



# AeroConversions

A Product Line of Sonex Aircraft LLC

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## Throttle Quadrant Installation

ACV-Q01-01 (5 pages) (Rev F. 011614)



*This throttle quadrant has been installed without the mixture control mounting bracket.*

The AeroConversions reversing Throttle Quadrant provides smooth, precise throttle control through a push-pull cable connection, as well as an integral, yet removable, mixture control mounting bracket.

These instructions are written specifically for installation in Sonex, Waix, and Xenos aircraft equipped with an AeroCarb, but can be adapted for other airframes.

### Positioning the Throttle Unit

The throttle quadrant is attached to the aft wing attach angle. Position it on the wing attach angle so it can be operated comfortably and without interference.

*Note: The upper mounting hole may have minimal edge distance on the wing attach angle. This is acceptable.*

*Note: The throttle arm may be used straight, as provided, or reformed so it angles in towards the cockpit.*

*Note: The forward canopy handle may need to be relocated aft to eliminate interference with the throttle arm.*

### Mounting the Throttle Unit

1. The throttle quadrant must be mounted to a sturdy structure. We recommend a fuselage vertical angle or a 1/8" thick aluminum extrusion riveted to the underside of the panel.



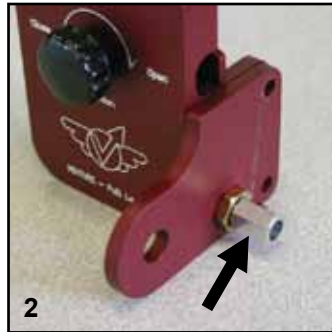
*The throttle quadrant is clamped in place prior to drilling the mounting holes. Note that this aircraft needs to have the forward canopy handle moved aft to eliminate interference with the throttle quadrant.*



*This center-mounted quadrant is attached to a 1/8" thick angle extrusion mounted under the panel.*

# INSTALLATION

2. If you will be using the mixture cable mounting plate, install it at this time by removing the cable adjuster, placing the mixture cable mounting plate in position, and re-installing the cable adjuster.
3. Install the throttle quadrant using AN3 bolts of the correct length, AN960-1032 washers (as needed), and AN365-1032 nuts.



*Until the quadrant is mounted to the airframe, the cable adjuster (arrow) is all that holds the mixture plate in place.*

## Cable Routing

The throttle cable must be routed so it does not have any sharp bends. A grommet must be used where the throttle cable passes through the firewall.

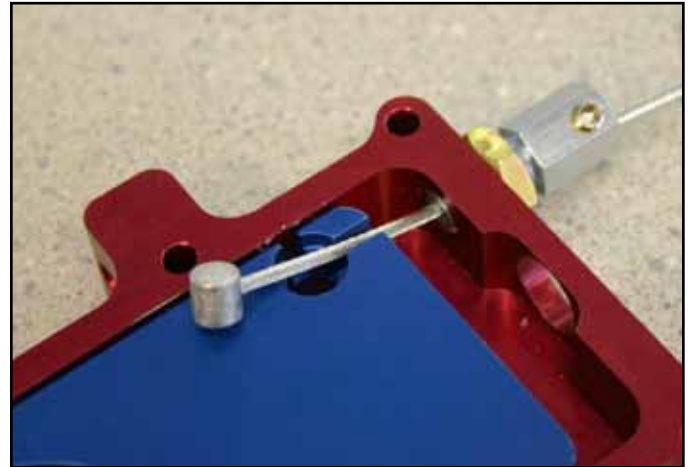
**CAUTION: Do not allow the throttle cable to come in contact with the battery terminals.**

**CAUTION: Do not allow the throttle cable to come in contact with the exhaust.**

## Flexible Throttle Cable Installation

The standard installation uses the supplied flexible cable with a cast cylindrical end.

1. Disassemble the AeroInjector by removing the 6 machine screws which hold the body together. You will need a 9/64" hex wrench and a 7/32" open end wrench.
2. Remove the flexible cable from the cable housing.
3. Pass the cable through the cable adjuster and insert the cylindrical end in the recess in the throttle slide.



*These photos show how the cable is installed in the throttle slide.*

4. Make sure the inside of the AeroInjector body is free of debris and re-assemble the AeroInjector. Check for free movement of the throttle slide.
5. Attach the AeroInjector to the intake manifold.
6. Route the throttle cable so it does not have any sharp bends. A grommet must be used where the throttle cable passes through the firewall.

