Aero Twin, Inc. Rudder Gust Lock Kit No. 4111-212
for
CASA C-212 Aircraft

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Document No. 4111-212-ICA

Maintenance Manual
FAA Approved Airworthiness Limitations
Illustrated Parts List

Aero Twin Approved: _____
President
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LOG OF REVISIONS

REVISIONS NO.	REVISIONS DATE	PAGES REVISED AND DESCRIPTION OF REVISIONS	APPROVAL SIGNATURE
--	05/08/20	Original Issue	--

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1.0 Maintenance Manual

Numbers in parenthesis refer to item numbers in section 3.0.

1.1 Removal/Installation of Tail Cone:

(i): Remove tail access panel IAW CASA C-212 maintenance manual.
(ii): Remove the bolts (19), washers (29), nut (20), and cotter pin (26) to disconnect release assembly (17) from the lock assembly (3).
(iii): Remove tail cone IAW CASA C-212 maintenance manual.
(iv): Reinstall tail cone IAW CASA C-212 maintenance manual.
(v): Reinstall the release assembly with bolts (19), washers (29), nut (20), and cotter pin (26).
(vi): Conduct a function check as outlined in paragraph 1.5.

1.2 Removal of rudder lock assembly:

(i): Remove tail access panel IAW CASA C-212 maintenance manual.
(ii): Remove the bolts (19), washers (29), nuts (20) and cotter pins (26) which secure the handle assembly (16) and release assembly (17) to the rudder lock (3). Remove the handle assembly (16).
(iii): Remove bolts (23), washers (30), and nuts (25) which secures the release assembly (17) to the eyebolts (22). Remove the release assembly (17).
(iv): Remove screws (7) from fairing doubler (1). Remove bolts (6) and washer (11) which secures angles (2) and (13) to slot doubler assembly (4). Remove rudder lock (3), with angles (2) and (13) still attached to it, from tail cone. Remove slot doubler assembly.

1.3 Configuring aircraft for operation with rudder lock assembly removed:

(i): Remove the rudder lock assembly in accordance with paragraph 1.2 of this document.
(ii): Reinstall tail access panel IAW CASA C-212 maintenance manual.
(iii): Make log book entry stating that rudder lock assembly has been removed for service. Update aircraft weight and balance data using data given in paragraph 1.8 of this document.

1.4 Reinstallation of rudder lock assembly:

(i): If the aircraft was operated with the rudder gust lock assembly removed, prepare for reinstallation as follows:
  a) Remove tail access panel IAW CASA C-212 maintenance manual.
  b) Attach angles (2) and (13) to rudder lock (3), if not already attached, with bolts (5), washers (11) and nuts (9).
  c) Reinstall rudder lock mechanism (3) and slot doubler assembly (4) using screws (7), bolts (6), and washers (11).
  d) Reconnect the release assembly (17) to the eyebolts (22) with bolts (23), washers (30) and nuts (25).

e) Connect the release assembly (17) and handle assembly (16) to the rudder lock (3) with bolts (19), washers (29), nuts (20) and cotter pins (26).

(ii): Adjust length of the release assembly (17), if necessary, by turning the fork fitting in or out on its thread to assure that the hook and release gap (Fig. 3.2) is between 0" and 1/32" when the aircraft control lock is engaged.

(iii): Adjust length of the handle assembly (16), if necessary, by turning the fork fitting in or out on its thread to assure no red on handle is visible beneath the grommet (28) when the lock is disengaged (handle up). Handle tab of assembly (16) should be parallel to the longitudinal axis of the aircraft.

(iv): Ensure the jamb nuts on release assembly (17) and handle assembly (16) are tight against the fork fittings. Ensure the fork fitting on the handle assembly (16) is safetied to the safety wire tab on the handle to prevent it from rotating loose.

(v): Conduct a function check as outlined in paragraph 1.5.

1.5 Detailed Functional Checks and Adjustments:

(i): Remove tail access panel IAW CASA C-212 maintenance manual if not already removed.

(ii): Check control linkage travel and ensure it does not rub or bind.

(iii): Engage the aircraft control lock in the cabin on the control yoke. Engage the rudder lock (3), pulling down on the handle (16) to raise the pin to the 'locked' position. Check that the hook and release gap (Fig. 3.2) is between 0" and 1/32". Adjust the length of the release assembly (17) by screwing the fork fittings in and out as necessary to achieve this gap. Tighten the jamb nut against the fork fitting once the proper length is achieved.

