

Air Research Technology Inc.

Flight / Operating Manual Supplement NO:172

Cessna models; 170A,170B,172 all series, R172 all series and 175 all series.
as listed in Accordance with Transport Canada STC # SA _____
and or FAA issued STC # SA _____
when Fitted with ART "Wing Extensions"
Models # R1582, R1582-1, R1582-SS and R1582-1-CS

The information contained in this supplement supersedes that contained in the basic flight / operating manual for the airplane, otherwise the basic flight manual and appropriate supplements are applicable to the modified airplane. Compliance with Limitations Section 2 is mandatory.

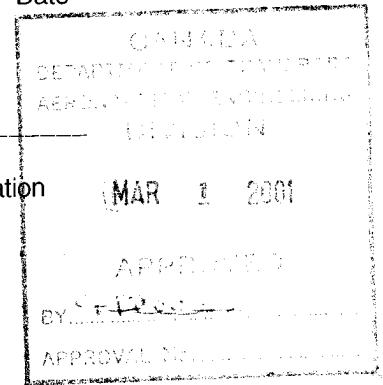
This supplement is to be attached to the approved Flight / Operating manual applicable to the specific airplane model .

DOT Approved _____

Date

(stamp)

Transport Canada Aviation



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Flight Manual supplement Log of Amendments

Cessna models 170A,170B, 172 series, R172 series and 175 series.
with A.R.T. "Wing Extensions " installed
Models R1582, R1582-1, R1582-SS and R1582-1-CS

Number	Date inserted	Signature	Effected pages	Approved by

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Section 1

GENERAL

Wing extensions are approved on all the models and series of airplanes listed in this Supplement. This modification permits an increase of the following limitations on some models ; Maximum Gross Take Off Weight (MGTOG) and Maximum Landing Weight (MLW).

Installation of the spar reinforcement kit is MANDATORY on all aircraft.

The GTOW / MLW increase applies only to airplanes which have been modified or previously fitted with engines of 180 HP or greater.

A.R.T. "*Wing Extensions* " increase the wingspan 37.75 inches providing a span of 39 ft. 4 inches and adding 12.4 square feet to the total wing area.

The all aluminum wing extension kit and all spar reinforcements may increase the basic empty weight of the aircraft by 18 lbs. at an average ARM of 46" in. aft of datum.

With wing extensions installed, aircraft must be operated as a Normal category airplane in compliance with the operating limitations as stated in the form of placards, markings and manuals.

Section 2

LIMITATIONS (Compliance is Mandatory)

With wing extensions installed, aircraft must be operated as a Normal Category airplane in compliance with the operating limitations as stated in the form of placards, markings and manuals.

AIRPEED LIMITATIONS

Cessna model R172K and 172RG :

With the Wing extensions installed Vne is reduced to 160 KIAS (184 Mph).

PLACARDS

(ALL cockpit placards must be installed in full view of the pilot)

All models and series 170, 172, 175 with wing extensions installed :

AIRPLANE MUST BE OPERATED IN THE NORMAL CATEGORY. NO AEROBATIC MANEUVERS INCLUDING SPINS APPROVED.

All models and series 170, 172, 175 with wing extensions installed :

WHEN OPERATING AT INCREASED GROSS WEIGHT, MAXIMUM FLAP 30°

Cessna model R172K and 172RG with wing extensions installed :

WITH WING EXTENSIONS INSTALLED, Vne = 160 KIAS (185 Mph).

WEIGHT LIMITATIONS

Cessna models :170A . 170B :

MGTOW / MLW 2,400 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna models Cessna 172, 172A and B :

MGTOW / MLW 2,400 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

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Section 2 (continued)
LIMITATIONS (Compliance is Mandatory)

WEIGHT LIMITATIONS

Cessna 172C :

MGTOW / MLW 2,450 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna 172D, E, F, G, H, I, K :

MGTOW / MLW 2,550 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna 172L, M, N, P, Q, R :

MGTOW / MLW 2,700 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna R172E, F, G, H, J, K :

MGTOW / MLW 2,700 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna R172RG :

MGTOW / MLW 2,700 lb. for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater.

Cessna 175, 175A, B, C and P172:

MGTOW / MLW for aircraft fitted with Lycoming O-360 engine or other engine rated at 180 HP or greater is 2,550 lb.

