



Water Pump

OWNER'S MANUAL

YP20G
YP30G



YAMAHA MOTOR CO., LTD.



LIT-19626-00-82

LIT-19626-00-82

INTRODUCTION

Congratulations on your purchase of your new Yamaha.

This manual will provide you with a good basic understanding of the operation and maintenance of this machine.

If you have any questions regarding the operation or maintenance of your machine, please consult a Yamaha dealer.

PRI-I.D. NUMBER:

	MODEL	
	<input type="text"/>	
PRI-I.D. CODE		SERIAL No.
<input type="text"/>		<input type="text"/>

Z-00101

IDENTIFICATION NUMBER RECORDS

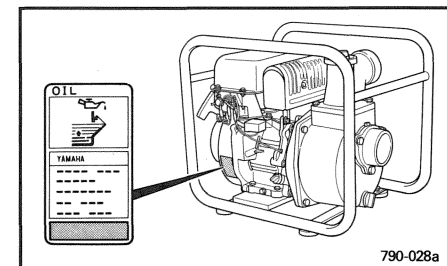
Record your Primary I.D., and serial numbers in the spaces provided, to assist you in ordering spare parts from your Yamaha dealer.

Also record and keep these I.D. numbers in a separate place in case your machine is stolen.

G-030

MACHINE IDENTIFICATION

The machine serial number is stamped in the location as shown.



NOTE:

The first three digits of these numbers are for model identification; the remaining digits are the unit production number. Keep a record of these numbers for reference when ordering parts from a Yamaha dealer.

**YP20G/YP30G
OWNER'S MANUAL
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Printed in Japan.
P/N LIT-19626-00-82**



NOTE: _____

- Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your engine and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.
- This manual should be considered a permanent part of this engine and should remain with this engine when resold.

⚠ WARNING

PLEASE READ AND UNDERSTAND THIS MANUAL COMPLETELY BEFORE OPERATING THE MACHINE.

Particularly important information is distinguished in this manual by the following notations.



The Safety Alert Symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

⚠ WARNING

Failure to follow WARNING instructions could result in severe injury or death to the engine operator, a bystander, or a person inspecting or repairing the engine.

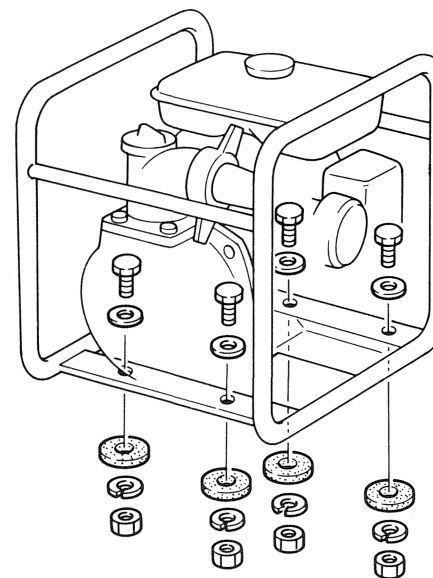
CAUTION:

A CAUTION indicates special precautions that must be taken to avoid damage to the engine.

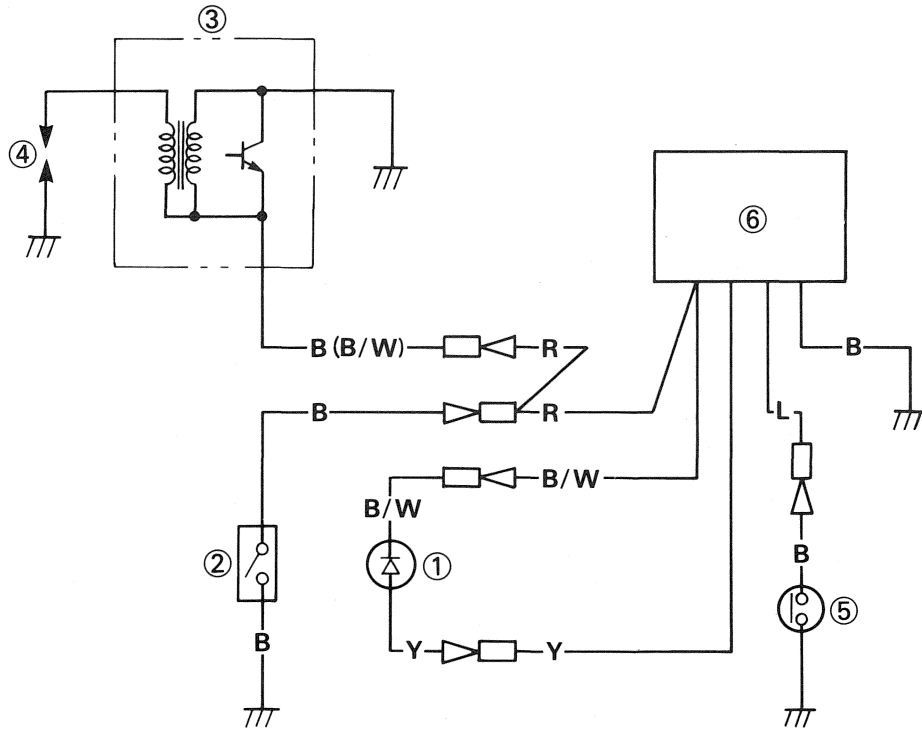
NOTE:

A NOTE provides key information to make procedures easier or clearer.

RUBBER MOUNT INSTALLATION



WIRING DIAGRAM



- ① Oil warning light
- ② Engine switch
- ③ TCI unit
- ④ Spark plug
- ⑤ Oil level switch
- ⑥ Oil warning unit

COLOR CODE

- R Red
- Y Yellow
- B Black
- L Blue
- B/W Black/White

CONTENTS

WATER PUMP LIMITED WARRANTY	1	PERIODIC MAINTENANCE	15
		MAINTENANCE CHART	15
		SPARK PLUG INSPECTION	16
		CARBURETOR ADJUSTMENT	16
		WATER LEAKAGE CHECK	16
		ENGINE OIL REPLACEMENT	17
		AIR FILTER	18
		FUEL COCK	19
		FUEL TANK FILTER	19
		MUFFLER SCREEN AND SPARK ARRESTER	20
LOCATION OF IMPORTANT LABELS	3	TROUBLESHOOTING	22
SAFETY INFORMATION	4	STORAGE	24
EXHAUST FUMES ARE POISONOUS	4	DRAIN THE FUEL	24
FUEL IS HIGHLY FLAMMABLE AND POISONOUS	4	ENGINE	24
ENGINE AND MUFFLER MAY BE HOT	4	EXHAUST EMISSION CONTROL SYSTEM AND COMPONENTS	25
CONTROL FUNCTION	6	SPECIFICATIONS	26
DESCRIPTION	6	DIMENSIONS	26
WATER HOSE INSTALLATION	7	ENGINE	26
OIL WARNING SYSTEM	7	PUMP	26
ENGINE SWITCH	8	OPERATION	12
THROTTLE LEVER	8	STARTING THE ENGINE.....	12
PRE-OPERATION CHECK	9	STOPPING THE ENGINE.....	13
FUEL	9	DRAIN OF WATER AFTER USE.....	14
ENGINE OIL	10	WIRING DIAGRAM	27
WATER PRIMING	10	RUBBER MOUNT INSTALLATION	28

