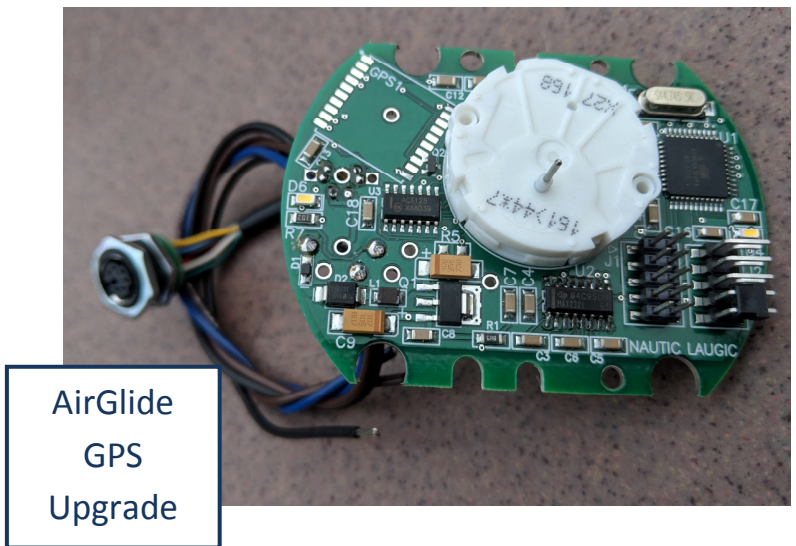
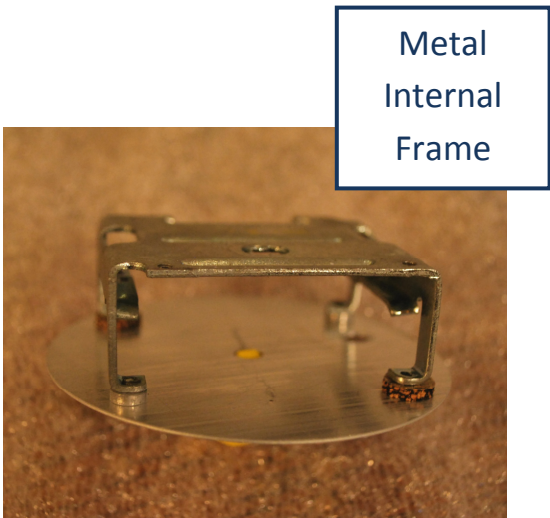


The AirGlide GPS Upgrade for: AirGuide Model 2025 w/ a metal internal frame

This Kit includes all the components necessary to upgrade the Pitot driven speedometer to GPS. The finished gauge will look and mount exactly as it did originally. The integrated Backlights are life-time LEDs. This document outlines the step-by-step conversion procedure and installation.



The AirGlide Kit, Tools, and Prep

Contents:

QUANTITY	DESCRIPTION
1	AirGlide Retro-fit Assembly (AGR)
1	Swift GPS Receiver or GPS Y-Splitter
2	Screws, #4-40 x 5/16", Socket Hd. SS
2	Nuts, #4, SS
1	Grommet, Rubber
1 set	Calibration Wires

General Small Tools and Material Required:

DESCRIPTION
SCREW DRIVERS: PHILLIPS (#1, #2) / SMALL FLAT-HEAD (2)
PLIERS: NEEDLE NOSE / STANDARD
ASSORTED NUT DRIVERS
ASSORTED WRENCHES
DIAGONAL CUTTERS
DRILL MOTOR AND 1/8" DRILL BIT
WISE
HACKSAW (w/METAL CUTTING BLADE)
FLAT FILE
GORILLA SUPER GLUE GEL, SOFT CLOTH, MASKING TAPE, WINDOW CLEANER

Prep: **This Is VERY Important!**

Rotate the AGR motor shaft to its full counter-clockwise (CCW) stop.

