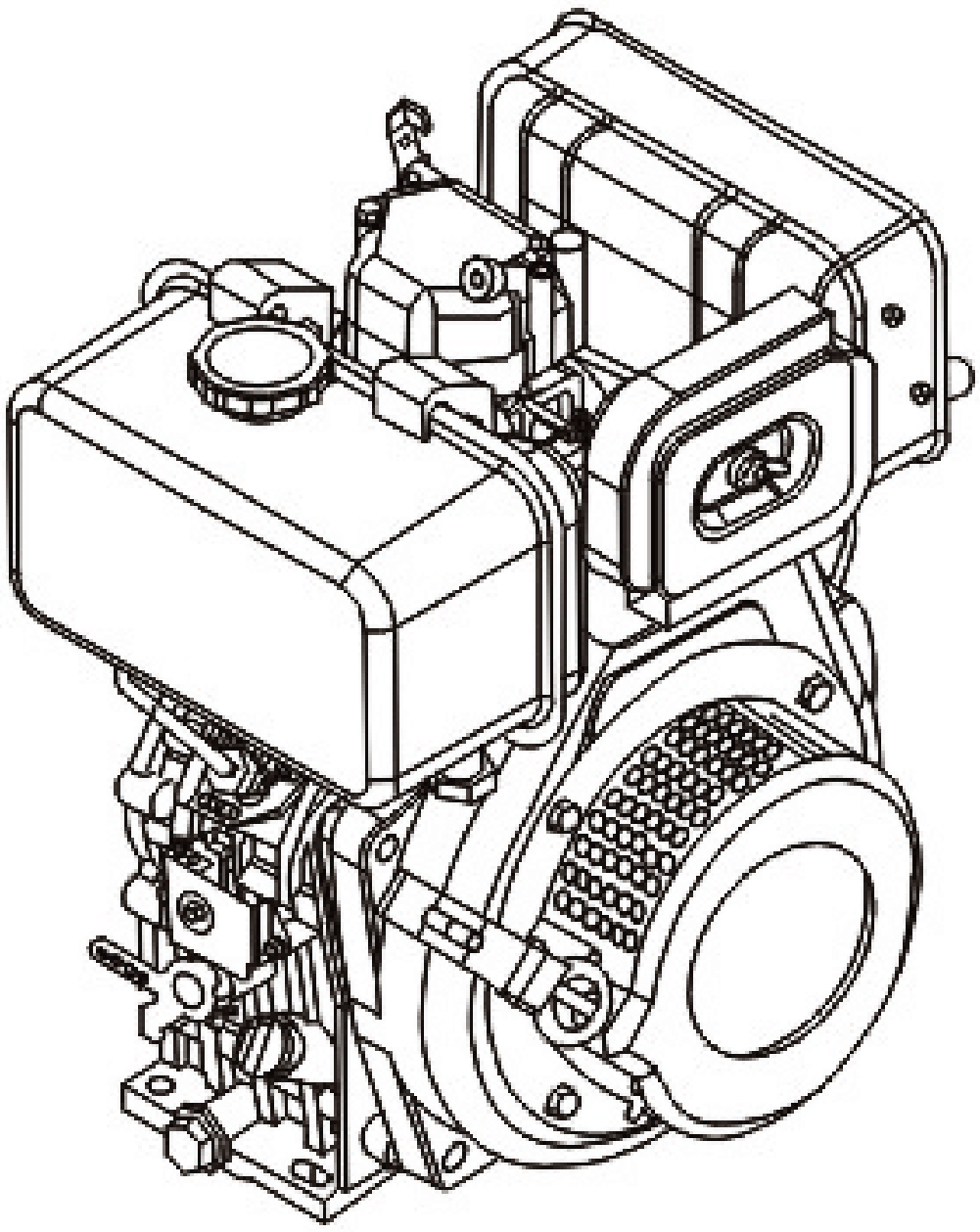
AIR-COOLED DIESEL

Owner's Manual

170F/170FE 178F/178FE
186F/*186FE



*186FE-K16202

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

CONTENT

INTRODUCTION

SAFETY PRECAUTIONS 1
OVERALL FIGURE 3
CROSS SECTION FIGURE 3
CHAPTER 1 MAIN TECHNICAL SPECIFICATION AND DATA 4
1-1 Main Technical Specification 4
1-2 Overall Dimension and Installation 5
1-3 Sound Level 7
1-4 Connecting Size 8
1-5 Names of Diesel Engine Parts 10
1-6 Range of Temperature, Smoke and Pressure 11
1-7 Torque for Tighten Up Main Screw Bolt and Nut 11
CHAPTER 2 OPERATION OF DIESEL ENGINE 12
2-1 Attention for Safe Operation 12
2-2 Choice of Fuel, Lubricant and Preparation before Start 12
2-3 Start of the Diesel Engine 15
2-4 Run and Stop of the Diesel Engine 20
CHAPTER 3 TECHNICAL MAINTENANCE OF DIESEL ENGINE 21
3-1 Daily Check and Maintenance 21
3-2 Regular Check and Maintenance 21
3-3 Storage for a Long Period 23
CHAPTER 4 MALFUNCTION AND REMEDY OF DIESEL ENGINE 24
4-1 Cause and remedy for the Engine Not Being Started 24
4-2 Cause and Remedy for Not Enough Power of Diesel Engine 25
4-3 Cause and Remedy for the Engine Stopping Automatically 26
4-4 Cause and Remedy for Exhaust with Black Smoke 26
4-5 Cause and Remedy for Exhaust with Blue Smoke 27
4-6 Cause and Remedy for Exhaust with White Smoke 27
4-7 Methods and Positions of Stopping to Check When the Engine's Malfunctioning 27
APPENDIX 1 Symbol Explains of Engine Sign 28
APPENDIX 2 User Suggestion Table 29

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

Please make sure to follow each precaution carefully

EXHAUST PRECAUTIONS

- Never inhale exhaust gas. It contains carbon monoxide, a colourless, odorless and extremely dangerous gas which can cause unconsciousness or death.
- Never operate the engine indoors or in a poorly ventilated area, such as a tunnel or cave, etc. if you do need to use the set indoor, an exhausting pipe is necessary in order to keep the harmful gas out of the room.
- Exercise extreme care when operating the engine near people or animals.
- Keep the exhaust pipe free of external objects.

REFUELLING PRECAUTIONS

- Be sure to stop the engine prior to refuelling.
- Do not overfill the fuel tank.
- If fuel is spilt, wipe it away carefully and wait until the fuel has dried before starting the engine.
- When refilling oil, make sure that the fuel cap is secure to prevent spillage.

FIRE PREVENTION

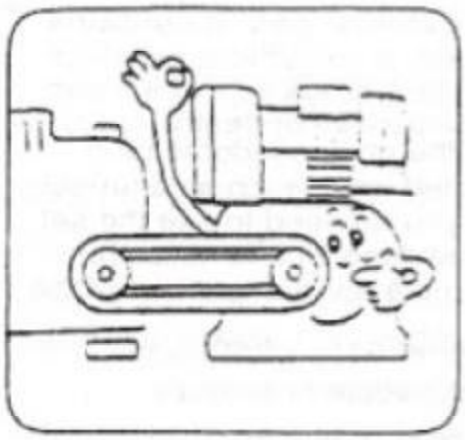
- Do not operate the engine while smoking or near an open flame.
- Do not use the engine around dry brush, twigs, cloth rags, or other flammable materials.
- Keep the engine at least 3 feet (1 meter) away from buildings or other structures.
- Keep the engine away from flammables and other hazardous materials (trash, rags, lubricants, explosives).
- When replacing the fuel or oil, a container is required and the afterwards treatment should be according to the local regulation.
- Some necessary equipment(e.g. ear cover) are required to protect operator from the noise as well as other harmfulness by the sets.

Installation Maintenance and transportation

- A screw on the top of engine is used for transportation.
- Main installation, maintenance must be operated by technician, because the engine structure is very complex.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

PROTECTIVE COVER



- **Place the protective covers over the rotating parts.**
  If rotating parts, such as the driving shaft, pulley, belt, etc., are left exposed, they are potentially hazardous.
  To prevent injury, equip them with protective covers or shrouds.
- **Be careful of hot parts.**
  The muffler and other engine parts become very hot while the engine is running or just after it has stopped. Touching with hands is forbidden.
  Operate the engine in a safe area and keep children away from the running engine.

SURROUNDINGS

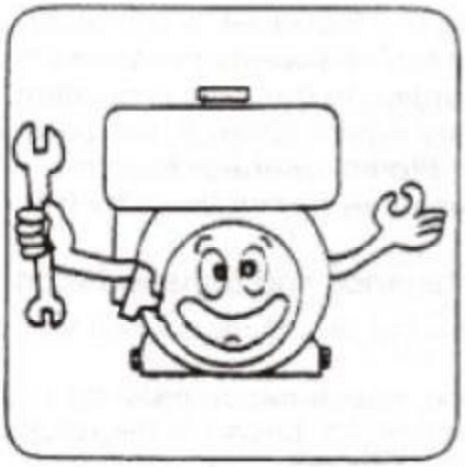
- Operate the engine on a table, level surface free of small rocks, loose gravel, etc.
- Operate the engine on a level surface.
  If the engine is over tilted, fuel spillage may result. Be sure the oil is enough and pressure is normal

NOTE:

Operating the engine at a steep incline may cause seizure due to improper lubrication even with a maximum oil level.

- Be careful of fuel spillage when transporting the engine.
  Tighten the fuel tank cap securely and close the fuel strainer cock before transit.
- Do not move the engine while it is in operation.
- If the engine will be transported over a long distance or on rough roads, drain fuel off from fuel tank to prevent fuel leakage.

