

- 1. Primary fixed sheave complete
- 2. Spring seat
- 3. Compression spring
- 4. Primary sliding sheave complete
- 5. Cam

- 6. Primary sheave cap complete
- 7. Lock washer
- 8. Bolt
- 9. V-Belt

Fig. 17

1. Full kit installation

Replace the standard compression spring and cam with kit parts.

2. Improvement kit installation

Replace the standard compression spring and cam with kit parts.

Note:

To modify-'74 model to '75 kit machine, torsion spring (90508-45081) is needed in addition to the abovementioned parts. To increase setting factor, make an additional spring hole in 2nd sliding sheave in the position symmetrical to the original spring hole.

IV. INSPECTION AND ADJUSTMENT

The GPX machine has been highly turned up at the factory. To keep the engine in a state of maximum performance, the following adjustments and inspections are required.

A. CYLINDERS, PISTONS, PISTON RINGS AND SPARK PLUGS

When any one of the cylinders, piston rings and spark plugs has been replaced, break in the machine by snapping throttle lever for 30 minutes.

1. Cylinders ---

Check the cylinders for scratches prior to each race. If cylinders has chrome flaking, they should be replaced.

2. Pistons and piston rings

The discoloration of piston crowns is a useful indication to determine whether or not the fuel pump settings are correct. (Refer to "Piston crown color sample".)

Check the piston rings for sticking. If piston rings are found sticking, they should be cleaned of carbon using solvent. Clean out ring grooves with part of a broken ring.

Piston ring-to-groove clearance greatly affects engine performance, and therefore, it should be carefully checked. Standard ring-to-groove clearance is as follows:

- 1. Piston
- 2. Ring
- A; Clearance 0.00118 ~ 0.00236 in. (0.03 ~ 0.06 mm.)

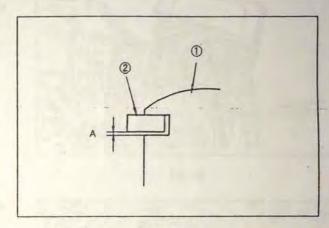


Fig. 18

If any high spots are found on a piston or on a cylinder wall, they should be smoothed out using sandpaper (#400 or more) or oil stone. Sanding should be made in the direction of circumference. Never sand in the direction of thrust.

Avoid sanding the sample piston more than twice. If sanding is needed more than twice, the piston should be replaced.

After any piston or any cylinder has been replaced, piston-to-cylinder clearance should be checked carefully.

Standard clearance:

0.00117 ~ 0.00196 in. (0.045 ~ 0.050 mm.)

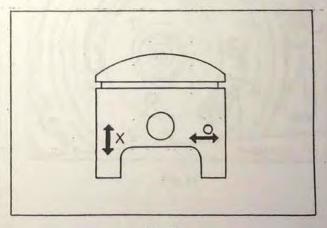


Fig. 19

Note:

Causes of piston burning holes and seizing

If piston is holed or has seized, the following causes should be considered.

- 1) Main calibration screw or outlet screw are incorrect, making the mixture too lean.
- 2) Fuel level in the fuel tank is below the empty line.
- 3) Ignition timing is incorrect.
- 4) Spark plug heat range is too high.

3. Spark plugs

Recommended spark plugs

Spark plugs should be N-59G or its equivalent.

GPX338G (G.Y.T.)	Champion N-59G
GPX433G (G.Y.T.)	Champion N-59G

Note:

Whether or not fuel pump settings are correct can be determined by checking the discoloration of spark plugs and piston crowns. They should be checked very carefully.

B. IGNITION TIMING

- 1) Install the dial gauge stand and dial gauge in the plug hole of the cylinder head.
- Turn the rotor to bring the piston to top dead center, and set the zero reading at dial gauge pointer.

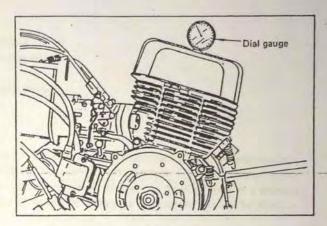


Fig. 20

3) Turn the flywheel counterclockwise, and set the ignition timing at the specified position. This adjustment can be done by turning the pulser. Adjust the pulser so that mark on the flywheel is aligned with timing mark on the pulser.

