OPERATION AND PARTS MANUAL

MULTIQUIP

WHISPERWELD™

MODEL SDW-225SS

WELDER/GENERATOR

(KUBOTA DIESEL ENGINE)

PARTS LIST NO. D2845300004A

Revision #2 (10/07/05)

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

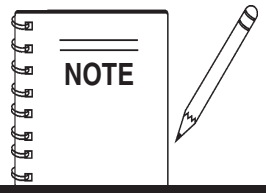
⚠ WARNING ⚠

CALIFORNIA — Proposition 65 Warning

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

NOTE PAGE

Multiquip SDW-225SS Welder/Generator



Specification and part number are subject to change without notice.

Kubota Z482-EB Engine

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Note: Discounts Are Subject To Change

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Note: Discounts Are Subject To Change

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When ordering parts, please supply:

- ❒ **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:**
  - ✓ Fed Ex/UPS
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    - Ground
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  - ✓ Truck

NOTE

Unless otherwise indicated by customer, all orders are treated as *Standard Orders* and will ship within 24 hours. We will make every effort to ship *Air Shipments* the same day the order is received, if received prior to 2PM PST. *Stock Orders* must be noted on fax or web order form.

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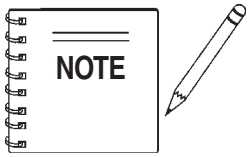
MULTIQUIP

SDW-225SS — SAFETY MESSAGE ALERT SYMBOLS

FOR YOUR SAFETY AND THE SAFETY OF OTHERS!

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

This Owner's Manual has been developed to provide complete instructions for the safe and efficient operation of the **MQ Model SDW-225SS *Welder/Generator***. Refer to the engine manufacturer's instructions for data relative to its safe operation.



Before using this welder/generator, ensure that the operating individual has read and understands all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

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

DANGER

You **WILL** be ***KILLED*** or ***SERIOUSLY INJURED*** if you **DO NOT** follow these directions.

WARNING

You **CAN** be **KILLED** or ***SERIOUSLY INJURED*** if you **DO NOT** follow these directions.

CAUTION

You **CAN** be ***INJURED*** if you **DO NOT** follow these directions.

HAZARD SYMBOLS

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

WARNING — **Lethal Exhaust Gas Hazards**

Engine exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled. **NEVER** operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.

WARNING — **Explosive Fuel Hazards**

Diesel Fuel is extremely flammable, and its vapors can cause an explosion if ignited. **DO NOT** start the engine near spilled fuel or combustible fluids.

DO NOT fill the fuel tank while the engine is running or hot. **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames.

WARNING — **Burn Hazards**

Engine components can generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operations. Never operate the engine with heat shields or heat guards removed.

WARNING — **Respiratory Hazards**

ALWAYS wear approved ***respiratory*** protection when required.

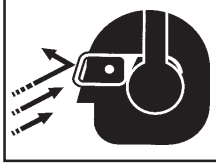
⚠ CAUTION — Rotating Parts Hazards

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

⚠ CAUTION — Accidental Starting Hazards

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

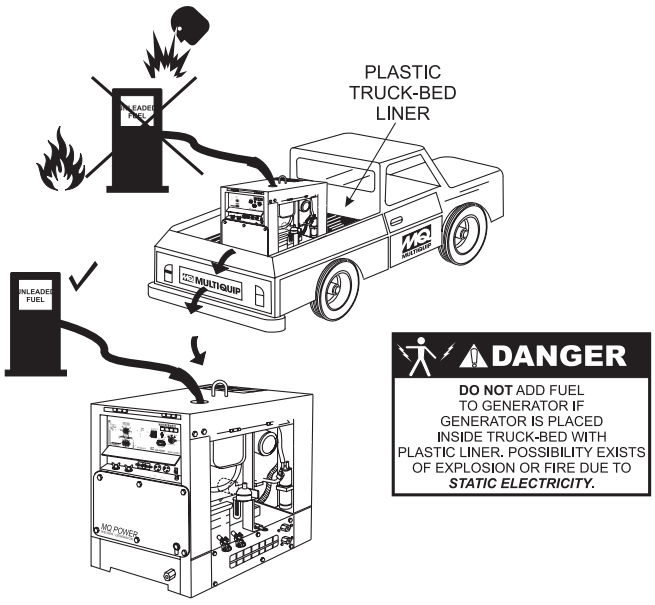
⚠ CAUTION — Eye and Hearing Hazards



ALWAYS wear approved eye and hearing protection.

⚠ DANGER — Refueling Hazard

NEVER refuel welder/generator when placed in truck bed with plastic liner. The possibility exists of explosion due to static electricity. When adding fuel, remove welder/generator from truck bed and place on ground.



⚠ CAUTION — Equipment Damage Hazards

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

DANGER **Read this manual!**

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 SDW-225SS Welder/Generator:

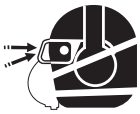
GENERAL SAFETY

- **DO NOT** operate or service this equipment before reading this entire manual.
- This equipment should not be operated by persons under 18 years of age.
- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.

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

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

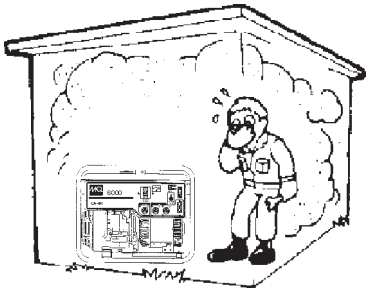
- **ALWAYS** wear proper respiratory (mask), hearing and eye protection equipment when operating the generator.



- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications.
- **NEVER** use accessories or attachments, which are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

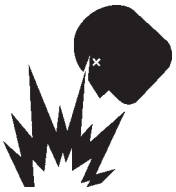
- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or generators.

- The engine section of this welder/generator requires an adequate free flow of cooling air. ***NEVER*** operate the welder/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 generators or engine and may cause injury to people. Remember the welder/generator's engine gives off ***DEADLY*** carbon monoxide gas.



- **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 welder/generator in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe ***bodily harm or even death***.



- **NEVER** disconnect any ***"emergency or safety devices"***. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death! Disconnection of any of these devices will void all warranties.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operation techniques before using welder/generator.

- **NEVER** leave the welder/generator unattended. Turn off engine when unattended.
- Unauthorized equipment modifications will void all warranties.
- **ALWAYS** ensure welder/generator is on level ground before use.
- **DO NOT** place hands or fingers inside welder/generator's engine compartment when engine is running.
- **NEVER** run engine without air cleaner. Severe engine damage may occur.
- **NEVER** change or adjust the engine speed which has been set at the factory prior to shipping.

Power Cord Safety

- **NEVER** let power cables or cords ***lay in wate***r.
- **NEVER** ***stand in water*** while AC power from the generator is being transfer to a load.
- **NEVER** use a defective or frayed power cable. Check the cable for cuts in the insulation.
- **NEVER** use a extension cord that is frayed or damaged where the insulation has been cut.
- **ALWAYS** make certain that proper power or extension cord has been selected for the job.

Grounding Safety

- **ALWAYS** make sure that electrical circuits are properly ***grounded*** per the ***National Electrical Code*** (NEC) and local codes before operating generator. Severe ***injury*** or ***death!*** by electrocution can result from operating an ungrounded generator.
- **ALWAYS** make sure the generators are properly grounded to a suitable earth ground (**GROUND ROD**). See installation in this manual.
- **NEVER** use ***gas piping*** as an electrical ground.

Maintenance Safety

- **NEVER** lubricate components or attempt service on a running machine.
- **High Temperatures** – Always stop engine and allow the engine to cool before adding fuel, oil or performing service and maintenance functions. Contact with ***hot!*** components can cause serious burns.

- Keep the machinery in proper running condition.
- Fix damage to the machine immediately and replace any broken parts immediately.
- **ALWAYS** replace any worn or damaged warning decals.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.
- The electrical voltage required to operate the generator can cause severe injury or even death through physical contact with live circuits. Turn all circuit breakers **OFF** before performing maintenance on the generator.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.
- 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.

- Removing the radiator plug while the engine is hot will result in hot water or coolant to gush out of the radiator, therefore causing severe scalding to any persons in the general area of the generator.

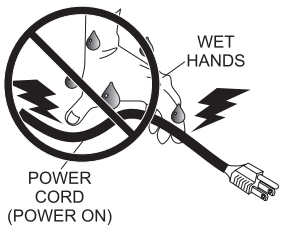
! DANGER-ELECTROCUTION HAZARDS

During operation of this generator, there exists the possibility of ***electrocution***, ***electrical shock or burn***, which can cause ***severe bodily harm*** or even ***DEATH!***

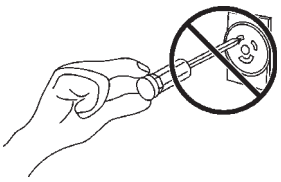
To avoid these hazards:

NEVER use ***damaged*** or ***worn*** cables when connecting equipment to the generator. Make sure power connecting cables are securely connected to the generator's output receptacles, incorrect connections may cause damage to the generators and electrical shock.

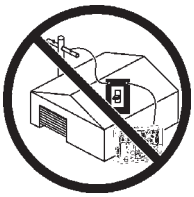
NEVER grab or touch a live power cord with wet hands, the possibility exist of electrical shock, electrocution, and even ***death!***



NEVER insert any objects into the output receptacles during operation. This is extremely dangerous. **ALWAYS** turn-off the generators and place all circuit breakers in the "**OFF**" position when contact with the output receptacles is required. There exist the possibility of ***electrocution, electrical shock or burn, which can cause severe bodily harm or even death***!



Backfeed to a utility system can cause ***electrocution*** and or property damage. **NEVER** connect the generator to a building's electrical system without a transfer switch or other approved device. All installations should be performed by a ***licensed electrician*** in accordance with all applicable laws and electrical codes. Failure to do so could result in electrical shock or burn causing serious injury or even death!



Welding Safety

- **ALWAYS** keep welder in good, clean, dry condition.
- **ALWAYS** make sure all eledtrical connections are tight, clean, and dry.
- **ALWAYS** use correct size welding cable. **NEVER** overload.
- **ALWAYS** make sure cables, holder and connections are properly insulated.
- **ALWAYS** cut off power to welders before cleaning machine or making internal adjustments.
- **NEVER** change polarity while machine is under load.
- **ALWAYS** observe normal operating care for electrical hazards.
- **ALWAYS** keep work area neat , clean, and dry.
- **ALWAYS** dispose hot electrode stubs in a metal container.
- **NEVER** strike an arc on a compressed gas cylinder.

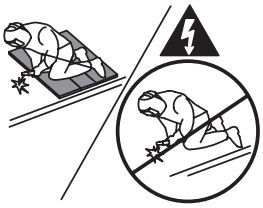
- **ALWAYS** protect your eyes from rays of the arc. Wear a head shield with proper filter plates when welding.

- **ALWAYS** wear welder cap and approved safety glasses with side shields. **ALWAYS** use ear protection when welding out of position or in confined spaces.

- **ALWAYS** wear protective chipping goggles when chipping off weld slag. Chip away from your face.
- **ALWAYS** wear complete body protection such as leather gloves, an apron or sleeves to shield against the arc rays and sparks. Button up shirt collar.

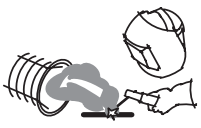
- **ALWAYS** wear dry, hole-free insulating gloves and body protection. Do not touch electrode with bare hand. Do not wear wet or damaged gloves.

- **ALWAYS** protect yourself from electric shock by insulating yourself from work and ground. Use non-flammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material big enough to cover your full area of contact with the work or ground.



- **ALWAYS** use a non-reflectingwelding curtain to protect others in the area from arc rays.
- **ALWAYS** make sure you work area has adequate ventilation and plenty of fresh air. Special precautions are necessary when welding lead, zinc, beryllium copper or cadmium.
- **ALWAYS** keep your head out of the fumes. Do not breathe the fumes. Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

- **ALWAYS** use enough forced ventilation or loca exhaust (forced suction) at the arc to remove the fumes from your breathing area.



■ **ALWAYS** use a ventilating fan to remove fumes from the breathing zone an welding area.

■ **NEVER** weld near flammable material. Move flammables at 35 feet (11 meters) away or protect them with flame-proof covers.

■ **NEVER** weld near engine fuel. Engine fuel plus flames or sparks can cause fire or explosion.

■ Welding sparks can cause fires. **ALWAYS** have a fire extinguisher nearby, and have a trained fire watcher ready to use it.

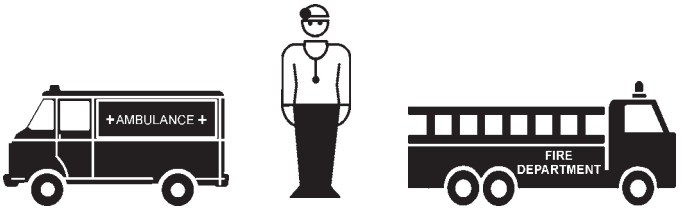
■ **NEVER** weld on drums, tanks, or any closed containers unless a qualified person has tested it and declared it or prepared it to be safe.

Emergencies

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

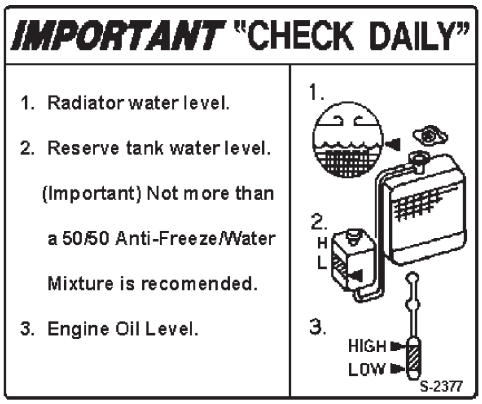
■ **ALWAYS** know the location of the nearest ***first aid kit.***

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



Machine Safety Decals

The SDW-225SS welder/generator is equipped with a number of safety decals. These decals are provided for operator safety and maintenance information. The illustration below shows these decals as they appear on the machine. Should any of these decals become unreadable, replacements can be obtained from your dealer.



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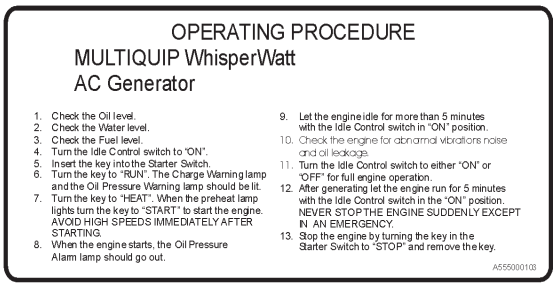

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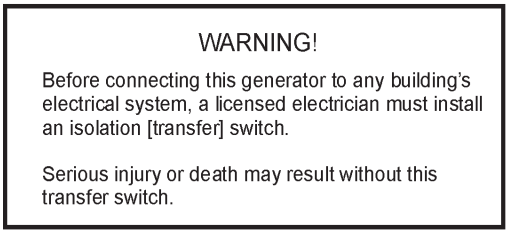

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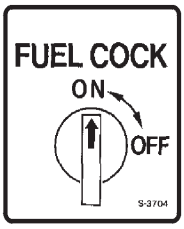

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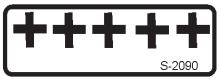

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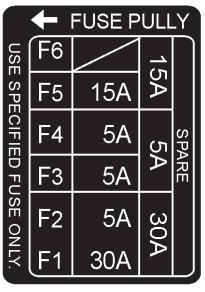

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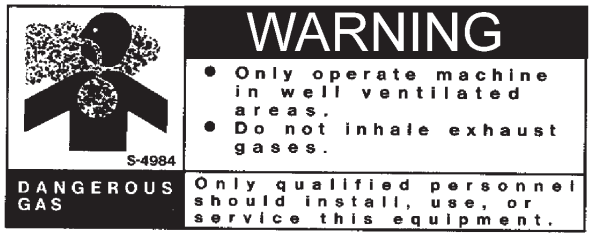
CONTACT MQ
SERVICE DEPT.



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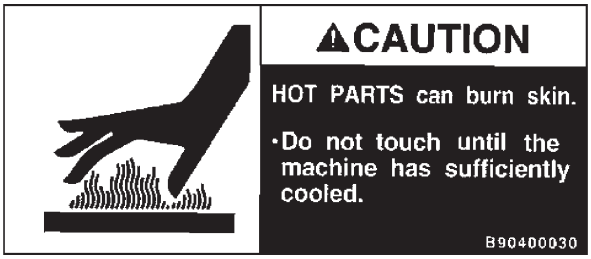

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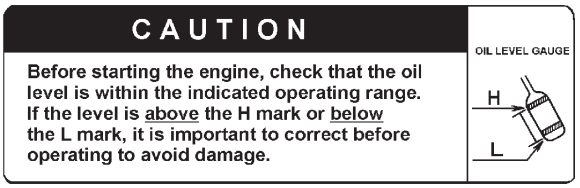

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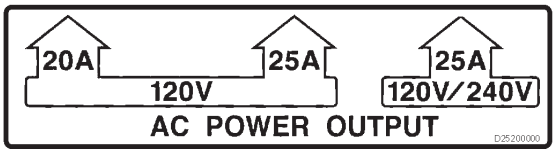

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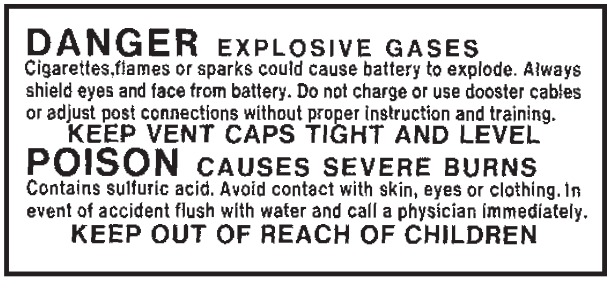

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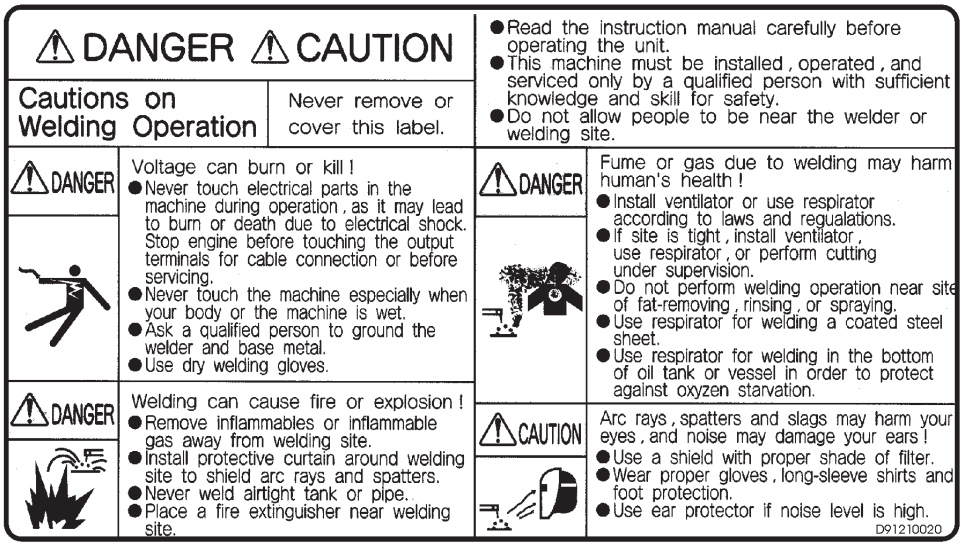


P/N D9512100203

Table 1. Specifications	
Generator Specifications	
Model	SDW-225SS
Phase	Single Phase
Wires	3-Wires (Neutral Grounded)
Maximun Output	6000 Watts
Rated Voltage	120/240 Volts
Frequency	60 Hz
Speed	3600 rpm
Power Factor	1.0
Rating	Continuous
Welder Specifications	
Rated Output Power (CV/CC)	4.0 kW/5.6 kW
Rated Output Voltage (CV/CC)	200 Amps
Rated Output Current (CV/CC)	20/28 Volts
Duty Cycle	100/%
Rated Speed	3600 RPM
Voltage Range	15-28 Volts
Current Range	50-225 Amps
Engine Specifications	
Model	KUBOTA Z-482-EB
Type	Vertical, 4-Cycle
Rated Output	8.9 kW/11.9 HP @ 3600 rpm
Displacement	29.23 cu. in (479 cc)
Number of Cylinders	2
Cooling System	Water-Cooled
Starting System	Electric Start
Fuel Tank Capacity	6.6 gal/25 liters
Coolant Capacity	0.66 gal/2.5 liters
Lube Oil Capacity	0.55 gal/2.1 liters
Fuel Consumption	0.69 gal (2.63 liters)/hr.
Battery	12V-35Ah
Fuel	Diesel Fuel No. 2
Dimensions (LxWxH)	351 x 389 x 520 mm (13.82 x 15.31 x 20.47 in)
Weight	117.1 lbs. (53.1 kg)

The maximum output of the engine listed above is applicable to supplying electrical power for continuous service at ambient conditions in accordance with SAE Test cord J607. The above ambient conditions are at standard sea level, with a barometric reading of 29.92 inches and a temperature of 60° F.

Generally, the engine output power will decrease 3 1/2% for each 1000 feet of altitude above sea level, and 1% for each 10˚ F above the standard temperature of 60˚ F.

SDW-225SS FAMILIARIZATION

Generator

The MQ Power Model SGW-250SS welder/generator can provide 200 amps of welding current when in the CV/DC mode and 225 amps of welding current when in the CC/DC mode. When used as a generator it can provide a maximum of 6,000 watts of AC power.

Control Panel

The ***control panel*** is provided with the following:

- One GFCI 120 volt receptacle, 20 amp (single-phase)
- One 120 volt receptacle, 30 amp (single-phase)
- One 120/240 volt receptacle, 30 amp (single-phase)
- Main Circuit Breaker 240V @25 Amps
- Circuit Protector Breaker (GFCI) 120V @20 Amps
- Idle Control Switch
- Starter Switch
- Warning Lamp Unit
- Hour Meter
- Ground Terminal
- DC (Welding) Output Terminal

Engine Protection System

Engine protection fail safe features are provided in the event of low oil pressure, high coolant temperature and failure of the battery to charge. If any of the above conditions occur while operating the generator it will cause a complete unit shut down.

Battery Charge Alarm

This unit is equipped with a protective device that signals an alarm and automatically stops the engine when the battery cannot be charged by the alternator.

Water Temperature Alarm

This unit is equipped with an apparatus that signals an alarm and automatically stops the engine when the cooling water temperature becomes abnormally high. This apparatus will not function properly if the machine is operated with less than the proper amount of coolant.

Oil Pressure Warning Alarm

In the event of low oil pressure (engine), this welder/generator is equipped with an engine protection fail safe system. If low oil pressure is detected while operating the welder/generator, the engine protection system will shut down the engine.

If this condition (low oil pressure) should occur, please refer to the engine troubleshooting table in this manual.

Welder Protection System

In the event of an overload, this welder/generator is equipped with a welder protection system. If an overload is detected while operating the welder/generator, the welder protection system will shut down the engine.

Open Delta Excitation System

The SDW-225SS 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 connections of the open delta A, B, C and D. During steady state loads, the power from the voltage regulator is supplied from the parallel connections of A to B, A to D, and C to D. These three phases of the voltage input to the voltage regulator are then rectified and are the excitation current for the exciter section.

When a heavy load, such as a motor starting or a short circuit occurs, the automatic voltage regulator (AVR) switches the configuration of the open delta to the series connection of B to C. This has the effect of adding the voltages of each phase to provide higher excitation to the exciter section and thus better voltage response during the application of heavy loads.

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

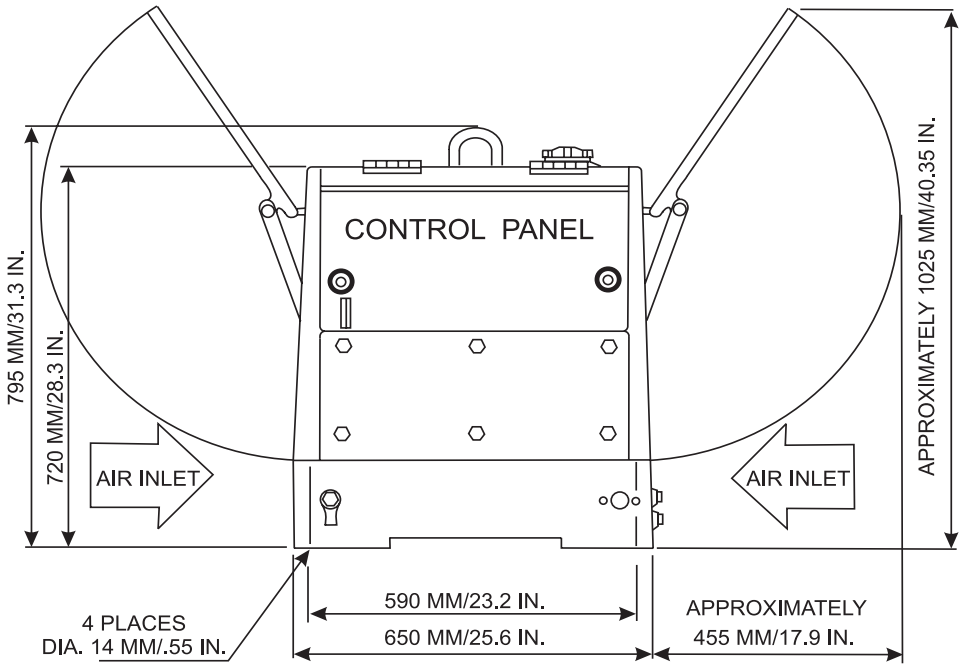
The open-delta design provides virtually unlimited excitation current, offering maximum motor starting capabilities. The excitation does not have a "***fixed ceiling***" and responds according the demands of the required load.

Engine

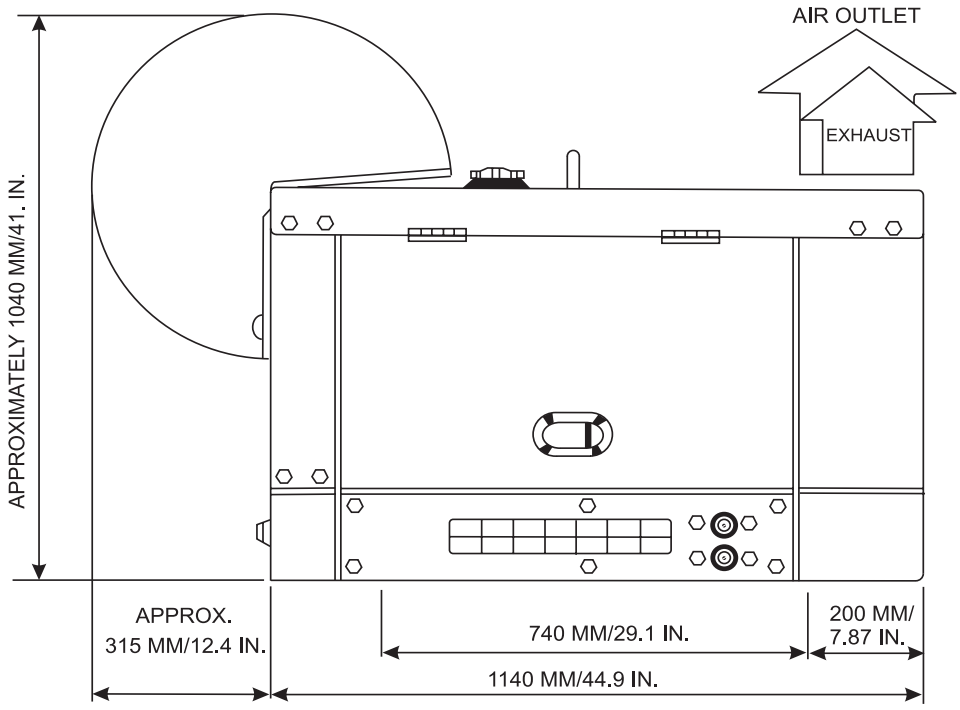
The SDW-225SS is powered by a 4-cycle KUBOTA ***diesel*** engine. This engine is designed to meet every performance requirement for generator. Refer to Table 1 for engine specifications.

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

Figures 2 and 3 show the basic controls and indicators for the SDW-225SS welder/generator.



FRONT VIEW



SIDE VIEW

Figure 1. SDW-225SS Dimensions

Figures 2 and 3 show the location of the controls and indicators. The functions of each control or indicator is described below and on the preceding page.

1. **Fuel Gauge –** Indicates the amount of fuel in the fuel tank.
2. **Air Outlet and Exhaust –** Allows engine exhaust to exit the generator into the open air. **NEVER** block this opening.
3. **Fuel Cap –** Remove this cap to add fuel. Add only #2 ***diesel fuel***. Always keep an adequate amount of fuel in the tank. **DO NOT** top off. Wipe up any spilled fuel immediately.
4. **Lifting Hook –** Use this hook to lift the generator.
5. **Engine Air Cleaner –** Prevents dirt and other debris from entering the fuel system. Lift locking latch on air filter cannister to gain access to filter element.
6. **Overflow Bottle –** Supplies coolant to the radiator when radiator coolant level is low. Fill to indicated level as shown on bottle.
7. **Engine Oil Filler Port –** Remove this cap to add engine oil. Use only recommended type oil. See table 3.
8. **Coolant Drain Plug –** Remove this plug to drain coolant from the radiator.
9. **Oil Drain Plug –** Remove this plug to drain oil from the engine.
10. **Automatic Speed Control Solenoid –** Automatically returns the engine speed to idle when no load is present.
11. **Battery Terminals –** Connect these terminals to the battery. Always pay close attention to the polarity of the terminals when connecting to the battery, RED (positive), and BLACK (negative).
12. **Fuel Filter –** Prevents dirt and other debris from entering the fuel system. Change fuel filter as recommended in the maintenance section of this manual.
13. **Air Inlet Vent –** Allows outside air to enter the generator. **NEVER** block this opening.
14. **Battery –** Provides 12 VDC power for the generator. When replacing battery (12V 35 AH) use only recommended type battery.
15. **G.F.C.I Ground Terminal –** Use this terminal to connect external equipment grounds so that the GFCI receptacle will have a ground path.
16. **Fuel Tank –** Holds 6.6 gallons (25 liters) of diesel fuel.

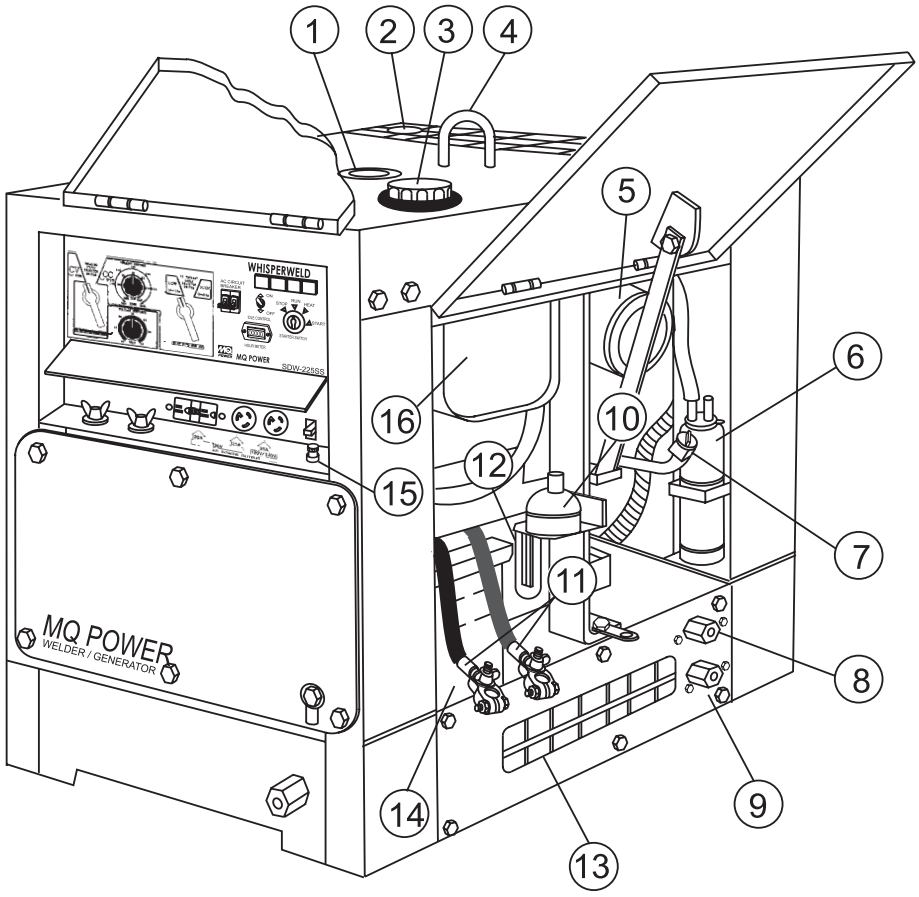


Figure 2. SDW-225SS Components 1

17. **Fuel Drain Plug –** Remove this plug to drain fuel from the fuel tank.
18. **Frame Ground Lug –** Connect a ground strap between this lug and a ground rod. Make sure that the ground rod is inserted deep into the ground to provide a good earth ground. Consult with local Electrical and Safety Codes for proper connection and depth of ground rod.
19. **Oil Filter –** Provides oil filtering for the engine.
20. **Hour Meter –** Indicates number of hours machine has been in use or hours engine was run.
21. **Current Control (CC) Adjustment Knob –** Use this control to adjust the welding current between 50 to 225 amps. This function will not work in the CV mode.
22. **Voltage Control (CV) Adjustment Knob –** Use this control to adjust the welding voltage between 15 to 28 V. This function will not work in the CC mode.
23. **Welding Type (Wire/Stick) Selector Switch (CV/CC) –** Turn this selector switch toeither CV or CC for welding. **DO NOT** turn this switch under load.
24. **Current Range Selector Switch (CC) –** Turn this selector switch to either low or high for welding. **DO NOT** turn this switch under load.
25. **Main Circuit Breaker –** This 2-pole circuit breaker provides circuit protection (250V @25 amps) for the Electric Parts Assembly.
26. **Circuit Protector Circuit Breaker –** This single pole circuit breaker provides circuit protection (120V @20 amps) for the G.F.C.I receptacle.
27. **Idle Control Switch –** Regulates the engine speed when the generator is under load.
28. **Warning Lamp Display –** Includes the following lamps.
    - **Low Oil Pressure Lamp** - lights to indicate that the engine pressure has fallen below acceptable level.
    - **High Water Temperature Lamp** - lights to indicate that the water temperature has exceeded 239°F.
    - **Electrical System Lamp** - lights when the electrical system is not charging properly.
    - **Pre-heat Lamp**- when the key switch is set to the pre-heat position, this lamp turns on. When the lamp turns off, the key switch can be turned to the start position.
29. **Ignition Switch –** With key inserted, turn clockwise to start engine.
30. **Positive Welding Output Terminal –** Connect the welding cable to this terminal. Select the appropriate polarities according to the application. See Table 7.
31. **Negative Welding Output Terminal –** Connect the negative cable of the welding source to this terminal. Select the appropriate polarities according to the application. See Table 7.
32. **Receptacle G.F.C.I. –** This receptacle provides 120 volts output at 20 amps.
33. **Receptacle –** Provides 120 volts output at 25 amps.
34. **Receptacle –** Provides 120/240 volts output at 25 amps.

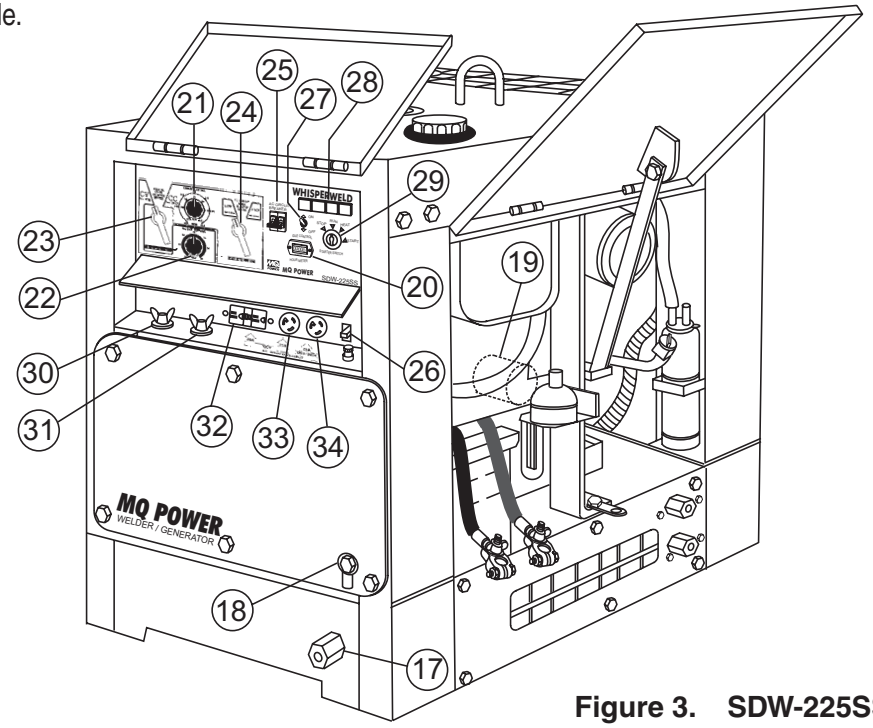


Figure 3. SDW-225SS Components 2

The SDW-225SS welder/generator can be mounted on a Trailer-10.

Trailer Maintenance

This section is intended to provide the user with service and maintenance information for the Trailer-10.

Periodic inspection of the trailer will ensure safe towing of the generator and will prevent personal injury and damage to the equipment.

The definitions below describe some of the major components of a Trailer-10 that would be used with the SDW-225SS welder/generator.

1. **GVWR-** Gross Vehicle Weight Rating (GVWR) is the maximum number of pounds the trailer can carry.
2. **Frame Length -** Measurement is from the ball hitch to the rear bumper (reflector).
3. **Frame Width -** Measurement is from fender to fender.
4. **Jack Stand -** Trailer support device with maximum pound requirement from the tongue of the trailer.
5. **Coupler -** Type of hitch used on the trailer for towing.
6. **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 5 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.
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.

Table 2. Trailer-10 Specifications

GVWR	1900 lbs
Frame Length	96 inches
Frame Width	50 inches
Jack Stand	800 lbs Full Tilt Wheel
Coupler	2-inch Ball Class 2 Adjustable
Tires	175-13C
Wheels	13 x 4.5 inches
Axle	2200# 2X2
Hubs	5 Lug
Suspension	3 Leaf
Electrical	4 Pole Flat

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 - EYESIGHT HAZARD

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

⚠ CAUTION - REPAIRING TRAILER WHEELS

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

Tire Wear/Inflation

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

Table 3 (Tire Wear Troubleshooting) will help pinpoint the causes and solutions of tire wear problems.

TABLE 3. 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 4.

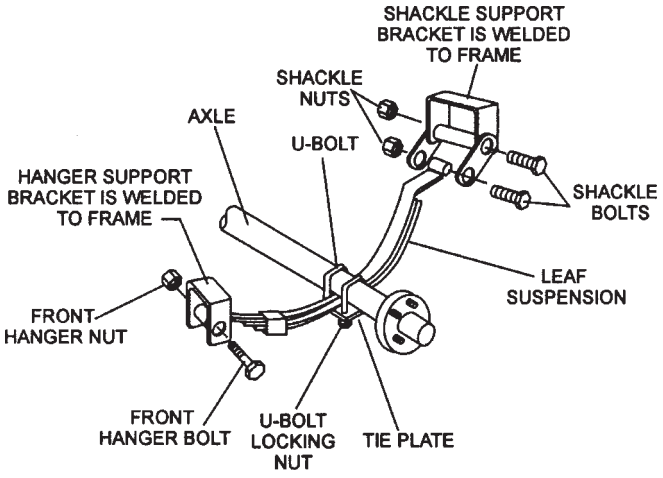


Figure 4. Major Suspension Components

Table 4. Suspension Torque Requirements

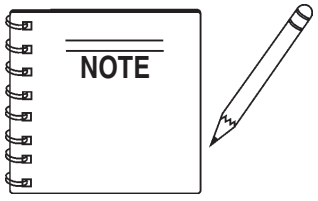
Item	Torque (Ft.-Lbs.)
3/8" U-BOLT	MIN-30 MAX-35
7/16" U-BOLT	MIN-45 MAX-60
1/2" U-BOLT	MIN-45 MAX-60
SHACKLE BOLT SPRING EYE BOLT	SNUG FIT ONLY. PARTS MUST ROTATE FREELY. LOCKING NUTS OR COTTER PINS ARE PROVIDED TO RETAIN NUT-BOLT ASSEMBLY.
SHOULDER TYPE SHACKLE BOLT	MIN-30 MAX-50

Lug Nut Torque Requirements

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

1. Start all wheel lug nuts by hand.
2. Torque all lug nuts in sequence (see Figure 5). **DO NOT** torque the wheel lug nuts all the way down. Tighten each lug nut in 3 separate passes as defined by Table 5.
3. After first road use, re-torque all lug nuts in sequence. Check all wheel lug nuts periodically.

