Bullmax
TOUGH TOOLS & EQUIPMENT

DUAL ROTATING REAR TINE TILLER

OPERATOR'S MANUAL

MODEL

Rear Tine Cultivator
SKU 100955

SERIAL NUMBER

_____

PURCHASE DATE

_____

Both model number and serial number may be found on the main label (see page 2, Figure 1). You should record both of them in a safe place for future use.



FOR YOUR SAFETY

READ AND UNDERSTAND THE ENTIRE MANUAL BEFORE OPERATING MACHINE

www.bullmax.com.au
1300 797 675

Your new Bullmax dual rotating rear tine tiller offers quality construction, and is easy and safe to operate. With proper use and care, it is designed to give you many years of dependable service.

Bullmax supplies tough tools and equipment for farms, fencing, acreage and workshops, available through stores across Australia.

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Carefully read through this entire operator's manual before using your new unit. Pay attention to all cautions and warnings.

This machine is a petrol engine driven rear tine tiller. It is a durable, versatile and efficient machine, and it is both easy and safe to operate. With proper use and care, it should give you many years of dependable service.

ENGINE MANUAL

The **Engine Manufacturer** is responsible for all engine-related issues regarding performance, power rating, specifications, warranty and service. Please refer to the **Engine Manufacturer's** owner/operator's manual, packed separately with your unit, for more information.

EMISSION CONTROL SYSTEM

This equipment or its engine may include exhaust and evaporative emission control system components. Do not tamper with emission controls and components. Emission controls and components can only be adjusted by an authorised engine manufacturer's service centre.

ENGINE EXHAUST WARNING

Engine exhaust, some of its constituents and certain product components contain or emit chemicals that may cause cancer and birth defects or other reproductive harm.

ENVIRONMENTAL

Recycle unwanted materials instead of disposing of them as waste. All tools, hoses, and packaging should be taken to the local recycling centre and disposed of in an environmentally safe way.

MODEL AND SERIAL NUMBERS

For future reference, record both the model number (see ***Figure 1, Illustration a***) and the serial number (see ***Figure 1, Illustration b***), as well as date and place of purchase. Have this information available when ordering parts, optional accessories and when making technical or warranty enquiries.

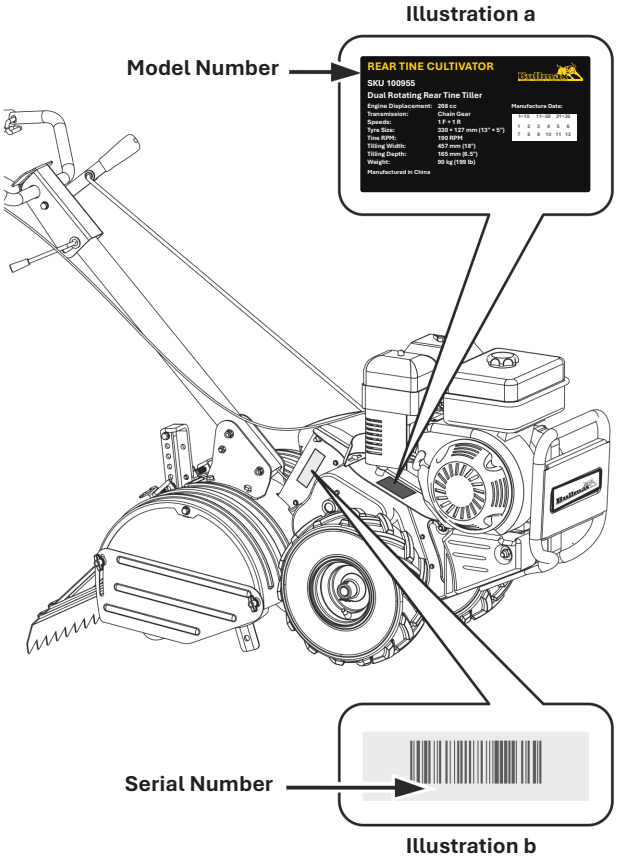


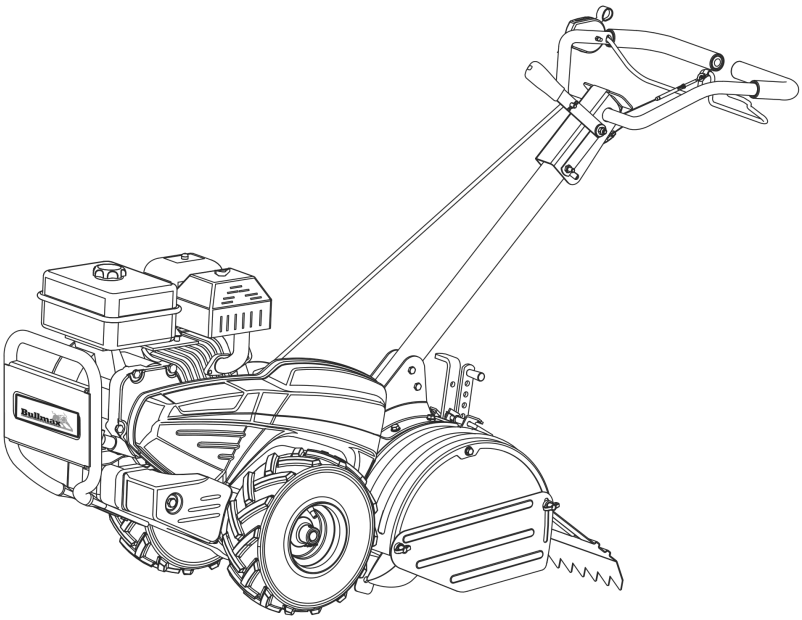
Figure 1

DISCLAIMER

Bullmax reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

SUPPORT

Have questions about your Bullmax equipment?
Call us on **1300 797 675**, email us at **info@bullmax.com.au**, or visit **www.bullmax.com.au**.



SPECIFICATIONS

Model	Rear Tine Cultivator, SKU 100955
Engine	Briggs & Stratton CR950
Displacement	208 cc
Start Type	Recoil
Fuel Tank Size	2.8 L (0.75 US gal)
Transmission	Chain Gear
Speeds	1 Forward / 1 Reverse
Tyre Size	330 × 127 mm (13" × 5")
Tines	10 Tiller, 2 Hammer
Tine Direction	Dual Rotation
Tine Diameter	330 mm (13")
Depth Adjustments	7 Positions
Tine RPM	190 RPM
Tilling Width	457 mm (18")
Tilling Depth	165 mm (6.5")
Product Weight	93 kg (205 lb)

SYMBOLS

The rating plate on your machine may show symbols. These represent important information about the product or instructions on its use.


Read these instructions carefully.


Wear eye protection.

Wear hearing protection.


Wear protective gloves.


Wear safety footwear.


Do not remove or tamper with the protection and safety devices.


No smoking, sparks, or flames.


Do not touch parts that are hot from operation. Serious burns may result.


Keep your feet clear from all rotating parts.


Be aware, objects may be thrown while in use.


Keep children and bystanders off and away.

SAFETY

GENERAL SAFETY RULES

UNDERSTAND YOUR MACHINE

Read this manual and labels affixed to the machine to understand its limitations and potential hazards.

Be thoroughly familiar with the controls and their proper operation. Know how to stop the machine and disengage the controls quickly.

Make sure to read and understand all the instructions and safety precautions as outlined in the Engine Manufacturer's manual packed separately with your unit. Do not attempt to operate the machine until you fully understand how to properly operate and maintain the engine and know how to avoid accidental injuries and/or property damage.

If the unit is to be used by someone other than original purchaser, or is to be loaned, rented, or sold, always provide this manual and any needed safety training before operation. The user can prevent and is responsible for accidents or injuries that may occur to themselves, to other people, or to property.

Do not force the machine beyond its limits. Use the correct machine for your application.

PERSONAL SAFETY

Do not permit children to operate this machine at any time.

Keep children, pets, and other people not using the unit away from the work area. Be alert and shut off the unit if anyone enters work area. Keep children under the watchful care of a responsible adult.

Do not operate the machine while under the influence of drugs, alcohol, or any medication that could affect your ability to use it properly.

Dress properly: Wear long, heavy pants, work boots, and work gloves. Do not wear loose clothing, short pants, or jewellery of any kind. Secure long hair so it is above shoulder level. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewellery, or long hair can be caught in moving parts.

Protect eyes, face, and head from objects that may be thrown from the unit. Always wear safety goggles or safety glasses with side shields when operating.

Wear appropriate hearing protection.

Always keep hands and feet away from all moving parts during operation. Moving parts can cut or crush body parts.

Always keep hands and feet away from all pinch points.

Do not touch parts that might be hot from operation. Allow parts to cool before attempting to maintain, adjust, or service.

Stay alert, watch what you are doing, and use common sense when operating the machine.

Do not overreach. Do not operate the machine while barefoot or when wearing sandals or similar lightweight footwear. Wear protective footwear that will protect your feet and improve your footing on slippery surfaces. Keep proper footing and balance at all times. This enables better control of the machine in unexpected situations.

INSPECT YOUR MACHINE

Check your machine before starting it. Keep guards in place and in working order. Make sure all nuts, bolts, etc., are securely tightened.

Never operate the machine when it is in need of repair or is in poor mechanical condition. Replace damaged, missing, or failed parts before using it. Check for fuel leaks. Keep the machine in safe working condition.

Do not use the machine if the engine's switch does not turn off the engine when running. Any petrol powered machine that can't be controlled with the engine switch is dangerous and must be replaced.

Regularly check to see that keys and adjusting wrenches are removed from the machine area before starting it. A wrench or a key that is left attached to a rotating part of the machine may result in personal injury.

Avoid accidental starting. Be sure the engine's switch is off before transporting the machine or performing any maintenance or service on the unit. Transporting or performing maintenance or service on a machine with its switch on invites accidents.

