

Mikasa

POWER DRIVE UNIT

GE-5LDY

INSTRUCTION MANUAL

en



<http://www.mikosas.com>



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1. Preface

- This operation manual describes the proper operation, basic inspection and maintenance procedures of the power drive unit. Please read this operation manual before use in order to maximize the excellent performance of this machine and make your work more efficient and effective.
- After reading the manual, please keep it in a handy location for easy reference.
- For the handling the engine, please refer to the separate engine operation manual.
- For inquiries about repair parts, parts lists, service manuals, and repairs, please contact the store where you purchased the product, our sales office, or the Mikasa Parts Service Center. For parts lists, please visit our homepage at: <http://www.mikasas.com/> where you can access Mikasa WEB parts lists.

The illustrations in this manual might slightly differ in part from the machine you actually purchased due to design changes.

2. Applications, Warnings, Structure and Power Transmission

Applications

This product is an engine type motor for GH series pendulous type vibrator for concrete compaction using a flexible shaft and for WP series underwater pump that works by impeller rotation. This product is used for concrete casting and water pumping by connecting it to the work machine via its coupling part.

Warning about incorrect applications and techniques

Do not connect this product to work machines not specified for this product. If the part to be connected to a work machine is altered or this product is connected to a machine having a connection part that does not fit, the connection part will either get stuck or fall off during operation, resulting in damage of this product or the work machine. Also, do not operate with the engine revolution raised above the specified level, because that might accelerate damage of this product and the work machine and there is a potential risk of operator injury by dispersion of broken part pieces.

Structure

The engine is assembled on a base directly, and the engine base is fixed on a frame with shock absorber.

Power transmission

To the output shaft of the engine, a socket with a hexagonal hole is attached. This will be used as a guide when connecting this product to a work machine, and a coupling flange with a lever to prevent falling off is fixed on the engine. If the lever is turned to the direction opposite to the spring back force, such falling off prevention mechanism will be cancelled, enabling the work machine to be disconnected. Power is transmitted to the work machine when the rotation of the hexagonal hole of the socket attached to the engine output shaft turns the work machine's hexagonal joint inserted to the hexagonal hole.

3. Warning Symbols

The triangle marks () used in this manual and on the decals on the machine are warning symbols. Please follow these precautions.

	Warning symbols indicating personnel hazards
	Extremely hazardous. If the warning is not followed, it is likely to result in serious injury or death.
	Hazardous. If the warning is not followed, it is likely to result in serious injury or death.
	Potential hazard. If the warning is not followed, it may result in injury.
Precautions (without  mark) If the warning is not followed, it may result in property damage.	

4. Safety Precautions

4.1 General Precautions

	<ul style="list-style-type: none"> ● Do not operate the machine, <ul style="list-style-type: none"> ○ If you do not feel well due to overwork or illness. ○ If you are taking any medicine. ○ If you are under the influence of alcohol. 	
	<ul style="list-style-type: none"> ● Read this manual carefully and handle the machine as described to ensure safe work. ● For details about the engine, refer to the separate manual for the engine. Make sure you understand the structure of the machine well. ● For safe work, always wear protective gear (helmets, safety shoes, ear plugs, etc.) and work in appropriate clothes. Always check the machine before your work to make sure it is in normal condition. ● Decals on the machine (operation method labels, warning labels, etc.) are very important for your safety. Keep the machine clean so that the decals can be read all the time. Replace a decal if it becomes illegible. ● It is very dangerous if children come into close contact with the machine. Have the utmost concern about how and where to store the machine. ● Before inspection and maintenance work, stop the engine, and do your work on a flat surface area. ● Mikasa does not accept any responsibility for accidents caused by remodeling or rework done on the machine. 	

4.2 Refueling Precautions

	<ul style="list-style-type: none"> ● When adding fuel, <ul style="list-style-type: none"> ○ Make sure you work in a well ventilated location. ○ Make sure the engine is stopped and wait until it cools down. ○ Take the machine to a clear flat location without any combustibles nearby. Be careful not to spill the fuel. Wipe well if any spill occurs. ● Do not fill to the rim due to potential spillage. After adding the fuel, tightly close the tank cap. 	
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4.3 Location and Ventilation Precautions

	<ul style="list-style-type: none"> ● Do not run the machine in an unventilated location, such as indoors or inside a tunnel. The exhaust gas from the engine contains toxic gases such as carbon monoxide and is very hazardous. ● Do not operate the machine near open flames. 	
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4.4 Precautions Before Starting

	<ul style="list-style-type: none"> ● Check each part to see if it is tightened properly. Vibration causes loosening of bolts, which results in unexpected serious malfunctions of the machine. Tighten the bolts securely. 	
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4.5 Precautions During Work