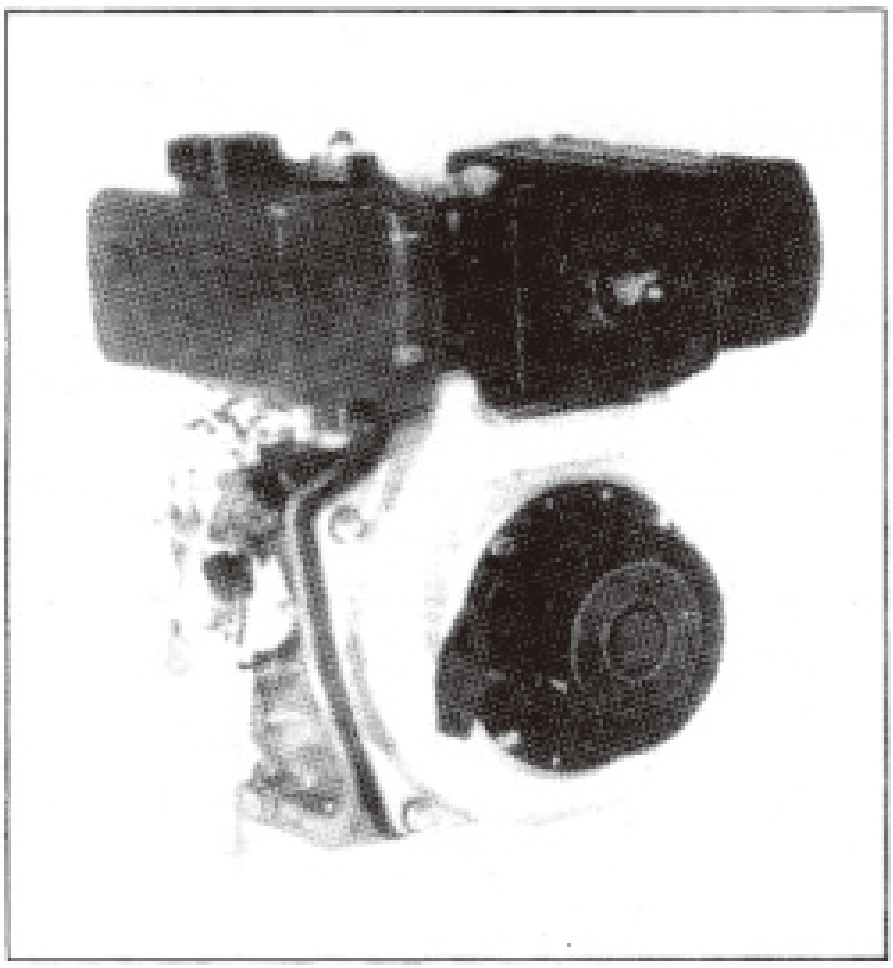
PRE-OPERATION CHECKS



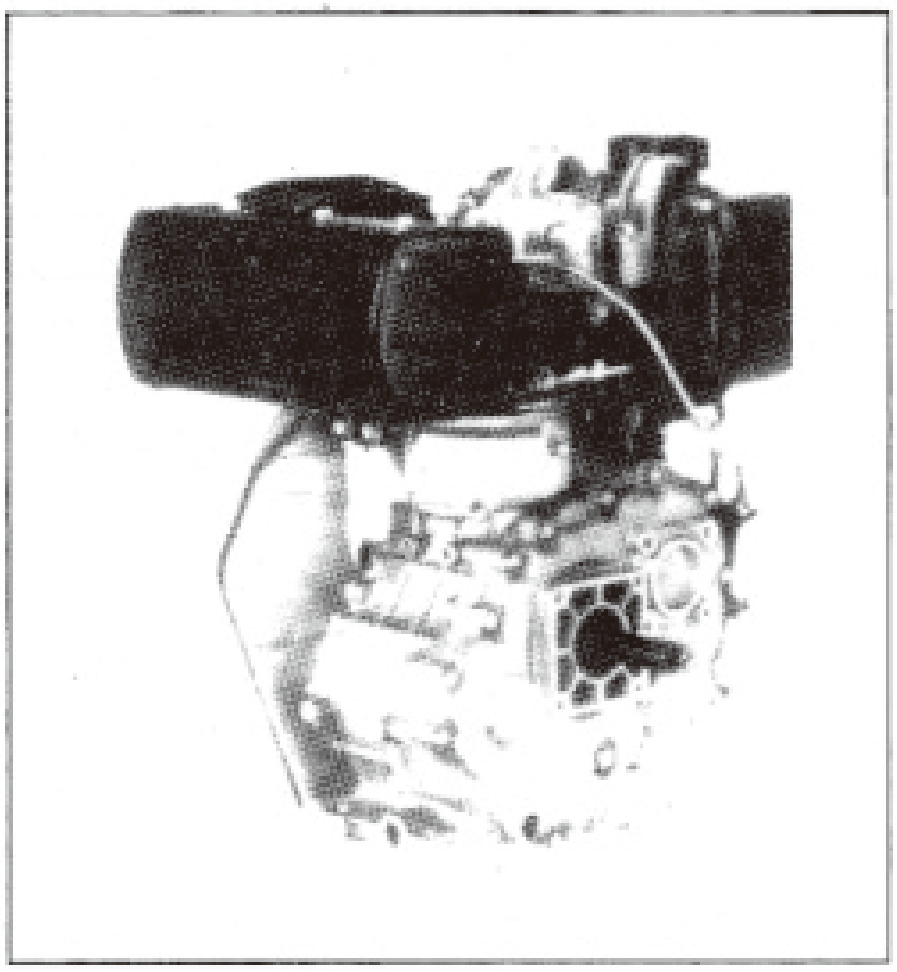
- Carefully check fuel pipes and joints for preventing looseness and fuel leakage.
  Leaked fuel creates a potentially dangerous situation
- Check bolts and nuts for looseness.
  A loose bolt or nut may cause serious engine trouble.
- Check the engine oil and refill if necessary.
- Check the fuel level and refill if necessary
  Take care not to overfill the tank.
- Wear snug fitting working clothes when operating the engine.
  Loose aprons, towels, belt, etc., may be caught in the engine or drive train causing a dangerous situation.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

OVERALL FIGURE AND CROSS SECTION FIGURE

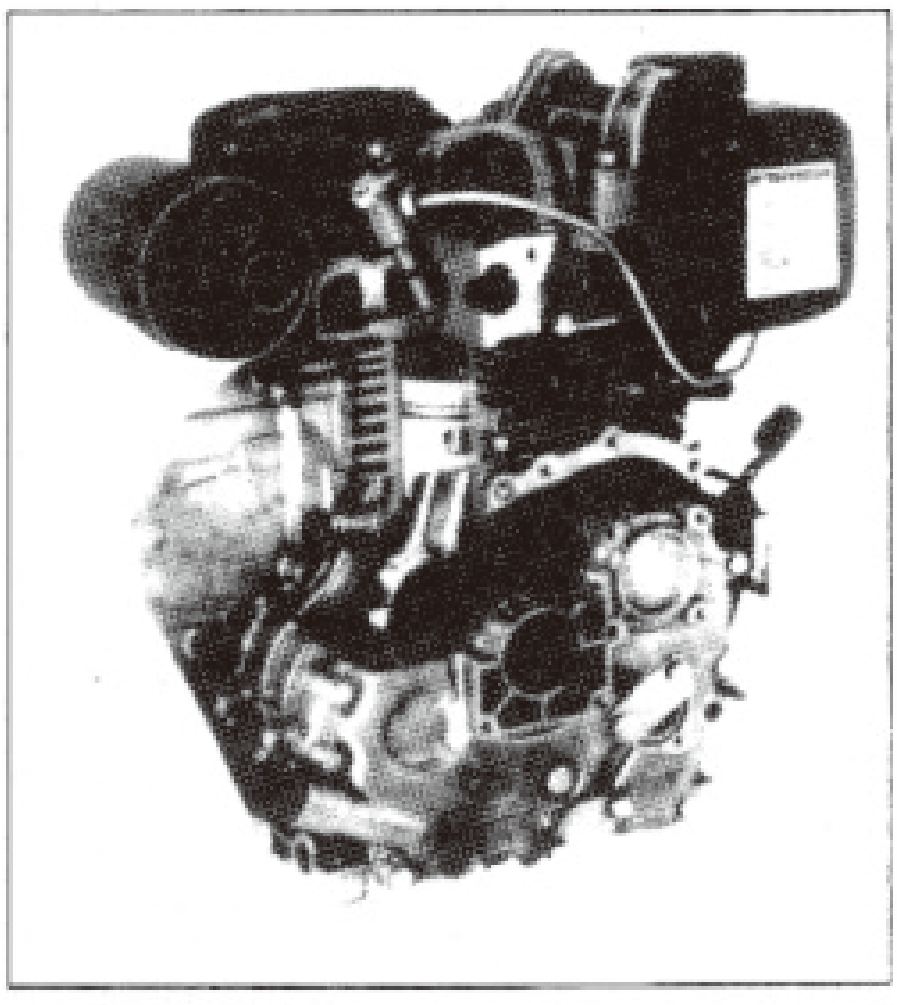


Front



Back

Overall Figure



Cross Section Figure

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

CHAPTER 1 MAIN TECHNICAL SPECIFICATION AND DATA

1-1 Main Technical Specification

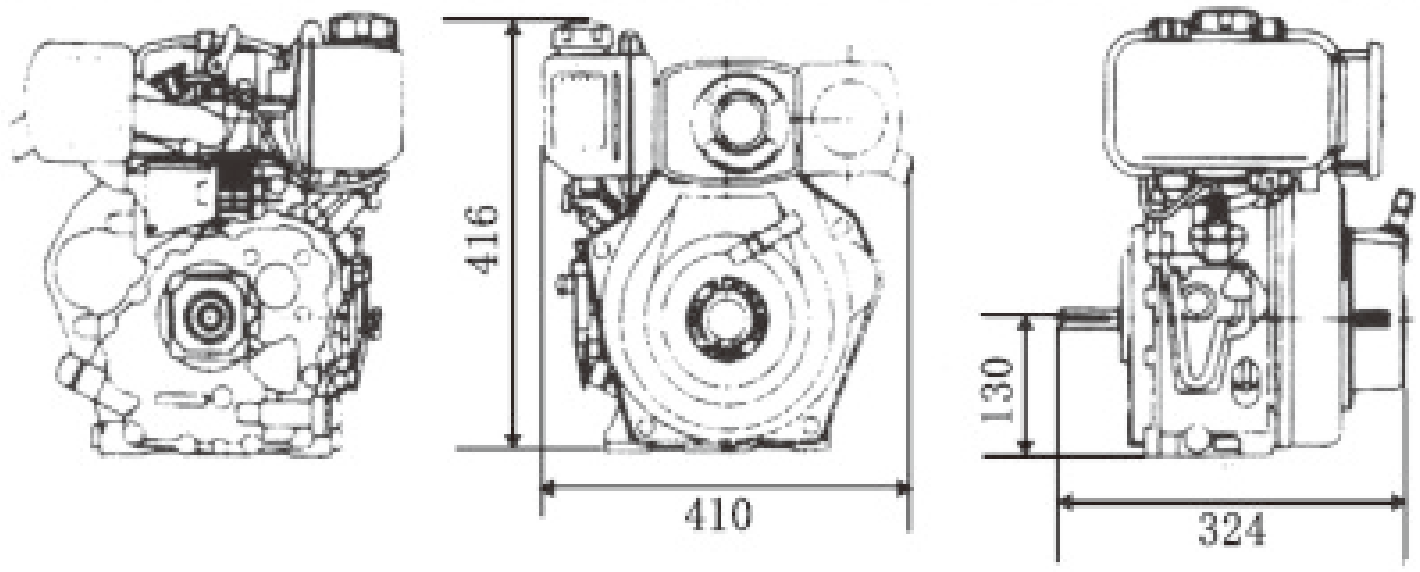
Item	Technical specification					
Model	170F(E) 170FS(E)		178F(E) 178FS(E)		186F(E)*186FS(E)	
Type	Single-cylinder, vertical, 4-stroke, air-cooled, dire t-injection					
Bore x stroke(mm)	70x55		78x62		86x70	
Displacement(L)	0.211		0.296		0.406	
Normal speed(r/min)	3000	3600	3000	3600	3000	3600
Normal Power KW(PS)	3.8	4.2	5.5	6	8.5	9
Mean effective pressure kPa (kgf/cm²)	443.2(452)	430.9(44)	540.5(552)	496.6(507)	561.6(573)	543.5(555)
Consumption rate of fuel g/KW(g/PS.h)	≤287(211)	≤299.2(220)	≤280.3(206)	≤292.5(215)	≤273.5(201)	≤285.7(210)
Consumption rate of machine g/KW≤4.08(3) oil	≤4.08(3)		≤4.08(3)		≤4.08(3)	
Fuel tank capacity (L)	2.5		3.5		5.5	
Lub.oil Full Capacity (L)	0.75		1.10		1.65	
Rotary direction of Crankshaft	Clockwise from flywheel end					
Cooling type	Forced air-cooled system					
Lub. type	Pressure, splash					
Starting type	Recoil manual start and optional electric start					
Net weight (kg)	27		33		48	

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

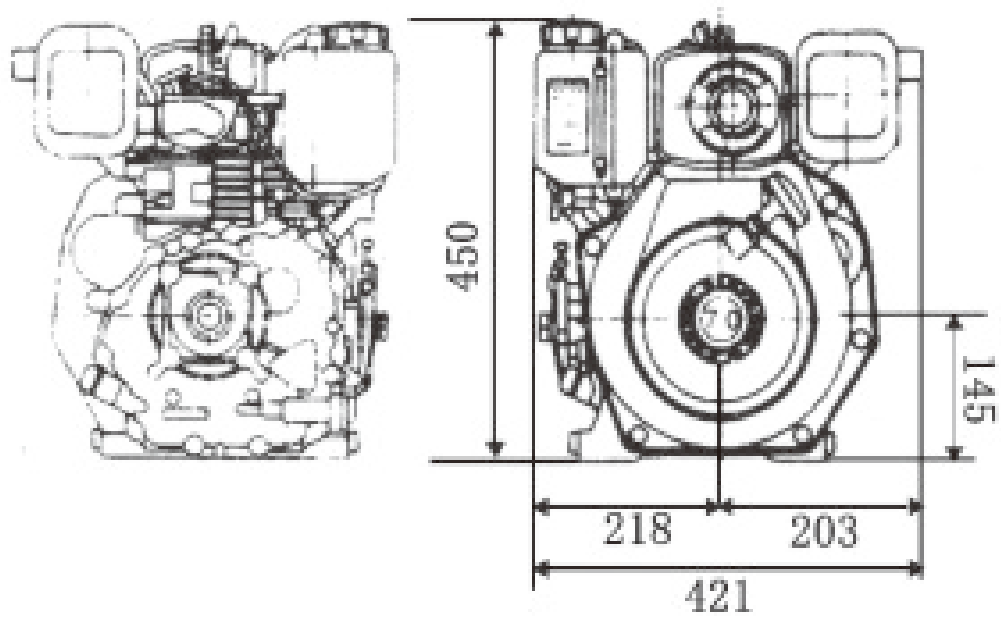
1-2 Overall Dimension and Installation

1-2.1 Overall and installation dimensions

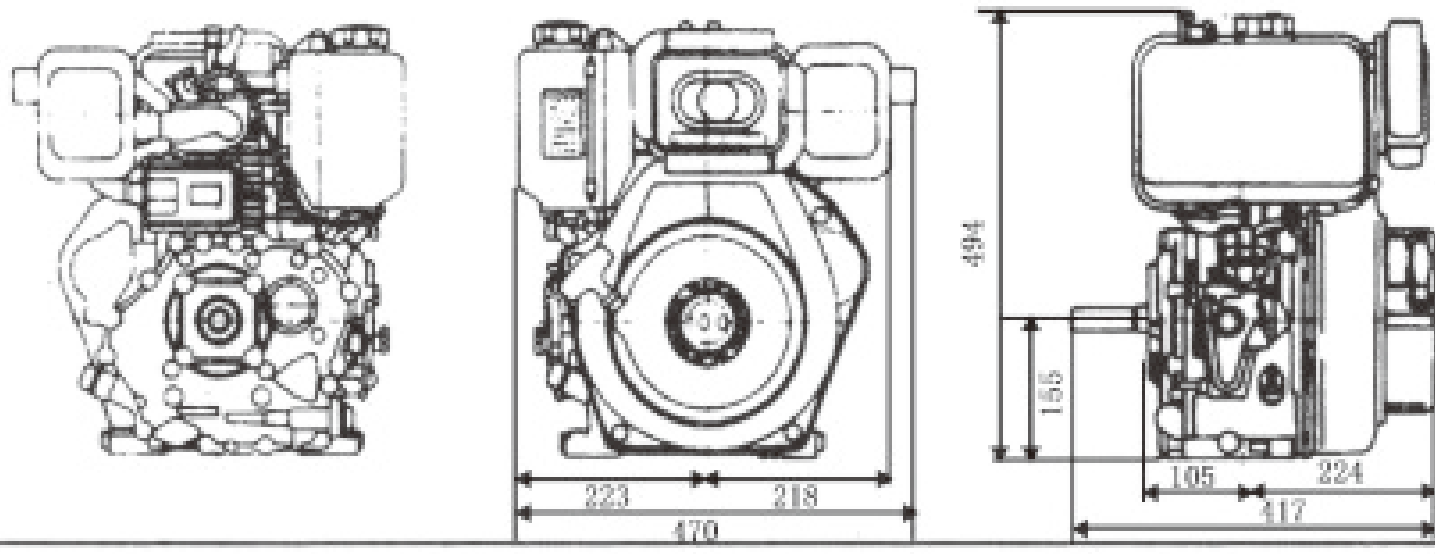
170



178



186



1-2.2 Installation

(1) There must be a tight stationary foundation for diesel engine to avoid vibration or movement when the engine is running.

