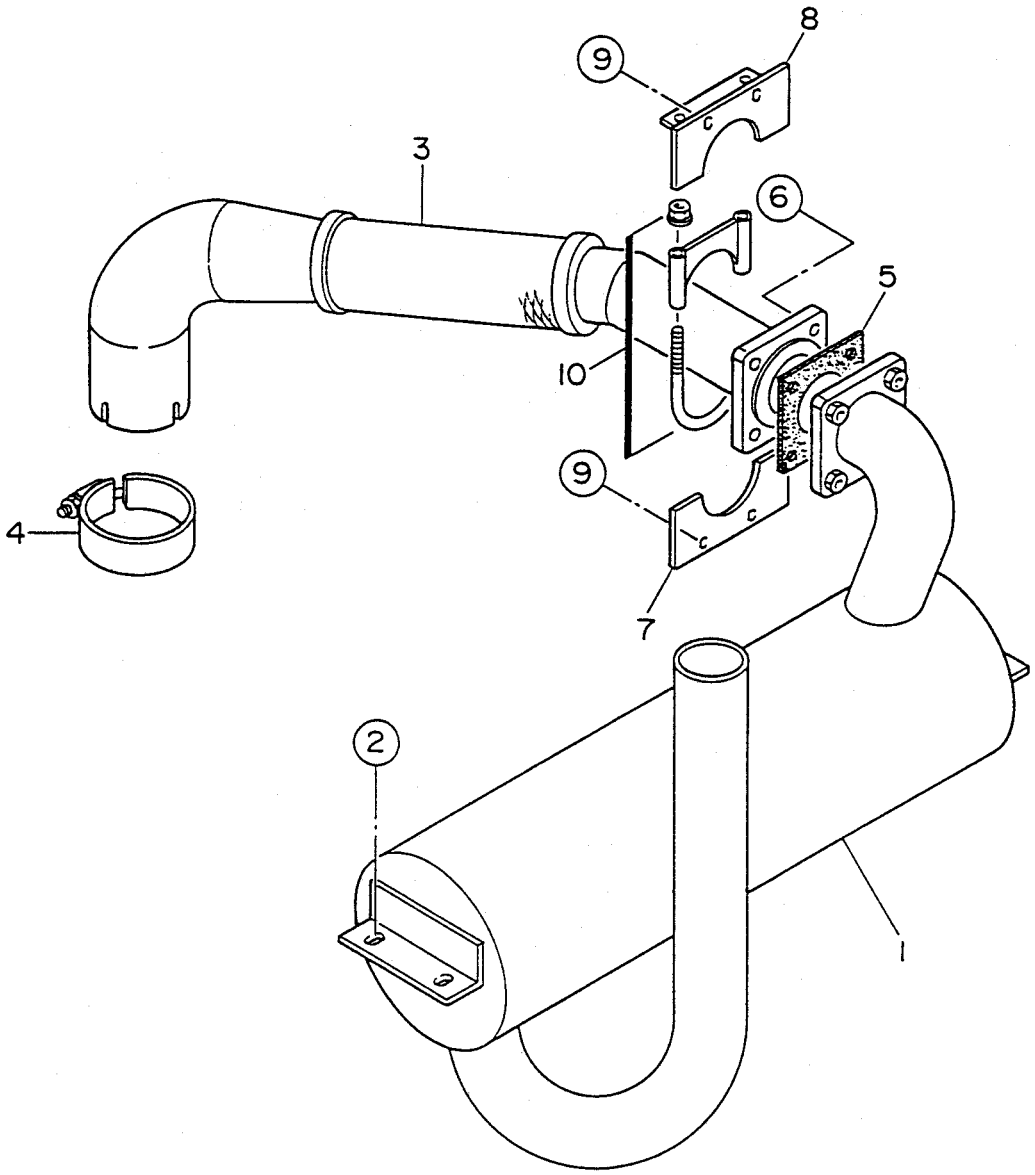
BATTERY ASSY.



BATTERY ASSEMBLY

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	551010280	BATTERY	1	627MFD; REPLACES 0602220187
2	M9310500014	BATTERY SHEET	1	
3	M9103000304	BATTERY BAND	1	
4	0602220920	BATTERY BOLT SET	2	
5	0040006000	LOCK WASHER	2	
6	M1346400004	BATTERY CABLE	1	UP TO S/N7302400
6	M1346400004	BATTERY CABLE	1	FROM S/N7302401
7	M2348900104	BATTERY CABLE	1	FROM S/N7302401
8	M2346400104	BATTERY CABLE	1	
9	011008020	HEX HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	
10		CABLE	1	MAKE LOCALLY
11	0017112025	HEX HEAD BOLT	1	
	0040512000	TOOTHED WASHER	1	
12	012210020	HEX HEAD BOLT	1	REPLACES 0017110020
	0040510000	TOOTHED WASHER	1	
13	0845040414	TERMINAL COVER	2	FROM S/N7302401; REPLACES 0602220600

MUFFLER ASSY.

