

Honda HSM1380i-HSM1390i

OWNER'S MANUAL

Original instructions

MANUEL DE L'UTILISATEUR

Notice originale

BEDIENUNGSANLEITUNG

Originalbetriebsanleitung

MANUALE DELL'UTENTE

Istruzioni originali

Thank you for purchasing a Honda snow thrower.

This manual covers the operation and maintenance of Honda snow thrower: HSM1380i-HSM1390i.

All information in this publication is based on the latest product information available at the time of approval for printing.

Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

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This manual should be considered a permanent part of the snow thrower and should remain with the snow thrower if it is resold. Pay special attention to statements preceded by the following words:

▲WARNING Indicates a strong possibility of severe personal injury or death if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about your snow thrower, consult an authorized Honda dealer.

▲WARNING
Operating this equipment requires special effort to ensure the safety of the operator and the safety of others. Read and understand this Owner's Manual before operating this equipment; failure to do so could result in personal injury or equipment damage.

The illustrations herein are mainly based on: HSM1380i (ETDR type)

- The illustration may vary according to the type.

Disposal

To protect the environment, do not dispose of this product, battery, engine oil, etc. carelessly by leaving them in the waste. Observe the local laws and regulations or consult your authorized Honda dealer for disposal.

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1. SAFETY INSTRUCTIONS

▲WARNING

To ensure safe operation –



- Honda snow thrower is designed to give safe and dependable service if operated according to instructions.

Read and understand this Owner's Manual before operating the snow thrower. Failure to do so could result in personal injury or equipment damage.



- Never put your hand into the snow discharge chute while the engine is running; serious personal injury could result.



- Never stand or work around or near the auger while the engine is running. Your feet may be caught on the auger when the auger is accidentally started, increasing the risk of serious personal injury.



- If the snow discharge chute becomes clogged, stop the engine and use a snow drop bar or a wooden stick to unclog it.
- Never put your hand into the snow discharge chute while the engine is running; serious personal injury could result.



- Keep all persons and pets away from the snow thrower area.



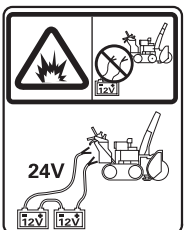
- Exhaust contains poisonous carbon monoxide, a colorless, odorless gas. Breathing carbon monoxide can cause loss of consciousness and may lead to death.
- If you run the snow thrower in an area that is confined, or even partially enclosed area, the air you breathe could contain a dangerous amount of exhaust gas.
- Never run your snow thrower inside a garage, house, or near open windows or doors.



- Gasoline is extremely flammable and is explosive under certain conditions.
- Do not smoke or allow flames or sparks in the area where the snow thrower is refueled or where gasoline is stored.
- Do not overfill the fuel tank, and make sure the fuel filler cap is closed securely after refueling.
- Refuel in a well-ventilated area with the engine stopped.



- A hot exhaust system can cause serious burns. Avoid contact if the engine has been running.



- Incorrect connection of the battery may cause the circuits to heat, produce explosive gases. If ignited, an explosion can cause serious injury or blindness.
- Never connect except for the 24V battery.
- Read this Owner's Manual for the battery installation.



- **Keep flames and sparks away from the batteries. Batteries produce explosive gas that can cause explosion.**



- **Handle the battery electrolyte with extreme care as it contains dilute sulfuric acid. Contact with your skin or eyes can burn you or cause loss of your eyesight.**



- **Do not allow children and other people to touch a battery unless they understand proper handling and hazards of the battery very well.**



- **Do not use a battery with the electrolyte at or below the lower level mark. It can explode causing serious injury.**



- **Wear the eye protection and rubber gloves when handling the batteries, or you can get burned or lose your eyesight by the battery electrolyte.**



- **Read this manual carefully and understand it before handling the batteries. Neglect of the instructions can cause personal injury and damage to the snow thrower.**

Operator responsibilities

- **Know how to stop the snow thrower quickly, and understand the operation of all controls.**
- **Never permit anyone to operate the snow thrower without proper instruction. If people or pets suddenly appear in front of the snow thrower while it is in operation, immediately release the drive clutch lever to stop the snow thrower and avoid possible injury from rotating auger blades.**

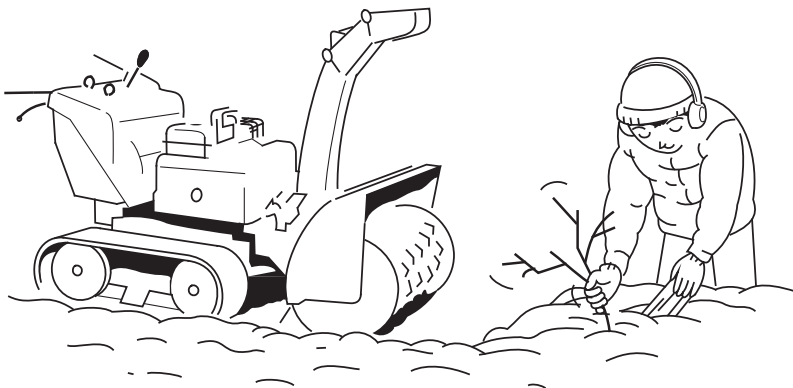
▲WARNING

To ensure safe operation –

- Always make a pre-operation check (pages 38 through 44) before you start the engine. You may prevent an accident or equipment damage.
- Honda snow throwers are designed to give safe and dependable service if operated according to instructions. Read and understand this Owner's Manual before operating the snow thrower. Failure to do so could result in personal injury or equipment damage.
- Before operating the snow thrower, inspect the area in which you are going to clear snow. Remove debris and other obstacles the snow thrower might strike or throw, as they may cause injury or damage to the snow thrower.
- Inspect the snow thrower before operating it. Repair any damage and correct any malfunction before operation.

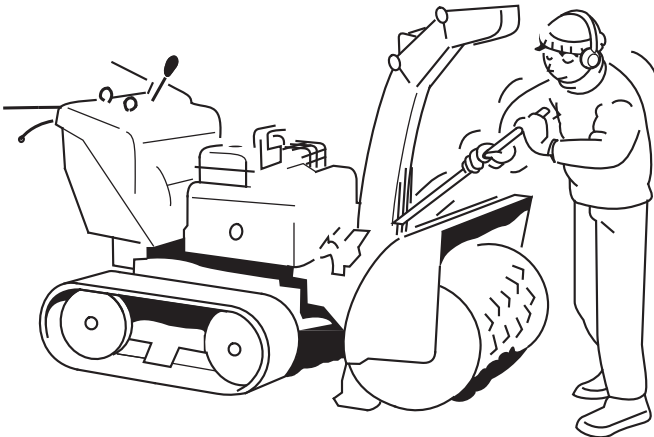
If you hit an obstacle while operating the snow thrower, stop the engine immediately, and check for damage. Damaged equipment may increase the possibility of injury during operation.

- Do not use the snow thrower when visibility is poor. Under conditions of poor visibility, there is a greater risk of striking an obstacle or causing injury.
- Never use the snow thrower to clear snow from a gravel road or driveway, as rocks may be picked up and ejected. They may cause injury to bystanders.
- Do not store or leave tools, rags etc. in or behind the covers as they may cause personal injury or damage to the snow thrower. Always keep the tools in the designated location.



▲WARNING

- **Adjust the snow discharge chute to avoid hitting the operator, bystanders, windows, and other objects with ejected snow. Stay clear of the snow chuter while the engine is running.**
- **Children and pets must be kept away from the area of operation to avoid injury from flying debris and contact with the snow thrower.**
- **Do not use the snow thrower to remove snow from roofs.**
- **To avoid overturning, be careful when changing the direction of the snow thrower while operating it on a slope.**
- **The snow thrower may overturn on steep slopes if left unattended, causing injury to the operator or bystanders.**
- **Do not use the snow thrower on a slope of more than 10° (17%).**
- **The maximum safe grade angle shown is for reference purposes only. To avoid tipping the snow thrower over, stay off slopes too steep for safe operation. The risk of snow thrower upset is even higher when the surface is loose, wet or uneven.**
- **Before starting the engine, check that the snow thrower is not damaged and in good condition. For your safety and safety of others, exercise extreme care when using the snow thrower up or down hill.**
- **If the snow discharge chute becomes clogged, stop the engine and use a snow drop bar or a wooden stick to unclog it. Never put your hand into the snow discharge chute while the engine is running; serious personal injury could result.**

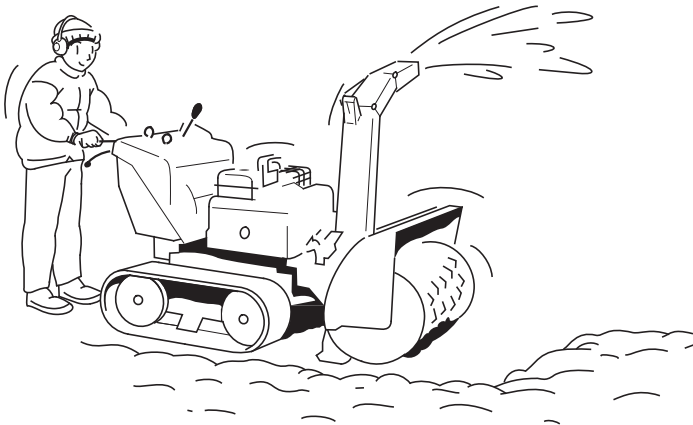


▲WARNING

- **Never run the engine in an enclosed or confined area. Exhaust contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.**
- **The muffler and engine become very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler and engine while they are hot. Let the engine cool before storing the snow thrower indoors.**
- **Stop the engine and let it cool before operating covers for inspection and other servicing.**
- **Carefully check the area before backing the snow thrower.**
- **To protect your ears, use earplugs while operating the snow thrower.**

NOTE:

While operating the snow thrower, hold the handle firmly and walk, don't run. Wear suitable winter boots that resist slipping.



2. SAFETY LABEL LOCATIONS

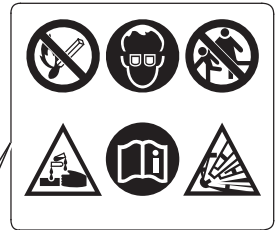
These labels warn you of potential hazards that can cause serious injury. Read the labels and safety notes and precautions described in this manual carefully.

If a label comes off or becomes hard to read, contact your Honda dealer to purchase a replacement.

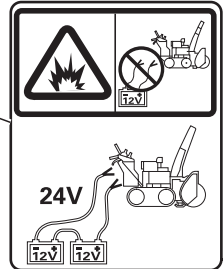
DISCHARGE DANGER



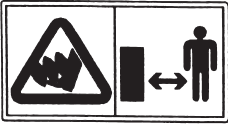
BATTERY CAUTION



BATTERY CAUTION



HOUSING DANGER



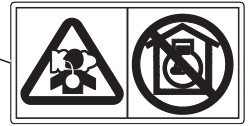
FUEL CAUTION



HOT CAUTION



EXHAUST CAUTION

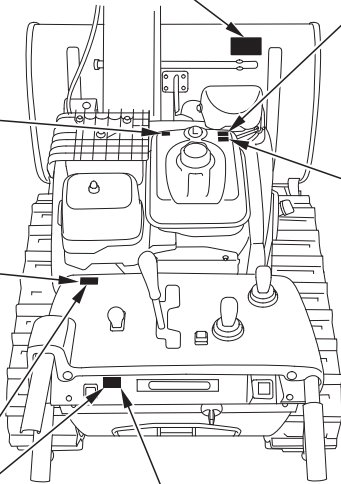


HSM1380i

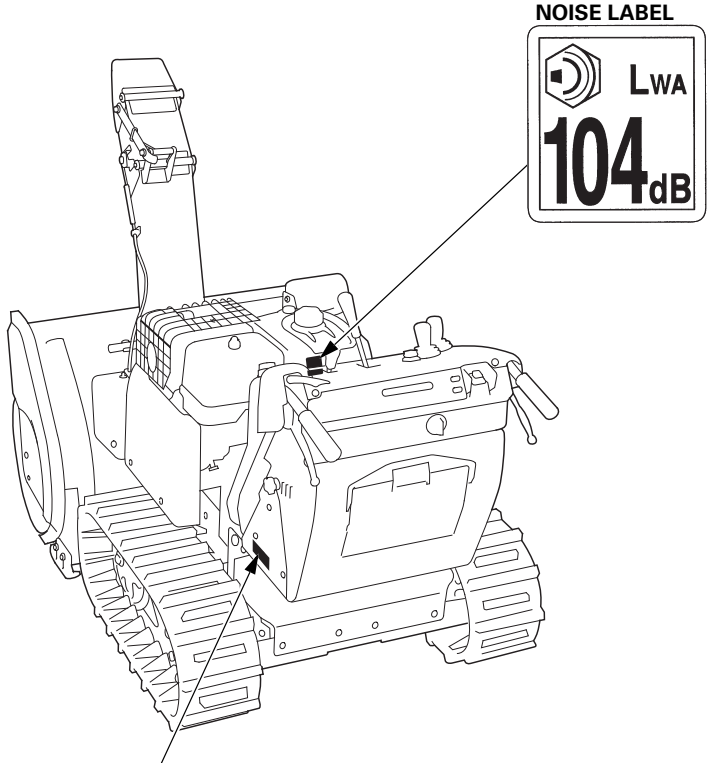
READ OWNER'S MANUAL



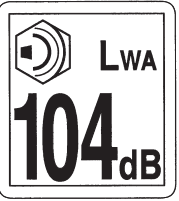
HSM1390i



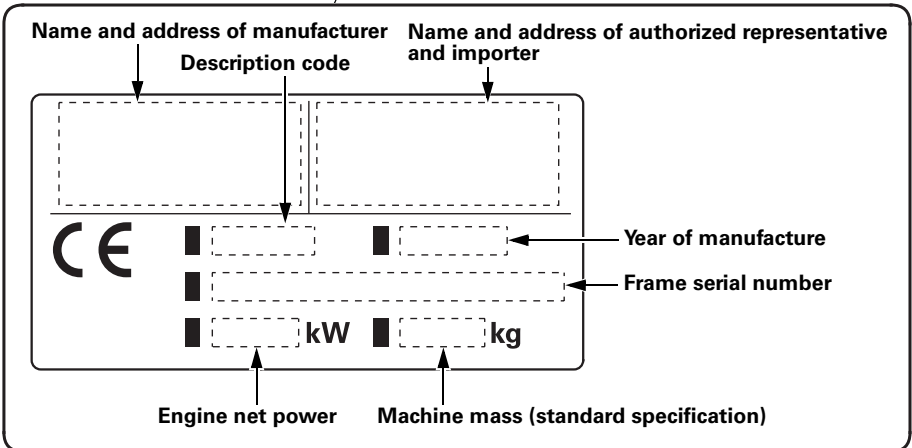
CE mark and noise label locations



NOISE LABEL

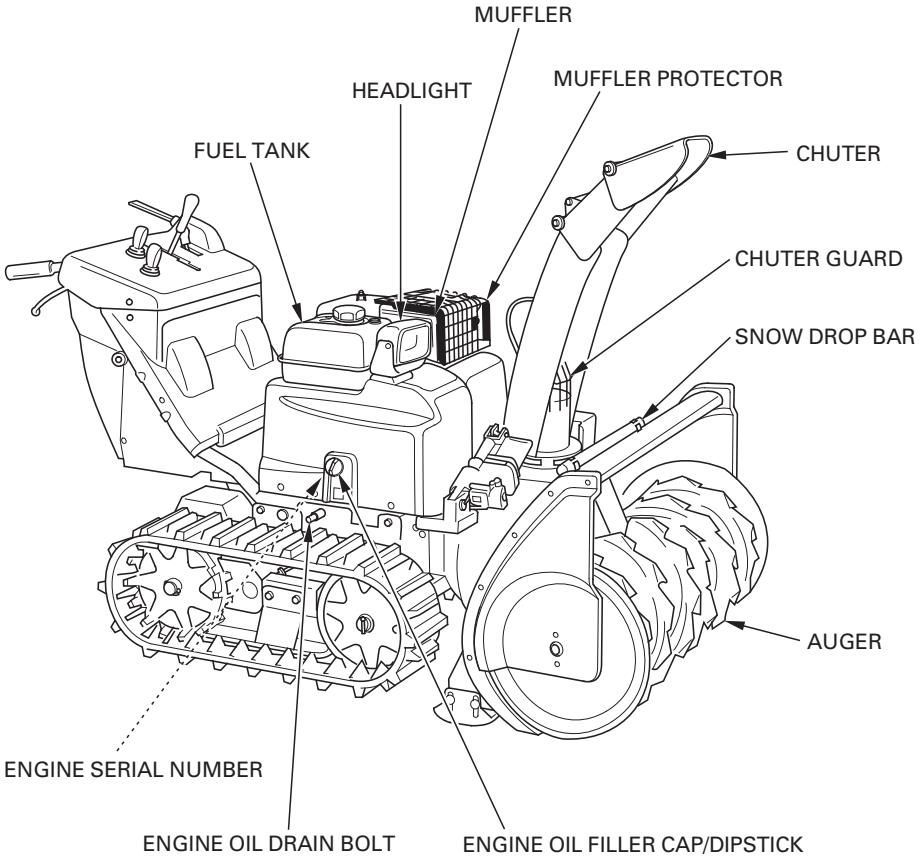


CE MARK



Name and address of manufacturer, authorized representative and importer are written in the "EC Declaration of Conformity" CONTENT OUTLINE in this Owner's Manual.

3. COMPONENT IDENTIFICATION



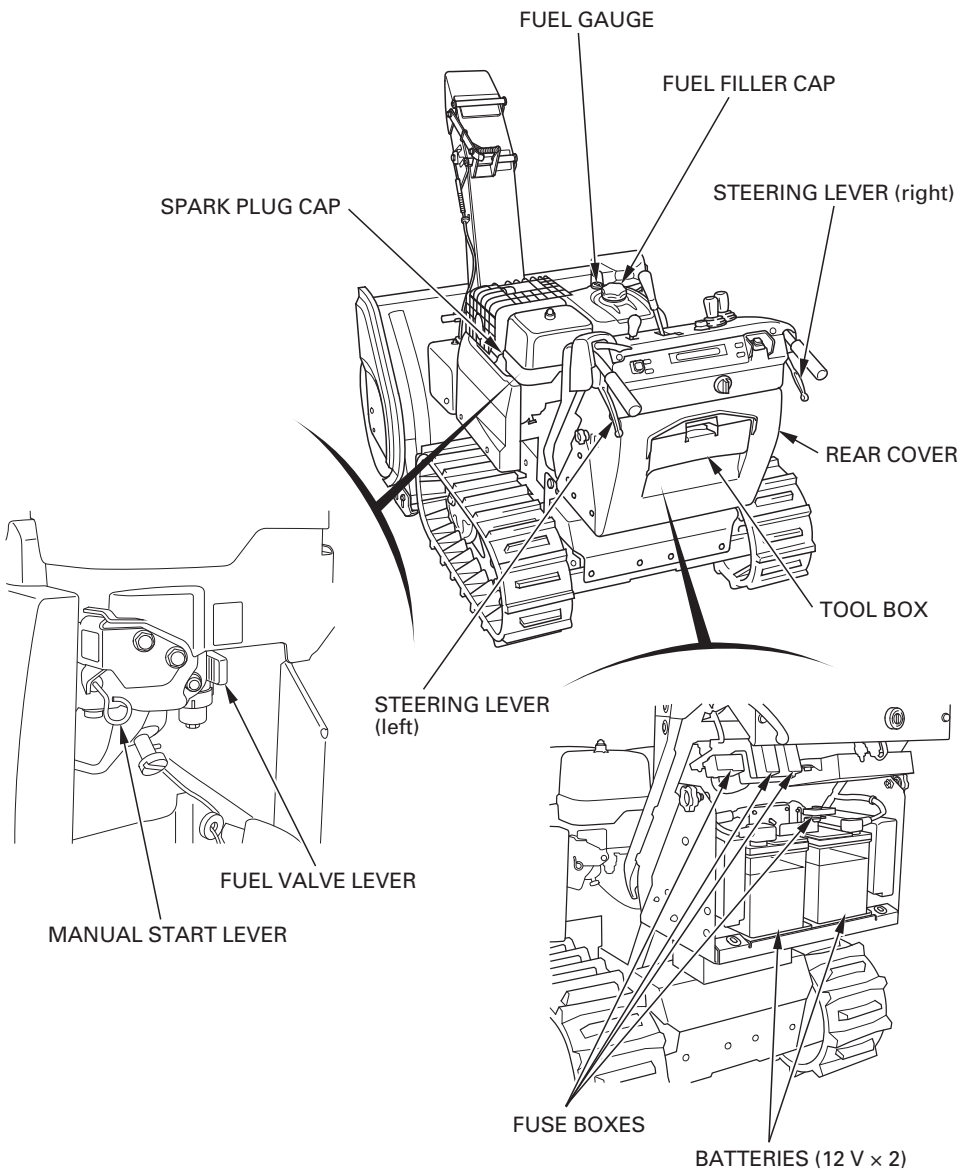
[Example: HSM1380i]

Record the frame serial number and engine serial number in the space below. You will need these serial numbers when ordering parts.

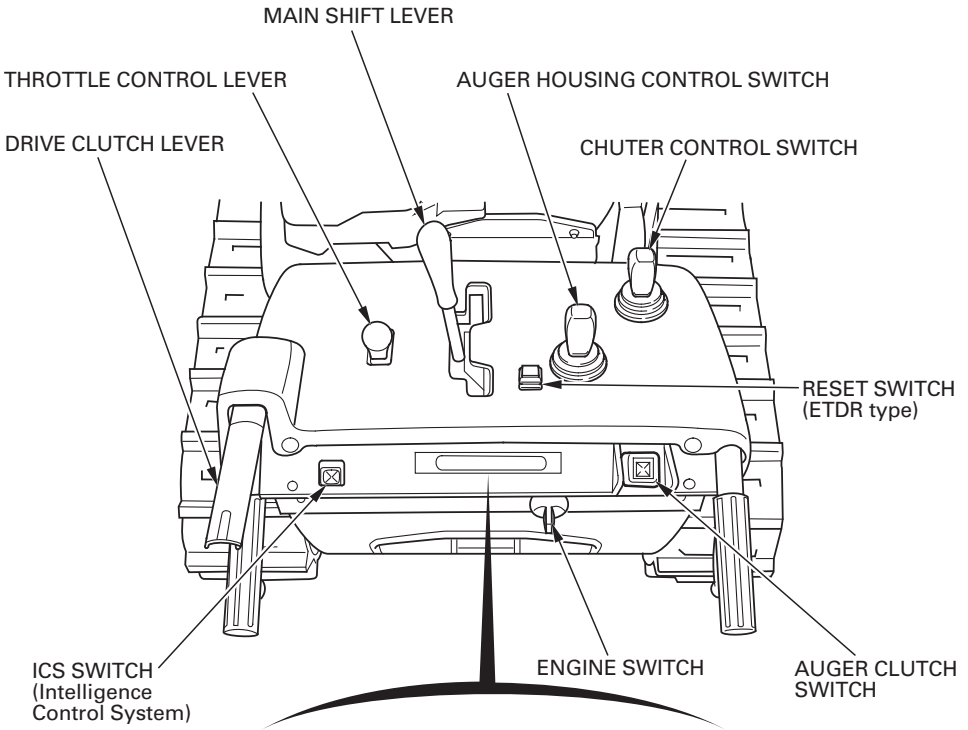
Frame serial number: _____

Engine serial number: _____

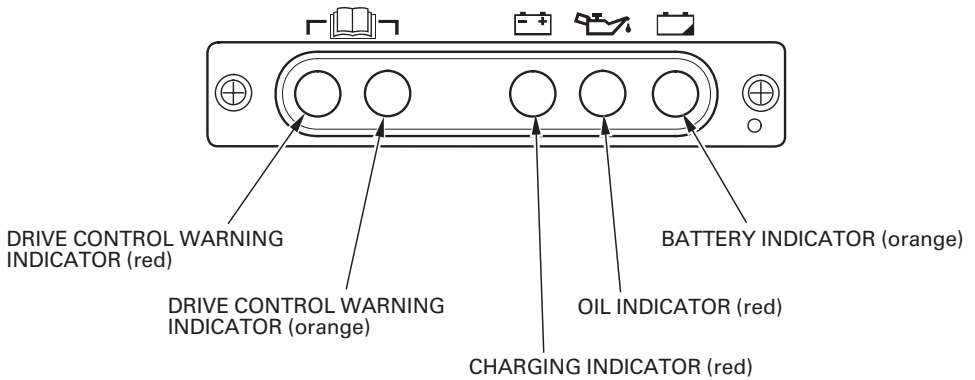
* The frame serial number is described on the CE mark label (see page 11).



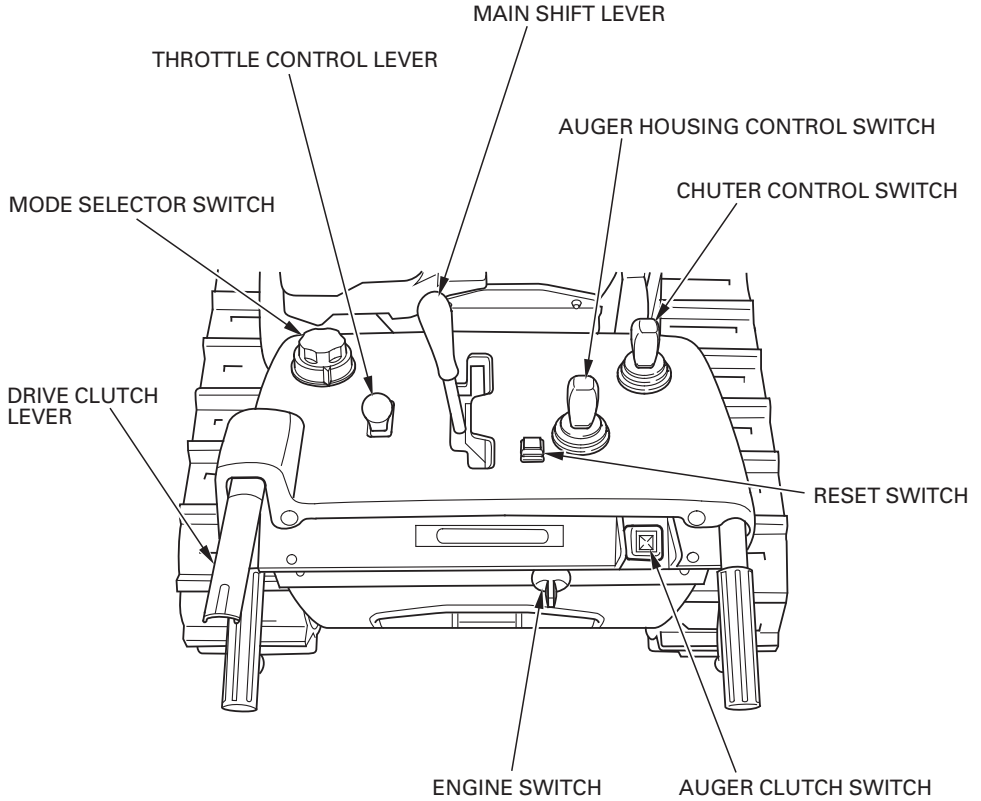
[HSM1380i]



[HSM1380i, HSM1390i]



[HSM1390i]

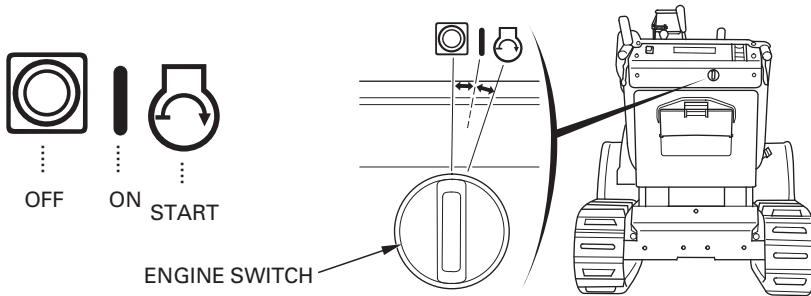


4. CONTROLS

Engine switch

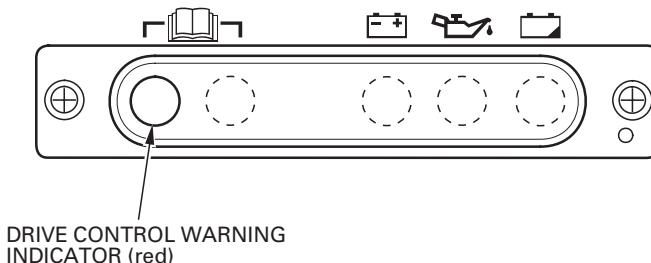
Use the engine switch to turn the ignition system on for starting, and to stop the engine.