(2) Be sure that the center position of output axle is correct.

(3) Check whether calibration between axle hole of belt wheel and key way shaft is correct and whether the tighten screw nut of belt wheel is tightened up.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

(4) When the engine is matched with another belt-driving machine, the diameter of driving wheel must be in harmony with the speed of diesel engine and the size of axle wheel of the equipped machine. Otherwise it will directly influence working condition of diesel engine, the life of the engine and the efficiency of working machine.

The diameter of driving wheel (belt wheel) can be calculated as follow:

$$\text{Diameter of engine driving wheel} = \frac{\text{Diameter of axle wheel of working machine} \times \text{Speed of working machine}}{\text{Diesel speed}}$$

(5) Be sure that belt is tightened properly.

If the belt is fixed too tight, the engine will be overloaded while starting, the belt will be drawn longer, and the engine may be damaged.

If the belt is fixed too loose, the belt will slip at high speed and high load.

1-2.3 Allowed distance between belt wheel and engine

The V-axle wheel groove should be close to the engine as possible as it can be. The allowed value of L is listed in table 1-1

Item \ Model		170F	178F	≥186F
Belt	Type	A	B	B
	Qty.	2	3	3
Min. Diameter of Pulley		68	97	135
L		≤80mm	≤70mm	

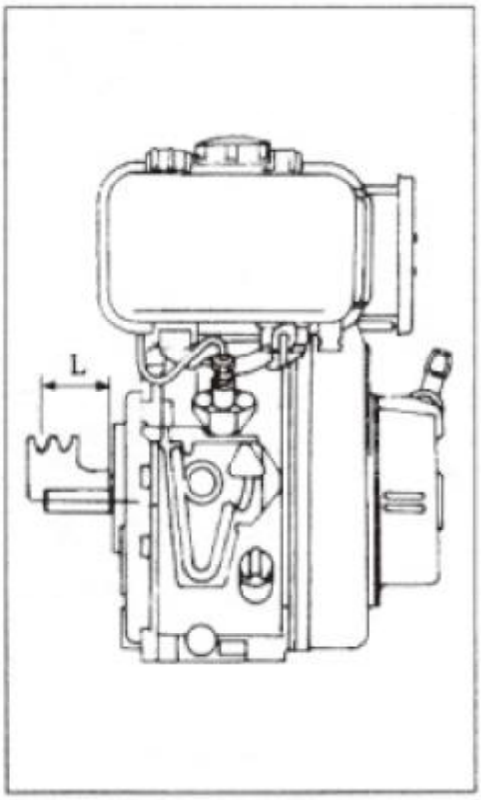


Table 1-1

Note: The meaning of L is shown in figure above. Please contact a dealer if you have any questions.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

1-2.4 Crank shaft (Original type) driving angle must be less than 120°, see Fig. 1-1

1-2.5 Tilt

The tilt must be kept within the allowed value shown in Fig. 1-2

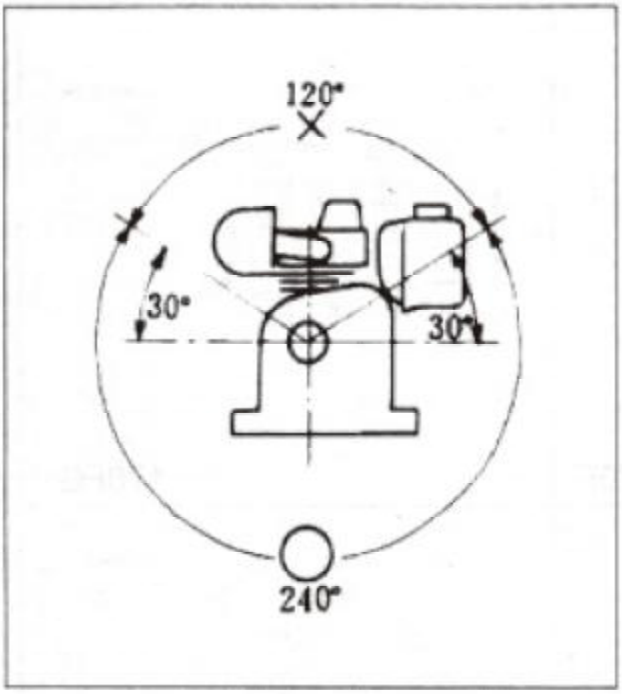


Fig 1-1

output Shaft Tilt		
Allowed Tilt (continuous running)	≤20°	
Engine Tilt		
Allowed Tilt (continuous running)	≤20°	

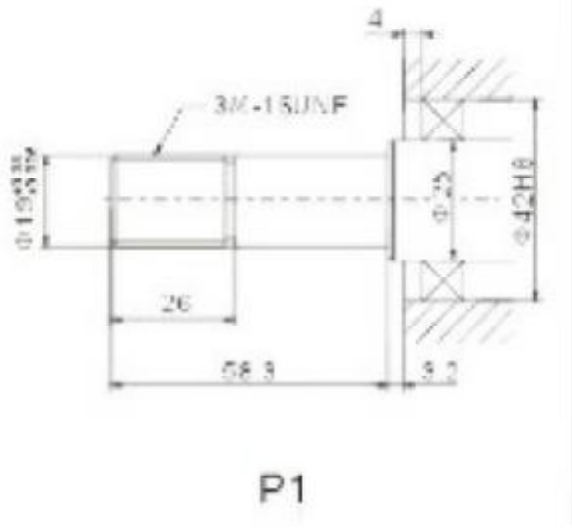
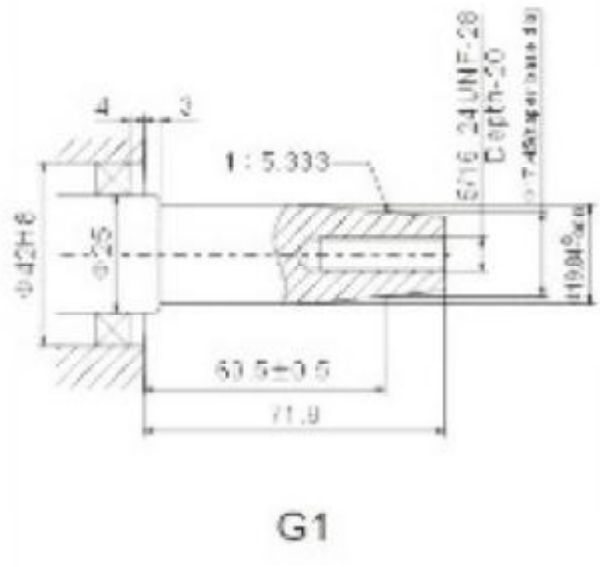
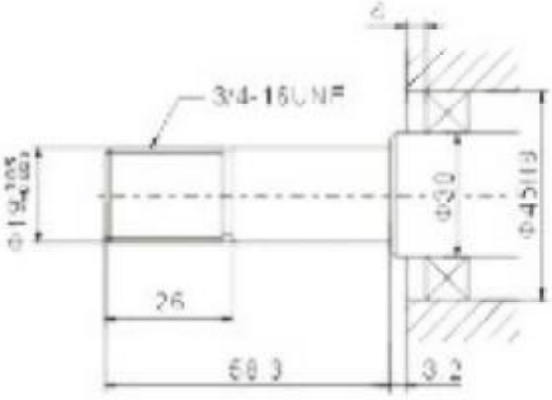
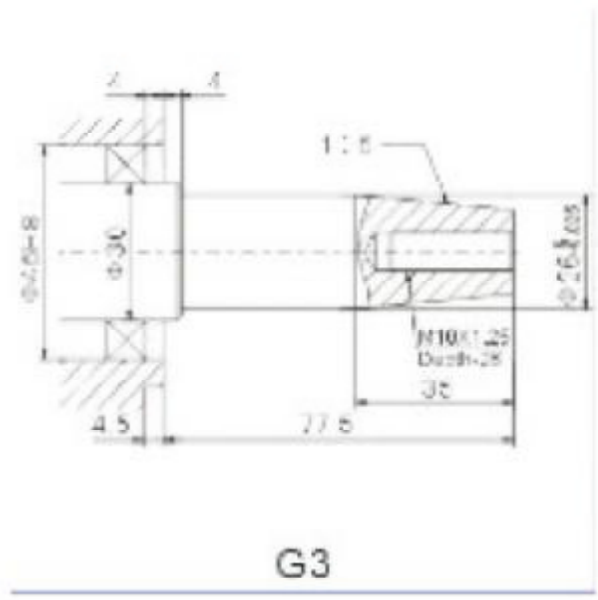
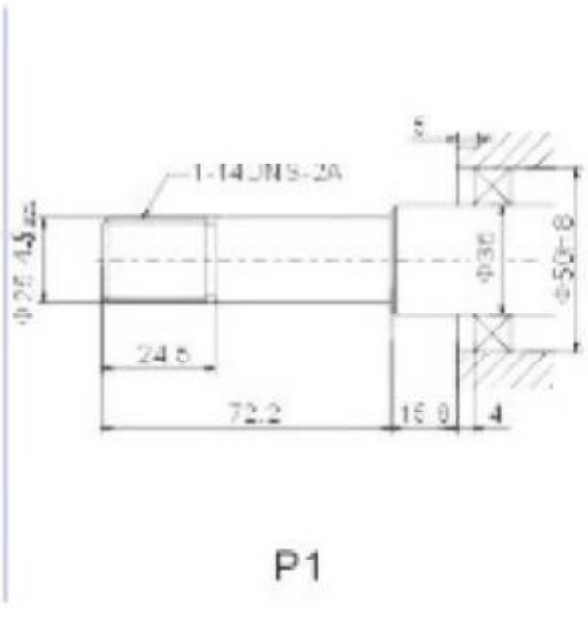
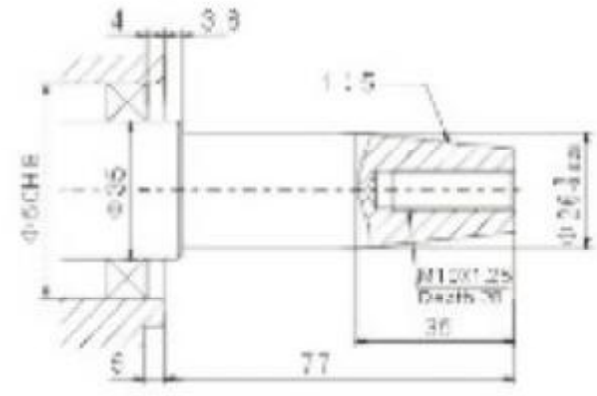
Fig 1-2

1-3 Sound Level

Description \ Model	170F	178F	*186F
Sound pressure level dB(A)	97.9	98	98
Sound power level dB(A)	110.9	111	111