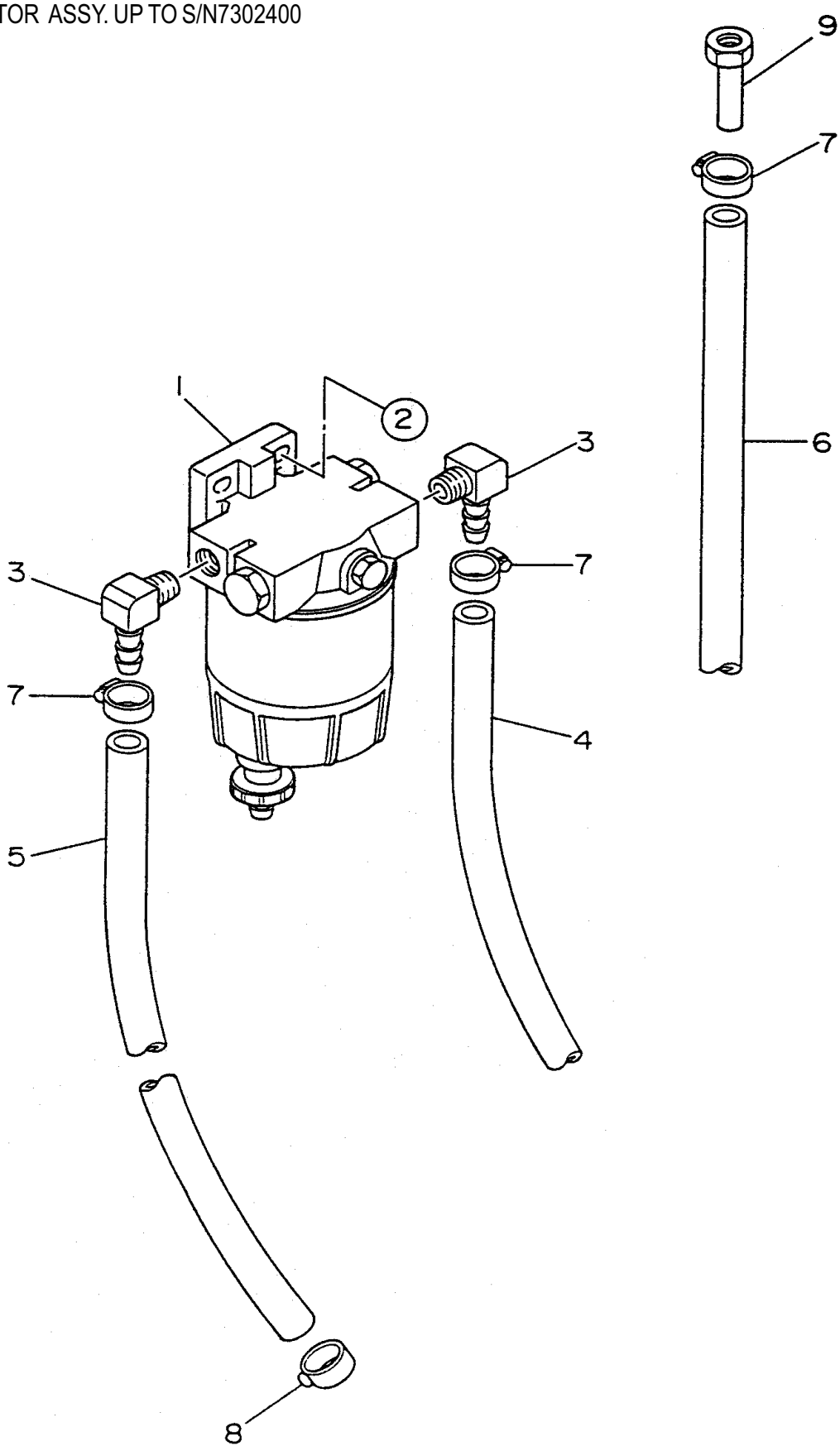


MUFFLER ASSEMBLY

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0602300166	MUFFLER	1	
2	012210025	HEX HEAD BOLT	4	REPLACES 0016910025
3	M2333000333	EXHAUST PIPE	1	
4	0602325066	CLAMP	1	
5	M2333200004	GASKET	1	REPLACES M2333200014
6	0016908040	HEX HEAD BOLT	4	
7	M2330400314	COVER	1	
8	M2333300013	BRACKET	1	
9	011106015	HEX HEAD BOLT	4	REPLACES 0016906015
10	0602326060	U BOLT SET	1	

DCA-70SSJU -- FUEL-WATER SEPARATOR ASSY.

