

Air Research Technology Inc.
Instructions for Continued Airworthiness
No. ICA17025
Issue 9, July 13, 2022.

Cessna 170, 172 and 175 models modified by installation of *WingExtensions* in accordance with Transport Canada STC Approval Number SA01-35.



The information and data contained in this document supersede or supplement that contained in the basic Maintenance Manual in those areas listed herein. For procedures not contained in this document refer to the Maintenance Manual or any other applicable Maintenance Manual Supplements.

This document, in combination with the Wing Extension and Spar Reinforcement Guide, constitute the Supplemental Instructions for Continued Airworthiness for aircraft modified in accordance with STC SA01-35.

This Supplement is to be attached to the Maintenance Manual for the aircraft with the subject design change incorporated.

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REVISION AND DISTRIBUTION

When this document requires revision, it will be reissued in whole and the issue number will be increased. Air Research Technology Inc. will provide copies of this document to all registered operators of the equipment, and will provide revision service to all registered users of the equipment. This document is also available on line at:

<http://www.wingxstol.com/html/faq.html>

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1 DESCRIPTION

The A.R.T. *WingExtensions* increase the wing span by 36 inches and provide additional lift. The *WingExtensions* are conventional sheet metal construction, and they attach to the wing with machine screws. In addition, the main wing spar is reinforced from wing station 91 to 109 and from wing station 128 to 160. For aircraft without wet wings, the rear spar is reinforced from wing station 40 to 57.25. The *WingExtensions* are classified as secondary structure. Existing wiring is extended to accommodate the wing tip position light (and wing tip strobe, if installed).

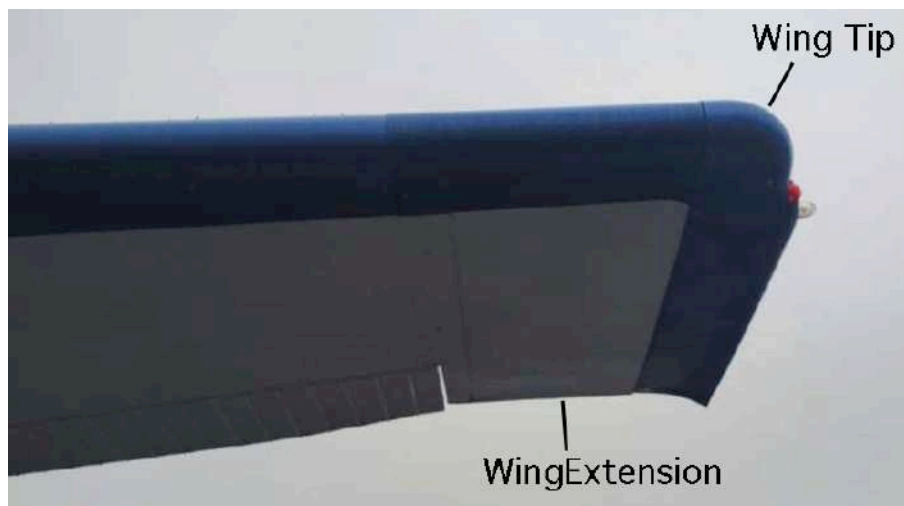


Figure 1: *WingExtensions*

2 REMOVAL AND INSTALLATION PROCEDURES

2.1 *Wing Tip - REMOVAL:*

- 1) Remove and retain the (12) AN525-832R8 screws securing the wing tip.
- 2) Disconnect the navigation light connector and, if installed, the wing tip strobe light connector before fully removing the wing tip.

2.2 *Wing Tip - INSTALLATION:*

- 1) Connect the navigation light connector and, if installed, the wing tip strobe light connector before sliding the wing tip onto the wing.
- 2) Secure the wing tip to the wing with (12) AN525-832R8 machine screws (7-15 in.lb.).
- 3) Confirm correct function of the navigation light and, if installed, the wing tip strobe.

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2.3 WingExtension - REMOVAL:

- 1) Remove and retain the (13) AN525-832R8 screws securing the *WingExtension* to the wing.
- 2) Support the *WingExtension* when removing the last screw, then carefully slide the *WingExtension* off the wing.
- 3) Disconnect the navigation light connector and, if installed, the wing tip strobe connector before fully removing the *WingExtension*.

2.4 WingExtension - INSTALLATION:

- 1) Connect the navigation light connector and, if installed, the wing tip strobe light connector before sliding the *WingExtension* onto the wing.
- 2) Secure the *WingExtension* to the wing with (13) AN525-832R8 machine screws (7-15 in.lb.).
- 3) Confirm correct function of the navigation light and, if installed, the wing tip strobe.