- OFF: Engine switch position to stop the engine.
(The engine switch key can be removed/inserted with the switch in this position.)
- ON: Engine switch position while the engine is running.
Each electric circuit comes on.
(It produces a clicking sound with the switch set in this position.)
- START: Engine switch position to start the engine. The starter motor turns. Release the engine switch key, and the engine switch automatically returns to the ON position.



Drive control warning indicator (red)

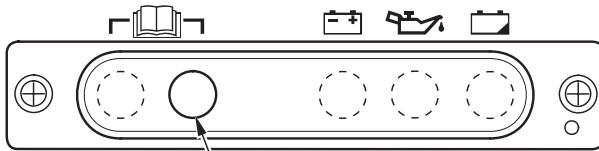
The drive control warning indicator (red) turns on for a few seconds when the engine switch is turned from OFF to ON. The indicator goes off while the engine is running. If the indicator does not come on when starting and it comes on or blinks while the engine is running, contact your authorized Honda snow thrower dealer.



Drive control warning indicator (orange)

The drive control warning indicator (orange) turns on when the engine switch is turned from OFF to ON. The indicator (orange) turns off when the engine is started. The indicator goes off while the engine is running. If the indicator does not come on when starting and it comes on or blinks while the engine is running, contact your authorized Honda snow thrower dealer.

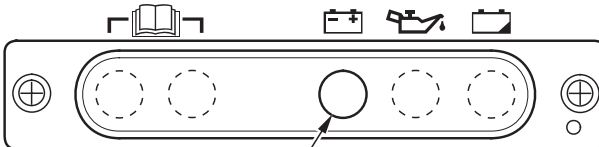
If the orange indicator blinks, the drive control protection system may be activated because of such things as a drive control system problem or overload. See page 71 for the protection system.



DRIVE CONTROL WARNING
INDICATOR (orange)

Charging indicator

The charging indicator (red) turns on when the engine switch is turned from OFF to ON. The indicator turns off when the engine is started. If the indicator does not come on when starting or comes on while the engine is running, contact your authorized Honda snow thrower dealer.



CHARGING INDICATOR (red)

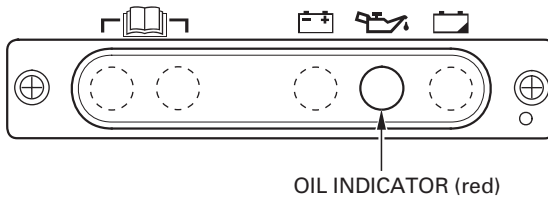
Oil indicator

The oil indicator (red) comes on when the engine oil level is low. Turn the engine switch to the ON position. If it is normal, the oil indicator (red) comes on for a few seconds and then it goes off. The engine does not start unless the oil indicator (red) goes off. Check the engine oil level (see page 41).

If the oil indicator (red) comes on while the snow thrower is running, move the snow thrower immediately to a safe, level place, stop the engine, and check the engine oil level (see page 41).

CAUTION:

Do not keep operating the snow thrower with the oil indicator (red) on. It will cause the engine to malfunction.

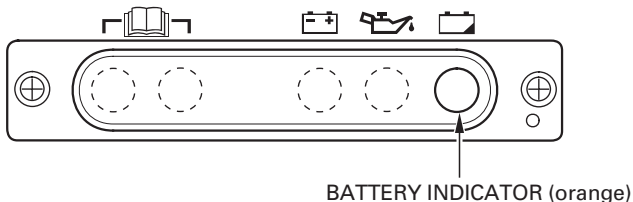


Battery indicator

The battery indicator will blink when the voltage is getting low (see pages 92 and 102 for battery charge or replacement).

The battery indicator (orange) turns on for a few seconds when the engine switch is turned from OFF to ON and then goes off. The indicator should be off when the engine is running. If the indicator does not come on when starting, or it comes on while the engine is running, contact your authorized Honda snow thrower dealer.

Even if the engine is not running, the indicator will blink when the engine switch is in the ON position (The engine switch should be turned OFF immediately).



Fuel valve lever

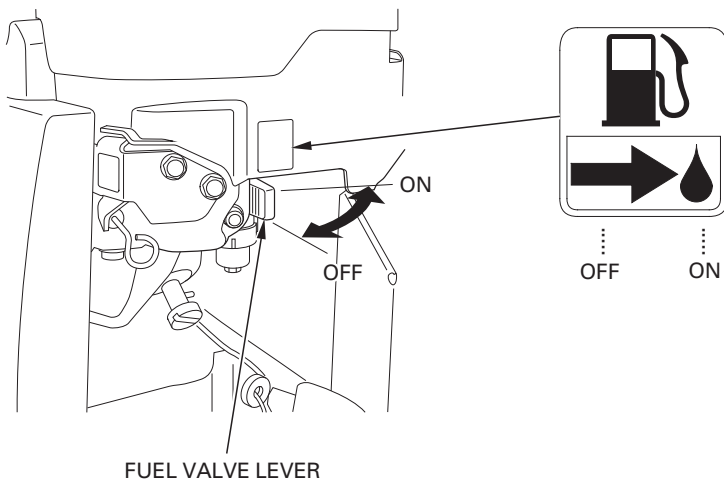
The fuel valve lever opens and closes the fuel line from the fuel tank to the carburetor.

Turn the fuel valve lever to the ON position to open the fuel line and turn it to the OFF position to close.

Do not turn the fuel valve lever halfway; it should always be at either ON or OFF position exactly.

▲WARNING

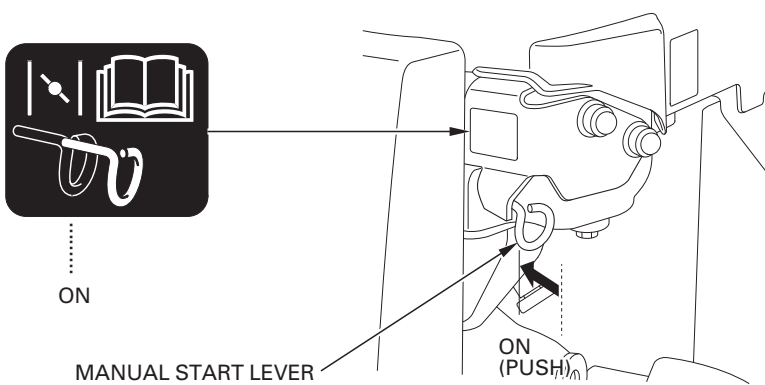
Before transporting the snow thrower or tilting it for service, be sure to turn the fuel valve lever to the OFF position to prevent possible fuel leaks; spilled fuel or fuel vapor may ignite.



Manual start lever

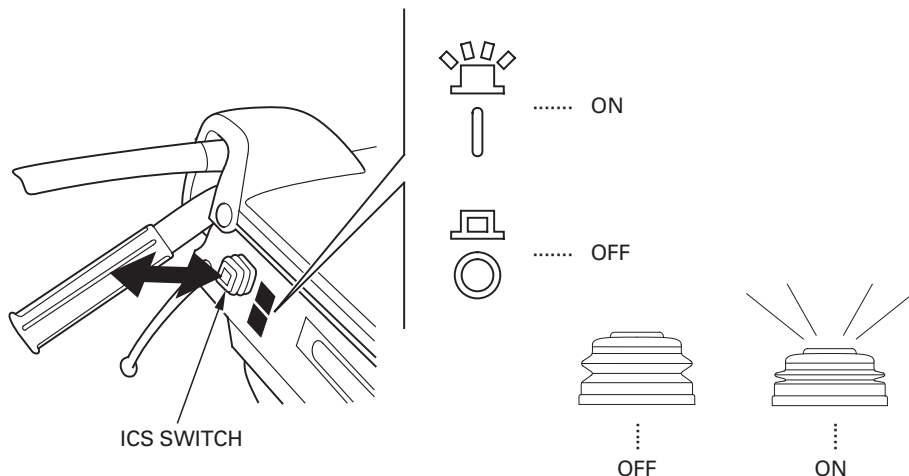
This snow thrower is equipped with the auto choke system. Do not need to operate the manual start lever to start using the normal starting. However, it may not function properly when foreign material (ice, etc.) is stuck on the system.

If the engine does not start after 5 attempts, push and release the manual start lever one time and try to start the engine (see page 47).



ICS switch (Intelligence Control System) [HSM1380i]

Use the ICS switch to change the work mode (automatic adjustment) of the snow thrower. The work mode can be selected from one of the two modes of ON and OFF.



Push the ICS switch to turn the mode ON, the indicator (green) turns on as a reminder. Push it once again to turn the mode OFF, and the indicator also goes off.

Characteristics of ON mode:

- Travel speed is automatically adjusted according to the workload so engine power can be maintained at or near the maximum level.
- Engine speed is automatically adjusted according to operating conditions so the snow discharge distance remains constant that have been set with the throttle control lever.
- The auger is automatically raised when the snow thrower is reversing. In case the auger clutch switch is in the ON position, the auger is automatically returned to the original position when the snow thrower begins moving forward again (ETDR type).

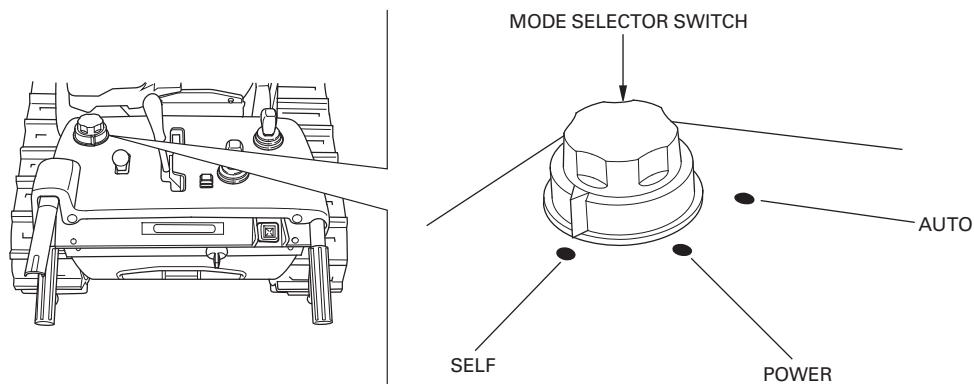
Characteristics of OFF mode:

- No automatic adjustment is made. Manually adjust the engine speed and travel speed according to the workload.

Mode selector switch

[HSM1390i]

Use the mode selector switch to change the work mode (automatic adjustment) of the snow thrower. The work mode can be selected from one of three modes: AUTO, POWER, or SELF.



Characteristics of AUTO mode:

- Travel speed is automatically adjusted according to the workload, which reduces the tendency of snow to pile up in front of the snow thrower.
- Engine speed is automatically adjusted according to the workload so the snow discharge distance remains constant.
- The auger is automatically raised when the snow thrower is reversing. In case the auger clutch switch is in the ON position, the auger is automatically returned to the original position when the snow thrower begins moving forward again.
- Forward speed is set low. Select another mode to make the snow thrower travel faster.

Characteristics of POWER mode:

- Travel speed is automatically adjusted according to the workload so engine power can be maintained at or near the maximum level.
- Engine speed is automatically adjusted according to operating conditions so the snow discharge distance remains constant that have been set with the throttle control lever.
- The auger is automatically raised when the snow thrower is reversing. In case the auger clutch switch is in the ON position, the auger is automatically returned to the original position when the snow thrower begins moving forward again.

Characteristics of SELF mode:

- No automatic adjustment is made. Manually adjust the engine speed and travel speed according to the workload.

CAUTION:

Do not turn the mode selector switch to another position while the snow thrower is moving. The electronic control unit will interpret this as a failure; the snow thrower will stop moving and the auger will stop turning.

When the snow thrower and auger stop moving/turning, move the main shift lever to the N (neutral) position, release the drive clutch lever.

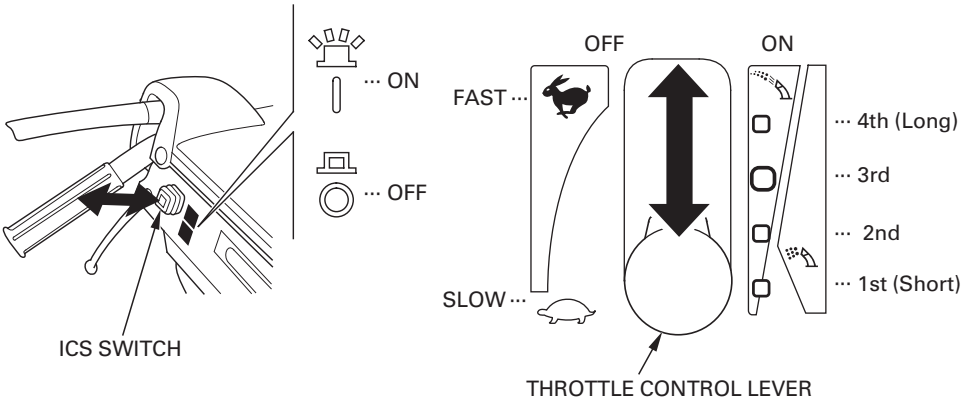
Check each part to verify it is in its proper position before resuming operation.

Throttle control lever

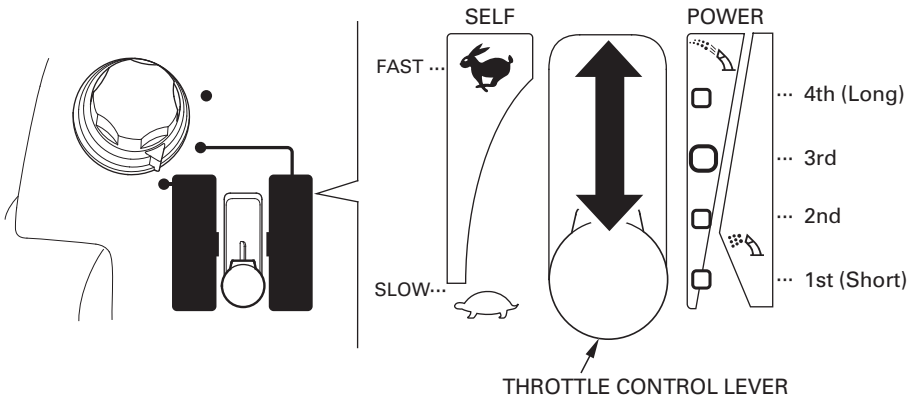
Use the throttle control lever to adjust the engine speed and/or snow discharge distance (HSM1380i)/with the mode selector switch set at the POWER or SELF position (HSM1390i).

Note that the engine speed and snow discharge distance cannot be adjusted by operating the lever when the AUTO mode (HSM1390i) is selected.

[HSM1380i]



[HSM1390i]



Moving the throttle control lever to the FAST side increases both the engine speed and snow discharge distance.

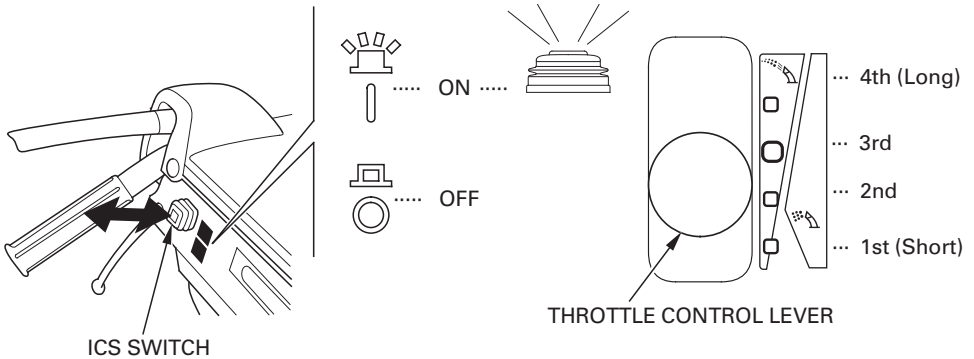
Moving the throttle control lever to the SLOW side decreases both the engine speed and snow discharge distance.

ON (HSM1380i)/POWER (HSM1390i) mode:

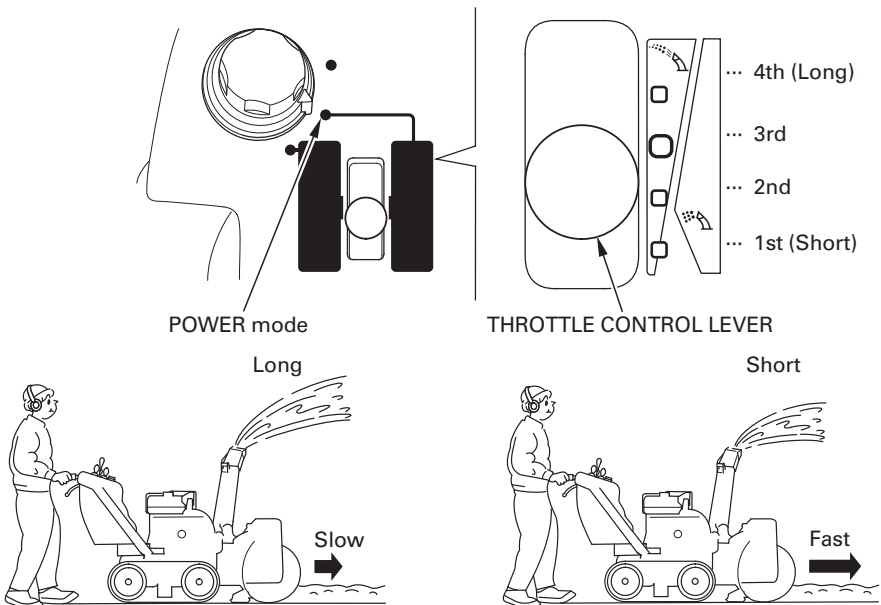
Travel speed is automatically reduced so that the engine speed and snow discharge distance are held at the given speed and distance that have been set with the throttle control lever.

Setting the discharge distance control lever in the second range from the bottom clears snow the fastest (maximum snow-clearing efficiency), but the snow discharge distance is shorter. Set the control lever in most appropriate engine speed and snow discharge distance for the work.

[HSM1380i]



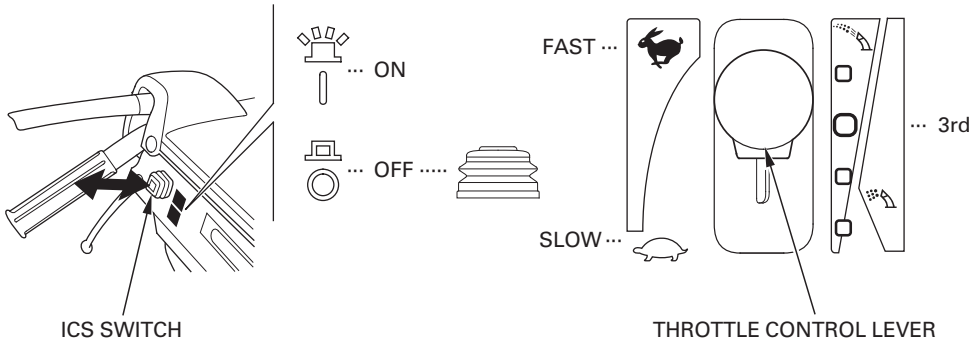
[HSM1390i]



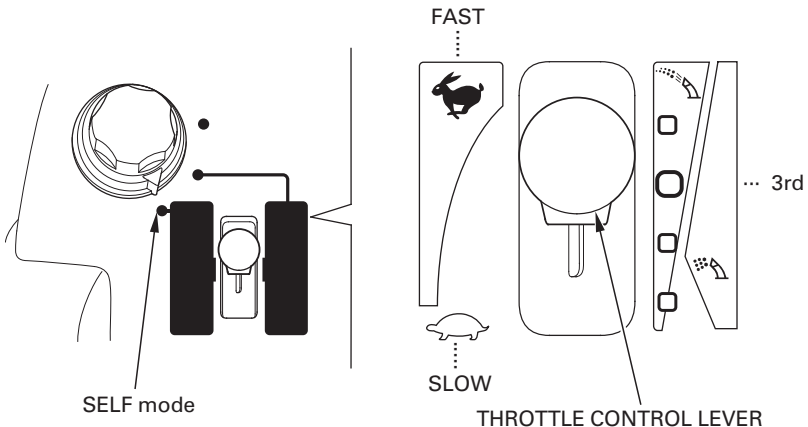
OFF (HSM1380i)/SELF (HSM1390i) mode:

When the workload increases while clearing the snow, the engine speed and snow discharge distance drop below the given speed and distance that have been set with the throttle control lever. Reduce the workload applied to the snow clearing part of the snow thrower to hold the engine speed/snow discharge distance at the given speed/distance. If you are not sure of the appropriate position to set the engine speed and snow discharge distance, we recommend that you set the control lever in the third position from the bottom (maximum power position). Then, adjust the snow discharge distance at the desired position while you are clearing the snow.

[HSM1380i]



[HSM1390i]



Main shift lever

Operate the main shift lever to drive the snow thrower in forward or in reverse direction.

The lever has two ranges, slow range and fast range.

The speed of the snow thrower can be increased and decreased in any of these two speed ranges.

To drive forward:

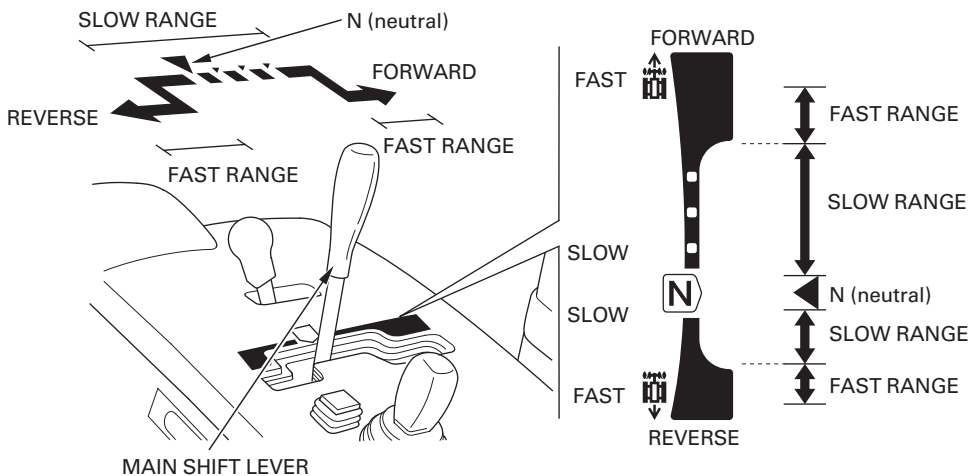
Move the main shift lever slowly forward from the N (neutral) position.

To reverse:

Move the main shift lever slowly rearward from the N (neutral) position.

Set the main shift lever in the N (neutral) position while the snow thrower is not in operation.

- Set the travel speed by setting the main shift lever to the desired position within the low speed range according to the nature of the snow, and clear the snow.
- Set the travel speed according to the road surface condition and environment before moving the snow thrower.



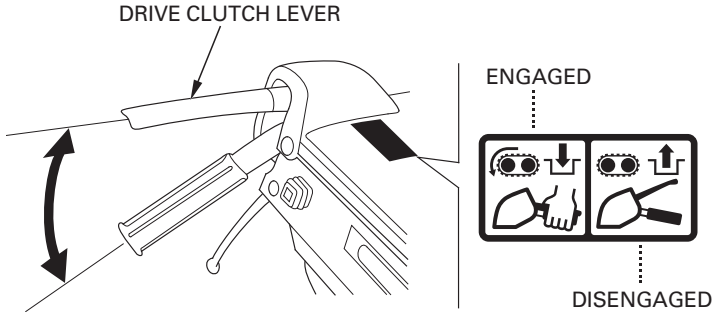
NOTE:

This snow thrower has a function that limits the maximum speed in reverse. Consult to your authorized Honda snow thrower dealer for details.

Drive clutch lever

Squeezing the drive clutch lever drives the snow thrower forward or backward with the main shift lever operation.

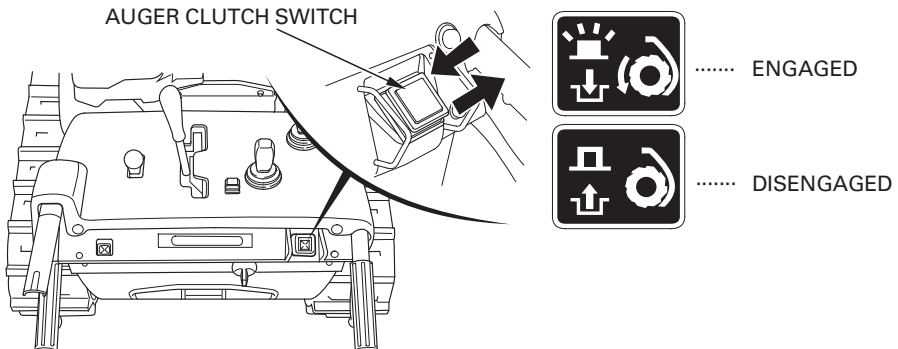
If you are moving the snow thrower from one place to another, squeeze the drive clutch lever only.



Auger clutch switch

If you continue pressing the auger clutch switch, the indicator comes on as a reminder and the snow blowing mechanism starts. Releasing the switch stops the mechanism and the indicator goes off. With the drive clutch lever squeezed, the auger clutch switch will be on continuously by pressing it once. Releasing the drive clutch lever stops the snow thrower from moving and stops the auger.

- If the indicator (green) does not come on and neither the auger nor blower turns by pressing the auger clutch switch, have your authorized Honda snow thrower dealer check the snow thrower.
- When the auger clutch switch is pushed for three seconds or longer, the protection function gets armed. This stops the auger and blower from turning.



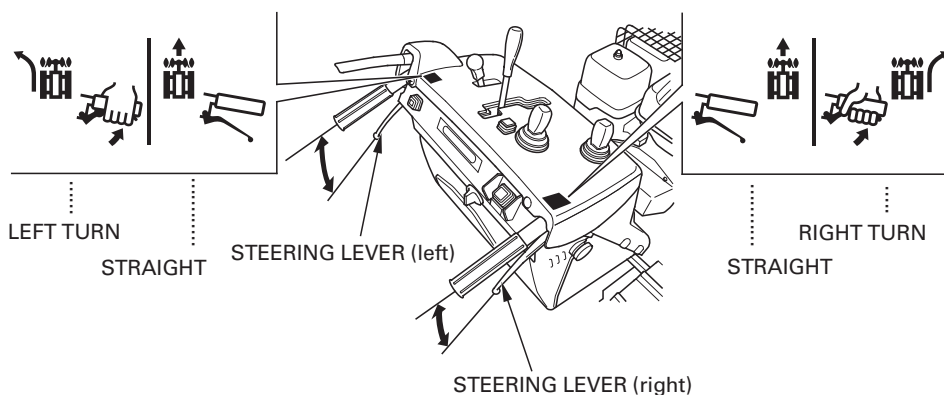
Steering lever

Use the steering lever to turn the snow thrower.

Squeeze the steering lever on the side to which you want to turn the snow thrower. Note that the radius of turn can be adjusted depending on a position of the main shift lever and the amount of squeeze of the steering lever.

To turn to the right: Squeeze the right steering lever.

To turn to the left: Squeeze the left steering lever.



CAUTION:

- Reduce speed when making turns. Use extra care when making turns as the location of the handle and panels relative to the operator will change suddenly and can cause injury.
- Note that the road condition (e.g. asphalt road, covered with snow, slope, bumpy surface, etc.) can affect the radius of turn and your steering feel.