If the machine should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning sign of trouble.

ENGINE SAFETY

This machine is equipped with an internal combustion engine. Do not use on, or near, forest-covered or brush-covered land unless the exhaust system is equipped with a spark arrester meeting applicable local, state, or federal laws. A spark arrester, if used, must be maintained in effective working order by the operator.

Never start or run the engine inside a closed area. The exhaust fumes are dangerous, containing carbon monoxide, an odourless and deadly gas. Operate this unit only in a well-ventilated outdoor area.

Do not tamper with the engine in an effort to get it to run at higher speeds. The maximum engine speed is preset by the manufacturer and is within safety limits. See engine manual.

Keep a Class B fire extinguisher on hand when operating this machine in dry areas as a precautionary measure.

FUEL SAFETY

Fuel is highly flammable, and its vapours can explode if ignited. Take precautions when using to reduce the chance of serious personal injury.

When refilling or draining the fuel tank, use an approved fuel storage container while in a clean, well-ventilated outdoor area. While adding fuel or operating the unit, do not smoke, and stay away from sparks, open flames, or other sources of ignition near the area of operation. Never fill the fuel tank indoors.

To avoid sparking or arcing, keep grounded conductive objects – such as tools – away from exposed, live electrical parts and connections. These events could ignite fumes or vapours.

Always stop the engine and allow it to cool before filling the fuel tank. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot. Do not operate the machine with known leaks in the fuel system.

Loosen the fuel tank cap slowly to relieve any pressure in the tank.

Never overfill the fuel tank. Because engine heat can cause fuel to expand, never fill the tank to more than 13 mm (1/2") below the bottom of the filler neck. This will provide space for fuel expansion.

Replace all fuel tank and container caps securely and wipe up spilled fuel. Never operate the unit without the fuel cap securely in place.

Avoid creating a source of ignition for spilled fuel. If fuel is spilled, do not attempt to start the engine. Instead, move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapours have dissipated.

When fuel is spilled on yourself or your clothes, wash your skin and change clothes immediately.

Store fuel in containers specifically designed and approved for fuel storage.

Store fuel in a cool, well-ventilated area, safely away from sparks, open flames, or other sources of ignition.

Never store fuel – or a machine with fuel in the tank – inside a building where fumes may reach a spark, open flame, or any other source of ignition (such as a water heater, furnace, or clothes dryer). Allow the engine to cool before storing in any enclosure.

SPECIFIC SAFETY RULES

Thoroughly inspect the area to be tilled, and remove all debris and hard or sharp objects such as stones, sticks, glass, wire, bones, etc. Do not operate tiller in soil with large rocks and foreign objects which can damage the machine.

Do not till above underground electric cables, telephone lines, water lines, gas lines, pipes, or hoses. If in doubt, contact your utility or telephone company to locate underground services.

Keep all bystanders, children, and pets at least 23 m (75 ft) away. If you are approached, stop the unit immediately.

This unit has a clutch. Squeeze the drive control handle lever and check that it returns automatically to the neutral position. If it does not, have unit adjusted by a qualified repair personnel.

Disengage drive control handle lever before starting the engine.

Start the engine carefully according to instructions and with feet well away from the tines.

The tines remain stationary when the clutch is disengaged. If it does not, have unit adjusted by a qualified repair personnel.

Always operate the machine from behind, never pass or stand in front of the machine when the engine is running.

Always hold the unit with both hands when operating. Keep a firm grip on the grips. Be aware that the machine may unexpectedly bounce upward or jump forward if the tines should strike buried obstacles such as large stones, roots, or stumps.

If the unit strikes a foreign object, stop the engine, disconnect the spark plug, thoroughly inspect the machine for any damage, and repair the damage before restarting and operating the machine.

Use extreme caution when in reverse or pulling the machine towards you.

Do not overload the machine capacity by tilling too deep in a single pass or at too fast a rate.

Never operate the tiller at high transport speeds on hard or slippery surfaces.

Be careful when tilling in hard ground. The tines may catch in the ground and propel the tiller forward. If this occurs, let go of the handlebars and do not restrain the machine.

Use caution when tilling near fences, buildings and underground utilities. Rotating tines can cause property damage or personal injury.

Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.

Never leave the operating position when the engine is running.

Always stop the engine when tilling is delayed or when walking from one tilling location to another.

Keep unit clean of vegetation and other materials. They may become lodged between the tines. Stop the engine and disconnect the spark plug before unclogging the tines.

To reduce exposure to vibration, limit the hours of operation and take periodic breaks to minimise repetition and rest your hands. Reduce the speed and force in which you do the repetitive movement. Try to fill each day with jobs where operating hand-held power equipment is not required.

UNPACKING THE CONTAINER

Use scissors or a knife to cut all the straps. Lift off the carton and dispose of properly. (See Figure 1)

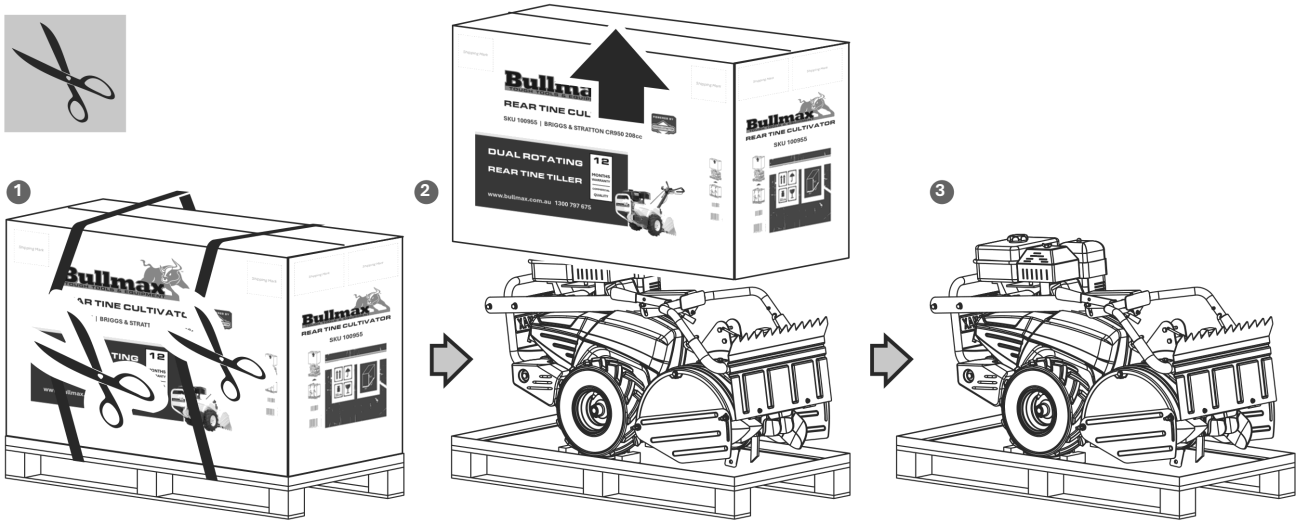
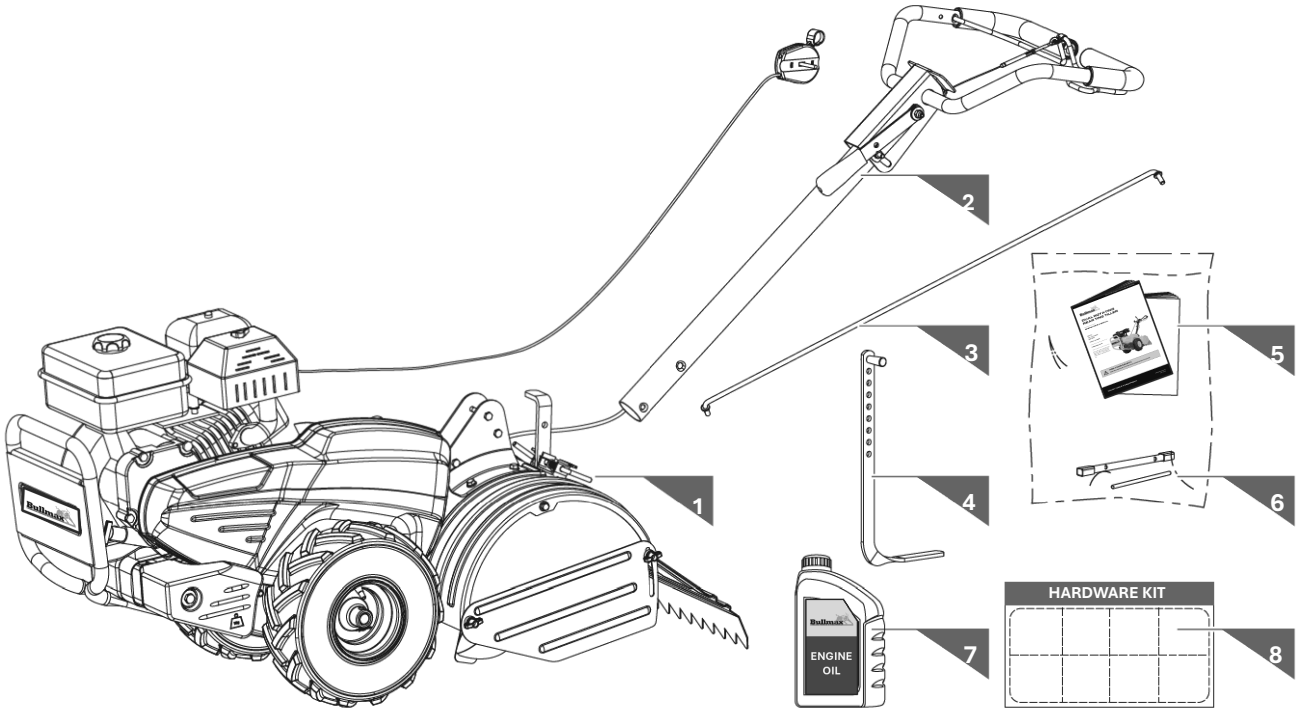


Figure 1

CONTENTS SUPPLIED

Your Bullmax rear tine tiller comes partially assembled and contains the following:



1. Main Machine
2. Operation Handle
3. Shift Rod
4. Depth Stake
5. Operator's Manual & Engine Manual
6. Tools for Spark Plug Assembly
7. Engine Oil

8. Hardware Kit, Including:

		×2	1
	M8 × 25	×1	2
		×1	3

ASSEMBLY

This rear tine tiller was partially assembled at the factory. To assemble your machine follow the below instructions.