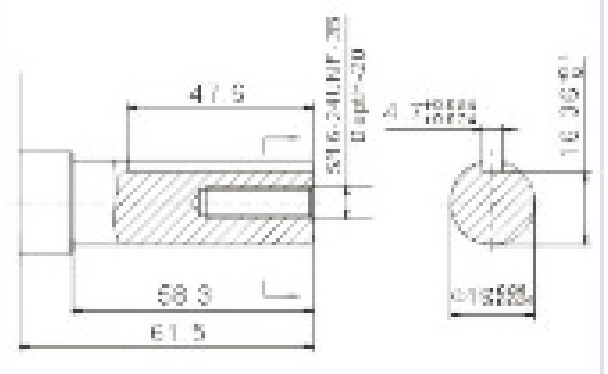
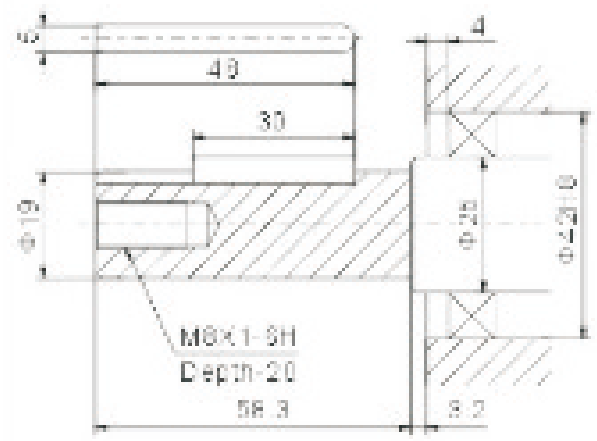
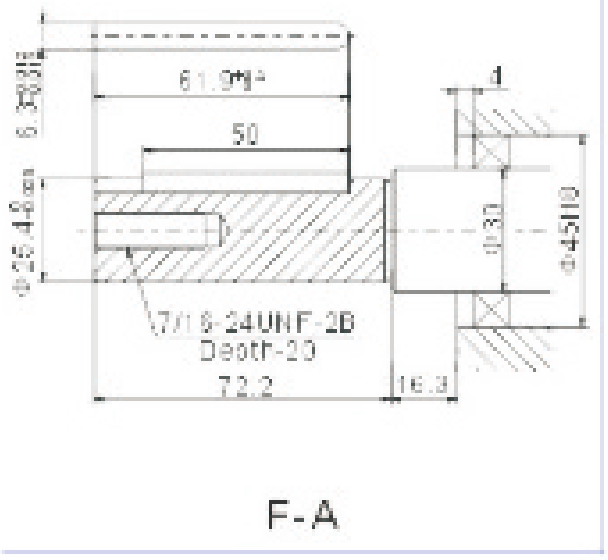
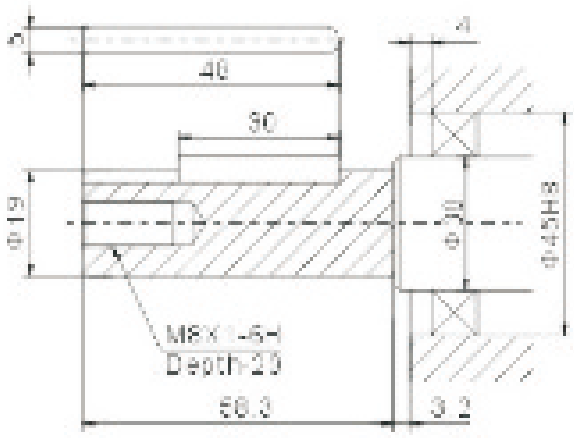
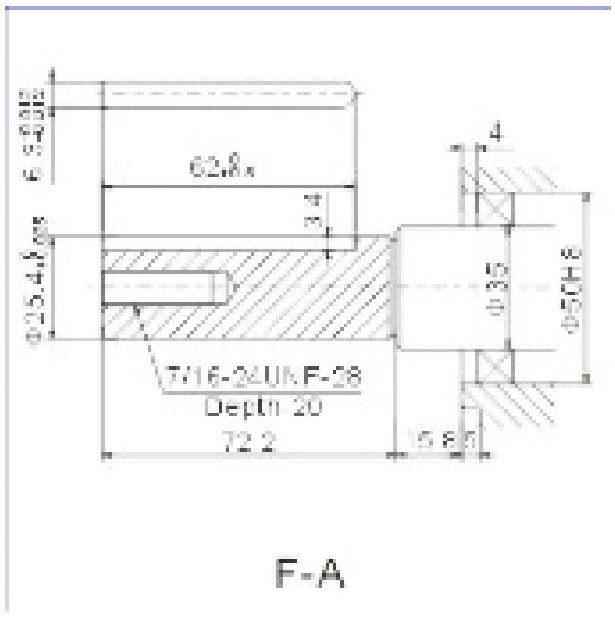
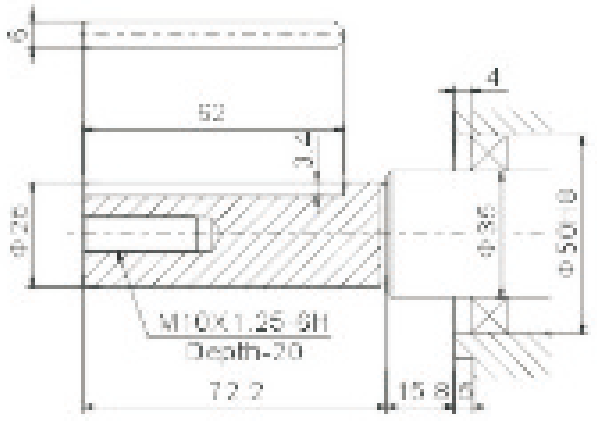
PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

unit: mm

MODEL	Crankshaft Output	
170	 P1	 G1
176	 P1	 G3
186	 P1	 G3

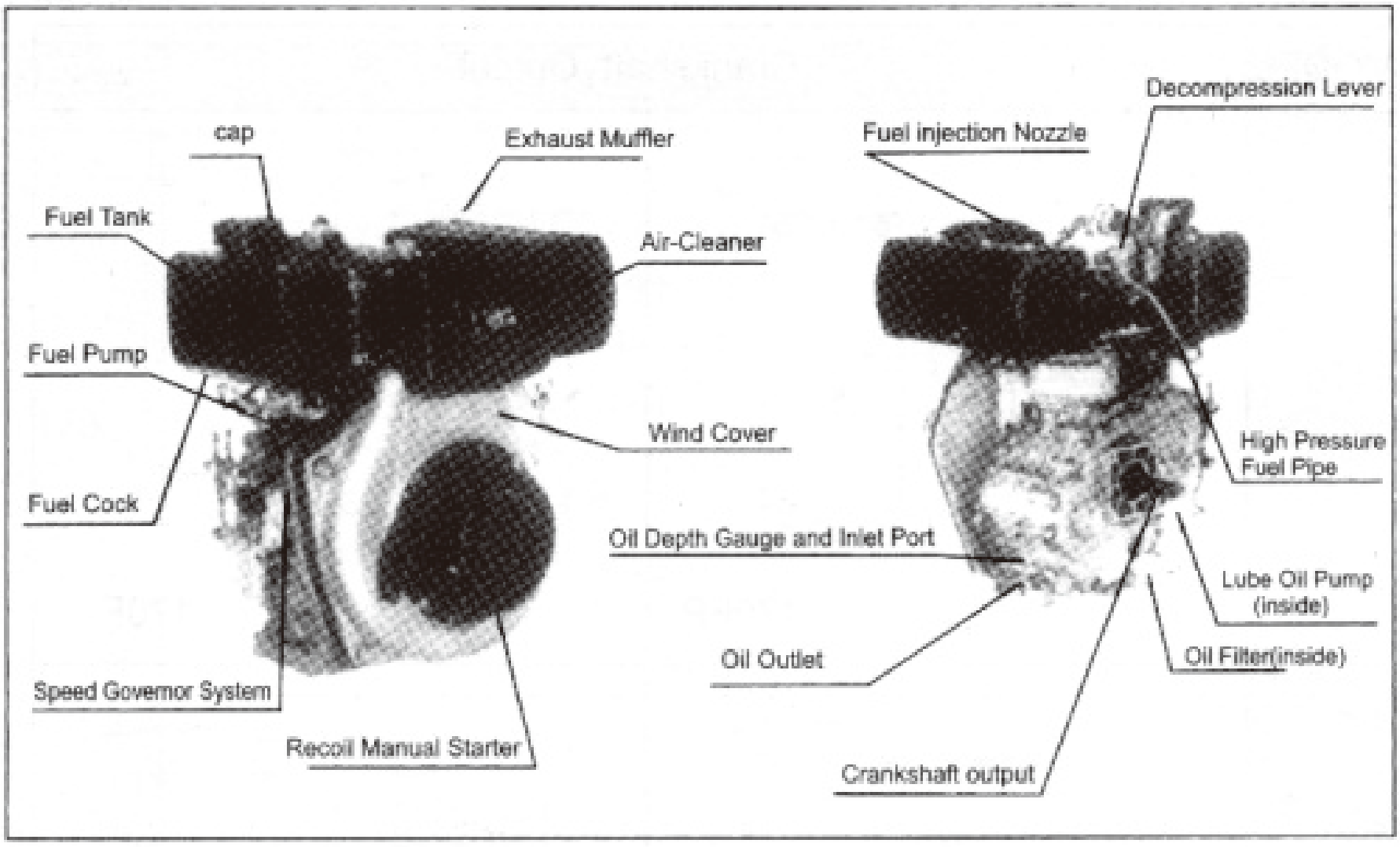
PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

unit: mm

MODEL	Crankshaft Output	
170	 F-A	 F-B
176	 F-A	 F-C
186	 F-A	 F-B

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

1-5 Names of Diesel Engine Parts



PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

1-6 Range of temperature, smoke and pressure

Table 1-6

Model / Description	170F	178F	186F
Exhaust temperature(°C)	≤480		
Machine oil temperature(°C)	≤95		
Smoke (Bosch)	≤4		
Pressure of injection MPa (kgf/cm²)	19.6±0.49（200±5）		

1-7Torque for Tighten Up Main Screw Bolt and Nut

Table1-7 unit: N . m

Model / Description	170F	178F	✻186F	Note
Connecting rod nut	20-22		40-45	Retighten up after test period
Cylinder head nut	**28-32**	**42-46**	**54-58**	
Flywheel nut	100-110	120-135		
Nozzle retainer nut	**8-10**			
Tighten bolt of rocker support	28-32			
Standard M8 bolt	**18-22**			
Standard M6 bolt	10-12			

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

CHAPTER 2 OPERATION OF DIESEL ENGINE

2-1 Attention for Safe Operation

2-1.1 The fuel must be filtered by silk fabric or settled for 24 hours before used. Do not add oil into fuel tank or crank shaft case when the engine is running.

2-1.2 Burnable and explosive goods should not exist around the engine, and the place for installation should be plain and ventilative.

2-1.3 Do not touch muffler with your hand when the engine is running or just after it has stopped.

2-1.4 The diesel engine must be run under rated power and rated speed. If you detect abnormal phenomenon, stop the engine immediately to check and remedy.

2-1.5 New engine or newly maintained one must be run at low speed and low load at first 20 hours. Do not allow to run it at high speed and full load.

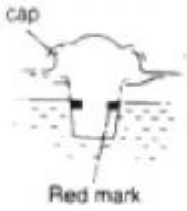
2-2 Choice of Fuel, Lubricant and Preparation Before Start

Choice of fuel:

Only use light diesel fuel (Do not allow dust or water in the fuel and fuel tank.

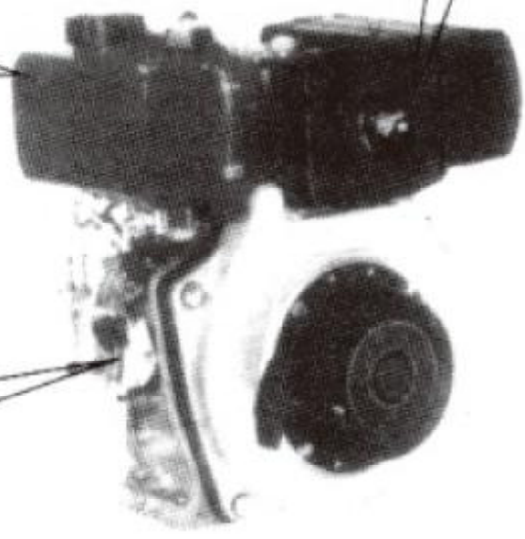
Model	170F	178F	186F
Capacity Liter	2.5	3.5	5.5
British Gal	(0.42)	(0.59)	(1.03)

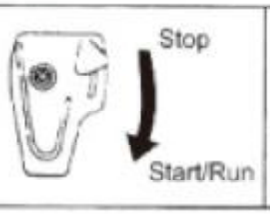
Caution:Do not let fuel level be higher than Red Mark



Core of air filter:

Do not wash the core of air filter because this part is dry type. When power of engine is not good or the color of exhaust is abnormal, change the core. Do not operate the engine without the core of filter.