1. Grasp the AGR board edges in your left hand with the motor facing you. Pinch the rotor shaft with your right thumb and index finger.
2. Hold the pinched shaft stationary, rotate the AGR board 90 degrees CW (and thus the rotor turns CCW). Note: The rotor movement is so smooth, you're unlikely to sense it.
3. Release your pinch on the rotor. Re-Cock the AGR to rotate it CW again.
4. Repeat steps 1 thru 3, four to five times.

Jumpers: This Is VERY Important! Do Not Alter the AGR Jumpers. These are set by the Factory for this model.

Disassembly

Begin with the gauge removed from dash: Thereby, free the Pitot hose (cut if necessary). Remove the Backlight, by pulling it from the case. And remove the mounting bracket.

***** Remember to always protect the Lens Face with a soft cloth or pad to avoid scratches.**

***** Refrain from discarding removed parts! Some are reused.**

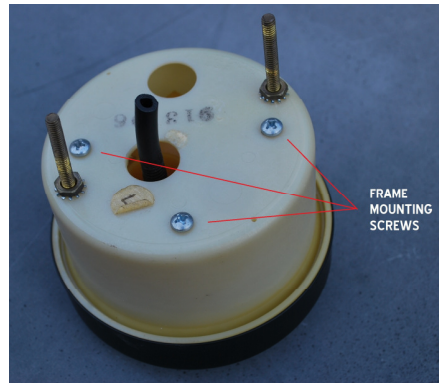
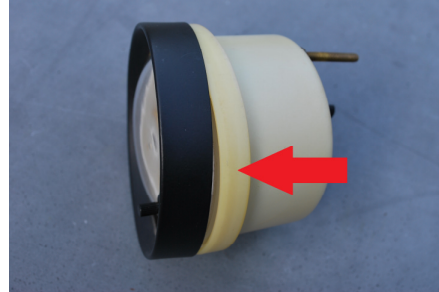
***** This process is irreversible. For some mechanical parts are ruined as to expedite and ease the upgrade procedure.**

***** FOR BEST RESULTS, READ THE ENTIRE PROCEDURE FIRST!**

1. With your fingers, gently pry/slide the bezel off.
2. Remove the Frame Mounting screws; use a #2 Phillips screwdriver. The screws are threaded into hex stand-offs which support the internal frame. Remove all three screws.

Note : the stand-off may twist free from the frame before coming loose from the screw. This is ok. For the objective is to free the frame from the case. (See pic in Assembly step 6.)

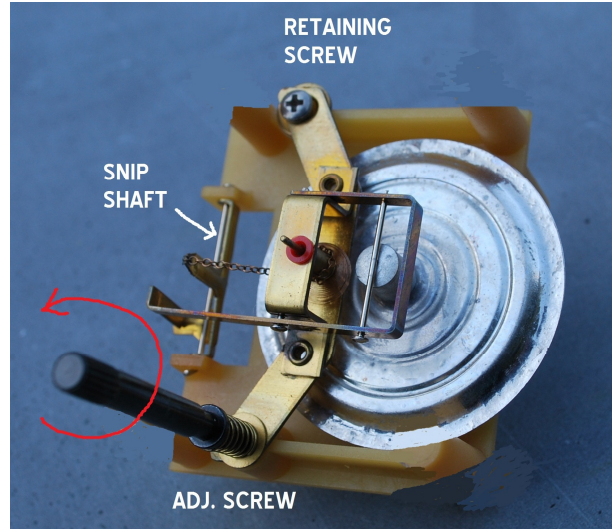
3. From the front, remove the entire dial from the case: this includes the Lens, Lens Gasket, Dial and Frame (and any stand-offs still attached).
4. Slide the Lens/gasket up and off the Adjustment screw.