Table 5. 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



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

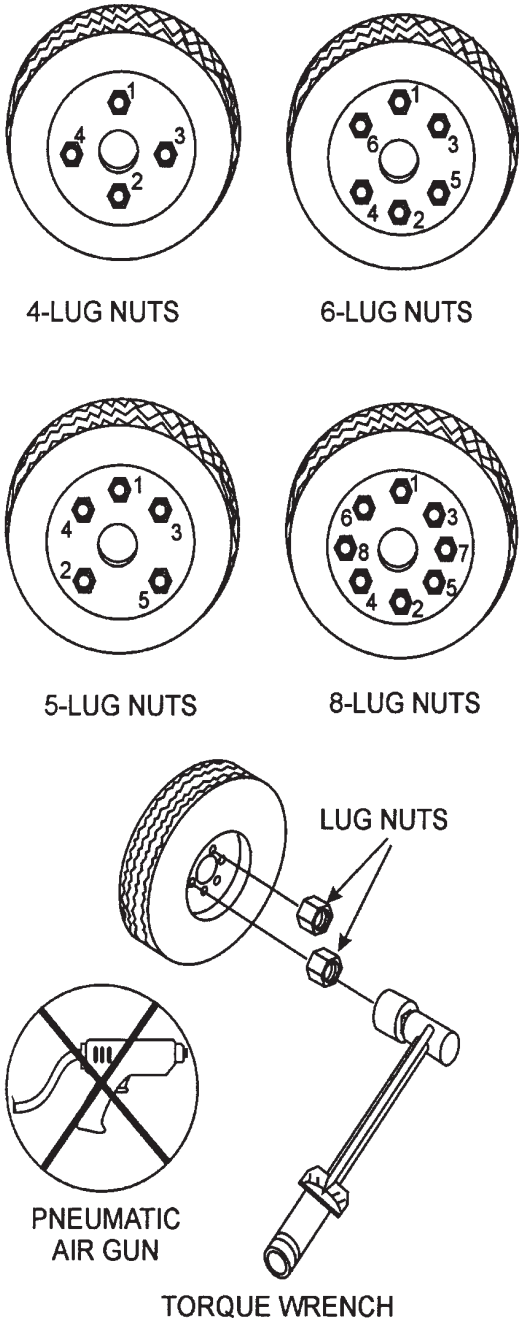


Figure 5. Wheel Lug Nuts Tightening Sequence

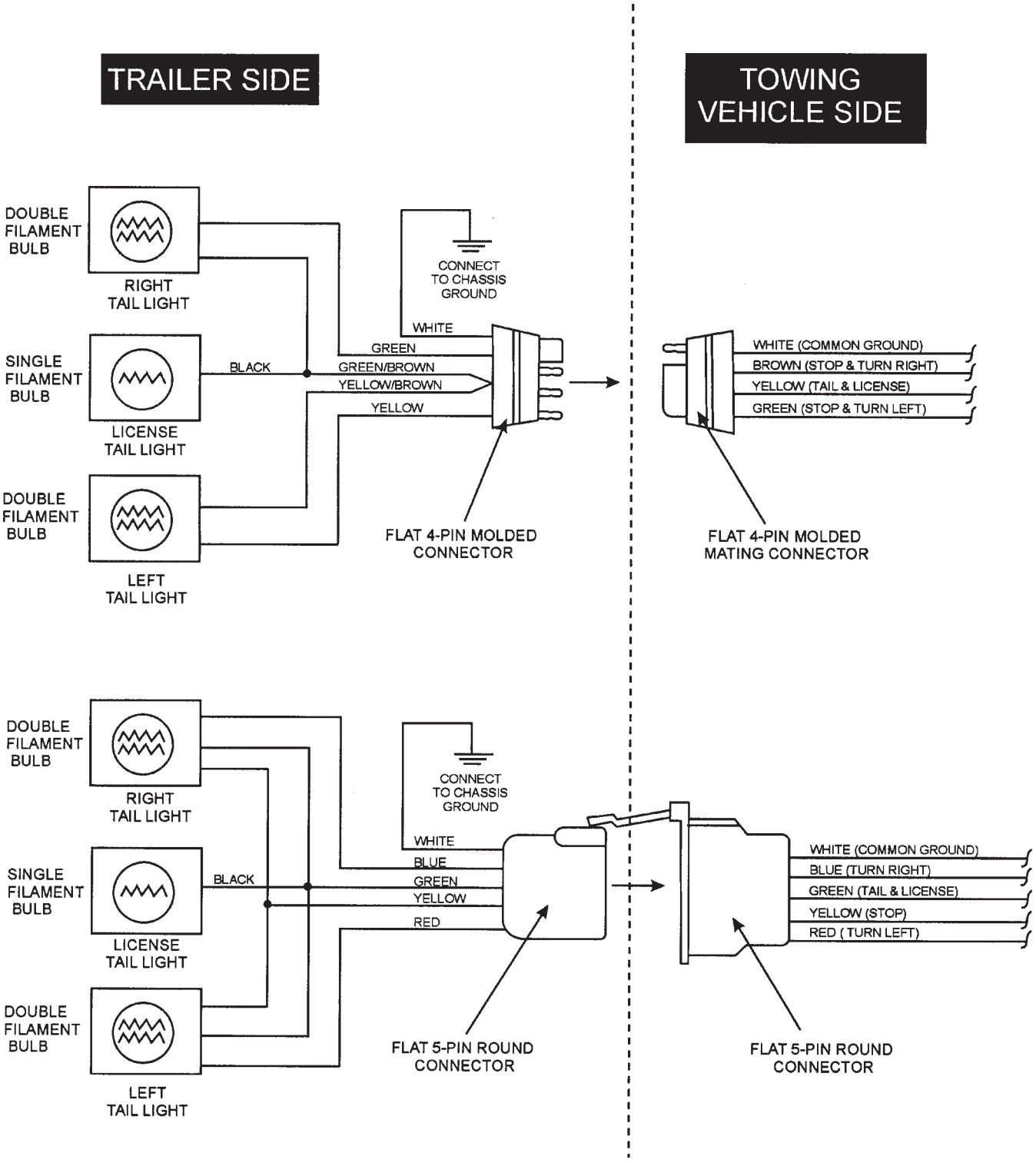


Figure 6. Trailer/Towing Vehicle Wiring Diagram

Towing Safety Precautions

CAUTION

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

To reduce the possibility of an accident while transporting the generator on public roads, always make sure the trailer (Figure 7) that supports the generator and the towing vehicle are in good operating condition and both units are mechanically sound.

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

- Make sure the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer "gross vehicle weight rating" (GVWR).
- **ALWAYS** inspect the hitch and coupling for wear. **NEVER** tow a trailer with defective hitches, couplings, chains etc.
- Check the tire air pressure on both towing vehicle and trailer. Also check the tire tread wear on both vehicles.
- **ALWAYS** make sure the trailer is equipped with a "**Safety Chain**".
- **ALWAYS** attach trailer's safety chain to bumper of towing vehicle.
- **ALWAYS** make sure the vehicle and trailer directional, backup, brake, and trailer lights are connected and working properly.
- The maximum speed for highway towing is **55 MPH** unless posted otherwise. Recommended off-road towing is not to exceed **15 MPH** or less depending on type of terrain. Refer to state or local towing regulations.
- Place *chocked blocks* underneath wheel to prevent **rolling**, while parked.
- Place *support blocks* underneath the trailer's bumper to prevent **tipping**, while parked.
- Insert locking pin to lock wheel stand in place, while parked. Use the trailer's adjustable jack stand to adjust the height of the trailer.
- Avoid sudden stops and starts. This can cause skidding, or jackknifing. Smooth, gradual starts and stops will improve gas mileage of towing vehicle.
- Avoid sharp turns to prevent rolling.
- Remove or fold up wheel stand when transporting.
- **DO NOT** transport generator with fuel in tank.

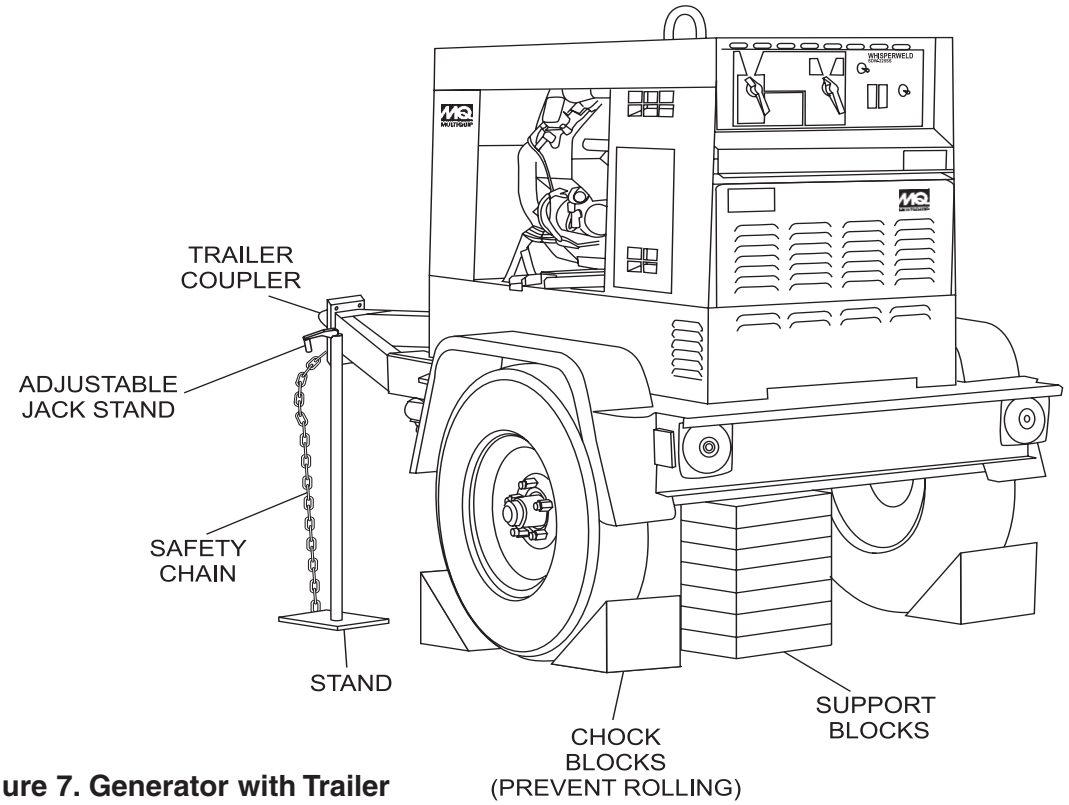


Figure 7. Generator with Trailer

The SDW-225SS welder/generator can be mounted on a WKT225A Wheel Kit. .

Below are assembly Instructions for the WKT225 Wheek Kit.

Tools:

- Flashlight
- Ratchet Set with 3/4", 9/16" sockets
- Adjustable Wrench or 3/4", 9/16", 10mm open end wrenches
- Lifting Device of adequate capacity

Procedure:

1. Assemble the Caster wheels (Figure 8) - Place the Caster mount plate on the adjustment plate so the bolt holes line up. Insert screws through the holes in the two plates and push the caster wheel onto the screws. Loosely secure the caster wheel to the adjustment plate using the provided nuts to allow for adjustment when attaching the caster wheels to the cabinet. Repeat for the other side of the caster wheel assembly.

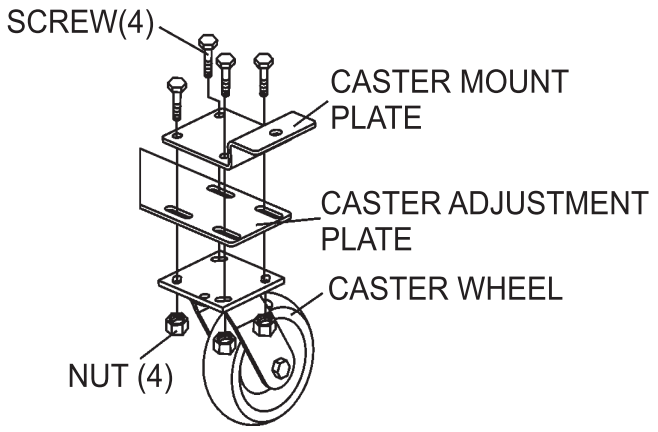


Figure 8. Caster Wheel Assembly

WARNING

DO NOT attempt to manually lift your generator/welder. Use a lifting device that is rated to handle the full weight of the equipment. **DO NOT** stand under the machine while it is suspended in air.

2. Assemble the stationary axle (Figure 9) - Push the roll pin through the inner axle hole. Slide a flat washer onto the axle shaft, then put the wheel on the axle. Push the wheel flat against the washer and roll pin and slide a flat washer against the wheel. Then insert the cotter pin through the outer axle hole to secure the wheel on the axle.

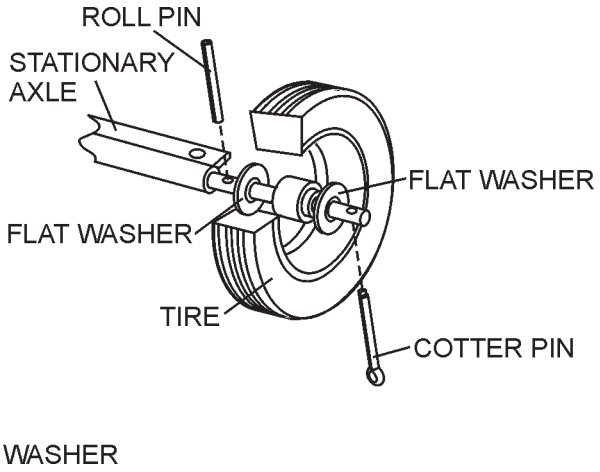


Figure 9. Stationary Axle Assembly

3. Remove side covers to provide access to the interior of the cabinet. (Figure 10).

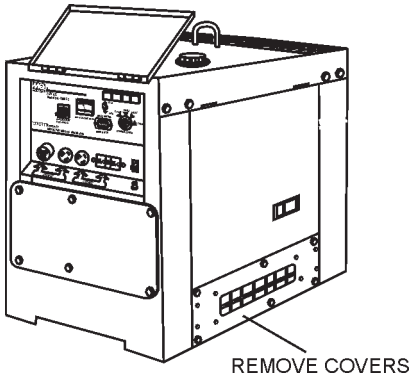


Figure 10. Removing Access Covers

CAUTION

Two people might be required to perform this installation procedure safely. One person should support the axle for another person to prevent the axle from dropping.

4. Insert a lifting strap through the lifting eye on top of the machine and raise the generator/welder off the ground using a lifting device of adequate capacity (Figure 11). The generator/welder can be suspended in air while installing the wheel kit or can be set down on an object which can support the weight of the machine. Ensure the bottom of the cabinet has enough clearance to install the wheel kit.

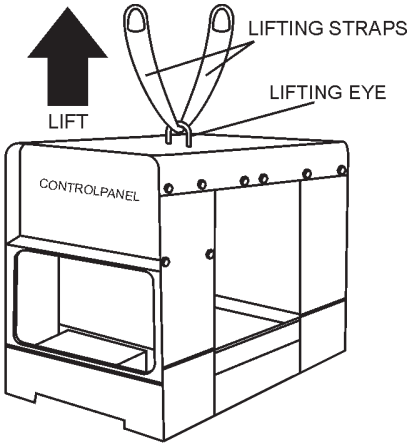


Figure 11. Lifting Equipment

5. Locate the four bolt holes on the underside of the cabinet near the front and rear of the machine. Reach into the cabinet and place a bolt and washer through the cabinet floor through each hole (Figure 12). A flashlight might be necessary to find the bolt holes in the cabinet floor.

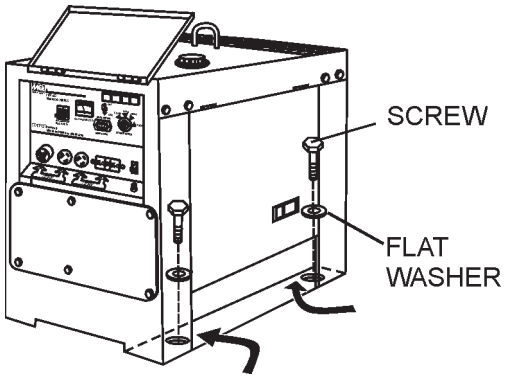


Figure 12. Inserting Bolts/Washers

6. With the stationary axle facing front, lift the axle up so the bolts in the cabinet floor pass through the bolt holes on the axle. Place a washer on the bolt under the axle and secure the axle to the cabinet with a nut (Figure 13).

⚠ CAUTION

Lock the caster wheels in place with the attached brake lever when the generator/welder is not being moved to prevent the machine from unintentional rolling while in use.

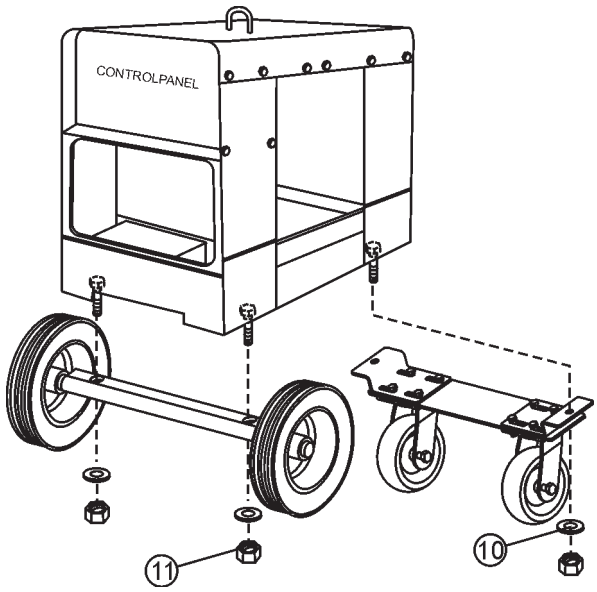


Figure 13. Securing Stationary Axle and Caster Wheel Assembly to Cabinet

7. Center the caster wheel assembly underneath the machine. Lift the caster wheels up so the bolts in the cabinet floor pass through the bolt holes on the caster wheel frame. Place a washer on the bolt under the castor wheel frame and secure the castor wheels to the cabinet with a nut (Figure 13).
8. Lower the machine onto the ground and remove the lifting strap from the lifting eye. The machine should roll freely.
9. Near the top of the cabinet on the rear(control panel side) of the machine, remove the two bolts from the cabinet wall. Attach the handle to the cabinet wall by inserting a bolt, lock washer, and flat washer through the bottom two bolt holes on the handle into the cabinet (Figure 14). Repeat on the other side of the cabinet.

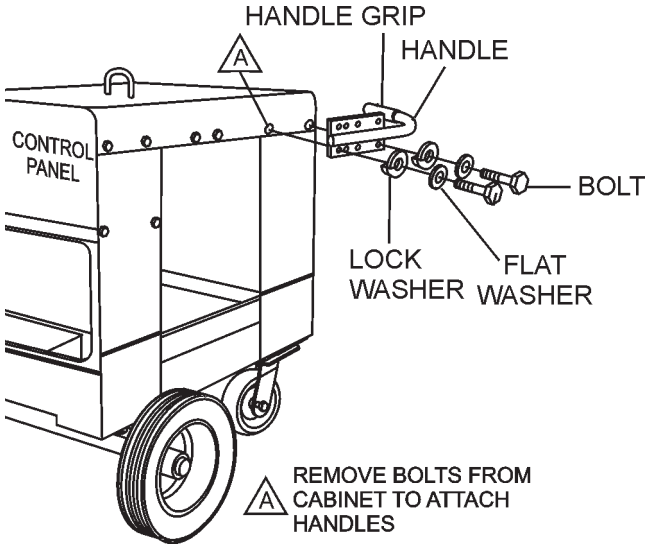


Figure 14. Attaching Handles to Cabinet

Outdoor Installation

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

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

Foreign materials such as dust, sand, lint and abrasive materials have a tendency to cause excessive wear, not only to the engine parts, but also to the alternator parts.

⚠ CAUTION

Pay close attention to ventilation when operating the generator inside tunnels and caves. The engine exhaust contains noxious elements.

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.

Eliminate the danger of deadly carbon monoxide gas. Remember that exhaust fumes from any diesel engine are very poisonous if discharged in a closed room, but harmless if allowed to mix with the outside air. If the generator is installed indoors, you must make provisions for venting the engine exhaust to the outside of the building.

⚠ CAUTION

An electric shock is apt to happen when generators are used. Pay close attention to handling when operating generator and always use rubber boots and gloves to insulate the body from a short circuit.

Connecting the Ground

The generator ground lug and the GFCI ground terminal should always be used to connect the generator to a suitable ground. The ground cable should be #8 size wire minimum. See Figure 15.

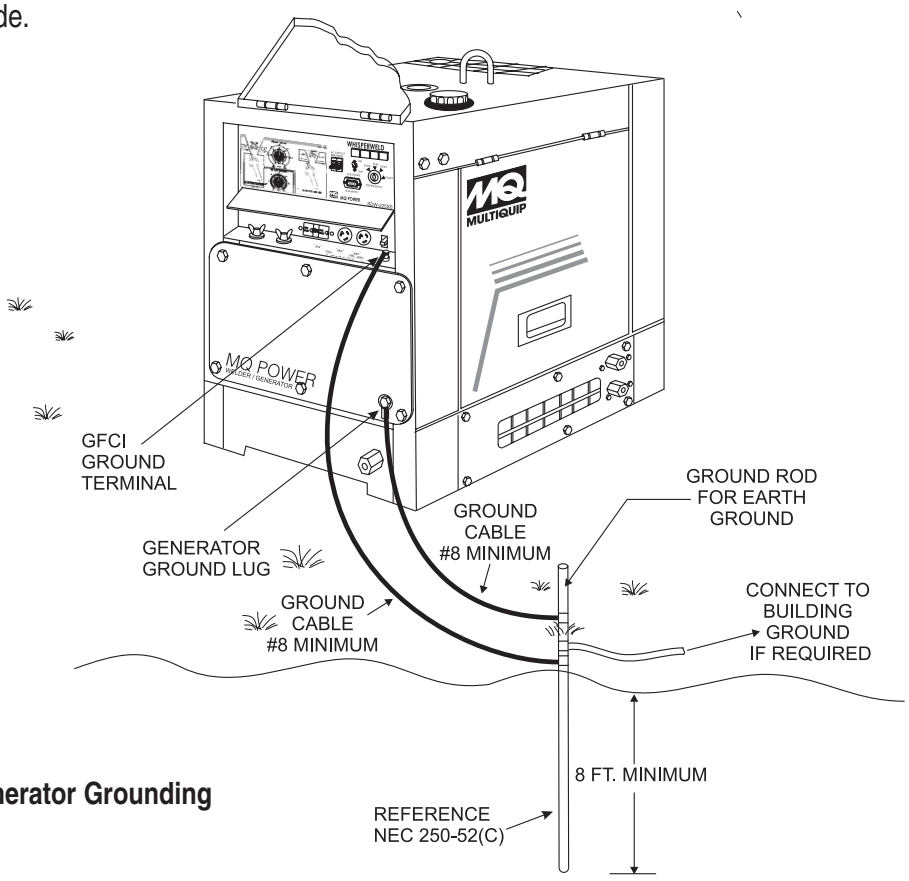


Figure 15. Generator Grounding

General Inspection Prior to Operation

The SDW-225SS utilizes a generator that 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.

Circuit Breakers

To protect the welder/generator from an overload, a 2-pole, 25 amp, ***main*** circuit breaker is provided. In addition a single pole, 20 amp breaker is provided for the G.F.C.I. receptacle. Make sure to switch both circuit breakers to the "OFF" position prior to starting the engine.

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 chart (Table 6) as a guide for selecting proper cable size.

Table 6. Cable Selection (60 Hz, Single Phase Operation)

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

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 screwED into the filler hole, verify that the oil level is maintained between the two notches (Figure 16) on the dipstick. See Table 3 for proper selection of engine oil.

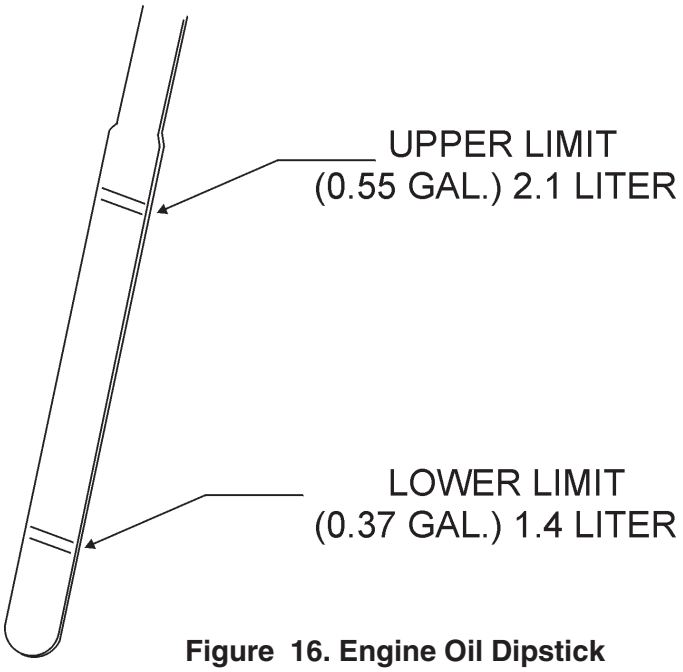


Figure 16. Engine Oil Dipstick

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 11 Specification Table 1.

The fuel tank cap must be closed tightly after filling. Handle fuel in a safety container. If the container does not have a spout, use a funnel.

⚠ CAUTION

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

Coolant

Use only potable 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 7. Recommended Motor Oil

Temperature Range	Type Oil
Above 77° F (25° C)	SAE30 or SAE10W-30 SAE10W-40
32° F ~ 77° F (0° C ~ 25°C)	SAE20 or SAE10W-30 SAE10W-40
Below 32° F (0° C)	SAE10 or SAE10W-30 SAE10W-40

⚠ CAUTION

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

Day-to-day addition of coolant or anti-freeze is done from the reserve tank. See Table 8. for engine, radiator and reserve tank coolant capacities. Make sure that the coolant level in the reserve tank is always between the "H" and the "L" markings.

Table 8. Coolant Capacity

Engine and Radiator	0.66 Gal.
Reserve Tank	0.27 Gal.

Operation in Freezing Weather

When operating in freezing weather, be certain that the proper amount of antifreeze has been added.See Table 9. for anti-freeze operating temperatures.

Table 9. 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 radiator may overheat if the 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.

Fan Belt Tension

A slack fan belt may contribute to overheating, or to insufficient charging of the battery. Inspect and adjust it in accordance with the KUBOTA engine manual.

The fan belt tension is proper if the fan belt (Figure17) bends 7 to 9 mm (0.28- to 0.35 in.) when depressed with the thumb as shown in Figure 16 below.

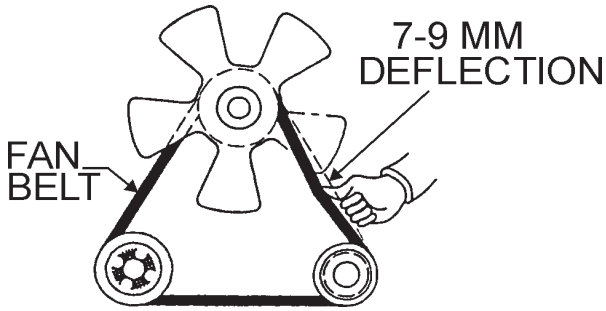


Figure 17. Fan Belt Tension

Air Cleaner

Periodic cleaning/replacement is necessary. Inspect it in accordance with the engine manual.

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 that the battery is dead and needs to be recharged or replaced.

Check to see whether the battery cables are loose. Poor contact may result in poor starting or malfunctions, always keep the terminals firmly tightened. Coating the terminals with a thin film of grease will help to inhibit corrosion.

The battery gradually deteriorates over time. The actual life span will vary according to operating conditions, but generally a battery two years or older should be replaced.

⚠ CAUTION

When using a combination of dual receptacles, total load should not exceed the rated capacity of the generator set.

Power Outlets

The generator has the following single-phase 60 Hz, 120/240 volt receptacles.

- Single Phase

  One Duplex NEMA (GFCI) 5-20R (120V, 20 Amp)

  One Twist Lock NEMA L14-30R (120/240V, 30 Amp)

  One Twist Lock NEMA L5-30R (120V, 30 Amp)

Main Circuit Breaker (2-Pole)

This 2-pole, 25 amp breaker protects the generator from short circuiting or overloading from the 60 Hz single-phase load.

GFCI Protection Breaker (Single-Pole)

This single-pole, 20 amp breaker protects the GFCI receptacle from short circuiting or overloading.

Warning Indicator Lights

The generator has the following warning indicator lights:

Oil Pressure Light

If the oil pressure drops suddenly, the oil pressure light will go on, and the generator will shut down.

Charge Light

The charge light will go on when the battery fails to charge, and the generator will shut down.

Water Temperature Light

The water temperature light will go on if the temperature rises to an abnormally high level, and the generator will shut down.

Idle Control Switch

The generator is provided with an automatic idle control device for noise suppression and reduced fuel consumption. The automatic idle control automatically engages under a no-load condition. With the automatic idle control switched to "ON", the engine revolutions will automatically drop to about 2600 rpm (low-speed operation) within 3 seconds after the load stops. When the operation is resumed, the engine speed is automatically increased to about 3600 rpm (high speed operation) as soon as the load is connected.

Fuel Gauge

The fuel gauge is located on top of the generator's enclosure and allows easy monitoring of the fuel level.

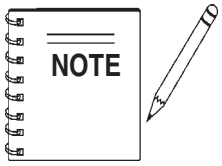
GFCI Receptacle

Before connecting a load to the generator's GFCI receptacle, ***push*** the "Test Button" on the front of receptacle before connecting the load, to confirm that the receptacle is functioning correctly.

Single Phase Load

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

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



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

WATTS = VOLTAGE x AMPERAGE

The power factor of this welder/generator is 1.0. See Table 10 below when connecting loads.

Table 10. 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

- When connecting a resistance load such as an incandescent lamp or electric heater, a capacity of up to the generator's rated output (kW) can be used.
- When connecting a fluorescent or mercury lamp, a capacity of up to the generator'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
- When connecting ordinary power tools, a capacity of up to the generator's rated output (kW) multiplied by 0.8 can be used.

⚠ 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.

The idle control is operated at minimum load capacity of 100W. If the load capacity is less than 100W, throw the idle control switch to the OFF position.

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

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.

Welding Cables

Connect the welding cables (Figure 18) to the welder's output terminals located on the control panel. The output terminals have (+) and (-) polarities. Select the appropriate polarities according to the application (see Table 11).

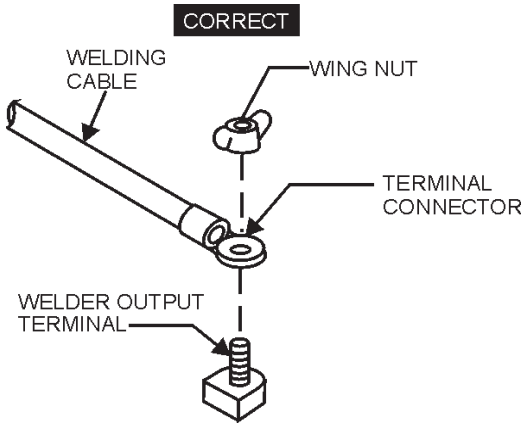
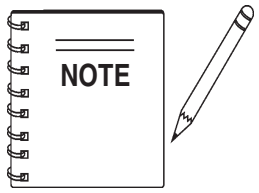


Figure 18. Welding Cable Connection (Correct)



ALWAYS attach terminal connectors at the end of each cable. **NEVER** connect exposed or frayed wires (Figure 19) directly to the terminals. Exposed wiring may cause shocks or di-electric breakdown from poor contact.

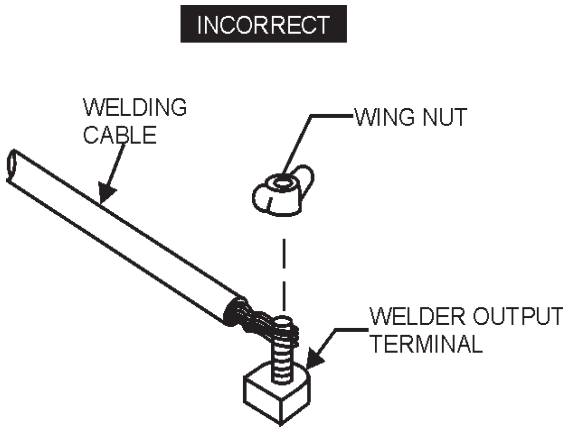


Figure 19. Welding Cable Connection (Incorrect)

Welding Polarity

Polarity indicates the direction of the current flow in a circuit. Since DC current moves in only one direction, polarity is important because the flow of current must be changed depending on the application. By changing the polarity, the greatest amount of heat can be concentrated where it is most needed. With straight polarity (electrode negative) more heat is directed to the workplace. When using reverse polarity (electrode positive) more of the heat generated is directed to the electrode. See Figure 20.

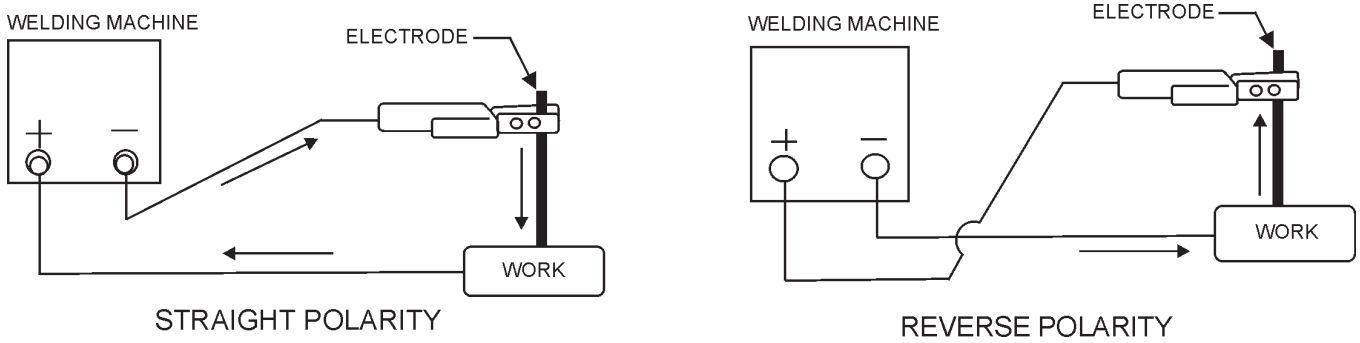


Figure 20. Welding Polarity

⚠ CAUTION

NEVER switch the CV/CC ***Selector Switch*** during any welding operation. When switching a selector switch, fully rotate it to the right or left position.

1. Turn the CV/CC ***Selector Switch*** (Figure 21) to the ***CV*** position, and adjust voltage using the ***Voltage Control*** knob.

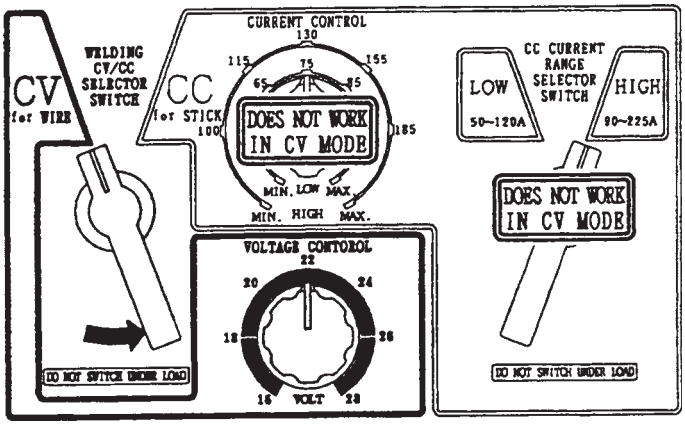


Figure 21. Welding Voltage Adjustment

NOTE

When the CV/CC ***Selector Switch*** is in the CV position, the ***Current Control*** , and ***Current Range Selector Switch*** functions are inoperative.

2. Turn the CV/CC ***Selector Switch*** (Figure 22) to the ***CC*** position.

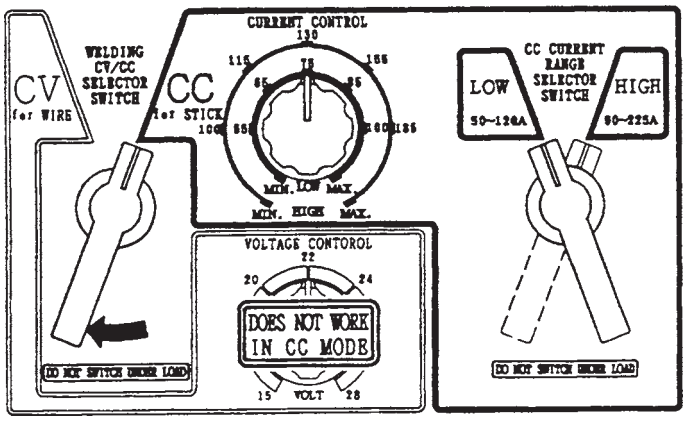


Figure 22. Welding Current Adjustment

NOTE

When the CV/CC ***Selector Switch*** is in the CC position, the ***Voltage Control*** function is inoperative.

3. Set the ***CC Current Range Selector Switch*** to the desired position (Low/High).
4. Adjust current output, by setting ***Current Control*** knob to desired current output.

NOTE

When using the ***Current Control*** knob to adjust the current output, the outer scale is for the high range, and the inner scale is for the low range.

Auxiliary AC Power

The Auxiliary AC power in most cases will not be affected by the CV/CC Selector Switch or any controls (Figure 23) on the front panel, and will supply a stable constant AC voltage **except** when the welding mode is activated.

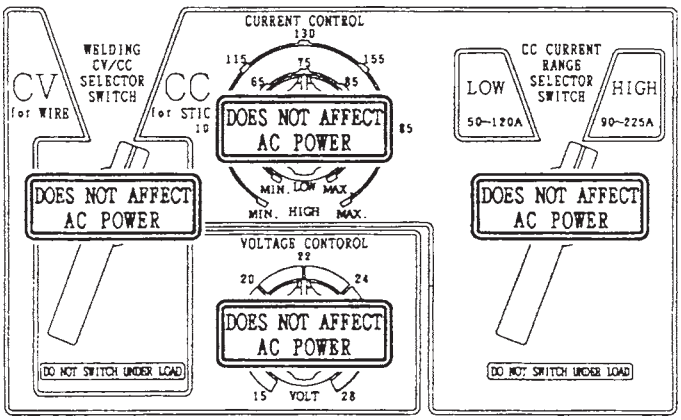


Figure 23. Auxilliary AC Power

NOTE

When welding, remember that the output of the AC AUXILIARY POWER is affected by the welding operation. See next page for generator output voltage conditions when welding.

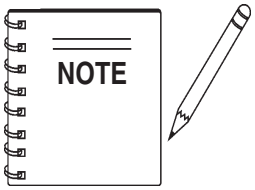
Welding and Auxiliary Outputs.

The welding and auxiliary outputs can be used simultaneously, subject to all of the following conditions:

- CC/CV Selector Switch is in the **CC** mode.
- CC Current Range Selector is in the **low** mode.
- Current Control is in the **MAX** position.