YAMAHA MOTOR CORPORATION, U.S.A. WATER PUMP LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. hereby warrants that new Yamaha water pumps purchased from an authorized Yamaha water pump dealer in the continental United States will be free from defects in material and workmanship for the period of time stated herein, subject to certain stated limitations.

THE PERIOD OF WARRANTY for Yamaha water pumps shall be one year from the date of purchase.

DURING THE PERIOD OF WARRANTY any authorized Yamaha water pump dealer will provide:

1. Free of charge, the replacement of any part adjudged defective by Yamaha due to faulty workmanship or material from the factory. Parts used in warranty repairs will be warranted for the balance of the water pump's warranty period. All parts replaced under warranty become property of Yamaha Motor Corporation, U. S. A.

2. Any repairs made necessary by faulty workmanship or material from the factory.

GENERAL EXCLUSIONS from this warranty shall include any failures caused by:

- a. Installation of parts or accessories that are not qualitatively equivalent to genuine Yamaha parts.
- b. Abnormal strain, neglect, or abuse.
- c. Lack of proper maintenance.
- d. Accident or collision damage.
- e. (Trash type pump) pumping any liquid other than muddy or dirty water.
- f. (General type pump) pumping any liquid other than clean or cloudy water.

SPECIFIC EXCLUSIONS from this warranty shall include parts replaced due to normal wear or routine maintenance.

THE CUSTOMER'S RESPONSIBILITY under this warranty shall be to:

1. Operate and maintain the water pump as specified in the appropriate Owner's Manual, and

2. Give notice to an authorized Yamaha water pump dealer of any and all apparent defects within ten (10) days after discovery, and make the unit available at that time for inspection and repairs at such dealer's place of business.

WARRANTY TRANSFER: To transfer the warranty from the original purchaser to any subsequent purchaser (s), it is imperative that the unit be inspected and registered for warranty by an authorized Yamaha water pump dealer. In order for this warranty to remain in effect, this inspection and registration must take place within (10) days after transfer.

A reasonable dealer-imposed fee may be charged for the inspection. In no case will the warranty be extended beyond the original period.

YAMAHA MOTOR CORPORATION, U.S.A. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U.S.A., AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

YAMAHA MOTOR CORPORATION, U.S.A.
Post Office Box 6555
Cypress, California 90630

SPECIFICATIONS

DIMENSIONS

	Unit	YP20G	YP30G
Overall Length	mm (in)	391 (15.4)	397 (15.6)
Overall Width	mm (in)	502 (19.8)	518 (20.4)
Overall Height	mm (in)	454 (17.9)	466 (18.3)
Dry Weight	kg (lb)	27 (59.5)	30 (66.1)

ENGINE

	Unit	YP20G	YP30G
Type		Forced air cooled 4-stroke gasoline OHV	
Cylinder Arrangement		Inclined, 1 cylinder	
Displacement	cm ³	123	171
Bore × Stroke	mm (in)	56.0 × 50.0 (2.20 × 1.97)	66.0 × 50.0 (2.60 × 1.97)
Rated Output	kW(HP)/rpm	2.0 (2.7)/3,600	3.3 (4.4)/3,600
Operation Hours	Hr	5.1	3.4
Fuel		Unleaded gasoline	
Fuel Tank Capacity	L (Imp gal, US gal)	4.5 (0.99, 1.19)	4.5 (0.99, 1.19)
Engine Oil Quantity	L (Imp qt, US qt)	0.6 (0.53, 0.63)	0.6 (0.53, 0.63)
Ignition System		TCI	
Spark Plug: Type Gap	mm (in)	BPR4ES (NGK) 0.7~0.8 (0.028~0.031)	
Noise Level*	dB (A)	71	73

* : Measured at rated operation from 7 m (23 ft) distance.

PUMP

	Unit	YP20G	YP30G
Caliber	mm (In)	50 (2)	80 (3)
Maximum capacity	L/min (Imp gal/min, US gal/min)	600 (132, 159)	980 (216, 259)
Total head	m (ft)	30 (98.4)	31 (101.7)
Priming head	m (ft)	7 (23.0)	7 (23.0)

EXHAUST EMISSION CONTROL SYSTEM AND COMPONENTS

Item	Acronym
• CARB. ASSY., LH. & JT.,.....	CARB (Carburetor)
• CARBURETOR2	
• T.C.I. MAGNETO ASSY. &	EI (Electronic Ignition)
• PLUG, SPARK	
• CRANKCASE1 & HEAD,.....	PCV (Positive Crankcase Ventilation)
• CYLINDER1	
• AIR FILTER ASSY.	ACL (Air Cleaner)
• MUFF., 2, CAP, NET, WIRE2 & ARRESTER, SPARK	

The above items and the corresponding acronyms are provided in accordance with U.S. EPA REGULATIONS FOR SMALL NONROAD ENGINES and the CALIFORNIA REGULATIONS FOR 1995 AND LATER UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES.

The acronyms conform to the latest version of the SAE's recommended practice document J1930, "Diagnostic Acronyms, Terms, and Definitions For Electrical/Electronic System".

It is recommended that these items be serviced by a Yamaha dealer.