FUEL-WATER SEPARATOR ASSY. UP TO S/N7302400



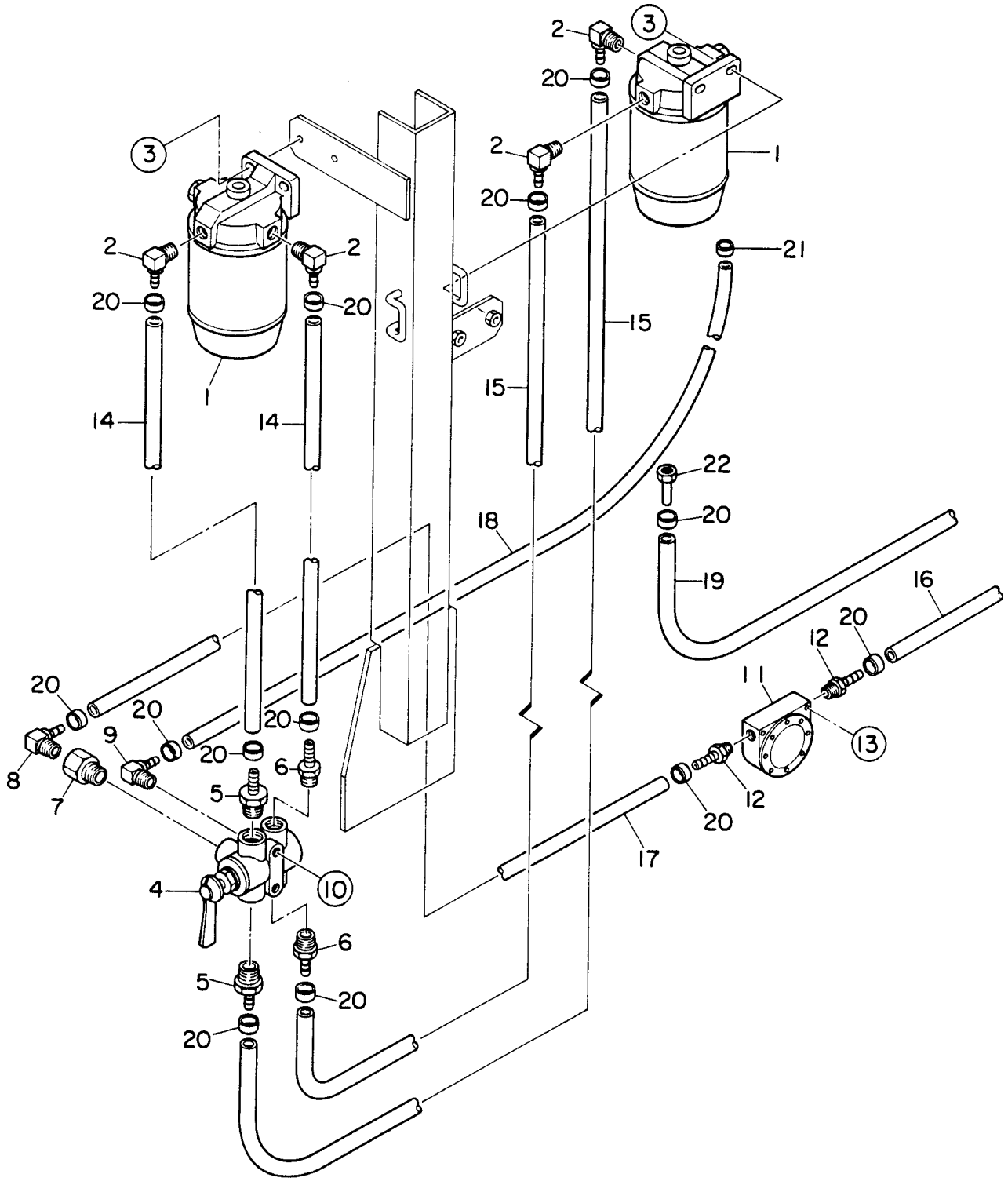
DCA-70SSJU -- FUEL-WATER SEPARATOR ASSY.

FUEL-WATER SEPARATOR ASSY. UP TO S/N7302400

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	120A	WATER SEPARATOR	1	REPLACES 0602042283
	RR12P	ELEMENT, WATER SEPARATOR	1	REPLACES 0602042282
2	0016906030	HEX HEAD BOLT	2	
3	0602022784	ELBOW JOINT	2	
4	0191302870	SUCTION HOSE	1	
5	0191300460	SUCTION HOSE	1	
6	0191302870	RETURN HOSE	1	
7	0605515109	HOSE BAND	5	
8	0605515189	HOSE BAND	1	
9	0602042601	RETURN PIPE	1	

DCA-70SSJU -- FUEL-WATER SEPARATOR ASSY.

FUEL-WATER SEPARATOR ASSY. FROM S/N7302401



DCA-70SSJU -- FUEL-WATER SEPARATOR ASSY.