Duty Cycle

The welder is rated at 100% duty cycle at 200 amps. However the duty cycle depends upon the welding current. Select the appropriate duty cycle from Table 12 to prevent overload.



The 250 amp, 60% duty cycle referenced in Table 12 is for CV welding ONLY.

Table 12. Duty Cycle

Duty Cycle (%)	100	80	60
Current (Amps)	200 or less	225	250

Quality Welding Check Points

Adherence to the following rules will ensure quality welds.

- Use only high-quality welding machines, electrodes and welding accessories.
- Know the base material you are working on.
- Select the proper welding process to give the highest quality welds on the base material to be used.
- Select the proper welding procedure to meet the service requirement.
- Select the correct electrode for the job.
- When preheating is specified or required, make sure the temperature requirements are met. In any case, do not weld on material below 32 °F without first preheating.
- Clean the base metal of all slag, paint, grease, oil, moisture and any other foreign materials.
- Remove weld slag and thoroughly clean each bead prior to making the next bead or pass.
- Do not weld over cracks or porous tack welds. Defective tack welds should be removed prior to welding.
- Be particularly alert to obtain root fusion on the first pass of fillet and groove welds.
- When root gaps of groove welds are excessive, build up one side of the joint prior to welding the pieces together.
- When the root gap is excessive in fillet welding, be sure to increase the size of the fillet weld to the amount of the root gap in order to maintain the strength requirement. In some cases it is advantageous to make a groove weld in order to avoid extremely large fillets.
- Inspect your work and immediately replace any defective weld.
- Observe the size requirement for each weld to ensure you meet or slightly exceed the specified size.
- Make sure the finished appearance of the weld is smooth and that all overlaps and undercuts are repaired properly. The strength of a weld should not be judged merely by its external appearance.

Welding Helmet Lens Shade Number

The shade number pertains to the lightness or darkness of the lens in the welding helmet. Lens number range from 2 to 14 where 2 would be the lightest lens and 14 would be the darkest lens. See Table 13 for the correct shade number for different types of welding.

Table 13. WELDING SHADE NUMBER

TYPE OF WELDING OPERATION	WELDING HELMET LENS SHADE NUMBER
SOLDERING	2
TORCH BRAZING	3 or 4
OXYGEN CUTTING (Up to 1 inch)	3 or 4
OXYGEN CUTTING (1 to 6 inches)	4 or 5
OXYGEN CUTTING (6 inches and over)	5 or 6
GAS WELDING (Up to 1/8 inch)	4 or 5
GAS WELDING (1/8 inch to 1/2 inch)	5 or 6
GAS WELDING (1/2 inch and over)	6 or 8
SHIELDED METAL-ARC WELDING 1/16, 3/32, 1/8, 5/32 inch	10
GAS TUNGSTEN-ARC WELDING (Non-Ferrous) GAS METAL-ARC WELDING (Non-Ferrous) 1/16, 3/32, 1/8, 5/32 inch electrodes	11
GAS TUNGSTEN-ARC WELDING (Ferrous) GAS METAL-ARC WELDING (Ferrous) 1/16, 3/32, 1/8, 5/32 inch electrodes	12
SHIELDING METAL-ARC WELDING 3/16, 7/32, 1/4 inch electrodes	12
SHIELDING METAL-ARC WELDING 5/16, 3/8, inch electrodes	14
ATOMIC HYDROGEN WELDING	10 to 14
CARBON-ARC WELDING	14

⚠ 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

1. Be sure to disconnect the electrical load and switch the main circuit breaker to the "OFF" position prior to starting the engine.
2. Never start the engine with the main circuit breaker "ON".
3. Check the engine 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.
4. When there is not enough engine oil, fill the crankcase with high grade motor oil. Engine oil should be MIL-L-2104C or have properties of API classification CD grades or higher. Change the type of engine oil according to the ambient temperature. (See Table 7 on page 28).
5. 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.
6. Check the fuel level on the fuel gauge. When fuel is low, fill the fuel tank with clean fresh **DIESEL FUEL**..

⚠ CAUTION

If diesel fuel spillage occurs, completely wipe up the spilled diesel fuel.

Starting

1. Turn the fuel cock lever to the "ON" position.
2. Always operate the generator with the doors in the closed position. Operation with the doors open may cause insufficient cooling to the unit and damage may result.
3. Insert the key into the starter switch and turn it to the "RUN" position. Check to see that the Oil Pressure and Charge Lights on the "Warning Lamp Unit " are lit. If either light is not lit, check the system and wiring (refer to the Engine Operation Manual).
4. Turn the key to the **HEAT** position. When the preheat light is off, turn the key to the "**START**" position to start the engine. As soon as the engine starts, release the key. The key will automatically return to the "RUN" position.
5. During winter or when the surrounding air temperature is cold, in situations where a load start is required, turn the key to the "HEAT" position, you must wait until the preheat light goes off.
6. If the engine does not start within 10 seconds after the key is turned to the "START" position, wait for about 30 seconds and repeat the procedure as described in step 4 above.

⚠ CAUTION

NEVER turn the key to the "***START***" position while the engine is running.

7. When the engine starts, the Oil Pressure Light and Charge Light should turn off. If these lights stay on, immediately stop the engine and check the system and wiring (refer to the Engine Operation Manual).
8. Let the engine idle for five minutes with the Automatic Idle Control switch in the "ON" position.
9. Check the engine for abnormal vibrations, noises and oil leakage.
10. Turn the ***Automatic Idle Control Switch*** to either "OFF" or "ON" for full engine operation.

Shutdown

1. Remove the load from the generator, then place both the main and GFCI circuit breakers to the OFF position.
2. Listen for the engine speed to drop. Run at low speed for 3-5 minutes.
3. Stop the engine by turning the key to "**STOP**" position and remove the key. Turn the fuel cock lever to the "OFF" position.

General Inspection

At least daily or prior to each use, the generator should be cleaned and inspected for deficiencies. Check for loose, missing or damaged nuts, bolts or other fasteners. Check for fuel or oil leaks. Also check the radiator coolant level.

Engine Side:

For a more detail engine maintenance schedule refer to the KUBOTA Engine Shop and Operator's Manuals.

Air Cleaner

Every 100 hours: The air cleaner employed on the KUBOTA engine Model Z482-E is a dry type. **NEVER** apply oil to it. If generator is used in severe dusty areas service air cleaner element more frequently.

1. Release the air cleaner retaining clamps (Figure 24) and remove the air cleaner element.
2. Wipe the inside of the air cleaner with a damp cloth and remove all dust and debris that may have accumulated inside air cleaner body.
3. Use compressed air to clean air filter element. Blow compressed air from the inside while turning the element.

⚠ CAUTION

ALWAYS keep the pressure of the compressed air below 99 psi.

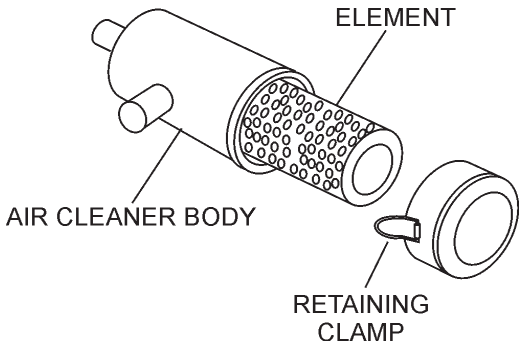


Figure 24. Air Cleaner

Cleaning the Fuel Strainer

Every 100 hours: Clean the fuel strainer if it contains dust or water. Remove dust or water in the strainer cap. Securely fasten the fuel strainer cap so that fuel will not leak. Check the fuel strainer every 100 hours of operation or once a month.

Oil Change

Every 100 hours: Change the engine oil after the first 50 hours of operation. Always 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 when checking the oil level. The oil level must be between the two notches on the dipstick as shown in Figure 15.

Oil Cartridge

Every 200 hours: Replace the engine oil filter cartridge after every 200 hours of operation.

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 more empty area inside the tank, the easier it is for water to accumulate. This can be reduced by always keeping the tank as full as possible.

Air Removal

If air enters the fuel 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

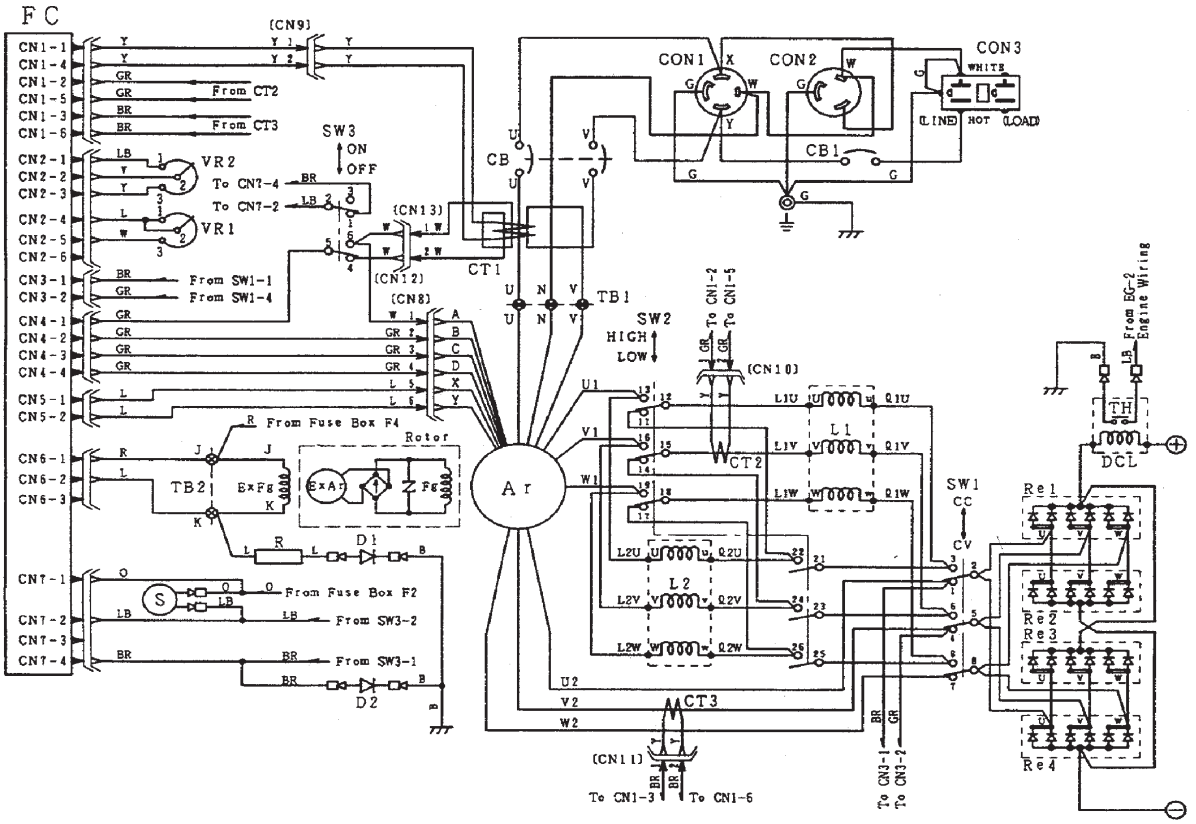
If engine is operating in very dusty and dry grass conditions. A clogged air cleaner will result in high fuel consumption, loss of power and excessive carbon buildup in the combustion chamber.

Generator Storage

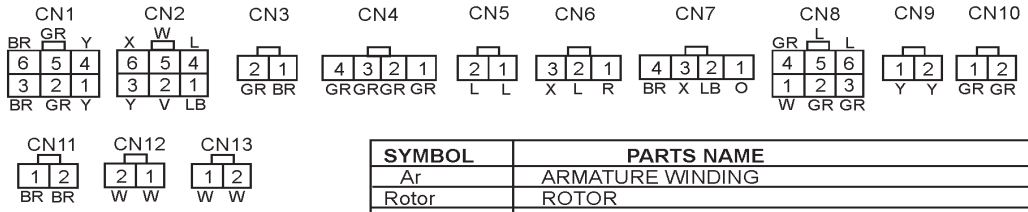
For storage of the generator for over 30 days, the following is required:

- Drain the fuel tank completely.
- Run the engine until ***all*** the diesel fuel is completely consumed**.**
- Completely drain the oil from the crankcase and refill with fresh oil.
- Disconnect the ***negative*** battery cable from the battery.
- Clean all external parts of the generator with a cloth.
- Cover the welder/generator and store in a clean, dry place.

Generator Wiring Diagram



CONNECTOR VIEWED AT WINDING SIDE



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

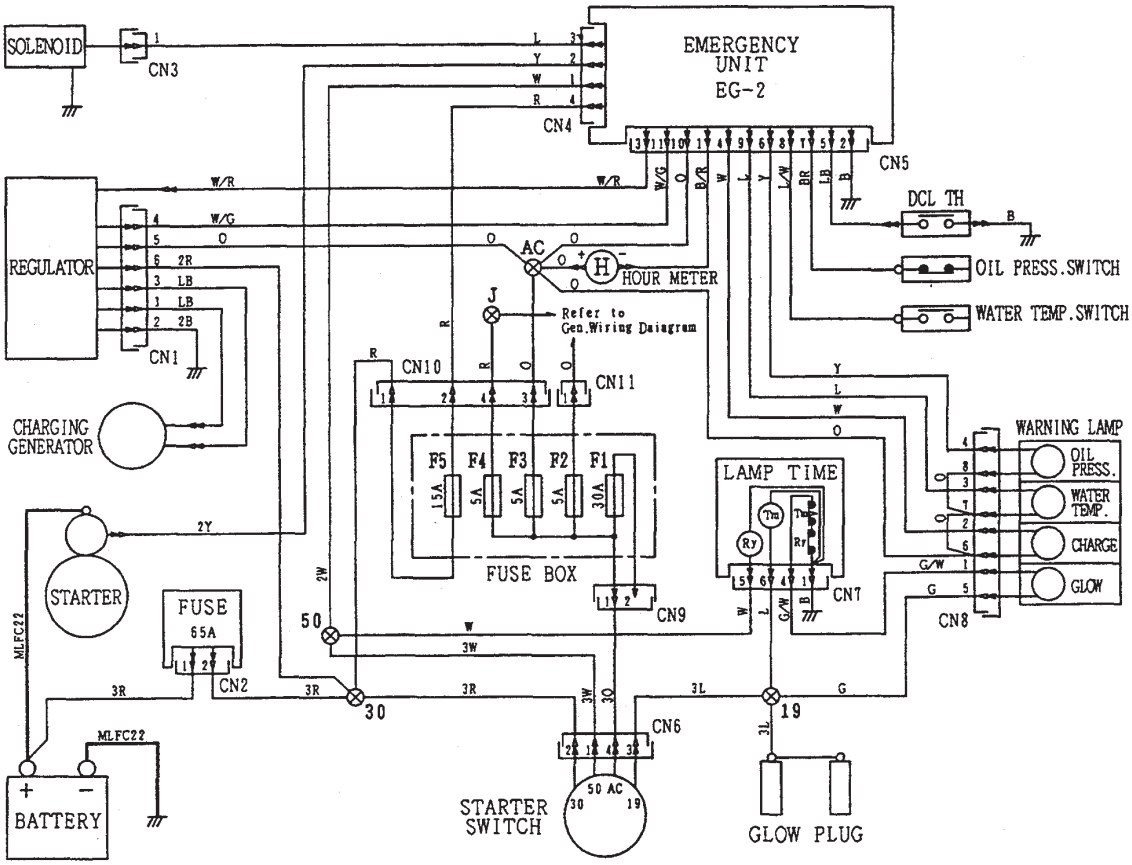
COMBINATION TERMINALS

TB1 ⊕ | U | N | V |

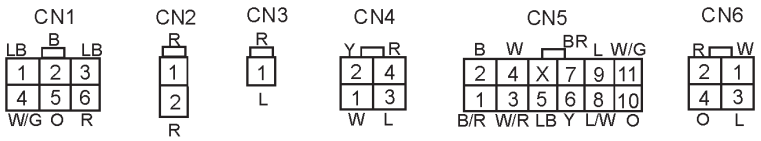
TB2 ⊗ | J | K | AC | 50 | 19 | 30 |

SYMBOL	PARTS NAME
Ar	ARMATURE WINDING
Rotor	ROTOR
Fg	FIELD COIL
Ex Ar	ARMATURE EXCITER
Ex Fg	FIELD EXCITER
CON1	RECEPTACLE
CON2	RECEPTACLE
CON3	RECEPTACLE
CB	MAIN CIRCUIT BREAKER (265V, 25 AMP)
CB1	CIRCUIT PROTECTOR (250V, 20 AMP)
SW1	CV/CC SELECTOR SWITCH
SW2	CC CURRENT RANGE SELECTOR SW.
REL 1	RECTIFIER
REL 2,4	RECTIFIER
L1,2	AC REACTOR
DCL	DC REACTOR
TH	THERMOSTAT SWITCH
⊕ ⊖	WELDING OUTPUT TERMINAL
⏚	GROUND TERMINAL
FC	FIELD CONTROL UNIT
CT1~1	CURRENT TRANSFORMER
VR1	CURRENT CONTROL
VR2	VOLTAGE CONTROL
SW3	IDLE CONTROL SWITCH
R	RESISTOR
S	ROTARY SOLENOID
D1,2	DIODE
TB1 ⊕	TERMINAL BOARD
TB2 ⊗	TERMINAL BOARD

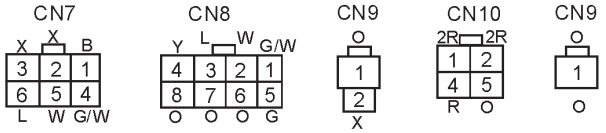
Engine Wiring Diagram



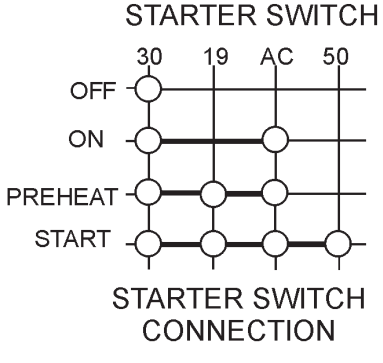
CONNECTOR VIEWED AT WINDING SIDE



COMBINATION TERMINAL TB2 ⊗



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



Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Welder Troubleshooting (Table 13) information shown below . If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

TABLE 14. WELDER TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
AC voltage is not present in generator's AC section or welding section.	Low speed ?	Refer to "Engine remains at low speed" section.
	Defective resistor (R)?	Replace resistor.
	Defective Field Controller?	Replace "Field Controller".
	Defective rotor?	Replace rotor.
	Defective Wiring?	Repair wiring.
	Blown fuse F3?	Replace fuse.
Poor welding and low voltage in AC power section.	Defective Field Controller?	Replace "Field Controller".
	Defective rotor?	Replace rotor.
	Low speed ?	Refer to "Engine remains at low speed" section.
	Layer short-circuit in armature winding?	Replace armature.
	Defective wiring?	Repair wiring.
AC power is normal but but there is no welding capability. Current and voltage adjustments are in-operative.	Defective current transformer?	Replace transformer, CT1, CT2 or CT3.
	Defective Field Controller?	Replace "Field Controller".
	Defective rectifier (Re)?	Replace rectifier.
	Defective reactor (DCL or L1 or L2)?	Replace reactor.
	Inadequate length and thickness of welding cable.	Replace welding cable.
	Layer short-circuit in armature winding?	Replace armature.
	Defective wiring?	Repair wiring.
	Defective selector switches?	Replace S1 or S2.
AC power is too low or can not be used, but welding is normal.	Defective circuit breaker	Replace circuit breaker.
	Layer short-circuit in armature winding (AC side)?	Replace armature.
	Defective wiring?	Repair wiring.
	Defective Field Controller?	Replace "Field Controller".
Battery discharges too soon.	Defective engine regulator?`	Replace regulator.
	Defective wiring?	Repair wiring.
	Defective ignition switch?	Replace ignition switch.

SDW-225SS — TROUBLESHOOTING (ENGINE & GENERATOR)

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Engine and Generator Troubleshooting (Table 14) information shown below and on the proceeding page. If the problem cannot be remedied, please leave the unit just as it is and 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 rotate.	Dead Battery?	Replace Battery.
	Defective Starter Switch?	Replace Switch.
	Defective Starter?	Replace Starter.
	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 "Idle Control Switch" is in OFF position and engine remains at low speed.	Defective Idle Control Switch?	Replace Switch.
	Idle Control Switch is in ON position?	Set Switch to OFF Position.
	Clogged Fuel Strainer?	Clean or Replace.
	Clogged Air Cleaner?	Clean or Replace.
	Defective Idle Control Device?	Replace.
	Disconnected Wiring?	Check and Repair Wiring.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and no voltage is present in 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 starts and "Idle Control Switch" is in OFF position . 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 starts and "Idle Control Switch" is in OFF position. Engine speed rises and battery discharges too soon.	Defective Engine Regulator?	Replace Regulator.
	Defective Wiring?	Repair or Replace Wiring.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and engine seems overloaded.	Defective Alternator?	Repair or Replace Alternator.
	Damaged Alternator Bearing?	Replace Alternator Bearings.

TABLE 15. ENGINE & GENERATOR TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and engine has large vibrations. overload.	Bad Engine Installation?	Repeat Installation of of Engine.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and engine has abnormal noise.	Loose Engine Parts?	Check All Engine Parts For Tightnes.
	Defective Alternator?	Check Alternator for Damaged Bearing or Loose Clamping Bolts.
	Defective Enclosure?	Check Enclosure Bolts for Tightness.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and remains at high speed when Idle Control switch is placed in the ON position.	Defective Idle Control Device?	Repair or Replace Idle Control Device.
	Defective Idle Control Switch?	Replace Idle Control Switch.
	Defective Solenoid?	Replace Solenoid.
	Defective Relay?	Replace Relay.

Practically all breakdowns can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Engine Troubleshooting (Table 15) information shown below and on the proceeding page. If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

TABLE 16. ENGINE TROUBLESHOOTING

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

TABLE 16. ENGINE & GENERATOR TROUBLESHOOTING (CONTINUED)

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and engine has large vibrations. overload.	Bad Engine Installation?	Repeat Installation of of Engine.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and engine has abnormal noise.	Loose Engine Parts?	Check All Engine Parts For Tightnes.
	Defective Alternator?	Check Alternator for Damaged Bearing or Loose Clamping Bolts.
	Defective Enclosure?	Check Enclosure Bolts for Tightness.
Engine starts and "Idle Control Switch" is in OFF position. Engine speed rises and remains at high speed when Idle Control switch is placed in the ON position.	Defective Idle Control Device?	Repair or Replace Idle Control Device.
	Defective Idle Control Switch?	Replace Idle Control Switch.
	Defective Solenoid?	Replace Solenoid.
	Defective Relay?	Replace Relay.

SDW-225SS — EXPLANATION OF PARTS SECTION REMARKS

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

The contents and part numbers listed in the parts section are subject to change ***without notice***. Multiquip does not guarantee the availability of the parts listed.

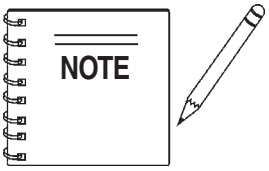
Sample Parts List:

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT	1	INCLUDES ITEMS W/*
2*		WASHER, 1/4 IN.		NOT SOLD SEPARATELY
2*	12347	WASHER, 3/8 IN.	1	MQ-45T ONLY
3	12348	HOSE	A/R	MAKE LOCALLY
4	12349	BEARING	1	S/N 2345B AND ABOVE

NO. Column

Unique Symbols - All items with same unique symbol (*, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the "Remarks" column.

Duplicate Item Numbers - Duplicate numbers indicate multiple part numbers are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.



When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

PART NO. Column

Numbers Used - Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at time of publication.

A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the "Remarks" Column.

QTY. Column

Numbers Used - Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the "Remarks" Column.

REMARKS Column

Some of the most common notes found in the "Remarks" Column are listed below. Other additional notes needed to describe the item can also be shown.

Assembly/Kit - All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:

"INCLUDES ITEMS W/(unique symbol)"

Serial Number Break - Used to list an effective serial number range where a particular part is used.

Indicated by:

"S/N XXXXX AND BELOW"
"S/N XXXX AND ABOVE"
"S/N XXXX TO S/N XXX"

Specific Model Number Use - Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:

"XXXXX ONLY"
"NOT USED ON XXXX"

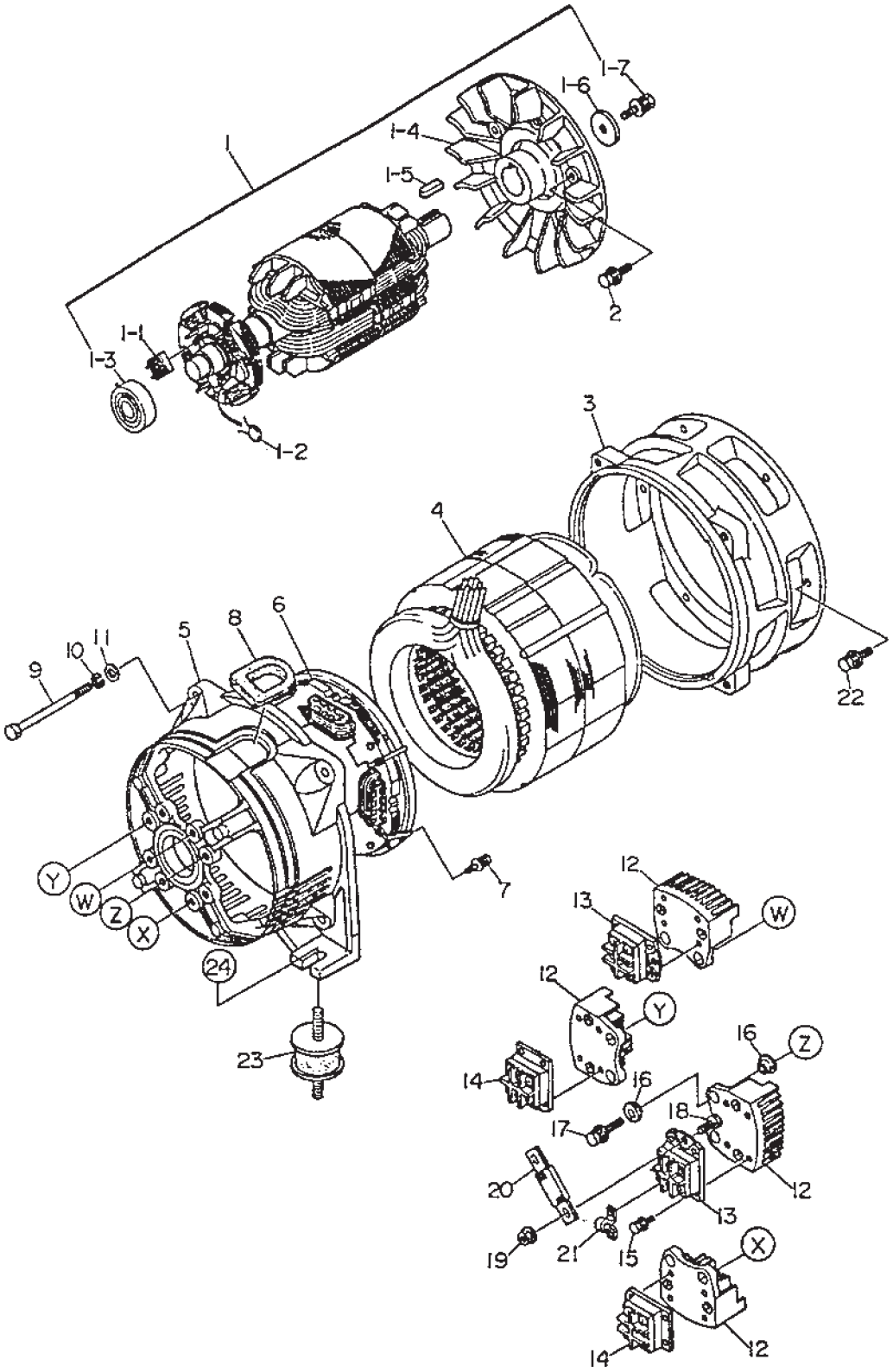
"Make/Obtain Locally" - Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

"Not Sold Separately" - Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

SDW-225SS W/KUBOTA Z482-EB DIESEL ENGINE 1 TO 3 UNITS

Qty.	P/N	Description
5	7000011221	AIR FILTER
5	1523143560	FUEL FILTER
5	7000015241	OIL FILTER
2	1980572531	FAN BELT
1	3741059110	STARTER SWITCH
5	3741055150	IGNITION KEY
2	1584139010	OIL SENDING UNIT
1	D2312500103	RADIATOR HOSE (UPPER)
1	D2312500003	RADIATOR HOSE (LOWER)
1	0810105800	FUEL CAP
1	0602200475	EMERGENCY UNIT
1	0601842462	RESISTOR
1	0601807456	MAIN CIRCUIT BREAKER
1	0601827399	CONTROL UNIT
2	0601810830	BULB, PRE-HEAT LAMP
3	0601806640	FUSE, 65 AMP
1	1622636103Z	SOLENOID, ROTARY
4	1685165510	GLOW PLUG
2	1554383040	SWITCH, WATER TEMP.
1	0602201378	REGULATOR
2	0601821370	RECTIFIER
1	0601831841	CV/CC SELECTOR SWITCH
1	0601831842	CC CURRENT RANGE SELECT. SW
2	D1233000004	OUTPUT TERMINAL
2	0801880004	INSULATOR WASHER
4	0039510000	HEX NUT
4	0045110000	SPRING WASHER
4	0042710000	PLAIN WASHER
2	0037810000	WING NUT

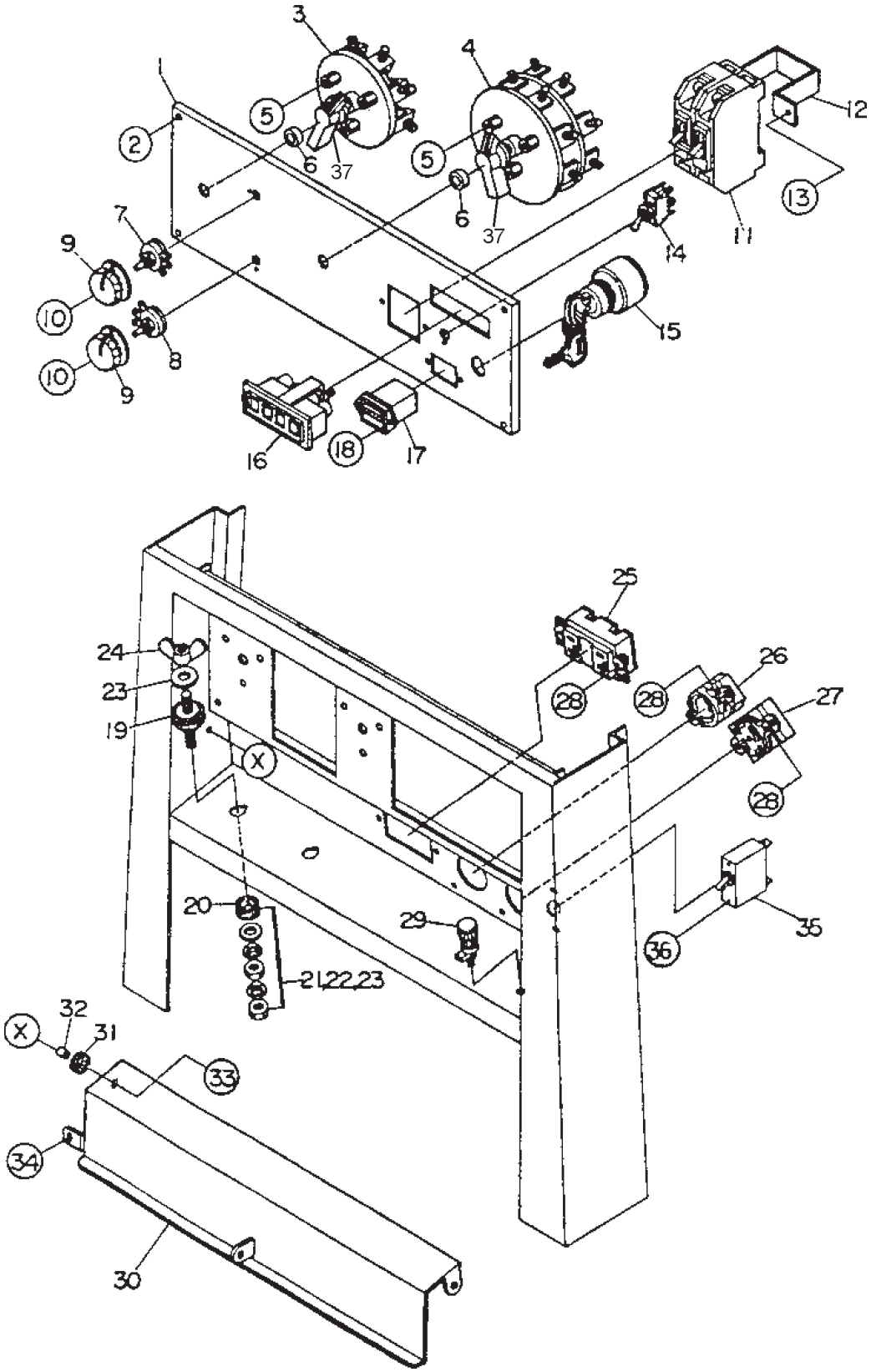
GENERATOR ASSY.



GENERATOR ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2110000403	ROTOR ASSY.	1	
1-1	0601820037	RECTIFIER	1	S10CVB60
1-2	0601822638	SURGE ABSORBER	1	TNR15G 431K
1-3	0071206304	BEARING	1	6304 DDU
1-4	1191070022	FAN	1	
1-5	0171707033	KEY	1	
1-6	1991072004	SET WASHER, FAN	1	
1-7	0012308020	HEX. HEAD BOLT	1	
2	0012308025	HEX. HEAD BOLT	6	
3	D2155100002	END BRACKET	1	
4	D2134000803	ARMATURE ASSY.	1	
5	D2155000002	END BRACKET	1	
6	D2137000203	FIELD ASSY. EXCITER	1	
7	0017106025	HEX. HEAD BOLT	4	
8	1961324003	GROMMET	1	
9	D2131500404	SET BOLT	4	
10	0040008000	SPRING WASHER	4	
11	0041208000	PLAIN WASHER	4	
12	1961844513	FIN	4	
13	0601820012	RECTIFIER	2	SR30MA-6S
14	0601820013	RECTIFIER	2	SR30MA-6R
15	0017105016	HEX. HEAD BOLT	16	
16	1031890004	INSULATOR WASHER	16	
17	0017108035	HEX. HEAD BOLT	8	
18	0019008016	HEX. HEAD BOLT	4	
19	0207208000	HEX. NUT	4	
20	1991843504	CONNECTION PLATE	2	
21	1001843504	CONNECTION PLATE	12	
22	0012308020	HEX. HEAD BOLT	6	
23	7605419004	RUBBER SUSPENSION	2	
24	0207010000	HEX. NUT	2	

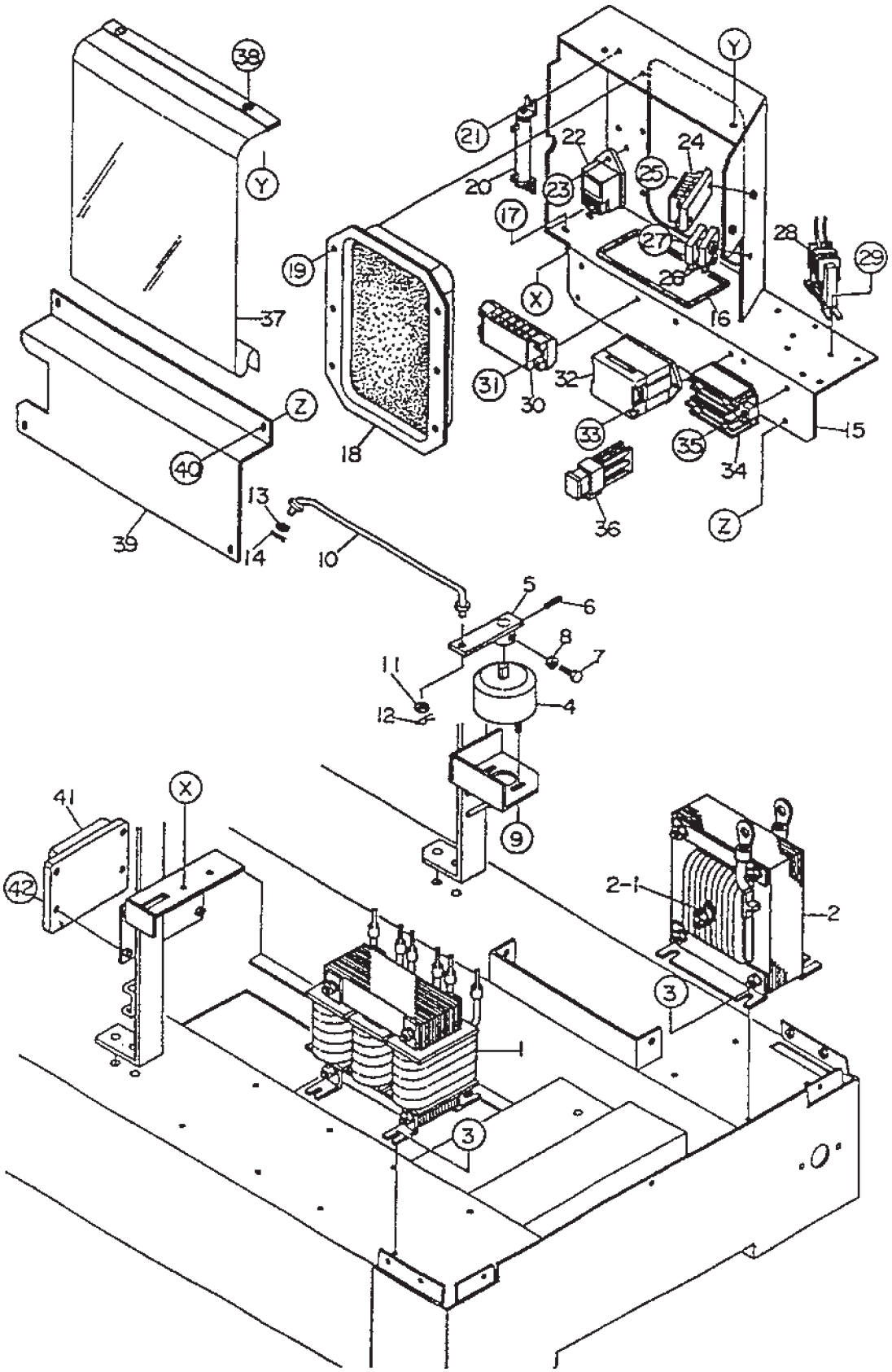
CONTROL PANEL ASSY.