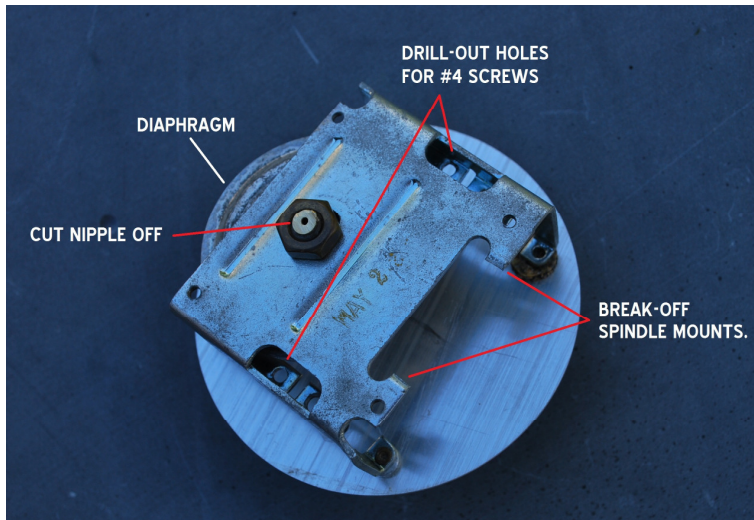
5. With a ¼" nut driver, remove the three hex stand-offs from the frame and/or case.
6. Pry the indicator needle loose from the rotor:
 - a. To protect the dial face, place 2 masking tape strips under the needle, on opposite sides of the rotor.
 - b. Near the rotor, slide two small flat head screwdrivers under the needle from opposing directions. With their blades flat on the tape, gently twist/pry the screwdrivers shafts up to release the needle.

The internal mechanism pictured is not exactly the same, and is shown for reference only.

7. Now evacuate all the pressure-mechanical components from within the frame... done without separating the dial from the frame.
 - a. Using Diagonal Cutters, snip the spindle shaft, and remove.
 - b. Turn the Adjustment Screw Counter-Clockwise until its shoulder just touches the dial's belly
 - c. Bend/break-open the forked-end of the brass adjustment arm. This will allow the arm to slide off the adjustment screw shaft; see detail on last page.
 - d. Find the Retaining Screw and remove it. (The screw head may be hex shaped).
 - e. Extract all the loose parts thru the frame side opening.



8. For the next two steps, it's recommended to secure the frame in a vise. Protect the frame from vise-jaw marks with cardboard. Point the dial away from the jaws, and place the frame at the jaw ends. Modestly pinch the frame, yet not alter it.



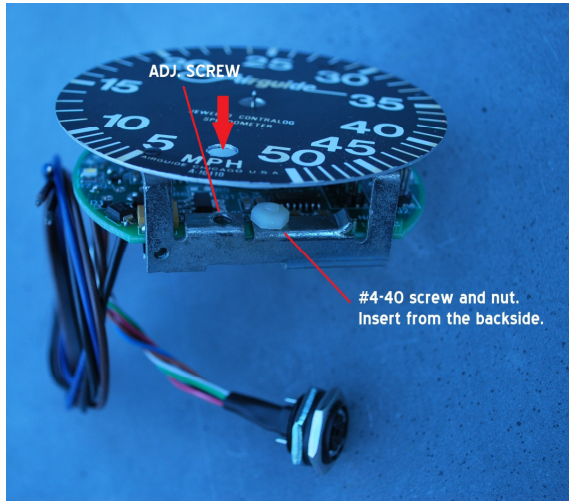
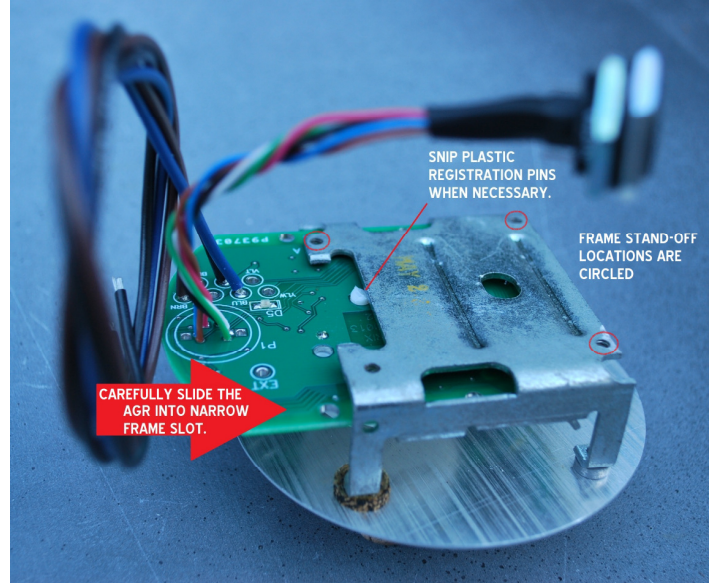
9. Extract the Diaphragm.
 - a. As close to the nut as possible, use a hacksaw to cut off the brass nipple.
 - b. Grasp the diaphragm with pliers, and loosen the nut with a 7/16" wrench.
 - c. It's a tight fit, but coax the loose diaphragm out of the frame.

