

ASK 21 Flight Manual

IV. NORMAL OPERATION PROCEDURES

IV.1. COCKPIT AND OPERATING LEVERS

Front Seat:

- No.1. Stick.
- No.2. Trim; flat lever with green knob LH of stick.
- No.3. Rudder pedal adjustment; grey knob at the console.
- No.4. Airbrakes with wheelbrake; blue hand grip in the left arm rest.
- No.5. Release cable; yellow knob on the front left below the canopy frame.
- No.6. Canopy emergency jettisoning; horizontal lever with red flat knob above the instrument panel cover. To the left = "Open".
- No.7. Front canopy locking; white swivel levers on left & right canopy frame.
To open canopy: pull back both levers.
To lock canopy: push both levers forwards - parallel to the canopy frame.
- No.8. Ventilation nozzle; on right cockpit wall below canopy frame; adjustable and closable.
- No.9. Back rest; the back rest is adjustable by lifting it at the bottom upwards and forwards (see sketch). In normal flight attitudes the back rest cannot shift by itself. Very tall pilots may fly without the back rest.
- No.10. Trim indicator; in the right arm rest behind the ventilation nozzle.
- No.11. Detachable rudder hand lever at the left cockpit wall below the air brake grip (not figured); only applicable for mod TN no.25 dated 16.02.1993.

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IV.2 DAILY CHECKS

- 1.a) Open canopy! Check that the main pins are properly secured by the lock catches.
 - b) Check the proper connection of the ailerons and airbrakes through the access hole on the left side above the wing. Are the quick-release connectors secured with spring clips ?
 - c) Check for foreign bodies !
 - d) Check the control circuits force and that all controls are free-moving. Apply full deflections and load the control circuits with fixed controls and airbrakes. Check the plastic tubes inside the S-shaped tubes of the rudder pedals for proper and tight fit.
 - e) Check tire pressure:
Nose wheel 2.0 bar (28 psi)
Main wheel 2.7 bar (38 psi)
Tail wheel (if installed) 2.5 bar (35.6 psi).
 - f) The condition and function of the tow release mechanism is to be checked. Actuate the tow release: does it snap back freely ? Engage and disengage the ring pair. Check the automatic release of the C.G. towing hook with the ring pair which must release automatically backwards.
 - g) Check the wheel brake. Pull the air brake lever; at the end of its travel an elastic resistance must be felt.
 - h) Only in flight operation with the rudder hand lever: flanged bolt screwed in at the airbrake handle and secured? Rudder hand lever mounted and secured ?
- 2.a) Check upper & lower wing surface for damages!
 - b) Aileron: condition, freedom of movement, and play is to be checked ! Check also the push rod connection.
 - c) Airbrake: check condition, adjustment and good locking.
- 3.) Check the whole fuselage for damages, in particular the bottom side.
- 4.) Check that the tailplane is properly assembled and secured. Check also the pushrod connection. Secured by spring clips?

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Rudder Control System

The rudder is actuated by ϕ 3.2 mm LN 9374 cables. Both front and rear pedals are adjustable.

The rudder cables are running from a fixed point through S-type pedal loops to a perforated adjusting plate in the rear cockpit. Here are joined together the cables from the front and rear pedals. From the adjusting plate the cables run through nylon tubes to the rudder actuating bellcrank.

At the adjusting plate minor inaccuracies of cable length may be adjusted and also the pedal rake angle. The cables are held taut by springs at the pedals; at the rear pedals this spring serves simultaneously for holding down the adjusting stop.

For the adjustment of the cables at the adjusting plate the rear seat must be removed. The rudder stops are located at the back of the rudder.

The rudder bellcrank strikes the stop at the bearing bracket.

Only for the mod TN-no.25 dated 16.02.93:

From the adjusting plate in the rudder circuit (in the area of the rear seat) a cable runs at the left and right side to the rocker arm in front of the control stick; at the left side of the rocker arm a push rod leads to the rudder hand lever.

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Airbrakes

The airbrakes are actuated by push rods. On the left cockpit wall runs a connecting rod with a hand grip each for the front and rear cockpit. In the front cockpit the rod is running in a nylon guide, in the rear cockpit it is supported by a duralumin rocker arm. From this arm another push rod - placed under the arm - continues to a 90 ° duralumin bell-crank and runs below the rear spar tunnel wall.

The back of the spar tunnel wall features two rocker arms and the push rod which produces the counterclockwise travel of the actuating levers. By means of a HOTELLIER joint (M12.41) the push rods in the wing are connected to the actuating levers. They run through three ball bearing guides and lead to the airbrake toggle joint lever.

A short push rod leads to the inner airbrake lever which on the other hand is connected to the outer airbrake lever by a push rod so that synchronous movement is guaranteed.

Stop of the airbrake control: Brake cylinder.

Only for the mod TN-no.25 dated 16.02.93:

An unscrewable flanged bolt is fitted at the front air brake lever (secured by means of a spring clip); the bolt is engaging into a ratchet gate at the left cockpit wall. The push rod uses a spring loaded swivel joint so that the airbrakes can be engaged and disengaged through actuation from both the front and rear seat respectively.