FUEL-WATER SEPARATOR ASSY. FROM S/N7302401

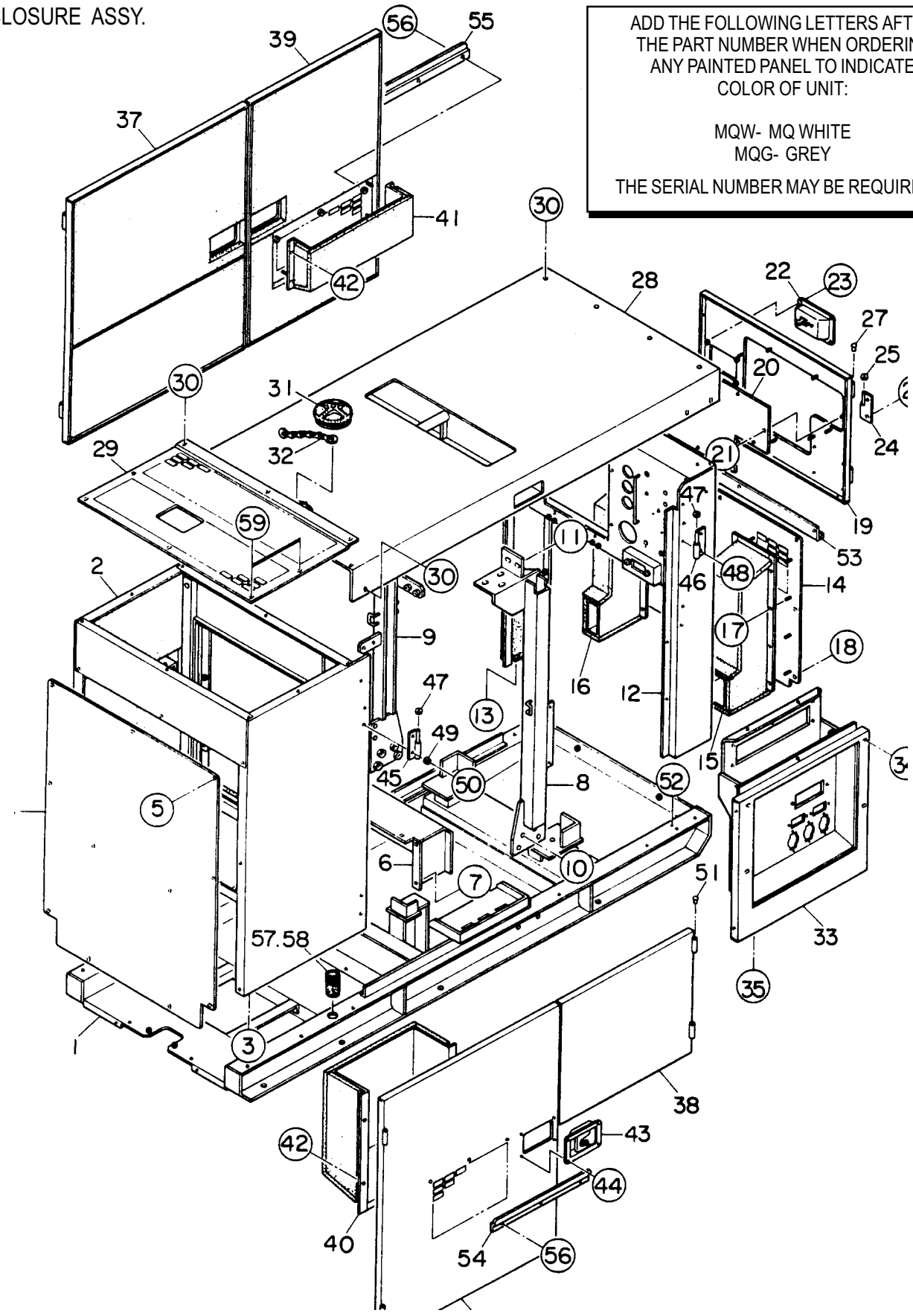
NO.	PART NO.	PART NAME	QTY.	REMARKS
1	245R30	WATER SEPARATOR ASSY.	2	REPLACES 0602042273
	RR25P	ELEMENT	2	REPLACES 0602042773
2	0602022784	HOSE JOINT	4	
3	0016908030	HEX. HEAD BOLT	4	
4	0605511396	VALVE	1	SK10131
5	0602022776	HOSE JOINT	2	
6	0602022778	HOSE JOINT	2	
7	0603306596	ADAPTER	1	
8	0602022791	HOSE JOINT	1	
9	0602022774	HOSE JOINT	1	
10	0343004060	HEX. HEAD BOLT	2	
	0043004000	LOCK WASHER	2	
	0043104000	PLAIN WASHER	2	
11	LGX200	FUEL FILTER	1	REPLACES 0602042492
12	060202279	HOSE JOINT	2	
13	0027104035	MACHINE SCREW	2	
14	0191301000	HOSE	2	
16	0191300800	SUCTION HOSE	1	
17	0191300350	SUCTION HOSE	1	
18	0191300600	SUCTION HOSE	1	
19	0191302000	RETURN HOSE	1	
20	0605515109	HOSE BAND	15	
21	0605515189	HOSE BAND	1	
2	0602042601	RETURN PIPE	1	RE67050

ENCLOSURE ASSY.

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

MQW- MQ WHITE
MQG- GREY

THE SERIAL NUMBER MAY BE REQUIRED.



DCA-70SSJU -- ENCLOSURE ASSY.

ENCLOSURE ASSY.