WARRANTY QUESTIONS AND ANSWERS

- Q. What costs are my responsibility during the warranty period?
- A. The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accident damages, as well as oil and spark plugs.
- Q. What are some examples of "abnormal" strain, neglect, or abuse?
- A. These terms are general and overlap each other in areas. Specific examples include: Running the machine out of oil; lack of proper maintenance; operating the machine with a broken or damaged part which causes another part to fail; and so on. If you have any specific questions on operation or maintenance, please contact your dealer for advice.
- Q. Does the warranty cover incidental costs such as transportation due to a failure?
- A. No. The warranty is limited to repair of the machine itself.
- Q. May I perform any or all of the recommended maintenance shown in the Owner's Manual instead of having the dealer do them?
- A. Yes, if you are a qualified mechanic and follow the procedures specified in the Owner's and Service Manual. We do recommend, however, that items requiring special tools or equipment be done by a Yamaha water pump dealer.
- Q. Will the warranty be void or cancelled if I do not operate or maintain my new Yamaha exactly as specified in the Owner's Manual?
- A. No. The warranty on a new Yamaha cannot be "voided" or "cancelled." **However, if a particular failure is caused by operation or maintenance other than as shown in the Owner's Manual, that failure may not be covered under warranty.**
- Q. What responsibility does my dealer have under this warranty?
- A. Each Yamaha water pump dealer is expected to:
1. Check the operation of the water pump before sale.
 2. Explain the operation, maintenance, and warranty requirements to your satisfaction at the time of sale, and upon your request at any later date.
- In addition, each Yamaha water pump dealer is held responsible for his setup, service and warranty repair work.**
- Q. Is the warranty transferable to second owners?
- A. Yes. The remainder of the existing warranty can be transferred upon request. The unit has to be inspected and re-registered by an authorized Yamaha water pump dealer for the policy to remain effective.

CUSTOMER SERVICE

If your machine requires warranty service, you must take it to any authorized Yamaha water pump dealer within the continental United States. Be sure to bring your warranty registration identification or other valid proof of the original date of purchase. If a question or problem arises regarding warranty, first contact the owner of the dealership. Since all warranty matters are handled at the dealer level, this person is in the best position to help you. If you are still not satisfied and require additional assistance, please write:

YAMAHA MOTOR CORPORATION U.S.A.
CUSTOMER RELATIONS DEPARTMENT
P.O. Box 6555
Cypress, California 90630

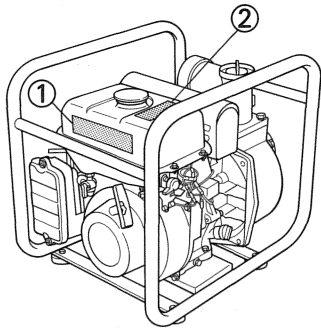
When contacting Yamaha Motor Corporation U.S.A. don't forget to include any important information such as names, addresses, model, engine serial number, dates and receipts.

CHANGE OF ADDRESS

The federal government requires each manufacturer to maintain a complete, up-to-date list of all first purchasers against the possibility of a safety-related defect and recall. This list is compiled from the purchase registrations sent to Yamaha Motor Corporation, U.S.A. by the selling dealer at the time of your purchase. If you should move after you have purchased your new water pump, please advise us of your new address by sending a postcard listing your Yamaha model name, engine number, dealer number (or dealer's name) as it is shown on your warranty identification, your name and new mailing address. Mail to:

YAMAHA MOTOR CORPORATION, U.S.A.
WARRANTY DEPARTMENT
P.O. Box 6555
Cypress, California 90630

This will ensure that Yamaha Motor Corporation, U.S.A. has an up-to-date registration record in accordance with federal law.



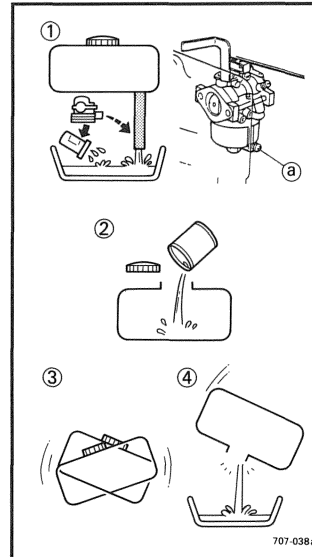
L-015

LOCATION OF IMPORTANT LABELS

Please read the following labels carefully before operating this machine.

NOTE:

Maintain or replace safety and instruction labels, as necessary.



G-700

STORAGE

Long term storage of your machine will require some preventive procedures to guard against deterioration.

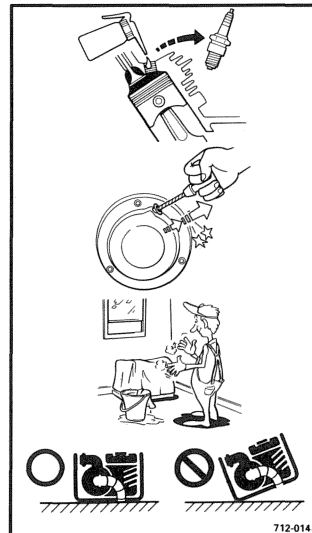
G-70102

DRAIN THE FUEL

1. Drain the fuel tank, fuel cock, and carburetor float bowl:

a) Carburetor drain plug

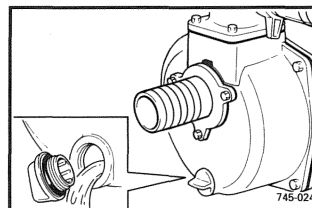
2. Pour a cup of SAE 10W30 or 20W40 motor oil into the tank.
3. Shake the tank to coat the inner surfaces thoroughly.
4. Drain off the excess oil.



W-71001

ENGINE

1. Remove the spark plug, pour about one tablespoon of SAE 10W30 or 20W40 motor oil into spark plug hole and reinstall the spark plug. Recoil start the engine by turning over several times (with ignition off) to coat the cylinder walls with oil.
2. Pull the recoil starter until you feel compression. Then stop pulling. (This prevents the cylinder and valves from rusting).
3. Clean exterior of the machine and apply a rust inhibitor.
4. Store the machine in a dry, well-ventilated place, with the cover placed over it.
5. The machine must remain in a vertical position when stored, carried or operated.



①

WARNING

1. Operate only in well ventilated areas.
2. Do not operate around flammable materials.
3. Exhaust gasses are poisonous.
4. Keep this unit dry at all times.

IMPORTANT

See "Owner's Manual" for general directions.

AVERTISSEMENT

1. N'utiliser que dans des zones bien ventilées.
2. Ne pas utiliser près d'un produit inflammable.
3. Les gaz d'échappement sont toxiques.
4. Toujours maintenir cet appareil bien sec.

IMPORTANT

Pour les directives générales, voir le "Manuel du propriétaire".

②

IMPORTANT ENGINE INFORMATION

E M

REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

ENGINE FAMILY : ***** (CARB)
***** (EPA)

YAMAHA

DISPLACEMENT: *** cm³ VALVE LASH(mm) IN: **.** EX: **.**

IGNITION TIMING & IDLE MIXTURE NO OTHER ADJUSTMENTS NEEDED.