CONTROL PANEL ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2225000001	CONTROL PANEL	1	
2	0021805020	MACHINE SCREW	4	
3	0601831841	CV/CC SELECTOR SWITCH	1	SSK-1831
4	0601831842	CC CURRENT RANGE SELECTOR SWITCH	1	SSK-2036
5	0021506012	MACHINE SCREW	6	
6	8705945004	SEAL	2	
7	0601840095	RHEOSTAT CURRENT CONTROL	1	RV24YN20SB2KW
8	0601840026	RHEOSTAT VOLTAGE CONTROL	1	RA25YN20SB2KWJ
9	0601840103	KNOB	2	K-2195
10	0023304008	SET SCREW	4	
11	0601807456	CIRCUIT BREAKER	1	KM52 265V 25A
12	7911816004	BRACKET, CIRCUIT BREAKER	1	
13	0027404030	MACHINE SCREW	2	
14	0601830739	IDLE CONTROL SWITCH	1	ET210N12
15	3741059110	STARTER SWITCH	1	Replaces 3741059113 AND 062100077
16	0601810523	WARNING LAMP UNIT	1	PL-B128Q
	0601810830	BULB	4	
17	0601800682	HOUR METER	1	#820114
18	00274 03512	MACHINE SCREW	2	
	0030003500	HEX. NUT	2	
19	D1233000004	OUTPUT TERMINAL	2	
20	0801880004	INSULATOR WASHER	2	
21	0039510000	HEX. NUT	4	
22	0045110000	SPRING WASHER	4	
23	0042710000	PLAIN WASHER	4	
24	0037810000	WING NUT	2	
25	0601812597	RECEPTACLE, 5-20R	1	
26	0601810031	RECEPTACLE, L5-30R	1	
27	0601812529	RECEPTACLE, L14-30R	1	
28	0021004012	MACHINE SCREW	6	
	0207004000	HEX. NUT	6	
29	0601815109	GROUND TERMINAL	1	T-381
30	D2238100013	COVER, OUTPUT TERMINAL	1	
	D2238400004	RUBBER SHEET	1	
31	0805088004	STAY RUBBER	1	
32	0821800014	COLLAR	2	
33	0016906020	HEX. HEAD BOLT	2	
34	0016906016	HEX. HEAD BOLT	1	
35	0601806420	CIRCUIT PROTECTOR	1	
36	0027103006	MACHINE SCREW	2	
37	0601803117	KNOB (SELECTOR SWITCHES)	2	

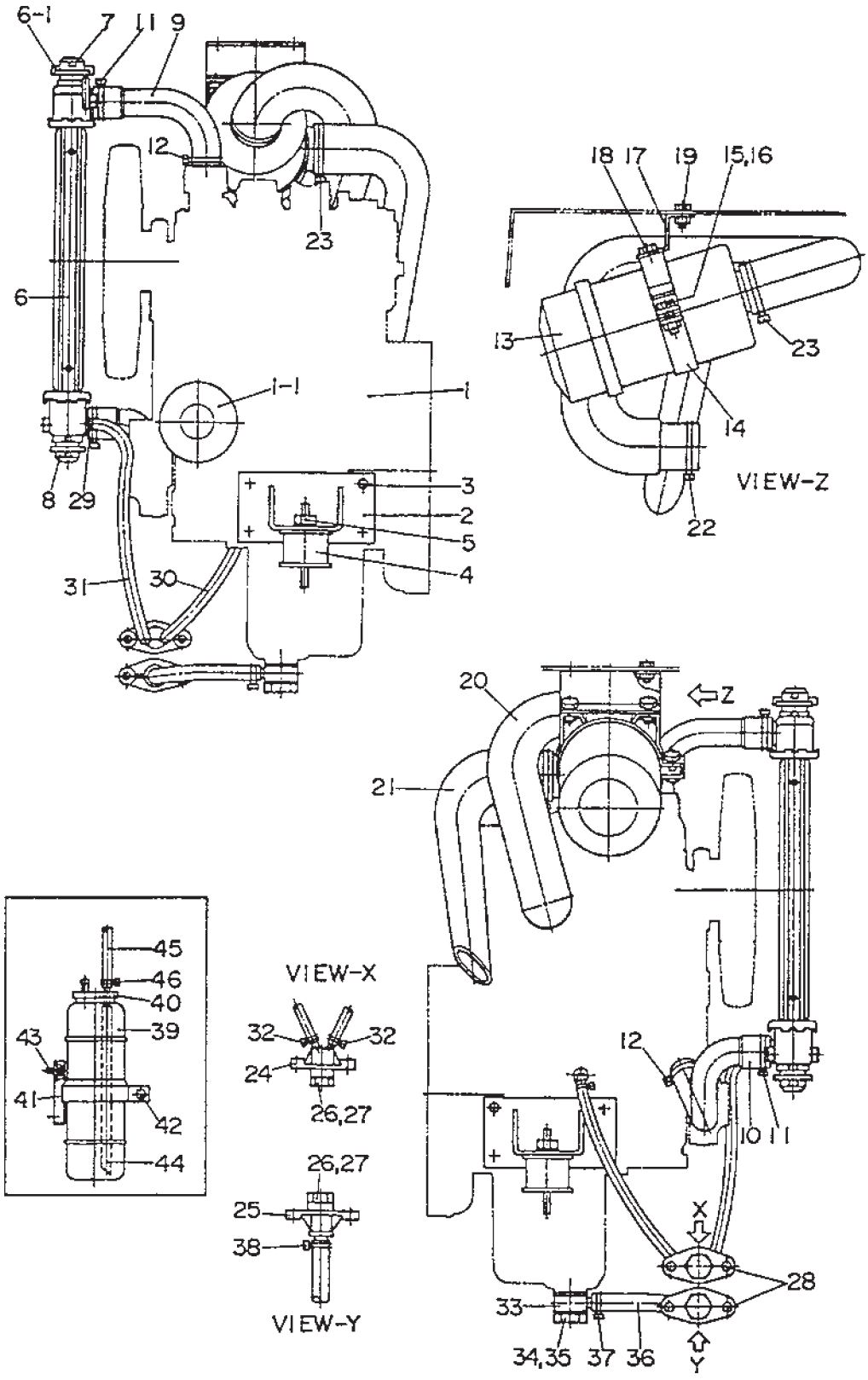
ELECTRIC PARTS ASSY.



ELECTRIC PARTS ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D226350030	AC REACTOR	2	REPLACES D2263500303
2	D2263500403	DC REACTOR	1	
2-1	0603210120	THERMOSTAT	1	US-622AYTLQE
3	0017106016	HEX. HEAD BOLT	12	
4	1622636103Z	ROTARY SOLENOID	1	7SL25-22-489 REPLACES 1620150404
5	1992636004	ARM, SOLENOID	1	
6	0050403020	SPRING PIN	1	
7	0010106025	HEX. HEAD BOLT	1	
8	0030006000	HEX. NUT	1	
9	0207206000	HEX. NUT	2	
10	D2356300004	GOVERNOR ROD	1	
11	0041608000	PLAIN WASHER	1	
12	0605010503	SNAP PIN	1	SSP-8
13	0042806000	PLAIN WASHER	1	
14	0605010502	SNAP PIN	1	SSP-6
15	D2262500043	BRACKET, ELECTRIC PARTS	1	
16	0226900365	EDGE COVER	1	
17	0016906016	HEX. HEAD BOLT	4	
18	0601827399	CONTROL UNIT	1	FD-80
19	0027105012	MACHINE SCREW	6	
20	0601842462	RESISTOR	1	GG40W 35 W
21	0027104012	MACHINE SCREW	2	
22	1569465990	LAMP TIMER	1	REPLACES 1569465992 & 0602201273
23	0027105020	MACHINE SCREW	1	
24	0601815758	TERMINAL BOARD	1	KT-30 3P
	D9522000804	SYMBOL SEAL	1	
25	0027105020	MACHINE SCREW	2	
26	0601821370	RECTIFIER	2	DE4503
27	0027105030	MACHINE SCREW	1	
28	0601804211	CURRENT TRANSFORMER	3	MCT-100Y
29	0027104012	MACHINE SCREW	6	
30	0601815759	TERMINAL BOARD	1	KT-20 6P
	D9522000704	SYMBOL SEAL	1	
31	0027105020	MACHINE SCREW	2	
32	8701899004	FUSE BOX	1	FB-6PS
	0601806642	FUSE. 5 AMP	4	
	0601806643	FUSE, 15 AMP	2	
	0601806644	FUSE, 5 AMP	2	
33	0027105020	MACHINE SCREW	2	
34	0602201378	REGULATOR	1	
35	0017105025	HEX. HEAD BOLT	2	
36	0601806640	FUSE, 65 AMP	1	
37	D2262700014	COVER, ELECTRIC PARTS	1	
38	0605011605	PLUNGER	2	H 323-3-1-2
	0605011645	GROMMET	2	H 323-3-2
39	D2262700214	COVER, REACTOR	1	
40	0016906016	HEX HEAD BOLT	4	
41	0602200475	EMERGENCY UNIT	1	
42	0017105025	HEX HEAD BOLT	4	
43	0605011410	NYLON RIVET	2	FROM S/N 5304415

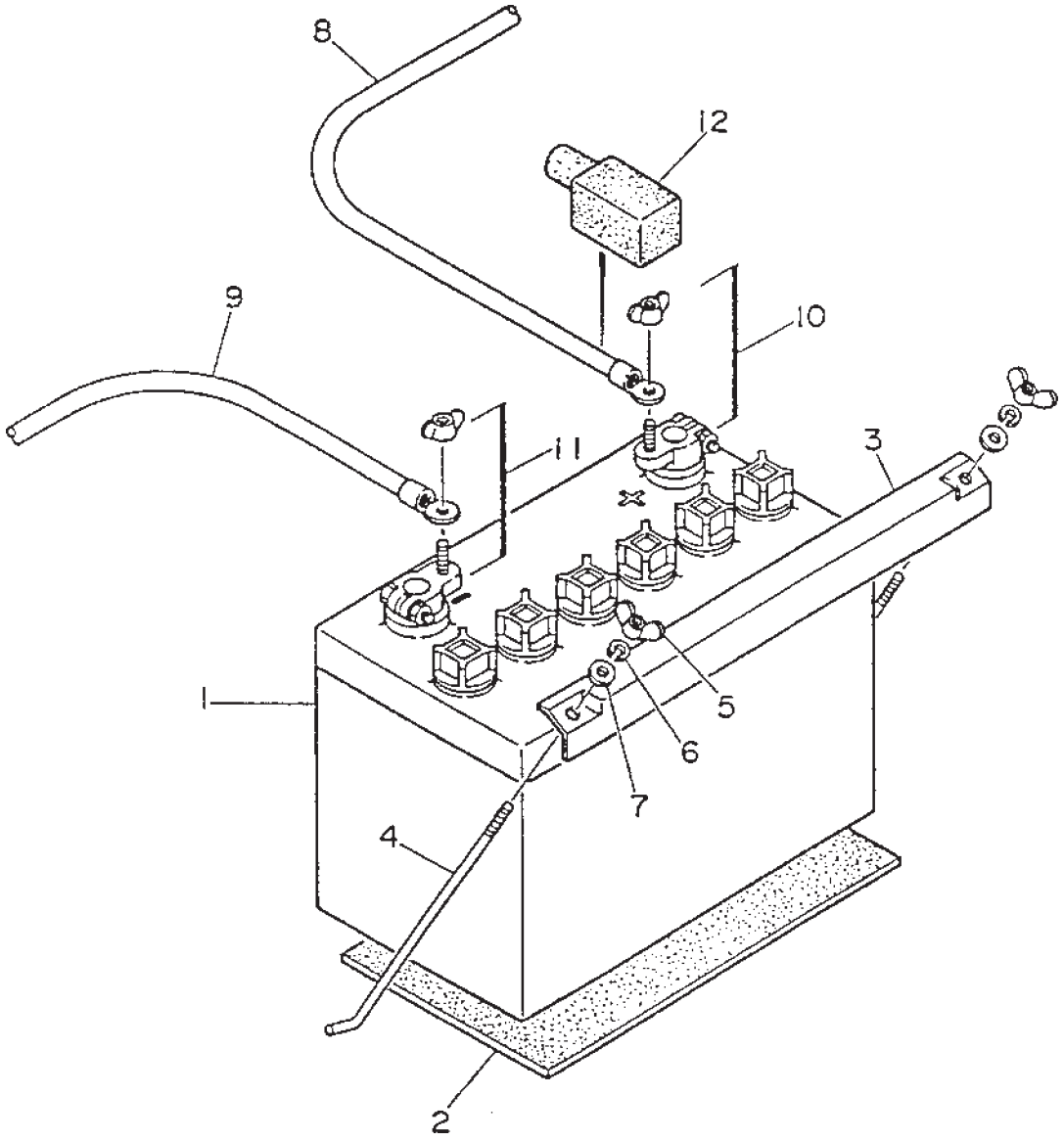
ENGINE & RADIATOR ASSY.



ENGINE & RADIATOR ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2925200004	ENGINE	1	
	1980572531	FAN BELT	1	REPLACES 0602011477
1-1	7000015241	CARTRIDGE, OIL FILTER	1	REPLACES 1585332430 AND 0602041271
2	8745112003	ENGINE FOOT	2	
3	0012410020	HEX. HEAD BOLT	8	
4	7085419004	RUBBER SUSPENSION	2	
5	0207010000	HEX. NUT	2	
6	0602012750	RADIATOR	1	
6-1	0602011074	CAP, RADIATOR	1	
7	8702014004	INSULATOR	2	
8	0605000460	RUBBER MOUNT	2	
9	D2312500103	RADIATOR HOSE	1	
10	D2312500003	RADIATOR HOSE	1	
11	0605515111	HOSE BAND	2	
12	0605515003	HOSE BAND	2	
13	1556211012	AIR CLEANER	1	REPLACES 0602046265
	7000011221	ELEMENT, AIR CLEANER	1	REPLACES 1556211081 AND 0602046374
14	3415013960	BANK, AIR CLEANER	1	REPLACES 0602040575
15	0016908030	HEX. HEAD BOLT	1	
16	0207008000	HEX. NUT	1	
17	8742031004	BRACKET, AIR CLEANER	1	
18	0016908020	HEX. HEAD BOLT	2	
19	0016906016	HEX. HEAD BOLT	2	
20	8742032003	HOSE, AIR CLEANER	1	
21	1612036203	HOSE, AIR CLEANER	1	
22	0605515006	HOSE BAND	1	
23	0605515021	HOSE BAND	2	
24	1622014103	DRAIN JOINT, WATER	1	
25	1502025103	DRAIN JOINT, OIL	1	
26	0802011104	PLUG	2	
27	0150000018	O RING	2	
28	0016906016	HEX. HEAD BOLT	4	
29	D2322700004	HOSE JOINT	1	
30	0199900550	DRAIN HOSE	1	
31	0199900700	DRAIN HOSE	1	
32	06055150 94	HOSE BAND	4	
33	0805010004	DRAIN JOINT	1	
34	1552053004	JOINT BOLT	1	
35	0602021190	PACKING	2	
36	0192200400	DRAIN HOSE	1	
37	0605515081	HOSE BAND	1	
38	0605515003	HOSE BAND	1	
39	0802081403	RESERVE TANK	1	
40	0802081104	CAP, RESERVE TANK	1	
41	1622082104	BRACKET, RESERVE TANK	1	
42	0016906025	HEX. HEAD BOLT	1	
43	0016906016	HEX. HEAD BOLT	2	
44	7222016304	HOSE	1	
45	0199900650	HOSE	1	
46	0605515094	HOSE BAND	3	

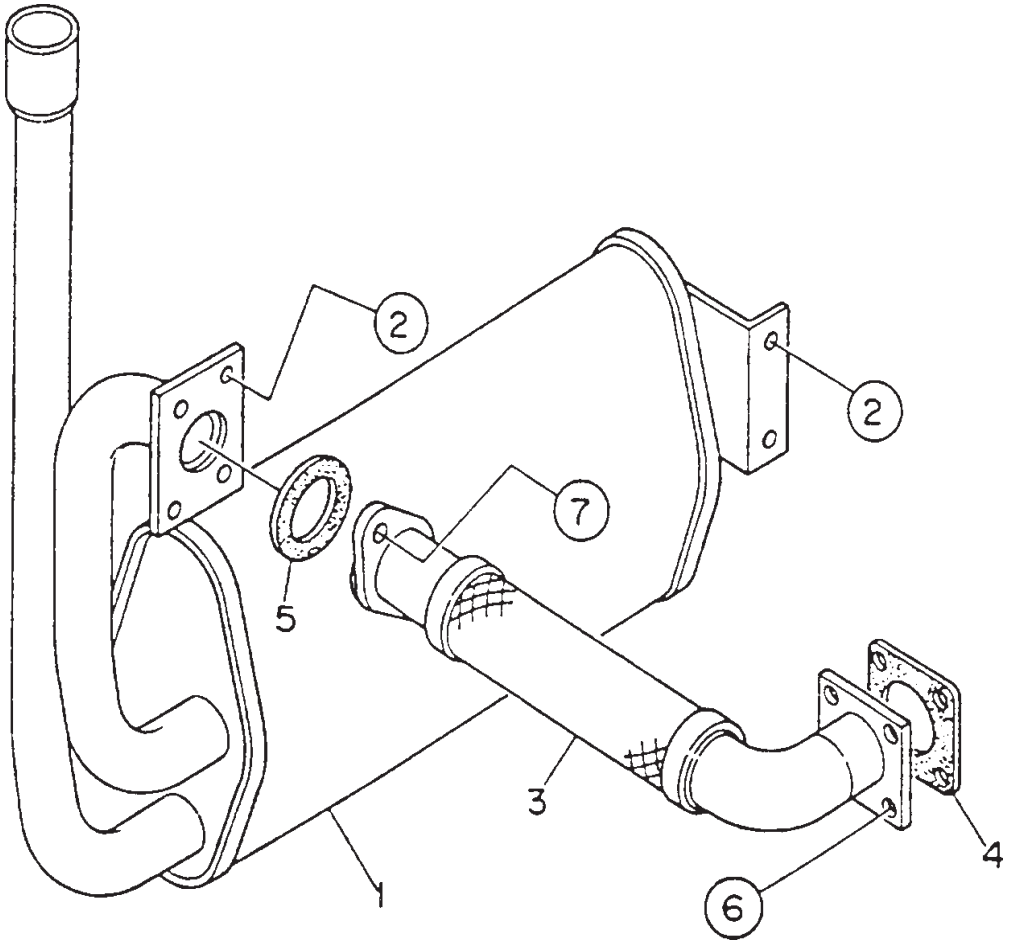
BATTERY ASSY.



BATTERY ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	0167103820	BATTERY	1	38B20R
2	1702202104	BATTERY SHEET	1	
3	D2345200004	BATTERY BAND	1	
4	0805082704	BATTERY BOLT	2	
5	0037806000	WING NUT	2	
6	0040006000	SPRING WASHER	2	
7	0041206000	PLAIN WASHER	2	
8		BATTERY CABLE	1	MAKE LOCALLY
9		BATTERY CABLE	1	MAKE LOCALLY
10	0602220310	TERMINAL ASSY.	1	No. 9P
11	0602220311	TERMINAL ASSY.	1	No. 9N
12	0602220600	TERMINAL CAP	1	TC-7R

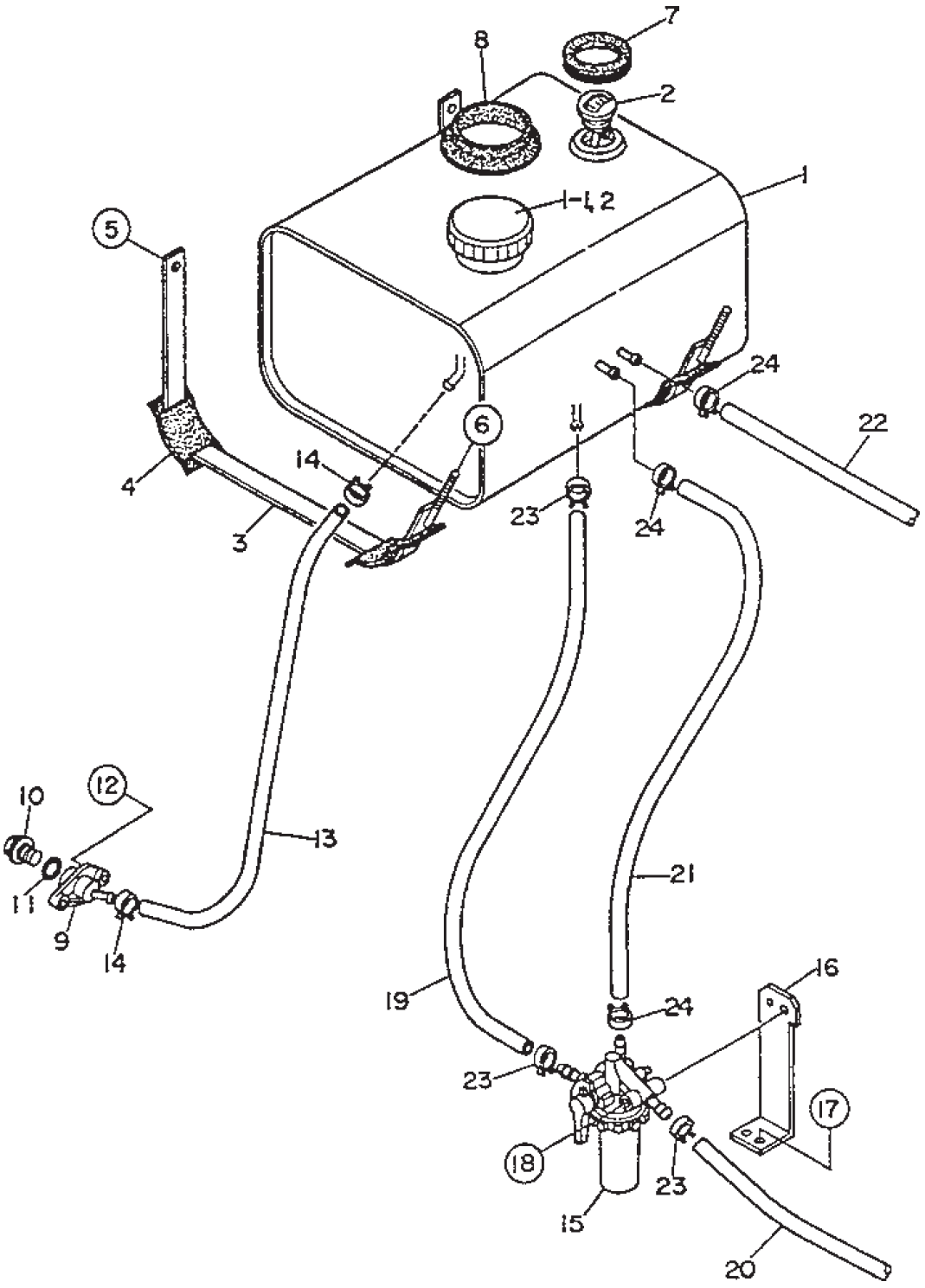
MUFFLER ASSY.



MUFFLER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2332100003	MUFFLER	1	
2	0016908020	HEX. HEAD BOLT	4	
3	D2335000003	EXHAUST PIPE	1	
4	1526312371	GASKET	1	REPALCES 0602320153
5	1502336004	GASKET	1	
6	0207008000	HEX. NUT	4	
7	0016908035	HEX. HEAD BOLT	2	

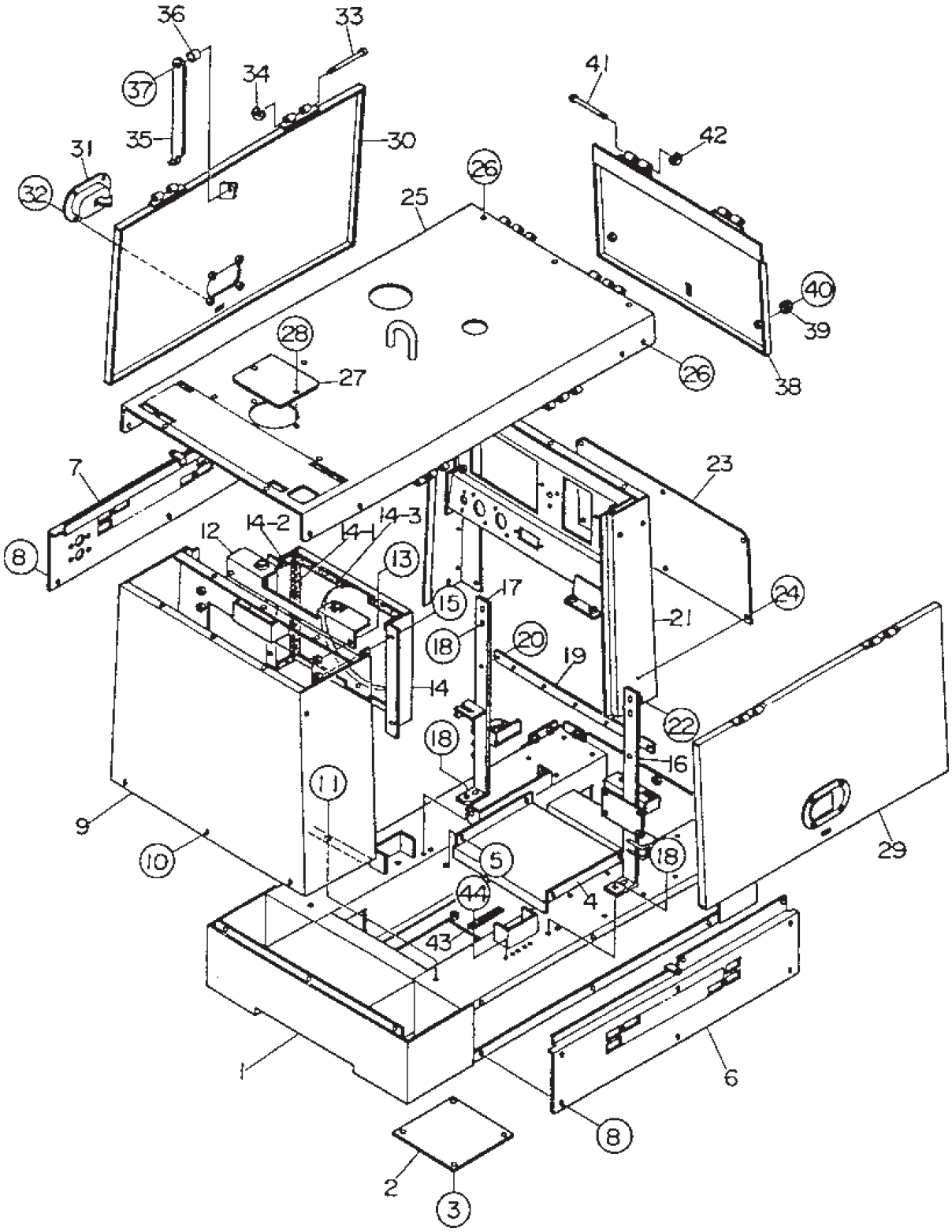
FUEL TANK ASSY.



FUEL TANK ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2365000013	FUEL TANK	1	
	0810105800	CAP, FUEL TANK	1	
	0810105900	FUEL FILTER	1	
2	0602125033	FUEL GAUGE	1	CJ-39A
3	D2365200004	TANK BAND	2	
4	0805003414	PAD, TANK BANK	4	
5	0016906006	HEX. HEAD BOLT	2	
6	0207308000	HEX. NUT	2	
7	D1490600104	RUBBER SEAL	1	
8	1615511204	RUBBER SEAL	1	
9	7812014003	DRAIN JOINT	1	
10	0802011104	PLUG	1	
11	0150000018	O RING	1	
12	0016906016	HEX. HEAD BOLT	2	
13	0199900670	DRAIN HOSE	1	
14	060 5515094	HOSE BAND	2	
15	1553143012	FUEL FILTER	1	REPLACES 0602042460
	1523143560	ELEMENT, FUEL FILTER	1	REPLACES 1523143563 AND 0602042171
16	D2368700004	BRACKET, FUEL FILTER	1	
17	0016906016	HEX. HEAD BOLT	2	
18	0016908065	HEX. HEAD BOLT	1	
19	0966180240	SUCTION HOSE	1	REPLACES 0605513158
20	0966180400	SUCTION HOSE	1	REPLACES 0605513101
21	0966140360	RETURN HOSE	1	REPLACES 0605514101
22	1491142751	HOSE BAND	4	REPLACES 0605515070
24	1497142751	HOSE BAND	4	REPLACES 0605515072

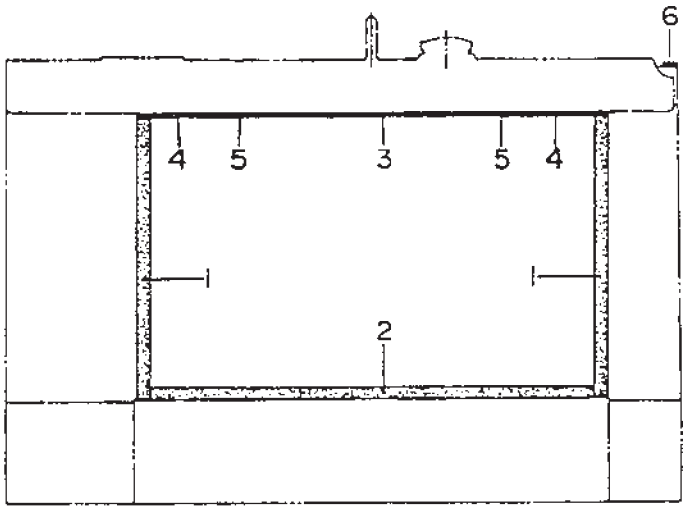
ENCLOSURE ASSY

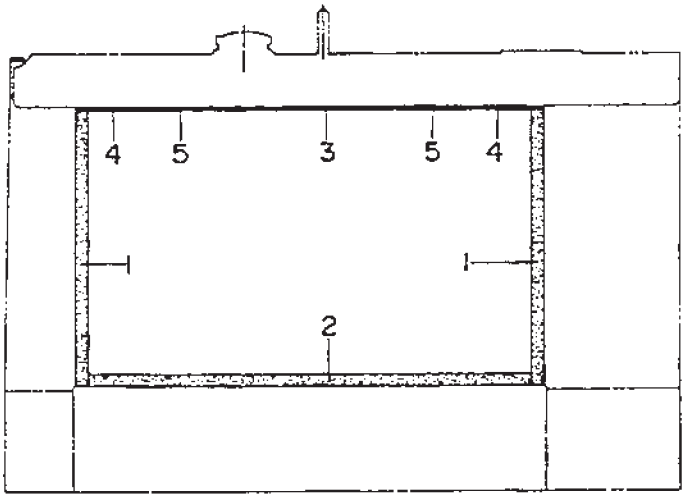


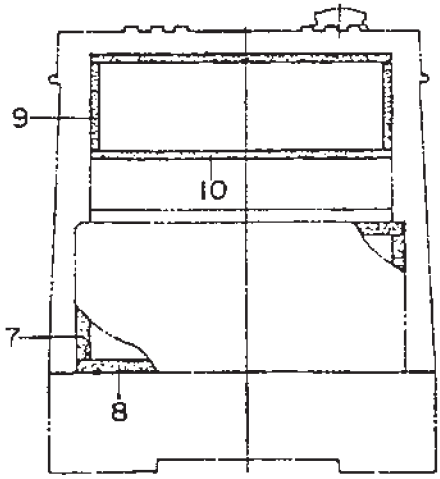
ENCLOSURE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	D2415000022	BASE	1	UP TO 5304414
1A	D2415000023	BASE	1	FROM 5304415
	D2492100004	LINING	1	
2	D2415100004	FLOOR PANEL	1	
3	0016906016	HEX. HEAD BOLT	4	
4	D2415600004	DUCT	1	UP TO 5304414
4A	D2415600014	DUCT	1	FROM 5304415
5	0016906016	HEX. HEAD BOLT	4	
6	D2455200113	SPLASHER PANEL	1	
7	D2455200003	SPLASHER PANEL	1	
8	0016906016	HEX. HEAD BOLT	12	
9	D2425000012	FRONT FRAME	1	
	0220900340	RUBBER SEAL	2	
10	0016906016	HEX. HEAD BOLT	3	
11	0016908020	HEX. HEAD BOLT	2	
12	D2312100004	BRACKET, RADIATOR	1	
13	0016906016	HEX. HEAD BOLT	2	
14	D2312300013	FAN SHROUD	1	
14-1	D2492200004	LINING	1	
14-2	0221700050	LINING	4	
14-3	0221900165	LINING	4	
15	0016906016	HEX. HEAD BOLT	4	
16	D2435300113	HANGER	1	
17	D2435300013	HANGER	1	
18	0012310025	HEX. HEAD BOLT	8	
19	D2485500014	HARNESS GUIDE	1	
20	0016906016	HEX. HEAD BOLT	2	
21	D2445000002	REAR FRAME	1	
22	0016906016	HEX. HEAD BOLT	4	
23	D2445300004	COVER, REAR FRAME	1	
24	0016906016	HEX. HEAD BOLT	6	
25	D2465000022	ROOF PANEL	1	
26	0016906016	HEX. HEAD BOLT	15	
27	7432081004	COVER, RADIATOR CAP	1	
28	0016906016	HEX. HEAD BOLT	2	
29	D2455000113	SIDE DOOR	1	
30	D2455000013	SIDE DOOR	1	
31	0605010215	DOOR HANDLE	2	
32	0021805016	MACHINE SCREW	8	
33	0810014704	PIN	4	
34	0080200004	SNAP RING	4	
35	D2455700004	DOOR STAY	2	
36	7835088004	COLLAR	2	
37	0016908020	HEX. HEAD BOLT	2	
38	D2445200013	REAR DOOR	1	UP TO 5304414
38A	D2445200023	REAR DOOR	1	FROM 5304415
39	0601850090	STOPPER	2	C-30-RK-28 UP TO 5304414
39A	0601851613	STOPPER	2	CP-30-FF-15A FROM 5304415
40	0027104010	MACHINE SCREW	2	UP TO 5304414
40A	0027104010	MACHINE SCREW	0	FROM 5304415
41	0810014704	PIN	2	
42	0080200004	SNAP RING	2	
43	8511864604	TERMINAL PLATE	1	
44	0016906016	HEX. HEAD BOLT	5	

ENCLOSURE (RUBBER SEALS)



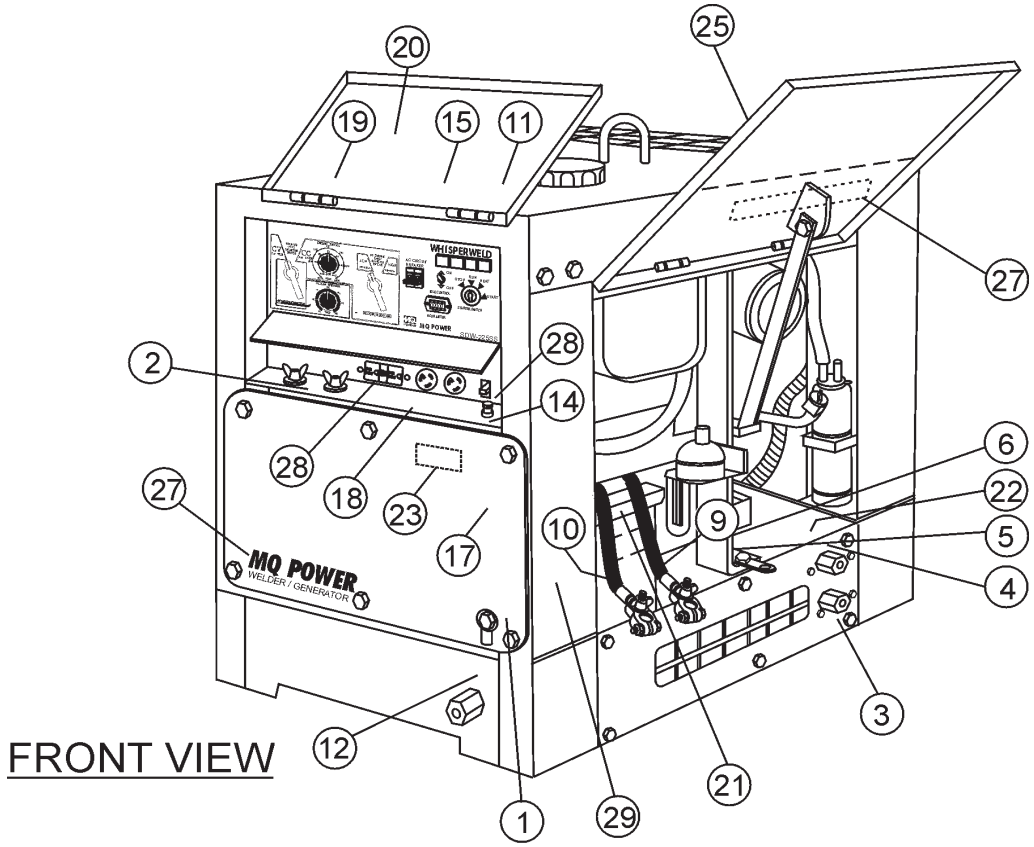




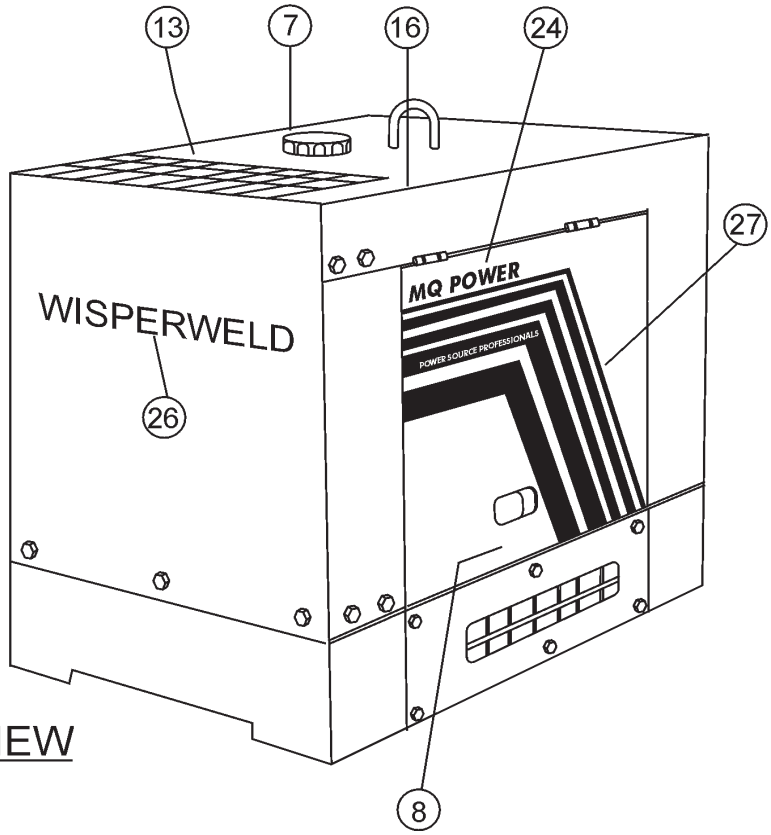
ENCLOSURE (RUBBER SEALS)

NO	PART NO	PART NAME	QTY.	REMARKS
1	0029400470	RUBBER SEAL	4	
2	0229400760	RUBBER SEAL	2	
3	0222900325	RUBBER SEAL	2	
4	0222900125	RUBBER SEAL	4	
5	0222600100	RUBBER SEAL	4	
6	0228300600	RUBBER SEAL	1	
7	0228300200	RUBBER SEAL	2	
8	0228300550	RUBBER SEAL	2	
9	0227600130	RUBBER SEAL	2	
10	0227600500	RUBBER SEAL	2	

NAMEPLATE AND DECALS



FRONT VIEW



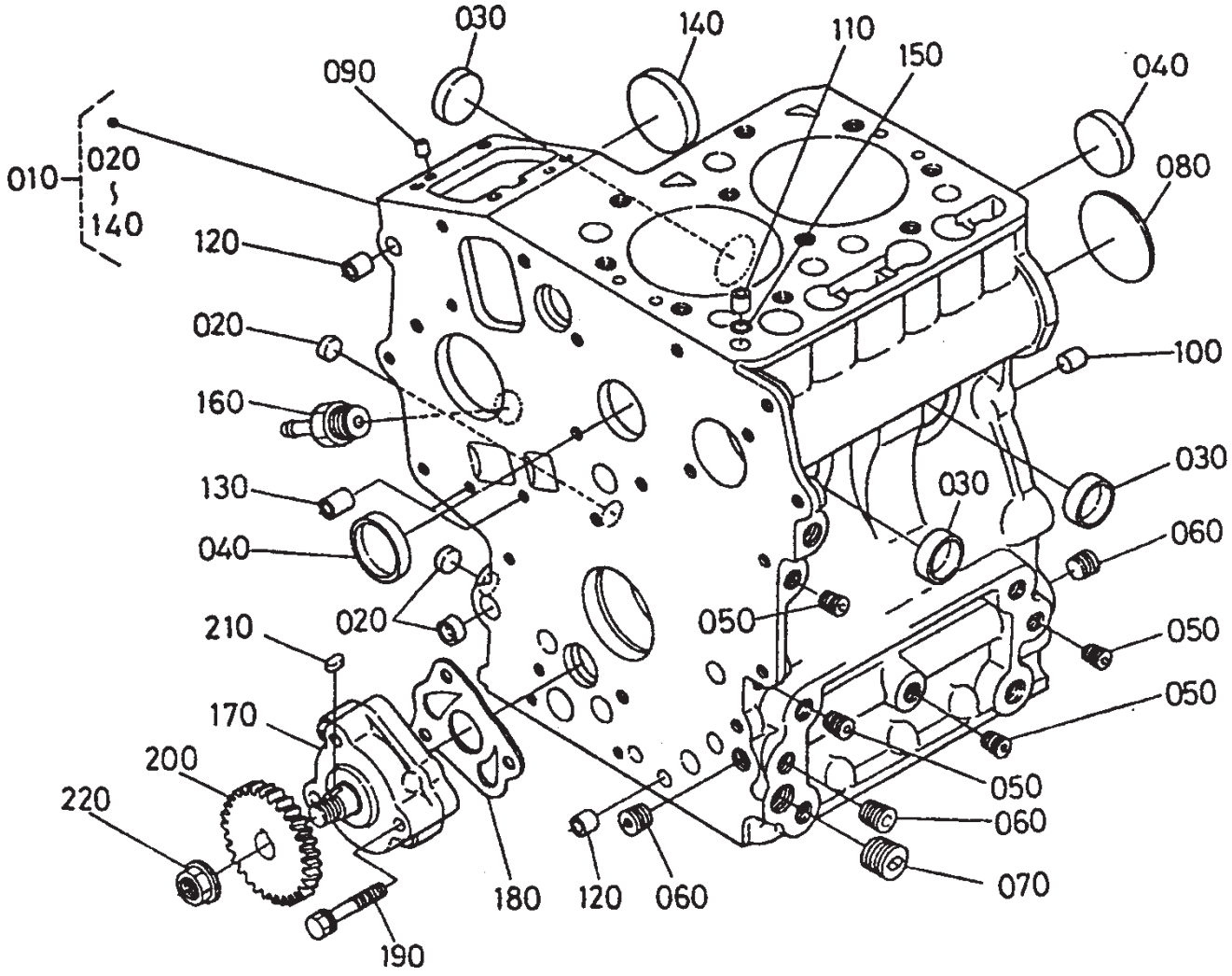
REAR VIEW

NAMEPLATE AND DECALS

NO	PART NO	PART NAME	QTY.	REMARKS
1*	0800628504	Decal: Ground	1	S1123
2*	0800690804	Decal: Welding Output Terminal	1	S1238
3*	1630645004	Decal: Oil Drain	1	S1403
4*	1630647004	Decal: Coolant Drain	1	S1404
5*	1630610404	Decal: Caution (Paper Element)	1	S1406
6*	1630680104	Decal: Fuel Cock	1	S1407
7*	1630680004	Decal: Use 2 Diesel Fuel Only	1	S1408
8*	1630610504	Decal: Caution (Doors Open)	2	S1409
9*	0600689404	Decal: Battery Positive	1	S2090
10*	0800689504	Decal: Battery Negative	1	S2091
11*	6390671104	Decal: Important Check Daily	1	S2377
12*	7810680104	Decal: Fuel Drain	1	S3060
13*	7810680204	Decal: Cooling Water	1	S3061
14*	7670624004	Decal: Ground For G. F. C. I.	1	S3821
15*	8700611603	Decal: Operating Procedure	1	S4937
16*	8700611804	Decal: Warning Dangerous Gas	1	S4984
17*	8700611904	Decal: Danger Electrical Shock Hazard	1	S4985
18*	D2552000003	Decal: AC Power Output	1	D250200000
19*	D9512100203	Decal: Caution (Multiple)	1	
20*	0820610404	Decal: Warning (Transfer Switch)	1	
21*	0820650604	Decal: Danger Explosive Gases (Battery)	1	
22*	8700611524	Decal: Caution Oil Level Gauge	1	
23*	8700625504	Decal: Fuse Box	1	
24*	8740631002	Decal: Stripe	1	
25*	8740631202	Decal: Stripe	1	
26*	D2562200004	Decal: Wisperweld	1	D26220000
27*	D2562200104	Decal: MQ Power	1	D26220010
28*	D9522001004	Decal: G.F.C.I.	2	D92200100
29		PLATE, SERIAL NO.	1	CONTACT MQ PARTS DEPT WITH MODEL AND S/N
	DCLSDW225SS	KIT, DECAL	1	INCLUDES ITEMS W/*

SEE DECAL ILLUSTRATIONS ON PAGES 11 AND 12.