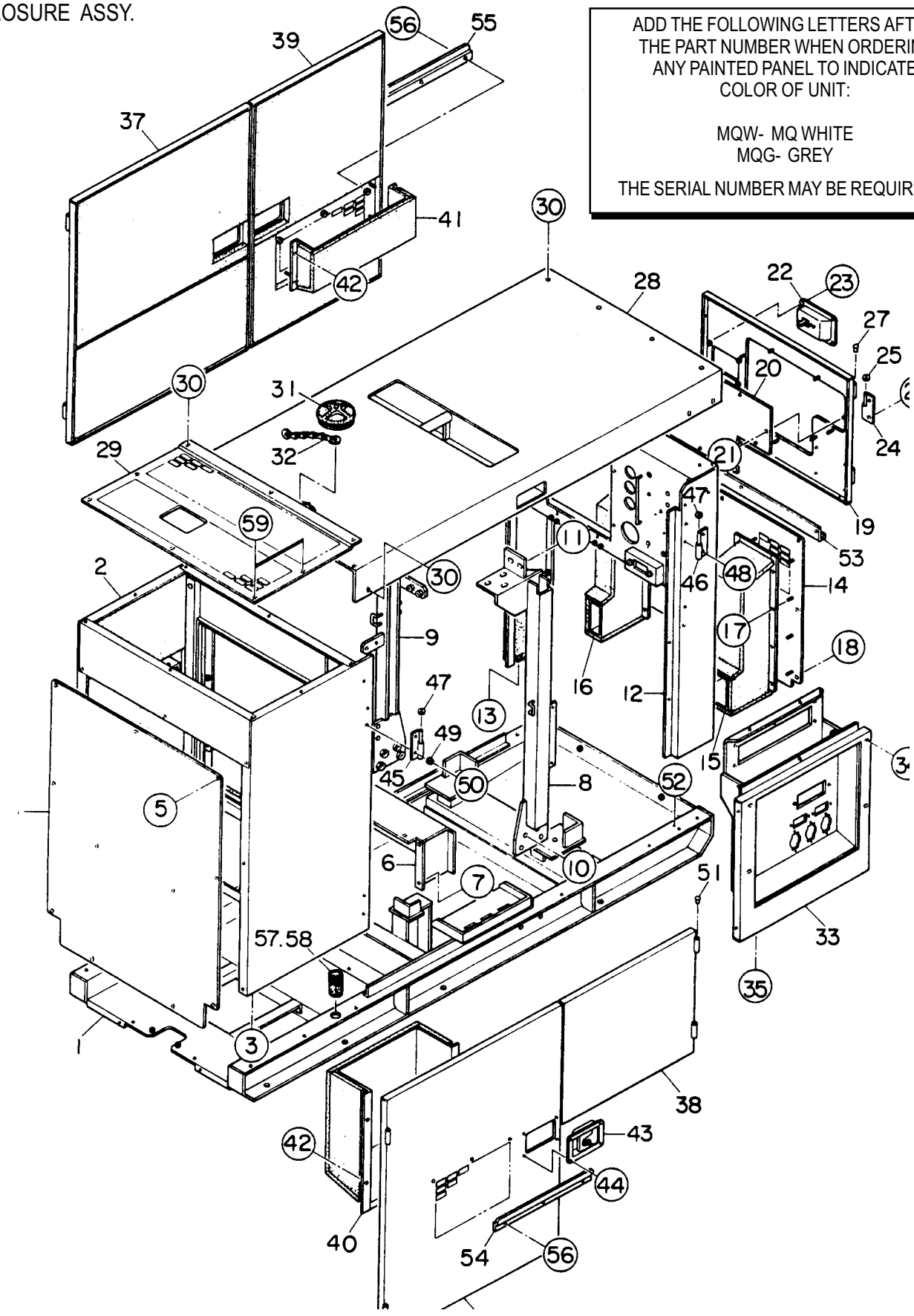
NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M2415000112	BASE	1	UP TO S/N7302400
1	M2415000303	BASE	1	FROM S/N7302401
2	M2423000212	FRONT FRAME	1	UP TO S/N7302400
2	M2425000003	FRONT FRAME	1	FROM S/N7302401
	M2493101203	ACOUSTIC SHEET	1	REPLACES M2493101213
	M2492270004	ACOUSTIC SHEET	1	FROM S/N7302401
3	011008020	HEX HEAD BOLT	6	REPLACES 0016908020
4	M2425200004	COVER, FRONT FRAME	1	
	M2493101104	ACOUSTIC SHEET	1	
5	011008020	HEX HEAD BOLT	11	REPLACES 0016908020
6	M2423200313	INNER CVR., FRNT. FRAME	1	
7	011008020	HEX HEAD BOLT	7	REPLACES 0016908020
8	M2435000103	CENTER FRAME	1	UP TO S/N7302400
8	M2435000203	CENTER FRAME	1	FROM S/N7302401
9	M2435000013	CENTER FRAME	1	UP TO S/N7302400
9	M2435000303	CENTER FRAME	1	FROM S/N7302401
10	0010114030	HEX HEAD BOLT	8	
	030214350	LOCK WASHER	8	REPLACES 0040014000
	031114260	PLAIN WASHER	8	REPLACES 0041214000
11	012212030	HEX HEAD BOLT	10	REPLACES 0017112030
12	M2445000012	REAR FRAME	1	UP TO S/N7302400
12	M2445000203	REAR FRAME	1	FROM S/N7302401
	M2493300904	ACOUSTIC SHEET	1	
13	011008020	HEX HEAD BOLT	4	REPLACES 0016908020
14	M2443300713	REAR COVER	1	
15	M2443300613	DUCT, REAR COVER	1	
	M2493300704	ACOUSTIC SHEET	1	
16	M2443300513	DUCT, REAR COVER	1	
	M2493300604	ACOUSTIC SHEET	1	
17	0207006000	HEX NUT	16	
18	011008020	HEX HEAD BOLT	9	REPLACES 0016908020
19	M2443200123	REAR DOOR	1	
20	M1443600204	WINDOW PLATE	1	
21	020106050	HEX NUT	8	REPLACES 0207306000
	952404470	PLAIN WASHER	8	REPLACES 0041206000
22	B9114000002	DOOR HANDLE ASSY.	1	REPLACES M9113000002
23	0027106016	MACHINE SCREW	4	REPLACES 0021806015
	020106050	HEX NUT	4	REPLACES 0030006000
24	M9110100204	HINGE	2	
25	M9116100004	WASHER	2	
26	011008020	HEX HEAD BOLT	3	REPLACES 0016908020
27	0845031504	BLIND PLUG	2	REPLACES M9310000004
28	M2463000202	ROOF PANEL	1	UP TO S/N7302400
28	M2465000003	ROOF PANEL	1	FROM S/N7302401
	M2493500123	ACOUSTIC SHEET	1	
29	M2463500114	OVR. CVR., FRNT. FRAME	1	
30	011008020	HEX HEAD BOLT	18	UP TO S/N7302400; REPLACES 0016908020

ENCLOSURE ASSY.

