

Robin

Brush Cutter

NB223

NB253

Grass Trimmer

NBF252

INSTRUCTION MANUAL

Important:

Read this instruction manual carefully before putting the Brush Cutter or Grass Trimmer into operation and strictly observe the safety regulations! Preserve instruction manual carefully!



FUJIROBIN INDUSTRIES LTD.

To UNASSEMBLE

Twist spool (7) to position lugs (A & B) between two half-rounded holes (C & D). Pull up, separating spool from housing.

To REWIND SPOOL

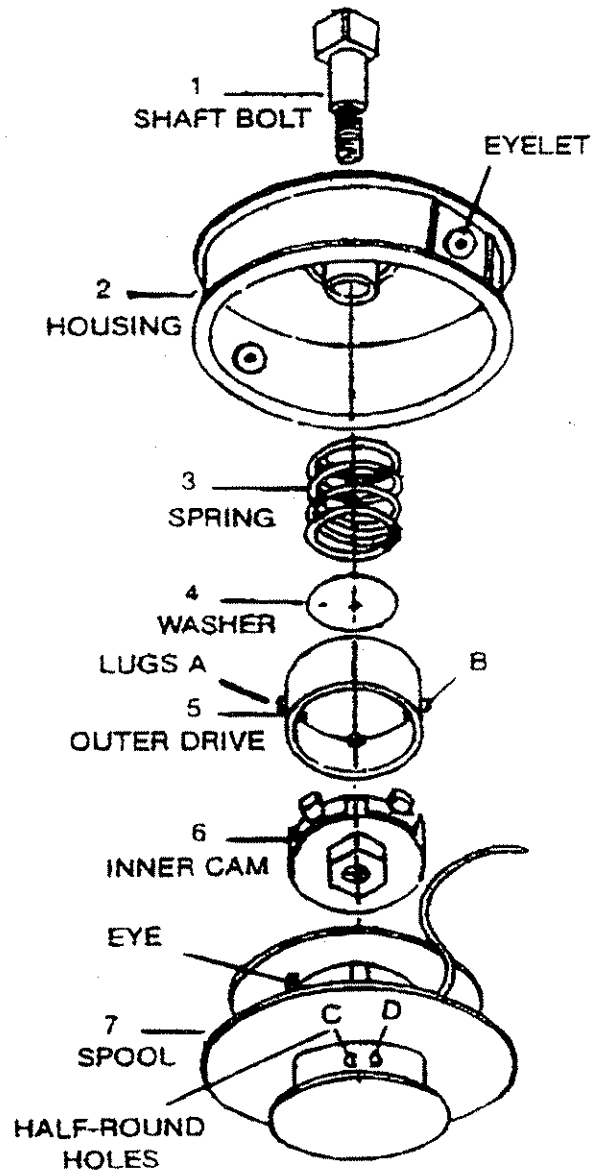
Use one line 20' long. Thread end of line through eye on spool and pull through until line is the same length on both sides of eye. Wind both ends of line in same direction as trimmer rotation. Wind tightly and evenly from side to side and do not twist line. (Ignore the ridge.)

To REASSEMBLE

Pass end of line through either eyelet on housing being careful not to let line slip under spool. Line up slots under spool with lugs on outer drive (5) and push together. Twist spool so lugs lock into half-round holes. The lugs can be locked in either a clockwise or counter-clockwise direction. If inner cam and driver start to loosen, twist in other direction to lock.

CAUTION - ALWAYS WEAR PROTECTION FOR THE EYES WHEN USING ANY WEED CUTTING EQUIPMENT.

Service Instructions for Semi-Matic Head



Thank you very much for purchasing the ROBIN Brush Cutter or Grass Trimmer. We are pleased to recommend to you the ROBIN Brush Cutter or Grass Trimmer which is the result of a long development programme and many years of knowledge and experience.

Please read this booklet which refers in detail to the various points that will demonstrate its outstanding performance. This will assist you to obtain the best possible result from your ROBIN Brush Cutter or Grass Trimmer.



Table of Contents

	Page
Symbols	1
Safety instructions	2-5
Technical data	6-7
Designation of parts	8
Assembly of engine and shaft	9-10
Mounting of handle	11
Mounting of protector	12
Mounting of cutter blade or nylon cutting head	13
Fuels/Refuelling	14
Correct handling of machine	15
Putting into operation	15-16
Idle adjustment	17
Resharpener the cutting tool	17
Nylon cutting head	17
Maintenance schedule	18
Storage	19

SYMBOLS

You will note the following symbols when reading the instructions manual.



Read Instruction Manual



Take Particular Care and Attention



Forbidden



Keep distance



Flying object hazard



No smoking



No naked flame



Protective gloves must be worn



Kickback



Keep the area of operation clear of all persons and pets



Wear eye and ear protection (for grass trimmer)



Wear protective helmet, eye and ear protection (for Brush Cutter only)



Do not use metal blades (for grass trimmer only)



Top permissible tool speed



Fuel and oil mixture



Engine-Manual start



Emergency stop



ON/START

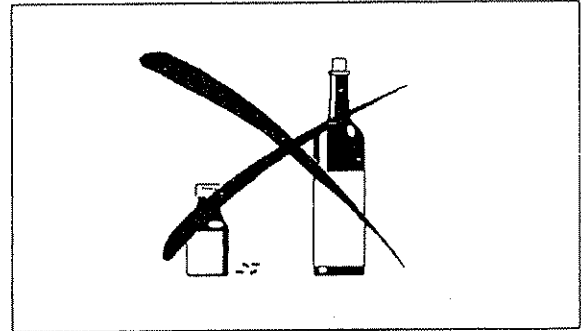
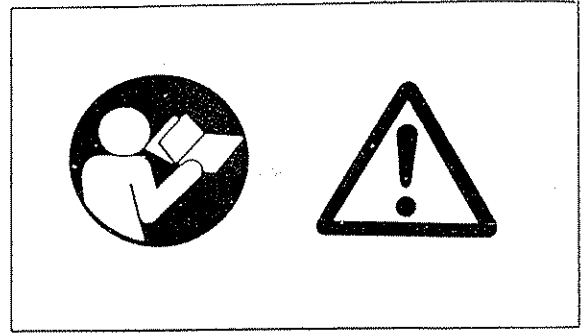


OFF/STOP

SAFETY INSTRUCTIONS

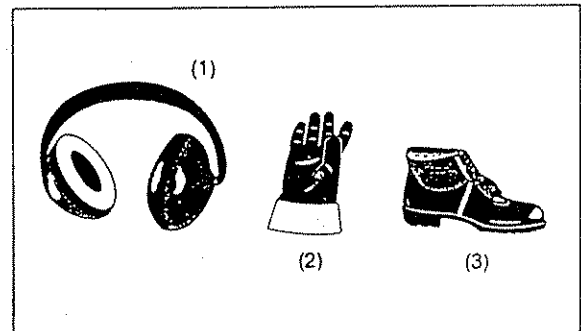
General Instructions

- To ensure correct operation, the user has to read this instruction manual to make himself familiar with the handling of the brush cutter or grass trimmer. Users insufficiently informed will risk danger to themselves as well as others due to improper handling.
- First users should ask the dealer for basic instructions to familiarize oneself with the handling of an engine powered cutter.
- Use brush cutters or grass trimmers with the utmost care and attention
- Operate the brush cutter or grass trimmer only if you are in good physical condition. Perform all work calmly and carefully.
The user has to accept liability for others.
- Never use the brush cutter or grass trimmer after consumption of alcohol or drugs, or if feeling tired or ill.



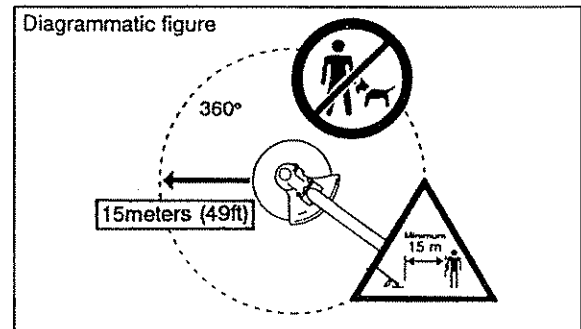
Personal protective equipment

- The clothing worn should be functional and appropriate, i.e. it should be tight-fitting but not cause hindrance. Do not wear either jewelry or clothing which could become entangled with bushes or shrubs.
- In order to avoid either head-, eye-, hand- or foot injuries as well as to protect your hearing the following protective equipment and protective clothing must be used during operation of the brush cutter or grass trimmer.
- Always wear a helmet where there is a risk of falling objects.
- Wear adequate noise protection equipment to avoid hearing impairment (ear muffs (1), ear plugs etc.).
- Special gloves (2) made of thick leather are part of the prescribed equipment and must always be worn during operation of the brush cutter or grass trimmer.
- When using the brush cutter or grass trimmer, always wear sturdy shoes (3) with a non-slip sole. This protects against injuries and ensures a good footing.



Starting up the brush cutter or grass trimmer

- Please make sure that there are no children or other people within a working range of 15meters (49ft), also pay attention to any animals in the working vicinity.
- Before use always check that the brush cutter or grass trimmer is safe for operation:
Check the security of the cutting tool, the control lever for easy action and check for proper functioning of the control lever lock.
- Rotation of the cutting tool during idling speed is not allowed. Check with your dealer for adjustment if in doubt.
Check for clean and dry handles and test the function of the start/stop switch.

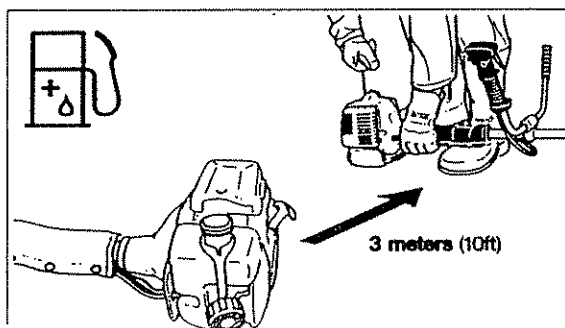
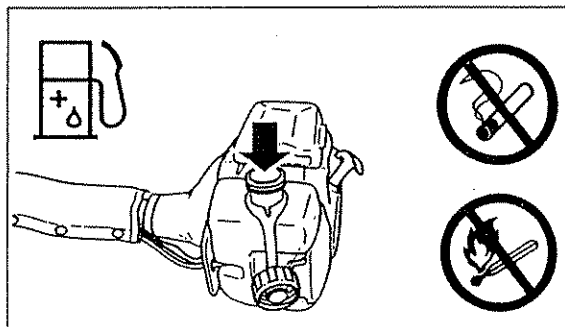
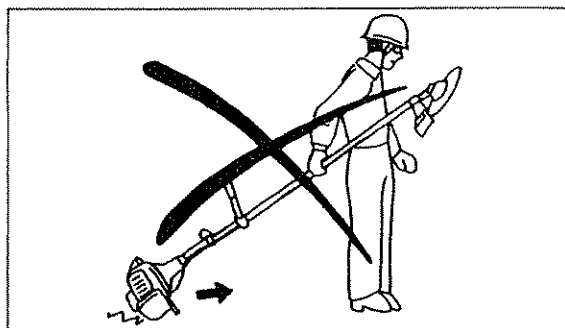
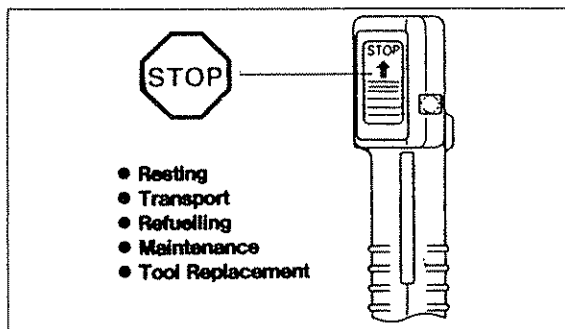
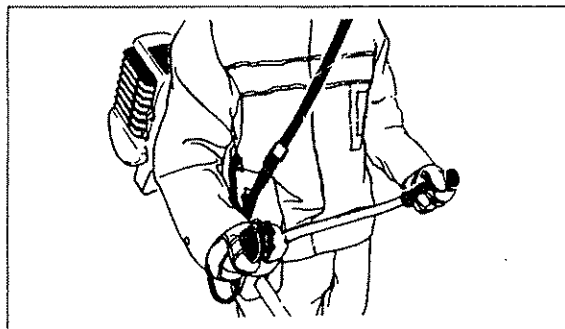
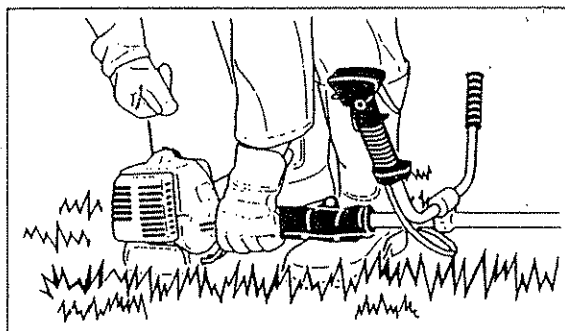


Start the brush cutter or grass trimmer only in accordance with the instructions. Do not use any other methods for starting the engine!

- Use the brush cutter or grass trimmer and the tools only for such applications as specified.
- Only start the brush cutter or grass trimmer engine, after the entire assembly is done. Operation of the device is only permitted after all the appropriate accessories are attached!
- Before starting make sure that the cutting tool has no contact with hard objects such as branches, stones etc. as the cutting tool will revolve when starting.
- The engine is to be switched off immediately in case of any engine problems.
- Should the cutting tool hit stones or other hard objects, immediately switch off the engine and inspect the cutting tool.
- Inspect the cutting tool at short regular intervals for damage (detection of hairline cracks by means of tapping-noise test).
- Operate the brush cutter or grass trimmer only with the shoulder strap attached which is to be suitably adjusted before putting the brush cutter or grass trimmer into operation. It is essential to adjust the shoulder strap according to the user's size to prevent fatigue occurring during use. Never hold the cutter with one hand during use.
- During operation always hold the brush cutter or grass trimmer with both hands. Always ensure a safe footing.
- Operate the brush cutter or grass trimmer in such a manner as to avoid inhalation of the exhaust gases. Never run the engine in enclosed rooms (risk of gas poisoning). Carbon monoxide is an odorless gas.
- Switch off the engine when resting and when leaving the brush cutter or grass trimmer unattended, and place it in a safe location to prevent danger to others or damage to the machine.
- Never put the hot brush cutter or grass trimmer onto dry grass or onto any combustible materials.
- The cutting tool has to be equipped with it's appropriate guard. Never run the cutter with out this guard!
- All protective installations and guards supplied with the machine must be used during operation.
- Never operate the engine with faulty exhaust muffler.
- Shut off the engine during transport.
- During transport over long distances the tool protection included with the equipment must always be used.
- Ensure safe position of the brush cutter or grass trimmer during car transportation to avoid fuel leakage.
- When despatching the brush cutter or grass trimmer, ensure that the fuel tank is completely empty.
- When unloading the Brush Cutter from the truck, never drop the Engine to the ground or this may severely damage the fuel tank.
- Except in case of emergency, never drop or cast, the Brush Cutter to the ground or this may severely damage the Brush Cutter.
- Remember to lift the entire equipment from the ground when moving the equipment. Dragging the fuel tank is highly dangerous and will cause damage and leakage of fuel, possibly causing fire.

Refuelling

- Shut off the engine during refuelling, keep away from naked flames and do not smoke.
- Avoid skin contact with mineral oil products. Do not inhale fuel vapor. Always wear protective gloves during refuelling. Change and clean protective clothing at regular intervals.
- Take care not to spill either fuel or oil in order to prevent soil contamination (environmental protection). Clean the brush cutter or grass trimmer immediately after fuel has been spilt.
- Avoid any fuel contact with your clothing. Change your clothing instantly if fuel has been spilt on it (to prevent clothing fire).
- Inspect the fuel cap at regular intervals making sure that it can be securely fastened and does not leak.
- Carefully tighten the fuel tank cap. Change location to start the engine (at least 3 meters (10ft) away from the place of refuelling).
- Never refuel in closed rooms. Fuel vapors accumulate at ground level (risk of explosions).
- Only transport and store fuel in licensed containers. Make sure the fuel stored is not accessible to children.