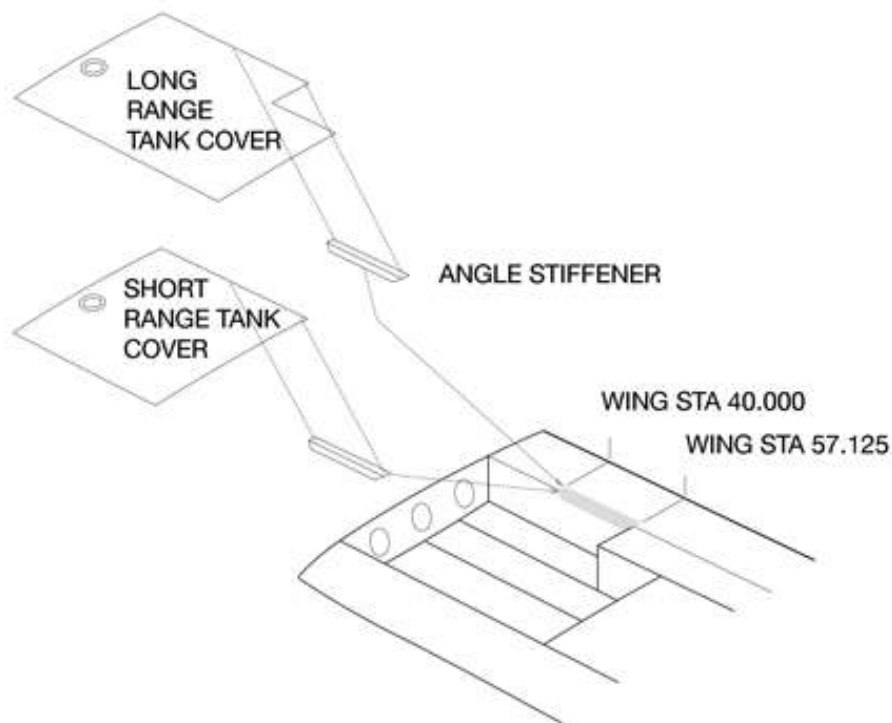


Fig. 2: Fuel Tank Cover and Angle Stiffener
Not applicable to aircraft with wet wings.

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2.5 Fuel Tank Cover - REMOVAL:

- 1) Remove and retain the MS27049-0808 and MS27039-0812 screws securing the fuel tank cover skin to the wing. Note the locations of the longer -0812 screws for subsequent installation of the cover.
- 2) Remove the fuel tank cover skin.
- 3) Retain and secure the 0.040" formed aluminum angle stiffener (p/n 17025-40//57) on the rear spar at the outboard corner of the fuel tank bay. This angle becomes free when the screws are removed. Refer to Figure 2.

2.6 Fuel Tank Cover - INSTALLATION:

- 1) Position the angle stiffener on the aft spar at the outboard corner of the fuel tank bay (between wing stations 40 and 57.125), ensuring that the fastener holes are aligned with the holes in the spar.
- 2) Place the cover skin in position and secure it finger tight using the removed fasteners, ensuring that the longer -0812 screws are installed in their correct locations.
- 3) Confirm that the angle stiffener is properly in place. (The angle stiffener is secured using 6 MS27039-0808 machine screws.) Refer to Figure 2.
- 4) Tighten all fasteners (7-15 in.lb.).

Required fasteners are:

MS27039-0808 (NAS220-8)

MS27039-0812 (NAS220-12)

Refer to applicable aircraft Illustrated Parts Catalog for quantities specific to your fuel tank configuration.

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3 PERIODIC INSPECTION

The following items must be inspected at the annual inspection:

Item	Area to be Inspected	Inspection Action	Corrective Action
1	Main Spar lower surface stainless steel strap reinforcement at Wing Station 100 if applicable. (see Fig. 3)	Visually inspect for loose or missing fasteners, cracks, and corrosion.	Loose rivets must be replaced with CR3243-6-6 or -7 as applicable. See notes below.
2	Wing internal inspection including upper main spar reinforcement at Wing Station 128 to 160. (see Fig. 4)	Remove all lower wing skin inspection panels and visually inspect spars, skins, ribs and stringers for loose or missing fasteners, deformation, cracks, and corrosion.	See notes below.
3	Fuel tank well cover inspection on aircraft not equipped with wet wings at aft upper spar cap from wing station 40 to 57.25. (see Fig. 2)	Visually inspect for loose or missing fasteners, cracks, and corrosion and to ensure that angle stiffener is present along the aft upper spar cap.	Replace any missing fasteners or angle stiffener. See notes below.
4	<i>Wing Extensions</i> (see Fig. 1)	Visually inspect for skin damage, loose or missing fasteners, cracks, and corrosion.	Replace any missing fasteners. See notes below.
5	Markings and Placards	Visually inspect to ensure that the required cockpit markings and placards are present and legible (see Section 5 for required placards and markings)	Replace any missing or illegible placards. Apply missing range marking to airspeed indicator. See Section 5 for replacement of placards and application of markings.