OPERATION HANDLE

The M8×75 bolts and nuts have been fixed in the guide bracket for shipping. First, remove the M8×75 bolts and nuts from the guide bracket.

Then, align the holes in the operation handle shaft with the holes in the guide bracket and re-insert the M8×75 bolts and screw nuts to tighten. (See Figure 2)

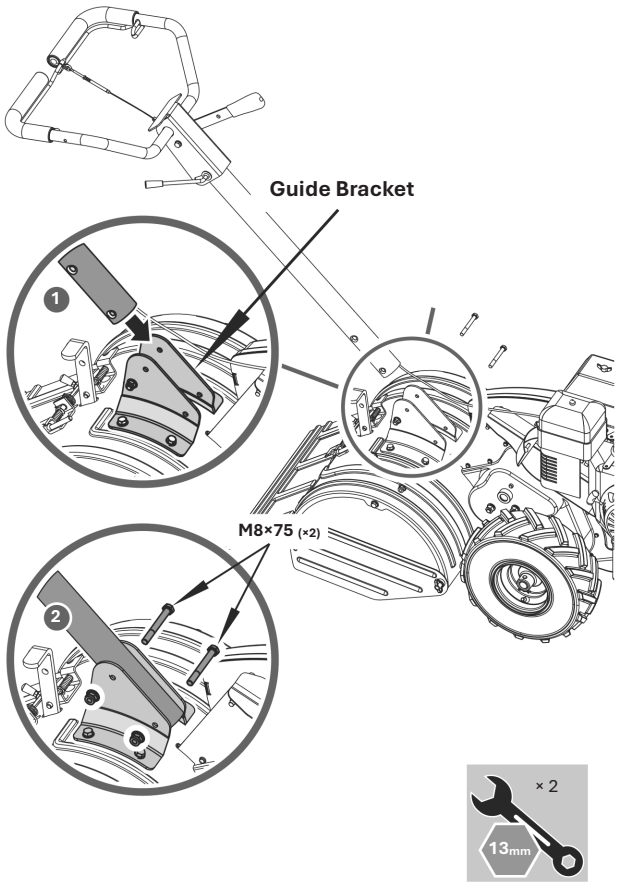


Figure 2

SHIFT LEVER

1. Insert lower end of shift rod into hole of shift lever indicator. Fasten with bridge clip and washer. (see Figure 3, Illustration 1)
2. Insert the upper end of shift rod into hole of shift lever. Fasten with bridge clip and washer. (see Figure 3, Illustration 2)

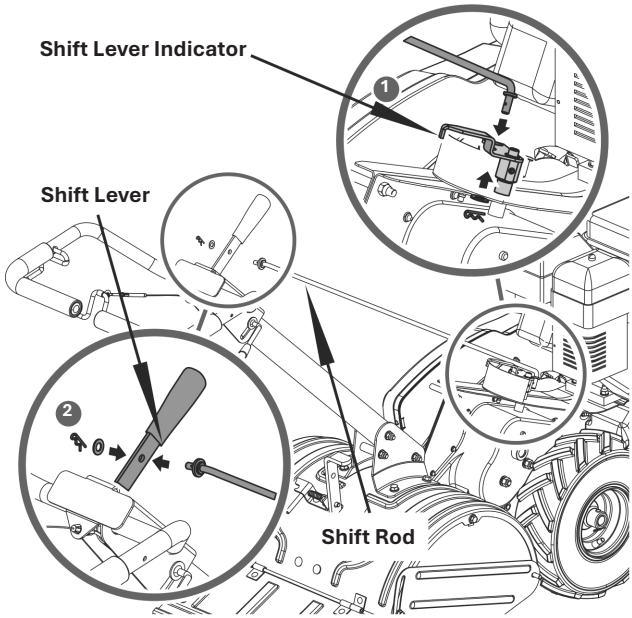


Figure 3

THROTTLE CONTROL

The M6×60 bolt and nut have been fixed in the throttle for shipping. First, remove the M6×60 bolt and nut from the throttle.

Then, align the hole in throttle control and the hole in the upper handle. (See Figure 4) Insert the M6×60 bolt and screw the nut to tighten. Pay attention to the degree of tightness, and make sure the throttle lever can be moved normally.

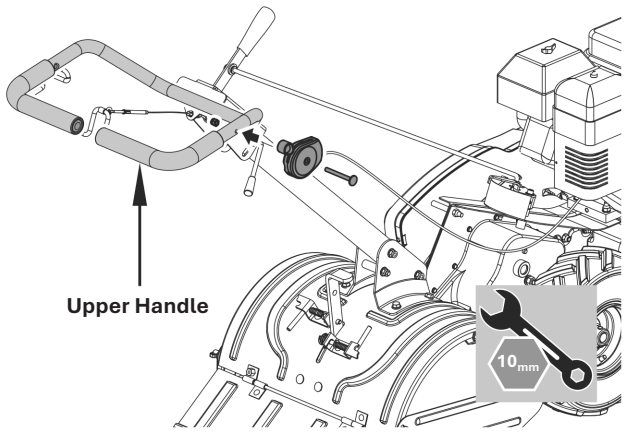


Figure 4

DEPTH STAKE

1. Hold the machine leaning forward. (see Figure 5a, Illustration 1)
2. Pull the pin lever to unlock position. (see Figure 5a, Illustration 2)
3. Insert the depth stake into the slot in the blade cover. (see Figure 5a, Illustration 3)
4. Release the pin into the fourth hole of depth stake. At the same time, switch the pin lever to the lock position. (see Figure 5a, Illustration 4)
5. Fasten the M8×25 bolt, washer and plastic screw head into the first hole of depth stake. Hold the plastic screw head in place with pliers while screwing the bolt in. (see Figure 5a, Illustration 5)

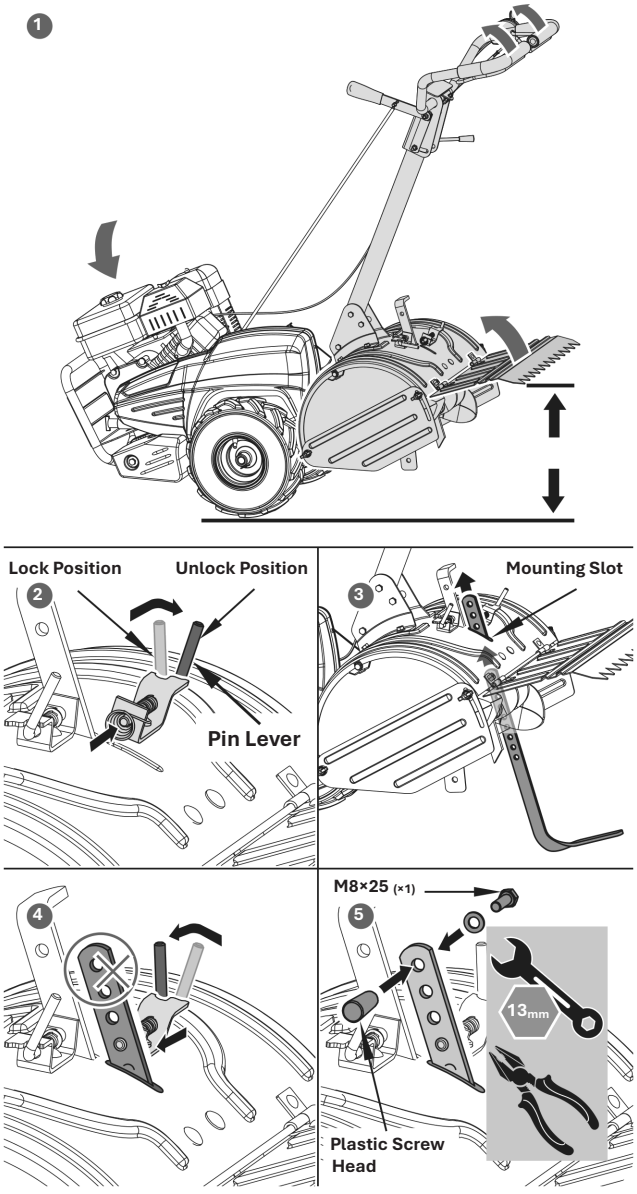


Figure 5a

6. Adjust the depth stake to the desired depth of tilling. (See Figure 5b)

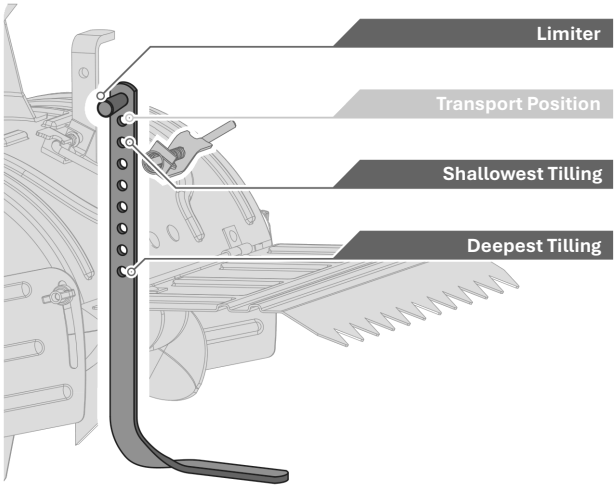


Figure 5b

HEIGHT LIMITER

Screw the spring washer, limiter and rubber cap into the bolt hole in the back of blade cover. Hold the bolt hole in place with 13 mm wrench while fastening the limiter bolt in with 10 mm wrench. (See Figure 6)