10. Frame modifications:
 - a. Drill-out the two center mounting holes to 1/8" diameter; see picture. File any raw edge smooth.
 - b. Using pliers, flex the Spindle Mounts back-and-forth until they break off. File off any sharp edges.
11. Clean the Dial Face
12. Clean the Case.

The Disassembly is done.

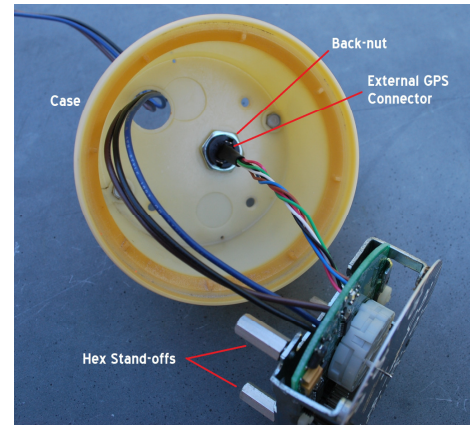
Assembly

1. Insert the grommet into the case at the old Backlight hole.
2. Ensure the case Mounting-bracket studs are secure. When necessary tighten the nuts with a ¼" nut-driver
3. Point the dial face away and orient the frame's old spindle mount to the left; see picture. With Motor pointed towards the Dial's backside, from the left, start the AGR into the frame's narrow back slot. Continue to slide the AGR in being careful not to bend/tweak the rotor. Snip the plastic motor registration pins as needed for clearance. Stop when the rotor protrudes thru the dial's center hole.

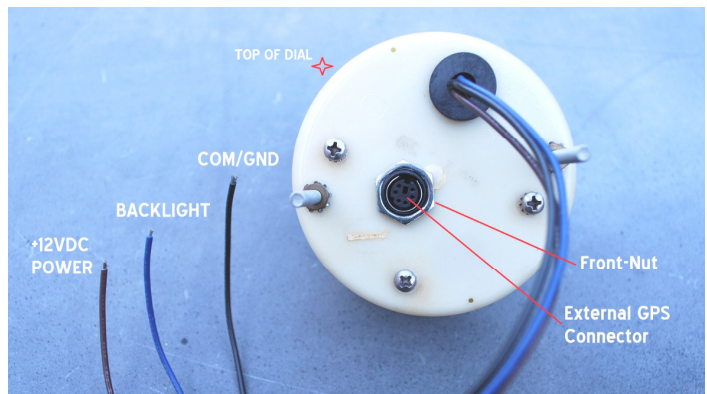


4. From the backside, insert the two #4-40 x 5/16" screws thru the AGR's center slots and the frame holes. Thread on the #4 nuts. Visually confirm the rotor is centered on the dial, and tighten.
5. Tighten the Adjustment screw; it should align/protrude into its AGR 'relief' hole.