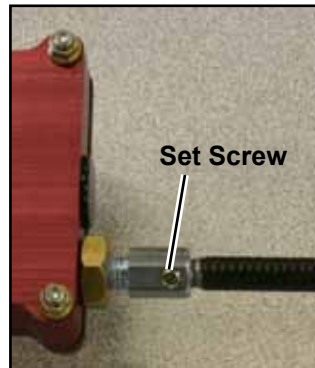
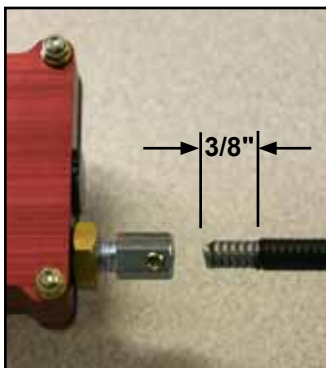
**CAUTION: Do not allow the throttle cable to come in contact with the battery terminals.**

**CAUTION: Do not allow the throttle cable to come in contact with the exhaust pipes.**

The cable housing must be long enough to be inserted in the cable adjuster on the AeroInjector and the cable adjuster on the throttle quadrant.

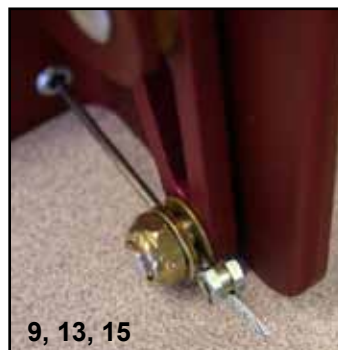
After determining the best cable routing, trim the *housing* to length. *Do not trim the cable.*

7. Strip 3/8" of the black casing off each end of the cable housing, exposing the metal core.



*Left: Strip 3/8" of the outer jacket off the throttle cable sleeve. Right: Insert the exposed metal core into the cable adjuster and tighten the set screw to secure the housing.*

8. Push the exposed metal core into the cable adjuster and secure it with the included set screw (ACV-Q01-23). **Do not over-tighten or you may pinch and bind the cable.**
9. Insert the flexible cable between the washers and through the hole in the wire retainer swivel but *do not tighten the locking nut.*



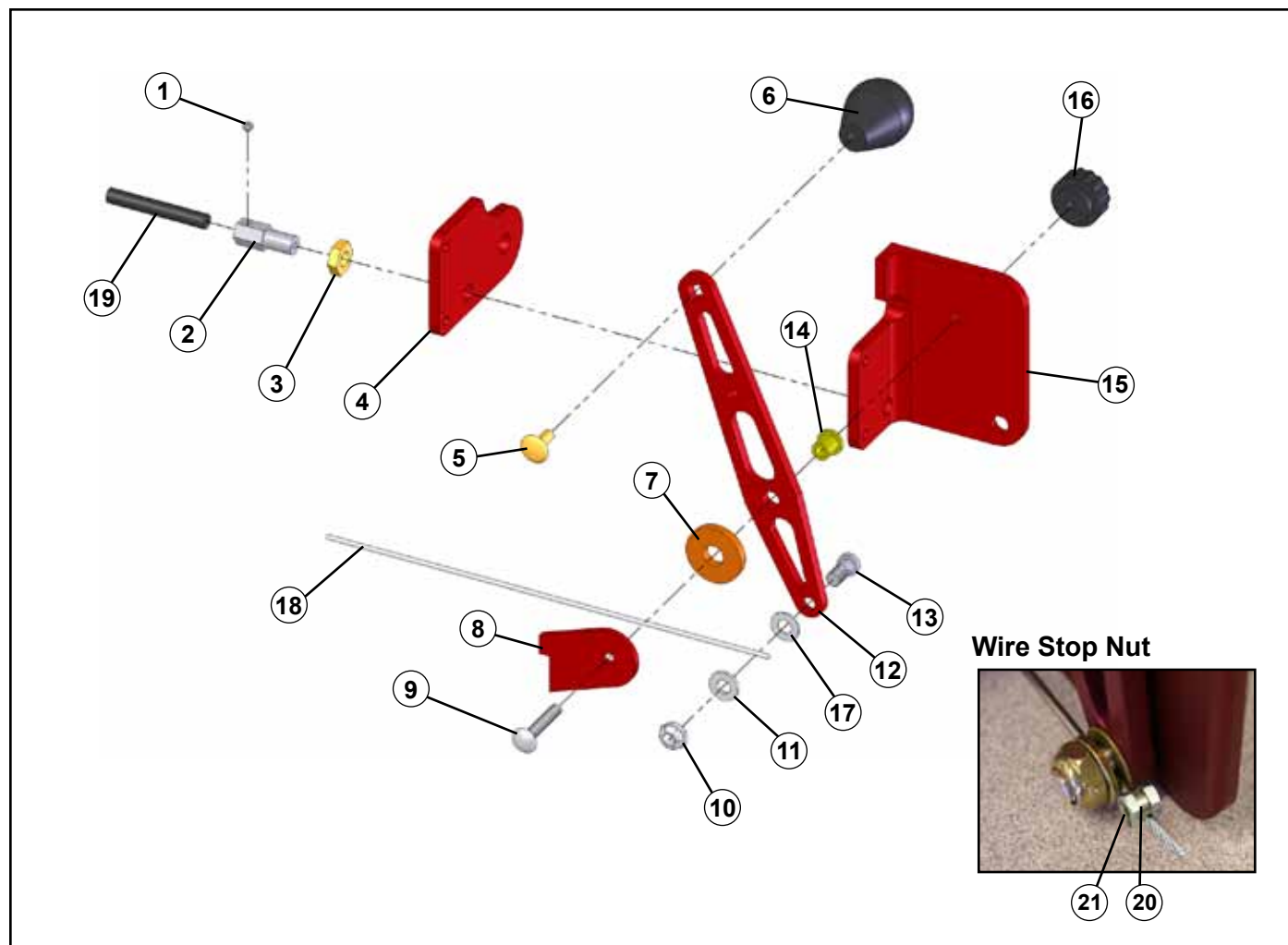
10. Push the cable housing into the cable adjuster on the throttle quadrant and secure it with the included set screw. **Do not over-tighten the set screw or you may pinch and bind the cable.**
11. Push the throttle quadrant lever to the "full throttle" position.
12. Make sure the slide of the AeroInjector is fully open (full throttle position).
13. Tighten the nut on the wire retainer swivel to lock the cable in the swivel. An access hole in the mounting plate allows the swivel to be held with a screwdriver while the nut is tightened.