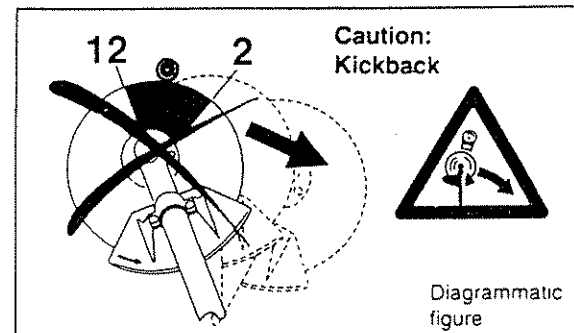
Method of operation

- Only use the brush cutter or grass trimmer in good light and visibility. During the winter season beware of slippery or wet areas, ice and snow (risk of slipping). Always ensure a safe footing.
- Never cut above shoulder height.
- Never stand on a ladder and run the brush cutter or grass trimmer.
- Never climb up into trees to perform cutting operation with the brush cutter or grass trimmer.
- Never work on unstable surfaces.
- Remove sand, stones, nails etc. found within the working range. Foreign particles may damage the cutting tool and can cause dangerous kick-backs.
- Before commencing cutting, the cutting tool must have reached full working speed.



Kickback

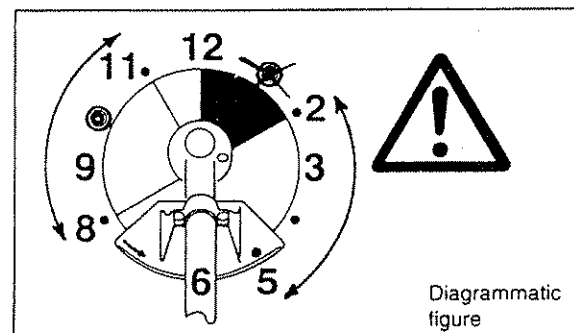
- When operating the brush cutter, uncontrolled kickback may occur.
- This is particularly the case when attempting to cut within a blade segment between 12 and 2 o'clock.
- Never apply the brush cutter within a segment between 12 and 2 o'clock.
- Never apply this segment of the brush cutter blade to solids, such as bushes and trees, etc., having a diameter in excess of 3 cm or the brush cutter will be deflected at great force with the risk of injuries.



Kickback prevention

To avoid kickbacks, observe the following:

- Operation within a blade segment between 12 and 2 o'clock presents positive hazards, especially when using metal cutting tools.
- Cutting operations within a blade segment between 11 and 12 o'clock, and between 2 and 5 o'clock, must only be performed by trained and experienced operators, and then only at their own risk. Easy cutting with almost no kickback is possible within a blade segment between 8 and 11 o'clock.



Cutting Tools

Employ only the correct cutting tool for the job in hand.

NBF252 with Nylon cutting head only

Exclusively designed for cutting along walls, fences, grass edges, trees, posts etc. (supplementing the grass mower). Perform this cutting work by swinging the grass trimmer evenly in half-circles from left to right.



Metal blades - for models NB223 & NB253 only

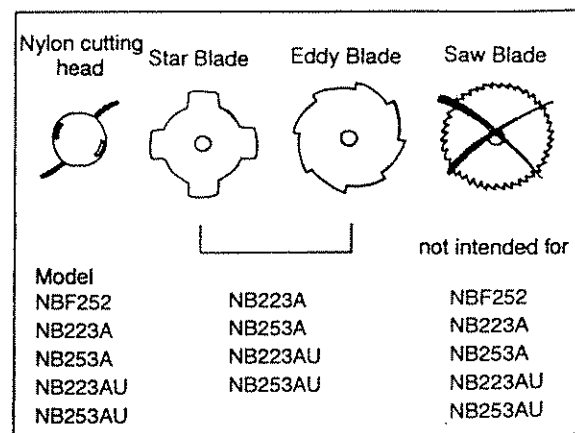
NB223, NB253 with cutter blade (Star Blade (4 teeth), Eddy Blade (8 teeth)), Nylon cutting head

For cutting thick materials, such as weed, high grass, bushes, shrubs, underwood, thicket etc. (max. 2 cm dia. thickness). Perform this cutting work by swinging the brush cutter evenly in half-circles from right to left (similar to using a scythe).

Metal saw blades - not permitted

Maintenance Instructions

- The condition of the cutter, in particular of the cutting tool of the protective devices and also of the shoulder strap must be checked before commencing work. Particular attention is to be paid to the cutting blades which must be correctly sharpened.
- Turn off the engine and remove spark plug connector when replacing or sharpening cutting tools, and also when cleaning the cutter or cutting tool.



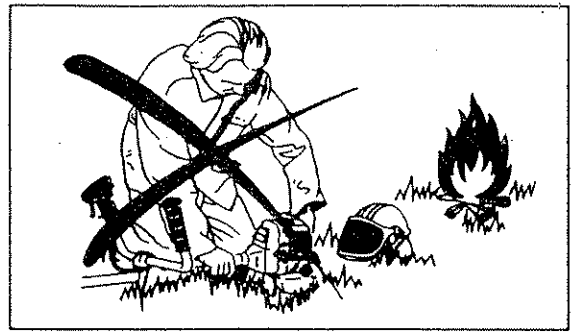
Never straighten or weld damaged cutting tools.

- Operate the brush cutter with as little noise and contamination as possible. In particular check the correct setting of the carburetor.
- Clean the brush cutter at regular intervals and check that all screws and nuts are well tightened.
- Never service or store the brush cutter in the vicinity of naked flames.
- Always store the brush cutter in locked rooms and with an emptied fuel tank.

Observe the relevant accident prevention instructions issued by the relevant trade associations and by the insurance companies.
Do not perform any modifications on the brush cutter as this will endanger your safety.

The performance of maintenance or repair work by the user is limited to those activities as described in the instruction manual. All other work is to be done by an Authorized Service Agent. Use only genuine spare parts and accessories released and supplied by ROBIN.

Use of non-approved accessories and tools means increased risk of accidents. ROBIN will not accept any liability for accidents or damage caused by the use of non-approved cutting tools and fixing devices of cutting tools, or accessories.



TECHNICAL DATA NB223,NB253

Model		NB223A	NB223AU	NB253A	NB253AU
		Loop Handle	U Handle	Loop Handle	U Handle
Dimensions:length x width x height (without cutting blade)	mm	1770×215×220 (69.7"×8.5"×8.7")	1770×600×375 (69.7"×8.5"×8.7")	1770×215×220 (69.7"×23.6"×14.8")	1770×600×375 (69.7"×23.6"×14.8")
Mass (without plastic guard and cutting blade)	kg	4.7 (10.3 lb)	4.8 (10.6 lb)	4.7 (10.3 lb)	4.8 (10.6 lb)
Volume(fuel tank)	cm ³	650		650	
Engine displacement	cm ³	21.7		24.5	
Maximum engine performance	kw	0.67 at 7000 1/min		0.73 at 7000 1/min	
Engine speed at recommended max.spindle speed	1/min	8800		8800	
Maximum spindle speed(corresponding)	1/min	6000		6000	
Fuel consumption	kg/h	—		—	
Specific fuel consumption	g/kwh	—		—	
Idling speed	1/min	2600		2600	
Clutch engagement speed	1/min	3600		3600	
Carburetor(Diaphragm-carburetor)	type	WALBRO WYJ		WALBRO WYJ	
Ignition system	type	Solid state ignition		Solid state ignition	
Spark plug	type	NGK BM7A		NGK BM7A	
Electrode gap	mm	0.6-0.7		0.6-0.7	
Mixture ratio(Fuel:ROBIN2-stroke oil)		50 : 1			
Gear ratio		14/18		14/18	

1) The data takes equally into account the idling and recing or wide open throttle speed operating modes.

***WARNING: MODEL NB223 NB253 must not be used with a saw blade.**

TECHNICAL DATA NBF252

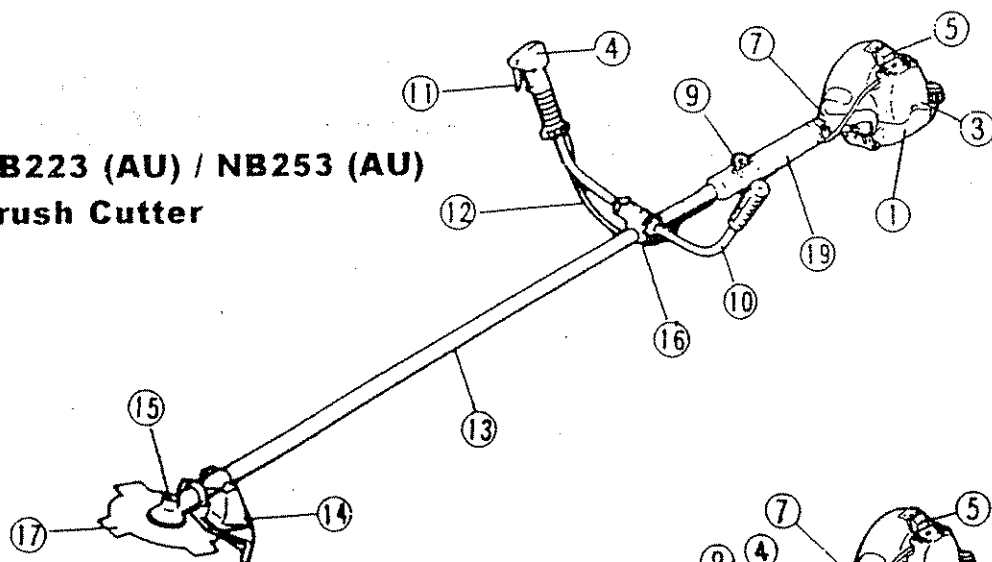
Model	NBF252	
	Loop handle	
Dimensions:length x width x height (without cutting blade)	mm	1490x220x360 (58"x9"x14")
Mass (without plastic guard and cutting blade)	kg	4.2 (9.3 lb)
Volume(fuel tank)	cm ³	500
Engine displacement	cm ³	24.5
Maximum engine performance	kw	0.73at70001/min
Engine speed at recommended max.spindle speed	1/min	10000
Maximum spindle speed (corresponding)	1/min	10000
Fuel consumption	kg/h	0.46(16.2 oz/h)
Specific fuel consumption	g/kwh	691 (24.4 oz/kwh)
Idling speed	1/min	2600
Clutch engagement speed	1/min	3600
Carburetor(Diaphragm-carburetor)	type	WALBRO WYJ
Ignition system	type	Solid state ignition
Spark plug	type	NGK BM7A
Electrode gap	mm	0.6-0.7
Mixture ratio(Fuel:ROBIN2-stroke oil)		50 : 1
Gear ratio		—

1) The data takes equally into account the idling and recing or wide open throttle speed operating modes.

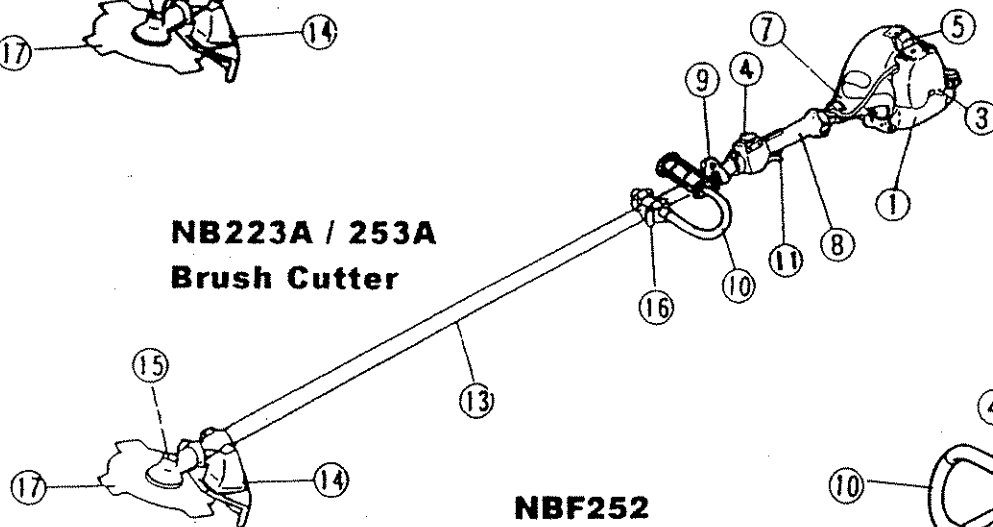
***WARNING: MODEL NBF252 must not be used with a metal blade of any type.**

DESIGNATION OF PARTS

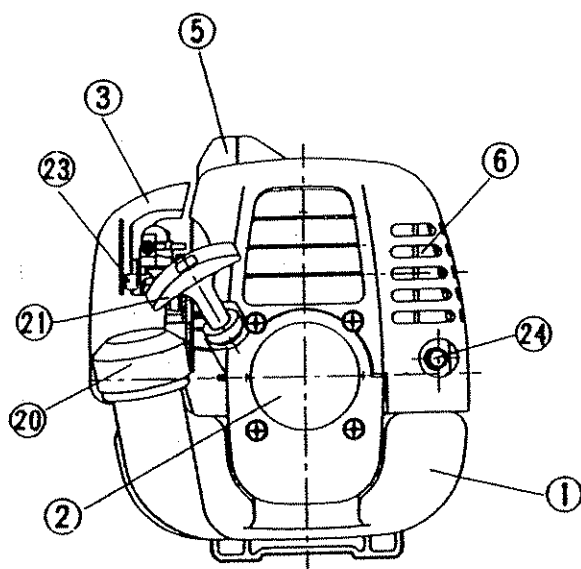
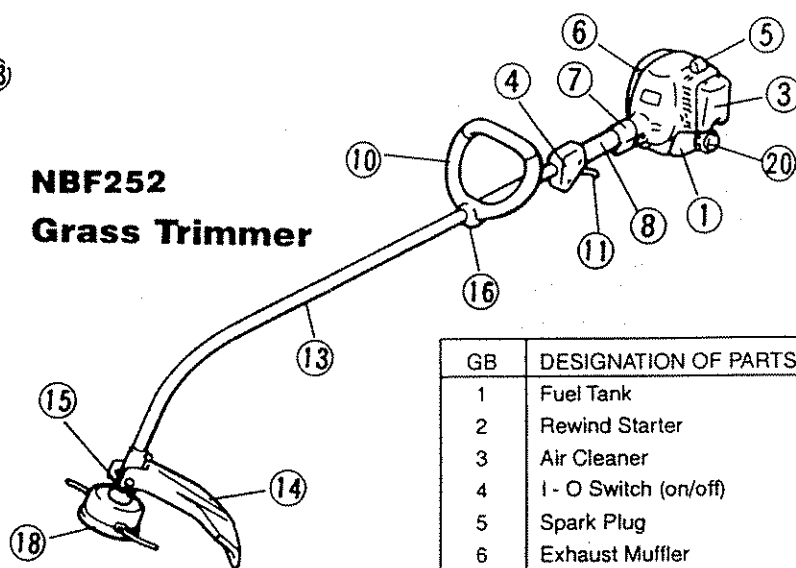
**NB223 (AU) / NB253 (AU)
Brush Cutter**



**NB223A / 253A
Brush Cutter**



**NBF252
Grass Trimmer**



GB	DESIGNATION OF PARTS
1	Fuel Tank
2	Rewind Starter
3	Air Cleaner
4	I - O Switch (on/off)
5	Spark Plug
6	Exhaust Muffler
7	Clutch Case
8	Rear Grip
9	Hanger
10	Handle
11	Throttle Lever
12	Control Cable
13	Shaft
14	Protector
15	Gear Case/Head Case
16	Handle Holder
17	Cutter Blade
18	Nylon Cutting Head
19	Waist Pad
20	Fuel Filler Cap
21	Starter Knob
22	Primer Pump
23	Choke Lever
24	Exhaust Pipe

ASSEMBLY OF ENGINE AND SHAFT

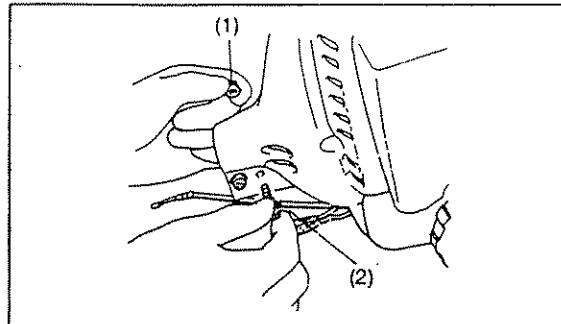
CAUTION: Before doing any work on the brush cutter or the grass trimmer, always switch off the motor and pull the spark plug connector off the spark plug. Always wear protective gloves!

CAUTION: Start the brush cutter or the grass trimmer only after having assembled it completely.