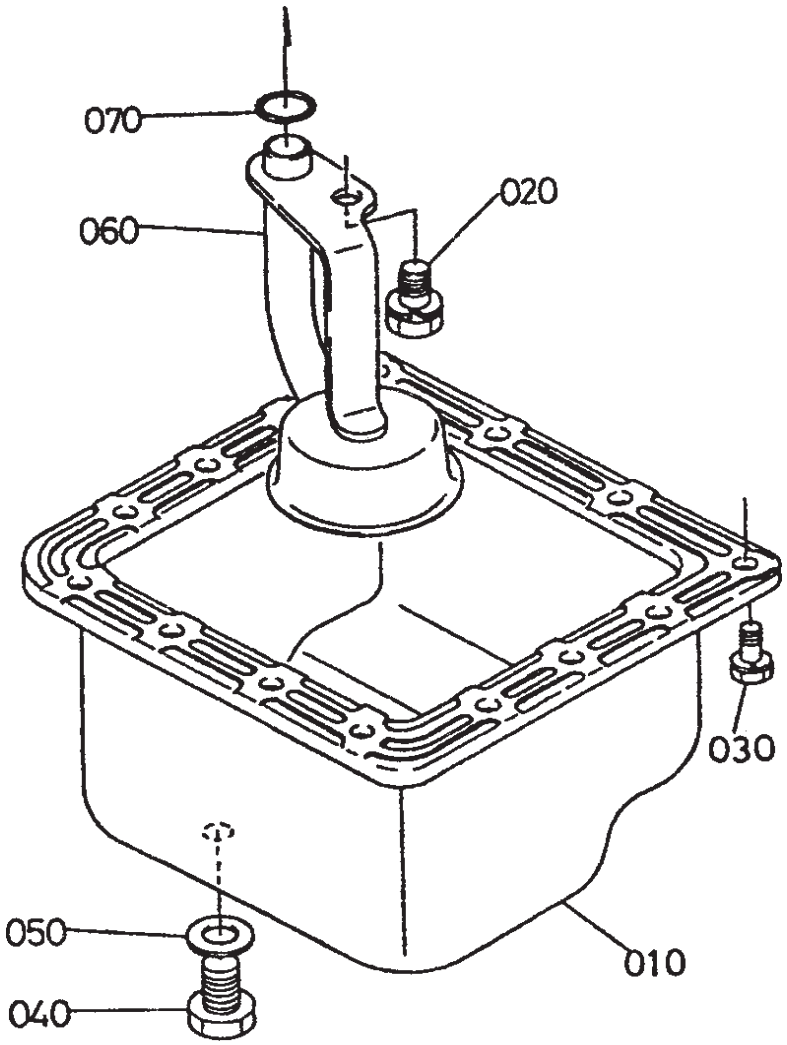
CRANKCASE ASSY.



CRANKCASE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685101012	COMP. CRANKCASE	1	INCLUDES ITEMS W/*
020*	1685196260	CAP, SEALING	3	
030*	1685196270	CAP, SEALING	3	
040*	1545196270	CAP, SEALING	2	
050*	1526196010	PLUG	4	
060*	1552106030	PLUG	1	
070*	1552196030	PLUG	1	
080*	1526196160	PLUG, EXPANSION	1	
090*	0501200508	PIN, STRAIGHT	2	
100*	0501200814	PIN, STRAIGHT	2	
110*	1522133650	PIN, PIPE	1	
120*	1523133960	PIN, PIPE	2	
130*	1733159190	PIN, PIPE	2	
140*	1685116212	COVER, FUEL CAMSHAFT	1	
150	1522133700	0 RING	1	
160	1584773130	JOINT, DRAIN PIPE	1	
170	1685135010	ASSY PUMP, OIL	1	
180	1685135152	GASKET, OIL PUMP NA	1	
190	1584191050	BOLT	3	
200	1584135660	GEAR, OIL PUMP DRIVE	1	
210	0571200408	KEY, FEATHER	1	
220	0278350100	NUT, FLANGE	1	

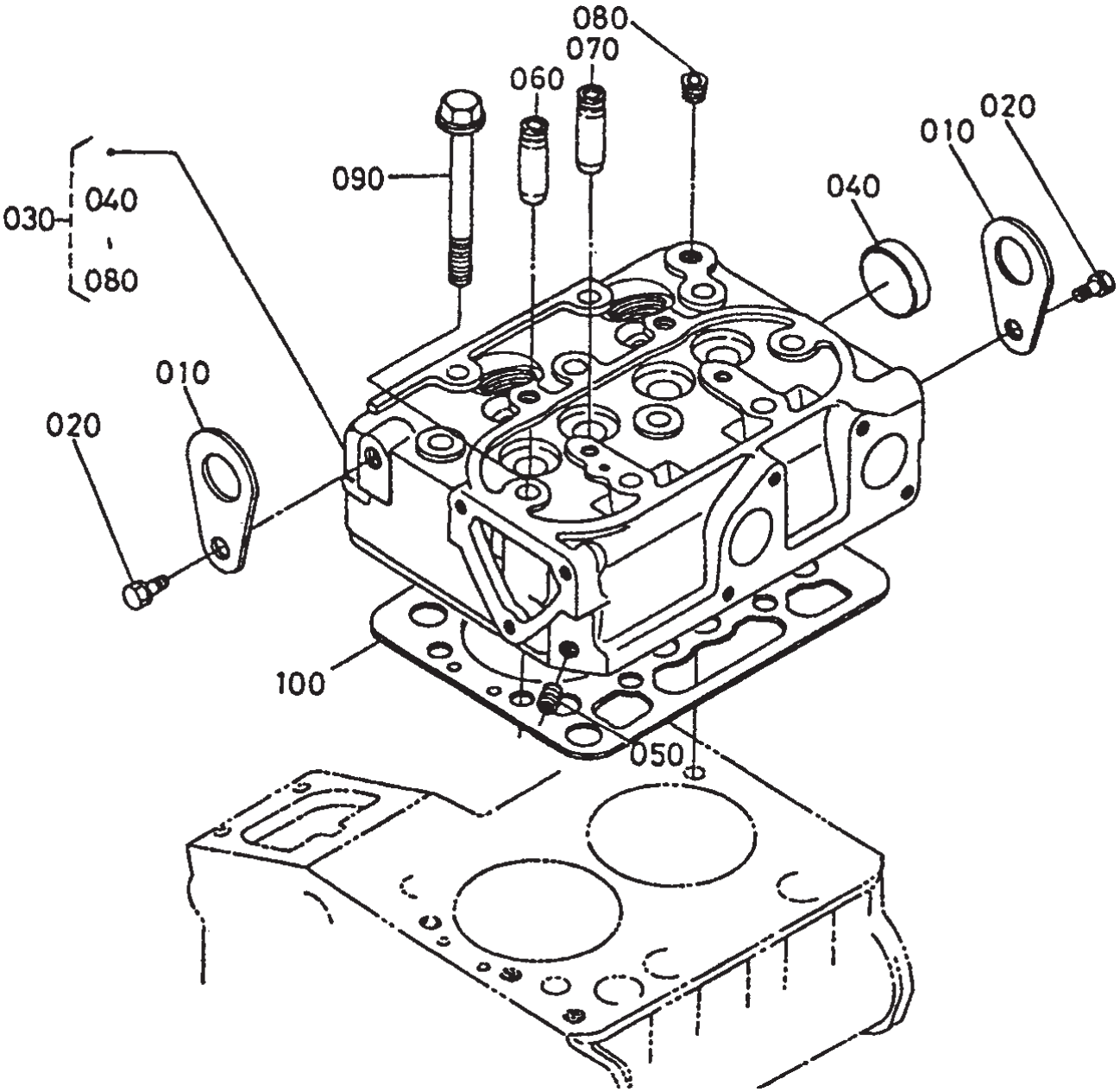
OIL PAN ASSY.



OIL PAN ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1756101500	COMP. OIL PAN	1	
020	0112360814	BOLT	1	
030	0102350612	BOLT	14	
040	1654133750	PLUG, DRAIN	1	
050	1545196670	GASKET	1	
060	1685132110	FILTER, OIL	1	
070	0481400160	0 RING	1	

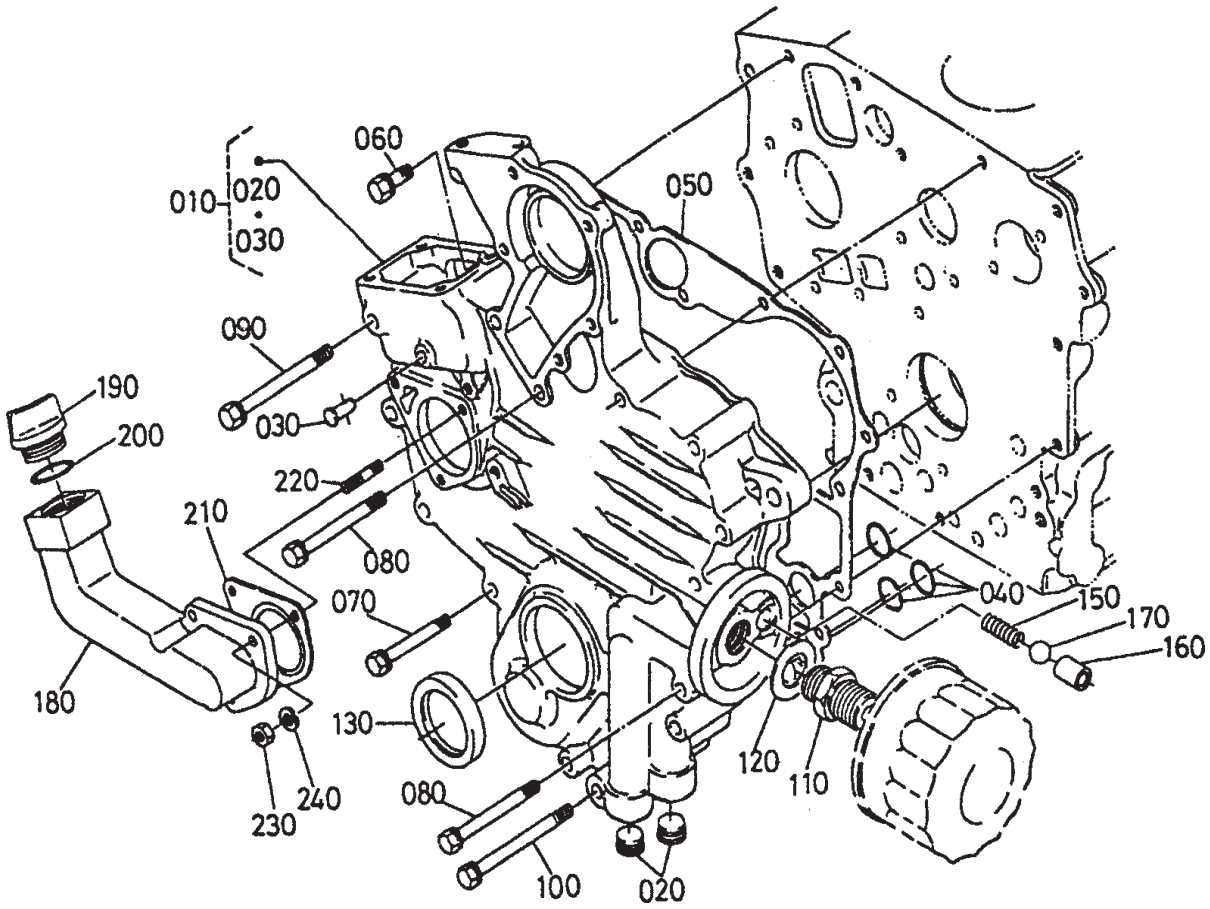
CYLINDER HEAD ASSY.



CYLINDER HEAD ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1522101750	HOOK, ENGINE	2	
020	0112360816	BOLT	2	
030	1685503042	COMP. CYLINDER HEAD	1	INCLUDES ITEMS W/*
040*	1532196260	CAP, SEALING	1	
050*	1526196010	PLUG	1	
060*	1584113540	GUIDE, INLET VALVE	2	
070*	1584113560	GUIDE, EXHAUST VALVE	2	
080	1584196020	PLUG	1	
090	1460103450	BOLT, CYLINDER HEAD	10	
100	1685103310	GASKET, CYLINDER HEAD	1	

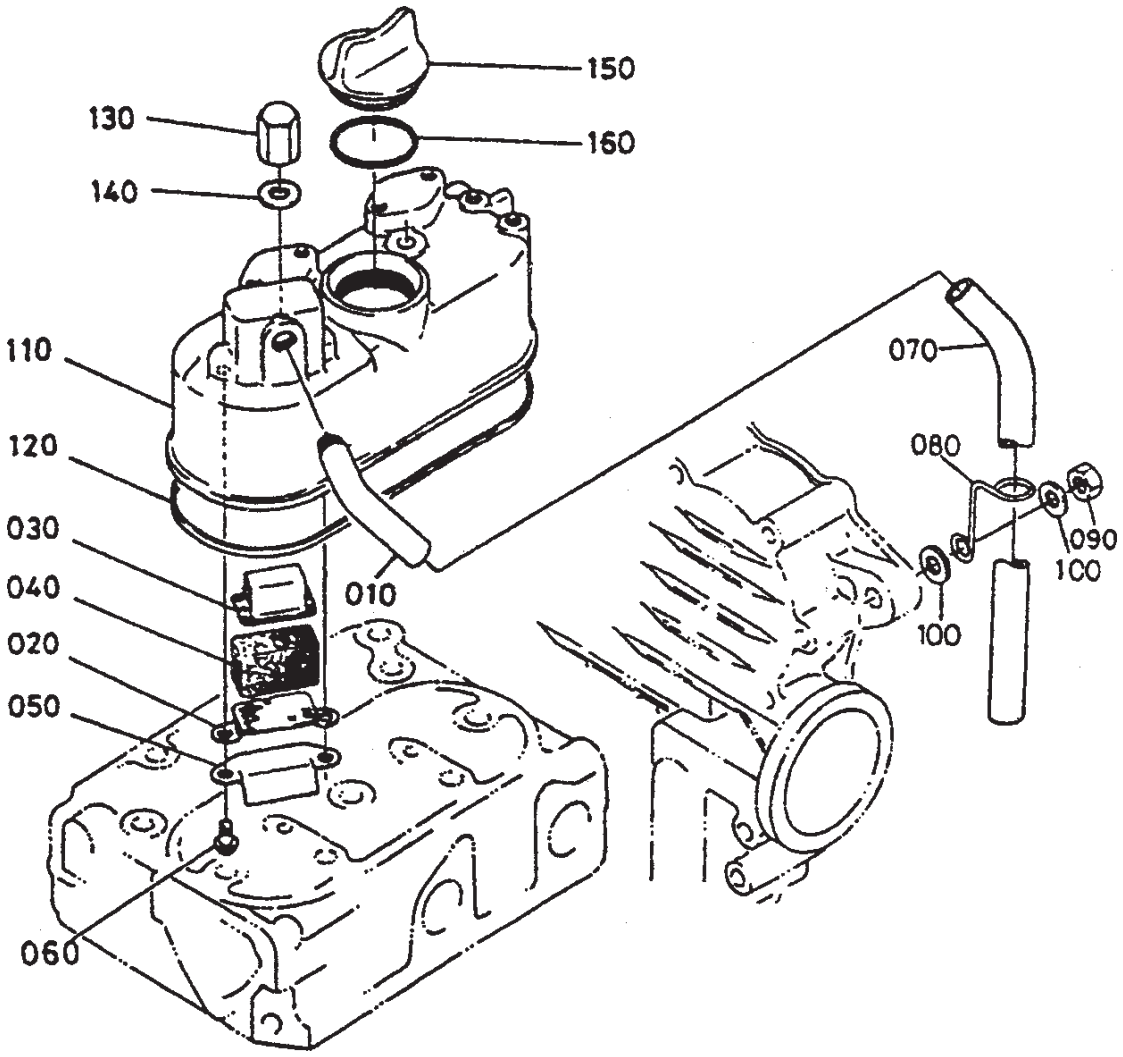
GEAR CASE ASSY.



GEAR CASE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1687504024	COMP. CASE, GEAR	1	INCLUDES ITEMS W/*
020*	1685196010	PLUG	2	
030*	1584156280	PIN, START SPRING	1	
040	04814061300	O RING	3	
050	1586204132	GASKET, GEAR CASE NA	1	
060	0102350618	BOLT	1	
070	0102360650	BOLT	8	
080	1584191010	BOLT	5	
090	0102350670	BOLT	1	
100	0102350675	BOLT	1	
110	1524132290	JOINT, PIPE	1	
120	1584194010	WASHER, PLAINT	1	
130	1587704140	SEAL, OIL	1	
150	1685136950	SPRING	1	
160	1584136930	SEAT, VALVE	1	
170	0771503211	BALL	1	
180	1584633110	FLANGE, OIL FILLER	1	
190	1381133140	PLUG, OIL FILLER	1	
200	0481106230	O RING	1	
210	1946188132	GASKET, H/M GEAR CASE	1	
220	1522188210	STUD	3	
230	0205650060	NUT	3	
240	0451260060	WASHER, SPRING	3	

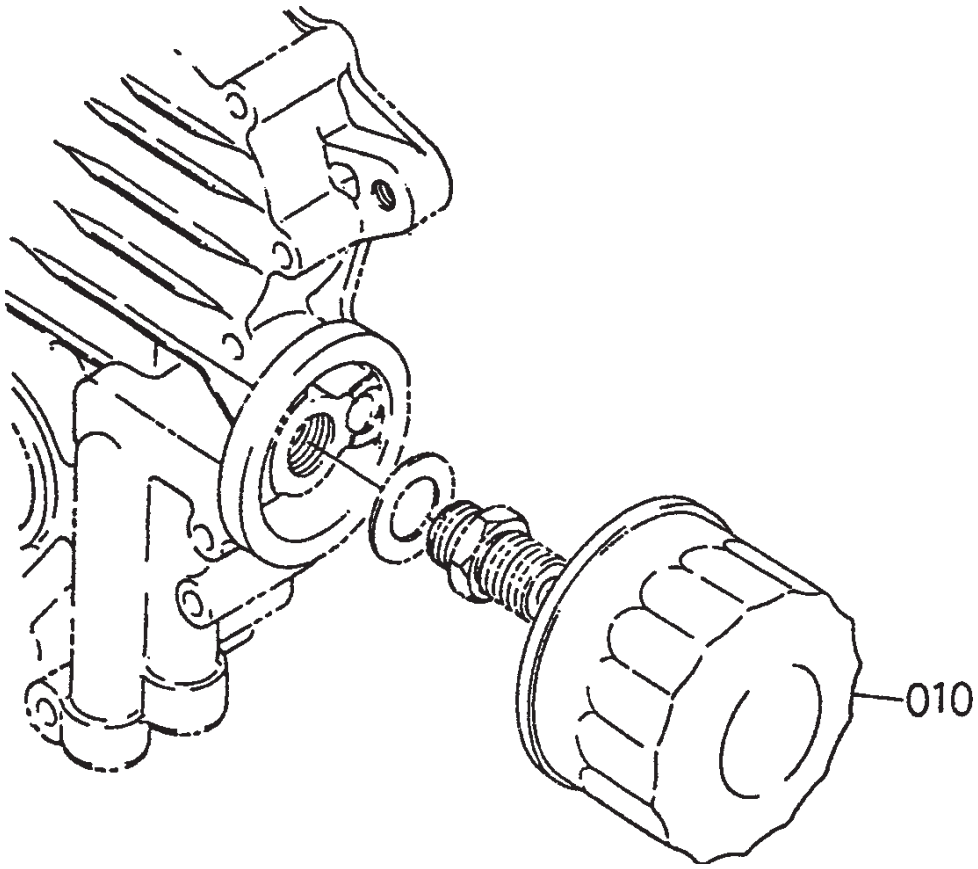
HEAD COVER ASSY.



HEAD COVER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1588105550	JOINT, BREATHER PIPE	1	
020	1584105140	PLATE, BREATHER ELEMENT	1	
030	1584105150	PLATE, BREATHER ELEMENT	1	
040	1584105670	ELEMENT, BREATHER	1	
050	1584105370	OIL SHIELD, BREATHER	1	
060	1686193310	SCREW	2	
070	1584705512	PIPE, BREATHER	1	
080	1584105590	CLAMP, PIPE	1	
090	0211450080	NUT	1	
100	0401360080	WASHER, PLAINT	2	
110	1685114512	COVER, CYLINDER HEAD	1	
120	1685114522	GASKET, HEAD COVER	1	
130	1584114620	NUT, CAP	2	
140	1560196650	GASKET	2	
150	1585233140	PLUG, OIL FILLER	1	
160	1481150300	O RING	1	

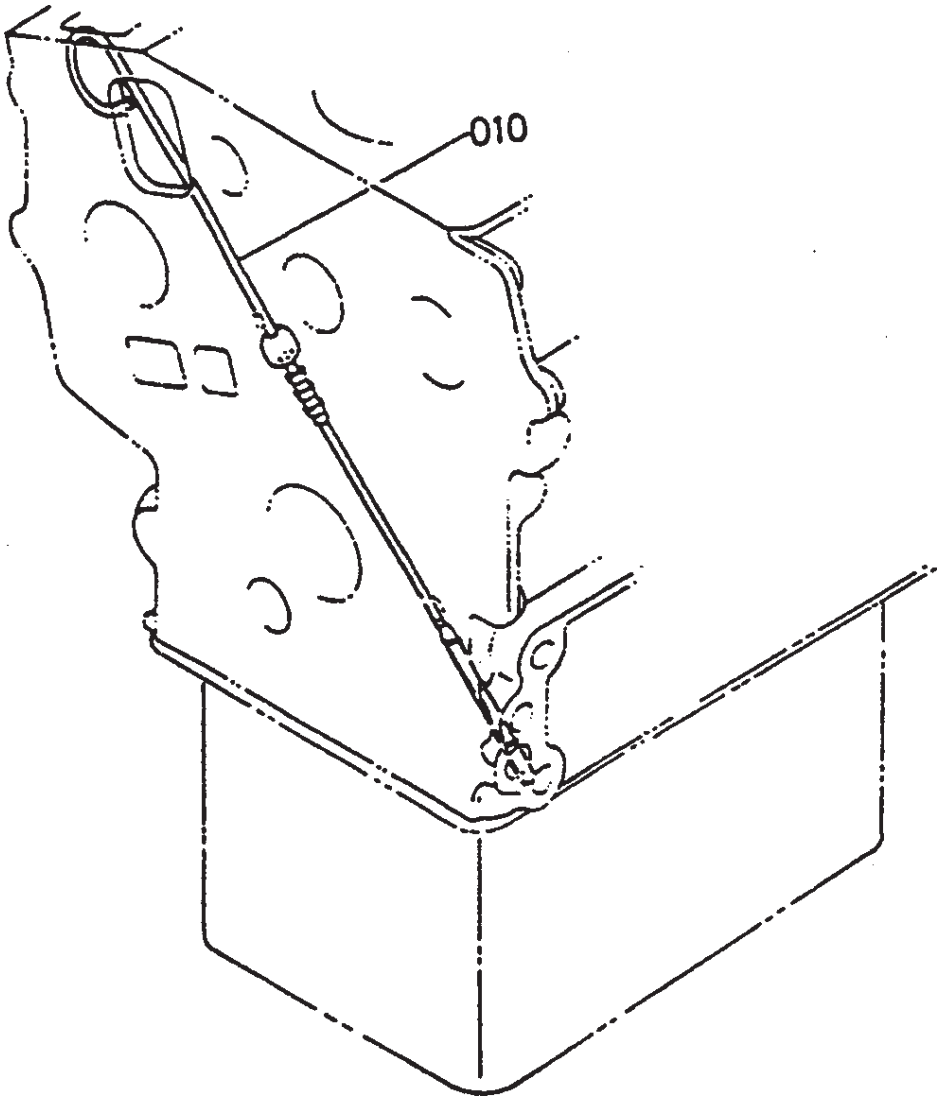
OIL FILTER ASSY.



OIL FILTER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1585399170	CARTRIDGE, OIL FILTER	1	

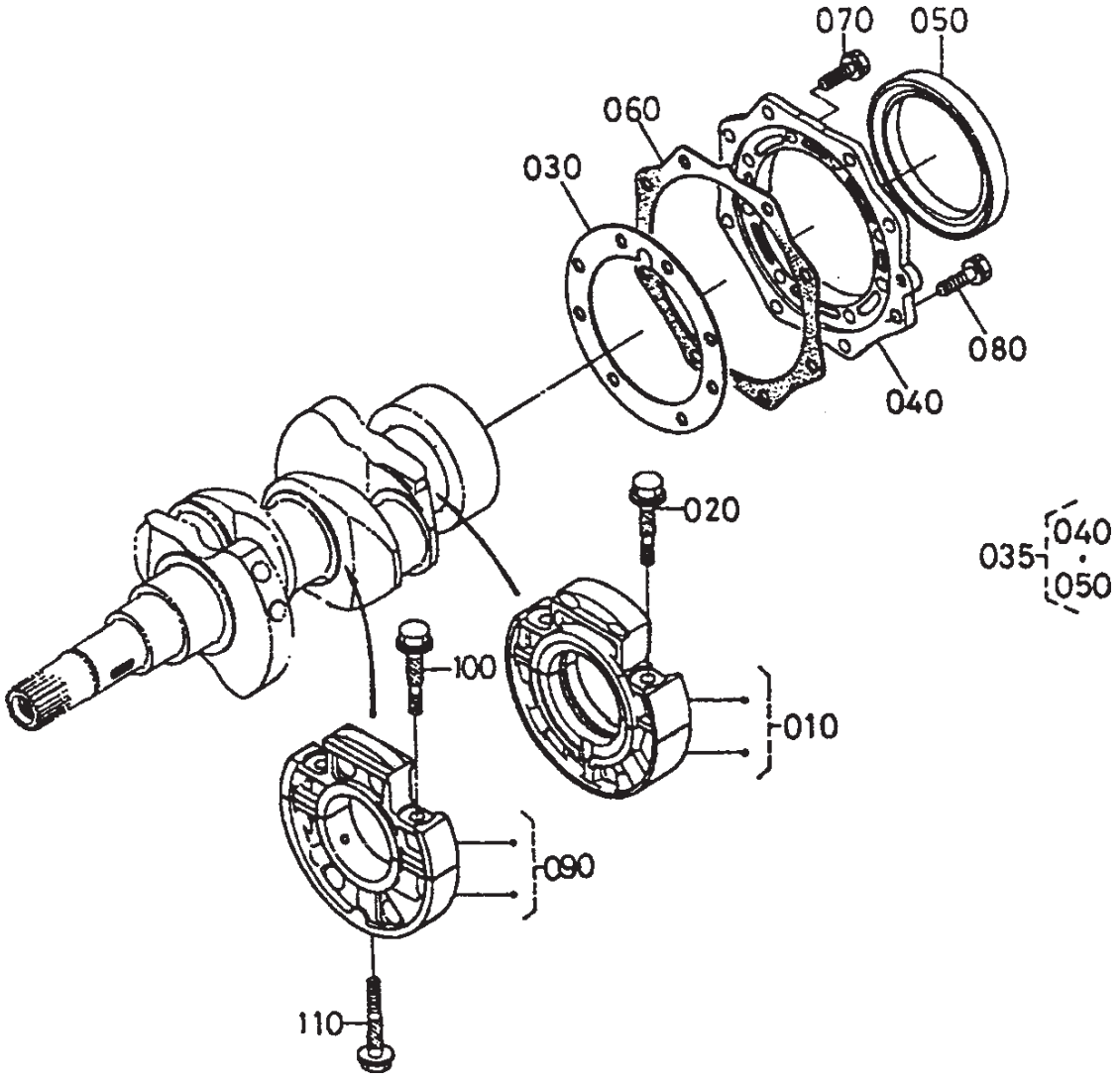
DIPSTICK & GUIDE ASSY.



DIPSTICK & GUIDE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685136410	GAUGE, OIL	1	

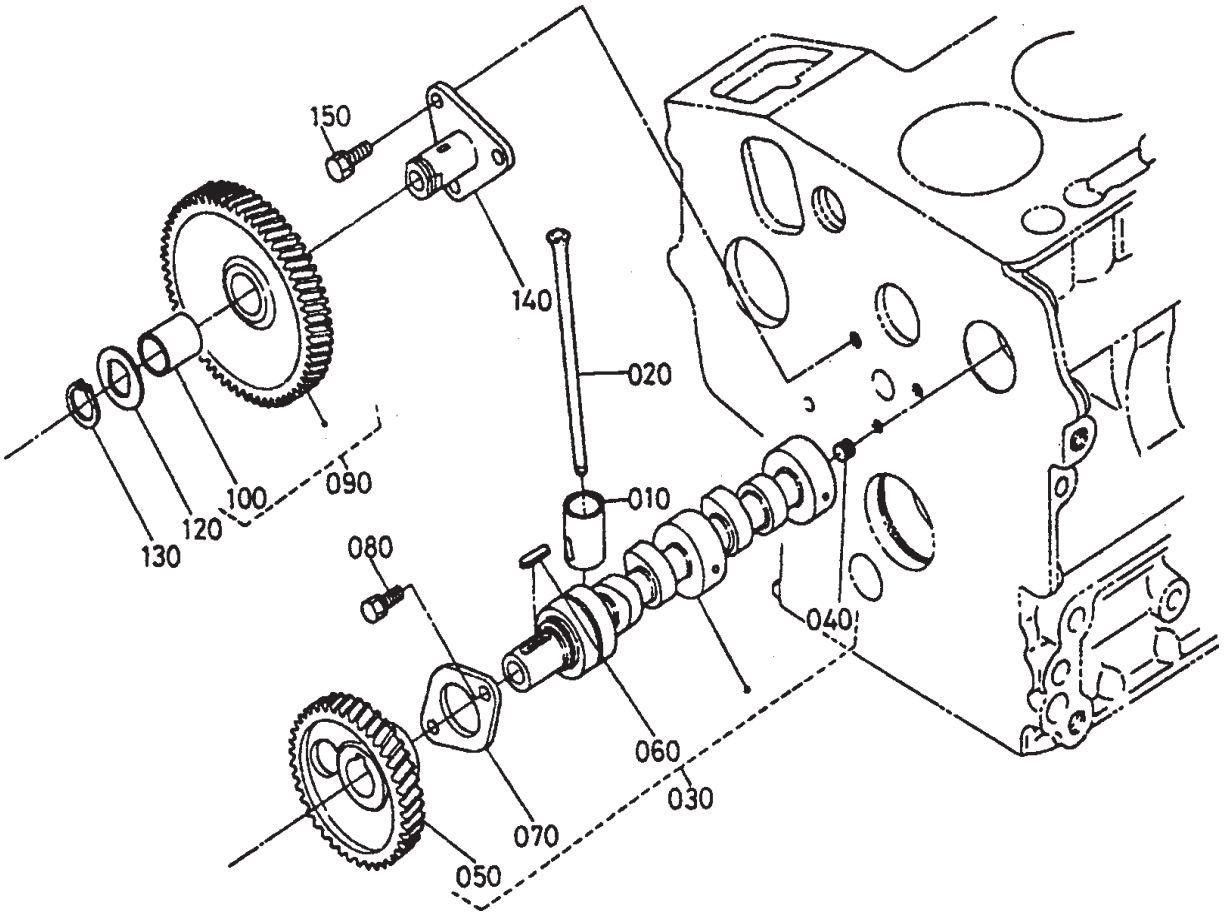
MAIN BEARING CASE ASSY.



MAIN BEARING CASE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685104092	ASSY. CASE, MAIN BEARING	1	
020	1584104540	BOLT, BEARING CASE	2	
030	1585204360	GASKET, BEARING CASE	1	
035	1584104800	ASSY. COVER, BRG CASE	1	INCLUDES ITEMS W/%
040%	1584104810	COVER, BEARING CASE	1	
050%	1921599160	SEAL, OIL	1	
060	1584104822	GASKET	1	
070	0102350620	BOLT	8	
080	0102350622	BOLT	8	
090	1685104040	ASSY. CASE, MAIN BEARING	1	
100	1584104540	BOLT, BEARING CASE	2	
110	1584104562	BOLT, BEARING CASE	1	

CAMSHAFT & IDLE GEAR SHAFT ASSY.

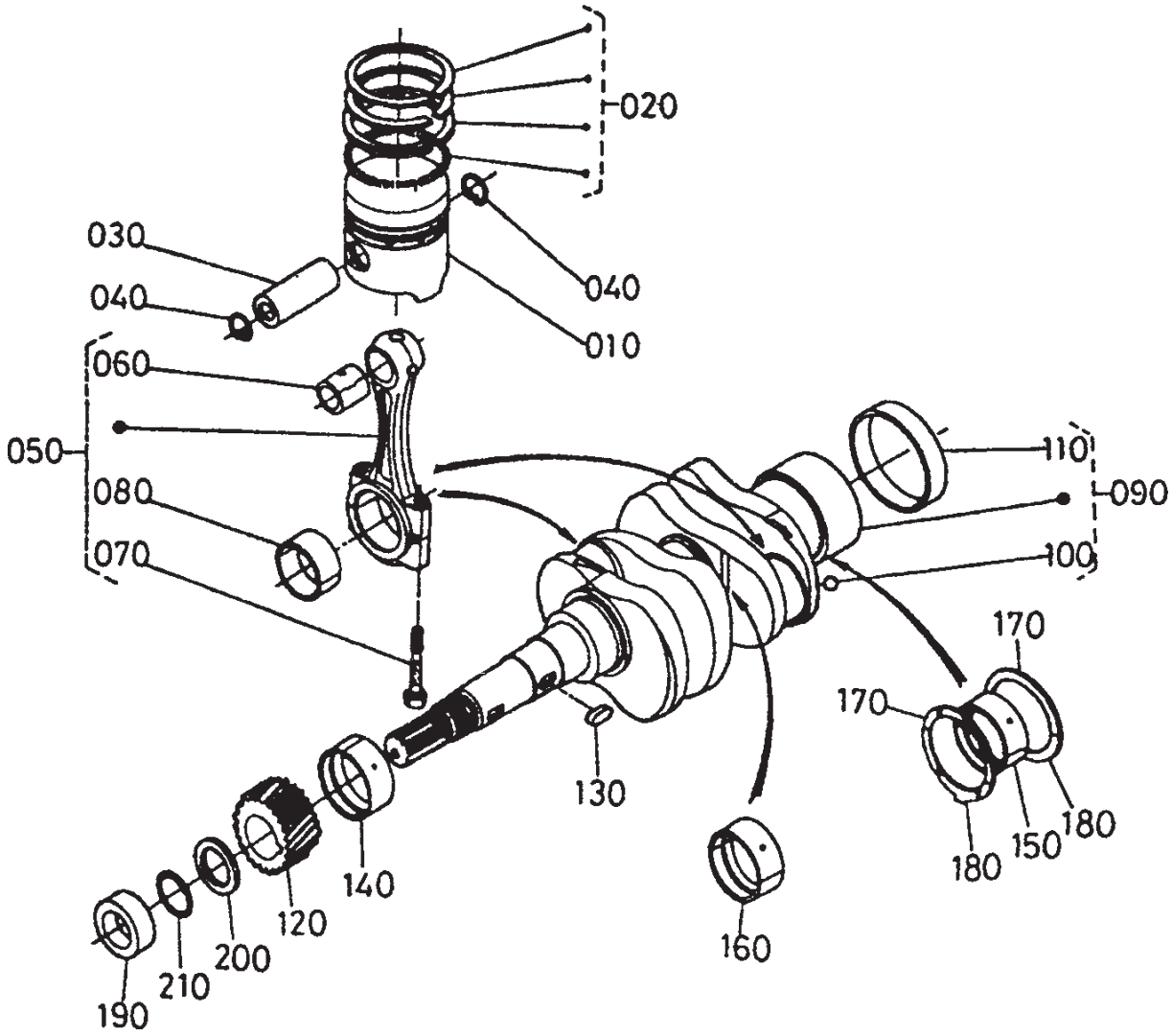


KUBOTA Z482-EB ENGINE — CAMSHAFT & IDLE GEAR ASSY.

