



OCCUPATIONAL HEALTH & SAFETY
RISK ASSESSMENT - Preliminary

Template Name

Diesel Powered Generator Risk Assessment

Section 1 – Activity Description

Date of Assessment:

5th January 2021

Description of Activity/Hazard/Risk:

Airman Generators

Work Site/Location:

TBA (excludes site specific factors)

Assessment Conducted by:

G Gellatly - Developed from main items contained in Operations Manuals only. Additional risk Assessment by site personnel is required to complete this.

BACKGROUND INFORMATION

Reason for Assessment:

Installation of new equipment

Other Relevant Information:

Assessment based on Operations Manual

IMPORTANT INFORMATION: The equipment must always be used as per the manufactures operator instructions. Failure to do so may result in injury or damage. We recommend that equipment supervisors and operators of the machines read these manuals. Risk analysis is subjective and should be reviewed by owner.

PHOTOS/DIAGRAMS



Symbol for potential personal injury used in Operations Manual. Read carefully any section containing this symbol

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Hazard	✓	Hazard	✓
Mechanical/Kinetic		Chemicals/Substances	
Contact with moving plant/parts (cutting, shearing, entanglement, etc)	<input checked="" type="checkbox"/>	Inhalation of dusts, gases, fumes, vapours and mists	<input checked="" type="checkbox"/>
Contact with sharp objects/edges	<input type="checkbox"/>	Ingestion of chemicals/substances	<input checked="" type="checkbox"/>
Contact with moving vehicles/mobile plant	<input type="checkbox"/>	Absorption of chemicals/substances through skin	<input checked="" type="checkbox"/>
Struck by projectiles or ejected items (including struck in eye by object)	<input type="checkbox"/>	Radiation	
Mechanical damage to services, PPE or other items	<input type="checkbox"/>	Exposure to ionising radiation source (industrial radiography, non-destructive testing)	<input type="checkbox"/>
Gravitational		Exposure to non-ionising radiation source (laser, welding flash, infrared, radiofrequency)	<input type="checkbox"/>
Fall from height	<input type="checkbox"/>		<input type="checkbox"/>
Falling object from height	<input type="checkbox"/>	Biological	
Slips and trips	<input type="checkbox"/>	Exposure to algal, bacterial, fungal, viral or parasitic agents (skin contact, ingestion, inhalation)	<input type="checkbox"/>
Access/work beneath a suspended load/unstable object	<input type="checkbox"/>	Animal, insect and spider bites/stings	<input type="checkbox"/>
Thermal and/or Explosive		Sharps/needle-stick exposure	<input type="checkbox"/>
Fire/Explosion	<input checked="" type="checkbox"/>	Manual Handling/Postural	
Ignition of gas/dust in a hazardous area	<input type="checkbox"/>	Handling heavy, unstable or awkward objects/loads	<input type="checkbox"/>
Contact with hot/cold objects/parts	<input checked="" type="checkbox"/>	Repetitious movements	<input type="checkbox"/>
Excessively hot/cold environments (including heat stress)	<input type="checkbox"/>	Maintaining static or awkward postures	<input type="checkbox"/>
Electrical		Tool use that requires excessive force	<input type="checkbox"/>
Contact with live electrical parts (overhead power line, etc)	<input checked="" type="checkbox"/>	Psychological/Mental, Social, Medical	
Exposure to high fault currents (within switchboards, battery banks)	<input type="checkbox"/>	Working for excessive time periods and/or while fatigued	<input type="checkbox"/>
Mechanical damage to power leads/fixed electrical wiring	<input type="checkbox"/>	Exposure to workplace bullying, harassment, violence	<input type="checkbox"/>
Ingress of water into electrical components	<input type="checkbox"/>	Work Environment	
Noise and/or Vibration		Inadequate lighting	<input type="checkbox"/>
Exposure to increased noise (levels that may cause hearing damage)	<input checked="" type="checkbox"/>	Wet/slippery/uneven/unstable work surface	<input type="checkbox"/>
Contact with vibrating plant/vehicles/tools/objects	<input type="checkbox"/>	Weather conditions (including flooding, lightning, wind)	<input type="checkbox"/>
Environmental		Working alone	<input type="checkbox"/>
Air/ground/water contamination (incl.spills, uncontrolled release, etc)	<input checked="" type="checkbox"/>	Unfavourable atmospheric conditions (dusty)	<input type="checkbox"/>
Release of harmful solid, liquid or gas during transport on/off site	<input type="checkbox"/>	Restricted access or working space	<input type="checkbox"/>
Incorrect waste disposal	<input type="checkbox"/>	Other:	
Import of unauthorised soils, materials, plants or machinery	<input type="checkbox"/>	(eg: Aviation)	<input type="checkbox"/>
Pressurised			
Release of stored gas, liquid, solid under pressure	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Release of spring/tension energy	<input type="checkbox"/>		<input type="checkbox"/>