Notes:

- 1) Visual corrosion inspection shall be in accordance with FAA AC 43.13-1B Chapter 6, Section 5.
- 2) Treatable corrosion is limited to general surface corrosion as defined by FAA AC 43.13-1B Chapter 6, Section 2. More serious forms of corrosion are cause for rejection of the affected wing structure.
- 3) Corrosion removal and treatment must be in accordance with FAA AC43.13-1B Chapter 6, Sections 6 through 8.
- 4) Visible cracks are not permitted in any wing structure.
- 5) Repairs and modifications to wing spars require specific approval. Contact Air Research Technology for guidance before attempting any wing spar repairs or modifications.
- 6) For general sheet metal repairs see Section 6.

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Fig 3: Stainless Strap
(under leading edge skin at wing station 100)
RH Wing shown, looking forward
Refer to Air Research Technology Inc. Wing Extension and Spar Reinforcement
Installation Guide #172 Part III for applicability of this reinforcement to your aircraft.

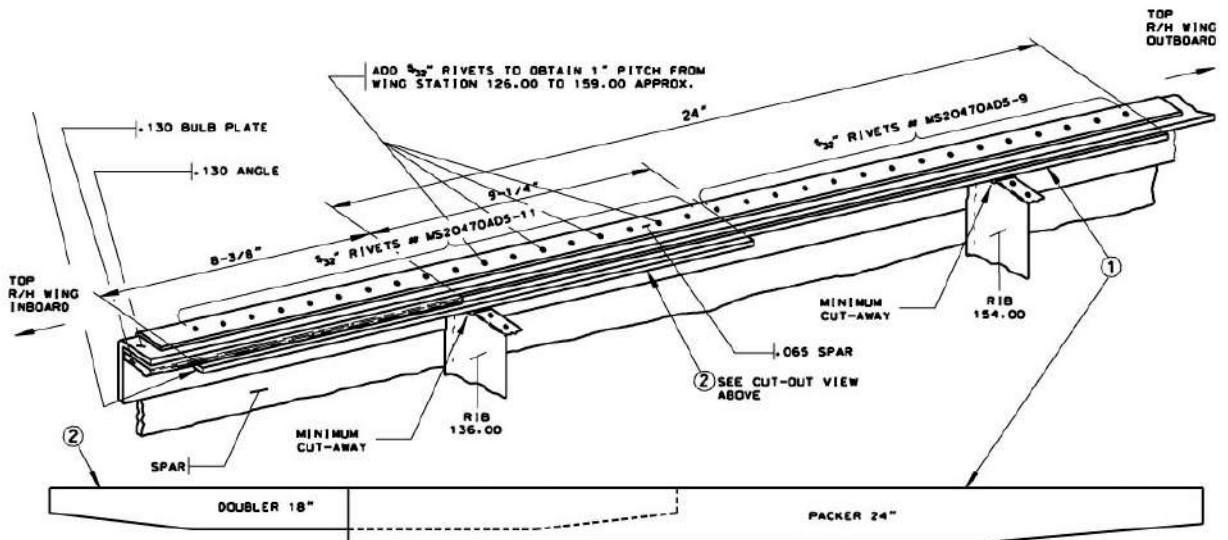


Fig. 4 Main Spar Upper Reinforcement

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4 WEIGHT AND BALANCE

The following typical weights are provided for reference only. USE ACTUAL MEASURED WEIGHTS

Item	Total Weight (lbs)	Arm (in. aft of datum)	Moment (in.lbs.)
<i>WingExtensions</i>	16	52	832

5 REQUIRED MARKINGS AND PLACARDS

The following placards must be installed in full view of the pilot when the *WingExtensions* are installed:

All MODELS:

**AEROBATIC MANEUVERS INCLUDING
SPINS PROHIBITED WITH WING
EXTENSIONS INSTALLED
OPERATE IN NORMAL CATEGORY**

MODELS 170A, 170B, 172, 172A THRU 172N,
P172D, 175, 175A THRU 175C, R172E THRU R172J,
R172K S/N R1722000 THRU R1723399:

**MAXIMUM FLAPS 30°
AT INCREASED GROSS WEIGHT
WITH WING EXTENSIONS**

Missing or damaged placards must be replaced. Replacement self-adhesive placards are available from Air Research Technology Inc.

For Cessna R172K, 172RG, 172R and 172S only, the airspeed indicator must be marked with a red radial line at 160 KIAS. If the airspeed indicator is replaced, or if this range marking is missing, refer to Air Research Technology Inc. Wing Extension and Spar Reinforcement Guide #172, Part VII for instrument marking instructions.

6 REPAIRS

Repairs to the sheet metal structure may be accomplished in accordance with AC 43.13-1B, Chapter 4, Section 4.

For parts, placards, or information contact Air Research Technology Inc. (See contact information on page 1.)

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7 AIRWORTHINESS LIMITATIONS SECTION

There are no Airworthiness Limitations introduced by this modification.

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required under any applicable airworthiness or operating rule, unless an alternative program has been approved by the Minister.

The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of Title 14 of the Code of Federal Regulations unless an alternative program has been FAA approved.