	<ul style="list-style-type: none"> ● Do not put dangerous substances (oil and grease, celluloid, explosives, etc.) and flammable substances (flammable paper and wood chips) near this power drive unit. 	
	<ul style="list-style-type: none"> ● If a trouble is detected or abnormal noise is heard during the operation, turn off the switch immediately to stop the power drive unit. Then contact the store or the renter of the machine to request for inspection or repair. ● Before starting the machine, make sure it is safe to start by checking your surroundings for people and objects. ● Always pay attention to your footing. Work in an area where you can maintain a good balance of the machine and a safe comfortable posture. ● The engine and muffler become very hot. Do not touch immediately after the machine stops because they are still very hot. ● Before moving away from the machine, be sure to turn the engine off. Also when the machine is transported, stop the engine and close the fuel cock. 	

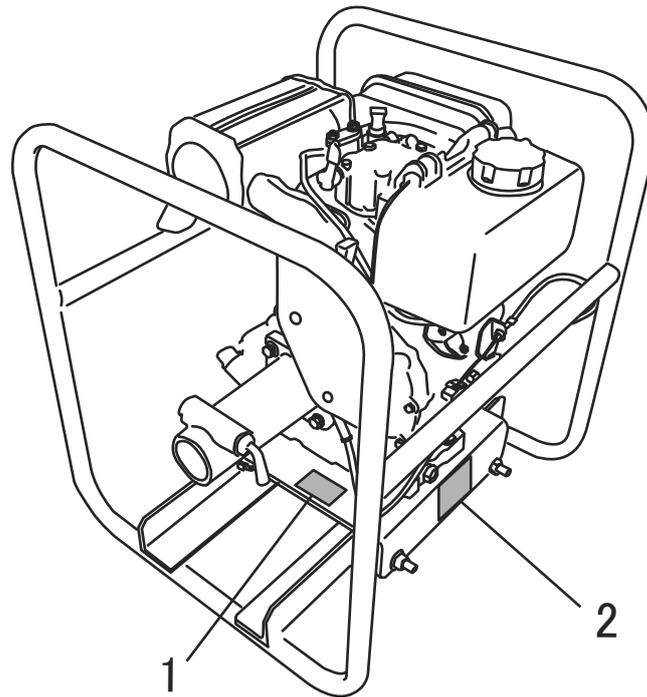
4.6 Transportation and Storage Precautions

	<ul style="list-style-type: none"> ● Stop the engine during transportation. ● Transport after the engine and the machine are cooled down. ● Always drain the fuel before transporting. ● Securely fix the machine to prevent it from moving or falling during transportation. 	
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4.7 Maintenance Precautions

<p>⚠ WARNING</p>	<ul style="list-style-type: none"> ● Appropriate maintenance of the machine is required to ensure safety and keep the machine performing well. Always be aware of the machine's condition and keep it in good condition. ● After performing any maintenance, check the condition of the safety components and the general safety of the machine. In particular, check the nuts and bolts thoroughly. ● If you have to disassemble any components on the machine, be sure to refer the maintenance standard sheets and always work safely. ● The muffler and muffler guard become very hot. Do not touch them until they will have cooled down. ● The lubrication oil and engine oil are very hot and can burn you. Do not start any maintenance on the machine while the oil remains hot. 	 <p>Burn warning</p>
<p>⚠ CAUTION</p>	<ul style="list-style-type: none"> ● Always stop the engine before inspection and adjustment. If you are caught in a rotating part, serious injury might occur. 	
<p>⚠ DANGER</p>	<ul style="list-style-type: none"> ● To prevent fire, use nonflammable oil for cleaning of parts. After cleaning, wipe off the parts well to remove the oil completely. ● Danger of gas poisoning exists if used indoor or in an area with poor ventilation. Ventilate well especially when there is exhaust gas from the engine or fuel, wash oil, and paints are used. 	

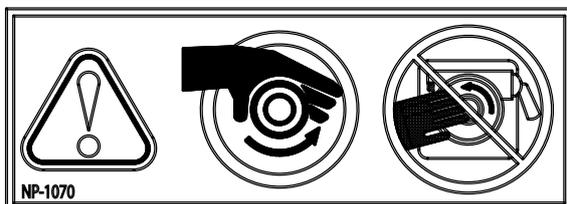
4.8 Labeling Position and List



REF No.	PART No.	PART NAME	Q' TY	LABEL No.	REMARK
1	9201-10700	DECAL CAUTION, FINGERTIP	1	NP-1070	
2	9201-22170	PLATE, SERIAL NO. /GE-5LDY	1	NPA-2217	

4.9 Descriptions Of Symbols Used On Warning Labels

9201-10700 DECAL CAUTION, FINGERTIP



Be careful not to get caught in the rotating parts.