Igni	tion Timing
GPX338G (G.Y.T.)	0.055 ± 0.004 in. (1.4 ± 0.1 mm.) B.T.D.C.
GPX433G (G.Y.T.)	0.071 ± 0.004 in. (1.8 ± 0.1 mm.) B.T.D.C.

Note

After adjustment, there must not be any difference in the ignition timing between the two cylinders.

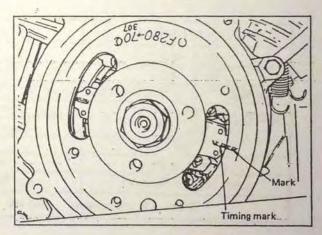


Fig. 21

C. FUEL PUMP SET

1. Pre-operation

- 1) Engine lubrication
 - a) Use YAMALUBE or another prediluted type snowmobile oil that has TC-W rating from the B.I.A.

Do not use vegetable base oils because they will easily separate from gasoline at low temperatures.

- b) Mix gasoline and oil in a ratio of 15:1.
- 2) Bleed air from fuel system before starting engine
 - a) After filling fuel tank, remove fuel lines from mixing chambers.
 - b) Operate the starting pump until all air has escaped from check valve, pumps, and fuel lines.
- 3) Make sure the hose (pulse pipe) is free from oil and dust.
- 4) Check piping against fuel pump set connection diagram.
- 5) Starting Cold engine
 - a) Depress starting pump 2 or 3 times with throttle held open.
 - b) Start engine and continue to operate starting pump during warm-up.
- 6) Starting Warm engine
 - a) Operate starting pump once or twice only if there is air fuel lines.
 - b) Start engine using $1/4 \sim 1/2$ throttle.

2. Fuel pump adjustment

The fuel pump is so set at the factory as to match the operation of the high tune-up engine which is run at temperatures of 0 to -20°C on the sea level and these settings are paint marked at the factory. If the machine has to be operated under conditions other than specified above the fuel pump must be reset as required. Always use these settings as a starting point. Don't forget factory setting. Special care should be taken in fuel pump setting so that pistons will not be holed or

a. S.T.D. data

		GPX338G (G.Y.T.)	2 1000000000000000000000000000000000000
	Outlet adjusting screw		GPX433G (G.Y.T.)
	Main calibration screw	3~4	3-1/4 ~ 4-1/8
+= +=	Hose (pulse pipe) dia	L/H 1-1/4 ~ 2-1/8 R/H 1 ~ 1-7/8	
	Hose (pulse pipe) length	$0.295^{\phi} \sim 0.098^{\phi}$ in. $(7.5^{\phi} \sim 2.5^{\phi}$ mm.)	0.295° ~ 0.098° in /7 F¢ 0.50
	Mixing bore		13.78 in: (250 - 2.5° mm.
1	Mixing needle taper	1.65 ^{\$\phi\$} ins. (42 ^{\$\phi\$} mm.)	13.78 ins. (350 mm.) 300
	Mixing shim	-55'	
	Mixing needle seat	0.078 in. (2 mm.)	55'
		0.06535 ^{\$\phi\$} in. (1.66 ^{\$\phi\$} mm.)	0.078 in. (2 mm.)
	Condition	Elevation: Sea level Ter	0.06614 [¢] in (1.68 [¢] mm.)

b. Low speed setting

In order to properly control the low speed performance (idling, starting and acceleration) of the machine, the following

- a) Start the engine and allow one (1) minute for warm-up.
- b) Synchronize idle speed screw at approx. 4,500 r.p.m.

2) Starting and acceleration

If any one of the following troubles should occurwhen throttle is quickly opened to full-open position during idling or low-speed operation, adjust outlet adjusting screw so that engine response to throttle becomes the best when it is opened from idling or low-speed posiiton.

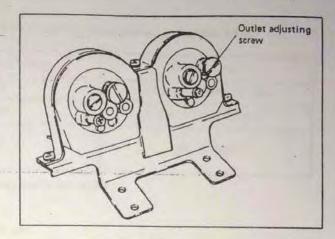


Fig. 22

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
S.T.D. outlet adjusting screw	3~4	3-1/4 ~ 4-1/8

Settings given in turns out of from the lightly seated position.