IDLE SPEED: **** rpm AT NO LOAD

FUEL: THIS ENGINE IS CERTIFIED TO OPERATE ON UNLEADED GASOLINE.

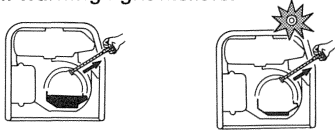
ENGINE OIL: **SAE 10W-30** TYPE **SE**

THIS ENGINE MEETS 1995-1998 CALIFORNIA EMISSION REGULATIONS FOR UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES. THIS ENGINE CONFORMS TO ***** U.S. EPA REGULATIONS FOR SMALL NONROAD ENGINES.

YAMAHA MOTOR CO., LTD. *-2179R-****

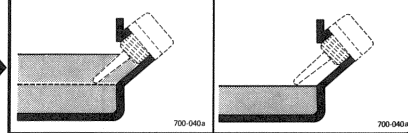
A ENGINE DOES NOT START

B Turn the engine switch to "ON", then pull the recoil starter and check if the oil warning light flickers.



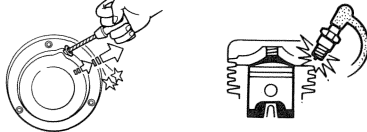
C Does not flicker **D** Flickers

E Check engine oil level.



F OK Consult your Yamaha dealer.	G Level low Add engine oil.
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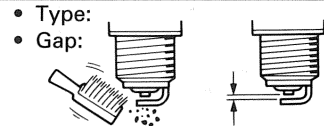
H Pull the recoil starter and check the spark plug for spark strength. (See "WARNING")



WARNING

- To prevent **FIRE HAZARDS** be sure fuel is not present in the spark plug area.
- To prevent **FIRE HAZARDS** be sure to place the spark plug as far way as possible from the spark plug hole and carburetor area.
- To prevent **ELECTRIC SHOCK** do not hold spark plug lead with hand while testing.

K Check the spark plug.



L Incorrect Replace or Adjust Gap.	M OK Clean the spark plug.
--	--------------------------------------

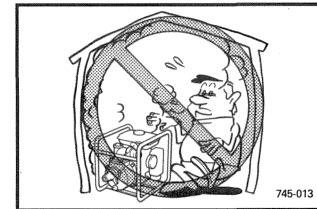
I Engine does not start. **J** Engine starts.

N Check the following

• Fuel cock clogging	O Clogged
• Air cleaner element clogging.	P OK

Q Clean or Replace; Consult your Yamaha dealer.

R Consult your Yamaha dealer.



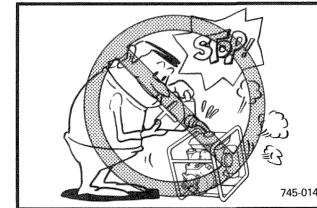
*G-380

SAFETY INFORMATION

G-381

EXHAUST FUMES ARE POISONOUS

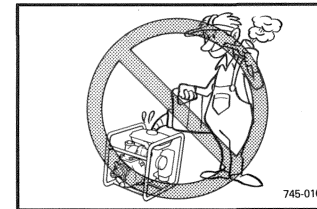
- Never operate the engine in a closed area or it may cause unconsciousness and death within a short time. Operate the engine in a well ventilated area.



G-382

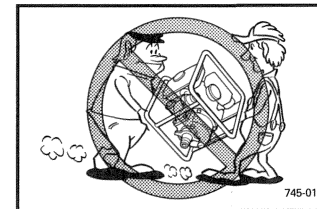
FUEL IS HIGHLY FLAMMABLE AND POISONOUS

- Always turn off the engine when refuelling.
- Never refuel while smoking or in the vicinity of an open flame.
- Take care not to spill any fuel on the engine or muffler when refuelling.
- If you swallow any fuel, inhale fuel vapor, or allow any to get in your eye(s), see your doctor immediately. If any fuel spills on your skin or clothing, immediately wash with soap and water and change your clothes.



G-383

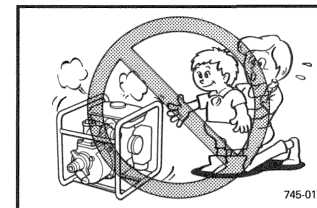
- When operating or transporting the machine, be sure it is kept upright. If it tilts, fuel may leak from the carburetor or fuel tank.



G-383

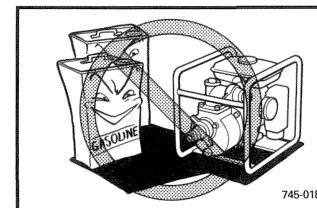
ENGINE AND MUFFLER MAY BE HOT

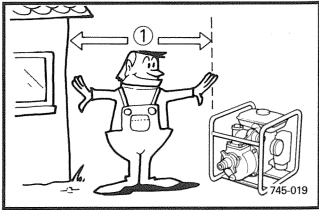
- Place the machine in a place where pedestrians or children are not likely to touch the machine.



G-383

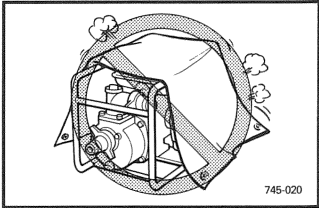
- Avoid placing any flammable materials near the exhaust outlet during operation.



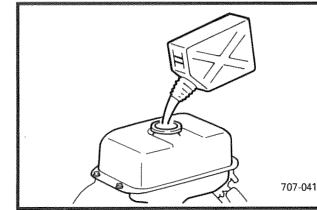


- Keep the machine at least 1 m (3 ft) from buildings or other equipment, or the engine may overheat.

① 1 m (3ft)



- Avoid operating the engine with a dust cover.



*G-650

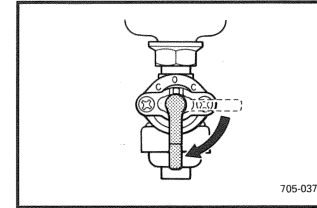
TROUBLESHOOTING

G-65102

Engine won't start

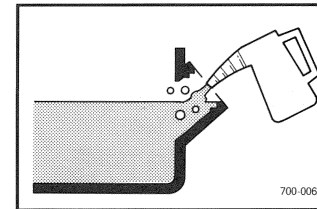
1. Fuel systems

- No fuel supplied to combustion chamber.
 - No fuel in tank Supply fuel.
 - Clogged fuel line Clean fuel line.
 - Foreign matter in fuel cock Clean fuel cock.
 - Clogged carburetor Clean carburetor.