During operation, be careful not to have your fingers, body, clothes, etc. come in contact with the rotating parts.

5. Specifications

5.1 Machine Specifications

Model	GE-5LDY	
Engine	Yanmar L48N	
Overall Length	mm	492
Overall Width	mm	442
Overall Height	mm	531
Operating Weight	kg	44
Set R.P.M	min ⁻¹	3,200

(The specifications may be changed without notice)

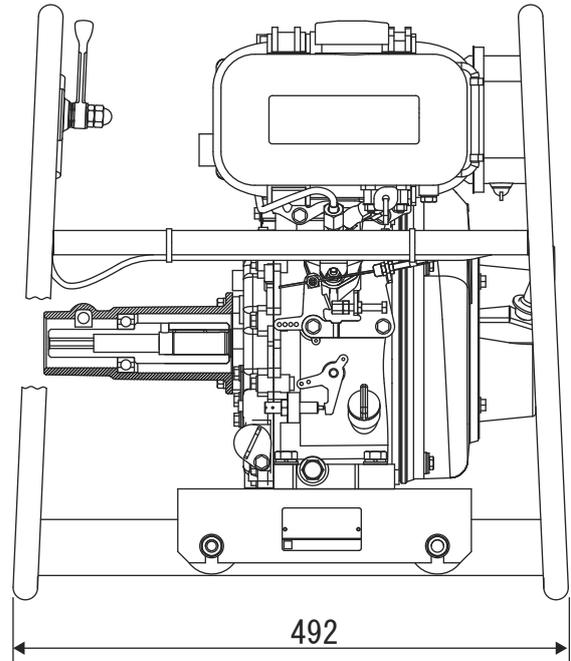
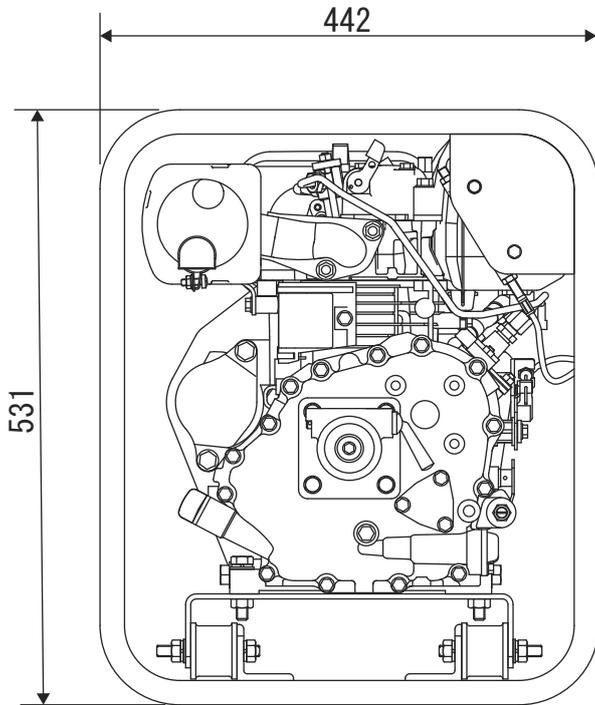
5.2 Engine Specifications

Manufacturer	Yanmar	
Model	L48N	
Type	Air Cooled, 4-Cycle Diesel Engine	
Displacement	0.219 L	
Max Output	3.5kW/3600min ⁻¹ (4.7PS/3600rpm)	
Lubricant Capacity	800 cc	
Fuel	Diesel Fuel	
Fuel Tank Capacity	1.9 liters	
Weight	27kg	

(The specifications may be changed without notice)