(v): Disengage the aircraft control lock and pull back on the yoke; the rudder lock (3) should disengage when the elevator is between the aircraft control lock position and 5 degrees up. It may be necessary to make further adjustment to the length of the release assembly (17) by screwing the fork fitting in and out to achieve proper lock disengagement in the correct range of elevator travel.

(vi): With the rudder lock (3) disengaged, no red should be visible on the handle (16) below the grommet (28) and it should protrude below the bottom of the tail stinger/fairing by approximately 3/4 inches, to allow the operator to easily pull on the handle. If needed, the length of the handle can be adjusted by adjusting the position of the fork fitting. Once the proper length is achieved, tighten the jamb nut against the fork fitting and safety the fitting from loosening using lockwire wrapped through the fork and the safety wire tab on the handle.

(vii): With the rudder lock (3) disengaged, pull elevator to full up position. Verify that the rudder lock cannot be engaged by pulling down on the handle (16) while the elevator is up. While pulling down on the rudder lock handle, slowly lower the elevator to ensure that the lock does not engage until the elevator is within 5 degrees of the aircraft lock position and that the elevator does not jam at any point in its motion.

(viii): Hold the elevator in the down position. The rudder lock (3) can engage by pulling down on the handle (16). Release by pushing the handle (16) or by moving the elevator to the up position.

(ix): Reinstall tail access panel IAW CASA C-212 maintenance manual.

1.6 Condition Inspection:

(i): Remove the rudder lock assembly in accordance with paragraph 1.2 of this document.

(ii): Closely inspect the entire system for cracks, loose rivets, corrosion, and general condition.

a) If any cracks are found the rudder lock system should be returned to Aero Twin, Inc. for repair/replacement.
b) Loose rivets can be replaced following standard practices.
c) Light surface corrosion can be cleaned up and the affected area re-coated. Corroded hardware should be replaced.

(iii): Check the rudder striker plate (12) on the bottom of the rudder for wear. If the striker plate slot is worn remove the striker plate and install a new one:

a) Remove the rivets (8) holding the striker plate (12) on and remove the striker plate.
b) Install a new striker plate (12) on the bottom of the rudder. Match drill striker plate (12) to middle 3 rivet holes that are not predrilled on replacement part. Shape sides of (12) as necessary to clear other existing rivet heads that prevent it from lying flat.
c) Paint striker plate (12) to match aircraft in accordance with finishing specification in CASA Maintenance Manual.
d) Replace rivets (8) following standard practices. Use longer dash number rivets as necessary.

(iv): Check the complete release linkage for signs of wear or rubbing. If the linkage exhibits excessive wear or sloppiness, the condition should be rectified by replacement of worn components, or by removing the entire rudder lock assembly and returning it to Aero Twin for service.

(v): Apply a non-congealing corrosion block / lubrication product, such as *Corrosion-X™*, to the linkage and the entire lock body.

(vi): Reinstall rudder lock assembly in accordance with paragraph 1.4 of this document.

(vii): Check that the rudder lock placard (32) is on the side of the tail stinger/fairing. Install new placard if needed.

1.7 General Operational Check

(i): Check operation by first securing the elevator with the aircraft control lock, then engaging the rudder lock.

(ii): With the rudder lock engaged, the rudder should have less movement than having only the aircraft control lock engaged.

(iii): Remove the aircraft control lock and pull back on the yoke. The rudder lock should disengage.

(iv): With the lock free, the rudder should move freely with at least 1/8 inch minimum clearance between the top of the rudder lock body and the bottom of the striker plate on the rudder.

1.8 Weight and Balance

The rudder lock assembly adds 2.23 kg (4.9 lbs) at fuselage station 14478mm (570in) for a total moment change of 32.3 kg-m (2793 lb-in).

2.0 Airworthiness Limitations

Aero Twin, Inc. Rudder Gust Lock Kit No. 4111-212

The Airworthiness Limitations section is FAA approved and specifies maintenance required under paragraphs 43.16 and 91.403(c) of the Federal Aviation Regulations unless an alternative program has been FAA approved.

