



**7264 DELUXE 4-CYCLE TILLER/CULTIVATOR
OWNER'S MANUAL**



Welcome to the World of Mantis Gardening

Here's your new MANTIS Tiller . . . the lightweight wonder that's Changing the Way Americans Garden.®

Unlike big tillers, your MANTIS Tiller weighs only 26 pounds. So it lifts easily, handles smoothly, tills and weeds precisely. And, unlike other small tillers, it features serpentine tines that churn soil to ten inches deep. It creates a soft, smooth seed bed, even in problem soil.

Once you know how to use your tiller correctly, we guarantee you'll love it. So first, please read this manual. It shows, step by step, how to use your tiller safely.

If you have questions about any topic in this Manual, or for the name of your local dealer, call **1-800-366-6268** toll free, Monday - Saturday, 8:00am to 5:00pm, Eastern Time.

Attention Mantis Product Owners! Get maintenance tips for your Mantis product on our website at www.mantis.com



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Safety Rules & Warnings

You will notice Safety Rules and Important Notes throughout this Owners Manual. Make sure you understand and obey these warnings for your own protection.

I. Special Safety Information

 **WARNING • DANGER** 
**ATTENTION: THIS SYMBOL POINTS OUT
OUR IMPORTANT SAFETY INSTRUCTIONS.**

**WHEN YOU SEE THIS SYMBOL, 
HEED IT'S WARNING!! STAY ALERT!!**

 **WARNING • DANGER** 
**TO REDUCE THE POTENTIAL FOR ACCIDENTS, COMPLY
WITH THE SAFETY INSTRUCTIONS IN THIS MANUAL.**

**FAILURE TO COMPLY MAY RESULT IN SERIOUS PERSONAL
INJURY, AND/OR EQUIPMENT AND PROPERTY DAMAGE.**

II. Safety & Warnings

 **WARNING • DANGER** 
**IMPROPER USE OR CARE OF THIS TILLER
OR FAILURE TO WEAR PROPER PROTECTION
CAN RESULT IN SERIOUS INJURY.**

**READ AND UNDERSTAND THE RULES FOR SAFE OPERATION
AND ALL INSTRUCTIONS IN THIS MANUAL.**

WEAR HEARING AND EYE PROTECTION.

 **WARNING:** The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

III. Safety Decal Information

An important part of the safety system incorporated in this tiller are the warning and information decals found on various parts of the tiller. These decals must be replaced in time due to abrasion, etc. It is your responsibility to replace these decals when they become hard to read. The location and part numbers (P/N) of these decals are illustrated below.



P/N 430057



P/N 400630



CUTTING HAZARD: KEEP FEET AND HANDS AWAY FROM ROTATING TINES.



DO NOT CARRY THE TILLER IN THIS POSITION.



READ OWNER'S MANUAL BEFORE USING TILLER, OR PERFORMING ANY REPAIR OR MAINTENANCE. KEEP OWNERS MANUAL IN A SAFE PLACE.



DON'T FUEL, REFUEL, OR CHECK FUEL WHILE SMOKING, OR NEAR AN OPEN FLAME OR OTHER IGNITION SOURCE.

⚠ WARNING • DANGER ⚠
OPERATION OF THIS EQUIPMENT MAY CREATE SPARKS THAT CAN START FIRES AROUND DRY VEGETATION. A SPARK ARRESTOR IS INSTALLED. THE OPERATOR SHOULD CONTACT LOCAL FIRE AGENCIES FOR LAWS OR REGULATIONS RELATING TO FIRE PREVENTION REQUIREMENTS.



CAUTION: WHEN ASSEMBLING THE HANDLES, MAKE SURE FUEL TANK FACES AWAY FROM OPERATOR. THIS IS THE REAR OF THE TILLER, REFER TO ASSEMBLY INSTRUCTION ON PAGE 7.



INCORRECT ASSEMBLY.



WEAR EAR AND EYE PROTECTION.



DON'T OPERATE INDOORS

⚠ WARNING • DANGER ⚠
IF THE TILLER IS USED IMPROPERLY OR SAFETY PRECAUTIONS ARE NOT FOLLOWED, THE USERS RISK SERIOUS INJURY TO THEMSELVES AND OTHERS.
READ AND UNDERSTAND THIS MANUAL BEFORE ATTEMPTING TO OPERATE THIS TILLER.

IV. Warnings - Do's

Read and understand the owner's manual. Pay particular attention to all sections regarding safety.

1. Always keep a firm grip on both handles while the tines are moving and/or the engine is running. BE AWARE!! The tines may coast after throttle trigger is released. Make sure tines have come to a complete stop and engine is off before letting go of the tiller.

2. Always maintain a firm footing and good balance. Do not overreach while operating the tiller. Before you start to use the tiller, check the work area for obstacles that might cause you to lose your footing, balance or control of the machine.

3. Thoroughly inspect the area where equipment is to be used and remove all objects, which can be thrown by the machine.

4. Always keep area clear of children, pets, and bystanders.

5. Always stay alert. Watch what you are doing and use common sense. Do not

operate unit when fatigued.

6. Always dress properly. Do not wear loose clothing or jewelry, they might get caught in moving parts. Use sturdy gloves. Gloves reduce the transmission of vibration to your hands. Prolonged exposure to vibration can cause numbness and other ailments.

7. While working, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

8. Always wear ear and eye protection. Eye protection must meet ANSI Z 87.1. To avoid hearing damage, we recommend hearing protection be worn whenever using the equipment.

9. To reduce fire hazard, keep the engine, and petrol/gas storage area free of vegetative material and excessive grease.

10. Start the engine carefully, according to the manufacturer's instructions and with feet well away from tool(s).

11. Keep all nuts, bolts and screws

tight to be sure the equipment is in safe working condition.

12. Use extreme caution when reversing or pulling the machine towards you.

13. Work only in daylight or good artificial light.

14. Always be sure of your footing on slopes.

15. Exercise extreme caution when changing direction on slopes.

16. Always keep a safe distance between two or more people when working together.

17. Always inspect your unit before each use and ensure that all handles, guards and fasteners are secure, operating, and in place.

18. Always maintain and examine your Tiller with care. Follow maintenance instructions given in manual.

19. Always store tiller in a sheltered area (a dry place), not accessible to children. The tiller as well as fuel should not be stored in a house.

V. Warnings - Don'ts

Don't use tiller with one hand. Keep both hands on handles with fingers and thumbs encircling the handles, while tines are moving, and engine is running.

Don't overreach. Keep a good footing at all times.

Don't run with the machine, walk.

Don't work on excessively steep slopes.

Don't attempt to clear tines while they are moving. Never try to remove jammed material before switching the engine off and making sure the tines have stopped completely.

Don't allow children or incapable people to operate this tiller.

Don't operate while under the influence of alcohol or drugs.

Don't attempt to repair this tiller. Have repairs made by a qualified dealer or repairman. See that only original Mantis parts are used.



WARNING • DANGER



HANDLE FUEL WITH CARE, IT IS HIGHLY FLAMMABLE. FUELING A HOT ENGINE OR NEAR AN IGNITION SOURCE CAN CAUSE A FIRE AND RESULT IN SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE.

VI. Engine/Fuel Warnings - Do's

Always use fresh gasoline. Stale gasoline can cause damage.

Always store fuel in containers specifically designed for this purpose.

Always pull starter cord slowly until resistance is felt. Then pull cord rapidly to avoid kickback and prevent arm or hand injury.

Always operate engine with spark arrestor installed and operating properly. The use of spark arrestor mufflers is required by law in the state of California (Section 4442 of the California Public Resources Code), as well as in other states or municipalities. Federal laws apply on federal lands.

Stop the engine whenever you leave the machine.

Allow the engine to cool before storing in any enclosure.

If the fuel tank needs to be drained, this should be done outdoors.

VII. Engine/Fuel Warnings - Don'ts

Don't fuel, refuel or check fuel while smoking, or near an open flame or other ignition source. Stop engine and be sure it is cool before refueling.

Don't leave the engine running while the tiller is unattended. Stop engine before putting the tiller down or while transporting from one place to another.

Don't refuel, start or run this tiller indoors or in an improperly ventilated area.

Don't run engine when electrical system causes spark outside the cylinder. During periodical checks

of the spark plug, keep plug a safe distance from cylinder to avoid burning of evaporated fuel from cylinder.