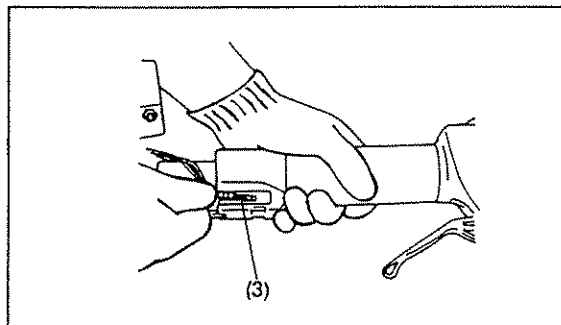


For machines with loop handle model

- Insert the nuts M5 (1) into the hex holes in the clutch case. Insert the screw M5x30 (2) through the opposite holes and semi-tighten the screws M5x30.



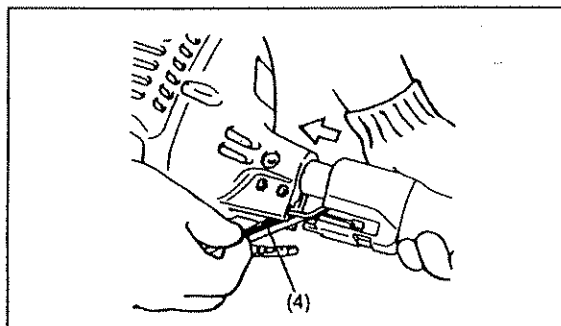
- Insert the nipple (3) of the control cable through the square hole in the grip until it fits into the square hole in the moving part which is inside the grip. It should move when the control lever is squeezed.



- Insert the shaft into the clutch case fully until the grip end reaches the clutch case while passing the control cable and the switch cords (4) through the slot in the clutch case.

NOTE: Match the square drive of the inner shaft to the square hole inside the clutch case by slightly rotating the shaft or the support washer on the head case, and you can insert the shaft into the clutch case smoothly.

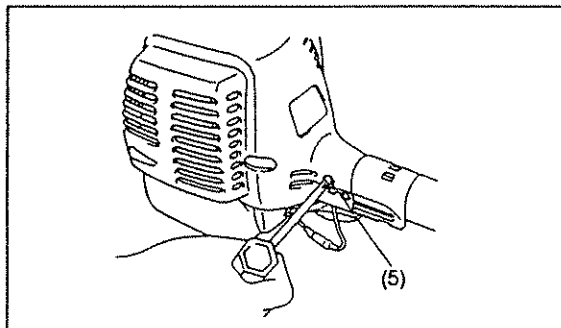
Be careful not to allow the switch cords to be pinched between the clutch case and the grip end.



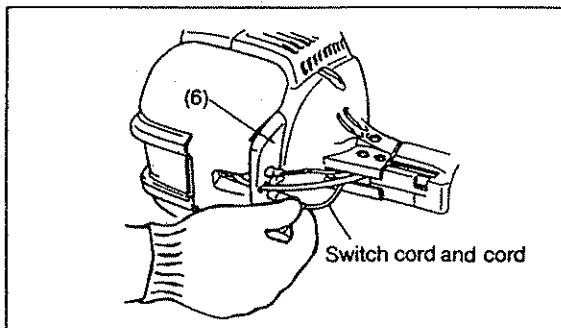
- Match the hole in the clutch case to the hole in the inner shaft and insert the screw M5x8 through the holes.

Then tighten the screw M5x8 and the screws M5x30 (5).

NOTE: Squeeze the control lever to make sure that the control cable moves smoothly.

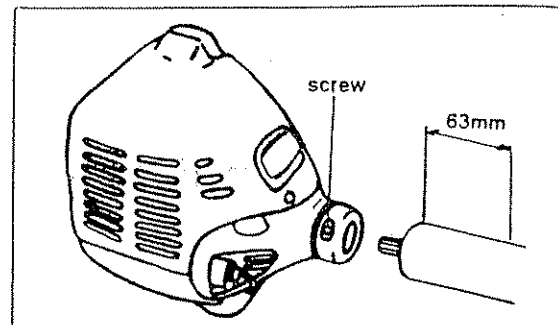


- Connect the switch cords to the two cords from the engine by inserting one into the other. Insert them through the holes in the cover (6).

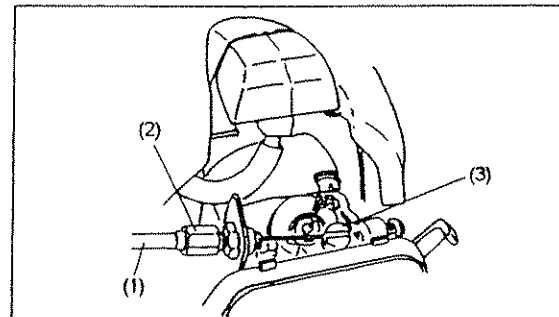


For machines with U handle models

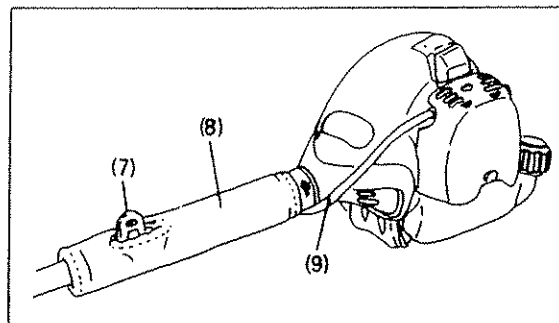
- Loosen the screws M5 x 18 and insert the drive shaft into the Clutch case (Fig.)
- NOTE: Always insert the drive shaft into the Clutch case fully (approx. 63mm). If the inner shaft resists full insertion of the drive shaft, try to insert it again after slightly rotating the drive shaft or the support washer on the gear case to match the inner shaft to the hole inside the Clutch case
- After making sure that the drive shaft is installed fully and properly, tighten the screw M5 x 18 to secure the drive shaft
- Connect the switch cords to the two cords from the engine by inserting one into the other.



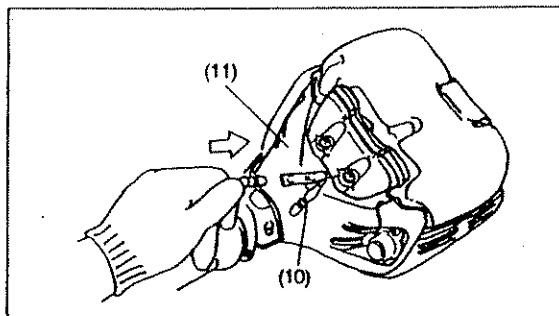
- Unscrew screw of air cleaner cover.
- Remove air cleaner cover from carburetor.
- Inset control cable (1) through adjusting screw (2) and fit nipple of control cable into swivel (3) of carburetor.
- Adjust the adjusting screw to take up free play of wire ensuring the throttle is fully opened when control lever is in high speed position and 2 - 3mm (0.079" - 0.118") free play when in low speed position
- Re-fit air cleaner cover.



- Wrap the waist pad around the shaft so that the hanger (7) will protrude through the slit in the waist pad and the control cable and the cords (9) will also be wrapped under the waist pad (8).

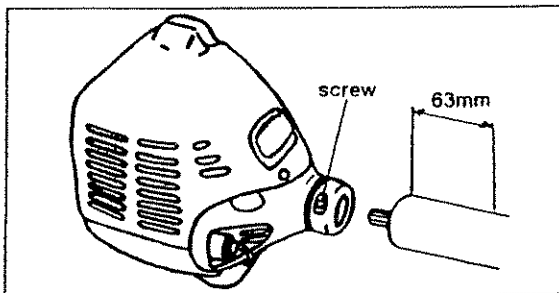


- Connect the switch cords to the two cords from the engine by inserting one into the other.
- Insert the bullet connectors (10) through the holes in the Clutch case (11).

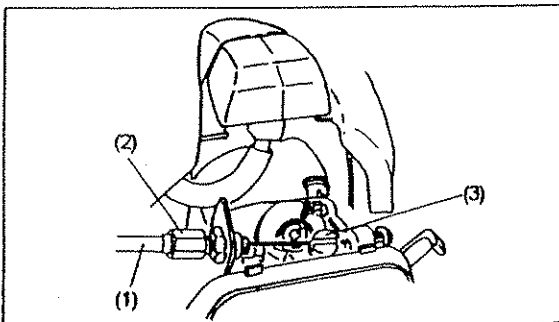


For machine with J handle models

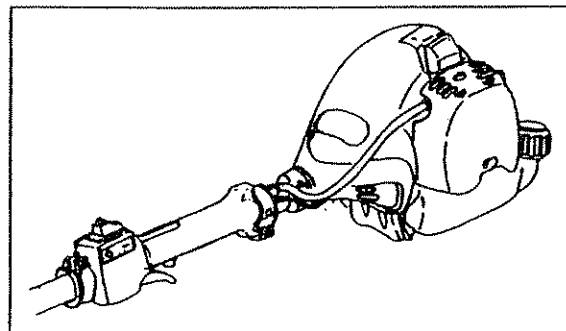
- Loosen the screws M5 x 18 and insert the drive shaft into the Clutch case. (Fig.)
- NOTE: Always insert the drive shaft into the Clutch case fully (approx. 63mm). If the inner shaft resists full insertion of the drive shaft, try to insert it again after slightly rotating the drive shaft or the support washer on the gear case to match the inner shaft to the hole inside the Clutch case.
- After making sure that the drive shaft is installed fully and properly, tighten the screw M5 x 18 to secure the drive shaft.



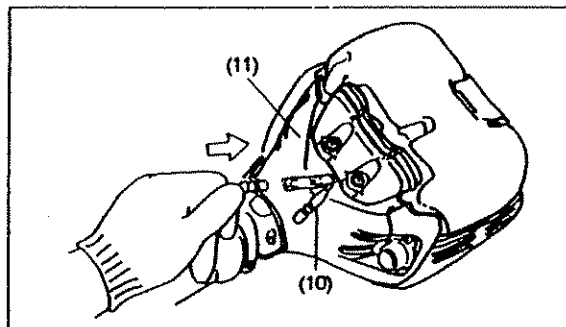
- Unscrew screw of air cleaner cover.
- Remove air cleaner cover from carburetor.
- Inset control cable (1) through adjusting screw (2) and fit nipple of control cable into swivel (3) of carburetor.
- Adjust the adjusting screw to take up free play of wire ensuring the throttle is fully opened when control lever is in high speed position and 2 - 3mm (0.079" - 0.118") free play when in low speed position.
- Re-fit air cleaner cover.



- Connect the switch cords to the two cords from the engine by inserting one into the other.



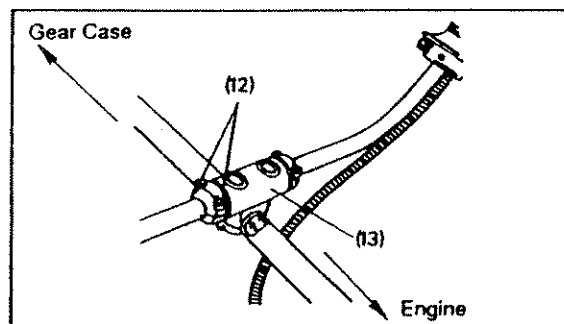
- Connect the switch cords to the two cords from the engine by inserting one into the other.
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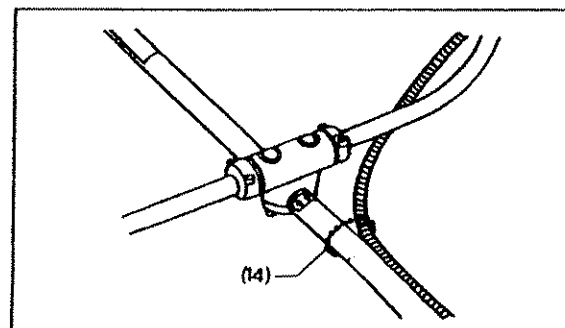
MOUNTING OF HANDLE

For machines with U Handle models

- Loosen the handle installation bolts (12).
- Insert the handle into the handle joint (13) fully.
- After making sure that the handle is installed properly, tighten the installation bolts (12) to secure the handle.



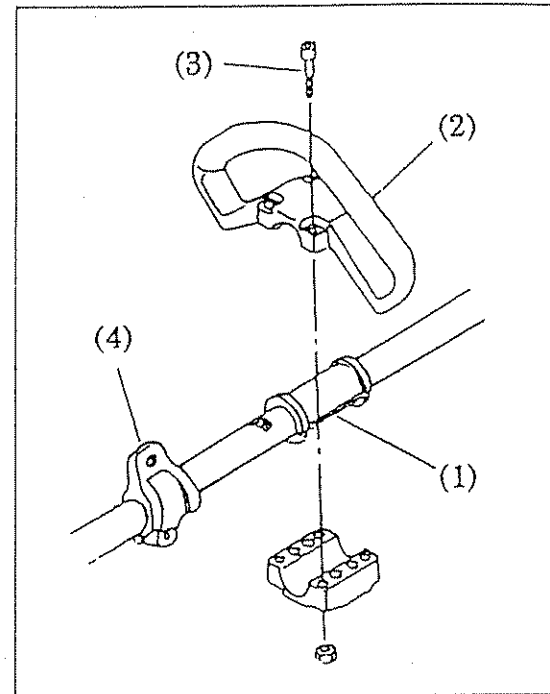
- Fasten the cable onto shaft which clip wire (14) as shown in the diagram for comfortable operation.



For machine with J Handle models

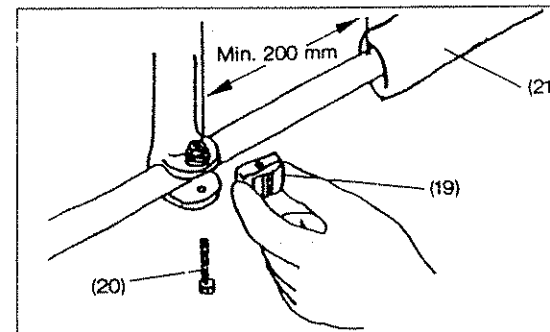
- Install the rubber spacer (1) around the case before installing loop handle (2).
- Install the loop handle (2) over the rubber spacer (1) and install 4 socket head bolts (3) and nuts, tighten securely.
- The standard position of the handle is 8 " to 10 " from the hanger (4).

(Note) Position the handle according to a workers stature and working conditions.



For machines with Loop Handle (model NBF252)

- Attach the handle to the shaft.
- Install the handle joint (19) on the handle. Insert the installation bolt M6x45 (20) through the holes in the handle. Semi-tighten the installation bolt M6x45 (20).
- Adjust the handle to the desired position and tighten the installation bolt M6x45 (20). rear grip (21)
- Adjust the handle to the position min. 200 mm from the rear grip (21) and tighten the installation bolt M6x45 (20)



MOUNTING OF PROTECTOR

To meet the applicable safety provisions, only the tool/protector combinations as indicated in the table must be used.

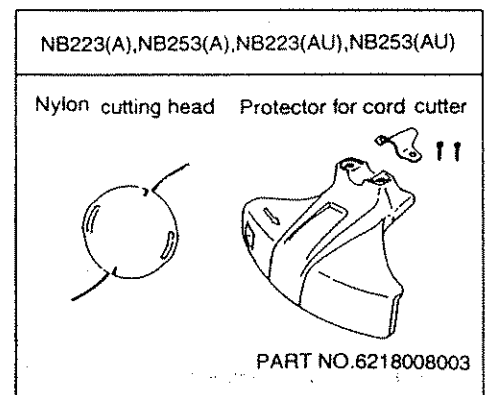
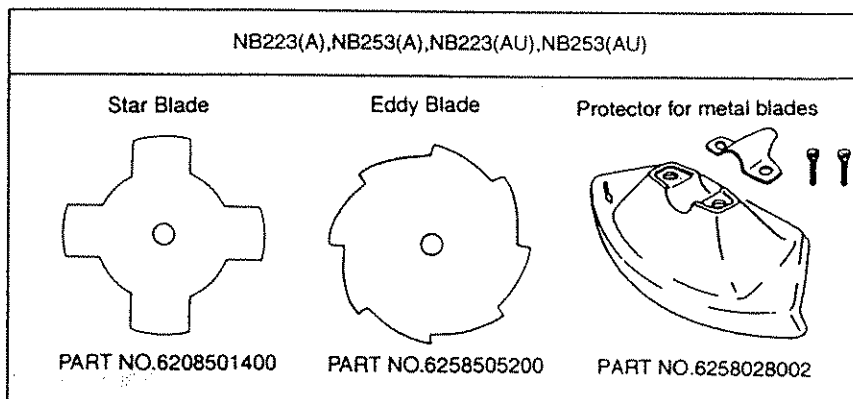
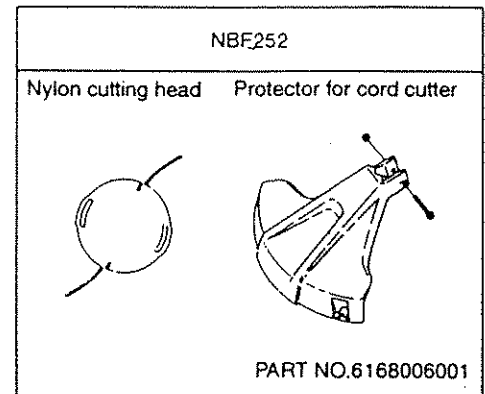


Be sure to use genuine ROBIN cutter blades or nylon cutting head.