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

MQW- MQ WHITE
MQG- GREY

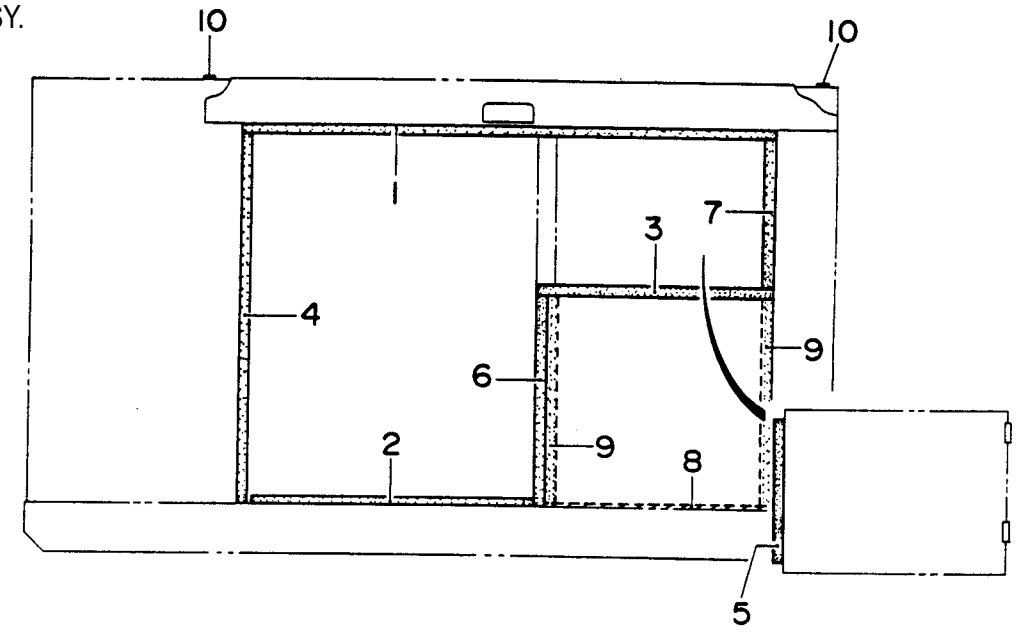
THE SERIAL NUMBER MAY BE REQUIRED.