This section describes required inspections and maintenance. There are no scheduled replacement items. When repairs are deemed necessary, follow accepted standard practices and/or specific maintenance instructions in Section 1 of this manual.
This section constitutes Component Airworthiness Limitations which apply to the rudder gust lock installation only.

2.1 Scheduled Inspections and Maintenance:

The rudder gust lock assembly must be inspected every 500 flight hours or annually whichever comes first. To inspect the mechanism:

1. Perform a Condition Inspection in accordance with paragraph 1.6 of this document.

2. Perform a General Operational Check in accordance with paragraph 1.7 of this document.

FAA Approval: _____ AUGUST A ASAY 2020.09.30 13:51:58 -08'00' 2015.006.30527 _____

----------End of Section 2.0 Airworthiness Limitations----------

3.0 Illustrated Parts List

Item	Qty	Part No.	Description	Figure
1	1	4111-212-120	FAIRING DOUBLER	3.1
2	1	4111-212-121	ANGLE BRACE - RIGHT	3.1
3	1	4111-212-233	LOCK ASSEMBLY	3.1
4	1	4111-212-134	SLOT DOUBLER ASSEMBLY	3.1
5	2	AN3-16A	BOLT, HEX HD, 10-32	3.1
6	8	AN3-4A	BOLT, HEX HD, 10-32	3.1
7	2	AN525-10R9	SCREW, PHILLIPS HD, 10-32	3.1
8	28	CR3213-4-2	RIVET, UNIVERSAL HD, 1/8	3.1 & 3.3
9	2	MS21042-3	NUT, SELF LOCKING, 10-32	3.1
11	12	NAS1149F0332P	WASHER, FLAT, #10	3.1
12	1	4111-212-132	STRIKER PLATE	3.3
13	1	4111-212-133	ANGLE BRACE - LEFT	3.1
14	2	4111-212-135	END CAP ASSY - OUTSIDE	3.2
15	2	4111-212-136	END CAP ASSY - INSIDE	3.2
16	1	4111-212-137	HANDLE ASSEMBLY	3.2
17	1	4111-212-138	RELEASE ASSEMBLY	3.2
18	2	AN3-5A	BOLT, HEX HD, 10-32	3.2
19	2	AN3-6	BOLT, HEX HD, 10-32	3.2
20	2	AN310-3	NUT, CASTLE, 10-32	3.2
21	2	AN310-5	NUT, CASTLE, 5/16-24	3.2
22	2	AN45-10	EYEBOLT, 5/16-24	3.2
23	2	AN5-10A	BOLT, HEX HD, 5/16-24	3.2
24	2	MS21083N3	NUT, SELF LOCKING, 10-32	3.2
25	2	MS21083N5	NUT, SELF LOCKING, 5/16-24	3.2
26	2	MS24665-130	COTTER PIN	3.2
27	2	MS24665-210	COTTER PIN	3.2
28	1	MS35489-15	GROMMET	3.2
29	8	NAS1149F0363P	WASHER, FLAT, #10	3.2
30	16	NAS1149F0563P	WASHER, FLAT, 5/16	3.2
31	2	NAS75-3-4	BUSHING	3.2
32	1	4111-212-140	Placard - Rudder Lock Operation	3.4