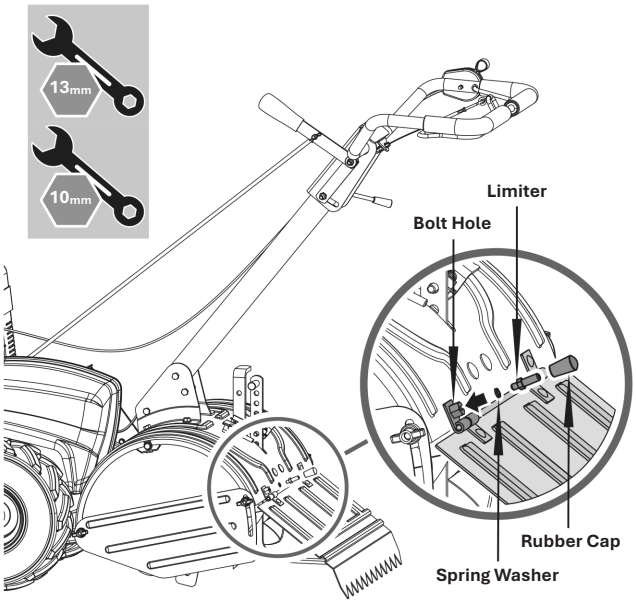
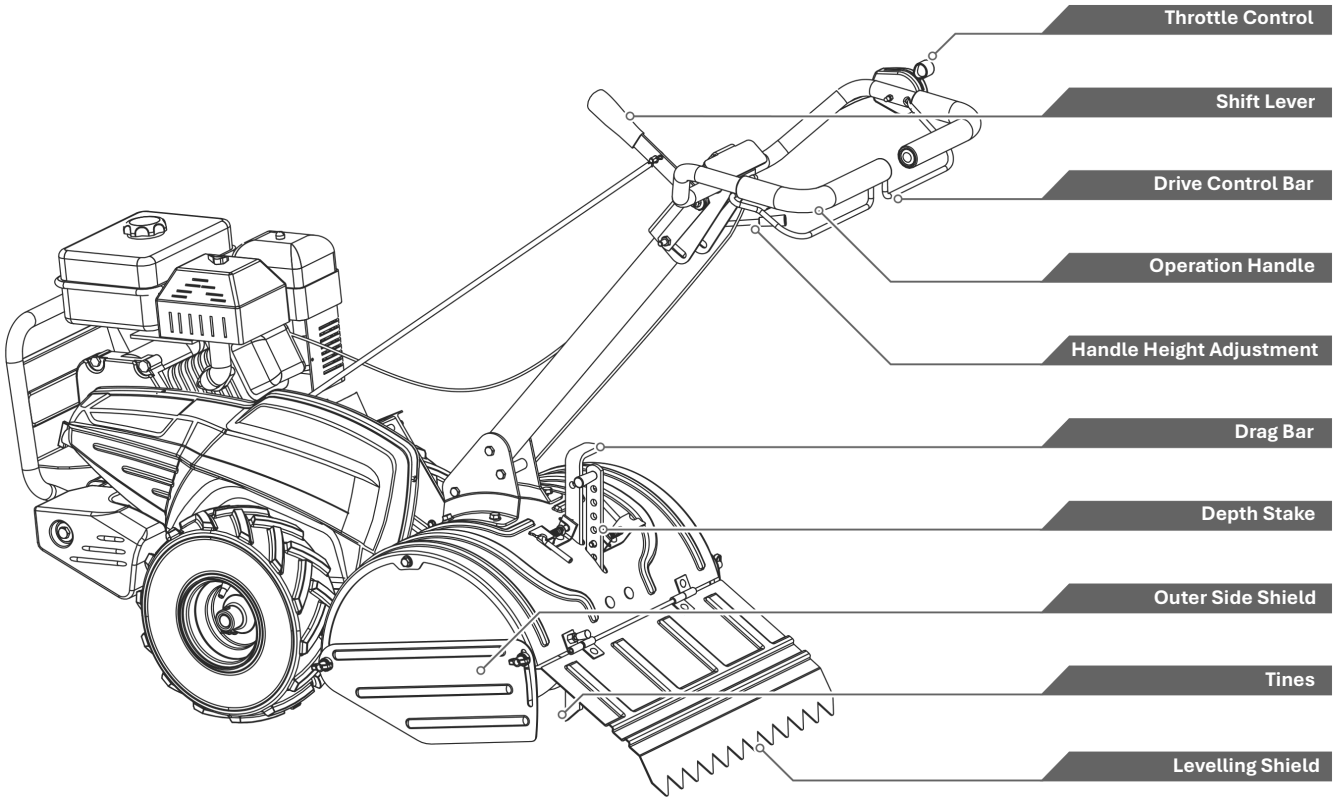
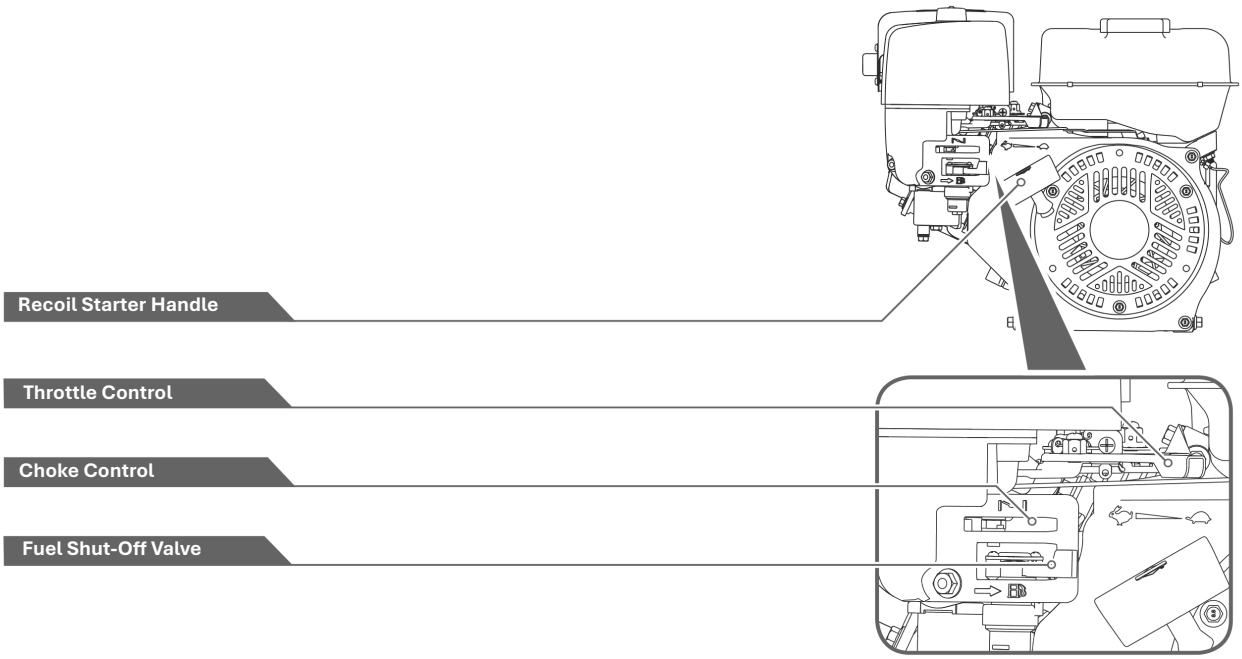


Figure 6

KNOW YOUR MACHINE

FEATURES AND CONTROLS

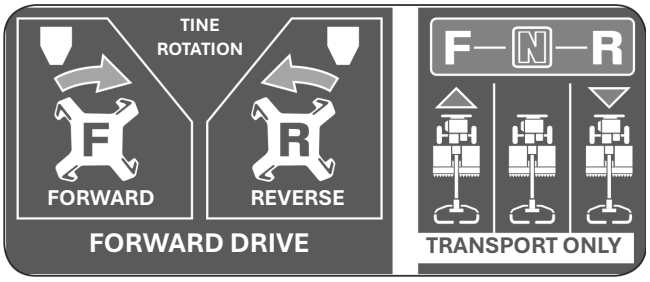




SHIFT LEVER

The shift lever has 5 positions: 3 for transport only (no tine rotation) and 2 for operating the tines in forward (F) or reverse (R).

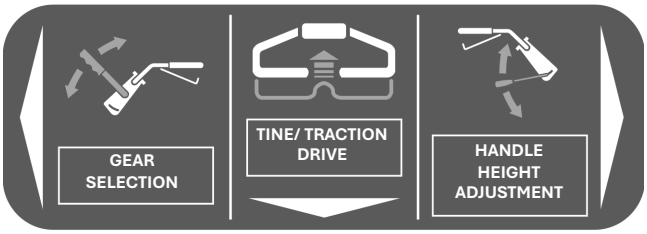
- Moving the shift lever to the far left "F" position will cause the tines to rotate clockwise ( ) when you engage the drive control bar. This position is for tilling soft ground or pre-tilled soil.
- Moving the shift lever to the far left "R" position will cause the tines to rotate counter-clockwise ( ) when you engage the drive control bar. This position is for tilling hard ground.
- **FORWARD (F)** - Move the shift lever indicator to "F" position. Engage the drive control bar and tiller will move forward.
- **REVERSE (R)** - Move the shift lever indicator to "R" position. Engage the drive control bar and tiller will move backward.
- **NEUTRAL (N)** - Release the control bar to stop movement, then move the shift lever indicator to "N" position.