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Section 3 – Risk Analysis					
Step 1 – Consider Consequences			Step 2 – Consider Probability		Step 3 – Calculate Risk
What are the consequences of the hazard occurring? Consider what is the most probable consequence (below) with respect to this work hazard			What is the likelihood (below) of the hazard consequence in Step 1 occurring.		1. Take Step 1 rating and select correct column 2. Take Step 2 rating and select correct row 3. Use the risk score where the two ratings cross on the matrix below H = High, M = Medium, L = Low
	Workplace Safety /	Legislative & Regulatory			
Catastrophic	Death of Disaster	Non-compliance, business activity affected/penalty enforced	Frequent	Likely to occur frequently	
Critical	Sever Injury or Major Damage	Major non-compliance resulting in regulatory notice	Probable	Likely to occur several times in the life of the operation.	
Marginal	Medical Treatment / Minor Damage	Non-compliance - warning	Occasional	Likely to occur some time in the life of the operation.	
Negligible	First aid or insignificant damage	Minimal non-compliance	Remote	Unlikely but possible to occur	
			Improbable	So unlikely it can be assumed occurrence may not be experienced.	
					Consequences
					Catastr ophic Critical Margin al Negligi ble
					Probability
					Frequent Probable Occasional Remote Improbable
					H H M M L
					H H M M L
					M M M L L
					M M L L L
					M L L L L

Description of Risk	Control Measures (Detail any existing controls)	Risk Analysis			Additional Controls (detail additional controls to be implemented)	Risk Analysis (with additional controls)		
		C	L	Risk Rating		C	L	Risk Rating
Generator is unsafe to operate	Make a habit of always checking the engine compartment before running (before the engine is started) and after running (when the engine has been stopped). This helps you to quickly discover whether any leakage of fuel, coolant, oil or any other abnormal event has happened, or is about to happen.	Negligible	Occasional	L				

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Description of Risk	Control Measures (Detail any existing controls)	Risk Analysis			Additional Controls (detail additional controls to be implemented)	Risk Analysis (with additional controls)		
		C	L	Risk Rating		C	L	Risk Rating
Fires during re-fuelling	Do not refuel the machine while smoking or when near open flame or sparks. Always stop engine before refuelling machine. Never over-fill the tank. Use the correct type of fuel. Close the tank cap securely. Prevent fires by keeping machine clean of accumulated trash, grease, and debris. Always clean up spilled fuel.	Critical	Remote	M	Be prepared if a fire starts. Keep a first aid kit and fire extinguisher handy. Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.	Critical	Remote	M
Hearing Injury	Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises. Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.	Negligible	Frequent	M				
Direct exposure to hazardous chemicals can cause serious injury.	A Material Safety Data Sheet (MSDS) provides specific details on chemical products: physical and health hazards, safety procedures, and emergency response techniques. Check the MSDS before you start any job using a hazardous chemical. That way you will know exactly what the risks are and how to do the job safely. Then	Marginal	Occasional	M	Wear appropriate PPE for handling diesel fuel. Gloves, Safety Glasses, Full length clothing, safety shoes, hearing protection	Marginal	Remote	L

