# ASK 21 Flight Manual

# I.1 Amendments record

Rev.	Title	Page	Date
No.			Signature
1	weak link in towrope, TN-No. 6	12	15.04.82
2	weak link in towrope, TN-No. 8	12	16.05.83
3	Automatic elevator Connection, TN-No. 11	36 a, 36 b, Checklist /1	20.11.83
4	Modification of the Flight Manual, TN-No. 13	10 b	23.02.84
5	Amendment of the Flight Manual, TN-No. 13 a	10 c 10 b deleted	04.06.84
6	New canopy locking system, TN-No. 15	16 a, 17 a, 18 a & 19 a	08.06.84
7	Change / supplement to the Flight Manual, TN-No. 20	Checklist /1, 21, 36 a, 36 b & 37	03.11.87
8	New production series tow release couplings for aerotow and winch launch, TN-No. 21	Annex	17.08.90
9	Checking and exchange of the parallel rocker at the elevator actuator rod, TN-No. 22	36 b, 37 a, 37 b	26.11.90
10	Revision of the Flight Manual, TN-No. 23	13, 15, 25, 26	15.04.91
11	Rudder actuated by means of hand lever, TN-No. 25 (optional)	16a & 21	17.06.93
12	AD 93-001/2/3, L'Hotellier instructions for the maintenance, Rev. E 03/94	Annex	27.04.98

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### 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; <u>blue</u> hand grip in the left arm rest.
- No.5 Release cable; <u>vellow</u> knob on the front left below the canopy frame.
- No.6. Canopy emergency jettisoning; horizontal lever with <u>red</u> 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 <u>forwards</u> - parallel to the canopy frame.

- No.8. Ventilation nozzle; on right cockpit wall below canopy frame; adjustable and closable.
- rest: the back rest is adjustable by No.9. Back bottom liftina it at the upwards forwards (see sketch). In normal flight attitudes the back rest cannot shift bv itself. fly without the back Very tall pilots may rest.
- No.10. Trim indicator; in the right arm rest behind the ventilation nozzle.
- rudder hand lever the No.11. Detachable at below cockpit wall the air brake grip (not TN no.25 figured): only applicable for mod dated 16.02.1993.

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## ASK 21 Maintenance Manual

# Record of Revision

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Rev.	Title	Page	Date
No.			Signature
1	Installation of tail weel,	18 S, 47 S &	26.08.80
	TN-No. 2	48 S	J-5
2	Modification release cable fairlead,	43 a,	10.10,83
	TN-No. 10	43 deleted	J~
3	Automatic elevator Connection,	6 a, 7 a, 11 a,	09.03.84
	TN-No. 11	<u>40 a &amp; 47 .</u>	J=5
	Page 47 S and 48 S deleted,	6, 7, 11, 40 &	
	there are no pages 24 und 48!	47 deleted	
4	Amendment to the Manuals in English	56 a	28.05.84
	language, TN-No. 14	56 deleted	J=-5
5	New canopy locking system,	55 a & 56 b,	08.06.84
	TN-No. 15	55 & 56 a delet.	J=5
6	Change / supplement to the	40 a, 43 a,	03.11,87
	Maintenance Manual, TN-No. 20	43 b & 43 c	7=0
7	Amendment of the Maintenance	21, 25, 31,	01.10.92
	Manual, Inspection program to	43 c to 43 f,	7=,
	increase the service life, TN-No. 24	58 & Appendix	•
8	Rudder actuated by means of hand	13 & 15	17.06.93
	lever, TN-No. 25 (optional)		
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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 auto-

matic 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.
- 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  $\phi$  3.2 mm LN 9374 cables. Both front and rear pedals are adjustable.

The rudder cables are runnina from fixed point а through S-type pedal loops to a perforated adjustplate in the rear cockpit. Here are ioined aether the cables from the front and rear pedals. From the adiusting plate the cables run through nylon tubes to the rudder actuating bellcrank.

the adjusting plate minor inaccuracies of cable lenath mav be adiusted and also the pedal rake cables angle. The are held taut bv 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 adiusting 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 the in rudder circuit (in the area of the rear seat) a runs at the cable left and riaht side to the rocker arm in front of the control stick: at the left side of the rocker arm push rod leads to the rudder hand lever.

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### **Airbrakes**

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

back of the spar tunnel wall features rocker arms and the push rod which produces the counterclockwise travel of the actuating levers. Bv means of а HOTELLIER joint (M12.41) the push rods in the wina are connected the to actuating They run through three ball bearing auides to the airbrake toggle joint lever.

short push rod leads to the inner airbrake lever on the other hand is connected to the outer airbrake lever by push rod so that а synchronuous 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 bv means of spring clip); the bolt is engaging into а ratchet gate at left cockpit wall. The push rod uses а spring loaded swivel joint so that the airbrakes can be engaged and disengaged through actuation from both the front and rear seat respectively.

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