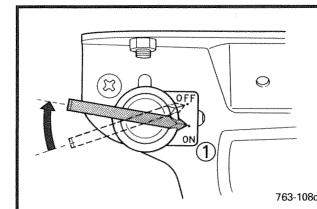
2. Engine oil system

- Insufficient
 - Oil level is low Add engine oil.



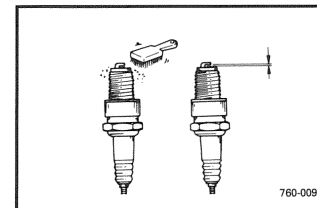
3. Electrical systems

- Engine switch to "ON".
 - Poor spark
 - Spark plug dirty with carbon or wet Remove carbon or wipe spark plug dry.
 - Faulty ignition system Consult dealer.



4. Compression

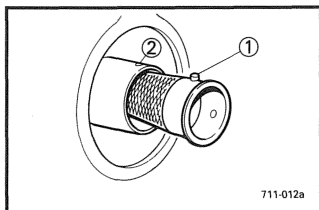
- Insufficient
 - Worn out piston and cylinder Consult dealer.
 - Loose cylinder head nuts Tighten nuts properly.
 - Damaged gasket Replace gasket.



W-665

Water does not draw up

- Loosened priming and/or drain plugs Tighten.
- Loosened hose joint and/or band Tighten.
- Damaged O-ring and/or gaskets Replace
- Damaged mechanical seal Consult dealer.

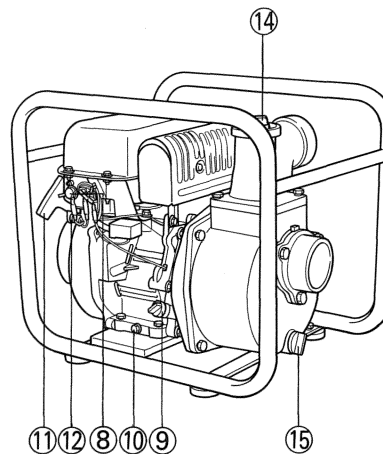
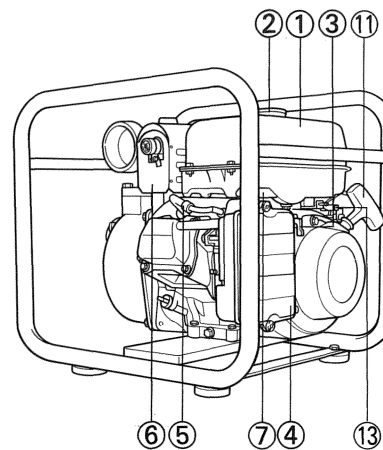
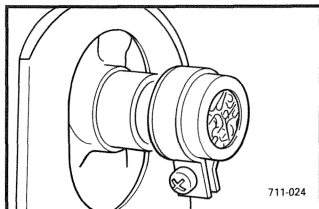


6. Install the spark arrester.

NOTE: _____
Align the spark arrester projection with the hole in the muffler pipe.

- ① Projection
- ② Hole

7. Install the muffler screen.



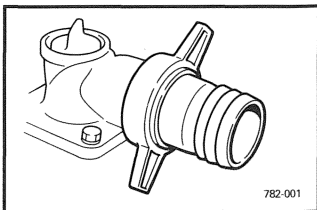
G-050

CONTROL FUNCTION

W-051

DESCRIPTION

- ① Fuel tank
- ② Fuel tank cap
- ③ Fuel cock
- ④ Air filter cover
- ⑤ Spark plug
- ⑥ Muffler
- ⑦ Choke lever
- ⑧ Engine switch
- ⑨ Oil filler cap
- ⑩ Oil drain plug
- ⑪ Recoil starter
- ⑫ Oil warning light
- ⑬ Throttle lever
- ⑭ Priming plug
- ⑮ Water drain plug



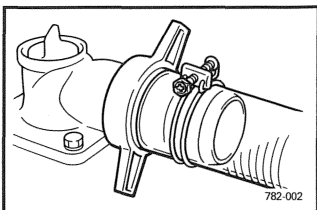
W-901

WATER HOSE INSTALLATION

1. Install the hose joints on the pump.

CAUTION:

When installing the joint to the pump, be sure the gasket is in place.

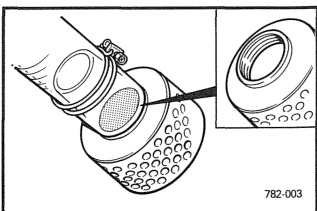


2. Connect the hoses on the joints with clamp.

3. Connect the strainer on the inlet hose end.

CAUTION:

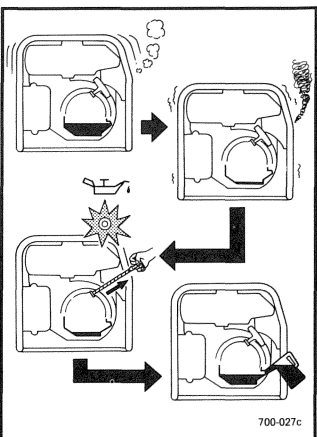
- Be sure the hoses are installed securely or air leak will occur and water will not be drawn up.
- Be sure the strainer is installed or pump damage will occur.



CAUTION:

Install the strainer

- A) 50 mm (2 in) suction port diameter for YP20G or
- B) 80 mm (3 in) suction port diameter for YP30G both with filtering perforations 8 mm (0.31 in) or less in diameter.



G-20303

OIL WARNING SYSTEM

When the oil level falls below the lower level, the engine stops automatically, Unless you refill with oil, the engine will not start again.

NOTE:

If the engine stalls or does not start, turn the engine switch to the "ON" position and then pull the recoil starter. If the oil warning light flickers for a few seconds, the engine oil is insufficient. Add oil and restart.

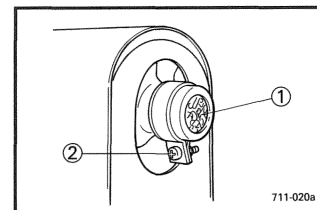
G695

MUFFLER SCREEN AND SPARK ARRESTER

WARNING

The engine and muffler will be very hot after the engine has been run.

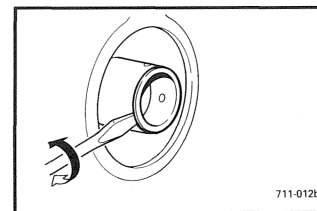
Avoid touching the engine and muffler while they are still hot with any part of your body or clothing during inspection or repair.