Chuter control switch

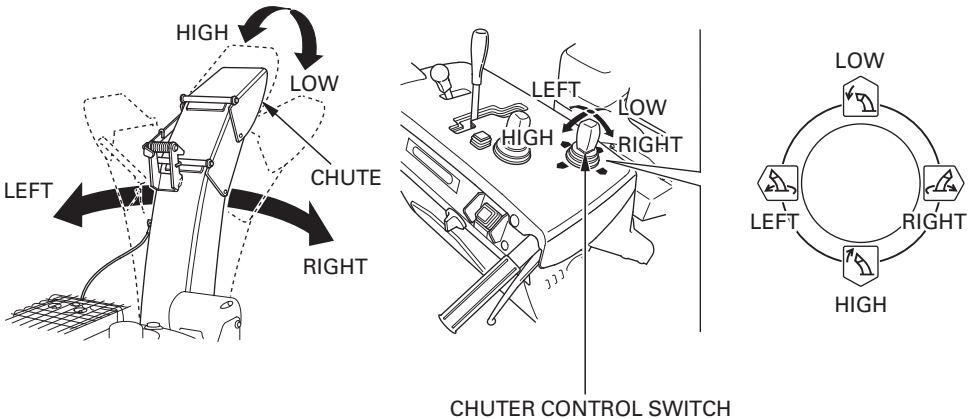
The snow discharge direction and angle can be adjusted by operating the chuter control switch.

Turn the engine switch to the ON position and operate the chuter control switch to adjust the snow discharge direction and angle up/down or right/left (see pages 57, 60 and 65).

Operate the chuter control switch while the engine is running.

Operating the chuter control switch while the engine is OFF may cause a dead battery.

- Do not keep operating the chuter control switch with the chute/chute guide motor locked. The protection function gets armed, preventing the chuter from moving. Wait a few minutes before operating the chuter control switch again.



CAUTION:

Adjust the snow discharge direction and angle with care not to hit bystanders, windows, and other objects with thrown snow.

Auger housing control switch

HSM1380i (ETD type):

Operate the auger housing control switch to adjust the auger housing height angle (see page 53 for adjustment).

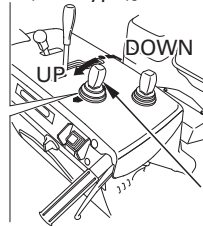
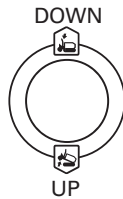
HSM1380i (ETDR type), HSM1390i:

Operate the auger housing control switch to adjust the auger housing height and tilt angle (see pages 53 and 55 for adjustment).

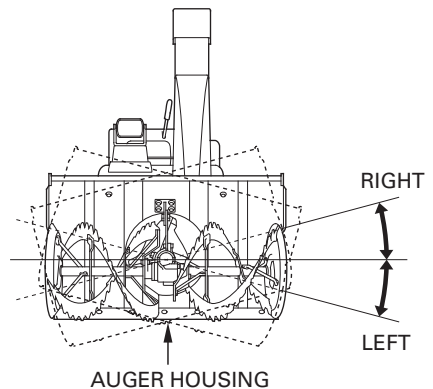
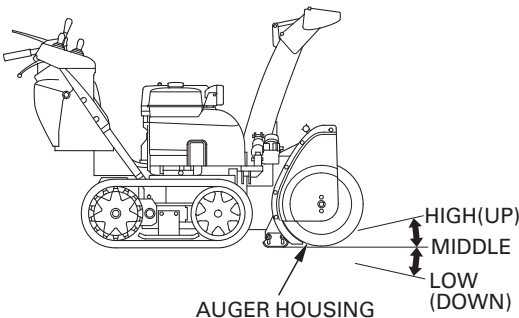
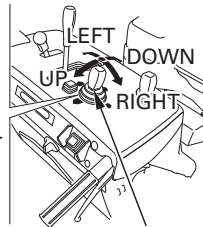
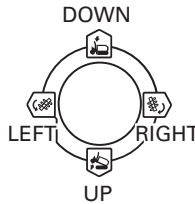
NOTE:

Operate the auger housing control switch while the engine is running. Operating the auger housing control switch while the engine is OFF may cause a dead battery.

[HSM1380i (ETD type)]



[HSM1380i (ETDR type), HSM1390i]

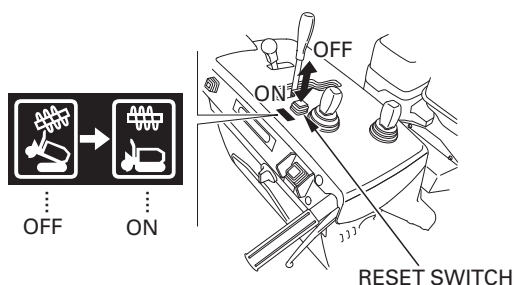


Reset switch

[HSM1380i (ETDR type), HSM1390i]

Use the reset switch to return the auger housing to the initial height and tilt position (current set position). This switch is convenient to move the auger housing by operating the auger housing control switch and to return the auger housing to the original position. The initial position has been set at the factory in the position where the snow clearing part contacts the ground with the snow thrower set on a level ground.

The initial position can be changed.



How to change the auger housing initial position

[HSM1380i (ETDR type), HSM1390i]

This snow thrower allows you to change the auger housing initial height and tilt position (the position where the auger housing returns when you push the reset switch) as needed.

Change the initial position (auger housing return position set at present) in case of the following.

1. When you do not want to lower the auger housing to be level to the ground, as the gravel can be caught in the auger during clearing on a graveled ground.
 2. When the scraper/skid position was changed, making the initial position no longer adequate for clearing the snow.
 3. When each part of the snow thrower is worn, making the initial position no longer adequate for clearing the snow.
 4. When you want to change the initial position to a position you want.
- Park the snow thrower on firm, level ground to change the initial position.

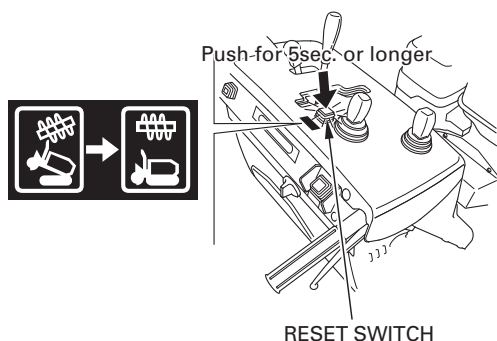
– 1. Turn the engine switch to the ON position (see page 47).

– 2. Push the reset switch and hold it pushed for five seconds or longer.

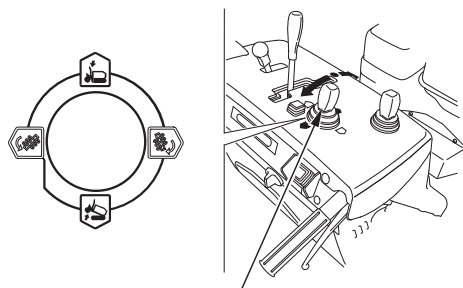
- The auger housing moves to the initial position by pushing the reset switch. Keep pushing the reset switch.

– 3. Release the reset switch and check whether the reset switch indicator is blinking.

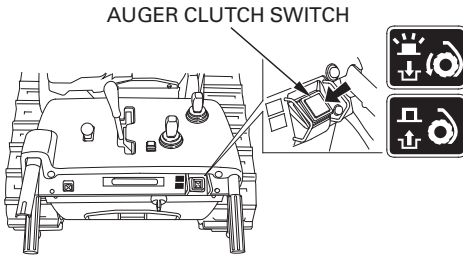
– 4. Operate the auger housing control switch to set the auger housing in a height position you want.



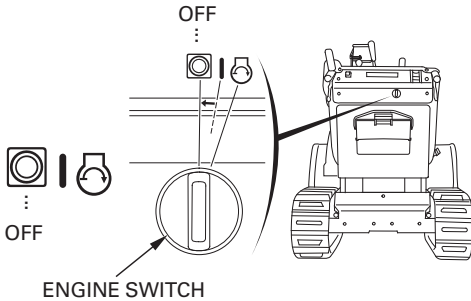
RESET SWITCH



AUGER HOUSING CONTROL SWITCH



- 5. Push the auger clutch switch. The reset switch indicator goes off and the initial position is changed.

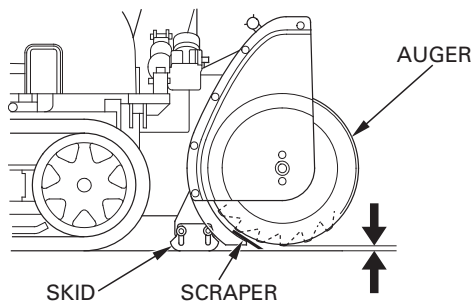


- 6. Turn the engine switch to the OFF position.
 - Note that you cannot operate the snow thrower without turning the engine switch to the OFF position once.

If you cannot change the initial position properly or if you want to return the initial position to the factory set position, consult with your authorized Honda snow thrower dealer.

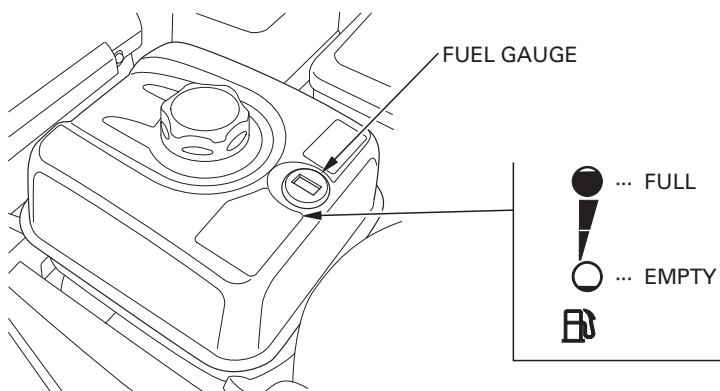
Skid, Scraper

Adjust the skid and the scraper according to the road surface condition where you are to clear the snow. Use the skid to determine the height from the ground to the auger, and adjust the scraper to make the snow surface even (see page 50).



Fuel gauge

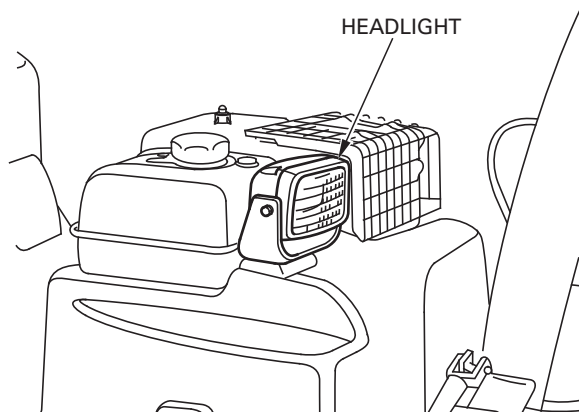
The fuel gauge indicates the amount of fuel in the tank. When the fuel gauge needle enters the EMPTY range, refill the tank as soon as possible.



Headlight

The headlight turns on when the engine switch is in the ON position. The battery may become discharged when the light is ON while the engine is OFF.

If the headlight does not come on, the battery might be faulty or the bulb might be blown. Check the battery.



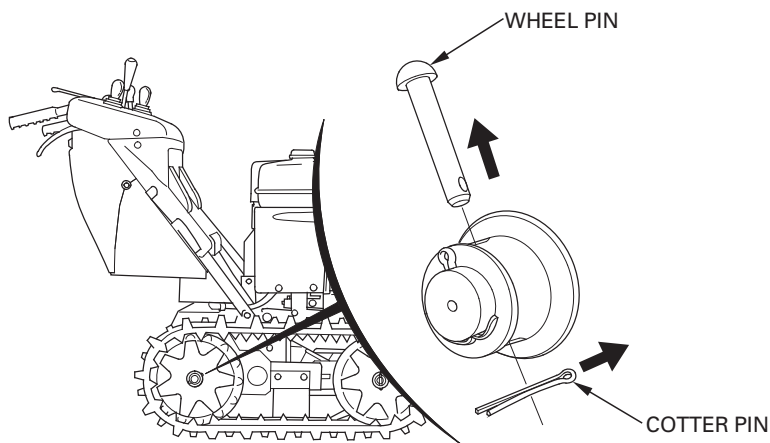
Wheel pin

⚠WARNING

Do not remove the wheel pins with the snow thrower on a slope. The snow thrower might move unintentionally, causing serious injury.

Before removing the wheel pins, place the snow thrower on a level surface. Stop the rotating parts, stop the engine, and remove the engine switch key.

Remove the cotter pins and wheel pins from the rear right and left wheels. This allows the track to rotate freely so the operator can move the snow thrower if the motor malfunctions. Use a new cotter pin when replacing the wheel pin.



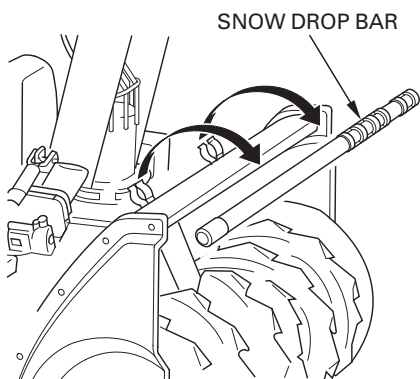
Snow drop bar

If the snow discharge chute or snow blowing mechanism becomes clogged, stop the engine and use this bar to unclog it.

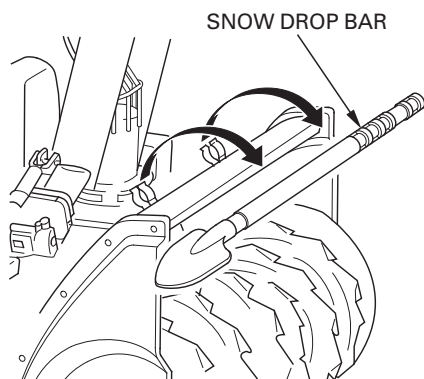
▲WARNING

Before removing clogged snow, be sure to stop the engine, and make sure that all rotating parts have come to a complete stop. Remove the key from the engine switch.

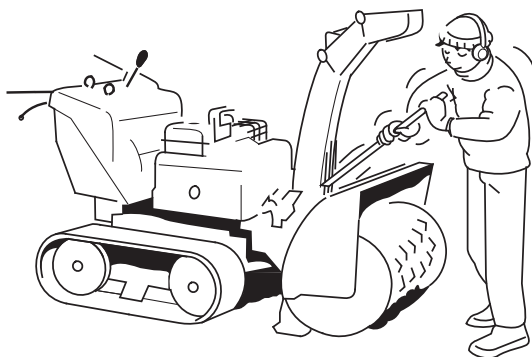
Failure to do so can cause serious injury or death.



(HSM1380i)



(HSM1390i)



5. PRE-OPERATION CHECK

Check the snow thrower on level ground with the engine stopped.

⚠ WARNING

To prevent accidental start-up, remove the engine switch key before performing the pre-operation check.

Before each use, look around and underneath the engine for signs of oil or gasoline leaks.

Fuel

Inspection:

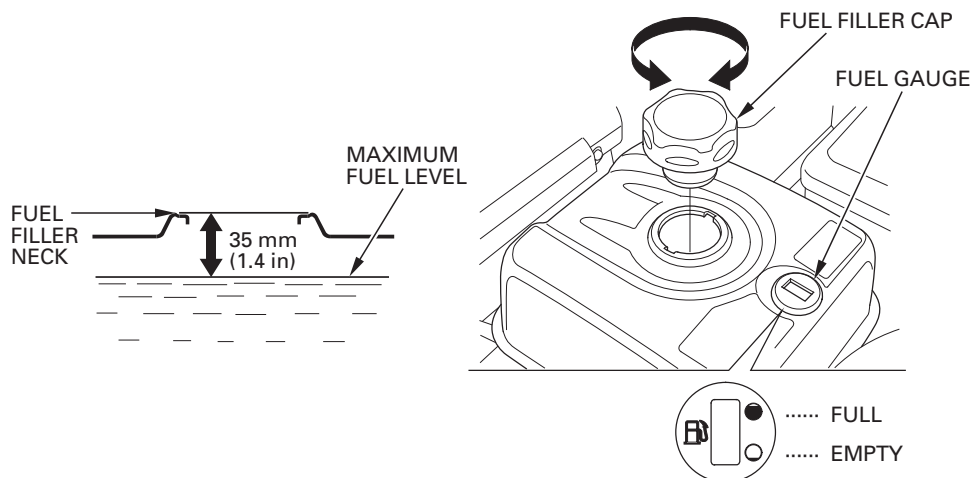
Check whether the fuel gauge needle is in the FULL position. If the needle is not in the position, fill the fuel tank to the level shown.

Refilling:

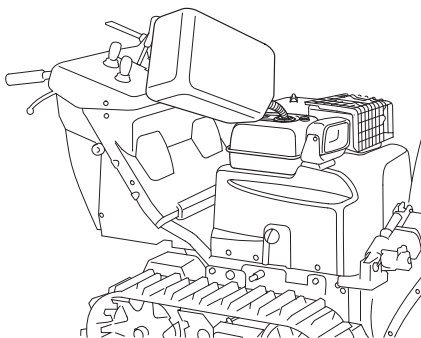
Use unleaded gasoline with a Research Octane Number of 91 or higher (a Pump Octane Number of 86 or higher).

Never use gasoline that is stale, contaminated, or mixed with oil. Avoid getting dirt or water in the fuel tank.

Remove the fuel filler cap and fill the tank with the recommended gasoline. Do not fill the fuel tank completely. Fill tank to approximately 35 mm (1.4 in) below the top of the fuel filler neck to allow for fuel expansion. After refueling, make sure the fuel filler cap is closed properly and securely.



Refill the fuel tank from the right side (fuel tank side) of the snow thrower.



▲WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.**
- **Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.**
- **Avoid repeated or prolonged contact with skin or breathing of vapor. KEEP OUT OF REACH OF CHILDREN.**

CAUTION:

Gasoline substitutes are not recommended; they may be harmful to fuel system components.

NOTE:

Gasoline spoils very quickly depending on factors such as light exposure, temperature and time.

In worst cases, gasoline can be contaminated within 30 days.

Using contaminated gasoline can seriously damage the engine (clogged carburetor, stuck valve).

Such damage due to spoiled fuel is disallowed from coverage by the warranty.

To avoid this please strictly follow these recommendations:

- Only use specified gasoline (see page 38).
- Use fresh and clean gasoline.
- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 30 days) is foreseen, drain fuel tank and carburetor (see page 100).

GASOLINES CONTAINING ALCOHOL

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by Honda. There are two types of "gasohol": one containing ethanol, and the other containing methanol. Do not use gasohol that contains more than 10 % ethanol. Do not use gasoline containing more than 5 % methanol (methyl or wood alcohol) and that does not also contain co-solvents and corrosion inhibitors for methanol.

NOTE:

- Fuel system damage or engine performance problems resulting from the use of gasoline that contains more alcohol than recommended is not covered under the warranty.
- Before buying gasoline from an unfamiliar station, first determine if the gasoline contains alcohol, if it does, find out the type and percentage of alcohol used.

If you notice any undesirable operating symptoms while using a particular gasoline. Switch to a gasoline that you know contains less than the recommended amount of alcohol.

Engine oil

Inspection:

With the snow thrower on a level surface, remove the oil filler cap and wipe the dipstick clean.

Insert the dipstick into the filler neck, but do not screw it in. Remove the dipstick and check the oil level.

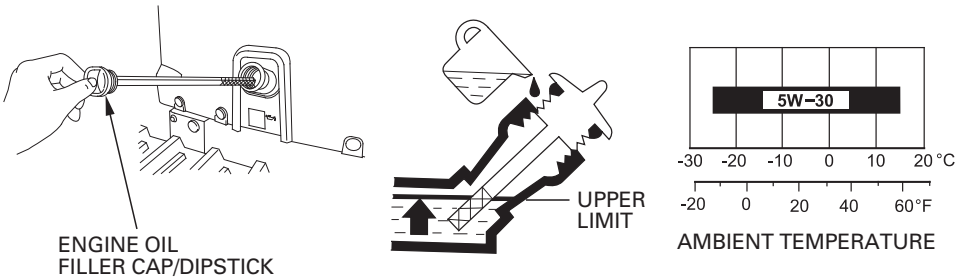
If the level is low, fill to the upper limit mark on the dipstick with the recommended oil.

Refilling:

If the level is low, fill to the upper limit mark on the dipstick with the recommended oil.

Change the oil if it is excessively contaminated or discolored. (Refer to page 84 for the engine oil change interval and procedure.)

QUANTITY SPECIFIED: 1.1 L (1.2 US qt, 1.0 Imp qt)



Recommended oil

Use 4-stroke motor oil that meets or exceeds the requirements for API service classification SE or later (or equivalent). Always check the API service label on the oil container to be sure it includes the letters SE or later (or equivalent).

SAE 5W-30 is recommended for general use.

CAUTION:

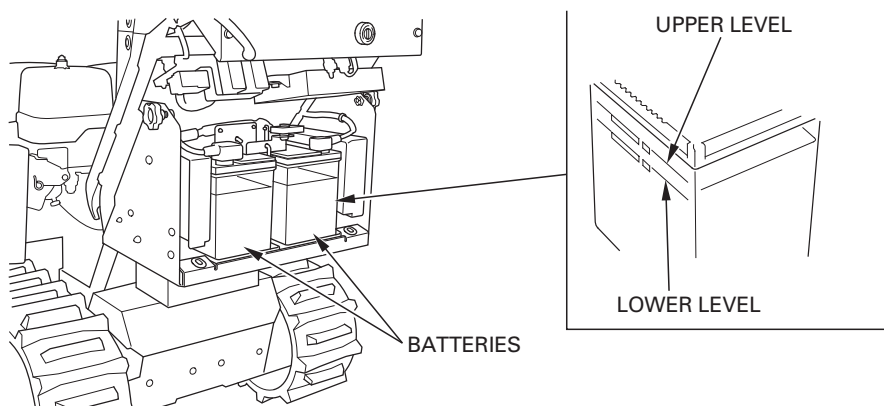
- **Engine oil is a major factor affecting engine performance and service life. Nondetergent oils and 2-stroke engine oils are not recommended because of inadequate lubricating properties.**
- **Running the engine with insufficient oil can cause serious engine damage.**

Tighten the oil filler cap/dipstick securely.

Battery electrolyte level

Remove the rear cover (see page 92) and check whether the battery electrolyte is between the upper and lower levels.

If the battery electrolyte is near or below the lower level, fill the distilled water to the upper level.



After checking the electrolyte level, reinstall the rear cover (see page 94).

▲WARNING

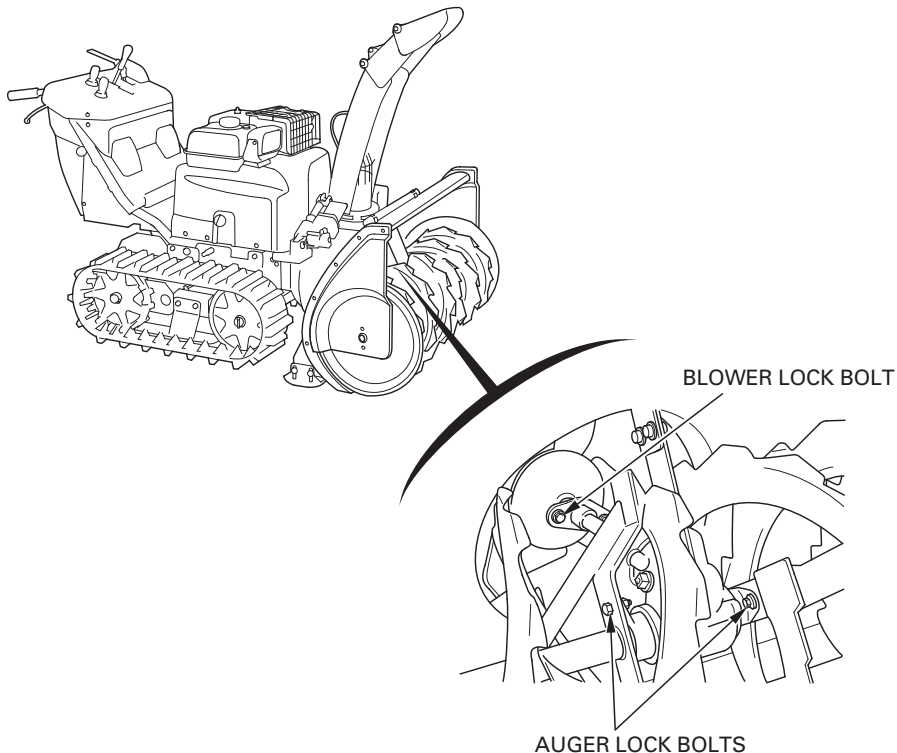
- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging or using batteries in an enclosed space.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.
- **KEEP OUT OF REACH OF CHILDREN.**

CAUTION:

- Use only distilled water in the battery. Tap water will shorten the service life of the battery.
- Do not fill the battery beyond the **UPPER LEVEL**. If overfilled, electrolyte may overflow and corrode snow thrower components. Immediately wash off any spilled electrolyte.

Auger and blower bolts

Check the auger and blower for loose or broken bolts. If broken, replace them with new ones (see page 88).



▲WARNING

Before checking the auger and blower, stop the engine and remove the engine switch key to prevent accidental start of the engine.

Other checks

1. Check the skid and scraper (see page 50).
2. Check all bolts, nuts and other fasteners for security.
3. Check each part for operation.
4. Check that the indicators work properly.
5. Check the entire machine for any other faults that might have been caused previously.

6. STARTING THE ENGINE

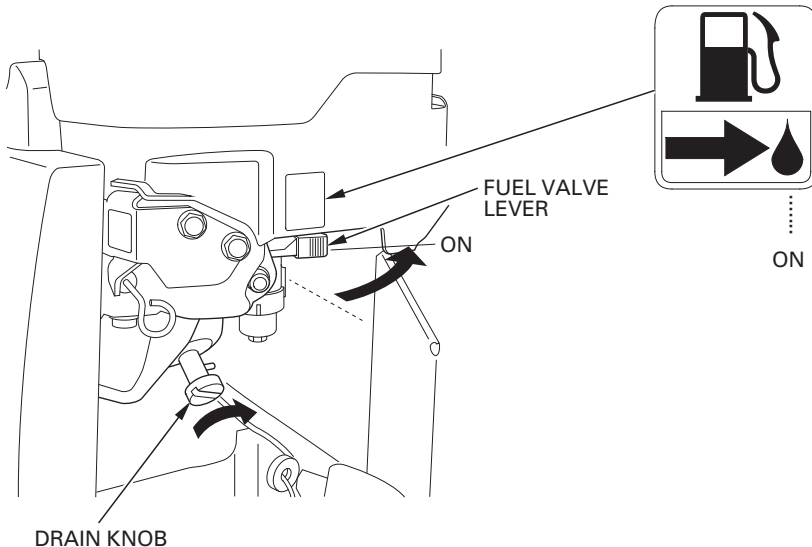
▲WARNING

- Never run the engine in an enclosed or confined area. Exhaust contains poisonous carbon monoxide gas; exposure can cause loss of consciousness and may lead to death.
- Start the engine by placing the snow thrower on a firm level ground.

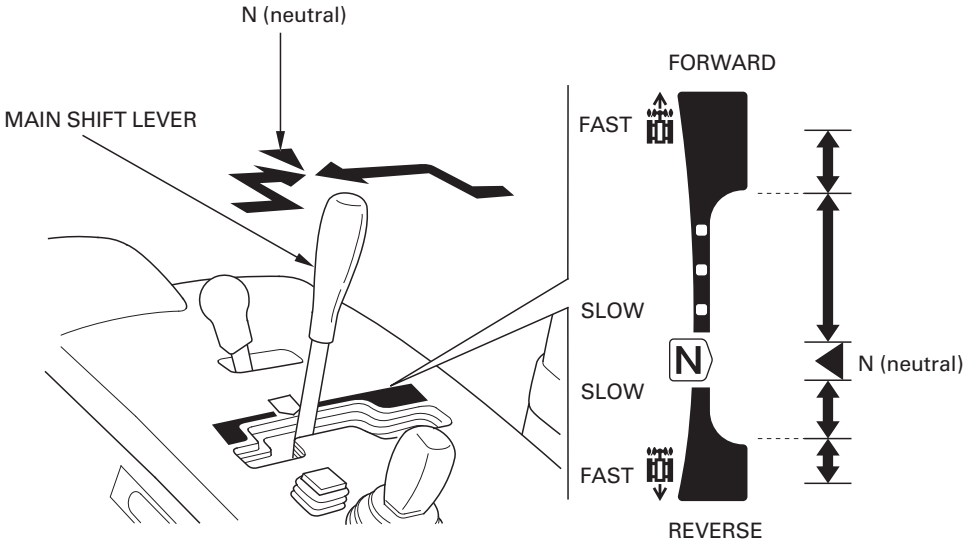
CAUTION:

- Never hold or squeeze the drive clutch lever and auger clutch switch when operating the starter motor; the machine will start suddenly as the engine starts, resulting in accident or injury.
- To start and stop the engine and snow thrower on a sloping surface, be sure to set the main shift lever in N (neutral) position with the drive clutch lever released.