6. Thread the three hex stand-offs back onto the Frame; Note: find the correct frame holes to align with the Case holes.
7. Secure the External GPS connector to the case:
 - a. Remove the Front Nut from the External GPS Connector. And retract the Back-nut (CCW), yet leave all its threads fully engaged.
 - b. From within the case, slip the External GPS connector into the case's center-most hole.
 - c. From the case outside, apply the Front-Nut. Point the connector keyway towards the Top of Dial. Tighten snug with a 17mm wrench.






8. Feed the hook-up wires thru the grommet.



9. Inside the case, about ¼" from the External GPS connector, gently fold its wires over. Coarsely align the stand-offs with their corresponding case holes, and slide the Frame/Dial assembly into the case.
10. Fasten the Frame to the case:
 - a. Start each frame screw w/washer thru the case and into the stand-off. As required, slightly rotate the Dial to align a stand-off with a hole.
 - b. With all three screws inserted, press the Dial firm and squarely into the case, and center.
 - c. Tighten the screws.
11. Attach the needle indicator.
 - a. The needle should be a snug press-fit on to the rotor. If the needle easily slides onto the rotor and spins freely, do the following...
 - i. adhesive is required: *Gorilla Super Glue Gel*.
 1. With a Tooth-pick, add a minuscule dab of adhesive, to 'blob' the rotor end. Allow the blob set or get 'tacky' (20 seconds); avoid excess that will run down the shaft and inhibit it from turning.
 - b. With the needle pointed towards 15 MPH. Press the needle onto the rotor shaft.
 - c. Rotate the needle CCW until it is centered on 5 MPH.
 - d. (Make sure the assembly is flat-level and allow the adhesive to cure before proceeding!!!)
12. Clean the Lens and Lens gasket.
13. Place the gasket over the case and dial. (Note the correct orientation is pictured in Disassembly step 4.)
14. Slip the Lens over the Adjustment screw, and into place.
15. Slide the Bezel back on.

Your AirGlide Speedometer is READY for Power.

Electrical Install

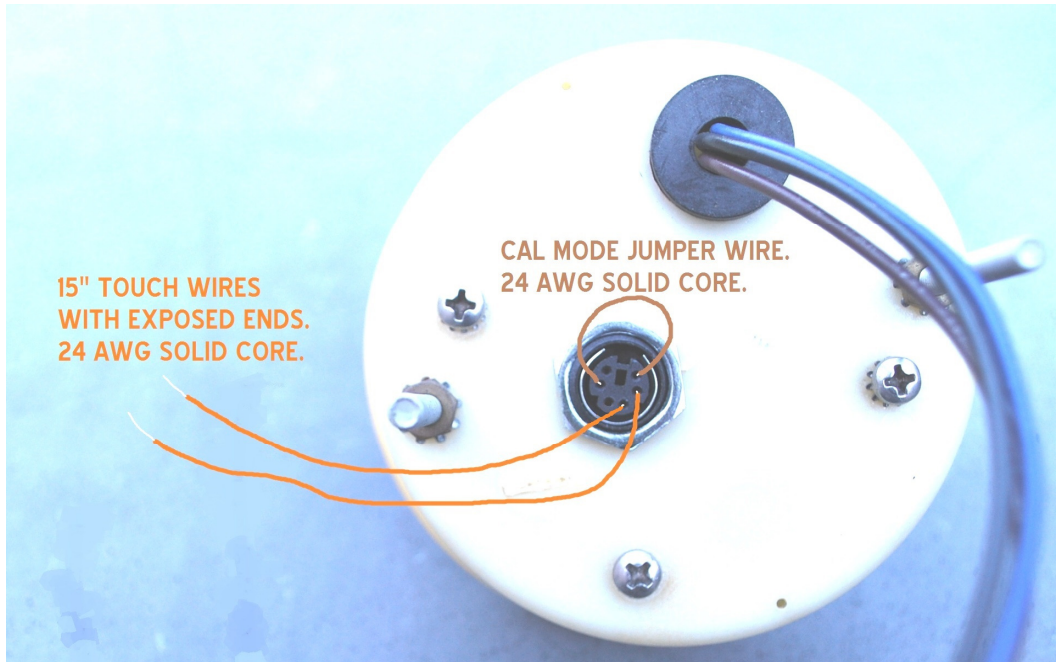
1. Return the Speedometer to the Dash. Feed the wires thru the dash front. LEAVE THE SPEEDOMETER LOOSE UNTIL AFTER THE CALIBRATION IS DONE... SO DON'T ATTACH THE MOUNTING BRACKET JUST YET.
2. Provide a source of CLEAN (Noise-free), Key-switched +12Vdc Power. Tap into power that ISN'T directly feeding a Pump, Starter Motor, or etc. Note: This may entail adding a new accessory 18 Awg power wire onto the Key Switch. And possibly upsizing both power wires (Pos and Neg) from the Battery to the dash area.
 - a.  Bond the Brown wire to Switched Power (+12Vdc).
 - b.  Bond the Black Wire to Common/GND/Battery Neg. (DO NOT USE the BACKLIGHT COMMON!!)
 - c.  Remove the Existing Backlight, and bond the Blue Wire to Backlight Power (+12Vdc).
3. Time to Calibrate. (See next Page.)
4. Mount the Speedometer after the calibration is successfully accomplished.
5. Note: the internal Backlights are also controlled by the AirGlide. Therefore, the AirGlide must be powered in order for the Backlights to come on. Also as a useful status indicator the Backlights will Flash while the AGR