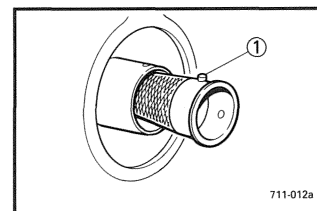
1. Remove the muffler screen.

① Muffler screen

② Screw

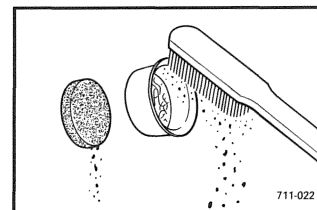


2. Use a flathead screw driver to pry the spark arrester out from the muffler.



3. Remove the spark arrester.

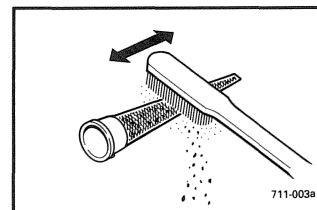
① Spark arrester



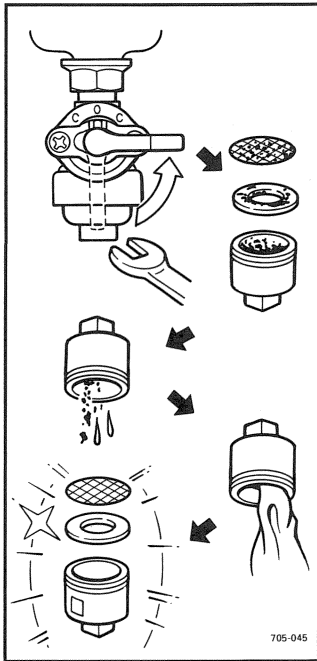
4. Remove the carbon deposits on the muffler screen and spark arrester using a wire brush.

CAUTION:

When cleaning, use the wire brush lightly to avoid damaging or scratching of the muffler screen and spark arrester.



5. Check the muffler screen and spark arrester. Replace them if damaged.



G-60002

FUEL COCK

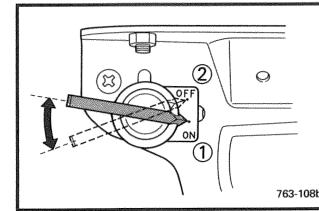
⚠ WARNING

Never use or be near the fuel and solvent while smoking or in the vicinity of an open flame.

1. Stop the engine:
2. Turn the fuel cock lever to "OFF".
3. Remove the fuel cock cup and gasket.
4. Clean the cup with solvent and wipe it off.
5. Check the gasket. Replace it if damaged.
6. Reinstall the gasket and fuel cock cup.

⚠ WARNING

Be sure the fuel cock cup is tightened securely.

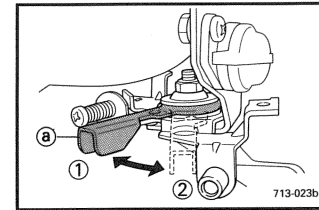


G-20604

ENGINE SWITCH

The engine switch controls the ignition system.

- ① "ON":
Ignition circuit is switched on.
the engine can be started.
- ② "OFF":
Ignition circuit is switched off.
The engine will not run.

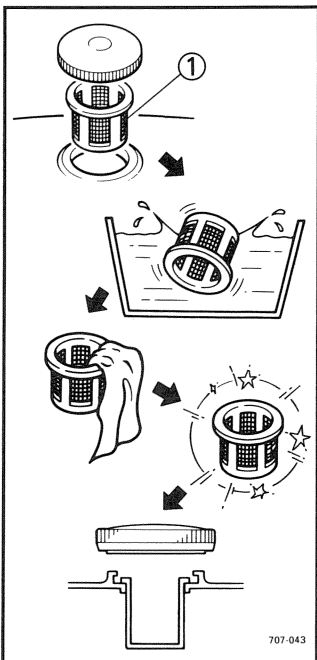


W-21601

THROTTLE LEVER

The throttle lever controls the engine speed. Move the throttle lever in direction ① to decrease engine speed. Move the throttle lever in direction ② to increase engine speed.

- Ⓐ Throttle lever



G-620

FUEL TANK FILTER

1. Remove the fuel tank cap and filter.

- ① Filter

2. Clean the filter with solvent.
If damaged, replace.
3. Wipe the filter and insert it.

⚠ WARNING

Be sure the tank cap is tightened securely.

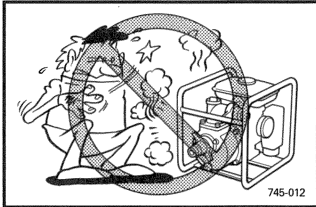
CAUTION:

Always check throttle operation before starting the engine.

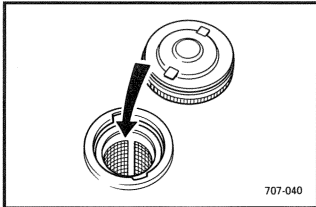
PRE-OPERATION CHECK

NOTE: _____

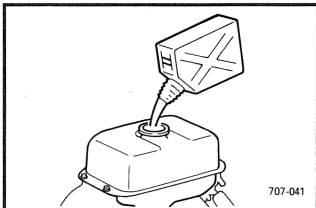
Pre-operation checks should be made each time the water pump is used.



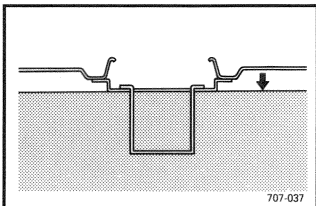
745-012



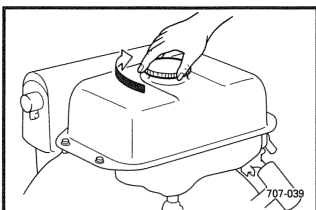
707-040



707-041



707-037



707-039

⚠ WARNING _____

The engine and muffler will be very hot after the engine has been run.

Avoid touching the engine and muffler while they are still hot with any part of your body or clothing during inspection or repair.

G-30104

FUEL

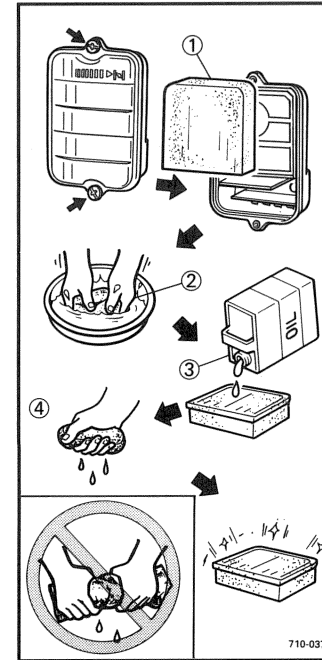
Make sure there is sufficient fuel in the tank.