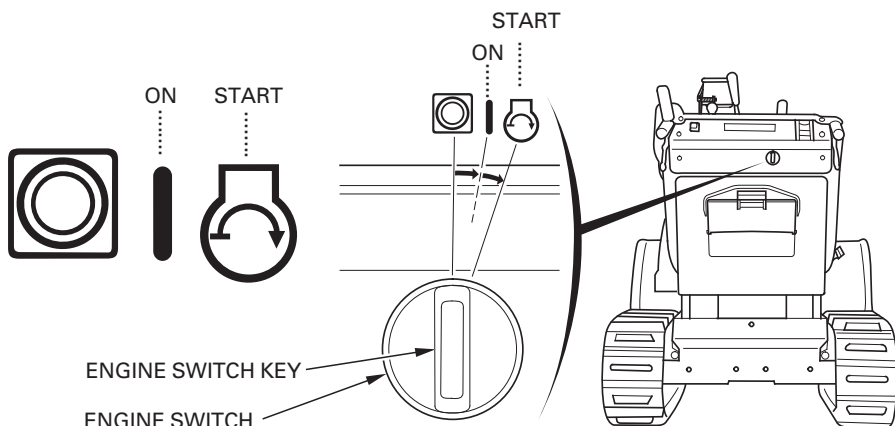
1. Turn the fuel valve lever to the ON position.
Be sure that the drain knob is tightened securely.



2. Set the main shift lever in the N (neutral) position.

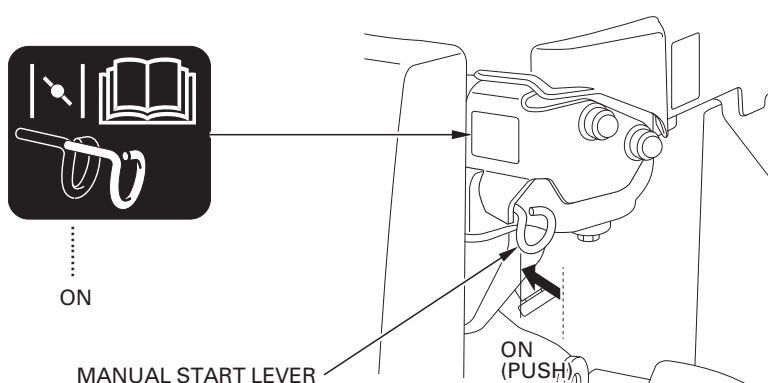


3. Turn the engine switch to the **START** position and release the switch after the engine is started. The switch automatically returns to the **ON** position.



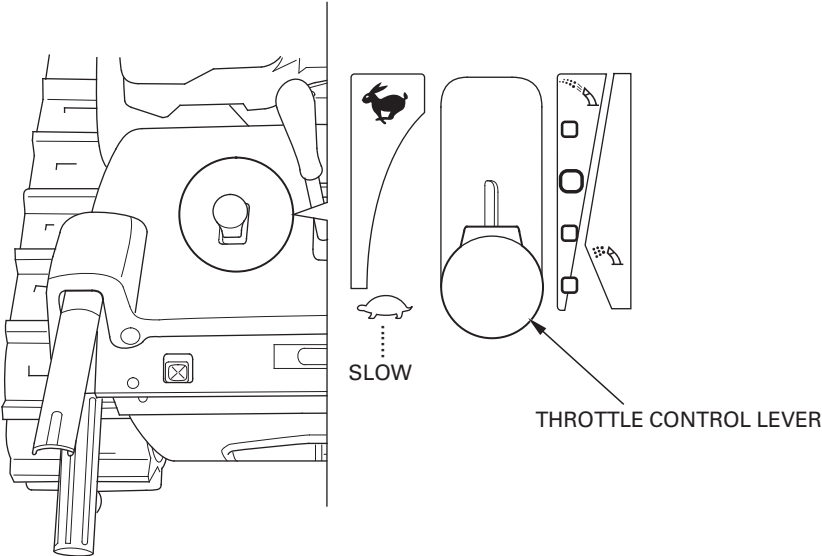
CAUTION:

- If the engine does not start within 5 seconds after cranking the starter, wait for about 10 seconds and restart the engine.
- Note that the starter does not crank when the auger clutch switch or drive clutch lever is operated (engine start interlock).
- This snow thrower is equipped with the auto choke system. However, it may not function properly when foreign material (ice, etc.) is stuck on the system.
- If the engine does not start after 5 attempts, push and release the manual start lever one time and try to start the engine.
- If the engine still does not start, push and hold the manual start lever and try again.

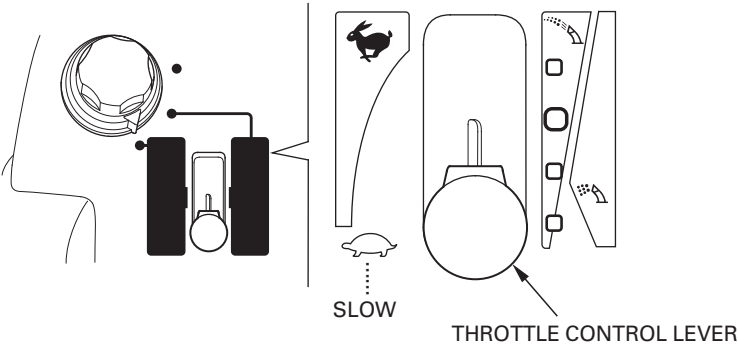


4. After starting the engine, check that the engine speed is stabilizing. Move the throttle control lever to the SLOW position gradually and warm up the engine to the normal operating temperature.

(HSM1380i)



(HSM1390i)



Carburetor Modification for High Altitude Operation

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emission.

High altitude performance can be improved by specific modifications to the carburetor. If you always operate your snow thrower at altitudes above 1,500 meters (5,000 feet), have your authorized Honda servicing dealer perform this carburetor modification.

This engine, when operated at high altitude with the carburetor modifications for high altitude use, will meet each emission standard throughout its useful life.

Even with carburetor modification, engine horsepower will decrease about 3.5 % for each 300 meter (1,000 foot) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

CAUTION:

When the carburetor has been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at altitudes below 1,500 meters (5,000 feet) with a modified carburetor may cause the engine to overheat and result in serious engine damage. For use at low altitudes, have your servicing dealer return the carburetor to original factory specifications.

7. SNOW THROWER OPERATION

▲WARNING

Before operating this equipment you should read and understand the **SAFETY INSTRUCTIONS** on page 3 through 8.

Efficiency of the snow removal work is significantly affected by the snow condition (e.g. dry, wet etc.). Adjust the skid position, the scraper position, and the auger housing height as needed for optimum snow removal.

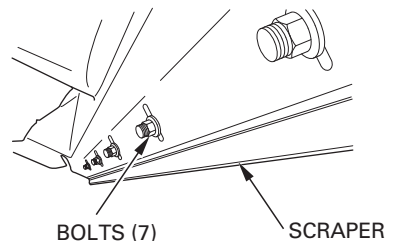
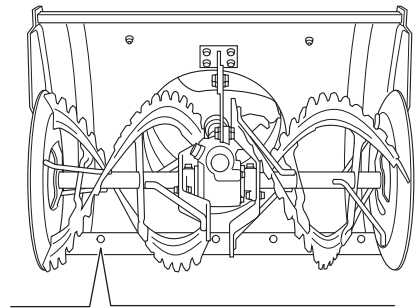
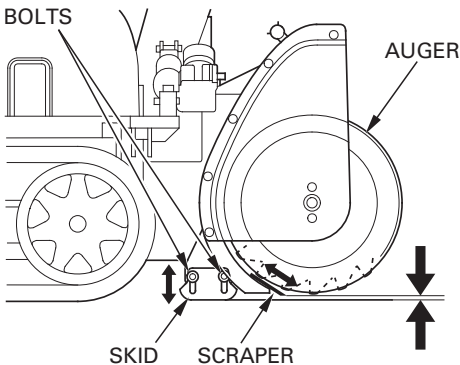
Skid and scraper

Adjust the skid for the auger housing ground clearance best suited to your snow removal conditions.

▲WARNING

To prevent accidental starting, turn the engine switch to the **OFF** position and remove the key from the engine switch.

1. Hold the auger housing horizontally and lower the auger on the ground by operating the auger control switch.
2. Turn the engine switch OFF and remove the key from the engine switch.
3. Loosen the bolts and adjust the skid and scraper height in accordance with the road surface condition where you are to clear the snow (see pages 51 and 52).



NOTE:

- Adjust the skid equally on both sides.
- Be sure to tighten the skid and scraper bolts securely after making adjustment.

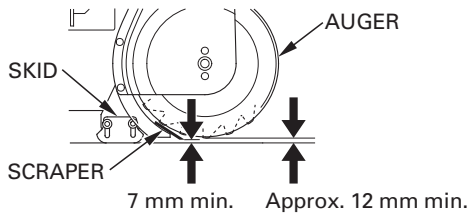
CAUTION:

Do not use the snow thrower on rough or uneven surfaces with the auger ground clearance set for hard snow or surfaces.

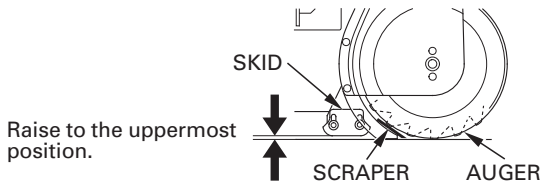
This may cause serious damage to the snow blowing mechanism.

● Adjust the skid and scraper in the following cases

- When the auger interferes with the road surface while it is turning:
- When clearing the snow from the graveled road:
Raise the auger approximately 12 mm from the ground and secure the skid in this position.
Secure the scraper by raising it 7 mm from the ground.
Do not clear the snow thoroughly from the ground. Leave some on the ground to prevent gravel and other foreign material being caught in the auger.



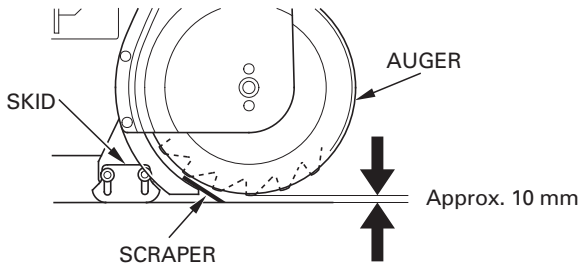
- To break down the hardened snow that dropped from the roof:
- When the snow is too hard to dig in, making the snow thrower rise on the snow:
Raise the skid and scraper to the uppermost position of the adjustment range with the auger in contact with the ground, and secure the skid and scraper in position.



CAUTION:

Note that the road surface can be damaged and stones can be thrown out of the auger if it comes in contact with the ground. Return the skid and scraper to the original position when operating the snow thrower under normal conditions.

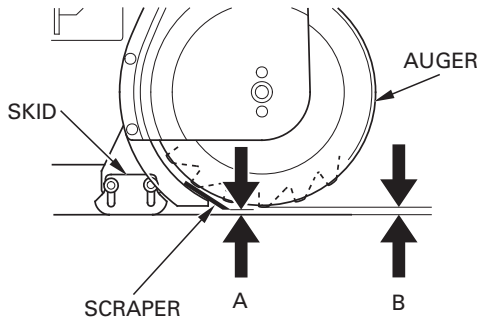
- To clear the snow more neatly:
Bring the skid to be in contact with the ground with the auger raised approximately 10 mm from the ground. Secure the skid in this position.
Secure the scraper by bringing it in contact with the ground.



Factory pre-set clearance:

At the scraper (A): 3–7 mm (0.1–0.3 in)

At the auger (B): 8–12 mm (0.3–0.5 in)



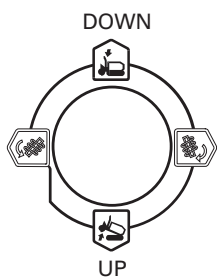
Auger housing height

1. Operate the auger housing control switch back and forth. The auger housing height can be adjusted without discrete steps.
To raise: Pull the auger housing control switch to UP.
To lower: Push the auger housing control switch to DOWN.
2. Release the auger housing control switch, and the auger housing is secured in the position.

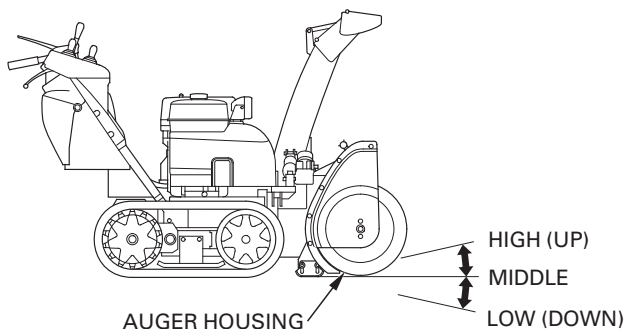
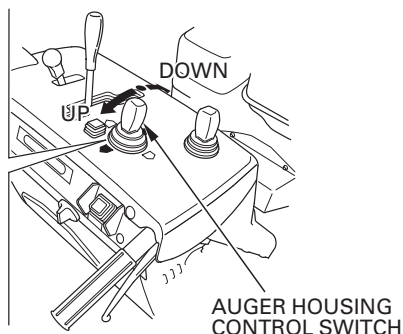
HIGH: Use this position when clearing the snow in steps and use it when reversing or driving the snow thrower. (When the ICS switch (HSM1380i) is ON/the mode selector switch (HSM1390i) is AUTO or POWER, use this position when reversing the snow thrower.)

MIDDLE: Position for normal clearing. (Use this position to clear the snow normally.)

LOW: Position for clearing hardened snow. (Use this position when the snow you are to clear is hardened and the snow clearing part of the snow thrower tends to get raised.)



[Example: HSM1380i (ETDR type)]



CAUTION:

Use the LOW position (i.e. position for clearing hardened snow) only for clearing hardened snow. Do not set the auger housing in this position while clearing soft snow or clearing on a bumpy road. This can damage the road surface or cause stones to be thrown out of the auger, which is very dangerous. Also, it can cause excessive wear and damage to the snow clearing part of the snow thrower.

NOTE:

- When the ICS switch (HSM1380i) is in ON/the mode selector switch (HSM1390i) is in AUTO or POWER, the auger housing automatically rises while going in reverse.
In case the auger clutch switch is in the ON position, the auger is automatically returned to the original position when the snow thrower is transporting forward again (ETDR type).
- If you want to stop the automatic movement of the auger housing, turn off the ICS switch (HSM1380i) and change the mode selector switch (HSM1390i) to the "SELF" position.
- To stop the automatically movement of the auger housing, push the control switch once to the opposite direction of the movement.
- Frequent operation of the auger housing control switch activates the protection function and makes the drive control warning indicator (orange) blink, which prevents you from adjusting the snow clearing part of the snow thrower. Stop operating the auger housing control switch and wait a few seconds before operating the switch again.

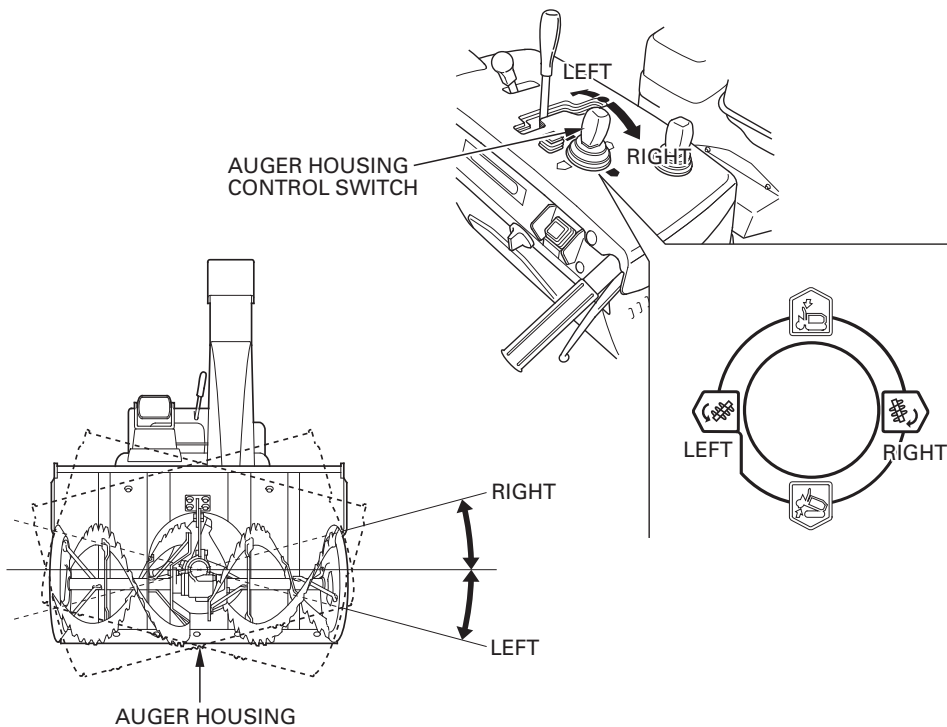
Auger housing angle

[HSM1380i (ETDR type), HSM1390i]

When the auger housing is tilted during snow removal, adjust the tilt angle by operating the auger housing control switch.

When the auger is tilted toward the right: Move the switch toward the right.

When the auger is tilted toward the left: Move the switch toward the left.



CAUTION:

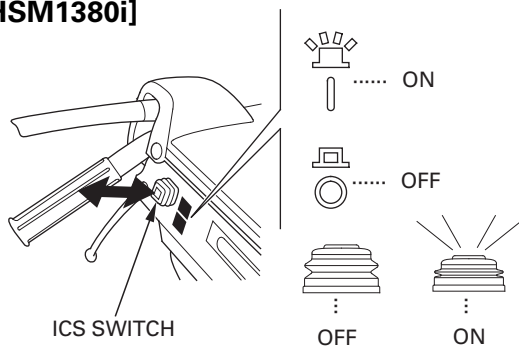
- **The control motor may overheat, which can cause a malfunction of the protector circuit and motor and make the auger housing unadjustable.**
- **Stop operating the switch when the auger housing reaches the right end or left end position. Do not hold the auger housing control switch operated.**

Operation

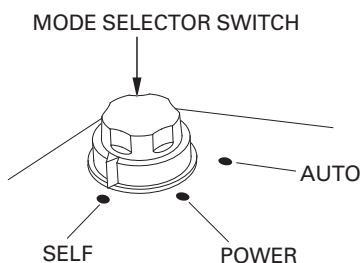
1. Start the engine (see pages 45 through 48).
2. Select the snow clearing work mode.
 - 1. Check that the main shift lever is in the N (neutral) position.
 - 2. Select the appropriate work mode to clear the snow by pushing the ICS switch to either the ON or OFF position (HSM1380i)/ turning the mode selector switch to either the SELF, POWER, or AUTO position (HSM1390i).

Note that the operation and performance of the snow thrower differ according to the work mode you select. Select the appropriate work mode for your situation (see pages 21 through 23 for the characteristics of each mode).

[HSM1380i]



[HSM1390i]



Tips for selecting the work mode:

AUTO mode (HSM1390i): see page 22.

- 1) Not familiar with operating the snow thrower.
- 2) Does not want to operate the various switches while clearing the snow.
- 3) Want to clear the snow as quietly as possible.
- 4) Want the auger to rise up as little as possible.

ON (HSM1380i)/POWER (HSM1390i) mode: see pages 21 and 23.

- 1) Want to adjust the traveling speed automatically according to the workload while clearing the snow.
- 2) Want to throw the snow far from the snow thrower.
- 3) Want to finish clearing the snow as quickly as possible.

OFF (HSM1380i)/SELF (HSM1390i) mode: see pages 21 and 23.
Want to operate the switches as you like.

CAUTION:
[HSM1390i]

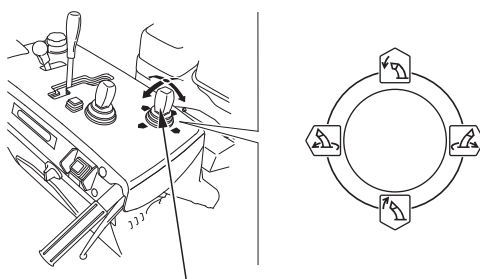
Do not turn the mode selector switch to another position while the snow thrower is moving. The electronic control unit will interpret this as a failure; the snow thrower will stop moving and the auger will stop turning.

When the snow thrower and auger stop moving/turning, move the main shift lever to the N (neutral) position, release the drive clutch lever.

Check each part to verify it is in its proper position before resuming operation.

3a. Clearing in AUTO mode (HSM1390i)

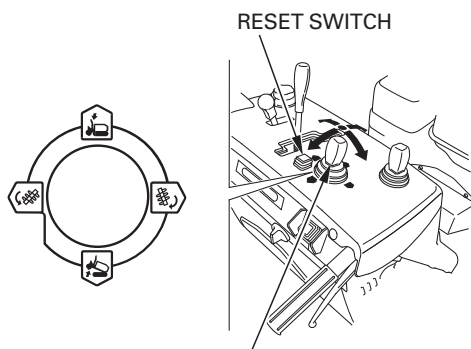
Setting the mode selector switch at the AUTO position can simplify clearing the snow. AUTO mode keeps the auger from rising, adjusts the engine speed automatically, etc.



CHUTER CONTROL SWITCH

- 1) Operate the chuter control switch to adjust the snow discharge direction and angle (see page 30).

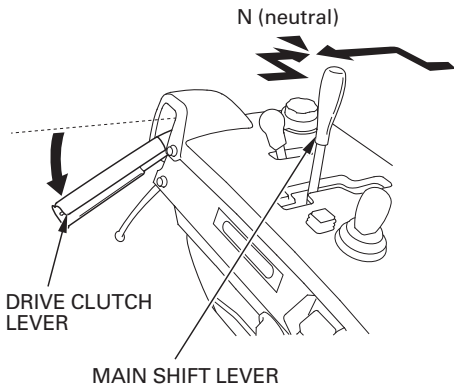
- 2) Operate the auger housing control switch to adjust the auger to be parallel to the road surface (see pages 53 through 55).



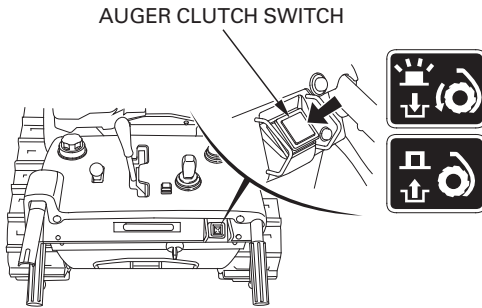
AUGER HOUSING CONTROL SWITCH

[ETDR type]

- You can return the auger to the initial position by pushing the reset switch.
- If you return the auger to the initial position by pushing the reset switch, the auger can hit against the road surface or can be raised from the road, resulting in some snow left on the ground, depending on the road condition and the position of the snow thrower. Adjust the auger position as needed.



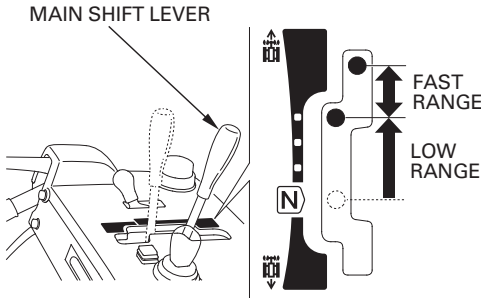
- 3) Check that the main shift lever is in the N (neutral) position and squeeze the drive clutch lever.



- 4) Push the auger clutch switch to operate on the auger and blower.
 - The indicator (green) comes on when you push the auger clutch switch.
 - When the auger clutch switch is pushed for three seconds or longer, the protection function gets armed. This stops the auger and blower from turning.
 - The auger and blower keep turning while the drive clutch lever is squeezed. Push the auger clutch switch again to stop the auger and blower. (Interlocking operation of the drive clutch lever and auger clutch switch)

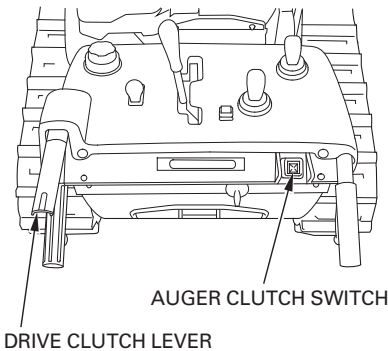
▲WARNING

The auger and blower will start to turn when the drive clutch lever and auger clutch switch is operated. Check around the snow thrower for safety before operating the lever and switch.



5) Move the main shift lever fully to the end of the forward low speed range slowly and clear the snow.

- When the auger hits against the road or inclines to a side, adjust the auger housing position by operating the auger housing control switch.
- When the snow is small in volume or light in nature, move the main shift lever to the high speed side. Perform minor adjustment of the main shift lever to stabilize the operating speed if necessary.



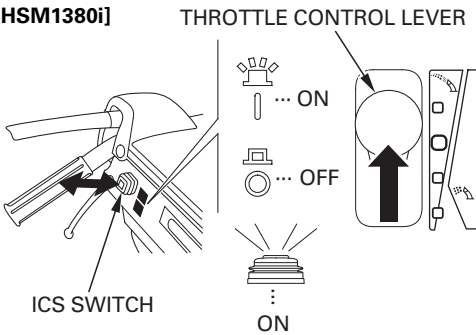
6) When the drive clutch lever is released, the auger clutch switch indicator (green) goes off, both the auger and blower stop turning, and the snow thrower stops moving.

To move from one place to another, or to change direction, use the drive clutch lever only. Release the drive clutch lever once, then squeeze the drive clutch lever again.

3b. Clearing in ON (HSM1380i)/POWER (HSM1390i) mode
 With the ICS switch in the ON position (HSM1380i)/mode selector switch in the POWER position (HSM1390i) you can adjust the engine speed and snow discharge distance. Use the throttle control lever to adjust the engine speed, which determines how fast snow is picked up and how far it is thrown. Use the chuter control switch to adjust height and direction of the snow discharge.

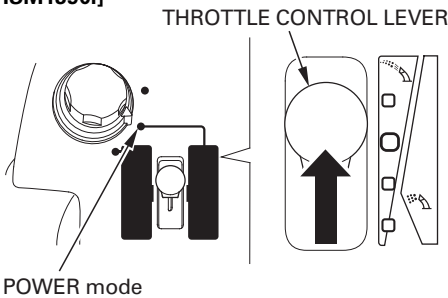
- Note that the throttle control lever only functions after the auger is turning. The engine speed is maintained automatically in ON (HSM1380i)/POWER (HSM1390i) mode (see page 24).

[HSM1380i]

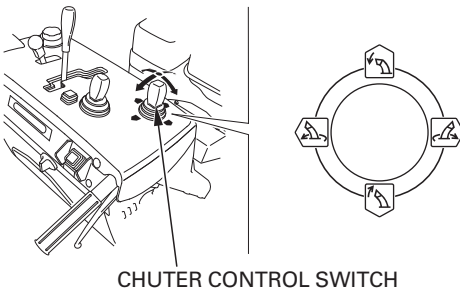


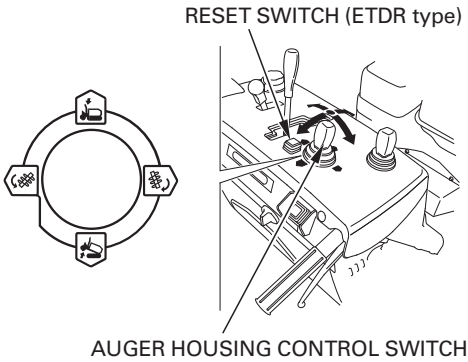
- 1) Set the throttle control lever in the third position from the bottom.

[HSM1390i]



- 2) Operate the chuter control switch to adjust the snow discharge direction and angle (see page 30).

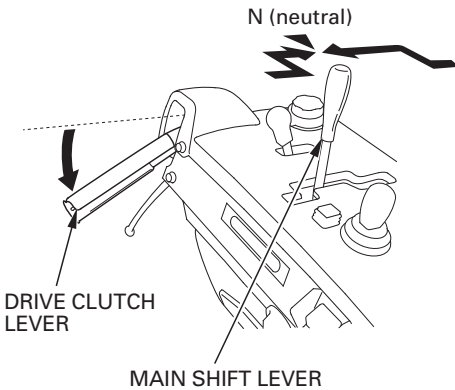




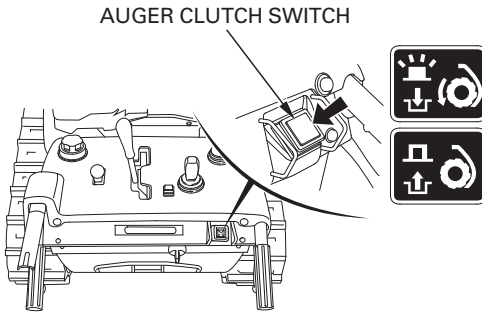
3) Operate the auger housing control switch to adjust the auger to be parallel to the road surface (see pages 53 through 55).

