# Installation Instructions - Fit Kit M4
## For Motor Applications: http://itroll.us/itroll.app.guide.html

Tools Required:

8 & 10 mm Wrenches
Socket Wrench with 10mm Socket
Small Flat Screwdriver
#2 Phillips Screwdriver
Pliers
Wire Cutters

Step 1:
• Make sure motor is NOT running! Remove cover from motor
• Put motor into NEUTRAL and stock throttle controls to IDLE!

Step 2: See Fig. 1
• At REAR of motor, find the bolt next to oil filler cap that holds cable clamp.
• REMOVE cable clamp bolt and REPLACE it with long bolt (A) supplied in this kit.
• Place RAG or PAPER TOWEL as shown to catch parts if accidently dropped.
• Place supplied small (B) and large spacers (C) on bolt as shown.

Step 3: See Fig. 2
• Place SERVO BRACKET (A) over bolt. Servo "pocket" faces forward - See Fig. 3
• Place supplied LOCK WASHER (B) on bolt.
• Thread supplied NUT (C) on bolt and tighten securely.
Note: Use a socket wrench to HOLD the bolt head when tightening nut.
• Remove rag or paper towel.

Step 4: See Fig. 3
• Place RAG or PAPER TOWEL under servo bracket to catch parts if accidently dropped.
• Use supplied screws and locknuts to secure servo.
• Remove rag or paper towel.

Step 5: See Fig. 3
• "Pop" stock THROTTLE ROD from motor.
• Loosen nuts on stock throttle rod and separate all pieces.

Step 6: See Fig. 4
• Thread NUTS from stock throttle rods all the way into iTroll (IT) throttle rods.
• Place a SLIP BLOCK on each IT throttle rod.
• Thread IT throttle rods into plastic connectors.
NOTE: Make sure IT throttle rods are threaded in until they are FLUSH with open area of plastic connectors.

• Align flats of plastic connectors so that they are parallel to long edge of slip blocks
• Tighten nuts so slip block is secured to plastic connectors.
• Slide supplied COLLAR over one IT throttle rod
• Slide throttle rod assemblies together as shown in Fig. 4.

• Step 7: See Fig. 5
• Place looped wire onto throttle body ball stud.
• "Snap" IT throttle rod assemblies onto motor.
Note: Rod with collar is on BOTTOM.

Step 8: See Fig. 5
• Use your LEFT thumb to push throttle body ball stud to FRONT of motor.
This insures that the throttle is fully closed in this adjustment.
• Use index finger of LEFT HAND to "PINCH" collar against rear slip block as shown.
• Use supplied ALLEN WRENCH to tighten set screw on collar.

Step 9:
• Verify that throttle body arm opens when stock TILLER or T-HANDLE is operated.
• Return TILLER or T-HANDLE to IDLE position.
• Pull looped cable (installed in Step 7) to REAR of motor. Check that throttle body arm opens and closes freely.
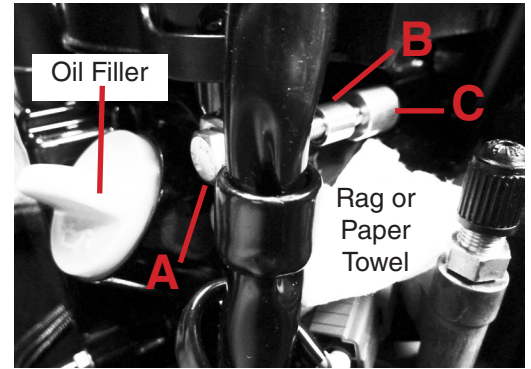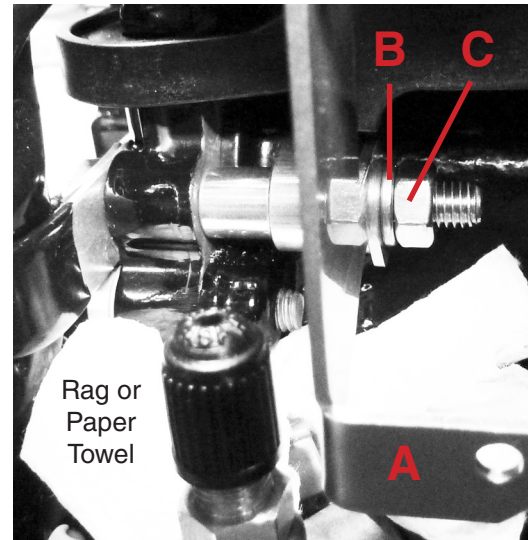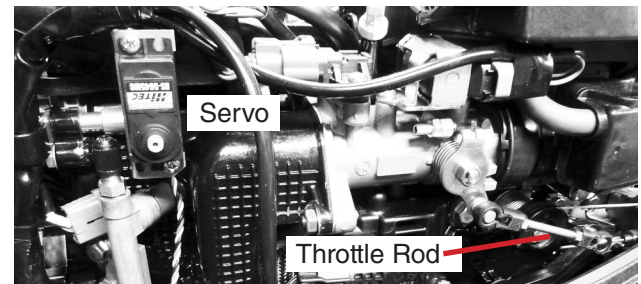

Oil Filler
B
C
Rag or Paper Towel
A

Fig 1


B C
Rag or Paper Towel
A

Fig 2


Servo
Throttle Rod

Fig 3

Thread BOTH rods in all the way!