Don't check for spark with spark plug or plug wire removed. Use an approved tester.

Don't crank engine with spark plug removed unless spark plug wire is disconnected. Sparks can ignite fumes.

Don't run engine when the odor of gasoline is present or other explosive conditions exist.

Don't operate the unit if gasoline is spilled. Clean up spill

completely before starting engine.

Don't operate your tiller if there is an accumulation of debris around the muffler, and cooling fins.

Don't touch hot mufflers, cylinders or cooling fins as contact may cause serious burns.

Don't change the engine governor setting or over speed the engine.

Don't attempt to remove spark plug while engine is hot. Removing a spark plug from a hot engine can cause irreparable damage to the engine and will void your warranty.

ASSEMBLY

⚠ WARNING • DANGER ⚠
 IMPROPER ASSEMBLY OF THIS TILLER CAN RESULT IN SERIOUS INJURY. MAKE SURE TO FOLLOW ALL INSTRUCTIONS CAREFULLY.
 IF YOU HAVE ANY QUESTIONS, CONTACT OUR FACTORY AT 1-800-366-6268 OR AN AUTHORIZED MANTIS DEALER.

Your MANTIS® Tiller comes partially assembled. The full assembly will take just a few minutes if you follow the directions correctly.

Removing Parts From Box

TOOLS NEEDED

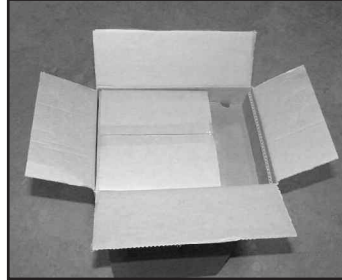


Step 1



It is best to assemble the tiller on a hard flat surface such as a garage floor or driveway.

Step 2



Open top of shipping carton.

Step 3



Remove tine box and oil.

Step 4

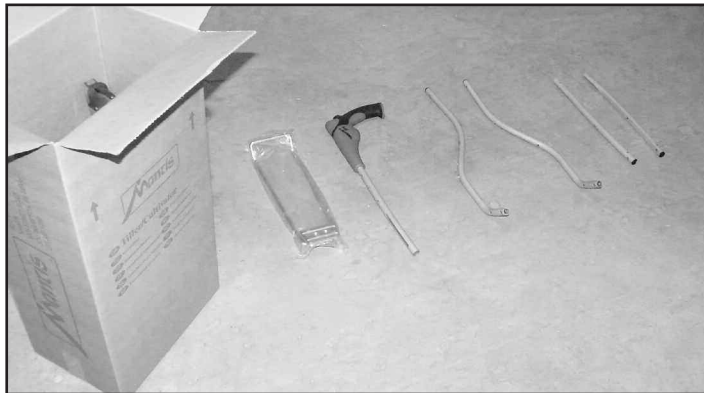


Remove cardboard insert.

CAUTION

When removing tine box, handle the box with extreme caution, Tines are sharp and can come through the cardboard box.

Step 5



Remove component parts and lay on flat surface.

Helpful Hint 1

Do not remove upper right throttle handle assembly and engine portion of the tiller in this step.

Helpful Hint 2

Keep like items together.

Step 6



Lay box on wide flat side.

Step 7



Open bottom of the box and lift box flaps up.

Step 8



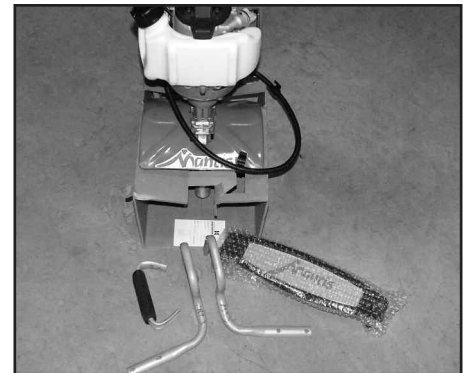
Return box to the standing position.

ASSEMBLY (continued)

Step 9



Pull box straight up.



The right handle, additional parts and tiller engine will be in the box cradle.

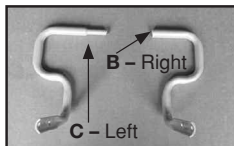
Helpful Hint

Do not remove the cardboard cradle from around the tiller base. The cradle will make the assembly process easier for you.

Parts List



A – Transmission and Engine Assembly



B, C – Loop Handle



D – Loop handle grip



G – 3.25" Bolts



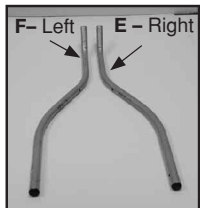
H – 1/4-20
Two-way
lock nut



I – Carry Handle w/grip



J – 1/4-20 x 1-1/8 Hex head
cap screws



E, F – Lower Handle

Lower Handle Assembly

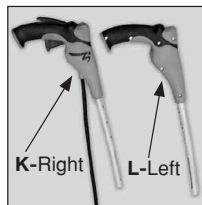
Key	Qty.	Part No.	Description
A	1	N/A	Transmission and Engine assembly
B	1	430023	Loop handle right half
C	1	430022	Loop handle left half
D	1	430025	Loop handle grip
E	1	430051	Lower handle, right
F	1	430050	Lower handle, left
G	2	4049	3.25" Bolts
H	4	972	1/4-20 Two-way lock nut
I	1	430049	Carry Handle (with grip)
J	2	144-2	1/4-20 x 1-1/8 Hex head cap screws



H – 1/4-20
Two-way
lock nut



J – 1/4-20 x 1-1/8 Hex
head cap screws



K, L – Handle Assembly



M, N – Middle
handles



O – Handle Brace



P – Knob 1/4-20
x 1.5 male



Q – Knobs, Two-
Prong female



R – Carriage
Bolts



S – Curved
Head Bolts



T – Acorn
Nuts



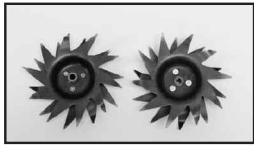
U – Throttle Clips

Upper Handle Assembly

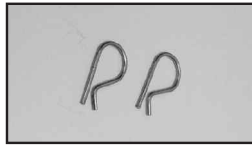
Key	Qty.	Part No.	Description
H	2	972	1/4-20 Two-way lock nut
J	2	144-2	1/4-20 x 1-1/8 Hex head cap screws
K	1	430004	Trigger handle assembly, right
L	1	430006	Handle assembly, left
M	1	430053	Middle handle, right
N	1	430052	Middle handle, left
O	1	430021	Handle brace
P	2	430038	Knob – 1/4-20 x 1.5 male
Q	4	400523	Knob, two prongs, female
R	2	430039	Carriage bolt 1/4-20 x 2.25"
S	2	430048	Curved head bolt, 1/4-20x2"
T	2	395	Acorn nut
U	2	478	Throttle Clip

ASSEMBLY (continued)

Tine Assembly



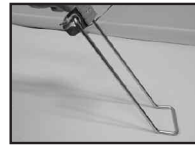
V, W – Tines



X – Tine Retaining pins

Key	Qty.	Part No.	Description
V	1	438RA	Tine assembly, right
W	1	438LA	Tine assembly, left
X	2	418-1	Tine retaining pins

Kickstand Assembly



Y – Kickstand



Z – Kickstand Brace Kit

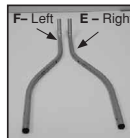
Key	Qty.	Part No.	Description
Y	1	410158	Stand
Z	1	430037	Kickstand Brace Kit

Lower Handle Assembly

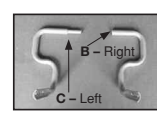
Parts Needed:



A – Transmission and Engine Assembly



E, F – Lower Handle



B, C – Loop Handle



D – Loop handle grip

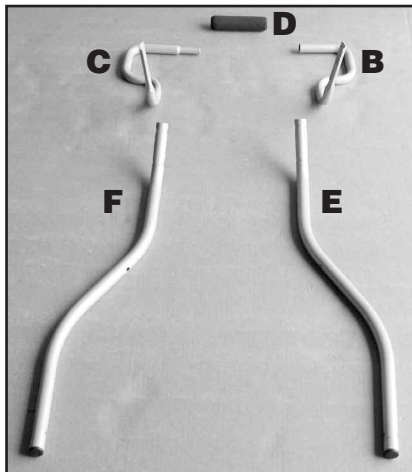


G – 3.25" Bolts



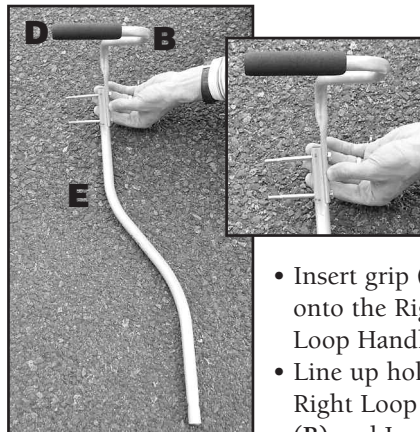
H – 1/4-20 Two-way lock nut

Step 1



Layout parts.