[ETDR type]

- You can return the auger to the initial position by pushing the reset switch.
- If you return the auger to the initial position by pushing the reset switch, the auger can hit against the road surface or can be raised from the road, resulting in some snow left on the ground, depending on the road condition and the position of the snow thrower. Adjust the auger position as needed.



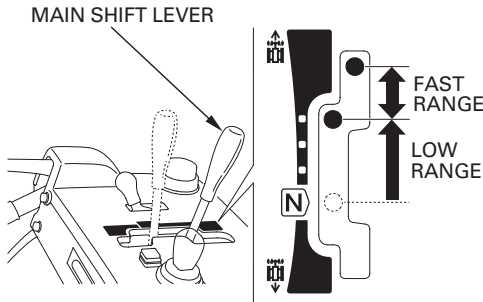
4) Check that the main shift lever is in the N (neutral) position and squeeze the drive clutch lever.



- 5) Push the auger clutch switch to operate on the auger and blower.
- The indicator (green) comes on when you push the auger clutch switch.
 - When the auger clutch switch is pushed for three seconds or longer, the protection function gets armed. This stops the auger and blower from turning.
 - The auger and blower keep turning while the drive clutch lever is squeezed. Push the auger clutch switch again to stop the auger and blower. (Interlocking operation of the drive clutch lever and auger clutch switch)

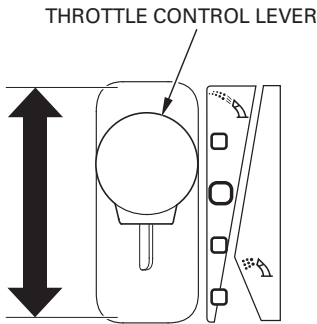
▲ WARNING

The auger and blower will start to turn when the drive clutch lever and auger clutch switch is operated. Check around the snow thrower for safety before operating the lever and switch.



6) Move the main shift lever fully to the end of the forward low speed range slowly and clear the snow.

- When the auger hits against the road or inclines to a side, adjust the auger housing position by operating the auger housing control switch.
- When the snow is small in volume or light in nature, move the main shift lever to the high speed side. Perform minor adjustment of the main shift lever to stabilize the operating speed if necessary.

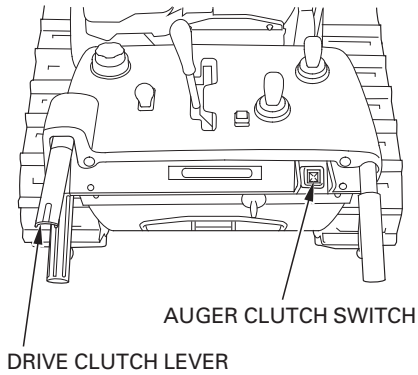


7) After stabilizing the operating speed, adjust the snow discharge distance by operating the throttle control lever as needed.

- Traveling speed will decrease by increasing the snow discharge distance, while the speed will increase by decreasing the snow discharge distance. Adjust the snow discharge distance by operating the throttle control lever as needed.

Throttle control lever		Engine speed	Snow discharge distance	Snow amount*
Fast range ↑ ↓ Slow range	4th	Fast ↑ ↓ Slow	Long ↑ ↓ Short	Small
	3rd			Large
	2nd			
	1st			Small

*For the amount of removed snow, 2nd is the largest.



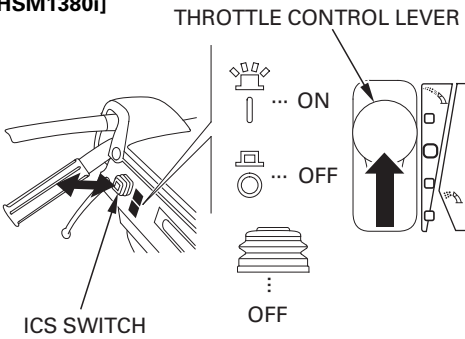
- 8) When the drive clutch lever is released, the auger clutch switch indicator (green) goes off, both the auger and blower stop turning, and the snow thrower stops moving.

To move from one place to another, or to change direction, use the drive clutch lever only. Release the drive clutch lever once, then squeeze the drive clutch lever again.

3c. Clearing in OFF (HSM1380i)/SELF (HSM1390i) mode

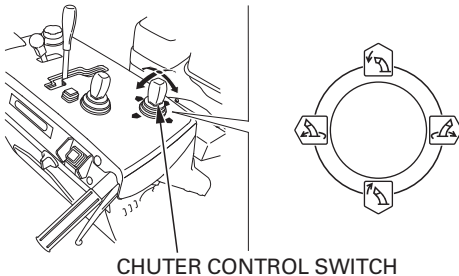
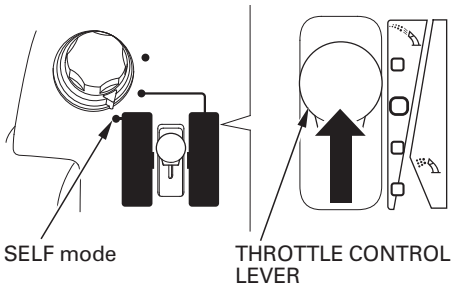
Nothing is controlled automatically when the ICS switch is set at the OFF position (HSM1380i)/mode selector switch is set at the SELF position (HSM1390i). Engine speed and operating speed can be adjusted freely by selecting the OFF position (HSM1380i)/SELF mode (HSM1390i).

[HSM1380i]

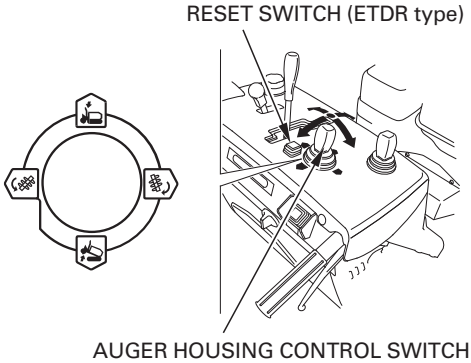


- 1) Set the throttle control lever in the third position from the bottom.

[HSM1390i]



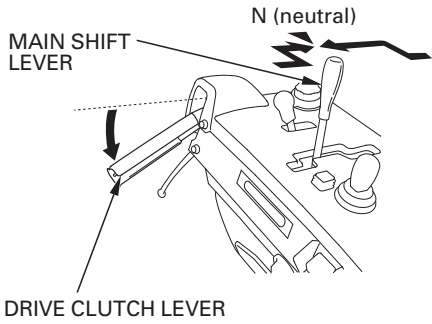
- 2) Operate the chuter control switch to adjust the snow discharge direction and angle (see page 30).



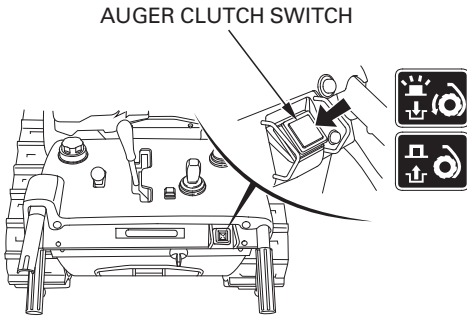
3) Operate the auger housing control switch to adjust the auger to be parallel to the road surface (see pages 53 through 55).

[ETDR type]

- You can return the auger to the initial position by pushing the reset switch.
- If you return the auger to the initial position by pushing the reset switch, the auger can hit against the road surface or can be raised from the road, resulting in some snow left on the ground, depending on the road condition and the position of the snow thrower. Adjust the auger position as needed.



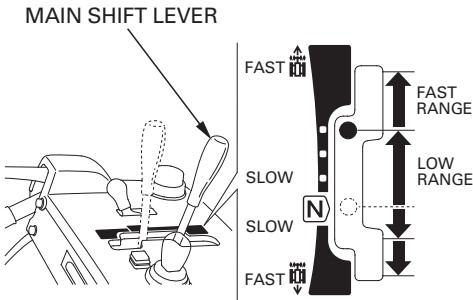
4) Check that the main shift lever is in the N (neutral) position and squeeze the drive clutch lever.



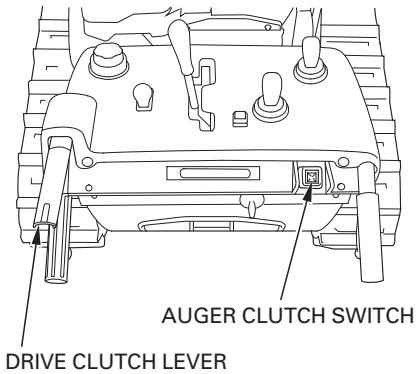
- 5) Push the auger clutch switch to operate on the auger and blower.
 - The indicator (green) comes on when you push the auger clutch switch.
 - When the auger clutch switch is pushed for three seconds or longer, the protection function gets armed. This stops the auger and blower from turning.
 - The auger and blower keep turning while the drive clutch lever is squeezed. Push the auger clutch switch again to stop the auger and blower. (Interlocking operation of the drive clutch lever and auger clutch switch)

▲WARNING

The auger and blower will start to turn when the drive clutch lever and auger clutch switch is operated. Check around the snow thrower for safety before operating the lever and switch.



- 6) Adjust the operating speed by moving the main shift lever to a position within the slow speed range according to the volume and nature of the snow, and clear the snow.
 - Even when you are clearing the snow, adjust the operating speed as needed by operating the main shift lever according to the change of the volume and nature of the snow.
 - When the snow is small in volume or light in nature, move the main shift lever to the high speed side. Perform minor adjustment of the main shift lever to stabilize the operating speed if necessary.



- 7) When the drive clutch lever is released, the auger clutch switch indicator (green) goes off, both the auger and blower stop turning, and the snow thrower stops moving.

To move from one place to another, or to change direction, use the drive clutch lever only. Release the drive clutch lever once, then squeeze the drive clutch lever again.

Turning the snow thrower

You can change the direction of your snow thrower while moving by squeezing either the right or left steering lever. You can make two types of turns, normal turn and turn on the spot (to correct the driving direction on the spot), depending on the position of the main shift lever and the degree of squeezing pressure on the steering lever.

To turn to the left: Squeeze the steering lever (left).

To turn to the right: Squeeze the steering lever (right).

●Normal turn

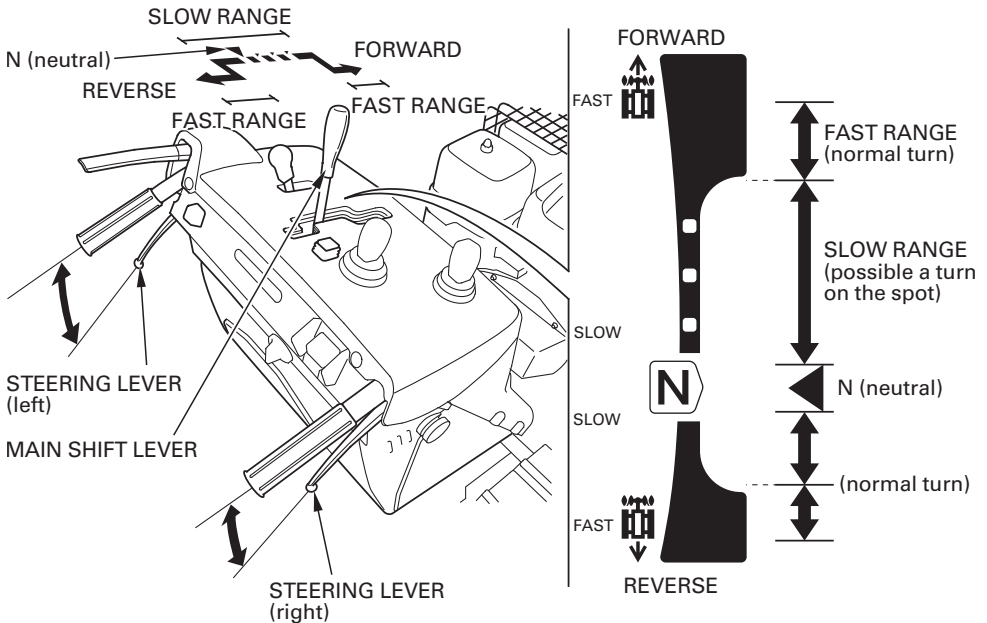
To make a large turn: Squeeze a steering lever lightly.

To make a small turn: Squeeze a steering lever fully.

●Turn on the spot

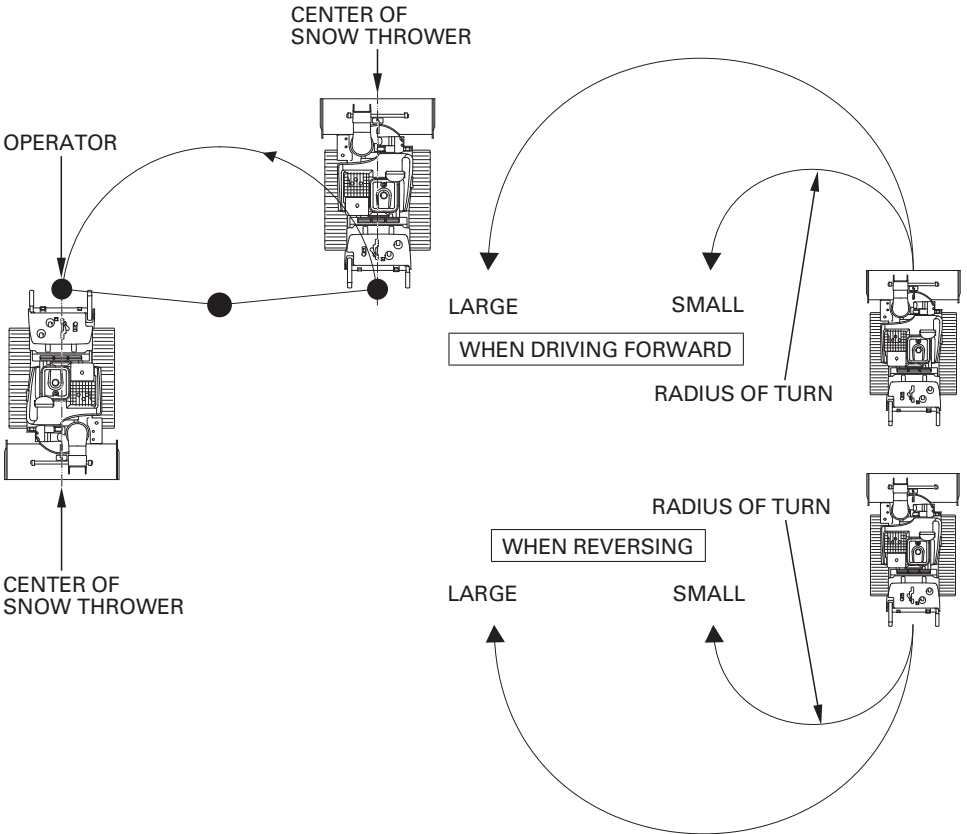
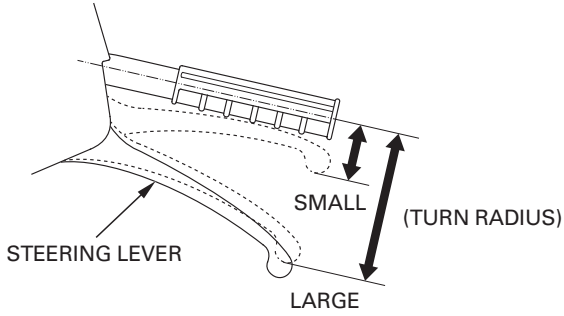
Squeeze the steering lever fully on the side to which you want to turn the snow thrower while driving forward at slow range, and you can make a turn on the spot (i.e. correct the direction on the spot).

This function facilitates changing or correcting the direction in a narrow place such as when moving the snow thrower in or out of the storage.



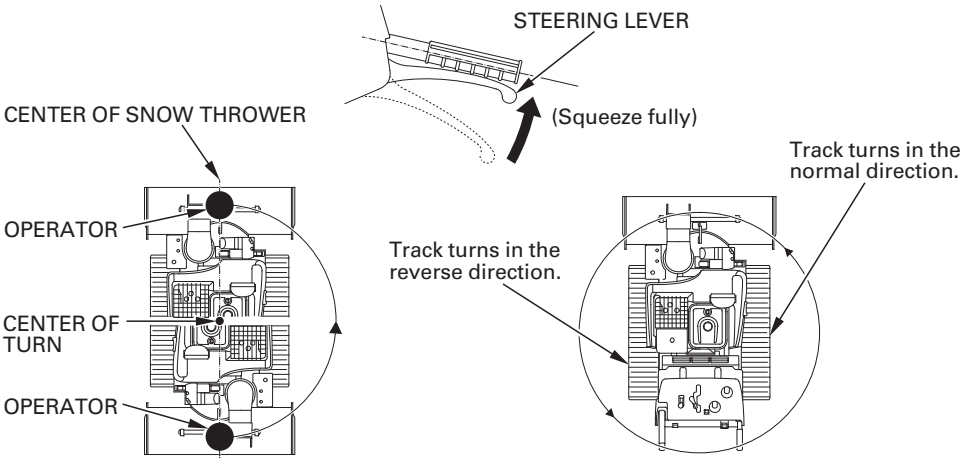
Example: To turn to the left (To turn to the right is the mirror image of the illustrations.)

●Normal turn (Left steering lever squeezed halfway)



●Turn on the spot (Steering lever fully squeezed)

The track on the side to which you are to turn turns in the reverse direction, which makes the snow thrower turn on the spot (corrects the direction on the spot).



Drive motor control protection system

This snow thrower is designed to drive with the motor power. When an excessive load is applied to the motor, which depends on an operation condition of the snow thrower, the protection circuit is armed making the drive control warning indicator (orange) blink and possibly slowing down or stopping the snow thrower.

If this symptom occurs, release the drive clutch lever and stop the work. Keep the engine switch in the ON position and wait until the drive control warning indicator (orange) does not blink. If the drive control warning indicator (orange) goes off, it indicates that the snow thrower has been restored to its normal condition and you can continue clearing snow.

Note that the protection system functions frequently if the motor is under an excessive load. Adjust the load to a proper level.

The snow thrower might be faulty if the engine does not restart or the drive control warning indicator (orange) blinks when restarting the engine. Move the snow thrower to a safe place by removing the wheel pins from the tracks and check for the trouble by referring to the symptom-to-troubleshooting table (see pages 108 and 109). Have your authorized Honda snow thrower dealer check and repair your snow thrower if necessary.

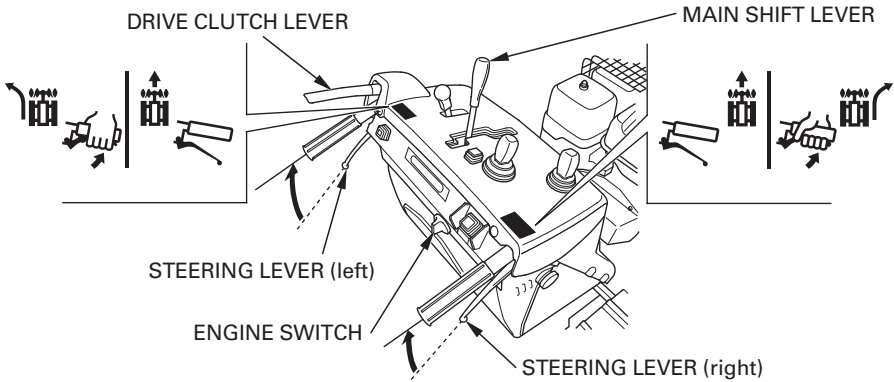
See page 120 for wheel pin removal.

Battery run mode

Use the battery run mode to drive the snow thrower in case the engine does not start.

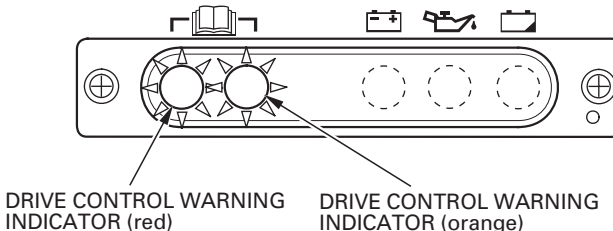
When the main shift lever is in the other position, excepting the N (neutral) position, the drive control warning indicator (orange) blinks and you can not start the battery run mode, even if the right and left steering levers are squeezed simultaneously for approximately 3 seconds.

- 1. Set the main shift lever in the N (neutral) position.
- 2. Release the drive clutch lever to set it in the STOP position.
- 3. Turn the engine switch to the ON position.
- 4. Squeeze the right and left steering levers simultaneously for approximately 3 seconds.



- 5. Both the drive control warning indicator (red) and the drive control warning indicator (orange) blink after squeezing the right and left steering levers for approximately 3 seconds. Squeeze the drive clutch lever when the indicators blink.

If the drive clutch lever and the main shift lever are not operated within 5 seconds after the drive control warning indicators start to blink, the indicators stop blinking but they stay on automatically. The battery run mode is automatically disarmed this time, which prevents the snow thrower from running with the battery power. Return the engine switch to the OFF position and restart the engine. The battery run mode keeps on while the drive clutch lever is squeezed.



-
- 6. Run the snow thrower at an adequate speed by operating the main shift lever.
 - 7. After running, turn the engine switch to the OFF position.

NOTE:

- Use the battery run mode to drive the snow thrower in case the engine does not start.
- The battery run mode consumes battery power. Take care not to operate the battery run mode for longer than 3 aggregate minutes and operate it with the battery fully charged. Operating the battery run mode for longer than 3 minutes or frequent operation will discharge the batteries, which prevents you from starting the engine and snow thrower.
- Be sure to turn the engine switch to the OFF position after starting with the battery run mode. Leaving the engine switch at the ON position will discharge the battery and may cause an accident.
- Recharge the battery as needed (see page 102).
- Be sure to set the main shift lever in the N (neutral) position before starting the battery run mode.
- The snow thrower may not start under the following conditions.
 - Wheel pin(s) is/are broken or missing.
 - Battery is discharged.
 - Drive motor is faulty.

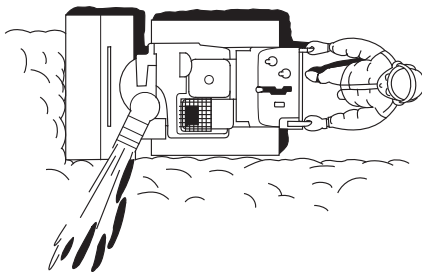
If necessary, move the snow thrower to a safe place by removing the wheel pins (see page 120).

Clearing snow

For efficient operation, it is important to select an adequate engine speed for the required snow discharge distance and clear the snow without lowering the engine speed. If the engine speed keeps dropping by setting the main shift lever in the LOW position, clear the snow as follows.

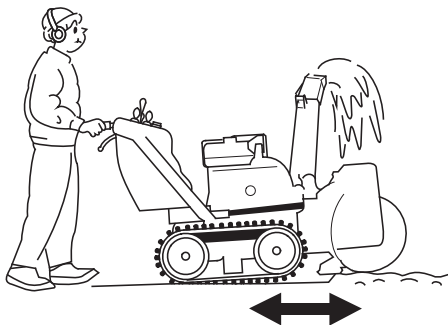
- Clearing in narrow width

When the snow is deep or hard, set the main shift lever in slow and clear the snow using a narrower clearing width (less than the width of the snow blowing mechanism).



- Clearing with back and forth motions

If the snow is so hard that the snow thrower tends to ride over the surface, push it back and forth to remove snow gradually.



NOTE:

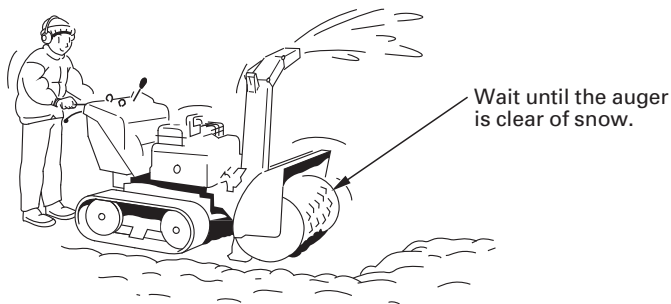
When the ICS switch (HSM1380i) is in ON/the mode selector switch (HSM1390i) is in AUTO or POWER, the auger housing automatically rises while going in reverse.

In case the auger clutch switch is in the ON position, the auger is automatically returned to the original position when the snow thrower is transporting forward again (ETDR type).

Intermittent clearing

Follow the steps below when the engine lugs against deep or heavy snow.

1. Operate the main shift lever and move it to the N (neutral) position until the snow thrower recovers the engine speed. (Allow the auger clutch switch indicator (green) to come on and keep the auger turning this time.)
2. After the auger is clear of snow and the snow thrower recovers the engine speed, move the main shift lever to the forward low speed range.
3. Repeat the above steps if engine speed is still reduced.



• Clearing in steps

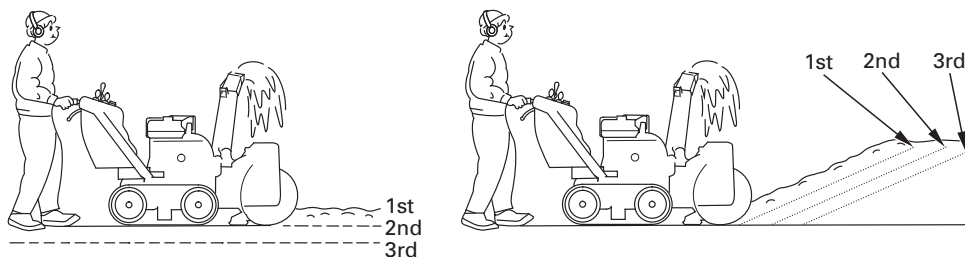
If the height of the snow is greater than the height of the snow blowing mechanism, remove it in several steps as shown.

1. To ascend the slope:

- Operate the auger housing control switch to raise the auger a little.

2. To dig into the snow:

- Operate the auger housing control switch to lower the auger a little.
- Adjust the skid position as needed (see page 51).



▲WARNING

- Adjust the snow discharge chute to avoid hitting the operator, bystanders, windows, and other objects with thrown snow. Stay clear of the snow discharge chute while the engine is running.
- To move from one place to another, or to change direction, use the drive clutch lever. Using the auger clutch switch will cause the snowblowing mechanism to rotate, possibly resulting in equipment damage or personal injury.

CAUTION:

Be sure to set the main shift lever in **SLOW RANGE** when removing the snow.

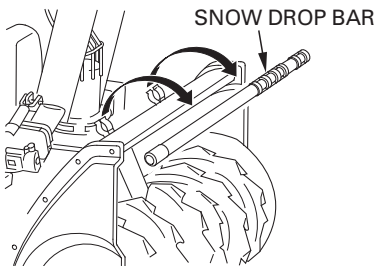
Clearing snow from snow discharge chute

▲WARNING

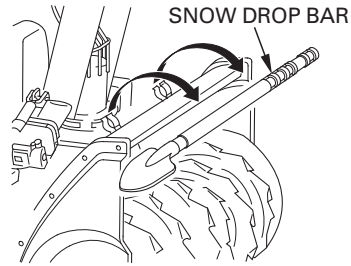
If the snow discharge chute becomes clogged, stop the engine, remove the engine switch key, and use a snow drop bar or a wooden stick to unclog the snow discharge chute.

Never put your hand into the snow discharge chute while the engine is running; serious personal injury could result.

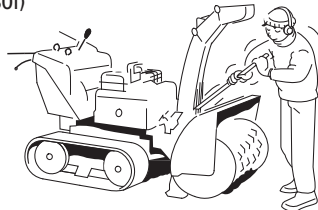
1. If the snow discharge chute is clogged with snow during operation, remove the snow from it using the snow drop bar.