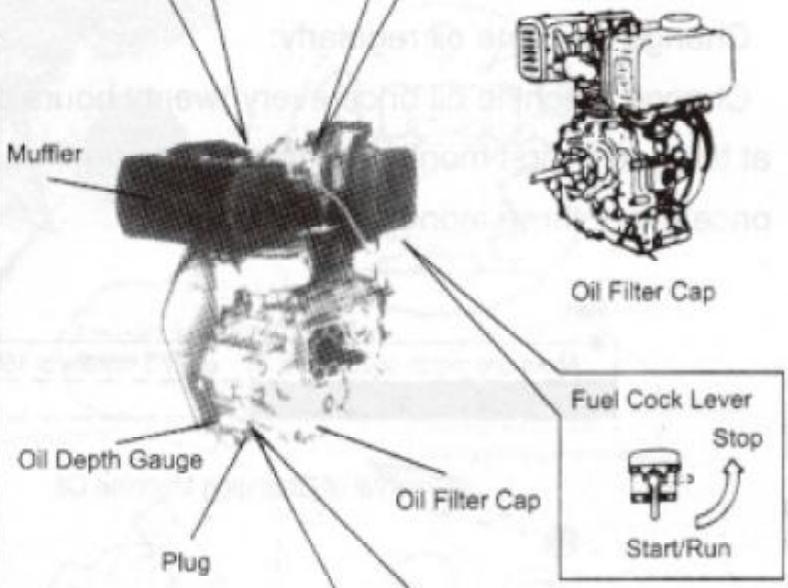


PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

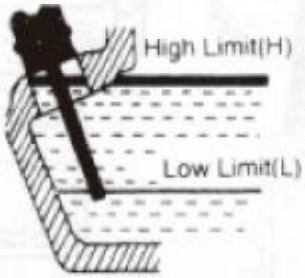
Oiling screw plug:
In winter, if it is difficult to start the engine, pull out the plug and fill 2cc lube oil into the hole and then return the plug. keep plug in tight condition. The engine can absorb dust and be damaged if the plug is taken away.

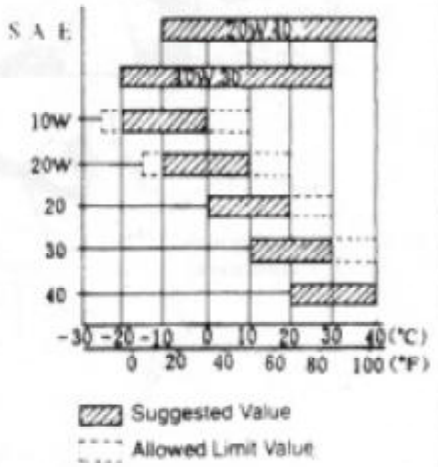
Decompression lever:
Push decompression lever down to start the machine

The fuel oil and machine oil in the engine were drained away before exfactory. Check fuel pipeline before refilling fuel oil and starting the engine. If there is air in the pipeline, drain it out. The detailed method is to loosen the nut of connection between injection pump and fuel pipe and drain out the air untill there is no bubble in fuel.



Lubricant inlet:
Set the engine on flat ground and then fill lubricant into the inlet. When checking oil level, put the oil scale into the inlet lightly. Do not turn the oil scale.





Model / Capacity	170F	178F	186F
Litre (British Gal)	0.75 (0.16)	1.1 (0.24)	1.65 (0.36)

Be sure to use lube oil GRADE CC or CD. A.P.I Diesel Engine Service.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

If your engine is still a newer one, its life would be shortened for over-load

At first 20 hours the engine must be started and stopped according to test run method

Avoid over-load:

Avoid over-load during test run.

Change machine oil regularly:

Change machine oil once every twenty hours or at the end of first month at primary running time and then once every three months or 100 hours.