Step 2

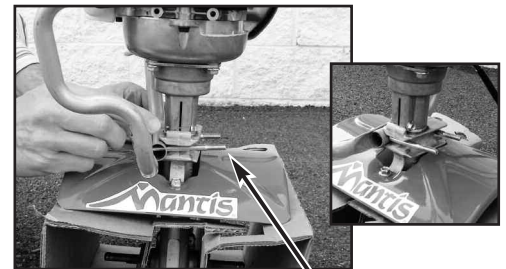


- Insert grip (D) onto the Right Loop Handle (B)
- Line up holes on Right Loop Handle (B) and Lower Right Handle (E)
- Place (2) 3.25" bolts (G) through holes.

Helpful Hint

One side only at a time.

Step 3

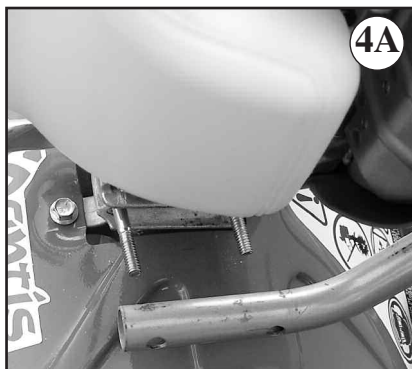


Helpful Hint

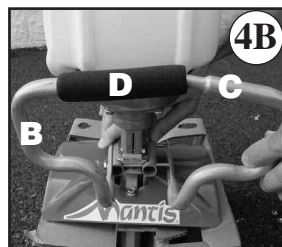
Keep throttle cable out of the way.

Place right lower handle assembly onto unit as shown above.

Step 4



Slide lower left handle onto 3.25" bolts.



Slide left loop handle (C) into grip (D) and into right loop handle (B).



Finger tighten nuts and bolts.



Helpful Hint

Finger tight is one half to one full turn.



Lower Tiller Assembly should look like above.

ASSEMBLY (continued)

Carry Handle Assembly

Parts Needed:



I – Carry Handle w/grip



J – 1/4-20 x
1-1/8 Hex head
cap screws



H – 1/4-20
Two-way
lock nut

Step 5



Place Carry Handle (I) on lower handle bars and line up holes for bolts.



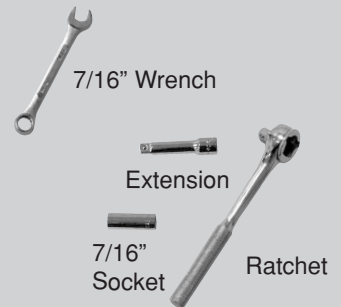
Place (2) 1-1/8" bolts (J) through holes and finger tighten. 1/4-20 two-way lock nuts (H).

Helpful Hint

Hex head cap screws go on the inside and nuts go on the outside.

IMPORTANT

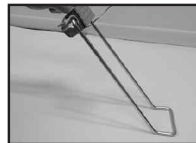
Use tools and tighten all fasteners of the lower portion of the tiller. (Steps 1 thru 5)



Kickstand Assembly

Parts Needed:

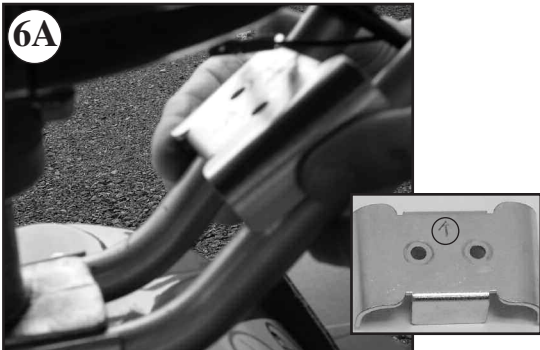
Step 6



Y – Kickstand



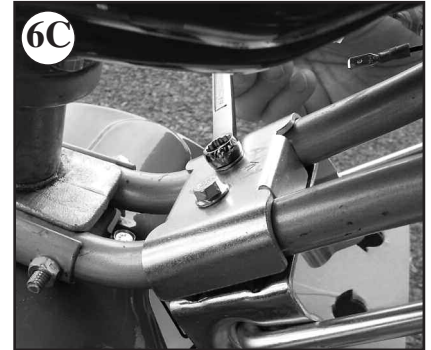
Z – Kickstand Brace Kit



Place kickstand brace on top portion of lower handle with the stamped arrow pointing up.



Place kickstand below lower handle so the holes of the kickstand line up with the kickstand brace (Z). Place (2) 1/4-20 serrated flange screws (Za) through the holes in the top brace and tread into kickstand (Y).



Tighten kickstand (Y) and kickstand brace (Z) with (2) 1/4-20 serrated flange screws (Za) using 3/8" wrench.

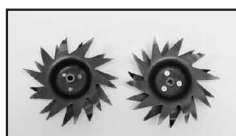


Fully assembled lower portion of the tiller.

ASSEMBLY (continued)

Tine Assembly Parts Needed:

Step 7



V, W – Tines



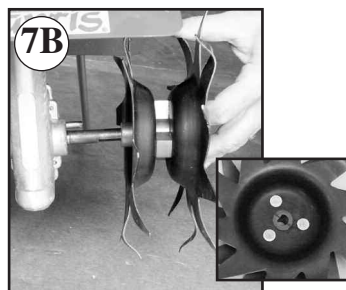
X – Tine Retaining pins

Helpful Hint

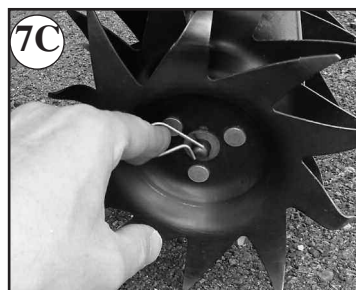
For information on tine positioning – Cultivating vs. Tilling – please see page 16



Remove cardboard cradle from tiller.



Place tines (V, W) on tine shaft with “D” shaped hole facing outward.



Secure with tine retaining pins (X).



Put Kickstand down and rest tiller on kickstand and tines.

Upper Handle & Tube Assembly

Parts Needed:



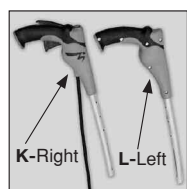
H – 1/4-20
Two-way
lock nut



J – 1/4-20 x 1-1/8 Hex
head cap screws



O – Handle Brace



K, L – Handle Assembly



M, N – Middle
handles

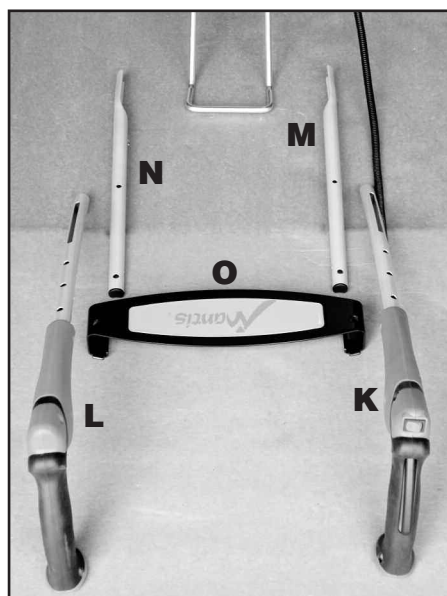
Step 9



Take middle tube (M) and attach to handle brace (O) using 1/4-20 x 1-1/8 hex head cap screws (J). Finger Tighten 1/4-20 two-way lock nuts (H).