(HSM1380i)



(HSM1390i)



2. After clearing the snow, clean and return the snow drop bar to its original position.

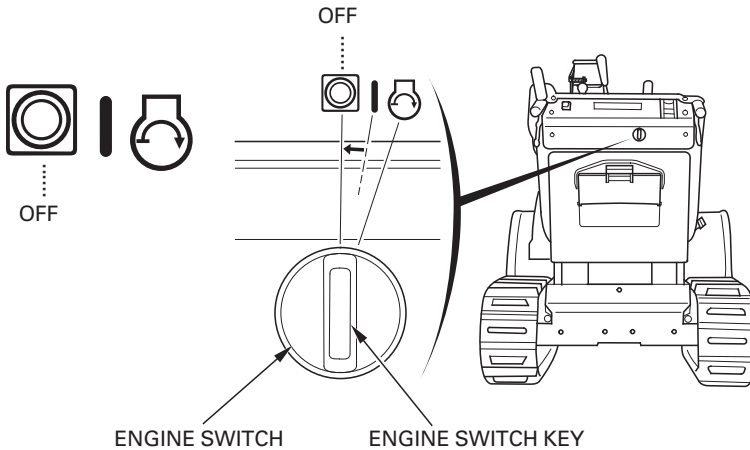
8. STOPPING THE ENGINE

▲WARNING

Park the snow thrower on a firm, level ground. You could be hurt or killed if the snow thrower moves unexpectedly.

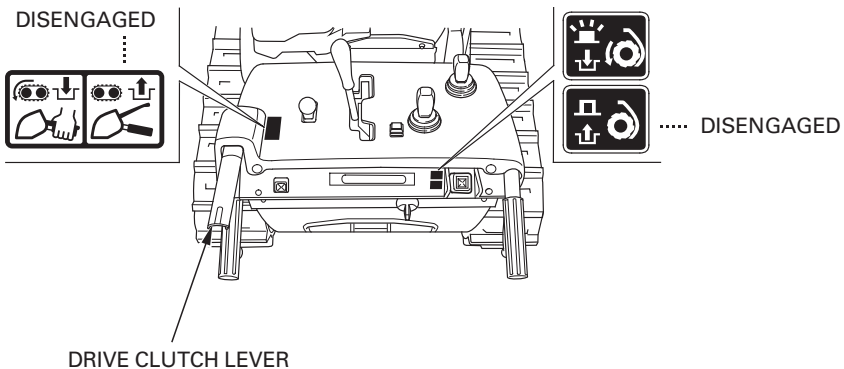
Emergency engine stopping

Turn the engine switch to the OFF position and remove the key. Be sure to release the drive clutch lever and the main shift lever to the N (neutral) positions before restarting the engine.

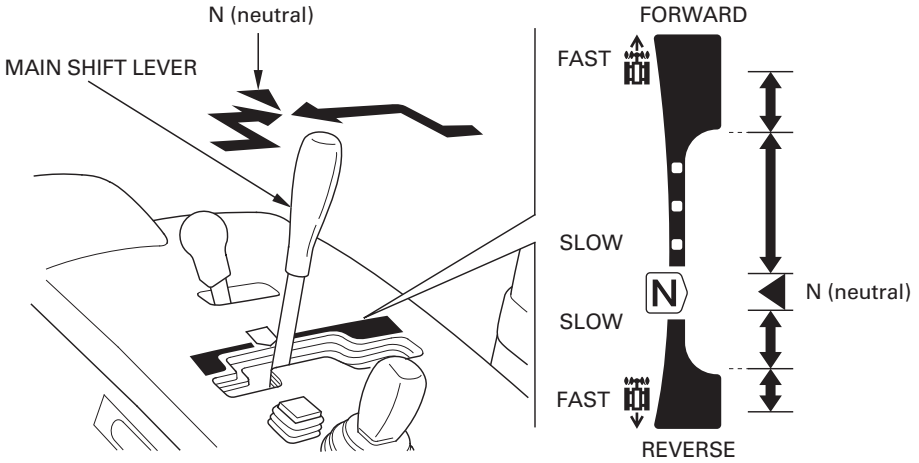


Normal engine stopping

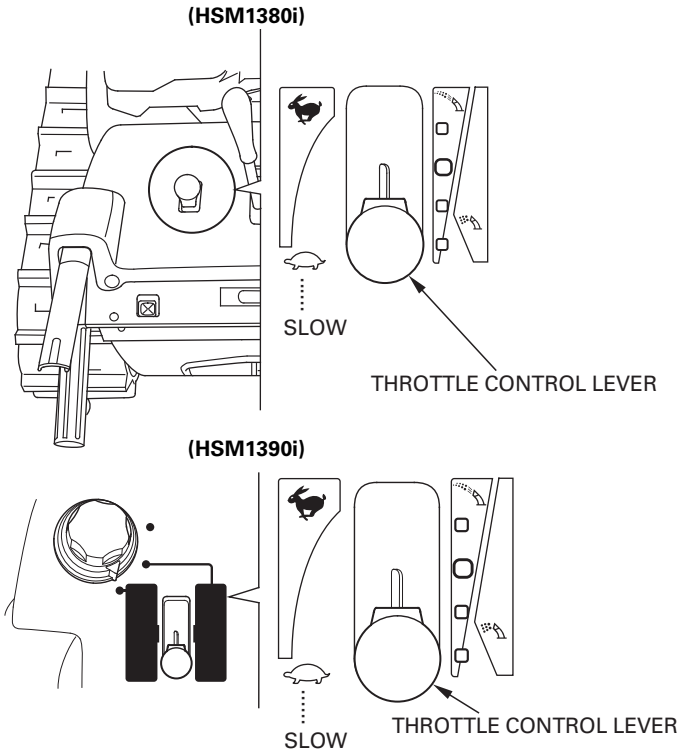
1. Release the drive clutch lever. The snow thrower stops traveling and the auger stops turning a few seconds later.



2. Set the main shift lever in the N (neutral) position.

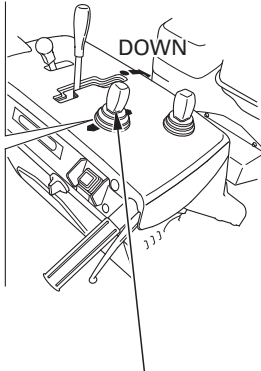
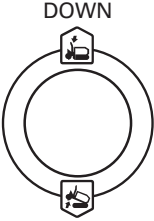


3. Move the throttle lever to the SLOW position.



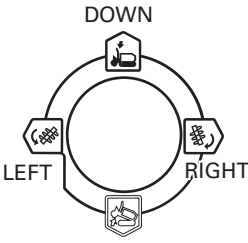
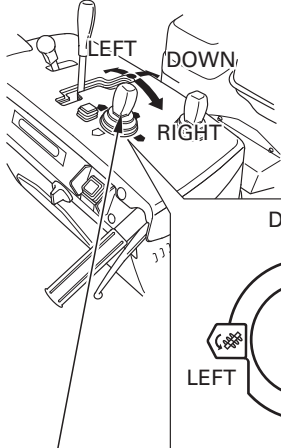
4. Operate the auger housing control switch until the snow blowing mechanism is resting on the ground firmly.

(ETD type)



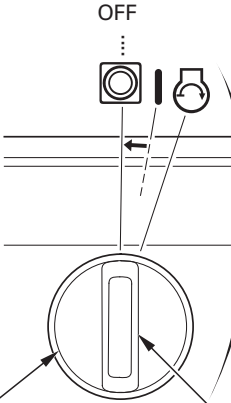
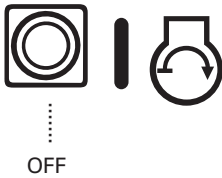
AUGER HOUSING CONTROL SWITCH

(ETDR type)



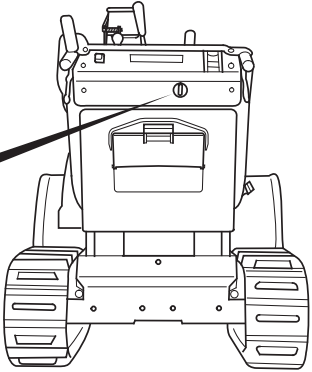
AUGER HOUSING CONTROL SWITCH

5. Turn the engine switch to the OFF position and remove the key.

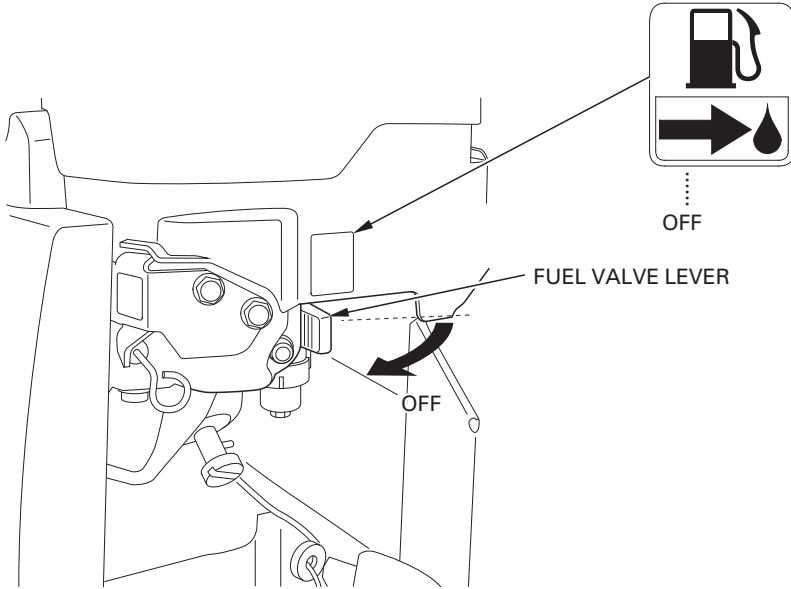


ENGINE SWITCH

ENGINE SWITCH KEY



6. Turn the fuel valve lever to the OFF position.



NOTE:

After operation, remove the snow from each part of the snow thrower and store the snow thrower. Snow left on the snow thrower may freeze, possibly damaging the snow thrower and hindering operation the next time.

9. MAINTENANCE

Periodic inspection and maintenance will help extend the service life of your snow thrower while keeping it in the best operating condition. Inspect or service as described in the table on next page.

▲WARNING

- **Shut off the engine before performing inspection and maintenance, and remove the key from the engine switch so the engine cannot be started.**
- **If the engine must be run, make sure the area is well-ventilated. Exhaust gas contains poisonous carbon monoxide; exposure can cause loss of consciousness and may lead to death.**

CAUTION:

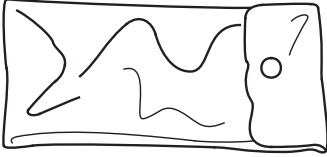
- **To avoid overturning, place the snow thrower on a level surface before performing inspection and maintenance.**
- **Use only genuine Honda parts or their equivalent. Replacement parts which are not of equivalent quality may damage the snow thrower.**

Maintenance schedule

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first.		Each use	Every year		First month or 20 hrs.	Every 100 hrs.	Every 300 hrs.	Every 4 years
			Before operation	Before storage				
Item								
Engine oil	Check level	o						
	Change		o (1)		o	o (1)		
Motor reduction gear oil	Check		o (2)					
Auger transmission oil	Change	Every 2 years. (2)						
Battery electrolyte (If applicable)	Check level	o						
	Check level and gravity		o (1) (2)					
Spark plug	Check-adjust		o (1)					
	Replace						o	o
Auger skid shoes and scraper	Check-adjust	o	o (1)					
Track	Check-adjust		o (1)		o			
Auger and blower lock bolt	Check	o						
Bolts, Nuts, Fasteners	Check	o						
Fuel sediment cup	Check			o				
Fuel tank and carburetor	Drain			o				
Anti corrosion oil	Apply oil			o				
Chute cable	Check-adjust		o (1) (2)		o (1) (2)			
Auger belt	Check-adjust		o (1) (2) (4)		o (1) (2) (4)			
ACG belt	Check-adjust		o (1) (2) (4)		o (1) (2) (4)			
Idle speed	Check-adjust		o (2)				o (2)	
Valve Clearance	Check-adjust		o (2)				o (2)	
Combustion chamber	Clean	After every 1,000 hrs. (2)						
Fuel tank and filter	Clean					o (2)		o (2)
Fuel tube	Check	Every 2 years. (2)						
	Replace							o (2)

- (1) These parts may require more frequent inspection and replacement under heavy use.
- (2) These items should be serviced by your servicing dealer.
- (3) For professional commercial use, log hours of operation to determine proper maintenance intervals.
- (4) Check the belt for wear or damage. Replace the belt with a new one if it is worn or damaged.

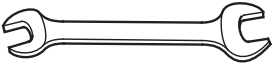
Tools



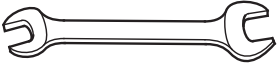
TOOL BAG



10 x 12 mm BOX-END WRENCH



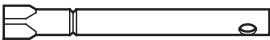
10 x 14 mm WRENCH



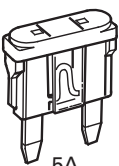
12 x 17 mm WRENCH (2)



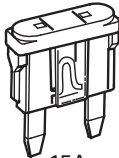
PLUG WRENCH HANDLE



SPARK PLUG WRENCH



5A



15A

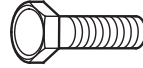
SPARE FUSE



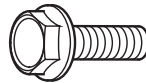
SPARE FUSE COVER



PLIERS



BLOWER LOCK BOLT (5)



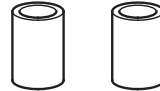
AUGER LOCK BOLT (10)



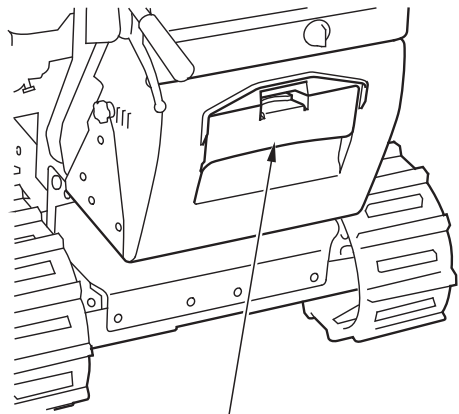
8 mm SELF LOCK NUT (15)



COTTER PIN (2)



TUBE (2)
(for battery terminal covers)



TOOL BOX

Engine oil change

If the engine oil is dirty, engine wear will occur more rapidly. Change the oil at designated intervals. Maintain the oil at the proper level.

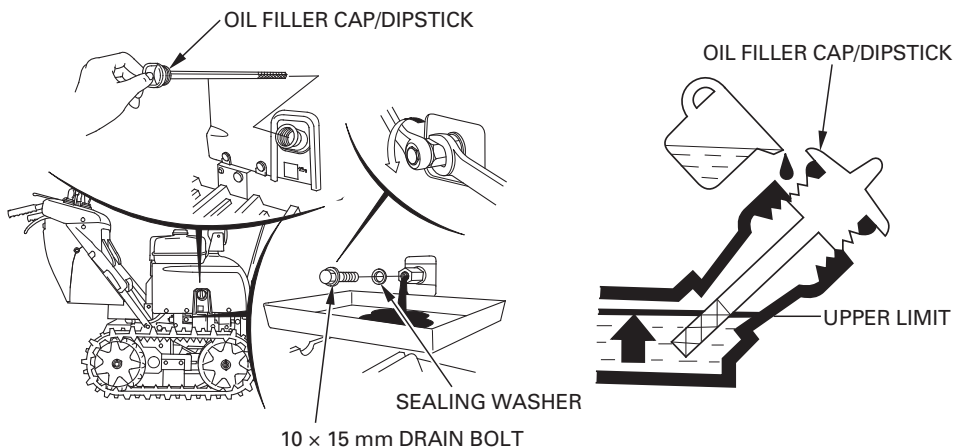
OIL CAPACITY: 1.1 L (1.2 US qt, 1.0 Imp qt)

How to change the oil:

1. Remove the oil filler cap/dipstick, the 10 × 15 mm drain bolt and sealing washer.

Drain the oil while the engine is still warm to assure rapid and complete draining.

2. Install the 10 × 15 mm drain bolt securely using a new sealing washer.



CAUTION:

If you drain the oil immediately after stopping the engine, its temperature will be high and may cause burns.

3. Fill with new recommended oil (see page 41) up to the upper limit.
4. After changing the oil, securely tighten the oil filler cap/dipstick.

Wash your hands with soap and water after handling used oil.

NOTE:

Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for recycling. Do not throw in the trash or pour it onto the ground.

Spark plug

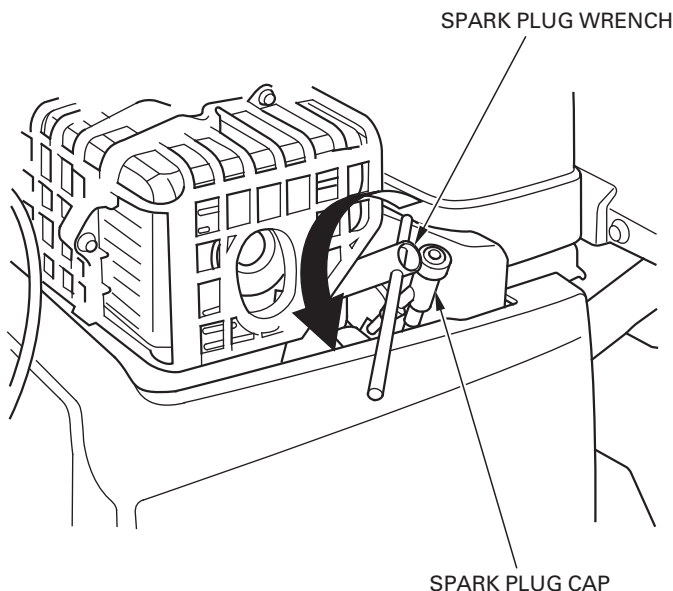
The spark plug must be periodically cleaned and adjusted to provide reliable ignition.

▲WARNING

If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler while it is hot.

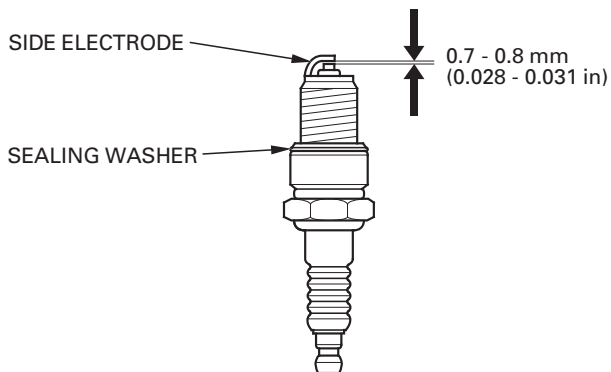
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

1. Remove the spark plug cap.
Clean any dirt from around the spark plug base.
2. Remove the spark plug with the plug wrench.
3. Inspect the spark plug. Replace it if the electrodes are worn or if the insulator is cracked or chipped. If it is to be reused, clean the spark plug with plug cleaner. If the plug cleaner is not available at your authorized Honda dealer, clean the plug with a wire brush.



-
4. Measure the plug gap with a feeler gauge.
Correct as necessary by carefully bending the side electrode.
The gap should be:
0.7—0.8 mm (0.028—0.031 in)

Recommended spark plug: BPR5ES (NGK)
W16EPR-U (DENSO)



5. Make sure that the sealing washer is in good condition and thread the spark plug in by hand to prevent cross-threading.
6. After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

NOTE:

If installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer. If reinstalling a used spark plug, tighten 1/8 to 1/4 turn after the spark plug seats.

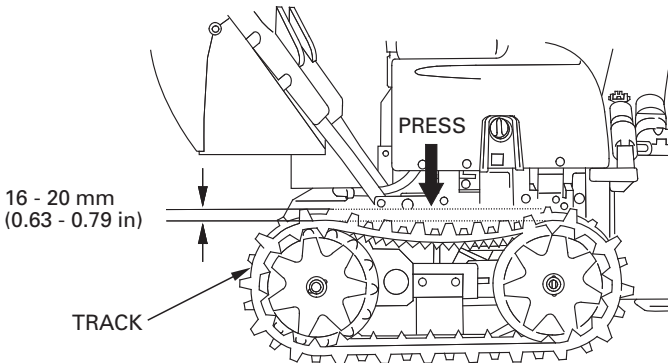
7. Install the spark plug cap securely.

CAUTION:

- Use only the recommended spark plug or equivalent. Spark plug which has an improper heat range may cause engine damage.
- The spark plug must be securely tightened. An improperly tightened spark plug can become very hot and may damage the engine.

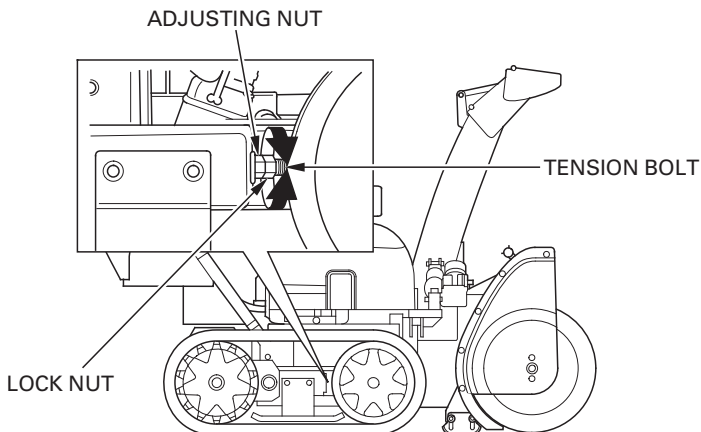
Track

Make sure the tracks are clean and dry before adjustment. The tracks cannot be correctly adjusted if clogged with snow or debris, or coated with ice. Check the track deflection by pressing down midway between the wheels. When correctly adjusted, the track will deflect 16–20 mm (0.63–0.79 in) when pressed with a force of 10 kgf (22 lbf).



Adjusting procedure:

1. Loosen the lock nuts of the left and right tension bolt, and turn the adjusting nuts to correctly tension both tracks.
2. After adjustment, tighten the lock nuts securely.



Auger/Blower

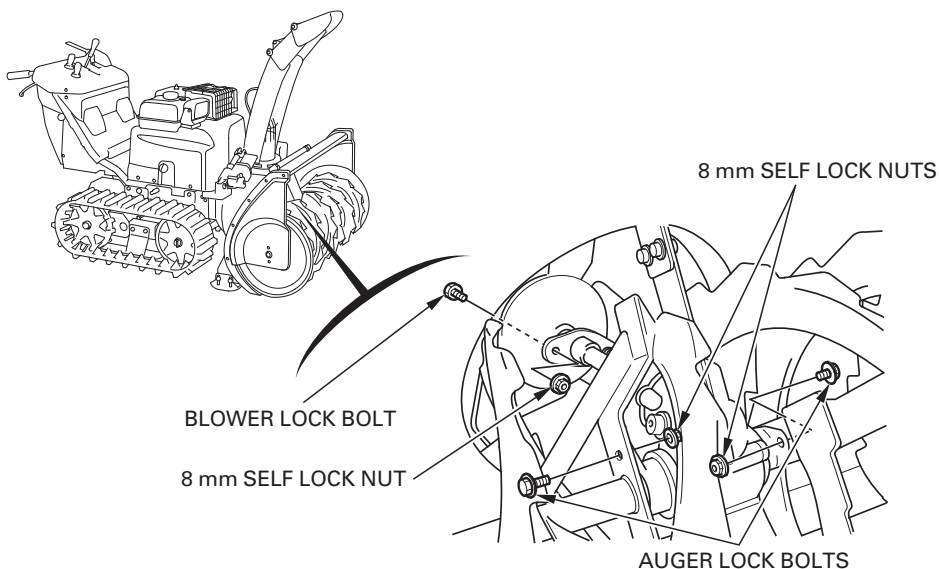
Check the auger, auger housing, blower, and lock bolts for signs of damage or other faults. If any of the lock bolts is broken, replace them with the one furnished with the snow thrower. Additional lock bolts and nuts are available from authorized Honda snow thrower dealers.

CAUTION:

Lock bolts are designed to break under force that would otherwise damage auger and blower parts. Do not replace lock bolts with ordinary hardware bolts.

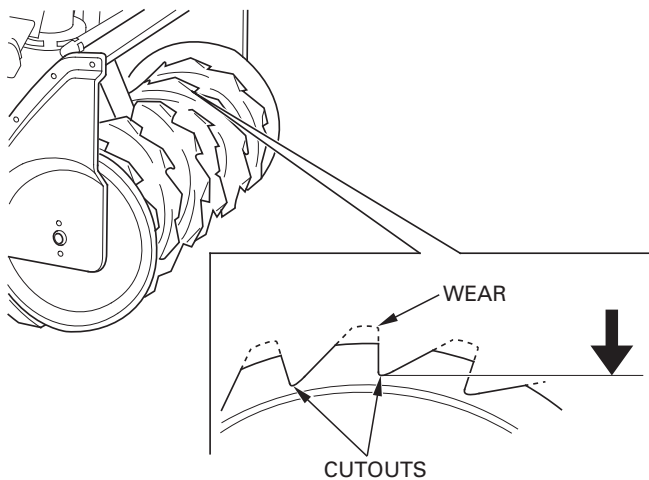
Lock bolt replacement procedure

1. Place the snow thrower on a firm, level surface.
2. Make sure the auger clutch switch is in the OFF position.
3. Release the drive clutch lever.
4. Lower the auger to the lowest position with the auger housing control switch.
5. Turn the engine switch OFF, remove the engine switch key, and be sure that each rotating part comes to a complete stop.
6. Clean the auger and blower of snow, ice, or any other foreign particles.
7. Check the entire snow clearing mechanism.
8. Replace any broken lock bolts. Tighten securely.



Auger/blower replacement

The auger is subject to wear as it contacts the road surface and gravel. A snow thrower with a worn auger performs poorly. Replace a worn auger with a new one.



SERVICE LIMIT

The snow clearing performance decreases as the auger becomes worn. Replace the auger with a new one if it is worn and shows the poor performance in catching the snow. To prevent the early failure of the auger, do not let the auger contact the road surface.

▲WARNING

When the auger or blower is deformed, do not try to correct it with external force. That can cause cracks and injury as a result.

- Replace the auger and blower with new ones if they contact the housing while turning, when the snow clearing performance becomes poor, or when the snow is not thrown far enough.
- Consult with your authorized Honda snow thrower dealer for auger and blower replacement.

Battery

Repairing battery terminals

Loose or corroded battery terminals will cause blown bulb of the headlight and indicators as well as poor contact of the terminals. Check the battery terminals and retighten them if they are loose. If white powder is found on/around the battery terminals, remove the batteries and clean the terminals with lukewarm water. If the battery terminals are corroded, clean them using a wire brush or sand paper. After cleaning, allow the terminals to dry thoroughly, connect the terminals and apply grease to the terminals.

▲WARNING

- **The batteries give off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging or using batteries in an enclosed space.**
- **The batteries contain sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
 - **If electrolyte gets on your skin, flush with water.**
 - **If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.**
- **Electrolyte is poisonous.**
 - **If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.**
- **KEEP OUT OF REACH OF CHILDREN.**

Battery distilled water fill

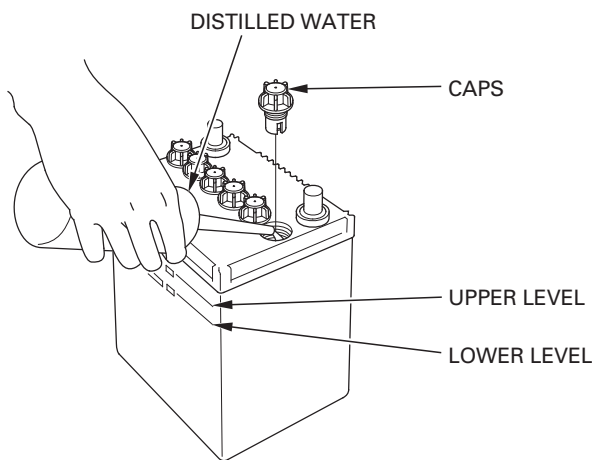
Remove the rear cover (see page 92).

Remove the batteries (see page 92).

Remove the caps of the battery, and then fill the battery with distilled water to the upper level line. Never overfill the battery.

Any corrosion around the positive and negative terminals should be washed off with a solution of baking soda and warm water.

Dry the terminals and retighten the terminal bolts if necessary, and then coat the terminals with grease.