Trouble	Cause	Remedy
When throttle is quickly opened to full position:		
Engine stalls Engine does not pick up speed quickly.	Too lean a mixture Too rich a mixture	Loosen outlet adjusting screw. Tighten outlet adjusting screw.

Note:

If outlet adjusting screw needs to be backed out more than 4-1/2 turns for adjustment, increase A distance 0.0118 in. (0.3 mm.) each time by loosening needle lever screw on the mixing chamber. Then readjust outlet adjusting screw. If the screw is opened more than 4-1/2 turns, fule pump performance will be impaired.

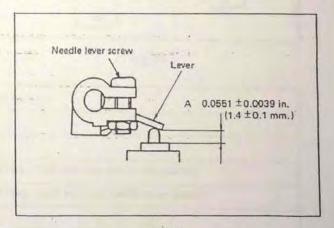


Fig. 23

CAUTION:

- 1) Do not turn pump outlet adjusting screw out more than 4.5 turns from a fully seated position.
- 2) Never run the engine with main calibration screw being closed.
- Before connecting fuel lines, thoroughly wash pipes.
 Even small particles of dust will impair fuel pump performance.
- 4) Never use any other fuel than PREMIUM.

Notes:

-1) Fuel-pump assembly identification

Main calibration screw and outlet adjusting screw in fuel pump have match marks as shown in the table below.

		Match Mark for Screw	Engraved No.
SPX338G Kit	Left	Green	L8001 ~ L8999 (Serial)
	Right	Yellow	
SPX433G Kit	Left		R7001 ~ R7999 (Serial)
7. A433G KIE.	Right	Red	3001 ~ 3999

Screws for GPX338G have an "L" (left) or an "R" (right) engraved before Serial No.

2) Special

On GPX 338G, the left-hand fuel pump assembly alone is one sale:

If it is to be used as right-hand fuel pump assembly, the main calibration screw should be backed out about 1/4 turn from the set position. Outlet mixing screw need not be backed out.

c. High speed setting

The main calibration screw setting which is suitable for operation at temperatures of 0 to -20°C on the sea level is installed in the machine at the factory. To select a proper main calibration setting, test should be performed, starting with match mark. Whether or not the setting is correct can be determined by the discoloration of spark plug and piston crowns. (Refer to the piston crown color sample.)

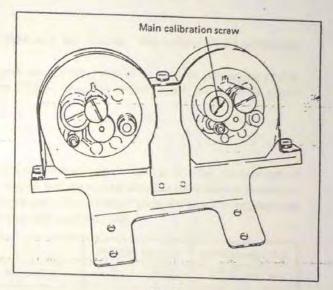


Fig. 24

Europe Teacher		Piston crown color sample
Piston condition	No.	
	1.	Good
New	2	Bad (Mixture is too rich. Tighten main calibration screw.)
	3	Bad (Mixture is too lean. Back off main calibration screw.)
	4	Good
Old	5	Bad (Mixture is too rich. Tighten main calibration screw.)
	6	Bad (Mixture is too lean. Back off main calibration screw.)

After engine is warm and idle speed settings have been made, proceed with high speed adjustment.

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
. S.T.D.		OF A4330 (G. T. T.)
Main calibration screw	L/H 1-1/4 ~ 2-1/8 R/H 1 ~ 1-7/8	1-1/4 ~ 2-1/8

Setting given in turns out from the lightly seated position.

To listen for pinging of the engine, running test should be performed by two mechanics.

- 1) Make sure the main calibration screw is standard position.
- 2) To check for pinging the engine during acceleration, have one mechanic positioned 200 m. off the starting point.
- Start the machine with full-throttle, and immediately after running 300 m. at full-speed stop the engine by depressing the engine stop button.

Note:

If pinging is heard when the machine is at full-speed, stop the machine immediately, and back off the main calibration screw.