Always release the drive control lever before moving shift lever to another position. Failure to do so will result in damage to the rear tine tiller.

OPERATION HANDLE

- The operation handle is for steering your tiller, and also is where you will find the Drive Control Bar, the Throttle Control, and the Handle Height Adjustment lever.



DRIVE CONTROL BAR

- Used to engage tines and/or traction drive.

HANDLE HEIGHT ADJUSTMENT LEVER

- Unscrew this lever, move the handle up or down. Fasten the lever.

DRAG BAR

- Assists with overall balance while tilling in all conditions.

DEPTH STAKE

- Controls depth at which tiller will dig.

LEVELLING SHIELD

- Levels tilled soil.

OUTER SIDE SHIELD

- Adjustable to protect small plants from being buried.

RECOIL STARTER HANDLE

- The Recoil Starter Handle is used to start the engine.

FUEL SHUT-OFF VALVE

The fuel shut-off has two positions.

- **CLOSED** ( ) - use this position to service, transport, or store the unit.
- **OPEN** ( ) - use this position to run the unit.

THROTTLE CONTROL

- The throttle control regulates the speed of the engine, and moves between FAST , SLOW , and STOP positions. When the throttle control is moved to the STOP position, the engine will STOP.



CHOKE CONTROL

- The choke control is used to choke the carburettor and assist in starting the engine. The choke control slides between the **CHOKE CLOSED** and **CHOKE OPEN** positions.

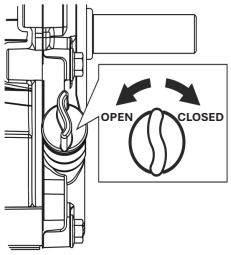
Never use choke to stop engine.

OPERATION

ADD OIL TO ENGINE

> *The engine is shipped without oil. Do not start the engine before adding oil. Refer to your engine manual for the proper oil gauge to use.*

1. Make sure the rear tine tiller is on a flat, level surface.
2. Remove the oil fill cap/dipstick to add oil.



3. Using a funnel, add oil up to the **FULL** mark on the dipstick. (See engine manual for oil capacity, oil recommendation, and location of fill cap.)

> *DO NOT OVERFILL. Check engine oil level daily and add as needed.*

ADD PETROL TO ENGINE

> *Petrol is highly flammable and explosive. You can be burned or seriously injured when handling fuel. Use extreme care when handling petrol.*

> *Fill the fuel tank outdoors, never indoors. Petrol vapours can ignite if they collect inside an enclosure. Explosion can result.*

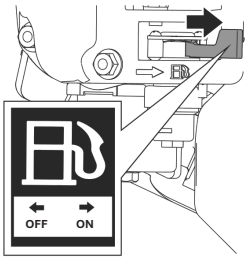
1. The engine must be off and allowed to cool at least two minutes before adding fuel.
2. Remove the fuel filler cap and fill the tank. (See engine manual for fuel capacity, fuel recommendation, and location of fuel cap.)

> **IMPORTANT: DO NOT OVERFILL!**
>
> *This equipment and/or its engine may include evaporative emissions control system components that will only function properly when the fuel tank has been filled to the recommended level. Overfilling may cause permanent damage to evaporative emissions control system components. Filling to the recommended level ensures a vapour gap required to allow for fuel expansion. Pay close attention while filling the fuel tank to ensure that the recommended fuel level inside the tank is not exceeded. Use a portable petrol container with an appropriately sized dispensing spout when filling the tank. Do not use a funnel or other device that obstructs the view of the tank filling process.*

3. Reinstall the fuel cap and tighten. Always clean up spilled fuel.

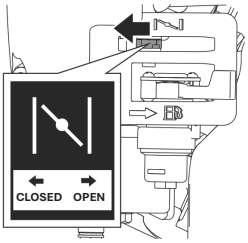
STARTING ENGINE

1. Open the fuel shut-off valve.

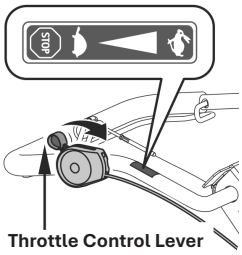


2. Move the choke lever to the CLOSED position.

› *If the engine is hot, closing the choke is not necessary.*



3. Move the throttle control lever slightly forward to about ¼ of the way (slightly toward the fast position).



4. Pull the recoil starter until the engine starts. Return the recoil to the home position after each pull. Repeat the steps as needed. Once engine has started, set the throttle to the FAST position before you operate the unit.

> ⚠ *Rapid retraction of the starter cord (kickback) will pull your hand and arm toward the engine faster than you can let go. Broken bones, fractures, bruises, or sprains could result.*

TINE OPERATION - SHIFT LEVER

- Always release drive control bar before moving shift lever into another position.
- Tine movement is achieved by moving shift lever to either the counter rotating till position ( ) or the forward rotating till position ( ) and engaging drive control bar.

FORWARD - WHEELS ONLY/TINES STOPPED

- Release drive control bar and move shift lever indicator to "F" (forward) position. Engage drive control bar and tiller will move forward.

REVERSE - WHEELS ONLY/TINES STOPPED

> ⚠ *Do not stand directly behind tiller.*

- Release the drive control bar.
- Move throttle control to "SLOW" position.
- Move shift lever indicator to "R" (reverse) position.
- Hold drive control bar against the handle and tiller will move backward.

If you find the shift lever difficult to move or find it hard to shift gears, try one of the following:

- Briefly engage the drive control bar, and release, or
- Rock the tiller forward and backward using the handles

DEPTH STAKE

The depth stake (see Figure 7) can be raised or lowered to allow you more versatile tilling and cultivating, or to more easily transport your tiller.

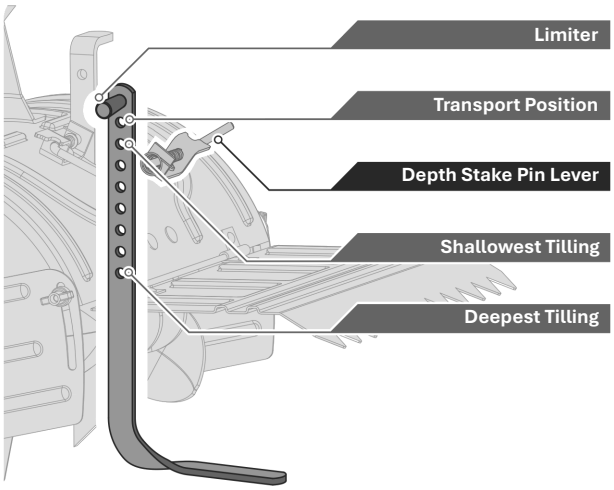


Figure 7

DRAG BAR

The drag stake (see Figure 8) should be raised when tilling in the counter rotating ( ) till position. The drag stake should be lowered when tilling in the forward rotating ( ) till position.

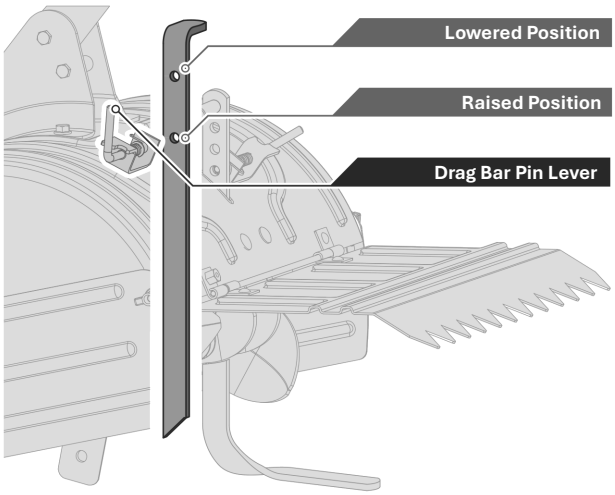


Figure 8

TILLING

Tilling is digging in, turning over and breaking up garden soil and prepare a seedbed for planting. Best tilling depth is 100 mm (4") to 150 mm (6"). A tiller will also clear the soil of unwanted vegetation. The decomposition of this vegetation matter enriches the soil.

Avoid tilling soil that is too dry as it will pulverise and produce a dust that will not hold water. Water a few days before tilling. Also, tilling soil that is too wet will produce unsatisfactory clods. Wait a day or two after heavy rain for the soil to dry.

Better growth will be obtained if an area is tilled properly and used soon after tilling to preserve the moisture content.

The type of soil and working conditions will determine the actual setting of the tilling depth. In some soils, the desired depth is reached first pass over garden. In other soils, the desired depth is obtained by going over the garden two or three times. In later case, the depth regulator rod should be lowered before each succeeding pass over the garden. Passes should be made across the length and width of the garden alternately. Do not try to dig too deeply in the first pass. If the machine jumps or bucks, allow the unit to move forward at a slightly faster rate.

If the tiller stops forward motion and tries to dig in one spot, rock the handles from side to side to start it moving forward again.

Rocks which are turned up should be removed from the garden area.

- Move the depth stake pin lever to the unlock position (See Figure 5a, Illustration 2). Hold the depth stake limiter to pull the depth stake up for increasing tilling depth. Place depth stake pin in the hole of the depth stake to lock in position at desired depth.
- Place shift lever indicator in counter rotating (R) till position when tilling hard soil.
- Hold the drive control bar against the handle to start tilling movement. Tines and wheels will both turn.
- Move throttle control to "FAST" position for deep tilling. To cultivate, throttle control can be set at any desired speed, depending on how fast or slow you wish to cultivate.

IMPORTANT: *Always release drive control bar before moving shift lever into another position.*

TURNING

- Release the drive control bar.
- Move throttle control to "SLOW" position.
- Place shift lever indicator in "F" (forward) position. Tines will not turn.
- Lift handle to raise tines out of ground.
- Swing the handle in the opposite direction you wish to turn, being careful to keep feet and legs away from tines.
- When you have completed your turn-around, release the drive control bar and lower handle. Place shift lever in (till) position and move throttle control to desired speed. To begin tilling, hold drive control bar against the handle.