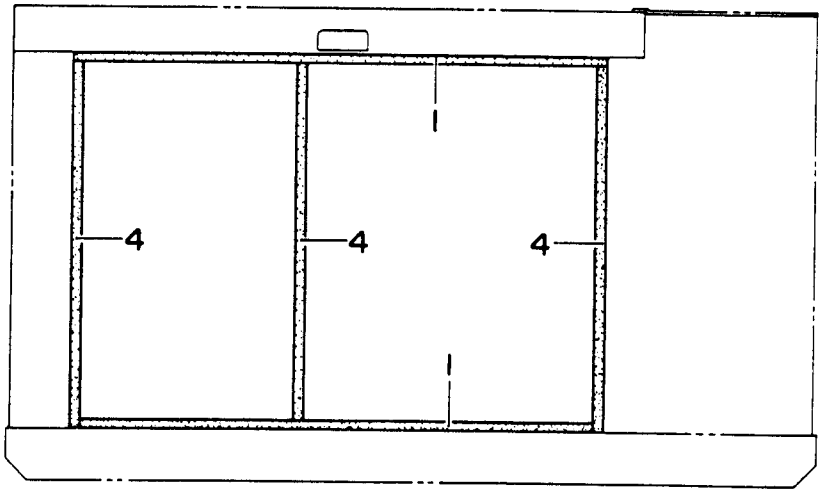


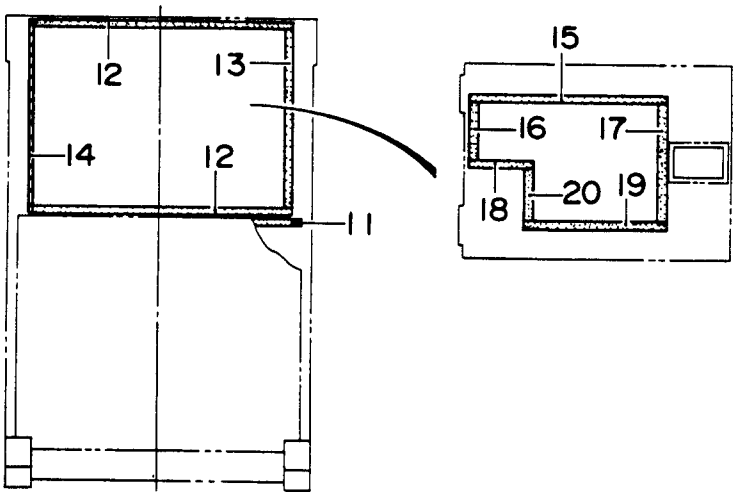
ENCLOSURE ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
30	011008020	HEX. HEAD BOLT	13	FROM S/N7302401; REPLACES 0016908020
	0044508019	SEAL WASHER	13	FROM S/N7302401
31	M9310000103	BONNET CAP	1	
32	1625165204	CHAIN ASSY.	1	REPLACES M1483600204
33	M2455200002	SPLASHER PANEL	1	UP TO S/N7302400
33	M2455200103	SPLASHER PANEL	1	FROM S/N7302401
	M2493300804	ACOUSTIC SHEET	1	
34	011208060	HEX HEAD BOLT	4	REPLACES 0016908055
	0044508019	SEAL WASHER	4	FROM S/N7302401
35	011008020	HEX HEAD BOLT	2	REPLACES 0016908020
36	M2453000503	SIDE DOOR	1	UP TO S/N7302400
36	M2453001003	SIDE DOOR	1	FROM S/N7302401
	M2493400904	ACOUSTIC SHEET	1	
37	M2453000603	SIDE DOOR	1	
	M2493401104	ACOUSTIC SHEET	1	
38	M2453000703	SIDE DOOR	1	UP TO S/N7302400
38	M2453001003	SIDE DOOR	1	FROM S/N7302401
	M2493401904	ACOUSTIC SHEET	1	
39	M2453000803	SIDE DOOR	1	UP TO S/N7302400
39	M2453000813	SIDE DOOR	1	FROM S/N7302401
	M2493401204	ACOUSTIC SHEET	1	
40	M2453300503	DUCT	1	
	M2493401004	ACOUSTIC SHEET	1	
41	M2453300603	DUCT	1	
	M2493401304	ACOUSTIC SHEET	1	
42	0207006000	HEX NUT	13	
43	B9114000002	DOOR HANDLE ASSY.	3	REPLACES M9113000002
	C9312500004	RUBBER SEAL	3	FROM S/N7302401
44	0027106016	MACHINE SCREW	12	REPLACE 0021806015
	020106050	HEX NUT	12	REPLACES 0030006000
45	M9110100204	HINGE	4	
46	M9110100304	HINGE	4	
47	M9116100004	WASHER	8	
48	011008020	HEX HEAD BOLT	9	REPLACES 0016908020
49	0601850097	DOOR STOPPER	8	
50	0027208025	MACHINE SCREW	8	
51	0845031504	BLIND PLUG	8	REPLACES M9310000004
52	011008020	HEX HEAD BOLT	1	REPLACES 0016908020
	0040508000	TOOTHED WASHER	1	
53	M1445500104	COVER BRACKET	1	FROM S/N7302401
54	M3453700101	DOOR BRACKET	1	FROM S/N7302401
55	M2455600004	DOOR BRACKET	1	FROM S/N7302401
56	0016906016	HEX. HEAD BOLT	6	FROM S/N7302401
57	M931250004	RUBBER SHEET	1	FROM S/N7302401
58	0605515149	HOSE BAND	1	
59	011008020	HEX. HEAD BOLT	5	REPLACES 0016908020

RUBBER SEALS ASSY.