CAMSHAFT & IDLE GEAR SHAFT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685115550	TAPPET	4	
020	1685115110	PUSH ROD	4	
030	1584116015	ASSY. CAMSHAFT	1	INCLUDES ITEMS W/*
040*	1552193610	SCREW, SET	1	
050*	1686416510	GEAR, CAM	1	
060*	0571200518	KEY, FEATHER	1	
070*	1584116270	STOPPER, CAMSHAFT	1	
080	0102350612	BOLT	2	
090	1587524013	COMP. GEAR, IDLE	1	INCLUDES ITEMS W/#
100#	1587524282	BUSH	1	
120	1587524370	COLLAR, IDLE GEAR	1	
130	1587524320	RING, SNAP	1	
140	1587524250	SHAFT, IDLE GEAR	1	
150	0102350614	BOLT	3	

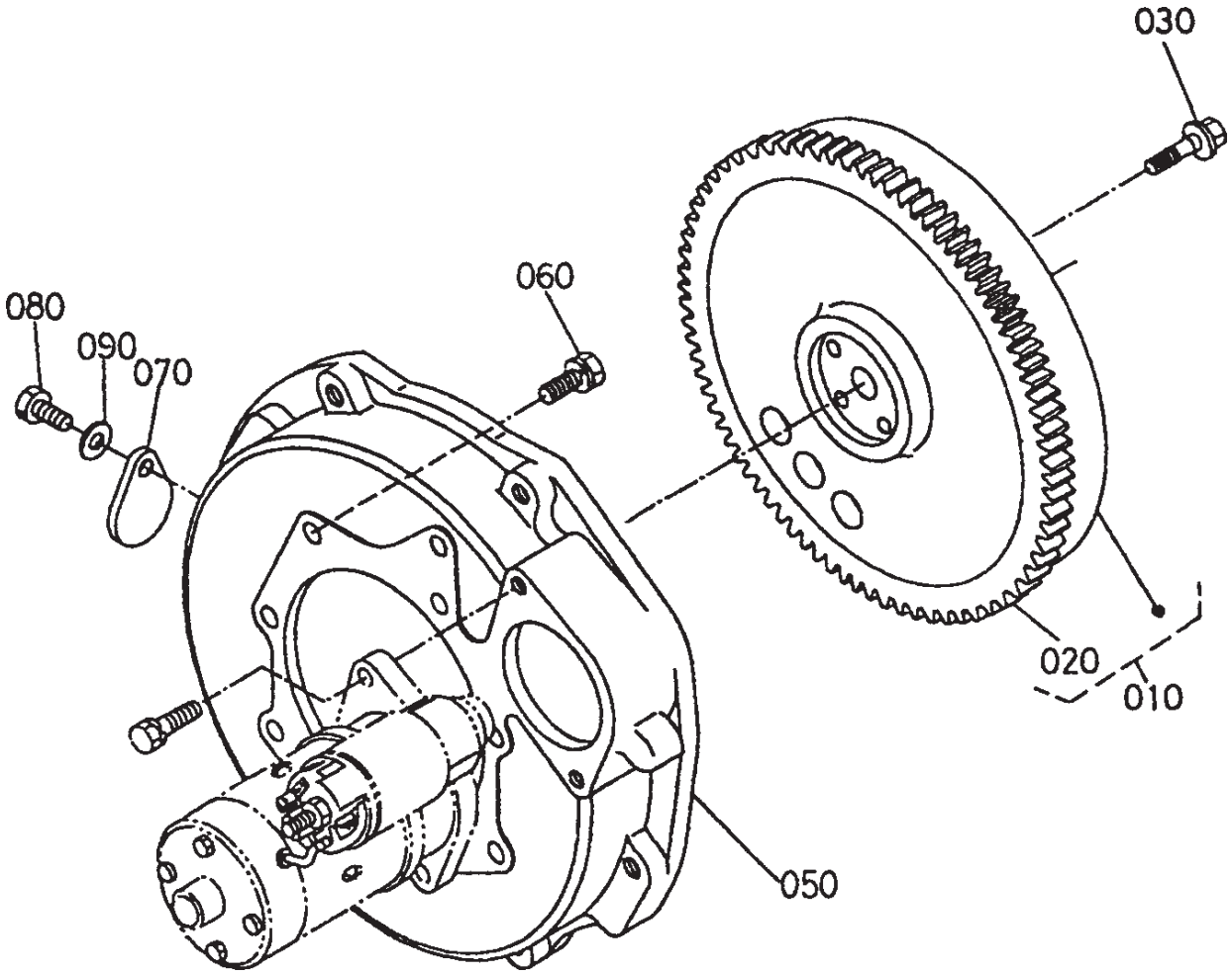
PISTON & CRANKSHAFT ASSY.



PISTON & CRANKSHAFT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685121112	PISTON STD	2	
010	1685121900	PISTON +0.25MM	2	
020	1685321050	ASSY. PISTON RING STD	2	
020	1685321090	ASSY. PISTON RING +0.25MM	2	
030	1685121310	PIN, PISTON	2	
040	1526121330	AIR CLIP, PISTON PIN	4	
050	1685122010	ASSY. CONNECTING ROD	2	INCLUDES ITEMS W/*
060*	1685121980	BUSH, PISTON PIN	2	
070*	1685122140	BOLT, CONNECTING ROD	4	
080*	1685122320	METAL, CRANKPIN M STD SET	2	
080	1586122970	METAL, CRANKPIN -0.20MM SET	2	
080	1586122980	METAL, CRANKPIN -0.40MM SET	2	
090	1685323030	ASSY. CRANKSHAFT	1	INCLUDES ITEMS W/#
100#	0771503207	BALL	2	
110#	1921523280	SLEEVE, CRANKSHAFT	1	
120	1584124110	GEAR, CRANK	1	
130	0571200515	KEY, FEATHER	1	
140	1586123470	METAL, CRANKSHAFT STD	1	
140	1586123910	METAL, CRANKSHAFT -0.20MM	1	
140	1586123920	METAL, CRANKSHAFT -0.40MM	1	
150	1686123480	METAL, CRANKSHAFT M STD SET	1	
150	1569423930	METAL, CRANKSHAFT -0.20MMSET	1	
150	1569423940	METAL, CRANKSHAFT -0.40MMSET	1	
160	1686123490	METAL, CRANKSHAFT STD SET	1	
160	1586123860	METAL, CRANKSHAFT -0.20MM SET	1	
160	1586123870	METAL, CRANKSHAFT -0.40MM SET	1	
170	1526123530	METAL, SIDE STD	2	
170	1526123950	METAL, SIDE +0.20MM	2	
170	1526123960	METAL, SIDE +0.40MM	2	
180	1526123540	METAL, SIDE STD	2	
180	1526123970	METAL, SIDE +0.20MM	2	
180	1526123980	METAL, SIDE +0.40MM	2	
190	1584123250	COLLAR, CRANKSHAFT	1	
200	1588123310	SLINGER, OIL	1	
210	0481416220	O RING	1	

FLYWHEEL ASSY.

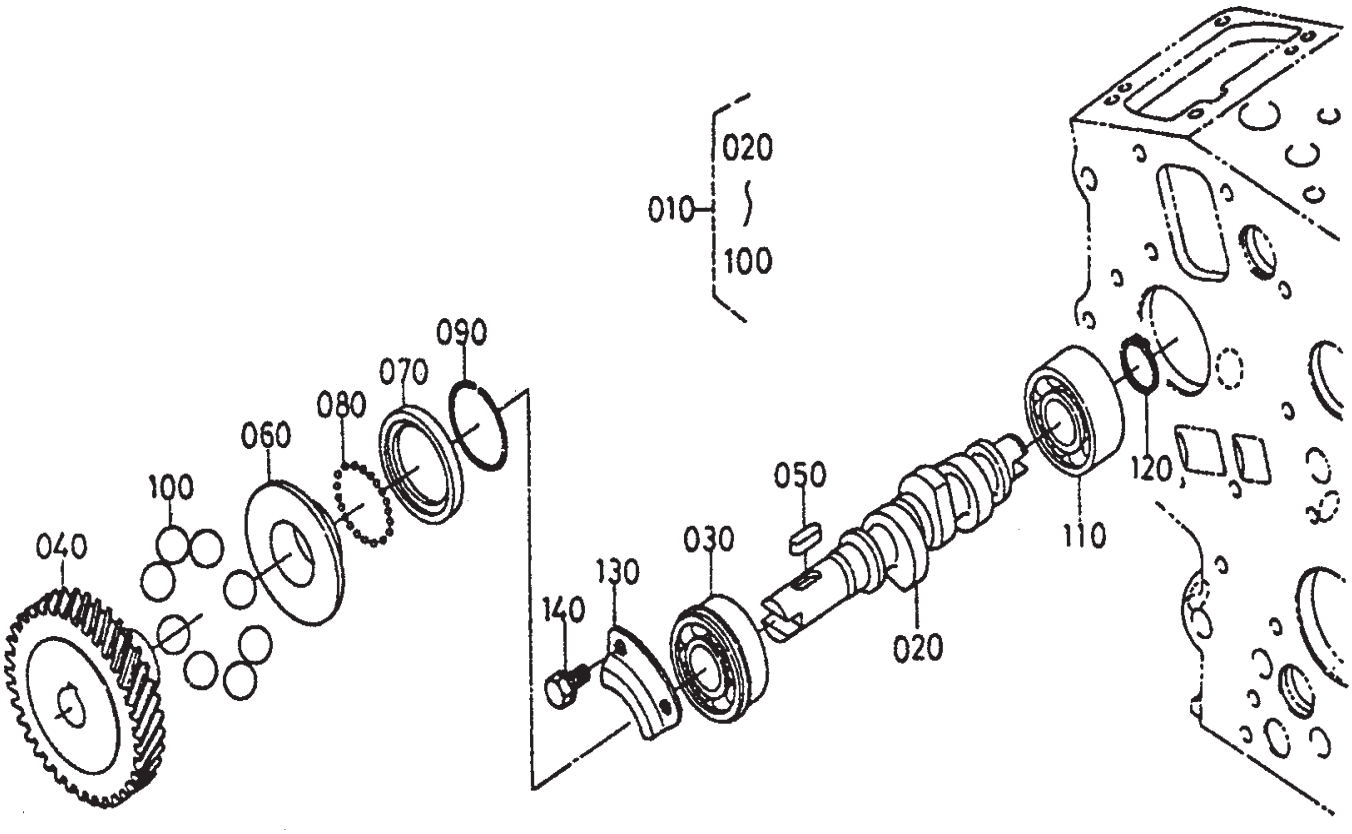


FLYWHEEL ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685125010	COMP. FLYWHEEL	1	INCLUDES ITEMS W/#
020#	1685163820	GEAR, RING	1	
030	1585225160	BOLT, FLYWHEEL	5	
050	1584704612	HOUSING, FLYWHEEL	1	
060	0112350820	BOLT	10	
070	3122014170	COVER	1	
080	0112360814	BOLT	1	
090	0401360080	WASHER, PLAIN	1	

KUBOTA Z482-EB ENGINE — FUEL CAMSHAFT & GOV. SHAFT ASSY.

FUEL CAMSHAFT & GOVERNOR SHAFT ASSY.

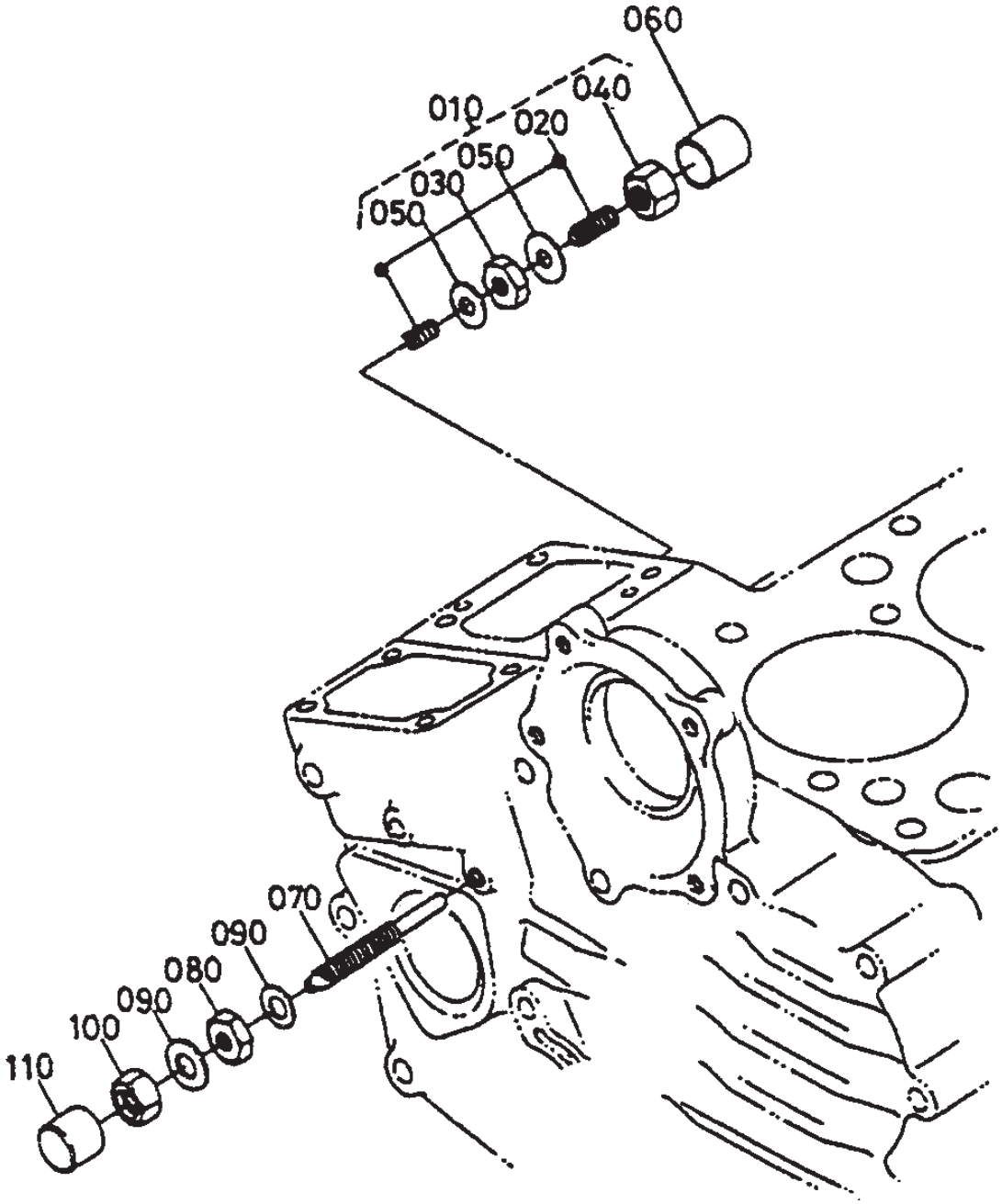


KUBOTA Z482-EB ENGINE — FUEL CAMSHAFT & GOV. SHAFT ASSY.

FUEL CAMSHAFT & GOVERNOR SHAFT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685116020	ASSY. CAMSHAFT, FUEL	1	INCLUDES ITEMS W/#
020#	1584116172	CAMSHAFT, FUEL	1	
030#	0815306203	BEARING, BALL	1	
040#	1685151150	GEAR, INJECTION PUMP	1	
050#	0571200515	KEY, FEATHER	1	
060#	1584155450	SLEEVE, GOVERNOR	1	
070#	1584155690	CASE, GOVERNOR BALL	1	
080#	0771500801	BALL	32	
090#	1526155470	CIR-CLIP, GOVERNOR SLEEVE	1	
100#	0771503217	BALL	8	
110	0810306203	BEARING, BALL	1	
120	0461200170	CIR CLIP, EXTERNAL	1	
130	1584116320	STOPPER, FUEL. CAMSHAFT	1	
140	0102350612	BOLT	2	

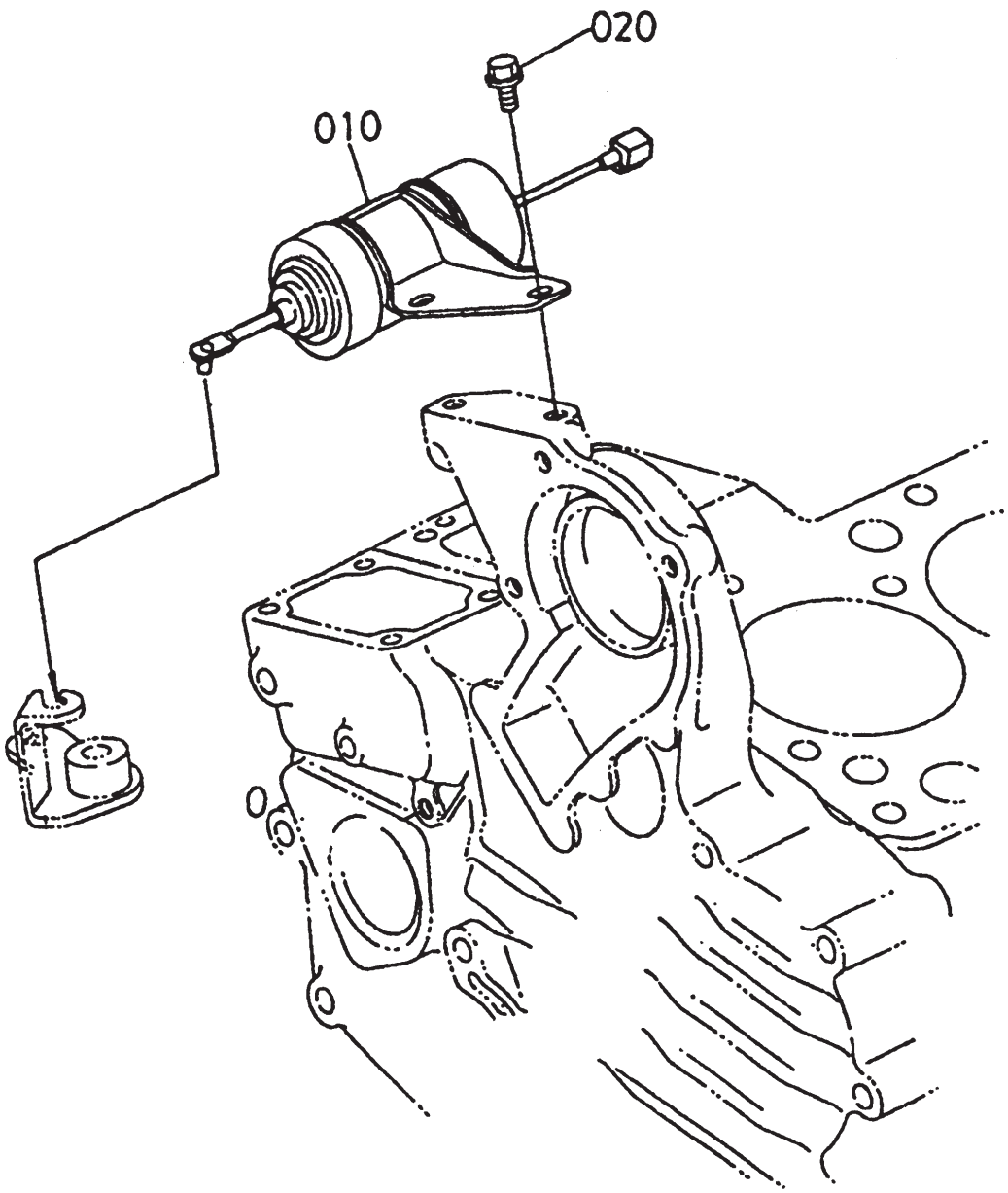
ENGINE STOP LEVER ASSY.



ENGINE STOP LEVER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584154092	ASSY. APPARATUS, IDLE	1	INCLUDES ITEMS W/#
020#	1584154100	ASSY. BOLT, ADJUSTING	1	
030#	1526192020	NUT	1	
040#	1584154220	NUT, CAP	1	
050#	1502133660	GASKET	2	
060	1584154270	CAP	1	
070	1584154122	BOLT, ADJUSTING	1	
080	1G03154210	NUT, LOCK	1	
090	156019665	GASKET	2	
100	1584192330	NUT, CAP	1	
110	1G02154290	PIPE, LOCK	1	

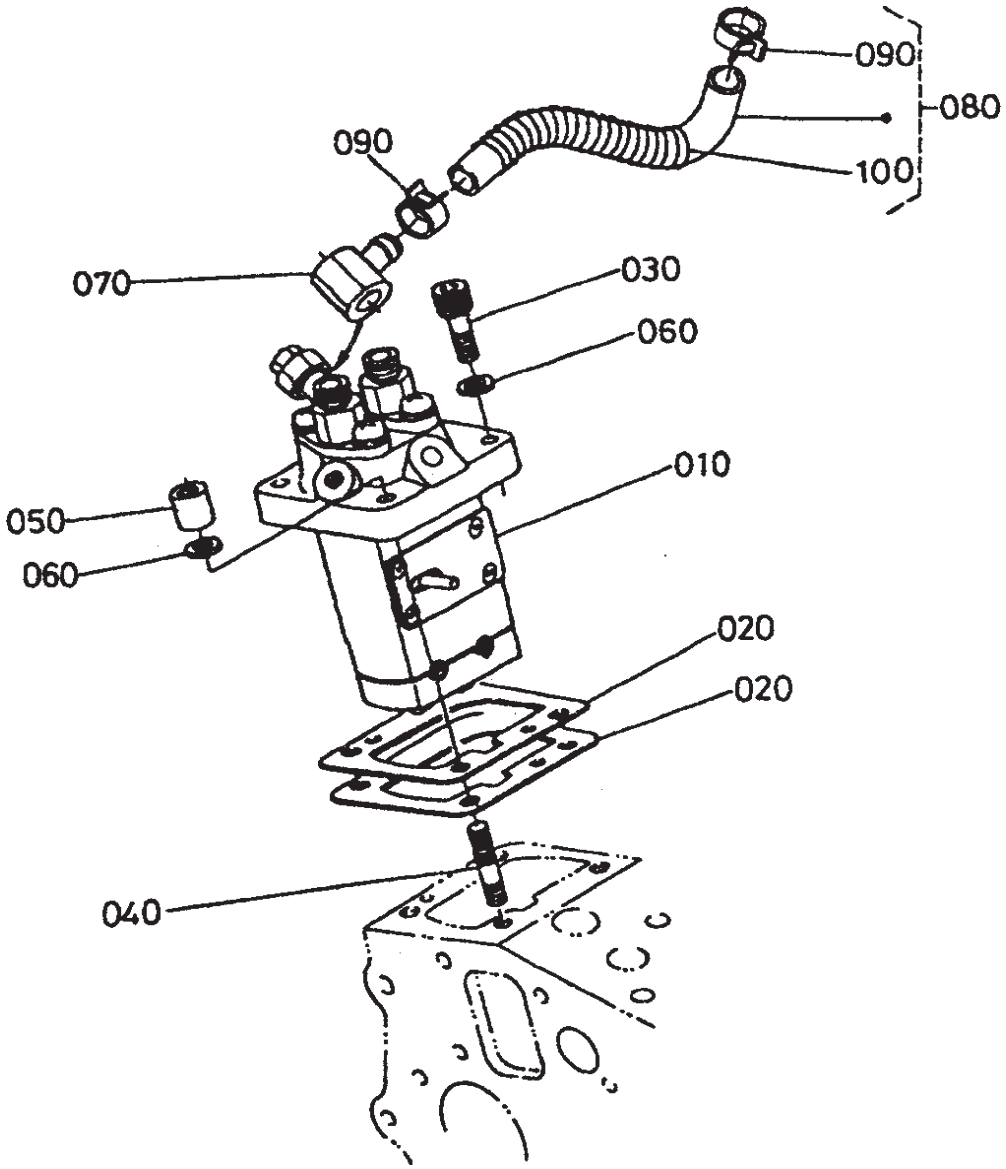
STOP SOLENOID ASSY.



STOP SOLENOID ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685160010	SOLENOID, STOP	1	
020	0175450612	BOLT, FLANGE	2	

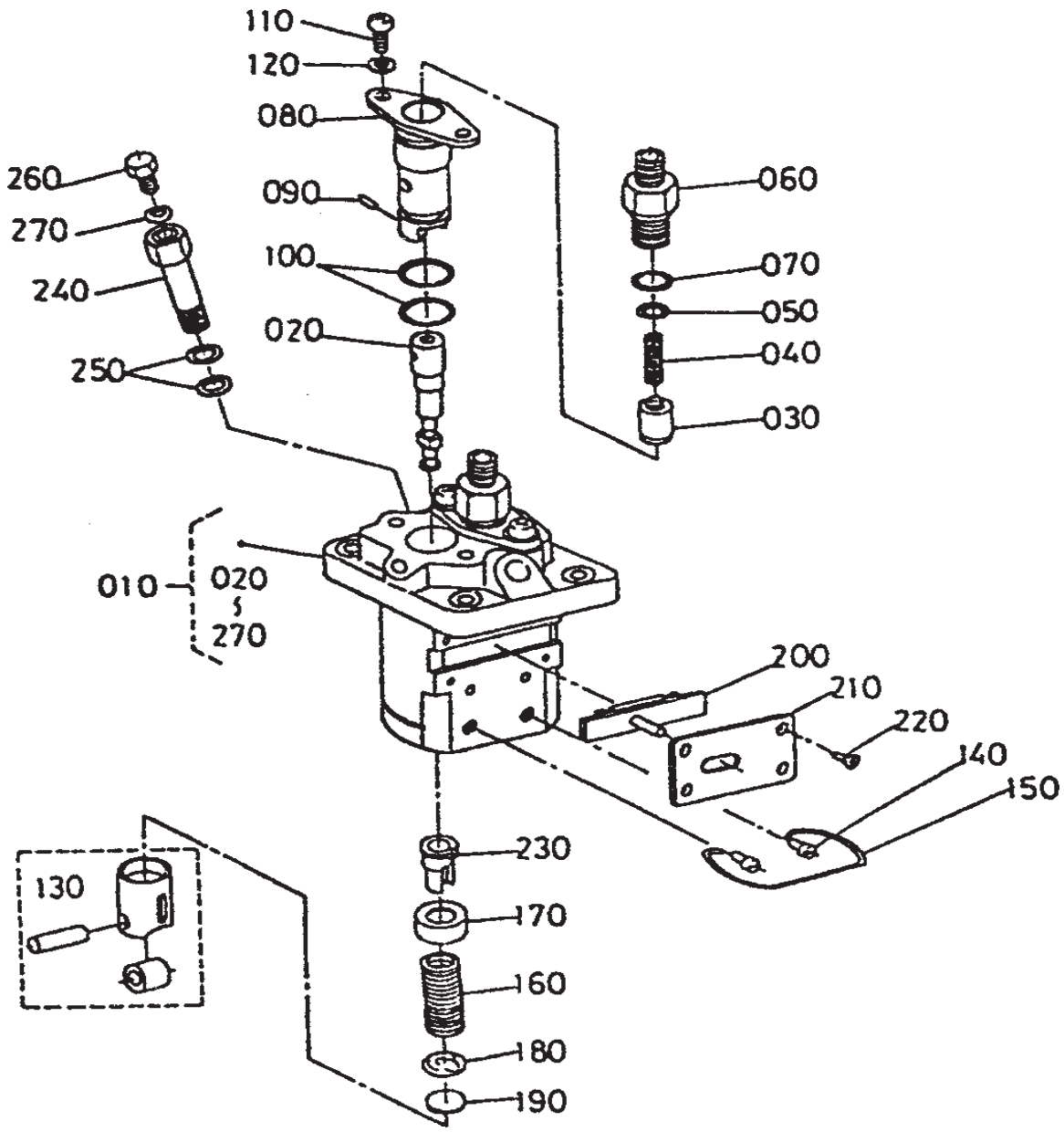
INJECTION PUMP 1 ASSY.



INJECTION PUMP 1 ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1600151010	ASSY PUMP, INJECTION	1	
020	1600152090	SHIM, INJECTION PUMP	1	
020	1600152110	SHIM, INJECTION PUMP	1	
020	1600152120	SHIM, INJECTION PUMP	1	
030	0131110620	BOLT, HEX-SOC-HD	3	
040	1584191500	STUD	1	
050	1584192320	NUT, CAP	1	
060	0451260060	WASHER, SPRING	4	
070	1584195680	JOINT, EYE	1	
080	1526342010	ASSY. PIPE, FUEL	1	..... INCLUDES ITEMS W/#
090#	1491142750	CLIP, PIPE	2	
100#	6659154250	SPRING, PIPE PROTECT	1	

INJECTION PUMP 2 ASSY.

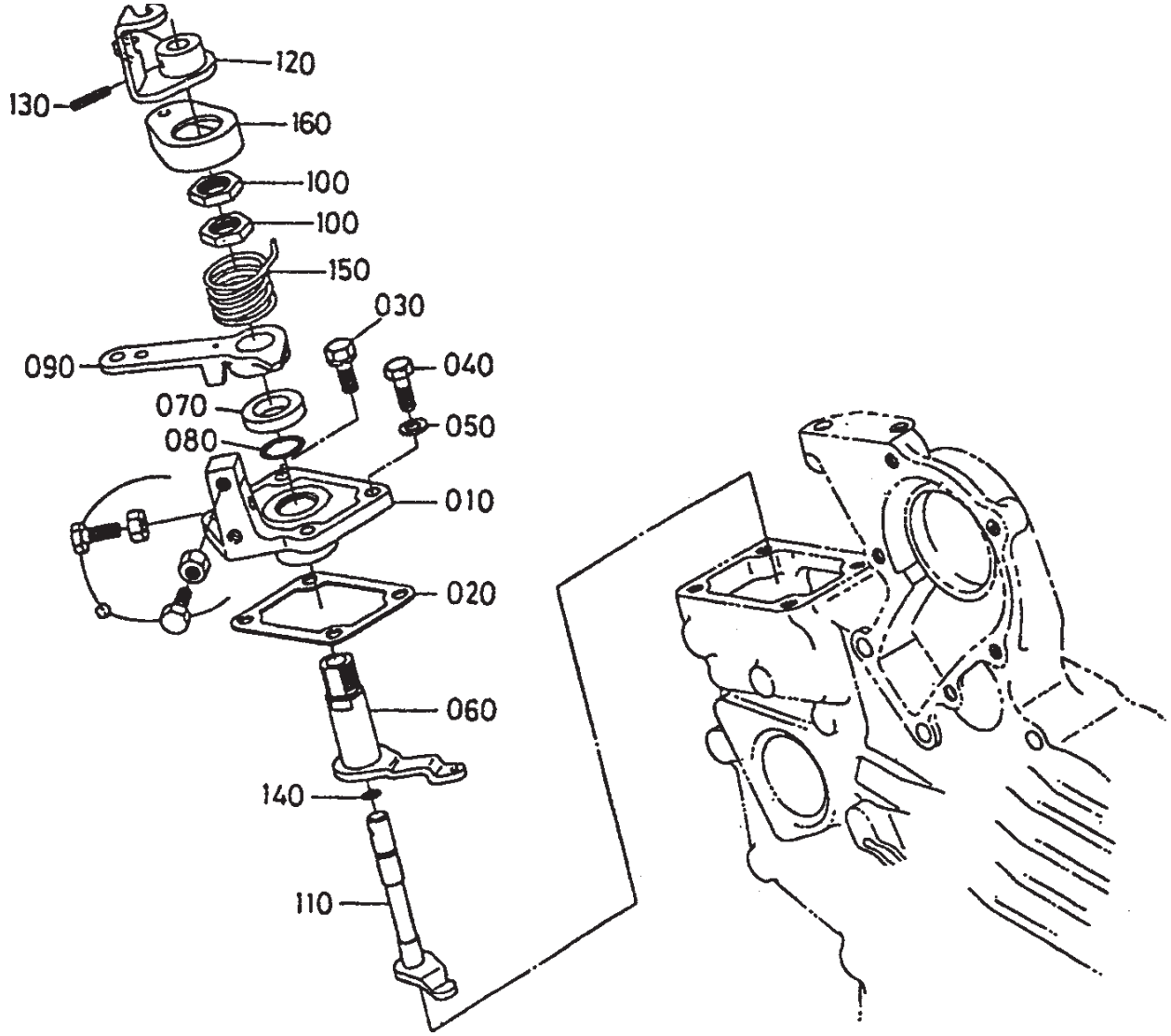


INJECTION PUMP ASSY. 2

NO	PART NO	PART NAME	QTY.	REMARKS
010	1600151010	ASSY. PUMP, INJECTION	1	INCLUDES ITEMS W/#
020#	1685151050	PLUNGER, PUMP	2	
030#	1584151030	VALVE, DELIVERY	2	
040#	1584151230	SPRING, DELIV. VALVE	2	
050#	1584151240	GASKET, DELIV. VALVE	2	
060#	1685151220	HOLDER, DELIV. VALVE	2	
070#	1584196760	O RING	2	
080#	1584151560	FLANGE, SLEEVE	2	
090#	1584194570	PIN, JOINT	2	
100#	1584151200	O RING	4	
110#	1586291430	SCREW	4	
120#	1585251470	WASHER	4	
130#	1584151070	ASSY. TAPPET	2	
140#	1584151250	PIN, TAPPET GUIDE	2	
150#	1584151430	PIN, CLAMP	1	
160#	1584151280	SPRING, PLUNGER	2	
170#	1584151270	SEAT, SPRING UPPER	2	
180#	1584151290	SEAT, SPRING LOWER	2	
190#	1584151490	SHIM	1	
200#	1584151060	SHIM	1	
210#	1584151540	PLATE	1	
220#	1584193110	SCREW, CSK-HD	4	
230#	1584151380	SLEEVE, CONTROL	2	
240#	1584151320	SCREW, FOLLOW	1	
250#	1584196650	GASKET	2	
260#	1584151350	SCREW	1	
270#	1584196660	GASKET	1	

KUBOTA Z482-EB ENGINE — SPEED CONTROL PLATE ASSY.

SPEED CONTROL PLATE ASSY.

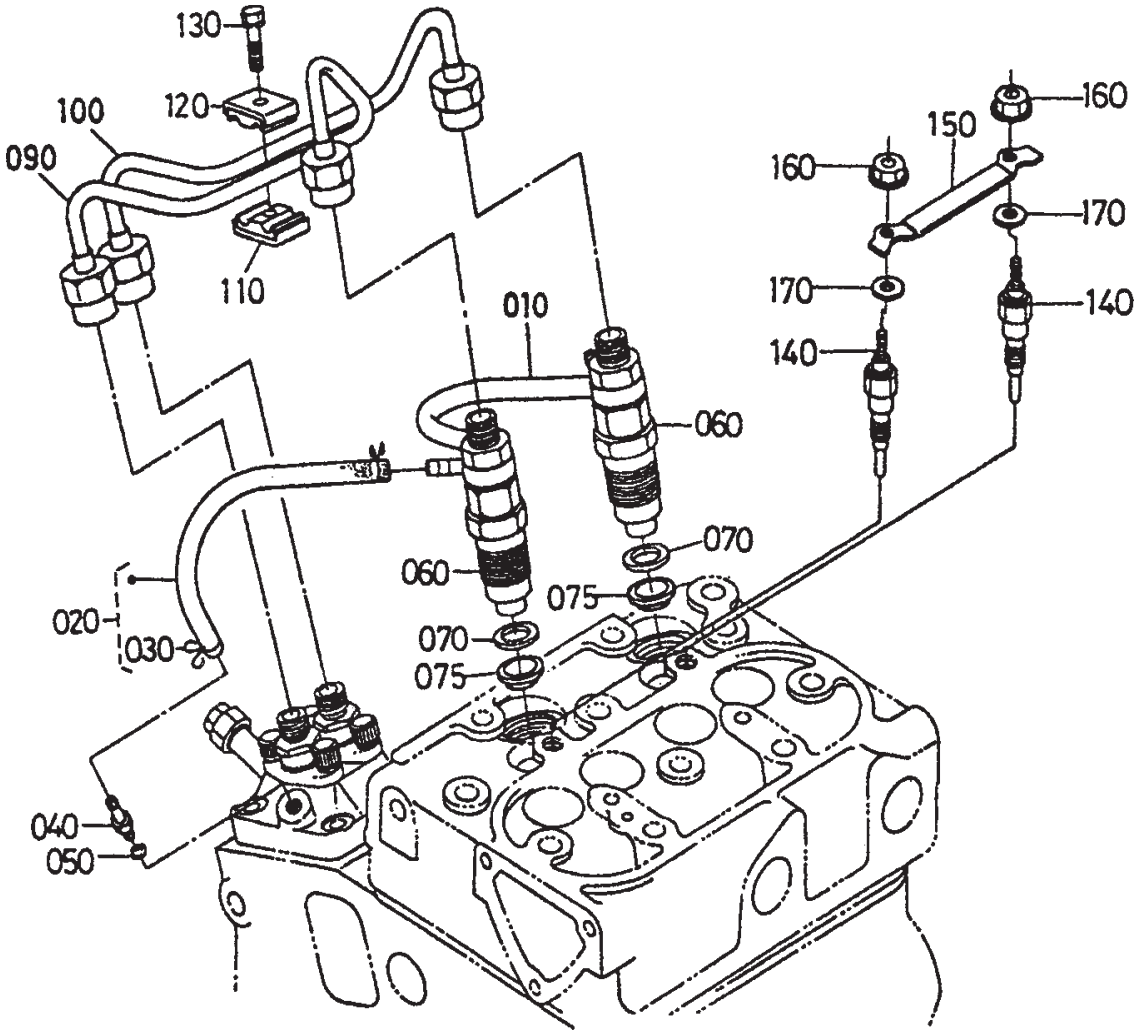


SPEED CONTROL PLATE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584157110	PLATE, SPEED CONTROL	1	
020	1584157212	GASKET, CONTROL PLATE	1	
030	0102350618	BOLT	2	
040	0105350618	BOLT	2	
050	1560196650	GASKET	2	
060	1584156110	LEVER, GOVERNOR	1	
070	1584157240	COLLAR	1	
080	0481410160	O RING	1	
090	1666757150	LEVER, SPEED CONTROL	1	
100	1584192010	NUT, SPEED CONTROL	2	
110	1687857740	SHAFT, LEVER	1	
120	1685157720	LEVER, ENGINE STOP	1	
130	0541100318	PIN, SPRING	1	
140	0481410070	O RING	1	
150	1687857920	SPRING, RETURN	1	
160	1686657300	CAP	1	

KUBOTA Z482-EB ENGINE — NOZZLE HOLDER & GLOW ASSY.

NOZZLE HOLDER & GLOW PLUG ASSY.

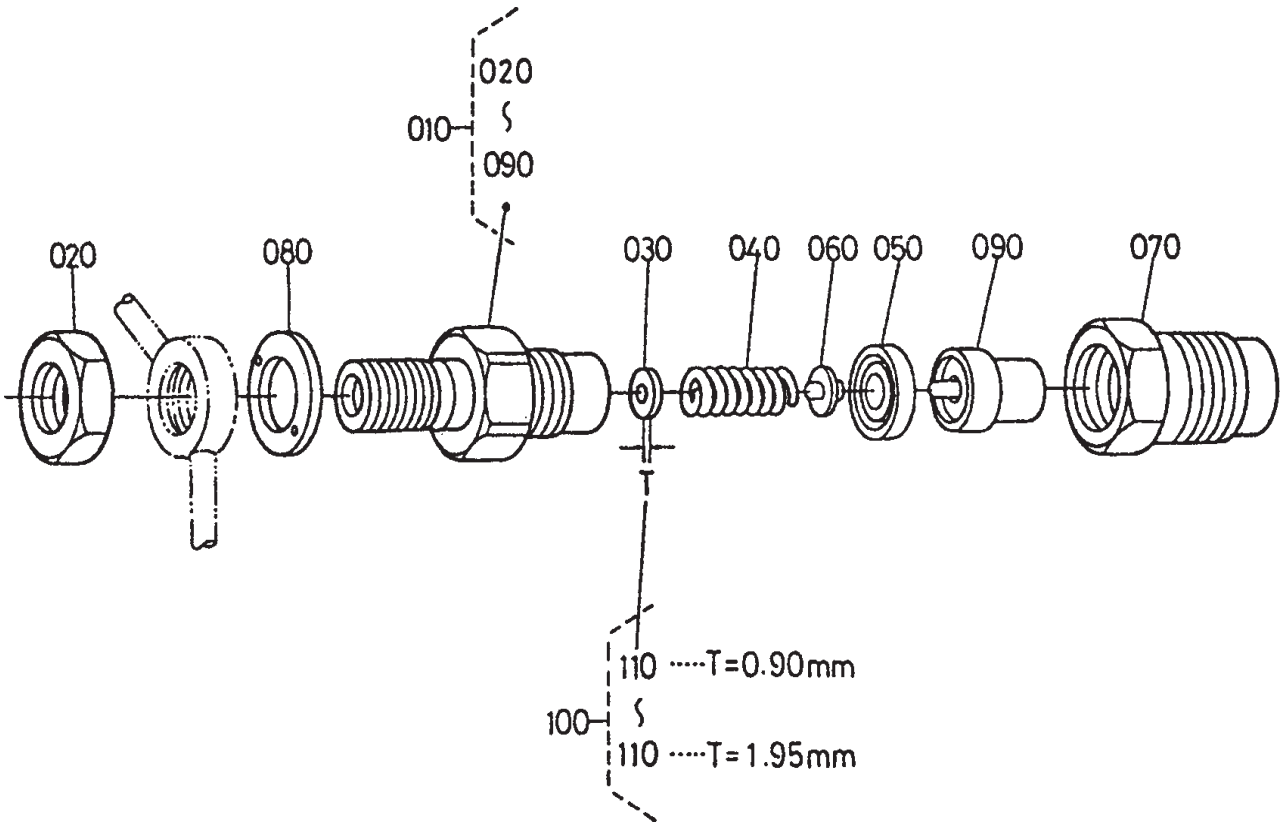


KUBOTA Z482-EB ENGINE — NOZZLE HOLDER & GLOW ASSY.