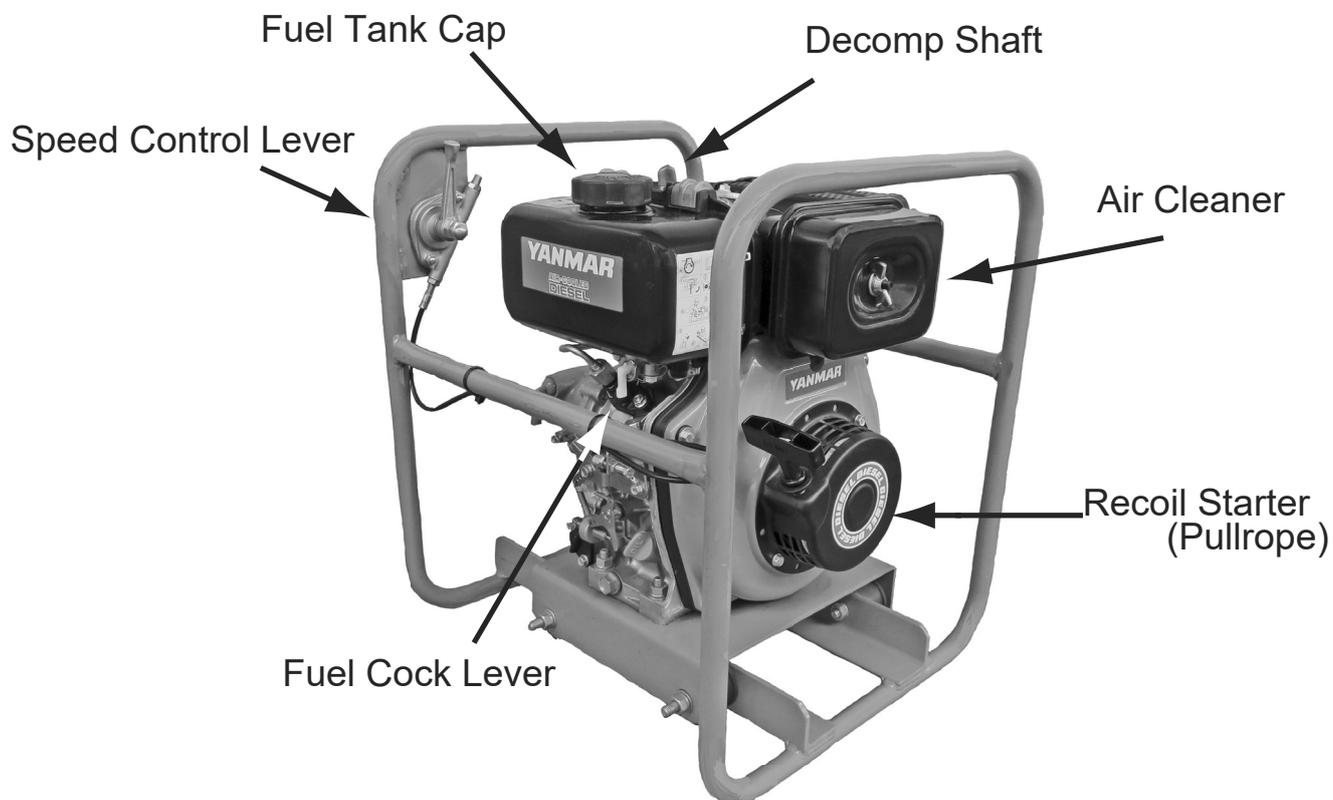
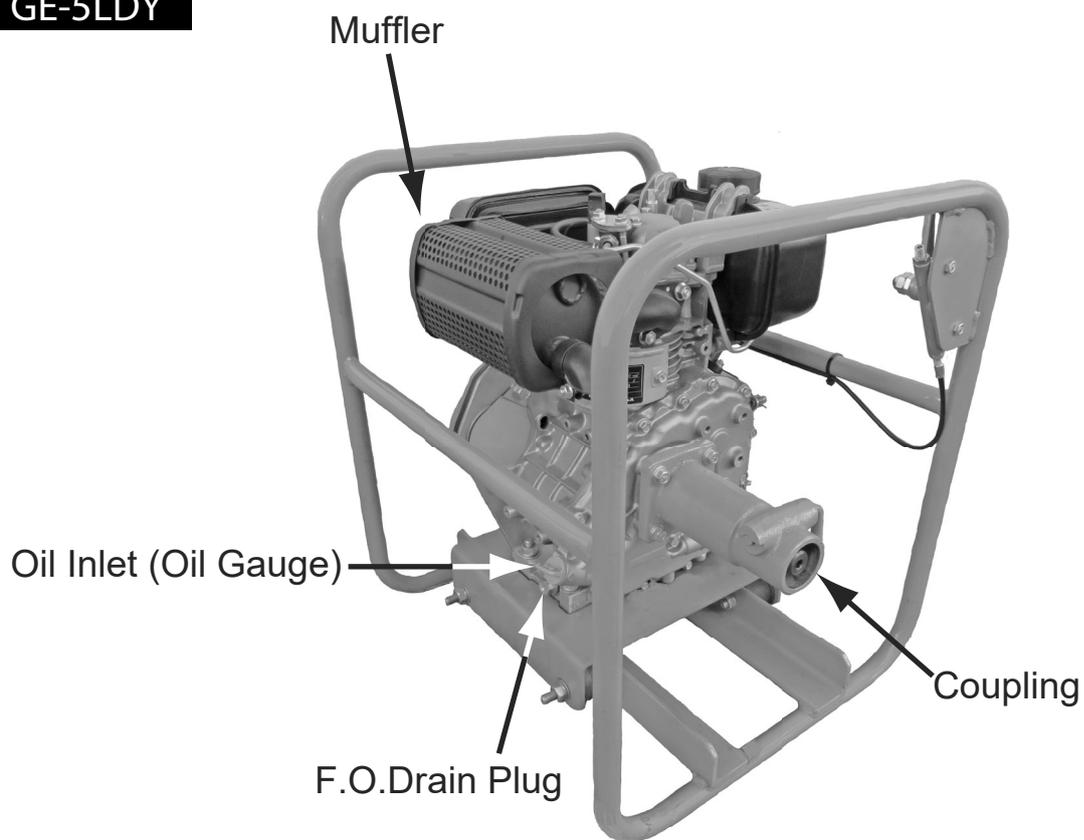
6. Appearance