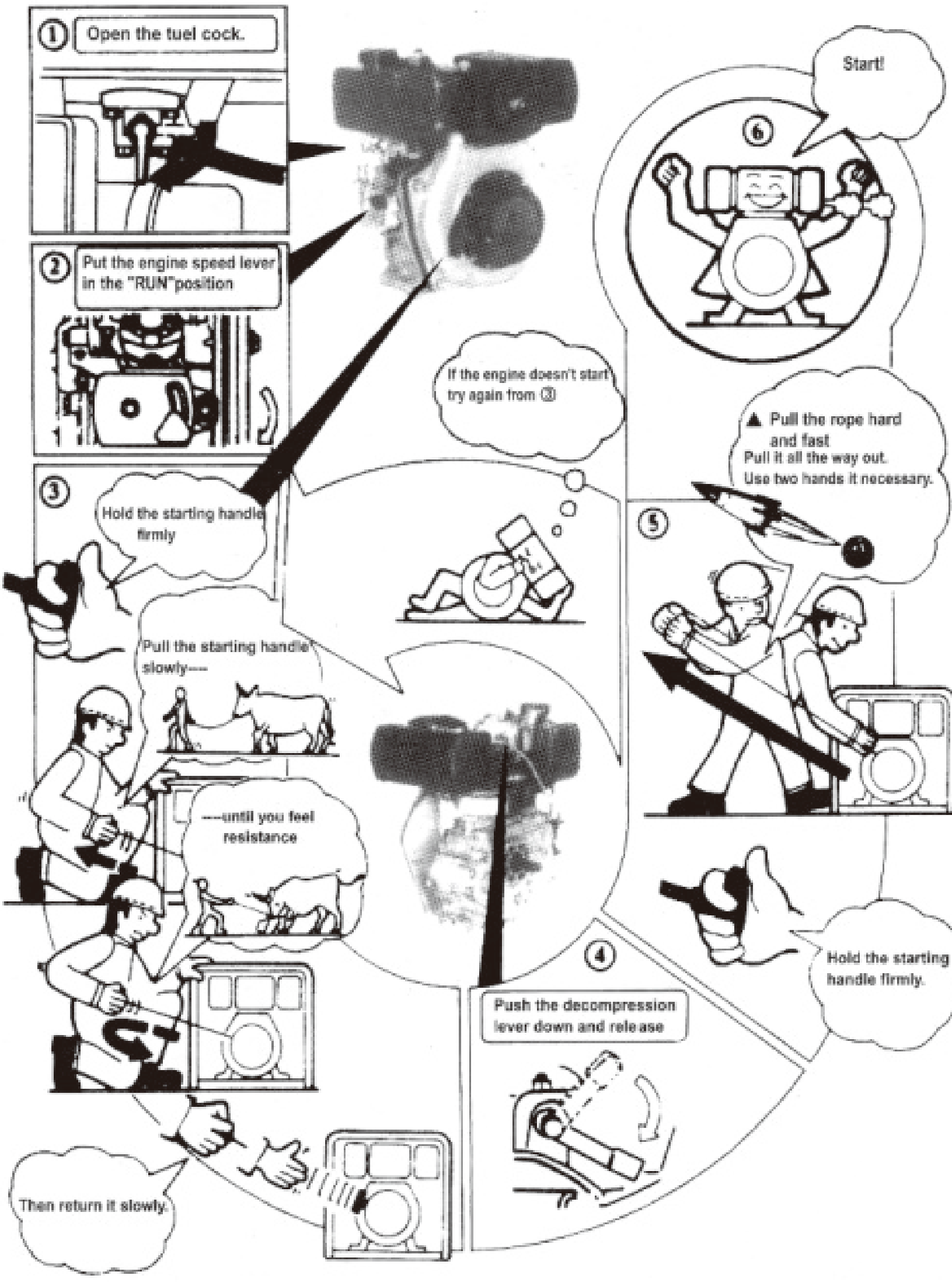
Interval of Changing Machine Oil

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

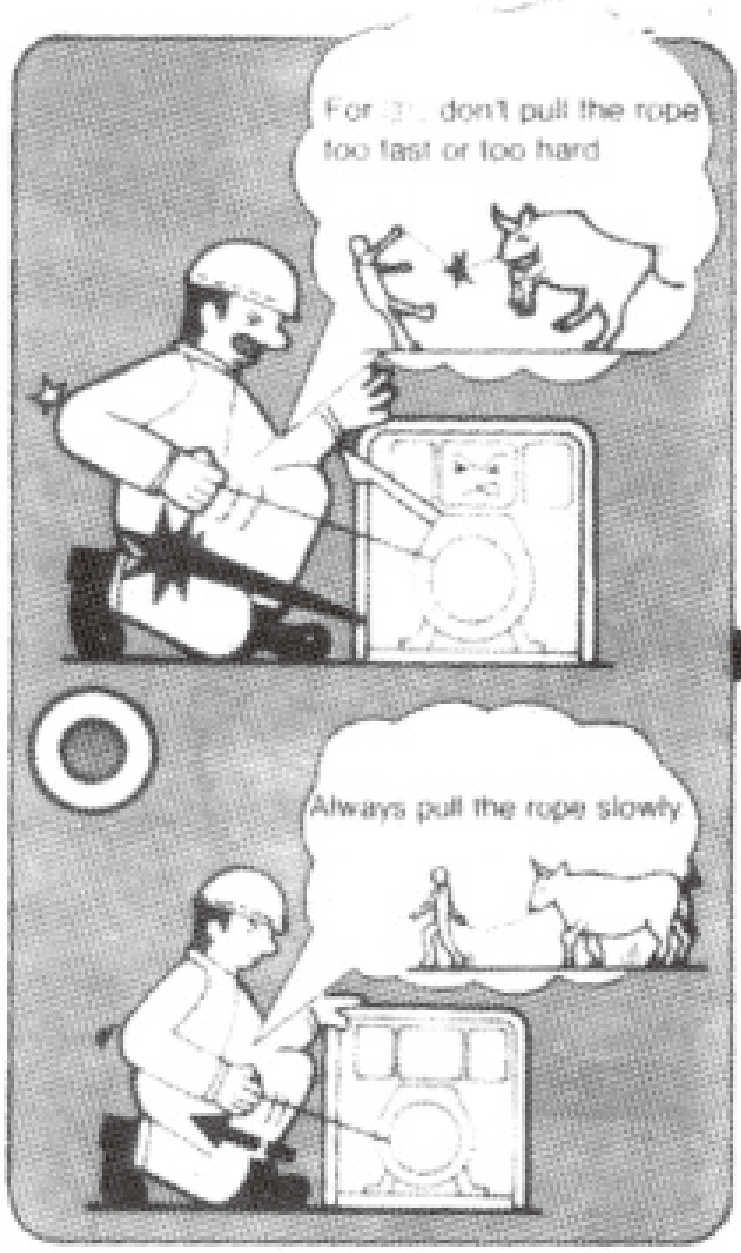
2-3Start of the Diesel Engine

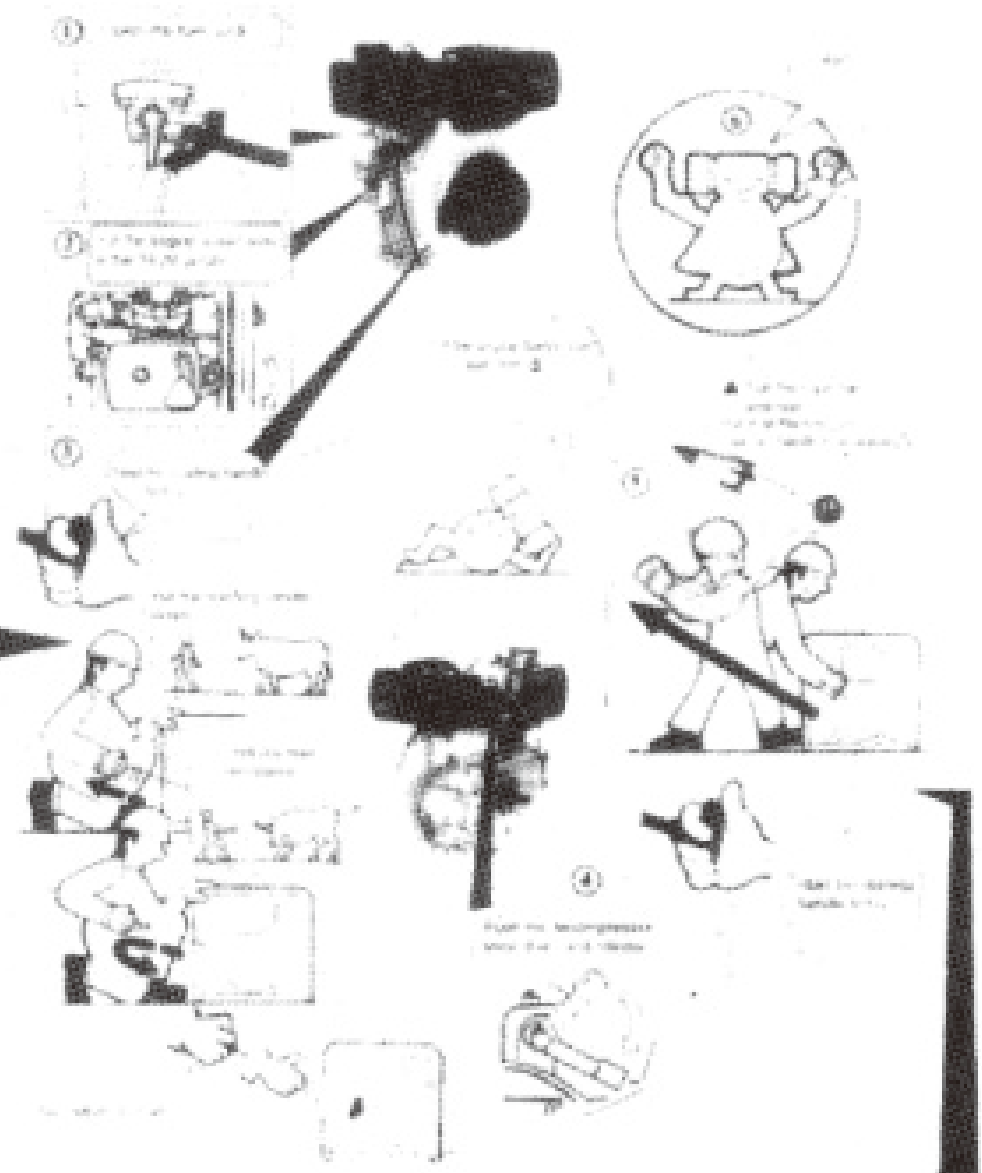
2-3.1 Recoil start

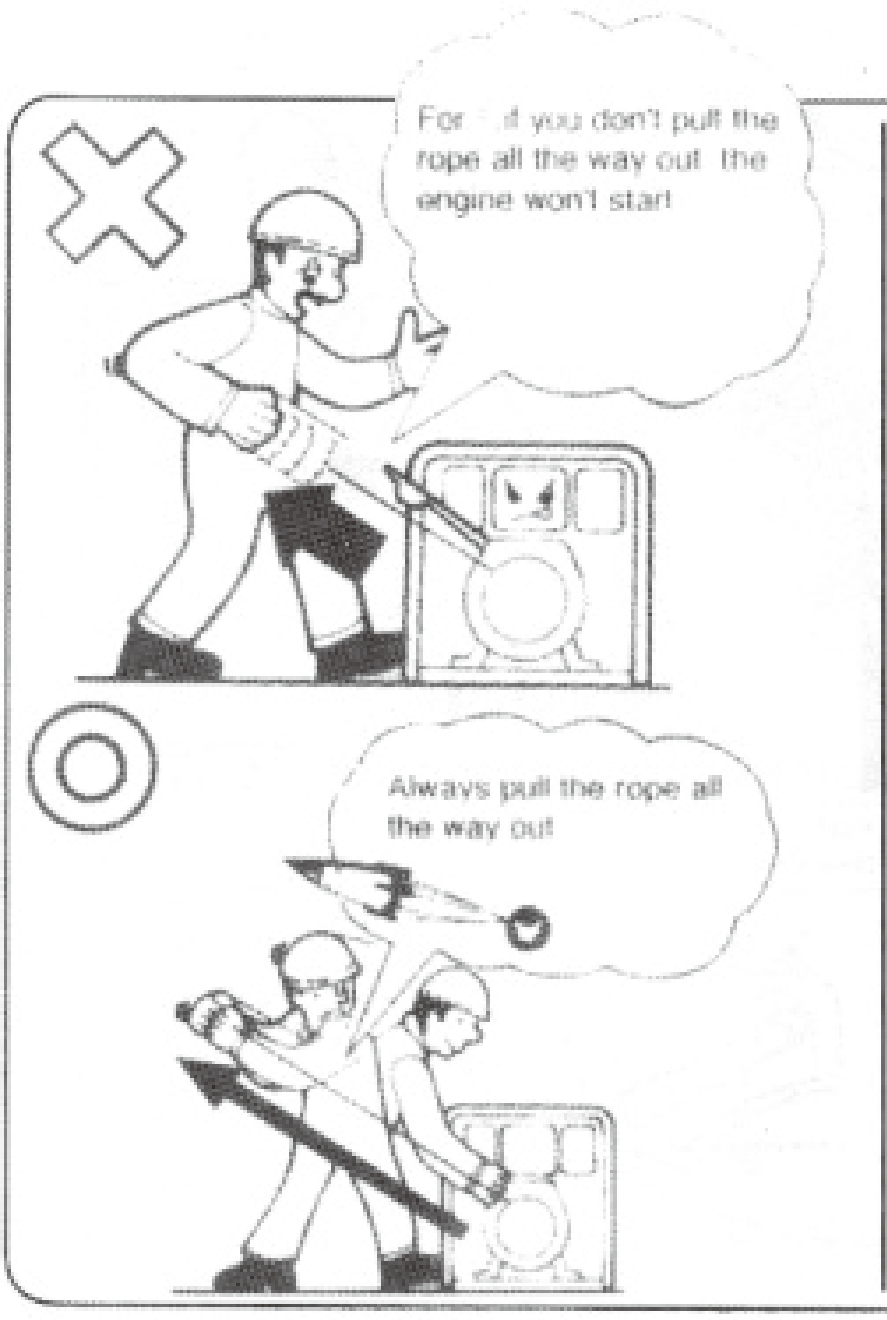
NOTE:WHEN THE ENGINE IS RUNNING,DO NOT PULL THE RECOIL HANDLE OTHERWISE THE ENGINE MAY BE DAMAGED.

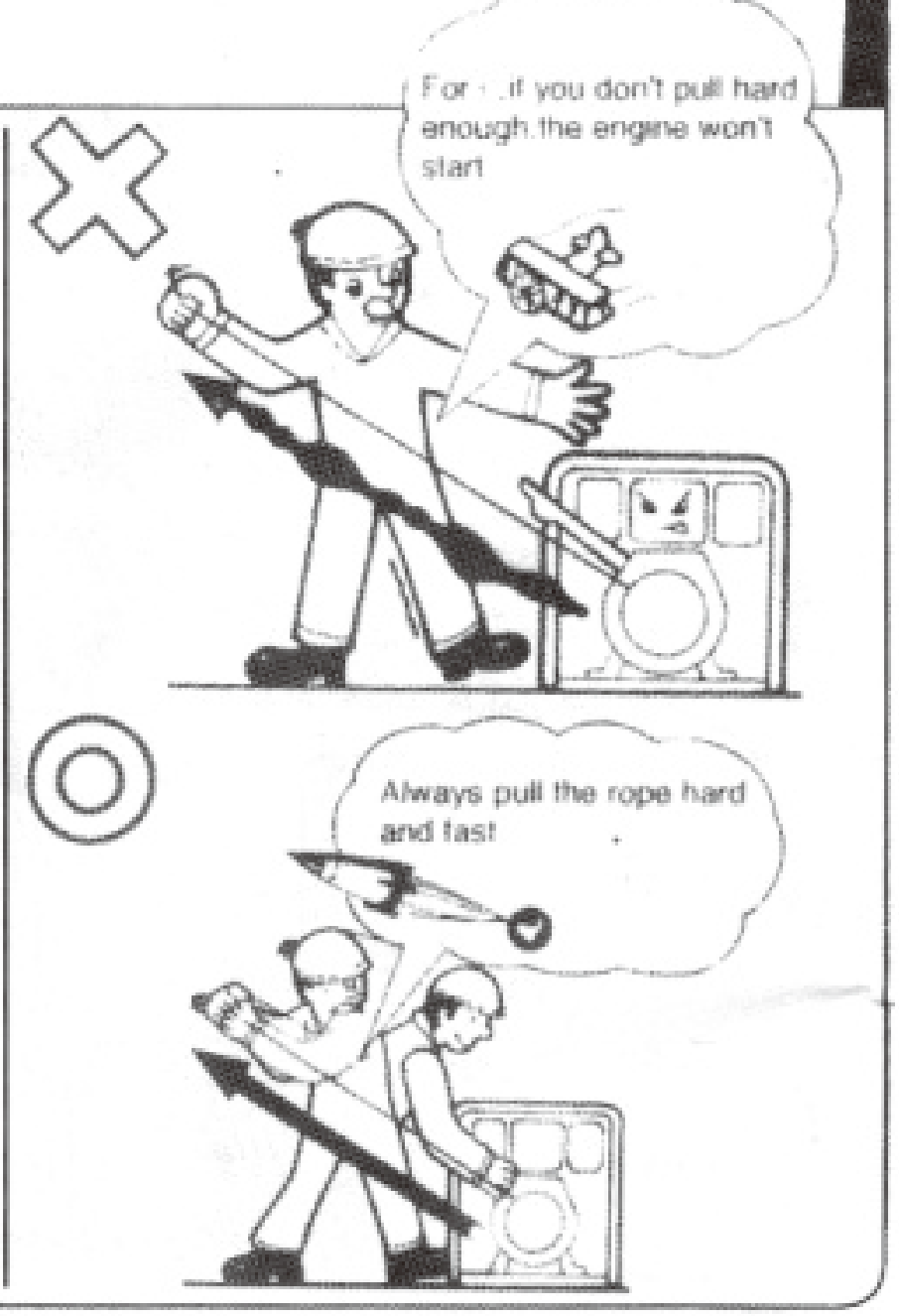


PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn









PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

2-3.2 Motor-driven type start

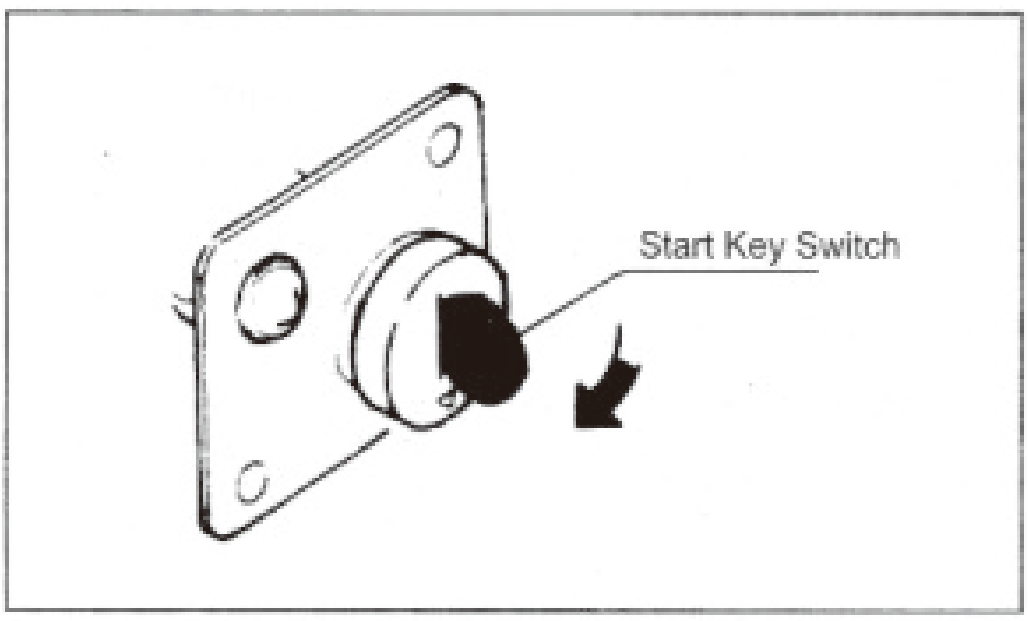
(1)start

The preparation of motor-driven start type is same as manual type (Recoil type).

① Open the fuel cock.

② Set the speed governor lever at "start" position.

③ Turn on the start switch toward clockwise to "start" position.



③If the engine is started, take your hand away from key switch immediately.

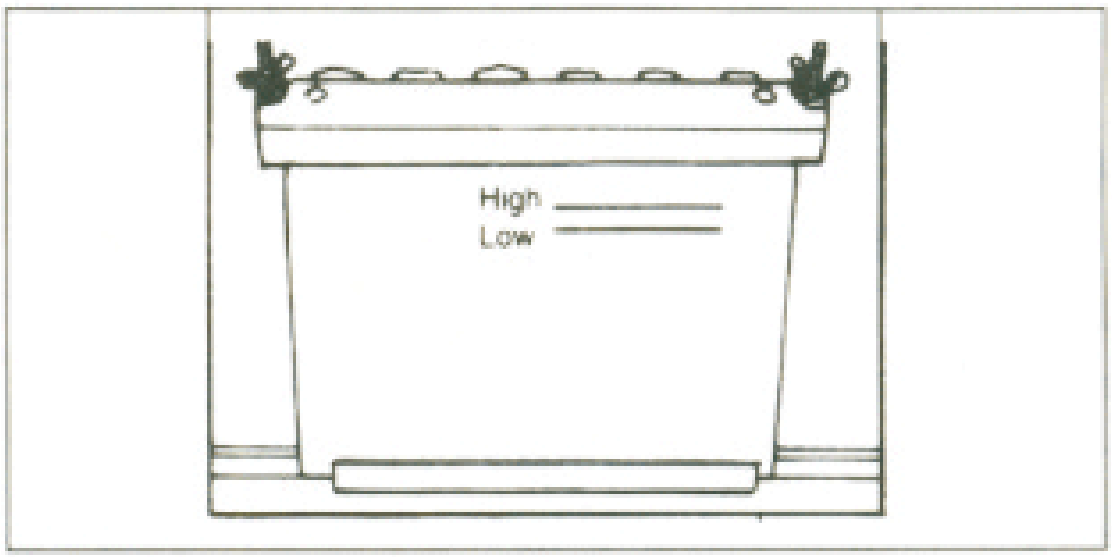
④If the engine do not start after 10 seconds, wait for a while (about 15 seconds) then start again.