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Description of Risk	Control Measures (Detail any existing controls)	Risk Analysis			Additional Controls (detail additional controls to be implemented)	Risk Analysis (with additional controls)		
		C	L	Risk Rating		C	L	Risk Rating
	follow procedures and recommended equipment							
Entanglement in rotating driveline can cause serious injury or death.	Keep master shield and driveline shields in place at all times. Wear close fitting clothing. Stop the engine and be sure the driveline is stopped before making adjustments or performing any type service on the engine or driven equipment.	Catastrophic	Remote	M				
Explosive release of fluids from pressurized cooling system can cause serious burns	Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.	Critical	Occasional	M				
Engine exhaust fumes can cause sickness or death	If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.	Catastrophic	Remote	M				
Injuries from servicing	Understand service procedure before doing work. Keep area clean and dry. Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power driven parts. Stop the engine. Remove the key. Allow machine to cool. Keep all parts in good condition and properly	Marginal	Occasional	M	Wear appropriate PPE (eg Gloves, Safety Glasses, Full length clothing, safety shoes, hearing protection)	Mrginal	Remote	L

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Description of Risk	Control Measures (Detail any existing controls)	Risk Analysis			Additional Controls (detail additional controls to be implemented)	Risk Analysis (with additional controls)		
		C	L	Risk Rating		C	L	Risk Rating
	installed. Fix damage immediately. Replace worn or broken parts. Remove any build up of grease, oil, or debris. Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.							
Explosions from environmental pollutants	The engine must not be operated in environments which contain explosive media since none of the electrical and mechanical components are spark proof.	Catastrophic	Based on site					
Acid burns from batteries	Batteries contain a highly corrosive electrolyte. Protect your eyes, skin and clothes when handling or charging batteries. Always use protective goggles and gloves.	Critical	Remote	M				
Injury from material ejected from alternator	Do not stand in front of alternator air outlet while machine is operating	Critical	Occasional	M	Wear appropriate PPE for working on the generator. Safety Glasses, Full length clothing, safety shoes, hearing protection	Negligible	Occasional	L
Electrical Shock	Do not touch electrical cables unless the machine has been fully locked out and circuit de-energized.	Catastrophic	Remote	M				

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Section 4 – Risk Assessment Control / Action Timetable		
Required control and / or action	Responsible Person	Due Date
Further assessment based on site hazards required		
Decision of Acceptability of Risk (with above actions in place):	ACCEPTABLE <input type="checkbox"/> / NOT ACCEPTABLE <input type="checkbox"/>	
Approved By:	Name	Signature
Comments:		

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Preface

Thank you for having selected our "AIRMAN" product.

- ◆ This manual explains about the proper operation and daily inspection and maintenance of this machine.
- ◆ In order to use a machine safely, people with sufficient knowledge and sufficient technology need to deal with it.
- ◆ Before operating the machine, read the manual carefully, fully understand its operation and maintenance requirement. Maintain "SAFETY OPERATION AND PROPER MAINTENANCE OF THE MACHINE".

**Be sure to follow safety warnings and cautions given in the manual.
Unsafe operation could cause serious injury or death.**

- ◆ For details of handling, maintenance and safety of the engine, see the Engine Operation Manual.
- ◆ Keep the manual available at all times for the operator or safety supervisor.
- ◆ When this manual is missing or damaged, order it from our office nearby or distributor.
- ◆ Be sure that the manual is included with the machine when it is handed over to another user.
- ◆ There may be some inconsistency in detail between the manual and the actual machine due to improvements of the machine. When you have anything unclear or you want to advise us, contact our office nearby or distributor.





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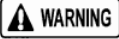


1.Safety

This manual explains and illustrates general requirements for safety and cautions for safety.

Please read these safety requirements carefully and fully understand the contents before starting the machine.