*A hole in the mounting plate provides access to the slotted cable swivel when the throttle is in the "Full Throttle" position.*

14. Operate the cockpit throttle control through its full range of movement and make sure the throttle slide is opening completely as well as closing against the idle stop screw. Adjust the cable length as needed to provide the full range of throttle movement.
15. Install the wire stop on the cable end, securing it with the set screw. See photo, previous column.
16. Trim the exposed throttle cable, leaving 1/4" extending beyond the wire stop.





## ACV-Q01-01 Throttle Quadrant - Left Side Mount

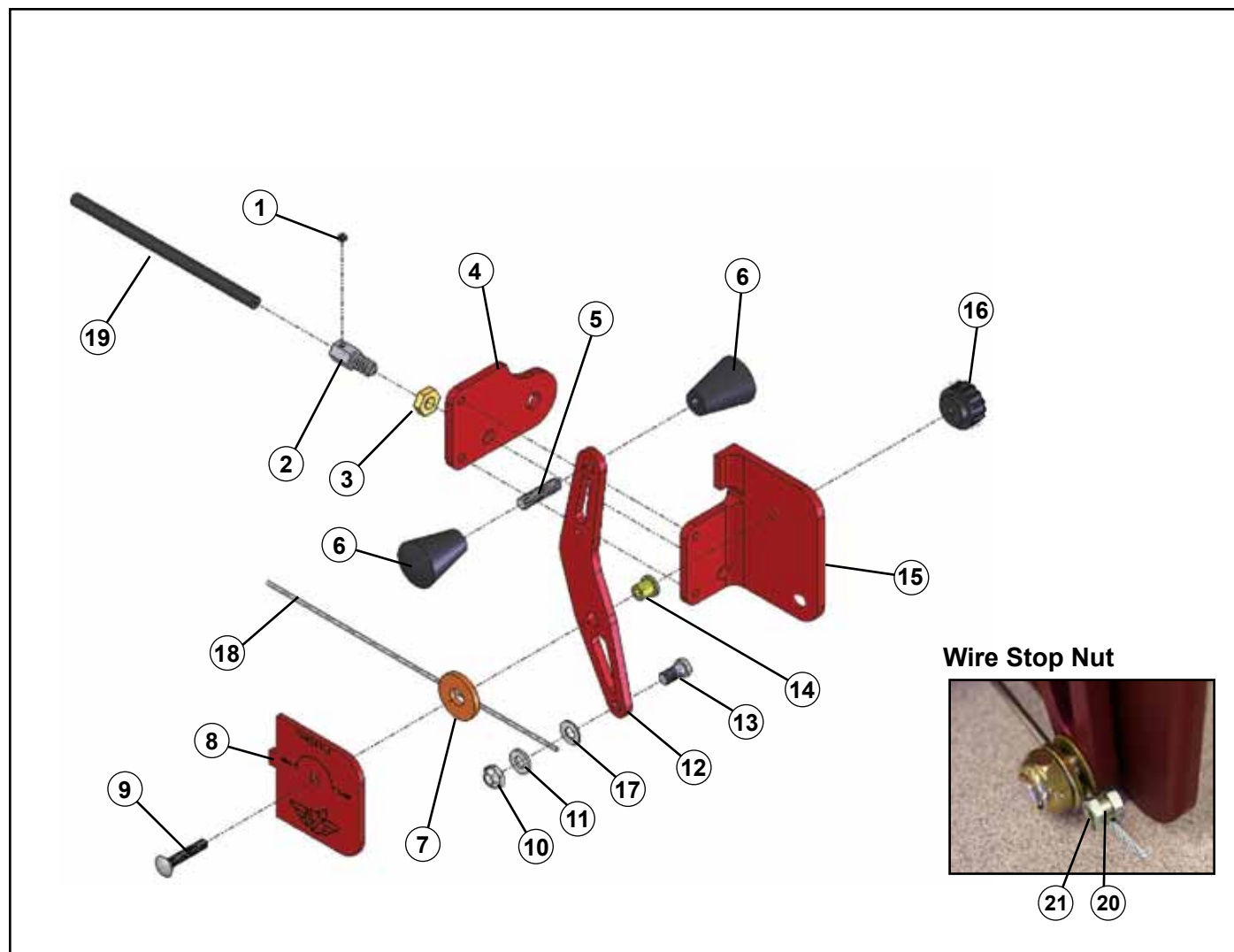
Key.....Qty..... Part No. ....Description