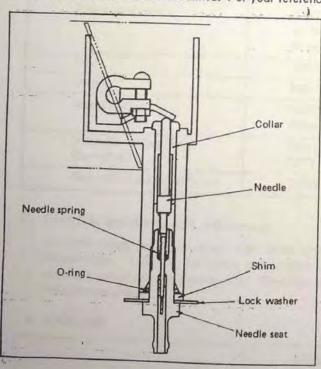
- 4) Check the color of piston crowns or spark plugs. If the mixture is considered to be too lean, back off the screw. If too rich, tighten the screw.
- 5) Repeat the procedures in 3) and 4) above. When piston crowns and spark plugs show proper color, the fuel pump setting is complete.

Note:

- 1) Piston color is necessarily the same between the right and left pistons. But suitable main calibration screw setting may differ between the two fuel pumps.
- 2) When test has to be conducted by one mechanic, particular attention should be paid to the pinging of the engine while accelerating. Immediately after running 300 m., stop the engine, check the color of piston crowns and spark plugs.

3. Mixing chamber

Specification of the mixing chamber are as follows. By changing specifications of the mixing chamber, the flow rate of fuel for each throttle opening can be varied. Our tests have revealed that no mixing chamber adjustment is required in order to adjust fuel pump settings. If both main calibration screw and outlet adjusting screw are correctly set, best fuel pump performance can be obtained. For your reference, the service data is given below:



	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
Mixing bore	1.65 [¢] ins. (42 [¢] mm.)	1.77 [¢] ins. (45 [¢] mm.)
Needle taper	55'	55'
Shirm	0.078 in. (2 mm.)	0.078 in. (2 mm.)
Needle seat	0,06535 ^{\$\phi\$} in. (1.66 ^{\$\phi\$} mm.)	0.06614 [¢] in. (1.68 [¢] mm.)

Fig. 25

D. CLUTCH

Clutch requires adjustment of clutch engagement r.p.m. and clutch shifting r.p.m.

Clutch engagement r.p.m. is defined as engine r.p.m. when throttle valve is opened and machine makes a start.

Clutch shifting r.p.m. is engine r.p.m. at which the machine passes points at 200 ~ 300 m. from the starting position after throttle valve has been opened quickly to full-open position while the machine is at rest. When passing these points vehicle speed is increasing, but engine r.p.m. is nearly constant.

Note that under unfavorable road conditions such as wet snow, icy snow, uphills, or rough terrain, engine speed decreases after it has once increased, unlike travelling under better road conditions such as packed snow covered areas or flat and smooth surfaces. (See Fig. 26)

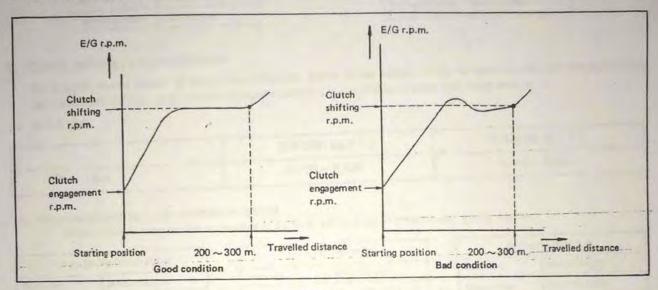


Fig. 26

1. Kit service data (Full kit & improvement kit)

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
Spring compression	90501-55356 Set load Spring constant 64 kgs. 2.0 kg/mm.	90501-55356 Set load Spring constant 64 kgs. 2.0 kg/mm.
Cam	878-17623-70	879-17623-70
Weight	856-17632-00	856-17632-00
Spring tortion	90508-45081 Color code — not painted	90508-45081 Color code — not painted
Secondary sliding sheave (Cam angle)	888-17670-11 (27°).	889-17670-00 (33°)
Reduction ratio Drive/Driven	21/33	22/33

2. Clutch engagement r.p.m. adjustment

If clutch engagement r.p.m. is too high, track tends to slip more, extensively and acceleration just after starting will become poor. If too low, full engine performance can not be obtained, and acceleration just after starting or just after turning a corner will also become poor. Therefore, clutch engagement r.p.m. should be properly adjusted so as to match the snow condition.

a. S.T.D. data

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
Clutch engagement r.p.m.	5,200 ~ 5,600	5,200 ~ 5,600

b. Decreasing clutch engagement r.p.m.

The track tends to slip more extensively over icy snow or virgin snow, and therfore, clutch engagement r.p.m. should be lowered.