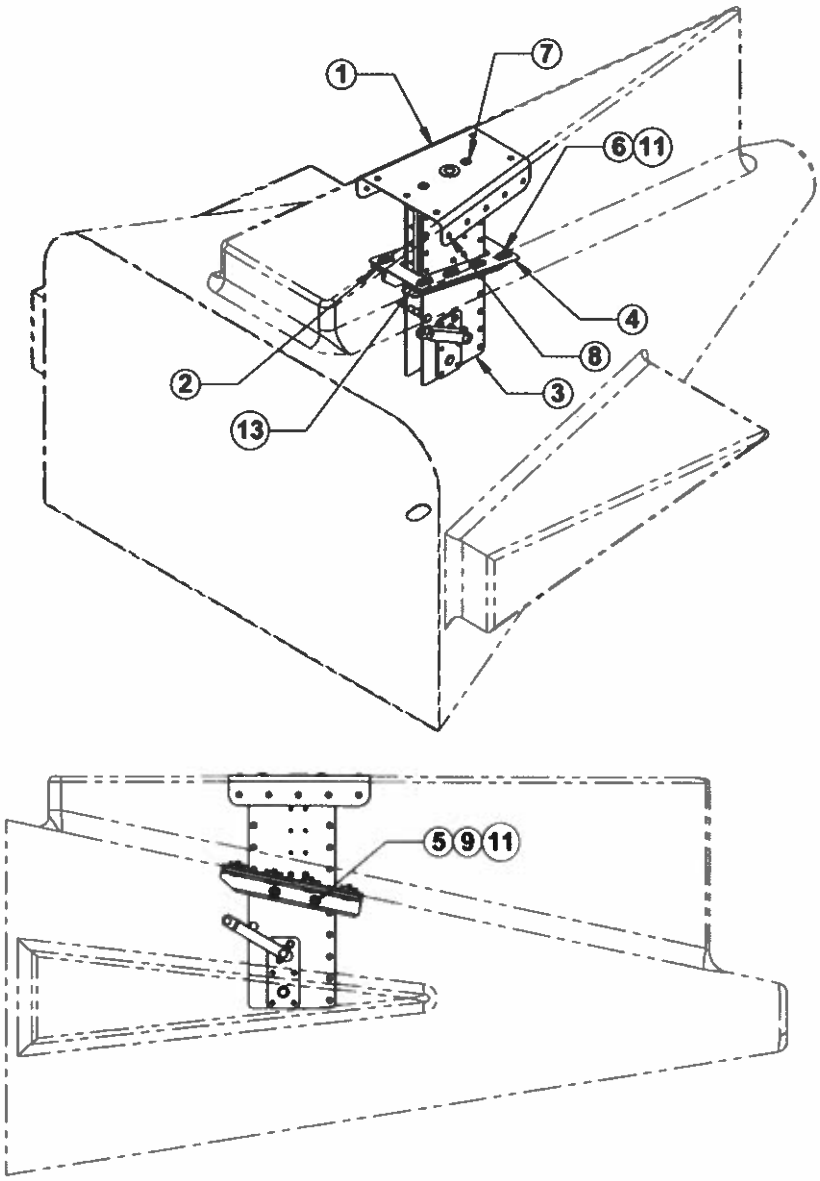

Figure 3.1 Rudder Gust Lock Installation

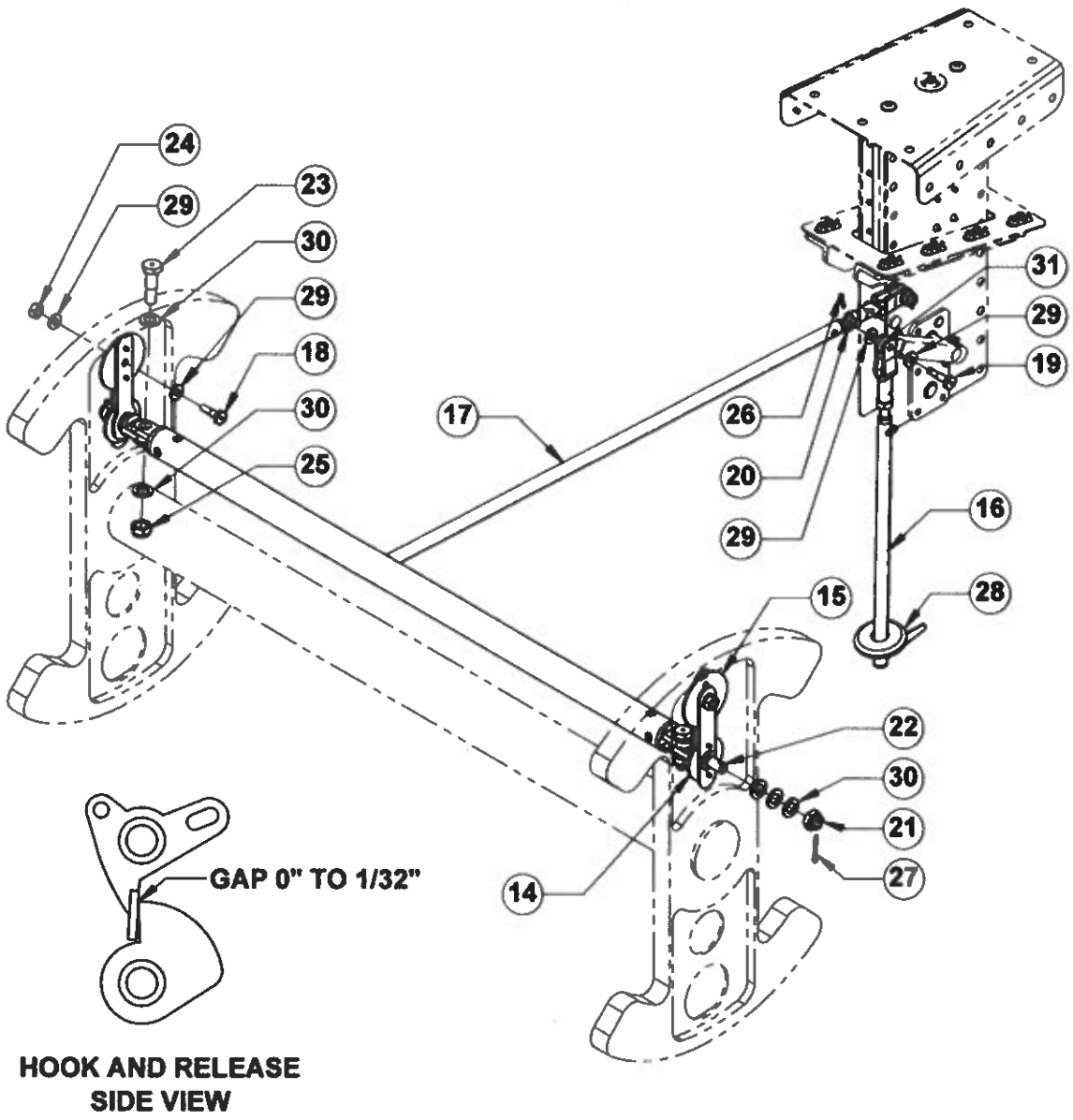

Figure 3.2 Gust Lock Linkage Installation