NOZZLE HOLDER & GLOW PLUG ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1585242502	ASSY. PIPE, OVER FLOW	1	
020	1584142500	ASSY. PIPE, OVER FLOW	1	INCLUDES ITEMS W/#
030#	1497142750	CLIP, PIPE	2	
040	1584151360	SCREW, AIR BREATHER	1	
050	1560196650	GASKET	1	
060	1600153000	ASSY. HOLDER, NOZZLE	2	
070	1584153622	GASKET	2	
075	1907753650	SEAL, HEAT	2	
090	1685153712	PIPE, INJECTION	1	
100	1685153722	PIPE, INJECTION	1	
110	1584153850	CLAMP, PIPE	1	
120	1584153860	CLAMP, PIPE	1	
130	0302450520	SCREW, WITH WASHER	1	
140	1685165510	GLOW PLUG	2	
150	1685165560	CORD, GLOW PLUG	1	
160	0276150040	NUT, FLANGE	2	
170	0401360040	WASHER, PLAIN	2	

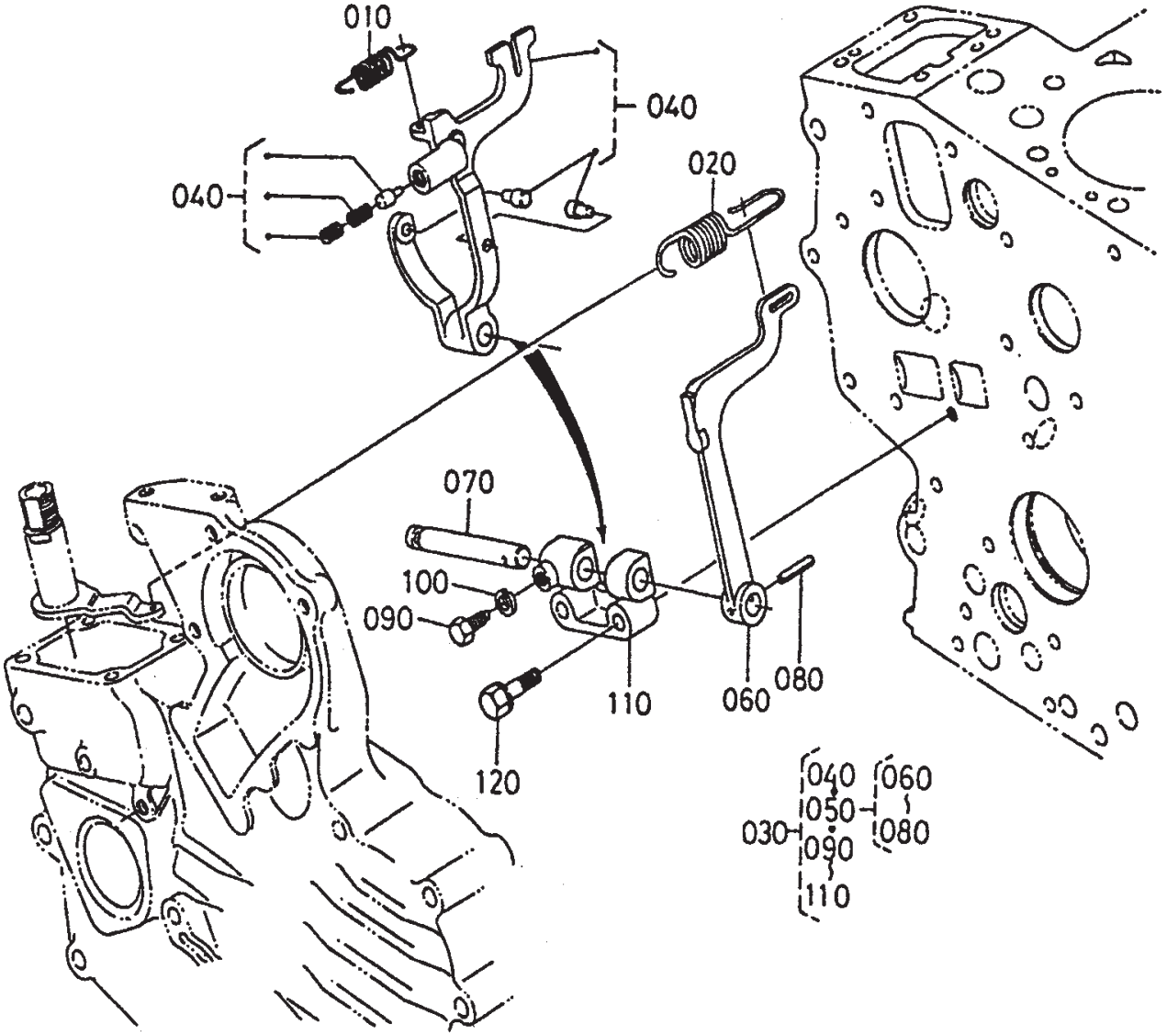
NOZZLE HOLDER ASSY.



NOZZLE HOLDER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
10	1600153000	ASSY. HOLDER, NOZZLE	2	INCLUDES ITEMS W/#
20#	1584192030	NUT	2	
30#	1584153230	WASHER, ADJUSTING	2	
40#	1584153170	SPRING, NOZZLE	2	
50#	1584153350	PIECE, DISTANCE	2	
60#	1584153160	PUSH ROD	2	
70#	1647553280	NUT, NOZZLE	2	
80#	1584194040	WASHER	2	
90#	1685153610	PIECE NOZZLE	2	
100	1584198100	ASSY. WASHER, ADJUST	2	OPTION
110	1584153230	WASHER, ADJUSTING	2	0.900MM
110	1584198510	WASHER, ADJUSTING	2	0.925MM
110	1584198520	WASHER, ADJUSTING	2	0.950MM
110	1584198530	WASHER, ADJUSTING	2	0.975MM
110	1584198540	WASHER, ADJUSTING	2	1.000MM
110	1584198550	WASHER, ADJUSTING	2	1.025MM
110	1584198560	WASHER, ADJUSTING	2	1.050MM
110	1584198570	WASHER, ADJUSTING	2	1.075MM
110	1584198580	WASHER, ADJUSTING	2	1.100MM
110	1584198590	WASHER, ADJUSTING	2	1.125MM
110	1584198600	WASHER, ADJUSTING	2	1.150MM
110	1584198610	WASHER, ADJUSTING	2	1.175MM
110	1584198620	WASHER, ADJUSTING	2	1.200MM
110	1584198630	WASHER, ADJUSTING	2	1.225MM
110	1584198640	WASHER, ADJUSTING	2	1.250MM
110	1584198650	WASHER, ADJUSTING	2	1.275MM
110	1584198660	WASHER, ADJUSTING	2	1.300MM
110	1584198670	WASHER, ADJUSTING	2	1.325MM
110	1584198680	WASHER, ADJUSTING	2	1.350MM
110	1584198690	WASHER, ADJUSTING	2	1.375MM
110	1584198700	WASHER, ADJUSTING	2	1.400MM
110	1584198710	WASHER, ADJUSTING	2	1.425MM
110	1584198720	WASHER, ADJUSTING	2	1.450MM
110	1584198730	WASHER, ADJUSTING	2	1.475MM
110	1584198740	WASHER, ADJUSTING	2	1.500MM
110	1584198750	WASHER, ADJUSTING	2	1.525MM
110	1584198760	WASHER, ADJUSTING	2	1.550MM
110	1584198770	WASHER, ADJUSTING	2	1.575MM
110	1584198780	WASHER, ADJUSTING	2	1.600MM
110	1584198790	WASHER, ADJUSTING	2	1.625MM
110	1584198800	WASHER, ADJUSTING	2	1.650MM
110	1584198810	WASHER, ADJUSTING	2	1.675MM
110	1584198820	WASHER, ADJUSTING	2	1.700MM
110	1584198830	WASHER, ADJUSTING	2	1.725MM
110	1584198840	WASHER, ADJUSTING	2	1.750MM
110	1584198850	WASHER, ADJUSTING	2	1.775MM
110	1584198860	WASHER, ADJUSTING	2	1.800MM
110	1584198870	WASHER, ADJUSTING	2	1.825MM
110	1584198880	WASHER, ADJUSTING	2	1.850MM
110	1584198890	WASHER, ADJUSTING	2	1.875MM
110	1584198900	WASHER, ADJUSTING	2	1.900MM
110	1584198910	WASHER, ADJUSTING	2	1.925MM
110	1584198920	WASHER, ADJUSTING	2	1.950MM

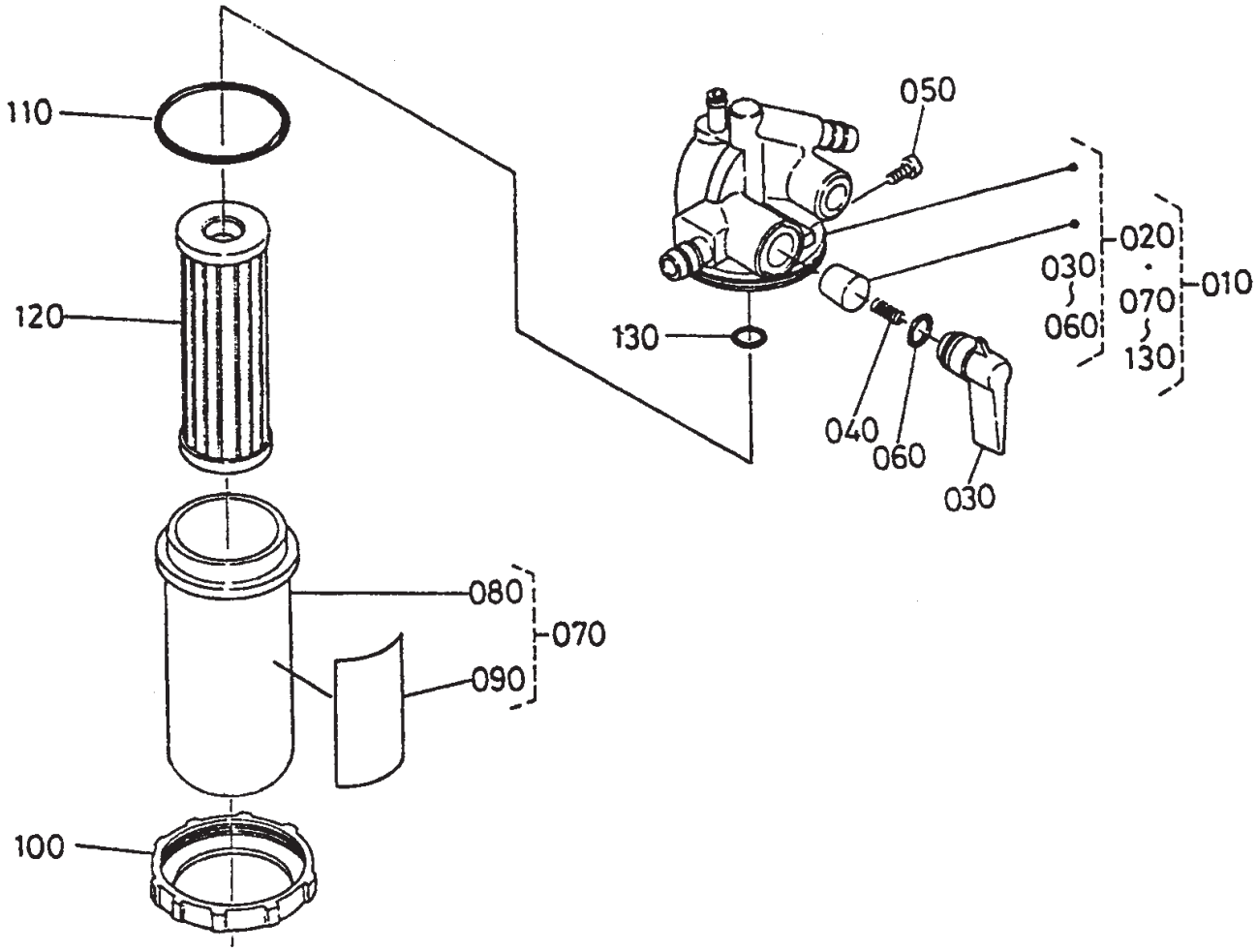
FORK LEVER ASSY



FORK LEVER ASSY

NO	PART NO	PART NAME	QTY.	REMARKS
010	1685156480	SPRING, START	1	
020	1946156410	SPRING, OGVERNOR	1	
030	1600056050	ASSY. LEVER, FORK	1	INCLUDES ITEMS/#
040#	1600056040	COMP. LEVER, FORK	1	
050#	1584156060	ASSY. LEVER, FORK	1	INCLUDES ITEMS W/%
060#%	1584156130	LEVER, FORK	1	
070#%	1584156150	SHAFT, FORK LEVER	1	
080#%	0541100318	PIN, SPRING	1	
090#	1526166410	BOLT	1	
100#	0451260050	WASHER, SPRING	1	
110#	1584156230	HOLDER, FORK LEVER	1	
120	0102350635	BOLT	2	

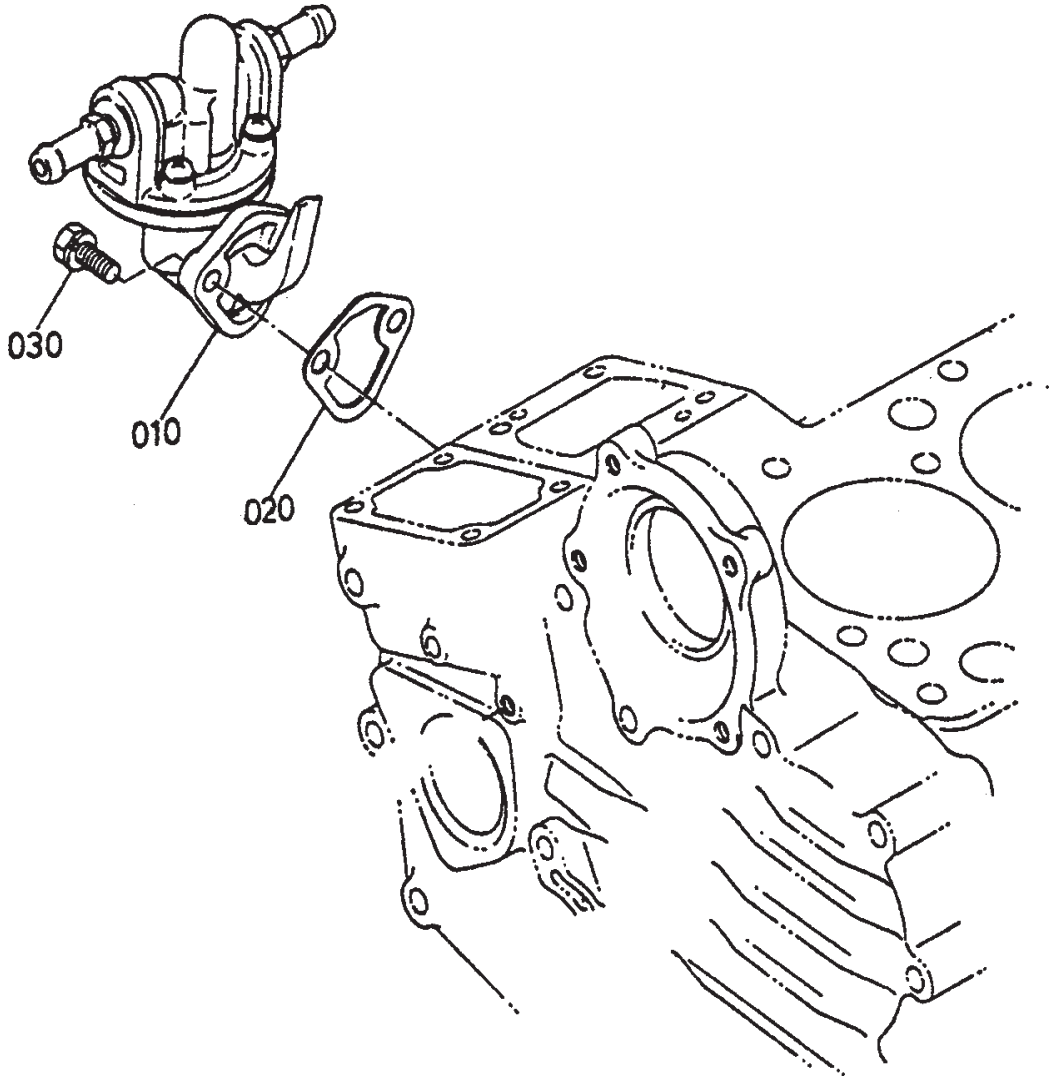
FUEL FILTER ASSY.



FUEL FILTER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1553143010	FILTER, FUEL ASSY	1	INCLUDES ITEMS W/* REPLACES 1553143012
020*	1553143110	COMP. BODY, COCK	1	INCLUDES ITEMS W/#
030*#	1430143522	LEVER, COCK	1	
040*#	1430143820	SPRING, VALVE	1	
050*#	1430143830	SCREW, SET	1	
060*#	1430143840	O RING, LEVER	1	
070*	1539343100	ASSY CUP, FILTER	1	INCLUDES ITEMS W/%
080*%	1539343580	CUP, FILTER	1	
090*%	1687388430	LABEL, FUEL	1	
100*	1430143590	RING, RETAINING	1	
110*	1430143650	O RING, FILTER CUP	1	
120*	1523143560	ELEMENT. FUEL FILTER	1	REPLACES 1523143563
130*	1430143570	O RING, FILTER	1	

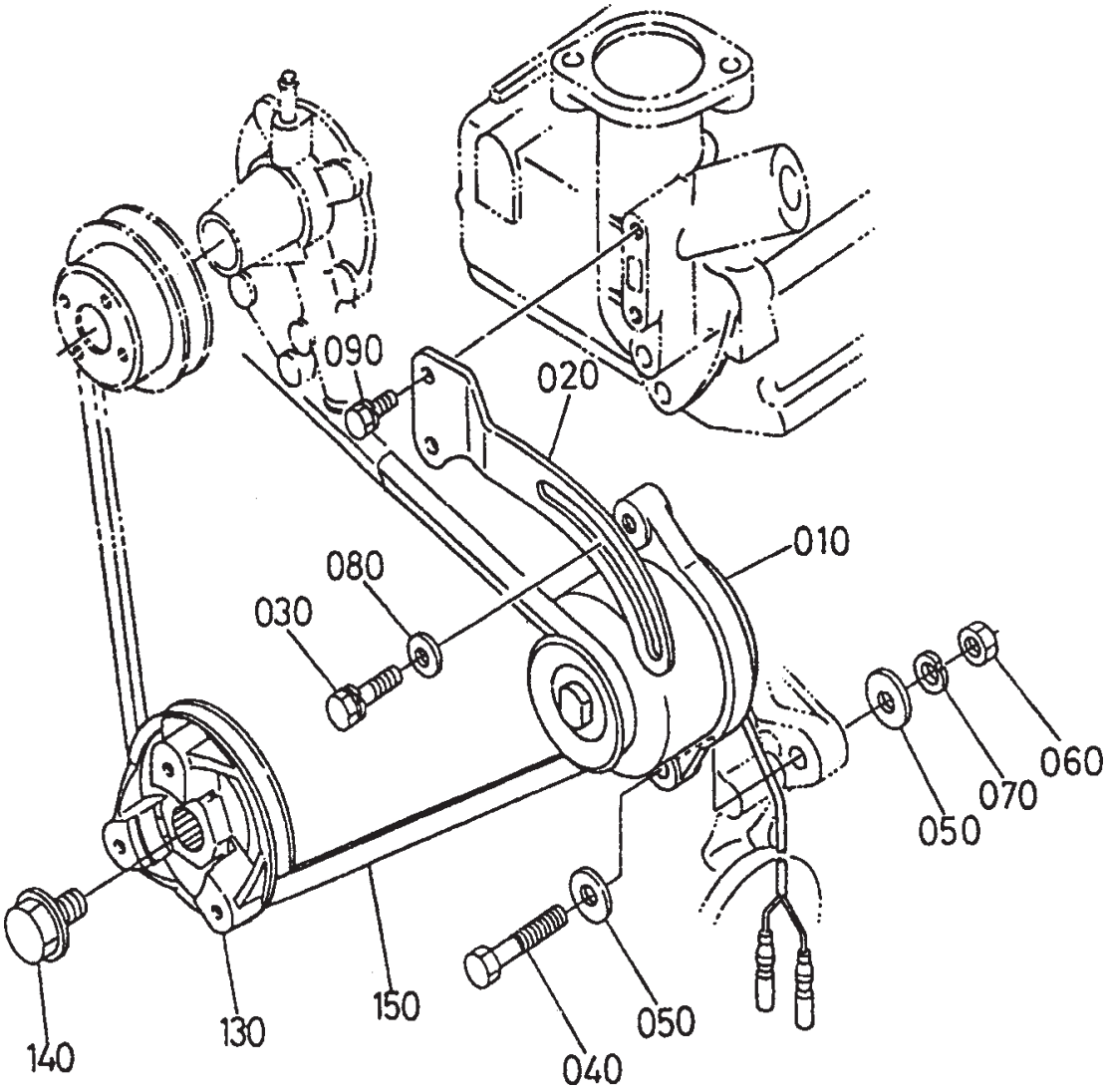
FUEL PUMP ASSY.



FUEL PUMP ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1582152030	ASSY. PUMP, FUEL	1	
020	1626452140	GASKET, FUEL PUMP	1	
030	0102350616	BOLT	2	

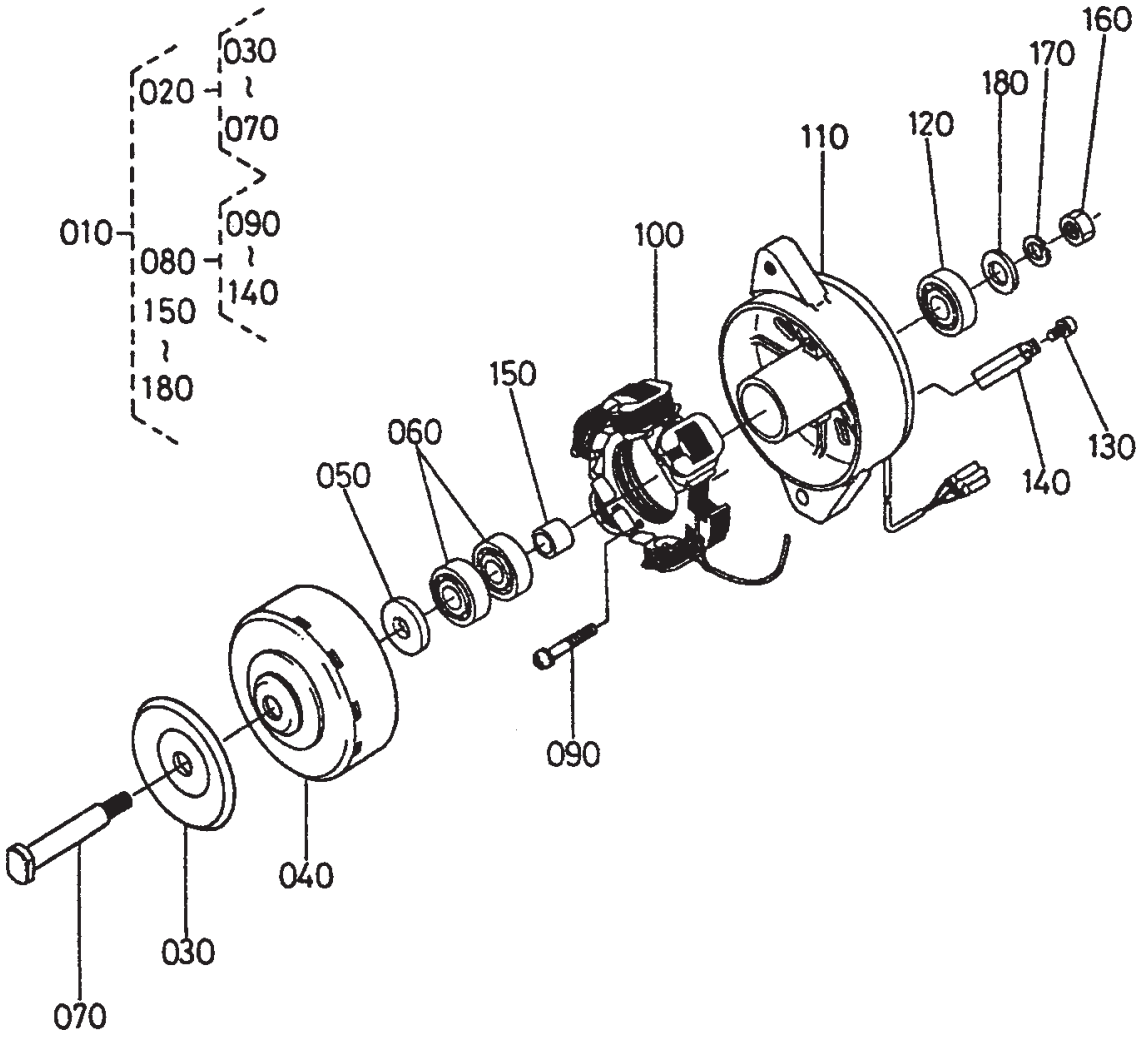
DYNAMO & PULLEY ASSY.



DYNAMO & PULLEY ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1753164010	ASSY. DYNAMO	1	
020	1259964420	STAY, DYNAMO	1	
030	0112350830	BOLT	1	
040	0115350855	BOLT	1	
050	0401360080	WASHER, PLAIN	2	
060	0211450080	NUT	1	
070	0451260080	WASHER, SPRING	1	
080	0401560080	WASHER, PLAIN	1	
090	0102350616	BOLT	2	
130	1685174280	PULLEY, FAN DRIVE	1	
140	1588191030	BOLT	1	
150	1980572530	BELT, FAN	1	34.5 IN

DYNAMO ASSY.


010
020
030
070
080
090
140
150
180
160
170
180
120
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100
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060
050
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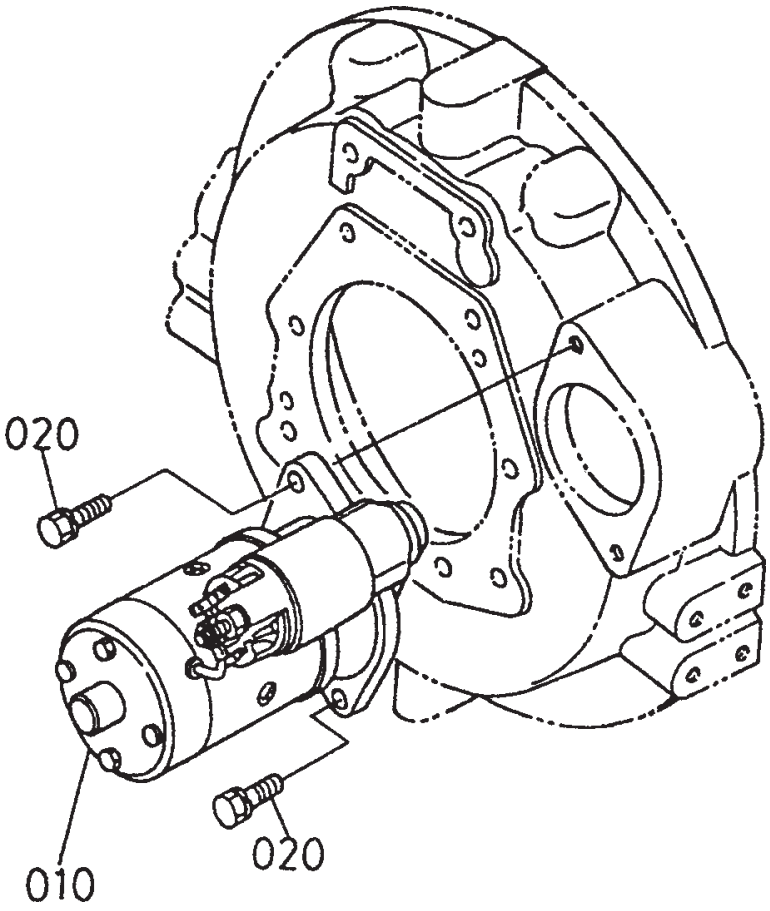
090
040
030
070

DYNAMO ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1753164010	ASSY. DYNAMO	1	INCLUDES ITEMS W/%
020%	1553164122	COMP. FLYWHEEL	1	INCLUDES ITEMS W/#
030%#	1553164110	PULLEY	1	
040%#	1553164040	FLYWHEEL	1	
050%#	6C04082860	COLLAR	1	
060%#	1553174180	BEARING, BALL	2	
070%#	1553174140	SHAFT, FAN	1	
080%	1553164363	COMP. STATOR	1	INCLUDES ITEMS W/*
090%*	1526193010	SCREW, ROUND HEAD	2	
100%*	1553164292	STATOR	1	
110%*	1553164072	PLATE	1	
120%*	1553174180	BEARING, BALL	1	
130%*	1553193010	SCREW, ROUND HEAD	1	
140%*	1553164190	CLAMP, CORD	1	
150%	1526164150	COLLAR	1	
160%	1526192030	NUT	1	
170%	1526194070	WASHER, SPRING	1	
180%	1526194020	WASHER, PLAIN	1	

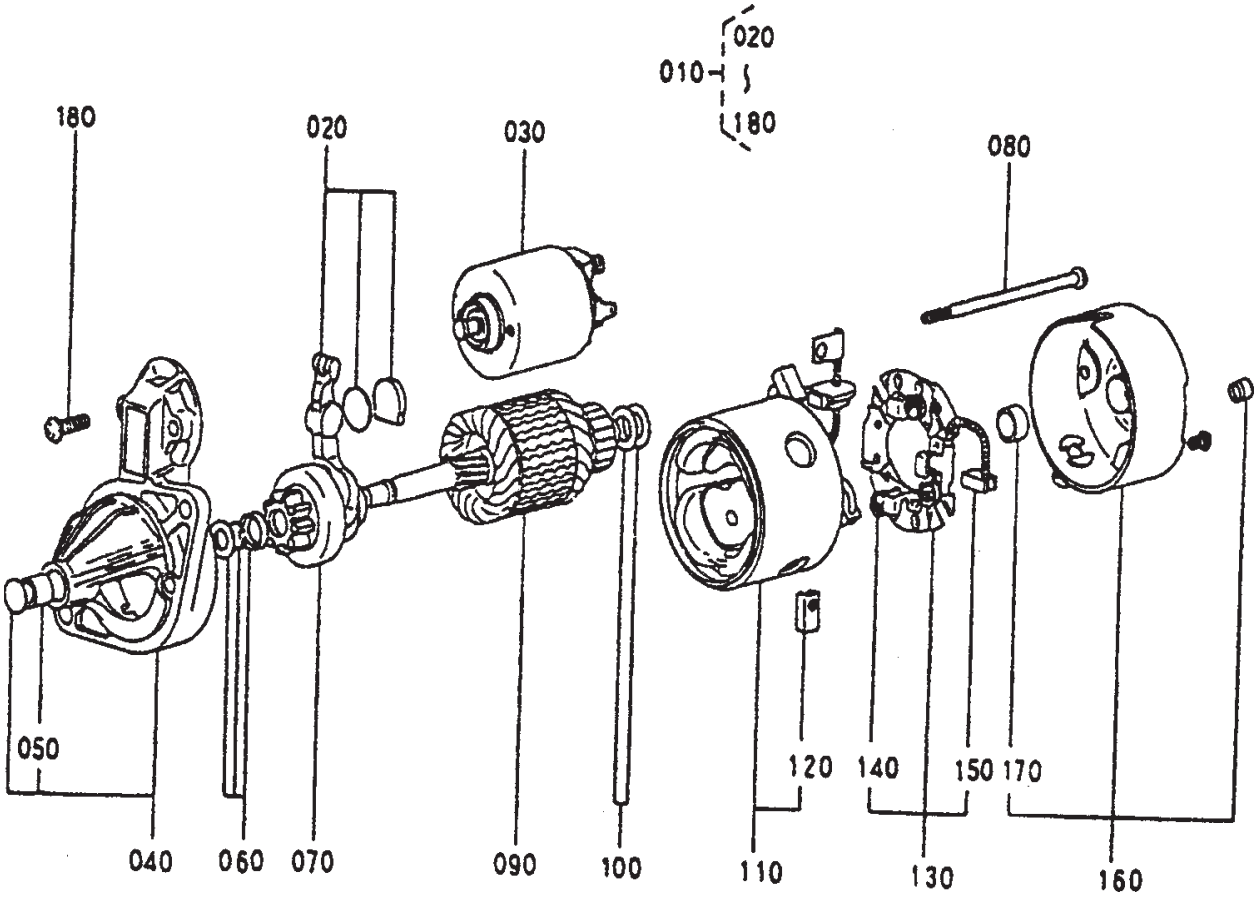
STARTER 1 ASSY.



STARTER 1 ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1983763010	ASSY. STARTER	1	
020	0112350825	BOLT	2	

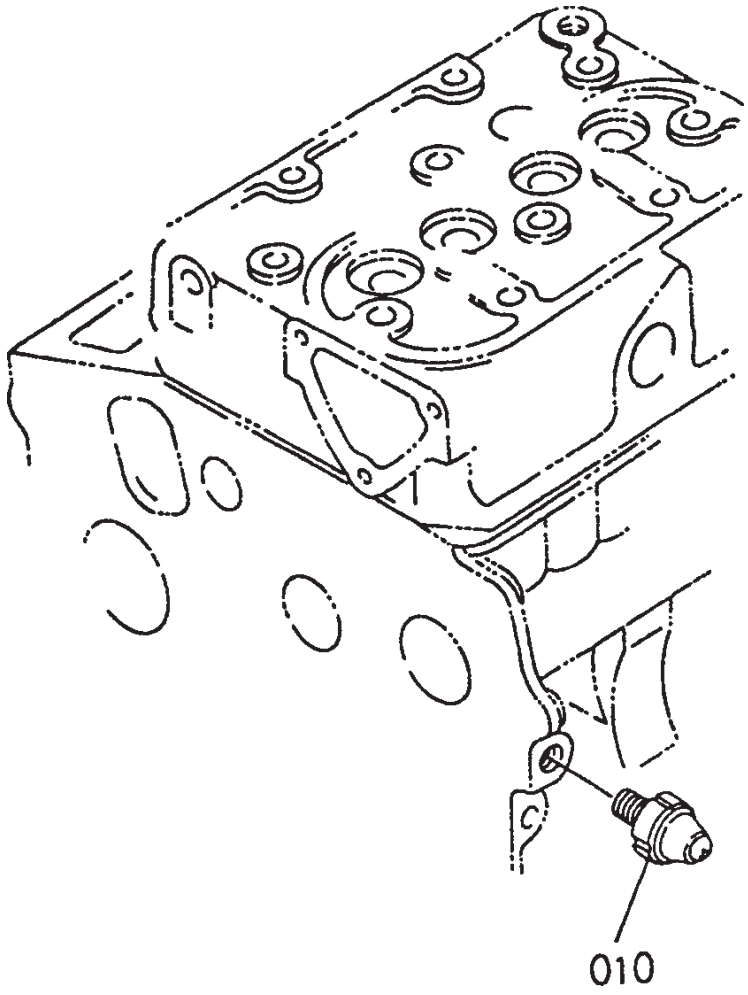
STARTER 2 ASSY.



STARTER 2 ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1983763010	ASSY. STARTER	1	INCLUDES ITEMS W/*
020*	1983763050	LEVER, DRIVE	1	
030*	1585263020	SWITCH, MAGNETIC	1	
040*	1983763030	FRAME, DRIVE END	1	INCLUDES ITEMS W/#
050*#	1585263240	BUSH	1	
060*	1983763150	STOPPER	1	
070*	1983763040	CLUTCH, OVER RUNNING	1	
080*	1983763320	BOLT	2	
090*	1983763070	ARMATURE	1	
100*	1585263410	WASHER, ADJUSTING	1	
110*	1983763080	ASSY.YOKE	1	INCLUDES ITEMS W/%
120*%	1585263360	BRUSH	2	
130*	1585263380	HOLDER, BRUSH ASSY.	1	INCLUDES ITEMS W/+
140*+	1585263390	SPRING, BRUSH	3	
150*+	1585263370	BRUSH	1	
160*	1983763200	FRAME, END	1	INCLUDES ITEM W/$
170*$	1585263250	BUSH	1	
180*	1585293310	SCREW, PAN-HEAD	1	

OIL SWITCH ASSY.

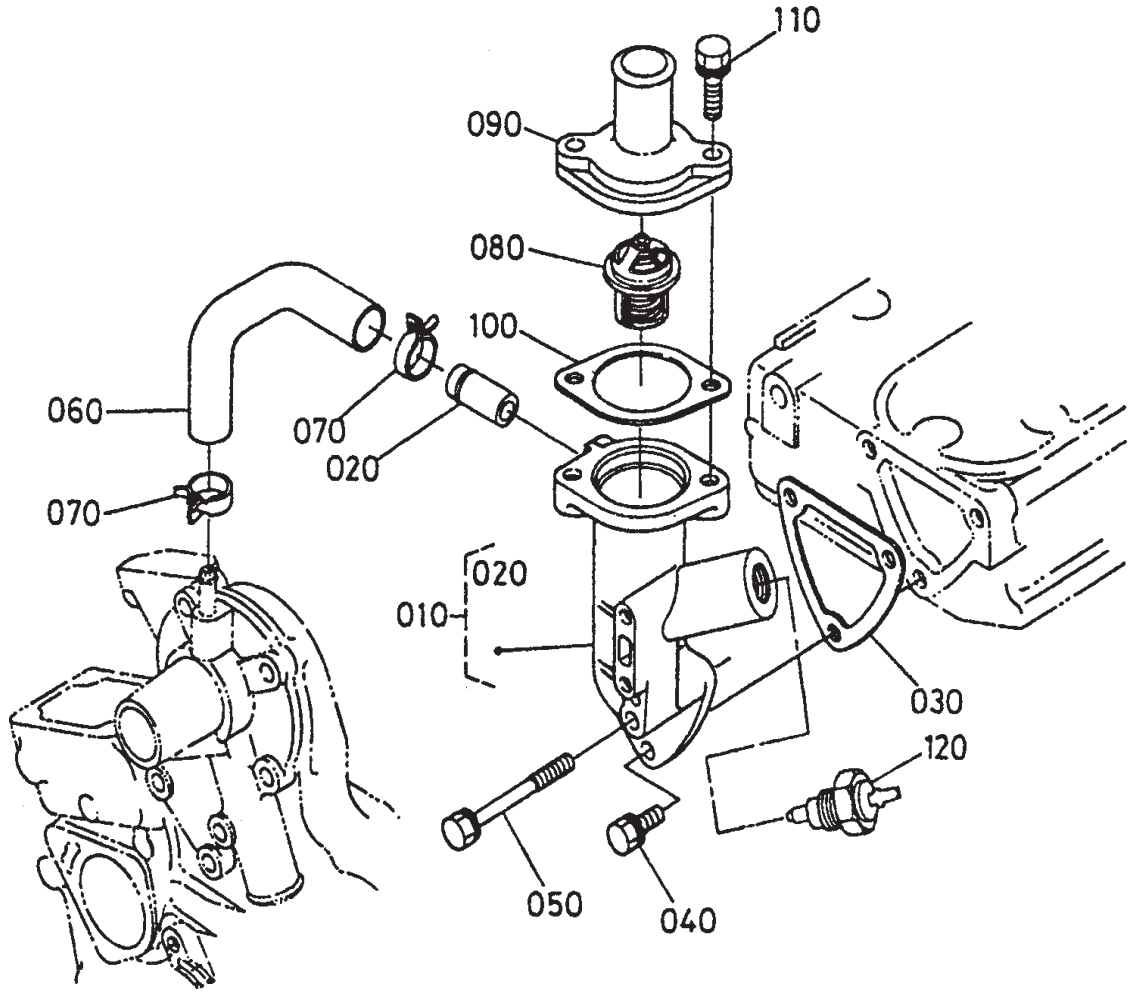


OIL SWITCH ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584139010	SWITCH, OIL	1	

KUBOTA Z482-EB ENGINE — WATER FLANGE & THERMOSTAT ASSY.