Repeat
Step 9 for
the left
side
before
attaching
to the
lower
handle
assembly

Step 8



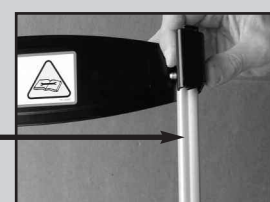
Layout parts.

Helpful Hint 1

The nuts go on the inside of the tube hidden under the Mantis logo brace.

Helpful Hint 2

The flat portion of the middle tube (M) should face away from the Mantis logo on the handle brace (O).



ASSEMBLY (continued)

Parts Needed:

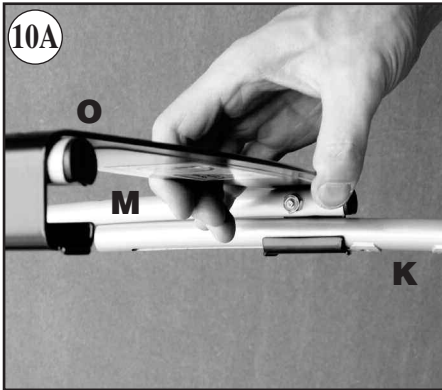


Q – Knobs, Two-Prong female

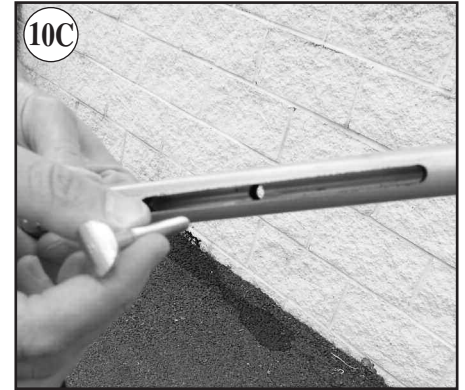
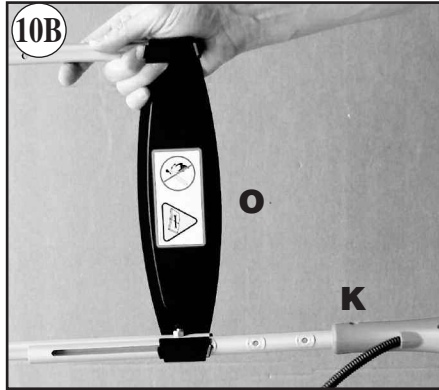


S – Curved Head Bolts

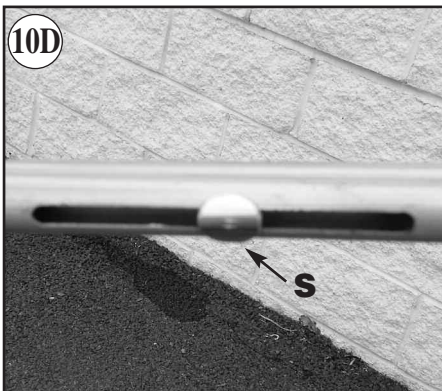
Step 10



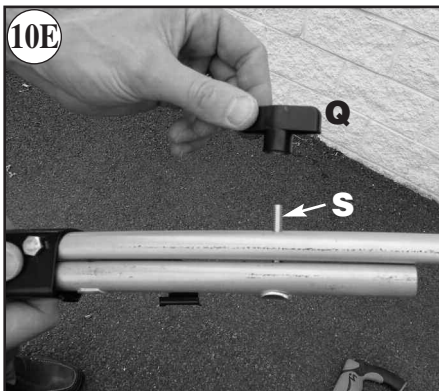
Take right handle (K) and slide it between middle handle tube (M) and brace (O).



Slide curved head bolt (S) into bottom slit of the upper handle.



- Place curved-head (S) bolt into slot
- Curved-head bolt (S) should come out of middle tube.



Thread two-prong knob (Q) onto exposed bolt (S), two full turns.

Repeat Step 10 for the left side handle.

Step 11

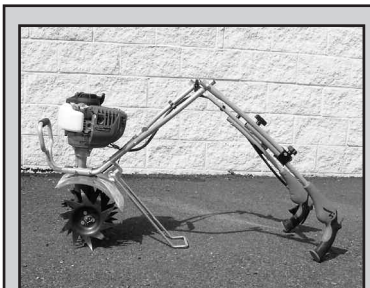
Parts Needed:



Q – Knobs, Two-Prong female

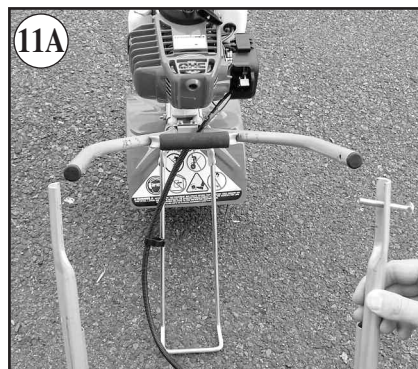


R – Carriage Bolts

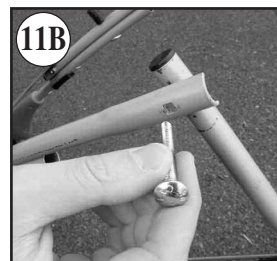


Helpful Hint

Rest the handles on the ground to help in the assembly process.



Attach the upper handle assembly to the lower handle assembly.



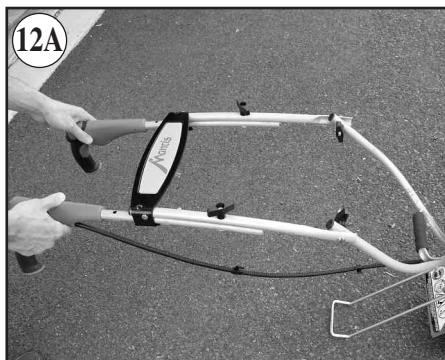
Place carriage bolts (R) through the upper handle assembly and through the lower handle assembly.



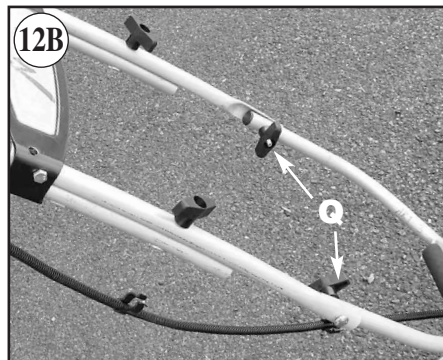
Thread the two-prong knobs (Q) onto the carriage bolts (R). Do not tighten at this time.

ASSEMBLY (continued)

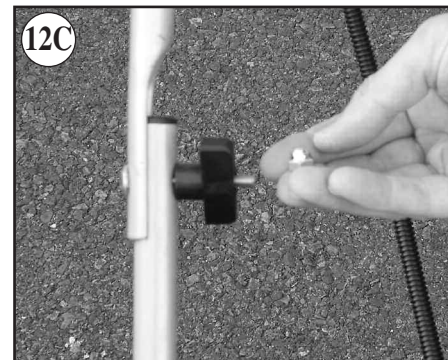
Step 12



Raise upper handle to full extension.



Fully tighten the (2) two-prong knobs (Q) shown above.



Parts Needed:



- Install acorn nuts (T) using the 7/16" wrench.
- Do not over tighten.

Height Adjustment Feature

Step 13

Parts Needed:

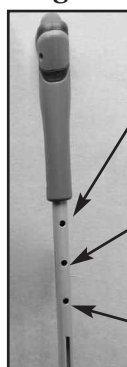


P - Knob 1/4-20 x 1.5 male



Select hole position, Start in lowest hole position and adjust up as needed.

Suggested Height Settings*

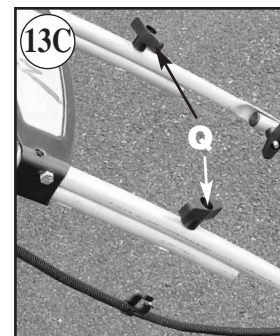


- 5'10" and under use position #1
- 5'11" to 6'2" use Position #2.
- 6'3" and over use Position #3.

To make adjustment easier, make sure two-prong knobs installed in Step 10 are not too tight. Loosen if necessary.



Tighten round knob (P) into the handle brace on the right and left handles to secure handle length.