- The cutter blade must be well polished, free of cracks or breakage.
If the cutter blade hits against a stone during operation, stop the engine and check the blade immediately.
- Polish or replace the cutter blade every three hours of operation.

For NB223,253

- The outside diameter of the cutter blade must be 230mm (9-1/16"). Never use any blades surpassing 230mm (9-1/16") in outside diameter.



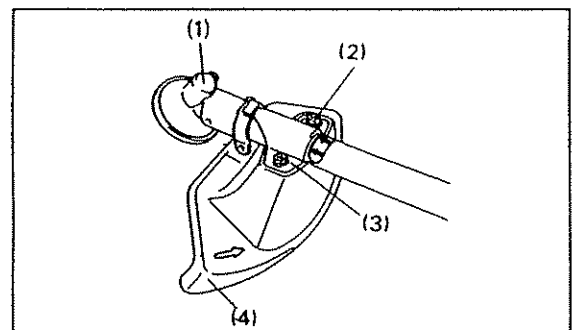
CAUTION: The appropriate protector must always be installed, for your own safety and in order to comply with accident-prevention regulations.

Operation of the equipment without the guard being in place is not permitted.



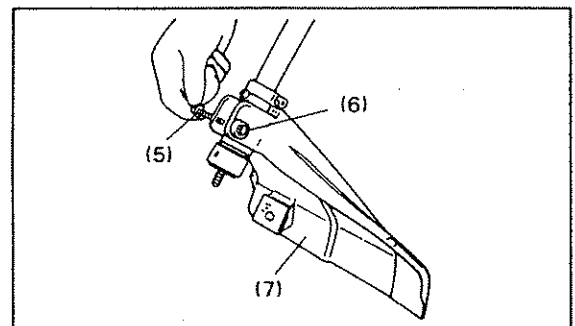
For NB223,NB253

- Install the clamp (3) on the shaft so that the projection of the clamp (3) is inserted into the opening between the gear case (1) and the shaft. Secure the protector (4) with the installation bolts M6x30 (2).



For NBF252

- Attach the protector (7) to the shaft.
 - Insert the nut M6 (6) into the hex hole in the protector (7).
 - Secure the protector with the installation bolt M6x45 (5).
- NOTE: Do not tighten the installation bolt M6x45 (5) excessively.



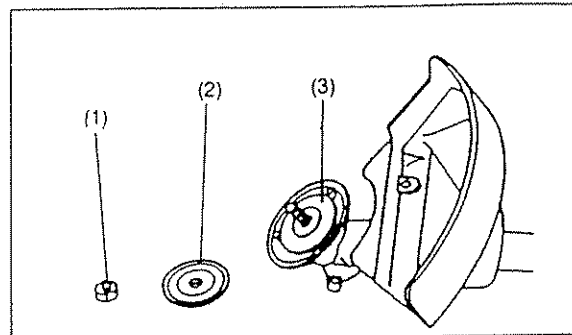
MOUNTING OF CUTTER BLADE OR NYLON CUTTING HEAD

Turn the machine upside down, and you can replace the cutter blade or the nylon cutting head easily.



For NB223,NB253

- Insert the hex wrench through the hole in the gear case and rotate the receiver washer(3) until it is locked with the hex wrench.
- Loosen the nut (1) (left-hand thread) with the socket wrench and remove the nut (1), and clamp washer (2)



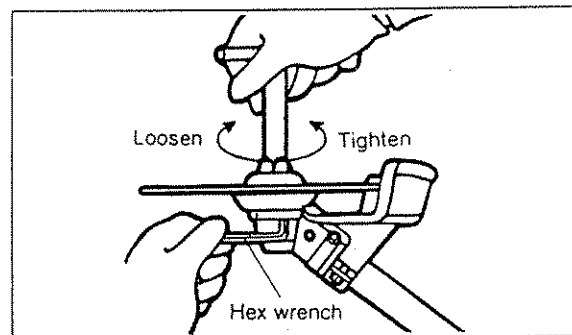
For NB223,NB253 with the hex wrench still in place

- Mount the cutter blade onto the shaft so that the guide of the receiver washer (3) fits in the arbor hole in the cutter blade. Install the clamp washer (2) and secure the cutter blade with the nut (1)
- (Tightening torque: 130 - 230 kg-cm)

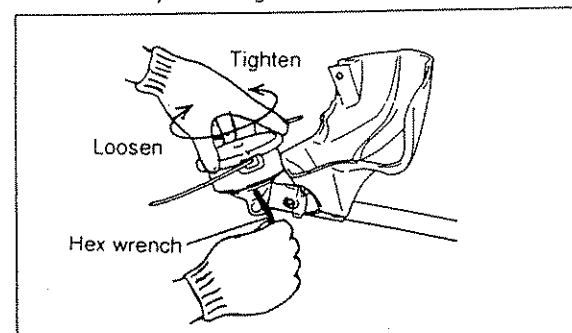
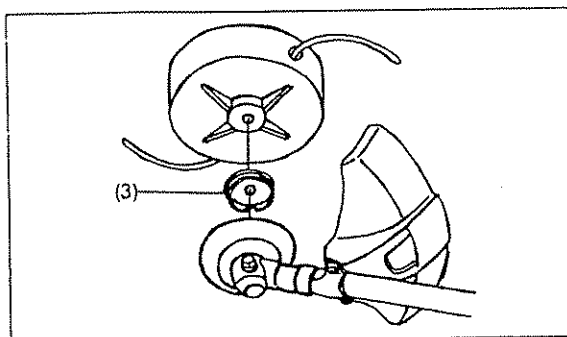
NOTE: Always wear gloves when handling the cutter blade.

NOTE: The cutter blade-fastening nut(with spring washer)is a consumable part. If there appears any wear or deformation on the spring washer, replace the nut.

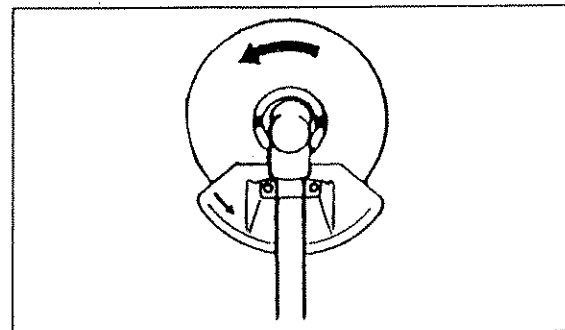
NOTE: The clamp washer (2), and nut (1) are not necessary for mounting the nylon cutting head. The nylon head should go on top of the receiver washer (3).



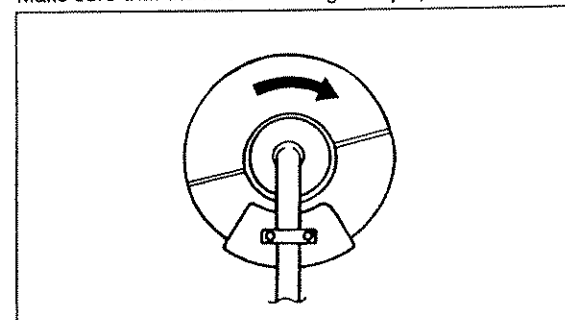
- Screw the nylon cutting head onto the shaft.



Make sure that the head is the left way up.

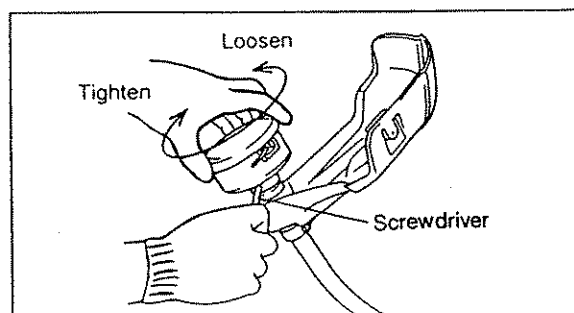


Make sure that the head is the right way up.



For NBF252

- Insert the screwdriver provided through the hole in the head case and rotate the receiver washer until it is locked with the screwdriver (or the shaft is locked).
- Screw the nylon cutting head onto the shaft.



FUELS/REFUELING

Handling fuel

Utmost care is required when handling fuel. Fuel may contain substances similar to solvents. Refuel either in a well ventilated room or outdoors. Do not inhale fuel vapors, avoid any contact of fuel or oil with your skin.

Mineral oil products degrease your skin. If your skin comes in contact with these substances repeatedly and for an extended period of time, it will desiccate. Various skin diseases may result. In addition, allergic reactions are known to occur. Eyes can be irritated by contact with oil. If oil comes into your eyes, immediately wash them with clear water. If your eyes are still irritated, see a doctor immediately!

Fuel and oil mixture

Inspect the fuel tank and fill with clean, fresh fuel of the proper mixture to assume the longer life of the tool.

The correct mixture ratio

Gasoline: ROBIN genuine two-stroke engine oil = 50:1 or
Gasoline: Other manufacturer's two-stroke engine oil = 25:1
recommended

FOR CALIFORNIA REGULATION:

THIS EQUIPMENT IS CERTIFIED TO OPERATE ON GASOLINE + TWO STROKE OIL

When mixing gasoline with two-stroke engine oil, use only unleaded gasoline which contains no ethanol, or methanol (type of alcohol). This will help to avoid possible damage to engine fuel lines and other engine parts.

Do not mix gasoline and oil directly in the fuel tank.

IMPORTANT: Failure to follow proper fuel mix instructions may cause damage to the engine.

- CAUTION:**
1. When preparing fuel mixture, mix only the amount needed for the job you are to do.
Do not use fuel mixture that has been stored longer than two months.
Fuel mixture stored longer than two months will cause hard starting and poor performance.
If fuel mixture has stored longer than this time, it should be removed and filled with a fresh mixture.
 2. Never fill the fuel tank to the very top.
 3. Never add the fuel to the tank in a closed unventilated area.
 4. Do not add fuel to this unit close to an open fire or sparkes.
 5. Be sure to wipe off spilled fuel before attempting to start the engine.
 6. Do not attempt to refuel a hot engine.

The engine must be switched off!

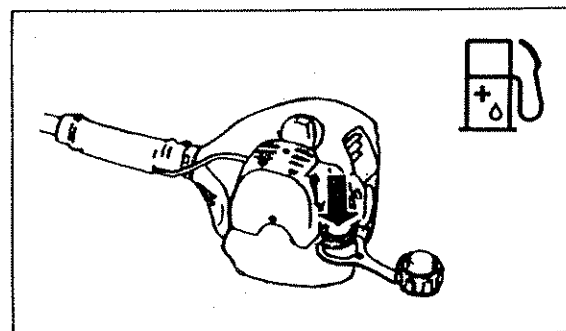
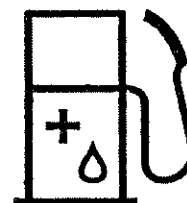
- Thoroughly clean the area around the fuel filler cap, to prevent dirt from getting into the fuel tank.
- Unscrew the fuel filler cap and fill the tank with fuel.
- Tightly screw on the fuel filler cap.
- Clean screw fuel filler cap and tank after refuelling!

Storage of Fuel

Fuel cannot be stored for an unlimited period of time. Purchase only the quantity required for a 4 week operating period. Only use approved fuel storage containers.

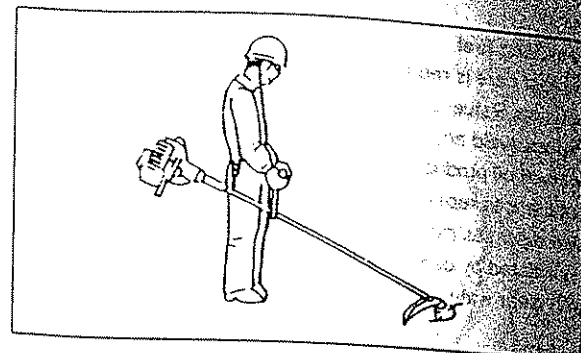


Observe the Safety Instructions on page 3!



Attachment of shoulder strap

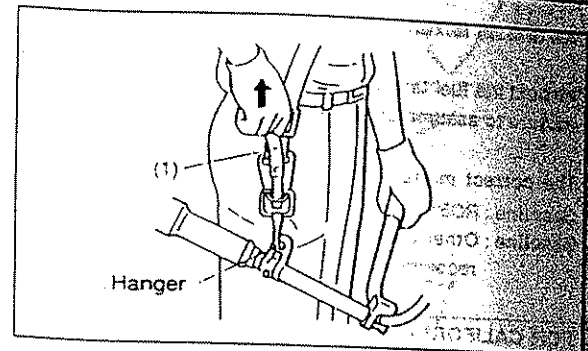
- Adjust the strap length so that the cutter blade will be kept parallel with the ground



Detachment

- In an emergency, pull the release belt (1) strongly upward, and you can detach the machine from you.
- Be extremely careful to maintain control of the machine at this time. Do not allow the machine to be deflected toward you or anyone in the work vicinity.

WARNING: Failure to maintain complete control of the machine at all could result in serious bodily injury or DEATH.



PUTTING INTO OPERATION

Observe the applicable accident prevention regulations!

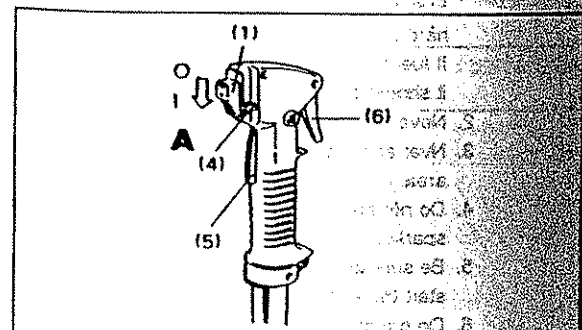
Starting

Move at least 3m (10ft) away from the place of refuelling. Place the brush cutter on a clean piece of ground taking care that the cutting tool does not come into contact with the ground or any other objects.

Cold start

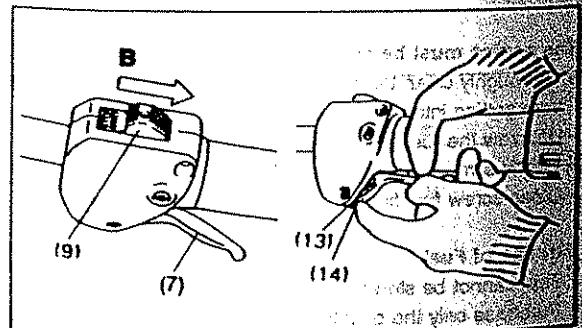
For machine with U Handle or J Handle

- Push the I - O switch (1) in the direction shown by the arrow.
- Grasp the handle (hand pressure activates the safety lock-off lever (5)).
- Press the throttle lever (6) and hold it down.
- Press the lock button (4) and release the control lever, and then release the lock button (the lock button holds the throttle lever in the start-up position).

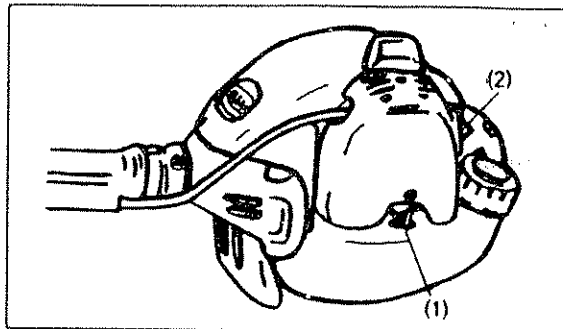


For machine with Loop Handle

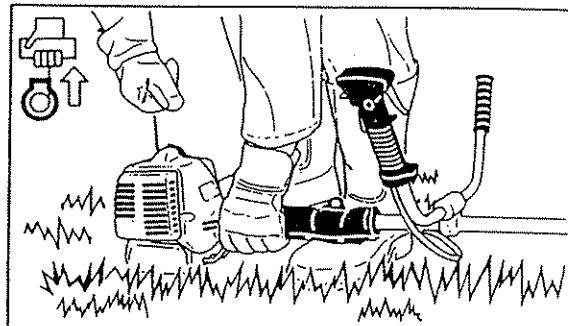
- Push the I - O switch (9) in the direction shown by the arrow.
- Squeeze the throttle lever (7) fully.
- Hold the lock fin (14) to the notch (13) in the control lever case while releasing the control lever.