NOTE: The original certified weight limits apply for all aircraft not equipped with engine rated at 180 HP or greater.

Section 2 (continued)
LIMITATIONS (Compliance is Mandatory)

Normal Category Center of Gravity CG. Limits

Note : Fwd. CG limit moves aft linearly as weight increases.

Cessna models :170A , 170B and Cessna 172, 172A and B :

FWD CG : moves aft of datum linearly at all weights above 2,200 lbs.
to a limit of 42.8 inches at Gross weight of 2,400 Lb.

AFT CG: No change.

Cessna 172C :

FWD CG : moves aft of datum linearly at all weights above 2,250 lbs.
to a limit of 42.8 inches at Gross weight of 2,450 Lb.

AFT CG: No change.

Cessna 172D .E. F.G.H.I and K :

FWD CG : moves aft of datum linearly at all weights above 2,300 lbs.
to a limit of 40.7 inches at Gross weight of 2,550 Lb.

AFT CG: No change.

Cessna 172L,M and N:

FWD CG : moves aft of datum linearly at all weights above 2,300 lbs.
to a limit of 42.3 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Cessna 172P:

FWD CG : moves aft of datum linearly at all weights above 2,400 lbs.
to a limit of 42.3 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Section 2 (continued)
LIMITATIONS (Compliance is Mandatory)

Normal Category Center of Gravity CG. Limits

Cessna 172Q :

FWD CG : Moves aft of datum linearly at all weights above 2,558 lbs.
to a limit of 42.5 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Cessna 172R :

FWD CG : Moves aft of datum linearly at all weights above 2450 lbs.
to a limit of 42.5 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Cessna R172E and F :

FWD CG : Moves aft of datum linearly at all weights above 2,500 lbs.
to a limit of 42.5 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Cessna R172G.H.J and K :

FWD CG : Moves aft of datum linearly at all weights above 2,550 lbs.
to a limit of 42.5 inches at Gross weight of 2,700 Lb.

AFT CG: No change.

Cessna R172RG : (Landing Gear Extended)

FWD CG : Moves aft of datum linearly at all weights above 2,650 lbs.
to a limit of 39.8 inches at Gross weight of 2,700 Lb.
Moment change due to retracting landing gear +2424 in.lbs.

AFT CG: No change.

Section 2 (continued)
LIMITATIONS (Compliance is Mandatory)
Normal Category Center of Gravity CG. Limits

Cessna P172 :

FWD CG: Moves aft of datum linearly at all weights above 2,500 lbs.
to a limit of 43.5 inches at Gross weight of 2,550 Lb.

AFT CG: No change.

Cessna 175, 175A and B :

FWD CG: Moves aft of datum linearly at all weights above 2,350 lbs.
to a limit of 43.7 inches at Gross weight of 2,550 Lb.

AFT CG: No change.

Cessna 175C.

FWD CG: Moves aft of datum linearly at all weights above 2,450 lbs.
to a limit of 43.7 inches at Gross weight of 2,550 Lb.

AFT CG: No change.

Weight Limitation in seaplane configuration

Maximum Gross Weight may be further limited by the buoyancy of the installed floats. To determine the maximum allowable take off weight for specific floats;

< Divide the float size or rated buoyancy by 0.9 >

Example model Pee-Kay 2300 Floats:

Float size / rated buoyancy = 2,300 lb

Max. limit Weight on floats (2,300 divided by .9) = 2,555 Lbs.

Find max weight for model C-172M with O-360 engine

(refer to page 5) MGTOW = 2,700 Lbs.

To establish Max. takeoff weight on floats use the lower limit 2,550 Lbs.

Section 3

EMERGENCY PROCEDURES

-No change-

Section 4

NORMAL PROCEDURES

With Wing extensions installed , aircraft must be operated as a NORMAL CATEGORY airplane. All aerobatic maneuvers including spins are prohibited.

Normal operation at increased gross weight, maximum flaps 30°

Section 5

PERFORMANCE

Cruise Speeds

Cruise performance (non regulatory) was not assessed.

Stall Speeds

With the wing extensions installed, the stalling speeds at the higher approved gross weights are approximately the same as the basic aircraft stall speeds. Refer to the applicable Pilot Operating Handbook for each aircraft model.

END

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