Fully tighten the (2) two-prong knobs (Q) shown above.



Fully tighten nuts and bolts installed in Step 9 located underneath handle brace.

* Height settings are suggestions only. Select the position that is most comfortable to you.

Step 14



Install the throttle clips.

Helpful Hint

If you need additional information or have questions, contact Mantis at 1-800-366-6268 or Mantis.com

IMPORTANT NOTE:

Be sure you have proper throttle movements and that the throttle cable is not wrapped or twisted around the handle bar. Hold down the lockout lever, fully squeeze the throttle trigger and let go. The throttle triangle must click in both directions. If there is any doubt, remove air filter and visually check that the throttle triangle hits both the idle screw and the full open stop. THIS MUST BE DONE BEFORE STARTING THE ENGINE.

IMPORTANT NOTE:

Before you use your MANTIS Tiller, read the Safety Rules & Warnings on pages 3-5.

IMPORTANT NOTE:

Make sure you have installed the handles properly. When you stand behind your tiller, holding the handles, the gasoline tank should face away from you.

⚠ WARNING: ⚠

Improper throttle installation can cause tines to rotate unexpectedly.

Assembly *(continued)*

Assembling the Tines for Tilling

1. Slide the tines onto the axle shafts. The “D”-shaped hole goes on the outside. (Picture 1)
2. Make sure you’ve installed the tines properly for tilling. Liken the tines to your fingers. When your palm faces the ground, your fingers curl down. Stand behind the Tiller and hold your hand next to the tines. Do the tine blades curl down, as your fingers do? If so, they are in the *tilling* position. (To switch to the cultivating position, see page 14.)

3. To secure each tine to the axle, insert a tine retaining pin.

IMPORTANT NOTE:

Before starting your 4 Stroke/Mantis Tiller, add the premeasured (80ml) bottle of 4 stroke engine oil. See 4 Stroke Tiller Engine Manual and information below for details.

IMPORTANT NOTE:

Before you use your MANTIS Tiller, read the Safety Rules & Warnings on pages 3-5.



Picture 1

Checking the Oil Level in the Engine's Oil Sump

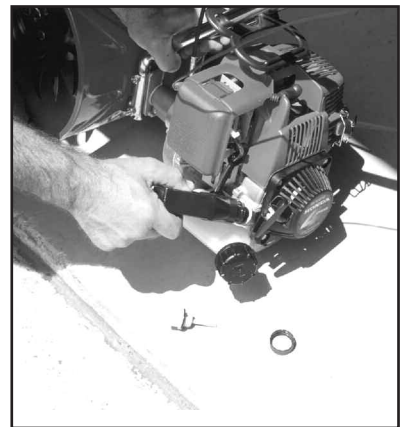
IMPORTANT NOTE: Before using your new Mantis 4-Stroke Tiller for the first time, it is important to check the oil level in the engines oil sump. The bottle of oil supplied with this machine holds 80ml of the correct grade of engine oil. The sump of the engine holds 80ml of oil.

Please follow the notes below for full instructions how to check the oil level in the engine.

How to fill the engines oil sump before using your new Mantis Tiller:

1. Rock the tiller forward so that it rests on its front loop handle.
2. Remove the grey sump plug and top up the oil using the correct type of oil so that it is level with the inner first thread of the sump plug. (Picture 2)

Oil type 10W/40 or 20W/40 can be used if the specified grade is unavailable.



Picture 2

IMPORTANT NOTE:

Check the oil level in the engine before each use. If oil is low, top it off with 10W-30 before using. See your 4 Stroke Tiller Engine Manual and information above for details.

⚠ WARNING • DANGER ⚠

FUEL IS EXTREMELY FLAMMABLE. HANDLE IT WITH CARE. KEEP AWAY FROM IGNITION SOURCES. DO NOT SMOKE WHILE FUELING YOUR EQUIPMENT.

Never use starting fluids as they will cause permanent engine damage. Using them will void the warranty. Before you use the tiller, read the Safety & Warning rules on pages 3-5.

Assembly *(continued)*

Oil Overfill Warning

Do not overfill! Adding too much or too little oil may cause damage to the engine and void the warranty.

Overfilling may cause:

1. Hard starting or a locked piston - caused by excess oil in the combustion chamber.
2. Poor engine performance and loss of power
3. Excessive smoke coming from the muffler and around the engine while running.
4. Oil leaking from the carburetor/aircleaner.
5. Oil leaking from the muffler.



High pull force



Handle locked in place



Corrective Action

If you suspect the engine is overfilled the following procedure should remove the excess oil from the crankcase and valve cover.

If the engine is overfilled, oil will enter the crankcase and it does not simply pour out of the oil fill opening. The excessive oil has to be pumped out as the engine runs. Checking the oil level and

draining any excess between multiple 30 second running intervals will bring the oil back to the proper level.

1. Place the engine on a level surface resting flat on the front loop handle and remove the oil fill cap/dipstick. Use a catch basin for any oil that overflows from the oil fill opening.
2. Replace the oil fill cap/dipstick and run the

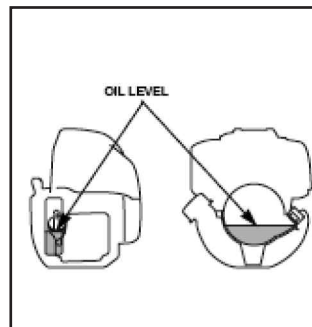
engine for approximately 30 seconds then repeat step one. Continue steps 1 & 2 until oil no longer overflows when the oil fill cap/dipstick is removed.

3. Once the oil level is corrected the engine may continue to smoke while running for several minutes while the residual oil burns off.

Proper Oil Fill/Level Check Position



Engine must be resting on a flat surface on the fuel tank



This position does not allow for a proper oil level reading and may cause overfilling.

Starting

TO START YOUR TILLER FOR THE FIRST TIME:

First, fill the fuel tank with the proper amount of gasoline (Use branded 89 octane (R+M+2) unleaded gasoline or gasohol—maximum 10% ethyl alcohol, or 15% MTBE, no methyl alcohol.)

Mantis Tiller Starting Instructions

(4 Stroke 25cc engine)

IMPORTANT!

It is normal for your 4 stroke engine to smoke for the first minute or two of operation, however it is not necessary for this to occur every time. This is a result of the oil being pulled through the engine for lubrication.

Cold Engine

1. Place the **o/i** switch into the **i** “start/on” position. (Picture 1)
2. Choke the engine (or close the choke. Move choke up to the closed position.) (Picture 2)
3. Push primer bulb 6 times. (Picture 3)
4. Pull grip slowly until you feel resistance then pull briskly. (Picture 4)
5. Once the engine is running, slowly push the choke lever

down to the run position—the engine will continue to run. (Picture 5)

Warm Engine

1. Push ignition switch to **i** “start/on” position.

Push to Stop/Off Push to Start/On



2. Pull grip slowly until you feel resistance then pull briskly. Make sure the choke is in the open, or run, position.

NOTE: When the choke is closed, never pull the cord more than four or five times. Over-pulling may cause flooding.

Follow these steps whenever you are starting the engine “cold”, or when the engine has run dry and you have just added fuel. Remember, always use short, brisk pulls. Don’t give the cord a long, forceful yank. And, do not let the cord snap back into the starter housing.

⚠ WARNING ⚠

AVOID ACCIDENTAL BLADE ENGAGEMENT

DO NOT SQUEEZE THE THROTTLE TRIGGER WHEN STARTING.

MAINTAIN PROPER IDLE SPEED ADJUSTMENT (2500-3100 RPM)



Picture 1

How to Stop the Engine

Simply push the **o/i** “stop/ start” switch to “**o**” (Picture 6). This will stop the engine instantly. If it should ever fail to do so, just pull the choke up to the closed position. The engine will stop at once.

About the Choke

The choke controls the amount of air drawn into the engine. Your tiller will run only if the choke is open.

⚠ WARNING • DANGER ⚠

IF ENGINE DOES NOT STOP WHEN SWITCH IS PUT IN THE STOP POSITION, RELEASE THE THROTTLE, ALLOW ENGINE TO IDLE, PUT THE TILLER DOWN AND PULL THE CHOKE BUTTON OUT TO SHUT ENGINE DOWN. HAVE PRODUCT SERVICED BEFORE USING.