- First place the machine on the ground.
- Give a gentle push on the primer pump(1) repeatedly(7 - 10 times) until fuel comes into the primer pump.
- Move the choke lever (2) to the top position (↑↓).



- Firmly hold the clutch case by your left hand, as illustrated.
- Slowly pull the starter grip until resistance is felt and continue with a smart pull.
- Do not pull out the starter rope to its full extent and do not allow the starter handle to be retracted without control, but ensure that it is retracted slowly.
- Repeat the starting operation until initial ignitions are heard.
- Depress the choke lever (↓↑) and pull the starter rope again until the engine starts.
- As soon as the engine starts, immediately tap and release the throttle, thus releasing the half-throttle lock so that the engine can run in idle.
- Run the engine for approximately one minute at a moderate speed before applying full throttle.



Caution during operation:

If the throttle lever is opened fully in a no-load operation, the engine rotation is increased to 10,000rpm or more. Never operate the engine at a higher speed than required and at an approximate speed of 6,000 - 8,000rpm.

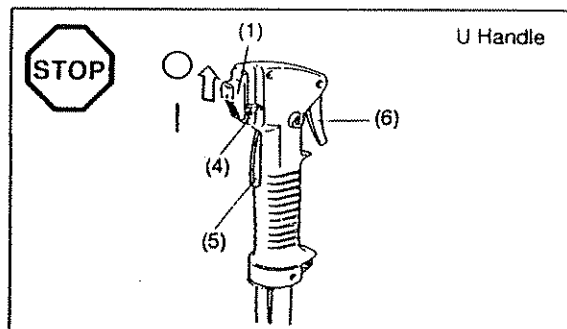
Starting the warm engine

- As described above, except without moving the choke lever (choke lever remains in the down position (↓↑)).

Stopping

For machine with U Handle or J Handle

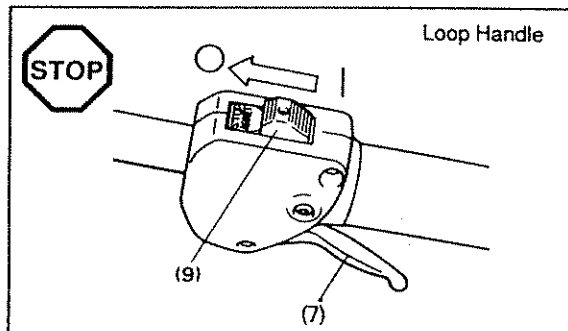
- Release the throttle lever (6) fully, and when the engine rpm has lowered, push the I - O switch (1) to "O" position the engine will now stop.



Stopping

For machine with Loop handle

- Release the throttle lever (7) fully, and when the engine rpm has lowered, push the I - O switch (9) to "O" position the engine will now stop.

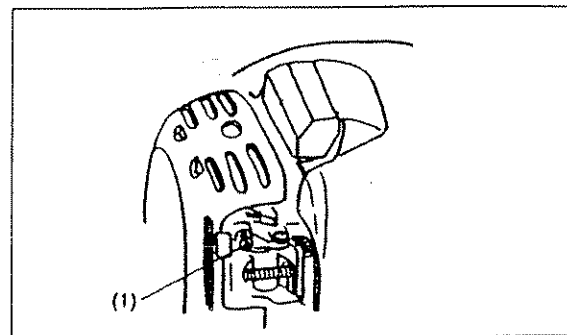


IDLE ADJUSTMENT

The cutter blade or the nylon cutting head should not run when the control lever is fully released.
If necessary, adjust the idle rpm using the idle adjusting screw.

Checking the idling speed

- Idle speed should be set to 2,600rpm.
If necessary correct it by means of the idle screw (the blade or the nylon cutting head must not turn when the engine is on idle).
Screwing in the screw (1) will cause an increase in the engine speed, whereas backing off the screw will reduce the engine speed.



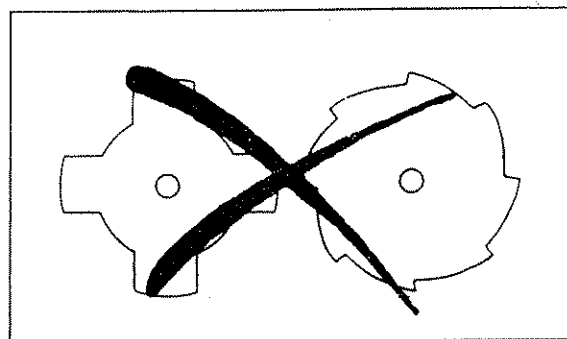
RESHARPENING THE CUTTING TOOL

CAUTION: The cutting tools mentioned below must only be reshaped by an authorized facility. Manual reshaping will result in imbalances of the cutting tool causing vibrations and damage to the equipment.

- cutter blade (star blade (4 teeth), eddy blade (8 teeth))

An expert reshaping and balancing service is provided by Authorized Service Agents.

NOTE: To increase the service life of the cutter blade (star blade, eddy blade) it may be turned over once, until both cutting edges have become blunt.



NYLON CUTTING HEAD

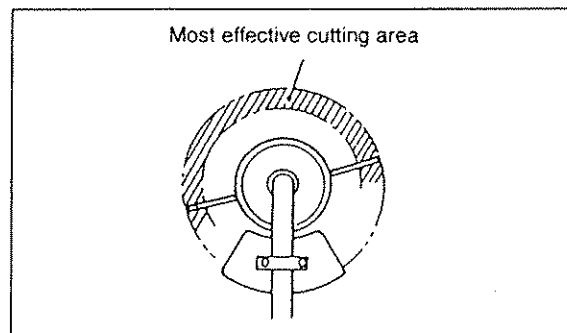
The nylon cutting head is a dual string trimmer head capable of both automatic and bump & feed mechanisms.

The nylon cutting head will automatically feed out the proper length of nylon cord by the changes in centrifugal

force caused by increasing or decreasing RPMS. However, to cut soft grass more efficiently, bump the nylon cutting head against the ground to feed out extra cord as indicated under operation section.

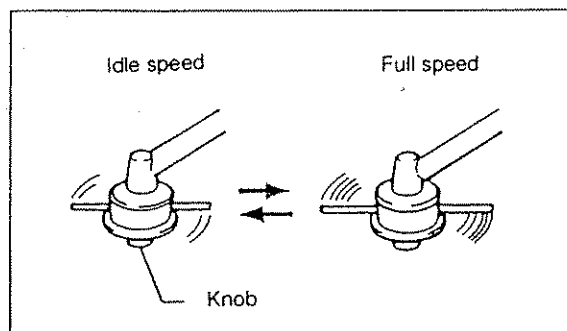
Operation

- Increase the nylon cutting head speed to approx. 6,000rpm.
Low speed (under 4,800rpm) is not suitable, the nylon cord will not feed out properly at low speed.
- The most effective cutting area is shown by the shaded area.



If the nylon cord does not feed out automatically, proceed as follows:

1. Release the throttle lever to run the engine idle and then squeeze the throttle lever fully. Repeat this procedure until the nylon cord feeds out to the proper length.
2. If the nylon cord is too short to feed out automatically with the above procedure, bump the knob of the nylon cutting head against the ground to feed out the nylon cord.
3. If the nylon cord does not feed out with procedure 2, rewind/replace the nylon cord by following the procedures described under "Replacing the nylon cord".



Maintenance schedule

1. Before operation, pay particular attention to the tightness of Cutter Blade or nylon cutting head.

Check bolts and nuts and retighten if necessary. : Every 8 hours (Daily)



2. Check clogging of the cooling air passage and the cylinder fins. Clean them if necessary. : Every 8 hours (Daily)

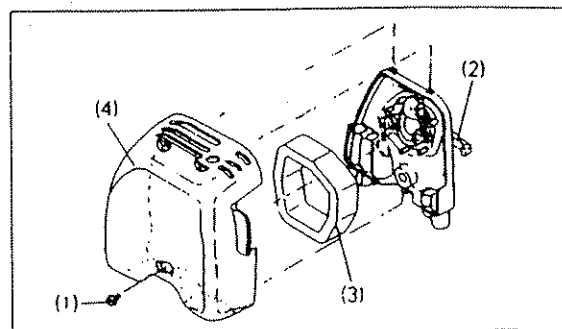
3. Cleaning of air cleaner. : Every 8 hours (Daily)

- 1) Remove the air cleaner cover (1) and clean the sponge element (2)

If there is excessive dust or dirt adhering to cleaner, clean it.

A clogged air cleaner may make it difficult or impossible to start the engine or increase the engine rotational speed.

- 2) Install the sponge element around the ribs of the air cleaner case.

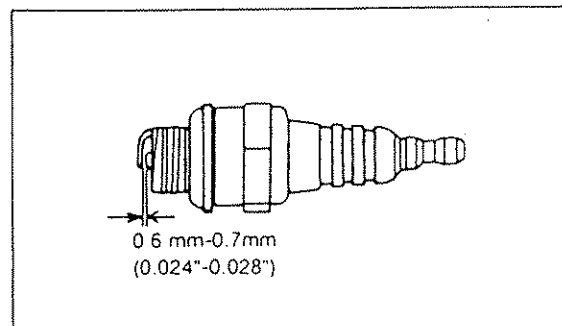


4. Checkup of spark plug. : Every 8 hours (Daily)

The gap between the two electrodes of the spark plug should be 0.6 to 0.7mm (0.024" to 0.028").

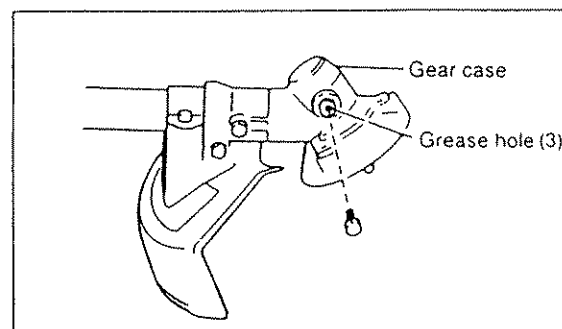
If the gap is too wide or too narrow, adjust it.

If the spark plug is clogged with carbon or fouled, clean it thoroughly or replace it.



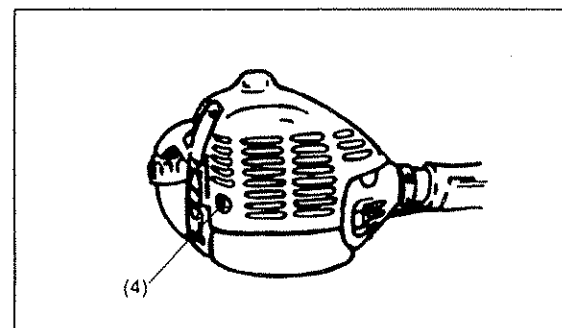
5. Supply of grease to gear case.

Apply grease (SHELL ALVANIA No.3 or equivalent) to the gear case through the grease hole (3) every 30 hours.



6. Cleaning of muffler exhaust port. : Every 50 hours (Monthly)

If the exhaust port (4) is clogged with carbon, remove it by scraping and tapping gently with a screwdriver or the like.

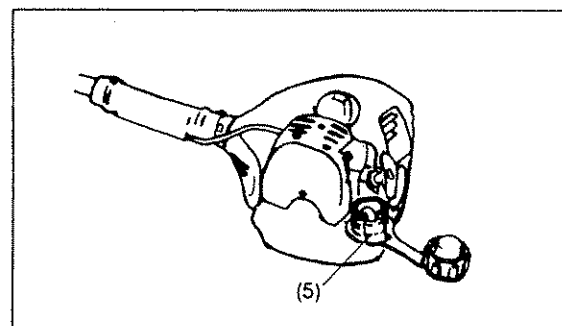


7. Check of fuel filter. If clogged, clean the filter(5).

8. Replace fuel lines. : Every 200 hours (Yearly)

9. Overhaul engine. : Every 200 hours (Yearly)

10. Replace packings and gaskets with new ones. : Every time engine is reassembled.



California Emission Control Warranty Statement

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and FUJI ROBIN INDUSTRIES LTD. are pleased to explain the emission control system warranty on your 1995 and later lawn and garden equipment engine.

In California, new utility and lawn and garden equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards.

FUJI ROBIN INDUSTRIES LTD. must warrant the emission control system on your lawn and garden equipment engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your lawn and garden equipment engine.

Your emission control system includes parts such as the carburetor and the ignition system. Also included may be hoses, connectors and other emission-related assemblies.

Where a warrantable condition exists, FUJI ROBIN INDUSTRIES LTD. will repair your lawn and garden equipment engine at no cost to you including diagnosis, parts and labor.

MANUFACTURE'S WARRANTY COVERAGE:

The 1995 and later utility and lawn and garden equipment engines are warranted for two (2) years.

If any emission-related part on your engine is defective, the part will be repaired or replaced by FUJI ROBIN INDUSTRIES LTD.

OWNER'S WARRANTY RESPONSIBILITIES:

—As the lawn and garden equipment engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual.

FUJI ROBIN INDUSTRIES LTD. recommends that you retain all receipts covering maintenance on your lawn and garden equipment engine, but FUJI ROBIN INDUSTRIES LTD. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

—As the lawn and garden equipment engine owner, you should be aware, however, that FUJI ROBIN INDUSTRIES LTD. may deny you warranty coverage if your lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

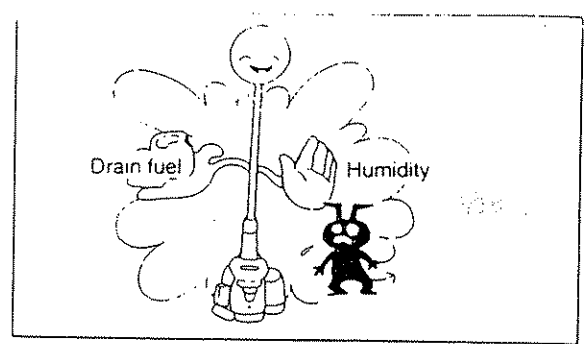
—You are responsible for presenting your lawn and garden equipment engine to a dealer, distributor or warranty station authorized by Carswell Import & Marketing Associates, Inc. (Winston-salem, North Carolina 27115) which is the importer of the lawn and garden equipment into the U.S. manufactured by FUJI ROBIN INDUSTRIES LTD. as soon as a problem exists.

The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact Carswell Import & Marketing Associate, Inc.

Technical Service Manager at (910) 767-7700.

- When the machine is in storage for a long time, drain fuel from the fuel tank and carburetor, as follows: Drain all fuel from the fuel tank. Dispose of properly and in accordance with all local laws.
- Remove the spark plug and add a few drops of oil into the spark plug hole. Then, pull the starter gently, so that oil covers the engine inside and tighten the spark plug.
 - Clear dirt or dust from the cutter blade and outside of engine. wipe them with a oil-immersed cloth and keep the machine in a place as dry as possible



Fault location

Fault	System	Observation	Cause
Engine not starting or with difficulty	Ignition system	Ignition spark O.K.	Fault in fuel supply or compression system, mechanical defect
		No ignition spark	STOP-switch operated, wiring fault or short circuit, spark plug or connector defective, ignition module faulty
	Fuel supply	Fuel tank filled	Incorrect choke position, carburetor defective, fuel supply line bent or blocked, fuel dirty.
	Compression	No compression when pulled over	Cylinder bottom gasket defective, crankshaft seals damaged, cylinder or piston rings defective or improper sealing of spark plug
Warm start problems	Mechanical fault	Starter not engaging	Broken starter spring, broken parts inside of the engine
		Tank filled ignition spark existing	Carburetor contaminated, have it cleaned
Engine starts but dies immediately	Fuel supply	Tank filled	Incorrect idling adjustment, suction head or carburetor contaminated Fuel tank vent defective, fuel supply line interrupted, cable or STOP-switch faulty
Insufficient performance	Several systems may simultaneously be affected	Engine idling poor	Air filter contaminated, carburetor contaminated, muffler clogged, exhaust duct in the cylinder clogged

LIMITED WARRANTY
on Emission Control Systems

- California Only -

FUJI ROBIN INDUSTRIES LTD. (Shizuoka, JAPAN) warrant to the owner of the 1995 and later lawn and garden equipment engine that the engine:

- (1) has been designed, built and equipped so as to conform at the time of manufacture with the applicable regulations of the California Air Resources Board, and
- (2) is free from defects in materials and workmanship which cause it to fail to conform with those regulations as may be applicable in the terms and conditions stated below;

A. WARRANTY COMMENCEMENT DATE

The warranty period begins on the date the lawn and garden equipment engine is delivered to the first retail purchaser.