For your better recognition, according to the degree of potential danger harmful to a human body, safety messages are classified into three hierarchical categories, namely, , , and  with a caution symbol  attached to each message.


When one of these messages is found, please take preventive measures for safety to carry out "SAFETY OPERATION AND PROPER MAINTENANCE OF THE MACHINE".

	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	IMPORTANT indicates important caution messages for the performance or durability of the machine, which has no concern to injury or accident of or to a human body.

Follow warnings mentioned in this manual. This instruction manual does not describe all safety items. We, therefore, advise you to pay special attention to all items (even though they may not be described in the manual) for your safety.

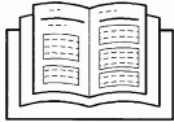
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1.1 Caution before Operation


 **WARNING**

Follow the safety instructions

- Read each instruction plate which is displayed in the manual or on the machine carefully, understand its content and follow the indications thereof.
- Keep the Safety Warning labels clean. When they are damaged or missing, apply new ones.
- Do not modify the machine without prior approval. The safety may be compromised, functions may be deteriorated, or machine life may be shortened.
- Never use the machine for the other purposes than power supply. Otherwise, serious accidents may occur.




TR0086


 **WARNING**

Ventilation

- Exhaust gas from the engine is poisonous, and could cause casualties when it is inhaled. Avoid using the machine in an insufficiently ventilated building or a tunnel.




PC002


 **WARNING**

Handling battery

- Keep flames away from battery. Battery may generate hydrogen gas and may explode.
- Battery electrolyte is dilute sulfuric acid. In case of mishandling, it could cause skin burning.
- Wear protective gloves and safety glasses when handling a battery.
- Dispose of battery, observing local regulations.



D004



TR0093

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1.Safety

CAUTION

- When handling machine, do not wear;
 - loose clothes
 - clothes with unbuttoned sleeves
 - hanging tie or scarf
 - dangling jewelry
- Such outfit could be caught in the machine or dragged in the rotating portion of the machine, and could cause a serious injury.

Safety outfit



CAUTION

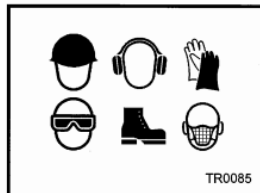
Maintain both physical and mental health

- Do not operate the machine when you are tired or drunk or under the influence of drugs. Otherwise, a hasty conclusion or careless handling may cause unexpected injury or accident. Manage your physical and mental health and be cautious in handling the machine.

CAUTION

- Please wear protection implements, such as a helmet, protection glasses, earplugs, safety shoes, a glove, and a protection-against-dust mask, according to the contents of work for safety.

Protection equipments



CAUTION

- Have first-aid boxes and fire-extinguishers near the machine ready for emergency situations such as injuries and a fire.
- It is advisable to have a list of phone numbers of doctors, ambulance and the fire department available in case of emergency.

Safety fittings



CAUTION

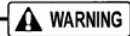
- Such things as unnecessary equipment and tools, cables, hoods, canvas sheets and pieces of wood which are a hindrance to the job, have to be cleared and removed. This is because operators and personnel nearby may stumble on them and may be injured.

Safety around the machine

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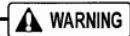
1.Safety

1.2 Caution during Operation



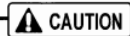
Never touch the output terminals and interior of control board

- Never touch the output terminals during operation. Notice that the voltage of several hundreds volt is applied to the output terminal.
- When removing or connecting a connecting cable for changing load, be sure to switch OFF the circuit breaker, remove the starter key from the starter switch, then carry out a work. The operator must keep the key during operation. Neglecting the cautions mentioned above, and a third party starting the machine during operation may cause serious accidents such as electric shock.



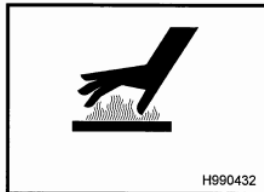
Hands off from rotating parts and belts

- Keep hands off from the rotating portion or belts while running. It could cause serious injuries if hands should be caught in.