> If the run time of motor is too long, the voltage of accumulator will drop and the motor may be damaged.
>
> Keep key switch at "ON" position when the engine is running.

(2) Accumulator

①Check the liquid level in accumulator every month. If the level is lower than the low limit mark, refill distilled water up to the upper limit mark.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

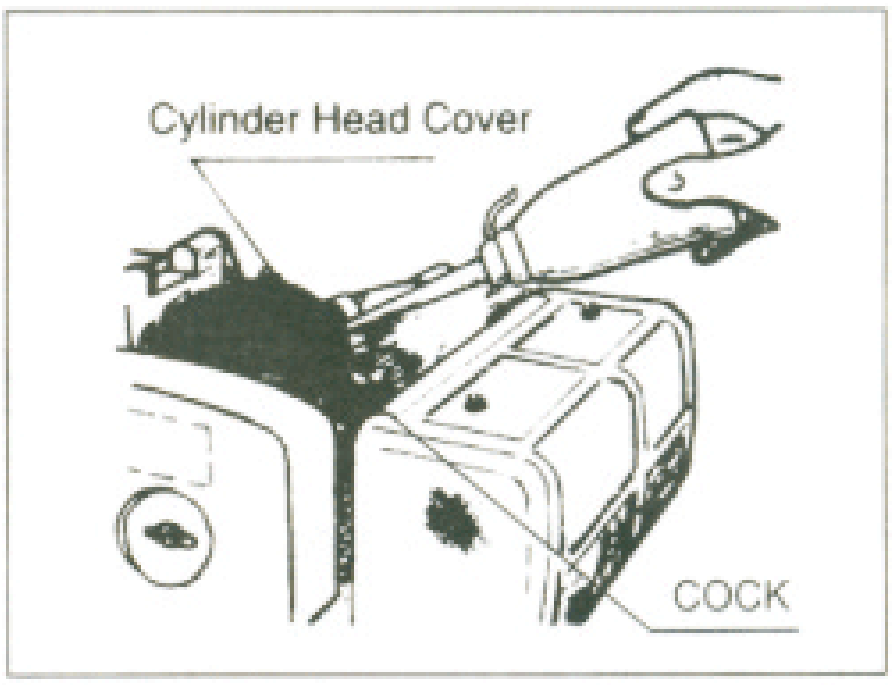


If the liquid in the accumulator is not enough, the electric motor will not run for too little electric current. So, keep the liquid level between upper and low limit marks.

The liquid will splash on near parts (Which will be spoiled) if it is too much in the accumulator.

2-3.3 Aided start

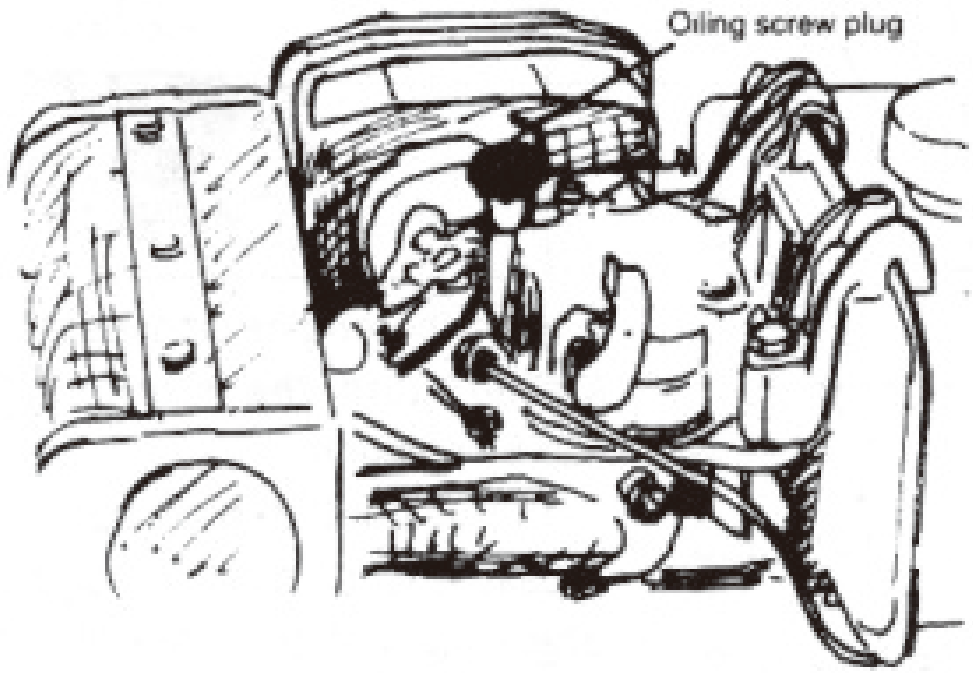
If the engine is difficult to start in winter, unscrew the plastic cock then fill 2cc machine oil into the hole.



PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

Do not use volatile liquid as fuel, such as petrol etc. And do not take away the air cleaner for easy start of the engine. If you do so, it may cause explosion.

Do not pull out the plug unless filling oil. If plug is not at its correct position, rain, dust or other impurity may be sucked into the engine to cause serious failure or to damage engine parts.



PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

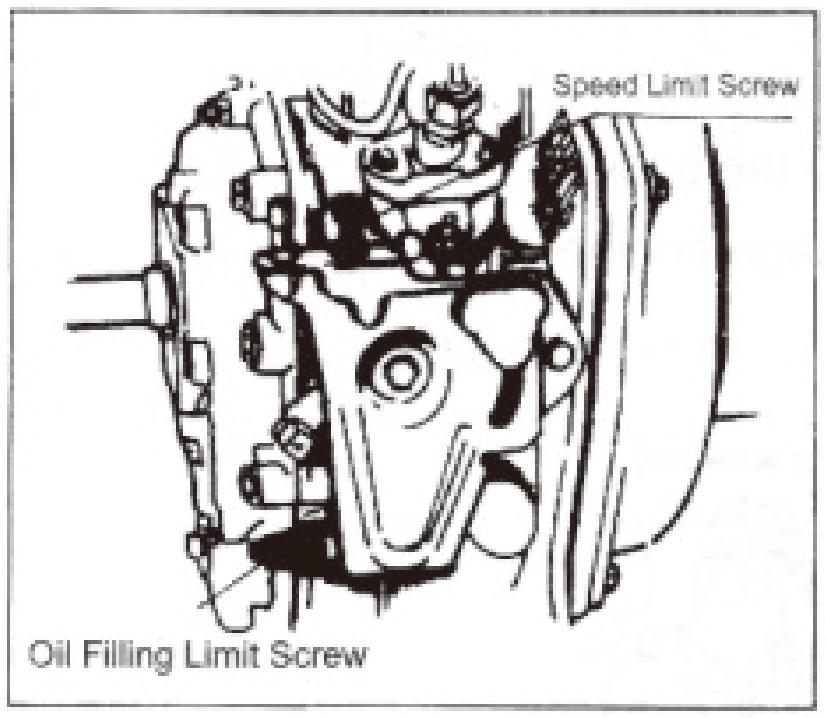
2-4 Run and Stop of the Diesel Engine

2-4.1 Run of the engine

(1) Preheat the machine for three minutes at no load.

(2) Set the speed governor lever of the engine at required speed position.

> Use the speed governor lever to control the speed of engine.
>
> Do not loosen or readjust the limit screw of speed or oil-filling limit screw, otherwise the performance of the machine may be changed.



2-4.2 Check, when the machine is running

(1)Whether there is abnormal sound and vibration?

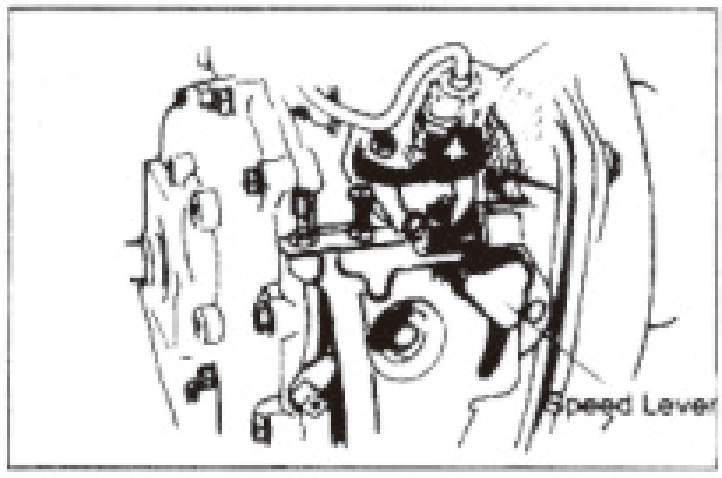
(2)Whether combustion is not good overspeed?

(3)Whether the color of exhaust gas is normal (black of too white)?

If any of above phenomena is detected, stop the engine immediately and contact our local dealer.

2-4.3 Stop of the engine

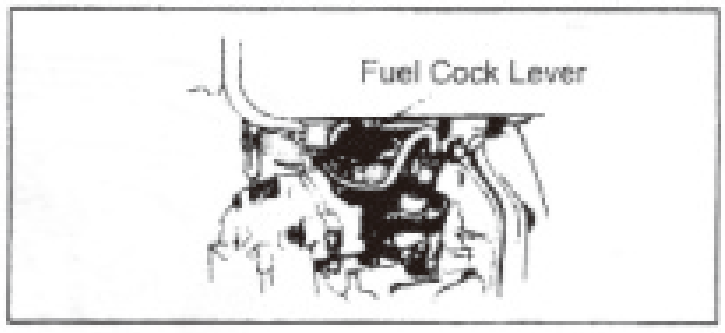
(1)At first set the speed governor lever at low speed position before stopping the engine and then run the engine at no-load for three minutes.



(2)Set the speed governor level at "stop" position

> Decrease the load gradually when stopping the engine. Sudden stop of engine will cause abnormal increasement of temperature.
>
> Do not stop engine with decompression lever.

(3)Set the fuel cock at "S" (stop position)



(4)If the engine possesses motor type starter, turn the start key switch to "OFF" position.

(5)Pull out the recoil handle slowly until pressure is felt by your hand (that means at the point of compression stroke, where the intake and exhaust valves are closed) and then let the handle back to its natural position. So that it can prevent rust when the engine is not used.

Note: Only when stopping the engine can you pull the recoil handle, otherwise the engine may be damaged.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

CHAPTER 3 TECHNICAL MAINTENANCE OF DIESEL ENGINE

Remark: Important installation and maintenance should be processed by technician

3-1 Daily Check and Maintenance

Check oil level of machine oil whether it is between upper and low limit.

Check whether there is oil leakage

Clean up the dirt, greasy dust on the diesel engine and its appendage and keep the engine clean.

Remove malfunction detected during operation.

3-2 Regular Check and Maintenance

Regular Check and Maintenance are very important for normal operation and durability of the engine The following table indicates what is necessary and when to check the engine. Marks show special tool or technique is needed for maintenance. Please contact our local dealer.