WATER FLANGE & THERMOSTAT ASSY.

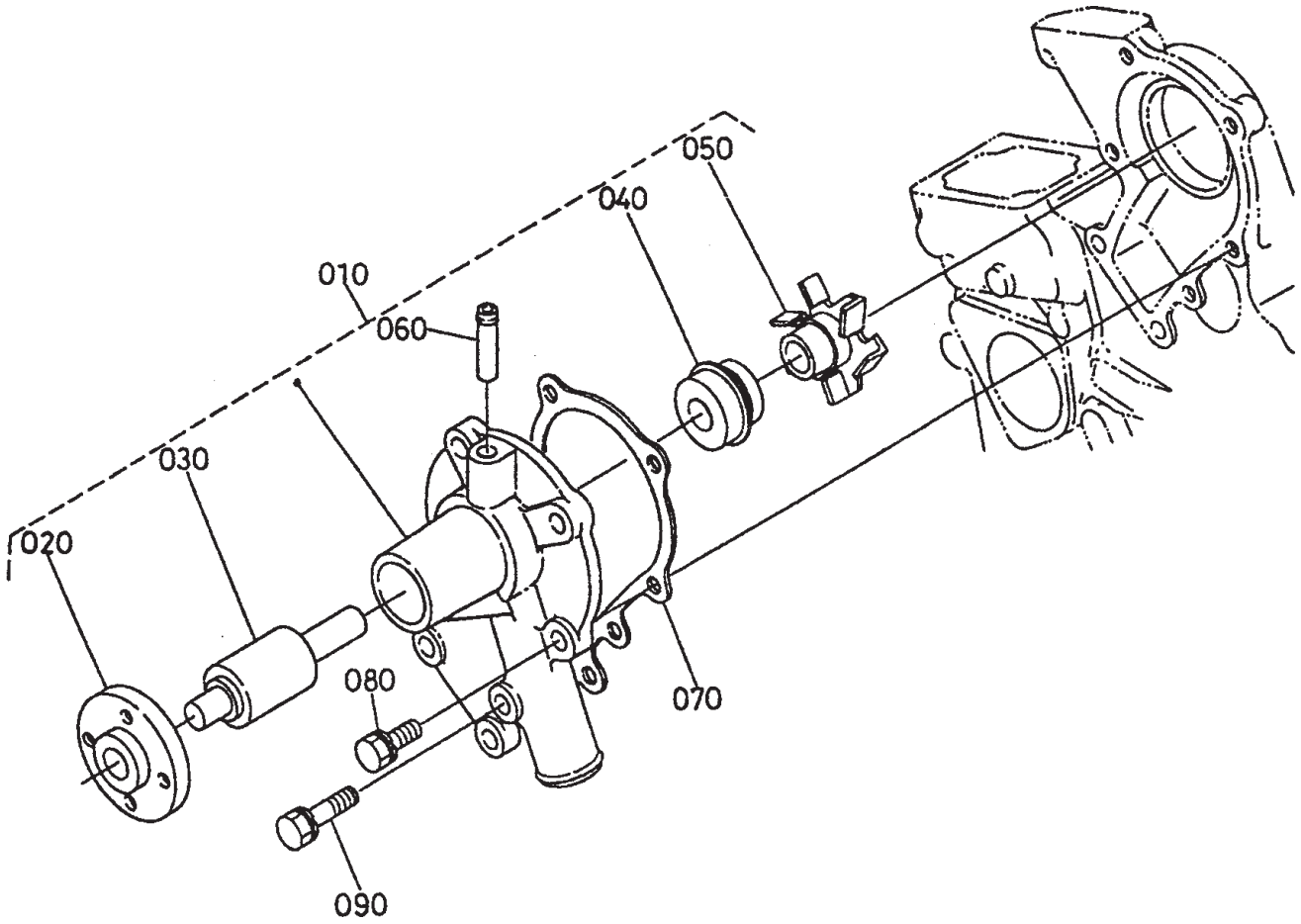


KUBOTA Z482-EB ENGINE — WATER FLANGE & THERMOSTAT ASSY.

WATER FLANGE & THERMOSTAT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1687572700	COMP. FLANGE, WATER	1	
020	1624173370	PIPE, WATER RETURN	1	..... NCLUDES ITEMS W/*
030*	1584172922	GASKET, WATER FLANGE	1	I
040	0102350616	BOLT	2	
050	0102360650	BOLT	4	
060	1685173350	PIPE, WATER RETURN	1	
070	1624173360	BAND, PIPE	2	
080	1553173010	ASSY. THERMOSTAT	1	
090	1584173260	COVER, THERMOSTAT	1	
100	1685173270	GASKET, THERMOSTAT	1	
110	0102350622	BOLT	2	
120	1554383040	SWITCH, THERMOMETER	1	

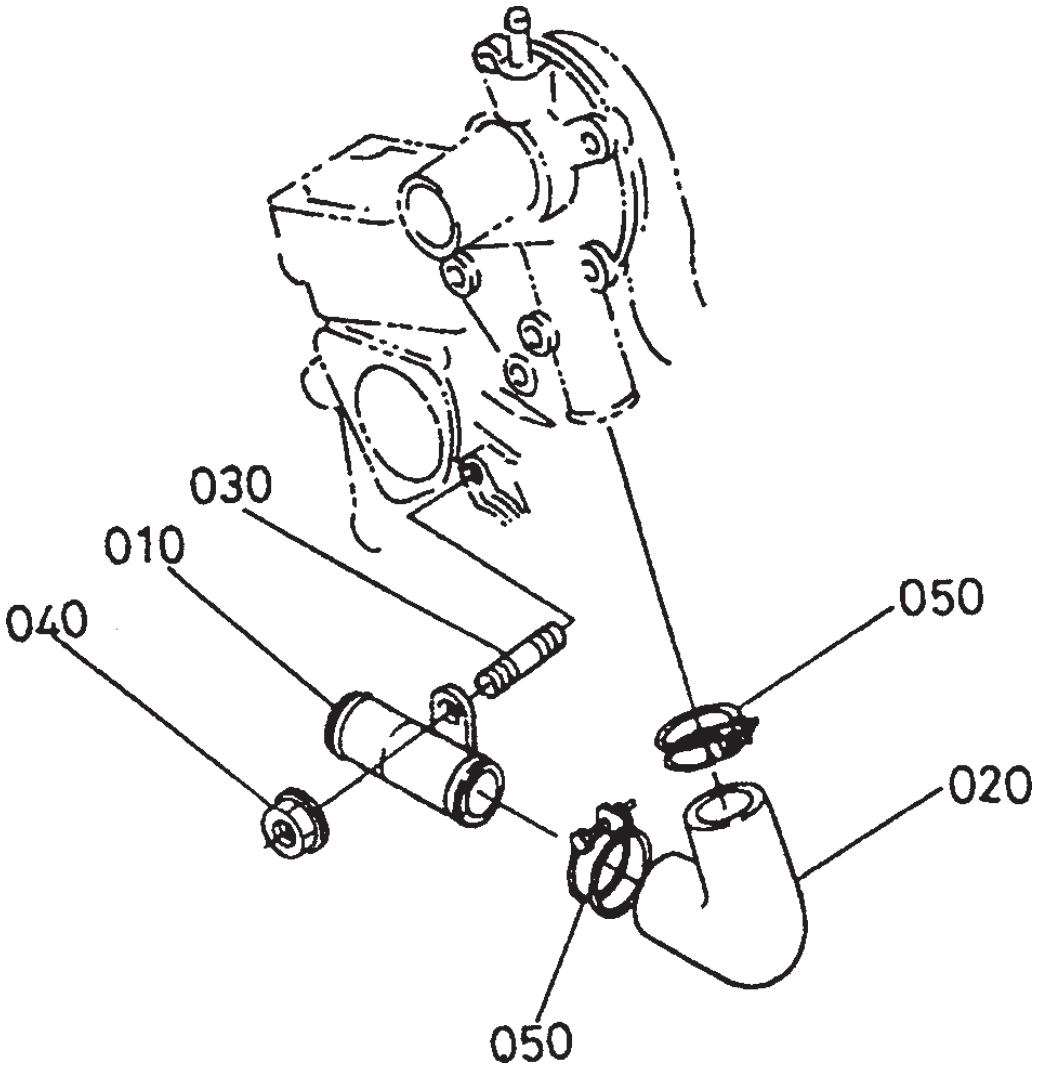
WATER PUMP ASSY.



WATER PUMP ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1988373030	ASSY. PUMP, WATER	1	INCLUDES ITEMS W/*
020*	1585273520	FLANGE, WATER PUMP	1	
030*	1585273550	BEARING	1	
040*	1548173050	ASSY. SEAL, MECHANICAL	1	
050*	1988373510	IMPELLER, WATER PUMP	1	
060*	1585273340	PIPE, WATER RETURN	1	
070	1588173432	GASKET, WATER PUMP NA	1	
080	0102350622	BOLT	4	
090	0102350638	BOLT	1	

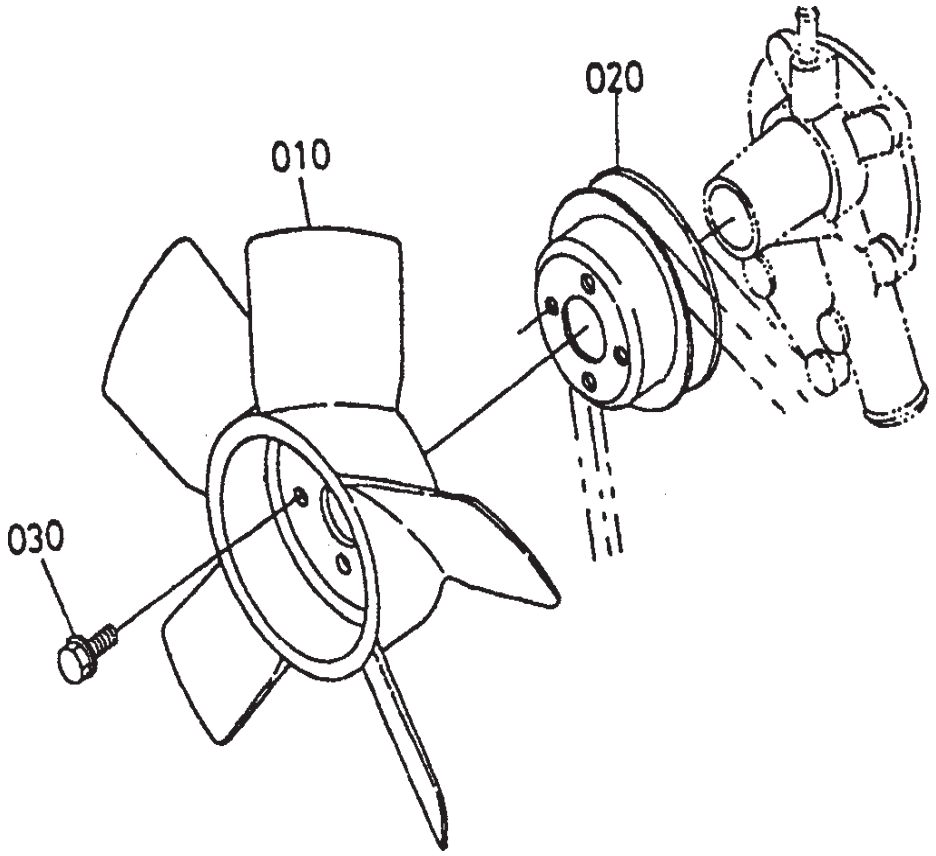
WATER PIPE ASSY.



WATER PIPE ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584172860	PIPE, WATER	1	
020	1588172870	PIPE, WATER	1	
030	1584191510	STUD	1	
040	0275150060	NUT, FLANGE	1	
050	0931889030	CLAMP, HOSE	2	

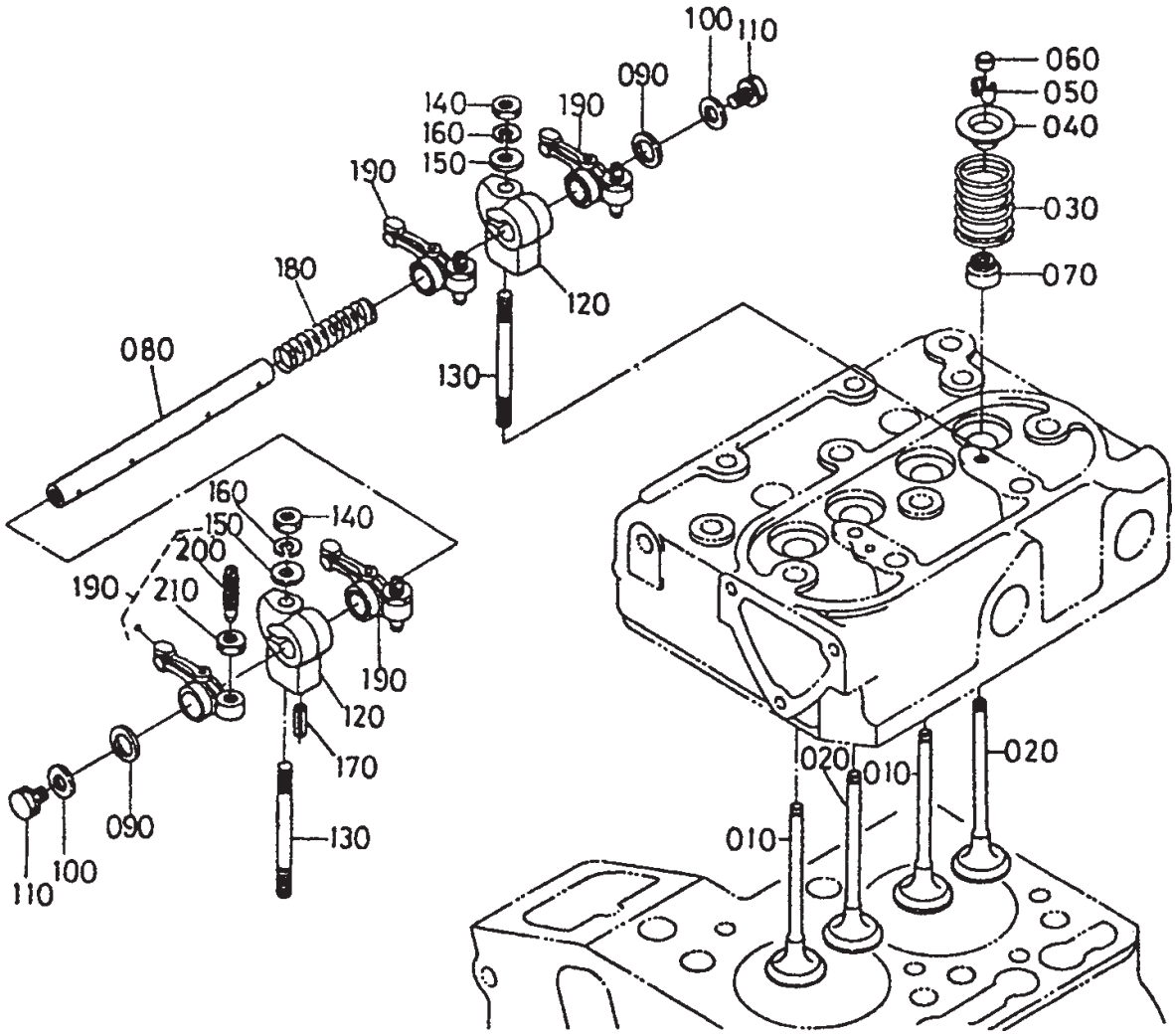
FAN ASSY.



FAN ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1586774112	FAN	1	
020	1584174250	PULLEY, FAN	1	
030	0175450610	BOLT, FLANGE	4	

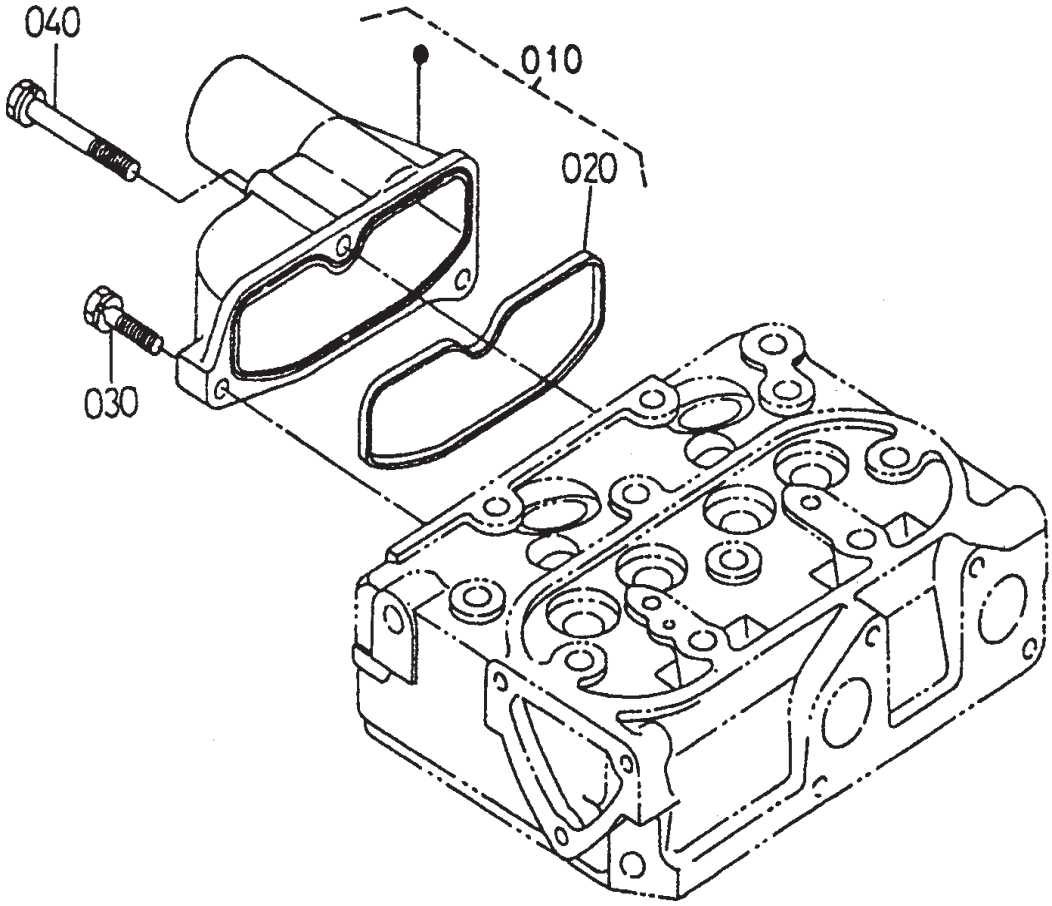
VALVE & ROCKER ARM ASSY.



VALVE & ROCKER ARM ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1460113110	VALVE, INLET	2	
020	146013120	VALVE, EXHAUST	2	
030	1460113240	SPRING, VALVE	4	
040	1460113330	RETAINER, SPRING	4	
050	1460113360	COLLET, VALVE SPRING SET	4	
060	1685113280	CAP, VALVE	4	
070	1584113150	SEAL, VALVE STEM	4	
080	1584114263	SHAFT, ROCKER ARM	1	
090	1687114430	WASHER	2	
100	1584194022	WASHER, PLAIN	2	
110	0102350610	BOLT	2	
120	1584114350	BRACKET, ROCKER ARM	2	
130	1460114410	STUD	2	
140	0205650060	NUT	2	
150	0401250060	WASHER, PLAIN	2	
160	0451260060	WASHER, SPRING	2	
170	0541100420	PIN, SPRING	1	
180	1460114310	SPRING, ROCKER ARM	1	
190	1584114030	ASSY. ROCKER ARM	4	INCLUDES ITEMS W/*
200*	1584114230	SCREW, ADJUSTING	4	
210*	1460114240	NUT	4	

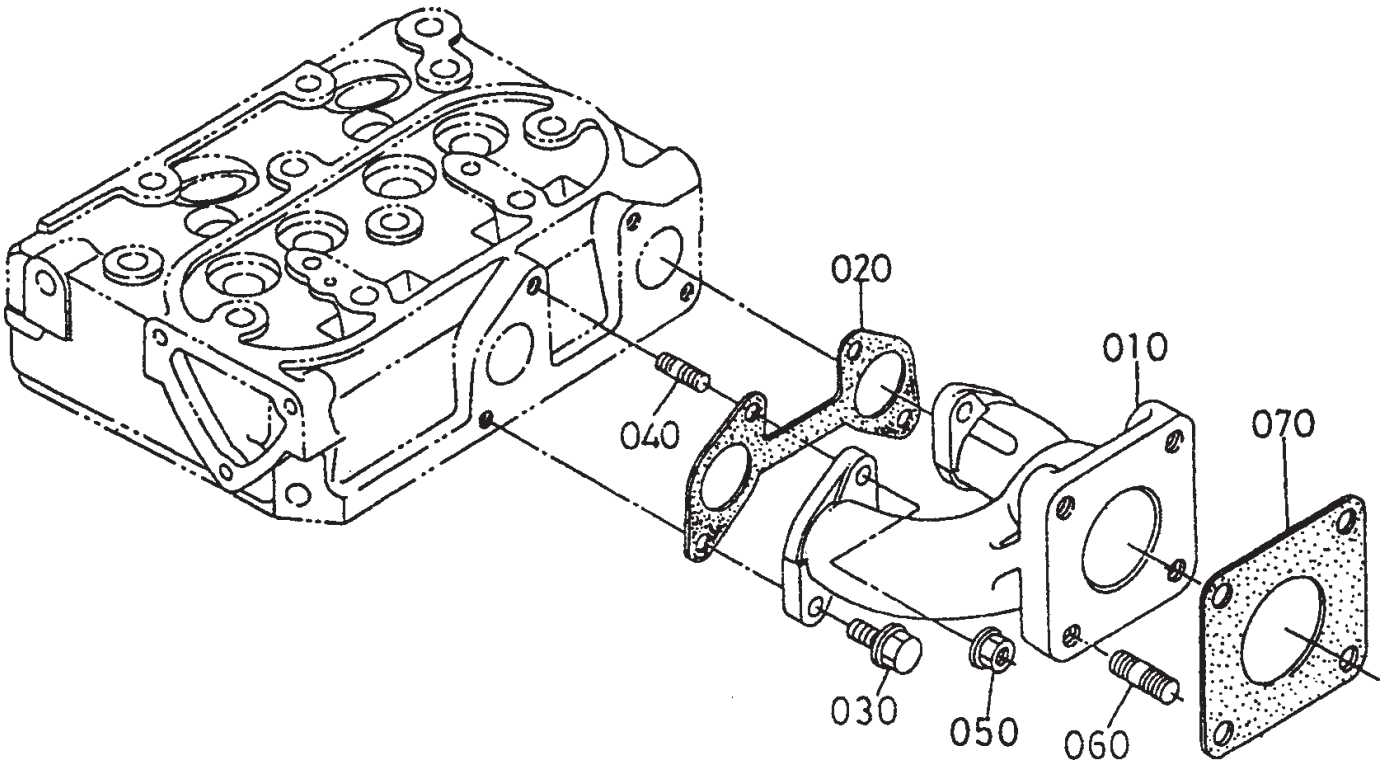
INLET MANIFOLD ASSY.



INLET MANIFOLD ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584111770	ASSY. MANIFOLD, INLET	1	INCLUDES ITEMS W/*
020*	1584111820	GASKET, IN-MANIFOLD	1	
030	0102350618	BOLT	2	
040	0102350645	BOLT	1	

EXHAUST MANIFOLD ASSY.

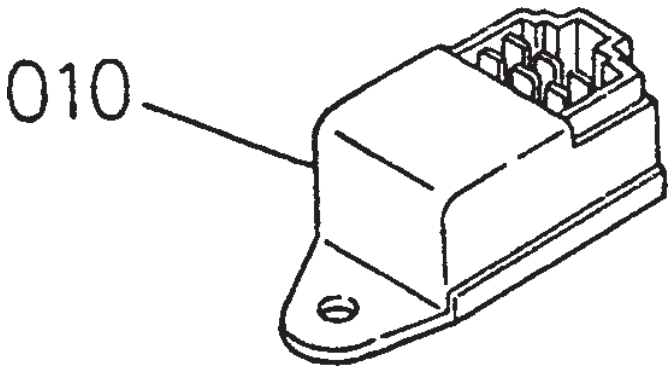


EXHAUST MANIFOLD ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1584112313	MANIFOLD, EXHAUST	1	
020	1584112360	GASKET	1	
030	0175950616	BOLT, UBS	2	
040	0151350618	STUD	2	
050	0275650060	NUT, UBS	2	
060	0151350822	STUD	4	
070	1526312370	GASKET, MUFFLER	1	

KUBOTA Z482-EB ENGINE — GLOW PLUG/GLOW LAMP & TIMER ASSY.

GLOW PLUG/GLOW LAMP & TIMER ASSY.

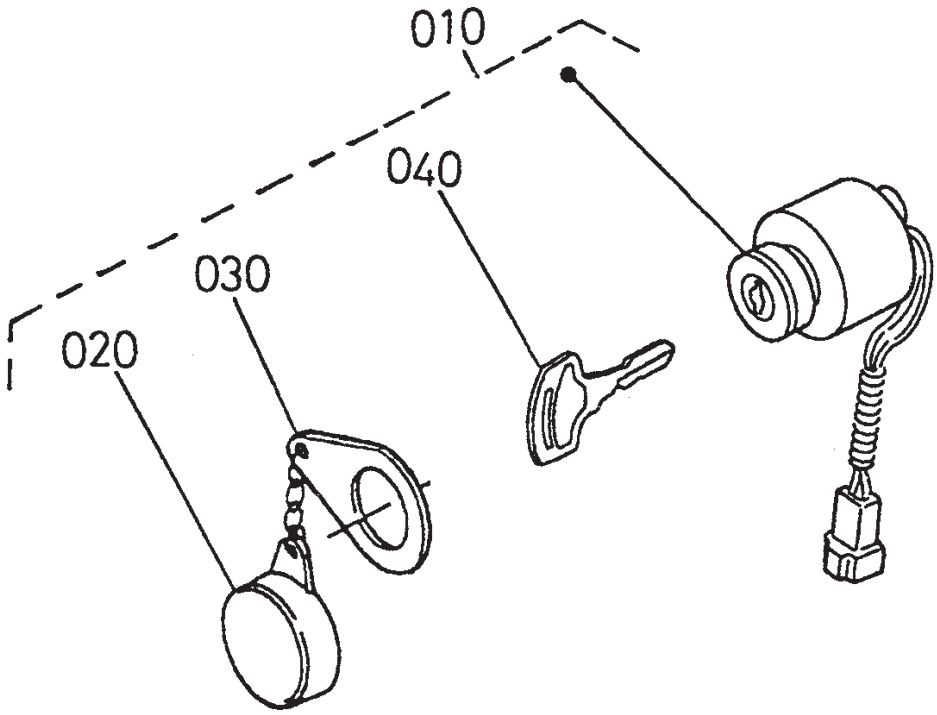


KUBOTA Z482-EB ENGINE — GLOW PLUG/GLOW LAMP & TIMER ASSY.

GLOW PLUG/GLOW LAMP & TIMER ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	1569465990	TIMER, GLOW LAMP	1	

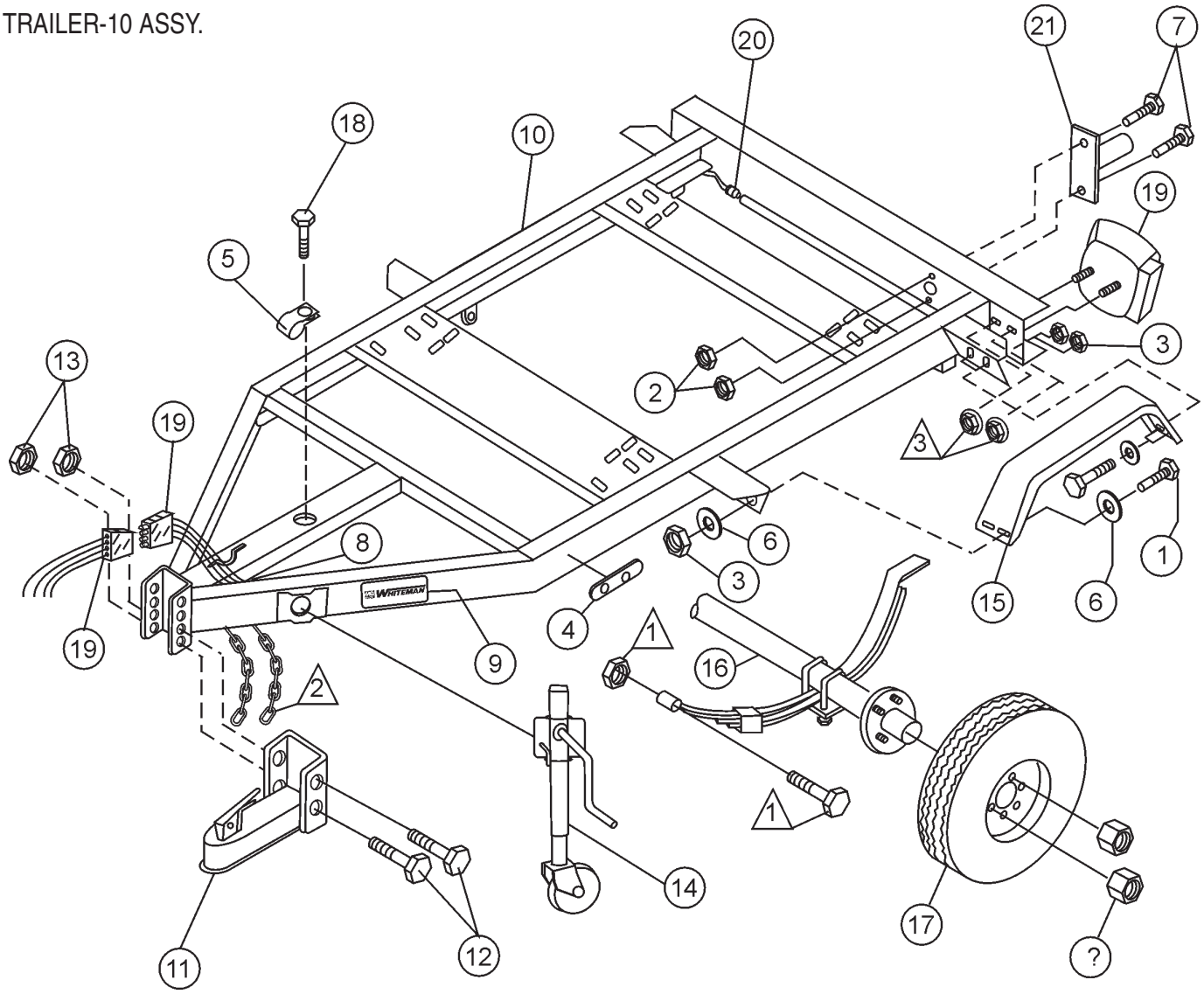
STARTER SWITCH ASSY.



STARTER SWITCH ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
010	3741059110	ASSY. SWITCH, STARTER	1	INCLUDES ITEMS W/%
020%	3741055180	CAP, STARTER SWITCH	1	
030%	6641655170	WASHER	1	
040%	3741055150	KEY, STARTER	1	

TRAILER-10 ASSY.

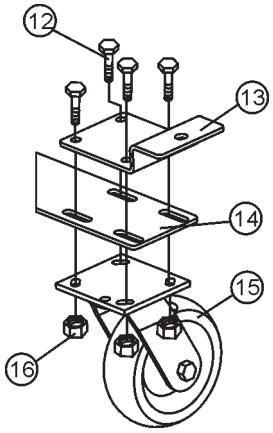


NOTES:

1. INCLUDED WITH SPRING MOUNT KIT.
2. SAFETY CHAIN IS WELDED TO FRAME.
3. INCLUDED WITH LIGHT KIT P/N 9510.
4. USE AS REQUIRED BY LOCAL REGULATIONS.

TRAILER-10 ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
1	0205	SCREW, HHC 3/8-16 x 1	8	
2	10019	NUT, NYLOC 10-32	2	
3	10133	NUT, NYLOC 3/8-16	8	
4	19103	REFLECTOR, AMBER STICK-ON	2	
5	2548	CLAMP, CABLE	1	
6	4001	WASHER, FLAT, 3/8 PLTD STD.	16	
7	5065	SCREW, RHM 10-32 x 1/2	2	
8	60101	TIE, SELF-LOCKING	6	
9	9315	DECAL, TRLR-10	1	
10	9500	FRAME, TRLR W/A	1	
11	19102	HITCH W/A, BALL	1	
12	9502	SCREW, HHC 5/8-11 x 4-1/2 GR8	2	
13	9503	NUT, NYLOC 5/8-11	2	
14	9504	JACK, SWIVEL W/WHEEL (COMPLETE)	1	
15	9505	FENDER, 8x30x13, (TRLR-10, -50)	2	
16	9506	AXLE & SPRING ASSY.	1	
17	9508	TIRE/WHL P155 80D13 BLACK RIM	2	
18	9509	SCREW, TEK 12 x 3/4 SELF TAP	1	
19	9510	KIT, LIGHT - TRAILER	1	
20	9512	PLUG, WIRING	6	
21	9514	LIGHT ASSY., LICENSE PLATE	1	
22	1U1304	WHEEL LUG NUT	16	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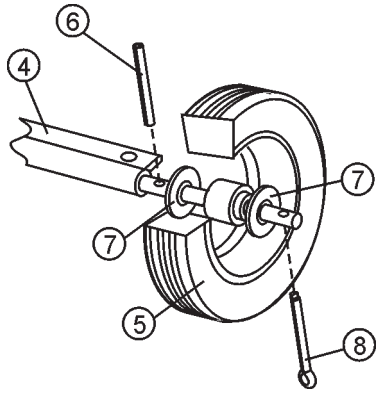
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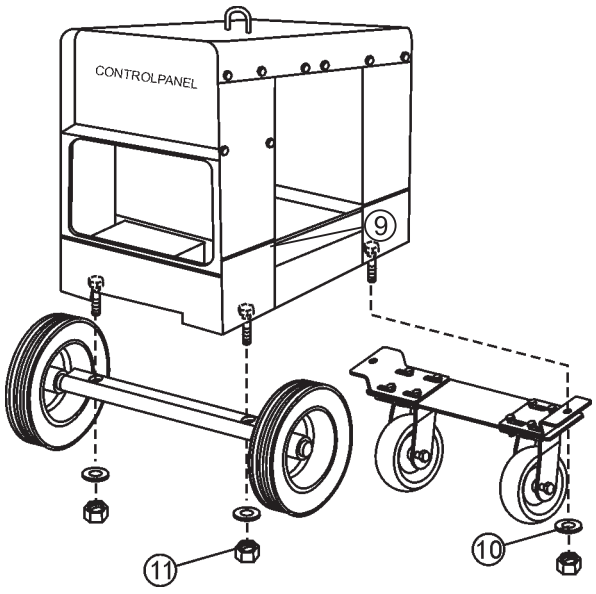
CONTROLPANEL
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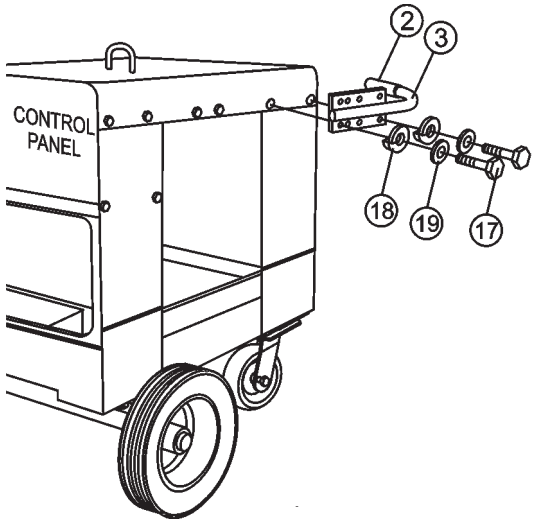
2
3
CONTROL
PANEL
18
19
17

WKT225A WHEEL KIT ASSY.

NO	PART NO	PART NAME	QTY.	REMARKS
2	15081	GRIP, HANDLE	2	
3	29579	HANDLE	2	
4	29582	STATIONARY AXLE	1	
5	12333	TIRE, EZ MOVER	2	
6	4542	PIN, ROLL 3/16" x 1-1/4"	2	
7	3264	WASHER, FLAT 1" SAE	4	
8	8158	PIN, COTTER 3/6" x 1-1/2"	2	
9	5218	SCREW, HHC 1/2-13 x 1-1/2"	4	
10	13211	WASHER, FLAT 1/2"	8	
11	10176	NUT, NYLOCK 1/2-13	4	
12	1023	SCREW, HHC 3/8 x 1-1/4"	8	
13	29569	PLATE, CASTER MOUNT	2	
14	29574	PLATE, CASTER ADJUSTMENT	1	
15	19829	CASTER WHEEL, SWIVEL W/ BRAKE	2	
16	10133	NUT, NYLOCK 3/8-16	8	
17	29599	BOLT, HHCS M6-1.0 x 20MM	4	
18	0181 B	WASHER, LOCK 20MM	4	
19	0948	WASHER, FLAT 20MM	4	

TERMS AND CONDITIONS OF SALE — PARTS

PAYMENT TERMS

Terms of payment for parts are net 10 days.

FREIGHT POLICY

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

MINIMUM ORDER

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

RETURNED GOODS POLICY

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

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

PRICING AND REBATES

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

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

SPECIAL EXPEDITING SERVICE

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

LIMITATIONS OF SELLER'S LIABILITY

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

LIMITATION OF WARRANTIES

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

NOTE PAGE

OPERATION & PARTS MANUAL

HERE'S HOW TO GET HELP

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

UNITED STATES

Multiquip Corporate Office
18910 Wilmington Ave. Tel. (800) 421-1244
Carson, CA 90746 Fax (800) 537-3927
Contact: mq@multiquip.com

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

Service Department
800-421-1244 Fax: 310-537-4259
310-537-3700

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

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

Technial Assistance
800-478-1244 Fax: 310-631-5032

MEXICO

MQ Cipsa
Carr. Fed. Mexico-Puebla KM 126.5 Tel: (52) 222-225-9900
Momoxpan, Cholula, Puebla 72760 Mexico Fax: (52) 222-285-0420
Contact: pmastretta@cipsa.com.mx

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Multiquip
Av. Evandro Lins e Silva, 840 - grupo 505 Tel: 011-55-21-3433-9055
Barra de Tijuca - Rio de Janeiro Fax: 011-55-21-3433-9055
Contact: cnavarro@multiquip.com.br, srentes@multiquip.com.br

This manual MUST accompany the equipment at all times. This manual is considered a permanent part of the equipment and should remain with the unit if resold.

The information and specifications included in this publication were in effect at the time of approval for printing. Illustrations are based on the *SDW-225SS* Illustrations, descriptions, references and technical data contained in this manual are for guidance only and may not be considered as binding. Multiquip Inc. reserves the right to discontinue or change specifications, design or the information published in this publication at any time without notice and without incurring any obligations.

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MULTIQUIP