B. LENGTH OF COVERAGE

FUJI ROBIN INDUSTRIES LTD. warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship which cause the failure of a warranted emission-related part for a period of two (2) years.

C. WHAT IS COVERED:

1. REPAIR OR REPLACEMENT PARTS

Repairs and replacement of any warranted part will be performed at no charge to you by an authorized dealer, distributor or a warranty station.

You may contact Technical Service Manager at (910)767-7700 of Carswell Import & Marketing Associates, Inc. (Winston-salem, North Carolina) which is the importer of the lawn and garden equipment into the U.S. manufactured by FUJI ROBIN INDUSTRIES LTD. to get the nearest appropriate location where your warranty repairs are performed.

2. WARRANTY PERIOD

This warranty continues for a period of two (2) years and shall apply only to the repair, replacement or adjustment of component parts listed at the conclusion of this warranty statement. Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance shall be warranted for the period of time up to the first scheduled replacement point for that part.

3. DIAGNOSIS

You shall not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an authorized dealer, distributor or warranty station.

4. CONSEQUENTIAL DAMAGES

If a warranted part failed causing damages to other engine components, consult a warranty station.

D. WHAT IS NOT COVERED

1. This limited warranty does not cover any part which malfunctions, fails or is damaged due to failure to follow the maintenance and operating instructions set forth in the 1995 and later Owner's Manual including:
 - (1) improper or inadequate maintenance of any warranted parts
 - (2) improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized dealer
 - (3) repairs performed outside of the authorized warranty service facility
 - (4) failure to follow recommendations on fuel use contained in the 1995 and later Owner's Manual
 - (5) use of parts which are not authorized by FUJI ROBIN INDUSTRIES LTD.
2. Add-on or modified parts
This warranty does not cover any part which malfunctions, fails or is damaged due to alterations by changing, adding to or removing parts from the engine.
3. Expenses incurred by processing warranty claims
Carsewell Import & Marketing Associates, Inc., any authorized dealer, distributors and warranty station shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time or inconvenience.

E. HOW TO FILE A CLAIM

All repairs qualifying under this Limited Warranty must be performed by a dealer who sold you the engine or distributors or warranty stations authorized by Carsewell Import & Marketing Associates, Inc.

In the event that any emission-related part is found to be defective during the warranty period, you shall notify Carsewell Import & Marketing Associates, Inc. at (910) 767-7700 and then you will be given the appropriate warranty service facilities where the warranty repair is performed.

F. WHERE TO GET WARRANTY SERVICE

It is recommended that warranty service be performed by the authorized dealer who sold you the engine, although warranty service will be performed by any authorized dealers, distributors and warranty stations anywhere in the United States.

When warranty repair is needed, the engine must be brought to an authorized dealer, distributorship or warranty station's place of business during normal business hours.

In all cases, a reasonable time, not to exceed 30 days, must be allowed for the warranty repair to be completed after the engine is received by the authorized dealer, distributor or service station.

G. MAINTENANCE, REPLACEMENT AND REPAIR OF EMISSION-RELATED PARTS

Any warranted engine replacement parts approved by FUJI ROBIN INDUSTRIES LTD. should be used in the performance of any warranty maintenance or repairs on emission-related parts.

If other than authorized parts are used for maintenance, replacement or repair of components affecting emission control, you should assure yourself that such parts are warranted by their manufacturer to be equivalent to authorized parts in performance and durability.

FUJI ROBIN INDUSTRIES LTD., however, assumes no liability under this warranty with respect to parts other than authorized parts.

The use of non-authorized replacement parts does not invalidate the warranty on other components unless the non-authorized parts cause damage to warranted parts.

H. PARTS COVERED UNDER THE CALIFORNIA EMISSIONS WARRANTY

- 1) Fuel Metering system
 - (i) Carburetor and internal parts
 - (ii) Air cleaner plate (including choke system)
 - (iii) Air cleaner case
 - (iv) Air cleaner element
 - (v) Fuel Filter
- 2) Ignition System
 - (i) Spark plug
 - (ii) Flywheel magneto
 - (iii) Ignition coil
- 3) Miscellaneous Items Used in Above Systems
 - (i) Fuel hoses and sealing gaskets

I. MAINTENANCE STATEMENTS

It is your responsibility to have all scheduled inspection and maintenance services performed at the times recommended in the 1995 and later Owner's Manual and to retain proof that inspection and maintenance services are performed at the times when recommended.

FUJI ROBIN INDUSTRIES LTD. will not deny a warranty claim solely because you have no record of maintenance; however, FUJI ROBIN INDUSTRIES LTD. may deny a warranty claim if your failure to perform required maintenance resulted in the failure of warranted part.

The proof which you maintain should be given to each subsequent owner of the engine.

You are responsible for performing the scheduled maintenance described below based on the procedures specified in the 1995 and later Owner's Manual.

The scheduled maintenance below is based on the normal engine operating schedule.

- 1) Check bolts and nuts. Retighten if necessary. ----- Every 8 hours (daily)
- 2) Check clogging of cooling air passage and cylinder fins. Remove and clean if necessary.
----- Every 8 hours (daily)
- 3) Clean air cleaner. ----- Every 8 hours (daily)
- 4) Check spark plug. Clean and adjust if necessary. ----- Every 8 hours (daily)
- 5) Check muffler exhaust port. Clean if necessary. ----- Every 50 hours (monthly)
- 6) Check fuel filter. If clogged, replace with new one. ----- Every 50 hours (monthly)
- 7) Replace fuel lines. ----- Every 200 hours (yearly)
- 8) Overhaul engine. ----- Every 200 hours (yearly)
- 9) Replace packings and gaskets with new ones. ----- Every reassembling

FEDERAL EMISSION COMPONENT DEFECT WARRANTY

EMISSION COMPONENT DEFECT WARRANTY COVERAGE-This emission warranty is applicable in all States, except the state of California.

FUJI ROBIN INDUSTRIES LTD. and Carswell Import & Marketing Associates, Inc., Winston-Salem, North Carolina, (herein "CARSWELL") warrant to the initial retail purchaser and each subsequent owner, that this utility equipment engine (herein "engine") was designed, built, and equipped to conform at the time of initial sale to all applicable regulations of the U.S. Environmental Protection Agency (EPA), and that the engine is free of defects in materials and workmanship which would cause this engine to fail to conform with EPA regulations during its warranty period.

For the components listed under PARTS COVERED, the dealer or service center authorized by CARSWELL will, at no cost to you, make the necessary diagnosis, repair, or replacement necessary to ensure that the engine complies with applicable U.S. EPA regulations.

EMISSION COMPONENT DEFECT WARRANTY PERIOD

The warranty period for this engine begins on the date of sale to the initial purchaser and continues for a period of 2 years.

PARTS COVERED

Listed below are the parts covered by the Emission Component Defect Warranty. Some of the parts listed below may require scheduled maintenance and are warranted up to the first scheduled replacement point for that part.

- 1) Fuel Metering System
 - (i) Carburetor and internal parts
 - (ii) Fuel filter, if applicable
 - (iii) Throttle stopper, if applicable
 - (iv) Choke System, if applicable
- 2) Air Induction System
 - (i) Air cleaner plate
 - (ii) Air cleaner case
 - (iii) Air cleaner element
- 3) Ignition System
 - (i) Spark plug
 - (ii) Flywheel Magneto
 - (iii) Ignition Coil
- 4) Miscellaneous Items Used in Above Systems
 - (i) Fuel hoses clamps and sealing gaskets

OBTAINING WARRANTY SERVICE

To obtain warranty service, take your engine to the nearest Authorized CARSWELL, distributor or dealer. Bring your sales receipts indicating date of purchase for this engine. The dealer or service center authorized by CARSWELL will perform the necessary repairs or adjustments within a reasonable amount of time and furnish you with a copy of the repair order. All parts and accessories replaced under this warranty become the property of CARSWELL.

WHAT IS NOT COVERED

- * Conditions resulting from tampering, misuse, improper adjustment (unless they were made by the dealer or service center authorized by CARSWELL during a warranty repair), alteration, accident to recommended fuel and oil, or not performing required maintenance services.
- * The replacement parts used for required maintenance services.
- * Consequential damages such as loss of time, inconvenience, loss of use of the engine or equipment, etc.
- * Diagnosis and inspection charges that do not result in warranty-eligible service being performed.
- * Any non-authorized replacement part, or malfunction of authorized parts due to use of non-authorized parts.

OWNER'S WARRANTY RESPONSIBILITIES

As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. CARSWELL recommends that you retain all receipts covering maintenance on your engine, but CARSWELL can not deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the engine owner, you should however be aware that the CARSWELL may deny your warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your engine to the nearest dealer or service center authorized by CARSWELL when a problem exists.

If you have any questions regarding your warranty rights and responsibilities, you should contact the CARSWELL warranty service department at 910-767-7700 (toll free from GA, NC, SC, TN & VA 1-800-929-1948) for the information.

MAINTENANCE AND REPAIRS

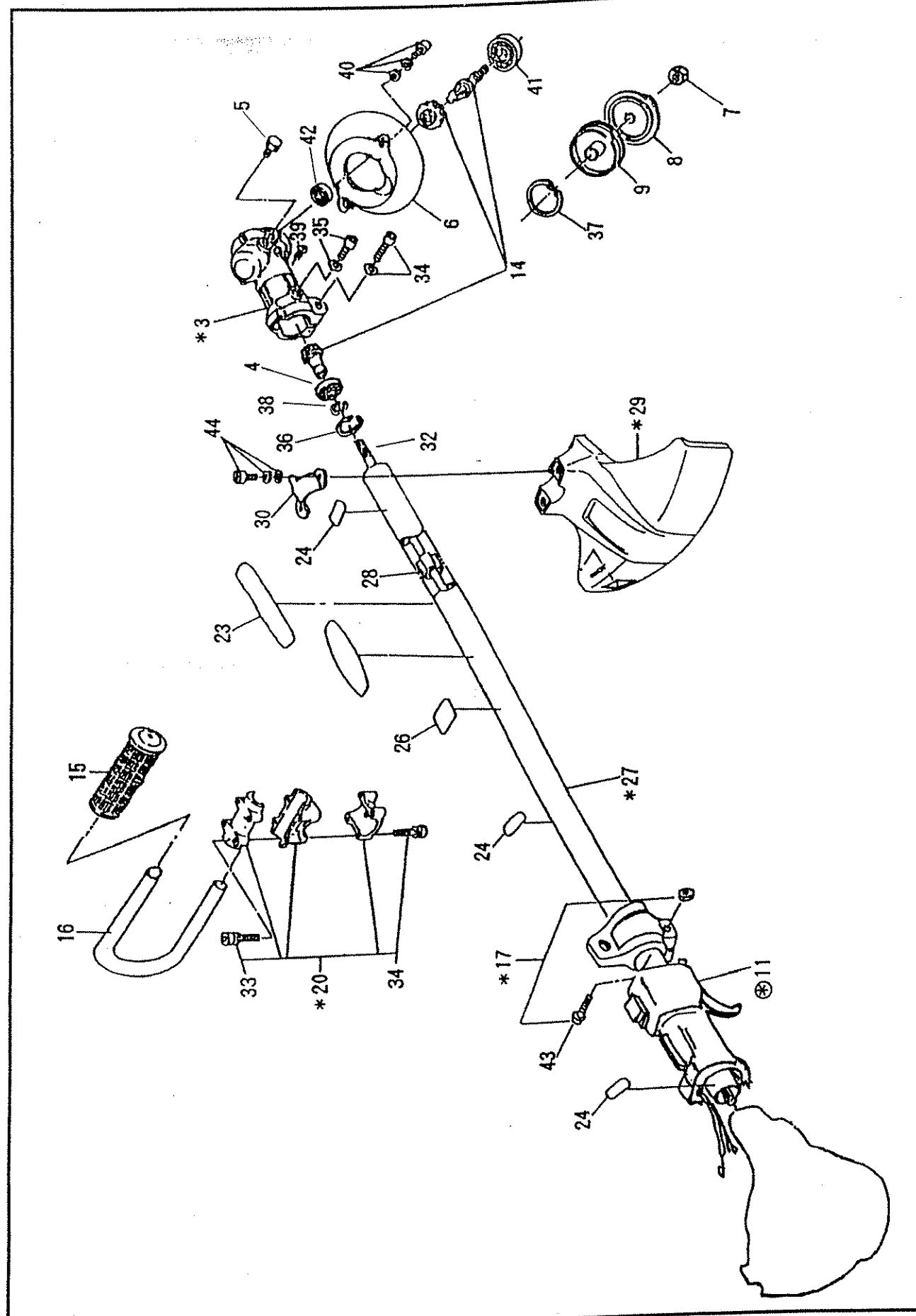
You are responsible for the proper use and maintenance of the engine. You should keep all receipts and maintenance records covering the performance of regular maintenance in the event questions arise. These receipts and maintenance records should be transferred to each subsequent owner of the engine. CAR SWELL reserves the rights to deny warranty coverage if the engine has not been properly maintained. Warranty claims will not be denied, solely because of lack of required maintenance or failure to keep maintenance records.

MAINTENANCE, REPLACEMENT OR REPAIR OF EMISSION CONTROL DEVICES AND SYSTEMS MAY BE PERFORMED BY ANY REPAIR ESTABLISHMENT OR INDIVIDUAL; HOWEVER, WARRANTY REPAIRS MUST BE PERFORMED BY A DEALER OR SERVICE CENTER AUTHORIZED BY CAR-SWELL. THE USE OF PARTS THAT ARE NOT EQUIVALENT IN PERFORMANCE AND DURABILITY TO AUTHORIZED PARTS MAY IMPAIR THE EFFECTIVENESS OF THE EMISSION CONTROL SYSTEM AND MAY HAVE A BEARING ON THE OUTCOME OF A WARRANTY CLAIM.

If other than the parts authorized by CARSWELL are used for maintenance replacements or for the repair of components affecting emission control, you should assure yourself that such parts are warranted by their manufacturer to be equivalent to the parts authorized by CAR-SWELL in their performance and durability.

HOW TO MAKE A CLAIM

All repairs qualifying under this limited warranty must be performed by a dealer or service center authorized by CARSWELL. In the event that any emission-related part is found to be defective during the warranty period, you shall notify CARSWELL at 910-767-7700 (toll free from GA,NC,SC,TN & VA 1-800-929-1948) and you will be given the appropriate warranty service facilities where the repair can be performed.