6.1 Overall Dimension



6.2 Control Unit Positions and Names

GE-5LDY



7. Inspection Before Operation

⚠ DANGER

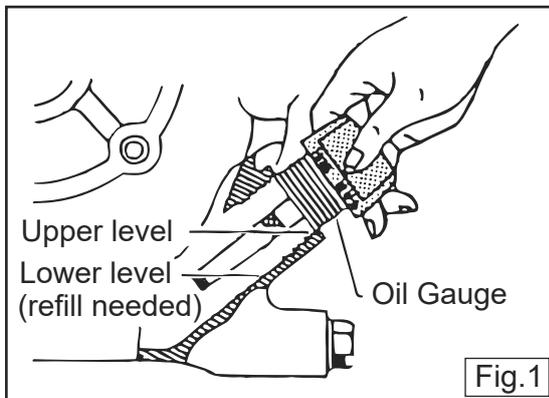
- 1 Check each part for any looseness of bolts. Vibration causes bolts to loosen, which might result unexpected accident or malfunction.
- 2 Set the engine on a level surface to check the oil level. If the oil level is low, add oil. Use the following engine oil.(Fig. 1)

Quality: Diesel engine oil, Grade CD or above

Gasoline engine oil, Grade SE or above

**Viscosity: SAE No. 30 at 20°C and above (summer)
SAE10W-30**

Temperature	Use oil
More than 25°C	SAE#30
10 ~ 25 °C	SAE#30, #20
10 ~ 0 °C	SAE#20
Less than 0 °C	SAE#10



⚠ CAUTION

- 3 **Do not expose to open flames while refueling. Do not fill to the rim because the fuel might spill. Wipe off well if a spill occurs.**
Diesel fuel should be used in the engine. When filling the fuel tank, make sure the fuel filter is used.

⚠ DANGER

- 4 Do not slant this product more than 10 degrees to any direction. Find a level surface with little unevenness where the machine can be stabilized. In case if this product falls over, accident such as fire might occur.

⚠ CAUTION

- 5 The exhaust gas from the engine contains carbon monoxide harmful to humans. Do not run the engine indoors or inside a tunnel with poor ventilation. While this product is operated, not only the operator but also the people and livestock in the vicinity should not be exposed to the exhaust gas. There is a danger of exhaust gas poisoning that might result in fatal accident.

- 6 Do not operate this product in rain or in the location where water might be splashed. There is a danger of spark induced fire.

⚠ DANGER

- Never refuel this machine while leaving the engine running. There is danger of fire.
- Never smoke, or put other flames close to this machine while refueling. Serious hazards such as burns and fire may result.
- Choose a place free from flammable substances for refueling. Be careful not to spill fuel. In case fuel should be spilled, wipe off the spilled fuel completely.

8. Operation

8.1 Starting

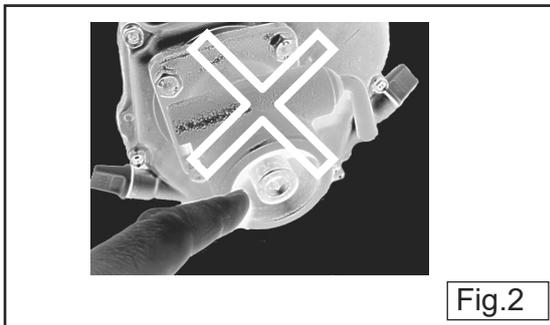


The engine exhaust gas contains carbon dioxide and is very dangerous.

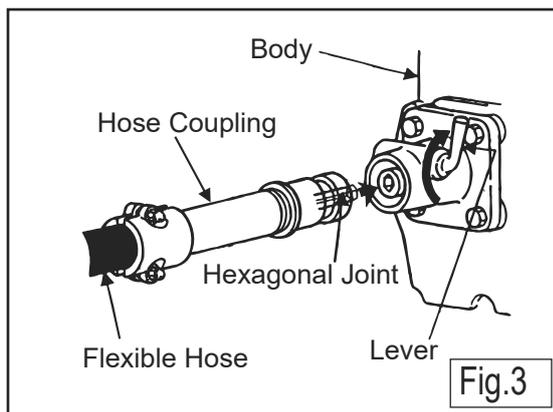
Do not use this machine where ventilation is poor.