CULTIVATING

Cultivating is loosening or digging around growing plants to disrupt weeds and aerate soil. Less than 50 mm (2") depth is always desirable.

- Place shift lever indicator in forward rotating (F) till position when cultivating soft ground or tilling pre-tilled soil.
- Move both the depth stake pin lever and the drag stake pin lever to the unlock position (See Figure 5a, Illustration 2 & Figure 8). Hold the depth stake limiter to pull the depth stake up for increasing tilling depth. Place depth stake pin in the hole of the depth stake to lock in position at desired depth. Lower drag stake to the "Lowered position" (See Figure 8) and lock it in position.
- Hold the drive control bar against the handle to start cultivating movement. Tines and wheels will both turn.
- Move the throttle control to the fast position for deep cultivating. To cultivate, throttle control can be set at any desired speed, depending on how fast or slow you wish to cultivate.
- Always lower the drag stake when using the forward rotating tine drive.

OUTER SIDE SHIELDS

To protect small plants from being buried while tilling, the back edges of the outer side shields are slotted so that the shields can be raised for deep tilling and lowered for shallow tilling. (See Figure 9) To move the shield to the desired position (both sides), loosen Nut A and Nut B, move the shield, and retighten the nuts.

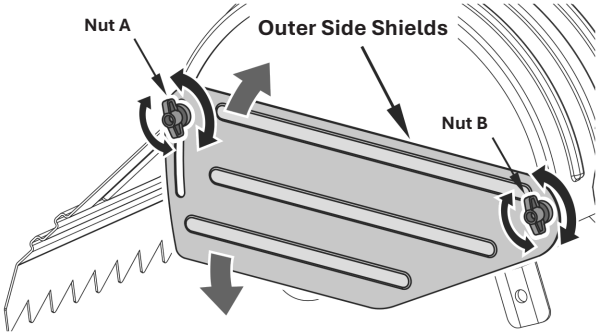


Figure 9

STOPPING THE TINES AND DRIVE

- Release drive control bar to stop movement.
- Move shift lever to "N" (neutral) position.

TRANSPORT AROUND THE YARD

CAUTION: *Before lifting or transporting, allow tiller engine and muffler to cool. Disconnect spark plug wire. Drain petrol from fuel tank.*

- Release the depth stake pin. Move the depth stake down to the second top hole for transporting the tiller. Place depth stake pin in hole of depth stake to lock in position. This prevents tines from scuffing the ground.
- Place shift lever indicator in "F" (forward) position for transporting.
- Hold the drive control bar against the handle to start tiller movement. Tines will not turn.
- Move throttle control to desired speed.

IDLE SPEED

Set the throttle control lever to the SLOW position to reduce stress on the engine when work is not being performed. Lowering the engine speed will help extend the life of the engine, as well as conserve fuel and reduce noise level.

STOP ENGINE

To stop the engine in an emergency, simply move the throttle control lever on the handle to the stop position. Under normal conditions, use the following procedure:

1. Move the throttle lever to the SLOW ( ) position.
2. Let the engine idle for one or two minutes.
3. Move the throttle control lever on the handle past the slow position to the OFF position.
4. Turn the fuel valve lever to the OFF ( ) position.

Sudden stopping at a high speed under a heavy load is not recommended. Engine damage may result.

Do not move the choke control to CLOSE to stop the engine. Backfire or engine damage may occur.

MAINTENANCE

Maintaining your Bullmax rear tine tiller will ensure long life to the machine and its components.

PREVENTIVE MAINTENANCE

1. Turn off the engine and disengage all command levers. The engine must be cool.
2. Keep the engine's throttle lever in its SLOW position and remove the spark plug wire from the spark plug and secure.
3. Inspect the general condition of the rear tine tiller. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, and any other condition that may affect its safe operation.
4. Use a soft brush, vacuum or compressed air to remove all contaminants from the machine. Then use high quality light oil to lubricate all moving parts.
5. Replace the spark plug wire.

Never use a "pressure washer" to clean your unit. Water can penetrate tight areas of the machine and its transmission case and cause damage to spindles, gears, bearings, or the engine. The use of pressure washers will result in shortened life and reduce serviceability.

GEARBOX

The gearbox was filled with lubricant to the proper level at the factory. Unless there is evidence of leakage or service has been performed on the gearbox, no additional lubricant should be required.

GENERAL LUBRICATION

Lightly lubricate all moving parts of the machine at the end of the season or every 25 operating hours.

ADJUSTING CLUTCH

If clutch becomes difficult to engage follow these steps to adjust the cable tension.

1. Loosen the jam nut by turning it counter clockwise with 8 mm wrench while holding the adjustment nut in place with 6 mm wrench. (see Figure 10, Illustration 1)
2. Tighten (or loosen) the cable by turning the cable adjustment nut clockwise (or counter clockwise) with a 6 mm wrench until you have reached your desired tightness. (see Figure 10, Illustration 2)
3. Once you have reached your desired cable tightness, tighten the jam nut by turning it clockwise until it is tight. (see Figure 10 Illustration 3)

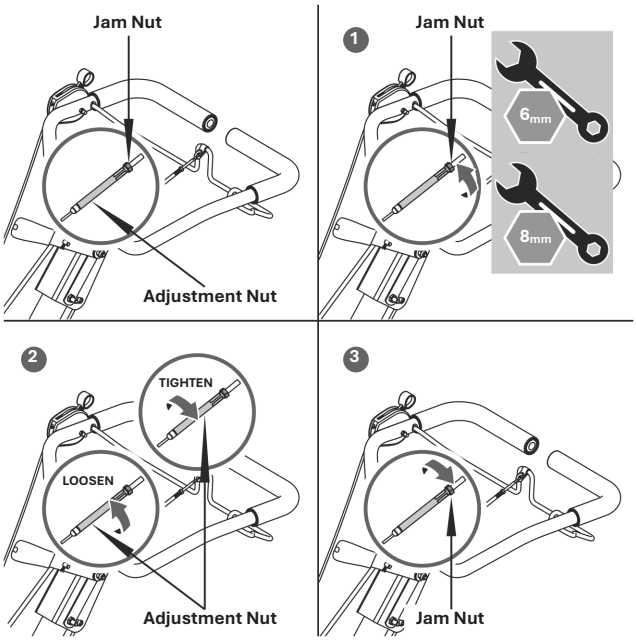


Figure 10

REPLACING THE TINES

1. Remove the outer side shield.
2. Remove the whole blade assembly.

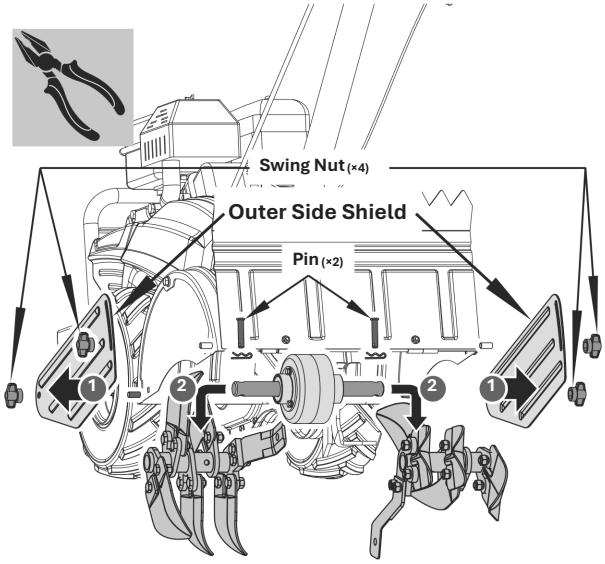


Figure 11a

3. Remove each tine.

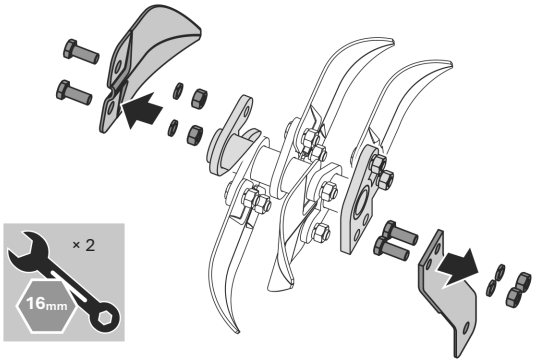


Figure 11b

REPLACING THE BELT

1. Securely prop the machine up so that the wheel on the opposite side of the engine is 25 mm (1") off the work surface. Remove the shear pin and wheel from belt guard side of the machine, opposite side of the engine. (see Figure 12a)
2. Remove the 4 bolts and 1 nut on the belt guard to expose the belt assembly. (See Figure 12b, illustration 2)
3. Slide the belt roller off its stud below the large transmission pulley. (See Figure 12b, illustration 3)
4. Remove the belt from the engine and idler pulley: Rotate the transmission pulley and pull the belt gently through the roller stud while working it free from the pulley. (See Figure 12b, illustrations 4 & 5)
5. To install a new belt, repeat the above process in reverse.