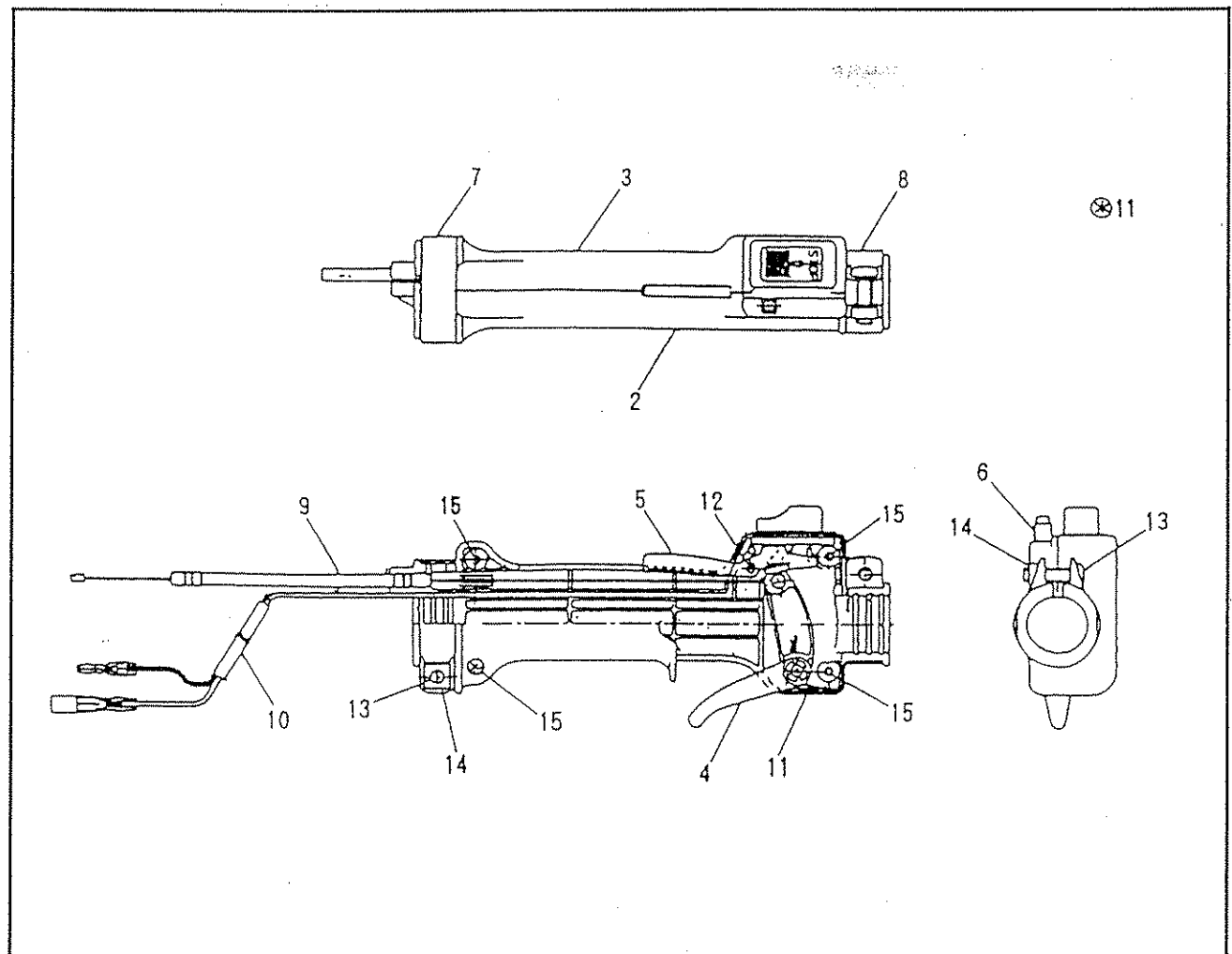
MACHINE BODY

NB223-253A PARTS LIST

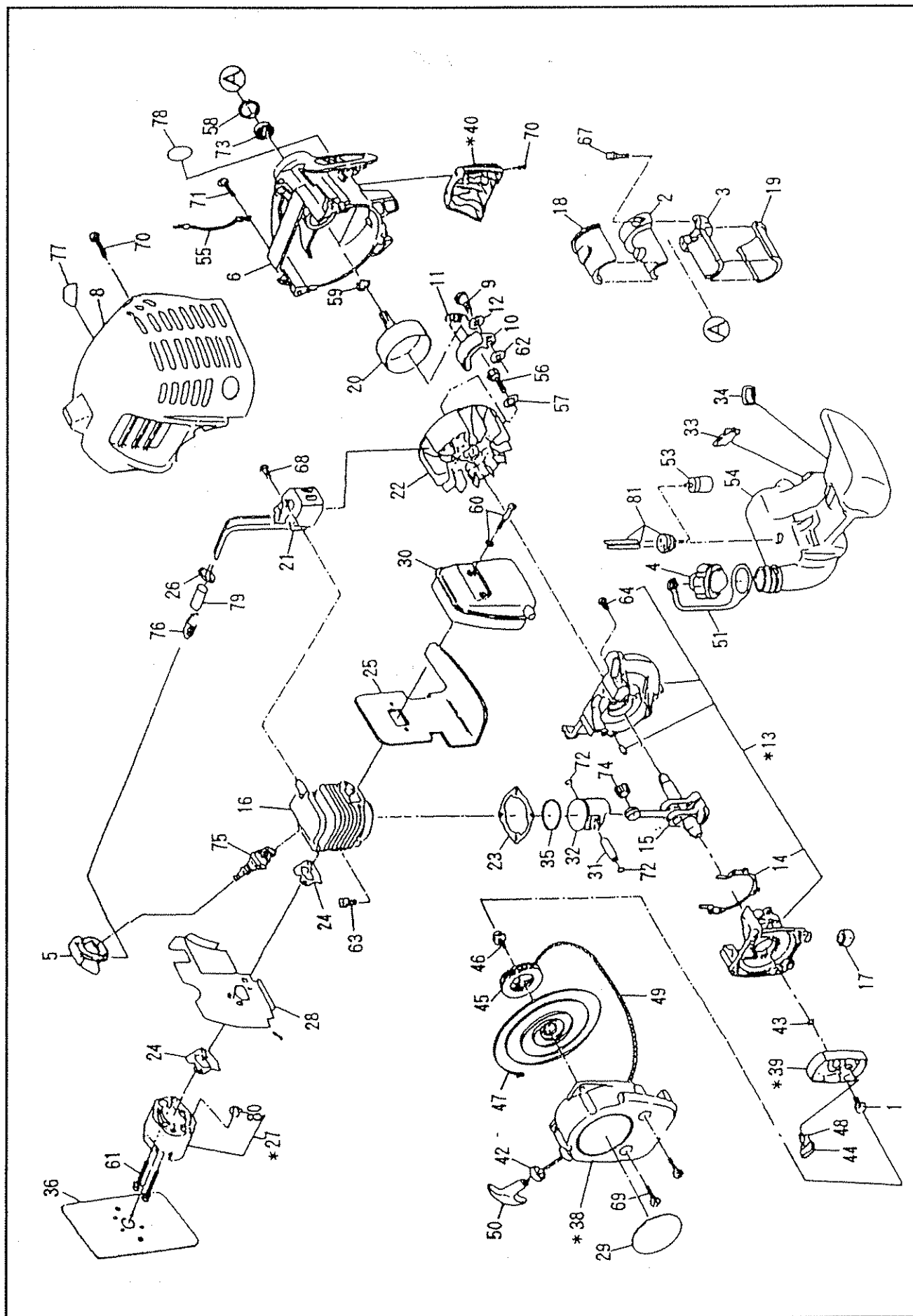
(U.S. SPEC.)

KEY No.	CARSWELL PART No.	QTY.	DESCRIPTION	MANUFACTURER PART No.
*3	5435	1	Case, gear assembly(incl.4-9,14,36-42)	621 30170 02
4	6008	1	Ball Bearing(#609 ZZ)	621 25003 00
5	5309	1	Bolt, oil(M6x9W)	625 30110 12
6	3519	1	Guard	621 85002 00
7	5438	1	Nut	625 85050 01
8	6112	1	Washer, clamp compl.	621 80030 00
9	5459	1	Washer, receive	621 85016 01
⊗11	5460	1	Control lever assembly	621 50160 00
14	5437	1	Gear set	621 30210 00
15		1	Handle compl.	611 40050 00
16		4	Nut(M5)	00227 0500 0
*17	5306	1	Hanger assembly(incl.43)	625 40190 00
23	3015	1	Label, caution	621 95195 01
24	5434	3	Label, caution	625 95147 00
26	5458	1	Label, model	621 95236 00
*27	5432	1	Pipe, shaft compl.(incl.28)	621 10150 01
28	6001	5	Bush compl.	621 10030 00
*29	8100	1	Protector assembly(incl.30,44)	621 80080 03
30	6283	1	Clamp, protector	641 85003 03
32	5433	1	Shaft	620 15021 00
33		4	Socket head bolt(M5x33)	0119 05986 0
34	6268	1	Socket head bolt(M5x25 SW)	0119 05989 0
35	6128	1	Socket head bolt(M5x12 SW)	0119 05990 0
36	1187	1	Snpring, inner(φ24)	00314 2400 0
37	6129	1	Snpring, inner(φ26)	00314 2600 0
38	6130	1	Snpring, outer(φ8)	00315 0800 0
39	1706	1	Screw, pan head(M5x6)	00431 0506 0
40	6128	2	Socket head bolt(M5x12 W SW)	0119 05978 0
41	1386	1	Ball bearing(#6000 DDU)	0600 10993 0
42	5310	1	Ball bearing(#626 ZZ)	0600 06999 0
43	3617	1	Screw assembly(M5x20 W, SW)	00436 0520 0
44	5440	2	Boltassembly, cross recess(M6x30 W, SW)	00117 0630 0
45		1	Label	0736 25995 0

803-328-2550



KEY No.	CARSWELL PART No.	QTY.	DESCRIPTION	MANUFACTURER PART No.
⊗11	5461	1	Control lever assembly(incl.2-15)	621 50160 00
2	5462	1	Case 1	621 50160 10
3	5463	1	Case 2	621 50160 20
4	5464	1	Lever	625 50270 30
5	5465	1	Lever	625 50270 40
6	6751	1	Stopper	641 50110 50
7	6752	1	Bracket	641 50110 60
8	5466	1	Bracket	625 50270 50
9	5467	1	Control cable	621 50160 30
10	5477	1	Switch compl.	621 50160 40
11	6756	1	Spring	641 50111 10
12	6757	1	Spring	641 50111 20
13	6758	2	Socket head bolt(M6x20)	0119 06988 0
14	6759	2	Nut(M6)	641 50111 40
15	6762	4	Tapping screw	641 50112 10



ENGINE BODY

NB223-253A PARTS LIST

(U.S.SPEC.)

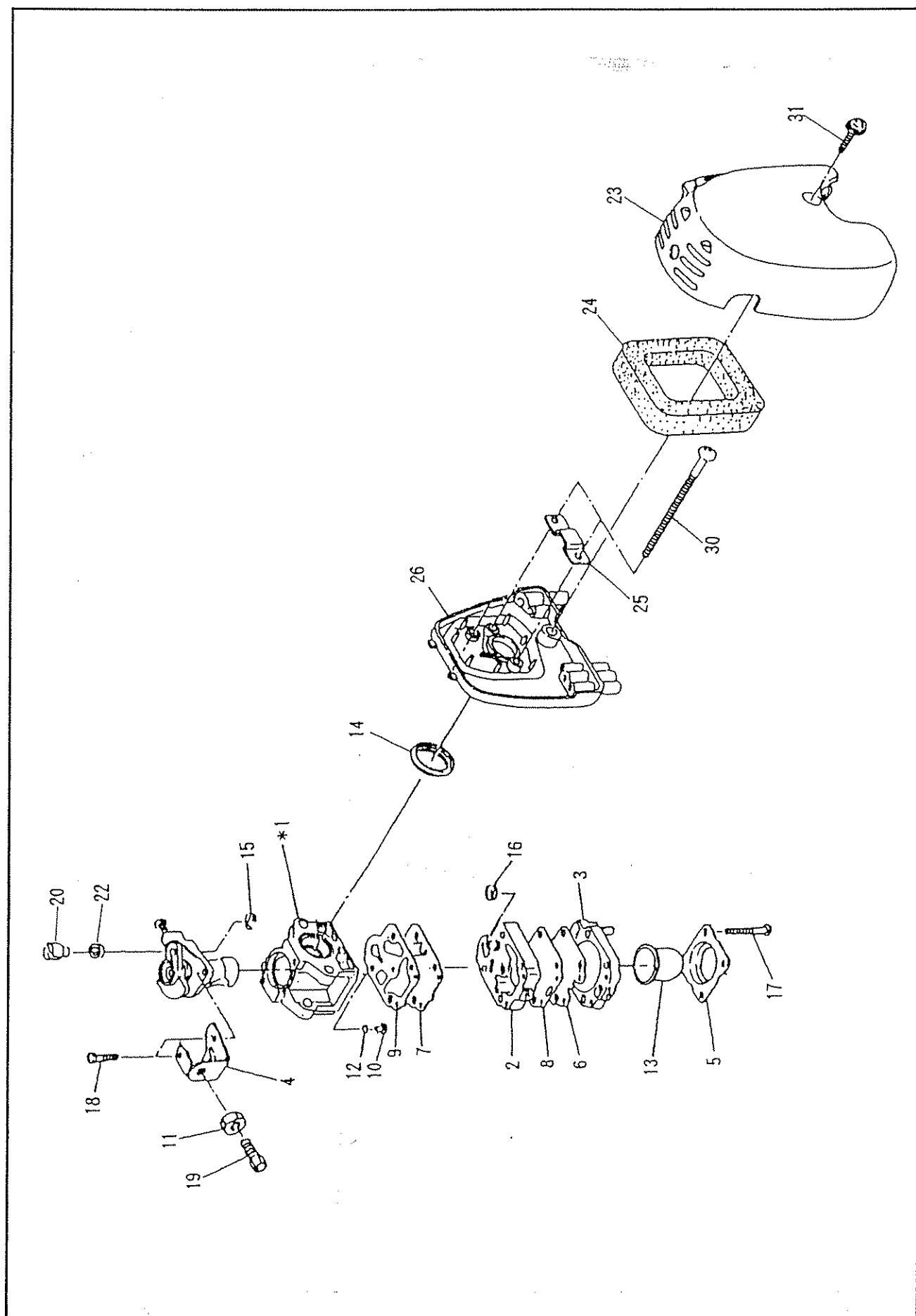
KEY No.	CARSWELL PART No.	QTY.		DESCRIPTION	MANUFACTURER PART No.
		223A	253A		
1	5363	1	1	Bolt assembly(M6x14W)	523 55047 00
2	5478	1	1	Bracket, pipe 1	625 15095 00
3	5479	1	1	Bracket, pipe 2	625 15096 00
4	5468	1	1	Cap, fuel tank ass'y	531 60140 00
5	5354	1	1	Cap, plug	523 75033 01
6	5480	1	1	Case, clutch	621 15042 03
8	5481	1	1	Cover, cylinder compl	525 50150 00
9	8013	2	2	Bolt, clutch	625 25004 002
10	6180	2	2	Shoe, clutch	625 25008 01
11	5446	1	1	Spring, clutch	523 85005 00
12	1144	2	2	Washer	625 25009 00
*13	5324	1	1	Crankcase assembly(incl.14,64)	523 10110 00
14	5325	1	1	Gasket, crankcase	523 15022 02
15	5448	1	1	Crankshaft compl.	523 20170 00
16	5469	1		Cylinder	521 15012 01
16	5332	—	1	Cylinder	523 15018 03
17	6160	2	2	Damper	521 65002 00
18	5379	1	1	Damper, pipe 1	625 15066 02
19	5380	1	1	Damper, pipe 2	625 15067 01
20	5482	1	1	Drum, clutch comp	625 20190 00
21	5450	1	1	Coil	523 70310 23
22	5449	1	1	Flywheel	525 70020 10
23	5405	1	1	Gasket, cylinder	523 15023 04
24	5335	2	2	Gasket, insulator	523 35039 02
25	5483	1	1	Gasket, muffler	525 35006 01
26	5352	1	1	Grommet	523 75032 02
*27	5484	1	1	Insulator, compl.(incl.80)	523 30140 00
28	5485	1	1	Insulator carburetor	525 35010 01
29	5503	1	—	Label, model	621 95216 01
29	5486	—	1	Label, model	625 95197 01
30	5347	1	1	Muffler, exhaust	523 30370 03
31	6535	1	—	Pin, piston	521 25008 01
31	5329	—	1	Pin, piston	523 25026 00
32	6534	1	—	Piston	521 25007 00
32	5327	—	1	Piston	523 25019 02
33	6161	1	1	Plate	503 65002 00
34	6162	1	1	Plate	503 65003 00
35	1014	1	—	Ring, piston	598 25000 00
35	5328	—	1	Ring, piston	524 25007 01
36	5487	1	1	Spacer, gasket	525 35003 00
*38	5488	1	1	Starter, rewind(incl.39,42-50)	525 50060 02

ENGINE BODY

NB223-253A PARTS LIST

(U.S.SPEC.)