When operating this product without attaching a flexible shaft, do not come close to the coupling part. Serious accident or injury might occur if fingers or clothes get caught.(Fig.2)

Also, when attaching a flexible shaft to the engine board, make sure that the engine is stopped. Serious injury might occur if you work with this product without stopping the engine.

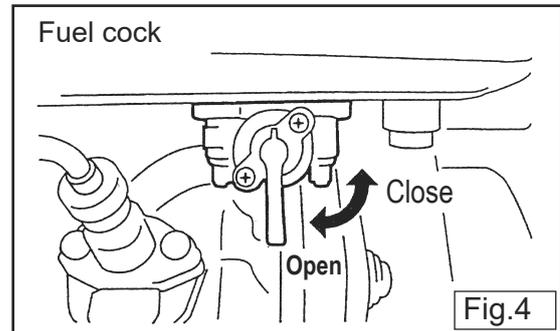


Connect a shaft to the engine. To do so, turn the lever on the side surface of the engine coupling part, insert the flexible shaft connector and hose coupling, then get the lever back into the original position.(Fig.3)

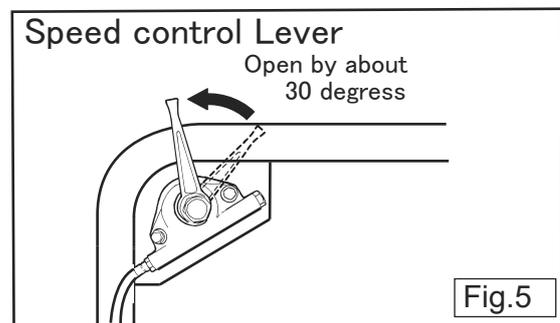


Diesel engine

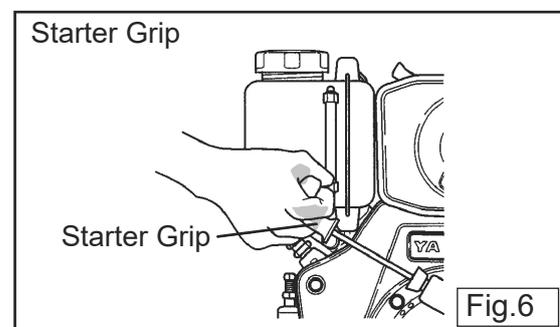
- 1 Open the fuel cock lever. (Fig.4)



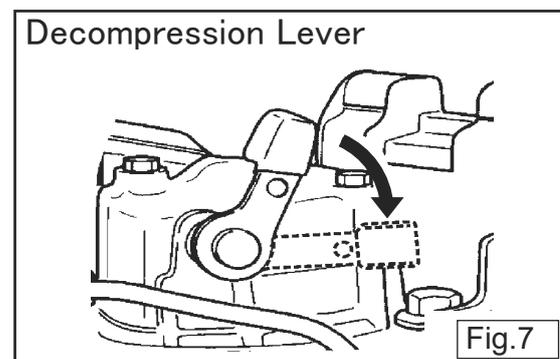
- 2 Open the speed control lever to about 30° for the idling position. (Fig.5)



- 3 Grasp the starter grip and slowly pull it out. The resistance becomes the hardest at a certain position, corresponding to the compression point.(Fig.6)



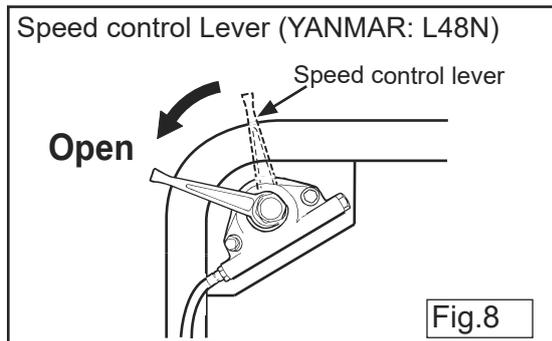
- 4 Push down the decompression lever and release. (Fig.7)
Return the recoil starter, and pull the handle sharply and quickly.



- 5 If the engine does not start, repeat steps 1 thru 4.

8.2 Operation

Use the speed control lever to raise the engine revolution to the highest set level to start your work. (Fig.8)



⚠ DANGER

The highest set revolution for the engine is adjusted to 3,200rpm. Do not turn the speed control lever bolt to increase the revolution above this level because failure might occur.