Collar

Fig 4

**Step 10:**
In this step, you are temporarily hooking iTroll's power module to your 12 Volt battery:
• Connect Red wire to (+) battery terminal. 5 amp fuse has been installed at factory.
• Connect Black wire to (-) battery terminal.

**Step 11:**
• Plug servo motor into iTroll's servo control harness.
Note that iTroll's 3 pin connector has a polarizing "DOT" on it. This dot corresponds to the servo's signal wire that is Orange, Yellow or White, depending on the brand of servo.

**Step 12:**
Use an Ink Marker to make a mark on the servo's geared shaft.

**Step 13:**
Plug data cable from iTroll into power module.

**Step 14:**
Turn iTroll on (see owner's manual if required), then operate dial to turn servomotor. OBSERVE mark you made on servo's shaft to see if servo is turning CLOCKWISE or COUNTER - CLOCKWISE as you advance the throttle with iTroll's knob. If servo is turning CW, go to Step 15. If CCW, SKIP to step 16.

**Step 15:**
See "Reference 2" section on page 3 of regular iTroll installation instructions. Follow programming instructions to set servo Travel and Rotation. Set servo travel for "S" (90 degrees).
Note: Ultimate travel of throttle when opened by the servo will be LESS than that of factory throttle control.

When in the ROTATION set menu, observe the "OLD" direction (either FWD or REV). Change the rotation to the opposite of the old value.

**Step 16:** See Fig. 6
Note: It may be helpful to recruit a helper for this step.
• Turn iTroll ON. After iTroll starts up, press IDLE button to put servo at idle position. Confirm that iTroll is at idle by reading it's display.
• See Fig 7: Install servo arm - align as shown. Install Phillips head screw in center of servo arm.
• Thread end of stainless cable from throttle body through servo arm fitting.
• HOLD THROTTLE BODY ARM CLOSED. A helper makes this a LOT easier!
• Use pliers on end of stainless cable with moderate pressure to tension it.
• Use flat head screwdriver to tighten SET SCREW in servo arm fitting.

**Step 17:**
• Push iTroll's Run button and operate dial. Check for movement of throttle without sticking or binding.
• Trim excess cable behind servo arm fitting.

**Step 18:**
• Place stock cable clamp bolt and throttle rod in box that servo came in and keep it in case you every wish to return motor to stock.
• Proceed with permanent installation of iTroll (see electronics installation manual).
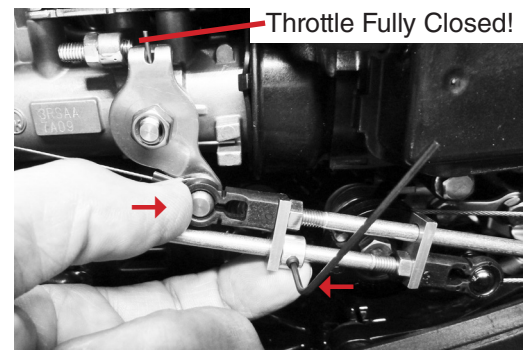

Throttle Fully Closed!
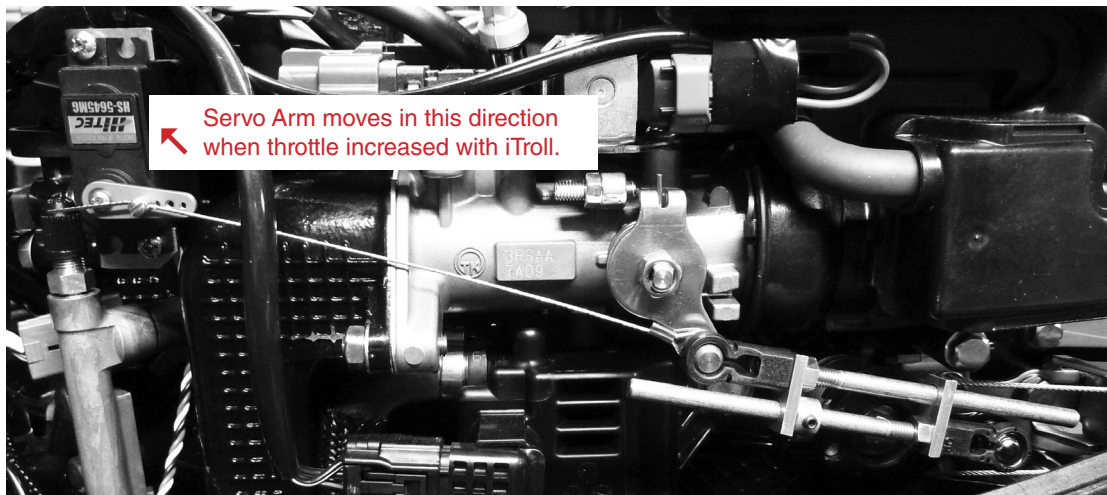Fig 5


Servo Arm moves in this direction when throttle increased with iTroll.
Fig 6
Complete Installation