Do not remove radiator cap during operation

- Do not, under any circumstance, open the radiator cap while running or immediately after stopping operation. Otherwise high temperature steam jets out and this could cause scalding.



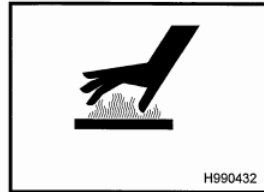
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1.Safety

CAUTION

- Never work nearby hot portions of the machine while it is running.
- Do not touch hot portions of the machine while inspecting the machine when running.
- Such parts as engine, exhaust manifold, exhaust pipe, muffler, and radiator are especially hot, so never touch those parts, because it could cause scalding.
- Coolant water and engine oil are also very hot and dangerous to touch. Avoid checking or refilling them while the machine is running.

Do not touch hot parts



CAUTION

- Do not, under any circumstance, bring lit cigarettes or matches near such oils as diesel fuel oil, and engine oil, etc. They are extremely flammable and dangerous, so be careful when handling.
- Refilling oils should be done in an outdoor well-ventilated place.
- Refuel after stopping the engine, and never leave the fuel nearby the machine. Do not spill. It may cause a fire. When it is spilt, wipe it up completely.
- **Do not fill fuel oil up to the cap level. When fuel tank is filled up to the cap level, fuel oil will be overfilled due to volume expansion caused by rise of ambient temperature. Further, fuel will be possibly spilled from fuel tank due to vibration caused during movement and/or transportation of machine.**
- Such parts as muffler and exhaust pipe can be extremely hot. Remove twigs, dried leaves, dried grass and waste paper, etc. from the exhaust outlet of the muffler.
- Keep a fire extinguisher available by the machine in case of unexpected fire.

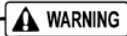
Fire prevention



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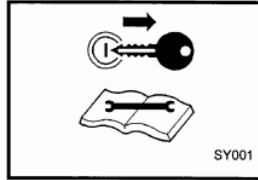
1.Safety

1.3 Caution during Inspection and Maintenance



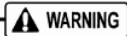
Hang a "Now Checking and under Maintenance" tag

- Before starting inspection, switch off the circuit breaker of this machine, remove the starter key from the starter switch, and then hang a "Now Checking and under Maintenance" tag where it can be easily seen. The checker must keep the key during checking and maintenance.
- Remove the negative (-) side cable from the battery.
If the above procedure is neglected, and another person starts operating the machine during check or maintenance, it could cause serious injury.



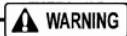
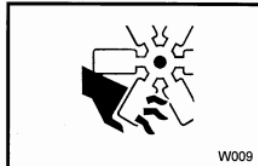
Adjusting tension of belt

- Be sure to stop the engine and remove the starter key whenever the tension of the belt is to be adjusted.
- If the machine is running, it might catch the operator's hand into the belts, and this could cause a serious injury.



Hands off from cooling fan

- Be sure to stop the engine and remove the starter key whenever the tension of the belt is to be adjusted.
- If the machine is running, it might catch the operator's hand into the belts, and this could cause a serious injury.



Cleaning by air-blow

- When cleaning dust accumulated in such devices as the air-filter, etc., by blowing compressed air, wear safety glasses, etc. to protect your eyes.



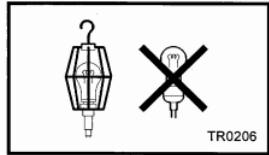
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1.Safety

CAUTION

- It is recommended to use a lamp with safety guard fitted where the site is dark. Operating the machine gropingly or by relying on one's intuition could cause unexpected accidents. Any lamps without safety guard are not recommended since they can be broken and they could ignite flammables such as fuel, etc.

Lighting apparatus



CAUTION

- Be sure to stop the engine, and let the coolant water sufficiently cool down before draining it.
- If the drain valve is opened before the coolant water is cooled enough, hot water could jet out, and it could cause scalding.