Compression spring should be replaced by a type having a smaller spring set load. That is, the kit compression spring should be replaced by optional spring.



Spring Compression	
Parts No.	90501-55242
Color code	RED-ORANGE
Set load	60 kgs.
Spring constant	2.00 kg/mm.

3. Clutch shifting r.p.m. adjustment

To transmit engine power to track with efficiency, adjust clutch shifting r.p.m. to specification (see Standard data) because clutch shifting r.p.m. must be changed depending on conditions of snow and racing course.

a. S.T.D. data

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
Shift r.p.m.	-8,700 ~ 8,800	8,400 ~ 8,500

b. When clutch shifting r.p.m. needs to be reduced

1) Primary clutch compression spring should be replaced by a type having smaller spring constant.

S.T.D. Spr	ing Compression
Parts No.	90501-55356
Color code	BLUE-SILVER
Set load	64 kgs.
Spring constant	2.0 kg/mm.

Parts No.	90501-55355
Color code	YELLOW-YELLOW
Set load	65 kgs.
Spring constant	1.75 kg/mm.

Spring	Compression
Parts No.	90501-55230
Color code	RED-SILVER
Set load	65 kgs.
Spring constant	1.5 kg/mm.

2) Make the weights heavier by installing bolts. Install bolts (shown in the table) on weights (856-17632-00).

The bolts should be positioned symmetrically and of the same type.

Setting Bolt No.	1	2	3	4.	5	6
Dφ mm.	5	5	5	6	6	6
L mm.	10	12	15	10	12	15

Note:

Or

Installing bolts on weights makes clutch-in r.p.m. lower, and therefore, compression springs should be replaced by types having larger spring set load.

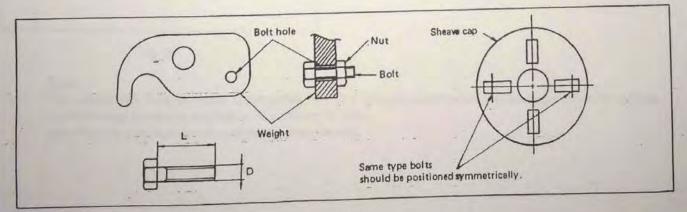


Fig. 27

3) Reduce the set moment of secondary springs (torsion spring). (Refer to GPX338G/433G Supplementary Owner's Manual.)

a) GPX338G

Change the amount of set twist of standard torsion spring (Part No. 90508-45081; Color code, Not painted).

S.T.D. Twist	Twist
277°	217°, 157°, 97°

b) GPX433G

Change the amount of set twist of standard torsion spring (Part No. 90508-45081; Color Code, Not painted).

Twist
157°, 97°

c. When clutch shifting r.p.m. needs to be increased

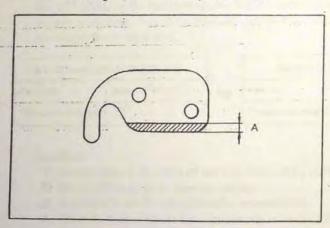
1) Replace primary clutch compression spring with a type having larger spring constant.

S.T.D. Spr	ing Compression
Parts No.	90501-55356
Color code	BLUE-SILVER
Set load	64 kgs.
Spring constant	2.0 kg/mm.

Spring	Compression
Parts No.	90501-60226
Color code	RED-YELLOW
Set load	52.4 kgs.
Spring constant	2.7 kg/mm.

Note: This modification makes clutch engagement r.p.m. decrease.

2) Make weights lighter by cutting. Cut weight (856-17632-00) at A Portion



A	1 mm	2 mm
Parts No.	888-17632-10	878-17632-70

Fig. 28

Note:

This modification method applies to GPX338G. On GPX433G, this modification should be used only when shifting r.p.m. does not increase by methods in 1) avobe and 3) below. Note that this modification makes clutch-in r.p.m. increase.