Picture 2



Picture 3



Picture 4



Picture 5



Picture 6

Additional Information

⚠ WARNING • DANGER ⚠

IF ENGINE DOES NOT STOP WHEN SWITCH IS PUT IN THE STOP POSITION, RELEASE THE THROTTLE, ALLOW ENGINE TO IDLE. PUT THE TILLER DOWN, AND SLIDE THE CHOKE LEVER FORWARD TO THE COLD START (CLOSED) POSITION. CHECK AND RETURN IGNITION SWITCH TO ON POSITION BEFORE STARTING ENGINE AGAIN.

A Special Feature (with the idle set properly and the engine running)

Even when the engine is running, the tines won't turn unless you squeeze the throttle lever on the handlebars. And, when you release the throttle lever, the tines will stop.

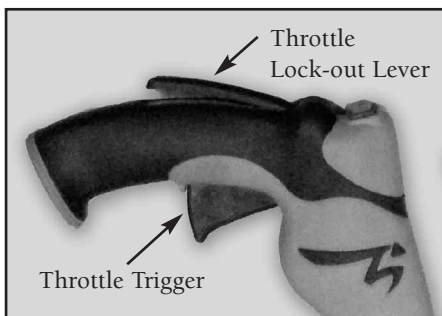
A Tip for Extending Your Engine's Life

After you start the engine, let your tiller warm up for two to three minutes before you use it. Then, before you put your tiller away, let it idle for a minute to give the engine a chance to cool down.

Operation

With engine running, and both hands on the handles, hold down the throttle lock out lever (Picture 4), then squeeze the throttle trigger gradually to increase the engine speed and engage the tines.

NOTE: This step must be repeated each time your tiller trigger is released.



Picture 4

How to get your tiller to your garden

Walk it.

Once your tiller is running, you can "walk" it to your garden. Just hold down the throttle lock outlever and squeeze the throttle trigger gently and let the tiller "tip-toe" across your yard on its tines. It won't hurt your lawn. (Picture 1)

Carry It.

Make sure the engine is off. Then use one hand to grasp the front loop handle. Use the other hand to hold the carry handle. (Picture 2) Then lift your tiller and carry it to your garden. Since it weighs only 26 pounds, it won't strain your muscles or tire you out!

Take It for a Ride.

You can easily transport your MANTIS Tiller to a friend's or relative's house. Just empty the fuel tank. (**This is crucial.**) Then stow your Tiller in the trunk of your car or truck. It fits easily. And you can put it in and take it out without straining your back.



Picture 1



Picture 2

⚠ WARNING ⚠
NEVER CARRY YOUR TILLER AS THE PERSON IN PICTURE 3 IS DOING. IF YOU DO, YOU WILL SUFFER SERIOUS INJURY.



Picture 3

Tilling



Picture 1

Now You're Ready to Use Your MANTIS Tiller.

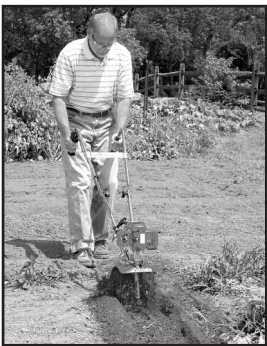
If you've seen other tillers, your MANTIS Tiller may surprise you. It tills best when you pull it backward! You see, when you pull your MANTIS Tiller backward, you give extra resistance to the tines, so they dig deeper. (Picture 1)

What's more when you go backward, you erase your footprints. So your soil stays light and fluffy. With other tillers, by contrast, you walk right over the soil you've just tilled, packing it down, so it's less plantable.

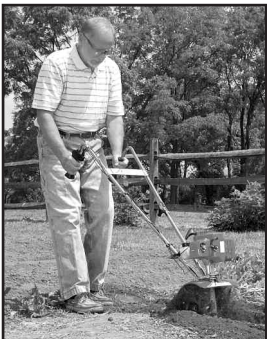
Run Your MANTIS Tiller like a Vacuum Cleaner.

Place your Tiller at the head of the row or area you want to till. Start it up. Then use an easy rocking motion. First, pull your Tiller backward. Then use an easy rocking motion. Again, pull your Tiller backward. Then, let it move forward just a little bit. Then pull it backward again. This will help you till deeper.

Keep repeating these steps until you've tilled an entire row. Start again on the next row. It's much like running a vacuum cleaner! (Picture 2)



Picture 2



Picture 3

You Can Even Control Depth.

For Deeper Tilling:

Move your Tiller slowly back and forth, as you would a vacuum cleaner. Work the same area over and over until you've dug to your desired depth. (Picture 3)

For Shallow Tilling:

Switch the tines to the cultivating position. (See page 10 to learn how.) Then move your Tiller quickly over your soil surface.

For Big Weeds or Tough Roots:

Let your Tiller rock back and forth over the tough spot, until the tines slice through the weed or root.

Your MANTIS Tiller Handles Special Tilling Projects.

Want to turn part of your lawn into a colorful flower border? Your MANTIS Tiller makes it easy! Just run your Tiller back and forth until the sod begins to break up. Then continue tilling. Your Tiller will chop the clumps of sod until they're fine. Then, it will work them into the soil. Pretty soon, you'll have a soft, fresh planting bed.

⚠ WARNING • DANGER ⚠

THE OPERATOR OF THIS TILLER IS RESPONSIBLE FOR ACCIDENTS OR HAZARDS OCCURRING TO HIMSELF, OTHER PEOPLE OR THEIR PROPERTY.

⚠ WARNING • DANGER ⚠

IF YOUR TINES GET JAMMED OR ENTANGLED, SHUT OFF THE ENGINE AT ONCE. REMOVE THE OBSTRUCTION WHILE THE ENGINE IS OFF. NEVER TRY TO REMOVE AN OBSTRUCTION WHILE THE ENGINE IS RUNNING. SERIOUS INJURY CAN RESULT.

Tilling

How about a family-size vegetable garden?

Nowadays many gardeners prefer small gardens — especially in the suburbs, where space is at a premium. But, if you're fortunate enough to own a large lot, you can create a bigger garden — a half acre or more.

Although your Mantis Tiller could handle the job, the project could be completed faster if you were to hire someone with a tractor or larger tiller to break the ground for you. This is a one-time-only investment that's well worth the small cost.

▲ IMPORTANT ▲
To change the tines on your 4 Stroke Mantis Tiller, push the tiller forward and allow it to rest on the loop handle.



Picture 1

Your MANTIS Tiller Makes Weeding a Pleasure!

As a tiller, your MANTIS Tiller works the soil down to 10" (25.4 cm) deep. But, as a cultivator, it gently cultivates the surface, only 2" to 3" (5.09 cm to 7.62 cm) deep.

First, you must switch the tines to the weeding position. This takes less than a minute.

Then, your MANTIS Tiller's sharp "tine teeth" will slice up those pesky weeds, burying them as you go along. And, since the tines in this position won't dig too deep, they won't hurt your plants' precious root systems.

The result? Your Tiller will cut your weeding time in half, and turn a tiresome chore into a pleasure.

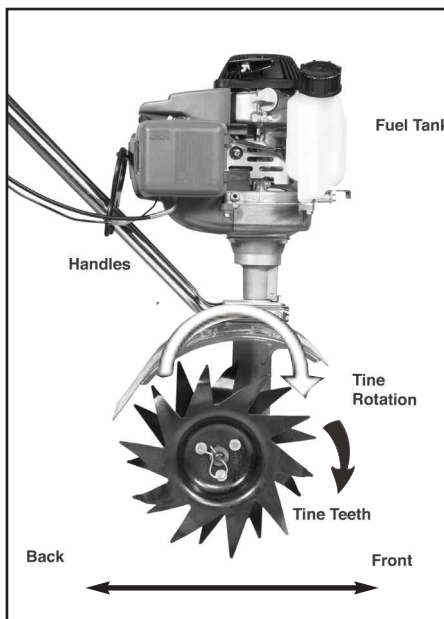


Picture 2

How to Switch From Tilling to Cultivating Position

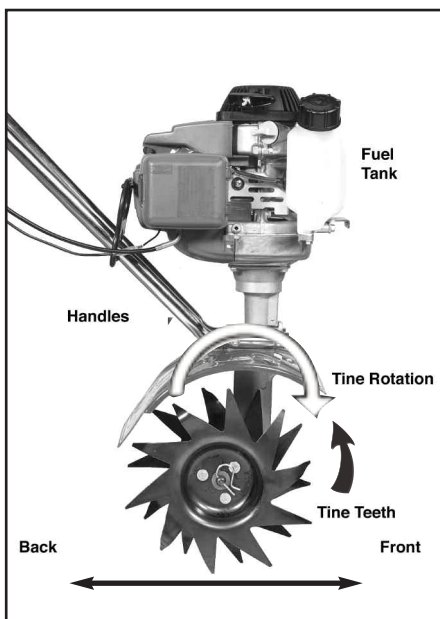
1. Make sure your Tiller is off.
2. Remove the retaining pins from the tines. (Picture 2)
3. Remove the tines from the axle.
4. Place the right-side tine onto the left-side axle. Place the left side tine onto the right-side axle. The "D" hole should be to the outside.
5. Here is how to make sure you've installed the tines properly. Stand behind the Tiller and hold your hand, palm up, next to the tines. Do the tine points curl up, as your fingers do? If so, they are in the correct cultivating position. (See photos on Page 19)
6. Reinsert the pins.