Opening coolant water drain valve



CAUTION

- After stopping the engine, wait 10 to 20 minutes until the engine oil cools off. Then check the level of the engine oil, or refill or drain the oil.
- The engine oil is very hot during operation and just after it stops. Be careful because the hot oil also pressurized blows off and it can cause burning.

Refilling or draining of engine oil



CAUTION

- When washing the machine, cover the control panel, generator and its electric parts to prevent them from being exposed to splashing water and avoid possible decrease in electrical insulation or other troubles to the machine.
- Dust, sand and dirt accumulated inside control panel could cause malfunction or trouble of the instruments. Clean them by blowing compressed air.

Caution of the cleaning

CAUTION

- Waste liquid from the machine contains harmful material. Do not discharge it onto the ground or into the river, lake or sea. Such material will pollute the environment.
- Be sure to use a container to hold the waste liquid from the machine.
- Be sure to follow the designated regulations when disposing of oil, fuel, coolant (antifreeze), filter, battery or other harmful materials.

Treatment of organic wastes



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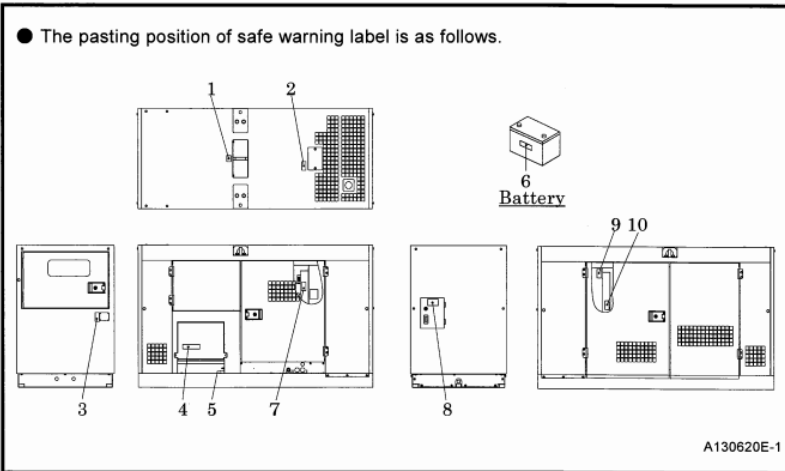
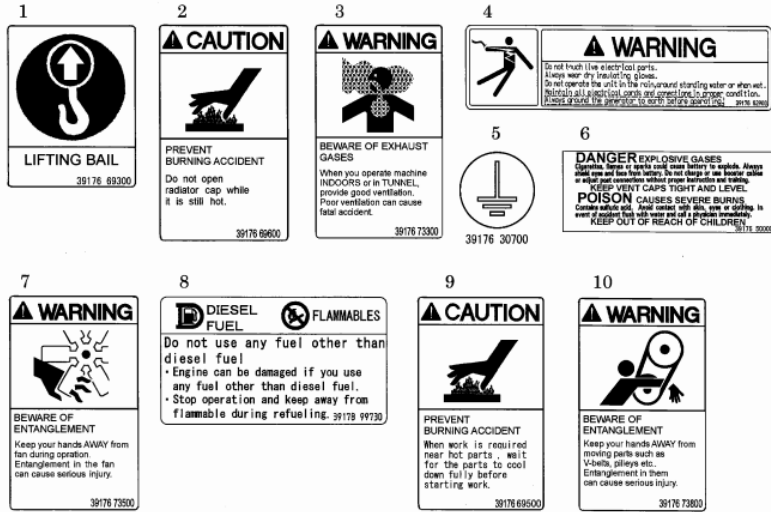
1. Safety

1.4 Safety Warning Labels

Following labels are attached to the machine.

Keep them clean at all times. If they are damaged or missing, immediately place an order with your nearest dealer for replacement. Part numbers are indicated on the lower right corner of the label.

Adhere a new one to the original location.



1-8

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