KEY No.	CARSWELL PART No.	QTY.		DESCRIPTION	MANUFACTURER PART No.
		223A	253A		
*39	5361	1	1	Pulley(incl.43,44,48)	523 50250 01
*40	5489	1	1	Stand set(incl.70)	521 90020 00
42	5490	1	1	Damper	525 50010 40
43	6151	1	1	E-ring	521 50030 40
44	5491	1	1	Ratchet	541 50110 10
45	5373	1	1	Reel	523 52040 12
46	5376	1	1	Set screw	542 50030 10
47	5374	1	1	Spiral spring	523 50240 32
48	5492	1	1	Return spring	524 50070 20
49	7614	1	1	Starter, rope	523 50240 22
50	7614	1	1	Starter knob	522 50040 20
51	5444	1	1	Strap unit	625 50210 02
53	5370	1	1	Filter	523 65039 00
54	5493	1	1	Tank, fuel	525 65013 03
55	5342	1	1	Wire	616 55012 00
56	6190	1	1	Bolt assembly(M6x16 SW)	00113 0616 0
57	1395	1	1	Washer(M6)	00312 0600 0
58	1189	1	1	Snpring, inner(φ 32)	00314 3200 0
59	1398	1	1	Snpring, outer(φ 12)	00315 1200 0
60	5348	2	2	Socket head bolt(M5x45 W)	0119 05960 0
61	5495	2	2	Socket head bolt(M5x25 W, SW)	0119 05964 0
62	6486	2	2	Washer	0200 08991 1
63	5333	2	2	Socket head bolt(M5x20 W SW)	0119 05973 0
64	5496	3	3	Screw(M5x58 W, SW)	0140 05962 0
67	1223	2	2	Socket Head bolt(M5x18 SW)	0119 05995 0
68	5351	2	2	Screw(M4x20 W, SW)	0140 04992 0
69	5497	4	4	Screw(M5x18 W, SW)	0140 05945 0
70	5498	3	3	Screw (M5x14 W, SW)	0140 05948 0
71	3128	3	3	Screw(M5X20 W, SW)	0140 05970 0
72	5330	2	2	Clip	0565 08997 0
73	1688	1	1	Ball bearing(#6201 DD)	0600 12995 0
74	1012	1	1	Needle roller bearing	0610 08999 0
75	BM6A	1	1	Plug, spark(U.S.SPEC.)	0650 14981 0
76	6169	1	1	Spring, plug cap	0654 00993 1
77	5499	1	1	Label	0734 50993 1
78	5500	1	1	Label	0739 20998 0
79	5501	1	1	Tube	0851 06992 0
80	1703	2	2	Nut(M5)	00217 0500 0
81	5502	1	1	Tube	0851 19997 1

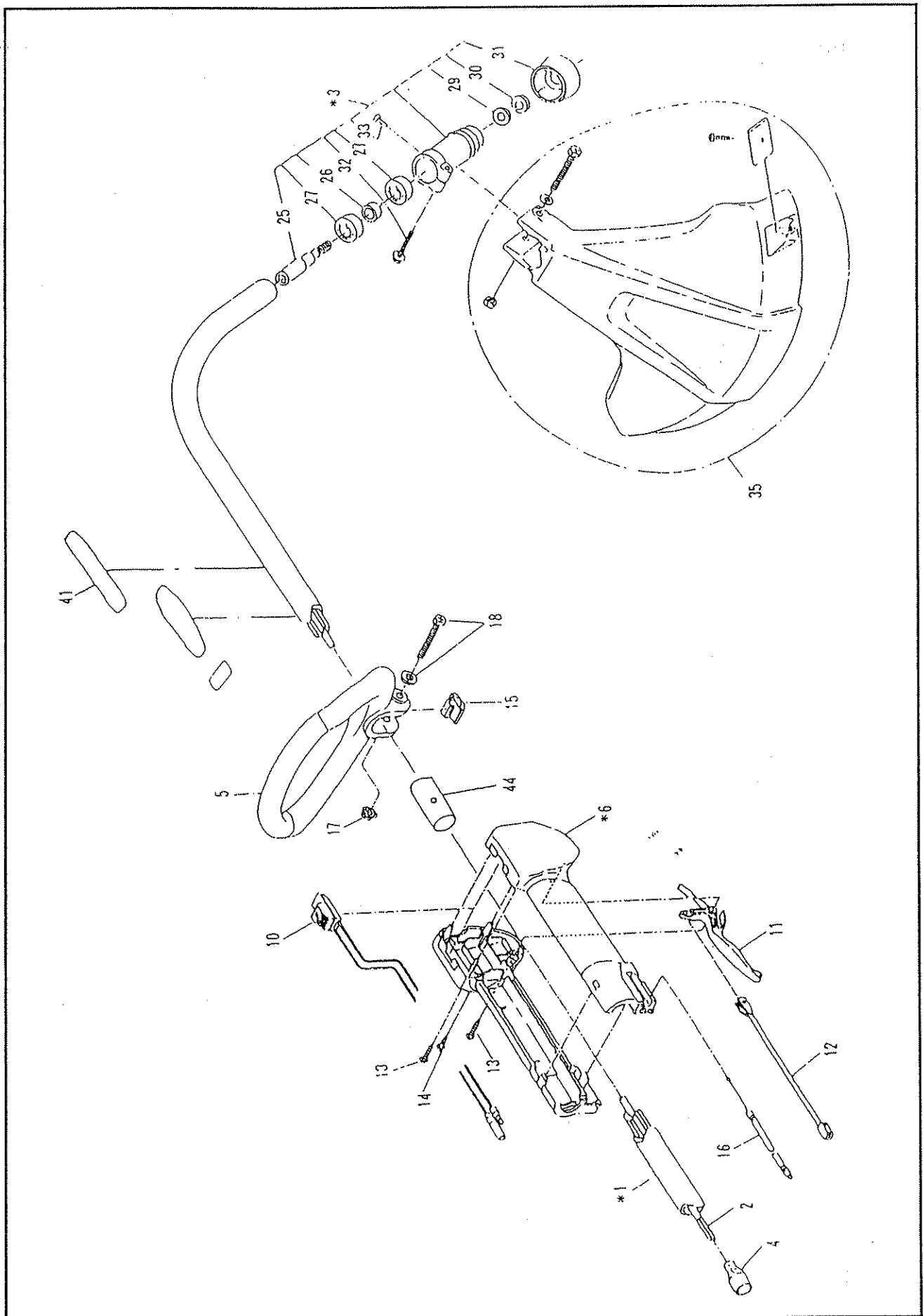


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NBF252 (U.S.SPEC.) PARTS LIST

ENGINE BODY

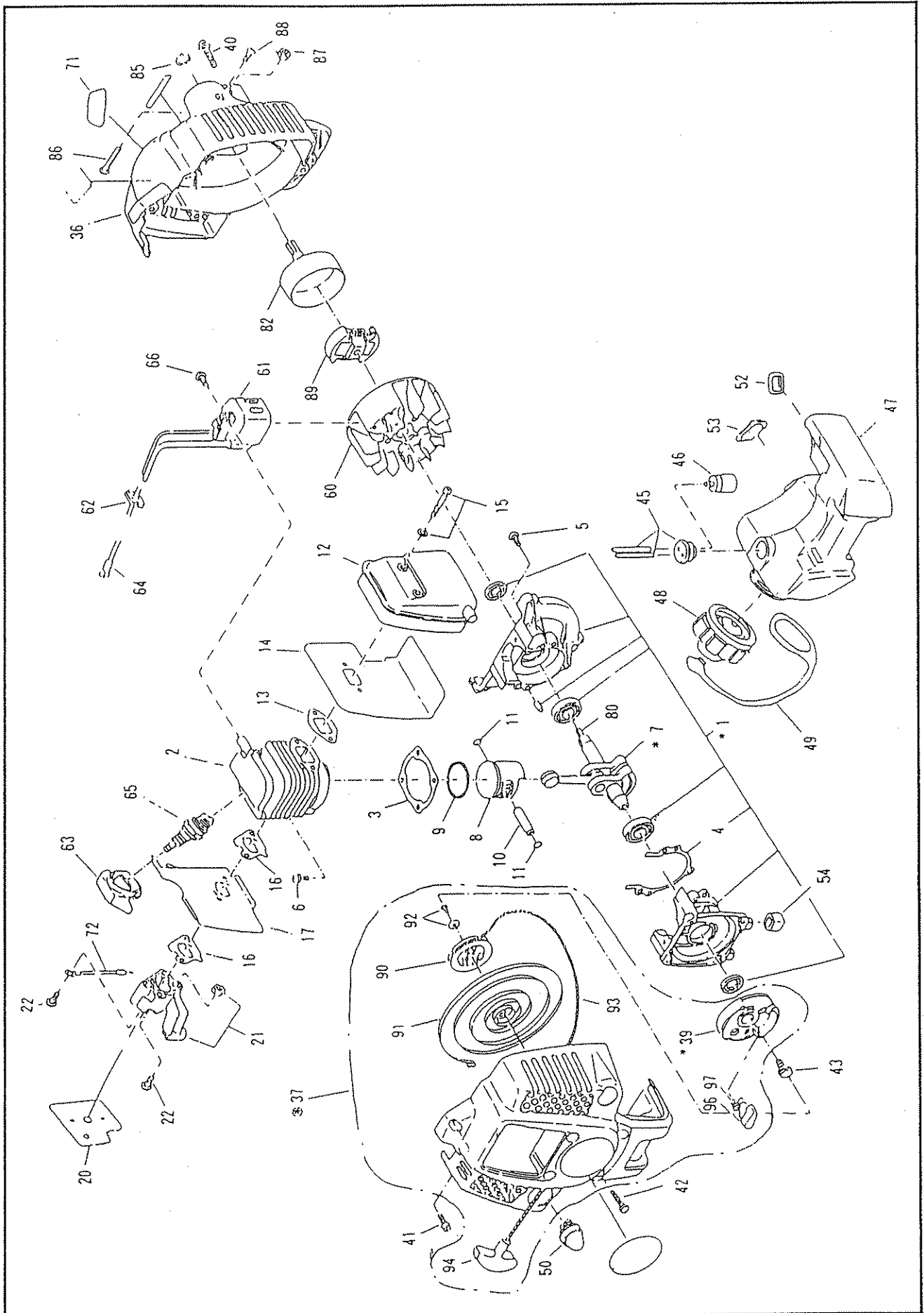


MACHINE BODY

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NBF252 (U.S.SPEC.) PARTS LIST

ENGINE BODY



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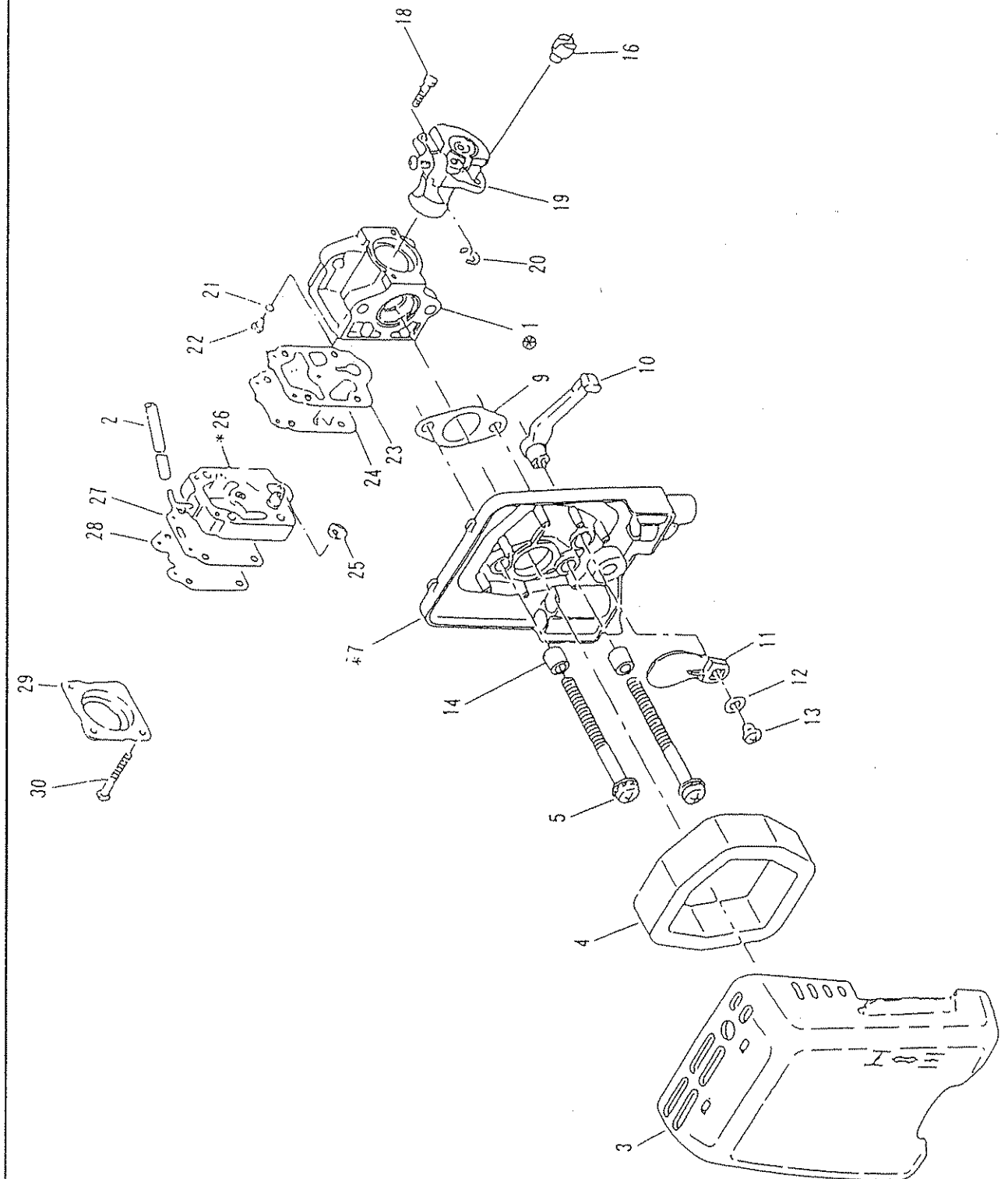
ENGINE BODY

KEY No.	CARSWELL PART No.	QTY.	DESCRIPTION	MANUFACTURER PART No.
*1	5324	1	Crankcase ass'y (incl.4)	523 10110 00
2	5332	1	Cylinder	523 15018 03
3	5405	1	Gasket, cylinder	523 15023 04
4	6133	1	Gasket, crankcase	523 15022 02
5	5341	3	Screw(M5x25)	0140 05952 0
6	5333	2	Socket head bolt (M5x20 W SW)	0119 05973 0
*7	5457	1	Crankshaft compl. (incl.80)	523 20110 06
8	5327	1	Piston	523 25019 02
9	5328	1	Ring, piston	524 25007 01
10	5329	1	Pin, piston	523 25026 00
11	5330	2	Clip	0565 08997 0
12	5347	1	Muffler, exhaust	523 30370 03
13		1	Gasket, muffler	523 35043 02
14	5345	1	Insulator, muffler	523 35044 02
15		2	Socket head bolt (M5x45 W)	0119 05960 0
16	5335	2	Gasket, insulator	523 35039 02
17	5337	1	Insulator, carburetor	523 35040 01
20	5340	1	Gasket, insulator	523 35041 03
21	5339	1	Insulator, compl.	523 30380 01
22		2	Screw (M5x25 W SW)	0140 05950 0
36	5358	1	Cover, engine compl.	523 50320 00
⊗37		1	Cover, starter compl. (incl.39,90~94)	523 50300 01
*39	5362	1	Pulley, starter (incl.96,97)	521 50030 02
40		3	Screw ass'y (M5x20 W, SW)	0140 05970 0
41	5372	1	Tapping screw (5x18)	523 55046 00
42		4	Screw (M5x18 W, SW)	0140 05945 0
43	5363	1	Bolt ass'y (M6x14 W)	523 55047 00
45	5369	1	Tube	523 60480 03
46	5370	1	Filter	523 65039 00
47	5367	1	Tank, fuel	523 65041 01
48	5468	1	Cap, fuel tank ass'y	531 60140 00
49	5444	1	Strap unit	625 50210 02
50	5366	1	Pump	523 65043 00
52	6161	1	Plate	503 65002 00
53	6162	1	Plate	503 650030 0
54	6160	2	Damper	521 65002 00

ENGINE BODY

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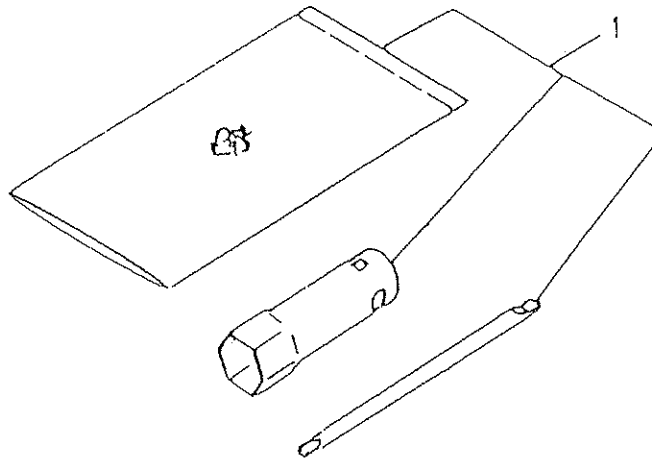
NBF252 (U.S.SPEC.) PARTS LIST
CARBURETOR & AIR CLEANER



NBF252 (U.S.SPEC.) PARTS LIST
CARBURETOR & AIR CLEANER

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ACCESSORIES

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