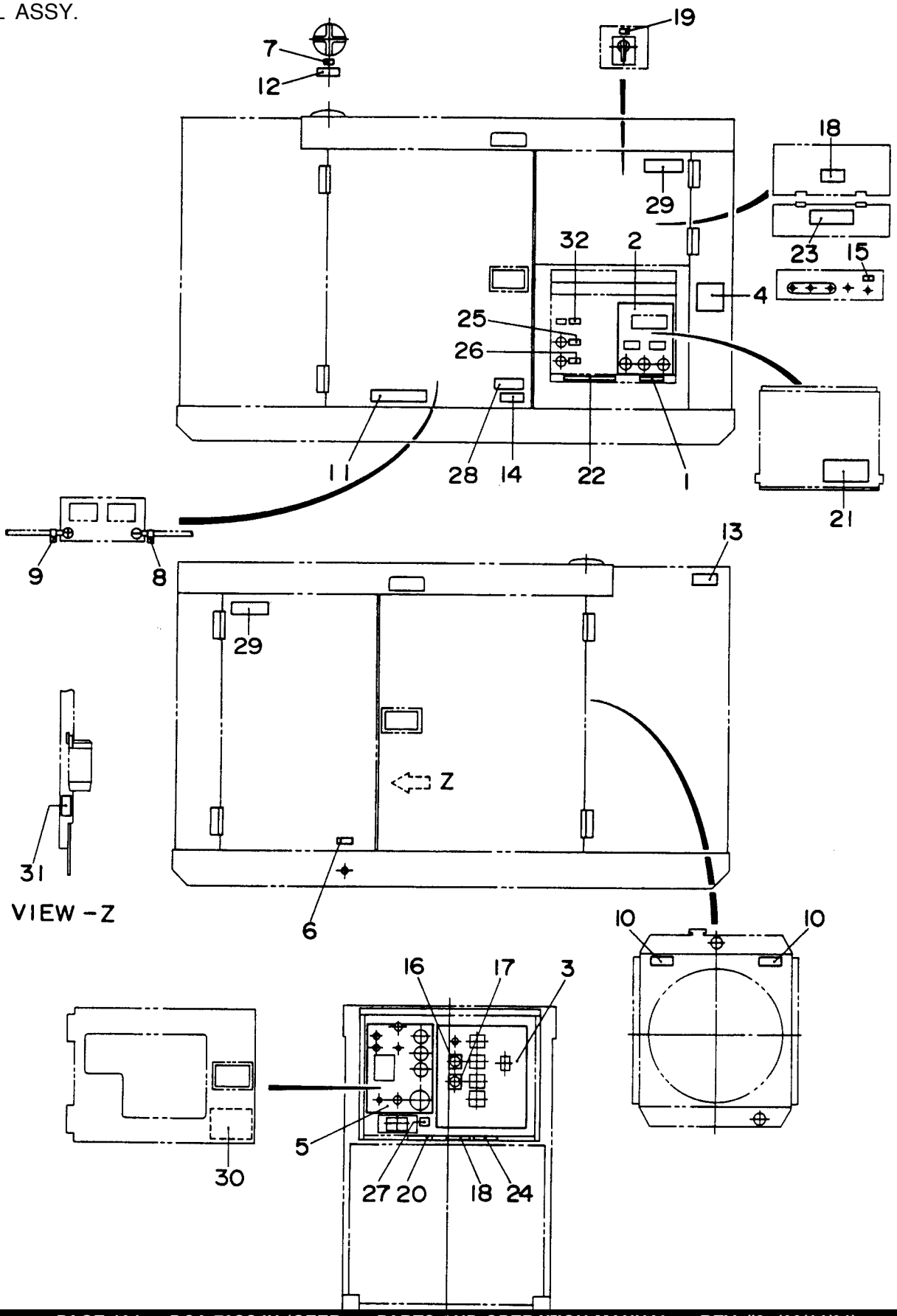




RUBBER SEALS ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	0228901580	SEAL RUBBER	2	
2	0229200825	SEAL RUBBER	1	
3	0228900670	SEAL RUBBER	1	
4	0228901090	SEAL RUBBER	4	
5	M2490300004	SEAL RUBBER	1	
6	0228800590	SEAL RUBBER	1	
7	0228900500	SEAL RUBBER	1	
8	0228900860	SEAL RUBBER	1	
9	0228900630	SEAL RUBBER	1	
10	0229200900	SEAL RUBBER	2	
11	0229200840	SEAL RUBBER	1	
12	0228800770	SEAL RUBBER	2	
13	0228800540	SEAL RUBBER	1	
14	0228800540	SEAL RUBBER	1	
15	0228100550	SEAL RUBBER	1	
16	0228100170	SEAL RUBBER	1	
17	0228100350	SEAL RUBBER	1	
18	0228100170	SEAL RUBBER	1	
19	0228100360	SEAL RUBBER	1	
20	0228100180	SEAL RUBBER	1	

DECAL ASSY.


19
7
12
18
29
32
2
23
15
4
25
26
11
28
14
22
1
21
9
8
13
29
Z
31
VIEW - Z
6
10
10
16
17
3
5
30
27
20
18
24

DECAL ASSY.

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	M1550000204	DECAL; NOTE	1	M15000020
2	M1550000703	DECAL; AUX. OUTPUT	1	M15000070
3	M2550000002	DECAL; GEN. CONTROL	1	M25000000; UP TO S/N7302400
3	M2552000503	DECAL; GEN. CONTROL	1	M25200050; FROM S/N7302401
4	M2550000304	DECAL; NOTE	1	M25000030
5	M2552000003	DECAL; ENG. OPERATING	1	M25200000; UP TO S/N7302400
5	M2552000403	DECA;' EMG. OPERATING	1	M25200040; FROM S/N7302401
6	M9500000004	DECAL; OIL DRAIN PLUG	1	M90000000
7	M9500100004	DECAL; WATER	1	M90010000
8	M9500300004	DECAL; -	1	M90030000
9	M9500300104	DECAL; +	1	M90030010
10	M9503000004	DECAL; WARNING MOVING PARTS	1	M90300000
11	M9503000103	DECAL; WATER-OIL CHECK	1	M90300010
12	M9503100004	DECAL; WARNING HOT COOLANT	1	M90310000
13	M9503200004	DECAL; WARNING ENGINE EXH	1	M90320000
14	M9510100004	DECAL; CAUTION HOT PARTS	1	M91010000
15	M9520000004	DECAL; GROUND	1	M92000000
16	M9520000104	DECAL; AMMETER CHNG-OVR	1	M92000010
17	M9520000204	DECAL; VOLTMETER CHANGE	1	M92000020
18	M9520100004	DECAL; WARNING ELEC. SHOCK	1	M92010000
19	M9520100204	DECAL; CAUTION	1	M92010020A
20	M9520100304	DECAL; SAFETY INSTRUC.	1	M92010030
21	M9520100404	DECAL; DANGER HIGH VOLT.	1	M92010040
22	M9520100503	DECAL; WARNING	1	M92010050
23	M9520200003	DECAL; CONNEC. OF OUTPT	1	M92020000
24	M9520200104	DECAL; OVER CURRENT RLY	1	M92020010
25	M9522000004	DECAL; WATER HEATER	1	
26	M9522000104	DECAL; BATTERY CHARG.	1	
27	C0551000504	DECAL; BATTERY SWITCH	1	C05100050;FROM S/N7302401
28	C9505300004	DECAL; CAUTION	1	C90530000;FROM S/N7302401
29	C9522100003	DECAL; CAUTION	2	C92210000;FROM S/N7302401
30	M3552000103	DECAL; OPERATING PROC.	1	M35200010;FROM S/N7302401
31	M9508200004	DECAL; FUEL VALVE OPER.	1	M90820000;FROM S/N7302401
32	9039209064	DECAL; START CONTACT	1	S4468;FROM S/N7302401

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

PARTS AND OPERATION MANUAL

HERE'S HOW TO GET HELP

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

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

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

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

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

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

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

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