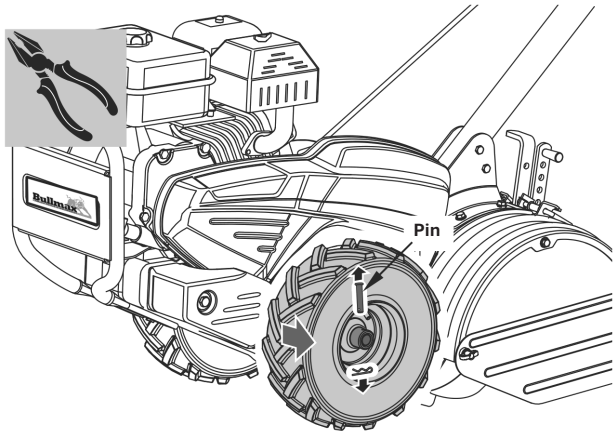


Figure 12a

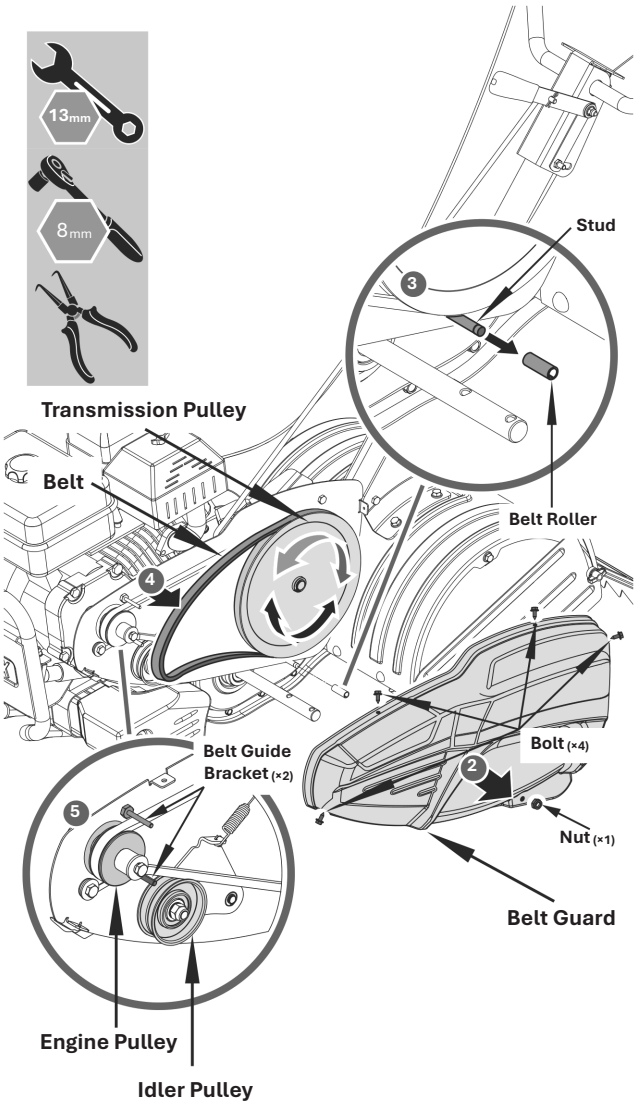


Figure 12b

ENGINE MAINTENANCE

For information on engine maintenance, refer to the Engine Manual included with your unit. Your engine manual provides detailed information and a maintenance schedule for performing maintenance tasks.

STORAGE

If the rear tine tiller will not be used for a period longer than 30 days, follow the steps below to prepare your unit for storage.

1. Drain the fuel tank completely. Stored fuel containing ethanol or MTBE can start to go stale in 30 days. Stale fuel has high gum content and can clog the carburettor and restrict fuel flow.
2. Start the engine and run until it stops. This helps prevent gum deposits from forming inside the carburettor and possible engine damage.
3. While the engine is still warm, drain the oil from the engine. Refill with fresh oil of the grade recommended in the Engine Manual.
4. Use clean cloths to clean off the outside of the machine and to keep the air vents free of obstructions.

> *Do not use strong detergents or petroleum based cleaners when cleaning plastic parts. Chemicals can damage plastics.*

5. Inspect for any loose or damaged parts. Repair or replace damaged parts and tighten loose screws, nuts or bolts.
6. Store your unit on flat ground in a clean, dry building that has good ventilation.

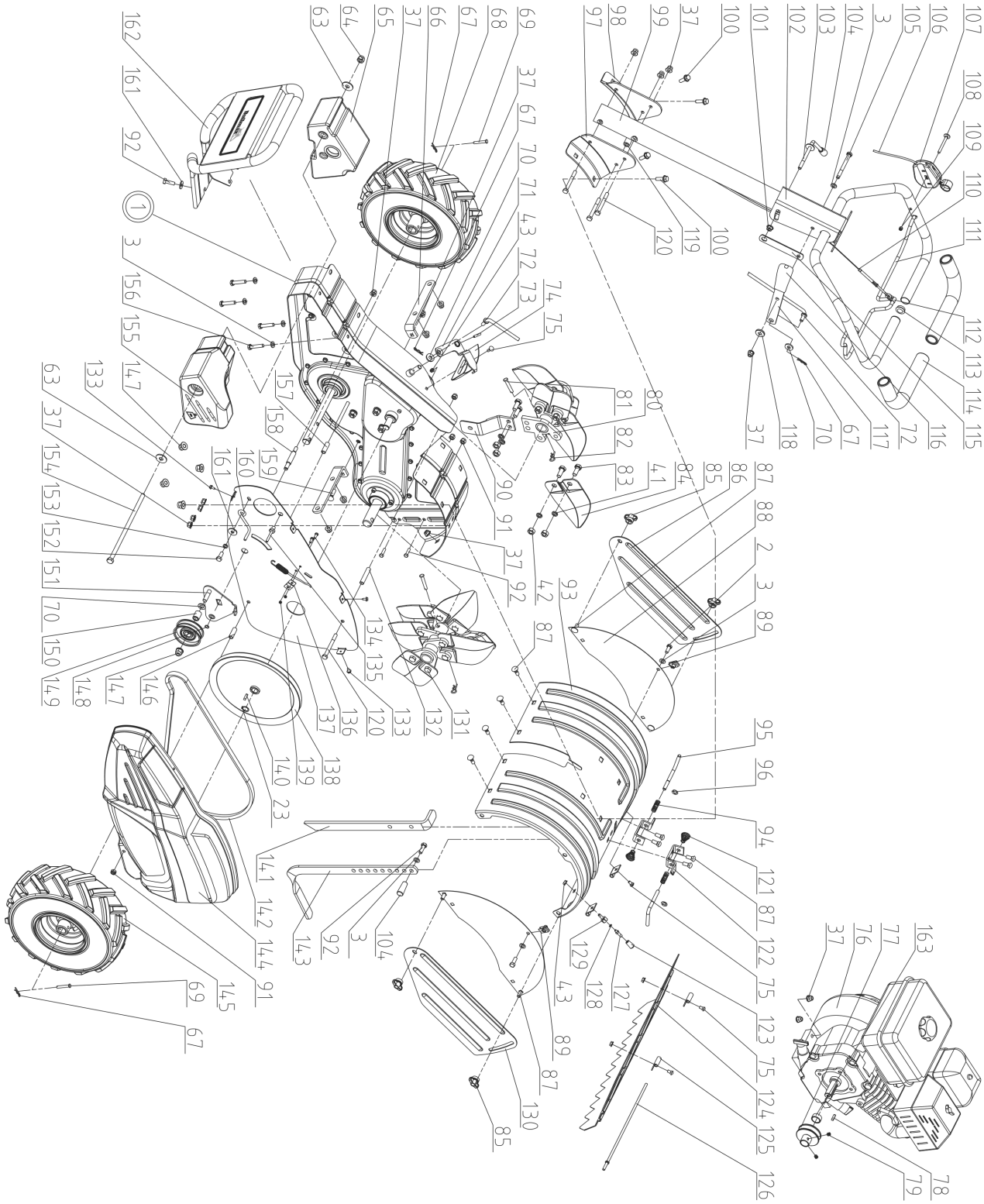
> *Do not store the machine with fuel in a non-ventilated area where fuel fumes may reach flame, sparks, pilot lights or any ignition sources.*