9. Stopping Machine

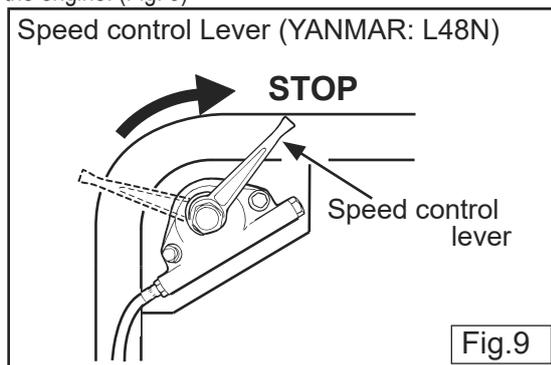
- 1 When you finish the work and stop the engine, return the speed control lever to the low speed position, and keep the engine running at low speed for 3-5minutes. When the temperature of the engine has decreased, stop the engine.

⚠ CAUTION

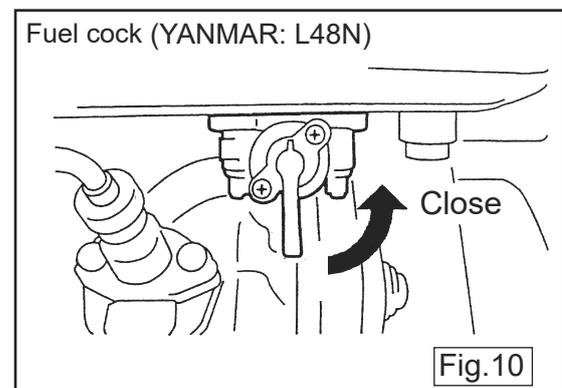
If you stop the engine while it is still hot, this machine will be affected adversely, causing, for example, burning of the oil film on the inner wall of the cylinder, which may accelerate wear of the inner wall of the cylinder. This may result in a shorter life of this machine, or cause unexpected failure.

Diesel engine

- 2 Move the speed control lever to the stop position to stop the engine. (Fig. 9)



- 3 Close the lever of the fuel cock.(Fig. 10)



10 Storage

- 1 Wash with water to remove any dust and dirt from all parts of the machine.
- 2 Store in a dry area away from direct sunlight after putting the cover over the machine to prevent dust and dirt buildup.
- 3 Drain the fuel from the fuel tank and fuel pipe completely.
- 4 Conduct fueling and replenishment/change of oil without omission. Remove the spark plug, put a few drops of engine oil into the cylinder, and rotate the engine manually for spreading the oil inside sufficiently.
- 5 Securely cover the air cleaner and muffler air inlets and exhaust port.
- 6 Do not leave the machine outdoors. Keep it indoors.
- 7 Do not store this machine by laying it on its side (or backward).

11. Regular Check and Adjustments

11.1 Inspection and Maintenance Schedule Table

Check frequency	Check parts	Check items	Oils
Daily (before starting)	Appearance	Flaw, deformation	
	Fuel tank	Leakage	
	Fuel system	Leakage	
	Engine oil	Leakage, oil level, dirt	Engine oil
	Shock absorber	Crack, damage, wear	
	Air cleaner element	Dust, deformation	
	Guard frame	Breakage, flaw, loosened or missing bolts and nuts	
Every 20 hours	Bolts and nuts	Looseness, missing	
	Engine oil	Replace only after the first 20 hours	Engine oil
Every 100 hours	Engine oil filter (Diesel)	Replace only after the first 20 hours	
	Engine oil	Change	Engine oil
Every 300 hours	Engine oil filter	Washing	
	Fuel filter	Change	
Every 2 years	Engine oil filter (Diesel)	Change	
	Fuel pipes	Change	
As necessary in time	Air cleaner element	Change	

For details about the check and maintenance of the engine, please refer to the attached engine operation manual.

Caution:

The above table shows the check frequency for standard condition.

The check frequency may vary depending on the condition in which the machine is used.

For check of bolt and nut looseness and tightening, please see the following tightening torque list.

Tightening Torque List (unit: kgf-cm, 1kgf-cm=9.80665N-cm)

		Thread diameter							
		6mm	8mm	10mm	12mm	14mm	16mm	18mm	20mm
Material	4T(SS41)	70	150	300	500	750	1,100	1,400	2,000
	6-8T(S45C)	100	250	500	800	1,300	2,000	2,700	3,800
	11T(SCM3)	150	400	800	1,200	2,000	2,900	4,200	5,600
	When the mating material is aluminum.	100	300~350	650~700	(Bolts used on the machine are all right-hand thread.)				

11.2 Changing Engine Oil

Perform the first engine oil change after 20 hours of operation, then change at every 100 hours.