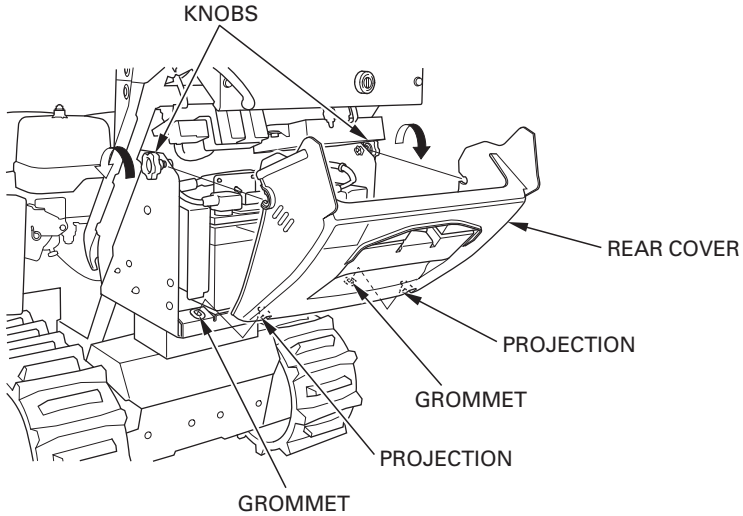


After fill the distilled water, reinstall the batteries (see page 94) and rear cover (see page 94).

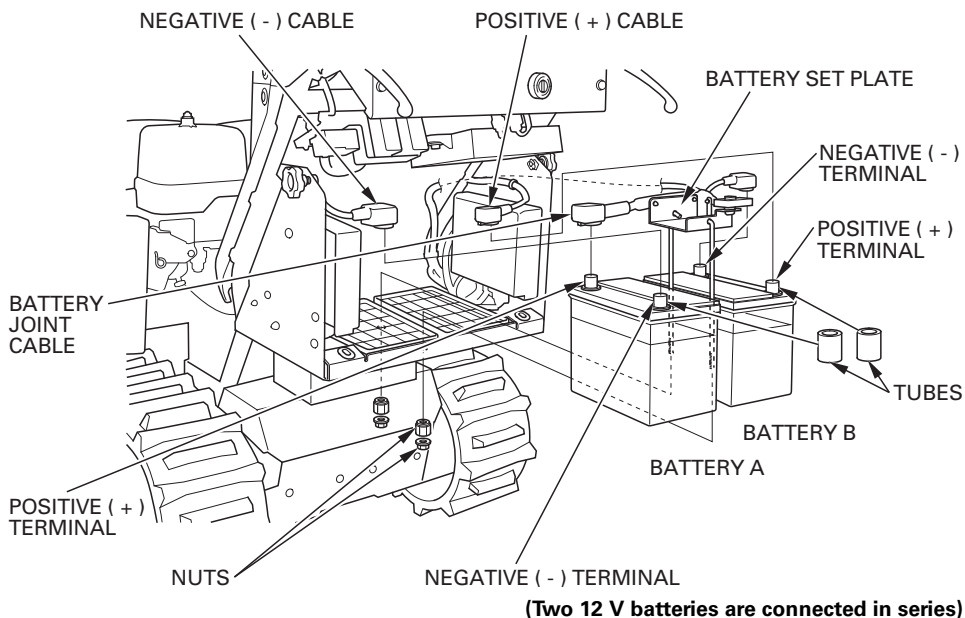
Battery removal/installation

If the battery terminals are contaminated or corroded, remove the battery and clean the terminals.

1. Turn the engine switch to the OFF position and remove the key.
2. Pulling the rear cover back and up for remove, after loosen the 2 knobs.



3. Disconnect the negative (-) cable at the battery A negative (-) terminal and put the tube on the terminal.
4. Disconnect the positive (+) cable at the battery B positive (+) terminal and put the tube on the terminal.
5. Loosen the nuts holding the battery set plate.
6. Disconnect the battery joint cable at the battery B negative (-) terminal and at the battery A positive (+) terminal.

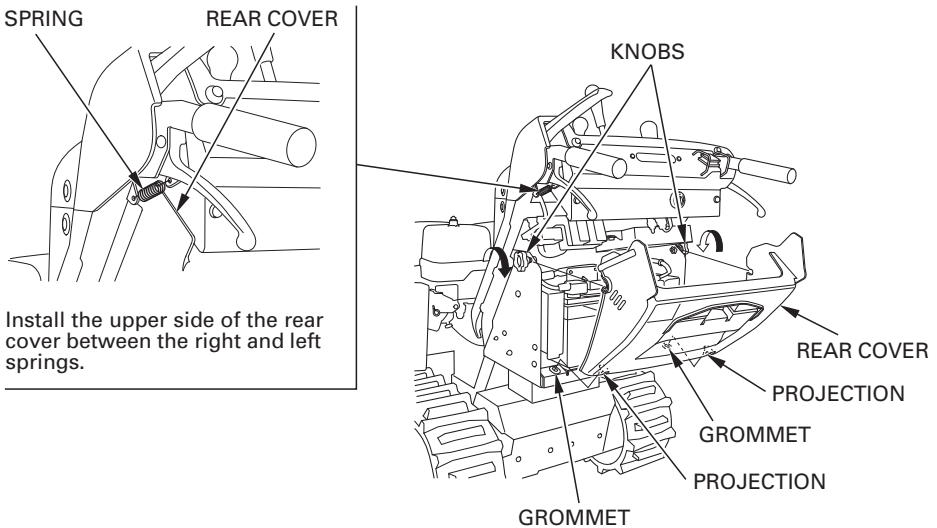


7. Remove the battery and clean the battery terminals and battery cable terminals with a wire brush or sand paper. Clean the battery with a solution of baking soda and warm water with care not to get the solution or water in the battery cells. Dry the battery thoroughly.

NOTE:

Two 12V batteries are connected in series.

8. Reinstall the batteries in their original position.
9. Connect one battery joint cable terminal at the battery A positive (+) terminal, and connect the other cable terminal at the battery B negative (-) terminal.
10. Reinstall the battery set plate and tighten the nuts.
11. Connect the positive (+) cable at the battery B positive (+) terminal, and then the negative (-) cable at the battery A negative (-) terminal.
12. Coat the battery terminals with grease.
13. Reinstall the rear cover by aligning the grommets with the projections of the rear cover, and tighten the knobs securely.



CAUTION:

When disconnecting the battery cable, be sure to disconnect the battery negative (-) terminal first. Connect the positive (+) terminal first, then the negative (-) terminal. Never disconnect the battery cables in the reverse order; that could cause a short circuit if a tool contacts the terminals.



This symbol on the battery means that this product must not be treated as household waste.

NOTE:

An improperly disposed of battery can be harmful to the environment and human health.

Always confirm local regulations for battery disposal.

Fuse

In the event of a burned out fuse, replace it with another fuse of the rated capacity only after investigating the cause for the failure. If the fuse is replaced without correcting the reason for the failure, the new fuse may burn out quickly again.

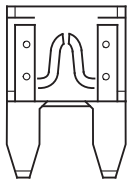
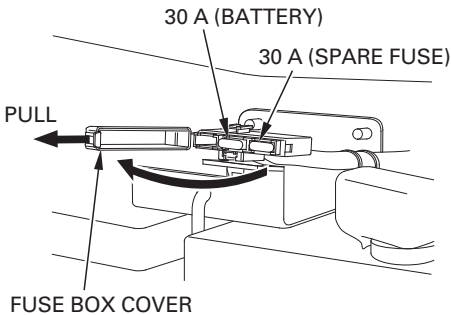
CAUTION:

Never replace a burned out fuse with any object other than another fuse of the rated capacity. Using any other object such as wire or aluminum foil may cause fires in wiring or other parts.

Block fuse replacement requires specific tools. Ask an authorized Honda snow thrower dealer for replacement.

Fuse replacement (blade fuse only)

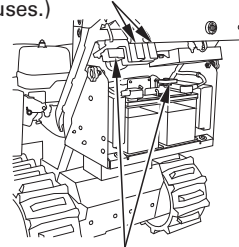
1. Remove the rear cover (see page 92).
2. Open the fuse box cover.
3. Replace the fuse as shown.
Specified fuse: 5 A, 15 A, 30 A
4. Close the fuse box cover.
5. Reinstall the rear cover (see page 94).



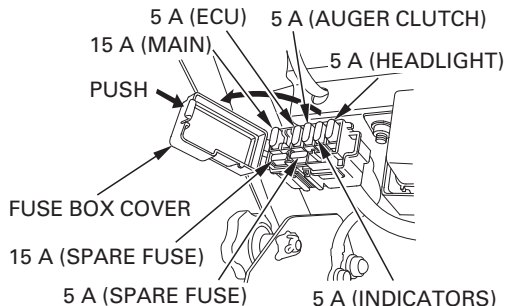
BLOWN BLADE FUSE

The 5 A and 15 A spare fuses are stored in the tool bag.

BLOCK FUSE BOXES
(Consult with your authorized Honda snow thrower dealer for replacement of these fuses.)

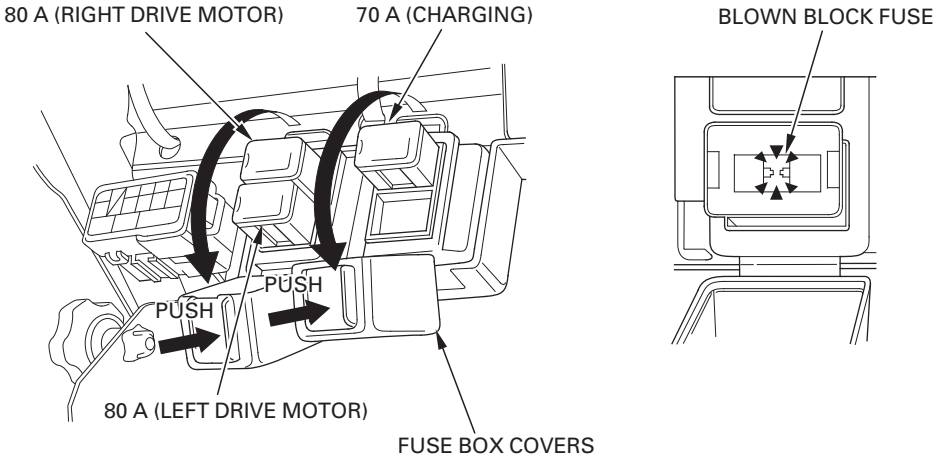


FUSE BOXES



(Block fuses)

Consult with your authorized Honda snow thrower dealer for replacement of the block fuse (charging and drive motors).



When a part of the snow thrower does not operate.

- Check the fuse.
- If the fuse is normal, have your snow thrower checked and repaired by your authorized Honda snow thrower dealer.

Operation check

Perform the following checks every year before initial operation in the season.

- Engine for secure start and stop
- Levers for operation
- Switches for operation
- Other moving parts for operation

10. TRANSPORTING

▲WARNING

Spilled fuel may ignite. To avoid fuel and oil spillage, keep the snow thrower level when transporting.

Loading the snow thrower on a trailer should be performed on a firm, level surface.

Before loading:

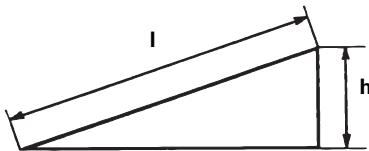
1. Loading the snow thrower on a truck or trailer should be performed on a level firm, level surface.
2. Use a loading ramp that is strong enough to support the combined weight of the snow thrower and the operator:

Weight of snow thrower: (Operating weight)

- HSM1380i: 245 kg (540 lbs) (ETD type), 255 kg (562 lbs) (ETDR type)
- HSM1390i: 265 kg (584 lbs) (ETDR type)

3. The loading ramp must be long enough so that its slope is 15° (26%) or less.

Recommended ramp lengths are shown in the following table:



Length of Ramp (l)	2.5 m (8.2 ft)	3.0 m (9.8 ft)	3.5 m (11.5 ft)
Height (h)	50 cm (1.6 ft)	60 cm (2.0 ft)	70 cm (2.3 ft)

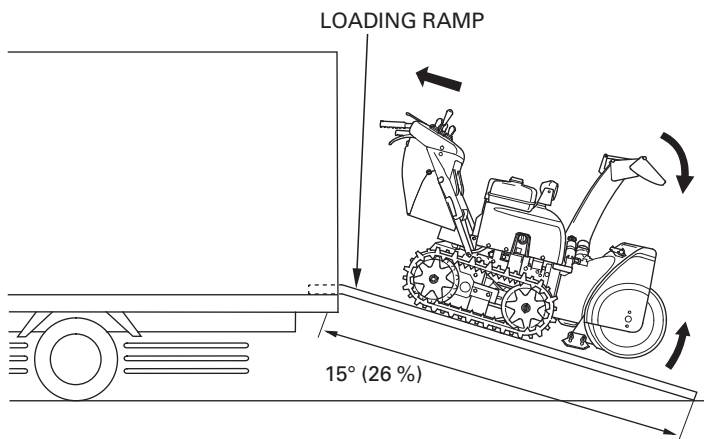
4. If the truck bed has a low roof or cover, with less than 1.5 m (5 ft) of headroom, lower the discharge deflector for better clearance.
5. Before loading, check that there is sufficient fuel in the tank. Engine may stall on the ramp if there is little fuel in the tank.

Loading:

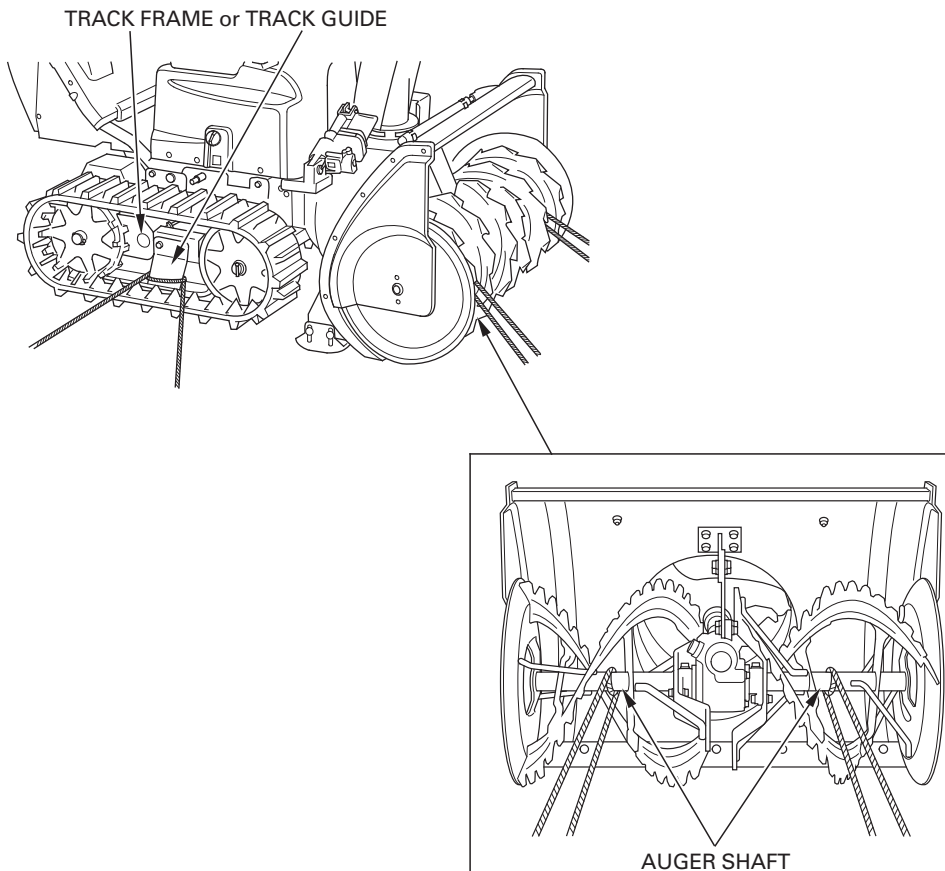
1. Start the engine and raise the auger fully by operating the auger housing control switch. And lower the chute guide fully by operating the chuter control switch.
2. Before backing up the loading ramp, adjust the position and angle of the travelling direction of the snow thrower so that the snow thrower is in direct alignment with the loading ramp.
3. Set the main shift lever in the SLOW RANGE, and back the snow thrower up the loading ramp at low speed.
Use reverse gear to back the snow thrower up the ramp. Use extreme care not to hit the discharge chute against the hood or any other parts of the truck.

CAUTION:

- **Do not operate the steering lever while backing the snow thrower up the loading ramp; serious personal injury or damage to the snow thrower could result.**
- **Do not hang the snow thrower.**
Hanging the snow thrower could cause damage.



4. After the snow thrower is in the truck, stop the engine, and turn the fuel valve to the OFF position. This will prevent the possibility of carburetor flooding and will reduce the possibility of fuel leakage.
5. Tie the snow thrower down with rope or straps, and block the treads. Keep the tie-down rope or straps away from controls, wire harness, and cables.



6. Unload the snow thrower in the reverse order of loading.

11. STORAGE

Remove the engine switch key and store the snow thrower in an area free of humidity, dust, and direct sunlight.

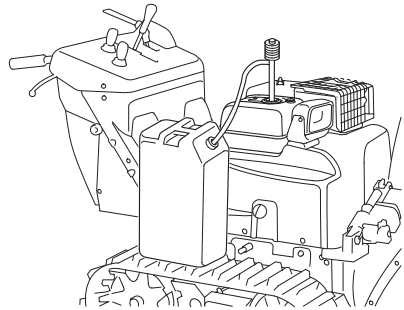
Before storing the snow thrower for an extended period:

1. Drain the fuel tank and carburetor.

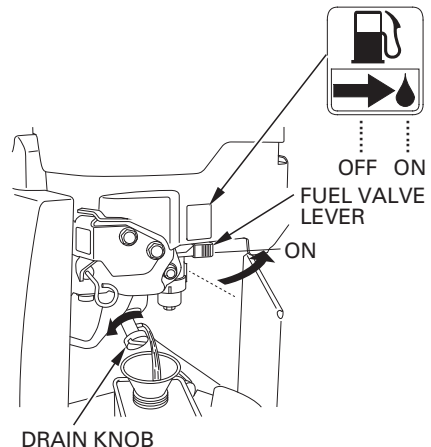
▲WARNING

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Handle fuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area.**
- **Be careful not to spill fuel when handling fuel. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry.**
- **Avoid repeated or prolonged contact with skin or breathing of vapor. KEEP OUT OF REACH OF CHILDREN.**
- **Do not drain the fuel tank when the exhaust system is hot.**

a. Drain all gasoline from the fuel tank into an approved gasoline container. We recommend using a commercially available gasoline hand pump. Do not use an electric pump.



- b. Turn the fuel valve lever to the ON position.
- c. Loosen the carburetor drain knob and drain the gasoline into a suitable container.
- d. Tighten the drain knob securely.
- e. Turn the fuel valve lever to the OFF position.

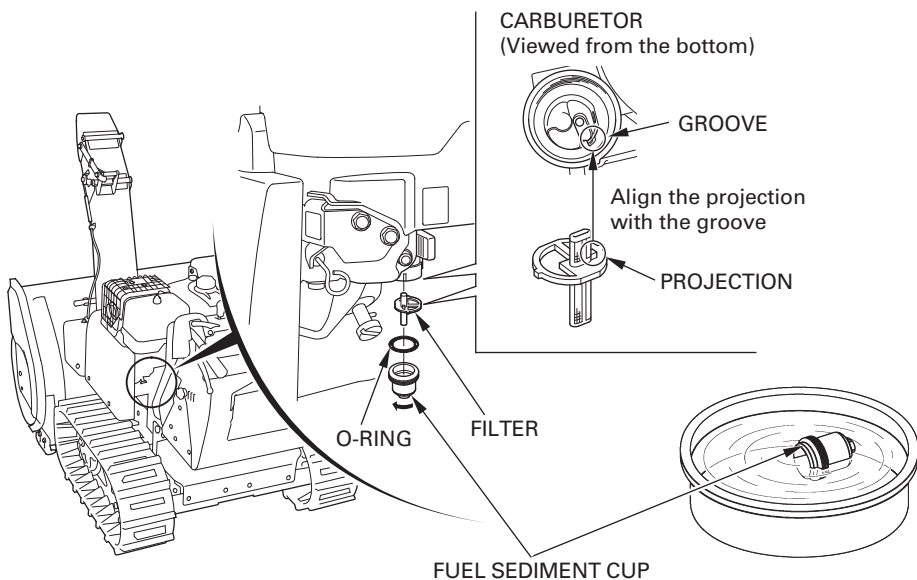


2. Clean the fuel sediment cup.

- a. Turn the fuel valve lever to the OFF position, remove the fuel sediment cup, O-ring and filter, and then clean the sediment cup and filter in clean solvent.
- b. Reinstall the filter, new O-ring, and sediment cup.
 - Install the filter by aligning the projection of the filter with the groove on the carburetor side as shown in the following illustration.
- c. Tighten the sediment cup securely.

▲WARNING

Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in the area.



3. Service the battery.

If the snow thrower will be stored for an extended period, disconnect the negative terminal from battery A. Remove the batteries and recharge them every 6 months and every year before operation and storage.

The snow thrower is equipped with two 12 V batteries connected in series (24 V total). Recharge each battery separately if you use a 12 V battery charger.

Charging time: Approx. 10 hours/3 A (Standard)

Check the battery electrolyte level (see page 42).

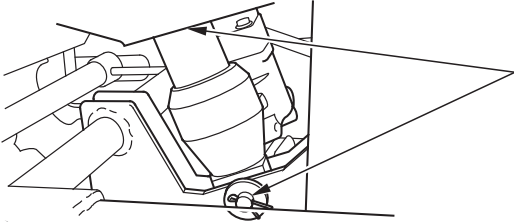
▲WARNING

- **The battery gives off explosive gases. Keep sparks caused by short circuit and flames away when handling the battery.**
- **Do not use or recharge the battery with the electrolyte level below the lower level. It can shorten the service life of the battery or cause explosion.**
Explosion of the battery can cause serious personal injury.
- **Connect the battery cable properly. When connecting the battery cable, be sure to connect at the positive (+) terminal first, then at the negative (-) terminal. To disconnect, disconnect at the negative terminal first. Never disconnect the battery cable in the reverse order. Protect the battery terminals by attaching the tubes that came with the snow thrower to the battery terminals. This will prevent short circuit caused by a tool coming in contact with a terminal.**
- **The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.**
 - **If electrolyte gets on your skin, flush with water.**
 - **If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.**

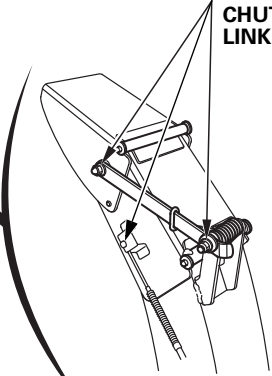
4. Apply oil or grease to the following parts for lubrication and rust prevention.

 : Anti-corrosion oil

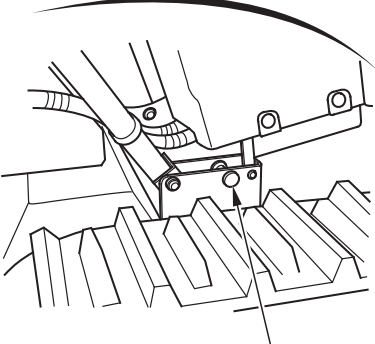
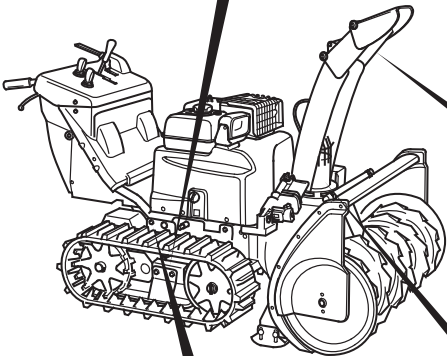
 : GREASE



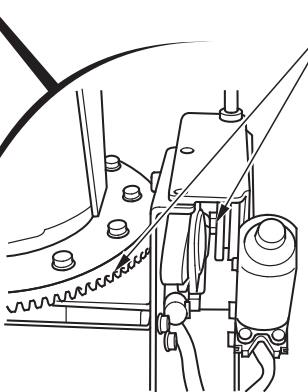
 GREASE
AUGER HEIGHT
CYLINDER PIVOT





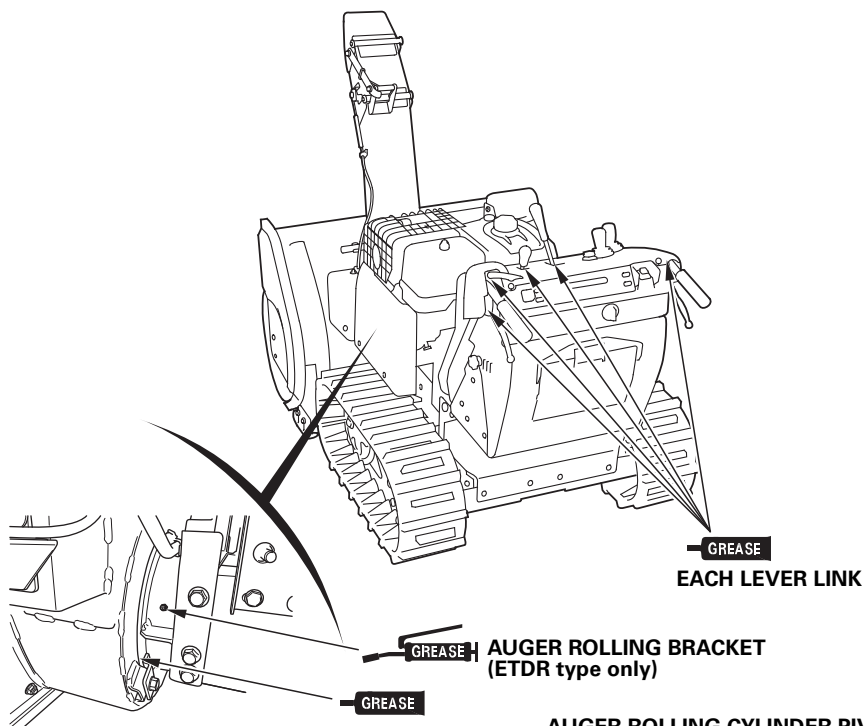
 GREASE
CHUTER GUIDE
LINK



 GREASE
MAIN FRAME PIVOT



 TIO
or
 GREASE
SLIDING
PART



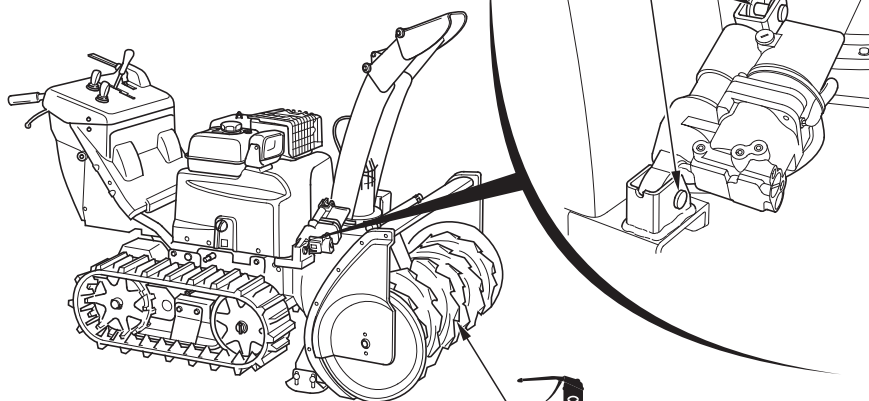
GREASE
EACH LEVER LINK

GREASE
AUGER ROLLING BRACKET
(ETDR type only)

GREASE

AUGER ROLLING CYLINDER PIVOT
(ETDR type only)

GREASE



T10
AUGER/BLOWER

12. TROUBLESHOOTING

When the engine will not start:

CAUTION:

Be sure to perform the following checks in a well ventilated area.

1. Is there enough fuel? (see page 38)
2. Is the fuel valve lever turned to the ON position? (see page 45)
3. Is not stuck the auto choke system by a foreign material (ice, etc.)? (see page 47)
4. Is gasoline reaching the carburetor?
To check, loosen the drain knob with the fuel valve lever turned to the ON position (see page 100).
Fuel should flow freely.

▲WARNING

If any fuel is spilled, make sure the area is dry before starting the engine. Spilled fuel or fuel vapor may ignite.

5. Are the drive clutch lever and auger clutch switch off? (see page 77)
6. Is the engine switch on? (see page 47)
7. Check the spark plug for dirt, wet and the gap (see page 85).
 - a. Clean the spark plug.
 - b. Reinstall the plug if it is reused, or replace with a new one.