is waiting for a 'satellite-sync'. To witness the flashing, the dash lights must be ON. This is by design! For under normal conditions visual feedback from the AirGlide becomes routine and unnecessary. Thus, the user has ability to enable/disable these visible cues by turning the dash lights On or Off. Upon power-up, the AirGlide waits 2 seconds for the power to settle.

PITOT HOSE: REMEMBER TO PLUG/CORK/PINCH-OFF THE HOSE, TO AVOID WATER LEAKING INTO YOUR BOAT!!

Calibration

A calibration is required to accurately convert reported GPS speeds into needle positions. The procedure is simple and takes two minutes. For best results read the entire procedure first.



1. Confirm the GPS Receiver is unplugged. And the Jumper wires are **correctly** inserted in the PS2 mini circular connector.
2. With the two orange Touch wires in reach, view the Speedometer's face at a close-up.
3. Power-up the gauge.
4. After two seconds the AGR will enter Calibration Mode. If it's not there already, the needle will fall to 5MPH.
5. The needle will slowly increase. When the needle points exactly at **TEN [10]** miles per hour, briefly contact the two Touch Wire (exposed) ends.
6. The needle will jump to approach **FIFTEEN [15]** miles per hour. Again the needle will creep upwards. When it is centered on FIFTEEN, momentarily touch the wires. [Exception for *Universal Models*: The needle will not jump in Universal mode... rather it only creeps. Upon the Last Cal step contact/hold the wires together, and continue wire contact (about four seconds) until the needle begins to retreat.]
7. Continue the jump, approach - center and touch routine for **20, 25, 30, 35, 40,** and on up to full scale less 5 mph.
8. **ONLY** after the confirmation 'touch' at the last calibration point will the AGR compute the calibration constants. The calibration constants are saved in non-volatile memory.
9. The needle will reset and automatically retrace most of the calibration steps (over-and-over). The first retrace step will be near TEN [10], and the last at full scale minus 5. No intervention is required... just observe.
10. An accurate retrace indicates the calibration is valid. To redo or replace this calibration, simply turn the power off, wait 10 seconds, and begin again at step 3.
11. Your Calibration is done. Turn the power off. Remove the Jumper wires.