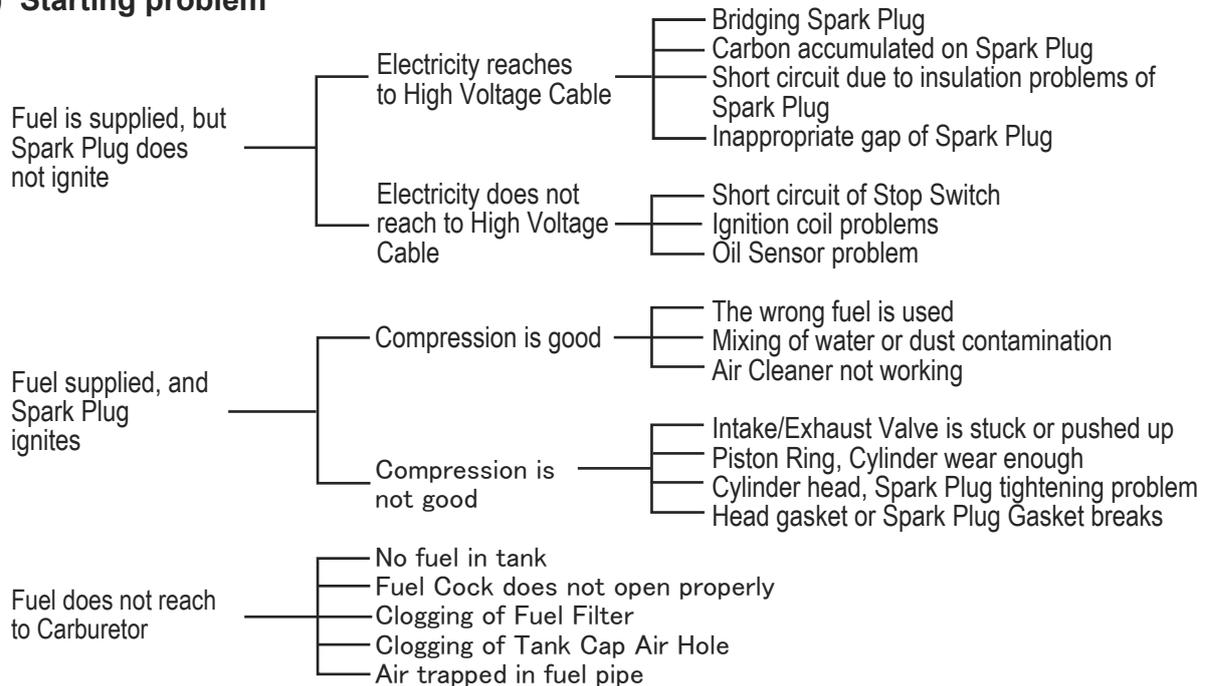
11.3 Cleaning Air Cleaner

When the air cleaner element becomes dirty, the engine does not start smoothly, and sufficient output cannot be obtained. Machine operation will be affected and the engine life will be shortened greatly. Do not forget to clean the element. (For details, please see the separate engine operation manual.) If the element cannot be cleaned, replace it with a new one.

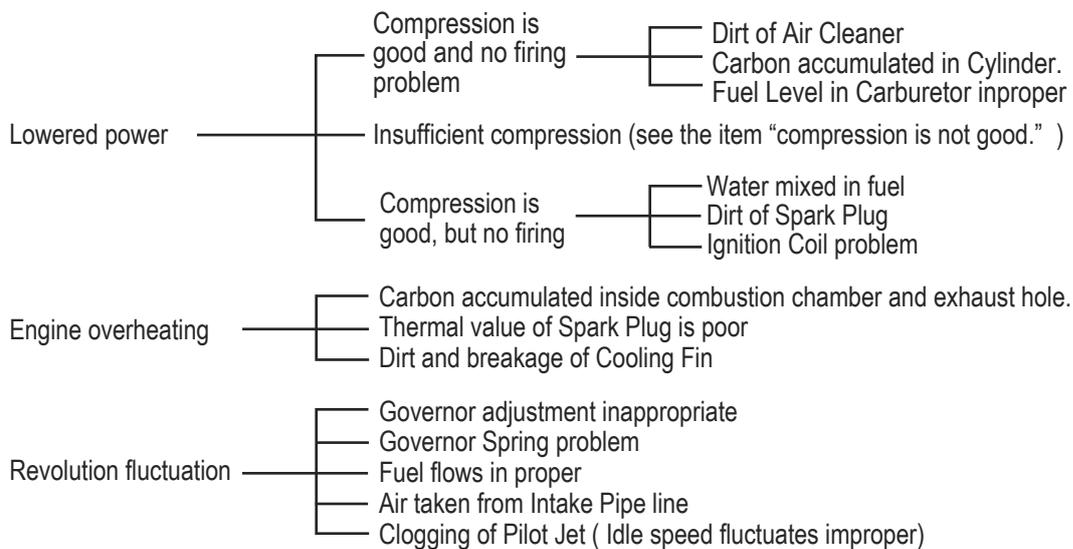
12. Troubleshooting

1. Gasoline Engine

(1) Starting problem



(2) Operation problem



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