Cultivating



Tilling Position

Tine teeth point in the same direction as the rotation of the tine; or toward the front of the Tiller, away from the operator.



Cultivating Position

Tine teeth point in the opposite direction as the rotation of the tine. Tines point toward the back of the tiller, or toward the operator.

Now You're Ready to Cultivate or Weed.

Guide your Tiller where you want to weed and start it up. Pull your Tiller backward slowly, then let it move forward a bit, in a gentle rocking motion. Watch it slice, shred, and bury those weeds!

Got tough weeds? Lighten your pressure on the throttle to slow your Tiller down. Then work back and forth until your Tiller chops up the weeds. It's easy and effective!

Remember, any tiller will tangle in tall grass, stringy vines, or super-big weeds. So, if you have a "backyard jungle," first use a knife, pruner, or brush cutter to chop up the overgrowth. If the tines become tangled anyway, turn the engine off completely before trying to clear them.

The optional Tine Detangler (Item #1322) will clear tines in a jiffy. Contact your local authorized Mantis dealer or call 1-800-366-6268 to order.



Your Mantis Tiller Will Weed Between Narrow Rows!

Your Mantis Tiller is a precision weeder that easily fits in tight places. So don't be afraid to weed anywhere: between plants and shrubs, in corners, against fences, on raised beds, in wide rows, even in very narrow rows.

Your Mantis Tiller weeds six to nine inches wide. So you can run it in a tightly planted garden without damaging your delicate plants. That's good news for suburban gardeners, who often have to plant rows close together!

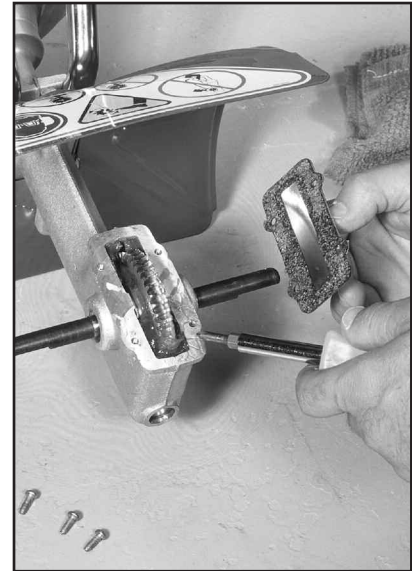
Maintenance

How to Check the Grease Level Inside the Worm Gear Housing

When we built your MANTIS Tiller, we lubricated the worm gear housing thoroughly.

It is imperative that you inspect the grease level once a year. Simply remove the cover plate on the worm gear housing. (Picture 1) Then check to make sure the grease comes almost to the top of the housing. If it doesn't, add lithium #0 grease (Item M9985.) This is the only way to add grease to the worm gear housing. (Picture 1) To purchase Mantis grease, contact your local authorized Mantis dealer or call our Sales Department at 1-800-366-6268.

Please do not overfill. Too much grease can create pressure, which could cause seals to fail or the clutch to slip.



Picture 1

How to Reseat the Flange

At some point, you may find that the tines won't turn when you press the throttle. This may mean the engine isn't sitting all the way down on the worm gear housing.

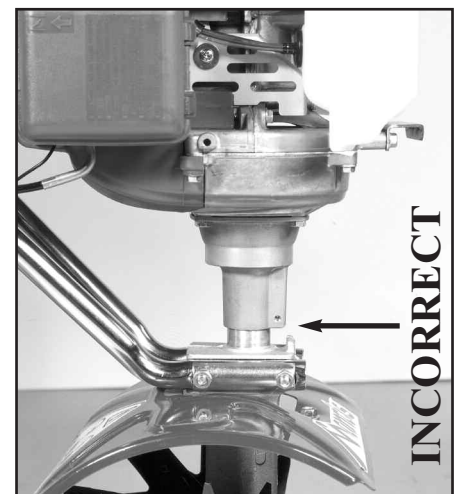
Perhaps you've been using your Tiller for several years. The flange bolt (Key #12, Page 22) may have come loose and lifted the engine up.

If this happened you'll notice a gap between the bottom of the engine flange (Key #43, Page 22) and the top of the worm gear housing. (Picture 2)

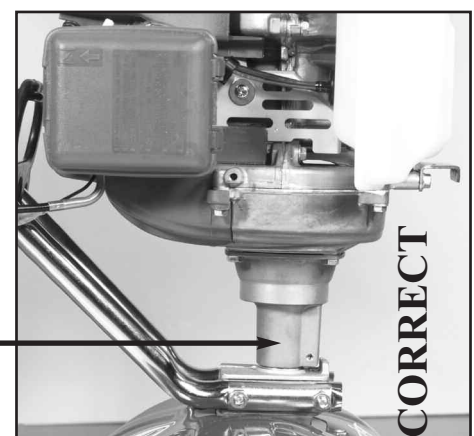
To fix this, loosen the flange bolt. Take the engine off the worm gear housing. Notice the hex head on top of the drive shaft (Key #22, Page 18). Inside the flange housing, you'll find the clutch drum (Key #57, Page 22). Make sure the hex head lines up with the clutch drum inside the flange housing.

Then put the engine back on the worm gear housing.

If you've followed these steps properly, there will be no gap between the engine flange and the worm gear housing. (Picture 3) Make sure you tighten the flange bolt!



Picture 2 ... Note how the engine doesn't sit all the way down on the transmission.



Picture 3... Note how the engine sits all the way down on the transmission.

Storage

⚠ WARNING • DANGER ⚠

DO NOT STORE IN AN AREA WHERE FUEL FUMES MAY ACCUMULATE AND REACH A FLAME OR SPARK.

Each fall, or before you store your Mantis Tiller for any long period, be sure to take these measures:

1. Do not store your Tiller with fuel still in it. Even under ideal conditions, stored fuel containing ethanol or MTBE can start to go stale in 30 days. And, since stale fuel has a high gum content, it can clog the carburetor, this, in turn, will restrict fuel flow. Therefore, when you're ready to store your Tiller, or will not be using it for more than 2 weeks, drain the fuel tank completely.
2. Next, restart the engine to make sure no fuel is left in the carburetor. Then, run the engine until it stops. This will prevent gum deposits, forming inside of the carburetor and possible engine damage.
3. Disconnect spark plug wire and remove the spark plug. Slowly pull the starter cord once.
4. Inspect the spark plug, and if necessary, clean it. If you need to replace it, buy a NGK-CMR5H.
5. Install the spark plug, but leave the spark plug wire disconnected.
6. Clean the air filter as described in your 4 Stroke Tiller Engine Manual.
7. Clean dirt, grass and other materials from the entire machine.
8. Wipe the tines with oil or spray them with WD-40, to prevent rusting.
9. Oil the throttle cable and all visible moving parts. (Do not remove the engine cover.)
10. Replace the fuel filter.
11. Check the grease level in the worm gear housing as described on page 19.
12. Order new parts to replace any that are badly worn or broken. Just call 1-800-366-6268 and ask for a local authorized Mantis or 4 Stroke Tiller dealer.
13. Store your Tiller in an upright position in a clean, dry place. You can store with the handles in an extended position or folded down.
14. To fold the handles, follow these easy steps: Loosen the handle knobs (#40) then fold the handles forward. Tighten knob securely. Your handles are now folded and ready to store in a smaller area.
15. Do you have fuel left over from last season? Dispose of it properly. Buy fresh oil and gasoline next season.
16. Remove Tilling Tines or attachments and lightly oil tine shaft at least once a year.