Recommended fuel:
Unleaded gasoline
Fuel tank capacity:
Total:
4.5 L (0.99 Imp gal, 1.19 US gal)

Your Yamaha engine has been designed to use regular unleaded gasoline with a pump octane number ((R + M)/2) of 86 or higher, or research octane number of 91 or higher.

⚠ WARNING _____

- Fuel is highly flammable and poisonous. Check "SAFETY INFORMATION" (See page 4) carefully before refueling.
- Do not fill above the top of the fuel filter or it may overflow when the fuel heats up later and expands.
- Wipe up any spilled fuel immediately.
- After refueling, make sure the tank cap is tightened securely.



710-037

AIR FILTER

1. Remove the air filter cover and element.
2. Wash the element in solvent and dry.
3. Oil the element and squeeze out excess oil. The element should be wet but not dripping.

Recommended oil:
Foam-air-filter oil
or
SAE #20 motor oil

CAUTION: _____

Do not wring out the element. This could cause it to tear.

4. Insert the element into the air filter.

NOTE: _____

Be sure the element sealing surface matches the air filter so there is no air leak.

CAUTION: _____

The engine should never run without the element; excessive piston and cylinder wear may result.

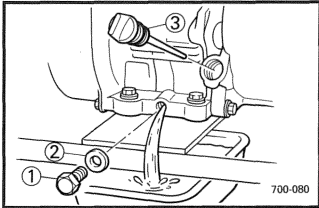
⚠ WARNING _____

Never use solvent while smoking or in the vicinity of an open flame.

G-56007

ENGINE OIL REPLACEMENT

1. Place the machine on a level surface and warm up the engine for several minutes. Then stop the engine.
2. Remove the oil filler cap.
3. Place an oil pan under the engine. Remove the oil drain plug so that the oil can be completely drained.
4. Check the drain plug, gasket, oil filler cap and O-ring. If damaged, replace.



- ① Oil drain plug
- ② Gasket
- ③ O-ring

5. Reinstall the oil drain plug.

Drain Plug Torque:
17 Nm (1.7 m•kg, 12 ft•lb)

6. Add engine oil to the upper level.

- ① Upper level.

Recommended oil:

- Ⓐ YAMALUBE 4 (10W-30) or SAE 10W-30 type SE motor oil
- Ⓑ SAE #30
- Ⓒ SAE #20
- Ⓓ SAE 10W

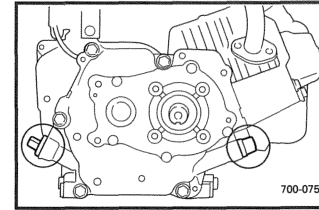
Engine oil quantity:
0.6 L (0.53 Imp qt, 0.63 US qt)

NOTE: _____

Recommended engine oil classification:
API Service "SE" or "SF".

CAUTION: _____

Be sure no foreign material enters the crankcase.

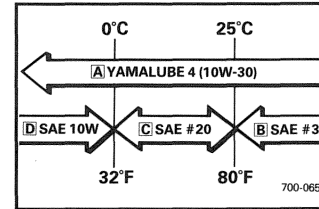
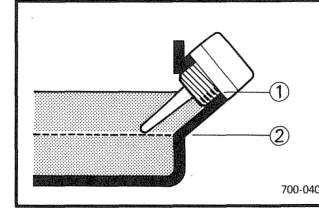


W-33001

ENGINE OIL

Make sure the engine oil is between upper and lower levels.
Add oil as necessary.

- ① Upper level
- ② Lower level



Recommended oil:

- Ⓐ YAMALUBE 4 (10W-30) or SAE 10W-30 type SE motor oil
- Ⓑ SAE #30
- Ⓒ SAE #20
- Ⓓ SAE 10W

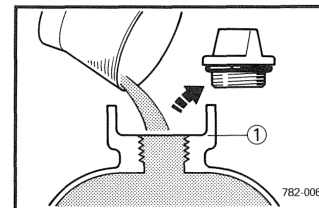
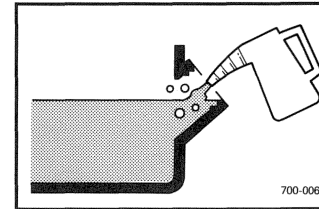
Engine oil quantity:
0.6 L (0.53 Imp qt, 0.63 US qt)

NOTE: _____

Recommended engine oil classification:
API Service "SE" or "SF".

CAUTION: _____

The water pump has been shipped without engine oil. Fill with oil or it will not start.



W-350

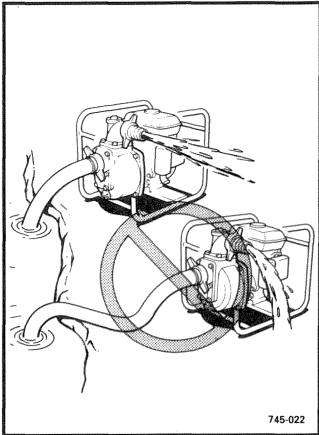
WATER PRIMING

Make sure the water is at pump casing upper level.
Add water as necessary.

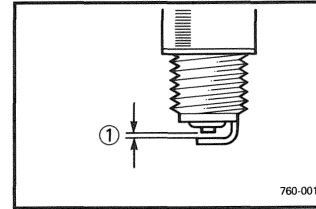
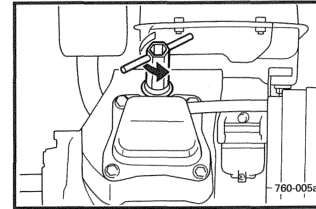
- ① Upper level

CAUTION: _____

Be sure the pump is filled up with water before starting the engine or mechanical seal damage will occur.



- NOTE:**
- Be sure the pump is placed on a firm place and as near to available water source as possible.
 - The higher the suction head is the more time will be required for priming with less discharge.



G-520

SPARK PLUG INSPECTION

You should periodically remove and inspect the spark plug.

1. Check for discoloration and remove the carbon.

Standard electrode color:
Tan Color

2. Check the spark plug type and gap.

Standard Spark Plug:
BPR4ES (NGK)
Spark Plug Gap:
0.7~0.8 mm (0.028~0.031 in)

- ① Gap

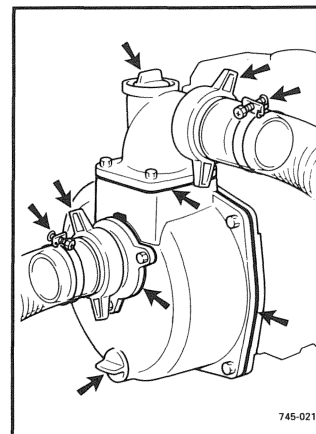
3. Install the spark plug.