Item \ Time	Daily	After 20 hours or 1 month	100 Hours or Every 3 month	500 Hours Every 6 month	1000 Hours or Every year
Check and tighten the nut and screw	○				
Check and fill machine oil	○				
Change machine oil		○ (First time)	○ (Second time and later)		
Clean and change oil filter				○	● (Change)
Check oil-leakage	○				
Change the core of air filter		Cycle of check and maintenance will be shortened at dusty place		○	
Clean fuel tank	Every month				
Clean or change fuel filter				○ (Clean)	○ (Change)
Check nozzle				●	
Check injection pump				●	
Check pipeline of fuel				○ (Change if necessary)	
Adjust valve clearance of inlet and exhaust		● (First time)			
Grind valve holder of inlet and exhaust					●
Change piston ring					●
Check accumulator liquid	○ Every month				
Clean the core of air filter		○ (Clean) Every month or 50 hours			

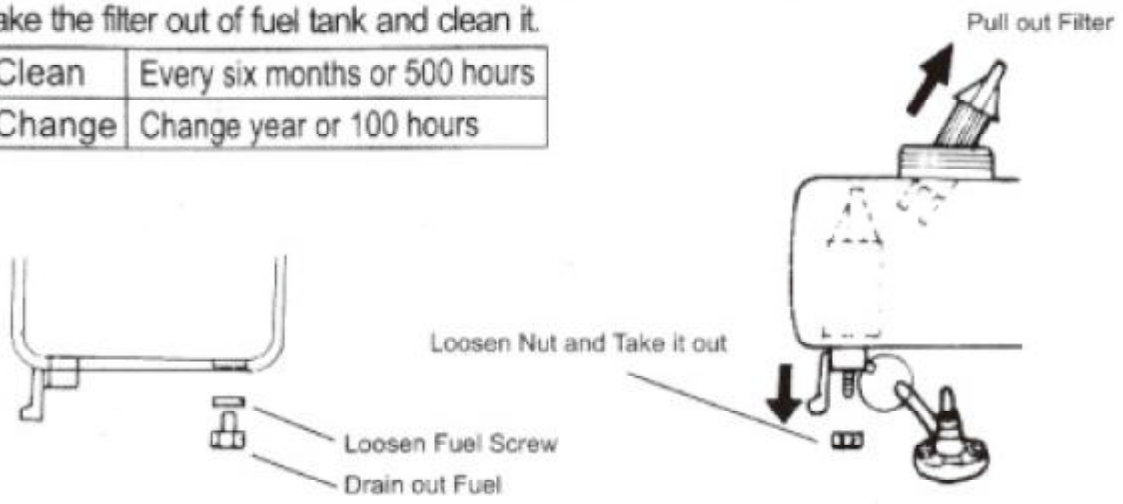
PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.pdffactory.com

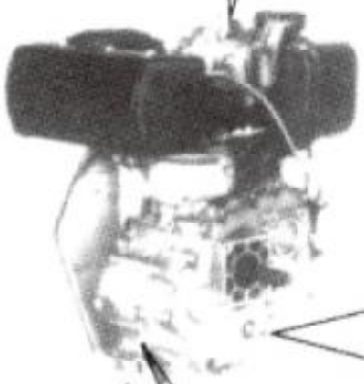
Clean and change fuel filter

The fuel filter must be kept clean day-to-day to guarantee max. output of the engine

Take the filter out of fuel tank and clean it.

Clean	Every six months or 500 hours
Change	Change year or 100 hours





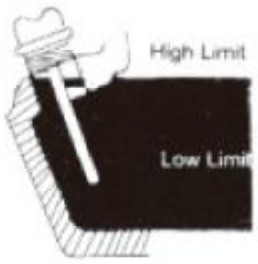
Change Lube oil filter

Clean	500 Hours
Change	1000 Hours or when maintaining

Model	170F	178F	*186F
Capacity (Liter)	0.75	1.10	1.65

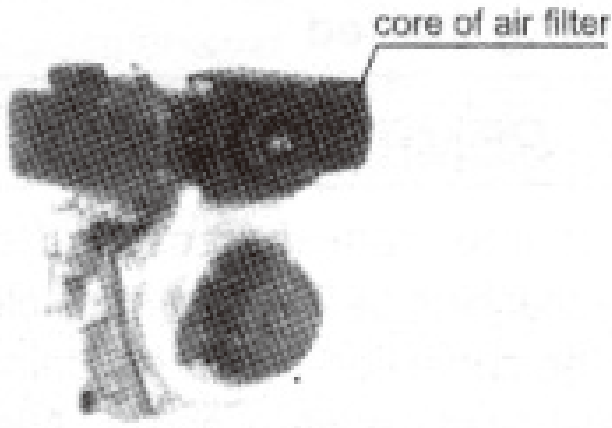
Change	Operating time
First	First month or after 20 hours
Second and Later	Every 30 months or 1000 hours

Change Lubricant



PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

Change the core of air filter



Change	Every 6 months or 500 hours (earlier if necessary)

Do not use detergent to clean filter core

Use a soft brush instead.

Do not operate the machine without core or with a bad core.

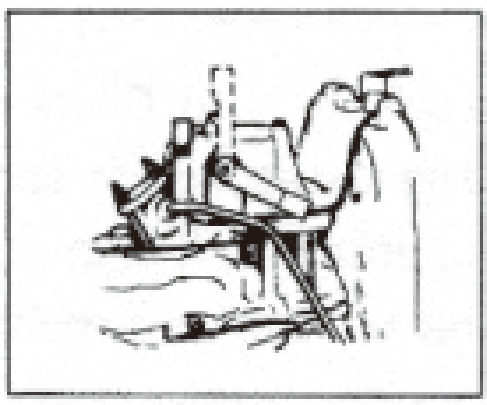
The core of filter obstruction means that the air in combustion chamber will decrease, and then the output of engine decreases, and consumption of fuel and lubricant increases. It is also difficult to start the engine. Clean the core of filter regularly

3-3 Storage for a Long Period.

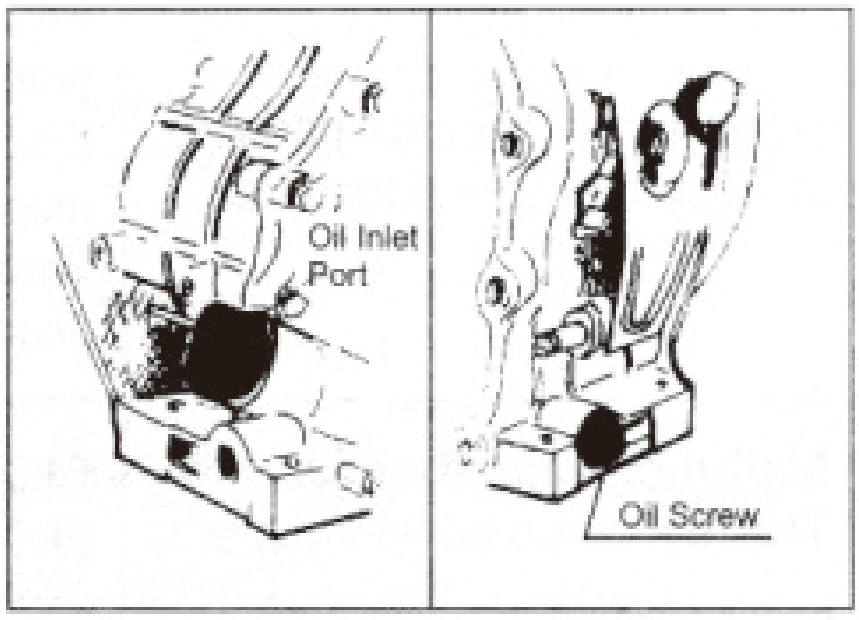
Please do as follow if the engine will be stored for a long period.

(1) Run the machine for three minutes and then stop the machine

(2) Drain away the lubricant before the engine becomes cool and then refill new machine oil.



(3) Disassemble the rubber plug on the cover of rocker shaft and then fill about 2cc lubricant into it and return the plug back to its position.



(4) Recoil type start

Push down and keep the decompression lever at the non-compression point and then pull the recoil starter two or three times.

Motor-driven type start

Keep the decompression lever at non-compression point and let the engine rotate for two or three seconds with the start key switch on "start" position (Do not run the engine).

(5) Pull up the decompression lever and pull out recoil starter slowly until the resistance is felt by your hand (that is at the point of compression stroke, where the intake and exhaust valves are closed, which can prevent engine from rust).

(6) Clean out machine oil and dirt from the engine, and put the engine at a dry place.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

CHAPTER 4 MALFUNCTION AND REMEDY OF DIESEL ENGINE

4-1 Cause and remedy for the Engine Not Being Started

CAUSE	REMEDY
The weather is cold, machine oil become more adhesive	Fill machine oil into crankshaft case after preheated. Fill machine oil into inlet manifold Disassemble the conection belt of matching machine and then start the diesel engine. After wards the engine becomes hot, stop the engine. and ressemble the belt. Start the engine again.
Malfunction of fuel system The fuel is mixed with water	Clean fuel tank filter and fuel pipe, change fuel
The fuel become thickening and not easy to flow	Use the specific fuel
There is air in the fuel system	Drain out the air and tighten each connector of fuel pipe.
Injection fuel is little or no, the spray is not good	Check the position of speed governor handle, clean spray nozzle, fuel pump, maintain or change the pump or nozzle if necessary
Combustion is not complete	The spray nozzle is not good, delivery angle is not correct, gasket of cylinder head is leaky and the pressure of compression is not enough. Remedy with its cause.
Diesel fuel delivery is interrupted	Diesel fuel is too little in the fuel tank. Fill the fuel into the fuel tank. If the fuel pipe and fuel filter are obstructed or leaky, remedy them.
Compression pressure is not enough in the cylinder. The nut of cylinder head is not tighten or gasket of cylinder is damaged or leaky.	Tighten the nut of cylinder head. Check gasket of cylinder according to diagonal line sequence and standard requirement. If changing the gasket, tighten the nut of cylinder head once again after rerunning the diesel engine.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

The gap of piston ring is too big because of wear	Change the piston ring.
Each gap of piston rings line up and cause leakage	Set each gap of piston at angle of 120°
The piston rings are sticked seriously or broken	Clean with diesel fuel or change rings
Gas valves leakage	Grind the gas valves. If the vestige is too deep, please send it to factory for remedy.
The valve clearance is not correct	Adjust the clearance as specified.
The valve stem is clipped on guide pipe	Disassemble the gas valve and clean the stem and guide pipe.

4-2 Cause and Remedy for Not Enough Power of Diesel Engine

CAUSE	REMEDY
Malfunction of fuel system: Parts obstruction of fuel pipeline and fuel filter	Check fuel switch, it must be opened fully. Clean fuel filter and fuel pipeline.
The pumping of fuel is not good	**Maintain or change the damaged parts of fuel pump.**
Malfunction of nozzle: Injection pressure is not correct	Adjust the injection pressure.
Spray hole carbon deposit	Clean
Needle valve adhered	Clean or change.
Fitting is too loose between needle valve and needle valve body	Change
Air filter is obstructed	Disassemble to clean or change the core of filter.
Speed is not high enough	Check the speed of diesel engine with tachometer. Adjust the adjust high speed limit screw.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

4-3 Cause and Remedy for the Engine Stopping Automatically

CAUSE	REMEDY
Malfunction of fuel system: No fuel	Add fuel.
Fuel pipeline or filter is obstructed	Maintain or clean
There is air in fuel system	Drain out the air.
Needle valve of nozzle adhered	Clean, grind the nozzle or change it necessary.
Air filter is obstructed	Maintain or brush off.
The load incease suddenly	Decrease the load.

4-4 Cause and Remedy for Exhaust with Black Smoke

CAUSE	REMEDY
Overload	Decrease the load. If working machine is not properly matched, change it.
Fuel injection is not good	Check the injection pressure and spray condition and **Correct it.** Or change the nozzle if it is damaged.
Air is not enough or leaky	Clean the air filter, check the cause of leakage and remedy.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

4-5 Cause and Remedy for Exhaust with Blue Smoke.

CAUSE	REMEDY
There is machine oil in cylinder	Check oil level and drain away the unnecessary, machine oil
Piston ring is clipped or worn, and its springness is not enough or each gap of ring turns to same direction to make the machine oil go up	Check, change the piston ring, and cross each gap position
The gap between piston and cylinder is too big	Remedy or change
Valve and guide are worn	Change

4-6 Cause and Remedy for Exhaust with White Smoke

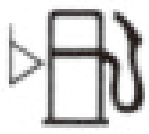
CAUSE	REMEDY
There is water in diesel fuel	Clean the fuel tank and diesel filter, change diesel fuel.

4-7 Methods and Positions of Stopping to Check When the Engine's Malfunctioning

CAUSE	REMEDY
Speed is sometimes high, sometimes low	Check the speed governor system whether it is nimble and whether there is air in fuel pipeline.
Abnormal sound suddenly appear.	Check each motional part carefully
Exhaust with black smoke suddenly	Check fuel system, especially nozzle.
There is metal knocking sound rhythmically in the cylinder	The fuel delivery angle is too big. Adjust it.

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

Appendix1 Symbol Explains of Engine Set Sign

NO	SYMBOL	QTY	MEANING	POSITION
1		1	dangerous & no touching or you may get scalded	near the muffler and the exhaust
2		1	fire is forbidden	the out side of the shell and the fuel tank
3		1	accelerograph control	near accelerograph
4		2	the oil-filling hole	near the oil-filling hole
5		1	the inlet of the air cleaner	the inlet of the air cleaner
6		1	the oil filler	near the oil filler
7		1	diesel only	near the fuel-filling hole
8		1	flying rings	near flying rings
9		1	stop running	near accelerograph
10		1	study the operating manual before using	out side of the shell of the set
11		1	the fuel indicator	the fuel indicator
12		1	the cock of the fuel tank	near the cock of the lieu lank
13		1	no smoking	out side of the shell of the set

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn

APPENDIX 2 USER SUGGESTION TABLE

Model / Item		ex-factory Date	
		ex-factory No.	
User Name		Occupation	
Address			
Bought From			
State While Unpacking			
Operation Condition			
Damaged Parts			
Troubles/ Malfunction			
Suggestions			

Date:_____

PDF 文件使用 "pdfFactory Pro" 试用版本创建 www.fineprint.com.cn