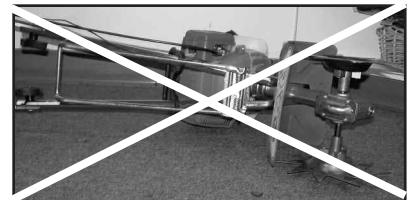
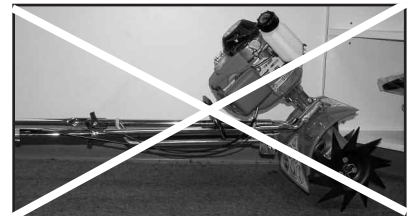
You may store your Mantis Tiller with the handles upright as in Picture 1 or with the handles folded down, as in Picture 2.



Picture 1



Picture 2



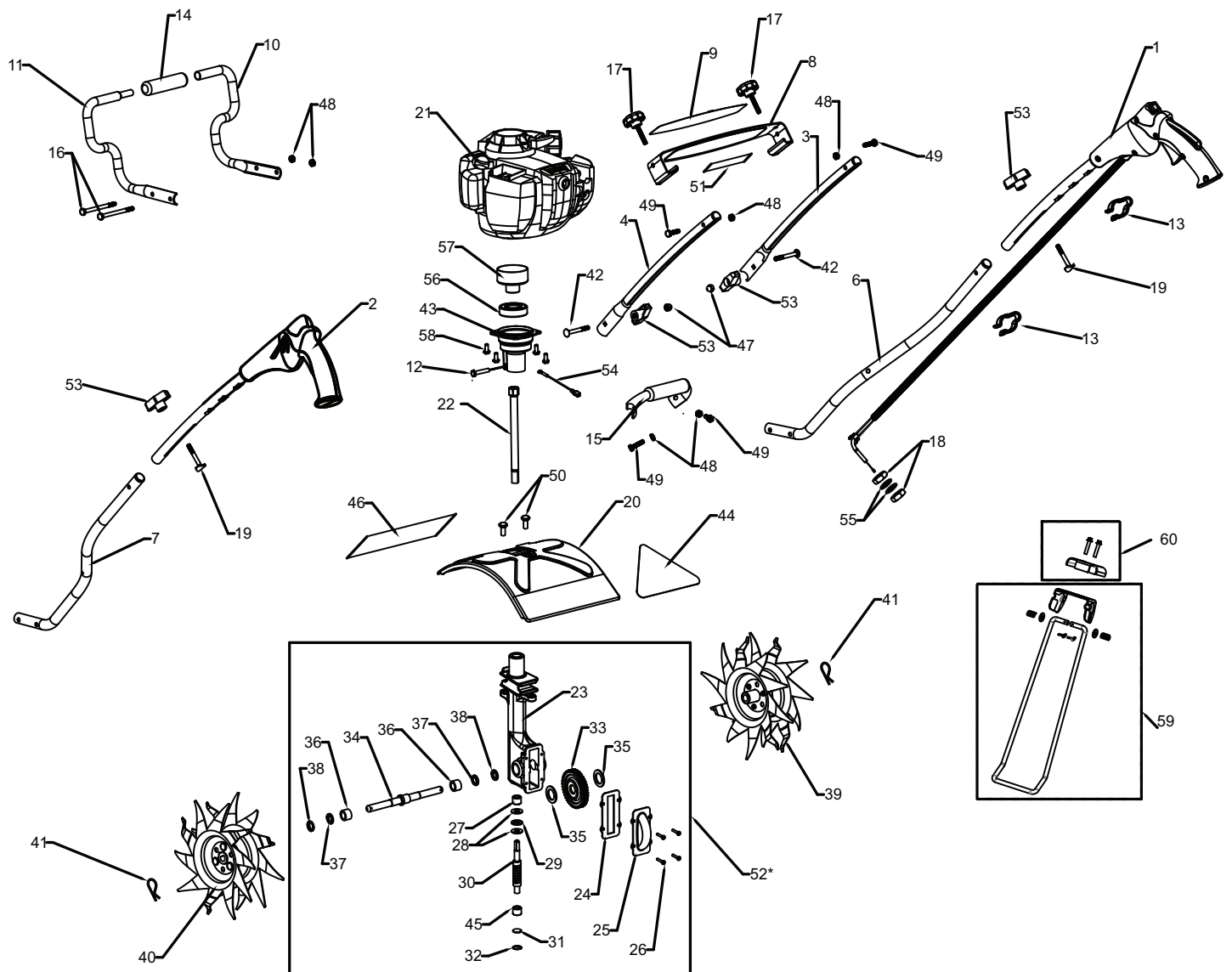
⚠ IMPORTANT ⚠

It is important to store your 4 Stroke Mantis Tiller in an upright position. Laying the Tiller on its side will cause the oil to leak out of the engine through the air cleaner case.

⚠ IMPORTANT ⚠

Avoid any orientation that places the top cover (engine head) down -this may allow oil from the crankcase to enter the combustion chamber and cause hard starting or a locked piston.

Mantis Tiller Assembly



Mantis Tiller Assembly

Key	Qty.	Part No.	Description
1	1	430004	Trigger Handle Assembly, 4 Cycle Engine, Right
2	1	430006	Handle Assembly, Left
1	3	430053	Middle Handle W/Plug, Right
4	1	430052	Middle Handle W/Plug, Left
6	1	430051	Lower Handle W/Plug, Right
7	1	430050	Lower Handle W/Plug, Left
8	1	430021	Handle Brace
9	1	430056	Label, Handle Brace
10	1	430023	Loop Handle Right Half
11	1	430022	Loop Handle Left Half
12	1	910502	10-32 X 3/4" Flange Bolt
13	2	478	Throttle Clip
14	2	430025	Foam Grip
15	1	430049	Carry Handle W/Grip
16	2	4049	Bolt 1/4-20 X 3.25"
17	2	430038	Knob, 1/4-20 X1.5 Male
18	2	4078	M6 Jam Nut
19	2	430048	Curved Head Bolt, 1/4-20 X2"
20	1	465	Fender Guard
21	1	400911	Engine Assembly-25cc Honda
22	1	468	Drive Shaft
23	1	466	Worm Gear Housing
24	1	436	Gasket
25	1	437A	Gear Housing Cover
26	4	651	#8 Self Tapping Screw
27	1	423	Roller Bearing
28	2	425	Worm Bearing Race
29	1	424	Worm Thrust Bearing
30	1	422	Worm Shaft

Key	Qty.	Part No.	Description
31	1	426	Worm Disk
32	1	428	Retaining Ring
33	1	429	Worm Gear
34	1	431	Tine Shaft
35	2	430	Worm Gear Thrust Washer
36	2	432	Worm Gear Bearing
37	2	434	Bearing
38	2	435	Bearing Seal Retainer
39	1	438RA	Ratine Assembly, Right
40	1	438LA	Tine Assembly, Left
41	2	418-1	Tine Retaining Pin
42	2	430039	Carriage Bolt 1/4-20 X 2.25"
43	1	400130	Engine Flange
44	1	400631	Triangle Warning Label (4 Cycle Engine)
45	1	458	Roller Bearing
46	1	430058	Mantis Logo Label
47	2	395	Acorn Nut
48	6	972	1/4-20 Two-Way Lock Nut
49	4	144-2	1/4-20 X 1.125 Hex Head Cap Screw
50	2	140	Bolt 1/4-20x3/8" Long
51	1	430057	Warning Label
52	1	400010	Transmission Assembly*
53	4	400523	Knob, Two Prongs, Female
54	1	430043	Ground Wire Jumper, 4 Cycle Engine
55	2	4079	M6 Internal Lock Washer
56	1	400132	Bearing
57	1	400131	Clutch Drum
58	4	400511	M6x12 Flange Bolt
59	1	410158	Kickstand, Stand Assembly
60	1	430037	Kickstand, Bracket And Hardware

* Includes Key #22