3) Increase the set moment of secondary springs (torsion springs). (Refer to GPX338G/433G Supplementary Owner's Manual.)

a) GPX338G

Replace the standard torsion springs as follows:

S.T.D	. Spring Torsion
Parts No.	90508-45081
Color code	Not painted
Set twist	277°

Sp	ring Torsion
Parts No.	90508-50210
Color code	YELLOW
Set twist	197° or 257°

Or

b) GPX433G

Change the amount of set twist of standard torsion springs or replace parts as follows:

S.T.D	. Spring Torsion	
Parts No. 90508-45081		
Color code	or code Not painted	
Set twist	217°	

S.T.D.	Spring Torsion	
Parts No.	-	
Color code	-	
Set twist	277°	

Sp	ring Torsion
Parts No.	90508-50210
Color code	YELLOW
Set twist	197°

d. Note

When increasing or decreasing clutch shifting r.p.m., the following three factors must be properly adjusted:

- 1) Spring constant of compression spring.
- 2) Weihgt of sheave cap weight
- 3) Set moment of torsion spring

Be sure that adjustments of these three factors match with each other.

If sheave cap weights are too heavy as a result of adjustment by bolts, or if the set moment of torsion springs is too weak, clutch shifting r.p.m. tends to vary while travelling over rough terrain or on slopes. In this case, the above three settings should be readjusted so as to well balance.

4) Always keep clean the contact area of sheave with V-belt to prevent slipage of the belt.

4. Secondary sliding sheave torque cam

On GPX338G, if the machine shows the following symptoms or operates under the following conditions, the secondary sheave torque cam should be replaced. To replace change the secondary sliding sheave (because the torque cam is not removable from the sheave).

S.T.D. Secondar	ry Sliding Sheave	
Parts No.	888-17670-11	
Torque cam angle	27°	

Secondary Sliding Sheave		
Parts No.	889-17670-00	
Torque cam angle	33°	

Secondary Sliding Sheave	
Parts No.	878-17670-00
Torque cam angle	33°

Condition

- 1) Acceleration at the time of starting or just after starting is poor.
- 2) Clutch shifting r.p.m. vaies excessively.
- 3) Quality of snow is not suitable for snowmobiles.
- 4) When the racing course has many slopes or rough surfaces.

Note:

In the case of GPX433G, no replacement of secondary sliding sheave (torque cam angle 33°) is required.

E. REDUCTION RATIO

The reduction ratio of driven sprocket to drive sprocket must be set according to the snow condition of racing course.

1. Selection of reduction ratio (Oval course)

The reduction ratio should be so selected that the engine runs at speeds set for maximum horsepower or $200 \sim 300 \text{ r.p.m.}$ faster, when the machine passes A point of the corner.

The engine r.p.m. is closely reltaed with setting of clutch shifting r.p.m., and therefore, clutch shifting r.p.m. must be properly set.

	GPX338G (G.Y.T.)	GPX433G (G.Y.T.)	1
Engine r.p.m. at A point	8,700 ~ 9,100	8,400 ~ 8,800	

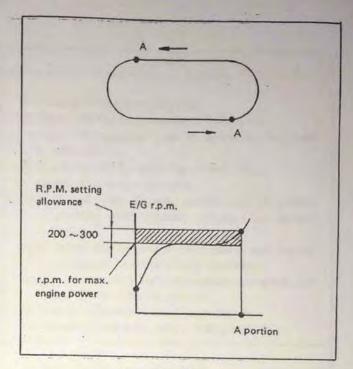


Fig. 29

2. Selection standard

For an oval course having a straight course shorter than 200 m., many rough surfaces or unfavorable snow conditions, the driven/drive sprocket ratio should be larger. On the other hand, for an oval course having a straight course longer than 200 m., few rough surfaces or better snow conditions, the ratio should be smaller.

Condition		GPX338G (G.Y.T.)	GPX433G (G.Y.T.)
1/2 Oval course Straight course 250 ~ 300 m.	Teeth of Drive sprocket Teeth of Driven sprocket	21/33 or 22/33	22/33 or 21/31
Oval course Straight course over 300 m. or better snow condition	Teeth of Drive sprocket Teeth of Driven sprocket	22/33 or 21/31	21/31 or 23/33