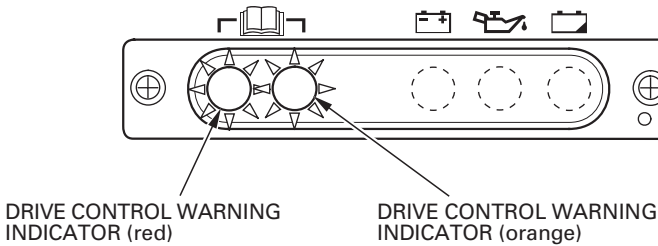
If the engine still does not start, take the snow thrower to an authorized Honda snow thrower dealer.

- If the drive control warning indicator (orange) comes on and blinks during driving and it does not go off after restarting the engine, have your snow thrower checked by your authorized Honda snow thrower dealer promptly.
- If the drive control warning indicator (red) blinks during driving, move the snow thrower to a safe place and stop the engine. Wait for a while and restart the engine. The snow thrower is normal if the drive control indicator goes off after the engine starts. If it does not, have your snow thrower checked by your authorized Honda snow thrower dealer.

Self-diagnosis function

When a trouble occurs

When a trouble occurs to the snow thrower during running, the drive control warning indicator (orange) repeatedly blinks a number that corresponds to the type of trouble. Turn the engine switch to the STOP position and turn it to the ON position again. If the snow thrower is faulty, the drive control warning indicator (red) comes on and the drive control warning indicator (orange) repeats blinking the number that corresponds to the type of trouble (see pages 108 and 109).



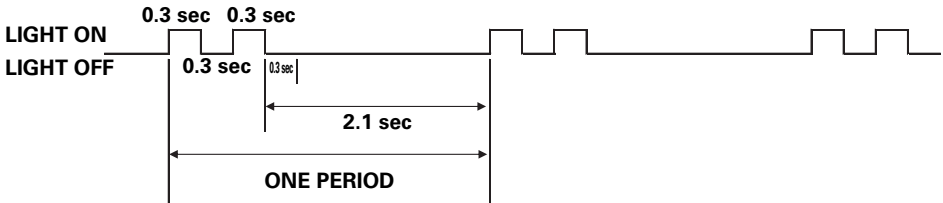
The drive control warning indicator (orange) indicates the symptom by different blinking patterns.

There are three blinking patterns as indicated below.

[Warning indicator light blinks fast 1 to 9 times periodically]

The blinking pattern is 0.3-second on then 0.3-second off. The indicator light blinks the number of times corresponding to the symptom, pauses for 2.1 seconds and repeats the cycle again.

Example: When the indicator light blinks fast twice periodically



[Warning indicator light keeps blinking slowly]

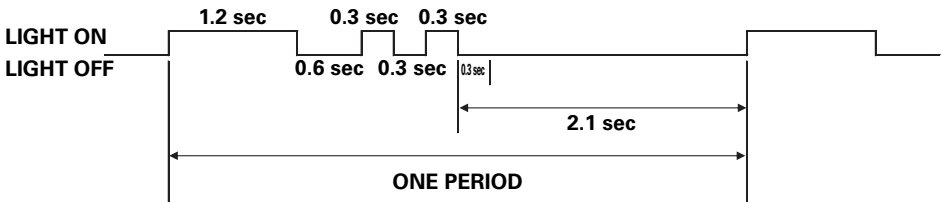
The blinking pattern is 1.2-second on then 2.1-second off. Then it repeats the cycle again.



[Warning indicator light blinks fast 1 to 4 times after blinking slowly once periodically]

The indicator light comes on for 1.2 seconds and goes off for 0.6 seconds, then it blinks in a pattern of 0.3-second on then 0.3-second off the number of times corresponding to the symptom. After that, it pauses for 2.1 seconds and repeats the cycle starts with a slow blink again.

Example: When the indicator light blinks fast twice after blinking slowly once periodically



Check whether the drive control warning indicator (orange) comes on and check the number of blinks.

Failure diagnosis

WARNING INDICATOR (RED)	WARNING INDICATOR (ORANGE)/BLINKING TIMES	SYMPTOM	POSSIBLE CAUSE	REMEDY	
Light on Continuously	Light off	Indicator blowout or main ECU error	Indicator blowout or main ECU failure.	Consult with your authorized Honda dealer.	
	Fast blink 2 times	Main ECU error	Main ECU failure.		
	Fast blink 3 times	Main shift lever angle sensor error	Main shift lever angle sensor disconnection or short circuit.		
		Right steering lever angle sensor error	Right steering lever angle sensor disconnection or short circuit.		
		Left steering lever angle sensor error	Left steering lever angle sensor disconnection or short circuit.		
		Drive clutch switch error	Drive clutch switch disconnection or short circuit.		
	Fast blink 4 times	Driver error-Right	Auger clutch switch error		Auger clutch switch disconnection or short circuit.
			Disconnection or short circuit of right driver communication circuit. Right driver failure.		
	Fast blink 5 times	Motor error-Right	Right motor mechanical failure.		Right motor mechanical failure.
			Right motor or driver failure.		Right motor or driver failure.
			Right motor sensor disconnection or short circuit.		Right motor sensor disconnection or short circuit.
	Fast blink 6 times	Driver error-Left	Disconnection or short circuit of left driver communication circuit.		Disconnection or short circuit of left driver communication circuit.
			Left driver failure.		Left driver failure.
	Fast blink 7 times	Motor error-Left	Left motor mechanical failure.		Left motor mechanical failure.
Left motor or driver failure.			Left motor or driver failure.		
Left motor sensor disconnection or short circuit.			Left motor sensor disconnection or short circuit.		

Failure diagnosis (continued)

WARNING INDICATOR (RED)	WARNING INDICATOR (ORANGE)/BLINKING TIMES	SYMPTOM	POSSIBLE CAUSE	REMEDY
Light on Continuously	Fast blink 8 times	Electromagnetic brake error	Electromagnetic brake disconnection or short circuit.	Consult with your authorized Honda dealer.
		Auger clutch error	Auger clutch disconnection or short circuit.	
	Slow blink once *1	Battery voltage drop (16 V or lower)	Battery is dead. Or ACG failure or ACG fuse blown.	
	Slow blink once, fast blink once	Motor temperature error	Motor overheat due to overload.	Stop the engine, wait 5 min. Restart. *2
	Slow blink once, fast blink 2 times	Motor temperature detection error	Motor temperature sensor disconnection or short circuit.	Consult with your authorized Honda dealer.
	Slow blink once, fast blink 3 times	Throttle control lever angle sensor error	Throttle control lever angle sensor disconnection or short circuit.	
	Slow blink once, fast blink 4 times	Communication trouble between main ECU and engine ECU	Disconnection or short circuit of engine ECU communication circuit.	
Engine ECU error		Engine ECU failure.		
Light off	Light on Continuously *3	No signal of engine speed	Engine ECU failure, power coil and pulser coil disconnection or short circuit.	

*1: The battery indicator blinks.

*2: Consult with your authorized Honda snow thrower dealer if the drive control warning indicator (orange) keeps blinking after restarting the engine.

*3: The drive control warning indicator (orange) will light after engine start.

If you notice any abnormality with the snow thrower, consult with your authorized Honda snow thrower dealer.

Blinking (green) of reset button indicator (ETDR type)

Indicator (green)	SYMPTOM	POSSIBLE CAUSE	REMEDY
Blink	Reset operation failure of auger housing	Height sensor wire broken or short circuit. Roll sensor wire broken or short circuit.	Consult with your authorized Honda dealer.

(1) Engine does not start.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Fuel is not reaching the carburetor.	There is no gasoline in the fuel tank.	Refuel (see page 38).
	Fuel valve lever is not opened.	Turn the fuel valve lever to the "ON" position (see page 45).
	Fuel filter is clogged.	Consult an authorized Honda dealer.
	Fuel pipe arrangement is frozen.	
Fuel is reaching the carburetor.	Carburetor is flooded.	
	Carburetor is clogged.	
	Gasoline spoiled.	
	Gasoline contains water.	
Oil indicator (red) is on.	No or low oil level.	Check the engine oil level and add oil to the upper level if necessary (see page 41).
Starter motor does not operate.	Battery is dead.	Charge the battery or replace (see pages 92 and 102).
	Fuse is blown.	Replace the fuse (see page 95).
	Battery terminal is disconnected.	Connect the battery terminal (see page 94).
	Starter is abnormal or faulty.	Consult an authorized Honda dealer.
	Drive clutch lever is squeezed or auger clutch switch is pressed when starting.	Release the drive clutch lever and do not press the auger clutch switch (see page 77).

SYMPTOM	POSSIBLE CAUSE	REMEDY
Starter motor operates.	Fouled spark plug.	Consult an authorized Honda dealer.
	Loose spark plug cap.	Install the spark plug cap securely (see page 86).
	Spark plug is damaged.	Replace the spark plug (see page 85).
	Frozen auto choke system.	Auto choke malfunction can be suspected. Restart the engine by operating the manual start lever (see page 47).
	Drive control warning indicator (red) is on.	Turn the engine switch to the OFF position and turn it to the ON position again. If the indicator comes on again, the starter motor can be faulty. Consult with your authorized Honda snow thrower dealer.

(2) It runs poorly

SYMPTOM	POSSIBLE CAUSE	REMEDY
Hard to drive the snow thrower in forward direction.	Auger lock bolt is broken.	Replace the auger lock bolt (see page 88).
	Auger height is not properly adjusted.	Auger height adjustment (see page 53).
	Snow is clogged in the snowblowing mechanism.	Use the snow drop bar to remove the snow (see page 76).
Snow thrower does not run.	Drive motor overheated by operation under excessive load, which armed the protection function.	Release the drive clutch lever, stop the work, keep the engine switch in the ON position and wait until the drive control warning indicator (orange) does not blink (see page 71).
Snow thrower runs slowly.	To prevent malfunction resulting from drive motor overheating, the drive power is reduced.	Release the drive clutch lever, stop the work, keep the engine switch in the ON position and wait until the drive control warning indicator (orange) does not blink (see page 71).
Hard to drive the snow thrower in reverse direction.	Auger height is not adjusted in the HIGH position.	Auger height adjustment (see page 53).
Snow thrower does not move when squeezing the drive clutch lever.	Wheel pin in the track has worked off.	Consult an authorized Honda dealer.
	Warning indicator (orange) blinks or comes on.	Check the drive control warning indicator (orange) for the number of blinks (see pages 108 and 109). Consult with your authorized Honda dealer. *1
Steering lever does not work at all (or it does not work well).	Snowblowing mechanism is buried in deep snow.	Lift up the snow blowing mechanism. Operate the main shift lever to the slower position, squeeze the steering lever and apply some force on the handle to turn in the direction you want.
	Track does not stop or become slower when squeezing the steering lever.	Steering lever sensor or drive motor might be faulty. Consult an authorized Honda dealer.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Hard to make a turn on the spot.	Main shift lever is not set in Low speed position.	Set the main shift lever in the Forward Low speed position and squeeze the steering lever fully (see page 69).
	Steering lever was not squeezed enough.	
Battery mode does not work.	Battery run mode has not been turned on.	Squeeze both the right and left steering levers for 3 seconds simultaneously (see page 72).
	Drive control warning indicators (red and orange) are on at 5 seconds after driving the snow thrower with the battery power.	Turn the engine switch to the OFF position and operate battery run mode once again (see page 72).
	Battery is dead.	Charge the battery or replace it if necessary (see pages 92 and 102).
Warning indicator (orange) blinks or comes on.	Electric equipment is abnormal, or broken.	Check the drive control warning indicator (orange) for the number of blinks (see pages 108 and 109). Consult with your authorized Honda dealer. *1

*1: Tell your authorized Honda snow thrower dealer about the number of blinks of the drive control warning indicator (orange).

- It is difficult to operate the snow thrower in deep, soft snow.
Drive the snow thrower in low speed to avoid slipping or push and pull the handle to get out of deep, soft snow.
- Leavening the engine switch in the ON position will waste the battery, and the engine will not start.
After operating the battery run mode, make sure you always turn the engine switch to the OFF position.
- When consulting an authorized Honda dealer, make sure to inform him or her of the number of times warning indicator (orange) blinks.

(3) Can not clear snow well.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Hard to drive the snow thrower in the forward direction while clearing the snow.	Auger lock bolt is broken.	Replace the auger lock bolt (see page 88).
	Auger housing height is not adjusted properly.	Adjust the auger housing height in the proper position (see page 53).
	Snow is stuck in the auger and the related parts of the snow thrower.	Remove the snow from the underside of the auger housing (see page 76).
Snow does not come out from the snow discharge chute.	Snow discharge chute is clogged.	Use the snow drop bar and remove the snow from the snow discharge chute (see page 76).
Hard to collect the snow to clear.	Snow is stuck on the auger.	Remove the snow from the auger and the related parts (see page 76).
Blower does not rotate.	Blower lock bolt is broken.	Replace the blower lock bolt (see page 88).
	Drive motor overheated by operation under excessive load, which armed the protection function.	Release the drive clutch lever and stop the work. Keep the engine switch in the ON position and wait until the drive control warning indicator (orange) does not blink (see page 71).
	Auger clutch switch or electromagnetic clutch is faulty.	Consult an authorized Honda dealer.
Auger does not rotate.	Auger lock bolt is broken.	Replace the auger lock bolt (see page 88).
	Drive motor overheated by operation under excessive load, which armed the protection function.	Release the drive clutch lever and stop the work. Keep the engine switch in the ON position and wait until the drive control warning indicator (orange) does not blink (see page 71).
	Auger clutch switch or electromagnetic clutch is faulty.	Consult an authorized Honda dealer.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Snow discharge chuter does not throw snow well.	(HSM1380i) Engine is overloaded. [Clearing in OFF mode]	Lower the driving speed (see page 74).
	(HSM1390i) Engine is overloaded. [Clearing in SELF mode]	
	(HSM1380i) Engine speed is too low. [Clearing in OFF mode]	Move the throttle control lever to the "FAST" position (see page 65).
	(HSM1390i) Engine speed is too low. [Clearing in SELF or POWER mode]	
	Blower is deformed.	Replace the blower (see page 89).
	Blower lock bolt is broken.	Replace the blower lock bolt (see page 88).
	Auger lock bolt is broken.	Replace the auger lock bolt (see page 88).
Snow discharge chute is angled down.	Adjust so that the snow discharge chute is angled up (see page 30).	
Auger runs up onto and does not cut into hard snow.	Auger height is not proper.	Adjust the auger height (see page 53).
Auger housing becomes clogged with snow.	Auger lock bolt is broken.	Replace the auger lock bolt (see page 88).
	Auger is worn.	Replace the auger (see page 89).
	Blower lock bolt is broken.	Replace the blower lock bolt (see page 88).
	The height of skid and scraper is not proper.	Adjust the skid and scraper (see pages 50 through 52).
Auger is in contact with the road surface.	Auger height is not adjusted properly.	Adjust the auger height (see page 53).
	Skid and scraper height is not adjusted properly.	Adjust the skid and scraper (see pages 50 through 52).
Snowblowing mechanism makes an abnormal noise.	The shape of the shaft and wing of the auger and/or blower is deformed.	Consult an authorized Honda dealer.
Chuter does not rotate.	Motor is overheated (breaker tripped).	Internal protection circuit is armed when the auger power height adjusting part is overheated by frequent application of the auger control switch. Wait for a while and operate the switch again.
	Motor or switch is faulty.	
	Right driver is faulty.	Consult an authorized Honda dealer.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Chuter guide does not operate.	Motor is overheated (breaker tripped).	Internal protection circuit is armed when the auger power height adjusting part is overheated by frequent application of the auger control switch. Wait for a while and operate the switch again.
	Motor or switch is faulty.	Consult an authorized Honda dealer.
	Left driver is faulty.	
Auger housing rolling does not operate.	Auger power rolling adjusting part is overheated.	Internal protection circuit is armed when the auger power height adjusting part is overheated by frequent application of the auger control switch. Wait for a while and operate the switch again.
	Auger power rolling adjusting part is faulty.	Consult an authorized Honda dealer.
	Right driver is faulty.	
Auger housing height does not operate.	Auger power height adjusting part is overheated.	Internal protection circuit is armed when the auger power height adjusting part is overheated by frequent application of the auger control switch. Wait for a while and operate the switch again.
	Auger power height adjusting part is faulty.	Consult an authorized Honda dealer.
	Left driver is faulty.	
Drive control warning indicator (orange) blinks or stays on.	Electric system is abnormal or faulty.	Check the drive control warning indicator (orange) for the number of blinks (see pages 108 and 109). Consult with your authorized Honda dealer. *1

- If the snow depth is less than 5 cm (2 in) deep, shift to a faster speed for more efficient snow throwing.

*1: Tell your authorized Honda snow thrower dealer about the number of blinks of the drive control warning indicator (orange).

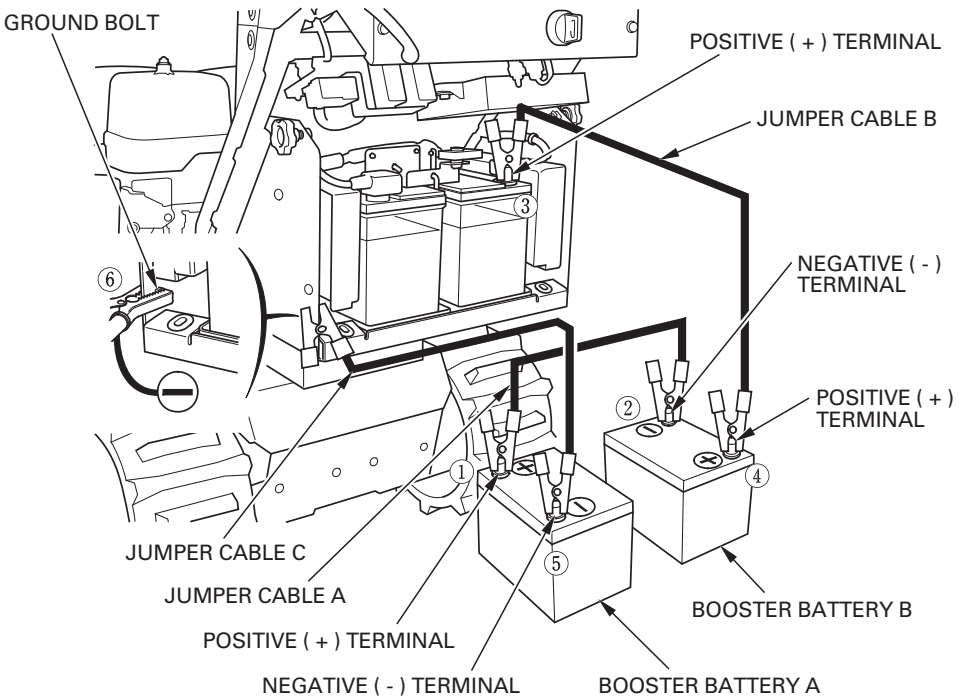
(4) Other troubles

SYMPTOM	POSSIBLE CAUSE	REMEDY
Track is worked off from the wheels.	Track is loosened.	Check and adjust the deflection of the track (see page 87).
Headlight does not turn on.	Battery is dead.	Charge or replace the battery (see pages 92 and 102).
	Fuse is blown out.	Replace the fuse (see page 95).
	Bulb in the headlight is out.	Consult with an authorized Honda dealer.

Jump starting

Start the engine using the two 12V booster batteries, which are connected in series.

1. Connect jumper cable A to the positive (+) terminal (1) on booster battery A. Connect the other end to the negative (-) terminal (2) on booster battery B.
2. Connect jumper cable B to the positive (+) terminal (3) on the snow thrower. Connect the other end to the positive (+) terminal (4) on booster battery B.
3. Connect jumper cable C to the negative (-) terminal (5) on booster battery A. Connect the other end to the ground bolt (6) on the snow thrower.
4. Start the engine (see page 45).
5. Remove the jumper cables in the reverse order.



(Two 12 V batteries are connected in series)

CAUTION:

When disconnecting the battery cable, be sure to disconnect at the battery negative (-) terminal first. To connect, connect at the positive (+) terminal first, then at the negative (-) terminal. Never disconnect the battery cable in the reverse order, or you may cause a short circuit if a tool contacts the positive terminal.

NOTE:

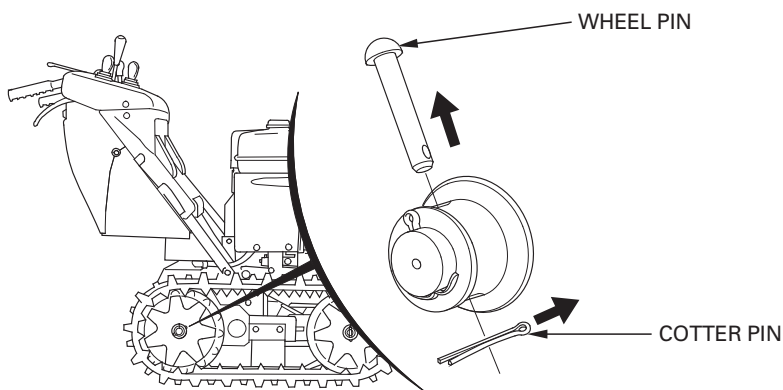
When you replace the battery, do it in pairs.

Emergency transport

You can move the snow thrower by pushing or pulling it without engine power.

Place the snow thrower on the level ground after transportation and use a new cotter pin when replacing the wheel pin.

1. Remove the cotter pins from the rear right and left wheels.
2. Remove the wheel pins from the rear right and left wheels.
3. The track rotates freely, allowing the operator to move the snow thrower without engine power.



▲WARNING

- Before removing the wheel pins, make sure to stop the rotating parts, stop the engine and remove the engine switch key.
- Do not remove the wheel pins on the slope. The snow thrower may move unintentionally, causing injury.

13. SPECIFICATIONS

Model	HSM1380iK1	
Type	ETD type	ETDR type
Description code	SAYJ	

Engine

Model	GX390T2
Engine net power (in accordance with SAE J1349*)	8.7 kW (11.8 PS)/3,600 rpm
Displacement	389 cm ³ (23.7 cu-in)
Bore × stroke	88.0 × 64.0 mm (3.46 × 2.52 in)
Starting method	Electric starter
Ignition system	CDI magneto
Oil capacity	1.1 L (1.2 US qt, 1.0 Imp qt)
Fuel tank capacity	5.7 L (1.51 US gal, 1.25 Imp gal)
Spark plug	BPR5ES (NGK) W16EPR-U (DENSO)
Battery	12V 30Ah/20HR × 2 (connect in series)

* The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 rpm (Engine Net Power). Mass production engines may vary from this value. Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

Frame

Model	HSM1380iK1	
Type	ETD type	ETDR type
Overall length	1,760 mm (69.3 in)	
Overall width	800 mm (31.5 in)	
Overall height	1,340 mm (52.8 in)	
Dry mass [weight]	240 kg (529 lbs)	250 kg (551 lbs)
Width of snow clearance	800 mm (31.5 in)	
Height of snow clearance	580 mm (22.8 in)	
Snow-throwing distance (differs according to type of snow and discharge direction)	Max. 19 m (59.1 ft)	

Noise and Vibration

Sound pressure level at operator's ears (EN ISO 11200: 1995)	88 dB (A)
Uncertainty	3 dB (A)
Measured sound power level (2000/14/EC, 2005/88/EC)	101 dB (A)
Uncertainty	3 dB (A)
Guaranteed sound power level (2000/14/EC, 2005/88/EC)	104 dB (A)
Vibration level at hand arm (EN1033: 1995)	3.1 m/s ²
Uncertainty (EN12096: 1997 Annex D)	1.6 m/s ²

Specifications are subject to change without notice.

Model	HSM1390iK2
Type	ETDR type
Description code	SBBJ

Engine

Model	GX390T2
Engine net power (in accordance with SAE J1349*)	8.7 kW (11.8 PS)/3,600 rpm
Displacement	389 cm ³ (23.7 cu-in)
Bore × stroke	88.0 × 64.0 mm (3.46 × 2.52 in)
Starting method	Electric starter
Ignition system	CDI magneto
Oil capacity	1.1 L (1.2 US qt, 1.0 Imp qt)
Fuel tank capacity	5.7 L (1.51 US gal, 1.25 Imp gal)
Spark plug	BPR5ES (NGK) W16EPR-U (DENSO)
Battery	12V 30Ah/20HR × 2 (connect in series)

* The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 3,600 rpm (Engine Net Power). Mass production engines may vary from this value. Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

Frame

Model	HSM1390iK2
Type	ETDR type
Overall length	1,760 mm (69.3 in)
Overall width	920 mm (36.2 in)
Overall height	1,340 mm (52.8 in)
Dry mass [weight]	255 kg (562 lbs)
Width of snow clearance	920 mm (36.2 in)
Height of snow clearance	580 mm (22.8 in)
Snow-throwing distance (differs according to type of snow and discharge direction)	Max. 19 m (59.1 ft)

Noise and Vibration

Sound pressure level at operator's ears (EN ISO 11200: 1995)	88 dB (A)
Uncertainty	3 dB (A)
Measured sound power level (2000/14/EC, 2005/88/EC)	101 dB (A)
Uncertainty	3 dB (A)
Guaranteed sound power level (2000/14/EC, 2005/88/EC)	104 dB (A)
Vibration level at hand arm (EN1033: 1995)	3.1 m/s ²
Uncertainty (EN12096: 1997 Annex D)	1.6 m/s ²

Tune-Up

[HSM1380i-HSM1390i]

ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.7–0.8 mm (0.028– 0.031 in)	Refer to page 86
Valve clearance	IN: 0.15 ± 0.02 mm (cold) EX: 0.20 ± 0.02 mm (cold)	See your authorized Honda dealer
Other specification	No other adjustment needed.	

Specifications are subject to change without notice.

14. WIRING DIAGRAM

CONTENTS

HSM1380i (ETD type)	W-1 (inside back cover)
HSM1380i (ETDR type).....	W-2 (inside back cover)
HSM1390i (ETDR type).....	W-3 (inside back cover)

ABBREVIATIONS

ACG	AC Generator
ACG PL	AC Generator Indicator (Red)
ACSw	Auger Clutch Switch
AH/RoSw	Auger Height/Rolling Switch
AHSw	Auger Height Switch
Ase	Accelerator Sensor
BAT	Battery
BATF	Battery Fuse
BAT PL	Battery Indicator (Orange)
BF	Branch Fuse (Blade Fuse)
Bk	Brake
CCSw	Chuter Control Switch
CGMo	Chuter Guide Motor
CMo	Chuter Motor
D-CDI	Digital-CDI
DrCISW	Drive Clutch Switch
EgECU	Engine ECU
EgG	Engine Ground
EgNESe	Engine NE Sensor
EgSw	Engine Switch
ELEC C&B	Electro-magnetic Clutch & Brake
En	Encoder
FG	Frame Ground
FRECU	Frame ECU
HCSw	Height Sensor
HL	Headlight
HMo	Height Motor
ICS Sw	ICS (Intelligence Control System) Switch
InC	Initialization Connector
JCA	Junction A
JCB	Junction B
LCU	Left Control Unit
LMoAss	Left Motor Assembly
LTSe	LH Steering Sensor

MdSeSw	Mode Selector Switch
MF	Main Fuse
Mo	Motor
MoF	Motor Fuse
OLSw	Oil Level Switch
PCC	PC Connector
PCo	Power Coil
RCU	Right Control Unit
RMoAss	Right Motor Assembly
RoMo	Rolling Motor
RoSe	Rolling Sensor
RTSe	RH Steering Sensor
RsSw	Reset Switch (Auger)
SG	Signal Ground
SP	Spark Plug
StMo	Starter Motor
TCMo	Throttle Control Motor
ThSe	Thermo-sensor
WAR1 PL	Warning Indicator (Red)
WAR2 PL	Warning Indicator (Orange)
WARO PL	Oil Warning Indicator (Red)

Wire color code

Bl	BLACK	Br	BROWN
Y	YELLOW	Lg	LIGHT GREEN
Bu	BLUE	Gr	GRAY
G	GREEN	Lb	LIGHT BLUE
R	RED	O	ORANGE
W	WHITE	P	PINK
V	VIOLET	Be	BEIGE

Engine Switch

	EXT (+)	EXT (-)	BAT	LO	ST
OFF					
ON					
ST					

Mode Selector Switch

	MODE 1	COM	MODE 2
MANUAL			
POWER			
AUTO			

MEMO