Tiller

I bought this tiller to <u>build a vineyard</u> utilizing backyard in 2006 and used so roughly on slope up and down. The tiller endured and is still alive same as my old vehicles (1993 Mercury Sable Wagon, 1995 Toyota Camry, and 1999 Toyota Avalon) I am doing <u>deep maintenance</u>.



↑ Recoil Starter Handle

This tiller has a choke control handle in addition to a recoil starter handle and a throttle control handle that most mowers install. Even when cold weather, engine starts easily by enabling choke to provide dense gasoline versus air ratio to engine. This choke approach was adopted by old age (OA) automobiles.

Concerning how to start engine, read the Instructions at next page.

OPERATING LUBRICATING INSTRUCTIONS

- . CHECK OIL LEVEL BEFORE EACH USE. WIPE FILLER PLUG AREA AND BE CERTAIN ENGINE IS LEVEL. ADD OIL IF NECESSARY TO TOP OF FILLER NECK.
- 2. USE SAE 30 OIL. TOTAL CAPACITY 1 1/4 PINTS.
- 3. CHANGE OIL EVERY 50 HOURS. UNDER EXTREMELY DUSTY CONDITIONS, CHANGE OIL MORE OFTEN.
 - 4. AIR CLEANER SERVICE CLEAN EVERY 50 HOURS OR MORE OFTEN IF ENGINE IS USED IN VERY DUSTY CONDITIONS.
 - 5. FILL FUEL TANK WITH FRESH UNLEADED GASOLINE.

TO START ENGINE

- **1. PLACE THROTTLE CONTROL IN "FAST" POSITION.**
- 2. TURN FUEL SHUT OFF VALVE TO "ON" POSITION.
- 3. GRASP RECOIL STARTER HANDLE WITH ONE HAND AND GRASP TILLER HANDLE WITH OTHER HAND. PULL ROPE OUT SLOWLY UNTIL ENGINE REACHES START OF COMPRESSION CYCLE (ROPE WILL PULL SLIGHTLY HARDER AT THIS POINT).
- 4. PULL RECOIL STARTER QUICKLY. DO NOT LET STARTER HANDLE SNAP BACK AGAINST STARTER. REPEAT IF NECESSARY.
- 5. IF ENGINE FIRES BUT DOES NOT START, MOVE CHOKE CONTROL TO HALF CHOKE POSITION. PULL RECOIL STARTER HANDLE UNTIL ENGINE STARTS.

TO STOP ENGINE

- 1. MOVE THROTTLE CONTROL TO "STOP" POSITION.
- 2. REFER TO MANUAL FOR FURTHER OPERATING, FUEL, LUBRICATION, AIR CLEANER, AND SAFETY INSTRUCTIONS.

Instructions



Throttle control mechanism (A control rod shifts throttle built in carburetor)

(1) Gasoline leak because of fuel hose deterioration

Black hose deteriorated at plastic angle gasoline inlet. The cause is that this engine uses a fragile plastic angle gasoline inlet which easily gets crack (A latest carburetor is installing an angle gasoline inlet made by metal now).



Leaking gasoline through black deteriorated fuel hose



Connected between Old & New Hose by Epoxy Putty



Cut (See right) & Detach (See left)



Done

This approach is a tentative solution and no good. Replace a hose along with a carburetor with metal fuel inlet as a complete solution.

(2) Carburetor replacement



New carburetor (Choke position rotary rod/bar, Two choke discs selectable, Fuel inlet made by metal, Gaskets,,,)



Old (Left) & New (Right) carburetor Fuel inlet of old carburetor is made by fragile plastic and detachable. Fuel inlet of new carburetor is made by sturdy metal and not detachable.

(3) Choke Control



Choke control position = RUN (No choke)

Choke control has four positions from RUN up to Full CHOKE.



Choke control position = Full CHOKE

(4) Throttle Control



Throttle lever position = STOP (No gasoline flow)

Throttle lever position = RUN (Full throttle)

Throttle position is variable between two dead stop positions, STOP and RUN.

(5) Fuel shut off valve implementation

This engine originally did not have a fuel shut off valve. Gasoline stored in tank is evaporating all the time through the air contact. This is a design flaw of this tiller.

I cut an existing fuel line tube in half and installed a shut off valve (red) between the two tubes cut.



Fuel shut off valve position = CLOSE (OFF) Choke control position = RUN

Fuel shut off valve position = OPEN (ON) Choke control position = Full CHOKE

(6) Air Filter Replacement

The cause of the problem that engine does not start without hesitation was simply derived from the dirty air filter. As soon as I replaced the dirty air filter to new one, engine vividly started without hesitation.





Air filter (New & Old)