External GPS Receiver

The compatible GPS Receiver is waterproof with great reception. It is resilient and tolerant to marine surroundings. Following these constraints are key: the GPS requires a clear line-of-sight to the sky; the windshield and cloth top shouldn't present a problem. Keep it away from other electronics / antenna's that may interfere with the receiver. Every boat is different, so experiment with varied Receiver locations to find the best (before mounting it permanently). Route the GPS cable / connector to the back of the dash.

Plug the GPS Receiver into the External GPS connector. Note the 'ARROW' embossed into the connector. Orient the arrow to align with the mating 'pocket' in the female receptacle. Strain-relief the cable to a nearby fixed position.

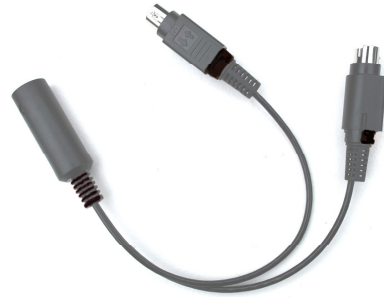
The GPS Receiver is equipped with an internal Status Light.

1. **THE LIGHT FLASHES:** When the Receiver has power.
2. **THE LIGHT REMAINS SOLID:** When the Receiver has a Satellite Sync. This is required for normal operation.



The GPS Y-Splitter (Option)

The Splitter is applied for dual speedometers. This connects both gauges to a single Swift GPS Receiver. Insert the GPS's connector into the female (receptacle). The male plugs attach to either AirGlide Speedometer; only the 'short' leg provides power to the GPS.



Warranty

Nautic Laugic warranties the AGR for one year.

Should this product malfunction or fail, please return it so we can make it right!! Please see our policies page at www.nauticlaugic.com

THANK YOU FOR BUYING OUR PRODUCT!!



AIRGLIDE RETROFIT, METAL FRAME

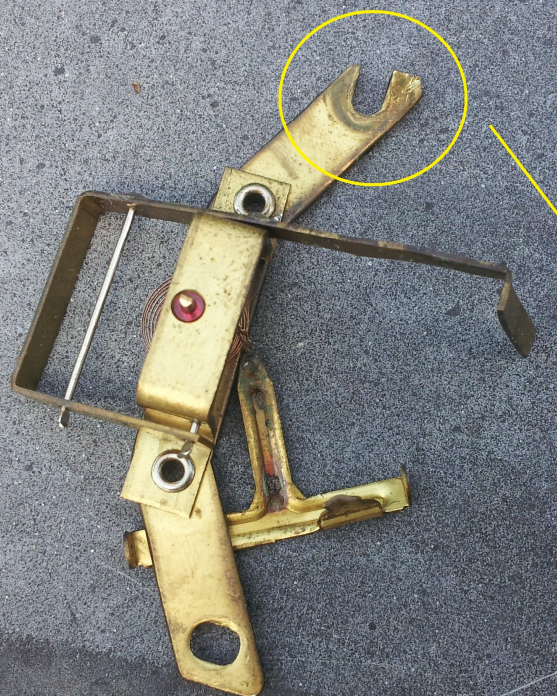
THERE'S NO NEED TO COMPLETELY REMOVE THE ADJUSTING SCREW.

BREAK OFF THE ADJ-ARM.
see note.

SLIDE NEW AIRGLIDE PCB UNDER THE ADJ SCREW.

ALIGN NEW AIRGLIDE PCB AND MOUNT IT TO FRAME. THE ADJ. SCREW SHOULD REGISTER WITH A HOLE IN THE PCB.

FIRMLY TIGHTEN ADJ. SCREW.



BACK THE ADJ. SCREW OUT TO WHERE ITS SHOULDER JUST TOUCHES THE DIAL'S BELLY. WITH NEEDLE NOSE PLIERS, BEND/BREAK THE FORKED-END OF THE BRASS ADJ-ARM. SLIDE THE ADJ-ARM OFF THE ADJ. SCREW.