Spark Plug Torque:
20 Nm (2 m•kg, 14 ft•lb)

G-512

CARBURETOR ADJUSTMENT

The carburetor is a vital part of the engine. Adjusting should be left to a Yamaha dealer or other qualified mechanic with the professional knowledge, specialized data, and equipment to do so properly.



W-525

WATER LEALAGE CHECK

Check for water leakage from water pump. Retighten the bolts, plugs, band, and hose joints. Replace O-rings and/or gaskets if necessary.

PERIODIC MAINTENANCE

W-501

MAINTENANCE CHART

Regular maintenance is most important for best performance and safe operation.

No.	Item	Remarks	Pre-Operation check (daily)	Every			
				1 month or 20 Hr	3 month or 50 Hr	6 month or 100 Hr	12 month or 300 Hr
1.	** Spark Plug	Check condition adjust gap and clean. Replace if necessary.			•		
2.	Engine Oil	Check oil level	•				
		Replace		•	•		
3.	** Air Filter	Clean. Replace if necessary.		•			
4.	Fuel Filter	Clean fuel cock and fuel tank filter. Replace if necessary.			•		
5.*	** Valve Clearance	Check and adjust when engine is cold.				•	
6.	Fuel Line	Check fuel hose for crack or damage. *Replace if necessary.	•				
7.*	** Crankcase breather system	Check breather hose for cracks or damage. Replace if necessary.				•	
8.*	** Idle speed	Check and adjust engine idle speed.				•	
9.	** Exhaust System	Check for leakage. Retighten or *replace gasket if necessary.	•				
		Check muffler screen and spark arrester. Clean/replace if necessary.				•	
10.	** Choke lever	Check choke operation.	•				
11*	Cooling System	Check fan damage.			•		
12.	Starting System	Check recoil starter operation.	•				
13.*	** Decarbonization	More frequently if necessary.			•		
14.	Water Pump	Check for leakage. Retighten or replace O-ring and/or gasket.	•				
15*	Fittings/Fasteners	Check all fittings and fasteners. Correct if necessary.			•		

* : It is recommended that these items be serviced by a Yamaha dealer.

** : Related to emission control system.

OPERATION

NOTE: _____

The water pump has been shipped without engine oil. Fill with oil or it will not start.

W-404

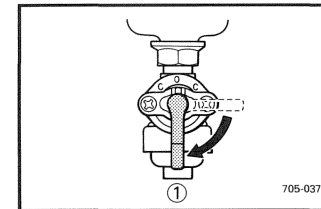
STARTING THE ENGINE

CAUTION: _____

Be sure the pump is filled up with water before starting the engine.

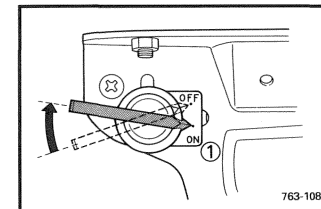
1. Turn the fuel cock lever to the "ON" position.

① "ON"



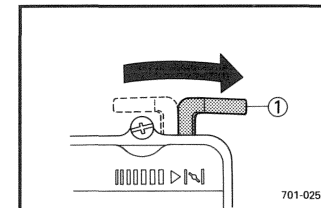
2. Turn the engine switch to the "ON" position.

① "ON"



3. Turn the choke lever to the "1/2" position.

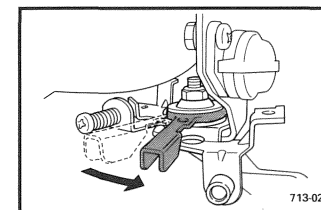
① Choke lever

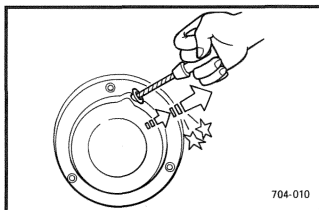


NOTE: _____

The choke is not required to start a warm engine. Turn the choke lever to the operating position.

4. Move the throttle lever slightly to right.



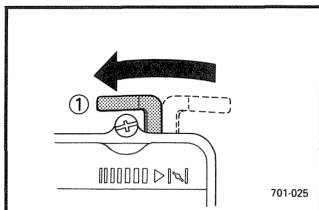


5. Pull slowly on the recoil starter until it is engaged, then pull it briskly.

6. After the engine starts, warm up the engine until the engine does not stop when the choke lever is returned to the operating position.

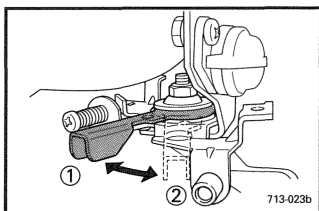
7. Turn the choke lever back to the operating position.

① Operating position



8. Set the throttle lever in desired position.

- ① Decrease engine speed
- ② Increase engine speed



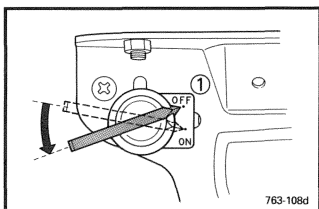
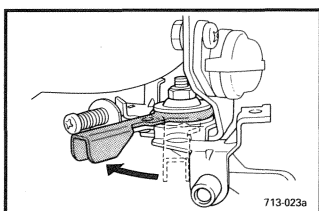
W-482

STOPPING THE ENGINE

1. Move the throttle lever fully to left.

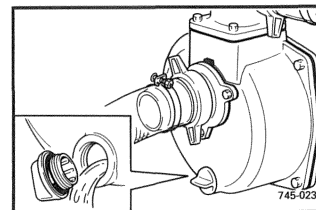
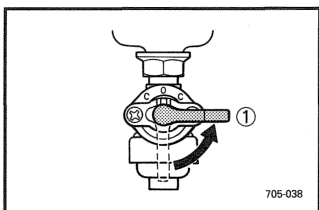
2. Turn the engine switch to the "OFF" position.

① "OFF"



3. Turn the fuel cock lever to the "OFF" position.

① "OFF"



W-48601

DRAIN OF WATER AFTER USE

Water inside casing freezes at below 0°C (32°F) in winter and thereby pump may possibly be broken. After use, drain water from drain port at bottom to store.