1 .....	2 .....	ACV-Q01-23 .....	Cup point Set Screw (8-32 x 1/8")
2 .....	2 .....	ACV-Q01-21 .....	Cable Adjuster
3 .....	2 .....	ACV-Q01-22 .....	AN345-516 Jam Nut
4 .....	1 .....	ACV-Q01-19 .....	Mixture Bracket
5 .....	1 .....	ACV-Q01-25 .....	Carriage Bolt, 1/4-20 x 5/8 Long
6 .....	1 .....	ACV-Q01-15 .....	Throttle Knob
7 .....	1 .....	ACV-Q01-16 .....	Leather Friction Washer
8 .....	1 .....	ACV-Q01-11 .....	Retainer
9 .....	1 .....	ACV-Q01-24 .....	Carriage Bolt, 10-32 x 1" Long
10 .....	1 .....	ACV-Q01-28 .....	MS20364-428 Elastic Stop Nut
11 .....	1 .....	ACV-Q01-30 .....	AN960-416 Washer
12 .....	1 .....	ACV-Q01-10 .....	Throttle Arm
13 .....	1 .....	ACV-Q01-29 .....	Wire Retainer Swivel Bolt
14 .....	1 .....	ACV-Q01-17 .....	Bronze bushing, SF610-6

15 .....	1 .....	ACV-Q01-05 .....	Mounting Bracket
16 .....	1 .....	ACV-Q01-38 .....	Friction Adjusting Knob
17 .....	1 .....	ACV-Q01-33 .....	AN960-416L Washer (Thin)

**Note: Items 18 and 19 are only sold as a set, part number ACV-Q01-45**

18 .....	1 .....	ACV-Q01-43 .....	Braided Wire Throttle Cable With integral "T" barrel
19 .....	1 .....	ACV-Q01-44 .....	Throttle Cable Housing
20 .....	1 .....	ACV-T01-19 .....	Wire Stop
21 .....	1 .....	ACV-T01-24 .....	8-32 x 1/4" Patched Set Screw



## ACV-Q01-03 Throttle Quadrant - Center Mount

Key.....Qty..... Part No. ....Description

1	2	ACV-Q01-23	Cup point Set Screw (8-32 x 1/8")
2	2	ACV-Q01-21	Cable Adjuster
3	2	ACV-Q01-22	AN345-516 Jam Nut
4	1	ACV-Q01-19	Mixture Bracket
5	1	ACV-Q01-34	Stud
6	2	ACV-Q01-35	Throttle Knob
7	1	ACV-Q01-16	Leather Friction Washer
8	1	ACV-Q01-32	Retainer
9	1	ACV-Q01-24	Carriage Bolt, 10-32 x 1" Long
10	1	ACV-Q01-28	MS20364-428 Elastic Stop Nut
11	1	ACV-Q01-30	AN960-416 Washer
12	1	ACV-Q01-31	Throttle Arm
13	1	ACV-Q01-29	Wire Retainer Swivel Bolt
14	1	ACV-Q01-17	Bronze bushing, SF610-6

15	1	ACV-Q01-05	Mounting Bracket
16	1	ACV-Q01-38	Friction Adjusting Knob
17	1	ACV-Q01-33	AN960-416L Washer (Thin)

**Note: Items 18 and 19 are only sold as a set, part number ACV-Q01-45**

18	1	ACV-Q01-43	Braided Wire Throttle Cable With integral "T" barrel
19	1	ACV-Q01-44	Throttle Cable Housing
20	1	ACV-T01-19	Wire Stop Nut
21	1	ACV-T01-24	8-32 x 1/4" Patched Set Screw