TROUBLESHOOTING

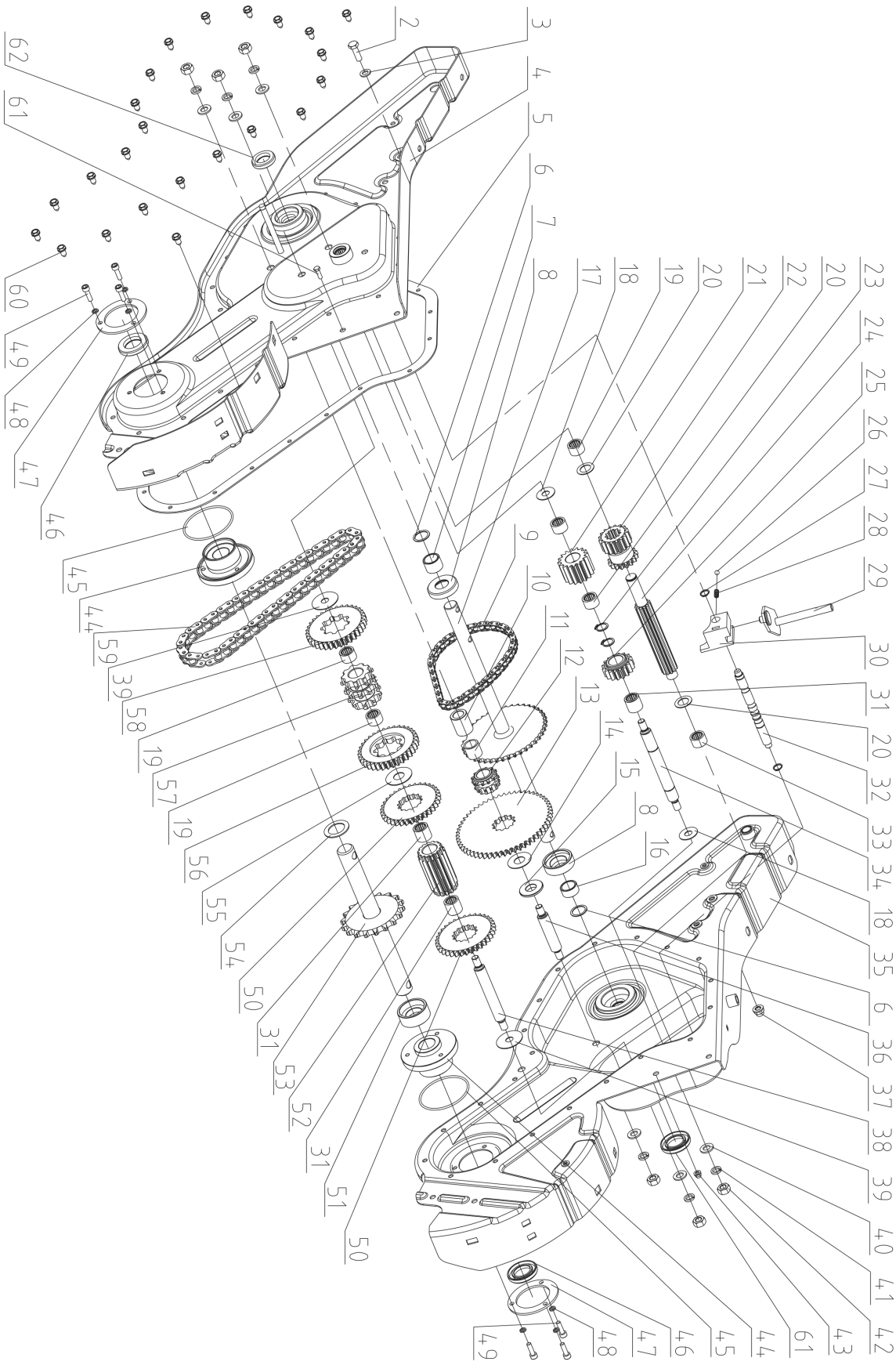
PROBLEM	CAUSE	REMEDY
Engine fails to start	1. Spark plug wire is disconnected 2. Out of fuel or stale fuel 3. Throttle control lever or Fuel valve lever is not in the run position 4. Choke lever is not in CLOSE position 5. Blocked fuel line 6. Fouled spark plug 7. Engine flooding 8. Belt tension lever is engaged 9. Not enough oil in engine	1. Attach spark plug wire securely to spark plug 2. Fill with clean, fresh petrol 3. Throttle control lever on handle must be set slightly to the fast position and the Fuel valve lever set to the ON position 4. Choke lever must be in CLOSE position for a cold start 5. Clean fuel line 6. Clean, adjust gap, or replace 7. Wait a few minutes to restart the engine 8. Disengage the belt tension lever 9. Add more oil to engine

PROBLEM	CAUSE	REMEDY
Engine runs erratically	1. Spark plug wire is loose 2. Unit running with Choke lever in CLOSE position 3. Blocked fuel line or stale fuel 4. Vent plugged 5. Water or dirt in fuel system 6. Dirty air cleaner 7. Improper carburettor adjustment	1. Connect and tighten spark plug wire 2. Move choke lever to OPEN position 3. Clean fuel line. Fill tank with clean, fresh petrol 4. Clear vent 5. Drain fuel tank. Refill with fresh fuel 6. Clean or replace air cleaner 7. Refer to engine manual
Engine overheats	1. Engine oil level low 2. Dirty air cleaner 3. Air flow restricted 4. Carburettor not adjusted properly	1. Fill engine with oil to the recommended level in engine manual 2. Clean air cleaner 3. Remove housing and clean 4. Refer to engine manual
Engine will not stop when throttle control is positioned at stop, or engine speed does not increase properly when throttle control is adjusted.	1. Debris interfering with throttle linkage. 2. Improper throttle linkage adjustment	1. Clean dirt and debris. 2. Refer to Engine Manual to check and adjust throttle linkage.
Tiller moves forward during starting.	Tine clutch control not in neutral position.	The tine clutch control lever must be set to the neutral position for the engine to start.
Tiller is difficult to control when tilling (machine jumps or lurches forward).	1. Improper tilling depth setting. 2. Too high engine speed on hard ground.	1. Raise the tines for shallower tilling by raising the depth regulator rod. 2. Set the throttle lever at lower speed.
Tines do not engage.	1. Foreign debris is lodged in between tines. 2. Tine clevis pin(s) missing. 3. Belt worn and/or stretched. 4. Pulley and idler not in correct adjustment.	1. Stop tiller completely, remove and discard any foreign debris from tines. 2. Replace tine clevis pin(s). 3. Replace belt. 4. Contact dealer.

PARTS DIAGRAM



Gearbox


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PARTS LIST

No.	Description	Qty
1	Gear Box Assembly	1
2	Blot M8×20	1
3	Flat Washer 8	12
4	Gear Box Case Weldment (L)	1
5	Rubber Gasket	1
6	Wear-Resisting Gasket 1	2
7	Bushing I	1
8	End Cap	2
9	Chain 06B-50	1
10	Bushing II	1
11	Bearing Bushing 16×20×25	1
12	Drive Chain Z12	1
13	Gear Z56	1
14	Wear-Resisting Gasket 7	1
15	Thrust Washer	1
16	Wheel Shaft Bushing	1
17	Drive Shaft Weldment	1
18	Wear-Resisting Gasket 6	2
19	Bearing HK1614	5
20	Wear-Resisting Gasket 3	3
21	Gear 4	1
22	Gear 1	1
23	C-Clip 16	3
24	Spline Shaft 1	1
25	Gear 5	1
26	Steel Ball 1/4" (6.35mm)	1
27	C-Clip 12	2
28	Spring	1
29	Poking Fork Weldment	1
30	Shift Fork	1
31	Bearing HK1620	3
32	Shift Fork Guide Pin	1
33	Bearing BK1614	1
34	Shaft 3	1
35	Gear Box Right Cover	1
36	Shaft 4	1
37	Flange Lock Nut M8	23
38	Shaft 2	1
39	Wear-Resisting Gasket 5	2
40	Flat Washer 12	30
41	Spring Washer 10	30
42	Nut M10	6
43	Flange Lock Nut M6	6
44	Bushing	2
45	O-Ring 73×2.65	2
46	Oil Seal FB-25×40×8	2
47	Pressure Washer	2
48	Spring Washer 6	6
49	Screw M6×16	6
50	Gear 1	2
51	Spacer	1
52	Gear 2	1
53	Tine Shaft	1
54	Wear-Resisting Gasket 2	1
55	Wear-Resisting Gasket 4	1
56	Gear 3	1
57	Chain	1
58	Gear 3A	1
59	Chain 10A-50	1
60	Screw M6×12	23
61	Bolt M6×16	1
62	Oil Seal FB-20×35×8	2
63	Engine Shaft Washer	2
64	Lock Nut M10	1
65	Counterweight 2	1
66	Gear Cover Mount Bracket	2
67	Clip 1.8	4
68	Right Wheel Assy	1
69	Pin Shaft B8×45	2
70	Flat Washer 10	3
71	Direction Indicator Weldment	1
72	Shift Rod	1
73	Spring Pin 5×30	1
74	Gear Shift Markable Plate	1
75	Bolt M6×16	4
76	Engine	1
77	Pulley	1
78	Key B5×4.76×40	1
79	Screw M8×12	2
80	Blade Mount Bracket	2
81	Pin B10×45	2
82	R Clip 2.5	2
83	Bolt M10×30	4
84	Blade 2	10
85	Swing Nut	4
86	Adjustable Side Shield 1	1
87	Bolt M8×20	12
88	Side Tine Shield	2
89	B Style Sprig Nut M8	2
90	Blade 1	2
91	Lock Nut M8	3
92	Bolt M8×25	3
93	Tine Shield	1
94	Spring	2
95	Pin	2
96	C-Clip	2
97	Handle Mount Bracket 2	1
98	Handle Mount Bracket 1	1
99	Handle Support Frame	1
100	Bolt M10×25	4
101	Nut M8	1
102	Uppder Handle	1
103	Lock Lever	1
104	Lever Knob	2
105	Bolt M8×85	1
106	Throttle Cable	1
107	Throttle Lever Assy.	1
108	Bolt M6×60	1
109	Lock Nut M6	1
110	Tensioner Pulley Cable	1
111	Pulley Cable Drag Rod	1

No.	Description	Qty
112	Bending Joint	1
113	End Cap 25	2
114	Upper Handle Sleeve	2
115	Brake Connecting Plate	1
116	Shift Lever Knob	1
117	Shift Lever	1
118	Bushing	1
119	Support Sleeve	1
120	Bolt M8×75	4
121	Spring	2
122	Pin Bracket	2
123	Rubber Cap	1
124	Serrated Rear Shield	1
125	Hinge	4
126	Hinge Shaft	1
127	Limiter Pin	1
128	Spring Washer 5	1
129	Bolt	1

No.	Description	Qty
130	Adjustable Side Shield 2	1
131	Bolt M10×25	16
132	Spacer 3	1
133	Screw M5×10	4
134	Bolt M5×12	2
135	Long Bolt	1
136	Cabel Fixation Clamp	1
137	Belt Cover Mount Bracket	1
138	Belt Pulley	1
139	Lock Nut M5	2
140	Key A5×20	1
141	Depth Stake 1	1
142	Belt 4LXP1308	1
143	Depth Stake 2	1
144	Belt Cover	1
145	Left Wheel Assy	1
146	Spacer 2	1
147	Flange Lock Nut 10	5

No.	Description	Qty
148	C-Clip 9	1
149	Tensioner Pulley	1
150	Bushing	1
151	Wheel Bracket Weldmen	1
152	Bolt 5/16 - 24 UNF*25	1
153	Spring Washer 8	1
154	Bolt M10×290	1
155	Counterweight 1	1
156	Bolt M8×40	4
157	Spacer 1	1
158	Tensioner Pulley Shaft	1
159	Bolt M8×30	1
160	Belt Block Rod	1
161	Big Flat Washer 8	2
162	Engine Protector Weldment	1
163	Spacer 4	1

TOUGH TOOLS & EQUIPMENT

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