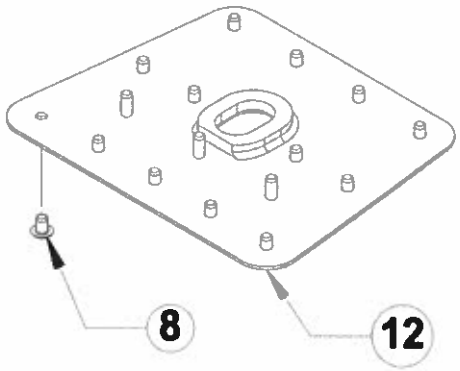

Figure 3.3 Rudder Striker Plate Installation

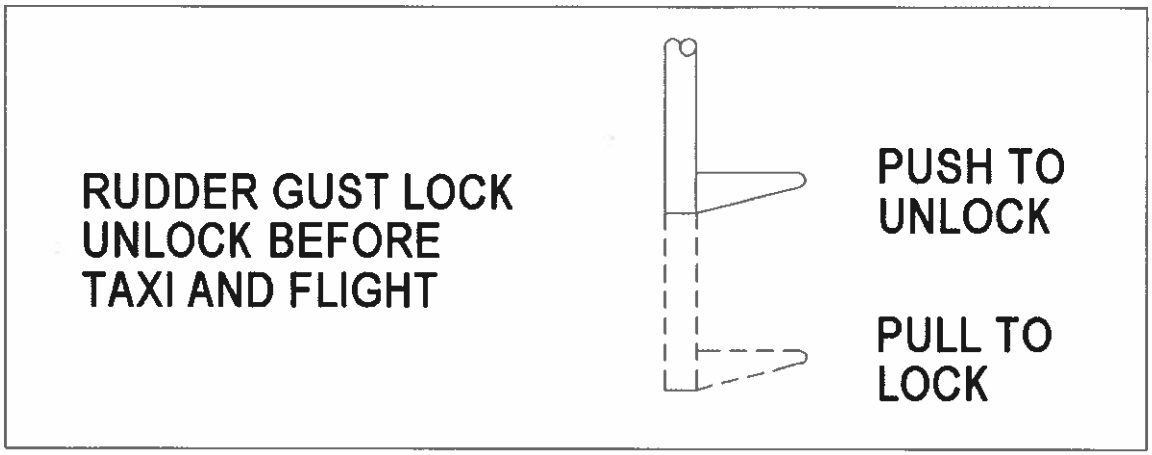

Figure 3.4 Rudder Gust Lock Operation Placard (Item 32)