V. TROUBLESHOOTING

Possible Cause	Remedy
1. Idling Trouble	
1) Settings are incorrect.	1) Reset according to setting chart.
2) Air leaks into fuel line.	 Check fuel line for loose clip or leaky pipe. Repair or replace as required. Check the fuel level in fuel tank.
3) Fuel leaks out from fuel line,	Check fuel line for loose clip or leaky pipe. Repair or replace as required.
4) Check mixing fuel line for leakage.	 4)-1. If fuel leaks through contact area of mixing chamber with cylinder, retighten or replace gasket.
	4)-2. If fuel leakage through plugs used in fuel line are unrepairable, replace mixing assembly.
	 If needle seat is leaky, disassemble and check seal and O-ring. If faulty, replace.
5) Oil collects in pulse pipe.	5) Remove pulse pipe, drain pipe, and clean.
6) Pulses leak out from pulse pipe or joint.	6) Completely seal leaky area or leaky joint.
2. High-speed Trouble	
1) Settings are incorrect.	Reset according to setting chart.
2) Pulses leak out from pulse pipe or joint, or pulse	Check pulse pipe and joint for leakage.
pipe is clogged.	Check pipe joint holes for clogging with dust. Clean as required.
3) Fuel line (pipe) is clogged with dust or frozen.	Check fuel line for clogging with dust or freeze.
4) Mixing needle is clogged with dust.	4) Disassemble mixing needle, and clean.
3. Poor Response	
1) Right and left throttle valves are not synchronized.	 Adjust so that both throttle valves are synchro- nized.
2) Air leaks into fuel line.	2) Check fuel line for leakage.
	* Vapor lock in fuel line due to overheating may be a possible cause.
	 Insufficient fuel supply due to low level in fuel tank may be another possible cause.
3) Settings are incorrect.	3) Reset according to setting chart.
4. Hard Starting	
1) Settings are incorrect.	Reset according to setting chart.
2) Air leaks into fuel line.	2) Check fuel line for leakage.
	 Vapor lock in fuel line due to overheating may be a possible cause.
	 Insufficient fuel supply due to low level in fuel tank may be another possible cause.
3) Oil collects in pulse pipe.	Check crankcase bottom for excessive oil collection, and remove oil from pulse pipe.

Note: If the above remedies do not cure poor engine performance, the whole pump assembly should be replaced.

Possible Cause	B
 Fuel priming is impossible by operating starting pump with throttle fully opened. Starting pump is leaky. Valve in check valve is out of place. Check valve is leaky. Throttle valve does not operate correctly. Throttle wire has frozen. Return spring has frozen. Mixing needle is clogged with dust. Throttle shaft is bent. Needle lever is loose and does not operate correctly. 	1) Check if starting pump is assembled correctly. If assembly is incorrect, repair. If still leaky, replace starting pump. 2) If out of place, replace check valve complete. 3) Replace check valve complete. 1) Remove wire, clean and oil. 2) Remove ice, and wipe off thoroughly. 3) Disassemble and clean. 4) Replace mixing assembly. 5) Check needle position, and reset as required.
	Note: Needle projection: 1.4 ± 0.1 mm. (This value applies to full throttle but not to idling position.) Lever 1.4 ± 0.1 mm. For adjustment, bend the lever so the amount of needle projection is as specified.

Trouble resulting from improper settings

If settings are found incorrect, thus causing too rich a mixture or too lean a mixture, correct settings according to the following chart. Whether or not settings are correct can be determined by checking spark plug and piston crown color or by engine response while driving.

Case	Idling & acceleration	Full load (High speed)		Outlet Adjuster	
				a dict Majuster	Main Adjuster
1	Rich	Rich	D)	Close ⊖	 Setting is on lean side → Open € Setting is correct → 0
2	Rich	OK	1	-	3. Setting is on rich side → Close ⊖
3	Rich		口口	Close ⊖	Open ⊕
4		Lean	台	Close ⊖	Open ⊕
	OK	Rich	4	0	
5	OK	OK		0	Close ⊖
6	OK				0
7		Lean	中	0	Open ⊕
	Lean	Rich		Open ⊕	Close ⊖
В	Lean	OK	0	Open ⊕	
			7	Oben @	Close ⊖
9	Lean	Lean	\Rightarrow	Open ⊕	 Setting is correct → 0 Setting is on lean side → Open ⊕

Screw out 1/8 turn each time, —

Note: Adjust outlet adjuster first, then adjust main adjuster.